

**BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION**

**IN THE MATTER OF THE APPLICATION )  
OF PUBLIC SERVICE COMPANY OF NEW )  
MEXICO FOR APPROVAL OF THE )  
ABANDONMENT OF THE FOUR CORNERS )  
POWER PLANT AND ISSUANCE OF A )  
SECURITIZED FINANCING ORDER )  
)  
PUBLIC SERVICE COMPANY OF NEW )  
MEXICO, )  
)  
Applicant )  
\_\_\_\_\_ )**

**Case No. 21-00017-UT**

**SUPPLEMENTAL TESTIMONY  
OF  
THOMAS G. FALLGREN**

**March 15, 2021**

**NMPRC CASE NO. 21-00017-UT  
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PUBLIC SERVICE COMPANY OF NEW MEXICO**

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SELF-AFFIRMATION

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1

**I. INTRODUCTION AND PURPOSE**

2 **Q. PLEASE STATE YOUR NAME, POSITION AND BUSINESS ADDRESS.**

3 **A.** My name is Thomas G. Fallgren. I am Vice President of Generation for Public  
4 Service Company of New Mexico (“PNM”). My business address is 2401 Aztec  
5 Rd, NE, Albuquerque, New Mexico 87107.

6

7 **Q. HAVE YOU FILED PRIOR TESTIMONY IN THIS PROCEEDING?**

8 **A.** Yes, I filed Direct Testimony in support of PNM’s Application on January 8, 2021.

9

10 **Q. WHAT ARE THE KEY CONSIDERATIONS OF THIS CASE?**

11 **A.** There are three key considerations of this case that lead to net benefits and are in  
12 the public interest. These three elements include:

13 1) The ability for PNM to exit its ownership share of the Four Corners Power  
14 Plant (“FCPP” or “Four Corners”) early, providing for cost savings to PNM  
15 customers and reduced emissions associated with PNM’s generation  
16 portfolio;

17 2) The ability to achieve additional environmental benefits that serve the State  
18 of New Mexico and elsewhere through a reduction in emissions from the  
19 Four Corners plant through seasonal operation; and

20 3) The ability to add support to a just energy transition for the community  
21 surrounding Four Corners, especially the economically challenged Navajo  
22 Nation.

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1   **Q.   WHAT IS THE PURPOSE OF YOUR SUPPLEMENTAL TESTIMONY?**

2   **A.**   My supplemental testimony provides additional information as directed in the  
3           Hearing Examiner’s *Order of Sufficiency of PNM’s Application* (“February Order”)   
4           issued on February 26, 2021. Specifically, I supplement my direct testimony with  
5           additional detail and support for PNM’s request for approval of the proposed sale  
6           of its interests in Four Corners to the Navajo Energy Transitional Company, LLC  
7           (“NTEC”), pursuant to the November 1, 2020 Purchase and Sale Agreement  
8           (“NTEC Purchase Agreement” or “Agreement”). I detail how the proposed sale  
9           provides a net public benefit; relative to this issue, I address recent developments  
10          relating to an agreement in principle on a set of terms and conditions by the Four  
11          Corners owners to implement seasonal operations effective in the fall of 2023. The  
12          proposed PNM early exit facilitates this operational change, which is estimated to  
13          reduce carbon emissions from FCPP by 20% to 25%.

14  
15          I also provide factual support for the necessity and reasonableness of PNM’s capital  
16          investments in Four Corners from PNM’s 2016 Rate Case<sup>1</sup> as required in Item 1(a)  
17          of the February Order. Similarly, I provide additional factual support to confirm  
18          that the FCPP capital clearings that PNM is requesting as part of the abandonment  
19          cost to be included in the Financing Order satisfy the criteria under Section 62-18-  
20          2(H)(2)(d) as required in Item 2 of the February Order.

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<sup>1</sup> Case No. 16-00276-UT.

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1                   **II.     PNM’S EARLY EXIT FROM FOUR CORNERS**

2     **Q.     PLEASE SUMMARIZE PNM’S REASONS FOR SEEKING AN EARLY**  
3     **EXIT FROM FOUR CORNERS.**

4     **A.**     As outlined in my Direct Testimony on pages 10 and 11, PNM agreed to analyze  
5     the efficacy of PNM’s potential early exit from FCPP in 2024 and 2028 in PNM’s  
6     2020 Integrated Resource Plan. This agreement is part of the Modified Stipulation  
7     approved by the Commission in the 2016 Rate Case. To this end, PNM explored  
8     opportunities for an early exit and ultimately reached agreement with NTEC to  
9     assume PNM’s interests in FCPP. The proposed sale to NTEC absolves PNM  
10    customers from obligations for future ongoing costs for operating the plant (capital  
11    investments, operations and maintenance, and fuel supply) as of 2025 and forward.  
12    This proposed exit saves PNM’s customers money - \$30 million to \$300 million on  
13    a net present value basis. PNM is proposing this path because it benefits customers  
14    in terms of cost savings while also considering the impacts to the local community,  
15    including the Navajo Nation. Approval of the proposed sale to NTEC accomplishes  
16    this.

17  
18    **Q.     WHAT SCENARIOS DID PNM CONSIDER IN PURSUIT OF A**  
19    **POTENTIAL EARLY EXIT FROM FCPP?**

20    **A.**     PNM considered every reasonable option for an early exit. This included  
21    attempting to persuade the other owners to consider an early closure of Four  
22    Corners, including extensive discussions with Arizona Public Service Company

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1 (“APS”), the majority owner and operator of the plant. PNM also investigated a  
2 potential sale of PNM’s ownership share with third parties including each of the  
3 existing owners.

4

5 **Q. WHEN DID PNM HAVE DISCUSSIONS WITH THE OTHER OWNERS**  
6 **REGARDING A POSSIBLE EARLY CLOSURE OF FOUR CORNERS?**

7 **A.** PNM first initiated these discussions in mid-2018 and continued to periodically  
8 raise this option with the other owners, until the NTEC Purchase Agreement was  
9 signed in November 2020.

10

11 **Q. WHY DON’T THE OTHER OWNERS WISH TO PURSUE AN EARLY**  
12 **CLOSURE?**

13 **A.** The other owners have publicly stated that they need the firm capacity from Four  
14 Corners to meet their system loads. For them this need will continue through the  
15 end of the current contract terms in 2031. The differences in the FCPP owners’  
16 respective electrical systems and customer needs drive this divergent direction.

17

18 Arizona’s economy has recovered more quickly than New Mexico’s. Load  
19 increases in Arizona are projected to continue to rise approximately 2.5% annually.  
20 Both the Salt River Project Agricultural Improvement and Power District (“SRP”)  
21 and the APS systems are much larger than PNM’s system. Therefore, this increase  
22 results in the need for additional firm capacity of approximately 175 MW per year

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1           on the APS system alone. In addition, other baseload plants in APS’ and SRP’s  
2           systems have been shutting down. One such closure was the Navajo Generating  
3           Station which in turn has put immediate economic pressure on the Navajo Nation  
4           economy. In addition, APS is planning to close the Cholla coal plant in 2025.  
5           While each utility is planning to add significant amounts of battery capacity on their  
6           systems (i.e. APS planning to add between 1500 and 2,200 MW of battery by 2026),  
7           APS has stated that it would be problematic to replace additional needed baseload  
8           power in significant amounts in the relatively near term.<sup>2</sup> As shown in the APS  
9           2020 integrated resource plan (“IRP”), they expect a reliability need of over 6,000  
10          MW of capacity by 2035. For APS, an early closure of Four Corners would require  
11          970 MW of additional firm capacity during the same period of significant  
12          transitions and other resource additions on its system. In short, APS has concluded  
13          in their rebuttal testimony submitted to the Arizona Corporation Commission  
14          (“ACC”) in APS’s most recent rate case that this is simply too much too soon  
15          without jeopardizing system reliability.<sup>3</sup>  
16

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<sup>2</sup> PNM Exhibit TGF-2 (3-15-21 Supplemental), Case No. E-01345A-19-0236 Rejoinder Testimony of Brad Albert, pp. 7-8 (ACC Dec. 22, 2020).

<sup>3</sup> PNM Exhibit TGF-2 (3-15-21 Supplemental), Case No. E-01345A-19-0236 Rebuttal Testimony of Brad Albert, pp. 6-20 (ACC Nov. 6, 2020)



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1   **Q.   HAVE THE OTHER OWNERS MADE PUBLIC THEIR INTENTION TO**  
2   **OPERATE THE FOUR CORNERS POWER PLANT UNTIL 2031?**

3   **A.**   Yes. Each of the other owners – APS, SRP, and Tucson Electric Power Company  
4   (“TEP”) - indicated their intention to rely on FCPP through the remaining contract  
5   term to 2031. APS’s 2020 IRP filed on June 26, 2020, identifies three different  
6   portfolios that meet both their reliability and clean energy needs all of which  
7   include Four Corners continued operation through 2031 as a key part of those  
8   portfolios.<sup>4</sup> TEP’s 2020 IRP filed on June 26, 2020, indicates its intention to remain  
9   in Four Corners through 2031. SRP’s most recent IRP update completed in  
10   February 2021 noted the requirement of an agreement by all participating owners  
11   for an early closure of Four Corners and then stated their plans for exiting FCPP no  
12   later than the end of 2031. The most recent APS, SRP and TEP IRPs can be  
13   accessed at the following links:

14                   APS: [https://www.aps.com/en/About/Our-Company/Doing-Business-](https://www.aps.com/en/About/Our-Company/Doing-Business-with-Us/Resource-Planning)  
15                   [with-Us/Resource-Planning](https://www.aps.com/en/About/Our-Company/Doing-Business-with-Us/Resource-Planning)

16                   TEP: <https://www.tep.com/tep-2020-integrated-resource-plan/>

17                   SRP: <https://www.srpnet.com/electric/future.aspx>

18

19                   PNM Exhibit TGF-1 (3-15-21 Supplemental) contains relevant excerpts from the  
20                   APS 2020 IRP.

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<sup>4</sup> PNM Exhibit TGF-1 (3-15-21 Supplemental), APS IRP at pp. 13-17 (June 26, 2020).

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1 **Q. HAVE THE OTHER OWNERS' DISCUSSIONS IN PRIVATE BEEN ANY**  
2 **DIFFERENT THAN THEIR PUBLIC STATEMENTS?**

3 A. No. The other owners' discussions with PNM have remained consistent with their  
4 publicly stated positions – they intend to continue to rely on FCPP through 2031.

5

6 **Q. WHAT OTHER STATEMENTS HAS APS MADE THAT DEMONSTRATE**  
7 **IT IS UNLIKELY IT WILL CLOSE THE PLANT BEFORE 2031?**

8 A. APS witnesses have testified that APS is not prepared to close the plant before 2031  
9 in its pending rate case before the ACC in Case No. E-01345A-19-0236. Brad J.  
10 Albert, Vice President of Resource Management for APS, responded to claims by  
11 Sierra Club and others that FCPP should be retired early, and said that APS has  
12 examined early closure of FCPP and concluded that it would be costly and threaten  
13 APS's system reliability if FCPP was retired before 2031. Mr. Albert notes that all  
14 portfolios presented in APS's 2020 IRP retire FCPP in 2031. In addition, at the  
15 hearing in the APS rate case, the APS Chief Executive Officer, Jeff Guldner,  
16 testified as follows: "So I will state that our intent is to run that plant until 2031.  
17 We rely on it for both summertime capacity needs, as well as generation throughout  
18 the year."<sup>5</sup> Excerpts of the quoted sections from these testimonies are attached as  
19 PNM Exhibit TGF-2 (3-15-21 Supplemental).

20

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<sup>5</sup> PNM Exhibit TGF-2 (3-15-21 Supplemental), Case No. E-01345A-19-0236, Tr. Vol III, pp. 427, ln. 22-25.

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1   **Q.    WOULD DENIAL OF PNM’S APPLICATION FOR ABANDONMENT**  
2       **INCREASE THE LIKELIHOOD THAT FOUR CORNERS WOULD BE**  
3       **CLOSED EARLIER THAN 2031?**

4   **A.**   No. It would simply mean that PNM would have to stay in the plant until the  
5       expiration of the Four Corners Coal Sales Agreement (“FCPP CSA”) and FCPP  
6       operating agreement in 2031. The customer savings would be lost, along with other  
7       benefits associated with PNM’s early exit. These other benefits include: reduced  
8       emissions in PNM’s generation portfolio used to serve PNM customers starting in  
9       2025 and consistency with the Energy Transition Act policies favoring the  
10      accelerated transition away from coal using securitized financing. These customer-  
11      directed benefits also lead to other benefits in the form of strategic economic  
12      development possibilities for New Mexico communities; implementation of  
13      agreements that acknowledge the impact to the Navajo Nation of the Four Corners  
14      operational plans; and energy transition bond funding of state-administered  
15      economic development and transitional programs for locally impacted  
16      communities, especially the Navajo Nation.

17  
18      Denial of PNM’s application could also result in a possible termination of the  
19      seasonal operation agreement discussed later in my testimony, so the improved  
20      environmental conditions through reduction in the Four Corners plant emissions by  
21      20-25% by facilitating seasonal plant operations could also be lost.

22

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1 **Q. WHAT ARE YOUR CONCLUSIONS REGARDING A POSSIBLE EARLY**  
2 **CLOSURE OPTION AVAILABLE TO PNM AT THIS TIME?**

3 **A.** There are no credible early closure options available to PNM, and PNM has found  
4 no viable means for an early exit other than the NTEC Agreement and the proposed  
5 abandonment in this case.

6

7 **III. SALE AND TRANSFER OF FCPP TO NTEC**

8 **Q. WHAT DO YOU ADDRESS IN THIS SECTION OF YOUR**  
9 **SUPPLEMENTAL TESTIMONY?**

10 **A.** I provide additional factual support for PNM's proposed sale and transfer of its  
11 minority interest in FCPP to NTEC pursuant to Sections 62-6-12(A)(4) and 62-6-  
12 13 of the Public Utility Act. To that end, I highlight certain provisions of the NTEC  
13 Purchase Agreement. In the section that follows (Section IV) I also confirm that  
14 the proposed abandonment and sale of PNM's interest in FCPP to NTEC is in the  
15 public interest and provides a net public benefit as required for Commission  
16 approval.

17

18 **Q. HAVE YOU PROVIDED THE COMMISSION WITH AN EXECUTED**  
19 **COPY OF THE NTEC PURCHASE AGREEMENT?**

20 **A.** Yes, the NTEC Agreement, including all associated schedules, is Exhibit TGF-2 to  
21 my Direct Testimony that was filed with the Commission on January 8, 2021.

22

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1 **Q. HAVE YOU PROVIDED TESTIMONY CONCERNING THE MATERIAL**  
2 **TERMS OF THE NTEC PURCHASE AGREEMENT?**

3 **A.** Yes. I detailed the material terms of the NTEC Purchase Agreement on pages 10  
4 through 16 of my Direct Testimony.

5

6 **Q. PLEASE PROVIDE SOME BACKGROUND CONCERNING THE**  
7 **NEGOTIATIONS WITH NTEC.**

8 **A.** PNM began discussions with NTEC about PNM's potential sale of its interests in  
9 FCPP in mid-2018. At that time, NTEC was fully engaged in potential negotiations  
10 regarding the now closed Navajo Generating Station and, therefore, more detailed  
11 discussions did not occur until early 2019. Over the full year and half of  
12 negotiations, PNM and NTEC considered many potential proposals and options  
13 including a potential three-party sale. However, as the negotiations continued it  
14 became evident to both NTEC and PNM that a single bilateral transaction between  
15 them was the better approach for both parties. The negotiations culminated in the  
16 NTEC Purchase Agreement which was executed on November 1, 2020.

17

18 **Q. IS THE NTEC AGREEMENT THE RESULT OF GOOD FAITH AND**  
19 **ARMS' LENGTH NEGOTIATIONS?**

20 **A.** Yes. The negotiations took an extensive number of months with significant give-  
21 and-take between the parties. NTEC is an experienced and sophisticated purchaser  
22 – it already owns a 7% interest in FCPP that formerly belonged to El Paso Electric

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1 Company (“EPE”). NTEC also owns the Navajo Mine, which supplies the fuel for  
2 FCPP. NTEC is intimately familiar with Four Corners and knows exactly what it  
3 is buying,

4

5 **Q. PLEASE PROVIDE A SUMMARY OF THE MATERIAL TERMS OF THE**  
6 **NTEC PURCHASE AGREEMENT TO PROVIDE CONTEXT FOR YOUR**  
7 **ADDITIONAL DISCUSSION OF THE AGREEMENT.**

8 **A.** PNM is selling its entire 13% (200 MW) share of Four Corners to NTEC for \$1,  
9 effective December 31, 2024. As part of this transaction, PNM is also selling a  
10 limited portion of the associated Four Corners switchyard equipment necessary to  
11 transport the energy from Four Corners across the 500kV and 345kV switchyards.  
12 The specific assets that NTEC is acquiring from PNM are listed on Exhibit A to the  
13 NTEC Purchase Agreement, with some addition detail in Section 2.1 of the  
14 Agreement. Following the sale and transfer, NTEC will assume all on-going plant  
15 operating and capital requirements as detailed in Section 2.4 of the Agreement.  
16 This will relieve PNM and its customers from ongoing plant operating and capital  
17 expenses following the sale.

18

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1 **Q. IS PNM MAKING ANY WARRANTIES WITH RESPECT TO THE**  
2 **ASSETS THAT ARE BEING SOLD UNDER THE NTEC PURCHASE**  
3 **AGREEMENT?**

4 **A.** Apart from the standard types of representations and warranties in Section 4 of the  
5 NTEC Purchase Agreement for agreements of this nature, PNM is selling its  
6 interests in FCPP “as is” and with no warranties per Section 5.8 of the Agreement.

7  
8 **Q. IS PNM RETAINING ANY FCPP-RELATED ASSETS?**

9 **A.** Yes. PNM is retaining certain of the FCPP switchyard assets which are detailed in  
10 Schedule 2.2(a) and Exhibit B to the NTEC Purchase Agreement. The Four  
11 Corners switchyard, the San Juan switchyard, and the Shiprock switchyard work in  
12 concert with each other. PNM may utilize the Four Corners switchyard to deliver  
13 portions of the San Juan power, Palo Verde power, and other purchased power  
14 through this switchyard. It is important to retain those rights in the Four Corners  
15 switchyard to continue to facilitate those resource deliveries to serve PNM  
16 customers.

17  
18 **Q. WHY IS IT REASONABLE FOR NTEC TO PAY ONE DOLLAR FOR A 200**  
19 **MW OWNERSHIP INTEREST?**

20 **A.** It is reasonable for NTEC to pay \$1 for a number of reasons taken together. First,  
21 PNM was unable to find a willing buyer that would pay any, much less a significant  
22 amount of money, to purchase an interest in a long-lived generation facility with a

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1 firm fuel supply that ends in 2031, and with an already shortened planned life  
2 (APS's previous IRPs included plans to operate through 2038). Additionally, the  
3 restrictions in California regarding the use of coal generation to meet utility loads  
4 and the recent shut-down of other coal plants in the region have impacted regional  
5 market opportunities for merchant operations.

6  
7 Second, NTEC is willing to take the plant under "as-is" contractual terms. The  
8 agreement allows PNM to exit the plant without substantial penalties or contractual  
9 obligations that would not be possible if PNM did not have a willing buyer. The  
10 sale to NTEC also facilitates PNM's ability to terminate its obligations under the  
11 FCPP CSA without substantial penalties that might otherwise be the responsibility  
12 of customers if PNM remained in the plant. The FCPP CSA provides that the  
13 owners must pay substantial termination fees if the owners vote to cease operations  
14 before the expiration of the agreement in 2031.

15  
16 Finally, transferring PNM's ownership interest to an existing co-owner helps  
17 reduce uncertainty for the other owners over the financial capabilities of a new  
18 participant. It also allows for minimal disruption of ongoing participant agreements  
19 and operational practices.

20



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1 **Q. AS PART OF THE PROPOSED PURCHASE AND SALE OF FCPP AND**  
2 **THE RELATED SWITCHYARD EQUIPMENT, IS NTEC ASSUMING ANY**  
3 **RESPONSIBILITY FOR FUEL COSTS UNDER THE FCPP CSA?**

4 **A.** Yes. For a \$75 million payment, NTEC will assume all of PNM's obligations under  
5 the FCPP CSA pursuant to the Coal Supply Agreement Assignment, in the form  
6 attached as Exhibit H to the NTEC Purchase Agreement. Under Section 3.3 of the  
7 NTEC Purchase Agreement, PNM paid NTEC an initial refundable payment of \$15  
8 million at the time of the execution of the Agreement and will pay the balance of  
9 \$60 million following receipt of Commission approval in this proceeding. NTEC  
10 will also release PNM from further obligations under the FCPP CSA, pursuant to  
11 the Coal Supply Agreement Release attached as Exhibit G to the NTEC Purchase  
12 Agreement.

13  
14 **Q. ARE PNM'S CUSTOMERS RESPONSIBLE FOR ANY OF THE \$75**  
15 **MILLION PAYMENT BY PNM TO NTEC?**

16 **A.** No. As I detail on page 14 of my Direct Testimony, the shareholders of PNM  
17 Resources, Inc. are paying the entire \$75 million. Customers are benefiting from  
18 the payment because any further responsibility for payment of fuel costs will cease  
19 and the abandonment of FCPP will save customers money.

20

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1 **Q. AS PART OF THE AGREEMENT, IS NTEC ASSUMING ANY**  
2 **RESPONSIBILITY FOR PLANT DECOMMISSIONING OR COAL MINE**  
3 **RECLAMATION?**

4 **A.** No. As detailed in my Direct Testimony on pages 13 and 15-16, and 20 to 24, PNM  
5 retains responsibility for the Four Corners plant decommissioning and coal mine  
6 reclamation obligations. As also detailed in my Direct Testimony, PNM is not  
7 seeking rate recovery for any coal mine reclamation costs. PNM is seeking to  
8 recover the estimated plant decommissioning costs as part of the FCPP  
9 abandonment costs pursuant to the Energy Transition Act.

10

11 **Q. ARE THE PLANT DECOMMISSIONING COST NECESSARY AND**  
12 **REASONABLE?**

13 **A.** Yes. The Four Corners owners have always had a contractual requirement to fully  
14 complete all decommissioning obligations prior to the expiration of the Navajo  
15 Land Lease. PNM has always been obligated to pay its share of plant  
16 decommissioning costs since it first began serving customers. PNM customers  
17 have benefitted from energy provided by the Four Corners plant and these  
18 decommissioning liabilities are necessary and reasonable.

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1 **Q. IS COMMISSION APPROVAL OF PNM’S PROPOSED ABANDONMENT**  
2 **AND SALE OF ITS INTERESTS TO NTEC A CONDITION PRECEDENT**  
3 **TO CLOSING UNDER THE NTEC PURCHASE AGREEMENT?**

4 **A.** Yes. Under Section 9.3 of the NTEC Purchase Agreement receipt of all Regulatory  
5 Approvals is a condition precedent to closing on the transaction. The applicable  
6 Regulatory Approvals are set out in Schedules 1.1.63 and 1.1.73 of the Agreement  
7 and include receipt of a non-appealable final order from the Commission approving  
8 PNM’s abandonment of FCPP, and any requested financing or cost recovery  
9 method requested by PNM.

10  
11 **Q. WHAT OTHER REGULATORY APPROVALS MAY BE REQUIRED FOR**  
12 **THIS TRANSACTION BEFORE CLOSING?**

13 **A.** As listed on Schedules 1.1.63 and 1.1.73 of the Agreement, approvals by the  
14 Federal Energy Regulatory Commission (“FERC”) under Sections 203 and 205 of  
15 the Federal Power Act are included among the necessary regulatory approvals.  
16 NTEC may wish to seek certain exemptions from FERC related to the transmission  
17 facilities that are being sold and transferred. To the extent applicable, approvals  
18 for the transfer of environmental and other permits must be obtained prior to  
19 closing. The U.S. Department of Justice and the U.S. District Court must also  
20 consent to the transfer pursuant to an ongoing 2015 consent decree resolving certain  
21 alleged violations under the federal Clean Air Act relating to FCPP. Finally, it is

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1 possible that a review pursuant to the Hart-Scott-Rodino Antitrust Improvement  
2 Act will be required.

3

4 **IV. NET PUBLIC BENEFIT OF SALE AND TRANSFER TO NTEC**

5 **Q. DOES THE PROPOSED SALE OF FOUR CORNERS TO NTEC RESULT**  
6 **IN A NET PUBLIC BENEFIT?**

7 **A.** Yes it does, for many reasons, including savings to customers, increased flexibility  
8 on PNM's system, furtherance of PNM progress toward reducing its portfolio's  
9 emissions, a reduction in abandonment costs by using securitization, preserving a  
10 strong Navajo Nation voice in the plant's future, and the mitigation of adverse  
11 economic impacts to the local workforce and community. The proposed sale will  
12 also facilitate seasonal operations that will reduce emissions from the plant  
13 beginning in the fall of 2023.

14

15 **Q. PLEASE DESCRIBE THE CUSTOMER SAVINGS.**

16 **A.** In his Direct Testimony, PNM witness Nicholas L. Phillips confirms that PNM's  
17 abandonment and sale of its interests in FCPP will result in a net public benefit  
18 through significant cost savings to customers and by allowing PNM to deploy other  
19 resources that are capable of meeting the demand and energy requirements of  
20 PNM's customers at the lowest reasonable cost while reducing future carbon

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1 emissions from PNM’s generation portfolio used to serve retail customers.<sup>6</sup> The  
2 overall twenty-year savings to customer on a net present value basis is estimated to  
3 range from \$30 million to \$300 million.<sup>7</sup>

4  
5 PNM witness Baker provides an estimated range of revenue requirement reductions  
6 of between \$55.1 million and \$49.0 million for the first year (2025) as a result of  
7 the abandonment and sale of PNM’s interest in FCPP and its replacement with  
8 lower cost resources.<sup>8</sup> He also quantifies securitization savings pursuant to the ETA  
9 of approximately \$17.1 million.<sup>9</sup>

10  
11 PNM witness Michael J. Settlage provides examples of projected customer bill  
12 impacts (all other things held constant) that range from an increase of \$1.32 to a  
13 decrease of \$19.31 per month for Residential 1A customers, and an increase of  
14 \$2.89 to a decrease of \$133.12 per month for Small Power 2A customers. The  
15 estimated savings will depend on usage and the assumptions concerning the final  
16 composition of the replacement resources.<sup>10</sup> These estimates provide quantifiable  
17 customer cost savings which provide a net public benefit.

18

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<sup>6</sup> Phillips Direct, at 3.

<sup>7</sup> *Id.*

<sup>8</sup> Baker Direct, at 36, PNM Table MSB-7.

<sup>9</sup> *Id.*, at 4.

<sup>10</sup> Settlage Direct, at 24.

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1 **Q. HOW WILL APPROVAL OF THE SALE AND ABANDONMENT OF**  
2 **FOUR CORNERS RESULT IN ENHANCED FLEXIBILITY ON PNM'S**  
3 **SYSTEM AND BENEFIT CUSTOMERS?**

4 **A.** The sale and abandonment of FCPP will facilitate PNM's deployment of lower cost  
5 and more flexible resources on PNM's system. Flexible generation resources  
6 include combustion generation and energy storage technologies and are important  
7 reliability resources as PNM successfully deploys additional renewable resources.  
8 Reliability is a fundamental part of providing utility service to customers.

9

10 **Q. IN WHAT WAYS DOES THE SALE AND ABANDONMENT OF FCPP**  
11 **FURTHER THE INTERESTS OF THE ENERGY TRANSITION ACT?**

12 **A.** PNM witness Laura E. Sanchez establishes that PNM's exit from coal generation  
13 six-and-a-half years earlier than expected advances the public interest because it is  
14 consistent with PNM's long-term transition to achieving 100% carbon free  
15 generation provisions, while saving customers money in advance of the expected  
16 retirement date of the plant. Ms. Sanchez notes that the early exit from FCPP  
17 pursuant to the securitized financing provisions of the Energy Transition Act fulfills  
18 the statutory public interest directives of the Legislature to accelerate the departure  
19 from coal plants and to balance the impacts and benefits of the state's transition  
20 among customers, the environment, local communities, and shareholders.<sup>11</sup> Finally

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<sup>11</sup> Sanchez Direct, at 37.

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1 PNM's exit and transfer of its ownership shares to NTEC is a key element to  
2 accomplishing seasonal operation of Four Corners resulting in a 20-25% reduction  
3 in emission starting in 2023.

4  
5 **Q. PLEASE EXPLAIN HOW APPROVAL OF THE ABANDONMENT AND**  
6 **SALE OF FCPP RESPECTS THE INTERESTS OF THE NAVAJO**  
7 **NATION?**

8 **A.** NTEC is owned by and chartered through the Navajo Nation. By acquiring PNM's  
9 13% interest, NTEC will increase its minority interest in the plant to 20%. NTEC's  
10 acquisition of PNM's interest further contributes to NTEC's ability to participate  
11 in decisions impacting NTEC's and the Navajo Nation's interests. The Navajo  
12 Nation has made clear that it should have a powerful voice regarding the future of  
13 FCPP, which uses Navajo Nation sourced coal and is located on the Navajo Nation.

14  
15 The plant and the associated Navajo Mine are important economic drivers in the  
16 area and employ approximately 700 employees, over 600 of whom are Navajo  
17 Nation members. Royalties and taxes generated as a result of the sale of coal from  
18 the Navajo Mine total approximately \$40 million to \$45 million per year and  
19 accounted for more than 20% of Navajo Nation Fiscal Year 2021 General Fund  
20 Revenue. PNM's agreement with NTEC has resulted in a more transparent view  
21 of the other owners' resource plans.

22

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1 As discussed below, the Agreement, coupled with the subsequent agreement for  
2 seasonal operations, help to address the Navajo Nation’s seven recommendations  
3 for achieving a Just Energy Transition as outlined in President Nez’s January 24,  
4 2020 letter to the ACC regarding the TEP rate case.<sup>12</sup>

5

6 **Q. DOES THE ABANDONMENT AND SALE OF FCPP UNDER THE ETA**  
7 **ADD TO THESE BENEFITS?**

8 **A.** Yes. As detailed by PNM witness Sanchez, because the abandonment is being  
9 requested pursuant to the Energy Transition Act, the local community will benefit  
10 from an estimated \$16.5 million in funding to the Navajo Nation and its  
11 communities through state agency programs that are intended to assist in workforce  
12 transitions and economic development.<sup>13</sup>

13

14 **Q. IS IT APPROPRIATE TO CONSIDER THE NET PUBLIC BENEFIT OF**  
15 **THE PROPOSED SALE OF FCPP FROM PNM TO NTEC IN THE**  
16 **CONTEXT OF THE PLANT ABANDONMENT?**

17 **A.** Yes. As discussed by PNM witness Mark Fenton, the Commission has traditionally  
18 considered whether there is a net public benefit by considering a proposed sale and  
19 abandonment together. The sale and abandonment in this case are inextricably

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<sup>12</sup> <https://docket.images.azcc.gov/E000004596.pdf>

<sup>13</sup> Fallgren Direct, at 28-29.



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1 linked because the sale is the means by which an abandonment in 2024 is made  
2 possible.

3

4 **Q. IS PNM’S PROPOSED SALE AND TRANSFER OF ITS INTERESTS IN**  
5 **FCPP PURSUANT TO THE NTEC PURCHASE AGREEMENT**  
6 **UNLAWFUL IN ANY RESPECT?**

7 **A.** NTEC previously acquired EPE’s original 7% interest and there is no basis to  
8 believe that this similar transaction is in any way unlawful. I can also confirm that  
9 the NTEC Purchase Agreement was reviewed extensively by the lawyers for both  
10 PNM and NTEC. Under Sections 4.3(c) and 5.3(c) of the NTEC Purchase  
11 Agreement, PNM and NTEC, respectively, represent that neither the execution of  
12 the Agreement nor its consummation will “violate any law, rule, regulation, order,  
13 writ, injunction, or decree.” There has never been any indication or suggestion that  
14 anything about the NTEC Purchase Agreement is unlawful.

15

16 **Q. DOES THE NTEC PURCHASE AGREEMENT PRESENT AN**  
17 **IMPEDIMENT TO THE POTENTIAL EARLY CLOSURE OF FOUR**  
18 **CORNERS?**

19 **A.** No. Nothing in the NTEC Purchase Agreement would prevent the FCPP owners  
20 from negotiating an early closure of the plant, if that is what they want to do. Of  
21 course, as confirmed above, the other FCPP owners need the plant to serve their  
22 customers so they do not intend to close the plant early.

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1   **Q.   WHY ARE SOME INTERVENORS CONCERNED THAT THE NTEC**  
2       **PURCHASE AGREEMENT RESTRICTS ACTIONS THAT PNM CAN**  
3       **TAKE WITH RESPECT TO FCPP PRIOR THE CLOSING OF THE SALE**  
4       **TO NTEC?**

5   **A.**   Section 6.1(d) of the Agreement enumerates the requirements of PNM’s conduct  
6       pending closing. Section 6.1(d)(i) provides in general that prior to closing, PNM  
7       will not take actions unless otherwise authorized by NTEC, that would cause a  
8       Material Adverse Effect (as defined in Section 1.1.51) on FCPP or its ability to  
9       continue to operate. These types of restrictions are typical with respect to the  
10      purchase and sale of tangible and operating assets. Generally, a seller is restricted  
11      from taking actions that would harm or devalue the asset being acquired by the  
12      purchaser. One specific example of an action that would cause a Material Adverse  
13      Effect is for PNM to vote, while it is still an owner, to close or curtail FCPP  
14      operations prior to the end of the FCPP CSA in 2031. Some intervenors believe  
15      that this provision means that PNM will block a vote by the owners and therefore  
16      the plant cannot be closed prior to 2031; as a result, they are concerned that the  
17      proposed sale to NTEC is not in the public interest.

18

19   **Q.   HOW DO YOU RESPOND TO THE CONTENTION THAT THE**  
20       **PROVISION IN SECTION 6.1(d)(i) IS NOT IN THE PUBLIC INTEREST?**

21   **A.**   I disagree for three reasons: first because it is a reasonable commercial term, second  
22       it will not have the impact feared, and third because a vote during this time is highly

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1 speculative. This provision in the NTEC Purchase Agreement is completely  
2 reasonable under the terms of the proposed sale. PNM would breach its duty of  
3 good faith and fair dealing if it agrees to sell FCPP to NTEC and then immediately  
4 votes to curtail operations or close the plant without any input from NTEC.

5  
6 **Q. WHY DO YOU BELIEVE THIS PROVISION HAS NO IMPACT ON THE**  
7 **POTENTIAL EARLY CLOSURE OF FOUR CORNERS?**

8 **A.** The concerns of the intervenors appear premised upon the completely speculative  
9 notion that FCPP could be closed before the end of 2024 or when the proposed sale  
10 to NTEC is to close at the end of that year. Practically speaking, PNM would not  
11 vote to close FCPP prior to the end of 2024 because it needs the capacity and energy  
12 from the plant to serve customers and it will take the time between now and then to  
13 select, procure and obtain Commission approval for needed replacement resources.

14  
15 Equally important, there is no basis to believe that Section 6.1 would come into  
16 play as the result of the other owners voting to shut down the plant early, such that  
17 PNM's commitment to NTEC would act to somehow block or veto a proposed shut-  
18 down vote prior to PNM's early exit. As noted above, the other FCPP owners, and  
19 particularly APS, have indicated their unequivocal intentions to continue to operate  
20 FCPP through 2031 when the FCPP CSA and FCPP operating agreements expire.  
21 To speculate that this provision in the NTEC Agreement will have any impact on

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1 the operating life of Four Corners or is the reason the other owners cannot  
2 successfully close the plant early, is unfounded.

3

4 **Q. IF THE OTHER FCPP OWNERS CHANGED THEIR POSITION AND**  
5 **WANTED TO CLOSE THE PLANT EARLY, COULD NTEC WAIVE THIS**  
6 **SECTION 6.1(d)?**

7 **A.** In the very unlikely event the other FCPP owners wanted to vote to pursue an early  
8 closure of the plant, they could negotiate an early closure with NTEC and NTEC  
9 could waive this provision. I discuss a context in which this might arise after  
10 PNM's exit later in my testimony as it relates to a plan for seasonal operations. The  
11 importance of this point is that the early closure of Four Corners must be pursued  
12 in a manner that meets customer needs, environmental needs, and the needs of the  
13 local community. A vital element in the future of Four Corners is that the Navajo  
14 Nation independently, and through its enterprise corporation NTEC, must have a  
15 seat at the table for an early plant closure.

16

17 **Q. WHAT OWNERSHIP VOTE WOULD BE REQUIRED TO CLOSE FCPP**  
18 **BEFORE THE EXPIRATION OF THE FCPP CSA AND FCPP**  
19 **OPERATING AGREEMENTS?**

20 **A.** As indicated on pages 9, 11 and 17 of my Direct Testimony, early closure requires  
21 unanimous approval of all FCPP owners except NTEC. As I also discuss on pages  
22 16 and 17 of my Direct Testimony, there has been no unanimous vote to close FCPP

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1 early. PNM's discussions with other owners have not provided PNM with any  
2 reason to believe there is a likelihood of an affirmative unanimous vote to close the  
3 plant before PNM's exit. NTEC is restricted from voting on early plant closure and  
4 termination of the Coal Supply Agreement under Section 9.15 of the FCPP Co-  
5 Tenancy Agreement. This restriction is based on the understanding that NTEC  
6 would have a conflict of interest because it also serves as the supplier of fuel for  
7 the plant.

8  
9 **Q. DOES THE AGREEMENT CHANGE ANY NTEC VOTING RIGHTS**  
10 **RELATING TO THE POTENTIAL EARLY RETIREMENT OF FCPP?**

11 **A.** No. If the sale to NTEC is approved, its ownership interest in FCPP will increase  
12 to 20% from its current 7%. However, NTEC will still be restricted under Section  
13 9.15 of the Co-Tenancy Agreement from voting on any early closure of the plant.

14  
15 **Q. ARE THERE OTHER PROVISIONS OF THE NTEC PURCHASE**  
16 **AGREEMENT THAT INTERVENORS HAVE INDICATED ARE**  
17 **PROBLEMATIC?**

18 **A.** Another issue that has been identified as problematic stems not from what is in the  
19 Agreement, but what is not. Some intervenors have complained about the absence  
20 of any provision prohibiting NTEC from assigning its interest in FCPP to a third-  
21 party. As I understand their position, the concern is that NTEC will assign the PNM

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1 interest in FCPP to a third-party on condition that the third-party transferee would  
2 thereafter refuse to vote for an early closure of the plant.

3

4 **Q. PLEASE RESPOND TO THIS CONCERN.**

5 **A.** NTEC currently owns 7% of the plant and can already transfer its existing interest  
6 to a third party, subject to a right of first refusal by the other FCPP owners. The  
7 NTEC Purchase Agreement does not alter NTEC's rights concerning the sale or  
8 transfer of its interests in FCPP. If this is a risk, it is a risk regardless of the NTEC  
9 Purchase Agreement proposed by PNM.

10

11 Importantly, under the plan for seasonal operation discussed below, NTEC will  
12 agree not to transfer either PNM's 13% share or its existing 7% shares to a third  
13 party without the prior consent of the other owners. NTEC remains ineligible to  
14 vote regarding any early plant shutdown regardless and will not act to gain this  
15 ability indirectly. This concern therefore is not valid.

16

17 **Q. DO YOU DISAGREE THAT THE PUBLIC INTEREST WOULD ALSO BE**  
18 **SERVED BY THE EARLY SHUT DOWN OF FOUR CORNERS?**

19 **A.** I cannot speak to whether it would be in the public interest as that might apply for  
20 the other owners' customer and system needs; as a general proposition, however, I  
21 do not disagree that reducing carbon emissions is in the public interest. In fact,  
22 PNM is seeking approval to abandon and sell its interests in FCPP so that PNM

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1 will be completely divested from coal generation as of 2025 and will have  
2 significantly reduced its own portfolio's carbon footprint associated with serving  
3 its customers. The fact that PNM cannot force the plant to close early does not  
4 negate the public interest benefits created by exiting early and reducing emissions  
5 from retail customers' generation portfolio at a savings to customers. In addition,  
6 PNM's exit provides for the implementation of seasonal operation starting in 2023  
7 with an estimated overall plant emission reduction of 20-25% as discussed further  
8 below. Given where PNM stands, and in light of New Mexico's energy policy  
9 direction, exiting early from FCPP with financial and environmental benefits to its  
10 customers is in the public interest.

**V. FOUR CORNERS SEASONAL OPERATION**

13 **Q. PLEASE EXPLAIN THE DETAILS OF THE AGREEMENT FOR THE**  
14 **SEASONAL OPERATION OF FOUR CORNERS.**

15 **A.** Under seasonal operation, only a single FCPP unit will operate on a year-round  
16 basis. Both units will operate during the summer peak season from June through  
17 October when customer needs are the highest. Seasonal operation allows APS,  
18 SRP, and TEP more flexibility in operating the plant, while allowing NTEC access  
19 to its ownership share year-round. It is estimated that carbon emissions will be  
20 reduced 20-25%.

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1 **Q. WAS THE NEGOTIATION OF THE TERMS OF SEASONAL**  
2 **OPERATION AND PNM'S SALE CONTENTIOUS AMONG THE FOUR**  
3 **CORNERS OWNERS?**

4 **A** Yes. The dialogue among the owners is indicative of the complexity and  
5 seriousness of the issues. Each of the other owners has different challenges based  
6 on their resource needs, future forecasts, and other stakeholder needs. In addition,  
7 the potential impact to the Navajo Nation cannot be overstated. It speaks to the  
8 commitment of the participants that the agreement in principle addresses each of  
9 these critical needs. The agreement in principle: results in the waiver of the other  
10 owners' rights of first refusal for the NTEC Agreement; provides for operational  
11 flexibility needed by the remaining owners; reduces the impact to the environment  
12 through a 20-25% emission reduction; and provides for economic benefits to the  
13 local community through job retention, reasonable notification of early plant  
14 closure, and royalty preservation.

15

16 **Q. WAS PNM EVER OPPOSED TO PURSUING FCPP SEASONAL**  
17 **OPERATION?**

18 **A.** No. The idea of seasonal operation originated with PNM. While the owners  
19 (including PNM) did not always support each other's proposals for how to approach  
20 operational changes, the important consideration for this transition to seasonal  
21 operation was to ensure all participants' critical needs were properly addressed.  
22 The agreement in principle properly addresses these items. PNM's exit and sale of



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1 its ownership share to NTEC and the transition of the plant to seasonal operation in  
2 the interim complement and provide a path for the larger transition that better serves  
3 all parties.

4  
5 **Q. HAVE THE FCPP OWNERS FINALIZED ALL OF THE DETAILS FOR**  
6 **IMPLEMENTING SEASONAL OPERATIONS?**

7 **A.** No. However, the FCPP owners have reached an Agreement in Principle for  
8 seasonal operations, as indicated by the public media release by PNM and APS  
9 dated March 12, 2021, copies of which are attached as PNM Exhibit TGF-3 (3-15-  
10 21 Supplemental). It is anticipated that a final agreement for seasonal operation  
11 will be executed in April 2021.

12  
13 **Q. DOES THE AGREEMENT IN PRINCIPLE FOR SEASONAL**  
14 **OPERATIONS HAVE ANY IMPLICATIONS FOR THE NTEC**  
15 **PURCHASE AND SALE AGREEMENT?**

16 **A.** Yes, although the agreement in principle does not alter the NTEC Agreement.  
17 Rather, the failure of the PNM sale to NTEC may possibly result in termination of  
18 the seasonal operation agreement. The transfer of PNM shares to NTEC is a vital  
19 part of the seasonal operation as it allows NTEC a greater ownership stake that is  
20 necessary to cover the majority of the single unit minimum load requirements and,  
21 therefore, the seasonal operation plan relies on PNM exiting the plant. As part of  
22 the collaboration on negotiations, NTEC has agreed not to sell or assign the 13%

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1 FCPP interest it is acquiring from PNM nor will it sell or assign its existing 7%  
2 interest, without the approval of the other owners. In turn, the FCPP owners have  
3 agreed to waive their respective rights of first refusals with respect to the NTEC  
4 Purchase Agreement, to support PNM's exit from FCPP at the end of 2024, and to  
5 relieve PNM from its obligations under the FCPP CSA.

6  
7 **Q. WHAT IMPACT WOULD SEASONAL OPERATION HAVE ON AN**  
8 **EARLY SHUTDOWN NOTICE?**

9 **A.** The FCPP owners have agreed to increase the notice period for possible early  
10 shutdown of FCPP from two years to four years. The agreement for seasonal  
11 operation amends Section 20 of the FCPP CSA so the owners would not vote for a  
12 closure of Four Corners prior to January 1, 2027. While the FCPP owners agreed  
13 to provide four years notice for an early closure, they retain the right to give a three-  
14 year notice of early closure upon payment of \$100 million, and a two-year notice  
15 (the current length of the notice period) by paying \$200 million. This four-year  
16 notice is in alignment with the request of the Navajo Nation for adequate notice as  
17 outlined in President Nez's January 24, 2020 letter to the Arizona Corporation  
18 Commission regarding the TEP rate case which specifically states "The Nation  
19 recommends the ACC require utilities to provide a five-year advanced notice of  
20 any planned power plant closure."<sup>14</sup>.

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<sup>14</sup> <https://docket.images.azcc.gov/E000004596.pdf>

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1 **Q. WHY IS PNM ADDRESSING THIS SUBSEQUENT PROPOSED**  
2 **AGREEMENT FOR SEASONAL OPERATION AND THE AMENDMENT**  
3 **TO THE FCPP CSA NOTICE PROVISIONS IF THEY DO NOT CHANGE**  
4 **THE TERMS OF THE NTEC AGREEMENT TO SELL AND TRANSFER**  
5 **PNM'S FCPP INTERESTS FOR WHICH PNM IS SEEKING APPROVAL?**

6 **A.** PNM believes that this information demonstrates there will be added public benefits  
7 from approval PNM's sale of its interest in FCPP to NTEC. The agreement for  
8 seasonal operation facilitates the other owners' waiver of their rights of first refusal  
9 regarding the NTEC Agreement, and provide reduced emissions benefits from the  
10 plant starting in 2023. The agreement for seasonal operation does not change  
11 abandonment of FCPP by PNM or impair PNM's ability to serve its customers.

12

13 **VI. NECESSITY AND REASONABLENESS OF FCPP CAPITAL**  
14 **INVESTMENTS**

15 **Q. WHAT DO YOU ADDRESS IN THIS SECTION OF YOUR TESTIMONY?**

16 **A.** I support the necessity for and reasonableness of PNM's past and anticipated future  
17 capital investments in Four Corner through 2024. To that end, I present and support  
18 PNM's Four Corners capital investments over three time periods.

19

20 First, I address PNM's capital investments in Four Corners that were included in  
21 the rates set by the Commission in PNM's 2016 Rate Case, as required in Item 1(a)  
22 of the February Order. An itemization of the capital investments that cleared during

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1           the period between July 1, 2016, and December 31, 2018, are set forth in PNM  
2           Exhibit TGF-4 (3-15-21 Supplemental) and total \$131.3 million. This is the time  
3           period for the estimated Four Corners capital investments in the 2016 Rate Case.

4  
5           Second, I address PNM’s capital investments in Four Corners for the period from  
6           January 1, 2019, to June 30, 2020. An itemization of the actual capital investments  
7           that cleared during this period are set forth in PNM Exhibit TGF-5 (3-15-21  
8           Supplemental) and total \$23.0 million. PNM is seeking recovery for these  
9           investments through the requested financing order in this case pursuant to Section  
10          62-18-2(H)(2)(d) of the Energy Transition Act.

11  
12          Third, I address PNM estimated capital investments in Four Corners for the period  
13          from July 1, 2020 to December 31, 2024. Again, PNM is seeking recovery for these  
14          investments through the requested financing order in this case pursuant to Section  
15          62-18-2(H)(2)(d) of the Energy Transition Act. An itemization of the estimated  
16          capital clearings for these investments for this period is set forth in PNM Exhibit  
17          TGF-6 (3-15-21 Supplemental) and total \$73.0 million. I provide a line-by-line  
18          justification for these investments, together with detailed explanations, and confirm  
19          that these costs satisfy the criteria under Section 62-18-2(H)(2)(d) as required in  
20          Item 2 of the February Order.

21

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1 **Q. WERE THE TOTALS THAT ARE SHOWN ON THE FOREGOING**  
2 **EXHIBITS USED TO CALCULATE A PORTION OF THE**  
3 **UNDEPRECIATED INVESTMENTS IN FCPP FOR WHICH PNM IS**  
4 **SEEKING RECOVERY IN THE REQUESTED FINANCING ORDER?**

5 **A.** Yes. The total amounts of capital investments from each of these exhibits are  
6 shown in PNM Table TSB-1 in the testimony of PNM witness Baker who explains  
7 how the estimated FCPP undepreciated investment in December 2024 was  
8 calculated. As noted by PNM witness Baker in PNM Table TSB-1, in addition the  
9 capital investments in the exhibits I support, there are \$184.1 million of FCPP  
10 capital investments on PNM's books dating back to the period before June 30, 2016.

11

12 *A. Four Corners Capital Budget Process*

13 **Q. WHY IS IT NECESSARY FOR PNM AND THE OTHER OWNERS TO**  
14 **INCUR THE COSTS OF CAPITAL INVESTMENTS FOR FOUR**  
15 **CORNERS?**

16 **A.** The FCPP capital investments are a necessary part of plant operations and fall  
17 within three essential categories for plant operations: safety, regulatory compliance,  
18 and ensuring reliable service. For all projects that are necessary to continue reliable  
19 operations, an economic cost-benefit analysis is performed.

20

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1   **Q.   PLEASE ELABORATE ON THE THREE ESSENTIAL CATEGORIES FOR**  
2   **FCPP OPERATIONS.**

3   **A.**   The following provides details concerning the justifications for the three categories  
4   of capital investments that the owners are required to make at FCPP:

5

6    **Safety:** These capital investments in the plant and facilities are necessary to ensure  
7   the safety of the Four Corners employees throughout the operation of the plant, as  
8   well as to keep the plant in a safe operating condition. These investments are not  
9   discretionary and are a high priority in the capital budgeting and approval process.

10

11   **Regulatory Compliance:** These capital investments are necessary for Four  
12   Corners to remain in compliance with applicable statutory and regulatory  
13   requirements. A coal-fired power plant such as Four Corners is subject to myriad  
14   compliance and regulatory requirements including, by way of example,  
15   environmental, health and safety, and NERC requirements. Failure to meet these  
16   requirements can result in governmental penalties, and in extreme cases, cessation  
17   of operations. Like capital expenditures related to safety, these investments are not  
18   discretionary and are a high priority in the capital budgeting and approval process.

19

20   **Reliability:** These capital investments are necessary to continue reliable  
21   operations, which is critical to properly serving customers and to comply with

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1 Commission requirements for reliability. For all projects that are necessary to  
2 continue reliable operations, an economic cost-benefit analysis is performed.

3  
4 While FCPP the capital investments fall generally within the three categories  
5 identified above, it is very likely that a given project may fall within more than one  
6 category. For example, a project undertaken to comply with safety regulations may  
7 also fall within the more specific category of plant safety.

8  
9 **Q. HOW ARE CAPITAL PROJECTS SELECTED FOR THE FOUR**  
10 **CORNERS GENERATION FACILITIES?**

11 **A.** APS as the plant operating agent is responsible for selecting and proposing FCPP  
12 capital projects. PNM participates in a capital budgeting process at Four Corners  
13 as part of PNM's rights and obligations as a part owner of the plant, which PNM  
14 does not operate.

15  
16 **Q. PLEASE PROVIDE A SPECIFIC EXAMPLE OF HOW APS DETERMINES**  
17 **WHETHER PROJECTS REASONABLY SHOULD BE UNDERTAKEN.**

18 **A.** APS engages in what is referred to as a System Health Monitoring and Reporting  
19 Process as part of its program for monitoring and reporting on the FCPP plant  
20 operating health. The Monitoring and Reporting Process is used to identify short  
21 and long-term actions that are intended to achieve the reliability and availability of  
22 the plant. From this, APS develops and follows an Action Plan that serves as a

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1 roadmap for FCPP projects. APS has five focus areas for the overall system health  
2 of FCPP: Operational Performance; System Performance Monitoring; Maintenance  
3 and Material Condition; Life Cycle Management; and Environmental Compliance.  
4 APS uses this approach to create scorecards to prioritize projects that are critical  
5 for regulatory compliance, safety, and reliability. APS then develops annual  
6 budgets and project-specific budgets which are subject to the review and approval  
7 process.

8  
9 **Q. PLEASE DESCRIBE THE CAPITAL BUDGET PROCESS USED FOR**  
10 **FOUR CORNERS.**

11 **A.** APS adheres to a rigorous process to determine project prioritization, cost estimates  
12 and funding levels. APS presents the capital plan for Four Corners to the plant  
13 owners who then scrutinize the plans, seek information, and provide input on the  
14 proposed budget. The final annual capital budgets are then put to a vote by the  
15 owners and must be approved by an affirmative vote of participants owning at least  
16 75% of the capacity and at least 60% of the individual participants.

17  
18 **Q. CAN PNM VETO ANY PROPOSED CAPITAL EXPENDITURE FOR THE**  
19 **FOUR CORNERS COAL PLANT?**

20 **A.** No. As a minority owner in the plant, PNM does not have any power to veto a  
21 majority vote by the other FCPP owners.

22



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1 **Q. WHAT IS THE PROCESS FOR MONITORING CAPITAL**  
2 **EXPENDITURES AT FOUR CORNERS?**

3 **A.** Budget reviews are held at least monthly. The goal of these reviews is to monitor  
4 the plant expenditures to make sure that they are reasonable, necessary and within  
5 the expected amounts. Unforeseen circumstances can result in scope changes that  
6 can cause cost variances and lead to changes to work schedules. Appropriate efforts  
7 are made to help ensure that the project costs remain on target and within the overall  
8 budget. Owners are ultimately invoiced and responsible for actual project costs.

9

10 **Q. HOW DOES PNM ACCOUNT FOR AND TRACK THE FCPP CAPITAL**  
11 **INVESTMENTS?**

12 **A.** PNM aggregates multiple capital projects from Four Corners under a single  
13 Facilities Improvements umbrella or “blanket” project for accounting purposes,  
14 based on project information provided by the plant operator. Included in these Four  
15 Corners Facility Improvements capital blanket projects are multiple projects  
16 targeting reliability, safety, regulatory and environmental compliance that have  
17 been selected by APS and approved by the owners. These projects are reflected in  
18 the itemizations that are included in PNM Exhibit TGF-4 (3-15-21 Supplemental),  
19 PNM Exhibit TGF-5 (3-15-21 Supplemental) and PNM Exhibit TGF-6 (3-15-21  
20 Supplemental).

21

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1           **B.       2016 Rate Case Four Corners Capital Investments**

2           **Q.       PLEASE ADDRESS THE FCPP CAPITAL INVESTMENTS THAT WERE**  
3           **THE SUBJECT OF PNM’S 2016 RATE CASE.**

4           **A.**       PNM sought recovery for a total of \$148.7 million in estimated capital investments  
5           in FCPP for the period between July 1, 2016, and December 31, 2018, in the 2016  
6           Rate Case. As confirmed by PNM witness Baker, the actual capital clearings for  
7           the Four Corners investments during this period were \$131.3 million. Mr. Baker  
8           confirms that the \$131.3 million is the amount that is in his calculation of the  
9           undepreciated investments in FCPP for which PNM is seeking recovery through  
10          the financing order.

11

12          **Q.       IS THERE A SPECIFIC PROJECT THAT COMPRISES THE MAJORITY**  
13          **OF THE CAPITAL COSTS FOR THE PERIOD FROM JULY 1, 2016, TO**  
14          **DECEMBER 31, 2018?**

15          **A.**       Yes. The majority of these capital investments were attributable to a single project  
16          relating to the retrofit installation of selective catalytic reduction technology on  
17          FCPP Units 4 and 5 (“SCR Project”) in order to comply with the U.S.  
18          Environmental Protection Agency’s Regional Haze Rule. SCR is a post-  
19          combustion control technology which reduces NOx emissions. The EPA’s  
20          determinations for the Regional Haze Rule for Four Corner had two compliance  
21          alternatives for NOx emissions. The first alternative required a plant-wide BART

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1 emission limits on all five units. The second alternative required closing three units  
2 and installing the SCR Project on the remaining two units.

3  
4 This project accounts for \$88.7 of the \$131.3 million in capital investments.  
5 Because the SCR Project comprises the majority of the capital investments for this  
6 period, I am providing additional background on the need for and reasonableness  
7 of this investment.

8  
9 **Q. WAS THE INSTALLATION OF SCR ON FOUR CORNERS UNITS 4 AND**  
10 **5 APPROVED BY THE OWNERS?**

11 **A.** Yes. The installation of SCR was approved by the Four Corners owners at that  
12 time which included APS, PNM, SRP, TEP and 4CA. 4CA was an affiliate  
13 company of Pinnacle West, the parent of APS, that held the 7% of FCPP shares  
14 formerly owned by EPE until they were sold to NTEC.

15  
16 **Q. HAS THE INSTALLATION OF SCR ON FOUR CORNERS UNITS 4 AND**  
17 **5 BEEN COMPLETED AND IS THE SCR PROJECT OPERATIONAL AND**  
18 **PERFORMING AS INTENDED?**

19 **A.** Yes. The SCR Project has been completed and is operational. It ensures that FCPP  
20 is meeting the applicable standards under the Regional Haze Rule, pursuant to the  
21 compliance criteria set by the EPA.

22

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1 **Q. HOW DID APS ASSURE THAT THE COST FOR INSTALLING SCR WAS**  
2 **REASONABLE?**

3 **A.** APS used a competitive bid process to develop the estimated costs, and entered into  
4 an Engineering, Procurement and Construction contract with a firm experienced in  
5 SCR projects utilizing an “open-book” process to examine cost estimates and their  
6 bases before completing the contract.

7  
8 The owners, including PNM, followed the review and approval processes for the  
9 Four Corners SCR Project.

10  
11 **Q. WHAT WAS PNM’S ESTIMATED SHARE OF THE COST OF THE SCR**  
12 **PROJECT?**

13 **A.** As a 13% owner of Four Corners Units 4 and 5, PNM’s share of the actual SCR  
14 Project costs was approximately \$88.7 million, including AFUDC.

15  
16 **Q. IS PNM’S SHARE OF THE COSTS FOR THE FOUR CORNERS SCR**  
17 **PROJECT NECESSARY AND REASONABLE?**

18 **A.** Yes. PNM’s share of Four Corners is an existing and certificated base load resource  
19 and it is used to cost-effectively and reliably serve PNM’s customers. The SCR  
20 Project is required under EPA regulations and is necessary to remain in compliance  
21 with environmental mandates. The process that was used by APS for the  
22 engineering, procurement and construction of the SCR Project was reasonable and

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1 in accordance with industry standards, and the resulting costs of the project are also  
2 reasonable.

3

4 **Q. WHAT ARE THE DETAILS OF OTHER INDIVIDUAL PROJECTS THAT**  
5 **COMPRISE THE \$131.3 MILLION OF CAPITAL INVESTMENTS THAT**  
6 **CLEARED DURING JULY 1, 2016 TO DECEMBER 21, 2018?**

7 **A.** PNM Exhibit TGF-4 (3-15-21 Supplemental) includes a full listing of each of the  
8 capital investments that cleared during this time period. In the column with the  
9 heading “Justification” the primary necessity for each of the listed projects is  
10 described which fall into one of the three critical categories of safety, regulatory  
11 compliance, and reliability. Each individual project may have additional benefits  
12 in more than one of these categories. Also included in PNM Exhibit TGF-4 (3-15-  
13 21 Supplemental) are the individual project justifications documents provided by  
14 APS that provide additional details on the justification for each project. A  
15 significant portion of these costs were intended to support APS’s System Health  
16 Process.

17

18 **Q. PLEASE DESCRIBE THE SYSTEM HEALTH PROCESS AT FOUR**  
19 **CORNERS.**

20 **A.** The System Health Process analyzes the different process areas and systems at Four  
21 Corners. Subject matter experts (“SMEs”) or process teams were assigned to  
22 review and analyze the system’s performance and health based on equipment

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1 condition and performance parameters. The SME team reviewed and evaluated  
2 system issues including equipment reliability issues, forced outage related  
3 information, corrective maintenance history, work order backlog, vendor bulletins,  
4 etc. Based on this evaluation, the SME team assigns a health color (Green =  
5 acceptable, White = monitor, Yellow = marginal or Red = unacceptable) to the  
6 system. Systems or process areas with yellow or red colors require a system health  
7 plan designed to move the system back to white or green. The plan may include  
8 capital projects to address the system health. The Plant Health Committee conducts  
9 full evaluations annually while system colors and plans are evaluated at least  
10 quarterly.

11  
12 **Q. WERE THE CAPITAL IMPROVEMENTS DETAILED ON PNM EXHIBIT**  
13 **TGF-4 (3-15-21 SUPPLEMENTAL) NECESSARY FOR THE SAFE AND**  
14 **RELIABLE OPERATION OF FOUR CORNERS?**

15 **A.** Yes. These projects have been thoroughly vetted and approved by the Four Corners  
16 owners and were necessary for Four Corners to operate safely and reliably and in  
17 conformity with applicable regulatory requirements.

18  
19 **Q. ARE THE COSTS FOR THE CAPITAL IMPROVEMENTS DETAILED ON**  
20 **PNM EXHIBIT TGF-4 (3-15-21 SUPPLEMENTAL) REASONABLE?**

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1    **A.**    Yes.  The Four Corners owners provided the necessary oversight of the  
2           implementation of the capital projects listed on PNM Exhibit TGF-4 (3-15-21  
3           Supplemental).  This oversight ensures that the costs are reasonable.

4

5    **Q.**    **ONCE THE PROJECTS ON PNM EXHIBIT TGF-4 (3-15-21**  
6           **SUPPLEMENTAL) WERE APPROVED AND INCURRED BY THE FCPP**  
7           **OWNERS WAS PNM CONTRACTUALLY OBLIGATED TO PAY FOR**  
8           **ITS SHARE OF THESE INVESTMENTS?**

9    **A.**    Yes.  Under the FCPP operating agreement, PNM is responsible for paying for its  
10          proportional share of FCPP capital investments that are approved by the owners.

11

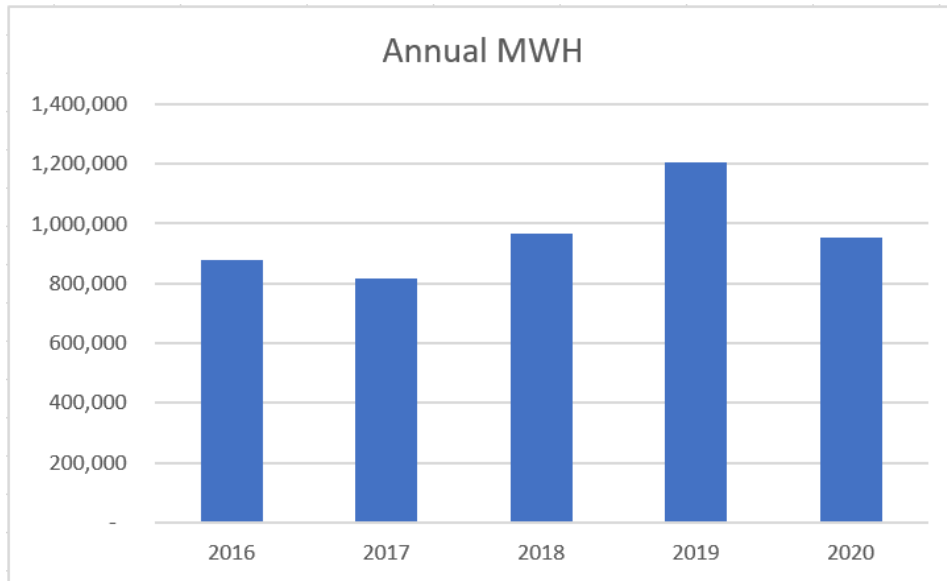
12   **Q.**    **HAVE PNM'S CUSTOMERS BENEFITED FROM THESE CAPITAL**  
13          **INVESTMENTS?**

14   **A.**    Yes.  FCPP has been a necessary and integral part of PNM's generation resources  
15          needed to serve customers.  As discussed above, these investments were both  
16          reasonable and necessary for the safe and reliable operation of FCPP.  Four Corners  
17          has been able to provide PNM's customers stable, firm baseload energy and  
18          capacity over for over 60 years.  Table TGF-1 shows PNM's share of the overall  
19          energy production at Four Corners since 2016.  In total, Four Corners has supplied  
20          PNM's customers with over 4.8 million MWh of energy.  This amounts to Four  
21          Corners serving approximately 10% of PNM customer total energy needs during  
22          this time period.

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1

**PNM Table TGF-1**



2

3

4

In addition, customer energy demand varies seasonally. In the summer months, when demand on the system is greatest, Four Corners continued to deliver a consistent production of energy. In 2019 Four Corners had a summer equivalent availability factor of 92.0% and in 2020 it had a summer equivalent availability factor of 86.5%. Four Corners has been a vital part of meeting our customers' energy needs. Four Corners serves a role in diversifying PNM's resource portfolio, and therefore has also been a critical part of providing for customer needs during extreme weather events such as those in California in the summer of 2020, and the polar vortex experienced in the Southwest in February 2021.

10

11

12

13



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1    **Q.    HAS THE COMMISSION RECENTLY NOTED ANY BENEFITS OF THE**  
2    **AVAILABILITY OF FCPP TO SERVE CUSTOMERS?**

3    **A.**    Yes. The Commission considered FCPP’s performance and its expected ability to  
4    serve customers in Case No. 19-00195-UT. As part of the replacement resource  
5    consideration for the San Juan coal plant, certain parties to Case No. 19-00195-UT  
6    asserted that improved availability of FCPP in recent years would help support the  
7    reliability of the replacement resource portfolio, indicating that potentially more  
8    renewable resources could be included in the portfolio. The portfolio approved by  
9    the Commission incorporated this FCPP assessment.

10  
11   **C.    *Four Corners Capital Investments for Period Between January 1, 2019 and***  
12   ***June 30, 2020***

13   **Q.    HAS PNM MADE ADDITIONAL INVESTMENTS IN FOUR CORNERS**  
14   **FOR THE PERIOD BETWEEN JANUARY 1, 2019 AND JUNE 30, 2020?**

15   **A.**    Yes. These investments are listed and detailed on PNM Exhibit TGF-5 (3-15-21  
16    Supplemental). Also included in PNM Exhibit TGF-5 (3-15-21 Supplemental) are  
17    the individual project justifications documents provided by APS that provide  
18    additional details on the justification for each project. The actual cost incurred by  
19    PNM for the listed projects is \$23.0 million in round numbers. In the column with  
20    the heading “Justification,” the reason for each of the listed projects is described.  
21    The projects during this time period were mainly typical normal equipment  
22    replacements necessary for the safe and reliable operation of the plant.

23

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1 **Q. WERE THE CAPITAL INVESTMENTS LISTED ON PNM EXHIBIT TGF-**  
2 **5 (3-15-21 SUPPLEMENTAL) DEVELOPED, REVIEWED AND SUBJECT**  
3 **TO OWNER OVERSIGHT USING THE SAME PROCESS DESCRIBED**  
4 **ABOVE?**

5 **A.** Yes, they were. These investments were subject to the oversight process and  
6 approved by the FCPP owners.

7

8 **Q. ARE THE CAPITAL IMPROVEMENTS DETAILED ON PNM EXHIBIT**  
9 **TGF-5 (3-15-21 SUPPLEMENTAL) NECESSARY FOR THE SAFE AND**  
10 **RELIABLE OPERATION OF FOUR CORNERS?**

11 **A.** Yes, they are. These projects have been thoroughly vetted and were approved as  
12 necessary for safe and reliable operations by the Four Corners owners.

13

14 **Q. ARE THE COSTS FOR THE CAPITAL IMPROVEMENTS DETAILED ON**  
15 **PNM EXHIBIT TGF-5 (3-15-21 SUPPLEMENTAL) REASONABLE?**

16 **A.** Yes. The Four Corners owners provided strict oversight of the implementation of  
17 the capital projects listed on PNM Exhibit TGF-5 (3-15-21 Supplemental). This  
18 oversight ensures that the costs are reasonable.

19

20 **Q. ONCE THE PROJECTS ON PNM EXHIBIT TGF-5 (3-15-21**  
21 **SUPPLEMENTAL) WERE APPROVED AND INCURRED BY THE FCPP**

**SUPPLEMENTAL TESTIMONY  
OF THOMAS G. FALLGREN  
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1           **OWNERS WAS PNM CONTRACTUALLY OBLIGATED TO PAY FOR**  
2           **ITS SHARE OF THESE INVESTMENTS?**

3   **A.**    Yes. Under the FCPP operating agreement, PNM is responsible for paying for its  
4           proportional share of FCPP capital investments.

5

6   **Q.**    **HAVE PNM’S CUSTOMERS BENEFITED FROM THESE CAPITAL**  
7           **INVESTMENTS?**

8   **A.**    Yes. FCPP has been a necessary and integral part of PNM’s generation resources  
9           needed to serve customers. FCPP has provided reliable and needed service during  
10          this period as shown in PNM Table TGF-1 above. The investments listed on PNM  
11          Exhibit TGF-5 (3-15-21 Supplemental) were both reasonable and necessary for the  
12          safe and reliable operation of FCPP.

13

14   **Q.**    **WHAT DOES SECTION 62-18-2(H)(2)(d) OF THE ENERGY TRANSITION**  
15          **ACT PROVIDE WITH RESPECT TO RECOVERY FOR**  
16          **UNDEPRECIATED CAPITAL INVESTMENTS IN A QUALIFYING**  
17          **GENERATING FACILITY INCURRED AFTER JANUARY 1, 2019?**

18   **A.**    This Section of the Energy Transition Act provides that a qualifying utility can  
19          recover “other undepreciated investments in a qualifying generating facility  
20          incurred to comply with law, whether established by statute, court decision or rule,  
21          or necessary to maintain the safe and reliable operation of the qualifying generating  
22          facility prior to the facility's abandonment” as an “energy transition cost.”

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1 **Q. DO THE INVESTMENTS LISTED ON PNM EXHIBIT TGF-5 (3-15-21**  
2 **SUPPLEMENTAL) MEET THE REQUIREMENTS UNDER SECTION 62-**  
3 **18-2(H)(2)(d)?**

4 **A.** Yes. As detailed in the referenced exhibit, these projects were necessary to  
5 maintain the safe and reliable operation of FCPP prior its abandonment. Based on  
6 the APS led project development process and the owner review and approval  
7 project, these capital investments qualify for recovery through a financing order  
8 under the Energy Transition Act.

9

10 **D. *Four Corners Capital Investments for Period Between July 1, 2020 and***  
11 ***December 31, 2024***

12 **Q. HAS PNM PREPARED A LISTING OF ESTIMATED CAPITAL**  
13 **INVESTMENTS FOR THE PERIOD FROM JULY 1, 2020, THROUGH**  
14 **DECEMBER 31, 2024?**

15 **A.** Yes. PNM Exhibit TGF-6 (3-15-21 Supplemental) includes a listing of the projects  
16 that comprise the estimated \$73.0 million in capital investments for the referenced  
17 period. Also included in PNM Exhibit TGF-6 (3-15-21 Supplemental) are  
18 individual project justifications documents provided by APS for those projects that  
19 have been presented for approval to the owners. Future project estimates were also  
20 provided by APS, and project documentation will be provided to PNM at the time  
21 of the project approval request. In the column with the heading “Justification” the  
22 necessity for each of the listed projects is described. The projects during this time

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1 period are again mainly typical normal equipment replacements necessary for the  
2 safe and reliable operation of the plant.

3  
4 **Q. HOW WERE THE ESTIMATED CAPITAL PROJECTS ON PNM**  
5 **EXHIBIT TGF-6 (3-15-21 SUPPLEMENTAL) DEVELOPED?**

6 **A.** The projects on this exhibit were developed using information and estimates  
7 provided by APS, based on the FCPP capital budget process described above.  
8 These projects will continue to go through the project review process to address  
9 variances that may arise as projects are undertaken. PNM will ultimately be  
10 invoiced and responsible for the actual costs of the projects that are completed. As  
11 discussed in the direct testimony of PNM Witness Baker, the proposed financing  
12 order provisions ensure that a true up between the estimated and actual amounts of  
13 the undepreciated investments at the time of PNM's exit and abandonment of  
14 FCPP.

15  
16 **Q. HAS PNM PROVIDED A LINE-BY-LINE JUSTIFICATION FOR THESE**  
17 **INVESTMENTS AS DIRECTED BY THE FEBRUARY ORDER?**

18 **A.** Yes. In the column with the heading "Justification" on PNM Exhibit TGF-6 (3-15-  
19 21 Supplemental) the reason for each of the listed projects is described. As part of  
20 this exhibit, PNM has included the available project justifications as provided by  
21 APS.

22

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1 **Q. IS PNM ALSO REQUIRED TO UNDERTAKE AND PAY FOR THE**  
2 **PROJECTS LISTED ON PNM EXHIBIT TGF-6 (3-15-21**  
3 **SUPPLEMENTAL) PURSUANT TO THE NTEC PURCHASE**  
4 **AGREEMENT?**

5 **A.** Yes. Under Section 6.1(d)(ii) of the NTEC Purchase Agreement, PNM is required  
6 to fund capital projects before PNM's exit as necessary for the plant's continued  
7 safe and reliable operation through 2024. Again, it is NTEC's agreement to acquire  
8 PNM's interests in FCPP that makes the abandonment of the plant by PNM at the  
9 end of 2024 economically feasible, in addition to PNM Resources, Inc. paying \$75  
10 million to address the costs under the FCPP CSA.

11

12 **Q. DO THE INVESTMENTS LISTED ON PNM EXHIBIT TGF-6 (3-15-21**  
13 **SUPPLEMENTAL) MEET THE REQUIREMENTS UNDER SECTION 62-**  
14 **18-2(H)(2)(d)?**

15 **A.** Yes. These projects are necessary to maintain the safe and reliable operation of  
16 FCPP prior its abandonment. Based on the APS led project development process  
17 and the owner review and approval process, these capital investments qualify for  
18 recovery through a financing order under the Energy Transition Act.

19

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**VII. SUMMARY AND CONCLUSIONS**

**Q. WHAT ARE YOUR CONCLUSIONS REGARDING THE ABANDONMENT OF FOUR CORNERS, THE SALE OF PNM'S OWNERSHIP SHARES.**

**A.** There are many stakeholder interests to fully consider in PNM's exit from Four Corners. The abandonment of Four Corners and sale of PNM's interest to NTEC results in a net public benefit. The underlying benefits from approving the requested abandonment and sale of FCPP include: cost savings for PNM customers; promotion of lower carbon resources in the generation portfolio used to serve PNM customers; furtherance of PNM's long term transition toward 100% carbon free energy policies under the Energy Transition Act which is leading to strategic economic development possibilities for New Mexico communities; implementation of agreements that provide for a stronger voice by the Navajo Nation in the plant operation; improved environmental conditions through reduction in the Four Corners plant emissions by 20-25% by facilitating seasonal plant operations; and funding of state-administered economic development and transitional programs for locally impacted communities, especially the Navajo Nation.

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1 **Q. WHAT ARE YOUR CONCLUSIONS REGARDING PRUDENCY OF**  
2 **CAPITAL INVESTMENTS AT FOUR CORNERS?**

3 **A.** The capital investment throughout the three time periods identified in the testimony  
4 were completed through a robust evaluation process. The completed projects were  
5 undertaken pursuant to a competitive procurement process. The existing projects  
6 were completed by professional project managers employed by APS, with periodic  
7 review by the FCPP owners. After PNM exits the plant, these same owners have  
8 plans to continue to operate the plant through 2031 and continue to make necessary  
9 capital investments utilizing the same processes. While PNM understands the  
10 desire of certain intervenors to accelerate a complete plant closure, PNM has  
11 identified a clear exit plan as requested and ordered; and PNM has provided  
12 evidence that the investments included in PNM's abandonment costs were  
13 reasonable and were prudently incurred. It is in the net public benefit to grant PNM  
14 petition in this case and move forward with PNM's exit from coal as so many  
15 parties seek.

16

17 **Q. DOES THIS CONCLUDE YOUR SUPPLEMENTAL TESTIMONY?**

18 **A.** Yes.

19

GCG#527783



2020

# INTEGRATED RESOURCE PLAN

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JUNE 2020 | FILED IN COMPLIANCE WITH A.A.C. R14-2-703

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## PORTFOLIO DEVELOPMENT

The APS clean energy commitment serves as the foundation of the 2020 IRP. We have an immediate opportunity to add clean resources while maintaining reliability. With nearly 3,000 MW of resource retirements, contract roll-offs and load growth ahead, we are projecting a need for approximately 6,000 MW of new, reliable replacement capacity.

While our clean energy commitment serves as the IRP's foundation, we could not have come this far without the collaboration of our stakeholders. Forging a new path at APS, we convened a group of stakeholders representing different corners of the utility landscape with the common goal of bringing clean, affordable energy to our customers. Beginning in 2018, we worked alongside these stakeholders to test a variety of portfolios and scenarios to build a collective path forward.

While the working group did not always fully agree on the best resource portfolio, we recognized that we could offer a menu of portfolios that still achieve our clean energy vision. The portfolios discussed here offer just that – a comparison of paths that all ultimately lead APS to delivering 100% clean, carbon-free and affordable electricity to our customers by 2050.

The immediate path ahead is clear: aggressively deploy renewable resources plus storage to replace coal capacity and meet load growth, supplement this clean capacity with additional renewable energy and continue to monitor and adopt advanced technologies, particularly long-duration storage, to reduce the role of natural gas in the portfolio as quickly as possible, consistent with affordability and reliability.

## PORTFOLIO DESCRIPTIONS AND HIGHLIGHTS

APS developed three portfolios for the 2020 IRP that meet both our reliability and clean energy needs over the Planning Period:

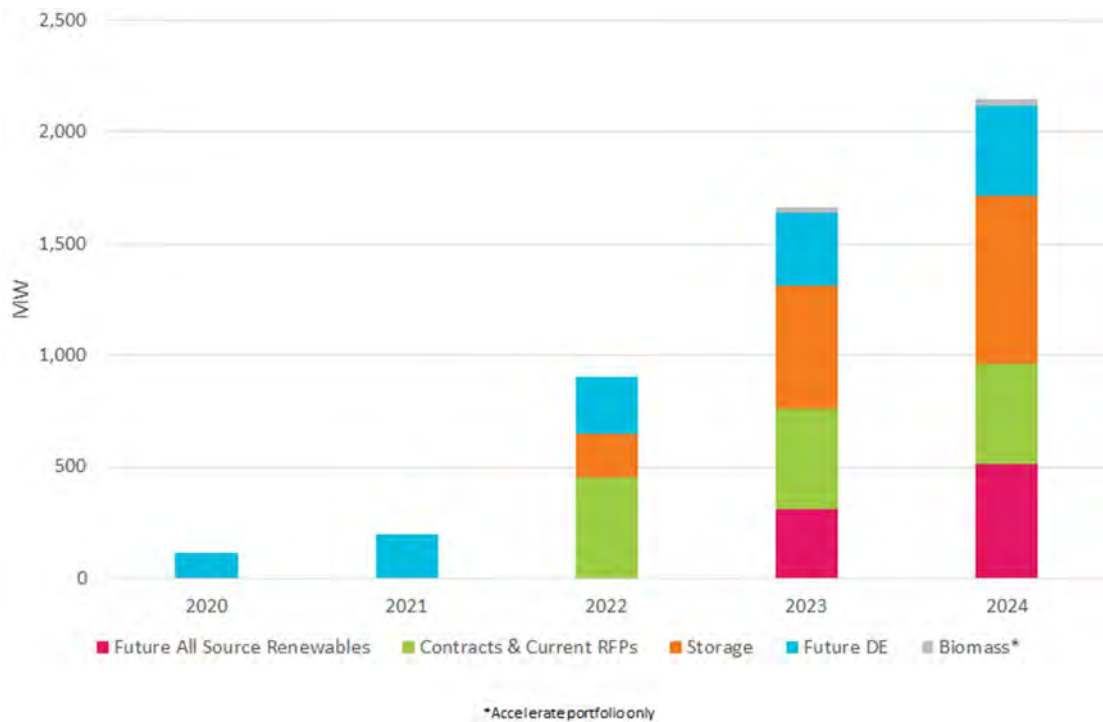
**Path 1 – Bridge:** Strong and focused, the Bridge portfolio provides APS with all the tools we have today and the ability to adopt all the tools of tomorrow. This portfolio starts with significant renewables plus storage. This portfolio also enables the opportunity to build hydrogen-ready, gas-fired generation and use the region's current fleet of merchant gas generators. The Bridge portfolio recognizes the importance of natural gas as a bridge fuel, allowing us to provide reliability and affordability while transitioning the portfolio to 100% clean. It also allows time for new technologies to mature and become affordable, allowing for a more diverse future portfolio.

**Path 2 – Shift:** Calculated and committed, the portfolio starts with additional renewables plus storage on top of that contained in the Bridge case. The Shift portfolio also moves APS away from natural gas more quickly by excluding any new natural gas generation. Purchase of regional merchant gas generation under PPAs will still be important to balance the trade-offs of affordability and reliability and allow future resource options time to develop. By maintaining current capacity levels, we can engage emerging technologies and integrate them onto our system through a paced approach.

**Path 3 – Accelerate:** Fast and ambitious, this portfolio will require an enormous procurement of renewable energy and energy storage to replace system capacity and maintain reliability. It does not allow for any new natural gas generation to be procured, either through new-build or PPAs, but allows for a more rapid approach to our clean energy goals. The reduction in resource options leads to a significantly larger amount of new resource additions to the portfolio to maintain reliability. This path would require the most vigilance in maintaining affordability for customers to ensure the pace and scale of investments remain aligned with the rate-setting processes.

When building the portfolios that reach our 2035 goals, we recognized that all three plans call for the same resources within the near-term Action Plan window. This struck us as significant because it indicates certainty in what our next steps must be to stay on course toward the goals in our clean energy commitment. As we set out to issue the RFPs to procure the next set of resources through 2024, we also know that technology and policy will change. As new technologies emerge and costs decline, we are committed to updating the assumptions of each portfolio above with a commitment to our customers to keep rates affordable, keep their lights on and to deliver increasingly cleaner energy until no carbon is left in our system.

**FIGURE ES-2. RENEWABLE AND RESOURCE ADDITIONS**



In developing the Action Plan additions for each portfolio, we recognize the need to make rapid progress by adding renewables and clean energy to achieve our goals while maintaining system reliability. The addition of renewables and energy storage to our system is projected to meet those requirements while maintaining affordability for our customers and moving toward a lower-carbon future. All three plans employ almost identical near-term additions during the Action Plan window and are summarized in Figure ES-2<sup>3</sup>.

As shown in Figure ES-2, the pace of resource additions is significant and necessary to meet our interim 45% renewable and 65% clean goals by 2030. This will require APS to issue several all-source RFPs, the first to be announced later in 2020, that will provide the clean energy and capacity our system requires. The pace of resource additions will ultimately be dictated by our resource needs and future RFPs as we determine which resource technologies and costs provide the most affordable solution for our customers, while maintaining reliability and capacity obligations. The scale of additions within the Action Plan shown in Table ES-1 could vary somewhat based on resources selected through the all-source RFP process; however, our clean and renewable energy targets will guide us in our resource selections.

<sup>3</sup> Per footnote 1, only the Accelerate portfolio includes biomass (see Chapter 7 for more details). All portfolios include a 6 MW microgrid

### Remainder of Planning Period (2025-2035)

Over the remainder of the planning period, 2025 and beyond, we will meet our renewable energy targets and remove all coal from the generation portfolio. The three portfolios developed for this IRP vary in their pace of renewable and energy storage resource additions as described below. Due to the diminishing ability of renewables and energy storage to meet our capacity and reliability requirements, the Shift and Accelerate portfolios require nearly 2,500 MW and 7,500 MW more nameplate capacity than the Bridge portfolio, respectively, to reliably meet our peak load conditions. All portfolios provide carbon reductions in line with levels required to achieve our carbon-free target by 2050. Table ES-2 shows the 2025-2035 additions used to evaluate the remainder of the planning period.

**TABLE ES-2. RESOURCE ADDITIONS: FUTURE RESOURCES (2025-2035)**

2025-2035 ADDITIONS (MW)	PATH 1 BRIDGE PORTFOLIO	PATH 2 SHIFT PORTFOLIO	PATH 3 ACCELERATE PORTFOLIO
Demand Side Management	1,027	1,027	1,027
Demand Response	500	550	600
Distributed Energy	1,177	1,177	1,177
Renewable Energy	5,488	6,988	9,388
Energy Storage	4,100	5,750	9,800
Merchant PPA / Hydrogen-ready CTs	1,859	1,135	0
Microgrid	125	125	0
<b>Total</b>	<b>14,276</b>	<b>16,752</b>	<b>21,992</b>

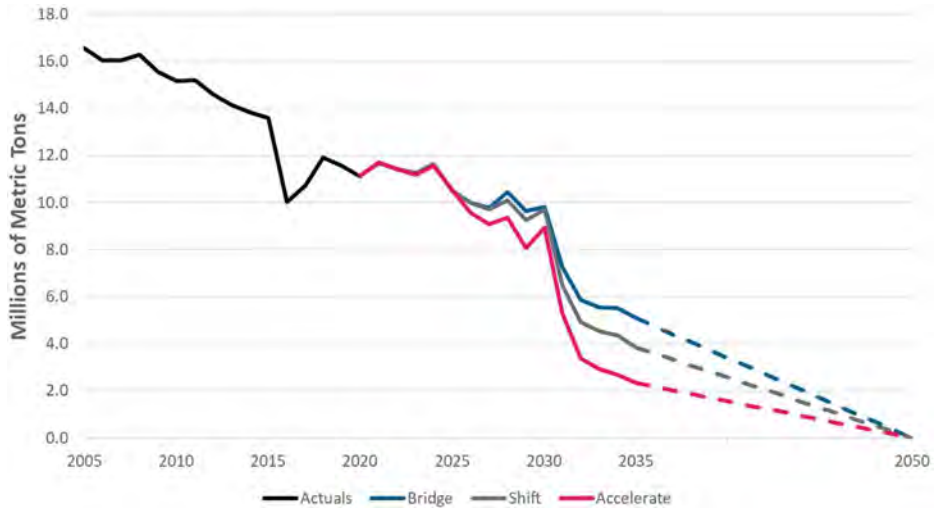
Finally, Table ES-3 presents the APS generation portfolio additions in their entirety by path through 2035, which includes all projected additions to the APS system over the entire IRP evaluation period. Note that these totals will be evaluated and updated through future Action Plan updates and IRPs. A trend that became apparent in our portfolio development was that an increasing quantity of renewable energy and energy storage would be necessary to displace each megawatt of natural gas. This is due, in a large part, to the limits of energy storage technology and costs today. While energy storage has become a competitive peaking resource, the current technology available is not as effective at managing longer durations. The industry recognizes this challenge, and longer-duration energy storage is currently being developed. As such, the future of storage technology will be critically important to our success as we reach our clean energy goals.

**TABLE ES-3. RESOURCE ADDITIONS: FUTURE RESOURCES (2020-2035)**

2025-2035 ADDITIONS (MW)	PATH 1 BRIDGE PORTFOLIO	PATH 2 SHIFT PORTFOLIO	PATH 3 ACCELERATE PORTFOLIO
Demand Side Management	1,602	1,602	1,602
Demand Response	693	743	793
Distributed Energy	1,585	1,585	1,585
Renewable Energy	6,450	7,950	10,375
Energy Storage	4,850	6,500	10,550
Merchant PPA / Hydrogen-ready CTs	1,859	1,135	0
Microgrid	131	131	6
<b>Total</b>	<b>17,170</b>	<b>19,646</b>	<b>24,911</b>

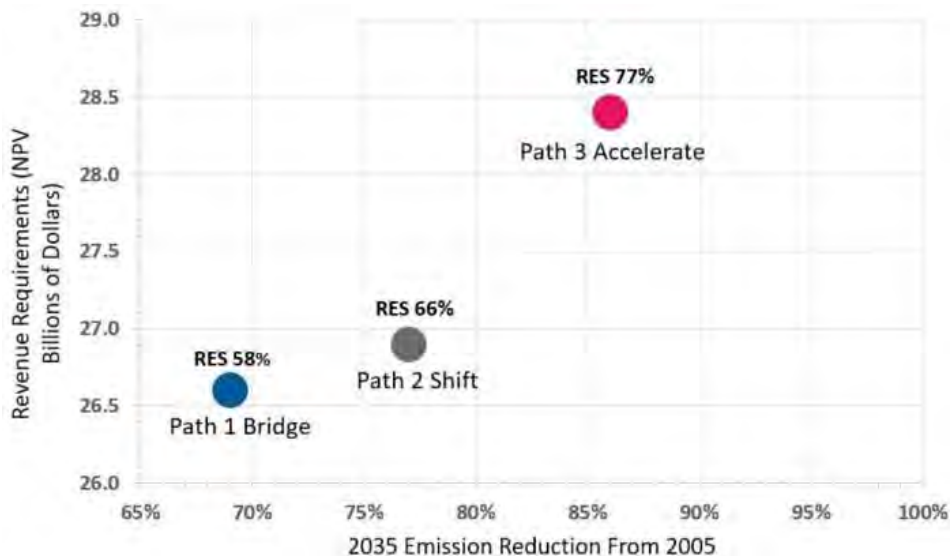
In addition to the resource differences in Table ES-3, our 2030 clean and renewable interim targets guide us to our long-term goal of 100% clean and zero carbon emissions. Depending on which path we follow, Figure ES-3 shows how our carbon trajectory may look over the next 30 years, with all paths leading to 100% clean, carbon-free electricity by 2050.

**FIGURE ES-3. CARBON REDUCTION TRAJECTORY**



There are many trade-offs and considerations in the analysis of portfolios, and one of the most important trade-offs is between the cost of the portfolios and the amount of carbon reduction achieved. That trade-off is summarized in Figure ES-4, which demonstrates that costs increase with a move from the Bridge to Shift portfolio and increases more rapidly when moving from the Shift to Accelerate portfolio. Energy storage and renewables begin to show diminishing returns to carbon reductions when we exceed a 60%-70% RES. The results suggest that as we approach high levels of renewable energy and energy storage on our system, advances in long-duration energy storage technology and cost reductions will become increasingly critical to helping us meet our clean energy and affordability goals. As more information becomes available and the Planning Period turns into the Action Plan window, we expect to update these trade-offs.

**FIGURE ES-4. PORTFOLIO COST AND CO2 EMISSION REDUCTION**



## PORTFOLIO COMPARISONS

We have not selected a single portfolio, but rather focus on several paths that could enable us to achieve our clean energy goals while maintaining flexibility in how we get there. Importantly, these portfolios all require similar commitments through the immediate (2020-2024) Action Plan window to move us toward our future goals. The portfolios presented are not intended to be prescriptive; rather, they demonstrate we can take our first steps in the Action Plan while maintaining flexibility in how we select clean energy resources in order to preserve affordability and reliability for our customers.

Our plan overall is premised on the ability to safely and economically deploy large amounts of energy storage so that we can provide as much of the needed capacity as possible through a combination of renewable resources and storage. Though deployment of storage at this scale – at least 2,500 MW of storage capacity in the next decade – has not yet been demonstrated, we believe it is likely feasible and reasonable to reflect in our plans. In the Action Plan window through 2024, we plan to add 750 MW of storage capacity in order to meet our customers' peak demands.

As we approach 2030, we plan to deploy at least an additional 1,750 MW of storage resources to meet peak summer demand. These assets will provide the backbone of replacement capacity and energy as we look to exit coal completely by 2031.

During this time frame, we also will aggressively employ DSM programs tailored to high-value opportunities, such as shifting customers' power consumption into the midday peak solar hours and reducing use during the peak demand hours on our system to save customers money and reduce our need for additional system peak demand resources.

Renewables, energy storage and DSM are at the core of our plans to move toward a clean energy future. However, we don't know with certainty what the cost, safety and performance of energy storage technologies are going to be as we move forward. We have made assumptions in this IRP that may either prove to be too ambitious or not nearly ambitious enough. Therefore, we have developed the following portfolios as alternative paths that will evolve over time as we learn more about these technologies. It is in this light that we have provided three plans to illustrate the paths that APS may need to take to get to a clean energy future based on those uncertainties. Again, it is important to note that these three portfolios all share the same actions during the 2020-2024 Action Plan window. Table ES-4 contains a summary of the portfolios analyzed for this plan.

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**REBUTTAL TESTIMONY OF BRAD J. ALBERT**  
**On Behalf of Arizona Public Service Company**  
**Docket No. E-01345A-19-0236**

November 6, 2020

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1                                   **REBUTTAL TESTIMONY OF BRAD J. ALBERT**  
2                                   **ON BEHALF OF ARIZONA PUBLIC SERVICE COMPANY**  
  **(Docket No. E-01345A-19-0236)**

3 I.    INTRODUCTION

4 **Q.    PLEASE STATE YOUR NAME, POSITION, AND BUSINESS ADDRESS.**

5 A.    My name is Brad Albert. I am the Vice President of Resource Management at  
6        Arizona Public Service Company (APS or Company). My business address is 400  
7        North 5th Street, Phoenix, Arizona 85004.

8 **Q.    DID YOU PREVIOUSLY FILE TESTIMONY IN THIS MATTER?**

9 A.    Yes, I presented Direct Testimony in this case.

10 **Q.    WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?**

11 A.    I respond to issues raised in the filed testimony of intervenors in this case related  
12        to my Direct Testimony. While I may not address every detail related to  
13        intervenors' recommendations, it should not be interpreted that I agree with each  
14        position unless specifically stated within my testimony. I also respond to the  
15        resource planning aspects of questions raised by Chairman Burns in his letters  
16        dated August 11 and September 1, 2020 related to Four Corners retirement  
17        scenarios.

18 II.   SUMMARY

19 **Q.    PLEASE SUMMARIZE YOUR REBUTTAL TESTIMONY.**

20 A.    Citizen Groups and Sierra Club make a number of comments and recommendations  
21        on the on-going operation of Four Corners. I address the flaws in their analysis, the  
22        biggest of which is a failure to adequately address system reliability. Additionally,  
23        lessons learned from the heat storm of this last summer further discredit the  
24        analysis behind their recommendations. Some of those same lessons can be used  
25        to show what is meant by resource adequacy, and why the current AG-X program,  
26        while in compliance with all the rules for the program, does not provide it.

27  
28

1 APS has analyzed different Four Corners scenarios in its recent Integrated  
2 Resource Plans (IRPs), and most recently in a response letter to Chairman Burns.  
3 I will discuss the relevant portions of that letter and how it can shed additional light  
4 when discussing the future of the plant.

5  
6 APS's time-of-use (TOU) hours of 3 p.m. to 8 p.m. window are appropriate. That  
7 window is supported by APS's load shape now and provides the correct price signal  
8 to defer or eliminate the needs for some investments in the future.

9  
10 Later in my testimony, data will show that the solar market in APS's service  
11 territory remains robust under the resource comparison proxy (RCP) construct. For  
12 that reason, and to continue the Commission's decision to decrease the cost shift  
13 to non-solar customers over time, the Company maintains its original proposal to  
14 keep the annual RCP step-downs.

15  
16 I also defend APS's avoided cost calculation for rooftop solar exports but agree  
17 with Staff witness Phillip Metzger that it is not necessary for the Commission to  
18 make a decision on that in this rate case.

19  
20 Lastly, I briefly discuss the Ocotillo Modernization Project (OMP), including the  
21 integral role it played in reliability this last summer.

22 **III. FOUR CORNERS RETIREMENT**

23 **A. *Intervenor Analysis***

24 **Q. DID ANY OF THE INTERVENORS FILE TESTIMONY RELATING TO**  
25 **FOUR CORNERS RETIREMENT?**

26 **A.** Yes. Citizen Groups witnesses Mike Eisenfeld and David Schlissel, and Sierra  
27 Club witness Tyler Comings filed testimony addressing the potential retirement of  
28 Four Corners.

1 **Q. GENERALLY, WHAT IS THE POSITION OF THESE INTERVENORS**  
2 **REGARDING FOUR CORNERS?**

3 A. In general, the Sierra Club and Citizen Groups assert that Four Corners should or  
4 will be retired earlier than currently planned and they assert that lower cost  
5 generation alternatives are available. Specifically, Sierra Club witness Comings  
6 recommends retiring Four Corners as soon as possible, or at least by 2023. He  
7 does not recommend disallowing any past costs at Four Corners, with the exception  
8 of costs that have been incurred and that would be needed to operate the plant past  
9 2023.

10  
11 Citizen Groups witnesses Eisenfeld and Schlissel posit that Four Corners is likely  
12 to retire before 2031 and assert that there are lower cost resource alternatives  
13 available.

14 **Q. DO YOU AGREE WITH SIERRA CLUB AND CITIZEN GROUPS'**  
15 **ASSERTIONS AROUND THE POTENTIAL RETIREMENT OF FOUR**  
16 **CORNERS?**

17 A. No. Their analyses ignore the realities of operating a reliable power system and  
18 use unrealistic or improper assumptions that lead to inaccurate conclusions. Most  
19 of the analyses found in these intervenors' testimonies focus on future plant  
20 operations and as such have little relevance to this rate case, however, the  
21 intervenors attempt to cast doubt on the economics and reliability of Four Corners  
22 and so I will discuss their analyses in more detail below.

23 **Q. WHAT IS THE BIGGEST ISSUE WITH THE INTERVENORS**  
24 **ANALYSIS?**

25 A. Their analyses do not adequately address system reliability. APS is responsible for  
26 operating an intentionally diverse portfolio of resources and interacting with the  
27 market on a minute by minute basis to reliably meet customers' demand. It takes  
28

1 careful planning and a deep understanding of the system and resource capabilities  
2 to maintain high reliability. However, the intervenors' studies simply assume  
3 reliability with no evidence to support it.

4 **Q. WHAT IS THE LIKELIHOOD THAT APS COULD CONTRACT FOR**  
5 **EXISTING GENERATING ASSETS TO MEET PEAK LOAD**  
6 **REQUIREMENTS IN THE NEXT FEW YEARS?**

7 A. I have little confidence that APS would be able to contract for reliable generating  
8 assets in the future. Over the past decade, thousands of MW of generation have  
9 been removed from the western market, either through retirement or utility  
10 purchase of the once large supply of merchant generation. Generation retirements  
11 for example include Four Corners Units 1-3, Cholla 2, Navajo Plant, and San Juan  
12 Units 2 and 3. California has retired San Onofre Nuclear Generating Station  
13 (SONGS) and many natural gas once through cooling units. More retirements are  
14 anticipated in the next few years including Cholla 4 by the end of this year,  
15 followed by San Juan 1 and 4 in 2022, and Cholla 1 and 3 in 2025. The market is  
16 too tight to assume that it can provide for the reliable replacement of Four Corners  
17 4 and 5 if they were to retire early.

18 **Q. FIRST LET'S DISCUSS SIERRA CLUB WITNESS COMINGS' AND**  
19 **CITIZEN GROUPS WITNESS SCHLISSEL'S PROPOSALS TO REPLACE**  
20 **FOUR CORNERS WITH MARKET PURCHASES. ARE YOU OPPOSED**  
21 **TO RELYING ON THE MARKET FOR LOW COST POWER?**

22 A. No, APS continually interacts with the market to reduce fuel and purchase power  
23 costs for customers by allowing us to reduce production from the Company's  
24 resources at times when wholesale market purchases are available at prices below  
25 APS's cost to produce. APS is opposed, however, to relying on non-asset backed  
26 market purchases to meet fundamental reliability requirements in tight market  
27 conditions like the western grid is experiencing today and is likely to experience in  
28

1 the future. Market purchases like the ones used in the intervenors' cost  
2 comparisons run the risk of being cut when the non-asset backed power is not  
3 available. This was one of the issues that played a role in the rolling blackouts this  
4 summer in California.

5 **Q. WHAT ROLE DOES THE MARKET PLAY IN THE RELIABILITY OF**  
6 **APS'S SYSTEM?**

7 A. APS uses asset-backed resources available in the market to help meet reliability  
8 needs such as merchant generators that can dedicate their output or sell to APS  
9 under a tolling agreement. The Company minimizes the use of market purchases  
10 such as those available in the forward market at Palo Verde when the market is  
11 short. It is also important to note that capacity from the Energy Imbalance Market  
12 (EIM) cannot be used to meet the Company's reliability requirements. Under EIM  
13 rules, APS is required to go into each hour with balanced schedules and not rely on  
14 the market to meet resource adequacy requirements.

15 **Q. DOES THE WESTERN WHOLESALE MARKET IN WHICH APS**  
16 **OPERATES PAY FOR RELIABILITY?**

17 A. No. The kind of reliability benefits like resource adequacy that are provided by  
18 Four Corners and many other units are not reflected in the wholesale market prices.  
19 The western wholesale market prices are indicative of power that can be purchased  
20 (or sold) without the backing of a specific generating resource. It is not designed  
21 to support profitability of regional power plants, and the market price is largely  
22 driven by the variable costs of the units on the margin hour by hour. In part, one  
23 of the reasons the wholesale market prices are as low as they are, is precisely due  
24 to plants like Four Corners that operate day in and day out.

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1 **Q. IF RELIABILITY IS NOT EXPLICITLY PURCHASED FROM THE**  
2 **MARKET, IS A COMPARISON OF REPLACING FOUR CORNERS WITH**  
3 **MARKET PRICES USEFUL?**

4 A. No. This analysis fails because if every plant that could potentially have saved  
5 money by being removed from the market was in fact removed from the market,  
6 there would not be enough capacity left to reliably meet customer demand during  
7 high usage periods. In addition, as described more below, the western market is  
8 already capacity short as demonstrated by the rolling blackouts this summer, and  
9 there are more planned power plant retirements in the future, so the market cannot  
10 be counted upon to meet future reliability needs. I categorically reject that Four  
11 Corners could simply be replaced with market purchases as it does not present a  
12 viable or comparable alternative to maintain a safe, reliable system for APS's  
13 customers.

14 **Q. NOW LET'S DISCUSS MR. EISENFELD CLAIMS THAT APS COULD**  
15 **SAVE MONEY BY RETIRING FOUR CORNERS IN 2023 AND**  
16 **REPLACING IT WITH SOLAR PLUS STORAGE AND WHOLESALE**  
17 **MARKET PURCHASES. FIRST OFF, IS APS OPPOSED TO**  
18 **SIGNIFICANTLY INCREASING RENEWABLE ENERGY AND**  
19 **STORAGE ON YOUR SYSTEM?**

20 A. Not at all, in fact just the opposite is true. In January of this year, APS announced  
21 its Clean Energy Commitment that entails adding significant amounts of renewable  
22 generation, energy storage and ending coal generation by 2031. APS's plan is to  
23 do this in a way that is clean, affordable and reliable for customers.

24  
25 APS's 2020 IRP, which reflects the Clean Plan Commitment, has nearly 2,000 MW  
26 of new utility scale renewables, plus 1,250 MW of battery energy storage by 2025.  
27 If Four Corners were to retire before 2031, APS's share of Four Corners would  
28 likely need to be replaced by more than 1,000 MW of additional renewable

1 generation plus 1,400 MW of battery energy storage on top of what is reflected in  
2 the IRP.

3 **Q. PLEASE EXPLAIN WHY YOU DISAGREE WITH CITIZEN GROUPS**  
4 **WITNESS EISENFELD'S CONTENTIONS?**

5 Based on the current limited experience with energy storage and affordability  
6 concerns (APS and industry-wide), adding Four Corners replacement on top of  
7 current plans in the near future is too costly and risky. Based on the immaturity of  
8 the technology and the limited amount of experience the utility industry has to date,  
9 the amount of energy storage suggested by Citizen Groups witness Eisenfeld is too  
10 much too soon and presents a substantial reliability risk to customers.

11 **Q. DO YOU AGREE WITH THE LEVELIZED PRICES CITIZEN GROUPS**  
12 **WITNESS EISENFELD USED FOR THIS ANALYSIS?**

13 A. No. Neither the wholesale market, nor renewable generation plus storage provide  
14 the same reliability service as Four Corners, so using a levelized cost comparison  
15 is inappropriate and does not provide meaningful information that could be used in  
16 a decision-making process. Citizen Groups witness Eisenfeld bases his analysis on  
17 replacement resources taken in isolation that cannot be scaled to replace Four  
18 Corners on APS's system. It is well-accepted that the capacity value of solar  
19 generation decreases as penetration of the resource increases on a given system.  
20 The same is true for energy storage systems. This means it takes far more solar  
21 plus storage than Citizen Groups witness Eisenfeld assumes to replace Four  
22 Corners. Therefore, even if it was not too risky, the levelized price he uses is  
23 understated.

24 **Q. WHAT OTHER CONCERNS DO YOU HAVE WITH CITIZEN GROUPS**  
25 **WITNESS EISENFELD'S ANALYSIS?**

26 A. Citizen Groups is basing its claim on a study prepared by Strategen for the Sierra  
27 Club. There are several major flaws in the analysis.

28

- 1           •     As stated above, Strategen fails to adequately consider APS system  
2           reliability and understates both the amount of energy storage that would be  
3           required to replace Four Corners (due to the capacity value of solar  
4           generation and energy storage decreasing as penetration of the resource  
5           increases on a given system), and the relatively limited operating experience  
6           in utility service that the industry has at this time with grid-scale battery  
7           storage systems.
- 8
- 9           •     The Strategen study uses public cost information from a single proposed  
10          solar plus storage project facility that would not apply to APS. It is based  
11          on a small solar plus 3-½ hour duration energy storage facility that is the  
12          second phase of a project. Some of the project costs of the second phase  
13          were included with the first phase, artificially lowering the cost of the  
14          second phase.<sup>1</sup> It underestimates the amount of energy storage required to  
15          provide the same reliability that Four Corners delivers, and therefore  
16          significantly underestimates the cost of that alternative.
- 17          •     Strategen assumes a 30 percent Investment Tax Credit (ITC) that would not  
18          likely be available for the replacement project, therefore understating the  
19          cost of the alternative.
- 20
- 21          •     Strategen's results appear to be based on a base case retirement of Four  
22          Corners in 2038 instead of 2031. Although correct at the time they  
23          performed the study, that assumption is outdated and overstates the cost of  
24          operating Four Corners.
- 25

---

26  
27          <sup>1</sup> See Comments by Arizona Electric Power Cooperative Inc., (AEPCO) in response to  
28          The Arizona Coal Plant Valuation Study by Sierra Club and Strategen Consulting, pg. 5,  
Docket No. E-00000V-19-0034 (Dec. 31, 2019).



- 1           •       The savings reported by Strategen reflect the entire plant, not APS's 63  
2                   percent ownership share, and inflates their estimate.

3 **Q.   ARE THERE LESSONS TO BE LEARNED FROM THE ROLLING**  
4 **BLACKOUTS IN CALIFORNIA ON AUGUST 14TH AND 15TH?**

5 A.   Yes. California has been aggressive in its transition to clean energy and has  
6       incorporated large amounts of renewables into its system while retiring thermal  
7       assets, and relying on imported power from neighboring regions. The events of  
8       August 14<sup>th</sup> and 15<sup>th</sup> were a result of their planning processes not keeping pace with  
9       those changes, resulting in unintended consequences. This should not hinder  
10      APS's commitment to a clean energy future but indicates the Company needs to  
11      carefully plan for it.

12 **Q.   HAVE THE CALIFORNIA INDEPENDENT SYSTEM OPERATOR**  
13 **(CAISO) AND THE CALIFORNIA ENERGY COMMISSION (CEC)**  
14 **DETERMINED THE EXACT CAUSES OF THE ROLLING BLACKOUTS?**

15 A.   CAISO and the CEC issued a Preliminary Root Cause Analysis of the Mid-August  
16      Heat Storm on October 6, 2020. Their analysis identified three high level causes.

17                   1) The climate change-induced extreme heat storm across the western United States  
18                   resulted in the demand for electricity exceeding the existing electricity resource  
19                   planning targets. The existing resource planning processes are not designed to fully  
20                   address an extreme heat storm like the one experienced in mid-August.

21                   2) In transitioning to a reliable, clean, and affordable resource mix, resource  
22                   planning targets have not kept pace to lead to sufficient resources that can be relied  
23                   upon to meet demand in the early evening hours. This makes balancing demand  
24                   and supply more challenging. These challenges were amplified by the extreme heat  
25                   storm.  
26

27  
28

1 3) Some practices in the day-ahead energy market exacerbated the supply  
2 challenges under highly stressed conditions.

3 **Q. WHAT IS THE RELEVANCE OF ANY OF THOSE CAUSES TO THE**  
4 **FOUR CORNERS REPLACEMENT STUDIES?**

5 A. The first cause reflects that there were not enough imports available from other  
6 regions due to the heat storm. Based on this, it is confirmed that there are not  
7 surplus generation resources available in the regional wholesale market during  
8 peak customer usage periods to provide the kind of reliability customers expect  
9 from APS. It is inappropriate to assume that the market can provide resources,  
10 particularly during peak hours and/or days, as was assumed by Citizen Groups  
11 witness Schlissel.

12 The second cause shows that APS needs to make sure that planning targets keep  
13 up with the Company's clean energy transition. APS needs to be intentional and  
14 careful in the way it integrates large amounts of renewables and storage  
15 technologies. APS has an aggressive plan, and significantly adding to it by  
16 replacing a large resource such as Four Corners too early could have serious  
17 reliability implications.

18 **Q. WAS APS ABLE TO MEET ITS CUSTOMER LOADS DURING THE**  
19 **AUGUST 14TH AND 15TH HEAT STORM WITHOUT**  
20 **INTERRUPTIONS?**

21 A. Yes, APS was able to meet its customers' loads on those days. Although, in an  
22 abundance of caution, APS asked customers to conserve, and customers responded  
23 to the call for voluntary conservation.  
24

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1 **Q. WHAT ROLE DID MARKET PURCHASES PLAY FOR APS ON THOSE**  
2 **DAYS?**

3 A. APS had a small amount of market purchases from CAISO that were curtailed.  
4 Fortunately, and due to sound resource planning in Arizona, the Company was able  
5 to replace them with APS resources and avoid curtailments for customers.

6 **Q. WHAT ROLE DID FOUR CORNERS UNITS 4 AND 5 PLAY ON THOSE**  
7 **DAYS?**

8 A. Four Corners Units 4 and 5 performed very well this summer and were operating  
9 at essentially full power over the late afternoon and evening hours on those two  
10 days, providing significant reliability benefits to the system and to customers. As  
11 I will discuss later in my testimony, the OMP also played a critical role this  
12 summer.

13 **Q. IF FOUR CORNERS HAD ALREADY BEEN RETIRED AS SUGGESTED**  
14 **BY INTERVENOR WITNESSES, WHAT ROLE WOULD THE MARKET**  
15 **HAVE PLAYED IN SERVING YOUR CUSTOMERS' LOADS?**

16 A. It is difficult to say because I cannot retrospectively tell you what resources APS  
17 would have procured to replace Four Corners. But I can say that if APS did not  
18 construct new resources, retiring Four Corners Units 4 and 5 would have removed  
19 over 1,500 MW from the western market, causing a resource-constrained market  
20 to be even more resource-constrained and potentially leading to rolling blackouts  
21 in Arizona, or more extensive rolling blackouts in California.

22 **Q. SIERRA CLUB WITNESS COMINGS COMPARES THE PROJECTED**  
23 **LEVELIZED COSTS OF OPERATING FOUR CORNERS WITH**  
24 **GENERIC PURCHASES. HE CONCLUDES APS COULD SAVE MONEY.**  
25 **DO YOU AGREE?**

26 A. No. Once again, the witness fails to account for APS's fundamental obligation to  
27 operate the system reliably. In order to replicate the reliability provided by Four  
28

1           Corners, the Company would need to significantly increase the amount of  
2           renewables plus storage. This would increase costs beyond those projected by  
3           Sierra Club. Even assuming, for arguments sake that Sierra Club’s proposed plan  
4           is cheaper than operating Four Corners, the plan is not workable. For the reasons  
5           explained above, generic market purchases are not sufficient to replace Four  
6           Corners. I have also discussed the pace of renewables plus storage that would be  
7           required for APS to attempt to replace Four Corners with new assets on top of the  
8           aggressive plan already in place. Sierra Club’s analysis does not hold up when  
9           taken in the context of the scale required and APS system dynamics. It should be  
10          entirely disregarded.

11          B.     *APS’s Analysis*

12   **Q.   HAS APS EVALUATED AN EARLY RETIREMENT OF FOUR**  
13   **CORNERS?**

14   A.   Yes, in its 2017 IRP, APS evaluated a carbon reduction portfolio that assumed Four  
15   Corners retirement in 2031 rather than 2038, the original retirement date. In  
16   addition, APS recently evaluated retiring the plant prior to 2031 in response to  
17   Chairman Burns’ request.

18   **Q.   WHAT DID THE RESULTS IN THE 2017 IRP INDICATE ABOUT THE**  
19   **RETIREMENT DATE?**

20   A.   The analysis indicated a slight increased cost in the 15-year term if Four Corners  
21   were retired in 2031 rather than 2038, and a slight savings in the long term (30  
22   years). These results did not provide a compelling economic reason to advance the  
23   retirement date at that time. Sierra Club witness Comings alleges APS ignored  
24   those results. However, in the IRP it was noted, “[s]hould circumstances  
25   significantly change over the course of the Planning Period, the Selected Plan may  
26   be modified to better fit the conditions prevalent at the time such a decision is made.

27  
28

1 APS will monitor key variables such as carbon legislation and gas prices which  
2 influence the economics and will continue to evaluate its options.”<sup>2</sup>

3 **Q. HAS APS EVALUATED RETIRING FOUR CORNERS PRIOR TO 2031?**

4 A. APS recently evaluated retiring Four Corners before 2031 in response to questions  
5 from Chairman Burns. Until now, however, APS did not evaluate alternatives that  
6 retire Four Corners prior to 2031 for several reasons. Four Corners is jointly owned  
7 by APS and four other entities, and together the owners have a coal contract that  
8 runs through 2031. It is not an option for APS to retire the plant without the  
9 agreement of the other owners. Furthermore, community impacts of retiring the  
10 plant are significant and must be carefully considered even before such evaluations  
11 could be made, as described by APS witness Barbara D. Lockwood in her Rebuttal  
12 Testimony.

13 **Q. PLEASE SUMMARIZE CHAIRMAN BURNS’ REQUEST.**

14 A. Chairman Burns asked APS to analyze the rate impacts to customers using four  
15 different cost recovery methods for a number of different Four Corners retirement  
16 dates. The first method was to use accelerated depreciation through the planned  
17 retirement dates. The other three were to recover remaining book value using  
18 securitization at an APS assumed interest rate, and securitization at plus and minus  
19 one percent of the APS’s assumed interest rate. He additionally requested that APS  
20 analyze the rate impacts using the four different cost recovery methods for Cholla  
21 Units 1 and 3 retirement date of 2023.<sup>3</sup>

22 **Q. WHAT PARTS OF THE RESPONSE ARE YOU ADDRESSING?**

23 A. In my testimony, I address the resource planning impacts including Four Corners  
24 replacement assets such as renewables plus storage, and the long-term economics  
25  
26

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27 <sup>2</sup> APS’s 2017 IRP at 138.

28 <sup>3</sup> The Cholla analysis is addressed in the response to the Chairman’s letter, not in this  
testimony.

1 of those alternatives. APS witness Lockwood is addressing the securitization  
2 policy issues in her Rebuttal Testimony.

3 **Q. HOW DID YOU ANALYZE THESE ALTERNATIVES?**

4 A. APS retained an outside consulting firm, Energy and Environmental Economics  
5 Consulting (E3), to evaluate these alternatives using high level modeling based on  
6 information provided in APS's 2020 IRP. E3 previously worked with APS and a  
7 stakeholder group to model various issues in preparation for the latest IRP filing in  
8 June of this year.

9 **Q. WHAT ARE THE KEY ISSUES RELATED TO RETIREMENT OF FOUR  
10 CORNERS?**

11 A. The most important issues from a modeling perspective are (1) ensuring that the  
12 replacement resources can provide a high level of reliability so that customers  
13 summertime peak loads are met, and (2) maintaining affordable electric service for  
14 customers.

15 The high-level modeling performed for this analysis is not meant to provide precise  
16 answers – it is intended to be more directional in nature and be responsive to  
17 Chairman Burns' request.

18 **Q. HOW DID E3 ASSUME THAT LOST FOUR CORNERS GENERATION  
19 WOULD BE REPLACED?**

20 A. Four Corners could potentially be replaced in a variety of ways, and E3 assumed it  
21 would be replaced by 600 MW of solar plus storage, 800 MW of storage, and 450  
22 MW of wind. It is important to note that due to the high penetration of renewables  
23 and storage expected to be on APS's system as a result of the Clean Energy  
24 Commitment, it takes a total of 1,400 MW of storage (600 MW stand alone, and  
25 800 MW combined with solar PV) and 750 MW of renewables in the mix to  
26 provide the same approximate on-peak value of APS's 970 MW share of Four  
27 Corners. The recent occurrences in California demonstrate that the market is no  
28

1 longer in a surplus capacity position and should not be relied upon for these  
2 capacity needs. Therefore, the assumption was made that new resources would  
3 need to be built to replace the peak capacity contribution of Four Corners.

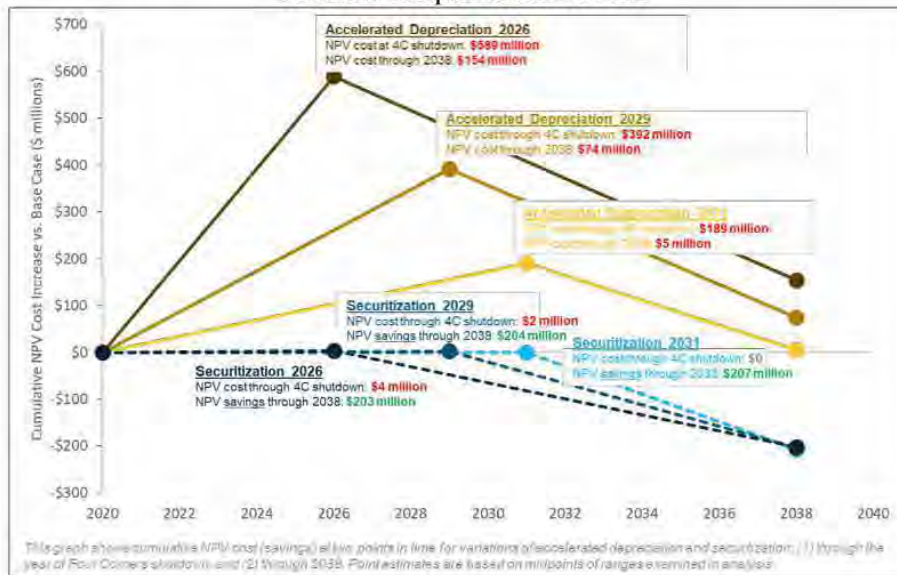
4 **Q. WHAT COST ASSUMPTIONS WERE USED FOR THE FOUR CORNERS  
5 REPLACEMENT TECHNOLOGIES?**

6 A. For the analysis discussed in my testimony, E3 used the resource cost assumptions  
7 from APS's 2020 IRP.

8 **Q. PLEASE SUMMARIZE THE RESULTS OF THE ANALYSIS.**

9 A. Figure 1 below summarizes the analysis and cost impacts of accelerated  
10 depreciation and securitization on Four Corners shutdown years of 2026, 2029, and  
11 2031, and are based on the midpoint of the range of interest rates analyzed in the  
12 response to Commissioner Burns.<sup>4</sup> Numbers are in millions of dollars over an 18-  
13 year period and are shown as differences in revenue requirement from a Base Case  
14 (e.g. the APS-filed "Accelerate" case from the 2020 IRP).

15 Figure 1 – Summary of Net Present Value (NPV)  
16 Revenue Requirement Results



27 <sup>4</sup> As discussed in my testimony in response to intervenors a 2023 shutdown is not possible  
28 given the timeframe does not allow adequate time to procure and assure replacement  
resources required to maintain reliable operations, and therefore has not been modeled.

1 **Q. WHAT ARE YOUR CONCLUSIONS FROM THESE RESULTS?**

2 A. This figure illustrates two key findings: 1) accelerated depreciation would increase  
3 customer costs for a transition from coal to clean generation, regardless of  
4 retirement date; and 2) the modeling demonstrates potential savings in all  
5 securitization scenarios. It is important to again note that the important operational  
6 and reliability considerations associated with an early shutdown are not reflected  
7 here and must be considered to determine the appropriate path forward.

8 **Q. WHAT IMPORTANT OPERATIONAL AND RELIABILITY**  
9 **CONSIDERATIONS ASSOCIATED WITH AN EARLY SHUT DOWN**  
10 **NEED TO BE CONSIDERED?**

11 A. The three most important considerations are that 1) battery energy storage  
12 technology is relatively new and has limited experience, 2) APS already has  
13 aggressive clean energy plans including significant amounts of renewables and  
14 energy storage, and adding to those plans significantly increases the risk of reliance  
15 on a relatively immature technology, and 3) the wholesale market cannot be relied  
16 upon to provide the high level of reliability APS and customers expect.

17 **Q. DO YOU BELIEVE THAT THE RETIREMENT DATES FOR THE**  
18 **SCENARIOS IN THE ANALYSIS ABOVE PRESENT VIABLE OPTIONS?**

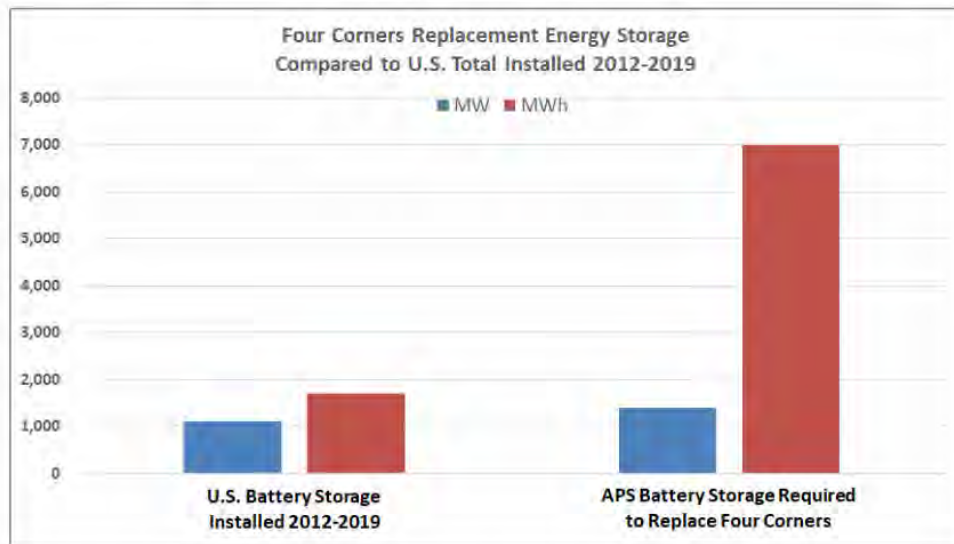
19 A. I have concerns about the viability of retiring Four Corners in 2026. Four Corners  
20 represents a sizable contributor to APS system reliability, and APS as well as the  
21 industry are still learning how to integrate battery energy storage systems into  
22 resource portfolios. Total U.S utility scale battery energy storage installations from  
23 2012 through 2019 amounted to only 1,104 MW/1,703 MWh,<sup>5</sup> equating to an  
24 average duration of 1.5 hours. In comparison, E3 assumed it would take 1,400  
25

26  
27 <sup>5</sup> *Energy Storage Monitor*, Wood Mackenzie Power & Renewables/U.S. Energy Storage  
28 Association, September 2020.



1 MW/7,000 MWh of storage (5-hour duration) to replace Four Corners, more than  
2 the entire U.S. industry installed through 2019 as indicated in Figure 2 below.

3 Figure 2 – Four Corners Replacement Energy Storage  
4 Compared to U.S. Total



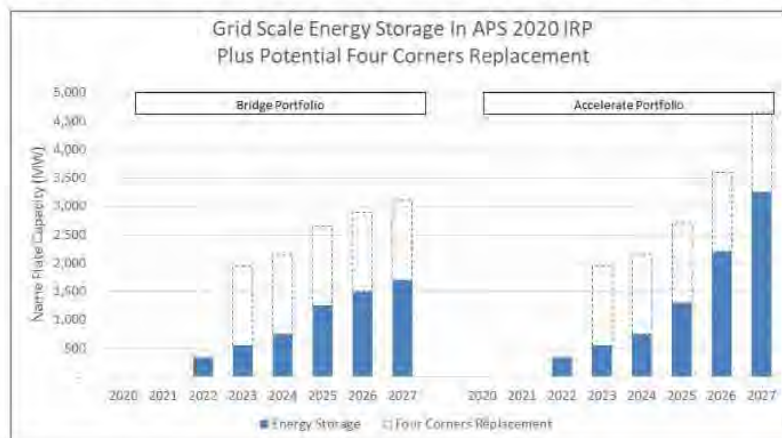
15 APS believes the pace of renewable and energy storage systems represented in the  
16 2020 IRP between now and 2025 is appropriate. Beyond 2025, the pace of  
17 additions depends on a number of factors, including commercial demonstration,  
18 adoption of safety standards and affordability to customers. Replacing Four  
19 Corners with renewables and storage by 2026 would increase planned energy  
20 storage additions by about 63-93 percent. This represents a significant increase in  
21 risk of reliance on battery storage technology as compared to the base case.

22 **Q. APS'S 2020 IRP INCLUDES THREE PORTFOLIOS DESIGNED TO MEET**  
23 **ITS CLEAN ENERGY COMMITMENT. PLEASE DESCRIBE THESE**  
24 **PORTFOLIOS AND THEIR RELEVANCE TO THE TIMING OF FOUR**  
25 **CORNERS PLANNED RETIREMENT.**

26 **A.** The portfolios set out three possible paths for APS to follow as the Company  
27 pursues the Clean Energy Commitment. They are nearly the same for the first five  
28

1 years as APS takes significant steps towards a clean energy future. After 2025,  
2 they diverge in terms of how quickly APS adopts renewable plus storage  
3 technologies. The Bridge Portfolio (Bridge) is moderately aggressive in its  
4 deployment of renewables plus energy storage, and the Accelerate Portfolio  
5 (Accelerate) is the most aggressive of the three plans. The IRP also includes the  
6 Shift Portfolio (Shift) which is in between Bridge and Accelerate. For the purposes  
7 of putting the amount of new resources required to replace Four Corners in  
8 perspective, my testimony only discusses Bridge and Accelerate. In all of the 2020  
9 IRP portfolios, Four Corners retires in 2031. APS has not chosen which path to  
10 follow at this time, and the path that the Company ultimately follows will depend  
11 on energy storage technology development, technology costs and customer  
12 affordability. Advancing the retirement of Four Corners would significantly  
13 increase the adoption of new technology beyond what APS already considers  
14 aggressive implementation of renewables plus storage in those plans. Whether or  
15 not that could be done reliably and cost effectively remains to be seen and should  
16 not be decided today. Figure 3 below illustrates the levels of new utility scale  
17 battery energy storage systems represented in the two bookend portfolios.  
18 Potential Four Corners replacement capacity is indicated by the dotted lines.

19  
20 Figure 3 – New Utility Scale Battery Storage in APS 2020 IRP



1 As can be seen from the chart, adding Four Corners replacement on top of the clean  
2 energy plans would represent a very quick and very large increase in new  
3 technology on the system, and bring more technology risk than is appropriate at  
4 this time.

5 C. *Reliability of the Four Corners power plant*

6 **Q. DO ANY OF THE WITNESSES IN THIS DOCKET CRITICIZE THE**  
7 **OPERATIONAL CAPABILITY OF THE PLANT?**

8 A. Yes. Vote Solar witness Ronny Sandoval and Citizen Groups witnesses Eisenfeld  
9 and Schlissel claim that Four Corners is becoming increasingly unreliable and is  
10 likely to continue that trend as the plant ages.

11 **Q. WHAT METRICS DO YOU USE TO QUANTIFY RELIABILITY?**

12 A. Equivalent Availability Factor (EAF) is a key indicator of the reliability of a  
13 generating unit used in the utility industry. EAF reflects the equivalent amount of  
14 time a unit is capable of running at full output, factoring in scheduled maintenance,  
15 forced outages and unit derates. APS closely monitors EAFs and an important  
16 subset of that – the summertime EAF. The summertime EAF is important because  
17 overall system reliability is driven by the high summertime loads.

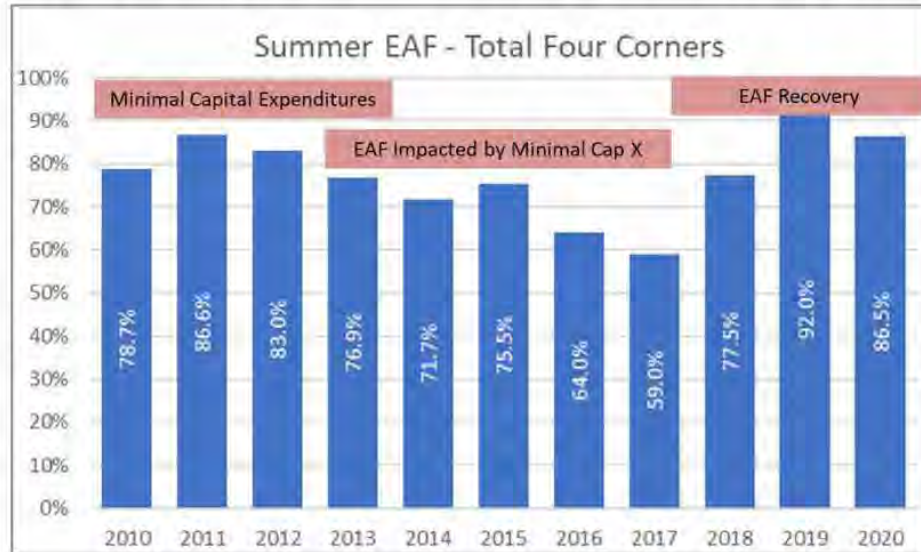
18 **Q. DO YOU AGREE WITH THE CRITICISMS FROM CERTAIN**  
19 **INTERVENORS REGARDING THE RELIABILITY OF FOUR**  
20 **CORNERS?**

21 A. No. There was a period in the mid-2010s, however, where Four Corners exhibited  
22 lower EAFs than other times before or since due to low capital investment related  
23 to a period of uncertainty regarding the future of the plant. Since that time, the  
24 Company has increased its investment in capital improvements. Accordingly, the  
25 EAF has been much improved over the past three years.

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Figure 4 - Four Corners Summertime Equivalent Availability Factor



**Q. CITIZEN GROUPS WITNESS SCHLISSSEL POINTS TO 2020 AS AN UNRELIABLE YEAR BASED ON THE FIRST SIX MONTHS OF OPERATION. IS THAT AN ACCURATE ASSESSMENT?**

A. No. Citizen Groups witness Schlissel appears to misinterpret the data. Both units were taken out of service for scheduled maintenance activities in the spring of 2020. Unit 5 was out of service for more than two months for a scheduled outage. Quoting the EAF or capacity factors for the first six months, especially in a year such as this, is misleading. As seen in Figure 4 above, Four Corners performed very well in the summers of 2019 and 2020 and was an essential component in the Company's ability to meet its customers' service needs.

**Q. DO YOU EXPECT FOUR CORNERS TO BECOME UNRELIABLE AS THE PLANT AGES?**

A. I anticipate that the plant will be maintained in a manner to provide reliable service to APS customers and the customers of the other owners. As the plant gets closer to retirement and replacement resources are phased in, it is possible that the

1 summertime EAFs could decrease in the plant's last few years of service as capital  
2 spending is reduced prior to its scheduled retirement.

3 **Q. CITIZEN GROUPS WITNESS SCHLISSEL RECOMMENDS THAT APS**  
4 **BEAR THE RISK OF FOUR CORNERS OPERATING DIFFERENT THAN**  
5 **WHAT IS MODELED IN THE COMPANY'S 2020 IRP. IS THAT**  
6 **APPROPRIATE?**

7 A. No. It is inappropriate to use long-term resource planning information in setting  
8 rates. Information used in planning models such as the ones used in APS's IRP is  
9 generally not the same thing as information used to set rates. When looking out 15  
10 years from a planning perspective, the IRP captures things at a high level, certainly  
11 not at the accounting level used in setting rates.

12 **IV. ON-PEAK TIME-OF-USE WINDOW FOR RESIDENTIAL RATES**

13 **Q. WHY IS IT IMPORTANT TO HAVE TIME DIFFERENTIATED RATES,**  
14 **AND WHAT IS APS'S CURRENT ON-PEAK TIME-OF-USE (TOU)**  
15 **WINDOW?**

16 A. The need for new resource capacity is driven by a limited number of high load  
17 hours during the summer. APS's on-peak rates are intended to incent customers to  
18 shift their usage during these high load hours to lower load hours, thereby saving  
19 all customers money by deferring the need for new resources needed to serve peak  
20 load in the future. APS's current on-peak time-of-use window is from 3 p.m. to 8  
21 p.m. weekdays.

22 **Q. HOW WAS THAT WINDOW DETERMINED?**

23 A. Determination of the on-peak TOU window is a balance between customer  
24 convenience and hourly system load and market prices. I address the load shape  
25 and market price impacts while APS witness Jessica Hobbick addresses customer  
26 impacts.

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**REJOINDER TESTIMONY OF BRAD J. ALBERT**  
**On Behalf of Arizona Public Service Company**  
**Docket No. E-01345A-19-0236**

December 22, 2020

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1                                   **REJOINDER TESTIMONY OF BRAD J. ALBERT**  
2                                   **ON BEHALF OF ARIZONA PUBLIC SERVICE COMPANY**  
  **(Docket No. E-01345A-19-0236)**

3    I.    INTRODUCTION

4    **Q.    PLEASE STATE YOUR NAME, POSITION, AND BUSINESS ADDRESS.**

5    A.    My name is Brad Albert, Vice President of Resource Management at Arizona  
6           Public Service Company (APS or Company). My business address is 400 N. 5th  
7           Street, Phoenix, Arizona 85004.

8    **Q.    DID YOU PREVIOUSLY FILE TESTIMONY IN THIS MATTER?**

9    A.    Yes, I presented Direct Testimony and Rebuttal Testimony in this case.

10   **Q.    WHAT IS THE PURPOSE OF YOUR REJOINDER TESTIMONY?**

11   A.    My Rejoinder Testimony responds to portions of the surrebuttal testimony filed by  
12           Staff and intervenors in this case.

13   II.   SUMMARY

14   **Q.    PLEASE SUMMARIZE YOUR REJOINDER TESTIMONY.**

15   A.    Some of the parties in this case recommend either shortening APS's five-hour time-  
16           of-use (TOU) on-peak window to three hours or shifting the five-hour window  
17           earlier in the day by one hour. I discuss why APS should maintain the TOU peak  
18           hours established in its last rate case and explain the importance of and reasoning  
19           behind keeping the 7 p.m. to 8 p.m. hour in the TOU on-peak period.

20           Next, I respond to surrebuttal testimony regarding potential early retirement of the  
21           Four Corners Power Plant (Four Corners). I discuss how these intervenors'  
22           analyses or assertions appear to disregard the pace at which APS already plans to  
23           add renewables and battery storage. In addition, I explain why adding additional  
24           capacity to replace Four Corners on top of APS's existing plans would result in  
25           APS assuming more technology and reliability risk than is prudent at this time.  
26

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1 I correct Sierra Club's misunderstanding of the results of the Four Corners  
2 Securitization Study. Although they interpret that the results indicate early  
3 retirement of Four Corners would save customers money, the study actually  
4 indicates that the savings through securitization of the remaining book value upon  
5 retirement is approximately the same whether the plant is retired in 2026, 2029, or  
6 2031.

7 I address Calpine and Direct Energy's assertion that WSPP Schedule C provides  
8 firm capacity for resource adequacy purposes, as well as their desire to expand AG-  
9 X and deliver all their energy at the Palo Verde delivery location. I continue to  
10 disagree with them on the firmness of WSPP Schedule C qualifying as resource  
11 adequacy, and believe that if AG-X is expanded, the energy should be delivered  
12 from a combination of all of APS's major delivery points so the AG-X customers  
13 do not put non-participating customers at an economic disadvantage.  
14

15 Although I do not address every detail related to the testimony of Staff and the  
16 Intervenors, no one should interpret my Rejoinder Testimony as my agreement  
17 with a party's position unless specifically so stated.

18 **III. TIME-OF-USE HOURS**

19 **Q. WHY ARE THE TOU HOURS SIGNIFICANT FROM A RESOURCE**  
20 **PLANNING PERSPECTIVE?**

21 A. One of the drivers of future investment costs for APS is the need to have enough  
22 generating capacity to meet projected customer peak loads. The intent of TOU  
23 hours is to incent customers to shift some of their electric usage from peak hours  
24 to non-peak hours. To the extent this shift reduces the amount of capacity needed  
25 to meet peak loads, customers save money by avoiding the need for future,  
26 additional investment in generating resources.

27  
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1 Governor's Office and the California Governor's Office of Emergency Services to  
2 publicly request electricity customers lower energy use during the most critical  
3 time of the day, 3:00 p.m. to 10:00 p.m.”<sup>1</sup> While there are differences between the  
4 two systems, those entities recognized that hour ending 8 p.m., and even 9 p.m.  
5 and 10 p.m., play very important roles in the reliability of the system. Allowing  
6 that snap-back effect from the end of a TOU period to occur during times when  
7 load is still near the peak, as proposed by Staff, SWEEP/WRA, and SEIA, is not  
8 advisable.

9 IV. FOUR CORNERS

10 A. *Early Retirement*

11 **Q. DID ANY PARTIES IN THIS DOCKET FILE SURREBUTTAL**  
12 **TESTIMONY RELATED TO EARLY RETIREMENT OF FOUR**  
13 **CORNERS?**

14 A. Yes. I will address several issues raised by Citizen Groups witnesses David  
15 Schlissel and Mike Eisenfeld, and by Sierra Club witness Tyler Comings.

16 **Q. DO THESE WITNESSES SEEM TO BELIEVE THAT EARLY**  
17 **RETIREMENT OF FOUR CORNERS BEFORE 2031 IS LIKELY OR**  
18 **DESIRABLE?**

19 A. Yes. In doing so, they all seem to believe that Four Corners can be replaced with  
20 a mixture of renewable resources and battery storage technology at a much quicker  
21 pace than APS is already planning to add to its system. They also appear to  
22 inappropriately consider the Four Corners retirement independent of APS's overall  
23 resource plan that focuses on many other aspects of resource challenges, including  
24 the need to meet expected growth in customer needs, the retirement of other coal-  
25 fired power plants during the planning horizon, and the sizeable planned additions

26 \_\_\_\_\_  
27 <sup>1</sup>California Independent System Operator, California Public Utilities Commission, and California Energy  
28 Commission, *Preliminary Root Cause Analysis: Mid-August 2020 Heat Storm* at p. 60 (Oct. 6, 2020)  
<http://www.caiso.com/Documents/Preliminary-Root-Cause-Analysis-Rotating-Outages-August-2020.pdf>.

1 of renewable and battery energy storage capacity to further the objectives of APS's  
2 overall Clean Energy Commitment and the direction of the ACC in the Energy  
3 Rules docket.

4 **Q. IN YOUR REBUTTAL TESTIMONY, YOU PUT THE AMOUNT OF**  
5 **ENERGY STORAGE REQUIRED TO REPLACE FOUR CORNERS INTO**  
6 **PERSPECTIVE BY COMPARING THAT AMOUNT TO HOW MUCH**  
7 **HAS BEEN INSTALLED IN THE U.S. BETWEEN 2012 AND 2019.**  
8 **CITIZENS WITNESS SCHLISSEL CLAIMS THAT IS AN INCORRECT**  
9 **COMPARISON AND SAYS YOU SHOULD COMPARE IT TO HOW**  
10 **MUCH MAY BE INSTALLED BY 2026. DO YOU AGREE?**

11 A. No. If, for example, APS was to make the decision today to retire Four Corners in  
12 2026 and replace it with renewables plus storage, APS would be committing to a  
13 resource that has very limited operating experience at this time. APS has no reason  
14 to doubt that 20 GW of batteries will likely be installed in the U.S. over the next  
15 five years. The operating experience that will come from those installations will  
16 provide necessary and critical information that is simply not known today. APS is  
17 optimistic about the development of battery storage and other energy storage  
18 technologies. Indeed, as indicated in my Rebuttal Testimony, APS currently plans  
19 to install between 1,500 and 2,200 MW of battery storage by 2026 in order to meet  
20 customers' needs, even while continuing to operate Four Corners until 2031.  
21 Adding the substantial amount of additional battery storage that would be needed  
22 to replace Four Corners on top of what is already planned would cause too much  
23 reliance on a relatively immature technology that has not been operated on a broad  
24 scale. APS is obligated to ensure that it can reliably serve its customers' needs 24  
25 hours a day, 365 days a year, and as of today, planning to replace Four Corners by  
26 2026, given the state of the current technology and battery storage, would cause  
27 more risk to customers and would not be prudent planning.

28

1 B. *Four Corners Securitization Study*

2 **Q. DO YOU AGREE WITH CITIZEN GROUPS' WITNESS EISENFELD'S**  
3 **CONTENTION THAT APS'S RESPONSE TO CHAIRMAN BURNS'**  
4 **LETTER REQUESTING SECURITIZATION ANALYSIS**  
5 **"DEMONSTRATES THAT THE ECONOMICS FAVOR AN EARLY**  
6 **RETIREMENT OF FCPP IF SECURITIZATION CAN BE USED?"**

7 A. No. Mr. Eisenfeld mischaracterizes the results of APS's analysis. The analysis  
8 concludes that securitization of the unrecovered book value of Four Corners upon  
9 its retirement may result in customer cost savings, irrespective of the retirement  
10 dates analyzed. The analysis was performed to evaluate two ratemaking methods,  
11 accelerated depreciation and securitization, for three potential retirement dates of  
12 Four Corners. APS's current plan and the base case in this analysis retires the plant  
13 in 2031 and fully depreciates it by 2038. The three retirement dates with  
14 securitization or accelerated depreciation cases are compared to that base case. The  
15 analysis indicates that if securitization is used, customers could save approximately  
16 \$200 million (NPV) over the base case, irrespective of whether the plant is retired  
17 in 2026, 2029, or 2031. It is the securitization ratemaking treatment upon  
18 retirement that would save customers money, not early retirement of the plant.

19 **Q. WHAT IS YOUR RESPONSE TO SIERRA CLUB WITNESS COMINGS'**  
20 **ASSERTION THAT APS'S CONCERNS ABOUT RETIRING FOUR**  
21 **CORNERS AND REPLACING IT WITH BATTERY STORAGE COULD**  
22 **BE RECTIFIED BY DEVELOPING ALTERNATIVE RESOURCE**  
23 **PORTFOLIOS?**

24 A. First, the point of the analysis prepared to respond to Commissioner Burns was to  
25 evaluate ratemaking options if Four Corners were to retire early. The choice of  
26 resource replacement portfolios used in the analysis is the same across all  
27 retirement dates and has little impact on the analysis of retirement ratemaking

28

1 options. The reliability impacts of early closure and the ability to obtain  
2 appropriate replacement power are, however, of grave concern to APS and its  
3 customers.

4 In the long term, APS believes the scale of battery replacements is feasible.  
5 However, as noted in my Rebuttal Testimony, a 2023 shutdown is not possible  
6 given the timeframe does not allow adequate time to procure and assure  
7 replacement resources required to maintain reliable operations, and therefore has  
8 not been modeled. The “claim that early retirement of the units could be infeasible  
9 [in 2023]”<sup>2</sup> is fully supported in my Rebuttal Testimony in the discussions of 1) the  
10 wholesale market cannot be relied upon to provide the necessary reliability, and 2)  
11 the scale of battery storage required to replace Four Corners is large given the  
12 limited industry experience to date. APS is unwilling to accept that much  
13 reliability risk by putting in too much of a developing technology in that time  
14 frame. Although the scenario was modeled, I also noted that I have concerns about  
15 the viability of retiring Four Corners in 2026.  
16

17 I stated that Four Corners could be replaced in a variety of ways, and put forth the  
18 mix of solar, wind, and battery storage used in the study for retirement dates of  
19 2026, 2029, and 2031. While not necessarily “optimized,” it represents a  
20 reasonable mix based on APS’s resource planning experience. The fact is, in order  
21 to maintain high system reliability, a large amount of capacity must be available  
22 during summer high load hours to replace Four Corners. No practical amount of  
23 wind or solar can provide that capacity at the time of peak customer demand,  
24 therefore, it must be supplemented by a large amount of technology that can. Given  
25 the Company’s long-term clean energy goals, which is in line with the  
26  
27

---

28 <sup>2</sup> Sierra Club Surrebutal Testimony of Tyler Comings at 2 (Dec. 4, 2020).

1 Commission's recent direction in the Energy Rules docket, APS assumed battery  
2 storage as technology that can fill that gap.

3 C. *Equivalent Forced Outage Rate (EFOR)*

4 **Q. WHO WILL RESPOND TO CITIZEN GROUPS WITNESS SCHLISSEL'S**  
5 **CONCERNS ABOUT FOUR CORNERS EFOR?**

6 A. APS witness Jacob Tetlow will respond, in his Rejoinder Testimony, to  
7 Mr. Schlissel's concerns.

8 D. *Correction*

9 **Q. DO YOU HAVE A CORRECTION TO YOUR REBUTTAL TESTIMONY**  
10 **RELATED TO VOTE SOLAR WITNESS RONNY SANDOVAL DIRECT**  
11 **TESTIMONY?**

12 A. Yes. In my Rebuttal Testimony, I mistakenly stated that Mr. Sandoval, in his  
13 Direct Testimony, criticized the operational capability of Four Corners. Mr.  
14 Sandoval did not address or criticize the operation of the plant.

15 V. AG-X, RESOURCE ADEQUACY, AND AVAILABLE TRANSMISSION

16 **Q. PLEASE SUMMARIZE YOUR REBUTTAL TESTIMONY RELATED TO**  
17 **AG-X AND RESOURCE ADEQUACY.**

18 A. Calpine and Direct Energy witness Greg Bass contended that the market purchases  
19 used to serve AG-X customers' load provide resource adequacy. I discussed  
20 resource adequacy and showed that his position is not in line with industry  
21 standards.

22 Under the AG-X program, GSPs typically rely on energy purchases and ancillary  
23 service charges and penalties to serve the load of their participating customers.  
24 They do not provide, nor are they required to provide, resource adequacy, or  
25 participate in an integrated planning process to ensure that they have the resources  
26 to reliably serve their load.  
27

28

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1 BEFORE THE ARIZONA CORPORATION COMMISSION

2

3 IN THE MATTER OF THE APPLICATION OF )  
4 ARIZONA PUBLIC SERVICE COMPANY FOR A ) DOCKET NO.  
5 HEARING TO DETERMINE THE FAIR VALUE ) E-01345A-19-0236  
6 OF THE UTILITY PROPERTY OF THE )  
7 COMPANY FOR RATEMAKING PURPOSES, TO )  
8 FIX A JUST AND REASONABLE RATE OF )  
9 RETURN THEREON, TO APPROVE RATE )  
10 SCHEDULES DESIGNED TO DEVELOP SUCH )  
11 RETURN. )

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11 At: Phoenix, Arizona

12 Date: January 15, 2021

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17 VOLUME II

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25



1 modernization project investment, which helps the  
2 company integrate more renewable energy and meet our  
3 customers' summer peaking needs. APS is requesting to  
4 include in rates the cost of these projects, along with  
5 the associated deferrals that were approved in the  
6 company's last rate case. The requested increase also  
7 includes the actual cost of 12 months of used and useful  
8 post-test year plant investments.

9 APS requests a return on equity of 10.0 percent  
10 and a return on the fair value increment of .8 percent,  
11 both of which have been reduced from the company's  
12 original request. This change maintains APS's financial  
13 stability while reducing the financial impact to  
14 customers. The total average bill impact to residential  
15 customers of our proposed revenue requirement will be  
16 4.99 percent, and from our general service customers the  
17 total average bill impact is 5.33 percent.

18 Shortly after filing this case, in January of  
19 2020 APS announced its clean energy commitment, which  
20 includes the company's exit from all coal-fired  
21 generation by 2031. More recently the Commission passed  
22 draft energy rules that will require steady reduction in  
23 carbon emissions leading to 100 percent carbon free  
24 electricity by 2050.

25 APS recognizes the impact that this transition

1 will have on communities, in particular those  
2 surrounding the retiring coal plants. In my rebuttal  
3 and rejoinder testimony I outline an overall  
4 \$144.5 million coal community transition package that  
5 will provide economic relief to the Navajo Nation, the  
6 Hopi Tribe, and the communities surrounding the Cholla  
7 Power Plant in Arizona's Navajo County.

8 I believe now is the appropriate time for the  
9 Commission to approve APS's proposed transition plan and  
10 to begin providing the necessary assistance to these  
11 communities during our joint transition to a clean  
12 energy future. In conjunction with this clean energy  
13 commitment and the Commission's draft energy rules, the  
14 company believes securitization of the remaining book  
15 value associated with retiring generation assets is a  
16 viable tool that can, if implemented properly, reduce  
17 the rate impacts of transitioning to a clean energy  
18 future.

19 In light of the potential benefits to both  
20 customers and the company, APS intends to pursue the  
21 necessary legal structures required for successful  
22 securitization in Arizona, including the establishment  
23 of enabling legislation, and is looking forward to  
24 working with stakeholders and the Commission on the  
25 issue.

1 fact is at this time the Commission just hasn't decided  
2 the recovery issue, correct?

3 A. I would agree that the Commission has not voted  
4 on the SCR recommended opinion and order.

5 Q. And since those decisions in the 2018 ROO, the  
6 company has announced its commitment to end all  
7 coal-fired generation by 2031, correct?

8 A. That is correct.

9 Q. And that was announced in January 2020, correct?

10 A. That is correct.

11 Q. Okay. And you would agree that's, what, eight  
12 years after the 2012 deferral decision, Decision 73130,  
13 approximately, correct?

14 A. I am sorry. Would you repeat?

15 Q. Yeah. The original deferral decision that was  
16 talked about, both in your testimony and the ROO, took  
17 place back in 2012, which is approximately eight years,  
18 at least seven years up to the point that the company  
19 announced its energy commitment here that we just  
20 discussed, correct?

21 MS. KRUEGER: Objection, vague and misstates the  
22 prior testimony.

23 ACALJ HARPRING: Mr. Pozefsky, what is it that  
24 you are trying to find out?

25 MR. POZEFSKY: I am just asking, Your Honor,

1 about that then, I mean instead of possibly confusing  
2 two different decisions from farther away.

3 MR. POZEFSKY: Okay. Fair enough.

4 BY MR. POZEFSKY:

5 Q. So we have talked, Ms. Lockwood -- and let me  
6 take this back in perspective a little.

7 Regarding Decision 76295 where the Commission  
8 approved a rate increase and that decision, the  
9 excerpts, you talked, again, with Sierra Club, correct?  
10 Do you recall that?

11 A. Yes.

12 Q. Okay. And just so we are clear, that  
13 decision -- and I apologize for the delay, but I want to  
14 be clear here. And that decision was docketed  
15 August 18th, 2017. Do you have any reason to disagree  
16 with that?

17 A. No. I believe that's in my testimony.

18 Q. Okay. The decision to end coal generation in  
19 2031 -- well, let me strike that.

20 Yeah. Ms. Lockwood, the decision to end coal,  
21 the generation of coal by 2031, as Mr. Radigan has  
22 testified or argues, would be seven years prior to the  
23 time that Four Corners will have reached the end of its  
24 serviceable life. Do you have any reason to disagree  
25 with that?

1           A.       I would agree that Four Corners could  
2 mechanically continue to operate past 2031, as long as  
3 we continued to invest.

4           Q.       It could mechanically, but do we know if it will  
5 continue to operate after 2031 at this point?

6           A.       Well, APS has made a commitment to no longer  
7 rely on coal-fired generation past 2031.

8           Q.       Okay. Would you agree that this could raise the  
9 issue of stranded costs?

10          A.       Mr. Pozefsky, I do believe that there could be  
11 unrecovered remaining book value associated with that  
12 plant at that point in time.

13          Q.       And that unrecovered book value that we are  
14 talking about, would you agree, would continue, if it  
15 were approved what APS is requesting now, the company  
16 would continue to recover the costs on the unrecovered  
17 book value as well as the return?

18          A.       That --

19          Q.       I am sorry. Go ahead.

20          A.       I am sorry. That is the proposal in this case.  
21 But it is also paired with a recognition that in this  
22 transition we will need to look for ways to minimize the  
23 cost on customers, which is why we are dedicated to  
24 pursuing a securitization option that would assist in  
25 this transition and managing those unrecovered book

1 be a number of different projects. And typically in the  
2 past when we have used those step increases, it has been  
3 a single investment. But you are absolutely correct  
4 that there are alternative mechanisms that have been  
5 used to deal with this type of issue.

6 Q. I want to talk to you briefly about your  
7 remaining coal generation plants. And what is your  
8 commitment with respect to the coal generation?

9 A. Our commitment is that we will completely exit  
10 coal generation by 2031.

11 Q. And when did you first announce that?

12 A. We announced that in January of 2020.

13 Q. Does that include the Four Corners and the  
14 Cholla plant?

15 A. Yes, it does include both of those. Those are  
16 our two remaining coal-fired generation investments.

17 Q. And when did the Navajo plant retire?

18 A. That was in, I think it was announced in 2017,  
19 and it ceased operating in 2019, at the end of 2019, I  
20 believe.

21 Q. With respect to Four Corners, what is the  
22 company's planned retirement date at this time?

23 A. 2031.

24 Q. And did you recently reduce that, or did you --  
25 was it longer, planned to be in service longer? I am

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1 BEFORE THE ARIZONA CORPORATION COMMISSION

2

3 IN THE MATTER OF THE APPLICATION ) DOCKET NO.  
4 OF ARIZONA PUBLIC SERVICE COMPANY) E-01345A-19-0236  
5 FOR A HEARING TO DETERMINE THE )  
6 FAIR VALUE OF THE UTILITY )  
7 PROPERTY OF THE COMPANY FOR )  
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SUCH RETURN. )  
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1 COM. O'CONNOR: This is Commissioner  
2 O'Connor, if I can.

3 ACALJ HARPRING: Oh, hello.

4 COM. O'CONNOR: Thank you and good morning.

5 May I ask kind of a follow-up to that first  
6 question? There is talk in the marketplace that a  
7 particular facility may close earlier than scheduled,  
8 and what I wanted was a clarification on the additional  
9 two-year period. So if it closes -- it's going to  
10 operate for the next 10 years, and then there will be  
11 kind of a two-year expense settlement with the Tribe,  
12 if I understand it correctly. So what if it's closed  
13 after seven years? Would it be two plus the three and  
14 it would be a five-year settlement or just a two-year,  
15 if you can speak to that?

16 THE WITNESS: Yeah. Certainly, Commissioner  
17 O'Connor. The proposal is based on two years' taxes,  
18 royalties, and lease payments, but the proposal is that  
19 we begin funding it today, or at the conclusion of this  
20 case, in the amounts that are outlined in the  
21 testimony.

22 So I will state that our intent is to run  
23 that plant until 2031. We rely on it for both  
24 summertime capacity needs, as well as generation  
25 throughout the year. And if that plant were to, for

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1 whatever reason, circumstances change and close early,  
2 our intent is to stand behind the package that we  
3 negotiated. So we would not be expecting to change  
4 that in any way, shape, or form.

5 The one thing that I will note is that we do  
6 have some support for transmission that is coming from  
7 shareholders; and if the plant were to close early,  
8 those payments would begin at that point in time. So  
9 the price tag for the shareholders would go up with  
10 that particular element of the proposal.

11 I don't know if that was helpful. I know  
12 it's a little complicated. But, Commissioner O'Connor,  
13 I'm hoping that answered your question.

14 COM. O'CONNOR: Thank you.

15 Judge, I'll turn it back to you for the  
16 remainder of my questions. Thank you.

17 ACALJ HARPRING: Okay. Thank you,  
18 Commissioner O'Connor.

19 BY ACALJ HARPRING:

20 Q. The second question is: As of the present  
21 day, are you aware of any other entity anywhere,  
22 private, governmental, public, nongovernmental, that  
23 has committed or is seriously considering funding for  
24 transition related to Cholla and Four Corners  
25 transition?

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2

3 IN THE MATTER OF THE APPLICATION OF )  
4 ARIZONA PUBLIC SERVICE COMPANY FOR A ) DOCKET NO.  
5 HEARING TO DETERMINE THE FAIR VALUE ) E-01345A-19-0236  
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12

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21

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1 CROSS-EXAMINATION

2 BY MS. SCOTT:

3 Q. Good afternoon, Mr. Guldner.

4 A. Good afternoon, Ms. Scott. Can you hear me  
5 okay?

6 Q. Yes. And can you hear me okay?

7 A. Absolutely.

8 Q. If at any point you can't, please stop me and I  
9 will repeat the question.

10 A. Sounds good.

11 Q. I want to start by congratulating you on your  
12 new position. I haven't seen you in awhile since you  
13 took over that position, and I wanted to make sure that  
14 I did it today.

15 A. Thank you, Ms. Scott.

16 Q. How long have you been in the position?

17 A. Since November of 2019, so about a year and  
18 three months, two months, yeah.

19 Q. Well, I wish you well.

20 A. Thank you.

21 Q. I would like to start out by just asking you a  
22 little bit about APS. It is my understanding that you  
23 have two remaining coal plants, is that correct?

24 A. We have two remaining coal stations. There are  
25 a couple of plants at each of the stations, but Cholla

1 and Four Corners.

2 Q. And Cholla will be retired in 2025, correct?

3 A. That's correct. And Unit 4, which was owned by  
4 PacifiCorp, has been retired. That's all at the Cholla  
5 station, but it is not ours.

6 Q. And Four Corners is slated to retire in 2031?

7 A. That's correct.

8 Q. You also have several natural gas generating  
9 facilities, correct?

10 A. We do.

11 Q. If I said the number seven, does that sound  
12 correct?

13 A. That sounds about right in terms of stations.  
14 And obviously we have some purchased power agreements  
15 with -- sometimes they are plant specific and then  
16 sometimes they are market purchases.

17 Q. And in addition, you have approximately nine  
18 solar grid scale facilities that you own and operate, is  
19 that accurate?

20 A. Sounds about right. One of those may be one  
21 that we have under long-term PPA, and I am thinking of  
22 the Solana Generating Station, which was a solar thermal  
23 plant outside of Gila Bend that's under a PPA. The  
24 number sounds about right.

25 Q. And as far as your transmission system, do you

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21 Cross-Examination by Mr. Stafford 1104  
22 Cross-Examination by Ms. Anderson 1118  
23 Cross-Examination by Mr. Rich 1123  
24 Cross-Examination by Mr. Black 1140  
25 Cross-Examination by Mr. Pozefsky 1144  
Cross-Examination by Ms. Scott 1146

19 INDEX TO EXHIBITS

20 NO.	DESCRIPTION	IDENTIFIED	ADMITTED
21 APS-7	Brad Albert Direct Testimony	1048	1056
22 APS-8	Brad Albert Rebuttal Testimony	1049	1056
23 APS-9	Brad Albert Rejoinder Testimony	1049	1056
24 APS-33	Residential Installed Solar Capacity in APS Territory	1037	--

25



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1 testimony in this case?

2 A. I do.

3 Q. Do you adopt APS Exhibit 8 as your sworn  
4 rebuttal testimony in this case?

5 A. Yes, I do.

6 Q. Do you adopt APS Exhibit 9 as your sworn  
7 rejoinder testimony in this case?

8 A. Yes, I do.

9 Q. And do you sponsor APS Exhibit 36 as the errata  
10 to your originally filed rebuttal testimony?

11 A. Yes.

12 Q. Mr. Albert, would you now please present a  
13 summary statement of your testimony to the Commission.

14 A. The primary theme of my prefiled testimony  
15 centers on the clean energy transformation of APS's  
16 resource portfolio. It's transitioning its power  
17 production into a portfolio of noncarbon-emitting  
18 resources such as solar, wind, and energy storage.

19 In January of 2020, our CEO, Jeff Guldner,  
20 charted this course for the company by stating that we  
21 were going to be 100 percent carbon free by 2050, totally  
22 out of coal-fired generation by 2031, and have 45 percent  
23 renewable energy by 2030.

24 He provided some important principles that  
25 guide how to manage this transition of our resource

1 fleet. Specifically, we must accomplish this transition  
2 while maintaining affordability and the service  
3 reliability that customers depend upon.

4 Additionally, APS needs to be in a financial  
5 position where it can achieve these goals.

6 The investments that APS is seeking recovery  
7 for in this case are key components to APS achieving a  
8 reliable and affordable transition in this clean energy  
9 future.

10 First is the Ocotillo modernization project.  
11 This project resulted in the addition of 510 megawatts of  
12 quick-start natural gas peaking units that went into  
13 service in May of 2019 and the retirement of 220  
14 megawatts of older natural gas steam units. This  
15 investment was necessary to meet the growing peak demand  
16 needs of customers, and this type of generating unit was  
17 chosen to complement the growing renewable generation on  
18 the system.

19 These generating units can be started quickly  
20 to meet the early evening customer demand when solar  
21 production is dropping off. This flexibility allows them  
22 to serve an important role in accomplishing the clean  
23 energy transition of our resource fleet.

24 The second is the SCR investment at Four  
25 Corners, which has drastically reduced nitrogen oxide

1 emissions and allows the plant to continue to operate  
2 until the projected closure date in 2031. Four Corners  
3 serves as an invaluable resource when it comes to  
4 reliability, as strongly evidenced during the heat storm  
5 this last summer. The units operated at virtually full  
6 capacity during those days, and APS, unlike some other  
7 utilities in the West, was able to keep the lights on for  
8 our customers.

9 I explained that replacing a substantial and  
10 important resource such as Four Corners is more  
11 complicated than simply adding assumed amounts of solar,  
12 wind, and batteries. Numerous factors need to be  
13 considered, not the least of which are reliability and  
14 what is happening with APS's overall system. APS  
15 believes in energy storage technology, and it remains a  
16 big part of the clean energy future. However, APS's  
17 current resource plan already adopts large amounts of  
18 energy storage. And while adding significantly more  
19 amounts of it to replace Four Corners may work on a  
20 spreadsheet, the fact is it adds a significant amount of  
21 risk for the company and our customers.

22 In addition, I discuss analysis that was done  
23 in response to Chairman Burns's letter about the recovery  
24 of the remaining book value of retiring coal assets.  
25 Although the intervenors incorrectly attempt to use the

1 analysis to say that Four Corners should be retired  
2 early, they missed the point that the study was performed  
3 to evaluate ratemaking options for various retirement  
4 dates, not the economics or the risks of early  
5 retirement.

6 For these reasons, I recommend the Commission  
7 not force resource decision as part of a rate case that  
8 can have serious consequences for customers.

9 Another important aspect of the clean energy  
10 transition is sending the right price signals to our  
11 customers via our time-of-use tariff structures. This  
12 allows APS to defer future investments in peaking  
13 resources, which saves customers money. APS's 3 p.m. to  
14 8 p.m. on-peak window best aligns with that purpose while  
15 also providing our customers a more manageable time  
16 window, the latter of which is discussed by APS witness  
17 Jessica Hobbick.

18 Several intervenors believe shortening the peak  
19 hours is appropriate. But those recommendations undercut  
20 the very purpose of TOU rates as they will likely result  
21 in an increase in energy consumption at one of our  
22 already high-usage hours.

23 In addition, as increased amounts of solar are  
24 deployed on the system, the hours where the sun goes down  
25 become increasingly challenging to manage from a resource

1 be retired?

2 A. My understanding of the way that the agreement  
3 works is that it would have to be a unanimous decision of  
4 the co-owners to effectuate a retirement of the facility.

5 Q. And originally, APS projected a service life  
6 through 2038 for Units 4 and 5?

7 A. That's correct.

8 Q. And in 2020, you announced it would be retiring  
9 the plant in 2031?

10 A. Yes.

11 Q. Is APS actually expecting to operate Four  
12 Corners Units 4 and 5 through 2031?

13 A. We are, yes.

14 Q. Have any of the co-owners announced that they  
15 will be retiring or exiting their existing ownership  
16 prior to that year?

17 A. Yes, Ms. Scott. Public Service Company of New  
18 Mexico, who is a current owner of -- one of the current  
19 co-owners, announced last year, and I can't remember  
20 exactly when that announcement occurred, that they were  
21 looking to exit their ownership share at the end of 2024  
22 and sell their ownership share to one of the existing  
23 co-owners.

24 Q. Do you know who that co-owner is that will be  
25 buying up that share?



## PNM Underscores ESG Strategy with Additional Plan to Reduce Emissions at Four Corners Power Plant

Released : 03/12/2021

ALBUQUERQUE, N.M., March 12, 2021 /PRNewswire/ -- PNM, the wholly-owned New Mexico utility subsidiary of PNM Resources (NYSE: PNM), has enhanced its plan to exit the coal-fired Four Corners Power Plant with additional plans for seasonal operations at the plant beginning in the fall of 2023.



"The combination of these plans with our planned exit from Four Corners demonstrates the comprehensive approach within our ESG strategy to do what's right for customers, employees, communities and the environment," said Pat Vincent-Collawn, PNM Resources' chairman, president and CEO. "Our accelerated exit from coal and utilization of securitization financing provides customer savings and financial support to communities, including the Navajo Nation, and now the plan for seasonal operations achieves environmental benefits while preserving the community's jobs and royalty payments. I'm proud of our team who continued to collaborate with all of the parties to address the overall needs of each of the owners and achieve these additional benefits."

In November 2020, PNM announced it had reached an agreement to transfer its 13 percent plant ownership to the Navajo Transitional Energy Corporation (NTEC) at the end of 2024, unlocking the potential for PNM to realize significant savings for its customers through the replacement of this capacity with cleaner energy resources. The exit agreement also allows PNM to fully exit coal in support of its industry-leading goal of emissions-free energy by 2040, five years ahead of the carbon-free mandate included in New Mexico's Energy Transition Act.

Following the announcement, PNM continued to negotiate on the future operation of the plant with NTEC and the other plant owners to achieve the owners' individual reliability needs and sustainability goals, in consideration with a just energy transition for the Navajo Nation. The collaborative solution for seasonal operations ensures the plant will be available to serve each owners' customer needs during times of peak energy use while minimizing operations during periods of low demand. This approach results in an estimated annual 20 to 25 percent reduction in carbon emissions at the plant and retains jobs and royalty payments for the Navajo Nation.

The Four Corners Power Plant has been an important resource for reliable electricity for nearly 60 years, particularly for areas of high summer demand across the western United States. The installation of selective catalytic reduction (SCR) equipment at the plant in 2018 has reduced annual nitrogen oxide emissions by 88 percent. The plant is also a critical piece of the Navajo Nation economy.

PNM currently has a 13 percent ownership stake in the 1,540-megawatt plant. These 200 megawatts comprise less than 10 percent of PNM's total energy portfolio and reflect the last of PNM's remaining coal-fired generation capacity following the approved retirement of the coal-fired San Juan Generating Station in 2022.

PNM filed with the New Mexico Public Regulation Commission (NMPRC) in January 2021 for abandonment and securitization of its share of the Four Corners Power Plant. The Hearing Examiner in the case recently directed PNM to amend its filing with supplemental testimony by March 15, 2021. In its amended filing, PNM will include information pertaining to the new agreement for seasonal operations and its environmental benefits. In accordance with the Hearing Examiner's order, the nine-month review period for the proceeding will be reset with the amended filing.

PNM's regulatory proceeding for the abandonment and securitization of the Four Corners Power Plant is separate from the NMPRC docket for approval of PNM's merger with Avangrid. PNM Resources continues to anticipate receiving all required federal and state approvals and closing the merger in the second half of 2021.

Additional materials pertaining to PNM's filing for Four Corners abandonment are available at <https://www.pnmresources.com/investors/rates-and-filings.aspx>.

### Background:

PNM Resources (NYSE: PNM) is an energy holding company based in Albuquerque, N.M., with 2020 consolidated operating revenues of \$1.5 billion. Through its regulated utilities, PNM and TNMP, PNM Resources provides electricity to approximately 800,000 homes and businesses in New Mexico and Texas. PNM serves its customers with a diverse mix of generation and purchased power resources totaling 2.8 gigawatts of capacity, with a goal to achieve 100% emissions-free energy by 2040. For more information, visit the company's website at [www.PNMResources.com](http://www.PNMResources.com).

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### Safe Harbor Statement under the Private Securities Litigation Reform Act of 1995

Statements made in this news release for PNM Resources, Inc. ("PNMR"), Public Service Company of New Mexico ("PNM"), or Texas-New Mexico Power Company ("TNMP") (collectively, the "Company") that relate to future events or expectations, projections, estimates, intentions, goals, targets, and strategies are made pursuant to the Private Securities Litigation Reform Act of 1995. Readers are cautioned that all forward-looking statements are based upon current expectations and estimates. PNMR, PNM, and TNMP assume no obligation to update this information. Because actual results may differ materially from those expressed or implied by these forward-looking statements, PNMR, PNM, and TNMP caution readers not to place undue reliance on these statements. PNMR's, PNM's, and TNMP's business, financial condition, cash flow, and operating results are influenced by many factors, which are often beyond their control, that can cause actual results to differ from those expressed or implied by the

forward-looking statements. Additionally, there are risks and uncertainties in connection with the proposed acquisition of us by AVANGRID which may adversely affect our business, future opportunities, employees and common stock, including without limitation, (i) the expected timing and likelihood of completion of the pending Merger, including the timing, receipt and terms and conditions of any required governmental and regulatory approvals of the pending Merger that could reduce anticipated benefits or cause the parties to abandon the transaction, (ii) the failure by AVANGRID to obtain the necessary financing arrangement set forth in commitment letter received in connection with the Merger, (iii) the occurrence of any event, change or other circumstances that could give rise to the termination of the Merger Agreement, (iv) the possibility that PNMR's shareholders may not approve the Merger Agreement, (v) the risk that the parties may not be able to satisfy the conditions to the proposed Merger in a timely manner or at all, (vi) risks related to disruption of management time from ongoing business operations due to the proposed Merger, and (vii) the risk that the proposed transaction and its announcement could have an adverse effect on the ability of PNMR to retain and hire key personnel and maintain relationships with its customers and suppliers, and on its operating results and businesses generally. For a discussion of risk factors and other important factors affecting forward-looking statements, please see the Company's Form 10-K, Form 10-Q filings and the information included in the Company's Forms 8-K with the Securities and Exchange Commission, which factors are specifically incorporated by reference herein.

View original content to download multimedia:<http://www.prnewswire.com/news-releases/pnm-underscores-esg-strategy-with-additional-plan-to-reduce-emissions-at-four-corners-power-plant-301246376.html>

SOURCE PNM Resources, Inc.

3/12/2021

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## APS announces plans for seasonal operations at Four Corners Power Plant

*Starting 2023, seasonal schedule will reduce annual carbon emissions an estimated 20-25%, furthering APS's clean energy commitment*

PHOENIX – Arizona Public Service Co. (APS), an owner and operator of the Four Corners Power Plant, today announced plans of an agreement among plant owners Navajo Transitional Energy Company (NTEC), Public Service Company of New Mexico (PNM), Salt River Project (SRP) and Tucson Electric Power (TEP) to move toward operating the plant seasonally beginning fall 2023, subject to necessary approvals.

The agreement comes as PNM announced plans to transfer its share of ownership to NTEC in 2024. The transfer of ownership in combination with seasonal operations will bring substantial environmental benefits and ensure continued service reliability for customers, especially during Arizona's notoriously hot summer months, as APS transitions to its planned exit from coal by 2031.

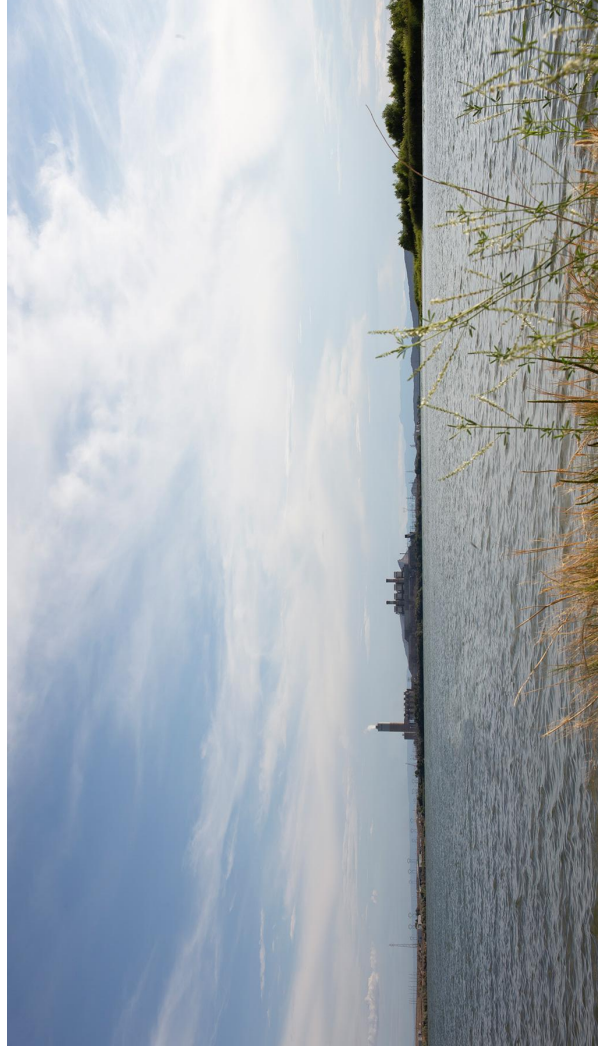
Compared to current conditions, the shift to seasonal operations will reduce annual carbon emissions by an estimated 20-25%, furthering APS's commitment to achieve 100% clean energy by 2050 and the individual sustainability goals of the plant's other owners. The Four Corners Power Plant has already cut annual nitrogen oxide emissions by 88% since the installation of selective catalytic reduction (SCR) equipment on Unit 4 and Unit 5 in 2018.

"Four Corners has provided reliable and affordable electricity for almost 60 years, fostering economic growth and prosperity in cities and towns throughout the region," said Jacob Teltow, Sr. Vice President of Operations at APS. "With seasonal operations, the plant will continue to be a critical source of reliable electricity when our customers need it most and enable a responsible transition to a cleaner energy future."



**“With seasonal operations, the plant will continue to be a critical source of reliable electricity when our customers need it most and enable a responsible transition to a cleaner energy future.”**

Jacob Tetlow, Sr. Vice President of Operations at APS



In alignment with APS's Coal Communities Transition, a \$144 million proposal focused on supporting coal communities including the Navajo Nation, the plan toward seasonal operations at Four Corners Power Plant takes into consideration reliability, customer affordability and support for the Navajo Nation.

By moving to seasonal operations, Four Corners will become a more flexible resource that supports increasing amounts of clean energy, helping to compensate for the intermittent output of renewable resources. This change also helps ensure reliability of a critical energy source while reducing operations and maintenance costs.

Under seasonal operation, one of the plant's two remaining units will operate only throughout the summer season of June through October when customers' energy needs are the highest across the region. By contrast, the plant's other unit will continue generating power year-round, subject to market conditions and planned maintenance outages.

The transition to seasonal operations will not require layoffs or furloughs of APS employees.

**APS** serves about 1.3 million homes and businesses in 11 of Arizona's 15 counties, and is a leader in delivering affordable, clean and reliable energy in the Southwest. The company is committed to serving customers with 100% clean power by 2050. As owner and operator of Palo Verde Generating Station, the nation's largest producer of carbon-free electricity, and with one of the country's most substantial renewable energy portfolios, APS's current energy mix is 50% clean. With headquarters in Phoenix, APS is the principal subsidiary of **Pinnacle West Capital Corp.** (NYSE: PNW).

#### **Forward-Looking Statements**

This press release contains forward-looking statements based on current expectations. These forward-looking statements are identified by words such as "estimates," "plans" and similar words. Because actual results may differ materially from expectations, we caution readers not to place undue reliance on these statements. A number of factors could cause future results to differ materially from outcomes currently expected or sought by us. A discussion of some of these risks and uncertainties is contained in our Annual Report on Form 10-K and is available on our website at [pinnaclewest.com](http://pinnaclewest.com), which readers should review carefully before placing any reliance on our forward-looking statements or disclosures. We assume no obligation to update any forward-looking statements, except as may be required by applicable law.

#### **Related stories**

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Jobs available in APS  
customer care center

At one-year anniversary of  
clean energy commitment,  
APS reports steady progress

1/21/2021

APS partners with Arizona  
communities in commitment  
to clean energy

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Capital Clearings by Project  
July 2016-December 2018

CBI/Project Number	Funding Project	Period	Clearings	Justification
		<b>July 2016- June 2018</b>		
FC01-2017	FC01-2017	FC17-208 U5 Booster Fan Inlet Damp	46,271	Reliability
FC02-2017	FC02-2017	FC17-209 U5 BH Reverse Air Fans	9,462	Reliability
FC03-2017	FC03-2017	FC17-210 U5 BH Booster Fan Inlet	55,993	Reliability
FC04-2017	FC04-2017	FC17-217 SIT Seepage Collection Upg	5,416	Regulatory
FC05-2017	FC05-2017	FC17-211 U5 Boiler system Valves	118,246	Reliability
FC11-10	T1205007H,T1205007S	FCS Upgd Control House Security 500	58,150	Regulatory
FC11-11	T1401002H	T1401002H FC Control House Upgrd	230,794	Regulatory
FC12-02	FCC06791	FC Main Air Compressors Repl, U4&5	3,081,144	Reliability
FC12-03	FCC03961	FC LP Generator Stator/Field Rewind	2,447,753	Reliability
FC12-05	FCC06551	FC Coal Silo Wall Repl, U5	2,409,551	Reliability
FC13-01	FCC03864	FC U4 SCR	44,925,370	Regulatory
FC13-06A	FCC07116	FCC07116 U4&5 Heat Trace	385,744	Reliability
FC13-19	FCC03940	FC Overhead Cable Repl U4&5	88,553	Reliability
FC14-01	FCC03875	FC Partial Horizontal Reheat BankU4	2,395,687	Reliability
FC14-26	FBC90401	FC U5 SCR	43,779,431	Regulatory
FC14-27	FCC06552	FC U4 Coal Silo Wall Repl	2,366,872	Safety
FC14-42	FCC08170	FCC08170 U5 Boiler Lagging Repl	71,335	Reliability
FC15-01	FCC03942	FCC03942 U4 High Energy Valve Repl	1,138,414	Safety
FC15-04	FCC06550	FCC06550 U4 ElectrBreaker 480/4160V	582,229	Reliability
FC15-09	FCC07971	FCC07971 U5 HP_LP Generator CT Repl	80,040	Reliability
FC15-10	FCC07893	FCC07893 U45 Process Liquor Tank Re	207,689	Regulatory
FC15-2017	FC15-2017	FC17-216 U5 Iris Analyzer	9,591	Reliability
FC15-41	FCC08045	FCC08045 U5 LP Gen Hydrogen Cooler	219,737	Reliability
FC15-42	FCC08374	FCC08374 River Station Battery Repl	2,364	Reliability
FC15-43	FCC08257	FCC08257 Condensate Motor Repl	5,076	Reliability
FC15-46	FCC08561	FCC08561 U5 Abs Module Overhaul 5C	689,620	Regulatory
FC15-56	FCC08729	FCC08729 HVAC Equipment Repl	331,292	Reliability
FC15-60	FCC08804	FCC08804 N BF Booster Pump Motor	17,784	Reliability
FC15-63	FCC08836	FCC08836 U4&5 Insulation Repl 2015	105,831	Regulatory
FC15-65	FCC08838	FCC08838 Bridge Abutment Erosion Re	37,546	Safety
FC16-07	FCC08248	FCC08248 Plant Elevators Modern	35,318	Safety
FC16-08	FCC08263	FCC08263 Emergency Response Equip	10,448	Safety
FC16-10	FCC08589	FCC08589 F4 Abs Module Overhaul	596,578	Regulatory
FC16-12	FCC08588	FCC08588 U4 Abs Module Overhaul 4NC	663,122	Regulatory

Capital Clearings by Project  
July 2016-December 2018

CBI/Project Number	Funding Project	Period	Clearings	Justification
<b>July 2016- June 2018</b>				
FC16-13	FCC08590	FCC08590 U5 Abs Module Overhaul 5NC	628,816	Regulatory
FC16-14	FCC07200	FCC07200 F4 Fabric Filter Bag Repl	123,687	Regulatory
FC16-15	FCC07201	FCC07201 F5 Fabric Filter Bag Repl	120,109	Regulatory
FC16-16	FCC06998	FCC06998 F4 Particulate CEMS	81,915	Regulatory
FC16-17	FCC06999	FCC06999 F5 Particulate CEMS	88,877	Regulatory
FC16-18	FCC08285	FCC08285 U5 BH Lagging/Insulation	25,723	Safety
FC16-20	FCC08275	FCC08275 U4 BH Lagging/Insulation	30,911	Safety
FC16-2017	FC17-212	FC17-212 SKF Continuous Monitoring	12,059	Reliability
FC16-25	FCC04075	FCC04075 Network Routing/Hardware	100,299	Reliability
FC16-28.1	FCC08992	FCC08992 U4 Vacuum Pump Motor	6,683	Reliability
FC16-28.2	FCC09022	FCC09022 BH Compressor Motor Repl	7,333	Reliability
FC16-28.3	FCC09062	FCC09062 North PA Fan Motor Repl	15,420	Reliability
FC16-28.4	FCC09068	FCC09068 U5 N Condensate Pump Motor	16,252	Reliability
FC16-28.5	FCC012712	FCC012712 Vert Ash Sluice Pump Mtr	6,067	Reliability
FC16-28.6	FCC012730	FCC012730 South PA Fan Motor Repl	16,346	Reliability
FC16-29	FCC06549	FCC06549 Electrical Brkr 480/4160V	528,463	Reliability
FC16-30	FCC07641	FCC07641 Circ Water Pump Repl	299,763	Reliability
FC16-31	FCC07642	FCC07642 Circ Water Pump Repl	244,732	Reliability
FC16-32	FCC07894	FCC07894 U5 Process Liquor Tank	117,768	Reliability
FC16-35	FCC07958	FCC07958 Ph2 Water Piping Repl	219,230	Safety
FC16-36	FCC08297	FCC08297 Misc Pump Repl	11,746	Reliability
FC16-36.1	FCC09056	FCC09056 U4West Process Liquor Pump	2,872	Reliability
FC16-37	FCC08099	FCC08099 Plant Tools 2016	6,803	Reliability
FC16-38	FCC08417	FCC08417 Coal Handling Controls	96,022	Reliability
FC16-41	FCC08156	FCC08156 HP Gen Stator/Field Rewind	1,935,252	Reliability
FC16-42	FCC03922	FCC03922 U4 LP Gen Stator/Field Rew	2,233,976	Safety
FC16-43	FCC03960	FCC03960 U4 HP Gen Stator/Field	1,819,005	Reliability
FC16-44	FCC08250	FCC08250 HP Gen Hydrogen Cooler	131,512	Reliability
FC16-45	FCC08299	FCC08299 U45 DCS HMI Upgrade	678,950	Reliability
FC16-48	FCC06825	FCC06825 U4 Upper Econ Repl	418,347	Reliability
FC16-56	FCC08495	FCC08495 4 Windbox Lagging/Insulati	44,033	Safety
FC16-57	FCC08653	FCC08653 U4 Inlet SO2 Monitors/Gas T	255,945	Regulatory
FC16-58	FCC08654	FCC08654 U5 Inlet SO2 Monitor/Gas T	244,899	Regulatory
FC16-61	FCC03863	FCC03863 U4 Chimney Modifications	429,525	Regulatory

Capital Clearings by Project  
July 2016-December 2018

CBI/Project Number	Funding Project	Period	Clearings	Justification
<b>July 2016- June 2018</b>				
FC16-62	FCC03913	U5 Chimney Modifications	455,502	Regulatory
FC16-63	FCC08834	U5 Boiler Insulation Repl	114,379	Safety
FC16-64	FCC08563	U5 Abs Module Overhaul 5S	623,233	Regulatory
FC16-65	FCC08710	U4 North Waterwall Panel	65,038	Reliability
FC16-67	FCC08891	Turbine Control Valve Seat	30,478	Reliability
FC16-71	FCC08915	Whse Pallet Rack Repl	14,516	Safety
FC16-72	FCC08963	U4 Lube Oil Sys Cooler Ret	22,639	Regulatory
FC17-01	FCC06554	Startup Valve Repl 205	34,857	Reliability
FC17-02	FCC07202	U4 Fabric Filter Bag	95,868	Regulatory
FC17-03	FCC07203	U5 Fabric Filter Bag	106,330	Regulatory
FC17-04	FCC07604	LP Turbine Major OH	728,556	Reliability
FC17-06	FCC07643	U4HP_LP Gen Hydrogen Coole	294,882	Reliability
FC17-07	FCC07904	U4 Absorber Module Mixer	255,589	Regulatory
FC17-08	FCC07905	U5 Abs Module Mixer Repl	210,299	Regulatory
FC17-10	FCC08325	U45 Misc Pump/Valve 2017	25,465	Reliability
FC17-13	FCC08100	U45 Plant Tools 2017	8,958	Reliability
FC17-16	FCC08276	U4 Baghouse Lagging/Insul	20,254	Safety
FC17-17	FCC08286	U5 Baghouse Lagging/Insul	37,658	Safety
FC17-18	FCC08319	U4 HP_LP Hydrgen Dryer	68,623	Reliability
FC17-19	FCC08322	U4 HP_IP Turbine Major OH	1,621,502	Reliability
FC17-2017	FC17-207	U5 Poppet Actuator	23,653	Reliability
FC17-22	FCC08433	U4 PA Duct Exp Joint	41,067	Reliability
FC17-23	FCC08434	U5 PA Duct Expansion	27,945	Reliability
FC17-24	FCC08474	U4 Baghouse ExpansionJoint	398,755	Regulatory
FC17-25	FCC08113	U5 Baghouse Exp Joint	302,859	Regulatory
FC17-26	FCC08493	U5 Windbox Lagging/Insul	28,256	Safety
FC17-29	FCC07974	U4 IK Retractable Sootblow	251,358	Reliability
FC17-30	FCC08712	U5 IK Retractable Sootblow	153,857	Reliability
FC17-31	FCC08792	U5Scrubber Outlet Duct Lin	510,191	Regulatory
FC17-32	FCC08852	U4 Waterwall Center Panel	56,772	Reliability
FC17-33	FCC08895	U4 Burner Replacement	1,113,461	Regulatory
FC17-34	FCC08896	U5 Burner Replacement	836,116	Regulatory
FC17-35	FCC08919	U4 Stack Outlet Monitoring	117,055	Regulatory
FC17-36	FCC08920	U5 Stack Outlet Monitoring	116,748	Regulatory

Capital Clearings by Project  
July 2016-December 2018

CBI/Project Number	Funding Project	Period	Clearings	Justification
		<b>July 2016- June 2018</b>		
FC17-37	FCC08987	FCC08987 U5 East Main Turbine Lube	27,574	Regulatory
FC17-38	FCC08988	FCC08988 U5 West Main Turbine Lube	26,950	Regulatory
FC17-39	FCC08989	FCC08989 U4 West Main Turbine Lube	27,100	Regulatory
FC17-41	PE013571	PE013571 HVAC-SO2 Bldg AHU 1_2 Repl	14,903	Reliability
FC17-41	PE013572	PE013571 HVAC-SO2 Bldg AHU 1_2 Repl	4,325	Reliability
FC17-41	PE013573	PE013571 HVAC-SO2 Bldg AHU 1_2 Repl	6,415	Reliability
FC17-42	FCC08999	FCC08999 Bldg-Clinic Roof Repl	12,670	Safety
FC17-43	FCC09000	FCC09000 Main Fire Pump House Roof	23,784	Safety
FC17-44	FCC08892	FCC08892 CCR Monitoring Well	25,440	Regulatory
FC17-47	FCC08219	FCC08219 U4 Generator SSO Relay	60,150	Safety
FC17-48	FCC08927	FCC08927 SJ River Intake/Lake Devic	111,680	Regulatory
FC17-49	FCC09054	FCC09054 U4 Waterwell Panel Repl	402,929	Reliability
FC17-50	FCC09055	FCC09055 U5 Waterwell Panel Repl	308,546	Reliability
FC17-51	FCC013085	FCC013085 Crane Hoist Repl	192,618	Reliability
FC17-52	FCC013243	FCC013243 U5 Trench Bushing Repl	65,392	Safety
FC17-53	FCC013241	FCC013241 U4 Trench Bushing Repl	61,633	Safety
FC17-55	FCC08603	FCC08603 Abs Module Overhaul 4SC	525,037	Regulatory
FC17-56	FCC06594	FCC06594 U4 Boiler Exp Joint Repl	332,637	Reliability
FC18-02	FCC08277	FC18-02 U4 BH Lagging_Insulation	24,109	Safety
FC18-03	FCC08287	FCC18-03 U5 BH Lagging_Insulation	23,848	Safety
FC18-13	FCC08580	FC18-13 BA Clinker Grinder Repl	18,842	Reliability
FC18-15	FCC07204	FC18-15 U4 Fabric Filter Bag Repl	110,923	Reliability
FC18-16	FCC07205	FC18-16 U5 Fabric Filter Bag Repl	102,932	Reliability
FC18-2017	FC18-2017	FC17-213 U5 BH Poppet Actuator	19,012	Reliability
FC18-45	FCC012878	FC18-45 U45 Aux Boiler Battery Repl	4,560	Reliability
FC18-46	FCC012879	FCC012879 48V River Station Battery	2,008	Reliability
FC18-50	FCC013940	FCC013940 Boiler PH Structure Repl	114,692	Safety
FC21-2017	FC21-2017	FC17-205 U45 Grinding Zone Rebuild	416,583	Reliability
FC22-2017	FC22-2017	FC17-214 U5 Auto Swing Valve	60,505	Reliability
FC27-2017	FC27-2017	FC17-215 U5 BFP Cable Repl	15,268	Reliability
FC33-2017	FC33-2017	FC17-203 U5 Inline Valve Repl	43,027	Reliability
FC34-2017	FC34-2017	FC17-204 U5 Vent Valve	2,175	Safety
FC38-2017	FC38-2017	FC17-202 U5 Outlet Damper System	33,893	Reliability
FC43-2017	FC43-2017	FC17-201 U5 LP Turning Gear Bull Ge	24,008	Reliability

Capital Clearings by Project  
July 2016-December 2018

CBI/Project Number	Funding Project	Period	Clearings	Justification
		<b>July 2016- June 2018</b>		
FC45-2017	FC45-2017	FC17-206 U5 Boiler Turbine Valve	80,651	Reliability
FC49-2017	FC49-2017	FC17-200 U5 HP/LP Gen RTD Monitorin	40,001	Reliability
N/A	Y0082387	PNM Capitalized	911,048	Reliability
			131,298,381	



PLANT	FC Power Plant	<b>FOUR CORNERS O &amp; M BUDGET ITEM</b>	NUMBER:	01-2017
BUDGET YEAR	2017		BUDGET TYPE:	OH
COST OF PROJECT \$	360,000		DATE:	4/15/2016
SYSTEM:	Baghouse		SUBSYSTEM:	BF Vane Drives
CURRENT SYSTEM HEALTH	CURRENT SUBSYSTEM HEALTH		PRIORITY:	3
PROJECTED SYSTEM HEALTH	PROJECTED SUBSYSTEM HEALTH		FREQ:	One time
RISK TYPE:	Environmental		PREPARED BY:	Marcus Tallman

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<b>Job Title:</b> Unit 5 Booster Fan Inlet Vane Damper Drives Replace  <b>Description of Work:</b> Twelve (12) Hagan 8X14 Positioner Torque drives replaced with new Type K (TK-6) pneumatic damper drives. Each booster fan requires a total of three (3) pneumatic drives on the inlet vane side.  <b>Purpose and Necessity:</b> All inlet vane drives on the baghouse booster fans have reached the end of their service life and parts have become obsolete. Major issues identified on the inlet vane drives are the control arm bends and pivot shaft pin bolts are breaking at the cylinder. Broken control arms and sheared pins have caused the main drive to work inefficiently and is a recurring issue for maintenance.  <b>Potential Adverse Consequence if not completed in this year:</b> Not replacing the Hagan drives to the Type K drives will result in complete failure of the Hagan drives. With parts being obsolete, there are longer lead times for parts to arrive. There are no spare parts available, causing longer derates to the unit when job placement is on hold for parts. Once the SCR goes into operation booster fans will require operation at a higher RPM. Higher wind force velocities will exist around inlet vane drives which will demand a higher torque output from the drives and cause the drives to malfunction more often. Inefficient air filtration system on the 30+ year old Hagan system has resulted in moisture getting into instrument air causing additional cost of winter and summer readiness for shelters to be built and removed. With a total replacement, an improved air filtration system that is provided with the new will mitigate this ongoing issue for maintenance.	Allocation	%	\$\$
	APS	63	226,800
	PSNM	13	46,800
	SRP	10	36,000
	TEP	7	25,200
	4CA	7	25,200
	Total	100	360,000

NEW Budget Item

*Estimates (Dollars Only)*

Type of Expense	APS BASE PAY(1)	APS OVERTIME (2)	M&S(3)	TRAVEL SUB/LOD.(4)	OTHER(5)	CONTRACT LABOR(8)	TOTAL
BUDGET			175,000			185,000	360,000
ACTUAL							

*Schedule of Expenditures:*

1st Quarter		2nd Quarter		3rd Quarter		4th Quarter	
JAN \$		APR \$		JUL \$	200,000	OCT \$	60,000
FEB \$		MAY \$		AUG \$		NOV \$	
MAR \$		JUN \$		SEP \$	100,000	DEC \$	

For US Overhaul - 9/16/17 through 12/19/17

*System details for annual trending:*

Type of Overhaul Cost	Boiler \$	Turbine/Gen \$	Fuels \$	Scrubber \$	Heat Cycle \$	Auxiliaries \$	Total \$\$
BUDGET				360,000			360,000

CF      January      February      March      April      May      June      Ju August      September      October      November      December

100,000      60,000

PLANT	FC Power Plant		<b>FOUR CORNERS O &amp; M BUDGET ITEM</b>	NUMBER:	02-2017	
BUDGET YEAR	2017			BUDGET TYPE:	OH	
COST OF PROJECT \$	67,000			DATE:	5/3/2016	
SYSTEM:	Baghouse	SUBSYSTEM:		Flue Gas Duct	PRIORITY:	1
CURRENT SYSTEM HEALTH	CURRENT SUBSYSTEM HEALTH			FREQ:	One Time	
PROJECTED SYSTEM HEALTH	PROJECTED SUBSYSTEM HEALTH			PREPARED BY:	Herb Jackson	
RISK TYPE:	Environmental and performance					

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<b>Job Title:</b>	Unit 5 Baghouse Reverse Air Fan Overhaul		
	Allocation	%	\$\$
	APS	63	42,210
	PSNM	13	8,710
	SRP	10	6,700
	TEP	7	4,690
	4CA	7	4,690
	Total	100	67,000

OHBI submitted in 2015 then pushed to 2017

**Description of Work:**  
Repair and or replace six RA fans (68,502 SCFM) and it's components. Components include: Inlet and outlet dampers, Inlet cones (shrouds), air driven actuators, damper drive unit, and expansion joints. Inlet expansion joint (60" diameter x 16" face to face, a total of 4), and outlet expansion joints (2'5" x 7'-2-7/8" x 9" F-F, 6 each AND 2'9-1/2" x 5'2-3/8" x 9" F - F, 6 each)

**Purpose and Necessity:**  
Unit 5 Baghouse Reverse Air fan Inlet and Outlet damper and shrouds are worn and at the end their service life of 30 years. The Inlet shrouds are at the end of their life cycle of 30 years. It is starting to bind and currently hard to operate, causing difficulty for operations to control the dampers efficiently. The operation of the dampers affect the performance of the reverse air fans in terms of pressure and volumetric air flow rates. Expansion joints on the inlet and discharge duct from the RA fans are at the end of service life and need replacement. This overhaul would be potential for every outage up until each component is replaced, if not all components are attended to in one outage.

**Potential Adverse Consequence if not completed in this year:**  
If the worn Reverse Air fans and the components are not replaced, it could result in a unit load reduction. The Reverse Air fan is the most vital component for the cleaning cycle.

**Estimates (Dollars Only)**

Type of Expense	APS BASE PAY(1)	APS OVERTIME (2)	M&S(3)	TRAVEL SUB/LOD.(4)	OTHER(5)	CONTRACT LABOR(8)	TOTAL
BUDGET	60,000	3,000	4,000				67,000
ACTUAL							-

**Schedule of Expenditures:**

1st Quarter		2nd Quarter		3rd Quarter		4th Quarter	
JAN \$		APR \$		JUL \$	13,400	OCT \$	21,000
FEB \$		MAY \$		AUG \$		NOV \$	11,600
MAR \$		JUN \$		SEP \$	21,000	DEC \$	

For US Overhaul - 9/16/17 through 12/19/17

**System details for annual trending:**

Type of Overhaul Cost	Boiler \$	Turbine/Gen \$	Fuels \$	Scrubber \$	Heat Cycle \$	Auxiliaries \$	Total \$\$
BUDGET				67,000			67,000

	January	February	March	April	May	June	July	August	September	October	November	December
CF	-	-	-	-	-	-	#	-	21,000	21,000	11,600	67,000

PLANT	FC Power Plant	<b>FOUR CORNERS O &amp; M BUDGET ITEM</b>	NUMBER:	03-2017
BUDGET YEAR	2017		BUDGET TYPE:	OH
COST OF PROJECT \$	412,000		DATE:	5/3/2016
SYSTEM: Baghouse	SUBSYSTEM: Booster Fan System		PRIORITY:	1
CURRENT SYSTEM HEALTH	CURRENT SUBSYSTEM HEALTH		FREQ:	Major
PROJECTED SYSTEM HEALTH	PROJECTED SUBSYSTEM HEALTH		PREPARED BY:	A. Fuller/ Herb Jackson
RISK TYPE:	Generation			

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<b>Job Title:</b> Unit 5 Baghouse Booster Fan Inlet Vanes Replacement	Allocation	%	\$\$
<b>Description of Work:</b> Replace booster fan inlet damper vanes, both the inboard and outboard, and linkage pivot arm joints, for 1 booster fan on Unit 5 Northeast.	APS	63	259,560
	PSNM	13	53,560
	SRP	10	41,200
	TEP	7	28,840
	4CA	7	28,840
	Total	100	412,000

OHBI submitted in 2015 then pushed to 2017

**Purpose and Necessity:**  
The booster fan inlet damper vanes are worn and at the end of their service life of 30 years. These dampers vanes are starting to bind and currently hard to operate to the point where the operator is unable to control the dampers efficiently. Booster Fan issues that arise in result of the inlet vane problems have cause up to 37,000 MWH loss in 2015 (37,000MW x \$19/MW= \$703,000). The operation of the dampers affect the performance of the booster fans in terms of pressure and volumetric air flow rates.

**Potential Adverse Consequence if not completed in this year:**  
If the worn booster fan inlet damper vanes are NOT repaired, it could result in a unit load reduction.

*Estimates (Dollars Only)*

Type of Expense	APS BASE PAY(1)	APS OVERTIME (2)	M&S(3)	TRAVEL SUB/LOD.(4)	OTHER(5)	CONTRACT LABOR(8)	TOTAL
BUDGET			236,000			176,000	412,000
ACTUAL							-

*Schedule of Expenditures:*

1st Quarter		2nd Quarter		3rd Quarter		4th Quarter	
JAN \$		APR \$		JUL \$	206,000	OCT \$	41,200
FEB \$		MAY \$		AUG \$	51,500	NOV \$	61,800
MAR \$		JUN \$		SEP \$	51,500	DEC \$	

For US Overhaul - 9/16/17 through 12/19/17

*System details for annual trending:*

Type of Overhaul Cost	Boiler \$	Turbine/Gen \$	Fuels \$	Scrubber \$	Heat Cycle \$	Auxiliaries \$	Total \$\$
BUDGET				412,000			412,000

	January	February	March	April	May	June	July	August	September	October	November	December
CF	-	-	-	-	-	-	-	# 51,500	51,500	41,200	61,800	- 412,000

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PLANT	FC Power Plant	<b>FOUR CORNERS O &amp; M BUDGET ITEM</b>	NUMBER:	04-2017
BUDGET YEAR	2017		BUDGET TYPE:	RT
COST OF PROJECT \$	205,000		DATE:	4/4/2016
SYSTEM:	SUBSYSTEM:		PRIORITY:	2
CURRENT SYSTEM HEALTH	CURRENT SUBSYSTEM HEALTH		FREQ:	One-Time
PROJECTED SYSTEM HEALTH	PROJECTED SUBSYSTEM HEALTH		PREPARED BY:	C. Mark/E. Farley
RISK TYPE GENERATION				

<b>Job Title:</b> South Intercept Trench (SIT) seepage collection - upgrade  <b>Description of Work:</b> Upgrade existing south intercept trench (SIT) seepage collection system with additional isolation valve and check valve on discharge side of SIT sump pump vault and add a french drain inside the vault that would be piped back to precast sump pump closure in order from the vault will be flooded. Total number of Sump = 14 sumps.  <b>Purpose and Necessity:</b> The purpose is to perform required upgrade to prevent continue flooding of vault and the totalizer detecting flowback after the sump pump cycle off by system experts. Leaks are caused by debris caught in the air release, pressure relief, and check valves inside the vault. Installing additional isolation valve (check valves) outside of the vault will allow each SIT sump pump location to be properly isolated individual rather than the entire SIT system. This upgrade is required due to normal wear, erosion and corrosion, etc. These repairs are necessary to maintain compliance with environmental regulations. Budget to cover upgrade the SIT system to the gate valves and check valve, install 2" drain line from vault to well sump pump, and properly core drill concrete vault and sump pump wall.  <b>Potential Adverse Consequence if not completed in this year:</b> With the degraded condition of South Intercept Trench (SIT) system will continue to incur additional failures and we will not be in compliance with all environmental regulations.	Allocation ◀	%	\$\$	
		APS	63	129,150
		PSNM	13	26,650
		SRP	10	20,500
		TEP	7	14,350
		4CA	7	14,350
		Total	100	205,000

*Estimates (Dollars Only)*

Type of Expense	APS BASE PAY(1)	APS OVERTIME (2)	M&S(3)	TRAVEL SUB/LOD.(4)	OTHER(5)	CONTRACT LABOR(8)	TOTAL
BUDGET			45,000			160,000	205,000
ACTUAL							-

*Schedule of Expenditures:*

1st Quarter		2nd Quarter		3rd Quarter		4th Quarter	
JAN \$		APR \$		JUL \$		OCT \$	
FEB \$	51,250	MAY \$	51,250	AUG \$	51,250	NOV \$	51,250
MAR \$		JUN \$	-	SEP \$	-	DEC \$	

*System details for annual trending:*

Type of Overhaul Cost	Boiler \$	Turbine/Gen \$	Fuels \$	Scrubber \$	Heat Cycle \$	Auxiliaries \$	Total \$\$
BUDGET			205,000				205,000

PLANT	FC Power Plant	<b>FOUR CORNERS O &amp; M BUDGET ITEM</b>	NUMBER:	05-2017
BUDGET YEAR	2017		BUDGET TYPE:	OH
COST OF PROJECT \$	521,000		DATE:	4/16/2016
SYSTEM: Boiler	SUBSYSTEM: Boiler System		PRIORITY:	1
CURRENT SYSTEM HEALTH	CURRENT SUBSYSTEM HEALTH		FREQ:	Minor/ Major
PROJECTED SYSTEM HEALTH	PROJECTED SUBSYSTEM HEALTH		PREPARED BY:	Randall Alex
RISK TYPE: Generation				

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<b>Job Title:</b> Unit 5 Boiler Valve Maintenance	Allocation	%	\$\$
<b>Description of Work:</b> Perform boiler valve maintenance on Unit 5 critical valves. Repair in place without cutting out North and South economizer inlet check valve, North and South 200 Valve, 201A Valve, and 242 Valve. The auxiliary steam manual block valve A&B, boiler drain and vent valves will be replaced. Inspect 205 Valve to determine the current condition and develop plans to purchase an emergency spare on Capital Budget Item.	APS	63	328,230
	PSNM	13	67,730
	SRP	10	52,100
	TEP	7	36,470
	4CA	7	36,470
	Total	100	521,000

**Purpose and Necessity:**  
The purpose of this work scope is to continue boiler system valve maintenance program. Last year in 2016, valve maintenance program was cancel. The necessity of performing regular teardown inspections and rebuilds of boiler component system valves would promote system health and reliability of critical valves.

**Potential Adverse Consequence if not completed in this year:**  
The potential adverse consequence for not performing this work will be to continue to have critical valves such as economizer inlet block valves and economizer check valves be problematic and unreliable. We continue to have issues with boiler valves in 2016, these issues have caused unit start up delays and shutdown issues that put critical equipment at high risk by valves not working properly. Directly effects start-up and shut downs with potential of lost Megawatt hours of 30,800 MWH (770MW x 40 hrs).

*Estimates (Dollars Only)*

Type of Expense	APS BASE PAY(1)	APS OVERTIME (2)	M&S(3)	TRAVEL SUB/LOD.(4)	OTHER(5)	CONTRACT LABOR(8)	TOTAL
BUDGET			181,000			340,000	521,000
ACTUAL							-

*Schedule of Expenditures:*

1st Quarter		2nd Quarter		3rd Quarter		4th Quarter	
JAN \$		APR \$		JUL \$		OCT \$	100,000
FEB \$		MAY \$		AUG \$		NOV \$	100,000
MAR \$		JUN \$		SEP \$	200,000	DEC \$	121,000

*System details for annual trending:*

Type of Overhaul Cost	Boiler \$	Turbine/Gen \$	Fuels \$	Scrubber \$	Heat Cycle \$	Auxiliaries \$	Total \$\$
BUDGET	521,000						521,000

	January	February	March	April	May	June	July August	September	October	November
CF	-	-	-	-	-	-	#	-	200,000	100,000 100,000

**FOUR CORNERS  
CAPITAL BUDGET ITEM**

CBI No: 11-10 Prepared By: Bryan Patrick  
Project Cost: \$257,000 Date: 2-Aug-10  
JOB TITLE: Cyber Security Upgrades (Alloc 4) Date Approved:

DESCRIPTION OF WORK: Install switchyard control house remote access and security upgrades for the 345kV switchyard.	Allocation Code: 4		Approval Signatures	
			<input checked="" type="checkbox"/> E&O	<input type="checkbox"/> Coprd
	APS	43.33%	\$111,358	
	EPE	4.67%	\$12,002	
	PNM	8.66%	\$22,266	
	SRP	6.67%	\$17,142	
SCE	32.00%	\$82,240		
TEP	4.67%	\$12,002		

**PURPOSE AND NECESSITY:**  
Provide physical security for the switchyard control houses per the anticipated CIP-006 (Critical Infrastructure Protection) requirement. This entails establishing a Physical Security Perimeter (PSP) for each control house (CIP-006 R1), provide physical access control and monitoring (CIP-006 R2 and R3) which will include card readers, cameras and alarms on all doors, local and remote video recording, and network connectivity (Infrastructure) to central security management systems Per 18 CFR part 40, FERC (Federal Energy Regulatory Commission), CIP 002-009, (010-011 Q4 2010)

Justification: Regulatory.  
As a Critical Infrastructure Asset, the 500kV switchyard security will be upgraded to comply with FERC CIP guidelines.

NPV Ben/Cost Ratio (NPV BCR) = 0.08  
Benefit-Cost NPV (NPV) = (\$0.41M)

Estimated Retirements--\$


Additions	\$257,000	Plant Account	ELEMENTS OF COST				TOTAL
			APS Labor	Contract Labor	Mat'l	Other	
Removals		Number					
Salvage							
Current Amt	\$257,000	315	\$103,000	\$29,000	\$125,000	\$0	\$257,000
Revision							
Revised Amt							

2011 CASH FLOW							
1st Quarter		2nd Quarter		3rd Quarter		4th Quarter	
JAN	2,000	APR	2,000	JULY	35,000	OCT	35,000
FEB	2,000	MAY	2,000	AUG	35,000	NOV	35,000
MAR	2,000	JUNE	35,000	SEPT	35,000	DEC	35,000
2010-\$		2011-\$	257,000	2012-\$		2013-\$	

**FOUR CORNERS  
CAPITAL BUDGET ITEM**

CBI No:	11-10	Prepared By:	Bryan Patrick				
Project Cost:	\$257,000	Date:	2-Aug-10				
JOB TITLE: Cyber Security Upgrades (Alloc 4) 500 kV Switchyard		Date Approved:					
DESCRIPTION OF WORK: Install switchyard control house remote access and security upgrades for the 345kV switchyard.	Allocation Code: 4		Approval Signatures				
	APS	43.33%	\$111,358				
	EPE	4.67%	\$12,002				
	PNM	8.66%	\$22,258				
	SRP	6.67%	\$17,142				
	SCE	32.00%	\$82,240				
	TEP	4.87%	\$12,002				
<p>PURPOSE AND NECESSITY:</p> <p>Provide physical security for the switchyard control houses per the anticipated CIP-006 (Critical Infrastructure Protection) requirement. This entails establishing a Physical Security Perimeter (PSP) for each control house (CIP-006 R1), provide physical access control and monitoring (CIP-006 R2 and R3) which will include card readers, cameras and alarms on all doors, locks and remote video recording, and network connectivity (Infrastructure) to central security management systems Per 18 CFR part 40, FERC (Federal Energy Regulatory Commission), CIP 002-009, (010-011 Q4 2010)</p> <p><u>Justification:</u> Regulatory. As a Critical Infrastructure Asset, the 500kV switchyard security will be upgraded to comply with FERC CIP guidelines.</p> <p>NPV Ben/Cost Ratio (NPV BCR) = 0.08 Benefit-Cost NPV (NPV) = (\$0.41M)</p> <p style="text-align: right;">Estimated Retirements--\$</p>							
Additions	\$257,000	Plant Account	ELEMENTS OF COST				
Removals		Number	APS Labor	Contract Labor	Mat'l	Other	TOTAL
Salvage							
Current Amt	\$257,000	315	\$103,000	\$29,000	\$125,000	\$0	\$257,000
Revision							
Revised Amt							
2011 CASH FLOW							
1st Quarter		2nd Quarter		3rd Quarter		4th Quarter	
JAN	2,000	APR	2,000	JULY	35,000	OCT	35,000
FEB	2,000	MAY	2,000	AUG	35,000	NOV	35,000
MAR	2,000	JUNE	35,000	SEPT	35,000	DEC	35,000
2010-\$		2011-\$	257,000	2012-\$		2013-\$	

**FOUR CORNERS  
CAPITAL BUDGET ITEM**

CBI No: 11-10	Prepared By: Bryan Patrick		
Project Cost: \$257,000	Date: 21-Oct-10		
JOB TITLE: Cyber Security Upgrades (Alloc 4) 500 kV Switchyard	Date Approved:		
DESCRIPTION OF WORK: Install switchyard control house remote access and security upgrades for the 345kV switchyard.	Allocation Code: 4	Approval Signatures	
	APS 43.33% \$111,358	<input checked="" type="checkbox"/> ERO <input type="checkbox"/> Coord	
	EPE 4.67% \$12,002		
	PNM 8.66% \$22,256		
	SRP 6.67% \$17,142		
	SCE 32.00% \$82,240		
TEP 4.67% \$12,002			
PURPOSE AND NECESSITY: Provide physical security for the switchyard control houses per the anticipated CIP-006 (Critical Infrastructure Protection) requirement. This entails establishing a Physical Security Perimeter (PSP) for each control house (CIP-006 R1), provide physical access control and monitoring (CIP-006 R2 and R3) which will include card readers, cameras and alarms on all doors, local and remote video recording , and network connectivity (Infrastructure) to central security management systems Per 18 CFR part 40, FERC (Federal Energy Regulatory Commission), CIP 002-009, (010-011 Q4 2010)			
<u>Justification:</u> Regulatory. As a Critical Infrastructure Asset, the 500kV switchyard security will be upgraded to comply with FERC CIP guidelines.			
NPV Ben/Cost Ratio (NPV BCR) =0.08 Benefit-Cost NPV (NPV) =(\$0.41M)			
Estimated Retirements--\$			
Additions \$257,000	Plant Account Number	<b>ELEMENTS OF COST</b>	
Removals		APS Labor    Contract Labor    Mat'l    Other    TOTAL	
Salvage	315	\$103,000    \$29,000    \$125,000    \$0    \$257,000	
Current Amt \$257,000			
Revision			
Revised Amt			
2011 CASH FLOW			
1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
JAN 2,000	APR 2,000	JULY 35,000	OCT 35,000
FEB 2,000	MAY 2,000	AUG 35,000	NOV 36,000
MAR 2,000	JUNE 35,000	SEPT 35,000	DEC 36,000
2010-\$	2011-\$ 257,000	2012-\$	2013-\$



**FOUR CORNERS  
CAPITAL BUDGET ITEM**

CBI No:	11-10	Prepared By:	Bryan Patrick				
Project Cost:	\$257,000	Date:	2-Aug-10				
JOB TITLE: Cyber Security Upgrades (Alloc 4) 500 kV Switchyard		Date Approved:					
DESCRIPTION OF WORK: Install switchyard control house remote access and security upgrades for the 345kV switchyard.		Allocation Code: 4		Approval Signatures			
		APS	43.33%	\$111,358	<input checked="" type="checkbox"/> E&O <input type="checkbox"/> Coord		
		EPE	4.67%	\$12,002	<i>Plaid Pat 9/23/10</i>		
		PNM	8.66%	\$22,266			
		SRP	8.67%	\$17,142			
SCE	32.00%	\$62,240					
TEP	4.67%	\$12,002					
PURPOSE AND NECESSITY:							
Provide physical security for the switchyard control houses per the anticipated CIP-006 (Critical Infrastructure Protection) requirement. This entails establishing a Physical Security Perimeter (PSP) for each control house (CIP-006 R1), provide physical access control and monitoring (CIP-006 R2 and R3) which will include card readers, cameras and alarms on all doors, local and remote video recording, and network connectivity (Infrastructure) to central security management systems Per 18 CFR part 40, FERC (Federal Energy Regulatory Commission), CIP 002-009, (010-011 C4, 2010)							
Justification: Regulatory. As a Critical Infrastructure Asset, the 500kV switchyard security will be upgraded to comply with FERC CIP guidelines.							
NPV Ben/Cost Ratio (NPV BCR) = 0.08 Benefit-Cost NPV (NPV) = (\$0.41M)							
Estimated Retirements-\$							
Additions	\$257,000	Plant	ELEMENTS OF COST				
Removals		Account	APS	Contract			
Salvage		Number	Labor	Labor	Mat'l    Other    TOTAL		
Current Amt	\$257,000	315	\$103,000	\$29,000	\$125,000    \$0    \$257,000		
Revision							
Revised Amt							
2011 CASH FLOW							
1st Quarter		2nd Quarter		3rd Quarter		4th Quarter	
JAN	2,000	APR	2,000	JULY	35,000	OCT	35,000
FEB	2,000	MAY	2,000	AUG	35,000	NOV	36,000
MAR	2,000	JUNE	35,000	SEPT	35,000	DEC	36,000
2010-\$		2011-\$	257,000	2012-\$		2013-\$	

**FOUR CORNERS  
CAPITAL BUDGET ITEM**

CBI No: 11-10	Prepared By: Bryan Patrick					
Project Cost: \$257,000	Date: 2-Aug-10					
JOB TITLE: Cyber Security Upgrades (Alloc 4) 500 kV Switchyard		Date Approved:				
DESCRIPTION OF WORK: Install switchyard control house remote access and security upgrades for the 345kV switchyard.	Allocation Code: 4		Approval Signatures			
	APS 43.33%	\$111,358	<input checked="" type="checkbox"/> EAO <input type="checkbox"/> Coord			
	EPE 4.67%	\$12,002				
	PNM 8.66%	\$22,256				
	SRP 6.67%	\$17,142	<i>Donald J. Beckwith</i>			
	SCE 32.00%	\$82,240				
	TEP 4.67%	\$12,002				
<b>PURPOSE AND NECESSITY:</b>						
Provide physical security for the switchyard control houses per the anticipated CIP-006 (Critical Infrastructure Protection) requirement. This entails establishing a Physical Security Perimeter (PSP) for each control house (CIP-006 R1), provide physical access control and monitoring (CIP-006 R2 and R3) which will include card readers, cameras and alarms on all doors, local and remote video recording, and network connectivity (Infrastructure) to central security management systems Per 18 CFR part 40, FERC (Federal Energy Regulatory Commission), CIP 002-009, (010-011 Q4 2010)						
<u>Justification:</u> Regulatory. As a Critical Infrastructure Asset, the 500kV switchyard security will be upgraded to comply with FERC CIP guidelines.						
NPV Ben/Cost Ratio (NPV BCR) =0.08 Benefit-Cost NPV (NPV) =(\$0.41M)						
Estimated Retirements-\$						
Additions \$257,000	Plant Account Number	ELEMENTS OF COST				
Removals		APS Labor	Contract Labor	Mat'l	Other	TOTAL
Salvage						
Current Amt \$257,000	316	\$103,000	\$29,000	\$125,000	\$0	\$257,000
Revision						
Revised Amt						
2011 CASH FLOW						
1st Quarter		2nd Quarter		3rd Quarter		4th Quarter
JAN 2,000	APR 2,000	JULY 35,000	OCT 35,000			
FEB 2,000	MAY 2,000	AUG 35,000	NOV 36,000			
MAR 2,000	JUNE 36,000	SEPT 35,000	DEC 36,000			
2010-\$	2011-\$ 257,000	2012-\$	2013-\$			

**FOUR CORNERS  
CAPITAL BUDGET ITEM**

CBI No: 11-10		Prepared By: Bryan Patrick					
Project Cost: \$257,000		Date: 2-Aug-10					
JOB TITLE: Cyber Security Upgrades (Alloc 4) 500 kV Switchyard		Date Approved:					
DESCRIPTION OF WORK: Install switchyard control house remote access and security upgrades for the 345kV switchyard.	Allocation Code: 4		Approval Signatures				
	APS	43.33%	\$111,368	<input checked="" type="checkbox"/> E&O <input type="checkbox"/> Coord			
	EPE	4.67%	\$12,002	<i>gr. Taylor 10-14-10</i>			
	PNM	8.68%	\$22,266				
	SRP	6.67%	\$17,142				
	SCE	32.00%	\$82,240				
	TEP	4.67%	\$12,002				
PURPOSE AND NECESSITY: Provide physical security for the switchyard control houses per the anticipated CIP-006 (Critical Infrastructure Protection) requirement. This entails establishing a Physical Security Perimeter (PSP) for each control house (CIP-006 R1), provide physical access control and monitoring (CIP-006 R2 and R3) which will include card readers, cameras and alarms on all doors, local and remote video recording, and network connectivity (Infrastructure) to central security management systems Per 18 CFR part 40, FERC (Federal Energy Regulatory Commission), CIP 002-008, (010-011 D4 2010)							
Justification: Regulatory. As a Critical Infrastructure Asset, the 500kV switchyard security will be upgraded to comply with FERC CIP guidelines.							
NPV Ben/Cost Ratio (NPV BCR) =0.08 Benefit-Cost NPV (NPV) =(\$0.41M)							
Estimated Retirements--\$							
Additions	\$257,000	Plant Account	ELEMENTS OF COST				
Removals		Number	APS Labor	Contract Labor	Mat'l	Other	TOTAL
Salvage							
Current Amt	\$257,000	315	\$103,000	\$29,000	\$125,000	\$0	\$257,000
Revision							
Revised Amt							
2011 CASH FLOW							
1st Quarter		2nd Quarter		3rd Quarter		4th Quarter	
JAN	2,000	APR	2,000	JULY	35,000	OCT	35,000
FEB	2,000	MAY	2,000	AUG	35,000	NOV	36,000
MAR	2,000	JUNE	36,000	SEPT	35,000	DEC	36,000
2010-\$		2011-\$	257,000	2012-\$		2013-\$	

**FOUR CORNERS  
CAPITAL BUDGET ITEM**

CBI No: 11-10	Prepared By: Bryan Patrick						
Project Cost: \$257,000	Date: 2-Aug-10						
JOB TITLE: Cyber Security Upgrades (Alloc 4) 500 kV Switchyard		Date Approved:					
DESCRIPTION OF WORK: Install switchyard control house remote access and security upgrades for the 345kV switchyard.	Allocation Code: 4		Approval Signatures				
	APS 43.33%	\$111,358	<input checked="" type="checkbox"/> E&O <input type="checkbox"/> Cpgrd				
	EPE 4.67%	\$12,002					
	PNM 8.66%	\$22,258					
	SRP 6.67%	\$17,142					
	SCE 32.00%	\$82,240					
TEP 4.67%	\$12,002	<i>Samuel A. Duh...</i>					
PURPOSE AND NECESSITY: Provide physical security for the switchyard control houses per the anticipated CIP-006 (Critical Infrastructure Protection) requirement. This entails establishing a Physical Security Perimeter (PSP) for each control house (CIP-006 R1), provide physical access control and monitoring (CIP-006 R2 and R3) which will include card readers, cameras and alarms on all doors, local and remote video recording, and network connectivity (Infrastructure) to central security management systems Per 18 CFR part 40, FERC (Federal Energy Regulatory Commission), CIP 002-009, (010-011 Q4 2010)							
<u>Justification:</u> Regulatory. As a Critical Infrastructure Asset, the 500kV switchyard security will be upgraded to comply with FERC CIP guidelines.							
NPV Ben/Cost Ratio (NPV BCR) =0.08 Benefit-Cost NPV (NPV) =(\$0.41M)							
Estimated Retirements--\$							
Additions \$257,000	Plant Account	ELEMENTS OF COST					
Removals	Number	APS Labor	Contract Labor	Mat'l	Other	TOTAL	
Current Amt \$257,000	315	\$103,000	\$29,000	\$125,000	\$0	\$257,000	
Revision							
Revised Amt							
2011 CASH FLOW							
1st Quarter		2nd Quarter		3rd Quarter		4th Quarter	
JAN	2,000	APR	2,000	JULY	35,000	OCT	35,000
FEB	2,000	MAY	2,000	AUG	35,000	NOV	36,000
MAR	2,000	JUNE	35,000	SEPT	35,000	DEC	36,000
2010-\$		2011-\$	257,000	2012-\$		2013-\$	

### FOUR CORNERS CAPITAL BUDGET ITEM

CBI No: 11-11 Prepared By: Bryan Patrick  
 Project Cost: \$257,000 Date: 2-Aug-10

JOB TITLE: Cyber Security Upgrade (Alloc 5) Date Approved:

DESCRIPTION OF WORK: Install switchyard control house remote access and security upgrades for the 345kV switchyard.	Allocation Code: 5			Approval Signatures	
				<input checked="" type="checkbox"/> E&O	<input type="checkbox"/> Coord
	APS	40.23%	\$103,391		
	EPE	10.60%	\$26,985		
	PNM	22.62%	\$58,133		
	SRP	10.00%	\$25,700		
SCE	12.00%	\$30,840			
TEP	4.65%	\$11,951			

**PURPOSE AND NECESSITY:**  
 Provide physical security for the switchyard control houses per the anticipated CIP-006 (Critical Infrastructure Protection) requirement. This entails establishing a Physical Security Perimeter (PSP) for each control house (CIP-006 R1), provide physical access-control and monitoring (CIP-006 R2 and R3) which will include card readers, cameras and alarms on all doors, local and remote video recording, and network connectivity (Infrastructure) to central security management systems Per 18 CFR part 40, FERC (Federal Energy Regulatory Commission), CIP 002-009, (010-011 Q4 2010)

Justification: Regulatory  
 As a Critical Infrastructure Asset, the 345kV switchyard security will be upgraded to comply with FERC CIP guidelines.

NPV Benefit/Cost Ratio (NPV BCR)= 0.04  
 Benefit-Cost NPV (NPV) = (\$0.34M)

Estimated Retirements--\$

Additions		Plant Account Number	ELEMENTS OF COST				TOTAL
	\$257,000		APS Labor	Contract Labor	Matl	Other	
Current Amt	\$257,000	315	\$103,000	\$29,000	\$125,000	\$0	\$257,000
Revisions							
Revised Amt							
2010 CASH FLOW							
1st Quarter		2nd Quarter		3rd Quarter		4th Quarter	
JAN	2,000	APR	2,000	JULY	35,000	OCT	35,000
FEB	2,000	MAY	2,000	AUG	35,000	NOV	36,000
MAR	2,000	JUNE	35,000	SEPT	35,000	DEC	36,000
2010-\$		2011-\$ 257,000		2012-\$		2013-\$	

**FOUR CORNERS  
CAPITAL BUDGET ITEM**

CBI No:	11-11	Prepared By:	Bryan Patrick				
Project Cost:	\$257,000	Date:	2-Aug-10				
JOB TITLE:	Cyber Security Upgrade (Alloc 5) 345 kV Switchyard	Date Approved:					
DESCRIPTION OF WORK: Install switchyard control house remote access and security upgrades for the 345kV switchyard.	Allocation Code:	5	Approval Signatures				
	APS	40.23%	\$103,391	<input checked="" type="checkbox"/> E&O	<input type="checkbox"/> Coord		
	EPE	10.50%	\$26,985	<i>[Signature]</i> 10-14-10			
	PNM	22.62%	\$58,133				
	SRP	10.00%	\$25,700				
	SCE	12.00%	\$30,840				
	TEP	4.65%	\$11,951				
PURPOSE AND NECESSITY: Provide physical security for the switchyard control houses per the anticipated CIP-006 (Critical Infrastructure Protection) requirement. This entails establishing a Physical Security Perimeter (PSP) for each control house (CIP-006 R1), provide physical access control and monitoring (CIP-006 R2 and R3) which will include card readers, cameras and alarms on all doors, local and remote video recording, and network connectivity (Infrastructure) to central security management systems Per 18 CFR part 40, FERC (Federal Energy Regulatory Commission), CIP 002-009, (010-011 Q4 2010)							
Justification: Regulatory As a Critical Infrastructure Asset, the 345kV switchyard security will be upgraded to comply with FERC CIP guidelines.							
NPV Benefit/Cost Ratio (NPV BCR)= 0.04 Benefit-Cost NPV (NPV) = (\$0.34M)							
Estimated Retirements--\$							
Additions	\$257,000	Plant Account	ELEMENTS OF COST				
Removals		Number	APS Labor	Contract Labor	Mat'l	Other	TOTAL
Salvage							
Current Amt	\$257,000	315	\$103,000	\$29,000	\$125,000	\$0	\$257,000
Revision							
Revised Amt							
2010 CASH FLOW							
1st Quarter		2nd Quarter		3rd Quarter		4th Quarter	
JAN	2,000	APR	2,000	JULY	35,000	OCT	35,000
FEB	2,000	MAY	2,000	AUG	35,000	NOV	36,000
MAR	2,000	JUNE	35,000	SEPT	35,000	DEC	36,000
2010-\$		2011-\$	257,000	2012-\$		2013-\$	

### FOUR CORNERS CAPITAL BUDGET ITEM

CBI No: 11-11	Prepared By: Bryan Patrick	
Project Cost: \$257,000	Date: 21-Oct-10	
JOB TITLE: Cyber Security Upgrade (Alloc 5) 345 kV Switchyard		Date Approved:
DESCRIPTION OF WORK: Install switchyard control house remote access and security upgrades for the 345kV switchyard.	Allocation Code: 5	
	Approval Signatures	
	<input checked="" type="checkbox"/> E&O <input type="checkbox"/> Coord	
	APS 40.23% \$103,391	
	EPE 10.50% \$26,985	
PNM 22.62% \$58,133		
SRP 10.00% \$25,700		
SCE 12.00% \$30,840		
TEP 4.65% \$11,951		
PURPOSE AND NECESSITY:		
Provide physical security for the switchyard control houses per the anticipated CIP-006 (Critical Infrastructure Protection) requirement. This entails establishing a Physical Security Perimeter (PSP) for each control house (CIP-006 R1), provide physical access control and monitoring (CIP-006 R2 and R3) which will include card readers, cameras and alarms on all doors, local and remote video recording , and network connectivity (Infrastructure) to central security management systems Per 18 CFR part 40, FERC (Federal Energy Regulatory Commission), CIP 002-009, (010-011 Q4 2010)		
<u>Justification:</u> Regulatory		
As a Critical Infrastructure Asset, the 345kV switchyard security will be upgraded to comply with FERC CIP guidelines.		
NPV Benefit/Cost Ratio (NPV BCR)= 0.04		
Benefit-Cost NPV (NPV) = (\$0.34M)		

Estimated Retirements--\$							
Additions	\$257,000	Plant	ELEMENTS OF COST				
Removals		Account	APS	Contract			
Salvage		Number	Labor	Labor	Mat'l	Other	TOTAL
Current Amt	\$257,000	315	\$103,000	\$29,000	\$125,000	\$0	\$257,000
Revision							
Revised Amt							

2010 CASH FLOW							
1st Quarter		2nd Quarter		3rd Quarter		4th Quarter	
JAN	2,000	APR	2,000	JULY	35,000	OCT	35,000
FEB	2,000	MAY	2,000	AUG	35,000	NOV	36,000
MAR	2,000	JUNE	35,000	SEPT	35,000	DEC	36,000
2010-\$		2011-\$	257,000	2012-\$		2013-\$	

**FOUR CORNERS  
CAPITAL BUDGET ITEM**

CBI No: 11-11		Prepared By: Bryan Patrick					
Project Cost: \$257,000		Date: 2-Aug-10					
JOB TITLE: Cyber Security Upgrade (Alloc 5) 345 kV Switchyard		Date Approved:					
<b>DESCRIPTION OF WORK:</b> Install switchyard control house remote access and security upgrades for the 345kV switchyard.		Allocation Code: 5					
		Approval Signatures					
		<input checked="" type="checkbox"/> E&O <input type="checkbox"/> Coord					
		APS	40.23%	\$103,391			
		EPE	10.50%	\$26,985			
		PNM	22.82%	\$58,133			
SRP	10.00%	\$25,700					
SCE	12.00%	\$30,840					
TEP	4.65%	\$11,951					
<b>PURPOSE AND NECESSITY:</b> Provide physical security for the switchyard control houses per the anticipated CIP-006 (Critical Infrastructure Protection) requirement. This entails establishing a Physical Security Perimeter (PSP) for each control house (CIP-006 R1), provide physical access control and monitoring (CIP-006 R2 and R3) which will include card readers, cameras and alarms on all doors, local and remote video recording, and network connectivity (Infrastructure) to central security management systems Per 18 CFR part 40, FERC (Federal Energy Regulatory Commission), CIP 002-009, (010-011 Q4,2010)							
<b>Justification:</b> Regulatory As a Critical Infrastructure Asset, the 345kV switchyard security will be upgraded to comply with FERC CIP guidelines.							
NPV Benefit/Cost Ratio (NPV BCR)= 0.04 Benefit-Cost NPV (NPV) = (\$0.34M)							
Estimated Retirements--\$							
Additions	\$257,000	Plant	ELEMENTS OF COST				
Removals		Account					
Salvage		Number	APS Labor	Contract Labor	Matl	Other	TOTAL
Current Amt	\$257,000	315	\$103,000	\$29,000	\$125,000	\$0	\$257,000
Revision							
Revised Amt							
2010 CASH FLOW							
1st Quarter		2nd Quarter		3rd Quarter		4th Quarter	
JAN	2,000	APR	2,000	JULY	35,000	OCT	35,000
FEB	2,000	MAY	2,000	AUG	35,000	NOV	36,000
MAR	2,000	JUNE	35,000	SEPT	35,000	DEC	36,000
2010-\$		2011-\$	257,000	2012-\$		2013-\$	



**FOUR CORNERS  
CAPITAL BUDGET ITEM**

CBI No:	11-11	Prepared By:	Bryan Patrick				
Project Cost:	\$257,000	Date:	2-Aug-10				
JOB TITLE: Cyber Security Upgrade (Alloc 5) 345 kV Switchyard		Date Approved:					
DESCRIPTION OF WORK: Install switchyard control house remote access and security upgrades for the 345kV switchyard.	Allocation Code: 5		Approval Signatures				
	APS	40.23%	\$103,391	<input checked="" type="checkbox"/> ERO	<input type="checkbox"/> Coord		
	EPE	10.60%	\$26,985				
	PNM	22.82%	\$58,133				
	SRP	10.00%	\$26,700				
	SCE	12.00%	\$30,840	<i>Donald J. Bullard</i>			
TEP	4.85%	\$11,951					
PURPOSE AND NECESSITY: Provide physical security for the switchyard control houses per the anticipated CIP-006 (Critical Infrastructure Protection) requirement. This entails establishing a Physical Security Perimeter (PSP) for each control house (CIP-006 R1), provide physical access control and monitoring (CIP-006 R2 and R3) which will include card readers, cameras and alarms on all doors, local and remote video recording, and network connectivity (Infrastructure) to central security management systems Per 18 CFR part 40, FERC (Federal Energy Regulatory Commission), CIP 002-009, (010-011 Q4 2010)							
<u>Justification:</u> Regulatory As a Critical Infrastructure Asset, the 345kV switchyard security will be upgraded to comply with FERC CIP guidelines.							
NPV Benefit/Cost Ratio (NPV BCR)= 0.04 Benefit-Cost NPV (NPV) = (\$0.34M)							
Estimated Retirements—\$							
Additions	\$257,000	Plant	ELEMENTS OF COST				
Removals		Account	APS	Contract			
Salvage		Number	Labor	Labor	Mat'l	Other	
Current Amt	\$257,000	315	\$103,000	\$29,000	\$125,000	\$0	
Revised Amt							
2010 CASH FLOW							
1st Quarter		2nd Quarter		3rd Quarter		4th Quarter	
JAN	2,000	APR	2,000	JULY	35,000	OCT	35,000
FEB	2,000	MAY	2,000	AUG	35,000	NOV	36,000
MAR	2,000	JUNE	35,000	SEPT	35,000	DEC	36,000
2010-\$		2011-\$	257,000	2012-\$		2013-\$	

**FOUR CORNERS  
CAPITAL BUDGET ITEM**

CBI No:	11-11	Prepared By:	Bryan Patrick				
Project Cost:	\$257,000	Date:	2-Aug-10				
JOB TITLE:	Cyber Security Upgrade (Alloc 5) 345 kV Switchyard	Date Approved:					
DESCRIPTION OF WORK: Install switchyard control house remote access and security upgrades for the 345kV switchyard.	Allocation Code:	5	Approval Signatures				
	APS	40.23%	\$103,391	<input checked="" type="checkbox"/> E&D <input type="checkbox"/> Coord			
	EPE	10.50%	\$26,985	<i>M. Taylor 10-14-10</i>			
	PNM	22.62%	\$58,133				
	SRP	10.00%	\$25,700				
	SCE	12.00%	\$30,840				
TEP	4.65%	\$11,951					
PURPOSE AND NECESSITY: Provide physical security for the switchyard control houses per the anticipated CIP-006 (Critical Infrastructure Protection) requirement. This entails establishing a Physical Security Perimeter (PSP) for each control house (CIP-006 R1), provide physical access control and monitoring (CIP-006 R2 and R3) which will include card readers, cameras and alarms on all doors, local and remote video recording, and network connectivity (Infrastructure) to central security management systems Per 18 CFR part 40, FERC (Federal Energy Regulatory Commission), CIP 002-009, (010-011 Q4 2010)							
Justification: Regulatory As a Critical Infrastructure Asset, the 345kV switchyard security will be upgraded to comply with FERC CIP guidelines.							
NPV Benefit/Cost Ratio (NPV BCR)= 0.04 Benefit-Cost NPV (NPV) = (\$0.34M)							
Estimated Retirements-\$							
Additions	\$257,000	Plant Account	ELEMENTS OF COST				
Removals		Number	APS Labor	Contract Labor	Mat'l	Other	TOTAL
Salvage							
Current Amt	\$257,000	315	\$103,000	\$29,000	\$125,000	\$0	\$257,000
Revision							
Revised Amt							
2010 CASH FLOW							
1st Quarter		2nd Quarter		3rd Quarter		4th Quarter	
JAN	2,000	APR	2,000	JULY	35,000	OCT	35,000
FEB	2,000	MAY	2,000	AUG	35,000	NOV	36,000
MAR	2,000	JUNE	35,000	SEPT	35,000	DEC	36,000
2010-\$		2011-\$	257,000	2012-\$		2013-\$	

**FOUR CORNERS  
CAPITAL BUDGET ITEM**

CBI No: 11-11		Prepared By: Bryan Patrick					
Project Cost: \$257,000		Date: 2-Aug-10					
JOB TITLE: Cyber Security Upgrade (Alloc 5) 345 kV Switchyard		Date Approved:					
DESCRIPTION OF WORK: Install switchyard control house remote access and security upgrades for the 345kV switchyard.	Allocation Code: 5		Approval Signatures				
	APS	40.23%	\$103,391				
	EPE	10.50%	\$26,985				
	PNM	22.62%	\$58,133				
	SRP	10.00%	\$25,700				
	SCE	12.00%	\$30,840				
TEP	4.65%	\$11,951	<i>Samuel F. Decker 10-2-10</i>				
PURPOSE AND NECESSITY: Provide physical security for the switchyard control houses per the anticipated CIP-006 (Critical Infrastructure Protection) requirement. This entails establishing a Physical Security Perimeter (PSP) for each control house (CIP-006 R1), provide physical access control and monitoring (CIP-006 R2 and R3) which will include card readers, cameras and alarms on all doors, local and remote video recording, and network connectivity (Infrastructure) to central security management systems Per 18 CFR part 40, FERC (Federal Energy Regulatory Commission), CIP 002-009, (010-011 Q4 2010)							
<u>Justification:</u> Regulatory As a Critical Infrastructure Asset, the 345kV switchyard security will be upgraded to comply with FERC CIP guidelines.							
NPV Benefit/Cost Ratio (NPV BCR)= 0.04 Benefit-Cost NPV (NPV) = (\$0.34M)							
Estimated Retirements--\$							
Additions	\$257,000	Plant Account	ELEMENTS OF COST				
Removals		Number	APS Labor	Contract Labor	Mat'l	Other	TOTAL
Salvage							
Current Amt	\$257,000	315	\$103,000	\$29,000	\$125,000	\$0	\$257,000
Revision							
Revised Amt							
2010 CASH FLOW							
1st Quarter		2nd Quarter		3rd Quarter		4th Quarter	
JAN	2,000	APR	2,000	JULY	35,000	OCT	35,000
FEB	2,000	MAY	2,000	AUG	35,000	NOV	36,000
MAR	2,000	JUNE	35,000	SEPT	35,000	DEC	36,000
2010-\$		2011-\$	257,000	2012-\$		2013-\$	

715-19810

Four Corners Participant Project	SG3 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: 12-02R0	Env Code: N/A	ERF Completed: Yes
In 2014 Budget: Yes	Plant Acct: 312	Est Removal:	Est In Svc: 03/19/2015

**Description:** Replace the Allis Chalmers air compressors two (2) each 9500 scfm with three (3) I.P centrifugal compressors 5500 scfm each and two (2) HP centrifugal compressors 3000 scfm each including one(1) 30,000 gallon LP receiver and one (1) 60,000 gallon HP receiver, an automation system, mist eliminators, pipe additions and modifications two (2) building replacements and one building extension.

**Purpose/Necessity:** The Allis Chalmers compressors are more than 40 years old and not very reliable and need the coolers replaced in the immediate future. The coolers are heavily corroded and impeller damage has resulted from scale particles increasing the compressors failure rates to about every 3 years. The cooling water piping also requires replacing due to decreased area caused by scale build up. An air system audit was prepared by IZ Systems Inc in July 2010 that recommends replacing these compressors to improve the quality and operating cost. The recommendations will return the system to appropriate operating cost levels with a high degree of reliability and quality. The compressors will be located at U45 which is contrary to the recommendations of IZ Systems. This change is due to the planned shutdown of U1-3 and the IZ Systems recommended location was the U1-3 air compressor building. The buildings for the U45 air compressors are old and located in a dirty environment therefore new buildings with improved sealing and possibly pressurization are desirable. Due to the dirty environment, the motor internals are being found with heavy loads of fly ash causing imbalance and overheating issues. Cost avoidance of replacing the baghouse air compressors is also considered. Continued operation of the compressors in their present condition risks maintaining unit reliability and the possibility of a unit forced outage and lost production.

**Consequences of Delay:** Delaying this project puts the units at significant risk for a forced outage and lost production.

**Economic Justification:**  
Benefit-Cost NPV: \$3.60 M\$  
Budget Category: REL-UNIT

WD 715-40063867  
FCC 06791

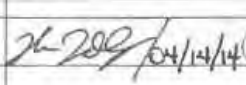
EPD 6-19-15

Month	2014	2015	After
Jan	\$0	\$210,000	\$129,000
Feb	\$81,000	\$207,000	\$68,000
Mar	\$1,260,000	\$207,000	\$56,000
Prior	\$9,000	\$5,438,000	\$5,713,000

	Current Amount	Revised Amount
Additions		\$10,625,000
Removals		\$500,000
(Salvage)		\$0
Overhead Loads		\$35,000
CBI Total		\$11,160,000
Retirements		\$1,000,000

Organization	Ownership	Share	Approve	Date
APS	63.00%	7,030,800		
EPE	7.00%	781,200		
PNM	13.00%	1,450,800	<i>[Signature]</i>	3/20/14
SRP	10.0%	1,116,000		
TEP	7.00%	781,200		

6/26/2014 NO Initiated. g

FCC03961 LP Generator Stator and Field Rewind							
Four Corners Participant Project		WA Rev 0		0% Enviro.		NSR Completed: Yes	
FC Unit 5		CBI: 12-03		Env Code: N/A		ERF Completed: No	
In 2014 Budget: Yes		Plant Acct:		Est Removal:		Est In Svc: 04/26/2015	
<p><b>Description:</b> Rewind Unit 5 LP generator field and re-wedge stator by replacing the stator bars and end-winding support system.</p> <p><b>Purpose/Necessity:</b> Ensure continued Unit reliability and avoid an extended Unit shutdown through mitigation of the potential for failure of the LP Generator. Rewinding was originally identified as being required in 2008 by a 3rd party inspector.</p> <p><b>Consequences of Delay:</b> Increased risk of generator failure. Potential loss of performance from smaller faults.</p> <p><b>Economic Justification:</b>            Benefit-Cost NPV: \$13.10 M\$            Budget Category: REL-UNIT</p>							
Cash Flow - 2014							
Jan	\$0	Apr	\$102,000	Jul	\$122,000	Oct	\$7,103,000
Feb	\$102,000	May	\$144,000	Aug	\$112,000	Nov	\$1,117,000
Mar	\$102,000	Jun	\$148,000	Sep	\$150,000	Dec	\$47,000
<b>Prior</b>	<b>\$0</b>	<b>2014</b>	<b>\$9,249,000</b>	<b>2015</b>	<b>\$1,235,000</b>	<b>After</b>	<b>\$0</b>
Cost Summary							
	Current Amount			Revised Amount			
Additions	\$10,114,000						
Removals	\$200,000						
(Salvage)	\$0						
Overhead Loads	\$170,000						
<b>CBI Total</b>	<b>\$10,484,000</b>						
Retirements	\$300,000						
Approvals							
Exhibit: NN		E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>			
Organization	Ownership	Share	Approve				
APS	63.00%	6,604,920					Date
EPE	7.00%	733,880					Date
PNM	13.00%	1,362,920					Date
SRP	10.0%	1,048,400					Date
TEP	7.00%	733,880					Date

<b>FCC06551 Coal Silo Wall Replacement</b>			
Four Corners Participant Project	Rev FC12-50R1	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC12-50R1	Env Code: N/A	ERF Completed: Yes
In 2016 Budget: Yes	Plant Acct:	Est Removal: 30 Nov 2017	Est In Svc: 19 Dec 2017

**Reason for Revision:** The reason for the increase of \$7.96M is due to updated cost estimates for the replacement of the critical structural components of the silos, consisting of the lower cylinder, cone and pant leg sections that are exhibiting advanced structural failure due to severe degradation of the wall sections. These silos are original equipment and have reached the end of useful life.

Benefit-Cost NPV: 0 M\$

**Description:** Replace the US Coal Silos.

**Purpose/Necessity:** Bin and silo wear and buckling will continue with operation and poses risk of equipment failure. The existing structural integrity of these hoppers and silos are a safety concern, and present a risk to plant full load operation.

**Consequences of Delay:** Failure or collapse of a coal silo will result in the one silo, and two pulverizers being removed from service until repaired resulting in a Unit de-rate of 200 megawatts for approximately 30 days

**Economic Justification:**

Benefit-Cost NPV: 0 MS  
Budget Category: SAFETY

715-19210  
WO Y0063868  
RO Y0078667

**Cash Flow - 2016**


Jan	\$8,000	Apr	\$11,000	Jul	\$7,000	Oct	\$8,000
Feb	\$6,000	May	\$9,000	Aug	\$3,000	Nov	\$6,000
Mar	\$21,000	Jun	\$14,000	Sep	\$26,000	Dec	\$36,000
Prior	\$1,973,000	2016	\$655,000	2017	\$10,408,000	After	\$19,000

**Cost Summary**

	Current Amount		Revised Amount	
Additions	445,120	\$3,424,000	1,686,620	\$12,974,000
Removals				\$0
(Salvage)				\$0
Specific Cost	445,120	\$3,424,000	1,686,620	\$12,974,000
Overhead Loads	1,950	\$15,000	10,530	\$81,000
CBI Total	662,090	\$3,093,000	1,697,150	\$13,055,000
Retirements	65,000	\$500,000	65,000	\$500,000

**Approvals**

		E&O Committee		Coordinating Committee X
APS	63.00%	\$8,224,650		Date
PNM	13.00%	\$1,697,150		Date
SRP	10.00%	\$1,305,500	WHL R. AW	Date 1-19-2017
TEP	7.00%	\$913,850		Date
4CA	7.00%	\$913,850		Date

FCC06551 Coal Silo Wall Replacement							
Four Corners Participant Project	Rev FC12-50R1	0% Enviro.	NSR Completed: Yes				
FC Unit 5	CBI: FC12-50R1	Env Code: N/A	ERF Completed: Yes				
In 2016 Budget: Yes	Plant Acct:	Est Removal: 30 Nov 2017	Est In Svc: 19 Dec 2017				
<p><b>Reason for Revision:</b> The reason for the increase of \$7.96M is due to updated cost estimates for the replacement of the critical structural components of the silos, consisting of the lower cylinder, cone and pant leg sections that are exhibiting advanced structural failure due to severe degradation of the wall sections. These silos are original equipment and have reached the end of useful life.</p> <p>Benefit-Cost NPV: 0 M\$</p>							
<p><b>Description:</b> Replace the US Coal Silos.</p> <p><b>Purpose/Necessity:</b> Bin and silo wear and buckling will continue with operation and poses risk of equipment failure. The existing structural integrity of these hoppers and silos are a safety concern, and present a risk to plant full load operation.</p> <p><b>Consequences of Delay:</b> Failure or collapse of a coal silo will result in the one silo, and two pulverizers being removed from service until repaired resulting in a Unit de-rate of 200 megawatts for approximately 30 days.</p> <p><b>Economic Justification:</b> Benefit-Cost NPV: 0 M\$ Budget Category: SAFETY</p>							
<b>Cash Flow - 2016</b>							
Jan	\$8,000	Apr	\$11,000	Jul	\$7,000	Oct	\$8,000
Feb	\$6,000	May	\$9,000	Aug	\$3,000	Nov	\$6,000
Mar	\$21,000	Jun	\$14,000	Sep	\$26,000	Dec	\$536,000
<b>Prior</b>	<b>\$1,973,000</b>	<b>2016</b>	<b>\$655,000</b>	<b>2017</b>	<b>\$10,408,000</b>	<b>After</b>	<b>\$19,000</b>
<b>Cost Summary</b>							
	<b>Current Amount</b>			<b>Revised Amount</b>			
Additions	\$3,424,000			\$12,974,000			
Removals				\$0			
(Salvage)				\$0			
Specific Cost	\$3,424,000			\$12,974,000			
Overhead Loads	\$15,000			\$81,000			
CBI Total	\$5,093,000			\$13,055,000			
Retirements	\$500,000			\$500,000			
<b>Approvals</b>							
			E&O Committee		Coordinating Committee X		
APS	63.00%	\$8,224,650			Date		
PNM	13.00%	\$1,697,150			Date 1/20/17		
SRP	10.0%	\$1,305,500			Date		
TEP	7.00%	\$913,850			Date		
4CA	7.00%	\$913,850			Date		

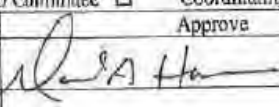
FCC06551 Coal Silo Wall Replacement							
Four Corners Participant Project	Rev FC12-50R1	0% Enviro.	NSR Completed: Yes				
FC Unit 5	CBI: FC12-50R1	Env Code: N/A	ERF Completed: Yes				
In 2016 Budget: Yes	Plant Accl:	Est Removal: 30 Nov 2017	Est In Svc: 19 Dec 2017				
<p><b>Reason for Revision:</b> The reason for the increase of \$7.96M is due to updated cost estimates for the replacement of the critical structural components of the silos, consisting of the lower cylinder, cone and pant leg sections that are exhibiting advanced structural failure due to severe degradation of the wall sections. These silos are original equipment and have reached the end of useful life.</p> <p style="text-align: center;">Benefit-Cost NPV: 0 M\$</p>							
<p><b>Description:</b> Replace the U5 Coal Silos.</p> <p><b>Purpose/Necessity:</b> Bin and silo wear and buckling will continue with operation and poses risk of equipment failure. The existing structural integrity of these hoppers and silos are a safety concern, and present a risk to plant full load operation.</p> <p><b>Consequences of Delay:</b> Failure or collapse of a coal silo will result in the one silo, and two pulverizers being removed from service until repaired resulting in a Unit de-rate of 200 megawatts for approximately 30 days.</p> <p><b>Economic Justification:</b> Benefit-Cost NPV: 0 M\$ Budget Category: SAFETY</p>							
<b>Cash Flow - 2016</b>							
Jan	\$8,000	Apr	\$11,000	Jul	\$7,000	Oct	\$8,000
Feb	\$6,000	May	\$9,000	Aug	\$3,000	Nov	\$6,000
Mar	\$21,000	Jun	\$14,000	Sep	\$26,000	Dec	\$536,000
<b>Prior</b>	<b>\$1,973,000</b>	<b>2016</b>	<b>\$655,000</b>	<b>2017</b>	<b>\$10,408,000</b>	<b>After</b>	<b>\$19,000</b>
<b>Cost Summary</b>							
	<b>Current Amount</b>		<b>Revised Amount</b>				
Additions	\$3,424,000		\$12,974,000				
Removals			\$0				
(Salvage)			\$0				
Specific Cost	\$3,424,000		\$12,974,000				
Overhead Loads	\$15,000		\$81,000				
CBI Total	\$5,093,000		\$13,055,000				
Retirements	\$500,000		\$500,000				
<b>Approvals</b>							
			E&O Committee	Coordinating Committee X			
APS	63.00%	\$8,224,650	<i>[Signature]</i>	Date 2/6/2017			
PNM	13.00%	\$1,697,150	<i>[Signature]</i>	Date			
SRP	10.0%	\$1,305,500		Date			
TEP	7.00%	\$913,850	<i>[Signature]</i>	Date 3/FEB 2017			
4CA	7.00%	\$913,850	<i>[Signature]</i>	Date 2/7/17			



FCC03864 Selective Catalytic Reduction Sys			
Four Corners Participant Project	SG3 WA Rev 0	100% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: 13-01R0	Env Code: Air	ERF Completed: Yes
In 2015 Budget: Yes	Plant Acct: 312	Est Removal:	Est In Svc: 04/24/2018
<b>Description:</b> This Project is for the supply and installation of a Selective Catalytic Reduction (SCR) System and related systems, materials, and equipment for flue gas NOx control at the Four Corners Power Plant Units 4 & 5.			
The Project is based upon installation of an SCR system (w/sonic horns and vacuum); urea based ammonia production (UZA) system, and hydrated lime-based Dry Sorbent Injection (DSI) system, along with replacement of existing air heaters with new trisector air heaters.			
The Project also includes installing water-side economizer bypasses for SCR inlet temperature control at lower loads and modifying economizer outlet ductwork and hoppers to include new Large Particle Ash (LPA) screens and associated cleaning devices.			
<b>Purpose/Necessity:</b> The EPA's regional haze Federal Implementation Plan (FIP) regarding Best Available Retrofit Technology (BART) for NOx control, has been determined to be Selective Catalytic Reduction (SCR). Expected NOx emission requirements of between 0.08 and 0.098 lbs/mmbtu.			
<b>Consequences of Delay:</b> Non Compliance with EPA Regulated standards.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:		(\$144.19) M\$	
Budget Category:		ENV	

Cash Flow - 2015							
Jan	(\$81,000)	Apr	\$897,000	Jul	\$1,032,000	Oct	\$2,054,000
Feb	\$1,067,000	May	(\$242,000)	Aug	\$1,313,000	Nov	\$2,826,000
Mar	\$606,000	Jun	\$1,932,000	Sep	\$1,982,000	Dec	\$3,655,000
<b>Prior</b>	<b>\$2,731,000</b>	<b>2015</b>	<b>\$17,040,000</b>	<b>2016</b>	<b>\$147,398,000</b>	<b>After</b>	<b>\$153,258,000</b>

Cost Summary		Current Amount	Revised Amount
Additions		\$319,228,000	
Removals		\$0	
(Salvage)		\$0	
Overhead Loads		\$1,201,000	
CBI Total		\$320,428,000	
Retirements		\$0	

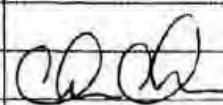
Approvals		E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
Exhibit: AAP	Organization	Ownership	Share	Approve	Date
	APS	63.00%	201,869,640	 Date: 8/24/15	
	EPE	7.00%	22,429,960		Date:
	PNM	13.00%	41,655,640		Date:
	SRP	10.0%	32,042,800		Date:
	TEP	7.00%	22,429,960		Date:

FCC03864 Selective Catalytic Reduction Sys			
Four Corners Participant Project	SG3 WA Rev 0	100% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: 13-01R0	Env Code: Air	ERF Completed: Yes
In 2015 Budget: Yes	Plant Acct: 312	Est Removal:	Est In Svc: 04/24/2018
<p><b>Description:</b> This Project is for the supply and installation of a Selective Catalytic Reduction (SCR) System and related systems, materials, and equipment for flue gas NOx control at the Four Corners Power Plant Units 4 &amp; 5.</p> <p>The Project is based upon installation of an SCR system (w/sonic horns and vacuum); urea based ammonia production (U2A) system, and hydrated lime-based Dry Sorbent Injection (DSI) system, along with replacement of existing air heaters with new trisector air heaters.</p> <p>The Project also includes installing water-side economizer bypasses for SCR inlet temperature control at lower loads and modifying economizer outlet ductwork and hoppers to include new Large Particle Ash (LPA) screens and associated cleaning devices.</p> <p><b>Purpose/Necessity:</b> The EPA's regional haze Federal Implementation Plan (FIP) regarding Best Available Retrofit Technology (BART) for NOx control, has been determined to be Selective Catalytic Reduction (SCR). Expected NOx emission requirements of between 0.08 and 0.098 lbs/mmbtu.</p> <p><b>Consequences of Delay:</b> Non Compliance with EPA Regulated standards.</p> <p><b>Economic Justification:</b> Benefit-Cost NPV: (\$144.19) M\$ Budget Category: ENV</p>			

Cash Flow - 2015							
Jan	(\$81,000)	Apr	\$897,000	Jul	\$1,032,000	Oct	\$2,054,000
Feb	\$1,067,000	May	(\$242,000)	Aug	\$1,313,000	Nov	\$2,826,000
Mar	\$606,000	Jun	\$1,932,000	Sep	\$1,982,000	Dec	\$3,655,000
Prior	\$2,731,000	2015	\$17,040,000	2016	\$147,398,000	After	\$153,258,000

Cost Summary		
	Current Amount	Revised Amount
Additions	\$319,228,000	
Removals	\$0	
(Salvage)	\$0	
Overhead Loads	\$1,201,000	
<b>CBI Total</b>	<b>\$320,428,000</b>	
Retirements	\$0	

Approvals			
Exhibit: AAP		F&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
Organization	Ownership	Share	Approve
APS	63.00%	201,869,640	Date
EPE	7.00%	22,429,960	Date
PNM	13.00%	41,655,640	Date
SRP	10.00%	32,042,800	Date
TEP	7.00%	22,429,960	Date


  
 Date: 8/5/15

FCC03864 Selective Catalytic Reduction Sys			
Four Corners Participant Project	SG3 WA Rev 0	100% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: 13-01R0	Env Code: Air	ERF Completed: Yes
In 2015 Budget: Yes	Plant Acct: 312	Est Removal:	Est In Svc: 04/24/2018
<p><b>Description:</b> This Project is for the supply and installation of a Selective Catalytic Reduction (SCR) System and related systems, materials, and equipment for flue gas NOx control at the Four Corners Power Plant Units 4 &amp; 5.</p> <p>The Project is based upon installation of an SCR system (w/sonic horns and vacuum); urea based ammonia production (U2A) system, and hydrated lime-based Dry Sorbent Injection (DSI) system, along with replacement of existing air heaters with new trisector air heaters.</p> <p>The Project also includes installing water-side economizer bypasses for SCR inlet temperature control at lower loads and modifying economizer outlet ductwork and hoppers to include new Large Particle Ash (LPA) screens and associated cleaning devices.</p> <p><b>Purpose/Necessity:</b> The EPA's regional haze Federal Implementation Plan (FIP) regarding Best Available Retrofit Technology (BART) for NOx control, has been determined to be Selective Catalytic Reduction (SCR). Expected NOx emission requirements of between 0.08 and 0.098 lbs/mmbtu.</p> <p><b>Consequences of Delay:</b> Non Compliance with EPA Regulated standards.</p> <p><b>Economic Justification:</b> Benefit-Cost NPV: (\$144.19) M\$ Budget Category: ENV</p>			

Cash Flow - 2015							
Jan	(\$81,000)	Apr	\$897,000	Jul	\$1,032,000	Oct	\$2,054,000
Feb	\$1,067,000	May	(\$242,000)	Aug	\$1,313,000	Nov	\$2,826,000
Mar	\$606,000	Jun	\$1,932,000	Sep	\$1,982,000	Dec	\$3,655,000
<b>Prior</b>	\$2,731,000	<b>2015</b>	\$17,040,000	<b>2016</b>	\$147,398,000	<b>After</b>	\$153,258,000

Cost Summary		
	Current Amount	Revised Amount
Additions	\$319,228,000	
Removals	\$0	
(Salvage)	\$0	
Overhead Loads	\$1,201,000	
<b>CBI Total</b>	<b>\$320,428,000</b>	
Retirements	\$0	

Approvals			
Exhibit: AAP		E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
Organization	Ownership	Share	Approve
APS	63.00%	201,869,640	Date
EPE	7.00%	22,429,960	Date
PNM	13.00%	41,655,640	Date
SRP	10.0%	32,042,800	Date
TEP	7.00%	22,429,960	Date

Date **8-20-15**

Four Corners Participant Project	SG3 WA Rev 0	100% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: 13-01R0	Env. Code: Air	ERF Completed: Yes
In 2015 Budget: Yes	Plant Acct: 312	Est Removal:	Est In Svc: 04/24/2018

**Description:** This Project is for the supply and installation of a Selective Catalytic Reduction (SCR) System and related systems, materials, and equipment for flue gas NOx control at the Four Corners Power Plant Units 4 & 5.

The Project is based upon installation of an SCR system (w/sonic horns and vacuum); urea based ammonia production (U2A) system, and hydrated lime-based Dry Sorbent Injection (DSI) system, along with replacement of existing air heaters with new trisector air heaters.

The Project also includes installing water-side economizer bypasses for SCR inlet temperature control at lower loads and modifying economizer outlet ductwork and hoppers to include new Large Particle Ash (LPA) screens and associated cleaning devices.

**Purpose/Necessity:** The EPA's regional haze Federal Implementation Plan (FIP) regarding Best Available Retrofit Technology (BART) for NOx control, has been determined to be Selective Catalytic Reduction (SCR). Expected NOx emission requirements of between 0.08 and 0.098 lbs/mmbtu.

**Consequences of Delay:** Non Compliance with EPA Regulated standards.

**Economic Justification:**

Benefit-Cost NPV: (\$144.19) M\$  
Budget Category: ENV

Cash Flow - 2015							
Jan	(\$81,000)	Apr	\$897,000	Jul	\$1,032,000	Oct	\$2,054,000
Feb	\$1,067,000	May	(\$242,000)	Aug	\$1,313,000	Nov	\$2,826,000
Mar	\$606,000	Jun	\$1,932,000	Sep	\$1,982,000	Dec	\$3,655,000
Prior	\$2,731,000	2015	\$17,040,000	2016	\$147,398,000	After	\$153,258,000

Cost Summary		
	Current Amount	Revised Amount
Additions	\$319,228,000	
Removals	\$0	
(Salvage)	\$0	
Overhead Loads	\$1,201,000	
CBI Total	\$320,428,000	
Retirements	\$0	

Approvals			
Exhibit: AAP		E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
Organization	Ownership	Share	Approve
APS	63.00%	201,869,640	Date
EPE	7.00%	22,429,960	Date
PNM	13.00%	41,655,640	Date
SRP	10.0%	32,042,800	Date
TEP	7.00%	22,429,960	Date 8/21/15

40059568

**FCC07116 Heat Trace Phase 1**

Four Corners Participant Project	SG3 WA Rev 0	% Change	NSR Completed: No
FC Units 4 & 5	CBI: 13-06	Est Code: WA	ERP Completed: Yes
In 2015 Budget: Yes	Plant Acct: 314	Est Removal:	Est In Svc: 10/27/2016

**Description:** Replace Phase 1 heat trace systems including panels, transformers, cable and insulation. Phase 1 includes initial study, the engineering costs for all phases and construction of Phase 1.

**Purpose/Necessity:** The purpose of this project is to maintain Unit 4&5 reliability through heat trace system replacement and improvements.

**Consequences of Delay:** Increased risk of forced outages lasting 4 to 5 days due to pipeline and sample line freeze ups. The current heat trace systems have reached end of life and can no longer be supported. Risk of non-compliance with NERC recommendations and subject to fines and standards compliance issues.

**Economic Justification:**

Benefit-Cost NPV: (\$1.60) M\$  
Budget Category: REL-UNIT

FP 715-19210  
WO 715-40059568  
RO

ISD

**Cash Flow - 2015**

Jan	\$5,000	Apr	\$5,000	Jul	\$22,000	Oct	\$8,000
Feb	\$5,000	May	\$5,000	Aug	\$26,000	Nov	\$8,000
Mar	\$5,000	Jun	\$10,000	Sep	\$10,000	Dec	\$8,000
<b>Prior</b>	<b>\$350,000</b>	<b>2015</b>	<b>\$117,000</b>	<b>2016</b>	<b>\$2,663,000</b>	<b>After</b>	<b>\$0</b>

**Cost Summary**

	Current Amount	Revised Amount
Additions	\$3,036,000	
Removals	\$0	
(Salvage)	\$0	
Overhead Loads	\$94,000	
CBI Total	<b>\$3,130,000</b>	
Retirements	\$0	

**Approvals**

Organization	Ownership	E&C Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
		Share	Approve	Date	Date
APS	63.00%	1,971,300			
EPE	7.00%	219,100			
PNM	12.00%	408,900			
SRP	10.00%	313,000			
TEP	7.00%	219,100			

*[Handwritten Signature]*  
Date: 2-10-15



**Project Investment Request  
Executive Summary - Profitability**

<b>Project:</b>	Heat Trace	<b>Approval Type:</b>	Prelim (Phase 1)
<b>Location:</b>	PC Units 4 & 5	<b>WA:</b>	FCC07116
<b>Project Manager:</b>	Nick Desantis	<b>CBI:</b>	13-06
<b>Project Sponsor:</b>	Rachael Yazzie	<b>Budget Cat:</b>	REL-UNIT
<b>Date:</b>	8/13/2012	<b>Priority:</b>	

**Description:** Perform a comprehensive analysis of the heat trace system to address challenges with deteriorating systems that no longer provide reliable freeze protection. There are eight (8) primary piping types that require heat trace for freeze protection: potable water (raw water and safety shower/eye wash), service water (bottom ash and fire water), drains and traps, compressed air/Service air, condensate, water treatment, demin water, and high temperature high pressure steam pipe.

**Purpose/Necessity:** The purpose is to increase reliability of heat trace system. In February of 2011, the plant experienced significant challenges with freezing, due to insufficient heat tracing, resulting in a forced outage.

**Conseq of Delay:** Continued MW losses due to frozen process piping.

**Alternatives:** None

**Considerations:** All cold service pipe work may be performed while each unit is on-line. All hot pipe work (steam piping) will be performed during a unit outage. Unit 4 hot pipe, freeze protection work to be performed during its November 2014 scheduled outage.

**Economic Analysis**

Outputs		Status	
Field	Value Units	Field	Value
NPV Benefit/Cost Ratio (NPV BCR)	4.44 n/a	Current Status	PPI cash flow in sync.
Years to positive NPV	0 years	Latest Review Action	Reviewed on 13 Jul 2012 by Derek Palmer, NPV = \$1.26
Benefit-Cost NPV (NPV)	\$1.26 M\$		

Inputs - Leading Option			Inputs - Status Quo		
General	Value	Units	Status Quo Capital Cash Flow	Value	Units
Scenario Description	Economic Basis for 2013 Budget				
Unit Retirement Year	2031	n/a	2011		\$
Base Year	2011	n/a	2012		\$
Capital Cost Escalation	2.50	%	2013		\$
O & M Escalation	2.50	%	2014		\$
Leading Option Capital Cash Flow			2015		\$
2011	\$0	\$	2016		\$
2012	\$0	\$	2017		\$
2013	\$500,000	\$	2018		\$
2014	\$0	\$	2019		\$
Total	\$500,000	\$	2020		\$
			Total		\$

Leading Option		Status Quo	
O&M Labor & Materials		O&M Labor & Materials	\$75,000 \$/yr
Asset Life	18.0 years	Forced Outage Days for Failure	1.0 days
Additional Outage Days for Installation	0 days	Portion of Unit Lost	100 %
Increase/(Decrease) in Aux Load	0 KW	Year 1 Probability of Failure	50.0 %
Increase/(Decrease) in Fuel Burn *	0 MMBTU/hr	Annual Increase in Probability of Failure	5.0 %/yr
Increase/(Decrease) in Unit Output *	0 KW	In the event of failure, will we do the leading option project (P) or a temporary repair (T)?	T P/T
Comments	Asset life based on 2013 implementation of project.	If 'T', increase/(decrease) in previous year's Probability of Failure after temporary repair is completed	5.0 %
		If 'T', cost of temporary repair	\$10,000 \$
		If 'P' or 'T', expediting & overtime costs if failure occurs	\$
		If 'P' or 'T', consequential damages if failure occurs	\$

\* Usually only one or the other due to efficiency change

**Comments** Load reduction assumed in the event of a frozen line of 25% (50% for both units). Through seasonal readiness its been determined that multiple circuits are not functional; documentation on existing HT system is poor or non-existent. Some of the heat trace is located under asbestos insulation, and within control panels. Approx. 1,000 (\$75 x 1,000 = \$75K) man hours are spent per year maintaining the existing system, and \$10K per year to repair damages from freezing, which have a 50% chance of resulting in a unit curtailment (Approx. 1 day total).

**Project Investment Request**

**Cost Summary - All dollars in thousands and are APS share**

Cost (APS share):													
Total Cost:		\$75											
		\$500											
		2013 Costs											
Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Budget	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Actual	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Load	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Forecast	\$8	\$11	\$11	\$11	\$11	\$8	\$8	\$8	\$0	\$0	\$0	\$0	\$75

FCC03940 Overhead Cable Repl, Units 4-5			
Four Corners Participant Project	Advance WA Rev A	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: 13-19A	Env Code: N/A	ERF Completed: Yes
In Budget: No	Est Removal:	Est In Svc: 04/18/2014	

**Advance CBI Description:** This advance of \$300K is to perform a comprehensive analysis of the 480V cable trays located in Areas 4-1, 4-2, 4-3, 4-4, 4-5, 5-1, 5-2, 5-3, 5-4, and 5-5 to address the challenges with cable tray overloading resulting in a forced outage.

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PNM

Cash Flow - 2013							
Jan		Apr	\$50,000	Jul		Oct	
Feb	\$75,000	May	\$50,000	Aug		Nov	
Mar	\$75,000	Jun	\$50,000	Sep		Dec	
Prior	\$0	2013	\$300,000	2014	\$0	After	\$0

Cost Summary		
	Current Amount	Revised Amount
Additions	\$300,000	
Removals (Salvage)		
Overhead Loads	\$0	
CBI Total	\$300,000	
Retirements		

Approvals				
Organization	Ownership	Share	E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	15.00%	\$45,000		Approve Date
EPE	7.00%	\$21,000		Date
PNM	13.00%	\$39,000		Date
SCE	48.00%	\$144,000	<i>R. Hunt</i>	1/16/13 Date
SRP	10.0%	\$30,000		Date
TEP	7.00%	\$21,000		Date



FCC0875 Partial Horizontal Reheat Bank Repl			
Four Corners Participant Project	SG3 WA Rev 0	0% Enviro.	NSR Completed: No
FC Unit 4	CBI: 14-01	Env Code: N/A	ERF Completed: Yes
In 2014 Budget: Yes	Plant Acct: 312	Est Removal: 03/09/2016	Est In Svc: 04/08/2016

**Description:** Partial replacement of Horizontal Reheater (HRH) and economizer stringer tubes in the boiler backpass. Elements include 40 HRH elements (10 uppers & 10 lowers closest to each side wall) and approximately (39) economizer stringer tubes in the areas of the HRH tube replacement. Replacement tubing to be coated with an erosion resistant coating for purposes of extending tube life.

**Purpose/Necessity:** The purpose of this project is to maintain Unit Reliability. High ash loading and velocity have resulted in severe erosion of the Horizontal Reheater and economizer stringer tubing, resulting in tube failures and forced outages. This project will replace Horizontal Reheater elements and economizer stringer tubes that are subjected to the worst erosion.

**Consequences of Delay:** Delay of this project will require an amount of buildup and tube shielding work equivalent to the cost and installation of these replacement elements. In addition, the repair buildup, and tube shielding will place these areas of the reheater in a slightly more vulnerable state than replacement with new tubing. This could result in unavailable hours due to Boiler Tube Failures in the Horizontal Reheater.

**Economic Justification:**

Benefit-Cost NPV: \$4.60 M\$  
Budget Category: REL-UNIT

**Cash Flow - 2014**

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$7,000
Feb	\$36,000	May	\$0	Aug	\$0	Nov	\$24,000
Mar	\$0	Jun	\$0	Sep	\$7,000	Dec	\$30,000
Prior	\$0	2014	\$105,000	2015	\$2,347,000	After	\$4,080,000

**Cost Summary**

	Current Amount	Revised Amount
Additions	\$5,997,000	
Removals	\$474,000	
(Salvage)	\$0	
Overhead Loads	\$60,000	
CBI Total	\$6,531,000	
Retirements	\$439,000	

**Approvals**

Exhibit: TT		E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
Organization	Ownership	Share	Approve		
APS	63.00%	4,114,530			Date
EPE	7.00%	457,170			Date
PNM	13.00%	849,030	<i>[Signature]</i>	<i>[Signature]</i>	Date 3/15/14
SRP	10.0%	653,100			Date
TEP	7.00%	457,170			Date

FBC90401 Selective Catalytic Reduction Sys			
Four Corners Participant Project	SG3 WA Rev 0	100% Enviro	NSR Completed: Yes
FC Unit 5	CBI: 14-26R0	Env Code: Air	ERF Completed: Yes
In 2015 Budget: Yes	Plant Acct: 312	Est Removal:	Est In Svc: 12/19/2017
<b>Description:</b> This Project is for the supply and installation of a Selective Catalytic Reduction (SCR) System and related systems, materials, and equipment for flue gas NOx control at the Four Corners Power Plant Units 4 & 5.			
The Project is based upon installation of an SCR system (w/sonic horns and vacuum); urea based ammonia production (U2A) system, and hydrated lime-based Dry Sorbent Injection (DSI) system, along with replacement of existing air heaters with new trisector air heaters.			
The Project also includes installing water-side economizer bypasses for SCR inlet temperature control at lower loads and modifying economizer outlet ductwork and hoppers to include new Large Particle Ash (LPA) screens and associated cleaning devices.			
<b>Purpose/Necessity:</b> The EPA's regional haze Federal Implementation Plan (FIP) regarding Best Available Retrofit Technology (BART) for NOx control, has been determined to be Selective Catalytic Reduction (SCR). Expected NOx emission requirements of between 0.08 and 0.098 lbs/mmbtu.			
<b>Consequences of Delay:</b> Non Compliance with EPA Regulated standards.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:		(\$117.58) MS	
Budget Category:		ENV	

Cash Flow - 2015							
Jan	(\$141,000)	Apr	\$805,000	Jul	\$885,000	Oct	\$2,530,000
Feb	\$928,000	May	\$2,122,000	Aug	\$1,854,000	Nov	\$3,301,000
Mar	\$519,000	Jun	\$1,997,000	Sep	\$2,483,000	Dec	\$3,631,000
<b>Prior</b>	<b>\$1,482,000</b>	<b>2015</b>	<b>\$20,913,000</b>	<b>2016</b>	<b>\$149,435,000</b>	<b>After</b>	<b>\$142,742,000</b>

Cost Summary		
	Current Amount	Revised Amount
Additions	\$313,721,000	
Removals	\$0	
(Salvage)	\$0	
Overhead Loads	\$851,000	
<b>CBI Total</b>	<b>\$314,572,000</b>	
Retirements	\$0	

Approvals			
Exhibit: AAQ		E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
Organization	Ownership	Share	Approve
APS	63.00%	198,180,360	Date: 8/21/15
EPE	7.00%	22,020,040	Date:
PNM	13.00%	40,894,360	Date:
SRP	10.0%	31,457,200	Date:
TEP	7.00%	22,020,040	Date:

Four Corners Participant Project FC Unit 5 In 2015 Budget: Yes	SG3 WA Rev 0 CBI: 14-2680 Plant Acct: 312	100% Enviro. Env Code: Air Est Removal:	NSR Completed: Yes ERF Completed: Yes Est In Svc: 12/19/2017
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**Description:** This Project is for the supply and installation of a Selective Catalytic Reduction (SCR) System and related systems, materials, and equipment for flue gas NOx control at the Four Corners Power Plant Units 4 & 5.

The Project is based upon installation of an SCR system (w/sonic horns and vacuum); urea based ammonia production (U2A) system, and hydrated lime-based Dry Sorbent Injection (DSI) system, along with replacement of existing air heaters with new trisector air heaters.

The Project also includes installing water-side economizer bypasses for SCR inlet temperature control at lower loads and modifying economizer outlet ductwork and hoppers to include new Large Particle Ash (LPA) screens and associated cleaning devices.

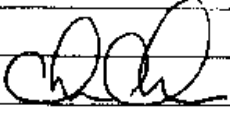
**Purpose/Necessity:** The EPA's regional haze Federal Implementation Plan (FIP) regarding Best Available Retrofit Technology (BART) for NOx control, has been determined to be Selective Catalytic Reduction (SCR). Expected NOx emission requirements of between 0.08 and 0.098 lbs/mmbtu.

**Consequences of Delay:** Non Compliance with EPA Regulated standards.

**Economic Justification:**  
Benefit-Cost NPV: (\$117.58) M\$  
Budget Category: ENV

Jan	(\$141,000)	Apr	\$805,000	Jul	\$885,000	Oct	\$2,530,000
Feb	\$928,000	May	\$2,122,000	Aug	\$1,854,000	Nov	\$3,301,000
Mar	\$519,000	Jun	\$1,997,000	Sep	\$2,483,000	Dec	\$3,631,000
Prior	\$1,482,000	2015	\$20,913,000	2016	\$149,435,000	After	\$142,742,000

Cost Summary		Current Amount	Revised Amount
Additions		\$313,721,000	
Removals		\$0	
(Salvage)		\$0	
Overhead Loads		\$851,000	
CBI Total		\$314,572,000	
Retirements		\$0	

Approvals		E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
Exhibit: AAQ	Organization	Ownership	Share	Approve	Date
	APS	63.00%	198,180,360		
	EPE	7.00%	22,020,040		
	PNM	13.00%	40,894,360		8/15/15
	SRP	10.0%	31,457,200		
	TEP	7.00%	22,020,040		

FBC90401 Selective Catalytic Reduction Sys			
Four Corners Participant Project	SG3 WA Rev 0	100% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: 14-26R0	Env Code: Air	ERF Completed: Yes
In 2015 Budget: Yes	Plant Acct: 312	Est Removal:	Est In Svc: 12/19/2017
<p><b>Description:</b> This Project is for the supply and installation of a Selective Catalytic Reduction (SCR) System and related systems, materials, and equipment for flue gas NOx control at the Four Corners Power Plant Units 4 &amp; 5.</p> <p>The Project is based upon installation of an SCR system (w/sonic horns and vacuum); urea based ammonia production (U2A) system, and hydrated lime-based Dry Sorbent Injection (DSI) system, along with replacement of existing air heaters with new trisector air heaters.</p> <p>The Project also includes installing water-side economizer bypasses for SCR inlet temperature control at lower loads and modifying economizer outlet ductwork and hoppers to include new Large Particle Ash (LPA) screens and associated cleaning devices.</p> <p><b>Purpose/Necessity:</b> The EPA's regional haze Federal Implementation Plan (FIP) regarding Best Available Retrofit Technology (BART) for NOx control, has been determined to be Selective Catalytic Reduction (SCR). Expected NOx emission requirements of between 0.08 and 0.098 lbs/nmbtu.</p> <p><b>Consequences of Delay:</b> Non Compliance with EPA Regulated standards.</p> <p><b>Economic Justification:</b> Benefit-Cost NPV: (\$117.58) M\$ Budget Category: ENV</p>			

Cash Flow - 2015							
Jan	(\$141,000)	Apr	\$805,000	Jul	\$885,000	Oct	\$2,530,000
Feb	\$928,000	May	\$2,122,000	Aug	\$1,854,000	Nov	\$3,301,000
Mar	\$519,000	Jun	\$1,997,000	Sep	\$2,483,000	Dec	\$3,631,000
<b>Prior</b>	\$1,482,000	<b>2015</b>	\$20,913,000	<b>2016</b>	\$149,435,000	<b>After</b>	\$142,742,000

Cost Summary		
	Current Amount	Revised Amount
Additions	\$313,721,000	
Removals	\$0	
(Salvage)	\$0	
Overhead Loads	\$851,000	
<b>CBI Total</b>	<b>\$314,572,000</b>	
Retirements	\$0	

Approvals			
Exhibit: AAO		E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
Organization	Ownership	Share	Approve
APS	63.00%	198,180,360	Date
EPE	7.00%	22,020,040	Date
PNM	13.00%	40,894,360	Date
SRP	10.0%	31,457,200	Date
TEP	7.00%	22,020,040	Date

  
 8-20-15

Four Corners Participant Project	SG3 WA Rev 0	100% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: 14-26R0	Env Code: Air	ERF Completed: Yes
In 2015 Budget: Yes	Plant Acct: 312	Est Removal:	Est In Svc: 12/19/2017

**Description:** This Project is for the supply and installation of a Selective Catalytic Reduction (SCR) System and related systems, materials, and equipment for flue gas NOx control at the Four Corners Power Plant Units 4 & 5.

The Project is based upon installation of an SCR system (w/sonic horns and vacuum); urea based ammonia production (U2A) system, and hydrated lime-based Dry Sorbent Injection (DSI) system, along with replacement of existing air heaters with new trisector air heaters.

The Project also includes installing water-side economizer bypasses for SCR inlet temperature control at lower loads and modifying economizer outlet ductwork and hoppers to include new Large Particle Ash (LPA) screens and associated cleaning devices.

**Purpose/Necessity:** The EPA's regional haze Federal Implementation Plan (FIP) regarding Best Available Retrofit Technology (BART) for NOx control, has been determined to be Selective Catalytic Reduction (SCR). Expected NOx emission requirements of between 0.08 and 0.098 lbs/mmbtu.

**Consequences of Delay:** Non Compliance with EPA Regulated standards.

**Economic Justification:**

Benefit-Cost NPV: (\$117.58) M\$  
Budget Category: ENV

Cash Flow - 2015							
Jan	(\$141,000)	Apr	\$805,000	Jul	\$885,000	Oct	\$2,530,000
Feb	\$928,000	May	\$2,122,000	Aug	\$1,854,000	Nov	\$3,301,000
Mar	\$519,000	Jun	\$1,997,000	Sep	\$2,483,000	Dec	\$3,631,000
Prior	\$1,482,000	2015	\$20,913,000	2016	\$149,435,000	After	\$142,742,000

Cost Summary		
	Current Amount	Revised Amount
Additions	\$313,721,000	
Removals	\$0	
(Salvage)	\$0	
Overhead Loads	\$851,000	
CBI Total	\$314,572,000	
Retirements	\$0	

Approvals			
Exhibit: AAQ		E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
Organization	Ownership	Share	Approve
APS	63.00%	198,180,360	Date
EPE	7.00%	22,020,040	Date
PNM	13.00%	40,894,360	Date
SRP	10.0%	31,457,200	Date
TEP	7.00%	22,020,040	Date 8/21/15

*[Handwritten signatures and initials]*

RCC06552 Coal Silo Wall Replacement							
Four Corners Participant Project		Rev FC14-27R1	0% Enviro.	NSR Completed: Yes			
FC Unit 4		CBI: FC14-27R1	Env Code: N/A	ERF Completed: Yes			
In 2016 Budget: Yes		Plant Acct:	Est Removal: 31 Mar 2018	Est In Svc: 24 Apr 2018			
<p><b>Reason for Revision:</b> The reason for the increase of \$7.65M is due to updated cost estimates for the replacement of the critical structural components of the silos, consisting of the lower cylinder, cone and pant leg sections that are exhibiting advanced structural failure due to severe degradation of the wall sections. These silos are original equipment and have reached the end of useful life.</p> <p>Benefit-Cost NPV: 0 M\$</p>							
<p><b>Description:</b> Replace Unit 4 Coal Silos.</p> <p><b>Purpose/Necessity:</b> Bin and silo wear and buckling will continue with operation and poses risk of equipment failure. The existing structural integrity of these hoppers and silos are a safety concern, and present a risk to plant full load operation.</p> <p><b>Consequences of Delay:</b> Failure or collapse of a coal silo will result in the one silo, and two pulverizers being removed from service until repaired resulting in a Unit de-rate of 200 megawatts for approximately 30 days.</p> <p><b>Economic Justification:</b> Benefit-Cost NPV: 0 M\$ Budget Category: SAFETY</p> <p style="text-align: right; font-size: 1.2em;">FP 715-19210 WD Y0064127 RO Y0080607- Complete</p>							
Cash Flow - 2016							
Jan	\$8,000	Apr	\$5,000	Jul	\$7,000	Oct	\$3,000
Feb	\$5,000	May	\$21,000	Aug	\$7,000	Nov	\$17,000
Mar	\$18,000	Jun	\$9,000	Sep	\$6,000	Dec	\$539,000
Prior	\$1,709,000	2016	\$643,000	2017	\$4,132,000	After	\$6,268,000
Cost Summary							
	Current Amount			Revised Amount			
Additions	658,190 \$5,063,000			1,650,480 \$12,696,000			
Removals	0			0 \$0			
(Salvage)				0 \$0			
Specific Cost	\$5,063,000			\$12,696,000			
Overhead Loads	\$31,000			\$56,000			
CBI Total	\$5,094,000			\$12,752,000			
Retirements	65,000 \$500,000			65,000 \$500,000			
Approvals							
			E&O Committee		Coordinating Committee		X
APS	63.00%	\$8,033,655				Date	
PNM	13.00%	\$1,657,738				Date	
SRP	10.0%	\$1,275,183			WJ-RAL	Date	1-19-17
TEP	7.00%	\$892,628				Date	
4CA	7.00%	\$892,628				Date	

Initiated 7-21-14

FCC06552 Coal Silo Wall Replacement							
Four Corners Participant Project	Rev FC14-27R1	0% Enviro.	NSR Completed: Yes				
FC Unit 4	CBI: FC14-27R1	Env Code: N/A	ERF Completed: Yes				
In 2016 Budget: Yes	Plant Acct:	Est Removal: 31 Mar 2018	Est In Svc: 24 Apr 2018				
<p><b>Reason for Revision:</b> The reason for the increase of \$7.65M is due to updated cost estimates for the replacement of the critical structural components of the silos, consisting of the lower cylinder, cone and pant leg sections that are exhibiting advanced structural failure due to severe degradation of the wall sections. These silos are original equipment and have reached the end of useful life.</p> <p style="text-align: center;">Benefit-Cost NPV: 0 M\$</p>							
<p><b>Description:</b> Replace Unit 4 Coal Silos.</p> <p><b>Purpose/Necessity:</b> Bin and silo wear and buckling will continue with operation and poses risk of equipment failure. The existing structural integrity of these hoppers and silos are a safety concern, and present a risk to plant full load operation.</p> <p><b>Consequences of Delay:</b> Failure or collapse of a coal silo will result in the one silo, and two pulverizers being removed from service until repaired resulting in a Unit de-rate of 200 megawatts for approximately 30 days.</p> <p><b>Economic Justification:</b> Benefit-Cost NPV: 0 M\$ Budget Category: SAFETY</p>							
Cash Flow - 2016							
Jan	\$8,000	Apr	\$5,000	Jul	\$7,000	Oct	\$3,000
Feb	\$5,000	May	\$21,000	Aug	\$7,000	Nov	\$17,000
Mar	\$18,000	Jun	\$9,000	Sep	\$6,000	Dec	\$539,000
Prior	\$1,709,000	2016	\$643,000	2017	\$4,132,000	After	\$6,268,000
Cost Summary							
	Current Amount			Revised Amount			
Additions	\$5,063,000			\$12,696,000			
Removals				\$0			
(Salvage)				\$0			
Specific Cost	\$5,063,000			\$12,696,000			
Overhead Loads	\$11,000			\$56,000			
CBI Total	\$5,094,000			\$12,752,000			
Retirements	\$500,000			\$500,000			
Approvals							
			E&O Committee		Coordinating Committee		X
APS	63.00%	\$8,033,633				Date	
PNM	13.00%	\$1,657,738				Date	
SRP	10.0%	\$1,275,183				Date	
TEP	7.00%	\$892,628				Date	
4CA	7.00%	\$892,628				Date	

FCC06552 Coal Silo Wall Replacement			
Four Corners Participant Project	Rev FC14-27R1	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC14-27R1	Env Code: N/A	ERF Completed: Yes
In 2016 Budget: Yes	Plant Acct:	Est Removal: 31 Mar 2018	Est In Svc: 24 Apr 2018

**Reason for Revision:** The reason for the increase of \$7.65M is due to updated cost estimates for the replacement of the critical structural components of the silos, consisting of the lower cylinder, cone and pant leg sections that are exhibiting advanced structural failure due to severe degradation of the wall sections. These silos are original equipment and have reached the end of useful life.

Benefit-Cost NPV: 0 M\$

**Description:** Replace Unit 4 Coal Silos.

**Purpose/Necessity:** Bin and silo wear and buckling will continue with operation and poses risk of equipment failure. The existing structural integrity of these hoppers and silos are a safety concern, and present a risk to plant full load operation.

**Consequences of Delay:** Failure or collapse of a coal silo will result in the one silo, and two pulverizers being removed from service until repaired resulting in a Unit de-rate of 200 megawatts for approximately 30 days.

**Economic Justification:**

Benefit-Cost NPV: 0 M\$  
Budget Category: SAFETY

**Cash Flow - 2016**

Jan	\$8,000	Apr	\$5,000	Jul	\$7,000	Oct	\$3,000
Feb	\$5,000	May	\$21,000	Aug	\$7,000	Nov	\$17,000
Mar	\$18,000	Jun	\$9,000	Sep	\$6,000	Dec	\$539,000
Prior	\$1,709,000	2016	\$643,000	2017	\$4,132,000	After	\$6,268,000

**Cost Summary**

	Current Amount	Revised Amount
Additions	\$5,063,000	\$12,696,000
Removals		\$0
(Salvage)		\$0
Specific Cost	\$5,063,000	\$12,696,000
Overhead Loads	\$31,000	\$56,000
CBI Total	\$5,094,000	\$12,752,000
Retirements	\$300,000	\$500,000

**Approvals**

		E&O Committee	Coordinating Committee	X
APS	63.00%	\$8,033,655	<i>[Signature]</i>	Date: 2/6/17
PNM	13.00%	\$1,657,738		Date:
SRP	10.0%	\$1,275,183		Date:
EEP	7.00%	\$892,628	<i>[Signature]</i>	Date: 3/28/17
4CA	7.00%	\$892,628	<i>[Signature]</i>	Date: 2/7/17



FCC06552 Coal Silo Wall Replacement							
Four Corners Participant Project		Rev FC14-27R1		0% Enviro.		NSR Completed: Yes	
FC Unit 4		CBI: FC14-27R1		Env Code: N/A		ERF Completed: Yes	
In 2016 Budget: Yes		Plant Acct:		Est Removal: 31 Mar 2018		Est In Svc: 24 Apr 2018	
<p><b>Reason for Revision:</b> The reason for the increase of \$7.65M is due to updated cost estimates for the replacement of the critical structural components of the silos, consisting of the lower cylinder, cone and pant leg sections that are exhibiting advanced structural failure due to severe degradation of the wall sections. These silos are original equipment and have reached the end of useful life.</p> <p>Benefit-Cost NPV: 0 M\$</p>							
<p><b>Description:</b> Replace Unit 4 Coal Silos.</p> <p><b>Purpose/Necessity:</b> Bin and silo wear and buckling will continue with operation and poses risk of equipment failure. The existing structural integrity of these hoppers and silos are a safety concern, and present a risk to plant full load operation.</p> <p><b>Consequences of Delay:</b> Failure or collapse of a coal silo will result in the one silo, and two pulverizers being removed from service until repaired resulting in a Unit de-rate of 200 megawatts for approximately 30 days.</p> <p><b>Economic Justification:</b> Benefit-Cost NPV: 0 M\$ Budget Category: SAFETY</p>							
Cash Flow - 2016							
Jan	\$8,000	Apr	\$5,000	Jul	\$7,000	Oct	\$3,000
Feb	\$5,000	May	\$21,000	Aug	\$7,000	Nov	\$17,000
Mar	\$18,000	Jun	\$9,000	Sep	\$6,000	Dec	\$539,000
Prior	\$1,709,000	2016	\$643,000	2017	\$4,132,000	After	\$6,268,000
Cost Summary							
	Current Amount			Revised Amount			
Additions	\$5,063,000			\$12,696,000			
Removals				\$0			
(Salvage)				\$0			
Specific Cost	\$5,063,000			\$12,696,000			
Overhead Loads	\$31,000			\$56,000			
CBI Total	\$5,094,000			\$12,752,000			
Retirements	\$500,000			\$500,000			
Approvals							
				E&O Committee		Coordinating Committee X	
APS	63.00%	\$8,033,655				Date	
PNM	13.00%	\$1,657,738				Date	
SRP	10.0%	\$1,275,183				Date	1/10/17
TFP	7.00%	\$892,628				Date	
ICA	7.00%	\$892,628				Title	

**FCC08170 Boiler Lagging Replacement**

Four Corners Participant Project	SG3 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: 14-42	Env Code: N/A	ERF Completed: Yes
In 2014 Budget: No	Plant Acct. 312	Est Removal: 11/17/2014	Est In Svc: 12/31/2014

**Description:** Replace general insulation and lagging on Unit 5 boiler, including the penhouse. Boiler system team identified asbestos abatement (ACM) and insulation/lagging needing replacement.

**Purpose/Necessity:** The purpose of this project is to maintain a safe working environment for employees. Unit 5 Boiler has the potential for personnel to be exposed to ACM in areas that have been damaged and temporarily patched or covered for immediate protection. Personnel have the potential to be exposed to fugitive dust conditions laden with insulation fibers and fly ash dust due to identified exposed areas in need of replacement.

**Consequences of Delay:** Unit 5 Boiler has the potential for personnel to be exposed to ACM in areas that have been damaged and temporarily patched or covered for immediate protection. Personnel have the potential to be exposed to fugitive dust conditions laden with insulation fibers and fly ash dust due to identified exposed areas in need of repair.

**Economic Justification:**  
 Benefit-Cost NPV: (\$0.20) M\$  
 Budget Category: SAFETY

FP# 715-19210  
 WO# 715-10066008  
 RO# 715-10071048

**Cash Flow - 2014**

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$695,000
<b>Prior</b>	\$0	<b>2014</b>	\$695,000	<b>2015</b>	\$0	<b>After</b>	\$0

**Cost Summary**

	Current Amount	Revised Amount
Additions	\$ 95,670	\$659,000
Removals (Salvage)	\$ 4,550	\$35,000
Overhead Loads	130	\$1,000
<b>CBI Total</b>	<b>\$ 90,350</b>	<b>\$695,000</b>
Retirements		\$0

**Approvals**

Organization	Ownership	Share	E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
			Approve	Date	Approve	Date
APS	63.00%	437,850				
EPE	7.00%	48,650				
PNM	13.00%	90,350				
SRP	10.0%	69,500				
TEP	7.00%	48,650				

WO Initiated 1-9-15-1

**FCC03942 High Energy Valve Replacement**

Four Corners Participant Project      SG3 WA Rev 0      0% Enviro.      NSR Completed: No  
 FC Unit 4      CBI: 15-01      Env Code: N/A      ERF Completed: Yes  
 In 2014 Budget: No      Plant Acct: 323      Est Removal: 11/15/2017      Est In Svc: 12/19/2017

**Description:** Replace Unit 4 HP Steam Turbine Main Stop (MSV) and Control Valve (CV) bodies, including rebuilding valve assemblies and supports. Requires complete removal and replacement of existing MSV and CV assemblies (4 each).

**Purpose/Necessity:** The purpose of the project is to proactively avoid MSV/CV weld joint failure and potential safety risk and maintain long-term unit reliability. Steam piping, MSV and CV bodies have been in service over 40 years and are approaching the end of serviceable life. NDE testing on the main welds between the MSV and CV assemblies have shown the development of cracks in the weld joints between the main stop and control valve bodies. According to OEM (GE), main weld joints have an increased risk of failure with increased service hours. Weld repair requirements due to joint fatigue will increase with continued operation and unit runtime. The current valve bodies are original equipment.

**Consequences of Delay:** Increased safety risk and decreased unit availability. Economics are based on a five day unit outage for high pressure piping/valve casing crack weld repairs. Estimated cost of \$200,000 for temporary repair with expediting and overtime.

**Economic Justification:**  
 Benefit-Cost NPV: \$0.40 M\$  
 Budget Category: SAFETY

NO Y0066967  
RO Y0080548

**Cash Flow - 2014**

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	<b>\$0</b>	<b>2014</b>	<b>\$0</b>	<b>2015</b>	<b>\$1,679,000</b>	<b>After</b>	<b>\$7,982,000</b>

**Cost Summary**

	Current Amount	Revised Amount
Additions	1,067,170	\$8,209,000
Removals	184,340	\$1,418,000
(Salvage)		\$0
Overhead Loads	4,420	\$34,000
<b>CBI Total</b>	<b>1,255,930</b>	<b>\$9,661,000</b>
Retirements	32,500	\$250,000

**Approvals**

Organization	Ownership	Share	Approve	Date
APS	63.00%	6,086,430		
EPE	7.00%	676,270		
PNM	13.00%	1,255,930	<i>[Signature]</i>	9/3/2014
SRP	10.0%	966,100		
TFP	7.00%	676,270		

**FCC06550 Electrical Breaker Replacements 480/4160V**

Four Corners Participant Project	SG3 WA Rev 0	0% Enviro.	NSR Completed: No
FC Unit 4	CBI: 15-04	Env Code: N/A	ERF Completed: Yes
In 2014 Budget: No	Plant Acct: 315	Est Removal: 09/29/2017	Est In Svc: 12/19/2017

**Description:** Replace 4160V Switchgear lineups Unit Bus West, Unit Bus Center, and Unit Bus East as well as the main 480V Switchgear Bus.

**Purpose/Necessity:** Switchgear upgrades would reduce the risk of plant de-rates and outages and increase overall reliability of the unit. The 4160V/480V switchgear lineups and associated circuit breakers are 45 years old, with each breaker feeding a critical load. Circuit breaker parts, bus insulation and internal gear components have deteriorated and are obsolete and due for replacement.

**Consequences of Delay:** Increased risk of breaker failure or bus fault causing forced reduction in unit output of 33% for 5 days for a single breaker failure or a possible full unit outage for bus failure. Aging breakers and bus insulation are also more prone to arc flash events.

**Economic Justification:**  
Benefit-Cost NPV: \$1.00 M\$  
Budget Category: REL-UNIT

WO Y0066968  
RW Y0080767

ISO 4/24/18

**Cash Flow - 2014**

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	<b>\$0</b>	<b>2014</b>	<b>\$0</b>	<b>2015</b>	<b>\$71,000</b>	<b>After</b>	<b>\$5,320,000</b>

**Cost Summary**

	Current Amount	Revised Amount
Additions	680,550	\$5,235,000
Removals	15,730	\$121,000
(Salvage)		\$0
Overhead Loads	4,550	\$35,000
<b>CBI Total</b>	<b>700,830</b>	<b>\$5,391,000</b>
Retirements	1,930	\$15,000

**Approvals**

Exhibit: AAG		F&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
Organization	Ownership	Share	Approve
APS	63.00%	3,396,330	Date
EPL	7.00%	377,370	Date
PNM	13.00%	700,830	Date
SRP	10.0%	530,100	Date
TEP	7.00%	377,370	Date

*[Handwritten Signature]*

FCC07971 HP & LP Generator CT Replacement			
Four Corners Participant Project	SG3 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: 15-09	Env Code: N/A	ERF Completed: Yes
In 2015 Budget: No	Plant Acct: 314	Est Removal: 09/25/2015	Est In Svc: 12/09/2015
<b>Description:</b> Replace all HP and LP Generator Bushing Current Transformers (CTs).			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain unit reliability by replacing the 24 HP and LP generator current transformers. The CTs have been exposed to excessive heat causing the casting resin to bulge, deform the CTs, and, in some cases, leak out of the housing. The generator CTs provide inputs to the generator protective relaying and are essential to machine protection.			
<b>Consequences of Delay:</b> Current transformer failure, resulting in a full unit outage for 12 weeks and possible extensive damage to the generator.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:		\$10.00 M\$	
Budget Category:		REL-UNIT	

Cash Flow - 2015							
Jan	\$43,000	Apr	\$6,000	Jul	\$3,000	Oct	\$130,000
Feb	\$10,000	May	\$296,000	Aug	\$5,000	Nov	\$133,000
Mar	\$4,000	Jun	\$3,000	Sep	\$89,000	Dec	\$63,000
<b>Prior</b>	\$0	<b>2015</b>	\$785,000	<b>2016</b>	\$9,000	<b>After</b>	\$0

Cost Summary		
	Current Amount	Revised Amount
Additions	\$744,000	
Removals	\$40,000	
(Salvage)	\$0	
Overhead Loads	\$9,000	
<b>CBI Total</b>	<b>\$794,000</b>	
Retirements	\$20,000	

Approvals				
		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>
Organization	Ownership	Share	Approve	Date
APS	63.00%	500,220		8/14/14
EPE	7.00%	55,580		8/14/14
PNM	13.00%	103,220		8/14/14
SRP	10.0%	79,400		8/14/14
TEP	7.00%	55,580		8/14/14

FCC07893 Process Liquor Tank Replacement			
Four Corners Participant Project	SG3 WA Rev 0	100% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: 15-10	Env Code: N/A	ERF Completed: Yes
In 2015 Budget: No	Plant Acct: 325	Est Removal: 07/01/2015	Est In Svc: 11/15/2016
<b>Description:</b> Demolish and replace in kind the existing 288,000 gallon carbon steel Process Liquor Tank, platform, and spiral stairs.			
<b>Purpose/Necessity:</b> The purpose of this project is to avoid a NPDES violation due to a tank failure. An independent inspection was conducted for the existing outdoor Unit 4 and 5 Process Liquor Tanks. Both tanks were found to be in very poor condition with significant corrosion due to pitting on the tank sidewalls and bottom as well as seepage where the coating has failed. Severe deterioration of the interior lining has contributed to a decrease in the tank metal thickness that is no longer in compliance to API 653 tank standards. The existing Unit 4 tank has provided a 31 year useful service life and will fail if not addressed.			
<b>Consequences of Delay:</b> There are areas on the tank (sides and bottom) that has thinned. If repair is delayed, tank will most likely fail, resulting in NPDES violation and significant clean-up and repair costs. The maintenance costs will continue to escalate if the tank is not replaced.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:		\$0.10 M\$	
Budget Category:		ENV	

Cash Flow - 2015							
Jan	\$2,000	Apr	\$2,000	Jul	\$2,000	Oct	\$56,000
Feb	\$2,000	May	\$2,000	Aug	\$2,000	Nov	\$20,000
Mar	\$2,000	Jun	\$2,000	Sep	\$2,000	Dec	\$20,000
<b>Prior</b>	<b>\$0</b>	<b>2015</b>	<b>\$112,000</b>	<b>2016</b>	<b>\$1,562,000</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
Additions	\$1,567,000	
Removals	\$60,000	
(Salvage)	\$0	
Overhead Loads	\$47,000	
<b>CBI Total</b>	<b>\$1,674,000</b>	
Retirements	\$2,000,000	

Approvals			
Organization	Ownership	Share	E&O Committee <input checked="" type="checkbox"/>
			Coordinating Committee <input type="checkbox"/>
APS	63.00%	1,054,620	Approve
EPE	7.00%	117,180	Date: 8/14/14
PNM	13.00%	217,620	Date: 8/14/14
SRP	10.0%	167,400	Date: 8/14/14
TEP	7.00%	117,180	Date: 8/14/14

**FCC08045 LP Generator Hydrogen Cooler Replacement**

Four Corners Participant Project	SG3 WA Rev 0	0% Enviro.	NSR Completed: No
FC Unit 5	CBI: 15-41	Env Code: Solid	ERF Completed: Yes
In 2015 Budget: No	Plant Acct: 312	Est Removal: 11/21/2016	Est In Svc: 11/21/2016

**Description:** Removal and replacement of existing vertical hydrogen coolers of the LP generator.

**Purpose/Necessity:** The purpose of this project is to maintain unit availability, generation capacity and improve reliability of the LP generator. Plant inspection reports and data show the existing hydrogen coolers are in need of replacement after 40+ years of service. According to a 2002 US HP field rewind report, which applies to the LP generator, an independent consultant determined contributing factors of recurring generator field winding shorted turns includes but is not limited to: • Lead carbonate contamination from hydrogen coolers • Water leaks from hydrogen coolers

**Consequences of Delay:** Increased risk of unscheduled unit downtime due to hydrogen cooler leaks. Estimated 3.5 days of downtime and \$45,000 of unplanned maintenance expense per failure event. Negative impact on HP and LP generator reliability.

**Economic Justification:**  
Benefit-Cost NPV: \$3.40 M\$  
Budget Category: REL-UNIT

FP 715-1920  
WO 715-40068011  
120 715-40079247

**Cash Flow - 2015**

Jan	\$41,000	Apr	\$12,000	Jul	\$17,000	Oct	\$85,000
Feb	\$280,000	May	\$39,000	Aug	\$812,000	Nov	\$274,000
Mar	\$45,000	Jun	\$28,000	Sep	\$8,000	Dec	\$47,000
Prior	\$0	2015	\$1,687,000	2016	\$13,000	After	\$0

**Cost Summary**

	Current Amount	Revised Amount
Additions	212,030	\$1,631,000
Removals	7,800	\$60,000
(Salvage)	0	\$0
Overhead Loads	1,170	\$9,000
CBI Total	221,000	\$1,700,000
Retirements	0	\$0

**Approvals**

Organization	Ownership	Share	E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
			Approve	Date
APS	63.00%	1,071,000		Date
EPE	7.00%	119,000		Date
PNM	13.00%	221,000	<i>[Signature]</i>	Date
SRP	10.0%	170,000		2-10-15 Date
TTP	7.00%	119,000		Date

WO Initialed 7-6-15

FCC08374 River Station Battery Replacement			
Four Corners Participant Project	SG3 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Common	CBI: 15-42	Env Code: N/A	ERF Completed: Yes
In 2015 Budget: No	Plant Acct: 345	Est Removal:	Est In Svc: 12/31/2015

**Description:** Replace the batteries for the River Station.

**Purpose/Necessity:** The purpose is to maintain plant reliability by replacing the batteries which are approaching the end of its useful life.

**Consequences of Delay:** Loss of cooling water supply to Morgan Lake.

**Economic Justification:**  
Benefit-Cost NPV: \$0.00 M\$  
Budget Category: RRL-UNIT

FP 715-19210  
WO Y0071927  
RO Y0073447

Cash Flow - 2015							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$21,000
Prior	\$0	2015	\$21,000	2016	\$0	After	\$0

Cost Summary			
	Current Amount		Revised Amount
Additions	2,470.	\$19,000	
Removals	130.	\$1,000	
(Salvage)	0	\$0	
Overhead Loads	260.	\$2,000	
CBI Total	2,730.	\$21,000	
Retirements	130.	\$1,000	

Approvals			
Organization	Ownership	Share	Approve
APS	63.00%	13,230	<i>[Signature]</i> Date 6/11/15
EPE	7.00%	1,470	<i>[Signature]</i> Date 6-11-15
PNM	13.00%	2,730	<i>[Signature]</i> Date 6/11/15
SRP	10.0%	2,100	<i>[Signature]</i> Date 06-11-15
TEP	7.00%	1,470	<i>[Signature]</i> Date 11 Jun 2015



FCC08257 Condensate Motor Replacement			
Four Corners Participant Project	SG3 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: 15-43	Env Code: N/A	BRF Completed: Yes
In 2015 Budget: No	Plant Acct: 312	Est Removal:	Est In Svc: 05/18/2015
<b>Description:</b> Replace the Condensate Motor.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain unit reliability. The condensate motor unexpectedly failed and was replaced on an emergent basis.			
<b>Consequences of Delay:</b> Failure of a second pump will result in a \$185K/day derate cost.			
<b>Economic Justification:</b>			
Benefit-Cost NPV: \$0.00 M\$			
Budget Category: REL-UNIT			
FP 715-19210 WO Y0069647			

Cash Flow - 2015							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$58,000	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	<b>\$0</b>	<b>2015</b>	<b>\$58,000</b>	<b>2016</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
Additions	\$7,150	\$55,000
Removals	390	\$3,000
(Salvage)		\$0
Overhead Loads		\$0
<b>CBI Total</b>	<b>\$7,540</b>	<b>\$58,000</b>
Retirements		\$0

Approvals			
Organization	Ownership	Share	Approve
APS	63.00%	36,540	<i>[Signature]</i> Date 6/11/15
EPE	7.00%	4,060	<i>[Signature]</i> Date 6-11-15
PNM	13.00%	7,540	<i>[Signature]</i> Date 6/11/15
SRP	10.0%	5,800	<i>[Signature]</i> Date 06-11-15
TRP	7.00%	4,060	<i>[Signature]</i> Date 11/20/2015

Road v Initiated 12-16-15. 8

FCC08561 Absorber Module Overhaul 5C			
Four Corners Participant Project	SG2 WA Rev 0	100% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: 15-46	Env Code: Air	ERF Completed: Yes
In 2015 Budget: No	Plant Acct:	Est Removal:	Est In Svc: 12/15/2015
<b>Description:</b> Absorber Module overhaul to meet 95% SO2 removal and reduce moisture carry over to stack.			
<b>Purpose/Necessity:</b> The purpose of this project is to comply with the 2015 Consent Decree requiring 95% SO2 removal with no bypass.			
<b>Consequences of Delay:</b> Non-compliance with 2015 Consent Decree and Air Quality Permits.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:		(\$3.40) M\$	
Budget Category:		ENV	

Cash Flow - 2015							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$1,108,000
Feb	\$0	May	\$0	Aug	\$0	Nov	\$1,879,000
Mar	\$0	Jun	\$0	Sep	\$1,230,000	Dec	\$1,864,000
<b>Prior</b>	<b>\$0</b>	<b>2015</b>	<b>\$6,081,000</b>	<b>2016</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
Additions	\$5,827,000	
Removals	\$224,000	
(Salvage)	\$0	
Overhead Loads	\$30,000	
<b>CBI Total</b>	<b>\$6,081,000</b>	
Retirements	\$291,000	

Approvals			
Exhibit: ABH		E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
Organization	Ownership	Share	Approve
APS	63.00%	3,831,030	Date
EPE	7.00%	425,670	Date
PNM	13.00%	790,530	Date
SRP	10.0%	608,100	Date
TEP	7.00%	425,670	Date

*[Handwritten signature and date: 2/25/16]*

FCC88729 HVAC Equipment Replacement							
Four Corners Participant Project	SG2 WA Rev 0	0% Enviro.	NSR Completed: Yes				
FC Units 4 & 5	CBL 15-56	Env Code: N/A	ERF Completed: Yes				
In 2015 Budget: No	Plant Acct:	Est Removal: 12/16/2015	Est In Svc: 12/25/2015				
<p><b>Description:</b> Replace the HVAC system in the South Bailey Building, Unit 4&amp;5 planning building and the administration building HVAC.</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to provide a reliable HVAC for plant controls equipment and personnel.</p> <p><b>Consequences of Delay:</b> When the HVAC fails, other methods of cooling are required, some of the methods include opening all building doors and/or bring in temporary portable air conditioner units at a cost of \$16K/month.</p> <p><b>Economic Justification:</b> Benefit-Cost NPV: \$0.50 M\$ Budget Category: REL-UNTT</p>							
Cash Flow - 2015							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$399,000
Feb	\$0	May	\$0	Aug	\$0	Nov	\$176,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$421,000
Prior	\$0	2015	\$996,000	2016	\$0	After	\$0
Cost Summary							
	Current Amount			Revised Amount			
Additions				\$751,000			
Removals				-\$200,000			
(Salvage)				\$0			
Overhead Loads				-\$45,000			
CBI Total				\$996,000			
Retirements				-\$150,000			
Approvals							
				E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
Organization	Ownership	Share	Approve				
APS	63.00%	627,480	<i>[Signature]</i>	Date	11/3/15		
EPP	7.00%	69,720		Date			
PNM	13.00%	129,480	<i>[Signature]</i>	Date	10/13/15		
SRP	10.0%	99,600		Date			
TEP	7.00%	69,720		Date			

FCC08729 HVAC Equipment Replacement							
Four Corners Participant Project	SG2 WA Rev 0	0% Enviro.	NSR Completed: Yes				
FC Units 4 & 5	CBI: 15-56	Env Code: N/A	ERF Completed: Yes				
In 2015 Budget: No	Plant Acct:	Est Removal: 12/16/2015	Est In Svc: 12/25/2015				
<b>Description:</b> Replace the HVAC system in the South Bailey Building, Unit 4&5 planning building and the administration building HVAC.							
<b>Purpose/Necessity:</b> The purpose of this project is to provide a reliable HVAC for plant controls equipment and personnel.							
<b>Consequences of Delay:</b> When the HVAC fails, other methods of cooling are required, some of the methods include opening all building doors and/or bring in temporary portable air conditioner units at a cost of \$16K/month.							
<b>Economic Justification:</b>							
Benefit-Cost NPV:		\$0.50 M\$					
Budget Category:		REL-UNIT					
Cash Flow - 2015							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$399,000
Feb	\$0	May	\$0	Aug	\$0	Nov	\$176,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$421,000
Prior	\$0	2015	\$996,000	2016	\$0	After	\$0
<b>Cost Summary</b>							
	Current Amount			Revised Amount			
Additions				\$751,000			
Removals				(\$200,000)			
(Salvage)				\$0			
Overhead Loads				\$45,000			
CBI Total				\$996,000			
Retirements				(\$150,000)			
<b>Approvals</b>							
Exhibit: ABJ				E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
Organization	Ownership	Share	Approve				
APS	63.00%	627,480	Date				
EPE	7.00%	69,720	Date				
PNM	13.00%	129,480	Date				
SRP	10.0%	99,600	Date				
TEP	7.00%	69,720	Date				

ECC08729 HVAC Equipment Replacement			
Four Corners Participant Project	SG2 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: 15-56	Env Code: N/A	ERF Completed: Yes
In 2015 Budget: No	Plant Acct:	Est Removal: 12/16/2015	Est In Svc: 12/25/2015

**Description:** Replace the HVAC system in the South Bailey Building, Unit 4&5 planning building and the administration building HVAC.

**Purpose/Necessity:** The purpose of this project is to provide a reliable HVAC for plant controls equipment and personnel.

**Consequences of Delay:** When the HVAC fails, other methods of cooling are required, some of the methods include opening all building doors and/or bring in temporary portable air conditioner units at a cost of \$16K/month.

**Economic Justification:**

Benefit-Cost NPV: \$0.50 MS  
Budget Category: REL-UNIT

Cash Flow - 2015							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$399,000
Feb	\$0	May	\$0	Aug	\$0	Nov	\$176,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$421,000
Prior	\$0	2015	\$996,000	2016	\$0	After	\$0

**Cost Summary**

	Current Amount	Revised Amount
Additions	\$751,000	
Removals	\$200,000	
(Salvage)	\$0	
Overhead Loads	\$45,000	
CBI Total	\$996,000	
Retirements	\$150,000	

**Approvals**

Organization	Ownership	Share	E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
			Approve		Date	Date
APS	63.00%	627,480				
EPE	7.00%	69,720				
PNM	13.00%	129,480				
SRP	10.0%	99,600				
TEP	7.00%	69,720				

*J. P. [Signature]*  
10-1-15

FCC08729 HVAC Equipment Replacement			
Four Corners Participant Project	SG2 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: 15-56	Env Code: N/A	ERF Completed: Yes
In 2015 Budget: No	Plant Acct:	Est Removal: 12/16/2015	Est In Svc: 12/25/2015
<b>Description:</b> Replace the HVAC system in the South Bailey Building, Unit 4&5 planning building and the administration building HVAC.			
<b>Purpose/Necessity:</b> The purpose of this project is to provide a reliable HVAC for plant controls equipment and personnel.			
<b>Consequences of Delay:</b> When the HVAC fails, other methods of cooling are required, some of the methods include opening all building doors and/or bring in temporary portable air conditioner units at a cost of \$16K/month.			
<b>Economic Justification:</b>			
Benefit-Cost NPV: \$0.50 M\$			
Budget Category: REL-UNIT			

Cash Flow - 2015							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$399,000
Feb	\$0	May	\$0	Aug	\$0	Nov	\$176,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$421,000
<b>Prior</b>	<b>\$0</b>	<b>2015</b>	<b>\$996,000</b>	<b>2016</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
Additions	\$751,000	
Removals	\$200,000	
(Salvage)	\$0	
Overhead Loads	\$45,000	
<b>CBI Total</b>	<b>\$996,000</b>	
Retirements	\$150,000	

Approvals			
		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
Organization	Ownership	Share	Approve
APS	63.00%	627,480	Date
EPE	7.00%	69,720	Date
PNM	13.00%	129,480	Date
SRP	10.0%	99,600	Date
TEP	7.00%	69,720	Date

*JCB* 10-13-15

FCC08804 North Boiler Feed Booster Pump Motor Replacement			
Four Corners Participant Project	SG2 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: 15-60	Env Code: N/A	ERF Completed: Yes
In 2015 Budget: No	Plant Acct:	Est Removal:	Est In Svc: 12/19/2015
<b>Description:</b> Replace North Boiler Feed Booster Pump motor.			
<b>Purpose/Necessity:</b> The purpose of this project is to replace the North Boiler Feed Booster Pump motor in order to restore standby redundancy.			
<b>Consequences of Delay:</b> Consequences of delay would result in a unit trip with the loss of another pump.			
<b>Economic Justification:</b>			
Benefit-Cost NPV: MS			
Budget Category: REL-UNIT			
<p>* EPE's approval of the CBI is subject to the terms and conditions of the Purchase and Sale Agreement dated Feb. 17, 2015 between EPE and APS.</p>			

Cash Flow - 2015							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$94,000
<b>Prior</b>	<b>\$0</b>	<b>2015</b>	<b>\$94,000</b>	<b>2016</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
Additions	\$67,000	
Removals	\$5,000	
(Salvage)	\$0	
Overhead Loads	\$22,000	
<b>CBI Total</b>	<b>\$94,000</b>	
Retirements	\$0	

Approvals		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
Organization	Ownership	Share	Approve
APS	63.00%	59,220	 Date: 10/29/15
EPE	7.00%	6,580	 Date: 10/29/15
PNM	13.00%	12,220	 Date: 10/29/15
SRP	10.0%	9,400	 Date: 10/29/15
TEP	7.00%	6,580	 Date: 10/28/15

FCC08836 Insulation Replacement 2015			
Four Corners Participant Project	SG3 WA Rev 0	100% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CB#: 15-63	Env Code: N/A	ERF Completed: Yes
In 2015 Budget: No	Plant Acct:	Est Removal:	Est In Svc: 12/31/2015
Description: Replace over 1500 sq ft of insulation at various locations. O&M to Capital transfer.			
Purpose/Necessity: The purpose of this project is to replace insulation on the boilers and secondary air duct expansion joints during forced outages to ensure no future release of fugitive dust.			
Consequences of Delay: Plant operations will have an environmental violation due to the release of fugitive dust from these areas.			
Economic Justification:			
Benefit-Cost NPV	(\$0.50) M\$		
Budget Category:	ENV		
<p>FP# 715-19210</p> <p>WJ# 40071148</p> <p>RO# 40079671</p>			

Cash Flow - 2015							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$730,000
Prior	\$0	2015	\$730,000	2016	\$0	After	\$0

Cost Summary			
	Current Amount		Revised Amount
Additions	91,130	\$701,000	
Removals	3,770	\$29,000	
(Salvage)		\$0	
Overhead Loads		\$0	
<b>CB Total</b>	<b>94,900</b>	<b>\$730,000</b>	
Retirements		\$0	

Approvals			
Organization	Ownership	Share	Approve
APS	63.00%	459,900	Date
EPI	7.00%	51,100	Date
PNM	13.00%	94,900	Date <i>1-11-16</i>
SRP	10.0%	73,900	Date
TEP	7.00%	51,100	Date



FCC08838 Bridge Abutment Erosion Prevention			
Four Corners Participant Project	SG3 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: 15-65	Env Code: N/A	ERF Completed: Yes
In 2016 Budget: No	Plant Acct: 390	Est Removal:	Est In Svc: 12/31/2015
<b>Description:</b> Complete replacement of bridge expansion joints, drainage system (10 cy of concrete), and riprap (30 cy) at the main entrance bridge abutments. O&M to Capital transfer.			
<b>Purpose/Necessity:</b> The purpose of this project is to ensure continued safe use of the bridge for vehicle traffic to the plant.			
<b>Consequences of Delay:</b> Any delay in repair of the erosion issues will result in deeming the bridge unsafe for vehicle traffic entering and leaving the plant.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:	(\$0.30) MS		
Budget Category:	SAFETY		

Cash Flow - 2016							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$300,000	2016	\$0	2017	\$0	After	\$0

Cost Summary		Current Amount	Revised Amount
Additions		\$252,000	
Removals		\$45,000	
(Salvage)		\$0	
Overhead Loads		\$3,000	
CBI Total		\$300,000	
Retirements		\$0	

Approvals		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
Organization	Ownership	Share	Approve
APS	63.00%	189,000	Date 3/27/16
EPE	7.00%	21,000	Date
PNM	13.00%	39,000	Date
SRP	10.0%	30,000	Date 3/24/16
TEP	7.00%	21,000	Date 3-24-16

FCC08838 Bridge Abutment Erosion Prevention			
Four Corners Participant Project	SG3 WA Rev 0	0% Enviro,	NSR Completed: Yes
FC Units 4 & 5	CBI: 15-65	Env Code: N/A	ERF Completed: Yes
In 2016 Budget: No	Plant Acct: 390	Est Removal:	Est In Svc: 12/31/2015

**Description:** Complete replacement of bridge expansion joints, drainage system (10 cy of concrete), and riprap (30 cy) at the main entrance bridge abutments. O&M to Capital transfer.

**Purpose/Necessity:** The purpose of this project is to ensure continued safe use of the bridge for vehicle traffic to the plant.

**Consequences of Delay:** Any delay in repair of the erosion issues will result in deeming the bridge unsafe for vehicle traffic entering and leaving the plant.

**Economic Justification:**

Benefit-Cost NPV: (\$0.30) M\$

Budget Category: SAFETY

Cash Flow - 2016							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	<b>\$300,000</b>	<b>2016</b>	<b>\$0</b>	<b>2017</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
Additions	\$252,000	
Removals	\$45,000	
(Salvage)	\$0	
Overhead Loads	\$3,000	
<b>CBI Total</b>	<b>\$300,000</b>	
Retirements	\$0	

Approvals			
Organization	Ownership	Share	Approve
APS	63.00%	189,000	Date
EPE	7.00%	21,000	Date
PNM	13.00%	39,000	Date
SRP	10.0%	30,000	Date
TEP	7.00%	21,000	Date

E&O Committee  Coordinating Committee

*Eric Shorne* 3/24/16  
*H. J. J. J.* 3/24/16

PLANT: FC Power Plant		<b>FOUR CORNERS O &amp; M BUDGET ITEM</b>	NUMBER: 15-2017
BUDGET YEAR: 2017			BUDGET TYPE: OH
COST OF PROJECT \$: 28,000			DATE: 5/6/2016
SYSTEM: Electrical	SUBSYSTEM: High Voltage		PRIORITY: 1
CURRENT SYSTEM HEALTH	CURRENT SUBSYSTEM HEALTH		FREQ: One Time
PROJECTED SYSTEM HEALTH	PROJECTED SUBSYSTEM HEALTH		PREPARED BY: R.Yazzie
RISK TYPE: Generation			

[Back to Index](#) GW

<b>Job Title:</b> U5 Iris Partial Discharge Analyzer Instrument  <b>Description of Work:</b> Iris Parital Discharge Analyzer was purchased and has not been installed. Work will be to install and commision PDA for U5 HP and LP generator bushings.  <b>Purpose and Necessity:</b> The PDA instrument is a tool that can collect information on a routine bases to measure PD. It will detect high frequency partial discharge signals which can give early detection of stator winding insulation failure.  <b>Potential Adverse Consequence if not completed in this year:</b> The Iris Partial Discharge Instrument is a useful tool that will help aid in detecting PD on our large generating equipment. If not done this year we delay the use and knowledge of this tool that could help detect or give a base line of PD for U5 HP and LP generators.	Allocation	%	\$\$
	APS	63	17,640
	PSNM	13	3,640
	SRP	10	2,800
	TEP	7	1,960
	4CA	7	1,960
	<b>Total</b>	<b>100</b>	<b>28,000</b>

\*New BUDGET ITEM for 2017

*Estimates (Dollars Only)*

Type of Expense	APS BASE PAY(1)	APS OVERTIME (2)	M&S(3)	TRAVEL SUB/LOD.(4)	OTHER(5)	CONTRACT LABOR(8)	TOTAL
BUDGET			5,000			23,000	28,000
ACTUAL							-

*Schedule of Expenditures:*

1st Quarter		2nd Quarter		3rd Quarter		4th Quarter	
JAN \$	FEB \$	MAR \$	APR \$	MAY \$	JUN \$	JUL \$	AUG \$
						18,000	10,000

*System details for annual trending:*

Type of Overhaul Cost	Boiler \$	Turbine/Gen \$	Fuels \$	Scrubber \$	Heat Cycle \$	Auxiliaries \$	Total \$\$
BUDGET		28,000					28,000

CF	January	February	March	April	May	June	Jt. August	September	October	November
									18,000	10,000

Four Corners Participant Project FC Units 4 & 5 In 2016 Budget: No	Advance WA Rev A CBI: 16-07A Plant Acct:	0% Enviro. Env Code: N/A Est Removal: 06/16/2016	NSR Completed: Yes BRF Completed: Yes Est In Svc: 05/18/2016
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**Advance CBI Description:** Employ a specialty contractor (Elevator Company) to conduct an inspection on all twelve (12) Plant elevators. The inspection will evaluate the condition of all of the elevators and determine which system needs to be modified and which system needs to be replaced. The specialty contractor will issue a written report to the Plant System Owners with recommendations, replacement costs, and an estimated construction schedule.

Jan	\$12,000	Apr	\$29,000	Jul	\$0	Oct	\$0
Feb	\$0	May	\$29,000	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$2,000	Sep	\$0	Dec	\$0
<b>Prior</b>	<b>\$0</b>	<b>2016</b>	<b>\$72,000</b>	<b>2017</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

Cost Summary		Current Amount	Revised Amount
Additions		\$2,000	
Removals		\$67,000	
(Salvage)		\$0	
Overhead Loads		\$3,000	
<b>CBI Total</b>		<b>\$72,000</b>	
Retirements		\$0	

Approvals		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
Organization	Ownership	Share	Approve	Date	Date
APS	63.00%	45,360	<i>[Signature]</i>	11/9/15	
EPE	7.00%	5,040			
PNM	13.00%	9,360	<i>[Signature]</i>	11/7/15	
SRP	10.0%	7,200			
TEP	7.00%	5,040			

FCC08248 Plant Elevators Modernization			
Four Corners Participant Project	Advance WA Rev A	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: 16-07A	Env Code: N/A	ERF Completed: Yes
In 2016 Budget: No	Plant Acct:	Est Removal: 06/16/2016	Est In Svc: 05/18/2016

**Advance CBI Description:** Employ a specialty contractor (Elevator Company) to conduct an inspection on all twelve (12) Plant elevators. The inspection will evaluate the condition of all of the elevators and determine which system needs to be modified and which system needs to be replaced. The specialty contractor will issue a written report to the Plant System Owners with recommendations, replacement costs, and an estimated construction schedule.

\*EPE's approval of the CBI is subject to the terms and conditions of the Purchase and Sale Agreement dated February 17, 2015, between EPE and APS.

Cash Flow - 2016							
Jan	\$12,000	Apr	\$29,000	Jul	\$0	Oct	\$0
Feb	\$0	May	\$29,000	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$2,000	Sep	\$0	Dec	\$0
<b>Prior</b>	<b>\$0</b>	<b>2016</b>	<b>\$72,000</b>	<b>2017</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
Additions	\$2,000	
Removals	\$67,000	
(Salvage)	\$0	
Overhead Loads	\$3,000	
<b>CBI Total</b>	<b>\$72,000</b>	
Retirements	\$0	

Approvals		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
Organization	Ownership	Share	Approve
APS	63.00%	45,360	Date
EPE	7.00%	5,040	<i>Nadia Powell</i> Date 10-29-15
PNM	13.00%	9,360	Date
SRP	10.0%	7,200	Date
TEP	7.00%	5,040	Date

FCC18748 Plant Elevators Modernization			
Four Corners Participant Project	Advance WA Rev A	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: 16-07A	Env Code: N/A	ERF Completed: Yes
In 2016 Budget: No	Plant Acct:	Est Removal: 06/16/2016	Est In Svc: 05/18/2016

**Advance CBI Description:** Employ a specialty contractor (Elevator Company) to conduct an inspection on all twelve (12) Plant elevators. The inspection will evaluate the condition of all of the elevators and determine which system needs to be modified and which system needs to be replaced. The specialty contractor will issue a written report to the Plant System Owners with recommendations, replacement costs, and an estimated construction schedule.

Cash Flow - 2016							
Jan	\$12,000	Apr	\$29,000	Jul	\$0	Oct	\$0
Feb	\$0	May	\$29,000	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$2,000	Sep	\$0	Dec	\$0
<b>Prior</b>	<b>\$0</b>	<b>2016</b>	<b>\$72,000</b>	<b>2017</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

Cost Summary

	Current Amount	Revised Amount
Additions	\$2,000	
Removals	\$67,000	
(Salvage)	\$0	
Overhead Loads	\$3,000	
<b>CBI Total</b>	<b>\$72,000</b>	
Retirements	\$0	

Approvals

Organization	Ownership	Share	E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
			Approve	Date	Approve	Date
APS	63.00%	45,360				
EPE	7.00%	5,040				
PNM	13.00%	9,360				
SRP	10.0%	7,200				
TEP	7.00%	5,040				

*[Handwritten Signature]* 10/28/15  
*[Handwritten Signature]* 10-28-15

Four Corners Participant Project	SG2-WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: 16-08	Env Code: N/A	ERF Completed: Yes
In 2016 Budget: No	Plant Acct:	Est Removal:	Est In Svc: 11/24/2016

**Description:** Procure a Breathable Oxygen Cascade System & Lifepack 15 (Advanced Cardiac Life Support device).

**Purpose/Necessity:** The purpose of this project is to implement on-site safety response measures. Breathable Oxygen Cascade System - This is to provide a resource for refilling SCBA bottles used for Emergency Response Team functions requiring an SCBA (Firefighting, Hazmat, IDHL Environments). Lifepack 15 - This device would be staged on the ambulance for Emergency Medical Response by the ERT in AED mode to obtain vital signs, and apply defibrillation as necessary. In a cardiac emergency, the ACLS RN on-site, or off-site ACLS response can use the device for immediate cardiac monitoring and ACLS mode as needed for life saving measures.

**Consequences of Delay:** Slow response to emergency situations and potential loss of life.

**Economic Justification:**

Benefit-Cost NPV: (\$0.07) M\$  
Budget Category: SAFETY

Cash Flow - 2016							
Jan	\$3,000	Apr	\$0	Jul	\$2,000	Oct	\$2,000
Feb	\$0	May	\$2,000	Aug	\$8,000	Nov	\$0
Mar	\$0	Jun	\$2,000	Sep	\$5,000	Dec	\$0
<b>Prior</b>	<b>\$0</b>	<b>2016</b>	<b>\$104,000</b>	<b>2017</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
Additions	\$93,000	
Removals	\$4,000	
(Salvage)	\$0	
Overhead Loads	\$7,000	
<b>CBI Total</b>	<b>\$104,000</b>	
Retirements	\$11,000	

Approvals			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
Organization	Ownership	Share	Approve	Date
APS	63.00%	65,520	<i>[Signature]</i>	11/9/15
EPE	7.00%	7,280		
PNM	13.00%	13,520	<i>[Signature]</i>	11/7/15
SRP	10.0%	10,400		
TEP	7.00%	7,280		

FCC08263 Emergency Response Equipment Replacement			
Four Corners Participant Project	SG2 WA Rev 0	0% Enviro:	NSR Completed: Yes
FC Units 4 & 5	CBI: 16-08	Env Code: N/A	ERF Completed: Yes
In 2016 Budget: No	Plant Aect:	Est Removal:	Est In Svc: 11/24/2016
<b>Description:</b> Procure a Breathable Oxygen Cascade System & Lifepack 15 (Advanced Cardiac Life Support device).			
<b>Purpose/Necessity:</b> The purpose of this project is to implement on-site safety response measures. Breathable Oxygen Cascade System – This is to provide a resource for refilling SCBA bottles used for Emergency Response Team functions requiring an SCBA (Firefighting, Hazmat, IDHL Environments). Lifepack 15 - This device would be staged on the ambulance for Emergency Medical Response by the ERT in AED mode to obtain vital signs, and apply defibrillation as necessary. In a cardiac emergency, the ACLS RN on-site, or off-site ACLS response can use the device for immediate cardiac monitoring and ACLS mode as needed for life saving measures.			
<b>Consequences of Delay:</b> Slow response to emergency situations and potential loss of life.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:		(\$0.07) M\$	
Budget Category:		SAFETY	
*EPE's approval of the CBI is subject to the terms and conditions of the Purchase and Sale Agreement dated February 17, 2015, between EPE and APS.			

Cash Flow - 2016							
Jan	\$3,000	Apr	\$0	Jul	\$2,000	Oct	\$2,000
Feb	\$0	May	\$2,000	Aug	\$88,000	Nov	\$0
Mar	\$0	Jun	\$2,000	Sep	\$5,000	Dec	\$0
<b>Prior</b>	<b>\$0</b>	<b>2016</b>	<b>\$104,000</b>	<b>2017</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
Additions	\$93,000	
Removals	\$4,000	
(Salvage)	\$0	
Overhead Loads	\$7,000	
<b>CBI Total</b>	<b>\$104,000</b>	
Retirements	\$11,000	

Approvals			
		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
Organization	Ownership	Share	Approve
APS	63.00%	65,520	Date
EPE	7.00%	7,280	Date
PNM	13.00%	13,520	Date
SRP	10.0%	10,400	Date
TEP	7.00%	7,280	Date

*Nadia Powell* 10-29-15



FCU 68263 Emergency Response Equipment Replacement			
Four Corners Participant Project	SG2 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: 16-08	Env Code: N/A	ERF Completed: Yes
In 2016 Budget: No	Plant Acct:	Est Removal:	Est In Svc: 11/24/2016

**Description:** Procure a Breathable Oxygen Cascade System & Lifepack 15 (Advanced Cardiac Life Support device).

**Purpose/Necessity:** The purpose of this project is to implement on-site safety response measures. Breathable Oxygen Cascade System – This is to provide a resource for refilling SCBA bottles used for Emergency Response Team functions requiring an SCBA (Firefighting, Hazmat, IDHL Environments). Lifepack 15 - This device would be staged on the ambulance for Emergency Medical Response by the ERT in AED mode to obtain vital signs, and apply defibrillation as necessary. In a cardiac emergency, the ACLS RN on-site, or off-site ACLS response can use the device for immediate cardiac monitoring and ACLS mode as needed for life saving measures.

**Consequences of Delay:** Slow response to emergency situations and potential loss of life.

**Economic Justification:**

Benefit-Cost NPV: (\$0.07) M\$  
Budget Category: SAFETY

**Cash Flow - 2016**

Jan	\$3,000	Apr	\$0	Jul	\$2,000	Oct	\$2,000
Feb	\$0	May	\$2,000	Aug	\$88,000	Nov	\$0
Mar	\$0	Jun	\$2,000	Sep	\$5,000	Dec	\$0
<b>Prior</b>	\$0	<b>2016</b>	\$104,000	<b>2017</b>	\$0	<b>After</b>	\$0

**Cost Summary**

	Current Amount	Revised Amount
Additions	\$93,000	
Removals	\$4,000	
(Salvage)	\$0	
Overhead Loads	\$7,000	
<b>CBI Total</b>	<b>\$104,000</b>	
Retirements	\$11,000	

**Approvals**

		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
Organization	Ownership	Share	Approve		
APS	63.00%	65,520			Date
EPE	7.00%	7,280			Date
PNM	13.00%	13,520			Date
SRP	10.0%	10,400	<i>Ronald Lledge</i>		Date 10/28/15
TEP	7.00%	7,280	<i>J. R.</i>		Date 10-28-15



**FCC08589 Absorber Module Overhaul 4C**

Four Corners Participant Project	SO2 WA Rev 0	100% Enviro.	NSR Completed: Yes
RC Unit 4	CBI: 16-10	Env Code: Air	ERF Completed: Yes
In 2015 Budget: No	Plant Acct:	Est Removal:	Est In Svc: 11/30/2016

**Description:** Absorber Module overhaul to meet 95% SO2 removal and reduce moisture carry over to stack.

**Purpose/Necessity:** The purpose of this project is to comply with the 2015 Consent Decree requiring 95% SO2 removal with no bypass.

**Consequences of Delay:** Non-compliance with 2015 Consent Decree and Air Quality Permits.

**Economic Justification:**  
 Benefit-Cost NPV: (\$3.10) M\$  
 Budget Category: ENV

FP 715-19210  
 NO 715-700-71757  
 RO 715-700-76307

**Cash Flow - 2015**

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2015	\$0	2016	\$6,077,000	After	\$4,000

**Cost Summary**

	Current Amount	Revised Amount
Additions	\$ 751,140	\$5,778,000
Removals	\$ 35,490	\$273,000
(Salvage)		\$0
Overhead Loads	\$ 3,900	\$30,000
<b>CBI Total</b>	<b>\$ 790,530</b>	<b>\$6,081,000</b>
Retirements	\$ 33,280	\$475,000

**Approvals**

Exhibit: AAT

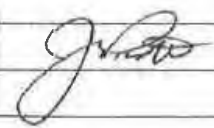
Organization	Ownership	Share	Approve	
			I&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
APS	63.00%	1,831,030	<i>J.R. [Signature]</i>	Date: 4/19/16
EPE	7.00%	425,670		Date:
PNM	13.00%	790,530	<i>[Signature]</i>	Date: 4/19/16
SRP	10.0%	608,100		Date:
TEP	7.00%	425,670		Date:

NO Initiated 4-30-2016/16

FCC08589 Absorber Module Overhaul 4C			
Four Corners Participant Project	SG2 WA Rev 0	100% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: 16-10	Env Code: Air	ERF Completed: Yes
In 2015 Budget: No	Plant Acct:	Est Removal:	Est In Svc: 11/30/2016
<b>Description:</b> Absorber Module overhaul to meet 95% SO2 removal and reduce moisture carry over to stack.			
<b>Purpose/Necessity:</b> The purpose of this project is to comply with the 2015 Consent Decree requiring 95% SO2 removal with no bypass.			
<b>Consequences of Delay:</b> Non-compliance with 2015 Consent Decree and Air Quality Permits.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:		(\$3.10) M\$	
Budget Category:		ENV	

Cash Flow - 2015							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	\$0	<b>2015</b>	\$0	<b>2016</b>	\$6,077,000	<b>After</b>	\$4,000

Cost Summary		
	Current Amount	Revised Amount
Additions	\$5,778,000	
Removals	\$273,000	
(Salvage)	\$0	
Overhead Loads	\$30,000	
<b>CBI Total</b>	<b>\$6,081,000</b>	
Retirements	\$475,000	

Approvals					
Exhibit: AAT		E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
Organization	Ownership	Share	Approve		
APS	63.00%	3,831,030		Date	
EPE	7.00%	425,670		Date	
PNM	13.00%	790,530		Date	
SRP	10.0%	608,100		Date	10-28-15
TEP	7.00%	425,670		Date	

FCC08589 Absorber Module Overhaul 4C							
Four Corners Participant Project		SG2 WA Rev 0	100% Enviro.		NSR Completed: Yes		
FC Unit 4		CBI: 16-10	Env Code: Air		ERF Completed: Yes		
In 2015 Budget: No		Plant Acct:	Est Removal:		Est In Svc: 11/30/2016		
<p><b>Description:</b> Absorber Module overhaul to meet 95% SO2 removal and reduce moisture carry over to stack.</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to compile with the 2015 Consent Decree requiring 95% SO2 removal with no bypass.</p> <p><b>Consequences of Delay:</b> Non-compliance with 2015 Consent Decree and Air Quality Permits.</p> <p><b>Economic Justification:</b>            Benefit-Cost NPV: (\$3.10) M\$            Budget Category: ENV</p>							
Cash Flow - 2015							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	<b>\$0</b>	<b>2015</b>	<b>\$0</b>	<b>2016</b>	<b>\$6,077,000</b>	<b>After</b>	<b>\$4,000</b>
<b>Cost Summary</b>							
		Current Amount		Revised Amount			
Additions		\$5,778,000					
Removals		\$273,000					
(Salvage)		\$0					
Overhead Loads		\$30,000					
CBI Total		\$6,081,000					
Retirements		\$475,000					
<b>Approvals</b>							
Exhibit: AAT				E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
Organization	Ownership	Share		Approve			
APS	63.00%	3,831,030		Date			
EPE	7.00%	425,670		Date			
PNM	13.00%	790,530		Date			
SRP	10.0%	608,100		Date			
TEP	7.00%	425,670		Date			

*CSM* <sup>Date</sup> 13 OCT 2015

FCC08588 Absorber Module Overhaul JNC			
Four Corners Participant Project	SG2 WA Rev 0	100% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: 16-12	Env Code: Air	ERF Completed: Yes
In 2015 Budget: No	Plant Acct:	Est Removal:	Est In Svc: 08/13/2016

**Description:** Absorber Module overhaul to meet 95% SO2 removal and reduce moisture carry over to stack.

**Purpose/Necessity:** The purpose of this project is to compile with the 2015 Consent Decree requiring 95% SO2 removal with no bypass.

**Consequences of Delay:** Non-compliance with 2015 Consent Decree and Air Quality Permits.

**Economic Justification:**

Benefit-Cost NPV: (\$3.30) M\$  
Budget Category: ENV

Cash Flow - 2015							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2015	\$0	2016	\$6,081,000	After	\$0

Cost Summary		
	Current Amount	Revised Amount
Additions	\$5,778,000	
Removals	\$273,000	
(Salvage)	\$0	
Overhead Loads	\$30,000	
CBI Total	\$6,081,000	
Retirements	\$475,000	

Approvals			
Exhibit: AAV		E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
Organization	Ownership	Share	Approve
APS	63.00%	3,831,030	<i>J.R. [Signature]</i> 4/19/16 Date
EPE	7.00%	425,670	
PNM	13.00%	790,538	<i>[Signature]</i> 4/19/16 Date
SRP	10.0%	608,100	
TEP	7.00%	425,670	

✓

**FCC08590 Absorber Module Overhaul 5NC**

Four Corners Participant Project	SO2 WA Rev 0	100% Envisio.	NSR Completed: Yes
FC Unit 5	CBI: 16-13	Env Code: Air	ERF Completed: Yes
In 2015 Budget: No	Plant Acct:	Est Removal:	Est In Svc: 04/30/2017

**Description:** Absorber Module overhaul to meet 95% SO2 removal and reduce moisture carry over to stack.

**Purpose/Necessity:** The purpose of this project is to compile with the 2015 Consent Decree requiring 95% SO2 removal with no bypass.

**Consequences of Delay:** Non-compliance with 2015 Consent Decree and Air Quality Permits.

**Economic Justification:**  
 Benefit-Cost NPV: (\$3.20) M\$  
 Budget Category: ENV

Y00M2032

**Cash Flow - 2015**

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	<b>\$0</b>	<b>2015</b>	<b>\$0</b>	<b>2016</b>	<b>\$2,313,000</b>	<b>After</b>	<b>\$3,768,000</b>

**Cost Summary**

	Current Amount	Revised Amount
Additions	\$5,778,000	
Removals	\$273,000	
(Salvage)	\$0	
Overhead Loads	\$30,000	
<b>CBI Total</b>	<b>\$6,081,000</b>	
Retirements	\$475,000	

**Approvals**

Exhibit: AAW		E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
Organization	Ownership	Share	Approve	Date	
APS	63.00%	3,831,030	<i>[Signature]</i>	4/19/16	
EPE	7.00%	425,670		Date	
PNM	13.00%	790,530	<i>[Signature]</i>	4/19/16	
SRP	10.0%	608,100		Date	
TEP	7.00%	425,670		Date	

FCC08590 Absorber Module Overhaul SNC			
Four Corners Participant Project	SG2 WA Rev 0	100% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: 16-13	Env Code: Air	ERF Completed: Yes
In 2016 Budget: No	Plant Acct:	Est Removal:	Est In Svc: 04/30/2017
<b>Description:</b> Absorber Module overhaul to meet 95% SO2 removal and reduce moisture carry over to stack.			
<b>Purpose/Necessity:</b> The purpose of this project is to compile with the 2015 Consent Decree requiring 95% SO2 removal with no bypass.			
<b>Consequences of Delay:</b> Non-compliance with 2015 Consent Decree and Air Quality Permits.			
<b>Economic Justification:</b>			
Benefit-Cost NPV: (\$3.20) M\$			
Budget Category: ENV			

Cash Flow - 2016							
Jan	\$0	Apr	\$0	Jul	\$42,000	Oct	\$20,000
Feb	\$0	May	\$0	Aug	\$13,000	Nov	\$1,096,000
Mar	\$0	Jun	\$2,000	Sep	\$15,000	Dec	\$1,124,000
Prior	\$0	2016	\$2,313,000	2017	\$3,768,000	After	\$0

Cost Summary		
	Current Amount	Revised Amount
Additions	\$5,778,000	
Removals	\$273,000	
(Salvage)	\$0	
Overhead Loads	\$30,000	
<b>CBI Total</b>	<b>\$6,081,000</b>	
Retirements	\$475,000	

Approvals			
Exhibit: AAW		E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
Organization	Ownership	Share	Approve <span style="float: right;">Date</span>
APS	63.00%	3,831,030	Date
EPE	7.00%	425,670	Date
PNM	13.00%	790,530	Date
SRP	10.0%	608,100	Date
TEP	7.00%	425,670	Date

10-28-15

FCC08590 Absorber Module Overhaul SNC							
Four Corners Participant Project	SG2 WA Rev 0	100% Enviro.	NSR Completed: Yes				
FC Unit 5	CBI: 16-13	Env Code: Air	ERF Completed: Yes				
In 2016 Budget: No	Plant Acct:	Est Removal:	Est In Svc: 04/30/2017				
<b>Description:</b> Absorber Module overhaul to meet 95% SO2 removal and reduce moisture carry over to stack.							
<b>Purpose/Necessity:</b> The purpose of this project is to comply with the 2015 Consent Decree requiring 95% SO2 removal with no bypass.							
<b>Consequences of Delay:</b> Non-compliance with 2015 Consent Decree and Air Quality Permits.							
<b>Economic Justification:</b>							
Benefit-Cost NPV: (\$3.20) M\$							
Budget Category: ENV							
Cash Flow - 2016							
Jan	\$0	Apr	\$0	Jul	\$42,000	Oct	\$20,000
Feb	\$0	May	\$0	Aug	\$13,000	Nov	\$1,096,000
Mar	\$0	Jun	\$2,000	Sep	\$15,000	Dec	\$1,124,000
Prior	\$0	2016	\$2,313,000	2017	\$3,768,000	After	\$0
<b>Cost Summary</b>							
		<b>Current Amount</b>			<b>Revised Amount</b>		
<b>Additions</b>		\$5,778,000					
<b>Removals</b>		\$273,000					
<b>(Salvage)</b>		\$0					
<b>Overhead Loads</b>		\$30,000					
<b>CBI Total</b>		\$6,081,000					
<b>Retirements</b>		\$475,000					
<b>Approvals</b>							
Exhibit: AAW		E&O Committee <input type="checkbox"/>			Coordinating Committee <input checked="" type="checkbox"/>		
Organization	Ownership	Share	Approve				
APS	63.00%	3,831,030	Date				
EPE	7.00%	425,670	Date				
PNM	13.00%	790,530	Date				
SRP	10.0%	608,100	Date				
TEP	7.00%	425,670	Date				

*[Handwritten Signature]* 13 Oct 2015



FCC07200 F4 2016 Fabric Filter Bag Replacement			
Four Corners Participant Project	SG12 WA Rev 0	100% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: 16-14	Env Code: Air	ERF Completed: Yes
In 2016 Budget: No	Plant Acct:	Est Removal:	Est In Svc: 11/20/2016
<b>Description:</b> Replace the fabric filter bags housed in 8 compartments of the Reverse Air Fabric Filter.			
<b>Purpose/Necessity:</b> The purpose of this project is to ensure continued environmental compliance, while maintaining unit operational performance, in the capture and disposal management of fly ash. The fabric filter bags are approaching the end of their serviceable life and require replacement to ensure continued high efficiency particulate dust capture and removal and compliance with the PM standard defined in the Plant's Title V Permit.			
<b>Consequences of Delay:</b> Non-compliance with the PM standard defined in the Plant's Title V Permis, resulting in fines, unit 4 de-rate and Unit 4 shutdown.			
<b>Economic Justification:</b>			
Benefit-Cost NPV: (\$0.60) M\$			
Budget Category: ENV			
<p>FP 715-19210                      WO Y00 71758                      RO Y00 80109</p>			

Cash Flow - 2016							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$272,000
Feb	\$0	May	\$0	Aug	\$161,000	Nov	\$284,000
Mar	\$0	Jun	\$0	Sep	\$326,000	Dec	\$12,000
<b>Prior</b>	<b>\$0</b>	<b>2016</b>	<b>\$1,056,000</b>	<b>2017</b>	<b>\$4,000</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
Additions	\$991,000	
Removals	\$53,000	
(Salvage)	\$0	
Overhead Loads	\$16,000	
<b>CBI Total</b>	<b>\$1,060,000</b>	
Retirements	\$73,000	

Approvals			
Organization	Ownership	Share	Approve
E&O Committee <input checked="" type="checkbox"/> Coordinating Committee <input type="checkbox"/>			
APS	63.00%	667,800	Date
EPE	7.00%	74,200	Date
PNM	13.00%	137,800	Date
SRP	10.0%	106,000	Date
TEP	7.00%	74,200	Date

FCC07201 F5 2016 Fabric Filter Bag Replacement			
Four Corners Participant Project	SG2 WA Rev 0	100% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: 16-15	Env Code: Air	ERF Completed: Yes
In 2016 Budget: No	Plant Acct:	Est Removal:	Est In Svc: 11/20/2016
<b>Description:</b> Replace the fabric filter bags housed in 8 compartments of the Reverse Air Fabric Filter.			
<b>Purpose/Necessity:</b> The purpose of this project is to ensure continued environmental compliance, while maintaining unit operational performance, in the capture and disposal management of fly ash. The fabric filter bags are approaching the end of their serviceable life and require replacement to ensure continued high efficiency particulate dust capture and removal and compliance with the PM standard defined in the Plant's Title V Permit.			
<b>Consequences of Delay:</b> Non-compliance with the PM standard defined in the Plant's Title V Permit, resulting in fines, Unit 5 derate, and Unit 5 shutdown.			
<b>Economic Justification:</b>			
Benefit-Cost NPV: (\$0.60) MS			
Budget Category: ENV			

Cash Flow - 2016							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$272,000
Feb	\$0	May	\$0	Aug	\$161,000	Nov	\$284,000
Mar	\$0	Jun	\$0	Sep	\$326,000	Dec	\$12,000
<b>Prior</b>	\$0	<b>2016</b>	\$1,056,000	<b>2017</b>	\$4,000	<b>After</b>	\$0

Cost Summary		
	Current Amount	Revised Amount
Additions	\$991,000	
Removals	\$53,000	
(Salvage)	\$0	
Overhead Loads	\$16,000	
<b>CBI Total</b>	<b>\$1,060,000</b>	
Retirements	\$73,000	

Approvals			
	Ownership	Share	
		E&O Committee <input checked="" type="checkbox"/> Coordinating Committee <input type="checkbox"/>	
Organization			Approve
APS	63.00%	667,800	Date
EPI	7.00%	74,200	Date
PNM	13.00%	137,800	Date
SRP	10.0%	106,000	Date
THP	7.00%	74,200	Date

Four Corners Participant Project	SG2 WA Rev0	100% Enviro	NSR Complete Yes
FC Unit 4	CBI: 16-16	Env Code: Air	DR Completed: Yes
In 2015 Budget No.	Plant Acct	Hst Removal	Est In Svc: 10/17/2016

**Description:** Installation of a Particulate CEMS to comply with particulate monitoring requirements. New stack penetrations will be required to supply the port necessary to install instrument. New rack-mounted hardware will be installed in the existing Mercury CBMS shelter.

**Purpose/Necessity:** The purpose of this project is to comply with the 2015 Consent Decree requiring particulate monitoring CBMS be operational no later than 18 months after the effective date of the Consent Decree.

**Consequences of Delay:** Non-compliance with the 2015 Consent Decree.

**Economic Justification:**

Benefit-Cost NPV: (\$0.50) MS  
Budget Category: ENV

715-19210  
WO Y0071760  
NO R/O

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2015	\$0	2016	\$792,000	After	\$0

**Cost Summary**

	Current Amount	Revised Amount
Additions	\$767,000	
Removals	\$0	
(Salvage)	\$0	
Overhead Loads	\$25,000	
CBI Total	\$792,000	
Retirements	\$0	

**Approvals**

Organization	Ownership	Share	E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
			Approve	Date	Approve	Date
APS	63.00%	498,960	<i>J.R. Lee</i>	11/9/15		
EPB	7.00%	55,440				
PNM	13.00%	102,960	<i>J.C. ...</i>			
SRP	10.0%	79,200				
TEP	7.00%	55,440				

Four Corners Participant Project	SG2 WA Rev 0	100% Enviro:	NSR Completed: Yes
FC Unit 4	CBI 16-16	Env Code: Air	ERF Completed: Yes
In 2015 Budget: No	Plant Acct:	Est Removal:	Est In Svc: 10/14/2016

**Description:** Installation of a Particulate CEMS to comply with particulate monitoring requirements. New stack penetrations will be required to supply the port necessary to install instrument. New rack-mounted hardware will be installed in the existing Mercury CEMS shelter.

**Purpose/Necessity:** The purpose of this project is to comply with the 2015 Consent Decree requiring particulate monitoring CEMS be operational no later than 18 months after the effective date of the Consent Decree.

**Consequences of Delay:** Non-compliance with the 2015 Consent Decree.

**Economic Justification:**

Benefit-Cost NPV: (\$0.50) M\$  
Budget Category: ENV

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	<b>\$0</b>	<b>2015</b>	<b>\$0</b>	<b>2016</b>	<b>\$792,000</b>	<b>After</b>	<b>\$0</b>

Cost Summary		Current Amount	Revised Amount
Additions		\$767,000	
Removals		\$0	
(Salvage)		\$0	
Overhead Loads		\$25,000	
<b>CBI Total</b>		<b>\$792,000</b>	
Retirements		\$0	

Approvals		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
Organization	Ownership	Share	Approve	Date	
APS	63.00%	498,960			
EPE	7.00%	55,440			
PNM	13.00%	102,960			
SRP	10.0%	79,200			
TEP	7.00%	55,440			

*Handwritten signatures and dates:*  
 [Signature] 10/28/15  
 [Signature] 10-28-15

Four Corners Participant Project FC Unit 5 In 2015 Budget: No	SG2 WA Rev 0 CBI 16-17 Plant Age:	100% Enviro. Env Code: Air Est Removal:	NSR Completed: Yes ERP Completed: Yes Est In Svc: 10/16/2016
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**Description:** Installation of a Particulate CEMS to comply with particulate monitoring requirements. New stack penetrations will be required to supply the port necessary to install instrument. New rack-mounted hardware will be installed in the existing Mercury CEMS shelter.

**Purpose/Necessity:** The purpose of this project is to comply with the 2015 Consent Decree requiring particulate monitoring CEMS be operational no later than 18 months after the effective date of the Consent Decree.

**Consequences of Delay:** Non-compliance with the 2015 Consent Decree.

**Economic Justification:**

Benefit-Cost NPV: (\$0.50) M\$  
Budget Category: ENV

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2015	\$0	2016	\$802,000	After	\$0

Cost Summary		Current Amount	Revised Amount
Additions		\$782,000	
Removals		\$0	
(Salvage)		\$0	
Overhead Loads		\$20,000	
CBI Total		\$802,000	
Retirements		\$0	

Approvals				E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
Organization	Ownership	Share	Approve	Date	Date
APS	63.00%	505,260	<i>[Signature]</i>	11/9/15	
FPE	7.00%	56,140			
PNM	13.00%	104,260			
SRP	10.0%	80,200			11/7/15
TEP	7.00%	56,140			

Four Corners Participant Project	SG2 WA Rev 0	100% Enviro	NSR Completed: Yes
FC Unit 5	CBI: 16-17	Env Code: Air	ERF Completed: Yes
In 2015 Budget: No	Plant Acct:	Est Removal:	Est In Svc: 10/16/2016

**Description:** Installation of a Particulate CEMS to comply with particulate monitoring requirements. New stack penetrations will be required to supply the port necessary to install instrument. New rack-mounted hardware will be installed in the existing Mercury CEMS shelter.

**Purpose/Necessity:** The purpose of this project is to comply with the 2015 Consent Decree requiring particulate monitoring CEMS be operational no later than 18 months after the effective date of the Consent Decree.

**Consequences of Delay:** Non-compliance with the 2015 Consent Decree.

**Economic Justification:**  
Benefit-Cost NPV: (\$0.50) M\$  
Budget Category: ENV

Jan	Feb	Mar	Prior	Apr	May	Jun	2015	Jul	Aug	Sep	2016	Oct	Nov	Dec	After
\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$802,000	\$0	\$0	\$0	\$0

Cost Summary		Current Amount	Revised Amount
Additions		\$782,000	
Removals		\$0	
(Salvage)		\$0	
Overhead Loads		\$20,000	
<b>CBI Total</b>		<b>\$802,000</b>	
Retirements		\$0	

Approvals		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
Organization	Ownership	Share	Approve	Date	
APS	63.00%	505,260			
EPE	7.00%	56,140			
PNM	13.00%	104,260			
SRP	10.0%	80,200			
TEP	7.00%	56,140			

*Renata* 10/28/15  
*J.P.* 10-29-15

FCG08285 Baghouse Lagging and Insulation Replacement, 2016							
Four Corners Participant Project	SG2 WA Rev 0	0% Enviro.	NSR Completed: Yes				
FC Unit 5	CBI: 16-18	Env Code: Air	ERF Completed: Yes				
In 2016 Budget: No	Plant Acct:	Est Removal: 06/16/2016	Est In Svc: 11/26/2016				
<b>Description:</b> Replace lagging and insulation on the Baghouse and associated ductwork.							
<b>Purpose/Necessity:</b> The purpose of this project is to maintain a safe plant work environment by eliminating potential hazards. These replacements are intended to reduce the hazards that exist when lagging and insulation are loose creating potential unsafe conditions for plant personnel and equipment.							
<b>Consequences of Delay:</b> Potential unsafe conditions for plant personnel and equipment.							
<b>Economic Justification:</b>							
Benefit-Cost NPV: (\$0.30) MS							
Budget Category: SAFETY							
Cash Flow - 2016							
Jan	\$0	Apr	\$0	Jul	\$80,000	Oct	\$80,000
Feb	\$0	May	\$0	Aug	\$120,000	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$120,000	Dec	\$0
<b>Prior</b>	<b>\$0</b>	<b>2016</b>	<b>\$400,000</b>	<b>2017</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>
<b>Cost Summary</b>							
	<b>Current Amount</b>			<b>Revised Amount</b>			
Additions	\$384,000						
Removals	\$16,000						
(Salvage)	\$0						
Overhead Loads	\$0						
<b>CBI Total</b>	<b>\$400,000</b>						
Retirements	\$0						
<b>Approvals</b>							
				E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
Organization	Ownership	Share	Approve				
APS	63.00%	252,000	<i>[Signature]</i>	Date	12/3/15		
EPE	7.00%	28,000		Date			
PNM	13.00%	52,000	<i>[Signature]</i>	Date	11/7/15		
SRP	10.0%	40,000		Date			
TEP	7.00%	28,000		Date			

FCC08285 Baghouse Lagging and Insulation Replacement, 2016			
Four Corners Participant Project	SG2 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: 16-18	Env Code: Air	ERF Completed: Yes
In 2016 Budget: No	Plant Acct:	Est Removal: 06/16/2016	Est In Svc: 11/26/2016
<b>Description:</b> Replace lagging and insulation on the Baghouse and associated ductwork.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain a safe plant work environment by eliminating potential hazards. These replacements are intended to reduce the hazards that exist when lagging and insulation are loose creating potential unsafe conditions for plant personnel and equipment.			
<b>Consequences of Delay:</b> Potential unsafe conditions for plant personnel and equipment.			
<b>Economic Justification:</b>			
Benefit-Cost NPV: (\$0.30) M\$			
Budget Category: SAFETY			
*EPE's approval of the CBI is subject to the terms and conditions of the Purchase and Sale Agreement dated February 17, 2015, between EPE and APS.			

Cash Flow - 2016							
Jan	\$0	Apr	\$0	Jul	\$80,000	Oct	\$80,000
Feb	\$0	May	\$0	Aug	\$120,000	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$120,000	Dec	\$0
Prior	\$0	2016	\$400,000	2017	\$0	After	\$0

Cost Summary		
	Current Amount	Revised Amount
Additions	\$384,000	
Removals	\$16,000	
(Salvage)	\$0	
Overhead Loads	\$0	
CBI Total	\$400,000	
Retirements	\$0	

Approvals			
Organization	Ownership	Share	Approve
APS	63.00%	252,000	Date
EPE	7.00%	28,000	<i>Nadia Powell</i> 10-29-15 Date
PNM	13.00%	52,000	Date
SRP	10.0%	40,000	Date
TEP	7.00%	28,000	Date



FCC08285 Baghouse Lagging and Insulation Replacement, 2016			
Four Corners Participant Project	SG2 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: 16-18	Env Code: Air	ERF Completed: Yes
In 2016 Budget: No	Plant Acct:	Est Removal: 06/16/2016	Est In Svc: 11/26/2016
<b>Description:</b> Replace lagging and insulation on the Baghouse and associated ductwork.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain a safe plant work environment by eliminating potential hazards. These replacements are intended to reduce the hazards that exist when lagging and insulation are loose creating potential unsafe conditions for plant personnel and equipment.			
<b>Consequences of Delay:</b> Potential unsafe conditions for plant personnel and equipment.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:		(\$0.30) M\$	
Budget Category:		SAFETY	

Cash Flow - 2016							
Jan	\$0	Apr	\$0	Jul	\$80,000	Oct	\$80,000
Feb	\$0	May	\$0	Aug	\$120,000	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$120,000	Dec	\$0
<b>Prior</b>	<b>\$0</b>	<b>2016</b>	<b>\$400,000</b>	<b>2017</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
Additions	\$384,000	
Removals	\$16,000	
(Salvage)	\$0	
Overhead Loads	\$0	
<b>CBI Total</b>	<b>\$400,000</b>	
Retirements	\$0	

Approvals			
		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
Organization	Ownership	Share	Approve
APS	63.00%	252,000	Date
EPE	7.00%	28,000	Date
PNM	13.00%	52,000	Date
SRP	10.0%	40,000	Date
TEP	7.00%	28,000	Date

*[Signature]* 10/28/15  
*[Signature]* 10-28-15

Four Corners Participant Project  
 FC Unit 4  
 In 2016 Budget: No

SG2 WA Rev 0  
 CBI: 16-20  
 Plant Acct:

0% Enviro.  
 Env Code: Air  
 Est Removal: 06/16/2016

NSR Completed: Yes  
 BRP Completed: Yes  
 Est In Svc: 11/26/2016

**Description:** Replace lagging and insulation on the Baghouse and associated ductwork.

**Purpose/Necessity:** The purpose of this project is to maintain a safe plant work environment by eliminating potential hazards. These replacements are intended to reduce the hazards that exist when lagging and insulation are loose, thus creating potential unsafe conditions for plant personnel and equipment.

**Consequences of Delay:** Potential unsafe conditions for plant personnel and equipment.

**Economic Justification:**  
 Benefit-Cost NPV: (\$0.30) M\$  
 Budget Category: SAFETY

Cash Flow 2016							
Jan	\$0	Apr	\$0	Jul	\$80,000	Oct	\$80,000
Feb	\$0	May	\$0	Aug	\$120,000	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$120,000	Dec	\$0
<b>Prior</b>	<b>\$0</b>	<b>2016</b>	<b>\$400,000</b>	<b>2017</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
Additions	\$384,000	
Removals	\$16,000	
(Salvage)	\$0	
Overhead Loads	\$0	
<b>CBI Total</b>	<b>\$400,000</b>	
Retirements	\$0	

Approvals				
Organization	Ownership	Share	E&O Committee <input checked="" type="checkbox"/> Coordinating Committee <input type="checkbox"/>	
			Approve	Date
APS	63.00%	252,000	<i>[Signature]</i>	12/3/15
EPE	7.00%	28,000		
PNM	13.00%	52,000	<i>[Signature]</i>	12-2-15
SRP	10.0%	40,000		
TEP	7.00%	28,000		

FCC08275 Baghouse Lagging and Insulation Replacement, 2016			
Four Corners Participant Project	SG2 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: 16-20	Env Code: Air	ERF Completed: Yes
In 2016 Budget: No	Plant Acct:	Est Removal: 06/16/2016	Est In Svc: 11/26/2016

**Description:** Replace lagging and insulation on the Baghouse and associated ductwork.

**Purpose/Necessity:** The purpose of this project is to maintain a safe plant work environment by eliminating potential hazards. These replacements are intended to reduce the hazards that exist when lagging and insulation are loose, thus creating potential unsafe conditions for plant personnel and equipment.

**Consequences of Delay:** Potential unsafe conditions for plant personnel and equipment.

**Economic Justification:**

Benefit-Cost NPV: (\$0.30) M\$  
Budget Category: SAFETY

\*EPE's approval of the CBI is subject to the terms and conditions of the Purchase and Sale Agreement dated February 17, 2015, between EPE and APS.

**Cash Flow - 2016**

Jan	\$0	Apr	\$0	Jul	\$80,000	Oct	\$80,000
Feb	\$0	May	\$0	Aug	\$120,000	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$120,000	Dec	\$0
<b>Prior</b>	<b>\$0</b>	<b>2016</b>	<b>\$400,000</b>	<b>2017</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

**Cost Summary**

	Current Amount	Revised Amount
Additions	\$384,000	
Removals	\$16,000	
(Salvage)	\$0	
Overhead Loads	\$0	
<b>CBI Total</b>	<b>\$400,000</b>	
Retirements	\$0	

**Approvals**

Organization	Ownership	Share	E&O Committee <input checked="" type="checkbox"/> Coordinating Committee <input type="checkbox"/>	
			Approve	Date
APS	63.00%	252,000		
EPE	7.00%	28,000	<i>Andia S. Bell</i>	10-29-15
PNM	13.00%	52,000		
SRP	10.0%	40,000		
TEP	7.00%	28,000		

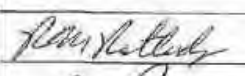
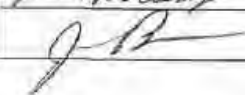
FCC08275 Baghouse Logging and Insulation Replacement, 2016			
Four Corners Participant Project	SG2 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: 16-20	Env Code: Air	ERF Completed: Yes
In 2016 Budget: No	Plant Acct:	Est Removal: 06/16/2016	Est In Svc: 11/26/2016
<b>Description:</b> Replace lagging and insulation on the Baghouse and associated ductwork.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain a safe plant work environment by eliminating potential hazards. These replacements are intended to reduce the hazards that exist when lagging and insulation are loose, thus creating potential unsafe conditions for plant personnel and equipment.			
<b>Consequences of Delay:</b> Potential unsafe conditions for plant personnel and equipment.			
<b>Economic Justification:</b>			
Benefit-Cost NPV: (\$0.30) M\$			
Budget Category: SAFETY			

**Cash Flow - 2016**

Jan	\$0	Apr	\$0	Jul	\$80,000	Oct	\$80,000
Feb	\$0	May	\$0	Aug	\$120,000	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$120,000	Dec	\$0
<b>Prior</b>	<b>\$0</b>	<b>2016</b>	<b>\$400,000</b>	<b>2017</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
Additions	\$384,000	
Removals	\$16,000	
(Salvage)	\$0	
Overhead Loads	\$0	
<b>CBI Total</b>	<b>\$400,000</b>	
Retirements	\$0	

Approvals			
Organization	Ownership	Share	Approve
APS	63.00%	252,000	Date
EPE	7.00%	28,000	Date
PNM	13.00%	52,000	Date
SRP	10.0%	40,000	Date
TEP	7.00%	28,000	Date

 10/28/15  
 10-28-15

FP 715-19210  
WO Y0071789

FCC04075 Business Network Stability and Nortel PBN Replacement							
Four Corners Participant Project	Revised SG2 WA Rev 1	0% Enviro.	NSR Completed: Yes				
FC Common	CBI: 16-25R1	Env Code: N/A	ERF Completed: Yes				
In 2016 Budget: No	Plant Acct:	Est Removal:	Est In Svc: 12/30/2016				
<p><b>Reason for Revision:</b> The purpose of the decrease of \$1.9M is due to the removal of the Business Network Stability portion of this project that was completed by APS IT group as part of their run and maintain budget.</p> <p>Benefit-Cost NPV: (\$2.00) M\$</p>							
<p><b>Description:</b> Replace the plant's business network routing and switching hardware. Replace the PBX (phone system) with a new voice communication solution. Additional scope would come from data network enhancements needed for "VoIP" voice over IP connections throughout the plant and compatible handsets.</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to ensure the business efficiency of plant personnel by maintaining the core business network reliability, availability, and operability. The network and phone system upgrades will ensure the unit phones are reliable and available under normal operations and emergency situations. The existing network hardware is no longer supported by the original equipment manufacturer, the existing phone system has limited vendor support.</p> <p><b>Consequences of Delay:</b> The failure of the existing system will result in loss of in-plant communications and telephones that are essential to the operation of the plant. It would also prevent plant staff from accessing any information or software that resides in the network which would significantly impact plant staff productivity.</p> <p><b>Economic Justification:</b> Benefit-Cost NPV: \$4.50 M\$ Budget Category: REL-UNIT</p>							
Cash Flow - 2016							
Jan	\$0	Apr	\$60,000	Jul	\$113,000	Oct	\$239,000
Feb	\$15,000	May	(\$13,000)	Aug	\$264,000	Nov	\$252,000
Mar	\$4,000	Jun	\$76,000	Sep	\$74,000	Dec	\$247,000
Prior	\$0	2016	\$1,331,000	2017	\$0	After	\$0
Cost Summary							
		Current Amount		Revised Amount			
Additions			\$2,824,000	158,990.		\$1,223,000	
Removals		50,150	\$155,000	0		\$0	
(Salvage)			\$0	0		\$0	
Overhead Loads			\$331,000	14,040		\$108,000	
CBI Total			\$3,310,000	173,030		\$1,331,000	
Retirements			\$0	24,180.		\$186,000	
Approvals							
				E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
Organization	Ownership	Share	Approve				
4CA	7.00%	93,170	Date				
APS	63.00%	838,530	Date				
PNM	13.00%	173,030	Date				
SRP	10.0%	133,100	Date				
TEP	7.00%	93,170	Date				

Four Corners Participant Project: FC Units 4 & 5	832 WA Rev D CBI 16-28 Plant Acct:	NSR Completed: Yes ERP Completed: Yes Est. In Svc: 12/30/2016
In 2016 Budget No.	Est. Removal: 2/20/2016	

**Description:** Funding for the replacement of miscellaneous motors that meet capital requirements. In order to meet capital budget requirements, motors must be 100 HP and above. Motors range in size up to 7,000 HP.

**Purpose/Necessity:** The purpose of this project is to maintain plant reliability.

**Consequences of Delay:** Risk to unit reliability while waiting on replacement motor delivery. The effect of losing a motor while a replacement is procured may result in an extended unit derating and/or unit outage of indeterminate duration while an immediate work around is found.

**Economic Justification:**

Benefit-Cost NPV: \$0.30 M\$  
Budget Category: REL-UNIT

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$100,000	Aug	\$100,000	Nov	\$100,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	<b>\$0</b>	<b>2016</b>	<b>\$308,000</b>	<b>2017</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

Cost Summary		Current Amount	Revised Amount
Additions		\$288,000	
Removals		\$12,000	
(Salvage)		\$0	
Overhead Loads		\$0	
<b>CBI Total</b>		<b>\$300,000</b>	
Retirements		\$25,000	

Approvals			
Organization	Ownership	Share	Approve
APS	63.00%	189,000	<i>[Signature]</i> 11/14/15 Date
EPE	7.00%	21,000	
PNM	13.00%	39,000	<i>[Signature]</i> 11/14/15 Date
SRP	10.0%	30,000	
TEP	7.00%	21,000	One

Four Corners Participant Project      SG2 WA Rev 0      0% Enviro      NSR Completed: Yes  
 BC Units 4 & 5      CBI 16-28      Env Code: N/A      ERF Completed: Yes  
 In 2016 Budget: No      Plant Acct:      Est Removal: 12/20/2016      Est In Svc: 12/30/2016

**Description:** Funding for the replacement of miscellaneous motors that meet capital requirements. In order to meet capital budget requirements, motors must be 100 HP and above. Motors range in size up to 7,000 HP.

**Purpose/Necessity:** The purpose of this project is to maintain plant reliability.

**Consequences of Delay:** Risk to unit reliability while waiting on replacement motor delivery. The effect of losing a motor while a replacement is procured may result in an extended unit derating and/or unit outage of indeterminate duration while an immediate work around is found.

**Economic Justification:**

Benefit-Cost NPV: \$0.30 M\$  
 Budget Category: REL-UNIT

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$100,000	Aug	\$100,000	Nov	\$100,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2016	\$300,000	2017	\$0	After	\$0

Cost Summary		Current Amount	Revised Amount
Additions		\$288,000	
Removals		\$12,000	
(Salvage)		\$0	
Overhead Loads		\$0	
CBI Total		\$300,000	
Retirements		\$25,000	

Approvals		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
Organization	Ownership	Share	Approve	Date	
APS	63.00%	189,000			
EPE	7.00%	21,000			
PNM	13.00%	39,000			
SRP	10.0%	30,000	<i>Jim Butcher</i>	10/28/15	
TEP	7.00%	21,000	<i>J. [Signature]</i>	10-28-15	

Four Corners Participant Project: FC Units 4 & 5	832 WA Rev D CBI 16-28 Plant Acct:	NSR Completed: Yes ERP Completed: Yes Est. In Svc: 12/30/2016
In 2016 Budget: No	Est. Removal: 2/20/2016	

**Description:** Funding for the replacement of miscellaneous motors that meet capital requirements. In order to meet capital budget requirements, motors must be 100 HP and above. Motors range in size up to 7,000 HP.

**Purpose/Necessity:** The purpose of this project is to maintain plant reliability.

**Consequences of Delay:** Risk to unit reliability while waiting on replacement motor delivery. The effect of losing a motor while a replacement is procured may result in an extended unit derating and/or unit outage of indeterminate duration while an immediate work around is found.

**Economic Justification:**

Benefit-Cost NPV: \$0.30 M\$  
Budget Category: REL-UNIT

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$100,000	Aug	\$100,000	Nov	\$100,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	<b>\$0</b>	<b>2016</b>	<b>\$308,000</b>	<b>2017</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

Cost Summary		Current Amount	Revised Amount
Additions		\$288,000	
Removals		\$12,000	
(Salvage)		\$0	
Overhead Loads		\$0	
<b>CBI Total</b>		<b>\$300,000</b>	
Retirements		\$25,000	

Approvals			
Organization	Ownership	Share	Approve
APS	63.00%	189,000	<i>[Signature]</i> 11/14/15 Date
EPE	7.00%	21,000	
PNM	13.00%	39,000	<i>[Signature]</i> 11/14/15 Date
SRP	10.0%	30,000	
TEP	7.00%	21,000	One



Four Corners Participant Project      SG2 WA Rev 0      0% Enviro      NSR Completed: Yes  
 BC Units 4 & 5      CBI 16-28      Env Code: N/A      ERF Completed: Yes  
 In 2016 Budget: No      Plant Acct:      Est Removal: 12/20/2016      Est In Svc: 12/30/2016

**Description:** Funding for the replacement of miscellaneous motors that meet capital requirements. In order to meet capital budget requirements, motors must be 100 HP and above. Motors range in size up to 7,000 HP.

**Purpose/Necessity:** The purpose of this project is to maintain plant reliability.

**Consequences of Delay:** Risk to unit reliability while waiting on replacement motor delivery. The effect of losing a motor while a replacement is procured may result in an extended unit derating and/or unit outage of indeterminate duration while an immediate work around is found.

**Economic Justification:**

Benefit-Cost NPV: \$0.30 M\$  
 Budget Category: REL-UNIT

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$100,000	Aug	\$100,000	Nov	\$100,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	<b>\$0</b>	<b>2016</b>	<b>\$300,000</b>	<b>2017</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

Cost Summary		Current Amount	Revised Amount
Additions		\$288,000	
Removals		\$12,000	
(Salvage)		\$0	
Overhead Loads		\$0	
<b>CBI Total</b>		<b>\$300,000</b>	
Retirements		\$25,000	

Approvals		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
Organization	Ownership	Share	Approve	Date	
APS	63.00%	189,000			
EPE	7.00%	21,000			
PNM	13.00%	39,000			
SRP	10.0%	30,000	<i>Jim Butcher</i>	10/28/15	
TEP	7.00%	21,000	<i>J. [Signature]</i>	10-28-15	

Four Corners Participant Project: FC Units 4 & 5	832 WA Rev D CBI 16-28 Plant Acc:	NSR Completed: Yes ERP Completed: Yes Est. In Svc: 12/30/2016
In 2016 Budget No.	Est. Removal: 2/20/2016	

**Description:** Funding for the replacement of miscellaneous motors that meet capital requirements. In order to meet capital budget requirements, motors must be 100 HP and above. Motors range in size up to 7,000 HP.

**Purpose/Necessity:** The purpose of this project is to maintain plant reliability.

**Consequences of Delay:** Risk to unit reliability while waiting on replacement motor delivery. The effect of losing a motor while a replacement is procured may result in an extended unit derating and/or unit outage of indeterminate duration while an immediate work around is found.

**Economic Justification:**

Benefit-Cost NPV: \$0.30 M\$  
Budget Category: REL-UNIT

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$100,000	Aug	\$100,000	Nov	\$100,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	<b>\$0</b>	<b>2016</b>	<b>\$308,000</b>	<b>2017</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

Cost Summary		Current Amount	Revised Amount
Additions		\$288,000	
Removals		\$12,000	
(Salvage)		\$0	
Overhead Loads		\$0	
<b>CBI Total</b>		<b>\$300,000</b>	
Retirements		\$25,000	

Approvals			
Organization	Ownership	Share	Approve
APS	63.00%	189,000	<i>[Signature]</i> 11/14/15 Date
EPE	7.00%	21,000	
PNM	13.00%	39,000	<i>[Signature]</i> 11/14/15 Date
SRP	10.0%	30,000	
TEP	7.00%	21,000	One

Four Corners Participant Project SG2 WA Rev 0 0% Enviro NSR Completed: Yes  
 BC Units 4 & 5 CBI 16-28 Env Cost N/A ERF Completed: Yes  
 In 2016 Budget: No Plant Acct: Est Removal: 12/20/2016 Est In Svc: 12/30/2016

**Description:** Funding for the replacement of miscellaneous motors that meet capital requirements. In order to meet capital budget requirements, motors must be 100 HP and above. Motors range in size up to 7,000 HP.

**Purpose/Necessity:** The purpose of this project is to maintain plant reliability.

**Consequences of Delay:** Risk to unit reliability while waiting on replacement motor delivery. The effect of losing a motor while a replacement is procured may result in an extended unit derating and/or unit outage of indeterminate duration while an immediate work around is found.

**Economic Justification:**

Benefit-Cost NPV: \$0.30 M\$  
 Budget Category: REL-UNIT

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$100,000	Aug	\$100,000	Nov	\$100,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2016	\$300,000	2017	\$0	After	\$0

Cost Summary		Current Amount	Revised Amount
Additions		\$288,000	
Removals		\$12,000	
(Salvage)		\$0	
Overhead Loads		\$0	
CBI Total		\$300,000	
Retirements		\$25,000	

Approvals		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
Organization	Ownership	Share	Approve	Date	
APS	63.00%	189,000			
EPE	7.00%	21,000			
PNM	13.00%	39,000			
SRP	10.0%	30,000	<i>Jim Butcher</i>	10/28/15	
TEP	7.00%	21,000	<i>J. [Signature]</i>	10-28-15	

Four Corners Participant Project: S&P WA Rev D NSR Completed: Yes  
 FC Units 4 & 5 CBI 16-28 ERP Completed: Yes  
 In 2016 Budget: No Plant Acc: Est. Removal: 2/20/2016 Est. In Svc: 12/30/2016

**Description:** Funding for the replacement of miscellaneous motors that meet capital requirements. In order to meet capital budget requirements, motors must be 100 HP and above. Motors range in size up to 7,000 HP.

**Purpose/Necessity:** The purpose of this project is to maintain plant reliability.

**Consequences of Delay:** Risk to unit reliability while waiting on replacement motor delivery. The effect of losing a motor while a replacement is procured may result in an extended unit derating and/or unit outage of indeterminate duration while an immediate work around is found.

**Economic Justification:**  
 Benefit-Cost NPV: \$0.30 M\$  
 Budget Category: REL-UNIT

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$100,000	Aug	\$100,000	Nov	\$100,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	<b>\$0</b>	<b>2016</b>	<b>\$308,000</b>	<b>2017</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

Cost Summary		Current Amount	Revised Amount
Additions		\$288,000	
Removals		\$12,000	
(Salvage)		\$0	
Overhead Loads		\$0	
<b>CBI Total</b>		<b>\$300,000</b>	
Retirements		\$25,000	

Approvals			
Organization	Ownership	Share	Approve
APS	63.00%	189,000	<i>[Signature]</i> 11/14/15 Date
EPE	7.00%	21,000	
PNM	13.00%	39,000	<i>[Signature]</i> 11/14/15 Date
SRP	10.0%	30,000	
TEP	7.00%	21,000	One

Four Corners Participant Project      SG2 WA Rev 0      0% Enviro      NSR Completed: Yes  
 BC Units 4 & 5      CBI 16-28      Env Code: N/A      ERF Completed: Yes  
 In 2016 Budget: No      Plant Acct:      Est Removal: 12/20/2016      Est In Svc: 12/30/2016

**Description:** Funding for the replacement of miscellaneous motors that meet capital requirements. In order to meet capital budget requirements, motors must be 100 HP and above. Motors range in size up to 7,000 HP.

**Purpose/Necessity:** The purpose of this project is to maintain plant reliability.

**Consequences of Delay:** Risk to unit reliability while waiting on replacement motor delivery. The effect of losing a motor while a replacement is procured may result in an extended unit derating and/or unit outage of indeterminate duration while an immediate work around is found.

**Economic Justification:**

Benefit-Cost NPV: \$0.30 M\$  
 Budget Category: REL-UNIT

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$100,000	Aug	\$100,000	Nov	\$100,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2016	\$300,000	2017	\$0	After	\$0

Cost Summary		Current Amount	Revised Amount
Additions		\$288,000	
Removals		\$12,000	
(Salvage)		\$0	
Overhead Loads		\$0	
CBI Total		\$300,000	
Retirements		\$25,000	

Approvals		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
Organization	Ownership	Share	Approve	Date	
APS	63.00%	189,000			
EPE	7.00%	21,000			
PNM	13.00%	39,000			
SRP	10.0%	30,000	<i>Jim Butcher</i>	10/28/15	
TEP	7.00%	21,000	<i>J. [Signature]</i>	10-28-15	

Four Corners Participant Project: FC Units 4 & 5	SG2 WA Rev D CBI 16-28 Plant Acc:	NSR Completed: Yes ERP Completed: Yes Est. In Svc: 12/30/2016
In 2016 Budget No.	Est. Removal: 2/20/2016	

**Description:** Funding for the replacement of miscellaneous motors that meet capital requirements. In order to meet capital budget requirements, motors must be 100 HP and above. Motors range in size up to 7,000 HP.

**Purpose/Necessity:** The purpose of this project is to maintain plant reliability.

**Consequences of Delay:** Risk to unit reliability while waiting on replacement motor delivery. The effect of losing a motor while a replacement is procured may result in an extended unit derating and/or unit outage of indeterminate duration while an immediate work around is found.

**Economic Justification:**

Benefit-Cost NPV: \$0.30 M\$  
Budget Category: REL-UNIT

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$100,000	Aug	\$100,000	Nov	\$100,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	<b>\$0</b>	<b>2016</b>	<b>\$308,000</b>	<b>2017</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

Cost Summary		Current Amount	Revised Amount
Additions		\$288,000	
Removals		\$12,000	
(Salvage)		\$0	
Overhead Loads		\$0	
<b>CBI Total</b>		<b>\$300,000</b>	
Retirements		\$25,000	

Approvals			
Organization	Ownership	Share	Approve
APS	63.00%	189,000	<i>[Signature]</i> 11/14/15 Date
EPE	7.00%	21,000	
PNM	13.00%	39,000	<i>[Signature]</i> 11/14/15 Date
SRP	10.0%	30,000	
TBP	7.00%	21,000	

Four Corners Participant Project      SG2 WA Rev 0      0% Enviro      NSR Completed: Yes  
 BC Units 4 & 5      CBI 16-28      Env Code: N/A      ERF Completed: Yes  
 In 2016 Budget: No      Plant Acct:      Est Removal: 12/20/2016      Est In Svc: 12/30/2016

**Description:** Funding for the replacement of miscellaneous motors that meet capital requirements. In order to meet capital budget requirements, motors must be 100 HP and above. Motors range in size up to 7,000 HP.

**Purpose/Necessity:** The purpose of this project is to maintain plant reliability.

**Consequences of Delay:** Risk to unit reliability while waiting on replacement motor delivery. The effect of losing a motor while a replacement is procured may result in an extended unit derating and/or unit outage of indeterminate duration while an immediate work around is found.

**Economic Justification:**

Benefit-Cost NPV: \$0.30 M\$  
 Budget Category: REL-UNIT

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$100,000	Aug	\$100,000	Nov	\$100,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	<b>\$0</b>	<b>2016</b>	<b>\$300,000</b>	<b>2017</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

Cost Summary		Current Amount	Revised Amount
Additions		\$288,000	
Removals		\$12,000	
(Salvage)		\$0	
Overhead Loads		\$0	
<b>CBI Total</b>		<b>\$300,000</b>	
Retirements		\$25,000	

Approvals		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
Organization	Ownership	Share	Approve	Date	
APS	63.00%	189,000			
EPE	7.00%	21,000			
PNM	13.00%	39,000			
SRP	10.0%	30,000	<i>Jim Butcher</i>	10/28/15	
TEP	7.00%	21,000	<i>J. [Signature]</i>	10-28-15	

Four Corners Participant Project: FC Units 4 & 5	832 WA Rev D CBI 16-28 Plant Acc:	NSR Completed: Yes ERP Completed: Yes Est. In Svc: 12/30/2016
In 2016 Budget No.	Est. Removal: 2/20/2016	

**Description:** Funding for the replacement of miscellaneous motors that meet capital requirements. In order to meet capital budget requirements, motors must be 100 HP and above. Motors range in size up to 7,000 HP.

**Purpose/Necessity:** The purpose of this project is to maintain plant reliability.

**Consequences of Delay:** Risk to unit reliability while waiting on replacement motor delivery. The effect of losing a motor while a replacement is procured may result in an extended unit derating and/or unit outage of indeterminate duration while an immediate work around is found.

**Economic Justification:**

Benefit-Cost NPV: \$0.30 M\$  
Budget Category: REL-UNIT

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$100,000	Aug	\$100,000	Nov	\$100,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	<b>\$0</b>	<b>2016</b>	<b>\$308,000</b>	<b>2017</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

Cost Summary		Current Amount	Revised Amount
Additions		\$288,000	
Removals		\$12,000	
(Salvage)		\$0	
Overhead Loads		\$0	
<b>CBI Total</b>		<b>\$300,000</b>	
Retirements		\$25,000	

Approvals			
Organization	Ownership	Share	Approve
APS	63.00%	189,000	<i>[Signature]</i> 11/14/15 Date
EPE	7.00%	21,000	
PNM	13.00%	39,000	<i>[Signature]</i> 11/14/15 Date
SRP	10.0%	30,000	
TEP	7.00%	21,000	One



Four Corners Participant Project      SG2 WA Rev 0      0% Enviro      NSR Completed: Yes  
 BC Units 4 & 5      CBI 16-28      Env Code: N/A      ERF Completed: Yes  
 In 2016 Budget: No      Plant Acct:      Est Removal: 12/20/2016      Est In Svc: 12/30/2016

**Description:** Funding for the replacement of miscellaneous motors that meet capital requirements. In order to meet capital budget requirements, motors must be 100 HP and above. Motors range in size up to 7,000 HP.

**Purpose/Necessity:** The purpose of this project is to maintain plant reliability.

**Consequences of Delay:** Risk to unit reliability while waiting on replacement motor delivery. The effect of losing a motor while a replacement is procured may result in an extended unit derating and/or unit outage of indeterminate duration while an immediate work around is found.

**Economic Justification:**

Benefit-Cost NPV: \$0.30 M\$  
 Budget Category: REL-UNIT

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$100,000	Aug	\$100,000	Nov	\$100,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2016	\$300,000	2017	\$0	After	\$0

Cost Summary		Current Amount	Revised Amount
Additions		\$288,000	
Removals		\$12,000	
(Salvage)		\$0	
Overhead Loads		\$0	
CBI Total		\$300,000	
Retirements		\$25,000	

Approvals		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
Organization	Ownership	Share	Approve	Date	
APS	63.00%	189,000			
EPE	7.00%	21,000			
PNM	13.00%	39,000			
SRP	10.0%	30,000	<i>Jim Buttery</i>	10/28/15	
TEP	7.00%	21,000	<i>J. [Signature]</i>	10-28-15	

Four Corners Participant Project: FC Units 4 & 5	SG2 WA Rev D CBI 16-28 Plant Acc:	NSR Completed: Yes ERP Completed: Yes Est. In Svc: 12/30/2016
In 2016 Budget No.	Est. Removal: 2/20/2016	

**Description:** Funding for the replacement of miscellaneous motors that meet capital requirements. In order to meet capital budget requirements, motors must be 100 HP and above. Motors range in size up to 7,000 HP.

**Purpose/Necessity:** The purpose of this project is to maintain plant reliability.

**Consequences of Delay:** Risk to unit reliability while waiting on replacement motor delivery. The effect of losing a motor while a replacement is procured may result in an extended unit derating and/or unit outage of indeterminate duration while an immediate work around is found.

**Economic Justification:**

Benefit-Cost NPV: \$0.30 M\$  
Budget Category: REL-UNIT

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$100,000	Aug	\$100,000	Nov	\$100,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	<b>\$0</b>	<b>2016</b>	<b>\$308,000</b>	<b>2017</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

Cost Summary		Current Amount	Revised Amount
Additions		\$288,000	
Removals		\$12,000	
(Salvage)		\$0	
Overhead Loads		\$0	
<b>CBI Total</b>		<b>\$300,000</b>	
Retirements		\$25,000	

Approvals			
Organization	Ownership	Share	Approve
APS	63.00%	189,000	<i>[Signature]</i> 11/14/15 Date
EPE	7.00%	21,000	
PNM	13.00%	39,000	<i>[Signature]</i> 11/14/15 Date
SRP	10.0%	30,000	
TEP	7.00%	21,000	One

Four Corners Participant Project SG2 WA Rev 0 0% Enviro NSR Completed: Yes  
 BC Units 4 & 5 CBI 16-28 Env Code N/A ERF Completed: Yes  
 In 2016 Budget: No Plant Acct: Est Removal: 12/20/2016 Est In Svc: 12/30/2016

**Description:** Funding for the replacement of miscellaneous motors that meet capital requirements. In order to meet capital budget requirements, motors must be 100 HP and above. Motors range in size up to 7,000 HP.

**Purpose/Necessity:** The purpose of this project is to maintain plant reliability.

**Consequences of Delay:** Risk to unit reliability while waiting on replacement motor delivery. The effect of losing a motor while a replacement is procured may result in an extended unit derating and/or unit outage of indeterminate duration while an immediate work around is found.

**Economic Justification:**

Benefit-Cost NPV: \$0.30 M\$  
 Budget Category: REL-UNIT

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$100,000	Aug	\$100,000	Nov	\$100,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2016	\$300,000	2017	\$0	After	\$0

Cost Summary		Current Amount	Revised Amount
Additions		\$288,000	
Removals		\$12,000	
(Salvage)		\$0	
Overhead Loads		\$0	
CBI Total		\$300,000	
Retirements		\$25,000	

Approvals		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
Organization	Ownership	Share	Approve	Date	
APS	63.00%	189,000			
EPE	7.00%	21,000			
PNM	13.00%	39,000			
SRP	10.0%	30,000	<i>Jim Butcher</i>	10/28/15	
TEP	7.00%	21,000	<i>J. [Signature]</i>	10-28-15	

FCC06549 Electrical Breaker Replacements 480/4160V			
Four Corners Participant Project	SG12 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: 16-29	Env Code: N/A	ERF Completed: Yes
In 2016 Budget: No	Plant Acct:	Est Removal:	Est In Svc: 12/19/2017
<b>Description:</b> Replace 4160V Switchgear lineups (Unit Bus West, Unit Bus Center, and Unit Bus East) as well as the main 480V Switchgear Bus.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain overall reliability of the unit by providing switchgear upgrades to reduce the risk of plant de-rates and outages. The 4160V/480V switchgear lineups and associated circuit breakers are original equipment and are at end of life.			
<b>Consequences of Delay:</b> Increased risk of breaker failure or bus fault causing forced reduction in unit output of 33% for 5 days for a single breaker failure or a possible full unit outage for bus failure. Aging breakers and bus insulation are also more prone to arc flash events.			
<b>Economic Justification:</b>			
Benefit-Cost NPV: \$1.30 M\$		Budget Category: REL-UNIT	
<p>FP 715-19210                      WO Y0071792                      RO Y0070867</p>			

Cash Flow - 2016							
Jan	\$89,000	Apr	\$60,000	Jul	\$60,000	Oct	\$71,000
Feb	\$97,000	May	\$60,000	Aug	\$60,000	Nov	\$82,000
Mar	\$61,000	Jun	\$60,000	Sep	\$60,000	Dec	\$34,000
<b>Prior</b>	\$0	<b>2016</b>	\$796,000	<b>2017</b>	\$4,119,000	<b>After</b>	\$94,000

Cost Summary		
	Current Amount	Revised Amount
Additions	619,320	\$4,764,000
Removals	15,730	\$121,000
(Salvage)	0	\$0
Overhead Loads	8,320	\$64,000
CBI Total	643,370	\$4,950,000
Retirements	13,000	\$100,000

Approvals			
Organization	Ownership	Share	Approve
APS	63.00%	3,118,500	Date
LPE	7.00%	346,500	Date
PNM	13.00%	643,500	Date
SRP	10.00%	495,000	Date
TEP	7.00%	346,500	Date

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PNM Sh WO # 544,261  
 RO # 15,859 Tab 7 - Page 29

WO/RO Complete  
 5/15/18

Four Corners Participant Project	SG2 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: 16-29	Env Code: N/A	ERF Completed: Yes
In 2016 Budget: No	Plant Acct:	Est Removal:	Est. In Svc: 12/19/2017

**Description:** Replace 4160V Switchgear lineups Unit Bus West, Unit Bus Center, and Unit Bus East as well as the main 480V Switchgear Bus.

**Purpose/Necessity:** The purpose of this project is to maintain overall reliability of the unit by providing switchgear upgrades to reduce the risk of plant de-rates and outages. The 4160V/480V switchgear lineups and associated circuit breakers are original equipment and are at end of life.

**Consequences of Delay:** Increased risk of breaker failure or bus fault causing forced reduction in unit output of 33% for 5 days for a single breaker failure or a possible full unit outage for bus failure. Aging breakers and bus insulation are also more prone to arc flash events.

**Economic Justification:**  
 Benefit-Cost NPV: \$1.50 M\$  
 Budget Category: REL-UNIT

Cash Flow - 2016							
Jan	\$89,000	Apr	\$60,000	Jul	\$60,000	Oct	\$71,000
Feb	\$97,000	May	\$60,000	Aug	\$60,000	Nov	\$82,000
Mar	\$61,000	Jun	\$60,000	Sep	\$60,000	Dec	\$34,000
Prior	\$0	2016	\$796,000	2017	\$4,119,000	After	\$94,000

Cost Summary		
	Current Amount	Revised Amount
Additions	\$4,826,000	
Removals	\$121,000	
(Salvage)	\$0	
Overhead Loads	\$62,000	
CBI Total	\$5,009,000	
Retirements	\$100,000	

Approvals			
Exhibit: ABK		E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
Organization	Ownership	Share	Approve
APS	63.00%	3,155,670	<i>[Signature]</i> Date 11/16/15
EPE	7.00%	350,630	
PNM	13.00%	651,170	<i>[Signature]</i> Date 11/17/15
SRP	10.0%	500,900	<i>[Signature]</i> Date 11/16/15
TEP	7.00%	350,630	

Four Corners Participant Project FC Unit 5 In 2016 Budget: No	SG2 WA Rev 0 CBI: 16-29 Plant Acct:	0% Enviro. Env Code: N/A Est Removal:	NSR Completed: Yes ERF Completed: Yes Est In Svc: 12/19/2017
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**Description:** Replace 4160V Switchgear lineups Unit Bus West, Unit Bus Center, and Unit Bus East as well as the main 480V Switchgear Bus.

**Purpose/Necessity:** The purpose of this project is to maintain overall reliability of the unit by providing switchgear upgrades to reduce the risk of plant de-rates and outages. The 4160V/480V switchgear lineups and associated circuit breakers are original equipment and are at end of life.

**Consequences of Delay:** Increased risk of breaker failure or bus fault causing forced reduction in unit output of 33% for 5 days for a single breaker failure or a possible full unit outage for bus failure. Aging breakers and bus insulation are also more prone to arc flash events.

**Economic Justification:**  
Benefit-Cost NPV: \$1.50 M\$  
Budget Category: REL-UNIT

*\* EPE's approval of the CBI is subject to the terms and conditions of the Purchase and Sale Agreement dated February 17, 2015, between EPE and APS.*

Cash Flow - 2016							
Jan	\$89,000	Apr	\$60,000	Jul	\$60,000	Oct	\$71,000
Feb	\$97,000	May	\$60,000	Aug	\$60,000	Nov	\$82,000
Mar	\$61,000	Jun	\$60,000	Sep	\$60,000	Dec	\$34,000
Prior	\$0	2016	\$796,000	2017	\$4,119,000	After	\$94,000

Cost Summary	Current Amount	Revised Amount
Additions	\$4,826,000	
Removals	\$121,000	
(Salvage)	\$0	
Overhead Loads	\$62,000	
CBI Total	\$5,009,000	
Retirements	\$100,000	

Approvals		E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
Exhibit: ABK	Organization	Ownership	Share
	APS	63.00%	3,155,670
	EPE	7.00%	350,630
	PNM	13.00%	651,170
	SRP	10.0%	500,900
	TEP	7.00%	350,630

*\* [Signature] 10-8-15*

FCG06549-Electrical Breaker Replacements 480/416V			
Four Corners Participant Project	SG2 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: 16-29	Env Code: N/A	ERF Completed: Yes
In 2016 Budget: No	Plant Acct:	Est Removal:	Est In Svc: 12/19/2017
<b>Description:</b> Replace 4160V Switchgear lineups Unit Bus West, Unit Bus Center, and Unit Bus East as well as the main 480V Switchgear Bus.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain overall reliability of the unit by providing switchgear upgrades to reduce the risk of plant de-rates and outages. The 4160V/480V switchgear lineups and associated circuit breakers are original equipment and are at end of life.			
<b>Consequences of Delay:</b> Increased risk of breaker failure or bus fault causing forced reduction in unit output of 33% for 5 days for a single breaker failure or a possible full unit outage for bus failure. Aging breakers and bus insulation are also more prone to arc flash events.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:		\$1.50 M\$	
Budget Category:		REL-UNIT	

Cash Flow - 2016							
Jan	\$89,000	Apr	\$60,000	Jul	\$60,000	Oct	\$71,000
Feb	\$97,000	May	\$60,000	Aug	\$60,000	Nov	\$82,000
Mar	\$61,000	Jun	\$60,000	Sep	\$60,000	Dec	\$34,000
Prior	\$0	2016	\$796,000	2017	\$4,119,000	After	\$94,000

Cost Summary	Current Amount	Revised Amount
Additions	\$4,826,000	
Removals	\$121,000	
(Salvage)	\$0	
Overhead Loads	\$62,000	
CBI Total	\$5,009,000	
Retirements	\$100,000	

Approvals		E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
Exhibit: ABK	Ownership	Share	Approve	Date	
Organization					
APS	63.00%	3,155,670		Date	
EPE	7.00%	350,630		Date	
PNM	13.00%	651,170		Date	
SRP	10.0%	500,900		Date	
TEP	7.00%	350,630		10-28-15	

TCC06549 Electrical Breaker Replacements 480/4160V			
Four Corners Participant Project	SG2 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: 16-29	Env Code: N/A	BRF Completed: Yes
In 2016 Budget: No	Plant Acct:	Est Removal:	Est In Svc: 12/19/2017
<b>Description:</b> Replace 4160V Switchgear lineups Unit Bus West, Unit Bus Center, and Unit Bus East as well as the main 480V Switchgear Bus.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain overall reliability of the unit by providing switchgear upgrades to reduce the risk of plant de-rates and outages. The 4160V/480V switchgear lineups and associated circuit breakers are original equipment and are at end of life.			
<b>Consequences of Delay:</b> Increased risk of breaker failure or bus fault causing forced reduction in unit output of 33% for 5 days for a single breaker failure or a possible full unit outage for bus failure. Aging breakers and bus insulation are also more prone to arc flash events.			
<b>Economic Justification:</b>			
Benefit-Cost NPV	\$1.50 M\$		
Budget Category:	REL-UNIT		

Cash Flow - 2016							
Jan	\$89,000	Apr	\$60,000	Jul	\$60,000	Oct	\$71,000
Feb	\$97,000	May	\$60,000	Aug	\$60,000	Nov	\$82,000
Mar	\$61,000	Jun	\$60,000	Sep	\$60,000	Dec	\$34,000
Prior	\$0	2016	\$796,000	2017	\$4,119,000	After	\$94,000
<b>Cost Summary</b>							
	<b>Current Amount</b>			<b>Revised Amount</b>			
Additions	\$4,826,000						
Removals	(\$121,000)						
(Salvage)	\$0						
Overhead Loads	\$62,000						
CBI Total	\$5,009,000						
Retirements	(\$100,000)						
<b>Approvals</b>							
Exhibit: ABK				E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
Organization	Ownership	Share	Approve				
APS	63.00%	3,155,670	Date				
EPE	7.00%	350,630	Date				
PNM	13.00%	651,170	Date				
SRP	10.0%	500,900	Date				
TEP	7.00%	350,630	Date				

*[Signature]* Date 2/7/2015



FCC07641 Circulating Water Pump(s) Replacement			
Four Corners Participant Project	Rev 16-30R2	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: 16-30R2	Env Code: N/A	ERF Completed: Yes
In 2018 Budget: Yes	Plant Acct: 131100	Est Removal:	Est In Svc: 24 Apr 2018

**Reason for Revision:** This \$431K cost increase is due to work originally executed under Maximo work order FC1122421 determined to be Capital as a result of the October 2018 detailed scrub of O&M work completed in 2018.

Benefit-Cost NPV: 1.80 M\$

**Description:** Replace 4N and 4S circulating water pumps with new pumps. Replace pump outlet expansion joint on both pumps.

**Purpose/Necessity:** The purpose of this project is to increase unit reliability. Existing Pumps are original. The pumps have been rebuilt several times and are now nearing end of life.

**Consequences of Delay:** Loss of either pump will result in approximately 50% load reduction.

**Economic Justification:**

Benefit-Cost NPV: 1.80 M\$  
Budget Category: REL-UNIT

**Cash Flow - 2018**

Jan	\$95,000	Apr	\$401,000	Jul	\$0	Oct	\$0
Feb	\$297,000	May	(\$428,000)	Aug	\$0	Nov	\$476,000
Mar	\$236,000	Jun	\$1,044,000	Sep	\$158,000	Dec	\$0
<b>Prior</b>	<b>\$65,000</b>	<b>2018</b>	<b>\$2,279,000</b>	<b>2019</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

**Cost Summary**

	Current Amount	Revised Amount
RU Materials	\$ 247,520 \$1,904,000	\$ 99,320 \$764,000
Removals (Salvage)	0	\$4,030 \$31,000
Non-Itemized Additions		\$1,540,000
Specific Cost	\$1,904,000	\$2,335,000
Overhead Loads	\$9,000	\$9,000
<b>CBI Total</b>	<b>\$1,913,000</b>	<b>\$2,344,000</b>
Retirements		

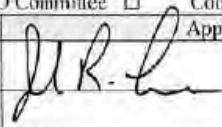
**Approvals**

			E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
APS	63.00%	\$1,476,699		Date
NTEC	7.00%	\$164,078		Date
PNM	13.00%	\$304,716		Date
SRP	10.0%	\$234,397		Date
TIP	7.00%	\$164,078		Date

FCC/07642 Circulating Water Pump(s) Replacement			
Four Corners Participant Project	SG2 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: 16-31	Env Code: N/A	BRF Completed: Yes
In 2016 Budget: Yes	Plant Acct: 312	Est Removal: 03/31/2016	Est In Svc: 12/19/2017
<b>Description:</b> Replace the north circulating water pump, shafts, and impeller. Replace the south circulating water pump, shafts, and outlet expansion joint.			
<b>Purpose/Necessity:</b> The purpose of this project is to increase unit reliability. Existing pumps are original. The pumps have been rebuilt several times and are now nearing end of life.			
<b>Consequences of Delay:</b> Potential loss of either pump will result in approximately 50% derate. Economic justification assumes 25% probability of a 7 day derate.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:		\$2.70 M\$	
Budget Category:		REL-UNIT	

Cash Flow - 2016							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$1,184,000	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	<b>\$0</b>	<b>2016</b>	<b>\$1,184,000</b>	<b>2017</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
Additions	\$1,112,000	
Removals	\$63,000	
(Salvage)	\$11,000	
Overhead Loads	\$9,000	
<b>CBI Total</b>	<b>\$1,184,000</b>	
Retirements	\$250,000	

Approvals				E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
Organization	Ownership	Share	Share	Approve	Date	Date	Date
APS	63.00%	745,920			5/10/16		
EPE	7.00%	82,880					
PNM	13.00%	153,920					
SRP	10.0%	118,400					
TEP	7.00%	82,880					

FCC07642 Circulating Water Pump(s) Replacement			
Four Corners Participant Project	SG2 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: 16-31	Env Code: N/A	ERF Completed: Yes
In 2016 Budget: Yes	Plant Acct: 312	Est Removal: 03/31/2016	Est In Svc: 12/19/2017 <i>04/21/16</i>
<b>Description:</b> Replace the north circulating water pump, shafts, and impeller. Replace the south circulating water pump, shafts, and outlet expansion joint.			
<b>Purpose/Necessity:</b> The purpose of this project is to increase unit reliability. Existing pumps are original. The pumps have been rebuilt several times and are now nearing end of life.			
<b>Consequences of Delay:</b> Potential loss of either pump will result in approximately 50% derate. Economic justification assumes 25% probability of a 7 day derate.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:		\$2.70 M\$	
Budget Category:		REL-UNIT	

Cash Flow - 2016							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$1,184,000	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	<b>\$0</b>	<b>2016</b>	<b>\$1,184,000</b>	<b>2017</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
Additions	\$1,112,000	
Removals	\$63,000	
(Salvage)	\$11,000	
Overhead Loads	\$9,000	
<b>CBI Total</b>	<b>\$1,184,000</b>	
Retirements	\$250,000	

Approvals		E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
Organization	Ownership	Share	Approve
APS	63.00%	745,920	Date
EPE	7.00%	82,880	Date
PNM	13.00%	153,920	Date
SRP	10.0%	118,400	Date
TEP	7.00%	82,880	Date

*[Signature]* 05.09.16

FC007642 Circulating Water Pump(s) Replacement							
Four Corners Participant Project	SG2 WA Rev 0	0% Enviro.	NSR Completed: Yes				
FC Unit 5	CBI: 16-31	Env Code: N/A	ERF Completed: Yes				
In 2016 Budget: Yes	Plant Acct: 312	Est Removal: 03/31/2016	Est In Svc: 12/19/2017				
<b>Description:</b> Replace the north circulating water pump, shafts, and impeller. Replace the south circulating water pump, shafts, and outlet expansion joint.							
<b>Purpose/Necessity:</b> The purpose of this project is to increase unit reliability. Existing pumps are original. The pumps have been rebuilt several times and are now nearing end of life.							
<b>Consequences of Delay:</b> Potential loss of either pump will result in approximately 50% derate. Economic justification assumes 25% probability of a 7 day derate.							
<b>Economic Justification:</b>							
Benefit-Cost NPV:		\$2.70 M\$					
Budget Category:		REL-UNIT					
Cash Flow - 2016							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$1,184,000	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2016	\$1,184,000	2017	\$0	After	\$0
<b>Cost Summary</b>							
		<b>Current Amount</b>			<b>Revised Amount</b>		
Additions		\$1,112,000					
Removals		\$63,000					
(Salvage)		\$11,000					
Overhead Loads		\$9,000					
CBI Total		\$1,184,000					
Retirements		\$250,000					
<b>Approvals</b>							
				E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
Organization		Ownership		Share		Approve	
APS		63.00%		745,920		Date	
EPE		7.00%		82,880		Date	
PNM		13.00%		153,920		Date	
SRP		10.0%		118,400		Date	
TEP		7.00%		82,880		Date	

FCC07642 Circulating Water Pump(s) Replacement							
Four Corners Participant Project		SG2 WA Rev 0		0% Enviro.		NSR Completed: Yes	
FC Unit 5		CBI: 16-31		Env Code: N/A		ERF Completed: Yes	
In 2016 Budget: Yes		Plant Acct: 312		Est Removal: 03/31/2016		Est In Svc: 12/19/2017	
<p><b>Description:</b> Replace the north circulating water pump, shafts, and impeller. Replace the south circulating water pump, shafts, and outlet expansion joint.</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to increase unit reliability. Existing pumps are original. The pumps have been rebuilt several times and are now nearing end of life.</p> <p><b>Consequences of Delay:</b> Potential loss of either pump will result in approximately 50% derate. Economic justification assumes 25% probability of a 7 day derate.</p> <p><b>Economic Justification:</b>            Benefit-Cost NPV: \$2.70 M\$            Budget Category: REL-UNIT</p>							
Cash Flow - 2016							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$1,184,000	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2016	\$1,184,000	2017	\$0	After	\$0
<b>Cost Summary</b>							
		<b>Current Amount</b>			<b>Revised Amount</b>		
Additions		\$1,112,000					
Removals		\$63,000					
(Salvage)		\$11,000					
Overhead Loads		\$9,000					
CBI Total		\$1,184,000					
Retirements		\$250,000					
<b>Approvals</b>							
				E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
Organization		Ownership		Share		Approve	
APS		63.00%		745,920		Date	
EPE		7.00%		82,880		Date	
PNM		13.00%		153,920		Date	
SRP		10.0%		118,400		Date	
TEP		7.00%		82,880		Date	

*W.H. R. Alb* 4-28-2016

FCC07642 Circulating Water Pump(s) Replacement			
Four Corners Participant Project	SG2 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: 16-31	Env Code: N/A	ERF Completed: Yes
In 2016 Budget: Yes	Plant Acct: 312	Est Removal: 03/31/2016	Est In Svc: 12/19/2017
<b>Description:</b> Replace the north circulating water pump, shafts, and impeller. Replace the south circulating water pump, shafts, and outlet expansion joint.			
<b>Purpose/Necessity:</b> The purpose of this project is to increase unit reliability. Existing pumps are original. The pumps have been rebuilt several times and are now nearing end of life.			
<b>Consequences of Delay:</b> Potential loss of either pump will result in approximately 50% derate. Economic justification assumes 25% probability of a 7 day derate.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:		\$2.70 M\$	
Budget Category:		REL-UNIT	

Cash Flow - 2016							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$1,184,000	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2016	\$1,184,000	2017	\$0	After	\$0

Cost Summary		
	Current Amount	Revised Amount
Additions	\$1,112,000	
Removals	\$63,000	
(Salvage)	\$11,000	
Overhead Loads	\$9,000	
CBI Total	\$1,184,000	
Retirements	\$250,000	

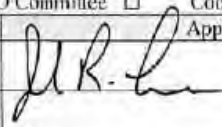
Approvals			
Organization	Ownership	Share	E&O Committee <input type="checkbox"/> Coordinating Committee <input checked="" type="checkbox"/>
APS	63.00%	745,920	Approve Date
EPE	7.00%	82,880	Date
PNM	13.00%	153,920	Date
SRP	10.0%	118,400	Date
TEP	7.00%	82,880	Date

*LSM* Date 18 APR 2016

FCC/07642 Circulating Water Pump(s) Replacement			
Four Corners Participant Project	SG2 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: 16-31	Env Code: N/A	BRF Completed: Yes
In 2016 Budget: Yes	Plant Acct: 312	Est Removal: 03/31/2016	Est In Svc: 12/19/2017
<b>Description:</b> Replace the north circulating water pump, shafts, and impeller. Replace the south circulating water pump, shafts, and outlet expansion joint.			
<b>Purpose/Necessity:</b> The purpose of this project is to increase unit reliability. Existing pumps are original. The pumps have been rebuilt several times and are now nearing end of life.			
<b>Consequences of Delay:</b> Potential loss of either pump will result in approximately 50% derate. Economic justification assumes 25% probability of a 7 day derate.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:		\$2.70 M\$	
Budget Category:		REL-UNIT	

Cash Flow - 2016							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$1,184,000	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	<b>\$0</b>	<b>2016</b>	<b>\$1,184,000</b>	<b>2017</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
Additions	\$1,112,000	
Removals	\$63,000	
(Salvage)	\$11,000	
Overhead Loads	\$9,000	
<b>CBI Total</b>	<b>\$1,184,000</b>	
Retirements	\$250,000	

Approvals				E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
Organization	Ownership	Share	Share	Approve	Date	Date	Date
APS	63.00%	745,920			5/10/16		
EPE	7.00%	82,880					
PNM	13.00%	153,920					
SRP	10.0%	118,400					
TEP	7.00%	82,880					

FCC07642 Circulating Water Pump(s) Replacement			
Four Corners Participant Project	SG2 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: 16-31	Env Code: N/A	ERF Completed: Yes
In 2016 Budget: Yes	Plant Acct: 312	Est Removal: 03/31/2016	Est In Svc: 12/19/2017 <i>04/21/16</i>
<b>Description:</b> Replace the north circulating water pump, shafts, and impeller. Replace the south circulating water pump, shafts, and outlet expansion joint.			
<b>Purpose/Necessity:</b> The purpose of this project is to increase unit reliability. Existing pumps are original. The pumps have been rebuilt several times and are now nearing end of life.			
<b>Consequences of Delay:</b> Potential loss of either pump will result in approximately 50% derate. Economic justification assumes 25% probability of a 7 day derate.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:		\$2.70 M\$	
Budget Category:		REL-UNIT	

Cash Flow - 2016							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$1,184,000	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	<b>\$0</b>	<b>2016</b>	<b>\$1,184,000</b>	<b>2017</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
Additions	\$1,112,000	
Removals	\$63,000	
(Salvage)	\$11,000	
Overhead Loads	\$9,000	
<b>CBI Total</b>	<b>\$1,184,000</b>	
Retirements	\$250,000	

Approvals			E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
Organization	Ownership	Share	Approve	
APS	63.00%	745,920	Date	
EPE	7.00%	82,880	Date	
PNM	13.00%	153,920	Date	
SRP	10.0%	118,400	Date	
TEP	7.00%	82,880	Date	

*[Handwritten Signature]* 05.09.16



FC007642 Circulating Water Pump(s) Replacement							
Four Corners Participant Project	SG2 WA Rev 0	0% Enviro.	NSR Completed: Yes				
FC Unit 5	CBI: 16-31	Env Code: N/A	ERF Completed: Yes				
In 2016 Budget: Yes	Plant Acct: 312	Est Removal: 03/31/2016	Est In Svc: 12/19/2017				
<b>Description:</b> Replace the north circulating water pump, shafts, and impeller. Replace the south circulating water pump, shafts, and outlet expansion joint.							
<b>Purpose/Necessity:</b> The purpose of this project is to increase unit reliability. Existing pumps are original. The pumps have been rebuilt several times and are now nearing end of life.							
<b>Consequences of Delay:</b> Potential loss of either pump will result in approximately 50% derate. Economic justification assumes 25% probability of a 7 day derate.							
<b>Economic Justification:</b>							
Benefit-Cost NPV:		\$2.70 M\$					
Budget Category:		REL-UNIT					
Cash Flow - 2016							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$1,184,000	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2016	\$1,184,000	2017	\$0	After	\$0
<b>Cost Summary</b>							
		<b>Current Amount</b>		<b>Revised Amount</b>			
Additions		\$1,112,000					
Removals		\$63,000					
(Salvage)		\$11,000					
Overhead Loads		\$9,000					
CBI Total		\$1,184,000					
Retirements		\$250,000					
<b>Approvals</b>							
				E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
Organization		Ownership		Share		Approve	
APS		63.00%		745,920		Date	
EPE		7.00%		82,880		Date	
PNM		13.00%		153,920		Date	
SRP		10.0%		118,400		Date	
TEP		7.00%		82,880		Date	

FCC07642 Circulating Water Pump(s) Replacement							
Four Corners Participant Project		SG2 WA Rev 0		0% Enviro.		NSR Completed: Yes	
FC Unit 5		CBI: 16-31		Env Code: N/A		ERF Completed: Yes	
In 2016 Budget: Yes		Plant Acct: 312		Est Removal: 03/31/2016		Est In Svc: 12/19/2017	
<p><b>Description:</b> Replace the north circulating water pump, shafts, and impeller. Replace the south circulating water pump, shafts, and outlet expansion joint.</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to increase unit reliability. Existing pumps are original. The pumps have been rebuilt several times and are now nearing end of life.</p> <p><b>Consequences of Delay:</b> Potential loss of either pump will result in approximately 50% derate. Economic justification assumes 25% probability of a 7 day derate.</p> <p><b>Economic Justification:</b>            Benefit-Cost NPV: \$2.70 M\$            Budget Category: REL-UNIT</p>							
Cash Flow - 2016							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$1,184,000	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2016	\$1,184,000	2017	\$0	After	\$0
<b>Cost Summary</b>							
		<b>Current Amount</b>			<b>Revised Amount</b>		
Additions		\$1,112,000					
Removals		\$63,000					
(Salvage)		\$11,000					
Overhead Loads		\$9,000					
CBI Total		\$1,184,000					
Retirements		\$250,000					
<b>Approvals</b>							
				E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
Organization		Ownership		Share		Approve	
APS		63.00%		745,920		Date	
EPE		7.00%		82,880		Date	
PNM		13.00%		153,920		Date	
SRP		10.0%		118,400		Date	
TEP		7.00%		82,880		Date	

*W.H. R. Alb* 4-28-2016

FCC07642 Circulating Water Pump(s) Replacement			
Four Corners Participant Project	SG2 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: 16-31	Env Code: N/A	ERF Completed: Yes
In 2016 Budget: Yes	Plant Acct: 312	Est Removal: 03/31/2016	Est In Svc: 12/19/2017
<b>Description:</b> Replace the north circulating water pump, shafts, and impeller. Replace the south circulating water pump, shafts, and outlet expansion joint.			
<b>Purpose/Necessity:</b> The purpose of this project is to increase unit reliability. Existing pumps are original. The pumps have been rebuilt several times and are now nearing end of life.			
<b>Consequences of Delay:</b> Potential loss of either pump will result in approximately 50% derate. Economic justification assumes 25% probability of a 7 day derate.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:		\$2.70 M\$	
Budget Category:		REL-UNIT	

Cash Flow - 2016							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$1,184,000	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2016	\$1,184,000	2017	\$0	After	\$0

Cost Summary		
	Current Amount	Revised Amount
Additions	\$1,112,000	
Removals	\$63,000	
(Salvage)	\$11,000	
Overhead Loads	\$9,000	
<b>CBI Total</b>	<b>\$1,184,000</b>	
Retirements	\$250,000	

Approvals			
Organization	Ownership	Share	E&O Committee <input type="checkbox"/> Coordinating Committee <input checked="" type="checkbox"/>
APS	63.00%	745,920	Approve Date
EPE	7.00%	82,880	Date
PNM	13.00%	153,920	Date
SRP	10.0%	118,400	Date
TEP	7.00%	82,880	Date

*LSM* Date 18 APR 2016

Four Corners Participant Project  
 FC Units 4 & 5  
 In 2016 Budget: No

SG2 WA Rev 0  
 CBI: 16-35  
 Plant Acct:

Enviro  
 Enviro Cons: N/A  
 Est Removal: 09/22/2016

NSR Completed: Yes  
 RRF Completed: Yes  
 Est In Svc: 08/29/2017

**Description:** Replace all Potable, Service, and Firewater piping below grade mains and above grade headers, including loop and branch isolation valves. All piping will be routed above grade except where system crosses roads or equipment access ways. All existing below-grade piping will be capped and abandoned in place and all existing above-grade piping will be demolished. Phase 2 will include replacement of piping through the Unit 4 and 5 turbine building.

**Purpose/Necessity:** The purpose of this project is to ensure reliability of safety-critical systems (Potable, Service, and Firewater systems) through replacement of degraded water piping and to maintain compliance with OSHA standard 1910.151 and ANSI Z358.1. Reduce the probability of system outages caused by main breaks in degraded piping systems.

**Consequences of Delay:** Risk of failure of Firewater systems during a fire event resulting in more extensive damage to equipment and or personnel safety. Risk of failure of Potable water piping resulting in increased risk to personnel safety and health of employees and noncompliance with OSHA and ANSI Standards. Risk of failure of Service water piping resulting in increased risk to unit reliability and increased risk to personnel safety and health of employees. Risk of extended forced outages. Risk of plant accessibility due to below grade failures requiring excavating below main entrance drives. There has been an average of 9 Potable water outages the last 3 years which also affect safety showers.

**Economic Justification:**

Benefit-Cost NPV: (\$2.10) ME  
 Budget Category: SAFETY

Jan	\$33,000	Apr	\$136,000	Jul	\$63,000	Oct	\$768,000
Feb	\$104,000	May	\$123,000	Aug	\$39,000	Nov	\$132,000
Mar	\$63,000	Jun	\$136,000	Sep	\$19,000	Dec	\$132,000
<b>Prior</b>	<b>\$0</b>	<b>2016</b>	<b>\$1,748,000</b>	<b>2017</b>	<b>\$1,754,000</b>	<b>After</b>	<b>\$0</b>

**Cost Summary**

	Current Amount	Revised Amount
Additions	\$2,825,000	
Removals	\$616,000	
(Salvage)	\$0	
Overhead Loads	\$60,000	
<b>CBI Total</b>	<b>\$3,502,000</b>	
Retirements	\$50,000	

**Approvals**

Organization	Ownership	Share	E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
			Approve	Date	Approve	Date
APS	63.00%	\$2,206,260	<i>[Signature]</i>	11/9/15		
EPE	7.00%	\$245,140				
PNM	13.00%	\$455,260	<i>[Signature]</i>	11/7/15		
SRP	10.0%	\$350,200				
TEP	7.00%	\$245,140				

Four Corners Participant Project      SG2 WA Rev 0      0% Enviro.      NSR Completed: Yes  
 FC Units 4 & 5      CBI: 16-35      Env Code: N/A      ERF Completed: Yes  
 In 2016 Budget: No      Plant Acct:      Est Removal: 09/22/2016      Est In Svc: 08/29/2017

**Description:** Replace all Potable, Service, and Firewater piping below grade mains and above grade headers, including loop and branch isolation valves. All piping will be routed above grade except where system crosses roads or equipment access ways. All existing below-grade piping will be capped and abandoned in place and all existing above-grade piping will be demolished. Phase 2 will include replacement of piping through the Unit 4 and 5 turbine building.

**Purpose/Necessity:** The purpose of this project is to ensure reliability of safety-critical systems (Potable, Service, and Firewater systems) through replacement of degraded water piping and to maintain compliance with OSHA standard 1910.151 and ANSI Z358.1. Reduce the probability of system outages caused by main breaks in degraded piping systems.

**Consequences of Delay:** Risk of failure of Firewater systems during a fire event resulting in more extensive damage to equipment and or personnel safety. Risk of failure of Potable water piping resulting in increased risk to personnel safety and health of employees and noncompliance with OSHA and ANSI Standards. Risk of failure of Service water piping resulting in increased risk to unit reliability and increased risk to personnel safety and health of employees. Risk of extended forced outages. Risk of plant accessibility due to below grade failures requiring excavating below main entrance drives. There has been an average of 9 Potable water outages the last 3 years which also affect safety showers.

**Economic Justification:**

Benefit-Cost NPV: (\$2.10) M\$  
 Budget Category: SAFETY

Jan	\$33,000	Apr	\$136,000	Jul	\$63,000	Oct	\$768,000
Feb	\$104,000	May	\$123,000	Aug	\$39,000	Nov	\$132,000
Mar	\$63,000	Jun	\$136,000	Sep	\$19,000	Dec	\$132,000
Prior	\$0	2016	\$1,748,000	2017	\$1,754,000	After	\$0

Cost Summary		Current Amount	Revised Amount
Additions		\$2,825,000	
Removals		\$616,000	
(Salvage)		\$0	
Overhead Loads		\$60,000	
CBI Total		\$3,502,000	
Retirements		\$50,000	

Approvals		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
Organization	Ownership	Share	Approve	Date	Date
APS	63.00%	\$2,206,260			
EPE	7.00%	\$245,140			
PNM	13.00%	\$455,260			
SRP	10.0%	\$350,200			
TEP	7.00%	\$245,140			

*Don Hattedy* 10/28/15  
*J. M.* 10-28-15

Four Corners Participant Project	SG12 WA Rev 0	0% ERFVIO	NSR Completed: Yes
FC Units 1 & 5	CBI: 16-30	Est Code: N/A	ERF Completed: Yes
In 2016 Budget: No	Plant Acct:	Est Removal:	Est In Sv: 12/30/2016

**Description:** Replacement of Capital Pumps.

**Purpose/Necessity:** The purpose of this project is to maintain plant reliability. Capital budget will be used for purchase and installation of new capital pumps as failures or immediate need occurs throughout the 2016 calendar year.

**Consequences of Delay:** Negative impact to the plant's response to obtaining approvals needed for plant capital pump requirements.

**Economic Justification:**

Benefit-Cost NPV: (\$0.20) MS  
Budget Category: STRATEGIC

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$100,000	Sep	\$100,000	Dec	\$100,000
Prior	\$0	2016	\$300,000	2017	\$0	After	\$0

Cost Summary		Current Amount	Revised Amount
Additions		\$288,000	
Removals		\$12,000	
(Salvage)		\$0	
Overhead Loads		\$0	
CBI Total		\$300,000	
Retirements		\$25,000	

Approvals		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
Organization	Ownership	Share	Approve	Date	Date
APS	63.00%	\$189,000	<i>J.R. [Signature]</i>	11/9/15	
EPE	7.00%	\$21,000			
PNM	13.00%	\$39,000	<i>[Signature]</i>	11/7/15	
SRP	10.0%	\$30,000			
TEP	7.00%	\$21,000			

Four Corners Participant Project	SG2-WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: 16-36	Env Code: N/A	ERF Completed: Yes
In 2016 Budget: No	Plant Acct:	Est Removal:	Est In Svc: 12/30/2016

**Description:** Replacement of Capital Pumps.

**Purpose/Necessity:** The purpose of this project is to maintain plant reliability. Capital budget will be used for purchase and installation of new capital pumps as failures or immediate need occurs throughout the 2016 calendar year.

**Consequences of Delay:** Negative impact to the plant's response to obtaining approvals needed for plant capital pump requirements.

**Economic Justification:**

Benefit-Cost NPV: (\$0.20) M\$  
Budget Category: STRATEGIC

\*EPE's approval of the CBI is subject to the terms and conditions of the Purchase and Sale Agreement dated February 17, 2015, between EPE and APS.

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$100,000	Sep	\$100,000	Dec	\$100,000
<b>Prior</b>	<b>\$0</b>	<b>2016</b>	<b>\$300,000</b>	<b>2017</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

<b>Cost Summary</b>		<b>Current Amount</b>	<b>Revised Amount</b>
Additions		\$288,000	
Removals		\$12,000	
(Salvage)		\$0	
Overhead Loads		\$0	
<b>CBI Total</b>		<b>\$300,000</b>	
Retirements		\$25,000	

<b>Approvals</b>		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
<b>Organization</b>	<b>Ownership</b>	<b>Share</b>	<b>Approve</b>	<b>Date</b>	
APS	63.00%	\$189,000			
EPE	7.00%	\$21,000	<i>Nadia Powell</i>	10-29-15	
PNM	13.00%	\$39,000			
SRP	10.0%	\$30,000			
TEP	7.00%	\$21,000			

Four Corners Participant Project	SG2 WA Rev 0	0% Enviro	NSR Completed: Yes
FC Units 4 & 5	CBI-16-36	Env Code: N/A	RRF Completed: Yes
In 2016 Budget: No	Plant Acct:	Est Removal:	Est In Svc: 12/30/2016

**Description:** Replacement of Capital Pumps.

**Purpose/Necessity:** The purpose of this project is to maintain plant reliability. Capital budget will be used for purchase and installation of new capital pumps as failures or immediate need occurs throughout the 2016 calendar year.

**Consequences of Delay:** Negative impact to the plant's response to obtaining approvals needed for plant capital pump requirements.

**Economic Justification:**

Benefit-Cost NPV: (\$0.20) M\$  
Budget Category: STRATEGIC

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$100,000	Sep	\$100,000	Dec	\$100,000
<b>Prior</b>	<b>\$0</b>	<b>2016</b>	<b>\$300,000</b>	<b>2017</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

Cost Summary		Current Amount	Revised Amount
Additions		\$288,000	
Removals		\$12,000	
(Salvage)		\$0	
Overhead Loads		\$0	
<b>CBI Total</b>		<b>\$300,000</b>	
Retirements		\$25,000	

Approvals		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
Organization	Ownership	Share	Approve	Date	
APS	63.00%	\$189,000			
EPE	7.00%	\$21,000			
PNM	13.00%	\$39,000			
SRP	10.0%	\$30,000	<i>[Signature]</i>	10/28/15	
TEP	7.00%	\$21,000	<i>[Signature]</i>	10-28-15	



Four Corners Participant Project	SG27-WA Rev 0	0% ERFVIO	NSR Completed: Yes
FC Units 1 & 3	CBI: 16-39	Bay Code: N/A	ERF Completed: Yes
In 2016 Budget: No	Plant Acct:	Est Removal:	Est In Sv: 12/30/2016

**Description:** Replacement of Capital Pumps.

**Purpose/Necessity:** The purpose of this project is to maintain plant reliability. Capital budget will be used for purchase and installation of new capital pumps as failures or immediate need occurs throughout the 2016 calendar year.

**Consequences of Delay:** Negative impact to the plant's response to obtaining approvals needed for plant capital pump requirements.

**Economic Justification:**

Benefit-Cost NPV: (\$0.20) MS  
Budget Category: STRATEGIC

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$100,000	Sep	\$100,000	Dec	\$100,000
<b>Prior</b>	<b>\$0</b>	<b>2016</b>	<b>\$300,000</b>	<b>2017</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

Cost Summary		Current Amount	Revised Amount
Additions		\$288,000	
Removals		\$12,000	
(Salvage)		\$0	
Overhead Loads		\$0	
<b>CBI Total</b>		<b>\$300,000</b>	
Retirements		\$25,000	

Approvals		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
Organization	Ownership	Share	Approve	Date	Date
APS	63.00%	\$189,000	<i>J.R. [Signature]</i>	11/9/15	
EPE	7.00%	\$21,000			
PNM	13.00%	\$39,000	<i>[Signature]</i>	11/7/15	
SRP	10.0%	\$30,000			
TEP	7.00%	\$21,000			

Four Corners Participant Project	SG2-WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: 16-36	Env Code: N/A	ERF Completed: Yes
In 2016 Budget: No	Plant Acct:	Est Removal:	Est In Svc: 12/30/2016

**Description:** Replacement of Capital Pumps.

**Purpose/Necessity:** The purpose of this project is to maintain plant reliability. Capital budget will be used for purchase and installation of new capital pumps as failures or immediate need occurs throughout the 2016 calendar year.

**Consequences of Delay:** Negative impact to the plant's response to obtaining approvals needed for plant capital pump requirements.

**Economic Justification:**

Benefit-Cost NPV: (\$0.20) M\$  
Budget Category: STRATEGIC

\*EPE's approval of the CBI is subject to the terms and conditions of the Purchase and Sale Agreement dated February 17, 2015, between EPE and APS.

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$100,000	Sep	\$100,000	Dec	\$100,000
<b>Prior</b>	<b>\$0</b>	<b>2016</b>	<b>\$300,000</b>	<b>2017</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

<b>Cost Summary</b>		
	<b>Current Amount</b>	<b>Revised Amount</b>
Additions	\$288,000	
Removals	\$12,000	
(Salvage)	\$0	
Overhead Loads	\$0	
<b>CBI Total</b>	<b>\$300,000</b>	
Retirements	\$25,000	

<b>Approvals</b>			
		F&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
<b>Organization</b>	<b>Ownership</b>	<b>Share</b>	<b>Approve</b> <span style="float: right;">Date</span>
APS	63.00%	\$189,000	
EPE	7.00%	\$21,000	*Nadia Powell <span style="float: right;">Date 10-29-15</span>
PNM	13.00%	\$39,000	
SRP	10.0%	\$30,000	
TEP	7.00%	\$21,000	

Four Corners Participant Project	SG2 WA Rev 0	0% Enviro	NSR Completed: Yes
FC Units 4 & 5	CBI-16-36	Env Code: N/A	RRF Completed: Yes
In 2016 Budget: No	Plant Acct:	Est Removal:	Est In Svc: 12/30/2016

**Description:** Replacement of Capital Pumps.

**Purpose/Necessity:** The purpose of this project is to maintain plant reliability. Capital budget will be used for purchase and installation of new capital pumps as failures or immediate need occurs throughout the 2016 calendar year.

**Consequences of Delay:** Negative impact to the plant's response to obtaining approvals needed for plant capital pump requirements.

**Economic Justification:**

Benefit-Cost NPV: (\$0.20) M\$  
Budget Category: STRATEGIC

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$100,000	Sep	\$100,000	Dec	\$100,000
<b>Prior</b>	<b>\$0</b>	<b>2016</b>	<b>\$300,000</b>	<b>2017</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

Cost Summary		Current Amount	Revised Amount
Additions		\$288,000	
Removals		\$12,000	
(Salvage)		\$0	
Overhead Loads		\$0	
<b>CBI Total</b>		<b>\$300,000</b>	
Retirements		\$25,000	

Approvals		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
Organization	Ownership	Share	Approve	Date	
APS	63.00%	\$189,000			
EPE	7.00%	\$21,000			
PNM	13.00%	\$39,000			
SRP	10.0%	\$30,000			
TEP	7.00%	\$21,000			

*[Handwritten signatures and dates: 10/28/15, 10-28-15]*

Four Corners Participant Project FC Units 4 & 5 In 2016 Budget: No	SG2 WA Rev 0 CBI: 16-37 Plant Acct:	0% Enviro Env Code: N/A Est Removal:	NSR Completed: Yes ERF Completed: Yes Est In Svc: 12/30/2016
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**Description:** Replacement of plant tools to maintain reliable plant operation

**Purpose/Necessity:** The purpose of this project is to maintain plant reliability. These new tools and equipment will be used for maintenance, inspection and repair of plant equipment. Adding to the inventory of plant tools and diagnostic equipment increases maintenance efficiency and reduces equipment failures by improving and expanding the plant's monitoring and problem detection capabilities. The tools will be purchased, as required, by the plant throughout 2016.

**Consequences of Delay:** Risk to unit reliability while waiting on replacement tools. The effect of waiting on tools while a replacement is procured may result in an extended duration of equipment out of service while being maintained.

**Economic Justification:**  
Benefit-Cost NPV: (\$0.20) M\$  
Budget Category: RBL-UNIT

Jan	\$0	Apr	\$30,000	Jul	\$30,000	Oct	\$40,000
Feb	\$0	May	\$30,000	Aug	\$30,000	Nov	\$50,000
Mar	\$30,000	Jun	\$30,000	Sep	\$30,000	Dec	\$0
Prior	\$0	2016	\$300,000	2017	\$0	After	\$0

Cost Summary		Current Amount	Revised Amount
Additions		\$300,000	
Removals		\$0	
(Salvage)		\$0	
Overhead Loads		\$0	
CBI Total		\$300,000	
Retirements		\$0	

Approvals		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
Organization	Ownership	Share	Approve	Date	Date
APS	63.00%	\$189,000	<i>[Signature]</i>	11/9/15	
EPE	7.00%	\$21,000			
PNM	13.00%	\$39,000	<i>[Signature]</i>	11/7/15	
SRP	10.0%	\$30,000			
TEP	7.00%	\$21,000			

Four Corners Participant Project	SG2 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: 16-37	Env Code: N/A	ERF Completed: Yes
In 2016 Budget: No	Plant Acct:	Est Removal:	Est In Svc: 12/30/2016

**Description:** Replacement of plant tools to maintain reliable plant operation.

**Purpose/Necessity:** The purpose of this project is to maintain plant reliability. These new tools and equipment will be used for maintenance, inspection and repair of plant equipment. Adding to the inventory of plant tools and diagnostic equipment increases maintenance efficiency and reduces equipment failures by improving and expanding the plant's monitoring and problem detection capabilities. The tools will be purchased, as required, by the plant throughout 2016.

**Consequences of Delay:** Risk to unit reliability while waiting on replacement tools. The effect of waiting on tools while a replacement is procured may result in an extended duration of equipment out of service while being maintained.

**Economic Justification:**

Benefit-Cost NPV: (\$0.20) M\$  
Budget Category: REL-UNIT

Jan	\$0	Apr	\$30,000	Jul	\$30,000	Oct	\$40,000
Feb	\$0	May	\$30,000	Aug	\$30,000	Nov	\$50,000
Mar	\$30,000	Jun	\$30,000	Sep	\$30,000	Dec	\$0
Prior	\$0	2016	\$300,000	2017	\$0	After	\$0

**Cost Summary**

	Current Amount	Revised Amount
Additions	\$300,000	
Removals	\$0	
(Salvage)	\$0	
Overhead Loads	\$0	
CBI Total	\$300,000	
Retirements	\$0	

**Approvals**

Organization	Ownership	Share	E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>	Approve	Date
APS	63.00%	\$189,000				
EPE	7.00%	\$21,000				
PNM	13.00%	\$39,000				
SRP	10.0%	\$30,000				
TEP	7.00%	\$21,000				

*Handwritten signatures and dates:*  
 [Signature] 10/28/15  
 [Signature] 10-28-15

Four Corners Participant Project FC Units 4 & 5 In 2016 Budget: No	SG2 WA Rev 0 CBI: 16-38 Plan Acct:	0% Enviro. Env Code: N/A Est Removal:	NSR Completed: Yes ERF Completed: Yes Est In Svc: 12/16/2016
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**Description:** Replace current coal handling controls.

**Purpose/Necessity:** The purpose of this project is maintain unit reliability by replacing the existing Coal Handling Control System. The existing Control System has a history of problems and is considered unreliable due to a lack of immediate troubleshooting support for the system and system parts. This system controls coal flow to both Units 4 & 5, which can run at full load only 4 hours without re-supply. The inability to deliver coal will eventually affect the operation of the Unit and require the Unit to be taken off line.

**Consequences of Delay:** Possible control failure resulting in decreased production after 4 hours and dual unit shutdown after 12 hrs. Managing end-of-life technology imposes risk that threatens to drastically increase downtime and decrease commercial availability should legacy systems fail.

**Economic Justification:**  
Benefit-Cost NPV: \$5.70 M\$  
Budget Category: REL-UNIT

Jan	\$32,000	Apr	\$101,000	Jul	\$19,000	Oct	\$52,000
Feb	\$20,000	May	\$19,000	Aug	\$22,000	Nov	\$31,000
Mar	\$19,000	Jun	\$19,000	Sep	\$293,000	Dec	\$81,000
<b>Prior</b>	<b>\$0</b>	<b>2016</b>	<b>\$760,000</b>	<b>2017</b>	<b>\$39,000</b>	<b>After</b>	<b>\$0</b>

Cost Summary		Current Amount	Revised Amount
Additions		\$645,000	
Removals		\$40,000	
(Salvage)		\$0	
Overhead Loads		\$115,000	
CBI Total		\$800,000	
Retirements		\$100,000	

Approvals		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
Organization	Ownership	Share	Approve	Date	Date
APS	63.00%	\$504,000	<i>[Signature]</i>	11/12/15	
EPE	7.00%	\$56,000			
PNM	13.00%	\$104,000	<i>[Signature]</i>	11/12/15	
SRP	10.0%	\$80,000			
TEP	7.00%	\$56,000			

RCGS 117 Coal Handling Controls Repl			
Four Corners Participant Project	SG2 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: 16-38	Env Code: N/A	BRF Completed: Yes
In 2016 Budget: No	Plant Acct:	Est Removal:	Est In Svc: 12/16/2016

**Description:** Replace current coal handling controls.

**Purpose/Necessity:** The purpose of this project is maintain unit reliability by replacing the existing Coal Handling Control System. The existing Control System has a history of problems and is considered unreliable due to a lack of immediate troubleshooting support for the system and system parts. This system controls coal flow to both Units 4 & 5, which can run at full load only 4 hours without re-supply. The inability to deliver coal will eventually affect the operation of the Unit and require the Unit to be taken off line.

**Consequences of Delay:** Possible control failure resulting in decreased production after 4 hours and dual unit shutdown after 12 hrs. Managing end-of-life technology imposes risk that threatens to drastically increase downtime and decrease commercial availability should legacy systems fail.

**Economic Justification:**  
Benefit-Cost NPV: \$5.70 M\$  
Budget Category: REL-UNIT

\*EPE's approval of the CBI is subject to the terms and conditions of the Purchase and Sale Agreement dated February 17, 2015, between EPE and APS.

Cash Flow 2016							
Jan	\$32,000	Apr	\$101,000	Jul	\$19,000	Oct	\$52,000
Feb	\$20,000	May	\$19,000	Aug	\$22,000	Nov	\$81,000
Mar	\$19,000	Jun	\$19,000	Sep	\$293,000	Dec	\$81,000
Prior	\$0	2016	\$760,000	2017	\$39,000	After	\$0

Cost Summary		
	Current Amount	Revised Amount
Additions	\$645,000	
Removals	\$40,000	
(Salvage)	\$0	
Overhead Loads	\$115,000	
<b>CBI Total</b>	<b>\$800,000</b>	
Retirements	\$100,000	

Approvals			
		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
Organization	Ownership	Share	Approve
APS	63.00%	\$504,000	Date
EPE	7.00%	\$56,000	Date <i>10-29-15</i>
PNM	13.00%	\$104,000	Date
SRP	10.0%	\$80,000	Date
TEP	7.00%	\$56,000	Date

Four Corners Participant Project	SG2 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: 16-38	Env Code: N/A	ERF Completed: Yes
In 2016 Budget: No	Plant Acct:	Est Removal:	Est In Svc: 12/16/2016

**Description:** Replace current coal handling controls.

**Purpose/Necessity:** The purpose of this project is maintain unit reliability by replacing the existing Coal Handling Control System. The existing Control System has a history of problems and is considered unreliable due to a lack of immediate troubleshooting support for the system and system parts. This system controls coal flow to both Units 4 & 5, which can run at full load only 4 hours without re-supply. The inability to deliver coal will eventually affect the operation of the Unit and require the Unit to be taken off line.

**Consequences of Delay:** Possible control failure resulting in decreased production after 4 hours and dual unit shutdown after 12 hrs. Managing end-of-life technology imposes risk that threatens to drastically increase downtime and decrease commercial availability should legacy systems fail.

**Economic Justification:**  
Benefit-Cost NPV: \$5.70 MS  
Budget Category: REL-UNIT

Month	2016	2017	2018	2019	2020	2021	2022
Jan	\$32,000	\$101,000	\$19,000	\$19,000	\$19,000	\$19,000	\$52,000
Feb	\$20,000	\$19,000	\$19,000	\$22,000	\$22,000	\$22,000	\$81,000
Mar	\$19,000	\$19,000	\$19,000	\$293,000	\$293,000	\$293,000	\$81,000
Prior	\$0	\$760,000	\$39,000	\$39,000	\$39,000	\$39,000	\$0

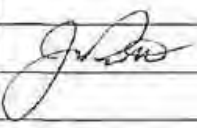
Cost Summary		Current Amount	Revised Amount
Additions		\$645,000	
Removals		\$40,000	
(Salvage)		\$0	
Overhead Loads		\$115,000	
<b>CBI Total</b>		<b>\$800,000</b>	
Retirements		\$100,000	

**Approvals**

E&O Committee  Coordinating Committee

Organization	Ownership	Share	Approve	Date
APS	63.00%	\$504,000		
EPE	7.00%	\$56,000		
PNM	13.00%	\$104,000		
SRP	10.0%	\$80,000	<i>Ron Kuttledge</i>	10/28/15
TEP	7.00%	\$56,000	<i>JM</i>	10-28-13



FCC08156 HP Generator Stator & Field Rewind							
Four Corners Participant Project	SG2 WA Rev 0	0% Enviro.	NSR Completed: Yes				
FC Unit 5	CBI: 16-41	Env Code: N/A	ERF Completed: Yes				
In 2016 Budget: No	Plant Acct:	Est Removal: 09/16/2017	Est In Svc: 12/19/2017				
<b>Description:</b> Unit 5 HP Generator stator and field rewind.							
<b>Purpose/Necessity:</b> The purpose of this project is to ensure continued Unit reliability and avoid an extended Unit shutdown through mitigation of the potential for failure of the LP Generator. Rewinding was originally identified as being required in 2008 by a 3rd party inspector.							
<b>Consequences of Delay:</b> Increased risk of generator failure. Potential loss of performance from smaller faults.							
<b>Economic Justification:</b>							
Benefit-Cost NPV:		\$117.20 M\$					
Budget Category:		REL-UNIT					
<b>Cash Flow - 2016</b>							
Jan	\$22,000	Apr	\$8,000	Jul	\$5,000	Oct	\$4,000
Feb	\$12,000	May	\$11,000	Aug	\$4,000	Nov	\$4,000
Mar	\$8,000	Jun	\$11,000	Sep	\$4,000	Dec	\$4,000
Prior	\$0	2016	\$98,000	2017	\$14,981,000	After	\$18,000
<b>Cost Summary</b>							
	Current Amount			Revised Amount			
Additions	\$14,603,000						
Removals	\$400,000						
(Salvage)	\$0						
Overhead Loads	\$94,000						
CBI Total	\$15,097,000						
Retirements	\$525,000						
<b>Approvals</b>							
Exhibit: ABB				E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
Organization	Ownership	Share	Approve		Date		
APS	63.00%	9,511,110			11-20-15		
EPE	7.00%	1,056,790			Date		
PNM	13.00%	1,962,610			Date		
SRP	10.0%	1,509,700			11-20-15		
TEP	7.00%	1,056,790			Date		

Four Corners Participant Project	SG2-WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: 16:41	Env Code: N/A	ERT Completed: Yes
In 2016 Budget: No	Plant Acct:	Est Removal: 09/16/2017	Est In Svc: 12/19/2017

**Description:** Unit 5 HP Generator stator and field rewind.

**Purpose/Necessity:** The purpose of this project is to ensure continued Unit reliability and avoid an extended Unit shutdown through mitigation of the potential for failure of the LP Generator. Rewinding was originally identified as being required in 2008 by a 3rd party inspector.

**Consequences of Delay:** Increased risk of generator failure. Potential loss of performance from smaller faults.

**Economic Justification:**

Benefit-Cost NPV: \$117.20 MS  
Budget Category: REL-UNIT

Monthly Costs							
Jan	\$22,000	Apr	\$8,000	Jul	\$5,000	Oct	\$4,000
Feb	\$12,000	May	\$11,000	Aug	\$4,000	Nov	\$4,000
Mar	\$8,000	Jun	\$11,000	Sep	\$4,000	Dec	\$4,000
Prior	\$0	2016	\$98,000	2017	\$14,981,000	After	\$18,000

Cost Summary		
	Current Amount	Revised Amount
Additions	\$14,603,000	
Removals	\$400,000	
(Salvage)	\$0	
Overhead Loads	\$94,000	
CBI Total	\$15,097,000	
Retirements	\$525,000	

Approvals			
Exhibit: ABB		E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
Organization	Ownership	Share	Approve
APS	63.00%	9,511,110	Date
EPE	7.00%	1,056,790	Date
PNM	13.00%	1,962,610	Date 11/17/15
SRP	10.0%	1,509,700	Date 11/17/15
TEP	7.00%	1,056,790	Date

FCC08156 HP Generator Stator & Field Rewind							
Four Corners Participant Project	SG2 WA Rev 0	0% Enviro.	NSR Completed: Yes				
FC Unit 5	CBI: 16-41	Env Code: N/A	ERF Completed: Yes				
In 2016 Budget: No	Plant Acct:	Est Removal: 09/16/2017	Est In Svc: 12/19/2017				
<b>Description:</b> Unit 5 HP Generator stator and field rewind.							
<b>Purpose/Necessity:</b> The purpose of this project is to ensure continued Unit reliability and avoid an extended Unit shutdown through mitigation of the potential for failure of the LP Generator. Rewinding was originally identified as being required in 2008 by a 3rd party inspector.							
<b>Consequences of Delay:</b> Increased risk of generator failure. Potential loss of performance from smaller faults.							
<b>Economic Justification:</b>							
Benefit-Cost NPV:		\$117.20 MS					
Budget Category:		REL-UNIT					
<b>Cash Flow - 2016</b>							
Jan	\$22,000	Apr	\$8,000	Jul	\$5,000	Oct	\$4,000
Feb	\$12,000	May	\$11,000	Aug	\$4,000	Nov	\$4,000
Mar	\$8,000	Jun	\$11,000	Sep	\$4,000	Dec	\$4,000
<b>Prior</b>	<b>\$0</b>	<b>2016</b>	<b>\$98,000</b>	<b>2017</b>	<b>\$14,981,000</b>	<b>After</b>	<b>\$18,000</b>
<b>Cost Summary</b>							
	<b>Current Amount</b>			<b>Revised Amount</b>			
Additions	\$14,603,000						
Removals	\$400,000						
(Salvage)	\$0						
Overhead Loads	\$94,000						
<b>CBI Total</b>	<b>\$15,097,000</b>						
Retirements	\$525,000						
<b>Approvals</b>							
Exhibit: ABB		E&O Committee <input type="checkbox"/>			Coordinating Committee <input checked="" type="checkbox"/>		
<b>Organization</b>	<b>Ownership</b>	<b>Share</b>	<b>Approve</b>				
APS	63.00%	9,511,110	Date				
EPE	7.00%	1,056,790	Date				
PNM	13.00%	1,962,610	Date				
SRP	10.0%	1,509,700	Date				
TEP	7.00%	1,056,790	Date				

*[Signature]* Date 27 Oct 2015

FCC03922 LP Generator Stator & Field Rewind							
Four Corners Participant Project	SG2 WA Rev 1	0% Enviro.	NSR Completed: Yes				
FC Unit 4	CBI: 16-42	Env Code: N/A	ERF Completed: Yes				
In 2016 Budget: No	Plant Acct:	Est Removal: 01/20/2018	Est In Svc: 04/24/2018				
<b>Description:</b> Unit 4 LP Generator stator and field rewind.							
<b>Purpose/Necessity:</b> The purpose of this project is to ensure continued Unit reliability and avoid an extended Unit shutdown through mitigation of the potential for failure of the LP Generator. Rewinding was originally identified as being required in 2008 by a 3rd party.							
<b>Consequences of Delay:</b> Increased risk of generator failure. Potential loss of performance from smaller faults.							
<b>Economic Justification:</b>							
Benefit-Cost NPV:		\$104.70 MS					
Budget Category:		REL-UNIT					
Cash Flow - 2016							
Jan	\$22,000	Apr	\$8,000	Jul	\$5,000	Oct	\$4,000
Feb	\$11,000	May	\$11,000	Aug	\$4,000	Nov	\$4,000
Mar	\$8,000	Jun	\$11,000	Sep	\$4,000	Dec	\$4,000
Prior	\$0	2016	\$96,000	2017	\$8,122,000	After	\$8,398,000
Cost Summary							
		Current Amount			Revised Amount		
Additions		\$16,119,000					
Removals		\$400,000					
(Salvage)		\$0					
Overhead Loads		\$97,000					
CBI Total		\$16,616,000					
Retirements		\$525,000					
Approvals							
Exhibit: ABC				E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
Organization	Ownership	Share	Approve		Date		
APS	63.00%	10,468,080			11-20-15		
EPE	7.00%	1,163,120			Date		
PNM	13.00%	2,160,080			Date		
SRP	10.0%	1,661,600			11-20-15		
TEP	7.00%	1,163,120			Date		

<b>PROJECT INFORMATION</b>							
Four Corners Participant Project		SG2 WA Rev 1		0% Env/fo		NSR Completed: Yes	
FC Unit 4		CBI: 16-42		Env Code: N/A		BRF Completed: Yes	
In 2016 Budget: No		Plant Acct:		Est Removal: 01/20/2018		Est In Svc: 04/24/2018	
<b>Description:</b> Unit 4 LP Generator stator and field rewind.							
<b>Purpose/Necessity:</b> The purpose of this project is to ensure continued Unit reliability and avoid an extended Unit shutdown through mitigation of the potential for failure of the LP Generator. Rewinding was originally identified as being required in 2008 by a 3rd party.							
<b>Consequences of Delay:</b> Increased risk of generator failure. Potential loss of performance from smaller faults.							
<b>Economic Justification:</b>							
Benefit-Cost NPV:		\$104.70 M\$					
Budget Category:		REL-UNIT					
<b>Cost Summary</b>							
Jan	\$22,000	Apr	\$8,000	Jul	\$5,000	Oct	\$4,000
Feb	\$11,000	May	\$11,000	Aug	\$4,000	Nov	\$4,000
Mar	\$8,000	Jun	\$11,000	Sep	\$4,000	Dec	\$4,000
Prior	\$0	2016	\$96,000	2017	\$8,122,000	After	\$8,398,000
<b>Cost Summary</b>							
		<b>Current Amount</b>			<b>Revised Amount</b>		
Additions		\$16,119,000					
Removals		\$400,000					
(Salvage)		\$0					
Overhead Loads		\$97,000					
CBI Total		\$16,616,000					
Retirements		\$525,000					
<b>Approvals</b>							
Exhibit: ABC				B&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
Organization	Ownership	Share	Approve				
APS	63.00%	10,468,080	Date				
EPE	7.00%	1,163,120	Date				
PNM	13.00%	2,160,080	Date <i>11/7/15</i>				
SRP	10.0%	1,661,600	Date <i>11/16/15</i>				
TEP	7.00%	1,163,120	Date				

FCC03922 LP Generator Stator & Field Rewind			
Four Corners Participant Project	SG2 WA Rev 1	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: 16-42	Env Code: N/A	ERF Completed: Yes
In 2016 Budget: No	Plant Acct:	Est Removal: 01/20/2018	Est In Svc: 04/24/2018
<b>Description:</b> Unit 4 LP Generator stator and field rewind.			
<b>Purpose/Necessity:</b> The purpose of this project is to ensure continued Unit reliability and avoid an extended Unit shutdown through mitigation of the potential for failure of the LP Generator. Rewinding was originally identified as being required in 2008 by a 3rd party.			
<b>Consequences of Delay:</b> Increased risk of generator failure. Potential loss of performance from smaller faults.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:		\$104.70 M\$	
Budget Category:		REL-UNIT	

Cash Flow - 2016							
Jan	\$22,000	Apr	\$8,000	Jul	\$5,000	Oct	\$4,000
Feb	\$11,000	May	\$11,000	Aug	\$4,000	Nov	\$4,000
Mar	\$8,000	Jun	\$11,000	Sep	\$4,000	Dec	\$4,000
<b>Prior</b>	\$0	<b>2016</b>	\$96,000	<b>2017</b>	\$8,122,000	<b>After</b>	\$8,398,000

Cost Summary		
	Current Amount	Revised Amount
Additions	\$16,119,000	
Removals	\$400,000	
(Salvage)	\$0	
Overhead Loads	\$97,000	
<b>CBI Total</b>	<b>\$16,616,000</b>	
Retirements	\$525,000	

Approvals			
Exhibit: ABC		E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
Organization	Ownership	Share	Approve
APS	63.00%	10,468,080	Date
EPE	7.00%	1,163,120	Date
PNM	13.00%	2,160,080	Date
SRP	10.0%	1,661,600	Date
TEP	7.00%	1,163,120	Date

*[Signature]* 27 Oct 2015

FCC03960 HP Generator Stator & Field Rewind							
Four Corners Participant Project	SG2 WA Rev I	0% Enviro.	NSR Completed: Yes				
FC Unit 4	CBI: 16-43	Env Code: N/A	ERF Completed: Yes				
In 2016 Budget: No	Plant Acct:	Est Removal: 01/20/2018	Est In Svc: 04/24/2018				
<b>Description:</b> Unit 4 HP Generator stator and field rewind.							
<b>Purpose/Necessity:</b> The purpose of this project is to ensure continued Unit reliability and avoid an extended Unit shutdown through mitigation of the potential for failure of the LP Generator. Rewinding was originally identified as being required in 2008 by a 3rd party inspector.							
<b>Consequences of Delay:</b> Increased risk of generator failure. Potential loss of performance from smaller faults.							
<b>Economic Justification:</b>							
Benefit-Cost NPV:		\$105.70 M\$					
Budget Category:		REL-UNIT					
<b>Cash Flow - 2016</b>							
Jan	\$21,000	Apr	\$8,000	Jul	\$5,000	Oct	\$4,000
Feb	\$11,000	May	\$12,000	Aug	\$4,000	Nov	\$4,000
Mar	\$8,000	Jun	\$12,000	Sep	\$4,000	Dec	\$4,000
Prior	\$0	2016	\$96,000	2017	\$7,360,000	After	\$7,630,000
<b>Cost Summary</b>							
	<b>Current Amount</b>			<b>Revised Amount</b>			
Additions	\$14,589,000						
Removals	\$400,000						
(Salvage)	\$0						
Overhead Loads	\$97,000						
CBI Total	\$15,086,000						
Retirements	\$525,000						
<b>Approvals</b>							
Exhibit: ABD				E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
Organization	Ownership	Share	Approve		Date		
APS	63.00%	9,504,180			11-20-15		
EPE	7.00%	1,056,020			Date		
PNM	13.00%	1,961,180			Date		
SRP	10.0%	1,508,600			11-20-15		
TEP	7.00%	1,056,020			Date		

Four Corners Participant Project	SG2 WA Rev ]	0% Enviro.	NSR Completed: Yes
PC Unit 4	CBI: 16-43	Env Code: N/A	RRF Completed: Yes
In 2016 Budget: No	Plant Acct:	Est Removal: 01/20/2018	Est In Svc: 04/24/2018

**Description:** Unit 4 HP Generator stator and field rewind.

**Purpose/Necessity:** The purpose of this project is to ensure continued Unit reliability and avoid an extended Unit shutdown through mitigation of the potential for failure of the LP Generator. Rewinding was originally identified as being required in 2008 by a 3rd party inspector.

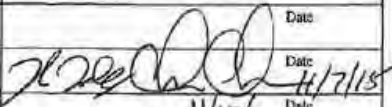
**Consequences of Delay:** Increased risk of generator failure. Potential loss of performance from smaller faults.

**Economic Justification:**

Benefit-Cost NPV: \$105.70 M\$  
Budget Category: REL-UNIT

Jan	\$21,000	Apr	\$8,000	Jul	\$5,000	Oct	\$4,000
Feb	\$11,000	May	\$12,000	Aug	\$4,000	Nov	\$4,000
Mar	\$8,000	Jun	\$12,000	Sep	\$4,000	Dec	\$4,000
<b>Prior</b>	<b>\$0</b>	<b>2016</b>	<b>\$96,000</b>	<b>2017</b>	<b>\$7,360,000</b>	<b>After</b>	<b>\$7,630,000</b>

Cost Summary		Current Amount	Revised Amount
Additions		\$14,589,000	
Removals		\$400,000	
(Salvage)		\$0	
Overhead Loads		\$97,000	
<b>CBI Total</b>		<b>\$15,086,000</b>	
Retirements		\$525,000	

Approvals		E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
Organization	Ownership	Share	Approve	Date	
APS	63.00%	9,504,180		Date	
EPE	7.00%	1,056,020		Date	
PNM	13.00%	1,961,180		Date 11/7/15	
SRP	10.0%	1,508,600		Date 11/16/15	
TEP	7.00%	1,056,020		Date	



FCC03960 HP Generator Stator & Field Rewind			
Four Corners Participant Project	SGZ WA Rev 1	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: 16-43	Env Code: N/A	ERF Completed: Yes
In 2016 Budget: No	Plant Acct:	Est Removal: 01/20/2018	Est In Svc: 04/24/2018
<b>Description:</b> Unit 4 HP Generator stator and field rewind.			
<b>Purpose/Necessity:</b> The purpose of this project is to ensure continued Unit reliability and avoid an extended Unit shutdown through mitigation of the potential for failure of the LP Generator. Rewinding was originally identified as being required in 2008 by a 3rd party inspector.			
<b>Consequences of Delay:</b> Increased risk of generator failure. Potential loss of performance from smaller faults.			
<b>Economic Justification:</b>			
Benefit-Cost NPV: \$105.70 MS			
Budget Category: REL-UNIT			

Cash Flow - 2016							
Jan	\$21,000	Apr	\$8,000	Jul	\$5,000	Oct	\$4,000
Feb	\$11,000	May	\$12,000	Aug	\$4,000	Nov	\$4,000
Mar	\$8,000	Jun	\$12,000	Sep	\$4,000	Dec	\$4,000
<b>Prior</b>	<b>\$0</b>	<b>2016</b>	<b>\$96,000</b>	<b>2017</b>	<b>\$7,360,000</b>	<b>After</b>	<b>\$7,630,000</b>

Cost Summary		
	Current Amount	Revised Amount
Additions	\$14,589,000	
Removals	\$400,000	
(Salvage)	\$0	
Overhead Loads	\$97,000	
<b>CBI Total</b>	<b>\$15,086,000</b>	
Retirements	\$525,000	

Approvals			
Exhibit: ABD	E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>
Organization	Ownership	Share	Approve
APS	63.00%	9,504,180	Date
EPE	7.00%	1,056,020	Date
PNM	13.00%	1,961,180	Date
SRP	10.0%	1,508,600	Date
TEP	7.00%	1,056,020	Date


  
 Date 27 Oct 2015

Four Corners Participant Project	SG2 WA Rev 0	0% Enviro	NSR Completed: Yes
EC Unit 5	CBI: 16-44	Env Code: N/A	ERF Completed: Yes
In 2016 Budget: No	Plant Acct:	Est Removal:	Est. In Svc: 12/19/2017

**Description:** Removal and replacement of the four existing vertical hydrogen coolers of the HP generator.

**Purpose/Necessity:** The purpose of this project is to maintain unit availability, generation capacity and improve reliability of the HP generator. Plant inspection reports and data show the existing hydrogen coolers are in need of replacement after 40+ years of service. According to a 2002 US HP field rewind report, which applies to the LP generator, an independent consultant determined contributing factors of recurring generator field winding shorted turns includes but is not limited to lead carbonate contamination from hydrogen coolers and water leaks from hydrogen coolers.

**Consequences of Delay:** Increased risk of unscheduled unit downtime due to hydrogen cooler leaks. Estimated 3.5 days of downtime and \$45,000 of unplanned maintenance expense per failure event. Negative impact on IIP and LP generator reliability.

**Economic Justification:**  
Benefit-Cost NPV: \$3.50 MB  
Budget Category: REL-UNIT

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$5,000
Feb	\$30,000	May	\$0	Aug	\$10,000	Nov	\$3,000
Mar	\$0	Jun	\$0	Sep	\$3,000	Dec	\$3,000
<b>Pror</b>	<b>\$0</b>	<b>2016</b>	<b>\$53,000</b>	<b>2017</b>	<b>\$1,488,000</b>	<b>After</b>	<b>\$6,000</b>

Cost Summary		Current Amount	Revised Amount
Additions		\$1,318,000	
Removals		\$200,000	
(Salvage)		\$0	
Overhead Loads		\$29,000	
<b>CBI Total</b>		<b>\$1,547,000</b>	
Retirements		\$350,000	

Approvals		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
Organization	Ownership	Share	Approve
APS	63.00%	\$974,610	<i>[Signature]</i> Date 11/14/15
EPE	7.00%	\$108,290	Date
PNM	13.00%	\$201,110	<i>[Signature]</i> Date 11/7/15
SRP	10.0%	\$154,700	Date
TEP	7.00%	\$108,290	Date

REG0350 HP Generator Hydrogen Cooler Replacement			
Four Corners Participant Project	SG2 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: 16-44	Env Code: N/A	ERF Completed: Yes
In 2016 Budget: No	Plant Acct:	Est Removal:	Est In Svc: 12/19/2017

**Description:** Removal and replacement of the four existing vertical hydrogen coolers of the HP generator.

**Purpose/Necessity:** The purpose of this project is to maintain unit availability, generation capacity and improve reliability of the HP generator. Plant inspection reports and data show the existing hydrogen coolers are in need of replacement after 40+ years of service. According to a 2002 US HP field rewind report, which applies to the LP generator, an independent consultant determined contributing factors of recurring generator field winding shorted turns includes but is not limited to lead carbonate contamination from hydrogen coolers and water leaks from hydrogen coolers.

**Consequences of Delay:** Increased risk of unscheduled unit downtime due to hydrogen cooler leaks. Estimated 3.5 days of downtime and \$45,000 of unplanned maintenance expense per failure event. Negative impact on HP and LP generator reliability.

**Economic Justification:**  
Benefit-Cost NPV: \$3.50 M\$  
Budget Category: REL-UNIT

\*EPE's approval of the CBI is subject to the terms and conditions of the Purchase and Sale Agreement dated February 17, 2015, between EPE and APS.

Cash Flow 2016							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$5,000
Feb	\$30,000	May	\$0	Aug	\$10,000	Nov	\$3,000
Mar	\$0	Jun	\$0	Sep	\$3,000	Dec	\$3,000
<b>Prior</b>	<b>\$0</b>	<b>2016</b>	<b>\$53,000</b>	<b>2017</b>	<b>\$1,488,000</b>	<b>After</b>	<b>\$6,000</b>

Cost Summary		
	Current Amount	Revised Amount
Additions	\$1,318,000	
Removals	\$200,000	
(Salvage)	\$0	
Overhead Loads	\$29,000	
<b>CBI Total</b>	<b>\$1,547,000</b>	
Retirements	\$350,000	

Approvals			
Organization	Ownership	Share	Approve
APS	63.00%	\$974,610	Date
EPE	7.00%	\$108,290	<i>Madia Powell</i> Date 10-29-15
PNM	13.00%	\$201,110	Date
SRP	10.0%	\$154,700	Date
TEP	7.00%	\$108,290	Date

Four Corners Participant Project	SG2 WA Rev 0	0% Enviro	NSR Completed: Yes
FC Unit 5	CBI: 16-44	Inv Code: N/A	ERF Completed: Yes
In 2016 Budget: No	Plant Acct:	Est Removal:	Est In Svc: 12/19/2017

**Description:** Removal and replacement of the four existing vertical hydrogen coolers of the HP generator.

**Purpose/Necessity:** The purpose of this project is to maintain unit availability, generation capacity and improve reliability of the HP generator. Plant inspection reports and data show the existing hydrogen coolers are in need of replacement after 40+ years of service. According to a 2002 US HP field rewind report, which applies to the LP generator, an independent consultant determined contributing factors of recurring generator field winding shorted turns includes but is not limited to lead carbonate contamination from hydrogen coolers and water leaks from hydrogen coolers.

**Consequences of Delay:** Increased risk of unscheduled unit downtime due to hydrogen cooler leaks. Estimated 3.5 days of downtime and \$45,000 of unplanned maintenance expense per failure event. Negative impact on HP and J.P generator reliability.

**Economic Justification:**

Benefit-Cost NPV: \$3.50 M\$  
Budget Category: REL-UNIT

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$5,000
Feb	\$30,000	May	\$0	Aug	\$10,000	Nov	\$3,000
Mar	\$0	Jun	\$0	Sep	\$3,000	Dec	\$3,000
<b>Prior</b>	\$0	<b>2016</b>	\$53,000	<b>2017</b>	\$1,488,000	<b>After</b>	\$6,000

Cost Summary		Current Amount	Revised Amount
Additions		\$1,318,000	
Removals		\$200,000	
(Salvage)		\$0	
Overhead Loads		\$29,000	
<b>CBI Total</b>		<b>\$1,547,000</b>	
Retirements		\$350,000	

Approvals E&O Committee  Coordinating Committee

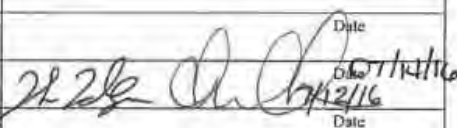
Organization	Ownership	Share	Approve	Date
APS	63.00%	\$974,610		
EPE	7.00%	\$108,290		
PNM	13.00%	\$201,110		
SRP	10.0%	\$154,700	<i>[Signature]</i>	10/28/15
TEP	7.00%	\$108,290	<i>[Signature]</i>	10-28-15

FCC08299 HMI Upgrade			
Four Corners Participant Project	Revised SG2 WA Rev 1	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: 16-45R1	Env Code: N/A	ERF Completed: Yes
In 2016 Budget: Yes	Plant Acct: 312	Est Removal: 09/16/2017	Est In Svc: 04/24/2018
<b>Reason for Revision:</b> The reason for this \$1.8M increase in project funding is to add the replacement of the simulator HMI and existing stimulation models to the existing scope.			
Benefit-Cost NPV: \$1.30 M\$			
<b>Description:</b> Replace existing Distributed Control System (DCS) Human Machine Interface (HMI) with current equipment.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain Unit Reliability by replacing the existing DCS HMI with new HMI Technology. The current HMI system has been in service for over 25 years and is no longer supported by the OEM. Failure of this equipment would result in limited operator access to unit control, decreased operator awareness, and increased trips and/or equipment damage.			
<b>Consequences of Delay:</b> Increased risk for limited unit control, information access to respond to abnormal conditions, and wait trips.			
<b>Economic Justification:</b>			
Benefit-Cost NPV: \$3.30 M\$			
Budget Category: REL-UNIT			

Cash Flow - 2016							
Jan	\$14,000	Apr	\$5,000	Jul	\$14,000	Oct	\$45,000
Feb	\$2,000	May	\$29,000	Aug	\$186,000	Nov	\$45,000
Mar	\$12,000	Jun	\$13,000	Sep	\$330,000	Dec	\$43,000
<b>Prior</b>	\$0	<b>2016</b>	\$736,000	<b>2017</b>	\$3,296,000	<b>After</b>	\$495,000

Cost Summary		
	Current Amount	Revised Amount
Additions	\$2,176,000	\$4,006,000
Removals	\$146,000	\$276,000
(Salvage)	\$0	\$0
Overhead Loads	\$338,000	\$247,000
<b>CBI Total</b>	<b>\$2,660,000</b>	<b>\$4,529,000</b>
Retirements	\$0	\$237,000

Approvals			
		E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
Organization	Ownership	Share	Approve
APS	63.00%	2,853,270	Date
EPE	7.00%	317,030	Date
PNM	13.00%	588,770	Date
SRP	10.0%	452,900	Date
TEP	7.00%	317,030	Date

  
 Date: 01/14/16  
 Date: 01/12/16

FCC06825 Partial Upper Economizer Replacement			
Four Corners Participant Project	SG2 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: 16-48	Env Code: N/A	ERF Completed: Yes
In 2016 Budget: No	Plant Acct:	Est Removal:	Est In Svc: 04/24/2018

**Description:** Replace approximately 100 upper economizer tube elements during the 2018 outage. Elements subjected to the worst erosion will be replaced, and an anti-abrasion coating will be applied to the top-half of these elements.

**Purpose/Necessity:** The purpose of this project is to reduce economizer tube leaks, decrease forced outage frequency (thereby improving unit reliability) and lower costs from repairing economizer leaks. High ash loading and velocity has resulted in severe erosion of the economizer tubes.

**Consequences of Delay:** Forced outage events due to tube failures in the economizer will increase. A failure will result in a 10 day forced outage. Tube leaks have averaged approximately three leaks every two years.

**Economic Justification:**

Benefit-Cost NPV: \$11.17 M\$  
Budget Category: REL-UNIT

FP 715-19210  
WD Y0071806  
RO Y0080509

ISO 5-6-18

Cash Flow - 2016							
Jan	\$10,000	Apr	\$12,000	Jul	\$21,000	Oct	\$18,000
Feb	\$56,000	May	\$19,000	Aug	\$19,000	Nov	\$6,000
Mar	\$16,000	Jun	\$19,000	Sep	\$24,000	Dec	\$405,000
<b>Prior</b>	<b>\$0</b>	<b>2016</b>	<b>\$626,000</b>	<b>2017</b>	<b>\$1,673,000</b>	<b>After</b>	<b>\$1,917,000</b>

Cost Summary		
	Current Amount	Revised Amount
Additions	464,360	\$3,572,000
Removals	78,000	\$600,000
(Salvage)		\$0
Overhead Loads		\$43,000
<b>CBI Total</b>		<b>\$4,216,000</b>
Retirements	78,000	\$600,000

Approvals			F&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
Organization	Ownership	Share	Approve	
APS	63.00%	\$2,656,080	See Attached	
EPE	7.00%	\$295,120	Date	
PNM	13.00%	\$548,080	Date	
SRP	10.0%	\$421,600	Date	
TEP	7.00%	\$295,120	Date	

WO # 418,347  
07-03-2015  
RO # 78,640

RO Complete 8-8-2018  
NU Complete 12-10-18.

Four Corners Participant Project	NSR/NA Rev 0	0% Enviro	NSR Completed: Yes
FC Unit 4	CBI 16-48	NA	BRI Completed: Yes
In 2016 Budget: No	Plant Acct	Est Removal	Est In Svc: 04/24/2018

**Description:** Replace approximately 100 upper economizer tube elements during the 2018 outage. Elements subjected to the worst erosion will be replaced, and an anti-abrasion coating will be applied to the top-half of these elements.

**Purpose/Necessity:** The purpose of this project is to reduce economizer tube leaks, decrease forced outage frequency (thereby improving unit reliability) and lower costs from repairing economizer leaks. High ash loading and velocity has resulted in severe erosion of the economizer tubes.

**Consequences of Delay:** Forced outage events due to tube failures in the economizer will increase. A failure will result in a 10 day forced outage. Tube leaks have averaged approximately three leaks every two years.

**Economic Justification:**  
Benefit-Cost NPV: \$11.17 M\$  
Budget Category: RBL-UNIT

Jan	\$10,000	Apr	\$12,000	Jul	\$21,000	Oct	\$18,000
Feb	\$56,000	May	\$19,000	Aug	\$19,000	Nov	\$6,000
Mar	\$16,000	Jun	\$19,000	Sep	\$24,000	Dec	\$405,000
Prior	\$0	2016	\$626,000	2017	\$1,673,000	After	\$1,917,000

Cost Summary		Current Amount	Revised Amount
Additions		\$3,572,000	
Removals		\$600,000	
(Salvage)		\$0	
Overhead Loads		\$43,000	
<b>CBI Total</b>		<b>\$4,216,000</b>	
Retirements		\$600,000	

Approvals		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
Organization	Ownership	Share	Approve	Date	Date
APS	63.00%	\$2,656,080	<i>J.R. [Signature]</i>	11/14/15	
EPE	7.00%	\$295,120			
PNM	13.00%	\$548,080	<i>[Signature]</i>	11/17/15	
SRP	10.00%	\$491,600			
TEP	7.00%	\$295,120			

Four Corners Participant Project	SG? WA Rev.0	0% Payro	NSR Completed: Yes
PC Unit 4	CBI 16-48	Env Code: N/A	ERI Completed: Yes
In 2016 Budget: No	Plant Acct:	Est Removal:	Est. In Svc: 04/24/2018

**Description:** Replace approximately 100 upper economizer tube elements during the 2018 outage. Elements subjected to the worst erosion will be replaced, and an anti-abrasion coating will be applied to the top-half of these elements.

**Purpose/Necessity:** The purpose of this project is to reduce economizer tube leaks, decrease forced outage frequency (thereby improving unit reliability) and lower costs from repairing economizer leaks. High ash loading and velocity has resulted in severe erosion of the economizer tubes.

**Consequences of Delay:** Forced outage events due to tube failures in the economizer will increase. A failure will result in a 10 day forced outage. Tube leaks have averaged approximately three leaks every two years.

**Economic Justification:**  
Benefit-Cost NPV: \$11.17 M\$  
Budget Category: REL-UNIT

Jan	\$10,000	Apr	\$12,000	Jul	\$21,000	Oct	\$18,000
Feb	\$56,000	May	\$19,000	Aug	\$19,000	Nov	\$6,000
Mar	\$16,000	Jun	\$19,000	Sep	\$24,000	Dec	\$405,000
Prior	\$0	2016	\$626,000	2017	\$1,673,000	After	\$1,917,000

	Current Amount	Revised Amount
Additions	\$3,572,000	
Removals	\$600,000	
(Salvage)	\$0	
Overhead Loads	\$43,000	
CBI Total	\$4,216,000	
Retirements	\$600,000	

Approvals

E&O Committee       Coordinating Committee

Organization	Ownership	Share	Approve	Date
APS	63.00%	\$2,656,080		
EPE	7.00%	\$295,120		
PNM	13.00%	\$548,080		
SRP	10.0%	\$421,600		
TEP	7.00%	\$295,120		

*Handwritten signatures and dates:*  
 [Signature] 10/28/15  
 [Signature] 10-28-15



Four Corners Participant Project FC Unit 4 In 2016 Budget: No	SG2 WA Rev 0 CBI: 16-56 Plant Acct:	0% Bvire: Bv Code: N/A Est Removal:	NSR Completed: Yes ERF Completed: Yes Est In Svc: 11/18/2016
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**Description:** Replace unit 4 windbox lagging and insulation.

**Purpose/Necessity:** The purpose of this project is to maintain a safe plant work environment by eliminating potential hazards. These replacements are intended to reduce the hazards that exist when lagging and insulation are loose or deteriorating and therefore not maintaining surface temperature requirements, creating potential unsafe conditions for plant personnel and equipment.

**Consequences of Delay:** If not replaced, safety required surface temperatures will not be maintained and increased risk of falling debris from existing material decomposition.

**Economic Justification:**  
Benefit-Cost NPV: MS  
Budget Category: SAFETY

Cash Flow - 2016							
Jan	\$0	Apr	\$261,000	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$181,000	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	<b>\$0</b>	<b>2016</b>	<b>\$441,000</b>	<b>2017</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
Additions	\$416,000	
Removals	\$20,000	
(Salvage)	\$0	
Overhead Loads	\$6,000	
<b>CBI Total</b>	<b>\$441,000</b>	
Retirements	\$45,000	

Approvals			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
Organization	Ownership	Share	Approve	Date
APS	63.00%	\$277,839	<i>[Signature]</i>	12/3/15
EPE	7.00%	\$30,870		
PNM	13.00%	\$57,330	<i>[Signature]</i>	12-2-15
SRP	10.0%	\$44,100		
TEP	7.00%	\$30,870		

FCC08495 Lagging and Insulation Replacement Top of Windbox - 2016			
Four Corners Participant Project	SG2 WA Rev 0	0% Enviro,	NSR Completed: Yes
FC Unit 4	CBI: 16-56	Env Code: N/A	ERF Completed: Yes
In 2016 Budget: No	Plant Acct:	Est Removal:	Est In Svc: 11/18/2016
<b>Description:</b> Replace unit 4 windbox lagging and insulation.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain a safe plant work environment by eliminating potential hazards. These replacements are intended to reduce the hazards that exist when lagging and insulation are loose or deteriorating and therefore not maintaining surface temperature requirements, creating potential unsafe conditions for plant personnel and equipment.			
<b>Consequences of Delay:</b> If not replaced, safety required surface temperatures will not be maintained and increased risk of falling debris from existing material decomposition.			
<b>Economic Justification:</b>			
Benefit-Cost NPV: MS			
Budget Category: SAFETY			
*EPE's approval of the CBI is subject to the terms and conditions of the Purchase and Sale Agreement dated February 17, 2015, between EPE and APS.			

Cash Flow - 2016							
Jan	\$0	Apr	\$261,000	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$181,000	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	<b>\$0</b>	<b>2016</b>	<b>\$441,000</b>	<b>2017</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
Additions	\$416,000	
Removals	\$20,000	
(Salvage)	\$0	
Overhead Loads	\$6,000	
<b>CBI Total</b>	<b>\$441,000</b>	
Retirements	\$45,000	

Approvals		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
Organization	Ownership	Share	Approve	Date	
APS	63.00%	\$277,830			
EPE	7.00%	\$30,870	<i>Nadia Howell</i>	10-29-15	
PNM	13.00%	\$57,330			
SRP	10.0%	\$44,100			
TEP	7.00%	\$30,870			

FCU08495 Lagging and Insulation Replacements Top of Windbox - 2016			
Four Corners Participant Project	SG2 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: 16-56	Env Code: N/A	ERF Completed: Yes
In 2016 Budget: No	Plant Acct:	Est Removal:	Est In Svc: 11/18/2016

**Description:** Replace unit 4 windbox lagging and insulation.

**Purpose/Necessity:** The purpose of this project is to maintain a safe plant work environment by eliminating potential hazards. These replacements are intended to reduce the hazards that exist when lagging and insulation are loose or deteriorating and therefore not maintaining surface temperature requirements, creating potential unsafe conditions for plant personnel and equipment.

**Consequences of Delay:** If not replaced, safety required surface temperatures will not be maintained and increased risk of falling debris from existing material decomposition.

**Economic Justification:**

Benefit-Cost NPV: MS  
Budget Category: SAFETY

Cash Flow - 2016							
Jan	\$0	Apr	\$261,000	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$181,000	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	<b>\$0</b>	<b>2016</b>	<b>\$441,000</b>	<b>2017</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
Additions	\$416,000	
Removals	\$20,000	
(Salvage)	\$0	
Overhead Loads	\$6,000	
<b>CBI Total</b>	<b>\$441,000</b>	
Retirements	\$45,000	

Approvals			
Organization	Ownership	Share	Approve
APS	63.00%	\$277,830	Date
EPE	7.00%	\$30,870	Date
PNM	13.00%	\$57,330	Date
SRP	10.0%	\$44,100	Date
TEP	7.00%	\$30,870	Date

E&O Committee     Coordinating Committee   
*[Signature]* 10/28/15  
*[Signature]* 10-28-15

Four Corners Participant Project	SO2 WA Rev 0	10/2/2016	NSR Completed: Yes
FC Unit 4	CBI: 16-57	Rev: 2004 N/A	ERF Completed: Yes
In 2016 Budget No.	Plant Acct:	Est Removal:	Est In Svc: 04/24/2018

**Description:** Install an inlet Sulfur Dioxide (SO2) measurement instrument and test ports in the flue gas ductwork. Scope includes the installation of a new SO2 probe/analyser and associated electrical panels or shelter, ductwork test ports, installation of permanent access platform, routing of power and instrumentation cables, and associated DCS and DAHS system programming changes.

**Purpose/Necessity:** The purpose of this project is to comply with the 2015 Consent Decree requiring inlet Sulfur Dioxide (SO2) instrumentation to improve the calculation of SO2 removal.

**Consequences of Delay:** Fines for failure to comply with EPA mandates.

**Economic Justification:**  
Benefit-Cost NPV: (\$0.80) M\$  
Budget Category: ENV

Jan	\$55,000	Apr	\$8,000	Jul	\$40,000	Oct	\$144,000
Feb	\$47,000	May	\$6,000	Aug	\$40,000	Nov	\$35,000
Mar	\$45,000	Jun	\$6,000	Sep	\$171,000	Dec	\$23,000
Prior	\$101,000	2016	\$622,000	2017	\$380,000	After	\$198,000

Cost Summary	Current Amount	Revised Amount
Additions	\$1,189,000	
Removals	\$0	
(Salvage)	\$0	
Overhead Loads	\$32,000	
CBI Total	\$1,221,000	
Retirements	\$0	

Approvals			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
Organization	Ownership	Share	Approve	Date
APS	63.60%	\$769,230	<i>J.R. [Signature]</i>	11/9/15
EPE	7.00%	\$85,470		
PNM	13.00%	\$158,730	<i>[Signature]</i>	11/9/15
SRP	10.0%	\$122,100		
TRP	7.00%	\$85,470		

Four Corners Participant Project	SO2 WA Rev 0	100% Enviro	NSR Completed: Yes
FC Unit 4	CBI: 16-57	Env Cods: N/A	ERF Completed: Yes
In 2016 Budget: No	Plant Acct:	Est Removal:	Est In Svc: 04/24/2018

**Description:** Install an inlet Sulfur Dioxide (SO2) measurement instrument and test ports in the flue gas ductwork. Scope includes the installation of a new SO2 probe/analyzer and associated electrical panels or shelter, ductwork test ports, installation of permanent access platform, routing of power and instrumentation cables, and associated DCS and DAHS system programming changes.

**Purpose/Necessity:** The purpose of this project is to comply with the 2015 Consent Decree requiring inlet Sulfur Dioxide (SO2) instrumentation to improve the calculation of SO2 removal.

**Consequences of Delay:** Fines for failure to comply with EPA mandates.

**Economic Justification:**

Benefit-Cost NPV: (\$0.80) M\$  
Budget Category: ENV

Jan	\$55,000	Apr	\$8,000	Jul	\$40,000	Oct	\$144,000
Feb	\$47,000	May	\$6,000	Aug	\$40,000	Nov	\$35,000
Mar	\$45,000	Jun	\$6,000	Sep	\$171,000	Dec	\$23,000
Prior	\$100,000	2016	\$622,000	2017	\$300,000	After	\$198,000

Cost Summary		Current Amount	Revised Amount
Additions		\$1,189,000	
Removals		\$0	
(Salvage)		\$0	
Overhead Loads		\$32,000	
<b>CBI Total</b>		<b>\$1,221,000</b>	
Retirements		\$0	

Approvals		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
Organization	Ownership	Share	Approve	Date	
APS	63.00%	\$769,230			
EPE	7.00%	\$85,470			
PNM	13.00%	\$158,730			
SRP	10.0%	\$122,100			
TEP	7.00%	\$85,470			

*[Handwritten signatures and dates: 10/25/15, 10-28-15]*

Four Corners Participant Project	SO2 WA Rev 0	100% Litig:	NSR Completed: Yes
FC Unit 5	CBI-1658	Bay Code: N/A	ERP Completed: Yes
In 2016 Budget: No	Plant Acct:	Est. Removal:	Est In Svc: 12/19/2017

**Description:** Install an inlet Sulfur Dioxide (SO2) measurement instrument and test ports in the flue gas ductwork. Scope includes the installation of a new SO2 probe/analyzer and associated electrical panels or shelter, ductwork test ports, installation of permanent access platform, routing of power and instrumentation cables, and associated DCS and DAHS system programming changes.

**Purpose/Necessity:** The purpose of this project is to comply with the 2015 Consent Decree requiring inlet Sulfur Dioxide (SO2) instrumentation to improve the calculation of SO2 removal.

**Consequences of Delay:** Fines for failure to comply with EPA mandates.

**Economic Justification:**  
Benefit-Cost NPV: (\$0.80) M\$  
Budget Category: ENV

Jan	\$24,000	Apr	\$27,000	Jul	\$42,000	Oct	\$144,000
Feb	\$55,000	May	\$8,000	Aug	\$40,000	Nov	\$35,000
Mar	\$47,000	Jun	\$6,000	Sep	\$171,000	Dec	\$23,000
Prior	\$101,000	2016	\$623,000	2017	\$455,000	After	\$41,000

Cost Summary	Current Amount	Revised Amount
Additions	\$1,189,000	
Removals	\$0	
(Salvage)	\$0	
Overhead Loads	\$32,000	
CBI Total	\$1,221,000	
Retirements	\$0	

Approvals		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
Organization	Ownership	Share	Approve
APS	63.00%	\$769,230	<i>J. K. [Signature]</i> 11/9/15 Date
EPE	7.00%	\$85,470	
FNM	13.00%	\$158,730	<i>[Signature]</i> 11/17/15 Date
SRP	10.0%	\$122,100	
TEP	7.00%	\$85,470	

Four Corners Participant Project	SO2 WA Rev 0	100% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: 16-58	Env Code: N/A	ERP Completed: Yes
In 2016 Budget: No	Plant Acct:	Est Removal:	Bst In Svc: 12/19/2017

**Description:** Install an inlet Sulfur Dioxide (SO2) measurement instrument and test ports in the flue gas ductwork. Scope includes the installation of a new SO2 probe/analyzer and associated electrical panels or shelter, ductwork test ports, installation of permanent access platform, routing of power and instrumentation cables, and associated DCS and DAHS system programming changes.

**Purpose/Necessity:** The purpose of this project is to comply with the 2015 Consent Decree requiring inlet Sulfur Dioxide (SO2) instrumentation to improve the calculation of SO2 removal.

**Consequences of Delay:** Fines for failure to comply with EPA mandates.

**Economic Justification:**  
Benefit-Cost NPV: (\$0.80) M\$  
Budget Category: ENV

Jan	\$24,000	Apr	\$27,000	Jul	\$42,000	Oct	\$144,000
Feb	\$55,000	May	\$8,000	Aug	\$40,000	Nov	\$35,000
Mar	\$47,000	Jun	\$6,000	Sep	\$171,000	Dec	\$23,000
Prior	\$191,000	2016	\$629,000	2017	\$455,000	After	\$41,000

Cost Summary		Current Amount	Revised Amount
Additions		\$1,189,000	
Removals		\$0	
(Salvage)		\$0	
Overhead Loads		\$32,000	
<b>CBI Total</b>		<b>\$1,221,000</b>	
Retirements		\$0	

Approvals		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
Organization	Ownership	Share	Approve
APS	63.00%	\$769,230	Date
EPE	7.00%	\$85,470	Date
PNM	13.00%	\$158,730	Date
SRP	10.0%	\$122,100	Date
TEP	7.00%	\$85,470	Date

*RM Hattaly* 10/28/15  
*JNB* 10-28-15

FCC03863 Chimney Modifications			
Four Corners Participant Project	SG2 WA Rev 0	100% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: 16-61	Env Code: N/A	ERF Completed: Yes
In 2016 Budget: No	Plant Acct:	Est Removal: 04/24/2018	Est In Svc: 04/24/2018
<b>Description:</b> Replace stack liner to meet new wet stack requirements.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain compliance with the 2015 consent decree requiring 95% SO2 removal. Moisture content of flue gas will increase due to the higher SO2 removal.			
<b>Consequences of Delay:</b> Higher moisture content of flue gas due to higher SO2 removal will cause failure of the existing liner and shut the unit down for an extended period of time.			
<b>Economic Justification:</b>			
Benefit-Cost NPV: (\$3.70) M\$			
Budget Category: ENV			
<p>FP 715-19017</p> <p>WO Y0071787</p> <p>RO Y0080907</p>			

Cash Flow - 2016							
Jan	\$0	Apr	\$53,000	Jul	\$13,000	Oct	\$13,000
Feb	\$0	May	\$12,000	Aug	\$13,000	Nov	\$13,000
Mar	\$4,000	Jun	\$12,000	Sep	\$13,000	Dec	\$13,000
<b>Prior</b>	\$0	<b>2016</b>	\$159,000	<b>2017</b>	\$3,237,000	<b>After</b>	\$2,541,000

Cost Summary		
	Current Amount	Revised Amount
Additions	\$4,390,000	
Removals	\$1,500,000	
(Salvage)	\$0	
Overhead Loads	\$47,000	
CBI Total	\$5,937,000	
Retirements	\$0	

Approvals			
Organization	Ownership	Share	Approve
APS	63.00%	\$3,740,310	Date
EPE	7.00%	\$415,590	Date
PNM	13.00%	\$771,810	Date
SRP	10.0%	\$593,700	Date
TEP	7.00%	\$415,590	Date



RCC03863 Chimney Modifications			
Four Corners Participant Project	SG2 WA Rev 0	100% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: 16-61	Env Code: N/A	ERF Completed: Yes
In 2016 Budget: No	Plant Acct:	Est Removal: 04/24/2018	Est In Svc: 04/24/2018

**Description:** Replace stack liner to meet new wet stack requirements.

**Purpose/Necessity:** The purpose of this project is to maintain compliance with the 2015 consent decree requiring 95% SO<sub>2</sub> removal. Moisture content of flue gas will increase due to the higher SO<sub>2</sub> removal.

**Consequences of Delay:** Higher moisture content of flue gas due to higher SO<sub>2</sub> removal will cause failure of the existing liner and shut the unit down for an extended period of time.

**Economic Justification:**  
Benefit-Cost NPV: (\$3.70) M\$  
Budget Category: ENV

Cash Flow - 2016							
Jan	\$0	Apr	\$53,000	Jul	\$13,000	Oct	\$13,000
Feb	\$0	May	\$12,000	Aug	\$13,000	Nov	\$13,000
Mar	\$4,000	Jun	\$12,000	Sep	\$13,000	Dec	\$13,000
Prior	\$0	2016	\$159,000	2017	\$3,237,000	After	\$2,541,000

Cost Summary		
	Current Amount	Revised Amount
Additions	\$4,390,000	
Removals	\$1,500,000	
(Salvage)	\$0	
Overhead Loads	\$47,000	
<b>CBI Total</b>	<b>\$5,937,000</b>	
Retirements	\$0	

Approvals			
Exhibit: ABE		E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
Organization	Ownership	Share	Approve
APS	63.00%	3,740,310	Date
EPE	7.00%	415,590	Date
PNM	13.00%	771,810	Date
SRP	10.0%	593,700	Date
TEP	7.00%	415,590	Date

*J. Smith*  
10-28-15

FC0038/3 Chimney Modifications			
Four Corners Participant Project	SG2 WA Rev 0	100% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: 16-61	Env Code: N/A	ERF Completed: Yes
In 2016 Budget: No	Plant Acct:	Est Removal: 04/24/2018	Est In Svc: 04/24/2018
<b>Description:</b> Replace stack liner to meet new wet stack requirements.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain compliance with the 2015 consent decree requiring 95% SO2 removal. Moisture content of flue gas will increase due to the higher SO2 removal.			
<b>Consequences of Delay:</b> Higher moisture content of flue gas due to higher SO2 removal will cause failure of the existing liner and shut the unit down for an extended period of time.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:		(\$3.70) M\$	
Budget Category:		ENV	

Cash Flow - 2016							
Jan	\$0	Apr	\$53,000	Jul	\$13,000	Oct	\$13,000
Feb	\$0	May	\$12,000	Aug	\$13,000	Nov	\$13,000
Mar	\$4,000	Jun	\$12,000	Sep	\$13,000	Dec	\$13,000
Prior	\$0	2016	\$159,000	2017	\$3,237,000	After	\$2,541,000

Cost Summary		
	Current Amount	Revised Amount
Additions	\$4,390,000	
Removals	\$1,500,000	
(Salvage)	\$0	
Overhead Loads	\$47,000	
CBI Total	\$5,937,000	
Retirements	\$0	

Approvals			
Exhibit: ABE		E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
Organization	Ownership	Share	Approve
APS	63.00%	3,740,310	Date
EPE	7.00%	415,590	Date
PNM	13.00%	771,810	Date
SRP	10.0%	593,700	Date
TEP	7.00%	415,590	Date

*[Signature]* 27 Oct 2015

Unit/Consent Participation Project	SO2 WA Rev. 0	100% owned	NSR Completed Yes
PC Unit #	CU# 16-64	Est. Code 17A	ER# Completed Yes
In 2016 Budget No	Plant Asset	Est Removal: 04/24/2018	Est In Svc: 04/24/2018

**Description:** Replace stack liner to meet new wet stack requirements.

**Purpose/Necessity:** The purpose of this project is to maintain compliance with the 2015 consent decree requiring 95% SO2 removal. Moisture content of flue gas will increase due to the higher SO2 removal.

**Consequences of Delay:** Higher moisture content of flue gas due to higher SO2 removal will cause failure of the existing liner and shut the unit down for an extended period of time.

**Economic Justification:**  
Benefit-Cost NPV: (\$3.70) M\$  
Budget Category: ENV

Jan	\$0	Apr	\$13,000	Jul	\$13,000	Oct	\$13,000
Feb	\$0	May	\$12,000	Aug	\$13,000	Nov	\$13,000
Mar	\$4,000	Jun	\$12,000	Sep	\$13,000	Dec	\$13,000
Prior	\$0	2016	\$159,000	2017	\$3,237,000	After	\$2,541,000

<b>Cost Summary</b>		<b>Current Amount</b>	<b>Revised Amount</b>
Additions		\$4,390,000	
Removals		\$1,500,000	
(Salvage)		\$0	
Overhead Loads		\$47,000	
<b>CBI Total</b>		<b>\$5,937,000</b>	
Retirements		\$0	

<b>Approvals</b>			
Exhibit: ABE	E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>
Organization	Ownership	Share	Approve
APS	63.00%	3,740,310	<i>J.R. [Signature]</i> 11/10/15 Date
EPE	7.00%	415,590	Date
PNM	13.00%	771,810	<i>[Signature]</i> 11/11/15 Date
SRI	10.0%	593,700	Date
TBP	7.00%	415,590	Date

# FCC03913 Chimney Modifications

FCC03913 Chimney Modifications			
Four Corners Participant Project FC Unit 5 In 2016 Budget: No	SG2 WA Rev 0 CBI: 16-62 Plant Acct:	100% Enviro. Env Code: N/A Est Removal: 12/19/2017	NSR Completed: Yes ERF Completed: Yes Est In Svc: 12/19/2017
<b>Description:</b> Replace stack liner to meet new wet stack requirements.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain compliance with the 2015 consent decree requiring 95% SO2 removal. Moisture content of flue gas will increase due to the higher SO2 removal.			
<b>Consequences of Delay:</b> Higher moisture content of flue gas due to higher SO2 removal will cause failure of the existing liner and shut the unit down for an extended period of time.			
<b>Economic Justification:</b>			
Benefit-Cost NPV: (\$3.60) M\$			
Budget Category: ENV			
<p style="font-size: 1.2em;">FP 715-0210</p> <p style="font-size: 1.2em;">WO 70071788</p> <p style="font-size: 1.2em;">RO 70078847</p>			

Cash Flow - 2016							
Jan	\$0	Apr	\$40,000	Jul	\$13,000	Oct	\$14,000
Feb	\$0	May	\$13,000	Aug	\$13,000	Nov	\$13,000
Mar	\$0	Jun	\$25,000	Sep	\$13,000	Dec	\$13,000
<b>Prior</b>	<b>\$0</b>	<b>2016</b>	<b>\$156,000</b>	<b>2017</b>	<b>\$5,758,000</b>	<b>After</b>	<b>\$23,000</b>

Cost Summary	Current Amount	Revised Amount
Additions	570,700	\$4,390,000
Renovals	195,000	\$1,500,000
(Salvage)	0	\$0
Overhead Loads	6,110	\$47,000
<b>CBI Total</b>	<b>771,810</b>	<b>\$5,937,000</b>
Retirements	1,560	\$12,000

Approvals		E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
Organization	Ownership	Share	Approve		
APS	63.00%	3,740,310			Date
EPE	7.00%	415,590			Date
PNM	13.00%	771,810			Date
SRP	10.0%	593,700			Date
TEP	7.00%	415,590	 <span style="font-size: 0.8em;">Date: 27 Oct 2015</span>		

WO # 409,761  
RO # 196,599

ISD 12-19-17  
RO Complete 5/22/18  
WO Complete 8/23/18

Four-Consent Participant Project No. 1665	SG2 WA Rev 0 CBI 1662 Plant Acct.	00000000 10/7/2018 WA Net Removal 12/19/2017	Net Completed: Yes Net Completed: Yes Net In Svc: 12/19/2017
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**Description:** Replace stack liner to meet new wet stack requirements.

**Purpose/Necessity:** The purpose of this project is to maintain compliance with the 2015 consent decree requiring 95% SO2 removal. Moisture content of flue gas will increase due to the higher SO2 removal.

**Consequences of Delay:** Higher moisture content of flue gas due to higher SO2 removal will cause failure of the existing liner and shut the unit down for an extended period of time.

**Economic Justification:**  
Benefit-Cost NPV: (\$3.60) M\$  
Budget Category: UNV

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	After
\$0	\$0	\$0	\$40,000	\$13,000	\$23,000	\$13,000	\$13,000	\$13,000	\$13,000	\$13,000	\$13,000	\$23,000
<b>Total</b>	<b>\$0</b>	<b>\$0</b>	<b>\$40,000</b>	<b>\$13,000</b>	<b>\$23,000</b>	<b>\$13,000</b>	<b>\$13,000</b>	<b>\$13,000</b>	<b>\$13,000</b>	<b>\$13,000</b>	<b>\$13,000</b>	<b>\$23,000</b>

Cost Summary		Current Amount	Revised Amount
Additions		\$4,390,000	
Removals		\$1,500,000	
(Salvage)		\$0	
Overhead Loads		\$47,000	
<b>CBI Total</b>		<b>\$5,937,000</b>	
Retirements		\$12,000	

Approvals		E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
Exhibit: ABF		Share	Approve	Date	
Organization	Ownership				
APS	63.00%	3,740,310	<i>[Signature]</i>	12/10/18	
BPE	7.00%	415,590			
PNM	13.00%	771,810	<i>[Signature]</i>	11/7/18	
SRP	10.00%	593,700			
TEP	7.00%	415,590			

RC003913 Chimney Modifications			
Four Corners Participant Project	SG2 WA Rev 0	100% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: 16-62	Env Code: N/A	ERF Completed: Yes
In 2016 Budget: No	Plant Acct:	Est Removal: 12/19/2017	Est In Svc: 12/19/2017

**Description:** Replace stack liner to meet new wet stack requirements.

**Purpose/Necessity:** The purpose of this project is to maintain compliance with the 2015 consent decree requiring 95% SO2 removal. Moisture content of flue gas will increase due to the higher SO2 removal.

**Consequences of Delay:** Higher moisture content of flue gas due to higher SO2 removal will cause failure of the existing liner and shut the unit down for an extended period of time.

**Economic Justification:**  
Benefit-Cost NPV: (\$3.60) M\$  
Budget Category: ENV

Cash Flow - 2016							
Jan	\$0	Apr	\$40,000	Jul	\$13,000	Oct	\$14,000
Feb	\$0	May	\$13,000	Aug	\$13,000	Nov	\$13,000
Mar	\$0	Jun	\$25,000	Sep	\$13,000	Dec	\$13,000
Prior	\$0	2016	\$156,000	2017	\$5,758,000	After	\$23,000

Cost Summary		
	Current Amount	Revised Amount
Additions	\$4,390,000	
Removals	\$1,500,000	
(Salvage)	\$0	
Overhead Loads	\$47,000	
CBI Total	\$5,937,000	
Retirements	\$12,000	

Approvals			
Exhibit: ABF		E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
Organization	Ownership	Share	Approve
APS	63.00%	3,740,310	Date
EPE	7.00%	415,590	Date
PNM	13.00%	771,810	Date
SRP	10.0%	593,700	Date
TEP	7.00%	415,590	Date

*[Signature]* 10-28-15

FCC08834 Boiler Insulation Replacement			
Four Corners Participant Project	Revised SG3 WA Rev 1	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: 16-63R1	Env Code: N/A	FRF Completed: Yes
In 2016 Budget: No	Plant Acct: 312	Est Removal:	Est In Svc: 05/31/2016
<b>Reason for Revision:</b> The reason for the \$135K increase is due to higher than anticipated contract labor to complete the project.			
Benefit-Cost NPV: M\$			
<b>Description:</b> Replace 6,400 sq-ft of insulation on the boiler.			
<b>Purpose/Necessity:</b> The purpose of the project is to ensure the safety of personnel due to exposure from falling insulation and lagging that has been damaged, dust laden or temporarily patched.			
<b>Consequences of Delay:</b> Operations personnel have a potential safety exposure due to falling insulation and lagging.			
<b>Economic Justification:</b>			
Benefit-Cost NPV: M\$			
Budget Category: SAFETY			

Cash Flow - 2016							
Jan	\$0	Apr	\$194,000	Jul	\$31,000	Oct	\$0
Feb	\$518,000	May	(\$30,000)	Aug	\$0	Nov	\$0
Mar	\$389,000	Jun	(\$250,000)	Sep	\$0	Dec	\$0
<b>Prior</b>	<b>\$0</b>	<b>2016</b>	<b>\$853,000</b>	<b>2017</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
Additions	\$682,000	\$851,000
Removals	\$36,000	\$0
(Salvage)	\$0	\$0
Overhead Loads	\$0	\$2,000
<b>CBI Total</b>	<b>\$718,000</b>	<b>\$853,000</b>
Retirements	\$0	\$108,000

Approvals		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
Organization	Ownership	Share	Approve
4CA	7.00%	59,710	Date
APS	63.00%	537,390	Date
PNM	13.00%	110,890	Date <i>2/2/16</i>
SRP	10.0%	85,300	Date
TCP	7.00%	59,710	Date

FCC08563 Absorber Module Overhaul SS			
Four Corners Participant Project	SG2 WA Rev 0	100% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: 16-64	Env Code: Air	ERF Completed: Yes
In 2016 Budget: No	Plant Acct:	Est Removal:	Est In Svc: 11/30/2016
<b>Description:</b> Absorber Module Overhaul to meet 95% SO2 removal. Scope includes header, piping, nozzle, mist eliminator valve and tank liner replacement.			
<b>Purpose/Necessity:</b> The purpose of this project is to comply with the 2015 Consent Decree requiring 95% SO2 removal with no bypass.			
<b>Consequences of Delay:</b> Non-compliance with 2015 Consent Decree and Air Quality Permits.			
<b>Economic Justification:</b>			
Benefit-Cost NPV: (\$2.70) M\$			
Budget Category: ENV			

Cash Flow - 2016							
Jan	\$2,000	Apr	\$15,000	Jul	\$1,124,000	Oct	\$974,000
Feb	\$42,000	May	\$18,000	Aug	\$857,000	Nov	\$660,000
Mar	\$13,000	Jun	\$1,098,000	Sep	\$1,271,000	Dec	\$2,000
<b>Prior</b>	<b>\$0</b>	<b>2016</b>	<b>\$6,077,000</b>	<b>2017</b>	<b>\$4,000</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
Additions	\$5,778,000	
Removals	\$273,000	
(Salvage)	\$0	
Overhead Loads	\$30,000	
<b>CBI Total</b>	<b>\$6,081,000</b>	
Retirements	\$475,000	

Approvals			
Exhibit: ABL		E&O Committee <input type="checkbox"/> Coordinating Committee <input checked="" type="checkbox"/>	
Organization	Ownership	Share	Approve
APS	63.00%	3,831,030	Date
EPE	7.00%	425,670	Date
PNM	13.00%	790,530	Date
SRP	10.0%	608,100	Date
TEP	7.00%	425,670	Date

*[Handwritten Signature]*  
Date: 4/25/16



FCC08710 North 2nd/3rd Pass Waterwall Panel Replacement			
Four Corners Participant Project	SG3 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: 16-65	Env Code: N/A	ERF Completed: Yes
In 2016 Budget: No	Plant Acct: 312	Est Removal: 03/25/2016	Est In Svc: 04/24/2018
<b>Description:</b> Replace the left hand waterwall center panel located on the 2nd and 3rd pass transition. The boundary for the 61 tubes is below the 3rd Pass Inlet Header at boiler elevation 86'-10" to above the 2nd Pass Outlet Header at elevation 99'-0".			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain unit reliability while reducing the risk of forced outages due to wall tube leaks. The boiler has experienced an increased number of boiler tube leaks in the second and third pass transition zone waterwalls due to circumferential cracking.			
<b>Consequences of Delay:</b> Forced outages due to boiler tube leaks in the second and third pass transition zone waterwalls. Economic justification assumes a 60% probability of one 10 day forced outage per year from now until the 2018 Spring outage.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:		\$1.33 M\$	
Budget Category:		REL-UNIT	

Cash Flow - 2016							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$614,000	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	<b>\$0</b>	<b>2016</b>	<b>\$614,000</b>	<b>2017</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
Additions	\$358,000	
Removals	\$169,000	
(Salvage)	\$1,000	
Overhead Loads	\$87,000	
<b>CBI Total</b>	<b>\$614,000</b>	
Retirements	\$50,000	

Approvals			
Organization	Ownership	Share	E&O Committee <input type="checkbox"/> Coordinating Committee <input checked="" type="checkbox"/>
APS	63.00%	386,820	Approve <i>J.R. [Signature]</i> Date 5/10/16
EPE	7.00%	42,980	Date
PNM	13.00%	79,820	Date
SRP	10.0%	61,400	Date
TEP	7.00%	42,980	Date

FCC08710 North 2nd/3rd Pass Waterwall Panel Replacement			
Four Corners Participant Project	SG3 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: 16-65	Env Code: N/A	ERF Completed: Yes
In 2016 Budget: No	Plant Acct: 312	Est Removal: 03/25/2016	Est In Svc: 04/24/2018-05/13/16
<p><b>Description:</b> Replace the left hand waterwall center panel located on the 2nd and 3rd pass transition. The boundary for the 61 tubes is below the 3rd Pass Inlet Header at boiler elevation 86'-10" to above the 2nd Pass Outlet Header at elevation 99'-0".</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to maintain unit reliability while reducing the risk of forced outages due to wall tube leaks. The boiler has experienced an increased number of boiler tube leaks in the second and third pass transition zone waterwalls due to circumferential cracking.</p> <p><b>Consequences of Delay:</b> Forced outages due to boiler tube leaks in the second and third pass transition zone waterwalls. Economic justification assumes a 60% probability of one 10 day forced outage per year from now until the 2018 Spring outage.</p> <p><b>Economic Justification:</b>            Benefit-Cost NPV: \$1.33 M\$            Budget Category: REL-UNIT</p>			

Cash Flow - 2016							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$614,000	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2016	\$614,000	2017	\$0	After	\$0

Cost Summary		
	Current Amount	Revised Amount
Additions	\$358,000	
Removals	\$169,000	
(Salvage)	\$1,000	
Overhead Loads	\$87,000	
<b>CBI Total</b>	<b>\$614,000</b>	
Retirements	\$50,000	

Approvals			
Organization	Ownership	Share	Approve
APS	63.00%	386,820	Date
EPE	7.00%	42,980	Date
PNM	13.00%	79,820	Date
SRP	10.0%	61,400	Date
TEP	7.00%	42,980	Date

E&O Committee     Coordinating Committee  
 05-09-16

FCU08710 North 2nd/3rd Pass Waterwall Panel Replacement							
Four Corners Participant Project	SG3 WA Rev 0	0% Enviro.	NSR Completed: Yes				
FC Unit 4	CBI: 16-65	Env Code: N/A	ERF Completed: Yes				
In 2016 Budget: No	Plant Acct: 312	Est Removal: 03/25/2016	Est In Svc: 04/24/2018				
<p><b>Description:</b> Replace the left hand waterwall center panel located on the 2nd and 3rd pass transition. The boundary for the 61 tubes is below the 3rd Pass Inlet Header at boiler elevation 86'-10" to above the 2nd Pass Outlet Header at elevation 99'-0".</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to maintain unit reliability while reducing the risk of forced outages due to wall tube leaks. The boiler has experienced an increased number of boiler tube leaks in the second and third pass transition zone waterwalls due to circumferential cracking.</p> <p><b>Consequences of Delay:</b> Forced outages due to boiler tube leaks in the second and third pass transition zone waterwalls. Economic justification assumes a 60% probability of one 10 day forced outage per year from now until the 2018 Spring outage.</p> <p><b>Economic Justification:</b>            Benefit-Cost NPV: \$1.33 M\$            Budget Category: REL-UNIT</p>							
Cash Flow - 2016							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$614,000	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2016	\$614,000	2017	\$0	After	\$0
Cost Summary							
	Current Amount			Revised Amount			
Additions				\$358,000			
Removals				(\$169,000)			
(Salvage)				\$1,000			
Overhead Loads				(\$87,000)			
CBI Total				\$614,000			
Retirements				(\$50,000)			
Approvals							
				E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
Organization	Ownership	Share	Approve				
APS	63.00%	386,820	Date				
EPE	7.00%	42,980	Date				
PNM	13.00%	79,820	Date				
SRP	10.0%	61,400	Date				
TEP	7.00%	42,980	Date				

*Handwritten signature and date: 2/25/16 [Signature] 4/19/16*

RCC08710 North 2nd/3rd Pass Waterwall Panel Replacement							
Four Corners Participant Project		SG3 WA Rev 0		0% Enviro.		NSR Completed: Yes	
FC Unit 4		CBI: 16-65		Env Code: N/A		ERF Completed: Yes	
In 2016 Budget: No		Plant Acct: 312		Est Removal: 03/25/2016		Est In Svc: 04/24/2018	
<p><b>Description:</b> Replace the left hand waterwall center panel located on the 2nd and 3rd pass transition. The boundary for the 61 tubes is below the 3rd Pass Inlet Header at boiler elevation 86'-10" to above the 2nd Pass Outlet Header at elevation 99'-0".</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to maintain unit reliability while reducing the risk of forced outages due to wall tube leaks. The boiler has experienced an increased number of boiler tube leaks in the second and third pass transition zone waterwalls due to circumferential cracking.</p> <p><b>Consequences of Delay:</b> Forced outages due to boiler tube leaks in the second and third pass transition zone waterwalls. Economic justification assumes a 60% probability of one 10 day forced outage per year from now until the 2018 Spring outage.</p> <p><b>Economic Justification:</b>            Benefit-Cost NPV: \$1.33 M\$            Budget Category: REL-UNIT</p>							
Cash Flow - 2016							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$614,000	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2016	\$614,000	2017	\$0	After	\$0
<b>Cost Summary</b>							
		<b>Current Amount</b>			<b>Revised Amount</b>		
<b>Additions</b>		\$358,000					
<b>Removals</b>		\$169,000					
<b>(Salvage)</b>		\$1,000					
<b>Overhead Loads</b>		\$87,000					
<b>CBI Total</b>		\$614,000					
<b>Retirements</b>		\$50,000					
<b>Approvals</b>							
				E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
<b>Organization</b>		<b>Ownership</b>		<b>Share</b>		<b>Approve</b>	
APS		63.00%		386,820		Date	
EPE		7.00%		42,980		Date	
PNM		13.00%		79,820		Date	
SRP		10.0%		61,400		Date	
TEP		7.00%		42,980		Date	


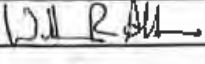
*W.H. R. Smith* 4-28-2016

FCC08710 North 2nd/3rd Pass Waterwall Panel Replacement							
Four Corners Participant Project	SG3 WA Rev 0	0% Enviro.	NSR Completed: Yes				
FC Unit 4	CBI: 16-65	Env Code: N/A	ERF Completed: Yes				
In 2016 Budget: No	Plant Acct: 312	Est Removal: 03/25/2016	Est In Svc: 04/24/2018				
<p><b>Description:</b> Replace the left hand waterwall center panel located on the 2nd and 3rd pass transition. The boundary for the 61 tubes is below the 3rd Pass Inlet Header at boiler elevation 86'-10" to above the 2nd Pass Outlet Header at elevation 99'-0".</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to maintain unit reliability while reducing the risk of forced outages due to wall tube leaks. The boiler has experienced an increased number of boiler tube leaks in the second and third pass transition zone waterwalls due to circumferential cracking.</p> <p><b>Consequences of Delay:</b> Forced outages due to boiler tube leaks in the second and third pass transition zone waterwalls. Economic justification assumes a 60% probability of one 10 day forced outage per year from now until the 2018 Spring outage.</p> <p><b>Economic Justification:</b> Benefit-Cost NPV: \$1.33 M\$ Budget Category: REL-UNIT</p>							
Cash Flow - 2016							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$614,000	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2016	\$614,000	2017	\$0	After	\$0
Cost Summary							
	Current Amount			Revised Amount			
Additions				\$358,000			
Removals				(\$169,000)			
(Salvage)				\$1,000			
Overhead Loads				\$87,000			
CBI Total				\$614,000			
Retirements				(\$50,000)			
Approvals							
				E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
Organization	Ownership	Share	Approve				
APS	63.00%	386,820	Date				
EPE	7.00%	42,980	Date				
PNM	13.00%	79,820	Date				
SRP	10.0%	61,400	Date				
TEP	7.00%	42,980	Date				
			[Signature]		18 APR 2016		

FCC08891 Turbine Control Valve Seal Replacement			
Four Corners Participant Project	SG3 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: 16-67	Env Code: N/A	ERF Completed: Yes
In 2016 Budget: No	Plant Acct: 314	Est Removal:	Est In Svc: 04/08/2016
<b>Description:</b> Replace the Turbine Control Valves #3 and #4 valve seats.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain unit reliability by restoring the steam turbine control valve seat integrity.			
<b>Consequences of Delay:</b> Potential 10 day forced outage. Economic justification assumes a 10% probability of a 10 day forced outage and \$7/MWH net replacement power cost.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:		\$1.30 M\$	
Budget Category:		REL-UNIT	
<p>FP 715-19210 WO Y0072035 RW Y0080281</p>			

Cash Flow - 2016							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$370,000	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2016	\$370,000	2017	\$0	After	\$0

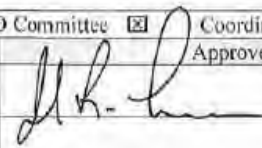
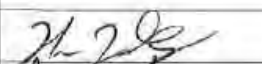
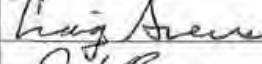
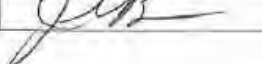

Cost Summary		
	Current Amount	Revised Amount
Additions	\$334,000	
Removals	\$33,000	
(Salvage)	\$0	
Overhead Loads	\$2,000	
CBI Total	\$370,000	
Retirements	\$251,000	

Approvals			E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
Organization	Ownership	Share	Approve	
APS	63.00%	233,100	 Date: 4/28/16	
EPC	7.00%	25,900		
PNM	13.00%	48,100	Date:	
SRP	10.0%	37,000	 Date: 4-28-2016	
TEP	7.00%	25,900		

FCC08915 Warehouse Pallet Rack Replacement			
Four Corners Participant Project	SG2 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Common	CBI: 16-71	Env Code: N/A	ERF Completed: Yes
In 2016 Budget: No	Plant Acct: 393	Est Removal: 10/20/2016	Est In Svc: 10/30/2016
<b>Description:</b> Replace the pallet racks in the main warehouse.			
<b>Purpose/Necessity:</b> The purpose of this project is to ensure plant safety. Due to the age and the condition of the pallet racks, replacement of all racks is required in order to be in compliance with OSHA 1926.250 - Material Handling, Storage, Use and Disposal. EHS findings identified no load rating stickers, bent structure members and corroded structure members.			
<b>Consequences of Delay:</b> Non-compliance with OSHA 1926.250.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:		\$0.00 MS	
Budget Category:		SAFETY	

Cash Flow - 2016							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$109,000
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	\$0	<b>2016</b>	\$109,000	<b>2017</b>	\$0	<b>After</b>	\$0

Cost Summary		
	Current Amount	Revised Amount
Additions	\$104,000	
Removals	\$5,000	
(Salvage)	\$1,000	
Overhead Loads	\$0	
<b>CBI Total</b>	<b>\$109,000</b>	
Retirements	\$11,000	

Approvals			
Organization	Ownership	Share	Approve
APS	63.00%	68,670	<input checked="" type="checkbox"/> E&O Committee <input type="checkbox"/> Coordinating Committee  Date: 6/17/16
EPE	7.00%	7,630	 Date: 6/17/16
PNM	13.00%	14,170	 Date: 6/17/16
SRP	10.0%	10,900	 Date: 6/17/16
TEP	7.00%	7,630	 Date: 6/17/16

FCC08963 East Main Turbine Lube Oil System Cooler Re-Tube							
Four Corners Participant Project		SG3 WA Rev 0		100% Enviro.		NSR Completed: Yes	
FC Unit 4		CBI: 16-72		Env Code: N/A		ERF Completed: Yes	
In 2016 Budget: No		Plant Acct: 312		Est Removal: 03/19/2016		Est In Svc: 06/17/2016	
<b>Description:</b> Replace the tubes for the East Main Turbine Lube Oil System cooler.							
<b>Purpose/Necessity:</b> The purpose of this project is to maintain unit reliability and lower NPDES permit violation and Reportable Environmental Incident (REI) potential by restoring the lube oil system cooler integrity							
<b>Consequences of Delay:</b> High risk of a potential 10 day forced outage due to loss of redundancy. Economic justification assumes a 10% probability of a 10 day forced outage and \$7/MWH net replacement power cost. High risk of NPDES permit violation and REI due to end of life tube bundle.							
<b>Economic Justification:</b>							
Benefit-Cost NPV:		\$1.30 M\$					
Budget Category:		ENV					
Cash Flow - 2016							
Jan	\$0	Apr	\$0	Jul	\$273,000	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	\$0	<b>2016</b>	\$273,000	<b>2017</b>	\$0	<b>After</b>	\$0
<b>Cost Summary</b>							
		<b>Current Amount</b>			<b>Revised Amount</b>		
Additions		\$234,000					
Removals		\$15,000					
(Salvage)		\$1,000					
Overhead Loads		\$24,000					
CBI Total		\$273,000					
Retirements		\$1,000					
<b>Approvals</b>							
				E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
Organization	Ownership	Share	Approve		Date		
APS	63.00%	171,990	<i>J.B. Sun</i>		6/17/16		
EPE	7.00%	19,110			Date		
PNM	13.00%	35,490	<i>JP 2/2/16</i>		6/17/16		
SRP	10.0%	27,300	<i>Ray Anderson</i>		6/17/16		
TEP	7.00%	19,110			Date		



FCC08963 East Main Turbine Lube Oil System Cooler Re-Tube			
Four Corners Participant Project	SG3 WA Rev 0	100% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: 16-72	Env Code: N/A	ERF Completed: Yes
In 2016 Budget: No	Plant Acct: 312	Est Removal: 03/19/2016	Est In Svc: 06/17/2016

**Description:** Replace the tubes for the East Main Turbine Lube Oil System cooler

**Purpose/Necessity:** The purpose of this project is to maintain unit reliability and lower NPDES permit violation and Reportable Environmental Incident (REI) potential by restoring the lube oil system cooler integrity.

**Consequences of Delay:** High risk of a potential 10 day forced outage due to loss of redundancy. Economic justification assumes a 10% probability of a 10 day forced outage and \$7/MWH net replacement power cost. High risk of NPDES permit violation and REI due to end of life tube bundle.

**Economic Justification:**

Benefit-Cost NPV: \$1.30 M\$  
Budget Category: ENV

Cash Flow - 2016							
Jan	\$0	Apr	\$0	Jul	\$273,000	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	\$0	<b>2016</b>	\$273,000	<b>2017</b>	\$0	<b>After</b>	\$0

Cost Summary		
	Current Amount	Revised Amount
Additions	\$234,000	
Removals	\$15,000	
(Salvage)	\$1,000	
Overhead Loads	\$24,000	
<b>CBI Total</b>	<b>\$273,000</b>	
Retirements	\$1,000	

Approvals			
Organization	Ownership	Share	E&O Committee <input checked="" type="checkbox"/>
			Coordinating Committee <input type="checkbox"/>
APS	63.00%	171,990	Approve Date
EPE	7.00%	19,110	<i>Nadine Powell</i> 6-10-16 Date
PNM	13.00%	35,490	Date
SRP	10.0%	27,300	Date
TEP	7.00%	19,110	Date

FCC08963 East Main Turbine Lube Oil System Cooler Re-Tube			
Four Corners Participant Project	SG3 WA Rev 0	100% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: 16-72	Env Code: N/A	ERF Completed: Yes
In 2016 Budget: No	Plant Acct: 312	Est Removal: 03/19/2016	Est In Svc: 06/17/2016
<b>Description:</b> Replace the tubes for the East Main Turbine Lube Oil System cooler.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain unit reliability and lower NPDES permit violation and Reportable Environmental Incident (REI) potential by restoring the lube oil system cooler integrity.			
<b>Consequences of Delay:</b> High risk of a potential 10 day forced outage due to loss of redundancy. Economic justification assumes a 10% probability of a 10 day forced outage and \$7/MWH net replacement power cost. High risk of NPDES permit violation and REI due to end of life tube bundle.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:		\$1.30 M\$	
Budget Category:		ENV	

Cash Flow - 2016							
Jan	\$0	Apr	\$0	Jul	\$273,000	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	\$0	<b>2016</b>	\$273,000	<b>2017</b>	\$0	<b>After</b>	\$0

Cost Summary		
	Current Amount	Revised Amount
Additions	\$234,000	
Removals	\$15,000	
(Salvage)	\$1,000	
Overhead Loads	\$24,000	
<b>CBI Total</b>	<b>\$273,000</b>	
Retirements	\$1,000	

Approvals			
		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
Organization	Ownership	Share	Approve
APS	63.00%	171,990	Date
EPE	7.00%	19,110	Date
PNM	13.00%	35,490	Date
SRP	10.0%	27,300	Date
TEP	7.00%	19,110	Date

*JCB* 6-13-16

PLANT FC Power Plant		<b>FOUR CORNERS O &amp; M BUDGET ITEM</b>	NUMBER: 16-2017				
BUDGET YEAR 2017			BUDGET TYPE: OH				
COST OF PROJECT \$ 87,000			DATE: 5/6/2016				
SYSTEM: Electrical	SUBSYSTEM: Medium/High Voltage		PRIORITY: 1				
CURRENT SYSTEM HEALTH	CURRENT SUBSYSTEM HEALTH		FREQ: Outage till complete				
PROJECTED SYSTEM HEALTH	PROJECTED SUBSYSTEM HEALTH		PREPARED BY: R.Yazzie				
RISK TYPE: Generation							
<b>Job Title:</b> SKF Continuous Motor Monitoring System							
<b>Description of Work:</b> Install motor monitoring system for U5 4160V motors breakers located in U4/5 4160V Switchgear Room. Equipment is onsite and will need to be installed and commissioned. Future plans to install monitors for all 4160V and 13.8KV motors in plant. This budget will be used as an initial trial phase.							
<b>Purpose and Necessity:</b> This monitor captures machine performance and data at regular intervals. This provides data on degradation of the motor before the cause of motor failure or system faults.							
<b>Potential Adverse Consequence if not completed in this year:</b> The SKF Continuous Motor Monitoring System is a useful tool that will help aid in determining motor performance. If not done this year we delay the use and knowledge of this tool that could help reduce motor failure costs and maximize electrical equipment reliability and productivity.							
<b>Estimates (Dollars Only)</b>							
Type of Expense	APS BASE PAY(1)	APS OVERTIME (2)	M&S(3)	TRAVEL SUB/LOD.(4)	OTHER(5)	CONTRACT LABOR(8)	TOTAL
BUDGET	20,000		30,000			37,000	87,000
ACTUAL							-
<b>Schedule of Expenditures:</b>							
1st Quarter		2nd Quarter		3rd Quarter		4th Quarter	
JAN \$		APR \$		JUL \$		OCT \$	25,000
FEB \$		MAY \$		AUG \$		NOV \$	32,000
MAR \$		JUN \$		SEP \$	15,000	DEC \$	15,000
<b>System details for annual trending:</b>							
Type of Overhaul Cost	Boiler \$	Turbine/Gen \$	Fuels \$	Scrubber \$	Heat Cycle \$	Auxiliaries \$	Total \$\$
BUDGET						87,000	87,000

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\*New BUDGET ITEM for 2017

CF	January	February	March	April	May	June	Ju August	September	October	November
	-	-	-	-	-	-	-	15,000	25,000	32,000

FCC06554 Startup Valve Replacement (205)			
Four Corners Participant Project	SG2 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: 17-01	Env Code: N/A	ERF Completed: Yes
In 2017 Budget: No	Plant Acct: 312	Est Removal: 09/18/17	Est In Svc: 12/19/2017

**Description:** Replace the existing "205" stop-check valve and actuator located in the Primary Superheater to Secondary Superheater by-pass near the flash tank.

**Purpose/Necessity:** The purpose of this project is to maintain unit reliability. The existing valve and actuator are original equipment (45 years old) and reached the end of useful life. Spare parts are no longer available and rebuilding is not feasible. The once-thru boiler cannot start the unit if the "205" valve does not operate correctly. Valve failure can also cause unit outage when the plant is online.

**Consequences of Delay:** Economic justification assumes a 40% probability of a 3 day unit outage and a \$7/MWH net replacement power cost.

**Economic Justification:**

Benefit-Cost NPV: \$3.10 M\$  
Budget Category: REL-UNIT

FP 715-19017  
WO Y0076470

Cash Flow - 2017							
Jan	\$40,000	Apr	\$2,000	Jul	\$2,000	Oct	\$39,000
Feb	\$7,000	May	\$2,000	Aug	\$152,000	Nov	\$38,000
Mar	\$7,000	Jun	\$2,000	Sep	\$54,000	Dec	\$38,000
<b>Prior</b>	<b>\$0</b>	<b>2017</b>	<b>\$387,000</b>	<b>2018</b>	<b>\$9,000</b>	<b>After</b>	<b>\$0</b>

**Cost Summary**

	Current Amount	Revised Amount
Additions	\$335,000	
Removals	\$30,000	
(Salvage)	\$2,000	
Overhead Loads	\$11,000	
<b>CBI Total</b>	<b>\$396,000</b>	
Retirements	\$8,000	

**Approvals**

Organization	Ownership	Share	E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
			Approve	Date	Approve	Date
4CA	7.00%	27,720	<i>James P. Hatfield</i>	10/3/16		
APS	63.00%	249,480	<i>[Signature]</i>	9/28/16		
PNM	13.00%	51,480	<i>[Signature]</i>	9/28/16		
SRP	10.0%	39,600	<i>[Signature]</i>	9/28/16		
TEP	7.00%	27,720	<i>[Signature]</i>	9-28-16		

FCC07202 2017 Fabric Filter Bag Replacement			
Four Corners Participant Project	SG2 WA Rev 0	100% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: 17-02	Env Code: Air	ERF Completed: Yes
In 2017 Budget: Yes	Plant Acct: 312	Est Removal: 04/03/2017	Est In Svc: 05/31/2017
<b>Description:</b> Replace the fabric filter bags housed in 8 compartments of the Reverse Air Fabric Filter.			
<b>Purpose/Necessity:</b> The purpose of this project is to ensure continued environmental compliance while maintaining unit operational performance in the capture and disposal management of fly ash. The fabric filter bags are approaching the end of their serviceable life and require replacement to ensure continued high efficiency particulate dust capture and removal and compliance with the PM standard defined in the Plant's Title V Permit.			
<b>Consequences of Delay:</b> Non-compliance with the PM standard defined in the Plant's Title V Permit resulting in Unit de-rate and Unit shutdown.			
<b>Economic Justification:</b>			
Benefit-Cost NPV: MS			
Budget Category: ENV			
FP 715-19017			
WO Y0076487			

Cash Flow - 2017							
Jan	\$197,000	Apr	\$106,000	Jul	\$0	Oct	\$0
Feb	\$299,000	May	\$121,000	Aug	\$0	Nov	\$0
Mar	\$311,000	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2017	\$1,035,000	2018	\$0	After	\$0
<b>Cost Summary</b>							
	Current Amount			Revised Amount			
Additions				\$873,000			
Removals				(\$154,000)			
(Salvage)				\$5,000			
Overhead Loads				\$9,000			
CBI Total				\$1,035,000			
Retirements				(\$190,000)			
<b>Approvals</b>							
				E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
Organization	Ownership	Share	Approve				
4CA	7.00%	72,450	<i>James R. Hartzfeld</i>	Date	10/31/16		
APS	63.00%	652,050	<i>J.R. [Signature]</i>	Date	9/28/16		
PNM	13.00%	134,550	<i>[Signature]</i>	Date	9/28/16		
SRP	10.0%	103,500	<i>[Signature]</i>	Date	9/28/16		
TEP	7.00%	72,450	<i>[Signature]</i>	Date	9-28-16		

FCC07203 2017 Fabric Filter Bag Replacement			
Four Corners Participant Project	SG2 WA Rev 0	100% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: 17-03	Env Code: Air	FRF Completed: Yes
In 2017 Budget: Yes	Plant Acct: 312	Est Removal: 04/03/2017	Est In Svc: 05/31/2017
<b>Description:</b> Replace the fabric filter bags housed in 8 compartments of the Reverse Air Fabric Filter.			
<b>Purpose/Necessity:</b> The purpose of this project is to ensure continued environmental compliance while maintaining unit operational performance in the capture and disposal management of fly ash. The fabric filter bags are approaching the end of their serviceable life and require replacement to ensure continued high efficiency particulate dust capture and removal and compliance with the PM standard defined in the Plant's Title V Permit.			
<b>Consequences of Delay:</b> Non-compliance with the PM standard defined in the Plant's Title V Permit, resulting in Unit de-rate and Unit shutdown.			
<b>Economic Justification:</b>			
Benefit-Cost NPV		M\$	
Budget Category:		ENV	
<p>FP 715-19017 WO 70076488</p>			

Cash Flow - 2017							
Jan	\$21,000	Apr	\$283,000	Jul	\$0	Oct	\$0
Feb	\$62,000	May	\$282,000	Aug	\$0	Nov	\$0
Mar	\$387,000	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	<b>\$0</b>	<b>2017</b>	<b>\$1,035,000</b>	<b>2018</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
Additions	\$872,000	
Removals	\$154,000	
(Salvage)	\$5,000	
Overhead Loads	\$9,000	
CBI Total	\$1,035,000	
Retirements	\$190,000	

Approvals			
Organization	Ownership	Share	Approve
4CA	7.00%	72,450	James R. Hatfield 10/3/16
APS	63.00%	652,050	[Signature] 9/28/16
PNM	13.00%	134,550	[Signature] 9/23/16
SRP	10.0%	103,500	[Signature] 9/25/16
TEP	7.00%	72,450	[Signature] 9-29-16

FCC07604 LP Turbine Major Overhaul							
Four Corners Participant Project		Rev FC17-04R1	0% Enviro.	NSR Completed: Yes			
FC Unit 5		CBI: FC17-04R1	Env Code: N/A	ERF Completed: Ycs			
In 2017 Budget: Yes		Plant Acct:	Est Removal:	Est In Svc: 19 Dec 2017			
<p><b>Reason for Revision:</b> The reason for this \$744K increase is due to higher than anticipated construction bids.</p> <p style="text-align: center;">Benefit-Cost NPV: 9.50 M\$</p>							
<p><b>Description:</b> Major LP Turbine overhaul including open, close, replacement of turbine blades, associated diaphragm components and all turbine seals (tip, interstage and gland).</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to maintain unit reliability by ensuring that the LP Turbine maintains its original design output efficiency and provides continued reliable operation. The 1st and 2nd row turbine blades have experienced erosion during operation and are approaching the end of useful life. Degradation of tip seals over time has resulted in continued lost generation, a reduction in LP Turbine efficiency and high moisture content in the lube oil due to steam leaking by the seals.</p> <p><b>Consequences of Delay:</b> Continued degraded LP Turbine output capacity and efficiency and high moisture content in lube oil that must be removed. Potential turbine blade failure would result in unit downtime of 50 days and collateral equipment damage of \$750,000. Economic justification assumes a 10% probability of one 50 day outage and \$7/MWH net replacement power cost.</p> <p><b>Economic Justification:</b>            Benefit-Cost NPV: 9.50 M\$            Budget Category: REL-UNIT</p>							
Cash Flow - 2017							
Jan	\$0	Apr	\$333,000	Jul	\$1,168,000	Oct	\$1,127,000
Feb	\$21,000	May	\$27,000	Aug	\$1,253,000	Nov	\$278,000
Mar	\$0	Jun	\$0	Sep	\$173,000	Dec	\$1,357,000
Prior	\$0	2017	\$5,737,000	2018	\$348,000	After	\$0
Cost Summary							
		Current Amount		Revised Amount			
Additions							\$0
Removals							\$0
(Salvage)							\$0
Specific Cost				\$5,327,000			\$6,040,000
Overhead Loads				\$21,000			\$22,000
CBI Total				\$5,348,000			\$6,063,000
Retirements				\$319,000			\$319,000
Approvals							
				E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
4CA		7.00%	\$424,387			Date	
APS		63.00%	\$3,819,486			Date	
PNM		13.00%	\$788,148			Date	
SRP		10.0%	\$606,268			Date	
TEP		7.00%	\$424,387			Date	

*K. J. [Signature]* 5-12-17

FCC07643 HP and LP Generator Hydrogen Cooler Replacement			
Four Corners Participant Project	SG2 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: 17-06	Env Code: N/A	ERF Completed: Yes
In 2017 Budget: Yes	Plant Acct: 344	Est Removal: 10/15/2017	Est In Svc: 04/24/2018
<b>Description:</b> Replacement of the four (4) HP Generator and six (6) LP Generator vertical hydrogen coolers.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain unit reliability, generation capacity and improve reliability of the Unit 4 generators. Plant inspection reports and data show the existing hydrogen coolers are approaching the end of useful life and are in need of replacement after 40+ years of service. Lead carbonate contamination from the hydrogen coolers and water leaks have caused field winding shorts.			
<b>Consequences of Delay:</b> Potential 4 day forced outage. Economic justification assumes a 25% probability of a 4 day forced outage with 100% load and \$7/MWH net replacement power cost. Each failure event will also have a negative impact on HP and LP generator reliability.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:		\$1.20 M\$	
Budget Category:		REL-UNIT	

Cash Flow - 2017							
Jan	\$2,000	Apr	\$2,000	Jul	\$2,000	Oct	\$2,000
Feb	\$2,000	May	\$2,000	Aug	\$4,000	Nov	\$2,000
Mar	\$38,000	Jun	\$2,000	Sep	\$2,000	Dec	\$2,164,000
Prior	\$0	2017	\$2,225,000	2018	\$729,000	After	\$0

Cost Summary		
	Current Amount	Revised Amount
Additions	\$2,675,000	
Removals	\$265,000	
(Salvage)	\$15,000	
Overhead Loads	\$13,000	
CBI Total	\$2,953,000	
Retirements	\$177,000	

Approvals			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
Organization	Ownership	Share	Approve	
4CA	7.00%	206,710	<i>James R. Barfield</i>	Date 10/31/16
APS	63.00%	1,860,390	<i>J.R. Linn</i>	Date 9/28/16
PNM	13.00%	383,890	<i>J. Kelly</i>	Date 9/28/16
SRP	10.0%	295,300	<i>M. Mitchell</i>	Date 9/28/16
TEP	7.00%	206,710	<i>J. Linn</i>	Date 9-28-16



FCC07904 Absorber Module Mixer Replacement			
Four Corners Participant Project	SG2 WA Rev 0	100% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: 17-07	Env Code: Air	ERF Completed: Yes
In 2017 Budget: No	Plant Acct: 341	Est Removal: 02/01/2017	Est In Svc: 04/24/2018
<b>Description:</b> Replace the Reaction Tank agitators on all five (5) absorber reaction tank vessels.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain environmental compliance with new Consent Decree requirements (Case No. 1:15-cv-00537 & Case No. 1:11-cv-00889-JB-SCY). The current system has excessive sludge build up. The new system will reduce sludge build up by 90% resulting in improved tank performance, reduced plugging, lower chemical costs, and reduced damage and wear to the recycle pump. The new mixer will improve mixing and reduce maintenance costs while sustaining the required higher SO2 removal rates.			
<b>Consequences of Delay:</b> Reduced SO2 removal efficiency. Continued increased limestone usage rates.			
<b>Economic Justification:</b> Benefit-Cost NPV: MS Budget Category: ENV			
FP 715-19017 WO 715-Y0075807			

Cash Flow - 2017							
Jan	\$0	Apr	\$25,000	Jul	\$25,000	Oct	\$2,000
Feb	\$23,000	May	\$24,000	Aug	\$2,000	Nov	\$2,000
Mar	\$65,000	Jun	\$24,000	Sep	\$2,000	Dec	\$772,000
<b>Prior</b>	<b>\$0</b>	<b>2017</b>	<b>\$967,000</b>	<b>2018</b>	<b>\$783,000</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
Additions	\$1,582,000	
Removals	\$157,000	
(Salvage)	\$8,000	
Overhead Loads	\$11,000	
CBI Total	\$1,750,000	
Retirements	\$1,000	

Approvals			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
Organization	Ownership	Share	Approve	
4CA	7.00%	122,500	<i>James R. Hatfield</i>	Date 10/31/16
APS	63.00%	1,102,500	<i>J.R. Linn</i>	Date 9/28/16
PNM	13.00%	227,500	<i>[Signature]</i>	Date 9/28/16
SRP	10.0%	175,000	<i>[Signature]</i>	Date 9/28/16
TEP	7.00%	122,500	<i>[Signature]</i>	Date 9-29-16

WO Initiated 3-13-2017

RCC07905 Absorber Module Mixer Replacement			
Four Corners Participant Project	SG2 WA Rev 0	100% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: 17-08	Env Code: Air	ERF Completed: Yes
In 2017 Budget: No	Plant Acct: 341	Est Removal: 02/01/2017	Est In Svc: 12/19/2017

**Description:** This project replaces the Reaction Tank agitators on all (5) absorber reaction tanks on Unit 5.

**Purpose/Necessity:** The purpose of this project is to maintain environmental compliance with new Consent Decree requirements (Case No. 1:15-cv-00537 & Case No. 1:11-cv-00889-JB-SCY). The current system has excessive sludge build up. The new system will reduce sludge build up by 90% resulting in improved tank performance, reduced plugging, lower chemical costs, and reduced damage and wear to the recycle pump. The new mixer will improve mixing and reduce maintenance costs while sustaining the required higher SO2 removal rates.

**Consequences of Delay:** Reduced SO2 removal efficiency. Continued increased limestone usage rates.

**Economic Justification:**

Benefit-Cost NPV: M\$  
Budget Category: ENV

Cash Flow - 2017							
Jan	\$24,000	Apr	\$24,000	Jul	\$5,000	Oct	\$186,000
Feb	\$68,000	May	\$25,000	Aug	\$772,000	Nov	\$186,000
Mar	\$24,000	Jun	\$24,000	Sep	\$186,000	Dec	\$192,000
Prior	\$0	2017	\$1,717,000	2018	\$40,000	After	\$0

**Cost Summary**

	Current Amount	Revised Amount
Additions	\$1,588,000	
Removals	\$157,000	
(Salvage)	\$8,000	
Overhead Loads	\$12,000	
CBI Total	\$1,757,000	
Retirements	\$1,000	

**Approvals**

Organization	Ownership	Share	E&O Committee <input checked="" type="checkbox"/> Coordinating Committee <input type="checkbox"/>	
			Approve	Date
4CA	7.00%	122,990	<i>James P. Hartzfeld</i>	10/3/16
APS	61.00%	1,106,910	<i>D. R. ...</i>	9/29/16
PNM	11.00%	228,410	<i>M. ...</i>	9/29/16
SRP	10.0%	175,700	<i>M. ...</i>	9/28/16
TEP	7.00%	122,990	<i>J. ...</i>	9-28-16

**FCC07954 Miscellaneous Motor Replacement - 2017**

Four Corners Participant Project	SG2 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: 17-09	Env Code: N/A	ERF Completed: Yes
In 2017 Budget: No	Plant Acct: 316	Est Removal:	Est In Svc: 12/11/2017

**Description:** Funding for the replacement of miscellaneous motors that meet capital requirements. In order to meet capital budget requirements, motors must be 100 HP and above. Motors range in size up to 7,000 HP.

**Purpose/Necessity:** The purpose of this project is to maintain plant reliability. Capital budget will be used for purchase and installation of new capital motors as failures or immediate need occurs throughout the 2017 calendar year.

**Consequences of Delay:** Risk to unit reliability while waiting on replacement motor delivery. The effect of losing a motor while a replacement is procured may result in an extended unit derating and/or unit outage of indeterminate duration while an immediate work around is found.

**Economic Justification:**

Benefit-Cost NPV: \$0.30 M\$  
Budget Category: REL-UNIT

**Cash Flow - 2017**

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$100,000	Aug	\$100,000	Nov	\$100,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	<b>\$0</b>	<b>2017</b>	<b>\$300,000</b>	<b>2018</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

**Cost Summary**

	Current Amount	Revised Amount
Additions	\$241,000	
Removals	\$15,000	
(Salvage)	\$1,000	
Overhead Loads	\$44,000	
<b>CBI Total</b>	<b>\$300,000</b>	
Retirements	\$100,000	

**Approvals**

Organization	Ownership	Share	E&O Committee <input checked="" type="checkbox"/> Coordinating Committee <input type="checkbox"/>	
			Approve	Date
4CA	7.00%	21,000	<i>James R. Hatfield</i>	10/31/16
APS	63.00%	189,000	<i>J. L. ...</i>	9/28/16
PNM	13.00%	39,000	<i>J. ...</i>	9/28/16
SRP	10.0%	30,000	<i>M. ...</i>	9/28/16
TEP	7.00%	21,000	<i>J. ...</i>	9-28-16

FCC0832S Miscellaneous Pump & Valve Replacement - 2017			
Four Corners Participant Project	SG2 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBE: 17-10	Env Code: N/A	ERF Completed: Yes
In 2017 Budget: No	Plant Acct: 346	Est Removal:	Est In Svc: 12/11/2017
<b>Description:</b> Replacement of Capital Pumps and Valves			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain plant reliability. Capital budget will be used for purchase and installation of new capital pumps and valves as failures or immediate need occurs throughout the 2017 calendar year.			
<b>Consequences of Delay:</b> Negative impact to the plant's response to obtaining approvals needed for plant capital pump and valve requirements.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:		(\$0.20) M\$	
Budget Category:		REL-UNIT	

Cash Flow - 2017							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$100,000	Aug	\$100,000	Nov	\$100,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	<b>\$0</b>	<b>2017</b>	<b>\$300,000</b>	<b>2018</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
Additions	\$285,000	
Removals	\$15,000	
(Salvage)	\$1,000	
Overhead Loads	\$0	
<b>CBI Total</b>	<b>\$300,000</b>	
Retirements	\$25,000	

Approvals			
Organization	Ownership	Share	Approve
4CA	7.00%	21,000	James P. [Signature] Date 10/31/16
APS	61.00%	189,000	[Signature] Date 9/28/16
PNM	13.00%	39,000	[Signature] Date 9/28/16
SRP	10.0%	30,000	[Signature] Date 9/28/16
TEP	7.00%	21,000	[Signature] Date 9-28-16

FCC08100 2017 Plant Tools			
Four Corners Participant Project	SG2 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: 17-13	Env Code: N/A	ERF Completed: Yes
In 2017 Budget: No	Plant Acct: 394	Est Removal:	Est In Svc: 10/23/2017

**Description:** Replacement of plant tools to maintain reliable plant operation.

**Purpose/Necessity:** The purpose of this project is to maintain plant reliability. These new tools and equipment will be used for maintenance, inspection and repair of plant equipment. Adding to the inventory of plant tools and diagnostic equipment increases maintenance efficiency and reduces equipment failures by improving and expanding the plant's monitoring and problem detection capabilities. The tools will be purchased, as required, by the plant throughout 2017.

**Consequences of Delay:** Risk to unit reliability while waiting on replacement tools. The effect of waiting on tools while a replacement is procured may result in an extended duration of equipment out of service while being maintained.

**Economic Justification:**

Benefit-Cost NPV: (\$0.20) M\$  
Budget Category: REL-UNIT

**Cash Flow - 2017**

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$79,000
<b>Prior</b>	<b>\$0</b>	<b>2017</b>	<b>\$79,000</b>	<b>2018</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

**Cost Summary**

	Current Amount	Revised Amount
Additions	\$79,000	
Removals	\$0	
(Salvage)	\$0	
Overhead Loads	\$0	
CBI Total	\$79,000	
Retirements	\$0	

**Approvals**

Organization	Ownership	Share	E&O Committee <input checked="" type="checkbox"/> Coordinating Committee <input type="checkbox"/>	
			Approve	Date
4CA	7.00%	5,530	<i>[Signature]</i>	10/31/16
APS	63.00%	49,770	<i>[Signature]</i>	9/28/16
PNM	13.00%	10,270	<i>[Signature]</i>	9/28/16
SRP	10.0%	7,900	<i>[Signature]</i>	9/28/16
TEP	7.00%	5,530	<i>[Signature]</i>	9-28-16

FCC08276 2017 Baghouse Lagging and Insulation Replacement			
Four Corners Participant Project	SG2 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: 17-16	Env Code: N/A	ERF Completed: Yes
In 2017 Budget: Yes	Plant Acct: 311	Est Removal: 02/01/2018	Est In Svc: 04/24/2018
<b>Description:</b> Replace lagging and insulation on the Unit 4 baghouse.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain a safe plant work environment by eliminating potential hazards. These replacements are intended to reduce the hazards that exist when lagging and insulation are loose creating potential unsafe conditions for plant personnel and equipment.			
<b>Consequences of Delay:</b> Potential unsafe conditions for plant personnel and equipment.			
<b>Economic Justification:</b>			
Benefit-Cost NPV: M\$			
Budget Category: SAFETY			
<p>715-19017                      WO y0076531                      RO y0078708</p>			

Cash Flow - 2017							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$98,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$101,000
Prior	\$0	2017	\$199,000	2018	\$201,000	After	\$0

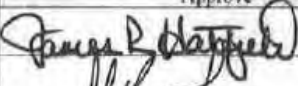

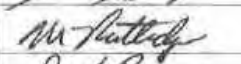
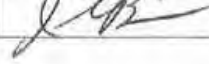

Cost Summary			
	Current Amount		Revised Amount
Additions	42,120	\$324,000	
Removals	3,640	\$28,000	
(Salvage)	-2,210	\$17,000	
Overhead Loads	6,240	\$48,000	
CBI Total	52,000	\$400,000	
Retirements	13,000	\$100,000	

Approvals			
Organization	Ownership	Share	Approve
4CA	7.00%	28,000	James P. Hatfield 10/3/16
APS	63.00%	252,000	J.R. Linn 9/28/16
PNM	13.00%	52,000	M. J. Linn 9/28/16
SRP	10.0%	40,000	M. J. Linn 9/28/16
TEP	7.00%	28,000	J. Linn 9-28-16

FCC08286 2017 Baghouse Lagging and Insulation Replacement			
Four Corners Participant Project	SG2 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: 17-17	Env Code: N/A	ERF Completed: Yes
In 2017 Budget: Yes	Plant Acct: 311	Est Removal: 10/02/2017	Est In Svc: 12/19/2017
<b>Description:</b> Replace lagging and insulation on the Unit 5 baghouse.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain a safe plant work environment by eliminating potential hazards. These replacements are intended to reduce the hazards that exist when lagging and insulation are loose creating potential unsafe conditions for plant personnel and equipment.			
<b>Consequences of Delay:</b> Potential unsafe conditions for plant personnel and equipment.			
<b>Economic Justification:</b>			
Benefit-Cost NPV: M\$			
Budget Category: SAFETY			

Cash Flow - 2017							
Jan	\$0	Apr	\$0	Jul	\$52,000	Oct	\$100,000
Feb	\$0	May	\$0	Aug	\$55,000	Nov	\$55,000
Mar	\$0	Jun	\$0	Sep	\$102,000	Dec	\$32,000
Prior	\$0	2017	\$396,000	2018	\$4,000	After	\$0

Cost Summary		
	Current Amount	Revised Amount
Additions	\$324,000	
Removals	\$28,000	
(Salvage)	\$2,000	
Overhead Loads	\$48,000	
CBI Total	\$400,000	
Retirements	\$100,000	

Approvals			
Organization	Ownership	Share	Approve
4CA	7.00%	28,000	<input checked="" type="checkbox"/> E&O Committee <input type="checkbox"/> Coordinating Committee  Date: 10/31/16
APS	63.00%	252,000	 Date: 9/29/16
PNM	13.00%	52,000	 Date: 9/29/16
SRP	10.0%	40,000	 Date: 9/29/16
TEP	7.00%	28,000	 Date: 9-28-16

FCC08319 HP & LP Hydrogen Dryer Replacement			
Four Corners Participant Project	Rev FC17-18R1	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC17-18R1	Env Code: N/A	ERF Completed: Yes
In 2017 Budget: Yes	Plant Acct:	Est Removal:	Est In Svc: 25 Aug 2017

**Reason for Revision:** This revision is for a scope modification only, no additional dollars are required. The reason for this revision is due to the addition of the F5 HP & LP Hydrogen Dryer Replacement scope to the F4 HP & LP Hydrogen Dryer scope. This will ensure all HP & LP Dryers are operational before the U45 Major Outages are complete. The 2018 CBI Development Project: FCC08868 F5 HP & LP Hydrogen Dryer Replacement will be canceled.

Benefit-Cost NPV: 0.30 M\$

**Description:** Replacement of the HP & LP Generators' Hydrogen Dryers.

**Purpose/Necessity:** The purpose of this project is to maintain unit reliability. Increased dew point temperatures inside the generators and moisture causes contamination of the generator windings/internals. Moisture contamination also causes winding shorts and degraded materials conditions which decrease generator reliability, service life, and efficiency. The OEM no longer supports the existing technology.

**Consequences of Delay:** Potential for 3 day forced outage. Economic justification assumes a 30% probability of a 3 day forced outage and \$7/MWH net replacement power cost.

**Economic Justification:**

Benefit-Cost NPV: 0.30 M\$  
Budget Category: REL-UNIT

Cash Flow - 2017							
Jan	\$3,000	Apr	(\$1,000)	Jul	\$186,000	Oct	\$0
Feb	\$46,000	May	(\$27,000)	Aug	\$92,000	Nov	\$0
Mar	\$7,000	Jun	\$161,000	Sep	\$73,000	Dec	\$0
Prior	\$0	2017	\$540,000	2018	\$0	After	\$0

Cost Summary			
	Current Amount	Revised Amount	
Additions	\$488,000	\$488,000	\$488,000
Removals	\$42,000	\$42,000	\$42,000
(Salvage)	\$3,000	\$3,000	\$3,000
Specific Cost	\$531,000	\$531,000	\$531,000
Overhead Loads	\$10,000	\$10,000	\$10,000
CBI Total	\$541,000	\$541,000	\$541,000
Retirements	\$125,000	\$125,000	\$125,000

Approvals				
			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
4CA	7.00%	\$37,870		Date
APS	65.00%	\$340,830		Date
PNM	13.00%	\$70,330	<i>[Signature]</i>	Date 5-12-17
SRP	10.0%	\$54,100		Date
TEP	7.00%	\$37,870		Date



FCC08322 HP-IP-LP Turbine Major Overhaul							
Four Corners Participant Project	SG2 WA Rev 0	0% Enviro.	NSR Completed: Yes				
FC Unit 4	CBI: 17-19	Env Code: N/A	ERF Completed: Yes				
In 2017 Budget: Yes	Plant Acct: 314	Est Removal: 02/15/2018	Est In Svc: 04/24/2018				
<p><b>Description:</b> Major HP-IP-LP Turbine overhaul including open, close, replacement of turbine blades, associated diaphragm components and all turbine seals (tip, gland, and labyrinth seals).</p> <p><b>Purpose/Necessity:</b> The purpose of the project is to maintain unit reliability by ensuring that the HP-IP-LP turbine maintains its original design output efficiency and provides continued reliable operation. Degradation of tip seals over time has resulted in continued lost generation, a reduction in HP-IP-LP Turbine efficiency and high moisture content in the lube oil due to steam leaking by the seals.</p> <p><b>Consequences of Delay:</b> Potential turbine blade failure would result in unit downtime and collateral equipment damage. Economic justification assumes a 10% probability of a 50 day unit outage, with \$750,000 in collateral damage and a \$7/MWH net replacement power cost.</p> <p><b>Economic Justification:</b>            Benefit-Cost NPV: \$2.40 M\$            Budget Category: REL-UNIT</p>							
Cash Flow - 2017							
Jan	\$2,000	Apr	\$4,000	Jul	\$2,000	Oct	\$2,000
Feb	\$26,000	May	\$4,000	Aug	\$252,000	Nov	\$4,000
Mar	\$4,000	Jun	\$314,000	Sep	\$2,000	Dec	\$2,603,000
Prior	\$0	2017	\$3,219,000	2018	\$8,054,000	After	\$0
Cost Summary							
	Current Amount			Revised Amount			
Additions	\$10,237,000						
Removals	\$(1,012,000)						
(Salvage)	\$56,000						
Overhead Loads	\$25,000						
CBI Total	\$11,274,000						
Retirements	\$(675,000)						
Approvals							
Exhibit: ABU				E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
Organization	Ownership	Share	Approve				
4CA	7.00%	789,180	Date				
APS	63.00%	7,102,620	Date				
PNM	13.00%	1,465,620	Date 11/10/16				
SRP	10.0%	1,127,400	Date 11-20-16				
TEP	7.00%	789,180	Date				

FCC08433 Primary Air Duct Expansion Joint Replacement			
Four Corners Participant Project	SG2 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: 17-22	Env Code: N/A	ERF Completed: Yes
In 2017 Budget: No	Plant Acct: 312	Est Removal: 02/15/2018	Est In Svc: 04/24/2018
<b>Description:</b> Replace two (2) existing metal expansion joints in the Primary Air duct to the Pulverizers. One expansion joint between Pulverizers 4-2 and 4-3 and one in the south side supply duct.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain unit reliability and expansion joint integrity. The expansion joints on the Primary Air supply duct to the Pulverizers are reaching the end of life and need replacing. The joints have numerous repairs and are very difficult to maintain due to the corrosive atmosphere and thin metal. Failure results in reduced effectiveness of pulverizers and has the potential to result in pluggages in coal piping.			
<b>Consequences of Delay:</b> De-rate of unit to due to lower furnace pressure and discharge of primary air to atmosphere. Economics assume a 75% probability of 25% load loss for 2 days and \$7/MWH net replacement power cost.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:		\$0.50 M\$	
Budget Category:		REL-UNIT	

Cash Flow - 2017							
Jan	\$3,000	Apr	\$8,000	Jul	\$3,000	Oct	\$3,000
Feb	\$3,000	May	\$5,000	Aug	\$3,000	Nov	\$40,000
Mar	\$40,000	Jun	\$3,000	Sep	\$3,000	Dec	\$14,000
<b>Prior</b>	<b>\$0</b>	<b>2017</b>	<b>\$126,000</b>	<b>2018</b>	<b>\$431,000</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
Additions	\$484,000	
Removals	\$48,000	
(Salvage)	\$3,000	
Overhead Loads	\$25,000	
<b>CBI Total</b>	<b>\$557,000</b>	
Retirements	\$225,000	

Approvals			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
Organization	Ownership	Share	Approve	Date
4CA	7.00%	38,990	<i>James R. Hatfield</i>	10/21/16
APS	63.00%	350,910	<i>M. K. ...</i>	9/28/16
PNM	13.00%	72,410	<i>[Signature]</i>	9/28/16
SRP	10.0%	55,700	<i>[Signature]</i>	9/28/16
TFP	7.00%	38,990	<i>[Signature]</i>	9-28-16

FCC08434 Primary Air Duct Expansion Joint Replacement							
Four Corners Participant Project	SG2 WA Rev 0	0% Enviro.	NSR Completed: Yes				
FC Unit 5	CBI: 17-23	Env Code: N/A	ERF Completed: Yes				
In 2017 Budget: No	Plant Acct: 312	Est Removal: 10/17/2017	Est In Svc: 12/19/2017				
<b>Description:</b> Replace one (1) existing metal expansion joint in the south side Primary Air duct.							
<b>Purpose/Necessity:</b> The purpose of this project is to maintain unit reliability and expansion joint integrity. The expansion joints in the Primary Air supply duct to the Pulverizers are reaching the end of life and need replacing. The joints have numerous repairs and are very difficult to maintain due to the corrosive atmosphere and thin metal. Failure results in reduced effectiveness of pulverizers and has the potential to result in pluggages in coal piping.							
<b>Consequences of Delay:</b> De-rate of unit to due to lower furnace pressure and discharge of primary air to atmosphere. Economics assume a 75% probability of 25% load loss for 2 days and \$7/MWH net replacement power cost.							
<b>Economic Justification:</b>							
Benefit-Cost NPV:		\$0.70 M\$					
Budget Category:		REF-UNIT					
<b>Cash Flow - 2017</b>							
Jan	\$2,000	Apr	\$1,000	Jul	\$9,000	Oct	\$177,000
Feb	\$1,000	May	\$1,000	Aug	\$23,000	Nov	\$7,000
Mar	\$35,000	Jun	\$9,000	Sep	\$10,000	Dec	\$8,000
Prior	\$0	2017	\$284,000	2018	\$22,000	After	\$0
<b>Cost Summary</b>							
	Current Amount			Revised Amount			
Additions	\$270,000						
Removals	\$14,000						
(Salvage)	\$1,000						
Overhead Loads	\$22,000						
CBI Total	\$306,000						
Retirements	\$171,000						
<b>Approvals</b>							
				E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
Organization	Ownership	Share	Approve	Date			
4CA	7.00%	21,420	<i>James P. [Signature]</i>	10/31/16			
APS	63.00%	192,780	<i>[Signature]</i>	9/29/16			
PNM	13.00%	39,780	<i>[Signature]</i>	9/28/16			
SRP	10.0%	30,600	<i>[Signature]</i>	9/28/16			
TEP	7.00%	21,420	<i>[Signature]</i>	9-29-16			

FCC08474 Baghouse Expansion Joint Replacement			
Four Corners Participant Project	SG2 WA Rev 0	100% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: 17-24	Env Code: Air	ERF Completed: Yes
In 2017 Budget: No	Plant Acct: 312	Est Removal: 01/22/2018	Est In Svc: 04/24/2018
<b>Description:</b> Replace 32 reinforced Viton expansion joints in the Baghouse ductwork.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain compliance with fugitive dust and emissions regulations, ISO 14001 and the Title V permit. The expansion joints have reached the end of their design life due to high velocity and high temperature flue gas. Flyash causes erosion and abrasion to the expansion joints, resulting in leaks and ruptures.			
<b>Consequences of Delay:</b> Unit outage due to rupture of expansion joint.			
<b>Economic Justification:</b>			
Benefit-Cost NPV: M\$			
Budget Category: ENV			

Cash Flow - 2017							
Jan	\$46,000	Apr	\$12,000	Jul	\$9,000	Oct	\$2,000
Feb	\$6,000	May	\$11,000	Aug	\$5,000	Nov	\$551,000
Mar	\$17,000	Jun	\$11,000	Sep	\$6,000	Dec	\$173,000
<b>Prior</b>	<b>\$0</b>	<b>2017</b>	<b>\$848,000</b>	<b>2018</b>	<b>\$2,384,000</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
Additions	\$2,925,000	
Removals	\$289,000	
(Salvage)	\$16,000	
Overhead Loads	\$19,000	
CBI Total	\$3,232,000	
Retirements	\$840,000	

Approvals			
Organization	Ownership	Share	E&O Committee <input checked="" type="checkbox"/>
			Coordinating Committee <input type="checkbox"/>
			Approve
4CA	7.00%	226,240	<i>James R. Hartfield</i> 10/31/16
APS	63.00%	2,036,160	<i>J. K. ...</i> 9/28/16
PNM	13.00%	420,160	<i>...</i> 9/28/16
SRP	10.0%	323,200	<i>...</i> 9/28/16
TEP	7.00%	226,240	<i>J. K. ...</i> 9-28-16

FCC08113 Baghouse Expansion Joint Replacement			
Four Corners Participant Project	SG2 WA Rev 0	100% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: 17-25	Env Code: Air	ERF Completed: Yes
In 2017 Budget: No	Plant Acct: 312	Est Removal: 09/15/2017	Est In Svc: 12/19/2017
<b>Description:</b> Replace 28 reinforced Viton expansion joints in the Baghouse ductwork.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain compliance with fugitive dust and emissions regulations, ISO 14001 and the Title V permit. The expansion joints have reached the end of their design life due to high velocity and high temperature flue gas. Flyash causes erosion and abrasion to the expansion joints, resulting in leaks and ruptures.			
<b>Consequences of Delay:</b> Unit outage due to rupture of expansion joint.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:		M\$	
Budget Category:		ENV	

Cash Flow - 2017							
Jan	\$0	Apr	\$52,000	Jul	\$7,000	Oct	\$683,000
Feb	\$6,000	May	\$16,000	Aug	\$3,000	Nov	\$751,000
Mar	\$8,000	Jun	\$13,000	Sep	\$448,000	Dec	\$616,000
Prior	\$1,000	2017	\$2,602,000	2018	\$67,000	After	\$0

Cost Summary		
	Current Amount	Revised Amount
Additions	\$2,415,000	
Removals	\$239,000	
(Salvage)	\$13,000	
Overhead Loads	\$15,000	
<b>CBI Total</b>	<b>\$2,669,000</b>	
Retirements	\$694,000	

Approvals			
Organization	Ownership	Share	Approve
4CA	7.00%	186,830	<i>James R. Hatfield</i> Date 10/31/16
APS	63.00%	1,681,470	<i>[Signature]</i> Date 9/28/16
PNM	13.00%	346,970	<i>[Signature]</i> Date 9/28/16
SRP	10.0%	266,900	<i>[Signature]</i> Date 9/28/16
TEP	7.00%	186,830	<i>[Signature]</i> Date 9-28-16

FCC08493 Lagging and Insulation Replacement - Windbox			
Four Corners Participant Project	SG2 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: 17-26	Env Code: N/A	ERF Completed: Yes
In 2017 Budget: Yes	Plant Acct: 311	Est Removal: 09/28/2017	Est In Svc: 11/17/2017
<b>Description:</b> Replace unit 5 windbox lagging and insulation.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain a safe plant work environment by eliminating potential hazards. These replacements are intended to reduce the hazards that exist when lagging and insulation are loose or deteriorating creating potential unsafe conditions for plant personnel and equipment.			
<b>Consequences of Delay:</b> If not replaced, safety required surface temperatures will not be maintained and increased risk of falling debris from existing material decomposition			
<b>Economic Justification:</b>			
Benefit-Cost NPV: M\$			
Budget Category: SAFETY			

Cash Flow - 2017							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$202,000
Feb	\$0	May	\$0	Aug	\$0	Nov	\$202,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$96,000
Prior	\$0	2017	\$500,000	2018	\$5,000	After	\$0

Cost Summary		
	Current Amount	Revised Amount
Additions	\$480,000	
Removals	\$25,000	
(Salvage)	\$3,000	
Overhead Loads	\$0	
CBI Total	\$505,000	
Retirements	\$130,000	

Approvals			
Organization	Ownership	Share	Approve
4CA	7.00%	35,350	James R. Hatfield 10/31/16
APS	63.00%	318,150	[Signature] 7/20/16
PNM	13.00%	65,650	[Signature] 9/28/16
SRP	10.0%	50,500	[Signature] 9/28/16
TEP	7.00%	35,350	[Signature] 9-28-16

FOUR CORNERS PARTICIPANT PROJECT			
Four Corners Participant Project	SG2 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: 17-29	Env Code: N/A	ERF Completed: Yes
In 2017 Budget: Yes	Plant Acc: 312	Est Removal: 01/22/2018	Est In Svc: 04/24/2018
<b>Description:</b> Replace the 14 retractable sootblowers in positions IK-1 through IK-14 on Unit 4 boiler.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain unit reliability by improving soot blowing efficiency resulting in reduced damage to boiler tubes. These replacements will reduce costs and delays due to reduced sootblower repairs and having a more readily serviceable product. Existing sootblowers are approaching the end of their useful life and are custom-built with a narrow track. The custom features of this model are no longer supported by the OEM.			
<b>Consequences of Delay:</b> Continued loss in performance efficiency, increased slag buildup, increased emissions per unit of power output, and continual increase in damage to boiler tubes. Economic justification assumes a 25% probability of a 3 day forced out outage at \$7/MWH net replacement power cost.			
<b>Economic Justification:</b>			
	Benefit-Cost NPV:	(\$0.60) M\$	
	Budget Category:	REL-UNIT	
FP 71519210 WO 715-Y0075810 RO 715-Y0080507			

Cash Flow - 2017							
Jan	\$2,000	Apr	\$19,000	Jul	\$18,000	Oct	\$2,000
Feb	\$2,000	May	\$18,000	Aug	\$16,000	Nov	\$3,000
Mar	\$52,000	Jun	\$19,000	Sep	\$689,000	Dec	\$6,000
<b>Prior</b>	<b>\$0</b>	<b>2017</b>	<b>\$846,000</b>	<b>2018</b>	<b>\$1,704,000</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
Additions	\$2,299,000	
Removals	\$250,000	
(Salvage)	\$13,000	
Overhead Loads	\$22,000	
<b>CBI Total</b>	<b>\$2,550,000</b>	
Retirements	\$408,000	

Approvals			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
Organization	Ownership	Share	Approve	
4CA	7.00%	178,500	<i>James P. [Signature]</i>	Date: 10/3/16
APS	63.00%	1,606,500	<i>[Signature]</i>	Date: 9/28/16
PNM	13.00%	331,500	<i>[Signature]</i>	Date: 9/28/16
SRP	10.0%	255,000	<i>[Signature]</i>	Date: 9/25/16
TEP	7.00%	178,500	<i>[Signature]</i>	Date: 9-28-16

FOC08712 IK Retractable Sootblower Replacement - 2017			
Four Corners Participant Project	SG2 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: 17-30	Env Code: N/A	ERF Completed: Yes
In 2017 Budget: Yes	Plant Acct: 312	Est Removal: 10/09/2017	Est In Svc: 12/19/2017
<b>Description:</b> Replace 8 of 14 retractable sootblowers in positions IK-5, IK-6, IK-7, IK-8, IK-11, IK-12, IK-13, and IK-14.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain unit reliability by improving soot blowing efficiency and to reduce damage to boiler tubes. These replacements will reduce costs and delays due to reduced sootblower repairs and having a more readily serviceable product. Existing sootblowers are approaching the end of their useful life and are custom-built with a narrow track. The custom features of this model are no longer supported by the OEM.			
<b>Consequences of Delay:</b> Continued loss in performance efficiency, increased slag buildup, increased emissions per unit of power output, and continual increase in damage to boiler tubes. Economic justification assumes a 25% probability of a 3 day forced out outage at \$7/MWH net replacement power cost.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:		\$0.60 M\$	
Budget Category:		REL-UNIT	

FP 715-19017 Unit 5  
WO 715-40075812

Cash Flow - 2017							
Jan	\$14,000	Apr	\$17,000	Jul	\$16,000	Oct	\$291,000
Feb	\$50,000	May	\$17,000	Aug	\$4,000	Nov	\$291,000
Mar	\$14,000	Jun	\$17,000	Sep	\$687,000	Dec	\$281,000
Prior	\$0	2017	\$1,698,000	2018	\$38,000	After	\$0
<b>Cost Summary</b>							
		<b>Current Amount</b>		<b>Revised Amount</b>			
Additions		\$1,561,000					
Removals		\$155,000					
(Salvage)		\$9,000					
Overhead Loads		\$20,000					
CBI Total		\$1,736,000					
Retirements		\$104,000					
<b>Approvals</b>							
		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>			
Organization	Ownership	Share	Approve				
4CA	7.00%	121,520	<i>James R. Hartfield</i>	Date	10/3/16		
APS	63.00%	1,093,680	<i>H. K. ...</i>	Date	9/28/16		
PNM	13.00%	225,680	<i>J. ...</i>	Date	9/28/16		
SRP	10.0%	173,600	<i>M. ...</i>	Date	9/28/16		
TEP	7.00%	121,520	<i>John ...</i>	Date	9.28.16		

Initiated 3-13-17



FCC08792 Scrubber Outlet Duct Liner Replacement			
Four Corners Participant Project	SG2 WA Rev 0	100% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: 17-31	Env Code: Air	ERF Completed: Yes
In 2017 Budget: No	Plant Acct: 312	Est Removal: 10/09/2017	Est In Svc: 12/19/2017
<p><b>Description:</b> Replace the scrubber outlet duct Hastelloy C-22 liner and carbon steel duct casing as required and apply coating. This project is a follow-up to complete the unfinished portion of the duct from FCC03855.</p> <p><b>Purpose/Necessity:</b> The purpose of this project maintain environmental compliance with the Plant's Title V Permit and to maintain Unit Reliability. The existing liner has experienced extensive corrosion. There is also damage to the carbon steel duct plate in several locations, as a result of moisture leaking through the liner. Corrosion of the carbon steel duct and stiffeners can compromise the structural integrity of the duct. In addition to potential structural damage, corrosion of the C22 liner and carbon steel plate has the potential to allow unpermitted discharge of flue gas to leak directly to the atmosphere resulting in noncompliance with the plants Title V Permit.</p> <p><b>Consequences of Delay:</b> If liner is not replaced, eventual breaching of the duct will occur resulting in fugitive emissions and a potential unit outage.</p> <p><b>Economic Justification:</b> Benefit-Cost NPV: M\$ Budget Category: ENV</p> <p style="text-align: center; font-size: 1.2em;">FP 71519017 WO 715-Y0076541 RO 715-Y0078907</p>			

Cash Flow - 2017							
Jan	\$19,000	Apr	\$30,000	Jul	\$19,000	Oct	\$1,263,000
Feb	\$25,000	May	\$31,000	Aug	\$33,000	Nov	\$1,263,000
Mar	\$47,000	Jun	\$257,000	Sep	\$666,000	Dec	\$715,000
<b>Prior</b>	\$0	<b>2017</b>	\$4,368,000	<b>2018</b>	\$28,000	<b>After</b>	\$0

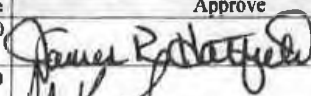
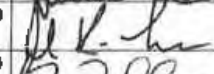

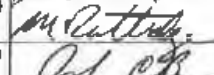
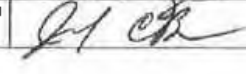
Cost Summary		Current Amount	Revised Amount
Additions		\$3,976,000	
Removals		\$393,000	
(Salvage)		\$21,000	
Overhead Loads		\$27,000	
CBI Total		\$4,396,000	
Retirements		\$1,000,000	

Approvals		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
Organization	Ownership	Share	Approve		
4CA	7.00%	307,720	<i>James Edlatfeld</i>	Date	10/31/16
APS	63.00%	2,769,480	<i>D.K. ...</i>	Date	9/28/16
PNM	13.00%	571,480	<i>D. Kelly</i>	Date	9/28/16
SRP	10.0%	439,600	<i>M. ...</i>	Date	9/28/16
TEP	7.00%	307,720	<i>J. ...</i>	Date	9-28-16

FCC08852 Waterwall Center Panel Replacement			
Four Corners Participant Project	SG2 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: 17-32	Env Code: N/A	ERF Completed: Yes
In 2017 Budget: No	Plant Acct: 312	Est Removal: 02/05/2018	Est In Svc: 04/24/2018
<p><b>Description:</b> Replace the right hand waterwall center panels located on the 2nd and 3rd pass transition. The boundary for each of the 61 tubes is below the 3rd Pass Inlet Header at boiler elevation 86'-10" to above the 2nd Pass Outlet Header at elevation 99'-0".</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to maintain unit reliability while reducing the risk of forced outages due to wall tube leaks. The boiler has experienced an increased number of boiler tube leaks in the second and third pass transition zone waterwalls due to circumferential cracking.</p> <p><b>Consequences of Delay:</b> Forced outages due to boiler tube leaks in the second and third pass transition zone waterwalls. Economic justification assumes a 100% probability of a 10 day forced outage and \$7/MWH net replacement power cost.</p> <p><b>Economic Justification:</b>                      Benefit-Cost NPV: \$3.50 MS                      Budget Category: REL-INIT</p>			

Cash Flow - 2017							
Jan	\$2,000	Apr	\$4,000	Jul	\$2,000	Oct	\$2,000
Feb	\$4,000	May	\$2,000	Aug	\$2,000	Nov	\$5,000
Mar	\$48,000	Jun	\$2,000	Sep	\$2,000	Dec	\$183,000
<b>Prior</b>	<b>\$0</b>	<b>2017</b>	<b>\$258,000</b>	<b>2018</b>	<b>\$445,000</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
Additions	\$628,000	
Removals	\$55,000	
(Salvage)	\$3,000	
Overhead Loads	\$20,000	
<b>CBI Total</b>	<b>\$703,000</b>	
Retirements	\$150,000	

Approvals			
Organization	Ownership	Share	E&O Committee <input checked="" type="checkbox"/> <span style="margin-left: 20px;">Coordinating Committee <input type="checkbox"/></span>
			Approve
4CA	7.00%	49,210	 Date: 10/31/16
APS	63.00%	442,890	 Date: 9/28/16
PNM	13.00%	91,390	 Date: 9/28/16
SRP	10.0%	70,300	 Date: 7/28/16
TEP	7.00%	49,210	 Date: 9-28-16

FCC08895 Burner Replacement, F4							
Four Corners Participant Project		SG2 WA Rev 0	100% Enviro.		NSR Completed: Yes		
FC Unit 4		CBI: 17-33	Env Code: Air		ERF Completed: Yes		
In 2017 Budget: No		Plant Acct: 312	Est Removal: 01/31/2018		Est In Svc: 04/24/2018		
<b>Description:</b> Replace 24 coal burners.							
<b>Purpose/Necessity:</b> The purpose of this project is to maintain compliance with MACT regulations. The current coal burners were installed in 1990 and are approaching the end of their usable life. Inspections in 2015 and 2016 have reported erosion on the major components of register vanes, internal strut, and perforated plates. The condition of the burners results in increased emissions and decrease in efficiency. The windbox steel requires repair due to warping from broken or missing refractory.							
<b>Consequences of Delay:</b> Noncompliance with MACT. Increased costs to maintain burner operations and risk of unit derate due to burner failure. Risk of fire in the windbox from damaged coal barrels. Increase generation of unburnt coal particles.							
<b>Economic Justification:</b>							
Benefit-Cost NPV:		M\$					
Budget Category:		ENV					
<b>Cash Flow - 2017</b>							
Jan	\$34,000	Apr	\$23,000	Jul	\$5,000	Oct	\$7,000
Feb	\$36,000	May	\$26,000	Aug	\$3,000	Nov	\$4,817,000
Mar	\$52,000	Jun	\$16,000	Sep	\$3,000	Dec	\$9,000
Prior	\$0	2017	\$5,061,000	2018	\$9,234,000	After	\$0
<b>Cost Summary</b>							
		Current Amount			Revised Amount		
Additions		\$12,851,000					
Removals		\$1,428,000					
(Salvage)		\$114,000					
Overhead Loads		\$16,000					
CBI Total		\$14,295,000					
Retirements		\$3,145,000					
<b>Approvals</b>							
Exhibit: ABS				E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
Organization	Ownership	Share	Approve		Date		
4CA	7.00%	1,000,650					
APS	63.00%	9,005,850					
PNM	13.00%	1,858,350	<i>X Jolly</i>		1-13-17		
SRP	10.0%	1,429,500					
TEP	7.00%	1,000,650					

FCC08896 Burner Replacement, F5							
Four Corners Participant Project		SQ2 WA Rev 0		100% Enviro.		NSR Completed: Yes	
FC Unit 3		CBI: 17-34		Env Code: Air		ERF Completed: Yes	
In 2017 Budget: No		Plant Acct: 312		Est Removal: 09/11/2017		Est In Svc: 12/19/2017	
<b>Description:</b> Replace 24 coal burners							
<b>Purpose/Necessity:</b> The purpose of this project is to maintain compliance with MACT regulations. The current coal burners were installed in 1990 and are approaching the end of their usable life. Inspections in 2015 and 2016 have reported erosion on the major components of register vanes, internal strut, and perforated plates. The condition of the burners results in increased emissions and decrease in efficiency. The windbox steel requires repair due to warping from broken or missing refractory.							
<b>Consequences of Delay:</b> Noncompliance with MACT. Increased costs to maintain burner operations and risk of unit derate due to burner failure. Risk of fire in the windbox from damaged coal barrels. Increase generation of unburnt coal particles.							
<b>Economic Justification:</b>							
Benefit-Cost NPV:		M\$					
Budget Category:		ENV					
<b>Cash Flow - 2017</b>							
Jan	\$34,000	Apr	\$31,000	Jul	\$6,000	Oct	\$3,638,000
Feb	\$68,000	May	\$28,000	Aug	\$6,000	Nov	\$3,934,000
Mar	\$64,000	Jun	\$22,000	Sep	\$5,570,000	Dec	\$1,421,000
Prior	\$0	2017	\$14,821,000	2018	\$31,000	After	\$0
<b>Cost Summary</b>							
	<b>Current Amount</b>			<b>Revised Amount</b>			
Additions	\$13,651,000						
Removals	\$1,187,000						
(Salvage)	\$109,000						
Overhead Loads	\$14,000						
CBI Total	\$14,852,000						
Retirements	\$3,000,000						
<b>Approvals</b>							
Exhibit ABT				E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
Organization	Ownership	Share	<b>Approve</b>				
4CA	7.00%	1,039,640			Date		
APS	63.00%	9,356,760			Date		
PNM	13.00%	1,930,760	<i>[Signature]</i>		Date		
SRP	10.0%	1,485,200			Date		
TEP	7.00%	1,039,640			Date		

FCC08919 Stack Outlet Monitoring Equipment Replacement			
Four Corners Participant Project	SG2 WA Rev 0	100% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: 17-35	Env Code: Air	ERF Completed: Yes
In 2017 Budget: No	Plant Acct: 312	Est Removal: 01/22/2018	Est In Svc: 04/24/2018
<p><b>Description:</b> Installation of new stack outlet Continuous Emission Monitoring System (CEMS) including replacement of existing SO<sub>2</sub>, CO, and CO<sub>2</sub> outlet monitors, installation of new NO<sub>x</sub> monitors and relocation of Continuous Opacity Monitoring System (COMS), Flow, Particulate Matter and Mercury (Hg) to new CEMS location. The new monitoring equipment will include new dilution-extractive technology.</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to meet regulatory requirements for emissions monitoring as required by the Title V permit, MATS and the 2015 Consent Decree. The existing system is approaching end of useful life and is at high risk of failure. Upcoming changes to stack conditions and pollutant concentrations will greatly challenge and/or exceed the capabilities of the current systems.</p> <p><b>Consequences of Delay:</b> Delays could result in environmental noncompliance with Title V permit, MATS and the 2015 Consent Decree.</p> <p><b>Economic Justification:</b> Benefit-Cost NPV: M\$ Budget Category: ENV</p>			

Cash Flow - 2017							
Jan	\$30,000	Apr	\$31,000	Jul	\$31,000	Oct	\$4,000
Feb	\$49,000	May	\$34,000	Aug	\$32,000	Nov	\$4,000
Mar	\$32,000	Jun	\$29,000	Sep	\$4,000	Dec	\$308,000
<b>Prior</b>	<b>\$0</b>	<b>2017</b>	<b>\$586,000</b>	<b>2018</b>	<b>\$561,000</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
Additions	\$1,015,000	
Removals	\$88,000	
(Salvage)	\$6,000	
Overhead Loads	\$44,000	
CBI Total	\$1,147,000	
Retirements	\$424,000	

Approvals			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
Organization	Ownership	Share	Approve	
4CA	7.00%	80,290	<i>[Signature]</i>	Date 10/31/16
APS	63.00%	722,610	<i>[Signature]</i>	Date 9/28/16
PNM	13.00%	149,110	<i>[Signature]</i>	Date 9/28/16
SRP	10.0%	114,700	<i>[Signature]</i>	Date 9/28/16
TEP	7.00%	80,290	<i>[Signature]</i>	Date 9-28-16

FCC08920 Stack Outlet Monitoring Equipment Replacement			
Four Corners Participant Project	SG2 WA Rev 0	100% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: 17-36	Env Code: Air	ERF Completed: Yes
In 2017 Budget: No	Plant Acct: 312	Est Removal: 09/15/2017	Est In Svc: 12/19/2017
<p><b>Description:</b> Installation of new stack outlet Continuous Emission Monitoring System (CEMS) including replacement of existing SO<sub>2</sub>, CO, and CO<sub>2</sub> outlet monitors, installation of new NO<sub>x</sub> monitors and relocation of Continuous Opacity Monitoring System (COMS), Flow, Particulate Matter and Mercury (Hg) to new CEMS location. The new monitoring equipment will include new dilution-extractive technology.</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to meet regulatory requirements for emissions monitoring as required by the Title V permit, MATS and the 2015 Consent Decree. The existing system is approaching end of useful life and is at high risk of failure. Upcoming changes to stack conditions and pollutant concentrations will greatly challenge and/or exceed the capabilities of the current systems.</p> <p><b>Consequences of Delay:</b> Delays could result in environmental noncompliance with Title V permit, MATS and the 2015 Consent Decree.</p> <p><b>Economic Justification:</b> Benefit-Cost NPV: M\$ Budget Category: ENV</p>			

Cash Flow - 2017							
Jan	\$29,000	Apr	\$36,000	Jul	\$29,000	Oct	\$109,000
Feb	\$53,000	May	\$32,000	Aug	\$336,000	Nov	\$115,000
Mar	\$32,000	Jun	\$32,000	Sep	\$118,000	Dec	\$192,000
Prior	\$0	2017	\$1,114,000	2018	\$37,000	After	\$0

Cost Summary		
	Current Amount	Revised Amount
Additions	\$1,025,000	
Removals	\$89,000	
(Salvage)	\$6,000	
Overhead Loads	\$36,000	
CBI Total	\$1,151,000	
Retirements	\$426,000	

Approvals				
Organization	Ownership	Share	E&O Committee <input checked="" type="checkbox"/> Coordinating Committee <input type="checkbox"/>	
			Approve	Date
4CA	7.00%	80,570	<i>James R. Hartzfeld</i>	10/31/16
APS	63.00%	725,130	<i>H. K. ...</i>	9/28/16
PNM	13.00%	149,630	<i>J. ...</i>	9/20/16
SRP	10.0%	115,100	<i>M. ...</i>	9/28/16
TEP	7.00%	80,570	<i>J. ...</i>	9-28-16

FCC08987 East Main Turbine Lube Oil System Cooler Re-Tube			
Four Corners Participant Project	SG2 WA Rev 0	100% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: 17-37	Env Code: Water	ERF Completed: Yes
In 2017 Budget: No	Plant Acct: 312	Est Removal: 09/15/2017	Est In Svc: 12/19/2017
<b>Description:</b> Replace the tubes for the East Main Turbine Lube Oil System cooler.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain unit reliability and lower the risk of an NPDES permit violation and Reportable Environmental Incident (REI) by restoring the lube oil system cooler integrity.			
<b>Consequences of Delay:</b> High risk of a potential 10 day forced outage due to loss of redundancy, and NPDES permit violation and REI due to end of life tube bundle.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:		M\$	
Budget Category:		ENV	

Cash Flow - 2017							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$149,000
Feb	\$5,000	May	\$0	Aug	\$0	Nov	\$83,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$70,000
<b>Prior</b>	<b>\$0</b>	<b>2017</b>	<b>\$307,000</b>	<b>2018</b>	<b>\$3,000</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
Additions	\$273,000	
Removals	\$14,000	
(Salvage)	\$1,000	
Overhead Loads	\$24,000	
<b>CBI Total</b>	<b>\$312,000</b>	
Retirements	\$0	

Approvals				
Organization	Ownership	Share	E&O Committee <input checked="" type="checkbox"/> Coordinating Committee <input type="checkbox"/>	
			Approve	Date
4CA	7.00%	21,840	<i>James R. Hartgering</i>	10/3/16
APS	61.00%	196,560	<i>J. R. [Signature]</i>	9/28/16
PNM	13.00%	40,560	<i>[Signature]</i>	9/28/16
SRP	10.0%	31,200	<i>[Signature]</i>	9/28/16
TIP	7.00%	21,840	<i>[Signature]</i>	9-28-16

**FCC08988 West Main Turbine Lube Oil System Cooler Re-Tube**

Four Corners Participant Project	SG2 WA Rev 0	100% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: 17-38	Env Code: Water	ERF Completed: Yes
In 2017 Budget: No	Plant Acct: 312	Est Removal: 09/15/2017	Est In Svc: 12/19/2017

**Description:** Replace the tubes for the West Main Turbine Lube Oil System cooler.

**Purpose/Necessity:** The purpose of this project is to maintain unit reliability and lower the risk of an NPDES permit violation and Reportable Environmental Incident (REI) by restoring the lube oil system cooler integrity.

**Consequences of Delay:** High risk of a potential 10 day forced outage due to loss of redundancy. High risk of NPDES permit violation and REI due to end of life tube bundle.

**Economic Justification:**  
Benefit-Cost NPV: M\$  
Budget Category: ENV

**Cash Flow - 2017**

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$169,000
Feb	\$5,000	May	\$0	Aug	\$0	Nov	\$73,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$60,000
<b>Prior</b>	<b>\$0</b>	<b>2017</b>	<b>\$307,000</b>	<b>2018</b>	<b>\$5,000</b>	<b>After</b>	<b>\$0</b>

**Cost Summary**

	Current Amount	Revised Amount
Additions	\$273,000	
Removals	\$14,000	
(Salvage)	\$1,000	
Overhead Loads	\$24,000	
<b>CBI Total</b>	<b>\$312,000</b>	
Retirements	\$0	

**Approvals**

Organization	Ownership	Share	E&O Committee <input checked="" type="checkbox"/> Coordinating Committee <input type="checkbox"/>	
			Approve	Date
4CA	7.00%	21,840	<i>James R. [Signature]</i>	10/3/16
APS	63.00%	196,560	<i>J. R. [Signature]</i>	9/28/16
PNM	13.00%	40,560	<i>[Signature]</i>	9/22/16
SRP	10.0%	31,200	<i>[Signature]</i>	9/28/16
TEP	7.00%	21,840	<i>[Signature]</i>	9-28-16



FCC08989 West Main Turbine Lube Oil System Cooler Re-Tube			
Four Corners Participant Project	SG2 WA Rev 0	100% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: 17-39	Env Code: Water	ERF Completed: Yes
In 2017 Budget: No	Plant Acct: 312	Est Removal: 01/22/2018	Est In Svc: 04/24/2018
<b>Description:</b> Replace the tubes for the West Main Turbine Lube Oil System cooler.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain unit reliability and lower the risk of an NPDES permit violation and Reportable Environmental Incident (REI) by restoring the lube oil system cooler integrity.			
<b>Consequences of Delay:</b> High risk of a potential 10 day forced outage due to loss of redundancy. High risk of NPDES permit violation and REI due to end of life tube bundle.			
<b>Economic Justification:</b>			
Benefit-Cost NPV: M\$			
Budget Category: ENV			

Cash Flow - 2017							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$5,000	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$10,000
<b>Prior</b>	<b>\$0</b>	<b>2017</b>	<b>\$15,000</b>	<b>2018</b>	<b>\$297,000</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
Additions	\$273,000	
Removals	\$14,000	
(Salvage)	\$1,000	
Overhead Loads	\$24,000	
<b>CBI Total</b>	<b>\$312,000</b>	
Retirements	\$0	

Approvals			
Organization	Ownership	Share	Approve
4CA	7.00%	21,840	James R. [Signature] 10/31/16
APS	63.00%	196,560	[Signature] 9/28/16
PNM	13.00%	40,560	[Signature] 9/28/16
SRP	10.0%	31,200	[Signature] 9/28/16
TEP	7.00%	21,840	[Signature] 9-28-16

FCC08998 2017 HVAC – Miscellaneous Equipment Replacement			
Four Corners Participant Project	SG2 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Common	CBI: 17-41	Env Code: N/A	ERF Completed: Yes
In 2017 Budget: No	Plant Acct: 390	Est Removal:	Est In Svc: 12/29/2017
<b>Description:</b> Funding for the replacement of miscellaneous HVAC equipment/components.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain plant HVAC reliability. Capital budget will be used for purchase and installation of new capital HVAC equipment as failures or immediate need occurs throughout the 2017 calendar year.			
<b>Consequences of Delay:</b> Negative impact to the plant's response to obtaining approvals needed for Capital HVAC requirements.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:		M\$	
Budget Category:		REL-UNIT	

Cash Flow - 2017							
Jan	\$0	Apr	\$100,000	Jul	\$100,000	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$100,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2017	\$300,000	2018	\$0	After	\$0

Cost Summary		
	Current Amount	Revised Amount
Additions	\$282,000	
Removals	\$18,000	
(Salvage)	\$2,000	
Overhead Loads	\$0	
CBI Total	\$300,000	
Retirements	\$0	

Approvals			
Organization	Ownership	Share	Approve
4CA	7.00%	21,000	<i>James R. Hatfield</i> 10/13/16
APS	63.00%	189,000	<i>J. R. ...</i> 9/28/16
PNM	13.00%	39,000	<i>J. ...</i> 7/29/16
SRP	10.0%	30,000	<i>M. ...</i> 7/28/16
TEP	7.00%	21,000	<i>J. CB</i> 9-28-16

FCC08998 2017 HVAC – Miscellaneous Equipment Replacement							
Four Corners Participant Project	SG2 WA Rev 0	0% Enviro.	NSR Completed: Yes				
FC Common	CBI: 17-41	Env Code: N/A	ERF Completed: Yes				
In 2017 Budget: No	Plant Acct: 390	Est Removal:	Est In Svc: 12/29/2017				
<b>Description:</b> Funding for the replacement of miscellaneous HVAC equipment/components.							
<b>Purpose/Necessity:</b> The purpose of this project is to maintain plant HVAC reliability. Capital budget will be used for purchase and installation of new capital HVAC equipment as failures or immediate need occurs throughout the 2017 calendar year.							
<b>Consequences of Delay:</b> Negative impact to the plant's response to obtaining approvals needed for Capital HVAC requirements.							
<b>Economic Justification:</b>							
Benefit-Cost NPV:		M\$					
Budget Category:		REL-UNIT					
Cash Flow - 2017							
Jan	\$0	Apr	\$100,000	Jul	\$100,000	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$100,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2017	\$300,000	2018	\$0	After	\$0
Cost Summary							
		Current Amount			Revised Amount		
Additions			\$282,000				
Removals			\$18,000				
(Salvage)			\$2,000				
Overhead Loads			\$0				
CBI Total			\$300,000				
Retirements			\$0				
Approvals							
				E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
Organization	Ownership	Share	Approve				
4CA	7.00%	21,000	James R. Hatfield		Date		10/13/16
APS	63.00%	189,000	J. K. [Signature]		Date		9/28/16
PNM	13.00%	39,000	[Signature]		Date		7/29/16
SRP	10.0%	30,000	M. [Signature]		Date		7/28/16
TEP	7.00%	21,000	J. [Signature]		Date		9-28-16

FCC08998 2017 HVAC – Miscellaneous Equipment Replacement			
Four Corners Participant Project	SG2 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Common	CBI: 17-41	Env Code: N/A	ERF Completed: Yes
In 2017 Budget: No	Plant Acct: 390	Est Removal:	Est In Svc: 12/29/2017

**Description:** Funding for the replacement of miscellaneous HVAC equipment/components.

**Purpose/Necessity:** The purpose of this project is to maintain plant HVAC reliability. Capital budget will be used for purchase and installation of new capital HVAC equipment as failures or immediate need occurs throughout the 2017 calendar year.

**Consequences of Delay:** Negative impact to the plant's response to obtaining approvals needed for Capital HVAC requirements.

**Economic Justification:**  
Benefit-Cost NPV: M\$  
Budget Category: REL-UNIT

Cash Flow - 2017							
Jan	\$0	Apr	\$100,000	Jul	\$100,000	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$100,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2017	\$300,000	2018	\$0	After	\$0

Cost Summary		
	Current Amount	Revised Amount
Additions	\$282,000	
Removals	\$18,000	
(Salvage)	\$2,000	
Overhead Loads	\$0	
CBI Total	\$300,000	
Retirements	\$0	

Approvals			
Organization	Ownership	Share	Approve
4CA	7.00%	21,000	James R. Hatfield 10/13/16
APS	63.00%	189,000	J. K. ... 9/28/16
PNM	13.00%	39,000	M. ... 7/29/16
SRP	10.0%	30,000	M. ... 7/28/16
TEP	7.00%	21,000	J. CB 9-28-16

**FCC08999 2017 Building - Miscellaneous Equipment Replacement**

Four Corners Participant Project	SG2 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Common	CBI: 17-42	Env Code: N/A	ERF Completed: Yes
In 2017 Budget: No	Plant Acct: 390	Est Removal:	Est In Svc: 12/29/2017

**Description:** Funding for the replacement of building components (i.e., foundations, walls, roofs, ceilings, stairs, floor coverings, windows, plumbing and fixtures, built-ins, office lighting, conventional doors and partitions, decorations, and modular Trailer Buildings), based on the remodel of 1,000 square feet or greater of office space.

**Purpose/Necessity:** The purpose of this project is to maintain building safety. This funding will be used for the replacement of building components as failures or immediate need occurs throughout the 2017 calendar year.

**Consequences of Delay:** Risk to building safety.

**Economic Justification:**

Benefit-Cost NPV: M\$  
Budget Category: SAFETY

**Cash Flow - 2017**

Jan	\$0	Apr	\$94,000	Jul	\$94,000	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$94,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	<b>\$0</b>	<b>2017</b>	<b>\$282,000</b>	<b>2018</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

**Cost Summary**

	Current Amount	Revised Amount
Additions	\$271,000	
Removals	\$11,000	
(Salvage)	\$1,000	
Overhead Loads	\$0	
<b>CBI Total</b>	<b>\$282,000</b>	
Retirements	\$0	

**Approvals**

Organization	Ownership	Share	E&O Committee <input checked="" type="checkbox"/> Coordinating Committee <input type="checkbox"/>	
			Approve	Date
4CA	7.00%	19,740	<i>James R. Hatfield</i>	10/3/16
APS	63.00%	177,660	<i>M.K. Linn</i>	9/28/16
PNM	13.00%	36,660	<i>Ch. Z...</i>	9/28/16
SRP	10.0%	28,200	<i>M. ...</i>	9/28/16
TEP	7.00%	19,740	<i>JCB</i>	9-28-16

FCC09000 2017 Main Fire Pump House Roof Replacement			
Four Corners Participant Project	SG2 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Common	CBI: 17-43	Env Code: N/A	ERF Completed: Yes
In 2017 Budget: No	Plant Acct: 390	Est Removal:	Est In Svc: 12/29/2017

**Description:** Replace Main Fire Pump House Building built-up asphalt roofing system, including insulation.

**Purpose/Necessity:** The purpose of this project is to maintain roof reliability. The original roof was installed in 1983 and has experienced extensive alligator cracking, penetrations and counter-flashing are loose/damaged. The building roof has exceeded its useful life and has been recommended for complete replacement.

**Consequences of Delay:** Increased yearly maintenance and potential for leaks resulting in damaged equipment.

**Economic Justification:**  
Benefit-Cost NPV: (\$0.10) M\$  
Budget Category: SAFETY

**Cash Flow - 2017**

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$130,000	Dec	\$0
<b>Pror</b>	\$0	<b>2017</b>	\$130,000	<b>2018</b>	\$0	<b>After</b>	\$0

Cost Summary		Current Amount	Revised Amount
Additions		\$120,000	
Removals		\$10,000	
(Salvage)		\$1,000	
Overhead Loads		\$0	
<b>CBI Total</b>		<b>\$130,000</b>	
Retirements		\$0	

Approvals		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
Organization	Ownership	Share	Approve	Date	
4CA	7.00%	9,100	<i>James P. [Signature]</i>	10/2/16	
APS	63.00%	81,900	<i>[Signature]</i>	9/28/16	
PNM	13.00%	16,900	<i>[Signature]</i>	9/28/16	
SRP	10.0%	13,000	<i>[Signature]</i>	9/28/16	
TEP	7.00%	9,100	<i>[Signature]</i>	9-28-16	

Revision

FCC08892 CCR Monitoring Well 2017			
Four Corners Participant Project	Rev 17-44R1	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: 17-44R1	Env Code: Water	BRF Completed: Yes
In 2017 Budget: Yes	Plant Acct:	Est Removal:	Est In Svc: 22 Aug 2017

**Reason for Revision:** The reason for the \$104K increase is due to the need to install up to two additional down gradient monitoring wells for the multiple units lined ash impoundment, lined decant water pond and the dry fly ash disposal area landfill complex. These additional wells are needed to stay compliant with the CCR regulation groundwater monitoring and corrective action section 40 CFR parts 257.90 through 257.94.

Benefit-Cost NPV: 0 M\$

**Description:** Installation of up to three (3) new monitoring wells.

**Purpose/Necessity:** The purpose of this project is to comply with 40 CFR § 257.90 through 257.94 EPA Coal Combustion Residual (CCR) Regulations. The regulations require that a background well be installed for each CCR unit. The existing up gradient monitoring wells will not meet the requirements as a background well.

**Consequences of Delay:** Failure to comply with CCR Regulations will result in a forced cessation of disposal unit operation, commencement of existing disposal unit closure and construction of replacement disposal sites or cessation of coal combustion, closure of the power plant.

**Economic Justification:**

Benefit-Cost NPV: 0 M\$  
Budget Category: ENV

FP 715-19017  
WO 715-10075813

**Cash Flow - 2017**

Jan	\$15,000	Apr	\$60,000	Jul	\$1,000	Oct	\$11,000
Feb	\$23,000	May	\$15,000	Aug	\$0	Nov	\$6,000
Mar	\$77,000	Jun	\$8,000	Sep	\$0	Dec	\$0
Prior	\$0	2017	\$217,000	2018	\$0	After	\$0

**Cost Summary**

	Current Amount	Revised Amount
Additions		\$0
Removals		\$0
(Salvage)		\$0
Specific Cost	\$108,000	\$214,000
Overhead Loads	\$8,000	\$3,000
CBI Total	\$116,000	\$217,000
Retirements		\$0

**Approvals**

			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
4CA	7.00%	\$15,155	<i>James P. Hatfield</i>	Date 2/21/17
APS	63.00%	\$136,397	<i>M.R. [Signature]</i>	Date 2/20/17
PNM	13.00%	\$28,145		Date
SRP	10.0%	\$21,650		Date
TEP	7.00%	\$15,155		Date

WO Initiated 3/13/17. 8

FCC08892 CCR Monitoring Well 2017							
Four Corners Participant Project	Rev 17-44R1	0% Envira.	NSR Completed: Yes				
FC Units 4 & 5	CBI: 17-44R1	Env Code: Water	ERF Completed: Yes				
In 2017 Budget: Yes	Plant Acct:	Est Removal:	Est In Svc: 22 Aug 2017				
<p><b>Reason for Revision:</b> The reason for the \$104K increase is due to the need to install up to two additional down gradient monitoring wells for the multiple units lined ash impoundment, lined decant water pond and the dry fly ash disposal area landfill complex. These additional wells are needed to stay compliant with the CCR regulation groundwater monitoring and corrective action section 40 CFR parts 257.90 through 257.94.</p> <p>Benefit-Cost NPV: 0 M\$</p>							
<p><b>Description:</b> Installation of up to three (3) new monitoring wells.</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to comply with 40 CFR § 257.90 through 257.94 FPA Coal Combustion Residual (CCR) Regulations. The regulations require that a background well be installed for each CCR unit. The existing up gradient monitoring wells will not meet the requirements as a background well.</p> <p><b>Consequences of Delay:</b> Failure to comply with CCR Regulations will result in a forced cessation of disposal unit operation, commencement of existing disposal unit closure and construction of replacement disposal sites or cessation of coal combustion, closure of the power plant.</p> <p><b>Economic Justification:</b> Benefit-Cost NPV: 0 M\$ Budget Category: ENV</p>							
Cash Flow - 2017							
Jan	\$15,000	Apr	\$60,000	Jul	\$1,000	Oct	\$11,000
Feb	\$23,000	May	\$15,000	Aug	\$0	Nov	\$6,000
Mar	\$77,000	Jun	\$8,000	Sep	\$0	Dec	\$0
Prior	\$0	2017	\$217,000	2018	\$0	After	\$0
Cost Summary							
	Current Amount			Revised Amount			
Additions				\$0			
Removals				\$0			
(Salvage)				\$0			
Specific Cost				\$108,000		\$214,000	
Overhead Loads				\$8,000		\$3,000	
CBI Total				\$116,000		\$217,000	
Retirements				\$0			
Approvals							
				E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
APS	63.00%	\$136,397				Date	
PNM	13.00%	\$28,145		<i>J. J. [Signature]</i>		Date	2/14/17
SRP	10.0%	\$21,650				Date	
TIP	7.00%	\$18,153				Date	



FCC08892 CCR Monitoring Well 2017			
Four Corners Participant Project	Rev 17-44R1	0% Enviro.	NSR Completed: Yes
PC Units 4 & 5	CBI: 17-44R1	Env Code: Water	ERF Completed: Yes
In 2017 Budget: Yes	Plant Acct:	Est Removal:	Est In Svc: 22 Aug 2017

**Reason for Revision:** The reason for the \$104K increase is due to the need to install up to two additional down gradient monitoring wells for the multiple units lined ash impoundment, lined decant water pond and the dry fly ash disposal area landfill complex. These additional wells are needed to stay compliant with the CCR regulation groundwater monitoring and corrective action section 40 CFR parts 257.90 through 257.94.

Benefit-Cost NPV: 0 M\$

**Description:** Installation of up to three (3) new monitoring wells.

**Purpose/Necessity:** The purpose of this project is to comply with 40 CFR § 257.90 through 257.94 EPA Coal Combustion Residual (CCR) Regulations. The regulations require that a background well be installed for each CCR unit. The existing up gradient monitoring wells will not meet the requirements as a background well.

**Consequences of Delay:** Failure to comply with CCR Regulations will result in a forced cessation of disposal unit operation, commencement of existing disposal unit closure and construction of replacement disposal sites or cessation of coal combustion, closure of the power plant.

**Economic Justification:**

Benefit-Cost NPV: 0 M\$  
Budget Category: ENV

**Cash Flow - 2017**

Jan	\$15,000	Apr	\$60,000	Jul	\$1,000	Oct	\$11,000
Feb	\$23,000	May	\$15,000	Aug	\$0	Nov	\$6,000
Mar	\$77,000	Jun	\$8,000	Sep	\$0	Dec	\$0
Prior	\$0	2017	\$217,000	2018	\$0	After	\$0

**Cost Summary**

	Current Amount	Revised Amount
Additions		\$0
Removals		\$0
(Salvage)		\$0
Specific Cost	\$108,000	\$214,000
Overhead Loads	\$8,000	\$3,000
CBI Total	\$116,000	\$217,000
Retirements		\$0

**Approvals**

		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$136,397	Date
PNM	13.00%	\$28,143	Date
SRP	10.00%	\$21,650	Date
TEP	7.00%	\$15,155	Date

*[Handwritten signature]* 2/20/17

Four Corners Participant Project	Rev 17-44R1	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: 17-44R1	Env Code: Water	ERF Completed: Yes
In 2017 Budget: Yes	Plant Acot:	Est Removal:	Est In Svc: 22 Aug 2017

**Reason for Revision:** The reason for the \$104K increase is due to the need to install up to two additional down gradient monitoring wells for the multiple units lined ash impoundment, lined decant water pond and the dry fly ash disposal area landfill complex. These additional wells are needed to stay compliant with the CCR regulation groundwater monitoring and corrective action section 40 CFR parts 257.90 through 257.94.

Benefit-Cost NPV: 0 M\$

**Description:** Installation of up to three (3) new monitoring wells.

**Purpose/Necessity:** The purpose of this project is to comply with 40 CFR § 257.90 through 257.94 EPA Coal Combustion Residual (CCR) Regulations. The regulations require that a background well be installed for each CCR unit. The existing up gradient monitoring wells will not meet the requirements as a background well.

**Consequences of Delay:** Failure to comply with CCR Regulations will result in a forced cessation of disposal unit operation, commencement of existing disposal unit closure and construction of replacement disposal sites or cessation of coal combustion, closure of the power plant.

**Economic Justification:**

Benefit-Cost NPV: 0 M\$  
Budget Category: ENV

**Cash Flow - 2017**

Jan	\$15,000	Apr	\$60,000	Jul	\$1,000	Oct	\$11,000
Feb	\$23,000	May	\$15,000	Aug	\$0	Nov	\$6,000
Mar	\$77,000	Jun	\$8,000	Sep	\$0	Dec	\$0
Prior	\$0	2017	\$217,000	2018	\$0	After	\$0

**Cost Summary**

	Current Amount	Revised Amount
Additions		\$0
Removals		\$0
(Salvage)		\$0
Specific Cost	\$108,000	\$214,000
Overhead Loads	\$8,000	\$3,000
CBI Total	\$116,000	\$217,000
Retirements		\$0

**Approvals**

		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$136,397	Date
PNM	13.00%	\$28,145	Date
SRP	10.0%	\$21,650	Date
TEP	7.00%	\$15,155	Date

*Jeb* 2-14-17

FCC08219 Generator SSO Relay Replacement			
Four Corners Participant Project	SG2 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: 17-47	Env Code: N/A	ERF Completed: Yes
In 2017 Budget: No	Plant Acct: 315	Est Removal:	Est In Svc: 04/24/2018
<p><b>Description:</b> Replace the two existing SSO relay cabinets with a single GE type TSR relay cabinet. Install cables between TSR speed sensors on the HP Turbine Front Standard and new relay cabinet.</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to maintain personnel safety. The purpose of the SSO relays is to protect the generator from shaft torsional stress caused by subsynchronous resonance conditions. Failure could result in catastrophic machine damage and plant personnel injury. The SSO relays are approaching the end of their useful life, and the SSO manufacturer no longer exists and there is no product support for technical assistance or spare parts.</p> <p><b>Consequences of Delay:</b> Increased exposure to a subsynchronous resonance event.</p> <p><b>Economic Justification:</b> Benefit-Cost NPV: M\$ Budget Category: SAFETY</p>			

Cash Flow - 2017							
Jan	\$36,000	Apr	\$23,000	Jul	\$12,000	Oct	\$224,000
Feb	\$0	May	\$23,000	Aug	\$12,000	Nov	\$5,000
Mar	\$18,000	Jun	\$12,000	Sep	\$12,000	Dec	\$8,000
<b>Prior</b>	<b>\$0</b>	<b>2017</b>	<b>\$385,000</b>	<b>2018</b>	<b>\$165,000</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
Additions	\$513,000	
Removals	\$20,000	
(Salvage)	\$0	
Overhead Loads	\$17,000	
<b>CBI Total</b>	<b>\$550,000</b>	
Retirements	\$68,000	

Approvals			
Organization	Ownership	Share	Approve
4CA	7.00%	38,500	James R. Hatfield 10/31/16
APS	63.00%	346,500	H. K. ... 9/28/16
PNM	13.00%	71,500	J. ... 9/28/16
SRP	10.0%	55,000	M. ... 9/28/16
TEP	7.00%	38,500	J. ... 9-28-16

FCC08927 San Juan River Intake and Morgan Lake Blowdown Fish Escapement Device							
Four Corners Participant Project	Rev FC17-48R1	100% Env	NSR Completed: Yes				
FC Units 4 & 5	CBI: FC17-48R1	Env Code: Water	ERF Completed: Yes				
In 2017 Budget: Yes	Plant Acct:	Est Removal:	Est In Svc: 31 Jul 2017				
<p><b>Reason for Revision:</b> The reason for this \$492K revision is the addition of a Lake Discharge consisting of a "tilted wedge-wire screen" with concrete support, drainage and overflow containment structures, and barrier fence. This is in lieu of the original scope of a screen inside the lake at the discharge blow-down line in order to comply with the requirements for the USGAF Biological Opinion. Compliance with the Biological Opinion is required by 7/31/17 to maintain the Four Corners Lease agreements.</p> <p>Benefit-Cost NPV: 0 M\$</p>							
<p><b>Description:</b> San Juan River Intake - Install screens and modify the opening in the concrete wall to distribute pump flow, Morgan Lake Outfall - Install fish escapement device to prevent species from passing through the lake discharge next to adjacent flume.</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to comply with the US Fish and Wildlife Service Biological Opinion requested by the Bureau of Indian Affairs and documented in the Record of Decision. The document directs the adherence to requirements at the river intake and lake outlet prior to the July 2017 implementation deadline in order to renew the plant's lease.</p> <p><b>Consequences of Delay:</b> US Fish and Wildlife Service biological opinion directs the adherence to requirements at the river intake and lake outlet prior to the 2017 deadline.</p> <p><b>Economic Justification:</b> Benefit-Cost NPV: 0 M\$ Budget Category: ENV</p>							
Cash Flow - 2017							
Jen	\$14,000	Apr	\$31,000	Jul	\$332,000	Oct	\$10,000
Feb	\$13,000	May	\$233,000	Aug	\$5,000	Nov	\$0
Mar	\$41,000	Jun	\$566,000	Sep	\$10,000	Dec	\$0
<b>Prior</b>	<b>\$3,000</b>	<b>2017</b>	<b>\$1,255,000</b>	<b>2018</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>
Cost Summary							
	Current Amount			Revised Amount			
Additions				\$760,000	\$1,250,000		
Removals							
(Salvage)							
Specific Cost				\$760,000	\$1,250,000		
Overhead Loads				\$6,000	\$8,000		
CBI Total				\$766,000	\$1,258,000		
Retirements							
Approvals							
				E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
4CA	7.00%	\$88,060	Date				
APS	63.00%	\$792,540	Date				
PNM	13.00%	\$163,540	Date <i>5/9/17</i>				
SRP	10.0%	\$125,800	Date				
TEP	7.00%	\$88,060	Date				

FCC09054 Waterwall Panel Replacement			
Four Corners Participant Project	SG2 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: 17-49	Env Code: N/A	ERF Completed: Yes
In 2017 Budget: No	Plant Acct: 312	Est Removal: 04/01/2017	Est In Svc: 04/30/2017

**Description:** Replace the north and south transition waterwall panels.

**Purpose/Necessity:** The purpose of this project is to maintain unit reliability by reducing the risk of forced outages due to wall tube leaks. For the past three years, the boiler has experienced an increased number of boiler leaks as a result of corrosion fatigue (e.g., linear crack indications inside the boiler tube).

**Consequences of Delay:** Forced outages due to boiler tube leaks in the transition zone waterwalls. A typical boiler tube failure results in a ten day outage.

**Economic Justification:**  
Benefit-Cost NPV: \$9.80 M\$  
Budget Category: REL-UNIT

FP 715-19017  
WO 715-Y0075814

Cash Flow - 2017							
Jan	\$0	Apr	\$1,020,000	Jul	\$0	Oct	\$0
Feb	\$40,000	May	\$1,421,000	Aug	\$0	Nov	\$0
Mar	\$616,000	Jun	\$902,000	Sep	\$0	Dec	\$0
Prior	\$0	2017	\$4,000,000	2018	\$0	After	\$0

Cost Summary		
	Current Amount	Revised Amount
Additions	\$3,124,000	
Removals	\$272,000	
(Salvage)	\$25,000	
Overhead Loads	\$604,000	
<b>CBI Total</b>	<b>\$4,000,000</b>	
Retirements	\$0	

Approvals			
Organization	Ownership	Share	Approve
4CA	7.00%	280,000	James R. Hatfield 10/31/16
APS	63.00%	2,520,000	[Signature] 9/28/16
PNM	13.00%	520,000	[Signature] 9/28/16
SRP	10.0%	400,000	[Signature] 9/28/16
TEP	7.00%	280,000	[Signature] 9-28-16

Initiated 3-13-17

FCC09055 Waterwall Panel Replacement			
Four Corners Participant Project	SG2 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: 17-50	Env Code: N/A	ERF Completed: Yes
In 2017 Budget: No	Plant Acct: 312	Est Removal: 05/01/2017	Est In Svc: 05/31/2017

**Description:** Replace the north and south transition waterwall panels.

**Purpose/Necessity:** The purpose of this project is to maintain unit reliability by reducing the risk of forced outages due to wall tube leaks. For the past three years, the boiler has experienced an increased number of boiler leaks as a result of corrosion fatigue (e.g., linear crack indications inside the boiler tube).

**Consequences of Delay:** Forced outages due to boiler tube leaks in the transition zone waterwalls. A typical boiler tube failure results in a ten day outage.

**Economic Justification:**

Benefit-Cost NPV: \$9.80 M\$  
Budget Category: REL-UNIT

FP 715-19017  
WU 715-y0075815

**Cash Flow - 2017**

Jan	\$0	Apr	\$616,000	Jul	\$902,000	Oct	\$0
Feb	\$0	May	\$1,020,000	Aug	\$0	Nov	\$0
Mar	\$40,000	Jun	\$1,421,000	Sep	\$0	Dec	\$0
Prior	\$0	2017	\$4,000,000	2018	\$0	After	\$0

**Cost Summary**

	Current Amount	Revised Amount
Additions	\$3,124,000	
Removals	\$272,000	
(Salvage)	\$25,000	
Overhead Loads	\$604,000	
CBI Total	\$4,000,000	
Retirements	\$0	

**Approvals**

Organization	Ownership	Share	Approve	Date
4CA	7.00%	280,000	<i>James P. [Signature]</i>	10/3/16
APS	63.00%	2,520,000	<i>[Signature]</i>	9/28/16
PNM	13.00%	520,000	<i>[Signature]</i>	9/28/16
SRP	10.0%	400,000	<i>[Signature]</i>	9/28/16
TEP	7.00%	280,000	<i>[Signature]</i>	9-28-16

Initiated 3-13-17

FCC013085 Crane Hoist Replacements			
Four Corners Participant Project	Rev 17-51	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: 17-51	Env Code: N/A	ERF Completed: Yes
In 2017 Budget: No	Plant Acct:	Est Removal:	Est In Svc: 31 Aug 2017
<b>Description:</b> Replace four (4) Turbine Bay Crane Hoists (2 - 130/25 ton, 2 - 10 ton).			
<b>Purpose/Necessity:</b> The purpose of this project is to replace the currently inoperable and obsolete Turbine Bay Cranes in support of the material handling required for the U45 Major LP Turbine overhaul. Due to the vintage of the turbine cranes, parts have been discontinued by the supplier and these items will be more expensive to repair and fix without the option of spare parts. Completing the replacement prior to the U45 Major Outages will also mitigate the risk of delays to the Turbine Overhauls in the event the crane is out of service.			
<b>Consequences of Delay:</b> Deferral of the Crane Hoist Replacement could result in a cost of impact of approximately \$5,430,000. This cost estimate is based on the negotiated Liquidated Damages (LDs) negotiated by APS Management and included in the existing Turbine Contracts with GE.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:		6.00 M\$	
Budget Category:		REL	

Cash Flow - 2017							
Jan	\$0	Apr	\$0	Jul	\$321,000	Oct	\$0
Feb	\$0	May	\$193,000	Aug	\$547,000	Nov	\$0
Mar	\$0	Jun	\$214,000	Sep	\$146,000	Dec	\$0
Prior	\$0	2017	\$1,421,000	2018	\$0	After	\$0

Cost Summary		
	Current Amount	Revised Amount
Additions	\$0	
Removals	\$0	
(Salvage)	\$0	
Specific Cost	\$1,415,000	
Overhead Loads	\$6,000	
<b>CBI Total</b>	<b>\$1,421,000</b>	
Retirements	\$0	

Approvals				
			E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
4CA	7.00%	\$99,460		Date
APS	63.00%	\$895,136		Date
PNM	13.00%	\$184,711	<i>200</i>	Date
SRP	10.0%	\$142,085		5-12-17
TEP	7.00%	\$99,460		Date

**FCC013243 Trench Bushing Replacements**

Four Corners Participant Project      Rev FC17-52      0% Enviro.      NSR Completed: Yes  
 FC Unit 5      CBI: FC17-52      Env Code: N/A      E-RI Completed: Yes  
 In 2017 Budget: No      Plant Acct: 345      Est Removal: 10/31/2017 12:00:00 AM      Est In Svc: 19 Dec 2017

**Description:** Replace the high voltage (HV) and low voltage (LV) bushing of the generator step up (GSU) transformer T1312 and high voltage (HV) bushing on GSU transformer T1544.

**Purpose/Necessity:** The purpose of this project is to maintain plant safety. The bushings are under the original equipment manufacturer (OEM) safety replacement advisory due to catastrophic failures at other installations.

**Consequences of Delay:** The unit is at risk of forced outage from Trench bushing failure which could make the plant unavailable.

**Economic Justification:**  
 Benefit-Cost NPV: 0 M\$  
 Budget Category: SAFETY

FP 715-19017  
 WO 40077787  
 RO 40077788

**Cash Flow - 2017**

Jan	\$0	Apr	\$0	Jul	\$3,000	Oct	\$223,000
Feb	\$0	May	\$0	Aug	\$6,000	Nov	\$390,000
Mar	\$0	Jun	\$0	Sep	\$49,000	Dec	\$113,000
<b>Prior</b>	<b>\$0</b>	<b>2017</b>	<b>\$783,000</b>	<b>2018</b>	<b>\$5,000</b>	<b>After</b>	<b>\$0</b>

**Cost Summary**

	Current Amount	Revised Amount
Additions	90,740	\$698,000
Removals (Salvage)	8,970	\$69,000
Specific Cost	99,710	\$767,000
Overhead Loads	2,730	\$21,000
<b>CBI Total</b>	<b>102,440</b>	<b>\$788,000</b>
Retirements	15,860	\$122,000

**Approvals**

		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
4CA	7.00%	\$55,160	Date
APS	63.00%	\$496,439	Date
PNM	13.00%	\$102,440	Date <i>[Signature]</i> 7/6/17
SRP	10.0%	\$78,800	Date
VEP	7.00%	\$55,160	Date

Initiated 10-10-17



**FCC013241 Trench Bushing Replacements**

Four Corners Participant Project	Rev FC17-53	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC17-53	Env Code: N/A	ERF Completed: Yes
In 2017 Budget: No	Plant Acct: 345	Est Removal: 3/31/2018 12:00:00 AM	Est In Svc: 24 Apr 2018

**Description:** Replace the high voltage (HV) and (HO) neutral bushings of the generator step up (GSU) transformers T1470 and the high voltage (HV) bushing of the GSU transformer T1647.

**Purpose/Necessity:** The purpose of this project is to maintain plant safety. The bushings are under the original equipment manufacturer (OEM) safety replacement advisory due to catastrophic failures at other installations.

**Consequences of Delay:** The unit is at risk of forced outage from Trench bushing failure which could make the plant unavailable.

**Economic Justification:**  
Benefit-Cost NPV: 0 M\$  
Budget Category: SAFETY

FP 715-19017  
WO Y0077789  
RO Y0077807

**Cash Flow - 2017**

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$10,000	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	<b>\$0</b>	<b>2017</b>	<b>\$10,000</b>	<b>2018</b>	<b>\$738,000</b>	<b>After</b>	<b>\$0</b>

**Cost Summary**

	Current Amount	Revised Amount
Additions	\$661,000	
Removals (Salvage)	\$65,000 \$0	
Specific Cost	\$726,000	
Overhead Loads	\$22,000	
<b>CBI Total</b>	<b>\$748,000</b>	
Retirements	\$140,000	

**Approvals**

		I&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
ACA	7.00%	\$52,360	Date
APS	63.00%	\$471,240	Date
PNM	13.00%	\$97,260	Date <i>[Signature]</i> 7/6/17
SRP	10.0%	\$74,800	Date
TTP	7.00%	\$52,360	Date

*RO/WO Initiated 10-10-17*

**FCC08603 Absorber Module Overhaul/4SC**

Four Corners Participant Project	Rev FC17-55	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC17-55	Env Code: Air	ERF Completed: Yes
In 2018 Budget: No	Plant Acct: 312	Est Removal: 17 Feb 2018	Est In Svc: 24 Apr 2018

**Description:** Absorber Module Overhaul to meet 95% removal. Scope includes header, piping, nozzle, mist eliminator valve and tank liner replacement.

**Purpose/Necessity:** The purpose of this project is to comply with the 2015 Consent Decree requiring 95% SO2 removal with no bypass.

**Consequences of Delay:** Non-compliance with 2015 Consent Decree and Air Quality Permits.

**Economic Justification:**  
Benefit-Cost NPV: 0 M\$  
Budget Category: ENV

FP 715-19017  
WO 400 78228  
RO 400 82047

**Cash Flow - 2018**

Jan	\$1,694,000	Apr	\$844,000	Jul	\$5,000	Oct	\$0
Feb	\$1,029,000	May	\$183,000	Aug	\$0	Nov	\$0
Mar	\$2,139,000	Jun	\$2,000	Sep	\$0	Dec	\$0
Prior	\$185,000	2018	\$5,896,000	2019	\$0	After	\$0

**Cost Summary**

	Current Amount	Revised Amount
Additions	\$ 716,820	\$5,514,000
Removals	70,850	\$545,000
(Salvage)	0	\$0
Specific Cost		\$6,059,000
Overhead Loads		\$22,000
CBI Total	\$ 790,530	\$6,081,000
Retirements	130	\$1,000

**Approvals**

			E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>	
4CA	7.00%	\$425,670			Date 9/5/17
APS	63.00%	\$3,831,030			Date 8/31/17
PNM	13.00%	\$790,530			Date
SRP	10.0%	\$608,100			Date
TEP	7.00%	\$425,670			Date 8/29/17

WO Complete \$525,057 12/11/18  
RO Complete \$71,431 11/20/18

<b>FCC08603 Absorber Module Overhaul 4SC</b>			
Four Corners Participant Project	Rev FC17-55	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC17-55	Env Code: Air	ERF Completed: Yes
In 2018 Budget: No	Plant Acct: 312	Est Renioval: 17 Feb 2018	Est In Svc: 24 Apr 2018

**Description:** Absorber Module Overhaul to meet 95% removal. Scope includes header, piping, nozzle, mist eliminator valve and tank line replacement.


**Purpose/Necessity:** The purpose of this project is to comply with the 2015 Consent Decree requiring 95% SO2 removal with no bypass.

**Consequences of Delay:** Non-compliance with 2015 Consent Decree and Air Quality Permits.

**Economic Justification:**  
 Benefit-Cost NPV: 0 M\$  
 Budget Category: ENV

Cash Flow - 2018							
Jan	\$1,694,000	Apr	\$844,000	Jul	\$5,000	Oct	\$0
Feb	\$1,029,000	May	\$183,000	Aug	\$0	Nov	\$0
Mar	\$2,139,000	Jun	\$2,000	Sep	\$0	Dec	\$0
Prior	\$185,000	2018	\$5,896,000	2019	\$0	After	\$0

Cost Summary		
	Current Amount	Revised Amount
Additions	\$5,514,000	
Removals	\$545,000	
(Salvage)	\$0	
Specific Cost	\$6,059,000	
Overhead Loads	\$22,000	
CBI Total	\$6,081,000	
Retirements	\$1,000	

Approvals				
			E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
4CA	7.00%	\$425,670		Date
APS	63.00%	\$3,831,030		Date
PNM	13.00%	\$790,530		Date 05/17/17
SRP	10.0%	\$408,100		Date
TEP	7.00%	\$425,670		Date

FCC08603 Absorber Module Overhaul 4SC			
Four Corners Participant Project	Rev FC17-55	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC17-55	Env Code: Air	ERF Completed: Yes
In 2018 Budget: No	Plant Acct: 312	Est Removal: 17 Feb 2018	Est In Svc: 24 Apr 2018
<b>Description:</b> Absorber Module Overhaul to meet 95% removal. Scope includes header, piping, nozzle, mist eliminator valve and tank liner replacement.			
<b>Purpose/Necessity:</b> The purpose of this project is to comply with the 2015 Consent Decree requiring 95% SO2 removal with no bypass.			
<b>Consequences of Delay:</b> Non-compliance with 2015 Consent Decree and Air Quality Permits.			
<b>Economic Justification:</b>			
Benefit-Cost NPV: 0 M\$			
Budget Category: ENV			

Cash Flow - 2018							
Jan	\$1,694,000	Apr	\$844,000	Jul	\$5,000	Oct	\$0
Feb	\$1,029,000	May	\$183,000	Aug	\$0	Nov	\$0
Mar	\$2,139,000	Jun	\$2,000	Sep	\$0	Dec	\$0
<b>Prior</b>	<b>\$185,000</b>	<b>2018</b>	<b>\$5,896,000</b>	<b>2019</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
Additions	\$5,514,000	
Removals	\$545,000	
(Salvage)	\$0	
Specific Cost	\$6,059,000	
Overhead Loads	\$22,000	
<b>CBI Total</b>	<b>\$6,081,000</b>	
Retirements	\$1,000	

Approvals				
			I&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
4CA	7.00%	\$425,670		Date
APS	63.00%	\$3,831,030		Date
PNM	13.00%	\$790,530		Date
SRP	10.0%	\$608,100	<i>WJL RAC</i>	Date
TTP	7.00%	\$425,670		8-24-2017 Date

**FCC06594 Boiler Expansion Joint Replacements**

Four Corners Participant: Project Rev 17-56 0% Enviro. NSR Completed: Yes  
 UC Unit 4 CBI: 17-56 Env Code: N/A ERF Completed: Yes  
 In 2018 Budget: Yes Plant Acct: 345 Est Removal: 2/17/2018 Est In Svc: 24 Apr 2018

**Description:** Replace (7) of the existing metal expansion joints in the secondary air duct system with fabric expansion joints: EJ-6N, 6S, 7, 4J201North, 4J201South, 7J202North, and 7J202South.

**Purpose/Necessity:** The purpose of this project is to maintain unit reliability and expansion joint integrity. The expansion joints on the secondary air side [including outlet ducts, ducts to windbox, and tie-duct] are reaching the end of their serviceable life and need to be replaced.

**Consequences of Delay:** Expansion joint failures in the secondary air duct system result in a loss of combustion air, and the size of the leak will determine the magnitude of the load loss which can require a complete unit shutdown. The failure of an expansion joint can result in a load loss up to 100%, 10 day forced outage, and repair cost of \$350,000.

**Economic Justification:**  
 Benefit-Cost NPV: 11.80 MS  
 Budget Category: REL

FP 715-19017  
 NO 40077808  
 RO 40077809

**Cash Flow - 2018**

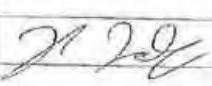
Jan	\$1,020,000	Apr	\$988,000	Jul	\$7,000	Oct	\$0
Feb	\$1,019,000	May	\$11,000	Aug	\$0	Nov	\$0
Mar	\$1,109,000	Jun	(\$93,000)	Sep	\$0	Dec	\$0
Prior	\$755,000	2018	\$4,060,000	2019	\$0	After	\$0

**Cost Summary**

	Current Amount	Revised Amount
Additions		\$0
Removals		\$0
(Salvage)		\$0
Specific Cost		\$4,796,000
Overhead Loads		\$19,000
CBI Total		\$4,815,000
Retirements		\$0

**Approvals**

			E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
ACA	7.00%	\$337,039		Date
APS	63.02%	\$3,033,354		Date
PNM	13.00%	\$625,030		Date
SRP	10.0%	\$481,485		Date
TEP	7.00%	\$337,039		Date

 7/6/17  
 Date

Initiated 10-10-17

**FCC013475 Low Power Plant Implementation (IT TEC013301)**

Four Corners Participant Project	Rev 17-57	0% Enviro.	NSR Completed: Yes
FC Common	CBI: 17-57	Env Code: N/A	ERF Completed: Yes
In 2017 Budget: No	Plant Acct:	Est Removal:	Est In Svc: 17 Aug 2018

**Description:** Implement low impact physical and electronic security controls to meet the standard for NERC CIP compliance at Four Corners.

**Purpose/Necessity:** The purpose of this project is to meet The North American Electric Reliability Corporation's (NERC's) regulatory compliance for Critical Infrastructure Protection (CIP) requirements related to physical and electronic security required at all power plants that contain assets classified as Low Impact. The CIP Standards that are applicable to this project are: CIP-002-5.1a and CIP-003-6. The NERC deadline is September 1, 2018. All Programmable Electronic Devices (PEDs) at the plant will be reviewed to determine which assets are in-scope for low impact CIP requirements. Any in-scope assets that are remotely accessible will require some form of electronic controls "to permit only necessary inbound and outbound bi-directional routable protocol access" (i.e., a firewall or other network-based protection).

**Consequences of Delay:** Failing to implement physical and electronic security controls exposes generation control systems to compromise that could lead to misoperation or instability of the Bulk Electrical System (BES). This could result in damage to equipment or facilities, loss of revenue, etc.

**Economic Justification:**  
Budget Category: REG

**Cash Flow - 2017**

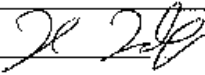
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$24,000
Feb	\$0	May	\$0	Aug	\$49,000	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$49,000	Dec	\$0
Prior	\$0	2017	\$122,000	2018	\$574,000	After	\$0

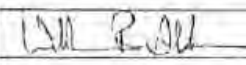
**Cost Summary**

	Current Amount	Revised Amount
Additions	\$620,000	
Removals	\$0	
(Salvage)	\$0	
Specific Cost	\$620,000	
Overhead Loads	\$76,000	
CBI Total	\$696,000	
Retirements	\$0	

**Approvals**

			E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
4CA	7.00%	\$48,748	<i>James R. Hofffield</i>	Date	7/24/17	
APS	63.00%	\$438,732	<i>M.R. ...</i>	Date	7/24/17	
PNM	13.00%	\$90,532		Date		
SRP	10.0%	\$69,640		Date		
TEP	7.00%	\$48,748	<i>CSM</i>	Date	31 Jul 2017	

FCC013475 Low Power Plant Implementation (IT TEC013301)							
Four Corners Participant Project		Rev 17-57	0% Enviro.		NSR Completed: Yes		
FC Common		CBI: 17-57	Env Code: N/A		ERF Completed: Yes		
In 2017 Budget: No		Plant Acct:	Est Removal:		Est In Svc: 17 Aug 2018		
<p><b>Description:</b> Implement low impact physical and electronic security controls to meet the standard for NERC CIP compliance at Four Corners</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to meet The North American Electric Reliability Corporation's (NERC's) regulatory compliance for Critical Infrastructure Protection (CIP) requirements related to physical and electronic security required at all power plants that contain assets classified as Low Impact. The CIP Standards that are applicable to this project are: CIP-002-5.1a and CIP-003-6. The NERC deadline is September 1, 2018. All Programmable Electronic Devices (PEDs) at the plant will be reviewed to determine which assets are in-scope for low impact CIP requirements. Any in-scope assets that are remotely accessible will require some form of electronic controls "to permit only necessary inbound and outbound bi-directional routable protocol access" (i.e., a firewall or other network-based protection).</p> <p><b>Consequences of Delay:</b> Failing to implement physical and electronic security controls exposes generation control systems to compromise that could lead to misoperation or instability of the Bulk Electrical System (BES). This could result in damage to equipment or facilities, loss of revenue, etc.</p> <p><b>Economic Justification:</b> Budget Category: REG</p>							
Cash Flow - 2017							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$24,000
Feb	\$0	May	\$0	Aug	\$49,000	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$49,000	Dec	\$0
Prior	\$0	2017	\$122,000	2018	\$574,000	After	\$0
Cost Summary							
		Current Amount		Revised Amount			
Additions				\$620,000			
Removals				\$0			
(Salvage)				\$0			
Specific Cost				\$620,000			
Overhead Loads				\$76,000			
CBI Total				\$696,000			
Retirements				\$0			
Approvals							
				E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
4CA		7.00%	\$48,748			Date	
APS		63.00%	\$438,732			Date	
PNM		13.00%	\$90,532			Date 7/6/17	
SRP		10.0%	\$69,640			Date	
TRP		7.00%	\$48,748			Date	

FCC013475 Low Power Plant Implementation (IT/TEC013301)							
Four Corners Participant Project	Rev 17-57	0% Enviro.	NSR Completed: Yes				
FC Common	CBI: 17-57	Env Code: N/A	ERF Completed: Yes				
In 2017 Budget: No	Plant Acct:	Est Removal:	Est In Svc: 17 Aug 2018				
<p><b>Description:</b> Implement low impact physical and electronic security controls to meet the standard for NERC CIP compliance at Four Corners</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to meet The North American Electric Reliability Corporation's (NERC's) regulatory compliance for Critical Infrastructure Protection (CIP) requirements related to physical and electronic security required at all power plants that contain assets classified as Low Impact. The CIP Standards that are applicable to this project are: CIP-002-5.1a and CIP-003-6. The NERC deadline is September 1, 2018. All Programmable Electronic Devices (PEDs) at the plant will be reviewed to determine which assets are in-scope for low impact CIP requirements. Any in-scope assets that are remotely accessible will require some form of electronic controls "to permit only necessary inbound and outbound bi-directional routable protocol access" (i.e., a firewall or other network-based protection).</p> <p><b>Consequences of Delay:</b> Failing to implement physical and electronic security controls exposes generation control systems to compromise that could lead to misoperation or instability of the Bulk Electrical System (BES). This could result in damage to equipment or facilities, loss of revenue, etc.</p> <p><b>Economic Justification:</b> Budget Category: REG</p>							
Cash Flow - 2017							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$24,000
Feb	\$0	May	\$0	Aug	\$49,000	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$49,000	Dec	\$0
Prior	\$0	2017	\$122,000	2018	\$571,000	After	\$0
Cost Summary							
	Current Amount			Revised Amount			
Additions	\$620,000						
Removals	\$0						
(Salvage)	\$0						
Specific Cost	\$620,000						
Overhead Loads	\$76,000						
CBI Total	\$696,000						
Retirements	\$0						
Approvals							
				E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
ICA	7.00%	\$48,748				Date	
APS	63.00%	\$438,732				Date	
PNM	13.00%	\$90,532				Date	
SRP	10.0%	\$69,640				Date	7-11-17
TEP	7.00%	\$48,748				Date	



PLANT	FC Power Plant	<b>FOUR CORNERS O &amp; M BUDGET ITEM</b>	NUMBER:	17-2017
BUDGET YEAR	2017		BUDGET TYPE:	OH
COST OF PROJECT \$	128,000		DATE:	5/3/2016
SYSTEM:	Electrical		SUBSYSTEM:	Baghouse Syst.
CURRENT SYSTEM HEALTH	CURRENT SUBSYSTEM HEALTH		PRIORITY:	1
PROJECTED SYSTEM HEALTH	PROJECTED SUBSYSTEM HEALTH		FREQ:	Every Outage
RISK TYPE:	Environmental		PREPARED BY:	Amelia Fuller

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<b>Job Title:</b>	Unit 5 Baghouse Poppet Actuator Maintenance	Allocation	%	\$\$
<b>Description of Work:</b>	Repair poppet actuator components, associated controls and poppet structure.	APS	63	80,640
		PSNM	13	16,640
		SRP	10	12,800
		TEP	7	8,960
		4CA	7	8,960
		Total	100	128,000

**Purpose and Necessity:**  
The purpose is to repair actuator components that allow poppets to open and close to help maintain bag cleaning and compartment maintenance. Some components are allowing flue gas to leak into the penthouse due to crack flooring and worn packing. Also there are instrument air leaks from worn solenoids, bushings, and stroke signals.

**Potential Adverse Consequence if not completed in this year:**  
Not maintaining these poppets will create more air leaks thus putting more work on the Baghouse air compressors. Failure of the poppets to function can have environmental impacts caused by removal rates and also force the Baghouse compartments into bypass mode requiring load reductions by environmental compliance.

*Estimates (Dollars Only)*

Type of Expense	APS BASE PAY(1)	APS OVERTIME (2)	M&S(3)	TRAVEL SUB/LOD.(4)	OTHER(5)	CONTRACT LABOR(8)	TOTAL
BUDGET			28,000			100,000	128,000
ACTUAL							-

*Schedule of Expenditures:*

1st Quarter		2nd Quarter		3rd Quarter		4th Quarter	
JAN \$		APR \$		JUL \$	28,000	OCT \$	
FEB \$		MAY \$		AUG \$		NOV \$	
MAR \$		JUN \$		SEP \$	100,000	DEC \$	

For US Overhaul - 9/16/17 through 12/19/17

*System details for annual trending:*

Type of Overhaul Cost	Boiler \$	Turbine/Gen \$	Fuels \$	Scrubber \$	Heat Cycle \$	Auxiliaries \$	Total \$\$
BUDGET				128,000			128,000

	January	February	March	April	May	June	July	August	September	October	November
CF	-	-	-	-	-	-	-	#	-	-	-
									100,000		

**FCC012878 Auxiliary Boiler Battery Replacement**

Four Corners Participant Project	Rev FC18-45	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC18-45	Env Code: N/A	ERF Completed: Yes
In 2018 Budget: Yes	Plant Acct: 315	Est Removal: 04 Apr 2018	Est In Svc: 09 Apr 2018

**Description:** Replace auxiliary boiler area batteries and rack.

**Purpose/Necessity:** The purpose of this project is to maintain unit reliability. The existing batteries are at end of life and need to be replaced.

**Consequences of Delay:** Inability to utilize auxiliary boiler during startup resulting in up to 24 hrs of extended unit outage. Continued degradation of rated capacity. IEEE standards recommend replacement at 80% of rated capacity and testing indicates batteries are approaching this level. Possible failure of equipment on battery bank to function correctly.

**Economic Justification:**  
Benefit-Cost NPV: 0 M\$  
Budget Category: REL

**Cash Flow - 2018**

Jan	\$1,000	Apr	\$21,000	Jul	\$0	Oct	\$0
Feb	\$2,000	May	\$1,000	Aug	\$0	Nov	\$0
Mar	\$26,000	Jun	\$1,000	Sep	\$0	Dec	\$0
Prior	\$0	2018	\$52,000	2019	\$0	After	\$0

**Cost Summary**

	Current Amount	Revised Amount
Additions	\$45,000	
Removals	\$5,000	
(Salvage)	\$0	
Specific Cost	\$50,000	
Overhead Loads	\$3,000	
<b>CBI Total</b>	<b>\$52,000</b>	
Retirements	\$13,000	

**Approvals**

		F&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>	
4CA	7.00%	\$3,659	<i>James E. Hatfield</i>	Date 10/10/17
APS	63.00%	\$32,930	<i>J. H. ...</i>	Date 10/10/17
PNM	13.00%	\$6,795	<i>...</i>	Date 10/10/17
SRP	10.0%	\$5,227	<i>Ray ...</i>	Date 10/10/17
TEP	7.00%	\$3,659	<i>J. CP</i>	Date 10/10/17

**FCC012879 48V River Station Battery Replacement**

Four Corners Participant Project	Rev FC18-46	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC18-46	Env Code: N/A	ERF Completed: Yes
In 2018 Budget: Yes	Plant Acct: 315	Est Removal: 04 Apr 2018	Est In Svc: 09 Apr 2018

**Description:** Replace the admin area and river station batteries.

**Purpose/Necessity:** The purpose of this project is to maintain unit reliability. The existing batteries are at end of life and need to be replaced.

**Consequences of Delay:** Continued degradation of rated capacity. IEEE standards recommend replacement at 80% of rated capacity and testing indicates batteries are approaching this level. Possible failure of equipment on battery bank to function correctly.

**Economic Justification:**  
Benefit-Cost NPV: 0 M\$  
Budget Category: REL

**Cash Flow - 2018**

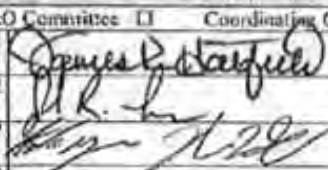
Jan	\$1,000	Apr	\$14,000	Jul	\$1,000	Oct	\$0
Feb	\$1,000	May	\$19,000	Aug	\$0	Nov	\$0
Mar	\$1,000	Jun	\$1,000	Sep	\$0	Dec	\$0
Prior	\$0	2018	\$38,000	2019	\$0	After	\$0

**Cost Summary**

	Current Amount	Revised Amount
Additions	\$32,000	
Removals	\$4,000	
(Salvage)	\$0	
Specific Cost	\$36,000	
Overhead Loads	\$2,000	
CBI Total	\$39,000	
Retirements	\$10,000	

**Approvals**

			E&O Committee <input checked="" type="checkbox"/> Coordinating Committee <input type="checkbox"/>	
			Date	Date
4CA	7.00%	\$2,695	<i>James R. Giffels</i>	10/16/17
APS	63.00%	\$24,255	<i>M. L. ...</i>	10/10/17
PNM	13.00%	\$5,005	<i>[Signature]</i>	10/10/17
SRP	10.0%	\$3,850	<i>[Signature]</i>	10/10/17
TEP	7.00%	\$2,695	<i>J. C. ...</i>	10/10/17

FCC013940 Boiler Penthouse Structure Replacement							
Four Corners Participant Project	Rev FC18-50	0% Enviro.	NSR Completed: Yes				
FC Unit 4	CBI: FC18-50	Env Code: N/A	ERF Completed: Yes				
In 2018 Budget: No	Plant Acct: 131100	Est Removal:	Est In Svc: 24 Apr 2018				
<p><b>Description:</b> Replace the damaged penthouse structural system that supports the main steam lines at the 9th level with a new structural system.</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to maintain a safe operating unit. The existing penthouse structural system that supports the main steam lines at the 9th deck level has failed and requires replacement to maintain unit safety during operation. Without a sound structural support system for the main steam lines it is not safe to operate the unit.</p> <p><b>Consequences of Delay:</b> Until the damaged penthouse structural system is replaced the unit is not safe to operate.</p> <p><b>Economic Justification:</b> Benefit-Cost NPV: 0 M\$ Budget Category: SAFETY</p> <p>FP 715-19017 WO Y0080428 RO Y0080987</p>							
Cash Flow - 2018							
Jan	\$0	Apr	\$458,000	Jul	\$59,000	Oct	\$0
Feb	\$0	May	\$94,000	Aug	\$0	Nov	\$0
Mar	\$413,000	Jun	\$81,000	Sep	\$0	Dec	\$0
Prior	\$0	2018	\$1,105,000	2019	\$0	After	\$0
Cost Summary							
	Current Amount			Revised Amount			
Additions				\$0			
Removals				\$0			
(Salvage)				\$0			
Specific Cost				\$1,101,000			
Overhead Loads				\$4,000			
CBI Total				\$1,105,000			
Retirements				\$0			
Approvals							
				E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>		
ACA	7.00%		\$77,321			Date	4/16/18
APS	61.00%		\$695,892			Date	4/16/18
PNM	13.00%		\$143,597			Date	4/16/18
SRP	10.00%		\$110,459			Date	
TEP	7.00%		\$77,321			Date	

PLANT	FC Power Plant	<b>FOUR CORNERS O &amp; M BUDGET ITEM</b>	NUMBER:	18-2017
BUDGET YEAR	2017		BUDGET TYPE:	OH
COST OF PROJECT \$	150,000		DATE:	5/3/2016
SYSTEM:	Electrical		SUBSYSTEM:	Baghouse System
CURRENT SYSTEM HEALTH	CURRENT SUBSYSTEM HEALTH		PRIORITY:	1
PROJECTED SYSTEM HEALTH	PROJECTED SUBSYSTEM HEALTH		FREQ:	Outage - yearly
RISK TYPE:	Environmental		PREPARED BY:	Amelia Fuller

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<b>Job Title:</b>	Unit 5 Replace Baghouse Poppet Actuators	Allocation	%	\$\$
<b>Description of Work:</b>	Replace and or rebuild poppet actuator components, associated controls and poppets supports.	APS	63	94,500
		PSNM	13	19,500
		SRP	10	15,000
		TEP	7	10,500
		4CA	7	10,500
		Total	100	150,000

OHBI submitted in 2015 then pushed to 2017

**Purpose and Necessity:**  
The purpose is to replace these assemblies which have been in operation for 30+ years. Parts have become either obsolete, available only on special order with extended lead times or the cost of repairs is creating extreme budget impacts. For 2016 Overhaul of Unit 5, approximately \$300,000.00 amounted in spending to purchase 64 actuators. An additional \$300,000.00 amounted for labor in replacing actuators. This amounted to six hundred thousand dollars in spending for 2016 overhaul in replacing actuators. Actuator replacement is a critical component for operations and the 64 replaced was vital. There are a total of 192 actuators in unit 5 that need replacing, of which 64 have been replaced in 2016. The remaining 128 will benefit maintenance cost and operation performance. This replacement would occur during every outage up until all 192 actuators have been replaced.

**Potential Adverse Consequence if not completed in this year:**  
Failure of the poppets to function can have environmental impacts caused by removal rates and also force the Baghouse compartments into bypass mode requiring load reductions for environmental compliance.

Phase 2 Projected 2018 Spend = \$450,000  
Phase 3 Projected 2019 Spend = \$600,000

**Estimates (Dollars Only)**

Type of Expense	APS BASE PAY(1)	APS OVERTIME (2)	M&S(3)	TRAVEL SUB/LOD.(4)	OTHER(5)	CONTRACT LABOR(8)	TOTAL
BUDGET			50,000			100,000	150,000
ACTUAL							-

**Schedule of Expenditures:**

1st Quarter		2nd Quarter		3rd Quarter		4th Quarter	
JAN \$	FEB \$	MAR \$	APR \$	MAY \$	JUN \$	JUL \$	AUG \$
					50,000		
						100,000	

For US Overhaul - 9/16/17 through 12/19/17

**System details for annual trending:**

Type of Overhaul Cost	Boiler \$	Turbine/Gen \$	Fuels \$	Scrubber \$	Heat Cycle \$	Auxiliaries \$	Total \$\$
BUDGET				150,000			150,000

January February March April May June July August September October November December  
CF - - - - - 50,000 # - - - - - 150,000



System details for annual trending:												
Type of Overhaul Cost	Boiler \$	Turbine/Gen \$	Fuels \$	Scrubber \$	Heat Cycle \$	Auxiliaries \$	July/August #	September	October	November	December	Total \$\$
BUDGET			1,650,000					350,000	200,000			1,650,000
CF	January	February	March	April	May	June	July/August	September	October	November	December	
	-	200,000	350,000	-	200,000	350,000	# 200,000	350,000	-	-	-	1,650,000

PLANT	FC Power Plant	<b>FOUR CORNERS O &amp; M BUDGET ITEM</b>	NUMBER:	22-2017
BUDGET YEAR	2017		BUDGET TYPE	OH
COST OF PROJECT \$	712,000		DATE:	4/14/2016
SYSTEM: Fuel	SUBSYSTEM: Fuel System		PRIORITY:	1
CURRENT SYSTEM HEALTH	CURRENT SUBSYSTEM HEALTH		FREQ:	annual
PROJECTED SYSTEM HEALTH	PROJECTED SUBSYSTEM HEALTH		PREPARED BY	Russell Cloer
RISK TYPE: Safety				

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<b>Job Title:</b> U5 Auto Swing Valve Replacement	Allocation	%	\$\$
<b>Description of Work:</b> The U4/5 Pulverizers are protected from mill fires by the AUTO SWING VALVES. They are tied into the I-90 and commanded to shut in the event a mill fire is detected. However in recent 3000hr and 40,000hr inspections and rebuilds it has been noted that the Auto Swing Valves are experiencing wear and therefore leakage. This wear and leakage presents 2 safety concerns. The first is the routine work that occurs on the Pulverizers will see confined space permitting issues due to the boiler gases leaking back into the mills. The Auto Swing Valves are a LOTO point. We have also seen instances where the leakage from the Auto Swing Valves has led to coal dust entering the coal pipe and building up, in such instances this has led to coal pipe and burner fires. 4-7D and 4-7E are good examples of the damage a fire can cause. <b>The scope is to systematically replace all the Pulverizer Auto Swing Valves during planned and forced outages.</b> A Unit Outage is required to conduct this work. This should be worked in conjunction with the Manual Swing Valves Budget Item.	APS	63	448,560
	PSNM	13	92,560
	SRP	10	71,200
	TEP	7	49,840
	4CA	7	49,840
	Total	100	712,000

\*New BUDGET ITEM for 2017

**Purpose and Necessity:**  
**Purpose:** The Auto Swing Valves serve one purpose: 1. Provide complete isolation from the Boiler to the Pulverizer via coal piping. This one purpose is used in two ways: 1. During Pulverizer upset conditions where a pulverizer fire or explosion is possible. 2. During Pulverizer routine maintenance to protect craft personnel from harmful boiler gases. **Necessity:** To reduce the risk of injury and equipment damage during operations and routine equipment outages. This is done by reducing the leakage from the Boiler to the Pulverizer via the Burner and coal piping. This Budget Item will increase the servicability of the valves during planned and forced outages. This B.I. will target the most severe valve on the pulverizers and will be capped at 6 per unit per year. Therefore this B.I. will service 12 valves. These swing valve assemblies are located at the Pulverizer Outlet on each Raw Coal Pipe and are housed in the upper most roof section of the MPS-89 Pulverizer. Future plans will be to conduct a water test on each valve during outage opportunities, which are outlined in the OEM Maintenance Manual. If valves do not hold water, they will need to be serviced or replaced.

**Potential Adverse Consequence if not completed in this year:**  
 The personnel who service the Pulverizers, Coal Pipe, and Feeders will be exposed to risk longer than necessary. The possibility of catastrophic failure is present and we have seen an indicator on the 4-7D and 4-7E Coal pipes and burners. Coal pipes and burners will continue to be damaged by coal fires in the coal piping and burners.

<i>Estimates (Dollars Only)</i>							
Type of Expense	APS BASE PAY(1)	APS OVERTIME (2)	M&S(3)	TRAVEL SUB/LOD.(4)	OTHER(5)	CONTRACT LABOR(8)	TOTAL
BUDGET	-	-	230,000	0	0	482,000	712,000
ACTUAL							-

Material	29166.67
Labor	480000
Total	960000
	320000

<b>Schedule of Expenditures:</b>							
1st Quarter		2nd Quarter		3rd Quarter		4th Quarter	
JAN \$	-	APR \$	-	JUL \$	-	OCT \$	-
FEB \$	89,000	MAY \$	89,000	AUG \$	89,000	NOV \$	-
MAR \$	148,000	JUN \$	148,000	SEP \$	149,000	DEC \$	-

960	120	0.125	712	89
	200	0.208333		148.3333
	120	0.125		89
	200	0.208333		148.3333
	120	0.125		89
	200	0.208333		148.3333

<b>System details for annual trending:</b>							
Type of Overhaul Cost	Boiler \$	Turbine/Gen \$	Fuels \$	Scrubber \$	Heat Cycle \$	Auxiliaries \$	Total \$\$
BUDGET			712,000				712,000

0

CF	January	February	March	April	May	June	Ju August	September	October	November	December
	-	89,000	148,000	-	89,000	148,000	89,000	149,000	-	-	712,000



PLANT	FC Power Plant	<b>FOUR CORNERS O &amp; M BUDGET ITEM</b>	NUMBER:	27-2017
BUDGET YEAR	2017		BUDGET TYPE:	OH
COST OF PROJECT \$	293,000		DATE:	4/21/2016
SYSTEM:	Heat Cycle		SUBSYSTEM:	BFBP
CURRENT SYSTEM HEALTH	CURRENT SUBSYSTEM HEALTH		PRIORITY:	1
PROJECTED SYSTEM HEALTH	PROJECTED SUBSYSTEM HEALTH		FREQ:	Once
RISK TYPE:	Safety / Production		PREPARED BY:	Wanda Stranger

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<b>Job Title:</b>	Units 5 Boiler Feed Booster Pump Complete Cable Replacement	Allocation	%	\$\$
<b>Description of Work:</b>	APS and Contract Labors will support the North, Center and South Boiler Feed Booster Pump Cable Replacement and upgrade. APS to determinate the Boiler Feed Booster Pumps motor and Contractors to remove and replace deteriorated cables in the cable tray and to replace major components. Brand to support with scaffolding where needed to pull cables in the tray. APS to terminate after cables have been pulled at the motor termination box and in the switchgear. Brand to remove all scaffolding. The cable specifications are: Armored 3 conductor, 350MCM, 5kV, shielded. The wire lengths are approximately 200ft. for the South, 250ft. for the Center, and 300ft. for the North.	APS	63	184,590
		PSNM	13	38,090
		SRP	10	29,300
		TEP	7	20,510
		4CA	7	20,510
		<b>Total</b>	<b>100</b>	<b>293,000</b>

\*New BUDGET ITEM for 2017

**Purpose and Necessity:**  
The OEM recommends for the Boiler Feed Booster Pump to ensure that it is reliable and safe, since this is a vital component in the feedwater system, due to the fact that it provides a "gentle" way of increasing pressure without causing a reduction in suction pressure and the flashing of hot water into steam, when it is introduced into the feed pump suction. This system has tripped the Unit off line due to cable failure and causing damage to pump motors. It is necessary that there is reliable power source to the Boiler Feed Booster Pumps Motors. This work can only be done during a Forced Outage with a 3-4 week duration, or on a Minor or Major Overhaul.

M&S:  
Mtls/rental 75000

**Potential Adverse Consequence if not completed in this year:**  
Due to the condition of the cables there is a possibility that other failures within the cable tray housing will occur and fire in the tray is imminent as well as a domino affect that one cable could take out all cables in the tray. It is necessary to replace these deteriorated cables that have become brittle and unreliable over time. New cables and components will replace the existing cables that are brittle, damaged and deteriorated. The cables insulation covers fall apart at the touch. The old existing cables have not ever been replaced, so with the new cables replacement this will ensure that the Boiler Feed Booster Pumps will be reliable on the electrical side of the system.

Other:

**Estimates (Dollars Only)**

Type of Expense	APS BASE PAY(1)	APS OVERTIME (2)	M&S(3)	TRAVEL SUB/LOD,(4)	OTHER(5)	CONTRACT LABOR(8)	TOTAL
BUDGET	45,000	-	75,000	-	-	173,000	293,000
ACTUAL							-

Labor:  
Unit 4 80000  
Unit 5  
Riley  
Brand 20000  
Total 175000  
APS 45000

**Schedule of Expenditures:**

1st Quarter		2nd Quarter		3rd Quarter		4th Quarter	
JAN \$		APR \$		JUL \$		OCT \$	107,000
FEB \$		MAY \$		AUG \$		NOV \$	86,000
MAR \$		JUN \$		SEP \$	100,000	DEC \$	

**System details for annual trending:**

Type of Overhaul Cost	Boiler \$	Turbine/Gen \$	Fuels \$	Scrubber \$	Heat Cycle \$	Auxiliaries \$	Total \$\$
BUDGET					293,000		293,000

	January	February	March	April	May	June	July/August	September	October	November	December	
CF	-	-	-	-	-	-	#	100,000	107,000	86,000	-	293,000
								materials	labor	labor		

PLANT	FC Power Plant	<b>FOUR CORNERS O &amp; M BUDGET ITEM</b>	NUMBER:	33-2017
BUDGET YEAR	2017		BUDGET TYPE	RT
COST OF PROJECT \$	253,000		DATE:	4/19/2016
SYSTEM: Feedwater	SUBSYSTEM: Polishers		PRIORITY:	1
CURRENT SYSTEM HEALTH	CURRENT SUBSYSTEM HEALTH		FREQ:	Once
PROJECTED SYSTEM HEALTH	PROJECTED SUBSYSTEM HEALTH		PREPARED BY	Russell Cloer
RISK TYPE: Safety / Production				

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**Job Title:** U5 INLINE VALVE REPLACEMENT

**Description of Work:**

The U4 Inline valves have an increasing trend in WO's. The valves are binding, leaking by, MOV's are not operating are common corrective maintenance issues. A DCR was completed during the U5/U4 Dual Unit Outage in 2016 where the inlet and outlet valves to the SPARE INLINE VESSEL were replaced. The old valves were 12" butt weld gate valves and were not maintenance friendly. A rebuild was estimated at \$25,000 @ 10 days each. This cost and duration initiated the DCR to replace the valves with a new style that was more easily maintained. The scope of work was to install 2 slip-on flanges and a 12" pup for each valve. The ADAMS valve is a triple offset butterfly with a ROTORK IQ3 actuator. The sealing element in the valve is replaceable.

**Purpose and Necessity:**

**Purpose:** Ensure the inlet and outlet valves for the inline vessels are operational as designed to reduce the risk of manually operating the valves. **Necessity:** Operational and leak free valves are necessary to ensure proper operation of the inline polishers. To promote the regeneration process of the inline resins. To reduce the risk of operating the MOV manually.

**Potential Adverse Consequence if not completed in this year:**

The U4/5 Inline Polisher Offsite Resin Regeneration Project FBC90391 is put on hold due to faulty valves. This may continue until the valves are operational and leak free. Regeneration may not occur at optimal frequencies.

Allocation	%	\$\$
APS	63	159,390
PSNM	13	32,890
SRP	10	25,300
TEP	7	17,710
4CA	7	17,710
Total	100	253,000

\*New BUDGET ITEM for 2017

scaffolding	8000
cut valves out	2760
prep pipe	4140
install pup and flar	8280
install valves	3220
bolts	2000
gaskets	500
paint pipe	5900
remove scaffoldii	4000
flanges	1000
pipe	360
wiring	3680
Valves	24000
NDE	2000
	0
TOTAL per vessel	69840
Total per unit	209520

**Estimates (Dollars Only)**

Type of Expense	APS BASE PAY(1)	APS OVERTIME (2)	M&S(3)	TRAVEL SUB/LOD.(4)	OTHER(5)	Cont. LABOR(8)	TOTAL
BUDGET	\$11,040	\$0	\$83,580	\$0	\$0	\$158,380	\$253,000
ACTUAL							\$0

-\$38,000  
\$34,900

**Schedule of Expenditures:**

1st Quarter		2nd Quarter		3rd Quarter		4th Quarter	
JAN \$	-	APR \$	-	JUL \$	-	OCT \$	158,380
FEB \$	-	MAY \$	-	AUG \$	83,580	NOV \$	11,040
MAR \$	-	JUN \$	-	SEP \$	-	DEC \$	-

**System details for annual trending:**

Type of Overhaul Cost	Boiler \$	Turbine/Gen \$	Fuels \$	Scrubber \$	Heat Cycle \$	Auxiliaries \$	Total \$\$
BUDGET	0	0	-	-	253,000	0	253,000

CF	January	February	March	April	May	June	Ju August	September	October	November	December
	-	-	-	-	-	-	83,580	-	158,380	11,040	- 253,000

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PLANT FC Power Plant		NUMBER: 34-2017
BUDGET YEAR 2017		BUDGET TYPE: OH
COST OF PROJECT \$ 133,000		DATE: 4/11/2016
SYSTEM: Heat Cycle	SUBSYSTEM: Auxiliary Steam	PRIORITY: 2
CURRENT SYSTEM HEALTH	CURRENT SUBSYSTEM HEALTH	FREQ: One time
PROJECTED SYSTEM HEALTH	PROJECTED SUBSYSTEM HEALTH	PREPARED BY: J. Vandever R. Cloer
RISK TYPE: Safety		
<b>FOUR CORNERS O &amp; M BUDGET ITEM</b>		
<b>Job Title:</b> Unit 5 Vent Valve Downstream of Yoke Valve		Allocation %
<b>Description of Work:</b> Install vent valve assembly downstream of Yoke Valve. Vent valve will be utilized for releasing steam when closing Yoke valve to verify steam is not in system. Currently, there is no indication if Yoke valve is tightly shut and no steam is in system. New valve assembly will require 1 inch piping, fittings and two valves in series.		APS 63 83,790
		PSNM 13 17,290
		SRP 10 13,300
		TEP 7 9,310
		4CA 7 9,310
		Total 100 133,000
<b>Purpose and Necessity:</b> <b>PURPOSE:</b> Vent valve and assembly will be utilized for releasing and verifying pressurized steam in system past the Yoke valve. <b>NECESSITY:</b> Currently there is no indication if steam is still in system when Yoke valve is tightly shut. The vent will also be utilized for LOTO purposes to ensure the Aux Steam piping is not pressurized.		
<b>Potential Adverse Consequence if not completed in this year:</b> Without utilizing a vent valve past the Yoke valve creates a safety concern for personnel performing repairs. Currently, there is no indication whether steam is in system or not when Yoke valve is tightly shut for maintenance repair.		

Include length, sizes, and quantities (if available)

\*New BUDGET ITEM for 2017



PLANT	FC Power Plant	<b>FOUR CORNERS O &amp; M BUDGET ITEM</b>	NUMBER:	38-2017
BUDGET YEAR	2017		BUDGET TYPE:	OH
COST OF PROJECT \$	509,000		DATE:	4/29/2016
SYSTEM: Scrubber	SUBSYSTEM: Absorber		PRIORITY:	
CURRENT SYSTEM HEALTH	CURRENT SUBSYSTEM HEALTH		FREQ:	Minor/Major
PROJECTED SYSTEM HEALTH	PROJECTED SUBSYSTEM HEALTH		PREPARED BY:	Larry Mix
RISK TYPE: Environmental & Regulatory				

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<b>Job Title:</b> Unit 5 Outlet Damper Repairs (2 of 5)	Allocation	%	\$\$
<b>Description of Work:</b> Unit 4 Outlet Dampers (16' x 16' Guillotine Gate Type) Repairs include: Alloy C276 Seals Replacement, Inconel Seal Box/Drain Repairs, Chain and Drive Replacements, and Limitorque Actuator Repairs. Dampers are used isolate the Absorber from the Scrubber Outlet Duct. Work will require Crane services.	APS	63	320,670
	PSNM	13	66,170
	SRP	10	50,900
	TEP	7	35,630
	4CA	7	35,630
	Total	100	509,000

**Purpose and Necessity:**  
During various inspections in 2016, the dampers need seal replacements, actuator refurbishment, chain/drive replacments, and repairs to the seal boxes. The purpose of this budget item is to address the items mentioned in the description. It is necessary to do this work so that the Absorber Module can have the capability to be isolated from the Scrubber Outlet Duct and so that it can provide atmospheric seals to prevent flue gas leakage. The plan is to repair the dampers to contain atmospheric leaks. Eventually the dampers will be replaced in the future.

**Potential Adverse Consequence if not completed in this year:**  
If the repair is not done, the outlet damper system cannot provide isolation for online maintenance. Damper components should be functioning properly to adhere to plant maintenance schedules and provide reliable operability of the equipment.

*Estimates (Dollars Only)*

Type of Expense	APS BASE PAY(1)	APS OVERTIME (2)	M&S(3)	TRAVEL SUB/LOD.(4)	OTHER(5)	CONTRACT LABOR(8)	TOTAL
BUDGET			300,000			209,000	509,000
ACTUAL							-

*Schedule of Expenditures:*

1st Quarter		2nd Quarter		3rd Quarter		4th Quarter	
JAN \$		APR \$		JUL \$	300,000	OCT \$	55,000
FEB \$		MAY \$		AUG \$		NOV \$	54,000
MAR \$		JUN \$		SEP \$	50,000	DEC \$	50,000

*System details for annual trending:*

Type of Overhaul Cost	Boiler \$	Turbine/Gen \$	Fuels \$	Scrubber \$	Heat Cycle \$	Auxiliaries \$	Total \$\$
BUDGET				509,000			509,000

2015 O&M Budget Items (\$000s) - I FC Power Plant		<b>FOUR CORNERS O &amp; M BUDGET ITEM</b>	NUMBER: 43-2017	<a href="#">Back to Index</a>
BUDGET YEAR 2017			BUDGET TYPE OH	
COST OF PROJECT \$ 168,000			DATE: 5/24/2016	
SYSTEM: Turbine/Generator	SUBSYSTEM: Steam Turbine System		PRIORITY: 1	
CURRENT SYSTEM COLOR	CURRENT SUB-SYSTEM COLOR		FREQ: Major	
PROJECTED SYSTEM COLOR	PROJECTED SUB-SYSTEM COLOR		PREPARED BY A. Johnson	
RISK TYPE: Generation				

<b>Job Title:</b> Unit 5 LP Turning Gear Bull Gear  <b>Description of Work:</b> Install the Spare LP Turbine Bull Gear purchased in 2014 during the 2017 Unit 5 Major OH. During Unit 5 Maintenance Outage spring of 2014, the bull gear was discovered to have moderate damage to the ring gear teeth.  <b>Purpose and Necessity:</b> The LP Turning Gear Assembly should under go a major overhaul every 6 years. APS keeps a critical spare and 6 years should be the normal rotation for this piece of equipment. This allows us to pull the inservice assembly out install the spare and send out to a vendor for a complete teardown and inspection of the assembly.  <b>Potential Adverse Consequence if not completed in this year:</b> Critical Spares would not be available in case of an emergent issue. Refurbished Turning Gear would not be available for install on the opposite unit during the next planned overhaul cycle.	Allocation	%	\$
	APS	63	105,840
	PSNM	13	21,840
	SRP	10	16,800
	TEP	7	11,760
	4CA	7	11,760
	<b>Total</b>	<b>100</b>	<b>168,000</b>

*Estimates (Dollars Only)*

Type of Expense	APS BASE PAY(1)	APS OVERTIME (2)	M&S(3)	TRAVEL SUB/LOD.(4)	OTHER(5)	CONTRACT LABOR(8)	TOTAL
BUDGET			-			168,000	168,000
ACTUAL							-

*Schedule of Expenditures:*

1st Quarter		2nd Quarter		3rd Quarter		4th Quarter	
JAN \$		APR \$		JUL \$		OCT \$	84,000
FEB \$		MAY \$		AUG \$		NOV \$	84,000
MAR \$		JUN \$	-	SEP \$		DEC \$	-

*System details for annual trending:*

Type of Overhaul Cost	Boiler \$	Turbine/Gen	Fuels \$	Scrubber \$	Heat Cycle \$	Auxiliaries \$	Total \$\$
BUDGET		168,000					168,000

	January	February	March	April	May	June	Ju August	September	October	November	December		
CF										84,000	84,000	-	168,000
										84	84	0	

PLANT FC Power Plant		<b>FOUR CORNERS O &amp; M BUDGET ITEM</b>	NUMBER: 45-2017
BUDGET YEAR 2017			BUDGET TYPE OH
COST OF PROJECT \$ 522,000			DATE: 4/28/2016
SYSTEM: Turbine/Generator	SUBSYSTEM Steam Turbine System		PRIORITY: 1
CURRENT SYSTEM COLOR	CURRENT SUB-SYSTEM COLOR		FREQ: Every 3 Years
PROJECTED SYSTEM COLOR	PROJECTED SUB-SYSTEM COLOR		PREPARED BY A. Johnson
RISK TYPE: Generation			

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<b>Job Title:</b> Unit 5 Boiler Turbine Valve Rebuilds	Allocation	%	\$
<b>Description of Work:</b> Perform inspection/teardown/repair of all 11 Boiler Turbine Valves on the extraction steam lines. This work scope is included as base overhaul cycle work at a frequency of 3 years. The BTV valves were pushed from the Major OH work Scope in 2016 Major Overhaul to 2017 Outage.	APS	63	328,860
	PSNM	13	67,860
	SRP	10	52,200
	TEP	7	36,540
	4CA	7	36,540
	Total	100	522,000

BI 174-2016 Pushed From 2016

**Purpose and Necessity:**  
The BTV valves are a critical secondary emergency device used for Turbine Water Induction Protection. The TWIP valves, or BTV's, are the last line of defense from water induction on the turbines in the event of a major system failure or where the induction happens so quickly, the TWIP MOV's cannot react.

**Potential Adverse Consequence if not completed in this year:**  
Maintaining a proper maintenance cycle ensures all protection equipment is working properly and safely. If the maintenance cycle is not adhered to and system health is allowed to degrade, then valve malfunction or failure is a potential risk. If the TWIP valves malfunction, the possibility of turbine blade damage exists.

*Estimates (Dollars Only)*

Type of Expense	APS BASE PAY(1)	APS OVERTIME (2)	M&S(3)	TRAVEL SUB/LOD.(4)	OTHER(5)	CONTRACT LABOR(8)	TOTAL
BUDGET			348,000			174,000	522,000
ACTUAL							-

*Schedule of Expenditures:*

1st Quarter		2nd Quarter		3rd Quarter		4th Quarter	
JAN \$		APR \$	348,000	JUL \$		OCT \$	
FEB \$		MAY \$		AUG \$		NOV \$	87,000
MAR \$		JUN \$		SEP \$	87,000	DEC \$	

*System details for annual trending:*

Type of Overhaul Cost	Boiler \$	Turbine/Gen \$	Fuels \$	Scrubber \$	Heat Cycle \$	Auxiliaries \$	Total \$\$
BUDGET		522,000					522,000

	January	February	March	April	May	June	Ju August	September	October	November	December
CF				348,000				87,000		87,000	522,000
										0	87
											0

PLANT	FC Power Plant		<b>FOUR CORNERS O &amp; M BUDGET ITEM</b>	NUMBER:	49-2017
BUDGET YEAR	2017			BUDGET TYPE	OH
COST OF PROJECT \$	224,000			DATE:	4/28/2016
SYSTEM: Turbine/Generator	SUBSYSTEM	Steam Turbine System		PRIORITY:	1
CURRENT SYSTEM COLOR	CURRENT SUB-SYSTEM COLOR			FREQ:	One Time
PROJECTED SYSTEM COLOR	PROJECTED SUB-SYSTEM COLOR			PREPARED BY	A. Johnson
RISK TYPE:	Generation				

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<b>Job Title:</b> Unit 5 HP and LP Generator RTD Monitoring	Allocation	%	\$\$
<b>Description of Work:</b> Design, procure, engineer, and install remote ABB I/O to add all of the internal stator winding and stator bar temperature RTD's and thermocouples internal to the HP and LP generator. Tie in the remote I/O using fiber optics to the Bailey Room. Create new tag names to support new graphics and trends.	APS	63	141,120
	PSNM	13	29,120
	SRP	10	22,400
	TEP	7	15,680
	4CA	7	15,680
	Total	100	224,000
<b>Purpose and Necessity:</b> During the rewind, both HP and LP generators will be getting new RTD and thermocouples for monitoring stator bar temperature and stator winding temperatures. Currently, the DCS only has 7 I/O inputs dedicated to monitoring each of the generators internal temperatures. AEGIS insurance company noted this as a deficiency which needed to be rectified during their annual audit. Moreover, there is really no way for operations or engineering to monitor the internal generator temperatures and use as a troubleshooting/predictive tool in identifying issues with the generators. Additionally, the ability to monitor the internal temperatures of the generator ensure that generator electrical and leak detection testing results are more accurate.			
<b>Potential Adverse Consequence if not completed in this year:</b> This project will improve the system team's ability to monitor and perform predictive analysis of the internal health of the stator winding, stator bars, and generator core in real time. Although the generator system health will be in the green after the rewinds, it will serve the company to be able to identify issues if insulation is breaking down, or stator water leaks develop.			

*Estimates (Dollars Only)*

Type of Expense	APS BASE PAY(1)	APS OVERTIME (2)	M&S(3)	TRAVEL SUB/LOD.(4)	OTHER(5)	CONTRACT LABOR(8)	TOTAL
BUDGET						224,000	224,000
ACTUAL							-

*Schedule of Expenditures:*

1st Quarter		2nd Quarter		3rd Quarter		4th Quarter	
JAN \$		APR \$	75,000	JUL \$		OCT \$	31,000
FEB \$	31,000	MAY \$		AUG \$		NOV \$	25,000
MAR \$	31,000	JUN \$		SEP \$	31,000	DEC \$	

*System details for annual trending:*

Type of Overhaul Cost	Boiler \$	Turbine/Gen \$	Fuels \$	Scrubber \$	Heat Cycle \$	Auxiliaries \$	Total \$\$
BUDGET		224,000					224,000

	January	February	March	April	May	June	Ju August	September	October	November	December		
CF	-	31,000		31,000	75,000	-	-	31,000		31,000	25,000	-	224,000
										31	25	0	



Capital Clearings by Project  
Jan 2019-June 2020

CB/Project Number	Funding Project	Period	Clearings	Justification
		<b>January 2019- June 2020</b>		
FC12-15	FCC06347	FGD Dewatering Upgrades, U4&5	1,790,724.75	Regulatory
FC14-08	T1401003H	T1401003H Control House Upgrd	138,183.73	Regulatory
FC15-03	FCC06680	FCC06680 Common Facility Building	261,701.46	Safety
FC15-62	FCC08833	FCC08833 BG Compartmt 5SW-7 Rebag	13,730.96	Reliability
FC15-64	FCC08837	FCC08837 Abs Recirc Pump Repl	25,433.44	Reliability
FC16-40	FCC03953	FCC03953 Coal Handling Swtchgr	348,876.35	Reliability
FC17-05	FCC07631	FCC07631 U4&5 Coal Dust Elim Ph2	269,965.28	Safety
FC17-08	FCC07905	FCC07905 U5 Abs Module Mixer Repl	(16.56)	Regulatory
FC17-09	FCC07954	FCC07954 U45 Misc Motor Repl 2017	0.00	Reliability
FC17-46	FCC06341	FCC06341 Upper Retention Pond Liner	738,074.02	Regulatory
FC17-51	FCC013085	FCC013085 Crane Hoist Repl	173,381.74	Reliability
FC17-54	FCC08247	FCC08247 4kV Redundand Power Feed	256,496.88	Reliability
FC17-57	FCC013475	FCC013475 Low Power Plant Implemen	79,136.40	Regulatory
FC18-01	FCC012959	FC18-01 1st Stage Pendant SSH	507,913.90	Reliability
FC18-02	FCC08277	FC18-02 U4 BH Lagging_Insulation	24,436.26	Safety
FC18-04	FCC08326	FC18-04 U45 Misc Pump_Valve 2018	158,518.97	Reliability
FC18-06	FCC09077	FC18-06 Boiler Convection Pass Tube	1,110,849.99	Reliability
FC18-09	FCC08713	FC18-09 U45 DC System C Equip	60,328.49	Reliability
FC18-10	FCC08874	FC18-10 BH_SO2 Substation Xfmr Rela	88,423.08	Reliability
FC18-12	FCC07959	FC18-12 U45 Phase 3 Water Piping	648,519.30	Safety
FC18-17	FCC07955	FC18-17 U45 2018 Motor Replacemt	151,785.37	Reliability
FC18-18	FCC08101	FC18-18 2018 Plant Tools	26,070.67	Reliability
FC18-19	FCC08426	FC18-19 Coal Piping Isolation Valve	152,749.62	Safety
FC18-20	FCC08858	FC18-20 Coal Dust Eliminations Ph3	494,336.47	Safety
FC18-33	FCC08310	FC18-33 U5 Exciter Repl	615,482.38	Reliability
FC18-36	FCC06604	FC18-36 Morgan Dm BlowDown Tower	24,002.32	Regulatory
FC18-40	FCC013087	FC18-40 NPDES Monitoring Wells	31,017.88	Regulatory
FC18-42.1	PE014503	FC18-42.1 Garage Lighting Repl	4,422.82	Reliability
FC18-42.2	PE014806	FC18-42.2 Bldg 44 Conference Room	1,922.18	Reliability
FC18-43	PE013987	PE013987 SO2 #5 HVAC	34,433.69	Reliability
FC18-44	PE013133	FC18-44 AH1 & AH2 HVAC Repl	80,398.62	Reliability
FC18-47	FCC012873	FC18-47 SO2 Intake MCC Repl	281,670.55	Reliability
FC18-48	FCC08545	FC18-48 Stack Elevator Repl	72,308.28	Safety
FC18-51	FCC014518	FCC014518 U5 Thickener Repl	739,651.88	Reliability
FC18-52	FCC014708	FC18-52 U4 Main Condenser Exp Joint	100,291.67	Reliability
FC18-55	FCC014719	FC18-55 U4 Boiler Exp Joint	39,666.66	Reliability

Capital Clearings by Project  
Jan 2019-June 2020

CB/Project Number	Funding Project	Period	Clearings	Justification
<b>January 2019- June 2020</b>				
FC18-56	FCC014721	FC18-56 U5 Clinker Grinder Repl	13,013.78	Reliability
FC19-02	PE014356	FC19-02 Misc Equip-Maint Trailer	100,791.79	Reliability
FC19-02.01	PE014356	FC19-02.01 Lube Oil Bldg AHU-SO2 WH	6,359.63	Reliability
FC19-02.02	PE014356	FC19-02.02 HVAC Bard Unit	503.13	Reliability
FC19-03	PE014357	FC19-03 TUT Bldg/Pump House Roof	11,783.92	Reliability
FC19-03.01	PE014357	FC19-03.01 Lube Oil Bldg Wall Eye W	64,171.19	Reliability
FC19-04	PE014358	FC19-04 U45 Control Room HVAC	80,852.90	Reliability
FC19-05	PE014359	FC19-05 Admin Bldg Roof Repl	40,849.96	Reliability
FC19-06	PE014360	FC19-06 Whs Bldg Roof Repl	32,151.92	Reliability
FC19-07	PE014361	FC19-07 Planning Bldg Roof Repl	11,087.13	Reliability
FC19-08	FCC012892	FC19-08 U5 Burner Repl Ph2	1,454,350.10	Regulatory
FC19-10	FCC012897	FC19-10 U5 Safety Valve Repl	171,773.20	Reliability
FC19-11	FCC012906	FC19-11 U4 Windbox Lag_Insulation	55,113.03	Safety
FC19-12	FCC012907	FC19-12 U5 Windbox Lag_Insulation	51,856.05	Safety
FC19-14	FCC012935	FC19-14 U5 Fly Ash Level Indicator	43,318.72	Regulatory
FC19-16	FCC012939	FC19-16 U5 BFW Miniflow Piping Repl	172,291.18	Reliability
FC19-18	FCC013136	FC19-18 Chemical Injection Tank	54,200.33	Regulatory
FC03-2019	FC19-200	FC19-200 U45 BH Sump Components	35,075.79	Regulatory
FC16-2019	FC19-201	FC19-201 Conveyor Belt Feeder	37,759.94	Regulatory
FC19-2019	FC19-202	FC19-202 Conveyor Gearbox	10,707.77	Reliability
FC28-2019	FC19-203	FC19-203 Hydro Bin Piping_Header	19,364.62	Reliability
FC30-2019	FC19-204	FC19-204 Surge Silo Crane Jib	534.92	Safety
FC19-22	FCC013925	FC19-22 Reserve/Center Breaker Repl	253,801.30	Reliability
FC19-24	FCC014266	FC19-24 U5 2nd Stage SSH Repl	2,000,921.18	Reliability
FC19-27	FCC06573	FC19-27 U5 SCR Catalyst Repl	384,090.95	Regulatory
FC19-29	FCC06843	FC19-29 U5 Reheat Inlet Header	286,628.71	Reliability
FC19-30	FCC07206	FC19-30 U4 Fabric Filter Bag	97,558.16	Regulatory
FC19-31	FCC07207	FC19-31 U5 Fabric Filter Bag	125,784.12	Regulatory
FC19-34	FCC07960	FC19-34 Water Piping Repl Phase4	466,339.25	Safety
FC19-39	FCC08278	FC19-39 U4 BH Lagging/Insulation	45,624.63	Safety
FC19-40	FCC08288	FC19-40 BH Lagging_Insulation Repl	38,367.38	Safety
FC19-47	FCC08529	FC19-47 U5 Horizontal Reheat Bank	2,615,395.85	Reliability
FC19-50	FCC08576	FC19-50 U5 FD Fan Motor	14,299.82	Reliability
FC19-51	FCC08579	FC19-51 U5S PA Fan Motor Repl	12,214.32	Reliability
FC19-52	FCC08584	FC19-52 U5 BA Clinker Grinder	17,672.51	Reliability
FC19-54	FCC08859	FC19-54 U5 Baghouse Vent Header	283,516.53	Regulatory

Capital Clearings by Project  
Jan 2019-June 2020

CB/Project Number	Funding Project	Period	Clearings	Justification
		<b>January 2019- June 2020</b>		
FC19-55	FCC08860	FC19-55 U5 BH Booster Fan Motor Rep	111,942.48	Reliability
FC19-56	FCC08873	FC19-56 U5 FA Transport System	138,250.06	Regulatory
FC19-58	FCC08923	FC19-58 U5 BH 13.8KV Fan Motor	58,007.10	Reliability
FC19-60	FCC08978	FC19-60 U5 Condensate Pump Hoist	64,485.74	Reliability
FC19-64	FCC014811	FC19-64 Electrical Sys-FSL Program7	97,688.80	Reliability
FC19-65	FCC014812	FC19-65 Water Sys/Membranes Program	110,332.01	Reliability
FC19-66	FCC014810	FC19-66 Motors,Pumps,Valves Repl	694,898.55	Reliability
FC19-67	FCC015065	FC19-67 U5 SC Inlet Exp Joint Repl	13,051.25	Reliability
FC19-70	FCC015070	FC19-70 3A Coal Belt Repl	4,682.31	Reliability
FC19-71	FCC015684	FC19-71 U4 4-7 Pulverizer Rebuild	140,862.40	Reliability
FC19-72	FCC08266	FC19-72 SCBA Cylinders Replacement	2,883.75	Safety
FC19-73	FCC015702	FC19-73 U4 4 Pulverizer Rebuild	65,671.05	Reliability
FC19-74	FCC015703	FC19-74 U5 5 Pulverizer Rebuild	212,285.09	Reliability
FC19-75	FCC015760	FC19-75 Chlorination Feeder System	3,744.24	Regulatory
FC19-78	FCC015983	FC19-78 5-3 Pulverizer Rebuild	87,251.03	Reliability
FC19-85	FCC016254	FC19-85 U5 North PA Duct EJ 0021	2,552.60	Reliability
FC20-02	FCC07208	FC20-02 U4 Fabric Filter Bag Repl	76,154.31	Regulatory
FC20-03	FCC07209	FC20-03 U5 Fabric Filter Bag Repl	75,097.33	Regulatory
FC20-09	FCC08867	FC20-09 U5 Steam Chest Valve Trim	137,797.98	Reliability
FC20-20	FCC013555	FC20-20 U5 Turbine Minor OH 2020	64,465.97	Reliability
FC20-23	FCC013857	FC20-23 U5 Boiler 201A Valve	52,881.76	Reliability
FC20-35	FCC015753	FC20-35 Pulverizer PA Damper Repl	129,710.07	Reliability
FC20-36	FCC015754	FC20-36 Waste Slurry Sump Repl	68,813.51	Reliability
FC20-52	FCC015367	FC20-52 U5 DCS Card Replacement	175,197.87	Reliability
FC20-62	FCC015204	FC20-62 Vehicle Replacement	191,084.03	Reliability
FC20-72	FCC016309	FC20-72 U4 North PA Duct EJ 0017	9,414.54	Reliability
FC20-74	FCC016318	FC20-74 U4 SCR Expansion Joints	144,806.54	Reliability
FC20-75	FCC016412	FC20-75 U4 T-7 Bearing Repl	4,633.83	Reliability
FC20-76	FCC016413	FC20-76 U5 N Abs Module EJ Repl	7,794.73	Regulatory
FC20-77	FCC016421	FC20-77 U5 SCR APH Rotor Seal Repl	23,236.26	Reliability
FCC18-03	FCC08287	FCC18-03 U5 BH Lagging_Insulation	36,504.02	Safety
FCS14-09	WA325801	FCS14-09 1AA Bank Bushings Monitors	9,806.15	Reliability
N/A	Y0082387	PNM Capitalized	876,022.10	Reliability
N/A	TR030000	Flyash Project	433,841.56	Regulatory
			22,980,866.23	

**Four Corners O&M Budget Item**

Plant: FC Power Plant  
 Budget Year: 2019  
 Cost Of Project: 355,500  
 System: Baghouse  
 Sub-System: BH-Baghouse  
 Current System Health: **Red**  
 Projected System Health: Yellow  
 Risk Type:  Environmental  
    Generation  
    Regulatory  
    Safety

Number: 03-2019  
 Budget Type: RT  
 Unit: Units 4 & 5  
 Date: 5/18/2018  
 Priority: 2  
 Frequency: Annual  
 Prepared By: Coy B. Cody

**Job Title:** U4&5 Baghouse Sump Components

**Description of Work:**

Replace Baghouse site drainage and clean-up sumps components. Replacement parts would include agitators, agitator motors(1HP), pumps(100GPM) and pump motors(7.5HP). This would also include installing new equipment designed for current sumps conditions.

**Purpose And Necessity:**

Sump components are running to their end of life and are requiring extensive repairs to bring these sumps back to operating conditions within OEM specifications. Installing new equipment to replace the original will also help improve the performance of the sumps. The original equipment was designed initially when the Baghouse was built. Over the years, conditions have changed causing the original equipment to struggle to maintain performance.

**Potential Adverse Consequences:**

Very high environmental impact of fly ash/fugitive dust in the hydrobins, baghouses, and surrounding areas. The original pumps and agitators have run to the end of their life cycles, requiring replacements of equipment. These sumps are in serious disrepair. Without these sumps working properly it will greatly affect our ISO-14001.

Allocation	%	\$
APS	63	223,965
PSNM	13	46,215
SRP	10	35,550
TEP	7	24,885
NTEC	7	24,885
Total	100	355,500

Revision 2

FCC06347 FGD Fly Ash Blending			
Four Corners Participant Project	Revised SG2 WA Rev 1	100% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: 12-15R2	Env Code: Solid	ERF Completed: Yes
In 2016 Budget: Yes	Plant Acct: 312	Est Removal:	Est In Svc: 07/02/2018

**Reason for Revision:** The reason for the \$4,083K increase is due to the added scope of in-kind replacement of three (3) existing fly ash pug mills. These pug Mills are approaching the end of their useful life and are not capable of blending the flue gas desulfurization (FGD) sludge into the fly ash for disposal to comply with the CCR regulations CFR 40 part 257. Replacement is proposed to be performed in two stages to facilitate plant operation and planned outage schedules.

Benefit-Cost NPV: M\$

**Description:** FGD slurry mixing and handling equipment modifications to replace ponded dead storage of FGD waste with disposal in the Dry Fly Ash Disposal Area

**Purpose/Necessity:** Disposal of FGD waste is necessary for the operation of Units 4&5. FGD waste from the thickener underflow tanks is currently slurried to the Lined Ash Impoundment (LAI) for disposal. The final lift of the LAI has been completed in February 2014 and can store up to 4 years of Units 4&5 FGD. To allow for start up, transition, and contingent future storage FGD disposal must be on line by the end of 2018.

**Consequences of Delay:** When the Lined Ash Impoundment is filled we will need to process the FGD sludge for dry disposal or have an alternative wet disposal site available.

**Economic Justification:**  
Benefit-Cost NPV: M\$  
Budget Category: ENV

FP 715-19210  
WO 00056945  
RO 00081007

Cash Flow - 2016							
Jan	\$7,000	Apr	\$14,000	Jul	(\$13,000)	Oct	\$2,000
Feb	\$27,000	May	\$0	Aug	\$1,000	Nov	\$4,000
Mar	\$48,000	Jun	\$19,000	Sep	\$1,000	Dec	\$1,000
Prior	\$1,115,000	2016	\$111,000	2017	\$704,000	After	\$9,700,000

Cost Summary	Current Amount		Revised Amount	
Additions	449,670	\$3,459,000	1,502,280	\$11,556,000
Removals	0	\$0	30,800	\$237,000
(Salvage)	0	\$0		\$0
Overhead Loads	2,210	\$17,000	7,930	\$61,000
CBI Total		\$7,771,000	1,541,020	\$11,854,000
Retirements		\$0		\$0

Approvals		E&C Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
Exhibit: AAA I	Organization	Ownership	Share	Approve	Date
	4CA	7.00%	829,780		Date
	APS	63.00%	7,468,020		Date
	PNM	13.00%	1,541,020	<i>[Signature]</i>	9/2/16
	SRP	10.0%	1,185,400		Date
	CEP	7.00%	829,780		Date

*Y0056945 Revision*

FCC06347 FGD Fly Ash Blending			
Four Corners Participant Project	SG3 WA Rev 0	100% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: 12-15R1	Env Code: Solid	ERF Completed: Yes
In 2014 Budget: Yes	Plant Acct. 312	Est Removal:	Est In Svc: 11/13 2015

An advance of \$300K was approved late 2011 for engineering. This CBI 12- 15R1 is for approval to proceed with construction.

**Description:** FGD slurry mixing and handling equipment modifications to replace ponded dead storage of FGD waste with disposal in the Dry Fly Ash Disposal Area

**Purpose/Necessity:** Disposal of FGD waste is necessary for the operation of Units 4&5. FGD waste from the thickener underflow tanks is currently slurried to the Lined Ash Impoundment (LAI) for disposal. The final lift of the LAI has been completed in February 2014 and can store up to 2.5 years of Units 4&5 FGD. To allow for start up, transition, and contingent future storage FGD disposal must be on line by the end of 2015.

**Consequences of Delay:** When the Lined Ash Impoundment is filled we will need to process the FGD sludge for dry disposal or have an alternative wet disposal site available.

**Economic Justification:**

Benefit-Cost NPV: MS  
Budget Category: ENV

Cash Flow - 2014							
Jan	\$2,000	Apr	\$21,000	Jul	\$153,000	Oct	\$441,000
Feb	\$5,000	May	\$29,000	Aug	\$147,000	Nov	\$384,000
Mar	\$19,000	Jun	\$168,000	Sep	\$175,000	Dec	\$397,000
Prior	\$199,000	2014	\$1,942,000	2015	\$5,631,000	After	\$0

Cost Summary			
	Current Amount		Revised Amount
Additions	<i>39,000</i>	\$300,000	<i>1,004,900</i> \$7,730,000
Removals		\$0	<i>0</i> \$0
(Salvage)		\$0	<i>0</i> \$0
Overhead Loads		\$0	<i>5460</i> \$42,000
CBI Total		\$300,000	<i>1,010,230</i> \$7,771,000
Retirements		\$0	\$0

Approvals			
Exhibit: AAA		E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
Organization	Ownership	Share	Approve
APS	63.00%	4,895,730	Date
EPE	7.00%	543,970	Date
PNM	13.00%	1,010,230	<i>[Signature]</i> Date <i>6/17/14</i>
SRP	10.0%	777,100	<i>[Signature]</i> Date <i>6/17/14</i>
TIP	7.00%	543,970	Date

WD# 715-40056945

**FOUR CORNERS  
CAPITAL BUDGET ITEM** FPH 715-19210

CBI No:	12-15		Prepared By: JD Mitchell				
Project Cost:	\$300,000	FCC06347	Date: 07/20/11				
JOB TITLE: FGD Dewatering Upgrades Units 4&5		Date Approved:					
DESCRIPTION OF WORK:  Detail Engineering Analysis to replace ponded dead storage of FGD waste with disposal in the Dry Fly Ash Disposal Area		Allocation Code: 7					
		Approval Signatures					
		<input checked="" type="checkbox"/> E&O <input type="checkbox"/> O&M					
		APS	15.00%	\$45,000	<i>J. Willard Dilling</i>		
		EPE	7.00%	\$21,000			
		PNM	13.00%	\$39,000	<i>Donald J. Ireland</i>		
		SAP	10.00%	\$30,000			
SCE	48.00%	\$144,000	<i>[Signature]</i>				
TEP	7.00%	\$21,000					
PURPOSE AND NECESSITY:							
<p>Conduct detailed analysis to replace ponded dead storage of Flue Gas Desulfurization (FGD) waste with disposal in the Lined Dry Fly Ash Disposal Area (DFADA) where Unit 4&amp;5 ash waste is currently disposed.</p> <p>Disposal of FGD waste is necessary for the operation of Units 4&amp;5. FGD waste from the thickener underflow tanks is currently slurried to the Lined Ash Impoundment (LAI) for dead storage with Ash and FGD from Units 123. The LAI will be full in May of 2014. This deadline could be extended to May 2015 if Units 123 cease operations at the end of 2013. Units 4&amp;5 must have a means of FGD disposal available for the first possible contingency in February of 2014 for the operations transition.</p> <p>Detailed engineering work must begin in 2012 to support a scheduled in service date of February 2014. Mixing for dry disposal of FGD slurry with the existing fly ash disposal in the DFADA requires testing to confirm mixing produces a stable mixture as used elsewhere and detail engineering to support the in service date.</p> <p>EPA regulations are pending for Coal Combustion Residuals (CCR's) that do not favor liquid disposal. The necessity of building a new pond on a new site and the economy of direct mixing favor dewatering of the FGD waste. This advance will facilitate the detail necessary to proceed with preliminary engineering to meet this requirement. In preparation for 2012 E&amp;O meeting where the final scope of work and cost estimation will be submitted. Total Project is currently anticipated to be \$9.2 million.</p>							
Estimated Retirements--\$ 0							
Additions	\$300,000	Plant	ELEMENTS OF COST				
Removals	\$0	Account	APS	Contract			
Salvage	\$0	Number	Labor	Labor	Mat'l	Other	TOTAL
Current Amt	\$300,000	312	\$10,000	\$290,000	\$0	\$0	\$300,000
Revision							
Revised Amt							
2012 CASH FLOW							
1st Quarter		2nd Quarter		3rd Quarter		4th Quarter	
JAN	100,000	APR	0	JULY	0	OCT	0
FEB	100,000	MAY	0	AUG	0	NOV	0
MAR	100,000	JUNE	0	SEPT	0	DEC	0
2011-\$	0	2012-\$	300,000	2013-\$	6,500,000	2014-\$	2,400,000

4-25-12 Initial *gr*

**FOUR CORNERS  
CAPITAL BUDGET ITEM**

CBI No:	12-16	<i>\$9.2M total</i>	Prepared By: JD Mitchell				
Project Cost:	\$300,000		Date: 07/20/11				
JOB TITLE: FGD Dewatering Upgrades Units 4&5		Date Approved:					
DESCRIPTION OF WORK:  Detail Engineering Analysis to replace ponded dead storage of FGD waste with disposal in the Dry Fly Ash Disposal Area	Allocation Code: 7		Approval Signatures				
	APS	15.00% \$45,000	<input checked="" type="checkbox"/> E&O <input type="checkbox"/> Coord				
	EPE	7.00% \$21,000					
	PNM	13.00% \$89,000	<i>Plant + Eng 9/25/11</i>				
	SRP	10.00% \$90,000					
	SCE	48.00% \$144,000					
	TEP	7.00% \$21,000					
PURPOSE AND NECESSITY:							
<p>Conduct detailed analysis to replace ponded dead storage of Flue Gas Desulfurization (FGD) waste with disposal in the lined Dry Fly Ash Disposal Area (DFADA) where Unit 4&amp;5 ash waste is currently disposed.</p> <p>Disposal of FGD waste is necessary for the operation of Units 4&amp;5. FGD waste from the thickener underflow tanks is currently slurried to the Lined Ash Impoundment (LAI) for dead storage with Ash and FGD from Units 123. The LAI will be full in May of 2014. This deadline could be extended to May 2015 if Units 123 cease operations at the end of 2013. Units 4&amp;5 must have a means of FGD disposal available for the first possible contingency in February of 2014 for the operations transition.</p> <p>Detailed engineering work must begin in 2012 to support a scheduled in service date of February 2014. Mixing for dry disposal of FGD slurry with the existing fly ash disposal in the DFADA requires testing to confirm mixing produces a stable mixture as used elsewhere and detail engineering to support the in service date.</p> <p>EPA regulations are pending for Coal Combustion Residuals (CCR's) that do not favor liquid disposal. The necessity of building a new pond on a new site and the economy of direct mixing favor dewatering of the FGD waste. This advance will facilitate the detail necessary to proceed with preliminary engineering to meet this requirement, in preparation for 2012 E&amp;D meeting where the final scope of work and cost estimation will be submitted. Total Project is currently anticipated to be \$9.2 million.</p>							
Estimated Retirements--\$ 0							
Additions	\$300,000	Plant	ELEMENTS OF COST				
Removals	\$0	Account	APS	Contract			
Salvage	\$0	Number	Labor	Labor	Mat'l	Other	TOTAL
Current Amt	\$300,000	312	\$10,000	\$280,000	\$0	\$0	\$300,000
Revision							
Revised Amt							
2012 CASH FLOW							
1st Quarter		2nd Quarter		3rd Quarter		4th Quarter	
JAN	100,000	APR	0	JULY	0	OCT	0
FEB	100,000	MAY	0	AUG	0	NOV	0
MAR	100,000	JUNE	0	SEPT	0	DEC	0
2011-\$	0	2012-\$	300,000	2013-\$	8,500,000	2014-\$	2,400,000



**FOUR CORNERS  
CAPITAL BUDGET ITEM**

GPI No:	12-15	Prepared By:	JDM/JR/Shell					
Project Cost:	\$300,000	Date:	07/20/11					
ICB TITLE:	FGD Dewatering Upgrades Units 4&5	Date Approved:						
DESCRIPTION OF WORK  Detail Engineering Analysis to replace ponded dead storage of FGD Waste with disposal on DFAD/A. Final Disposal Area.	Allocation Code:	47	Approval Signatures:					
	APS	15.00%	\$45,000					
	EPF	7.00%	\$21,000					
	BNM	13.00%	\$39,000					
	SRP	10.00%	\$30,000					
	BCE	28.00%	\$84,000					
	TEP	7.00%	\$21,000					
PURPOSE AND NECESSITY:								
Conduct detail engineering analysis to replace ponded dead storage of Flue Gas Desulfurization (FGD) waste with disposal on the Final Disposal Area (DFAD/A) with a Unit 4&5 final disposal currently in place.								
Disposal of FGD waste is necessary to the operation of Unit 4&5. FGD waste from the thickeners underflow tanks is currently pumped to the Low Residue Ash (LRA) ponded storage with a pending FGD Iron Chloride (LRA) discharge in May of 2011. This deadline could be extended to May 2015 if Unit 4&5 ceases operations at the end of 2013. Unit 4&5 will have a maximum of 60 days of disposal available for the final disposal in the pond in February of 2011 to the final disposal area.								
Detailed engineering work must be completed in 2012 to support scheduled installation of February 2014. This includes disposal of FGD slurry with the existing waste disposal in the DFAD/A requiring to continue the product available mixture as used elsewhere and detail engineering to support the disposal area.								
EPA regulations are pending for Coal Gasification Facilities (CGF) that prohibit liquid disposal. The necessity of building a new pond on a new site and the economy of direct mixing raw waste (FGD) with the FGD waste. This advance of fact have the detail necessary to proceed with preliminary engineering to meet the requirements in preparation for 2012 F&G meeting where the full scope of work and cost estimation will be completed. Total Project is currently anticipated to be \$3.2 million.								
Estimated Return on Investment: 0								
ELEMENTS OF COST								
Additions	\$300,000	Plant Account Number		APS Labor	Contract Labor	Mat	Other	TOTAL
Removals	\$0							
Salvage	\$0							
Current Amt	\$300,000	312		\$10,000	\$290,000	\$0	\$0	\$300,000
Revision								
Revised Amt								
2012 CASH FLOW								
1st Quarter		2nd Quarter		3rd Quarter		4th Quarter		
JAN	100,000	APR	0	JULY	0	OCT	0	
FEB	100,000	MAY	0	AUG	0	NOV	0	
MAR	100,000	JUNE	0	SEPT	0	DEC	0	
2011-\$	0	2012-\$	300,000	2013-\$	6,500,000	2014-\$	2,400,000	

**FOUR CORNERS  
CAPITAL BUDGET ITEM**

CBI No:	12-15	Prepared By:	JD Mitchell				
Project Cost:	\$300,000	Date:	07/20/11				
JOB TITLE:	FGD Dewatering Upgrades Units 4&6	Date Approved:					
DESCRIPTION OF WORK:  Detail Engineering Analysis to replace ponded dead storage of FGD waste with disposal in the Dry Fly Ash Disposal Area	Allocation Code:	7	Approval Signatures				
	APS	15.00%	\$45,000	<input checked="" type="checkbox"/> Plan	<input type="checkbox"/> Coord		
	EPE	7.00%	\$21,000	<i>JL Taylor 7/10/11</i>			
	PNM	13.00%	\$39,000				
	SRP	10.00%	\$30,000				
	SCE	48.00%	\$144,000				
TEP	7.00%	\$21,000					
<b>PURPOSE AND NECESSITY:</b>							
<p>Conduct detailed analysis to replace ponded dead storage of Flue Gas Desulfurization (FGD) waste with disposal in the lined Dry Fly Ash Disposal Area (DFADA) where Unit 4&amp;5 ash waste is currently disposed.</p> <p>Disposal of FGD waste is necessary for the operation of Units 4&amp;5. FGD waste from the thickener underflow tanks is currently slurried to the Lined Ash Impoundment (LAI) for dead storage with Ash and FGD from Unit 123. The LAI will be full in May of 2014. This deadline could be extended to May 2015 if Units 123 cease operations at the end of 2013. Units 4&amp;5 must have a means of FGD disposal available for the first possible contingency in February of 2014 for the operations transition.</p> <p>Detailed engineering work must begin in 2012 to support a scheduled in service date of February 2014. Mixing for dry disposal of FGD slurry with the existing fly ash disposal in the DFADA requires testing to confirm mixing produces a stable mixture as used elsewhere and detail engineering to support the in service date.</p> <p>EPA regulations are pending for Coal Combustion Residuals (CCR's) that do not favor liquid disposal. The necessity of building a new pond on a new site and the economy of direct mixing favor dewatering of the FGD waste. This advance will facilitate the detail necessary to proceed with preliminary engineering to meet this requirement, in preparation for 2012 E&amp;O meeting where the final scope of work and cost estimation will be submitted. Total Project is currently anticipated to be \$9.2 million.</p>							
Estimated Retirements--\$ 0							
Additions	\$300,000	Plant Account Number	ELEMENTS OF COST				
Removals	\$0		APS Labor	Contract Labor	Mat'l	Other	TOTAL
Salvage	\$0	312	\$10,000	\$290,000	\$0	\$0	\$300,000
Current Amt	\$300,000						
Revision							
Revised Amt							
<b>2012 CASH FLOW</b>							
1st Quarter		2nd Quarter		3rd Quarter		4th Quarter	
JAN	100,000	APR	0	JULY	0	OCT	0
FEB	100,000	MAY	0	AUG	0	NOV	0
MAR	100,000	JUNE	0	SEPT	0	DEC	0
2011-\$	0	2012-\$	300,000	2013-\$	6,500,000	2014-\$	2,400,000

14-08

FOUR CORNERS SWITCHYARD  
( ) OPERATING BUDGET  
(X) CAPITAL BUDGET

BUDGET YEAR: 2014

PREPARED BY:	Jane Brundage
DATE:	9/14/2014
NUMBER:	FCB 14-08

ESTIMATED COST OF PROJ: \$988,012

JOB TITLE: Upgrade Control House

Security - Four Corners 230kV SWYD (Alloc 7)

DESCRIPTION OF WORK: Upgrade physical  
and cyber assets to meet NERC/NERC  
Compliance Standards

LOCATION OF WORK: Four Corners 230kV SWYD

APPROVALS:

ALLOCATION	%	\$	ERO COMMITTEE SIGNATURE/DATE
APS	63.00%	622,448	<i>[Signature]</i> 9-30-14
EPE	7.00%	69,181	<i>[Signature]</i> 9/30/14
PNM	12.00%	128,442	<i>[Signature]</i> 11/20/14
SAP	10.00%	98,801	<i>[Signature]</i> 9/30/14
TEP	7.00%	69,151	<i>[Signature]</i> 9/30/14
TOTAL	100.00%	988,012	

Project WA: T1401003H

PURPOSE AND NECESSITY:

Upgrade physical and cyber assets and systems to meet NERC Critical Infrastructure Protection (CIP) Regulatory Standards/Requirements. Estimates include implementation of cyber and physical protections for computing systems in the substation control house only.

ESTIMATED DOLLARS ONLY (\$000)

ADDITION REMOVAL COST OF PROJECT	988	ELEMENTS OF COST					TOTAL:
		APS LABOR	CONTRACT	MATERIAL	MISC	SALVAGE	
	988	699	73	212	4	0	988

SCHEDULE OF EXPENDITURES:

2014				
1ST QUARTER	2ND QUARTER	3RD QUARTER	4TH QUARTER	TOTAL:
0	0	123	256	478

SCHEDULE OF EXPENDITURES:

2015				
1ST QUARTER	2ND QUARTER	3RD QUARTER	4TH QUARTER	TOTAL:
262	248	0	0	610

GRAND TOTAL:	988
--------------	-----

Revd 2-25-15

FP 715-19210  
WO 40070368  
No RO# upgrade only - No Removal.  
Initiated 1-4-2016.

14-09

**FOUR CORNERS SWITCHYARD**  
**( ) OPERATING BUDGET**  
**(X) CAPITAL BUDGET**

BUDGET YEAR 2014

ESTIMATED COST OF PROJ: \$1,856

JOB TITLE: Four Corners 345/500 SWYD

1AA Bank Bushing Monitors (Alloc 7)

DESCRIPTION OF WORK: Four Corners

345/500 SWYD 1AA Bank Bushing Monitors

LOCATION OF WORK: \_\_\_\_\_

Four Corners 345/500 SWYD

Project WA: WA325801

**PURPOSE AND NECESSITY:**

The CDI purpose is to purchase and install bushing monitors (three phases and a spare) on the 1AA Bank of the Four Corners 500KV Switchyard. Bushings on the transformer are an integral component of the transformer asset. Installation of the monitors will allow engineers to assess the condition of the bushings without the need of a transformer outage. The monitors will help diagnose a problem before it becomes catastrophic.

PREPARED BY:	Al Pavon
DATE:	8/28/2014
NUMBER:	FCB 14-09

**APPROVALS:**

ALLOCATION	%	\$	E&O COMMITTEE SIGNATURE/DATE
APS	53.00%	45,276	<i>[Signature]</i> 9-30-14
EPE	7.00%	5,031	<i>[Signature]</i> 9/30/14
PNM	13.00%	9,343	<i>[Signature]</i> 11/25/14
SRP	15.00%	7,167	<i>[Signature]</i> 9/30/2014
TEP	7.00%	5,031	<i>[Signature]</i> 9/30/2014
TOTAL	100.00%	71,856	

**ESTIMATED DOLLARS ONLY (\$000)**

ADDITION REMOVAL COST OF PROJECT	72 - 72	ELEMENTS OF COST					TOTAL
		APS LABOR	CONTRACT	MATERIAL	MISC	SALVAGE	
		29	21	22	0	0	72

**SCHEDULE OF EXPENDITURE:**

2014				
1ST QUARTER	2ND QUARTER	3RD QUARTER	4TH QUARTER	TOTAL
0	0	0	72	72

715-19210  
NO Y00730  
No RO

Revd 2-25-16

RCC0660 Condition Facility Building Replacement							
Four Corners Participant Project	SG3 WA Rev 0	0% Envir.	NSR Completed: Yes				
FC Units 4 & 5	CBI: 15-03	Env. Code: N/A	ERF Completed: Yes				
In 2014 Budget: No	Plant Acct: 311	Bal. Removal:	Est In Svc: 10/27/2016				
<b>Description:</b> Construct a new building on plant site to replace the existing Common Facilities Building.							
<b>Purpose/Necessity:</b> The purpose of this project is to ensure employees have a safe and accommodating work environment. The existing building has experienced settlement since the initial construction (1978). In September 2010 Arizona Rain Jack performed an interior manometer survey of the ground floor and found that the southern half of the building had settled significantly. In March 2011, Worley Parson's report indicated that in recent years the southern portion of the foundation has continued to settle up to 6 inches (as evident in the wall and floor cracks), and that the settlement appears to be directly related to the infiltration of water from Morgan Lake and its effect on the weathered clay shale below the building.							
<b>Consequences of Delay:</b> The building will continue to settle creating the need to condemn the building due to the safety risk to personnel.							
<b>Economic Justification:</b>							
Benefit-Cost NPV: (\$4.90) MS							
Budget Category: SAFETY							
<b>Cash Flow - 2014</b>							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2014	\$0	2015	\$510,000	After	\$5,330,000
<b>Cost Summary</b>							
	Current Amount			Revised Amount			
Additions	\$5,751,000						
Removals	\$0						
(Salvage)	\$0						
Overhead Loads	\$90,000						
CBI Total	\$5,841,000						
Retirements	\$0						
<b>Approvals</b>							
Exhibit: AAF				E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
Organization	Ownership	Share	Amount	Approve			
APS	63.00%	3,679,830					
EPE	7.00%	408,870					
PNM	13.00%	759,330					
SRI	10.00%	\$84,100					
TEP	7.00%	408,870					
				Date	8-25-14		
				Line			

**FCC06686 Common Facility Building Replacement**

Four Corners Participant Project	SG3 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: 15-03	Env Code: N/A	ERF Completed: Yes
In 2015 Budget: No	Plant Acct: 311	Est Removal:	Est In Svc: 10/27/2016

**Description:** Construct a new building on plant site to replace the existing Common Facilities Building.

**Purpose/Necessity:** The purpose of this project is to ensure employees have a safe and accommodating work environment. The existing building has experienced settlement since the initial construction (1978). In September 2010 Arizona Ram Jack performed an interior manometer survey of the ground floor and found that the southern half of the building had settled significantly. In March 2011, Worley Parson's report indicated that in recent years the southern portion of the foundation has continued to settle up to 6 inches (as evident in the wall and floor cracks), and that the settlement appears to be directly related to the infiltration of water from Morgan Lake and its effect on the weathered clay shale below the building.

**Consequences of Delay:** The building will continue to settle creating the need to condemn the building due to the safety risk to personnel.

**Economic Justification:**  
Benefit-Cost NPV: (\$4.90) M\$  
Budget Category: SAFETY

31104301

**Cash Flow - 2015**

Jan	\$41,000	Apr	\$46,000	Jul	\$40,000	Oct	\$40,000
Feb	\$46,000	May	\$47,000	Aug	\$40,000	Nov	\$40,000
Mar	\$46,000	Jun	\$46,000	Sep	\$42,000	Dec	\$37,000
<b>Prior</b>	<b>\$0</b>	<b>2015</b>	<b>\$510,000</b>	<b>2016</b>	<b>\$5,304,000</b>	<b>After</b>	<b>\$27,000</b>

**Cost Summary**

	Current Amount	Revised Amount
Additions	\$5,751,000	
Removals	\$0	
(Salvage)	\$0	
Overhead Loads	\$90,000	
<b>CBI Total</b>	<b>\$5,841,000</b>	
Retirements	\$0	

**Approvals**

Exhibit: AAF		E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
Organization	Ownership	Share	Approve	Date	Date
APS	63.00%	3,679,830			
EPE	7.00%	408,870			
PNM	13.00%	759,330			
SRP	10.0%	584,100			
TEP	7.00%	408,870			

Date **29 SEP 2014**

**FCC08833 Baghouse Compartment SSW-7 Rebag**

Four Corners Participant Project	SG3 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: 15-62	Env Code: N/A	ERP Completed: Yes
In 2015 Budget: No	Plant Acct:	Est Removal:	Est In Svc: 12/16/2015

**Description:** Replace all of the fabric filter bags in compartment SSW-7 O&M to Capital transfer

**Purpose/Necessity:** The purpose of this project is to ensure continued environmental compliance while maintaining unit operation. The fabric filter bags have reached the end of their serviceable life and require replacement.

**Consequences of Delay:** Non-compliance with the PM standard defined in the Plant's Title V Permit, resulting in fines, unit derate, and eventual unit shutdown.

**Economic Justification:**  
 Benefit-Cost NPV (\$0.10) M\$  
 Budget Category: REL-UNIT

FP 715-19210  
 WO Y00 78387  
 RO Y00 78388

\* EPE's approval of this CBI is subject to the terms and conditions of the purchase and sale agreement dated February 17, 2015, between EPE and APS.

Cash Flow - 2015							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sen	\$0	Dec	\$87,000
Prior	\$0	2015	\$87,000	2016	\$0	After	\$0

Cost Summary		
	Current Amount	Revised Amount
Additions	10,920.	\$84,000
Removals	390.	\$3,000
(Salvage)	0	\$0
Overhead Loads	0	\$0
CBI Total	11,310.	\$87,000
Retirements	2,600.	\$20,000

Approvals		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
Organization	Ownership	Share	Approve
APS	63.00%	54,810	[Signature] 1/7/16
EPE	7.00%	6,090	[Signature] 1-7-16
PNM	11.00%	11,310	[Signature] 1/7/16
SRP	10.0%	8,700	[Signature] 1/7/16
TEP	7.00%	6,090	[Signature] 1-8-16

**FCC8837 Absorber Recirculating Pump Replacement**

Four Corners Participant Project	SG3 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: 15-64	Env Code: N/A	ERF Completed: Yes
In 2015 Budget: No	Plant Acct:	Est Removal:	Est In Svc: 12/31/2015

**Description:** Replace two (2) failed 14,000 GPM absorber recirculating pumps at various locations. O&M to Capital transfer.

**Purpose/Necessity:** The purpose of this project is to maintain scrubber absorber efficiency allowing for SO2 removal compliance at full load.

**Consequences of Delay:** Loss of pump effectiveness will result in a unit derate.

**Economic Justification:**  
Benefit-Cost NPV: (\$0.50) M\$  
Budget Category: RIL-UNIT

\* EPE's approval of this CBI is subject to the terms and conditions of the Purchase and Sale Agreement dated February 17, 2015, between EPE and APS.

**Cash Flow - 2015**

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$151,000
Prior	\$0	2015	\$151,000	2016	\$0	After	\$0

**Cost Summary**

	Current Amount	Revised Amount
Additions	\$94,000	
Removals	\$4,000	
(Salvage)	\$0	
Overhead Loads	\$53,000	
<b>CBI Total</b>	<b>\$151,000</b>	
Retirements	\$17,000	

**Approvals**

Organization	Ownership	Share	F&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
			Approve	Date	Approve	Date
APS	63.00%	95,130	<i>[Signature]</i>	1/7/16		
EPE	7.00%	10,570	<i>[Signature]</i>	1/7/16		
PNM	13.00%	19,630	<i>[Signature]</i>	1/7/16		
SRP	10.0%	15,100	<i>[Signature]</i>	1/7/16		
TEP	7.00%	10,570	<i>[Signature]</i>	1-8-16		



<b>Four Corners Participant Project</b>	<b>SG2 WA Rev 1</b>	<b>0% Baving</b>	<b>NSR Completed: Yes</b>
<b>FC Units 4 &amp; 5</b>	<b>CBI: 16-46</b>	<b>Env Code: N/A</b>	<b>BRF Completed: Yes</b>
<b>In 2016 Budget: No</b>	<b>Plant Acct:</b>	<b>Est Removal: 09/18/2017</b>	<b>Est In Svc: 12/19/2017</b>

**Description:** Replace the existing 480V Coal Handling switchgear with two MCC buses fed by independent transformers. The Unit 4 MCC and transformer were previously purchased and installed as part of Phase 1 of the Coal Handling Redundant power project. Phase 2 includes the purchase and installation of the Unit 5 MCC and transformer. Additionally, the existing MCCs within the Coal Handling system will be replaced along with a 2nd UPS power supply for the control systems.

**Purpose/Necessity:** The purpose of this project is to mitigate the risk of a single point of failure and to ensure continued reliability of the Coal Handling system and Units. The existing Coal Handling system for Units 4 & 5 has a single 480V switchgear bus feeding the majority of the conveying equipment, resulting in many single points of failure.

**Consequences of Delay:** A failure in the General Services Switchgear, Coal Handling Transformer, or Coal Handling MCC would shut the coal handling system down resulting in a DUAL unit outage for 5 days.

**Economic Justification:**  
 Benefit-Cost NPV: \$9.00 M\$  
 Budget Category: REI-UNIT

Jan	\$30,000	Apr	\$30,000	Jul	\$30,000	Oct	\$30,000
Feb	\$72,000	May	\$30,000	Aug	\$30,000	Nov	\$393,000
Mar	\$30,000	Jun	\$30,000	Sep	\$30,000	Dec	\$30,000
<b>Prior</b>	<b>\$0</b>	<b>2016</b>	<b>\$760,000</b>	<b>2017</b>	<b>\$2,542,000</b>	<b>After</b>	<b>\$45,000</b>

Cost Summary		Current Amount	Revised Amount
Additions		\$3,063,000	
Removals		\$250,000	
(Salvage)		\$0	
Overhead Loads		\$34,000	
<b>CBI Total</b>		<b>\$3,347,000</b>	
Retirements		\$30,000	

Approvals		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
Organization	Ownership	Share	Approva	Date	Date
APS	63.00%	\$2,108,610	<i>[Signature]</i>	1/14/15	
EPE	7.00%	\$234,290			
PNM	13.00%	\$435,110	<i>[Signature]</i>	1/14/15	
SRP	10.0%	\$334,700			
TEP	7.00%	\$234,290			

Four Corners Participant Project      SG2 WA Rev 1      0% Enviro.      NSR Completed: Yes  
 FC Units 4 & 5      CBI: 16-40      Env. Code: N/A      ERF Completed: Yes  
 In 2016 Budget: No      Plant Acct:      Est Removal: 09/18/2017      Est In Svc: 12/19/2017

**Description:** Replace the existing 480V Coal Handling switchgear with two MCC buses fed by independent transformers. The Unit 4 MCC and transformer were previously purchased and installed as part of Phase 1 of the Coal Handling Redundant power project. Phase 2 includes the purchase and installation of the Unit 5 MCC and transformer. Additionally, the existing MCCs within the Coal Handling system will be replaced along with a 2nd UPS power supply for the control systems.

**Purpose/Necessity:** The purpose of this project is to mitigate the risk of a single point of failure and to ensure continued reliability of the Coal Handling system and Units. The existing Coal Handling system for Units 4 & 5 has a single 480V switchgear bus feeding the majority of the conveying equipment, resulting in many single points of failure.

**Consequences of Delay:** A failure in the General Services Switchgear, Coal Handling Transformer, or Coal Handling MCC would shut the coal handling system down resulting in a DUAL unit outage for 5 days.

**Economic Justification:**

Benefit-Cost NPV: \$9.00 M\$  
 Budget Category: REL-UNIT

Jan	\$30,000	Apr	\$30,000	Jul	\$30,000	Oct	\$30,000
Feb	\$72,000	May	\$30,000	Aug	\$30,000	Nov	\$393,000
Mar	\$30,000	Jun	\$30,000	Sep	\$30,000	Dec	\$30,000
<b>Prior</b>	<b>\$0</b>	<b>2016</b>	<b>\$760,000</b>	<b>2017</b>	<b>\$2,542,000</b>	<b>After</b>	<b>\$45,000</b>

Cost Summary		Current Amount	Revised Amount
Additions		\$3,063,000	
Removals		\$250,000	
(Salvage)		\$0	
Overhead Loads		\$34,000	
<b>CBI Total</b>		<b>\$3,347,000</b>	
Retirements		\$30,000	

Approvals		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
Organization	Ownership	Share	Approve	Date	
APS	63.00%	\$2,108,610			
EPE	7.00%	\$234,290			
PNM	13.00%	\$435,110			
SRP	10.0%	\$334,700			
TEP	7.00%	\$234,290			

*[Handwritten Signature]*      Date: 10/28/15  
*[Handwritten Signature]*      Date: 10-28-15

**Four Corners O&M Budget Item**

Plant: FC Power Plant  
 Budget Year: 2019  
 Cost Of Project: 531,800  
 System: Fuel  
 Sub-System: FL-Fuel  
 Current System Health: Red  
 Projected System Health: Yellow  
 Risk Type:  Environmental  
 Generation  
 Regulatory  
 Safety

Number: 16-2019  
 Budget Type: RT  
 Unit: Units 4 & 5  
 Date: 5/9/2018  
 Priority: 2  
 Frequency: One-Time  
 Prepared By: Delbert Josea

**Job Title:** U4&5 Coal Conveyor Belt Feeder Replacement - AZA, A2B, B2A, B2B2

**Description of Work:**

Replace Four (4) Belt Feeders and four silo gates: Two (2) feeders for 2A coal conveyor; AZA and B2A. Two (2) feeders for 2B coal conveyor; B2A and B2B. Feeders have silo gates mounted on top of each feeder. Work consists of removing gate and feeder assembly. Replace complete feeder assembly from the bottom of the coal surge bin silo to 2A/ 2B coal conveyor belts.

**Purpose And Necessity:**

The silo gates are manual and hard to open and close, one gate is missing. The feeders have numerous holes and patches. The skirt liners are worn causing coal leaks on a daily basis. Maintenance cannot repair liners because the silo gates will not close. The feeders have severe coal leakage on a daily basis. We are using Riley Industrial to clean coal spills on a weekly basis at the Surge Bin area. The coal leaks create fugitive dusting which affects our Environmental policy. The only maintenance the feeders receive are visual inspection and skirting adjustments when needed.

**Potential Adverse Consequences:**

High maintenance to replace rollers which are buried in coal. Wear abrasion on conveyor rollers. High maintenance cost with the use of contractors for coal spill clean up. Environmental impact with fugitive dusting. Safety and fire hazard with large coal spills and dusting where personnel make routine inspections and perform maintenance.

Allocation	%
APS	63
PSNM	13
SRP	10
TEP	7
NTEC	7
Total	100

Tab 4 - Page 32

10-10-18



\$
335,034
69,134
53,180
37,226
37,226
531,800

of  
g in the area



FCC#7631 Coal Dust Elimination Phase 2			
Four Corners Participant Project	SO2 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: 17-05	Env Code: N/A	ERF Completed: Yes
In 2017 Budget: Yes	Plant Acct: 312	Est Removal: 11/15/2017	Est In Svc: 04/26/2018
<b>Description:</b> Replacement of the coal handling system at the surge bin silos. New coal flow control chutes to the surge bin silos and new chutes and flow control gate valves to the 2A and 2B conveyers. Modifications to surge bin sample tower A to allow for washdown of dust.			
<b>Purpose/Necessity:</b> The purpose of this project is to comply with OSHA regulations (1910.269(v)(11)(xii) and 1910.176c) and Air Permit/Title V by reducing coal dust generation and spillage from the coal handling system at the Surge Bin Silos. The existing coal handling equipment is not designed to control coal flow which results in excessive dust generation and escape.			
<b>Consequences of Delay:</b> Continued dust generation and spillage which results in failure to meet Air Permit/Title V and OSHA regulations.			
<b>Economic Justification:</b>			
Benefit-Cost NPV: M\$		Budget Category: SAFETY	
FP 71519017			
WO 715-Y0076707			
RO 715-Y0082087			

Cash Flow - 2017							
Jan	\$0	Apr	\$32,000 4160	Jul	\$21,000 2730	Oct	\$8,000 1040
Feb	\$62,000 8060	May	\$31,000 4030	Aug	\$15,000 1950	Nov	\$3,000 390
Mar	\$22,000 2860	Jun	\$27,000 3510	Sep	\$8,000 1040	Dec	\$3,000 390
Prior	\$0	2017	\$232,000	2018	\$1,593,000	After	\$0

Cost Summary	Current Amount	Revised Amount
Additions	213,590	\$1,643,000
Removals	21,320	\$164,000
(Salvage)	(650)	\$5,000
Overhead Loads	2,210	\$17,000
CBI Total	= 236,470	\$1,825,000
Retirements	14,300	\$110,000

Approvals		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
Organization	Ownership	Share	Approve
4CA	7.00%	127,750	<i>James R. Hatfield</i> Date 10/31/16
APS	63.00%	1,149,750	<i>J.R. Linn</i> Date 9/28/16
PNM	13.00%	237,250	<i>John Kelly</i> Date 9/28/16
SRP	10.0%	182,500	<i>Mike Huthoff</i> Date 9/28/16
TEP	7.00%	127,750	<i>Jeff CB</i> Date 9-28-16

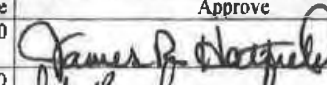
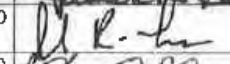
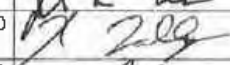

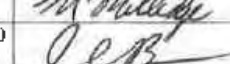
5/21/17 Initialed WO.

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RCC07905 Absorber Module Mixer Replacement			
Four Corners Participant Project	SG2 WA Rev 0	100% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: 17-08	Env Code: Air	ERF Completed: Yes
In 2017 Budget: No	Plant Acct: 341	Est Removal: 02/01/2017	Est In Svc: 12/19/2017
<p><b>Description:</b> This project replaces the Reaction Tank agitators on all (5) absorber reaction tanks on Unit 5.</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to maintain environmental compliance with new Consent Decree requirements (Case No. 1:15-cv-00537 &amp; Case No. 1:11-cv-00889-JB-SCY). The current system has excessive sludge build up. The new system will reduce sludge build up by 90% resulting in improved tank performance, reduced plugging, lower chemical costs, and reduced damage and wear to the recycle pump. The new mixer will improve mixing and reduce maintenance costs while sustaining the required higher SO2 removal rates.</p> <p><b>Consequences of Delay:</b> Reduced SO2 removal efficiency. Continued increased limestone usage rates.</p> <p><b>Economic Justification:</b>            Benefit-Cost NPV: M\$            Budget Category: ENV</p>			

Cash Flow - 2017							
Jan	\$24,000	Apr	\$24,000	Jul	\$5,000	Oct	\$186,000
Feb	\$68,000	May	\$25,000	Aug	\$772,000	Nov	\$186,000
Mar	\$24,000	Jun	\$24,000	Sep	\$186,000	Dec	\$192,000
Prior	\$0	2017	\$1,717,000	2018	\$40,000	After	\$0

Cost Summary		
	Current Amount	Revised Amount
Additions	\$1,588,000	
Removals	\$157,000	
(Salvage)	\$8,000	
Overhead Loads	\$12,000	
CBI Total	\$1,757,000	
Retirements	\$1,000	

Approvals		E&O Committee <input checked="" type="checkbox"/> Coordinating Committee <input type="checkbox"/>	
Organization	Ownership	Share	Approve
4CA	7.00%	122,990	 Date: 10/3/16
APS	61.00%	1,106,910	 Date: 9/28/16
PNM	11.00%	228,410	 Date: 9/29/16
SRP	10.0%	175,700	 Date: 9/28/16
TEP	7.00%	122,990	 Date: 9-28-16



FCC07954 Miscellaneous Motor Replacement - 2017			
Four Corners Participant Project	SG2 WA Rev 0	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: 17-09	Env Code: N/A	ERF Completed: Yes
In 2017 Budget: No	Plant Acct: 316	Est Removal:	Est In Svc: 12/11/2017
<b>Description:</b> Funding for the replacement of miscellaneous motors that meet capital requirements. In order to meet capital budget requirements, motors must be 100 HP and above. Motors range in size up to 7,000 HP.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain plant reliability. Capital budget will be used for purchase and installation of new capital motors as failures or immediate need occurs throughout the 2017 calendar year.			
<b>Consequences of Delay:</b> Risk to unit reliability while waiting on replacement motor delivery. The effect of losing a motor while a replacement is procured may result in an extended unit derating and/or unit outage of indeterminate duration while an immediate work around is found.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:		\$0.30 M\$	
Budget Category:		REL-UNIT	

Cash Flow - 2017							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$100,000	Aug	\$100,000	Nov	\$100,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2017	\$300,000	2018	\$0	After	\$0

Cost Summary		
	Current Amount	Revised Amount
Additions	\$241,000	
Removals	\$15,000	
(Salvage)	\$1,000	
Overhead Loads	\$44,000	
CBI Total	\$300,000	
Retirements	\$100,000	

Approvals			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
Organization	Ownership	Share	Approve	
4CA	7.00%	21,000	<i>James R. Hatfield</i>	Date: 10/31/16
APS	63.00%	189,000	<i>J. L. ...</i>	Date: 9/28/16
PNM	13.00%	39,000	<i>J. ...</i>	Date: 9/28/16
SRP	10.0%	30,000	<i>M. ...</i>	Date: 9/28/16
TEP	7.00%	21,000	<i>J. ...</i>	Date: 9-28-16

FCC06341 Upper Retention Sump Replacement			
Four Corners Participant Project	Rev FC17-46R1	100% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC17-46R1	Env Code: Solid	ERF Completed: Yes
In 2018 Budget: Yes	Plant Acct: 341	Est Removal:	Est In Svc: 22 Oct 2018

**Reason for Revision:** The purpose of this \$1.5M revision is to update the current CBI costs to reflect higher construction bids.

Benefit-Cost NPV: 0 M\$

**Description:** Closure of existing Upper Retention Pond and installation of a reinforced concrete tank in the location of the closed Upper Retention Pond

**Purpose/Necessity:** The purpose of this project is to comply with 40 CFR Part 257 EPA Coal Combustion Residual (CCR) regulations. The rule requires that CCR impoundments have a composite liner system. Tanks are exempt from the regulations; therefore converting the pond into a tank will remove the Upper Retention Pond from the CCR regulations.

**Consequences of Delay:** Non-compliance with EPA CCR regulations resulting in shutdown of operations.

**Economic Justification:**

Benefit-Cost NPV: 0 M\$  
Budget Category: ENV

Cash Flow - 2018							
Jan	\$14,000	Apr	\$1,108,000	Jul	\$555,000	Oct	\$239,000
Feb	\$365,000	May	\$901,000	Aug	\$254,000	Nov	\$21,000
Mar	\$653,000	Jun	\$864,000	Sep	\$241,000	Dec	\$0
Prior	\$288,000	2018	\$5,216,000	2019	\$0	After	\$0

Cost Summary		
	Current Amount	Revised Amount
Additions	\$3,944,000	\$5,454,000
Removals		
(Salvage)		
Specific Cost	\$3,944,000	\$5,454,000
Overhead Loads	\$64,000	\$50,000
CBI Total	\$4,008,000	\$5,504,000
Retirements		

Approvals				
			E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
4CA	7.00%	\$385,279	<i>James R. Hatfield</i>	Date 2-14-18
APS	63.00%	\$3,467,513	<i>J.R. Long</i>	Date 2-13-18
PNM	13.00%	\$715,519	<i>J.R. Long</i>	Date 2-13-18
SRP	10.0%	\$550,399	<i>J.R. Long</i>	Date 2-13-18
TEP	7.00%	\$385,279	<i>J.R. Long</i>	Date 13 FEB 2018

FCC013085 Crane Hoist Replacements			
Four Corners Participant Project	Rev 17-51	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: 17-51	Env Code: N/A	ERF Completed: Yes
In 2017 Budget: No	Plant Acct:	Est Removal:	Est In Svc: 31 Aug 2017
<b>Description:</b> Replace four (4) Turbine Bay Crane Hoists (2 - 130/25 ton, 2 - 10 ton).			
<b>Purpose/Necessity:</b> The purpose of this project is to replace the currently inoperable and obsolete Turbine Bay Cranes in support of the material handling required for the U45 Major LP Turbine overhaul. Due to the vintage of the turbine cranes, parts have been discontinued by the supplier and these items will be more expensive to repair and fix without the option of spare parts. Completing the replacement prior to the U45 Major Outages will also mitigate the risk of delays to the Turbine Overhauls in the event the crane is out of service.			
<b>Consequences of Delay:</b> Deferral of the Crane Hoist Replacement could result in a cost of impact of approximately \$5,430,000. This cost estimate is based on the negotiated Liquidated Damages (LDs) negotiated by APS Management and included in the existing Turbine Contracts with GE.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:		6.00 M\$	
Budget Category:		REL	

Cash Flow - 2017							
Jan	\$0	Apr	\$0	Jul	\$321,000	Oct	\$0
Feb	\$0	May	\$193,000	Aug	\$547,000	Nov	\$0
Mar	\$0	Jun	\$214,000	Sep	\$146,000	Dec	\$0
Prior	\$0	2017	\$1,421,000	2018	\$0	After	\$0

Cost Summary		
	Current Amount	Revised Amount
Additions	\$0	
Removals	\$0	
(Salvage)	\$0	
Specific Cost	\$1,415,000	
Overhead Loads	\$6,000	
<b>CBI Total</b>	<b>\$1,421,000</b>	
Retirements	\$0	

Approvals				
			E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
4CA	7.00%	\$99,460		Date
APS	63.00%	\$895,136		Date
PNM	13.00%	\$184,711	<i>200</i>	Date
SRP	10.0%	\$142,085		5-12-17
TEP	7.00%	\$99,460		Date

FCC08247/General Services 4kV Redundant Power Feed Addition							
Four Corners Participant Project		Rev FC17-54		0% Enviro.		NSR Completed: Yes	
FC Units 4 & 5		CBI: FC17-54		Env Code: N/A		ERF Completed: Yes	
In 2018 Budget: No		Plant Acct: 346		Est Removal: 28 Mar 2018		Est In Svc: 29 May 2018	
<p><b>Description:</b> Install a redundant power feed for the General Services 4KV Switchgear.</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to maintain Unit reliability by providing a second power supply to the 4.16 KV General Services Switchgear (GSS). The GSS currently has only a single 4.16 KV power feed and APS standard protocol is to provide dual power feeds to critical electrical equipment.</p> <p><b>Consequences of Delay:</b> Potential 2 day forced outage. Economic justification assumes a 10% probability of a 2 day forced outage.</p> <p><b>Economic Justification:</b>            Benefit-Cost NPV: 0.60 M\$            Budget Category: REL-UNIT</p>							
Cash Flow - 2018							
Jan	\$382,000	Apr	\$312,000	Jul	\$5,000	Oct	\$0
Feb	\$122,000	May	\$230,000	Aug	\$5,000	Nov	\$0
Mar	\$325,000	Jun	\$107,000	Sep	\$0	Dec	\$0
Prior	\$458,000	2018	\$1,488,000	2019	\$0	After	\$0
Cost Summary							
	Current Amount			Revised Amount			
Additions	\$1,752,000						
Removals	\$172,000						
(Salvage)	\$0						
Specific Cost	\$1,924,000						
Overhead Loads	\$22,000						
CBI Total	\$1,946,000						
Retirements	\$0						
Approvals							
				E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
4CA	7.00%	\$136,220		<i>James R. Hatfield</i>		Date 9/5/17	
APS	63.00%	\$1,225,980		<i>M.B. L...</i>		Date 8/24/17	
PNM	13.00%	\$252,980				Date	
SRP	10.0%	\$194,600				Date	
TEP	7.00%	\$136,220		<i>W.S.J.</i>		Date 8/29/17	

**FCC08247 General Services 4kV Redundant Power Feed Addition**

Four Corners Participant Project	Rev FC17-54	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC17-54	Env Code: N/A	ERF Completed: Yes
In 2018 Budget: No	Plant Acct: 346	Est Removal: 28 Mar 2018	Est In Svc: 29 May 2018

**Description:** Install a redundant power feed for the General Services 4KV Switchgear.

**Purpose/Necessity:** The purpose of this project is to maintain Unit reliability by providing a second power supply to the 4.16 KV General Services Switchgear (GSS). The GSS currently has only a single 4.16 KV power feed and APS standard protocol is to provide dual power feeds to critical electrical equipment.

**Consequences of Delay:** Potential 2 day forced outage. Economic justification assumes a 10% probability of a 2 day forced outage.

**Economic Justification:**  
Benefit-Cost NPV: 0.60 M\$  
Budget Category: REL-UNIT

Cash Flow - 2018							
Jan	\$382,000	Apr	\$312,000	Jul	\$5,000	Oct	\$0
Feb	\$122,000	May	\$230,000	Aug	\$5,000	Nov	\$0
Mar	\$325,000	Jun	\$107,000	Sep	\$0	Dec	\$0
Prior	\$458,000	2018	\$1,488,000	2019	\$0	After	\$0

Cost Summary		
	Current Amount	Revised Amount
Additions	\$1,752,000	
Removals	\$172,000	
(Salvage)	\$0	
Specific Cost	\$1,924,000	
Overhead Loads	\$22,000	
CBI Total	\$1,946,000	
Retirements	\$0	

Approvals				
		E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>
4CA	7.00%	\$136,220		Date
APS	63.00%	\$1,225,980		Date
PNM	13.00%	\$252,980	<i>J. [Signature]</i>	Date 2/17/17
SRP	10.0%	\$194,600		Date
TEP	7.00%	\$136,220		Date

FCC08247 General Services 4kV Redundant Power Feed Addition			
Four Corners Participant Project	Rev FC17-54	0% Enviro,	NSR Completed: Yes
FC Units 4 & 5	CBI: FC17-54	Env Code: N/A	ERF Completed: Yes
In 2018 Budget: No	Plant Acct: 346	Est Removal: 28 Mar 2018	Est In Svc: 29 May 2018
<b>Description:</b> Install a redundant power feed for the General Services 4KV Switchgear,			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain Unit reliability by providing a second power supply to the 4.16 KV General Services Switchgear (GSS). The GSS currently has only a single 4.16 KV power feed and APS standard protocol is to provide dual power feeds to critical electrical equipment.			
<b>Consequences of Delay:</b> Potential 2 day forced outage. Economic justification assumes a 10% probability of a 2 day forced outage.			
<b>Economic Justification:</b>			
Benefit-Cost NPV: 0.60 M\$		Budget Category: REL-UNIT	

Cash Flow - 2018							
Jan	\$382,000	Apr	\$312,000	Jul	\$5,000	Oct	\$0
Feb	\$122,000	May	\$230,000	Aug	\$5,000	Nov	\$0
Mar	\$325,000	Jun	\$107,000	Sep	\$0	Dec	\$0
<b>Prior</b>	<b>\$458,000</b>	<b>2018</b>	<b>\$1,488,000</b>	<b>2019</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
Additions	\$1,752,000	
Removals	\$172,000	
(Salvage)	\$0	
Specific Cost	\$1,924,000	
Overhead Loads	\$22,000	
<b>CBI Total</b>	<b>\$1,946,000</b>	
Retirements	\$0	

Approvals				
			E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
4CA	7.00%	\$136,220		Date
APS	63.00%	\$1,225,980		Date
PNM	13.00%	\$252,980		Date
SRP	10.0%	\$194,600	<i>Will R. All</i>	Date 8/24/2017
TEP	7.00%	\$136,220		Date

**FCC013475 Low Power Plant Implementation (IT TEC013301)**

Four Corners Participant Project	Rev 17-57	0% Enviro.	NSR Completed: Yes
FC Common	CBI: 17-57	Env Code: N/A	ERF Completed: Yes
In 2017 Budget: No	Plant Acct:	Est Removal:	Est In Svc: 17 Aug 2018

**Description:** Implement low impact physical and electronic security controls to meet the standard for NERC CIP compliance at Four Corners

**Purpose/Necessity:** The purpose of this project is to meet The North American Electric Reliability Corporation's (NERC's) regulatory compliance for Critical Infrastructure Protection (CIP) requirements related to physical and electronic security required at all power plants that contain assets classified as Low Impact. The CIP Standards that are applicable to this project are: CIP-002-5.1a and CIP-003-6. The NERC deadline is September 1, 2018. All Programmable Electronic Devices (PEDs) at the plant will be reviewed to determine which assets are in-scope for low impact CIP requirements. Any in-scope assets that are remotely accessible will require some form of electronic controls "to permit only necessary inbound and outbound bi-directional routable protocol access" (i.e., a firewall or other network-based protection).

**Consequences of Delay:** Failing to implement physical and electronic security controls exposes generation control systems to compromise that could lead to misoperation or instability of the Bulk Electrical System (BES). This could result in damage to equipment or facilities, loss of revenue, etc.

**Economic Justification:**  
Budget Category: REG

**Cash Flow - 2017**

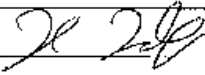
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$24,000
Feb	\$0	May	\$0	Aug	\$49,000	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$49,000	Dec	\$0
Prior	\$0	2017	\$122,000	2018	\$574,000	After	\$0

**Cost Summary**

	Current Amount	Revised Amount
Additions	\$620,000	
Removals	\$0	
(Salvage)	\$0	
Specific Cost	\$620,000	
Overhead Loads	\$76,000	
CBI Total	\$696,000	
Retirements	\$0	

**Approvals**

		E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
4CA	7.00%	\$48,748	<i>James R. [Signature]</i>	Date	7/24/17
APS	63.00%	\$438,732	<i>[Signature]</i>	Date	7/24/17
PNM	13.00%	\$90,532		Date	
SRP	10.0%	\$69,640		Date	
TEP	7.00%	\$48,748	<i>[Signature]</i>	Date	31 Jul 2017

FCC013475 Low Power Plant Implementation (IT TEC013301)							
Four Corners Participant Project		Rev 17-57	0% Enviro.		NSR Completed: Yes		
FC Common		CBI: 17-57	Env Code: N/A		ERF Completed: Yes		
In 2017 Budget: No		Plant Acct:	Est Removal:		Est In Svc: 17 Aug 2018		
<p><b>Description:</b> Implement low impact physical and electronic security controls to meet the standard for NERC CIP compliance at Four Corners</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to meet The North American Electric Reliability Corporation's (NERC's) regulatory compliance for Critical Infrastructure Protection (CIP) requirements related to physical and electronic security required at all power plants that contain assets classified as Low Impact. The CIP Standards that are applicable to this project are: CIP-002-5.1a and CIP-003-6. The NERC deadline is September 1, 2018. All Programmable Electronic Devices (PEDs) at the plant will be reviewed to determine which assets are in-scope for low impact CIP requirements. Any in-scope assets that are remotely accessible will require some form of electronic controls "to permit only necessary inbound and outbound bi-directional routable protocol access" (i.e., a firewall or other network-based protection).</p> <p><b>Consequences of Delay:</b> Failing to implement physical and electronic security controls exposes generation control systems to compromise that could lead to misoperation or instability of the Bulk Electrical System (BES). This could result in damage to equipment or facilities, loss of revenue, etc.</p> <p><b>Economic Justification:</b> Budget Category: REG</p>							
Cash Flow - 2017							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$24,000
Feb	\$0	May	\$0	Aug	\$49,000	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$49,000	Dec	\$0
Prior	\$0	2017	\$122,000	2018	\$574,000	After	\$0
Cost Summary							
	Current Amount			Revised Amount			
Additions			\$620,000				
Removals			\$0				
(Salvage)			\$0				
Specific Cost			\$620,000				
Overhead Loads			\$76,000				
CBI Total			\$696,000				
Retirements			\$0				
Approvals							
				E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
4CA	7.00%	\$48,748				Date	
APS	63.00%	\$438,732				Date	
PNM	13.00%	\$90,532				Date 7/6/17	
SRP	10.0%	\$69,640				Date	
THP	7.00%	\$48,748				Date	



FCC013475 Low Power Plant Implementation (IT TEC013301)							
Four Corners Participant Project	Rev 17-57	0% Enviro.	NSR Completed: Yes				
FC Common	CBI: 17-57	Env Code: N/A	ERF Completed: Yes				
In 2017 Budget: No	Plant Acct:	Est Removal:	Est In Svc: 17 Aug 2018				
<p><b>Description:</b> Implement low impact physical and electronic security controls to meet the standard for NERC CIP compliance at Four Corners</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to meet The North American Electric Reliability Corporation's (NERC's) regulatory compliance for Critical Infrastructure Protection (CIP) requirements related to physical and electronic security required at all power plants that contain assets classified as Low Impact. The CIP Standards that are applicable to this project are: CIP-002-5.1a and CIP-003-6. The NERC deadline is September 1, 2018. All Programmable Electronic Devices (PEDs) at the plant will be reviewed to determine which assets are in-scope for low impact CIP requirements. Any in-scope assets that are remotely accessible will require some form of electronic controls "to permit only necessary inbound and outbound bi-directional routable protocol access" (i.e., a firewall or other network-based protection).</p> <p><b>Consequences of Delay:</b> Failing to implement physical and electronic security controls exposes generation control systems to compromise that could lead to misoperation or instability of the Bulk Electrical System (BES). This could result in damage to equipment or facilities, loss of revenue, etc.</p> <p><b>Economic Justification:</b> Budget Category: REG</p>							
Cash Flow - 2017							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$24,000
Feb	\$0	May	\$0	Aug	\$49,000	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$49,000	Dec	\$0
Prior	\$0	2017	\$122,000	2018	\$574,000	After	\$0
Cost Summary							
	Current Amount			Revised Amount			
Additions	\$620,000						
Removals	\$0						
(Salvage)	\$0						
Specific Cost	\$620,000						
Overhead Loads	\$76,000						
CBI Total	\$696,000						
Retirements	\$0						
Approvals							
				E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
ACA	7.00%	\$48,748				Date	
APS	63.00%	\$438,732				Date	
PNM	13.00%	\$90,532				Date	
SRP	10.0%	\$69,640				Date	
TEP	7.00%	\$48,748				Date	
					<i>W. R. ...</i>	Date	7-11-17

**FCC012959 1st Stage Pendant Secondary Superheater Replacement**

Four Corners Participant Project	Rev FC18-01	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC18-01	Env Code: N/A	ERF Completed: Yes
In 2018 Budget: Yes	Plant Acct: 312	Est Removal: 29 Apr 2019	Est In Svc: 10 Jun 2019

**Description:** Replace the lower loop section of all 53 bundles in the 1st stage pendant secondary superheater (SSH).

**Purpose/Necessity:** The purpose of this project is to maintain unit reliability by replacing the tubes that are approaching end of useful life. Inspection and lab analysis of tube failures has identified portions of the 1st stage pendant SSH with long term overheating damage, steam side oxidation, and external erosion. Tube leaks resulting from this damage are causing forced outages.

**Consequences of Delay:** Potential 7 day forced outage. Economic justification assumes a 75% probability of a 7 day forced outage.

**Economic Justification:**  
Benefit-Cost NPV: 9.90 M\$  
Budget Category: REL

Jan	\$6,000	Apr	\$26,000	Jul	\$25,000	Oct	\$24,000
Feb	\$20,000	May	\$19,000	Aug	\$11,000	Nov	\$10,000
Mar	\$80,000	Jun	\$15,000	Sep	\$25,000	Dec	\$7,000
<b>Prior</b>	<b>\$0</b>	<b>2018</b>	<b>\$267,000</b>	<b>2019</b>	<b>\$4,381,000</b>	<b>After</b>	<b>\$0</b>

	Current Amount	Revised Amount
Additions	\$4,127,000	
Removals	\$510,000	
(Salvage)	(\$4,000)	
Specific Cost	\$4,637,000	
Overhead Loads	\$11,000	
<b>CBI Total</b>	<b>\$4,648,000</b>	
Retirements	\$2,888,000	

			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>	
4CA	7.00%	\$325,373	<i>James R. Hatfield</i>	Date	10/16/17
APS	63.00%	\$2,928,355	<i>M.R. [Signature]</i>	Date	10/10/17
PNM	13.00%	\$604,261	<i>[Signature]</i>	Date	10/10/17
SRP	10.0%	\$464,818	<i>[Signature]</i>	Date	10/10/17
TEP	7.00%	\$325,373	<i>[Signature]</i>	Date	10/10/17

**FCC08277 2018 Baghouse Lagging and Insulation Replacement**

Four Corners Participant Project	Rev FC18-02	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC18-02	Env Code:	FRF Completed: Yes
In 2018 Budget: Yes	Plant Acct: 311	Est Removal: 01 Oct 2018	Est In Svc: 21 Nov 2018

**Description:** Replace lagging and insulation on the baghouse.

**Purpose/Necessity:** The purpose of this project is to maintain a safe plant work environment by eliminating potential hazards. These replacements are intended to reduce the hazards that exist when lagging and insulation are loose creating potential unsafe conditions for plant personnel and equipment.

**Consequences of Delay:** Potential unsafe conditions for plant personnel and equipment.

**Economic Justification:**  
Benefit-Cost NPV: 0 M\$  
Budget Category: SAFETY

**Cash Flow - 2018**

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$109,000
Feb	\$0	May	\$0	Aug	\$15,000	Nov	\$93,000
Mar	\$0	Jun	\$0	Sep	\$182,000	Dec	\$0
Prior	\$0	2018	\$400,000	2019	\$0	After	\$0

**Cost Summary**

	Current Amount	Revised Amount
Additions	\$350,000	
Removals	\$36,000	
(Salvage)	\$0	
Specific Cost	\$386,000	
Overhead Loads	\$13,000	
CBI Total	<b>\$400,000</b>	
Retirements	\$72,000	

**Approvals**

		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
4CA	7.00%	\$27,965	Date 10/16/17
APS	63.00%	\$251,686	Date 10/10/17
PNM	13.00%	\$51,935	Date 10/10/17
SRP	10.0%	\$39,950	Date 10/10/17
LEP	7.00%	\$27,965	Date 10/10/17

**FCC08267 2018 Baghouse Lagging and Insulation Replacement**

Four Corners Participant Project	Rev FC18-03	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI; FC18-03	Env Code:	ERF Completed: Yes
In 2018 Budget: Yes	Plant Acct: 311	Est Removal: 01 Oct 2018	Est In Svc: 21 Nov 2018

**Description:** Replace lagging and insulation on the Unit 5 baghouse.

**Purpose/Necessity:** The purpose of this project is to maintain a safe plant work environment by eliminating potential hazards. These replacements are intended to reduce the hazards that exist when lagging and insulation are loose creating potential unsafe conditions for plant personnel and equipment.

**Consequences of Delay:** Potential unsafe conditions for plant personnel and equipment.

**Economic Justification:**  
Benefit-Cost NPV: 0 M\$  
Budget Category: SAFETY

**Cash Flow - 2018**

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$99,000
Feb	\$0	May	\$0	Aug	\$0	Nov	\$98,000
Mar	\$0	Jun	\$0	Sep	\$202,000	Dec	\$0
Prior	\$0	2018	\$400,000	2019	\$0	After	\$0

**Cost Summary**

	Current Amount	Revised Amount
Additions	\$364,000	
Removals	\$36,000	
(Salvage)	\$0	
Specific Cost	\$389,000	
Overhead Loads	\$11,000	
CBI Total	\$400,000	
Retirements	\$388,000	

**Approvals**

		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
4CA	7.00%	\$27,972	James D. [Signature] Date 10/16/17
APS	63.00%	\$251,750	M.R. [Signature] Date 10/10/17
PNM	13.00%	\$51,948	[Signature] Date 10/10/17
SRP	10.0%	\$39,960	[Signature] Date 10/10/17
TEP	7.00%	\$27,972	J.C. [Signature] Date 10/10/17

**FCC08326 Miscellaneous Pump & Valve Replacement - 2018**

Four Corners Participant Project	Rev FC18-04	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC18-04	Env Code: N/A	ERF Completed: Yes
In 2018 Budget: Yes	Plant Acct: 346	Est Removal: 29 Jan 2018	Est In Svc: 17 Dec 2018

**Description:** Replacement of capital pumps and valves.

**Purpose/Necessity:** The purpose of this project is to maintain plant reliability. Capital funds will be used for purchase and installation of new capital pumps and valves as failures or immediate need occurs throughout the 2018 calendar year.

**Consequences of Delay:** Negative impact to plant reliability due to time required to obtain approvals for break-in projects.

**Economic Justification:**  
 Benefit-Cost NPV: 0 M\$  
 Budget Category: REL

**Cash Flow - 2018**

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$100,000	Aug	\$100,000	Nov	\$99,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2018	\$300,000	2019	\$0	After	\$0

**Cost Summary**

	Current Amount	Revised Amount
Additions	\$267,000	
Removals	\$27,000	
(Salvage)	\$0	
Specific Cost	\$294,000	
Overhead Loads	\$5,000	
CBI Total	\$300,000	
Retirements	\$75,000	

**Approvals**

			P&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>	
4CA	7.00%	\$20,991	<i>James E. Hatfield</i>	Date	10/10/17
APS	63.00%	\$188,916	<i>D. K. ...</i>	Date	10/10/17
PNM	13.00%	\$38,983	<i>...</i>	Date	10/10/17
SRP	10.0%	\$29,987	<i>...</i>	Date	10/10/17
TRP	7.00%	\$20,991	<i>J. B.</i>	Date	10/10/17

**FCC09077 Boiler Convection Pass Tube Replacement**

Four Corners Participant Project	Rev FC18-06	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC18-06	Env Code: N/A	ERF Completed: Yes
In 2018 Budget: Yes	Plant Acct: 312	Est Removal: 21 Apr 2019	Est In Svc: 10 Jun 2019

**Description:** Replace the complete front convection pass waterwall (CPWW) from lower header to upper header and the lower half of the left convection pass water wall from the lower header to elevation 153'.

**Purpose/Necessity:** The purpose of this project is to maintain unit reliability while reducing the risk of forced outages. Inspection and lab analysis of recent CPWW tube failures has identified internal cracking due to corrosion fatigue and external wall thinning (wastage) due to erosion. Tube leaks resulting from this damage are causing forced outages.

**Consequences of Delay:** Potential 7 day forced outage. Economic justification assumes a 75% probability of a 7 day forced outage.

**Economic Justification:**  
 Benefit-Cost NPV: 12.40 M\$  
 Budget Category: REL

Cash Flow - 2018							
Jan	\$3,000	Apr	\$30,000	Jul	\$28,000	Oct	\$19,000
Feb	\$22,000	May	\$13,000	Aug	\$15,000	Nov	\$22,000
Mar	\$72,000	Jun	\$14,000	Sep	\$30,000	Dec	\$9,000
Prior	\$0	2018	\$277,000	2019	\$4,458,000	After	\$0

Cost Summary		
	Current Amount	Revised Amount
Additions	\$4,294,000	
Removals	\$425,000	
(Salvage)	(\$5,000)	
Specific Cost	\$4,719,000	
Overhead Loads	\$15,000	
<b>CBI Total</b>	<b>\$4,734,000</b>	
Retirements	\$0	

Approvals			
		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
ACA	7.00%	\$331,412	<i>James R. Datzfeld</i> Date 10/16/17
APS	63.00%	\$2,982,707	<i>[Signature]</i> Date 10/10/17
PNM	13.00%	\$615,479	<i>[Signature]</i> Date 10/10/17
SRI	10.0%	\$473,446	<i>[Signature]</i> Date 10/10/17
TIP	7.00%	\$331,412	<i>[Signature]</i> Date 10/10/17

**FCC08713 U4/5 DC System C Equipment Replacement**

Four Corners Participant Project	Rev FC18-09	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC18-09	Env Code: N/A	ERI Completed: Yes
In 2018 Budget: Yes	Plant Acct: 315	Est Removal: 21 Nov 2018	Est In Svc: 04 Dec 2018

**Description:** Replace U4/5 System C DC chargers with new DC chargers.

**Purpose/Necessity:** The purpose of this project is to maintain unit reliability by replacing the U4/5 System C DC chargers. The existing chargers are approaching the end of their serviceable life.

**Consequences of Delay:** Potential 10 day forced outage on both units 4 and 5. Economic justification assumes a 5% probability of a 10 day forced outage.

**Economic Justification:**  
Benefit-Cost NPV: 12.00 M\$  
Budget Category: REL

**Cash Flow - 2018**

Jan	\$18,000	Apr	\$27,000	Jul	\$17,000	Oct	\$78,000
Feb	\$28,000	May	\$27,000	Aug	\$13,000	Nov	\$60,000
Mar	\$81,000	Jun	\$43,000	Sep	\$16,000	Dec	\$99,000
Prior	\$0	2018	\$506,000	2019	\$34,000	After	\$0

**Cost Summary**

	Current Amount	Revised Amount
Additions	\$488,000	
Removals	\$48,000	
(Salvage)	(\$1,000)	
Specific Cost	\$536,000	
Overhead Loads	\$5,000	
CBI Total	<b>\$540,000</b>	
Retirements	\$0	

**Approvals**

			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>	
4CA	7.00%	\$37,824	<i>James R. [Signature]</i>		Date 10/16/17
APS	63.00%	\$340,412	<i>[Signature]</i>		Date 10/10/17
PNM	13.00%	\$70,244	<i>[Signature]</i>		Date 10/10/17
SRP	10.0%	\$54,034	<i>Ric [Signature]</i>		Date 10/10/17
TIP	7.00%	\$37,824	<i>[Signature]</i>		Date 10/10/17

**FCC08874 Baghouse & SO2 Substation Transformer Relay Replacement**

Four Corners Participant Project	Rev FC18-10	0% Enviro.	NSR Completed: Yes
FC Common	CBI: FC18-10	Env Code: N/A	BRF Completed: Yes
In 2018 Budget: Yes	Plant Acct: 345	Est Removal: 21 Apr 2019	Est In Svc: 13 May 2019

**Description:** Replace all of the existing single-function protective relays for F4/5 Bag House and SO2 Substation Transformer's (ST-1, ST-2, ST-3 and ST-4) with new redundant solid state microprocessor based multi-function protective relays.

**Purpose/Necessity:** The purpose of this project is to maintain unit reliability. The existing aging electro-mechanical single-purpose relays have reached the end of their useful life. Replacing them with solid state electronic multi-function relays will help ensure reliable electrical system operation.

**Consequences of Delay:** Potential 2 day forced outage. Economic justification assumes a 2% probability of a 2 day forced outage.

**Economic Justification:**  
Benefit-Cost NPV: 6.10 M\$  
Budget Category: REL-UNIT

**Cash Flow - 2018**

Jan	\$0	Apr	\$52,000	Jul	\$35,000	Oct	\$16,000
Feb	\$16,000	May	\$53,000	Aug	\$31,000	Nov	\$21,000
Mar	\$88,000	Jun	\$43,000	Sep	\$23,000	Dec	\$10,000
Prior	\$0	2018	\$386,000	2019	\$543,000	After	\$0

**Cost Summary**

	Current Amount	Revised Amount
Additions	\$837,000	
Removals	\$83,000	
(Salvage)	(\$1,000)	
Specific Cost	\$920,000	
Overhead Loads	\$10,000	
CBI Total	\$930,000	
Retirements	\$0	

**Approvals**

			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>	
4CA	7.00%	\$65,089	<i>[Signature]</i>	<i>[Signature]</i>	Date 10/16/17
APS	63.00%	\$585,798	<i>[Signature]</i>	<i>[Signature]</i>	Date 10/10/17
PNM	13.00%	\$120,879	<i>[Signature]</i>	<i>[Signature]</i>	Date 10/10/17
SRP	10.0%	\$92,984	<i>[Signature]</i>	<i>[Signature]</i>	Date 10/10/17
TEP	7.00%	\$65,089	<i>[Signature]</i>	<i>[Signature]</i>	Date 10/10/17



**FCC07959 Phase 3 Water Piping Replacement**

Four Corners Participant Project FC Units 4 & 5 In 2018 Budget: Yes	Rev FC18-12 CBI: FC18-12 Plant Acct: 346	0% Enviro. Env Code: N/A Est Removal: 02 Jan 2019	NSR Completed: Yes ERF Completed: Yes Est In Svc: 24 Sep 2019
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**Description:** Replace all Potable, Service, and Firewater piping below grade mains and above grade headers, including loop and branch isolation valves. All existing below-grade piping will be capped and abandoned in place and all existing above-grade piping will be demolished. Phase 3 will include replacement of piping through Units 4&5 boiler levels, Units 4&5 Baghouses, loop connection from Phase 1 to Phase 2 piping, the administration, and warehouse area.

**Purpose/Necessity:** The purpose of this project is to maintain compliance with OSHA standard 1910.151 and ANSI Z358.1, fire codes, and the reliability of service water to plant equipment and to ensure reliability of safety-critical systems (Potable, Service, and Firewater systems) through replacement of degraded water piping. Completion of this project will also reduce the probability of system outages caused by main breaks in degraded piping systems.

**Consequences of Delay:** Non-Compliance with OSHA standards and fire code would result in temporary measures until the problem is resolved. Risk of failure of Firewater systems during a fire event resulting in more extensive damage to equipment and or personnel safety. Risk of failure of Potable water piping resulting in increased risk to personnel safety and health of employees and noncompliance with OSHA and ANSI Standards. Risk of failure of Service water piping resulting in increased risk to unit reliability and increased risk to personnel safety and health of employees. Risk of extended forced outages. Risk of plant accessibility due to below grade failures requiring excavating below main entrance drives. There has been an average of 9 Potable water outages the last 3 years which also affect safety showers.

**Economic Justification:**  
Benefit-Cost NPV: 0.20 M\$  
Budget Category: SAFETY

**Cash Flow - 2018**

Jan	\$120,000	Apr	\$130,000	Jul	\$117,000	Oct	\$357,000
Feb	\$81,000	May	\$129,000	Aug	\$31,000	Nov	\$306,000
Mar	\$105,000	Jun	\$130,000	Sep	\$31,000	Dec	\$241,000
Prior	\$0	2018	\$1,778,000	2019	\$2,803,000	After	\$0

**Cost Summary**

	Current Amount	Revised Amount
Additions	\$2,702,000	
Removals	\$1,857,000	
(Salvage)	(\$5,000)	
Specific Cost	\$4,559,000	
Overhead Loads	\$22,000	
CBI Total	\$4,581,000	
Retirements	\$0	

**Approvals**

		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
4CA	7.00%	\$320,671	James R. Hartford Date: 10/16/17
APS	63.00%	\$2,886,039	M.R. [Signature] Date: 10/16/17
PNM	13.00%	\$595,532	[Signature] Date: 10/16/17
SRP	10.0%	\$438,101	[Signature] Date: 10/16/17
TEP	7.00%	\$120,671	J. B. [Signature] Date: 10/16/17

**FCC07955 Miscellaneous Motor Replacement - 2018**

Four Corners Participant Project	Rev FC18-17R1	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC18-17R1	Env Code: N/A	ERF Completed: Yes
In 2018 Budget: Yes	Plant Acct: 316	Est Removal:	Est In Svc: 17 Dec 2018

**Reason for Revision:** This \$762K cost increase is due to work originally executed under Maximo WO: FC1140570, FC1160338, FC150677, FC1154501, FC1159068, FC1159661, FC1161680, and FC1157946 determined to be Capital as a result of the October 2018 detailed scrub of O&M work completed in 2018.

Benefit-Cost NPV: 0 M\$

**Description:** Funding for the replacement of miscellaneous motors that meet capital requirements. In order to meet capital budget requirements, motors must be 100 HP and above. Motors range in size up to 7,000 HP.

**Purpose/Necessity:** The purpose of this project is to maintain plant reliability. Capital funds will be used for purchase and installation of new capital motors as failures or immediate need occurs throughout the 2018 calendar year.

**Consequences of Delay:** Risk to unit reliability while waiting on replacement motor delivery. The effect of losing a motor while a replacement is procured may result in an extended unit derating and/or unit outage of indeterminate duration while an immediate work around is found.

**Economic Justification:**

Benefit-Cost NPV: 0 M\$  
Budget Category: REL

**Cash Flow - 2018**

Jan	\$1,000	Apr	\$0	Jul	\$0	Oct	\$486,000
Feb	\$0	May	\$0	Aug	\$1,000	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$15,000	Dec	\$560,000
<b>Prior</b>	\$0	<b>2018</b>	\$1,062,000	<b>2019</b>	\$0	<b>After</b>	\$0

**Cost Summary**

	Current Amount	Revised Amount
RU Materials	\$267,000	\$487,000
Removals	\$27,000	\$27,000
(Salvage)		
Non-Itemized Additions	\$0	\$390,000
Specific Cost	\$294,000	\$904,000
Overhead Loads	\$5,000	\$158,000
<b>CBI Total</b>	<b>\$300,000</b>	<b>\$1,062,000</b>
Retirements		

**Approvals**

		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$669,349	Date
NTEC	7.00%	\$74,372	Date
PNM	13.00%	\$138,120	Date
SRP	10.0%	\$106,246	Date
TEP	7.00%	\$74,372	Date

FCC08101 2018 Plant Tools			
Four Corners Participant Project	Rev FC18-18	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC18-18	Env Code: N/A	ERF Completed: Yes
In 2018 Budget: Yes	Plant Acct: 394	Est Removal:	Est In Svc: 15 Oct 2018
<b>Description:</b> Replacement of plant tools to maintain reliable plant operation.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain plant reliability. These new tools and equipment will be used for maintenance, inspection and repair of plant equipment. Adding to the inventory of plant tools and diagnostic equipment increases maintenance efficiency and reduces equipment failures by improving and expanding the plant's monitoring and problem detection capabilities. The tools will be purchased, as required, by the plant throughout 2018.			
<b>Consequences of Delay:</b> Risk to unit reliability while waiting on replacement tools. The effect of waiting on tools while a replacement is procured may result in an extended duration of equipment out of service while being maintained.			
<b>Economic Justification:</b>			
Benefit-Cost NPV: 0 M\$			
Budget Category: REL			

Cash Flow - 2018							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$300,000	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2018	\$300,000	2019	\$0	After	\$0

Cost Summary		
	Current Amount	Revised Amount
Additions	\$285,000	
Removals	\$0	
(Salvage)	\$0	
Specific Cost	\$285,000	
Overhead Loads	\$15,000	
<b>CBI Total</b>	<b>\$300,000</b>	
Retirements	\$0	

Approvals			
			E&O Committee <input checked="" type="checkbox"/> Coordinating Committee <input type="checkbox"/>
4CA	7.00%	\$21,000	James P. Hatfjelle Date 10/16/17
APS	63.00%	\$189,000	[Signature] Date 10/10/17
PNM	13.00%	\$39,000	[Signature] Date 10/10/17
SRP	10.0%	\$30,000	[Signature] Date 10/10/17
CEP	7.00%	\$21,000	[Signature] Date 10/10/17

**FCC08426 Coal Piping Knife Gate Isolation Valve Replacement**

Four Corners Participant Project	Rev FC18-19	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC18-19	Env Code: N/A	ERF Completed: Yes
In 2018 Budget: Yes	Plant Acct: 316	Est Removal: 24 Apr 2019	Est In Svc: 13 May 2019

**Description:** Replace 12 knife gate pulverizer isolation valves in the coal pipes between the auto swing valves and the burners.

**Purpose/Necessity:** The purpose of this project is to maintain unit safety by replacing the pulverizer isolation valves. These valves are used to isolate the pulverizers and auto swing valves. Without proper sealing knife gate valves the auto swing valves cannot be isolated and worked on and there is a risk of gas entry into the pulverizers, creating a potentially unsafe condition. Section 9.4.5.1.2 of NFPA 85, specifies the dust-tight valve requirements for pulverized coal fueled boilers. NFPA 85 defines a dust-tight valve as a tight-seating valve installed in the fuel supply pipe to the burner to allow or stop flow.

**Consequences of Delay:** Assume risk of poor isolation valve reliability and potentially longer coal pulverizer downtime. Compromised isolation could lead to a safety issue restricting access to the pulverizers.

**Economic Justification:**  
Benefit-Cost NPV: 0 M\$  
Budget Category: SAFETY

**Cash Flow - 2018**

Jan	\$0	Apr	\$17,000	Jul	\$17,000	Oct	\$6,000
Feb	\$19,000	May	\$24,000	Aug	\$26,000	Nov	\$7,000
Mar	\$50,000	Jun	\$18,000	Sep	\$12,000	Dec	\$6,000
Prior	\$0	2018	\$202,000	2019	\$517,000	After	\$0

**Cost Summary**

	Current Amount	Revised Amount
Additions	\$643,000	
Removals	\$64,000	
(Salvage)	(\$1,000)	
Specific Cost	\$707,000	
Overhead Loads	\$11,000	
CBI Total	\$719,000	
Retirements	\$0	

**Approvals**

		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
4CA	7.00%	\$50,328	James R. Hatfield Date: 10/10/17
APS	63.00%	\$452,954	J. B. ... Date: 10/10/17
PNM	13.00%	\$93,467	... Date: 10/10/17
SRP	10.0%	\$71,898	... Date: 10/10/17
TIP	7.00%	\$50,328	... Date: 10/10/17

**FCC08858 Coal Dust Elimination - Phase 3**

Four Corners Participant Project	Rev FC18-20	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC18-20	Env Code: Air	ERF Completed: Yes
In 2018 Budget: Yes	Plant Acct: 312	Est Removal: 13 Feb 2019	Est In Svc: 14 May 2019

**Description:** Replace the surge bin dust collection system, along with chutes and coal transfer points at Transfer Tower 2 with a more effective design to mitigate spillage and coal dust.

**Purpose/Necessity:** The purpose of this project is to comply with OSIA regulations {1910.269(v)(11)(xii) and 1910.176c} and Air Permit/Title V by reducing coal dust generation and spillage from the coal handling system at the Transfer Tower and Surge Bins.

**Consequences of Delay:** Continued dust generation and spillage which results in failure to meet Air Permit/Title V and OSHA regulations.

**Economic Justification:**  
 Benefit-Cost NPV: 0 M\$  
 Budget Category: SAFETY

**Cash Flow - 2018**

Jan	\$10,000	Apr	\$37,000	Jul	\$38,000	Oct	\$16,000
Feb	\$24,000	May	\$28,000	Aug	\$28,000	Nov	\$21,000
Mar	\$28,000	Jun	\$28,000	Sep	\$35,000	Dec	\$11,000
<b>Prior</b>	<b>\$0</b>	<b>2018</b>	<b>\$308,000</b>	<b>2019</b>	<b>\$3,055,000</b>	<b>After</b>	<b>\$0</b>

**Cost Summary**

	Current Amount	Revised Amount
Additions	\$3,043,000	
Removals	\$301,000	
(Salvage)	(\$3,000)	
Specific Cost	\$3,344,000	
Overhead Loads	\$19,000	
<b>CBI Total</b>	<b>\$3,363,000</b>	
Retirements	\$0	

**Approvals**

			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>	
4CA	7.00%	\$235,411	<i>James E. Hatfield</i>	Date	10/16/17
APS	63.00%	\$2,118,695	<i>[Signature]</i>	Date	10/10/17
PNM	13.00%	\$437,191	<i>[Signature]</i>	Date	10/10/17
SRP	10.0%	\$336,301	<i>[Signature]</i>	Date	10/10/17
TTP	7.00%	\$235,411	<i>[Signature]</i>	Date	10/10/17

**FCC08310 Exciter Replacement**

Four Corners Participant Project	Rev FC18-33R1	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC18-33R1	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: Yes	Plant Acct: 131500	Est Removal: 01 Apr 2020	Est In Svc: 01 May 2020

**Reason for Revision:** This \$1,130K increase is due to adding the ability to latch on turning gear and thereby eliminate the speed match valves resulting in increased engineering and construction costs.

Benefit-Cost NPV: 14.30 M\$

**Description:** Replace the existing HP and LP generator exciters and enclosures.

**Purpose/Necessity:** The purpose of this project is to maintain unit reliability by replacing exciters which are approaching end of serviceable life. The existing exciters have a history of reliability issues due to overheating. The new exciters will be equipped with enclosures designed to protect and cool the exciters.

**Consequences of Delay:** Potential 5 day forced outage. Economic justification assumes a 5% probability of a 5 day forced outage.

**Economic Justification:**

Benefit-Cost NPV: 14.30 M\$  
Budget Category: REL-UNIT

**Cash Flow - 2020**

Jan	\$407,000	Apr	\$777,000	Jul	\$20,000	Oct	\$0
Feb	\$881,000	May	\$413,000	Aug	\$50,000	Nov	\$0
Mar	\$821,000	Jun	\$20,000	Sep	\$30,000	Dec	\$0
<b>Prior</b>	\$1,362,000	<b>2020</b>	\$3,420,000	<b>2021</b>	\$0	<b>After</b>	\$0

**Cost Summary**

	Previous Amount	Revised Amount
RU Materials	\$3,240,000	\$1,710,000
Removals	\$401,000	\$100,000
(Salvage)	(\$4,000)	\$0
Non-Itemized Additions	\$4,000	\$2,874,000
Specific Cost	\$3,641,000	\$4,684,000
Overhead Loads	\$11,000	\$98,000
CBI Total	\$3,652,000	<b>\$4,782,000</b>
Retirements		\$0

**Approvals**

		E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
APS	63.00%	\$3,012,414		Date	
NTEC	7.00%	\$334,713		Date	
PNM	13.00%	\$621,609		Date	
SRP	10.0%	\$478,161		Date	
TEP	7.00%	\$334,713		Date	

**FCC06604 Morgan Dam Blow-Down Tower**

Four Corners Participant Project	Rev FC18-36	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC18-36	Env Code: N/A	ERF Completed: Yes
In 2018 Budget: Yes	Plant Acct: 311	Est Removal: 08 Aug 2018	Est In Svc: 24 Sep 2018

**Description:** The project will replace both slide gates on the Morgan Lake Blowdown Intake Tower. This project will keep Morgan Lake compliant with New Mexico office of the State engineer rules for dam safety and maintenance 19.25.12.17, 19.25.12.21.C, and 19.25.12.21.E NMAC.

**Purpose/Necessity:** The purpose of this project is to ensure the continued safe operation of the existing blow-down intake gates. This project is planned as part of the continued long-term maintenance of Morgan Dam. The gates and actuator rods are exhibiting wear and the intake gate has a leak. The blow down gate is used to regulate the discharge from Morgan Lake to the San Juan River.

**Consequences of Delay:** Continued or worsening leakage of intake gate.

**Economic Justification:**  
Benefit-Cost NPV: 0 M\$  
Budget Category: REG

Jan	\$2,000	Apr	\$18,000	Jul	\$77,000	Oct	\$52,000
Feb	\$39,000	May	\$45,000	Aug	\$77,000	Nov	\$0
Mar	\$48,000	Jun	\$65,000	Sep	\$50,000	Dec	\$0
Prior	\$0	2018	\$474,000	2019	\$0	After	\$0

	Current Amount	Revised Amount
Additions	\$418,000	
Removals	\$41,000	
(Salvage)	(\$1,000)	
Specific Cost	\$459,000	
Overhead Loads	\$16,000	
CBI Total	\$474,000	
Retirements	\$0	

			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>	
ACA	7.00%	\$33,196	<i>James E. Hatfield</i>	Date	10/16/17
A/S	63.00%	\$298,768	<i>[Signature]</i>	Date	10/10/17
PNM	13.00%	\$61,651	<i>[Signature]</i>	Date	10/10/17
SRP	10.0%	\$47,424	<i>[Signature]</i>	Date	10/10/17
TEP	7.00%	\$33,196	<i>[Signature]</i>	Date	10/10/17

**FCC013087 NPDES Compliance**

Four Corners Participant Project	Rev FC18-40	100% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC18-40	Env Code: Water	ERF Completed: Yes
In 2018 Budget: Yes	Plant Acct: 341	Est Removal:	List In Svc: 30 Nov 2018

**Description:** Installation of up to six (6) new NPDES monitoring wells, up and down gradient of the south intercept trench.

**Purpose/Necessity:** The purpose of this project is to provide additional monitoring wells for NPDES permit compliance at the intercept trench at the Four Corners Power Plant.

**Consequences of Delay:** Failure to comply with requirements of NPDES permit.

**Economic Justification:**  
Benefit-Cost NPV: 0 MS  
Budget Category: ENV

**Cash Flow - 2018**

Jan	\$4,000	Apr	\$59,000	Jul	\$20,000	Oct	\$21,000
Feb	\$21,000	May	\$59,000	Aug	\$20,000	Nov	\$13,000
Mar	\$33,000	Jun	\$32,000	Sep	\$20,000	Dec	\$4,000
<b>Prior</b>	<b>\$0</b>	<b>2018</b>	<b>\$308,000</b>	<b>2019</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

**Cost Summary**

	Current Amount	Revised Amount
Additions	\$294,000	
Removals	\$0	
(Salvage)	\$0	
Specific Cost	\$294,000	
Overhead Loads	\$15,000	
<b>CBI Total</b>	<b>\$308,000</b>	
Retirements	\$0	

**Approvals**

			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>	
4CA	7.00%	\$21,581	<i>James K. Stauffer</i>	Date	10/16/17
APS	63.00%	\$194,231	<i>J. R. Linn</i>	Date	10/10/17
PNM	13.00%	\$40,079	<i>[Signature]</i>	Date	10/10/17
SRP	10.0%	\$30,830	<i>[Signature]</i>	Date	10/10/17
TCP	7.00%	\$21,581	<i>[Signature]</i>	Date	10/10/17



**PE013131 FC 2018 Building – Miscellaneous Equipment Replacement**

FC Participant Project	Rev FC18-42	0% Enviro.	NSR Completed: Yes
FC	CBI: FC18-42	Env Code:	ERF Completed: Yes
In 2018 Budget: Yes	Plant Acct: 390	Est Removal: 05 Feb 2018	Est In Svc: 30 Nov 2018

**Description:** Funding for the replacement of capital building components (i.e., foundations, walls, roofs, ceilings, stairs, floor coverings, windows, plumbing and fixtures, built-ins, office lighting, conventional doors and partitions, decorations, and modular Trailer Buildings).

**Purpose/Necessity:** The purpose of this project is to maintain building safety. This funding will be used for the replacement of building components as failures or immediate need occurs throughout the 2018 calendar year.

**Consequences of Delay:** Risk to plant personnel safety.

**Economic Justification:**  
Budget Category: NM PRG

Cash Flow							
Jan	\$0	Apr	\$100,000	Jul	\$100,000	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$100,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2018	\$300,000	2019	\$0	After	\$0

Cost Summary		
	Current Amount	Revised Amount
Additions	\$267,000	
Removals	\$33,000	
(Salvage)	\$0	
Specific Cost	\$300,000	
Overhead Loads	\$0	
CBI Total	\$300,000	
Retirements	\$0	

Approvals				
			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
4CA	7.00%	\$21,000	<i>James R. Hatfield</i>	Date 10/16/17
APS	63.00%	\$189,000	<i>J.R. ...</i>	Date 10/10/17
PNM	13.00%	\$39,000	<i>...</i>	Date 10/10/17
SRP	10.0%	\$30,000	<i>...</i>	Date 10/10/17
TCP	7.00%	\$21,000	<i>J.C.H.</i>	Date 10/10/17

**PE013131 FC 2018 Building – Miscellaneous Equipment Replacement**

FC Participant Project	Rev FC18-42	0% Enviro.	NSR Completed: Yes
FC	CBI: FC18-42	Env Code:	ERF Completed: Yes
In 2018 Budget: Yes	Plant Acct: 390	Est Removal: 05 Feb 2018	Est In Svc: 30 Nov 2018

**Description:** Funding for the replacement of capital building components (i.e., foundations, walls, roofs, ceilings, stairs, floor coverings, windows, plumbing and fixtures, built-ins, office lighting, conventional doors and partitions, decorations, and modular Trailer Buildings).

**Purpose/Necessity:** The purpose of this project is to maintain building safety. This funding will be used for the replacement of building components as failures or immediate need occurs throughout the 2018 calendar year.


**Consequences of Delay:** Risk to plant personnel safety.

**Economic Justification:**  
Budget Category: NM PRG


Cash Flow							
Jan	\$0	Apr	\$100,000	Jul	\$100,000	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$100,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2018	\$300,000	2019	\$0	After	\$0


Cost Summary		
	Current Amount	Revised Amount
Additions	\$267,000	
Removals	\$33,000	
(Salvage)	\$0	
Specific Cost	\$300,000	
Overhead Loads	\$0	
CBI Total	\$300,000	
Retirements	\$0	

Approvals				
			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
4CA	7.00%	\$21,000	<i>James R. Hatfield</i>	Date 10/16/17
APS	63.00%	\$189,000	<i>J.R. Hatfield</i>	Date 10/10/17
PNM	13.00%	\$39,000	<i>James R. Hatfield</i>	Date 10/10/17
SRP	10.0%	\$30,000	<i>James R. Hatfield</i>	Date 10/10/17
TCP	7.00%	\$21,000	<i>J.R. Hatfield</i>	Date 10/10/17

PE013132 FC 2018 HVAC – Miscellaneous Equipment Replacement							
FC Participant Project	Rev FC18-43	0% Enviro.	NSR Completed: Yes				
FC	CBI: FC18-43	Env Code:	ERF Completed: Yes				
In 2018 Budget: No	Plant Acct: 390	Est Removal: 05 Feb 2018	Est In Svc: 30 Nov 2018				
<b>Description:</b> Funding for the replacement of miscellaneous HVAC equipment/components.							
<b>Purpose/Necessity:</b> The purpose of this project is to maintain plant HVAC reliability. Capital budget will be used for purchase and installation of new capital HVAC equipment as failures or immediate need occurs throughout the 2018 calendar year.							
<b>Consequences of Delay:</b> Negative impact to the plant's response to obtaining approvals needed for Capital HVAC requirements.							
<b>Economic Justification:</b>							
Budget Category: NM PRG							
<b>Cash Flow</b>							
Jan	\$0	Apr	\$100,000	Jul	\$100,000	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$100,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2018	\$300,000	2019	\$0	After	\$0
<b>Cost Summary</b>							
	Current Amount			Revised Amount			
Additions	\$267,000						
Removals	\$33,000						
(Salvage)	\$0						
Specific Cost	\$300,000						
Overhead Loads	\$0						
CBI Total	\$300,000						
Retirements	\$0						
<b>Approvals</b>							
				E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
4CA	7.00%	\$21,000			Date	10/10/17 10/10/17 10/10/17 10/10/17 10/10/17	
APS	63.00%	\$189,000					
PNM	13.00%	\$39,000					
SRP	10.0%	\$30,000					
TEP	7.00%	\$21,000					

PE013132 FC 2018 HVAC – Miscellaneous Equipment Replacement							
FC Participant Project	Rev FC18-43	0% Enviro.	NSR Completed: Yes				
FC	CBI: FC18-43	Env Code:	ERF Completed: Yes				
In 2018 Budget: No	Plant Acct: 390	Est Removal: 05 Feb 2018	Est In Svc: 30 Nov 2018				
<b>Description:</b> Funding for the replacement of miscellaneous HVAC equipment/components.							
<b>Purpose/Necessity:</b> The purpose of this project is to maintain plant HVAC reliability. Capital budget will be used for purchase and installation of new capital HVAC equipment as failures or immediate need occurs throughout the 2018 calendar year.							
<b>Consequences of Delay:</b> Negative impact to the plant's response to obtaining approvals needed for Capital HVAC requirements.							
<b>Economic Justification:</b>							
Budget Category: NM PRG							
Cash Flow							
Jan	\$0	Apr	\$100,000	Jul	\$100,000	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$100,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2018	\$300,000	2019	\$0	After	\$0
Cost Summary							
	Current Amount			Revised Amount			
Additions	\$267,000						
Removals	\$33,000						
(Salvage)	\$0						
Specific Cost	\$300,000						
Overhead Loads	\$0						
CBI Total	\$300,000						
Retirements	\$0						
Approvals							
				E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
4CA	7.00%	\$21,000		<i>James R. Hatfield</i>	Date	10/16/17	
APS	63.00%	\$189,000		<i>J.H. [Signature]</i>	Date	10/10/17	
PNM	13.00%	\$39,000		<i>[Signature]</i>	Date	10/16/17	
SRP	10.0%	\$30,000		<i>[Signature]</i>	Date	10/10/17	
TEP	7.00%	\$21,000		<i>J.C. [Signature]</i>	Date	10/10/17	

PE013132 FC 2018 HVAC – Miscellaneous Equipment Replacement							
FC Participant Project	Rev FC18-43	0% Enviro.	NSR Completed: Yes				
FC	CBI: FC18-43	Env Code:	ERF Completed: Yes				
In 2018 Budget: No	Plant Acct: 390	Est Removal: 05 Feb 2018	Est In Svc: 30 Nov 2018				
<b>Description:</b> Funding for the replacement of miscellaneous HVAC equipment/components.							
<b>Purpose/Necessity:</b> The purpose of this project is to maintain plant HVAC reliability. Capital budget will be used for purchase and installation of new capital HVAC equipment as failures or immediate need occurs throughout the 2018 calendar year.							
<b>Consequences of Delay:</b> Negative impact to the plant's response to obtaining approvals needed for Capital HVAC requirements.							
<b>Economic Justification:</b>							
Budget Category: NM PRG							
<b>Cash Flow</b>							
Jan	\$0	Apr	\$100,000	Jul	\$100,000	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$100,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2018	\$300,000	2019	\$0	After	\$0
<b>Cost Summary</b>							
	Current Amount			Revised Amount			
Additions	\$267,000						
Removals	\$33,000						
(Salvage)	\$0						
Specific Cost	\$300,000						
Overhead Loads	\$0						
CBI Total	\$300,000						
Retirements	\$0						
<b>Approvals</b>							
				E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
4CA	7.00%	\$21,000			Date	10/10/17 10/10/17 10/10/17 10/10/17 10/10/17	
APS	63.00%	\$189,000					
PNM	13.00%	\$39,000					
SRP	10.0%	\$30,000					
TEP	7.00%	\$21,000					

PE013132 FC 2018 HVAC – Miscellaneous Equipment Replacement							
FC Participant Project	Rev FC18-43	0% Enviro.	NSR Completed: Yes				
FC	CBI: FC18-43	Env Code:	ERF Completed: Yes				
In 2018 Budget: No	Plant Acct: 390	Est Removal: 05 Feb 2018	Est In Svc: 30 Nov 2018				
<b>Description:</b> Funding for the replacement of miscellaneous HVAC equipment/components.							
<b>Purpose/Necessity:</b> The purpose of this project is to maintain plant HVAC reliability. Capital budget will be used for purchase and installation of new capital HVAC equipment as failures or immediate need occurs throughout the 2018 calendar year.							
<b>Consequences of Delay:</b> Negative impact to the plant's response to obtaining approvals needed for Capital HVAC requirements.							
<b>Economic Justification:</b>							
Budget Category: NM PRG							
Cash Flow							
Jan	\$0	Apr	\$100,000	Jul	\$100,000	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$100,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2018	\$300,000	2019	\$0	After	\$0
Cost Summary							
	Current Amount			Revised Amount			
Additions	\$267,000						
Removals	\$33,000						
(Salvage)	\$0						
Specific Cost	\$300,000						
Overhead Loads	\$0						
CBI Total	\$300,000						
Retirements	\$0						
Approvals							
				E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
4CA	7.00%	\$21,000			Date	10/10/17 10/10/17 10/10/17 10/10/17 10/10/17	
APS	63.00%	\$189,000					
PNM	13.00%	\$39,000					
SRP	10.0%	\$30,000					
TEP	7.00%	\$21,000					

PE013132 FC 2018 HVAC – Miscellaneous Equipment Replacement							
FC Participant Project	Rev FC18-43	0% Enviro.	NSR Completed: Yes				
FC	CBI: FC18-43	Env Code:	ERF Completed: Yes				
In 2018 Budget: No	Plant Acct: 390	Est Removal: 05 Feb 2018	Est In Svc: 30 Nov 2018				
<b>Description:</b> Funding for the replacement of miscellaneous HVAC equipment/components.							
<b>Purpose/Necessity:</b> The purpose of this project is to maintain plant HVAC reliability. Capital budget will be used for purchase and installation of new capital HVAC equipment as failures or immediate need occurs throughout the 2018 calendar year.							
<b>Consequences of Delay:</b> Negative impact to the plant's response to obtaining approvals needed for Capital HVAC requirements.							
<b>Economic Justification:</b>							
Budget Category: NM PRG							
Cash Flow							
Jan	\$0	Apr	\$100,000	Jul	\$100,000	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$100,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2018	\$300,000	2019	\$0	After	\$0
Cost Summary							
	Current Amount			Revised Amount			
Additions	\$267,000						
Removals	\$33,000						
(Salvage)	\$0						
Specific Cost	\$300,000						
Overhead Loads	\$0						
CBI Total	\$300,000						
Retirements	\$0						
Approvals							
				E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
4CA	7.00%	\$21,000		<i>James R. Hatfield</i>	Date	10/10/17	
APS	63.00%	\$189,000		<i>J.H. [Signature]</i>	Date	10/10/17	
PNM	13.00%	\$39,000		<i>[Signature]</i>	Date	10/10/17	
SRP	10.0%	\$30,000		<i>[Signature]</i>	Date	10/10/17	
TEP	7.00%	\$21,000		<i>J.C. [Signature]</i>	Date	10/10/17	

**PE013133 FC Control Room HVAC Replacement - AH1 & AH2**

FC Participant Project	Rev FC18-44	0% Enviro.	NSR Completed: Yes
FC	CBI: FC18-44	Env Code:	ERF Completed: Yes
In 2018 Budget: Yes	Plant Acct: 390	Est Removal: 03 Sep 2018	Est In Svc: 30 Nov 2018

**Description:** Replace the HVAC systems that services the Control Room and the Bailey Room - AH1 & AH2.

**Purpose/Necessity:** The purpose of this project is to provide a reliable HVAC for plant controls equipment and personnel. The HVAC systems are approaching the end of their serviceable life and require replacement.

**Consequences of Delay:** When the HVAC fails, other methods of cooling are required. Some of the methods include opening all building doors and/or bring in temporary portable air conditioner units at a cost of \$16K/month.

**Economic Justification:**  
Budget Category: NM PJT

FP 715-19017  
WO 00000687

Cash Flow							
Jan	\$5,000	Apr	\$1,000	Jul	\$9,000	Oct	\$284,000
Feb	\$2,000	May	\$57,000	Aug	\$9,000	Nov	\$51,000
Mar	\$1,000	Jun	\$264,000	Sep	\$217,000	Dec	\$0
Prior	\$0	2018	\$896,000	2019	\$0	After	\$0

Cost Summary		
	Current Amount	Revised Amount
Additions	103,610	\$797,000
Removals	12,870	\$99,000
(Salvage)	0	\$0
Specific Cost		\$896,000
Overhead Loads	0	\$0
CBI Total	116,480	\$896,000
Retirements	0	\$0

Approvals			
		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
4CA	7.00%	\$62,706	James K. Duffield Date 10/16/17
APS	63.00%	\$564,354	JL R... Date 10/10/17
PNM	13.00%	\$116,454	... Date 10/10/17
SRP	10.0%	\$89,580	Ray H... Date 10/10/17
TRP	7.00%	\$62,706	J.C... Date 10/10/17



**FCC012873 SO2 Intake MCC Replacement**

Four Corners Participant Project	Rev FC18-47	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC18-47	Env Code: N/A	ERF Completed: Yes
In 2018 Budget: Yes	Plant Acct: 315	Est Removal: 23 Apr 2019	Est In Svc: 13 May 2019

**Description:** Replace the existing SO2 Intake Water Area 480V MCC S45/S55 and associated 480V switchgear, 500kVA 4160-480V transformer, and 4160V transfer switch with a new main-tie-main 480V MCC lineup with dual 500kVA 4160-480V transformers.

**Purpose/Necessity:** The purpose of the project is to maintain unit reliability by replacing the existing SO2 Intake Water Area major electrical equipment.

**Consequences of Delay:** Potential 4 day forced dual unit outage. Economic justification assumes a 10% probability of a 4 day dual unit forced outage. Single point of failure at transformer will result in potential loss of scrubber intake water which could result in the loss of the scrubbers and an unplanned dual unit outage for maintenance of the equipment. Enclosure fragments could fall inside the electrical equipment creating an arc flash hazard.

**Economic Justification:**  
Benefit-Cost NPV: 7.00 M\$  
Budget Category: RFL

**Cash Flow - 2018**

Jan	\$2,000	Apr	\$49,000	Jul	\$62,000	Oct	\$12,000
Feb	\$26,000	May	\$55,000	Aug	\$56,000	Nov	\$12,000
Mar	\$84,000	Jun	\$55,000	Sep	\$75,000	Dec	\$14,000
Prior	\$0	2018	\$504,000	2019	\$1,157,000	After	\$0

**Cost Summary**

	Current Amount	Revised Amount
Additions	\$1,466,000	
Removals	\$181,000	
(Salvage)	(\$2,000)	
Specific Cost	\$1,647,000	
Overhead Loads	\$14,000	
<b>CBI Total</b>	<b>\$1,662,000</b>	
Retirements	\$0	

**Approvals**

		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
4CA	7.00%	\$116,309	Date 10/16/17 <i>James E. [Signature]</i>
APS	63.00%	\$1,046,785	Date 10/10/17 <i>[Signature]</i>
PNM	13.00%	\$216,003	Date 10/10/17 <i>[Signature]</i>
SRP	10.0%	\$166,156	Date 10/10/17 <i>[Signature]</i>
TIP	7.00%	\$116,309	Date 10/10/17 <i>[Signature]</i>

<b>PCC08545 Stack Elevator Replacement</b>			
Four Corners Participant Project	Rev FC18-48	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC18-48	Inv Code: N/A	ERF Completed: Yes
In 2018 Budget: Yes	Plant Acct: 311	Est Removal: 28 Jan 2019	Est In Svc: 02 Mar 2019

**Description:** Replace SO2 stack elevator.

**Purpose/Necessity:** The purpose of this project is to replace the stack elevator to maintain a safe and reliable system that complies with the OSHA General Duty Clause and recommendations found in the IKA Vertical Transportation Comprehensive Maintenance and Condition Audit completed in September 2016. The existing elevator is reaching the end of its serviceable life and must be replaced.

**Consequences of Delay:** Continued limited access to areas of the Plant due to disabled passenger elevator. Increased costs from delayed operation, maintenance, and repairs of plant equipment due to limited access caused by non-functioning stack elevator.

**Economic Justification:**  
Benefit-Cost NPV: 0 M\$  
Budget Category: SAFETY

Cash Flow - 2018							
Jan	\$0	Apr	\$36,000	Jul	\$17,000	Oct	\$36,000
Feb	\$0	May	\$18,000	Aug	\$17,000	Nov	\$17,000
Mar	\$31,000	Jun	\$36,000	Sep	\$17,000	Dec	\$20,000
<b>Prior</b>	<b>\$0</b>	<b>2018</b>	<b>\$247,000</b>	<b>2019</b>	<b>\$752,000</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
Additions	\$883,000	
Removals	\$109,000	
(Salvage)	(\$1,000)	
Specific Cost	\$992,000	
Overhead Loads	\$8,000	
<b>CBI Total</b>	<b>\$1,000,000</b>	
Retirements	\$0	

Approvals				
			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
4CA	7.00%	\$69,969	<i>James E. [Signature]</i>	Date 10/16/17
APS	63.00%	\$629,724	<i>[Signature]</i>	Date 10/10/17
PNM	13.00%	\$129,943	<i>[Signature]</i>	Date 10/10/17
SRP	10.0%	\$99,956	<i>[Signature]</i>	Date 10/10/17
TEP	7.00%	\$69,969	<i>[Signature]</i>	Date 10/16/17

FCC014518 Thickener Replacement			
Four Corners Participant Project	Rev FC18-51	100% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC18-51	Env Code: Water	ERF Completed: Yes
In 2018 Budget: No	Plant Acct: 311	Est Removal: 13 Feb 2019	Est In Svc: 17 May 2019

**Description:** Replace the center drive unit and the associated structural supports, drive mechanism and controls/sensors on the F5 Thickener Tank.

**Purpose/Necessity:** The purpose of this project is to maintain unit reliability by replacing key components of the thickener system that has reached the the end of useful life.

**Consequences of Delay:** Potential 13 day forced dual unit outage. Forced outage would be required if the F4 Thickener Tank failed during the time the F5 Thickener Tank was out of service for rebuild. Economic justification assumes a 5% probability of a 13-day dual unit forced outage.

**Economic Justification:**  
Benefit-Cost NPV: 5.00 MS  
Budget Category: REL.

Cash Flow - 2018							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$133,000
Feb	\$0	May	\$0	Aug	\$0	Nov	\$617,000
Mar	\$0	Jun	\$0	Sep	\$122,000	Dec	\$415,000
Prior	\$0	2018	\$1,287,000	2019	\$1,430,000	After	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$1,145,000	
Removals	\$125,000	
(Salvage)	\$0	
Non-Itemized Additions	\$1,408,000	
Specific Cost	\$2,678,000	
Overhead Loads	\$40,000	
CBI Total	\$2,718,000	
Retirements	\$0	

Approvals			
Exhibit: ACJ		F&O Committee <input type="checkbox"/>	Coordinating Committee: <input checked="" type="checkbox"/>
APS	63.00%	\$1,712,138	Date
NTEC	7.00%	\$190,238	Date
PNM	13.00%	\$353,298	Date 9/20/18
SRP	10.0%	\$271,768	Date
TEP	7.00%	\$190,238	Date

<b>FC0114708 Main Condenser Expansion Joint Replacement</b>			
Four Corners Participant Project	Rev FC18-52	0% Biviro	NSR Completed: Yes
FC Unit 4	CBI: FC18-52	Env. Code: N/A	ERF Completed: Yes
In 2018 Budget: No	Plant Aect: 314	Est. Removal:	Est In. Svc: 15 Aug 2018

**Description:** Replace the F4 Main Auxiliary Turbine (Boiler Feed Pump Turbine (BFPT)) Condenser Expansion Joint. The issuance of this CBI is due to work originally executed under Maximo work order FC111287 and was determined to be capital as a result of the 2018 detailed scrub of O&M work complete in 2018.

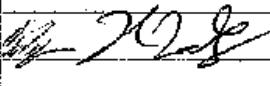
**Purpose/Necessity:** The purpose of this project is to provide continuous unit reliability. The expansion joint from the Auxiliary Turbine exhaust housing and the Main Condenser has reached the end of their serviceable life and needs to be replaced.

**Consequences of Delay:** The failure of an expansion joint can result in a load loss up to 100%, 10 day forced outage, and repair cost of \$350,000.

**Economic Justification:**  
Budget Category: REL  
Benefit-Cost NPV: \$1.2M

Cash Flow - 2018							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$828,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2018	\$828,000	2019	\$0	After	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$400,000	
Removals (Salvage)	\$75,000	
	\$0	
Non-Itemized Additions	\$353,000	
Specific Cost	\$828,000	
Overhead Loads	\$0	
<b>CBI Total</b>	<b>\$828,000</b>	
Retirements	\$0	

Approvals				
Exhibit: ACK		E&O Committee <input type="checkbox"/> Coordinating Committee <input checked="" type="checkbox"/>		
APS	63.00%	\$521,494		Date
NTEC	7.00%	\$57,944		Date
PNM	13.00%	\$107,610		Date 3/5/19
SRP	10.0%	\$82,777		Date
TEP	7.00%	\$57,944		Date

<b>FC CBI 1925 Reserve and Center Breaker Replacement</b>			
Four Corners Participant Project	Rev 19-22R1	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: 19-22R1	Env Code: N/A	ERF Completed: Yes
In 2019 Budget: Yes	Plant Acct: 13500	Est Removal: 11 Mar 2019	Est To Svc: 02 Apr 2019

**Reason for Revision:** The reason for this \$999K reauthorization is due an error generating the original CBI amount, higher than anticipated construction bids, additional costs associated with the completion of the Hydraulic Integrity Test (HIT)/dewatering the generators/oil flush, and additional Plant resources for LOTOs, E&I, and Security support.

Benefit-Cost NPV: 2.90 M\$

**Description:** Replace seven 4160V circuit breakers, five (5) on Reserve Center bus, one (1) on Unit 5 Center bus, and one (1) on Unit 4 Center bus. Replace thirteen (13) 480V circuit breakers, eleven (11) on 480V Reserve Bus, one (1) Unit 5 Reserve Bus Tie, and one (1) Unit 4 Reserve Bus Tie. Install transient voltage snubbers on the Reserve Station Service transformer and the Standby Station Lighting Transformer.

**Purpose/Necessity:** The purpose of this project is to maintain unit reliability by replacing obsolete, aging breakers with new circuit breakers. Existing breakers are obsolete and are approaching end of useful life.

**Consequences of Delay:** Potential 5 day forced unit outage due to existing circuit breaker failure. Economic justification assumes 25% probability of circuit breaker failure resulting in a 5 day outage

**Economic Justification:**

Benefit-Cost NPV: 2.90 M\$  
Budget Category: REL

Cash Flow - 2019							
Jan	\$28,000	Apr	\$75,000	Jul	\$27,000	Oct	\$0
Feb	\$89,000	May	\$62,000	Aug	\$0	Nov	\$0
Mar	\$1,889,000	Jun	\$39,000	Sep	\$0	Dec	\$0
Prior	\$8,000	2019	\$2,309,000	2020	\$0	After	\$0

Cost Summary			
	Current Amount	Revised Amount	
RJ Materials	\$297,000	\$297,000	
Removals	\$125,000	\$125,000	
(Salvage)		\$0	
Non-Itemized Additions	\$782,000	\$1,775,000	
Specific Cost	\$1,204,000	\$2,197,000	
Overhead Loads	\$14,000	\$20,000	
CBI Total	\$1,218,000	\$2,217,000	
Retirements		\$0	

Approvals				
			E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
APS	63.00%	\$1,396,595		Date
NTEC	7.00%	\$155,177		Date
PNM	13.00%	\$288,186	<i>[Signature]</i>	Date 3/5/19
SRP	10.0%	\$221,682		Date
TEP	7.00%	\$155,177		Date

FCC01425 Coal Piping Knife Gate Isolation Valve Replacement			
Four Corners Participant Project	Rev FC18-19R1	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI FC18-19R1	Env Code: N/A	ERF Completed: Yes
In 2019 Budget: Yes	Plant Acct: 131600	Est Removal: 01 Mar 2020	Est In Svc: 13 Apr 2020
<p><b>Reason for Revision:</b> The reason for the \$831K increase is due to the inclusion of the scope for CBI 19-23 FCC014252 Coal Knife Gate Isolation Valve Repl Phase 2. This will allow all (48) knife gate pulverizer isolation valves to be replaced during the F5 2020 Outage in lieu of executing 2 discrete projects over multiple years.</p> <p>Benefit-Cost NPV: 0 M\$</p>			
<p><b>Description:</b> Replace 12 knife gate pulverizer isolation valves in the coal pipes between the auto swing valves and the burners.</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to maintain unit safety by replacing the pulverizer isolation valves. These valves are used to isolate the pulverizers and auto swing valves. Without proper sealing knife gate valves the auto swing valves cannot be isolated and worked on and there is a risk of gas entry into the pulverizers, creating a potentially unsafe condition. Section 9.4.5.1.2 of NFPA 85, specifies the dust-tight valve requirements for pulverized coal fueled boilers. NFPA 85 defines a dust-tight valve as a tight-seating valve installed in the fuel supply pipe to the burner to allow or stop flow.</p> <p><b>Consequences of Delay:</b> Assume risk of poor isolation valve reliability and potentially longer coal pulverizer downtime. Compromised isolation could lead to a safety issue restricting access to the pulverizers.</p> <p><b>Economic Justification:</b> Benefit-Cost NPV: 0 M\$ Budget Category: SAFETY</p>			

Cash Flow - 2019							
Jan	\$11,000	Apr	\$10,000	Jul	\$10,000	Oct	\$10,000
Feb	\$6,000	May	\$10,000	Aug	\$8,000	Nov	\$110,000
Mar	\$10,000	Jun	\$10,000	Sep	\$5,000	Dec	\$3,000
Prior	\$67,000	2019	\$205,000	2020	\$1,279,000	After	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$643,000	\$643,000
Removals	\$64,000	\$64,000
(Salvage)	(\$1,000)	(\$1,000)
Non-Itemized Additions	\$1,000	\$831,000
Specific Cost	\$707,000	\$1,537,000
Overhead Loads	\$11,000	\$13,000
CBI Total	\$719,000	\$1,550,000
Retirements		\$0

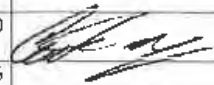
Approvals				
			E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
APS	63.00%	\$976,514		Date
NTEC	7.00%	\$108,502		Date
PNM	13.00%	\$201,503		Date
SRP	10.0%	\$155,002		Date
TEP	7.00%	\$108,502		Date

*[Signature]* 3/15/19

FCC014719 Boiler Dead Air Space Expansion Joint Replacement			
Four Corners Participant Project	Rev FC18-55	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC18-55	Env Code: N/A	ERF Completed: Yes
In 2018 Budget: No	Plant Acct: 312	Est Removal:	Est In Svc: 11 May 2018
<p><b>Description:</b> Replace (18) Boiler Dead Air Space Expansion Joints. The issuance of this CBI is due to work originally executed under Maximo work order FC1126146 and was determined to be capital as a result of the 2018 detailed scrub of O&amp;M work complete in 2018.</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to replace (18) Boiler dead air space supply piping expansion joint. The expansion joints are reaching the end of their serviceable life and need to be replaced.</p> <p><b>Consequences of Delay:</b> The failure of an expansion joint can result in a load loss up to 100%, 10 day forced outage, and repair cost of \$350,000.</p> <p><b>Economic Justification:</b>                      Budget Category: REL                      Benefit-Cost NPV \$1.7M</p>			

Cash Flow - 2018							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$131,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2018	\$131,000	2019	\$0	After	\$0


Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$116,000	
Removals	\$15,000	
(Salvage)	\$0	
Non-Itemized Additions	\$0	
Specific Cost	\$131,000	
Overhead Loads	\$0	
CBI Total	\$131,000	
Retirements	\$0	

Approvals				
			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$82,819		Date
NTEC	7.00%	\$9,202		Date
PNM	13.00%	\$17,090		Date
SRP	10.0%	\$13,146		Date
TEP	7.00%	\$9,202		Date

FCC014721 Clinker Grinder Replacement			
Four Corners Participant Project	Rev FC18-56	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC18-56	Env. Code: N/A	ERF Completed: Yes
In 2018 Budget: No	Plant Acct: 312	Est Removal:	Est In Svc: 06 Aug 2018
<p><b>Description:</b> Replace the Unit 5 North Bottom Ash Clinker Grinder. The issuance of this CBI is due to work originally executed under Maximo work order FC1148044 and was determined to be capital as a result of the 2018 detailed scrub of O&amp;M work complete in 2018.</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to maintain unit reliability by replacing the bottom ash clinker grinders. The existing clinker grinders are approaching the end of serviceable life. Completing this project will provide the consistent and reliable removal of bottom ash from the boiler.</p> <p><b>Consequences of Delay:</b> Potential of 50% unit derate for 2 days if north or south clinker grinder fails.</p> <p><b>Economic Justification:</b>                      Budget Category: RFI.                      Benefit-Cost NPV: \$0.2M</p>			

Cash Flow - 2018							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$81,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2018	\$81,000	2019	\$0	After	\$0

Cost Summary		
	Current Amount	Revised Amount
RU' Materials	\$69,000	
Removals	\$12,000	
(Salvage)	\$0	
Non-Itemized Additions	\$0	
Specific Cost	\$81,000	
Overhead Loads	\$0	
CBI Total	\$81,000	
Retirements	\$0	

Approvals				
			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$51,313		Date
NTEC	7.00%	\$5,701		Date
PNM	13.00%	\$10,588		Date
SRP	10.0%	\$8,145		3/14/19
TEP	7.00%	\$5,701		Date



PE014356 FC 2019 HVAC – Misc. Equip. Replacement - ADJUSTER			
FC Participant Project	Rev FC 19-02	0% Enviro.	NSR Completed: Yes
FC	CBI: FC 19-02	Env Code:	ERF Completed: Yes
In 2019 Budget: Yes	Plant Acct: 131100	Est Removal:	Est In Svc: 15 Dec 2019
<b>Description:</b> 2019 Funding for the replacement of miscellaneous HVAC equipment/components that meets capital requirements, as defined by RUC – 221 Air Handling Unit.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain plant HVAC reliability. Capital budget will be used for purchase and installation of new capital HVAC equipment as failures or immediate need occurs throughout the 2019 calendar year.			
<b>Consequences of Delay:</b> Negative impact to the plant's response to obtaining approvals needed for Capital HVAC requirements.			
<b>Economic Justification:</b> Budget Category: REL.			

Cash Flow							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$300,000
Prior	\$0	2019	\$300,000	2020	\$0	After	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$160,000	
Removals	\$33,000	
Non-Itemized Additions	\$104,000	
Specific Cost	\$297,000	
Overhead Loads	\$3,000	
<b>CBI Total</b>	<b>\$300,000</b>	
Retirements	\$0	

Approvals				
		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$189,000	<i>[Signature]</i>	Date 10/10/18
NTEC	7.00%	\$21,000	<i>[Signature]</i>	Date 10/10/18
PNM	13.00%	\$39,000	<i>[Signature]</i>	Date 10/10/18
SRP	10.0%	\$30,000	<i>[Signature]</i>	Date 10/10/18
TEP	7.00%	\$21,000	<i>[Signature]</i>	Date 10-10-18

PE014357 FC 2019 Building – Misc. Equip. Replacement - ADJUSTER							
FC Participant Project		Rev FC 19-03		0% Enviro.		NSR Completed: Yes	
FC		CBI: FC 19-03		Env Code:		ERF Completed: Yes	
In 2019 Budget: Yes		Plant Acct: 131100		Est Removal:		Est In Svc: 15 Dec 2019	
<p><b>Description:</b> 2019 Funding for the replacement of capital building components (i.e., foundations, walls, roofs, ceilings, stairs, floor coverings, windows, plumbing and fixtures, built-ins, office lighting, conventional doors and partitions, decorations, and modular Trailer Buildings) that meet capital requirements as defined by the RUC - 050 Buildings.</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to maintain building safety. This funding will be used for the replacement of building components as failures or immediate need occurs throughout the 2019 calendar year.</p> <p><b>Consequences of Delay:</b> Risk to plant personnel safety.</p> <p><b>Economic Justification:</b> Budget Category: REL</p>							
Cash Flow							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$300,000
<b>Prior</b>	<b>\$0</b>	<b>2019</b>	<b>\$300,000</b>	<b>2020</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>
Cost Summary							
	Current Amount			Revised Amount			
RU Materials					\$160,000		
Removals					\$33,000		
Non-Itemized Additions					\$104,000		
Specific Cost					\$297,000		
Overhead Loads					\$3,000		
CBI Total					\$300,000		
Retirements					\$0		
Approvals							
				E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
APS		63.00%	\$189,000	<i>Sarah Kist</i>		Date	10/10/18
NTEC		7.00%	\$21,000	<i>[Signature]</i>		Date	10/10/18
PNM		13.00%	\$39,000	<i>[Signature]</i>		Date	10/10/18
SRP		10.0%	\$30,000	<i>[Signature]</i>		Date	10/10/18
TEP		7.00%	\$21,000	<i>[Signature]</i>		Date	10-10-18

PE014358 FC 4/5 Control Room HVAC Replacement - AH4 & AH5 2019			
FC Participant Project	Rev FC 19-04	0% Enviro.	NSR Completed: Yes
FC	CBI: FC 19-04	Env Code:	ERF Completed: Yes
In 2019 Budget: Yes	Plant Acct: 131100	Est Removal:	Est In Svc: 30 Apr 2020
<b>Description:</b> Replace the HVAC systems that services the 4/5 Control Room and the 4/5 Bailey Room - AH4 & AH5.			
<b>Purpose/Necessity:</b> The purpose of this project is to provide a reliable HVAC for plant controls equipment and personnel located in the 4/5 Control Room. The HVAC systems are approaching the end of their serviceable life and require replacement.			
<b>Consequences of Delay:</b> There may be increased yearly maintenance and a potential for failure. When the HVAC fails, other methods of cooling are required. Some of the methods include opening all building doors and/or bring in temporary portable air conditioner units at a cost of \$16K/month.			
<b>Economic Justification:</b> Budget Category: REL			

Cash Flow							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$600,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	\$0	<b>2019</b>	\$600,000	<b>2020</b>	\$300,000	<b>After</b>	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$360,000	
Removals	\$45,000	
Non-Itemized Additions	\$486,000	
Specific Cost	\$891,000	
Overhead Loads	\$9,000	
<b>CBI Total</b>	<b>\$900,000</b>	
Retirements	\$0	

Approvals					
		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
APS	63.00%	\$567,000	<i>Sarah Kist</i>	Date	10/10/18
NTEC	7.00%	\$63,000	<i>[Signature]</i>	Date	10/12/18
PNM	13.00%	\$117,000	<i>[Signature]</i>	Date	10/10/18
SRP	10.0%	\$90,000	<i>[Signature]</i>	Date	10/10/18
TEP	7.00%	\$63,000	<i>[Signature]</i>	Date	10-10-18

PE014359 FC Administration Building Roof Replacement 2019			
FC Participant Project	Rev FC 19-05	0% Enviro.	NSR Completed: Yes
FC	CBI: FC 19-05	Env Code:	ERF Completed: Yes
In 2019 Budget: Yes	Plant Acct: 131100	Est Removal:	Est In Svc: 31 Oct 2019

**Description:** Remove and Replace like for like Roof system on the FC Administration Building.

**Purpose/Necessity:** • Roof is at the end of useful life. The roof system is dry & brittle from weather conditions.

- Original installation 1990 and the installation is 4 years past expected life.
- Pipes and penetrations are not properly sealed.

**Consequences of Delay:**

- Roof Failure
- Leaking
- Continued deterioration

**Economic Justification:**

Budget Category: REL

Cash Flow							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$284,000
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2019	\$284,000	2020	\$0	After	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials		\$115,000
Removals		\$11,000
Non-Itemized Additions		\$154,000
Specific Cost		\$280,000
Overhead Loads		\$4,000
CBI Total		\$284,000
Retirements		\$0

Approvals			
			E&O Committee <input checked="" type="checkbox"/> Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$178,920	<i>[Signature]</i> Date 10/10/18
NTEC	7.00%	\$19,880	<i>[Signature]</i> Date 10/10/18
PNM	13.00%	\$36,920	<i>[Signature]</i> Date 10/10/18
SRP	10.0%	\$28,400	<i>[Signature]</i> Date 10/10/18
TEP	7.00%	\$19,880	<i>[Signature]</i> Date 10-10-18

PE014360 FC Warehouse Building Roof Replacement 2019			
FC Participant Project	Rev FC 19-06	0% Enviro.	NSR Completed: Yes
FC	CBI: FC 19-06	Env Code:	ERF Completed: Yes
In 2019 Budget: Yes	Plant Acct: 131100	Est Removal:	Est In Svc: 31 Oct 2019
<b>Description:</b> Remove and Replace like for like Roof system on the FC Warehouse Building.			
<b>Purpose/Necessity:</b> • Roof is at the end of useful life.			
• Rubber grommets are dried out			
• Rusting around units			
• Metal panel has been pinched and split the top of the metal			
<b>Consequences of Delay:</b>			
• Roof Failure			
• Leaking			
• Continued deterioration			
<b>Economic Justification:</b>			
Budget Category: REL.			

Cash Flow							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$211,000
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2019	\$211,000	2020	\$0	After	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$85,000	
Removals	\$8,000	
Non-Itemized Additions	\$115,000	
Specific Cost	\$208,000	
Overhead Loads	\$3,000	
CBI Total	\$211,000	
Retirements	\$0	

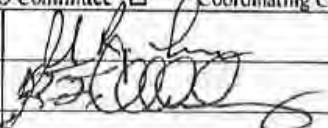
Approvals				
				E&O Committee <input checked="" type="checkbox"/> Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$132,930		Date <i>Sarah Hest</i> - 10/10/18
NTEC	7.00%	\$14,770		Date <i>JJA</i> 10/12/18
PNM	13.00%	\$27,430		Date <i>[Signature]</i> 10/10/18
SRP	10.0%	\$21,100		Date <i>[Signature]</i> 10/10/18
TEP	7.00%	\$14,770		Date <i>[Signature]</i> 10-10-18

PE014361 FC 4/5 Planning Building Roof Replacement 2019			
FC Participant Project	Rev FC 19-07	0% Enviro.	NSR Completed: Yes
FC	CBI: FC 19-07	Env Code:	ERF Completed: Yes
In 2019 Budget: Yes	Plant Acct: 131100	Est Removal:	Est In Svc: 31 Oct 2019
<b>Description:</b> Replacement of the metal roof on the 4/5 Planning Building.			
<b>Purpose/Necessity:</b> • Roof is at the end of useful life. Replace this section of the roof to align contiguously with the existing larger remaining portion of the roof that is in good condition.			
<b>Consequences of Delay:</b>			
<ul style="list-style-type: none"> <li>• Roof Failure</li> <li>• Leaking</li> <li>• Continued deterioration</li> </ul>			
<b>Economic Justification:</b>			
Budget Category: REL			

Cash Flow							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$107,000
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	<b>\$0</b>	<b>2019</b>	<b>\$107,000</b>	<b>2020</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$55,000	
Removals	\$5,000	
Non-Itemized Additions	\$46,000	
Specific Cost	\$106,000	
Overhead Loads	\$1,000	
<b>CBI Total</b>	<b>\$107,000</b>	
Retirements	\$0	

Approvals			
		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$67,410	Sanghvi <i>[Signature]</i> 10/10/18 Date
NTEC	7.00%	\$7,490	<i>[Signature]</i> 10/10/18 Date
PNM	13.00%	\$13,910	<i>[Signature]</i> 10/10/18 Date
SRP	10.0%	\$10,700	<i>[Signature]</i> 10/10/18 Date
TEP	7.00%	\$7,490	<i>[Signature]</i> 10-10-18 Date

FCC012892 Burner Replacement - Phase 2							
Four Corners Participant Project	Rev FC19-08	100% Enviro.	NSR Completed: Yes				
FC Unit 5	CBI: FC19-08	Env Code: Air	ERF Completed: Yes				
In 2019 Budget: Yes	Plant Acct: I31200	Est Removal:	Est In Svc: 11 Apr 2020				
<b>Description:</b> Replace the remaining 24 burners not replaced in 2017 (top and bottom rows).							
<b>Purpose/Necessity:</b> The purpose of this project is to maintain compliance with MACT regulations. The current coal burners were installed in 1990 and are approaching the end of their usable life. Inspections in 2015 and 2016 have reported erosion on the major components of register vanes, internal strut, and perforated plates. The condition of the burners results in increased emissions and decrease in efficiency.							
<b>Consequences of Delay:</b> Noncompliance with MACT. Increased costs to maintain burner operations and risk of unit derate due to burner failure. Risk of fire in the windbox from damaged coal barrels. Increase generation of unburnt coal particles.							
<b>Economic Justification:</b>							
Benefit-Cost NPV: 0 M\$							
Budget Category: ENV							
Cash Flow - 2019							
Jan	\$41,000	Apr	\$39,000	Jul	\$28,000	Oct	\$7,000
Feb	\$70,000	May	\$43,000	Aug	\$17,000	Nov	\$9,000
Mar	\$25,000	Jun	\$31,000	Sep	\$11,000	Dec	\$9,000
Prior	\$0	2019	\$328,000	2020	\$8,463,000	After	\$0
Cost Summary							
	Current Amount			Revised Amount			
RU Materials	\$2,890,000						
Removals	\$370,000						
Non-Itemized Additions	\$5,484,000						
Specific Cost	\$8,744,000						
Overhead Loads	\$48,000						
CBI Total	\$8,792,000						
Retirements	\$2,849,000						
Approvals							
Exhibit: ACC		E&O Committee <input type="checkbox"/> Coordinating Committee <input checked="" type="checkbox"/>					
APS	63.00%	\$5,538,647			Date		
NTEC	7.00%	\$615,405			1/25/19		
PNM	13.00%	\$1,142,895			1-24-19		
SRP	10.0%	\$879,150			Date		
TEP	7.00%	\$615,405			Date		

<b>FCC012892 Burner Replacement - Phase 2</b>			
Four Corners Participant Project	Rev FC19-08	100% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC19-08	Env Code: Air	ERF Completed: Yes
In 2019 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 11 Apr 2020

**Description:** Replace the remaining 24 burners not replaced in 2017 (top and bottom rows).

**Purpose/Necessity:** The purpose of this project is to maintain compliance with MACT regulations. The current coal burners were installed in 1990 and are approaching the end of their usable life. Inspections in 2015 and 2016 have reported erosion on the major components of register vanes, internal strut, and perforated plates. The condition of the burners results in increased emissions and decrease in efficiency.

**Consequences of Delay:** Noncompliance with MACT, Increased costs to maintain burner operations and risk of unit derate due to burner failure. Risk of fire in the windbox from damaged coal barrels. Increase generation of unburnt coal particles.

**Economic Justification:**  
Benefit-Cost NPV: 0 M\$  
Budget Category: ENV

Cash Flow - 2019							
Jan	\$41,000	Apr	\$39,000	Jul	\$28,000	Oct	\$7,000
Feb	\$70,000	May	\$43,000	Aug	\$17,000	Nov	\$9,000
Mar	\$25,000	Jun	\$31,000	Sep	\$11,000	Dec	\$9,000
Prior	\$0	2019	\$328,000	2020	\$8,463,000	After	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$2,890,000	
Removals	\$370,000	
Non-Itemized Additions	\$5,484,000	
Specific Cost	\$8,744,000	
Overhead Loads	\$48,000	
CBI Total	\$8,792,000	
Retirements	\$2,849,000	

Approvals			
Exhibit: ACC		E&O Committee <input type="checkbox"/> Coordinating Committee <input checked="" type="checkbox"/>	
APS	63.00%	\$5,538,647	Date
NTEC	7.00%	\$615,405	Date
PNM	13.00%	\$1,142,895	Date
SRP	10.0%	\$879,150	Date
TIP	7.00%	\$615,405	Date



FCC012892 Burner Replacement - Phase 2							
Four Corners Participant Project		Rev FC19-08	100% Enviro.	NSR Completed: Yes			
FC Unit 5		CBI: FC19-08	Env Code: Air	ERF Completed: Yes			
In 2019 Budget: Yes		Plant Acct: 131200	Est Removal:	Est In Svc: 11 Apr 2020			
<p><b>Description:</b> Replace the remaining 24 burners not replaced in 2017 (top and bottom rows).</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to maintain compliance with MACT regulations. The current coal burners were installed in 1990 and are approaching the end of their usable life. Inspections in 2015 and 2016 have reported erosion on the major components of register vanes, internal strut, and perforated plates. The condition of the burners results in increased emissions and decrease in efficiency.</p> <p><b>Consequences of Delay:</b> Noncompliance with MACT. Increased costs to maintain burner operations and risk of unit derate due to burner failure. Risk of fire in the windbox from damaged coal barrels. Increase generation of unburnt coal particles.</p> <p><b>Economic Justification:</b>            Benefit-Cost NPV: 0 M\$            Budget Category: ENV</p>							
Cash Flow - 2019							
Jan	\$41,000	Apr	\$39,000	Jul	\$28,000	Oct	\$7,000
Feb	\$70,000	May	\$43,000	Aug	\$17,000	Nov	\$9,000
Mar	\$25,000	Jun	\$31,000	Sep	\$11,000	Dec	\$9,000
Prior	\$0	2019	\$328,000	2020	\$8,463,000	After	\$0
Cost Summary							
		Current Amount		Revised Amount			
RU Materials			\$2,890,000				
Removals			\$370,000				
Non-Itemized Additions			\$5,484,000				
Specific Cost			\$8,744,000				
Overhead Loads			\$48,000				
CBI Total			\$8,792,000				
Retirements			\$2,849,000				
Approvals							
Exhibit: ACC				E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
APS		63.00%	\$5,538,647			Date	
NTEC		7.00%	\$615,405			Date	
PNM		13.00%	\$1,142,895			Date	
SRP		10.0%	\$879,150			Date	
TEP		7.00%	\$615,405			Date	11-6-2019

FCC012892 Burner Replacement - Phase 2			
Four Corners Participant Project	Rev FC19-08	100% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC19-08	Env Code: Air	ERF Completed: Yes
In 2019 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 11 Apr 2020
<b>Description:</b> Replace the remaining 24 burners not replaced in 2017 (top and bottom rows).			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain compliance with MACT regulations. The current coal burners were installed in 1990 and are approaching the end of their usable life. Inspections in 2015 and 2016 have reported erosion on the major components of register vanes, internal strut, and perforated plates. The condition of the burners results in increased emissions and decrease in efficiency.			
<b>Consequences of Delay:</b> Noncompliance with MACT. Increased costs to maintain burner operations and risk of unit derate due to burner failure. Risk of fire in the windbox from damaged coal barrels. Increase generation of unburnt coal particles.			
<b>Economic Justification:</b>			
Benefit-Cost NPV: 0 MS		Budget Category: ENV	

Cash Flow - 2019							
Jan	\$41,000	Apr	\$39,000	Jul	\$28,000	Oct	\$7,000
Feb	\$70,000	May	\$43,000	Aug	\$17,000	Nov	\$9,000
Mar	\$25,000	Jun	\$31,000	Sep	\$11,000	Dec	\$9,000
<b>Prior</b>	<b>\$0</b>	<b>2019</b>	<b>\$328,000</b>	<b>2020</b>	<b>\$8,463,000</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$2,890,000	
Removals	\$370,000	
Non-Itemized Additions	\$5,484,000	
Specific Cost	\$8,744,000	
Overhead Loads	\$48,000	
<b>CBI Total</b>	<b>\$8,792,000</b>	
Retirements	\$2,849,000	

Approvals				
Exhibit: ACC	E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
APS	63.00%	\$5,538,647		Date
NTEC	7.00%	\$615,405		Date
PNM	13.00%	\$1,142,895		Date
SRP	10.0%	\$879,150		Date
TEP	7.00%	\$615,405	<i>[Signature]</i>	Date 10/16/18

FCC012897 Safety Valve Replacement			
Four Corners Participant Project	Rev FC19-10	0% Enviro.	NSR Completed: No
FC Unit 5	CBI: FC19-10	Env Code: N/A	ERF Completed: Yes
In 2019 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 11 Apr 2020
<p><b>Description:</b> Replace 6 boiler safety valves (4 convection pass valves and 2 main steam valves) with newer model safety valves. A body drain and a vent drip pan will be added to each safety valve to prevent corrosion of internal valve components.</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to maintain unit reliability by reducing the risk of forced outages due to malfunctioning safety valves. Required replacement parts to rebuild the existing safety valves are not available off the shelf and need to be custom fabricated at an extra cost and long lead time.</p> <p><b>Consequences of Delay:</b> A safety valve failure results in a forced outage. A typical failure has a 2.5% probability and results in an 15-day outage for emergency repairs.</p> <p><b>Economic Justification:</b>            Benefit-Cost NPV: 5.40 M\$            Budget Category: REL</p>			

Cash Flow - 2019							
Jan	\$0	Apr	\$19,000	Jul	\$20,000	Oct	\$17,000
Feb	\$57,000	May	\$25,000	Aug	\$24,000	Nov	\$4,000
Mar	\$19,000	Jun	\$28,000	Sep	\$19,000	Dec	\$4,000
<b>Prior</b>	<b>\$0</b>	<b>2019</b>	<b>\$236,000</b>	<b>2020</b>	<b>\$1,266,000</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$360,000	
Removals	\$57,000	
Non-Itemized Additions	\$1,075,000	
Specific Cost	\$1,492,000	
Overhead Loads	\$10,000	
<b>CBI Total</b>	<b>\$1,502,000</b>	
Retirements	\$0	

Approvals				
			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$946,107	<i>Search Klot</i>	Date 12/10/18
NTEC	7.00%	\$105,123	<i>[Signature]</i>	Date 10/10/18
PNM	13.00%	\$195,228	<i>[Signature]</i>	Date 10/10/18
SRP	10.0%	\$150,176	<i>[Signature]</i>	Date 10/10/18
TEP	7.00%	\$105,123	<i>[Signature]</i>	Date 10-10-18

FCC012906 Windbox Lagging & Insulation Replacement - 2019			
Four Corners Participant Project	Rev FC19-11	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC19-11	Env Code: N/A	ERF Completed: Yes
In 2019 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 06 Mar 2019

**Description:** Replace Unit 4 windbox lagging and insulation.

**Purpose/Necessity:** The purpose of this project is to maintain a safe plant work environment by eliminating potential hazards. When insulation and lagging deteriorates, hazards such as falling debris and hot surfaces are present. Replacing deteriorated insulation and lagging will reduce exposure to these hazards.

**Consequences of Delay:** If not replaced, personnel may come in contact with hot surfaces or may be struck by falling debris.

**Economic Justification:**

Benefit-Cost NPV: 0 MS  
Budget Category: SAFETY

Cash Flow - 2019							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$118,000	May	\$0	Aug	\$0	Nov	\$0
Mar	\$382,000	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2019	\$500,000	2020	\$0	After	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$200,000	
Removals	\$20,000	
Non-Itemized Additions	\$280,000	
Specific Cost	\$500,000	
Overhead Loads	\$0	
CBI Total	\$500,000	
Retirements	\$0	

Approvals				
		E&O Committee <input checked="" type="checkbox"/> Coordinating Committee <input type="checkbox"/>		
APS	63.00%	\$314,880	<i>Sayah Kitt</i>	Date 10/10/18
NTEC	7.00%	\$34,987	<i>[Signature]</i>	Date 10/10/18
PNM	13.00%	\$64,975	<i>[Signature]</i>	Date 10/10/18
SRP	10.0%	\$49,981	<i>[Signature]</i>	Date 10/10/18
TEP	7.00%	\$34,987	<i>[Signature]</i>	Date 10-10-18


FCC012907 Windbox Lagging & Insulation Replacement - 2019							
Four Corners Participant Project		Rev FC19-12		0% Enviro.		NSR Completed: Yes	
FC Unit 5		CBI: FC19-12		Env Code: N/A		ERF Completed: Yes	
In 2019 Budget: Yes		Plant Acct: 131100		Est Removal:		Est In Svc: 27 Mar 2019	
<b>Description:</b> Replace unit 5 windbox lagging and insulation.							
<b>Purpose/Necessity:</b> The purpose of this project is to maintain a safe plant work environment by eliminating potential hazards. When insulation and lagging deteriorates hazards such as falling debris and hot surfaces are present. Replacing deteriorated insulation and lagging will reduce exposure to these hazards.							
<b>Consequences of Delay:</b> If not replaced, personnel may come in contact with hot surfaces or may be struck by falling debris.							
<b>Economic Justification:</b>							
Benefit-Cost NPV:		0 M\$					
Budget Category:		SAFETY					
Cash Flow - 2019							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$117,000	May	\$0	Aug	\$0	Nov	\$0
Mar	\$382,000	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	<b>\$0</b>	<b>2019</b>	<b>\$500,000</b>	<b>2020</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>
Cost Summary							
	Current Amount			Revised Amount			
RU Materials			\$200,000				
Removals			\$20,000				
Non-Itemized Additions			\$280,000				
Specific Cost			\$500,000				
Overhead Loads			\$0				
<b>CBI Total</b>			<b>\$500,000</b>				
Retirements			\$0				
Approvals							
				E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>		
APS		63.00%	\$314,768	<i>[Signature]</i>	Date	10/10/18	
NTEC		7.00%	\$34,974	<i>[Signature]</i>	Date	10/10/18	
PNM		13.00%	\$64,952	<i>[Signature]</i>	Date	10/10/18	
SRP		10.0%	\$49,963	<i>[Signature]</i>	Date	10/10/18	
TEP		7.00%	\$34,974	<i>[Signature]</i>	Date	10-10-18	

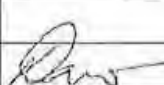
PCC012935 Fly Ash Level Indicator Replacement							
Four Corners Participant Project		Rev FC19-14		100% Enviro.		NSR Completed: Yes	
FC Unit 5		CBI: FC19-14		Env Code: Air		ERF Completed: Yes	
In 2019 Budget: Yes		Plant Acct: 131200		Est Removal:		Est In Svc: 11 Apr 2020	
<p><b>Description:</b> Replace level indication system on the fly ash bin.</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to maintain environmental compliance with the Title V air permit. The existing level indication system has reached the end of useful life and is not functioning thus requiring the bin level verification to be performed visually by operations personnel.</p> <p><b>Consequences of Delay:</b> Overfilling the fly ash bin could result in an unmitigated discharge of fly ash.</p> <p><b>Economic Justification:</b> Budget Category: ENV</p>							
Cash Flow - 2019							
Jan	\$31,000	Apr	\$38,000	Jul	\$23,000	Oct	\$14,000
Feb	\$4,000	May	\$33,000	Aug	\$17,000	Nov	\$6,000
Mar	\$23,000	Jun	\$23,000	Sep	\$22,000	Dec	\$6,000
Prior	\$0	2019	\$239,000	2020	\$206,000	After	\$0
Cost Summary							
	Current Amount			Revised Amount			
RU Materials			\$48,000				
Removals			\$10,000				
(Salvage)			\$0				
Non-Itemized Additions			\$382,000				
Specific Cost			\$440,000				
Overhead Loads			\$5,000				
CBI Total			\$445,000				
Retirements			\$0				
Approvals							
				E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
APS		63.00%	\$280,355	Sarah Kist		1/30/19 Date	
NTEC		7.00%	\$31,151	[Signature]		1/29/19 Date	
PNM		13.00%	\$57,851			Date	
SRP		10.0%	\$44,501			Date	
TEP		7.00%	\$31,151			Date	

FCC012935 Fly Ash Level Indicator Replacement			
Four Corners Participant Project	Rev FC19-14	100% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC19-14	Env Code: Air	ERF Completed: Yes
In 2019 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 11 Apr 2020
<b>Description:</b> Replace level indication system on the fly ash bin.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain environmental compliance with the Title V air permit. The existing level indication system has reached the end of useful life and is not functioning thus requiring the bin level verification to be performed visually by operations personnel.			
<b>Consequences of Delay:</b> Overfilling the fly ash bin could result in an unmitigated discharge of fly ash.			
<b>Economic Justification:</b>			
Budget Category: ENV			

Cash Flow - 2019							
Jan	\$31,000	Apr	\$38,000	Jul	\$21,000	Oct	\$14,000
Feb	\$4,000	May	\$33,000	Aug	\$17,000	Nov	\$6,000
Mar	\$23,000	Jun	\$23,000	Sep	\$22,000	Dec	\$6,000
Prior	\$0	2019	\$239,000	2020	\$206,000	After	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$48,000	
Removals	\$10,000	
(Salvage)	\$0	
Non-Itemized Additions	\$382,000	
Specific Cost	\$040,000	
Overhead Loads	\$5,000	
CBI Total	\$445,000	
Retirements	\$0	

Approvals				
			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$280,355		Date
NTEC	7.00%	\$31,151		Date
PNM	13.00%	\$57,851		Date 11-8-2019
SRP	10.0%	\$44,501		Date
TEP	7.00%	\$31,151		Date

FCC012935 Fly Ash Level Indicator Replacement							
Four Corners Participant Project		Rev FC19-14		100% Enviro.		NSR Completed: Yes	
FC Unit 5		CBI: FC19-14		Env Code: Air		ERF Completed: Yes	
In 2019 Budget: Yes		Plant Acct: 131200		Est Removal:		Est In Svc: 11 Apr 2020	
<p>Description: Replace level indication system on the fly ash bin.</p> <p>Purpose/Necessity: The purpose of this project is to maintain environmental compliance with the Title V air permit. The existing level indication system has reached the end of useful life and is not functioning thus requiring the bin level verification to be performed visually by operations personnel.</p> <p>Consequences of Delay: Overfilling the fly ash bin could result in an unmitigated discharge of fly ash.</p> <p>Economic Justification: Budget Category: ENV</p>							
Cash Flow - 2019							
Jan	\$31,000	Apr	\$38,000	Jul	\$23,000	Oct	\$14,000
Feb	\$1,000	May	\$33,000	Aug	\$17,000	Nov	\$6,000
Mar	\$23,000	Jun	\$23,000	Sep	\$22,000	Dec	\$6,000
Prior	\$0	2019	\$239,000	2020	\$206,000	After	\$0
Cost Summary							
	Current Amount			Revised Amount			
RU Materials	\$48,000						
Removals	\$10,000						
(Salvage)	\$0						
Non-Itemized Additions	\$382,000						
Specific Cost	\$140,000						
Overhead Loads	\$5,000						
CBI Total	\$445,000						
Retirements	\$0						
Approvals							
				E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
APS	63.00%	\$280,355			Date		
NTEC	7.00%	\$31,151			Date		
PNM	13.00%	\$57,851			Date		
SRP	10.0%	\$44,501			Date 1-25-19		
TEP	7.00%	\$31,151			Date		



FCC012935 Fly Ash Level Indicator Replacement							
Four Corners Participant Project		Rev FC19-14		100% Enviro.		NSR Completed: Yes	
PC Unit 5		CBI: FC19-14		Env Code: Air		ERF Completed: Yes	
In 2019 Budget: Yes		Plant Acct: 131200		Est Removal:		Est In Svc: 11 Apr 2020	
<p><b>Description:</b> Replace level indication system on the fly ash bin.</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to maintain environmental compliance with the Title V air permit. The existing level indication system has reached the end of useful life and is not functioning thus requiring the bin level verification to be performed visually by operations personnel.</p> <p><b>Consequences of Delay:</b> Overfilling the fly ash bin could result in an unmitigated discharge of fly ash.</p> <p><b>Economic Justification:</b> Budget Category: ENV</p>							
Cash Flow - 2019							
Jan	\$31,000	Apr	\$38,000	Jul	\$23,000	Oct	\$14,000
Feb	\$4,000	May	\$33,000	Aug	\$17,000	Nov	\$6,000
Mar	\$23,000	Jun	\$23,000	Sep	\$22,000	Dec	\$6,000
Prior	\$0	2019	\$239,000	2020	\$206,000	After	\$0
Cost Summary							
	Current Amount			Revised Amount			
RU Materials	\$48,000						
Removals	\$10,000						
(Salvage)	\$0						
Non-Itemized Additions	\$382,000						
Specific Cost	\$440,000						
Overhead Loads	\$5,000						
CBI Total	\$445,000						
Retirements	\$0						
Approvals							
				E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
APS	63.00%	\$280,355			Date		
NTEC	7.00%	\$31,151			Date		
PNM	13.00%	\$57,851			Date		
SRP	10.0%	\$44,501			Date		
TEP	7.00%	\$31,151			Date		
				<i>JCB</i>		12-26-18	

FCC012939 Boiler Feedwater Miniflow Piping Replacement			
Four Corners Participant Project	Rev FC19-16	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC19-16	Env Code: N/A	ERF Completed: Yes
In 2019 Budget: Yes	Plant Acct: 131600	Est Removal:	Est In Svc: 11 Apr 2020
<p><b>Description:</b> Replace four (4) 4 inch minimum flow boiler feedwater lines from the branch connection off the main feedwater header to the condenser. Piping will include new piping components including control valves, stop valves, instrumentation and orifice plates.</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to maintain unit reliability of the boiler feedwater system. The components of this system have reached end of useful life. Completing this project by replacing the minimum flow lines would allow the boiler feedwater pumps to operate within their design constraints necessary to continue the smooth start-up operation of the unit. Piping design will incorporate adequate design to address flow accelerated corrosion and 2-phase flow beyond the control valve.</p> <p><b>Consequences of Delay:</b> Economic justification assumes 30% probability of 100% load loss for 3 days to replace failed sections of piping.</p> <p><b>Economic Justification:</b>            Benefit-Cost NPV: 1.90 M\$            Budget Category: REL</p>			

Cash Flow - 2019							
Jan	\$59,000	Apr	\$64,000	Jul	\$72,000	Oct	\$9,000
Feb	\$52,000	May	\$72,000	Aug	\$47,000	Nov	\$4,000
Mar	\$59,000	Jun	\$346,000	Sep	\$9,000	Dec	\$4,000
Prior	\$0	2019	\$796,000	2020	\$1,169,000	After	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$249,000	
Removals	\$200,000	
Non-Itemized Additions	\$1,509,000	
Specific Cost	\$1,958,000	
Overhead Loads	\$7,000	
<b>CBI Total</b>	<b>\$1,965,000</b>	
Retirements	\$0	

Approvals				
			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$1,238,103	Sarah Krist	Date 10/10/18
NTEC	7.00%	\$137,567	<i>[Signature]</i>	Date 10/10/18
PNM	13.00%	\$255,482	<i>[Signature]</i>	Date 10/10/18
SRP	10.0%	\$196,524	<i>[Signature]</i>	Date 10/10/18
TEP	7.00%	\$137,567	<i>[Signature]</i>	Date 10-10-18

FCC013136 Intake Chemical Injection Tank Replacement			
Four Corners Participant Project	Rev FC19-18	100% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC19-18	Env Code: Water	ERF Completed: Yes
In 2019 Budget: Yes	Plant Acct: 131100	Est Removal:	Est In Svc: 15 May 2020

**Description:** Replace the existing intake chemical injection tank with a larger tank with a minimum capacity of 6,000 gallons. Replace the existing chemical metering pump skid with a new pump skid and enclosure.

**Purpose/Necessity:** The purpose of this project is to maintain environmental compliance and reduce the risk of spilling of chemicals into the intake canal. This project also reduces the safety risk to plant personnel by eliminating multiple handling points for the chemical. Replacement of the existing chemical metering pumps, pump skid, enclosure, and injection piping is necessary as the existing components have reached the end of their useful life.

**Consequences of Delay:** Any chemical spill into the intake canal will result in a Recordable Environmental Incident. Possible safety risk posed by multiple handling of the chemical by operating personnel. Inability to inject chemical into the intake results in increased fouling of the condenser tubes and consequently results in loss of heat transfer and loss of efficiency.

**Economic Justification:**  
Benefit-Cost NPV: 0 M\$  
Budget Category: ENV PRG

Cash Flow - 2019							
Jan	\$3,000	Apr	\$40,000	Jul	\$40,000	Oct	\$15,000
Feb	\$34,000	May	\$33,000	Aug	\$21,000	Nov	\$15,000
Mar	\$47,000	Jun	\$33,000	Sep	\$40,000	Dec	\$15,000
Prior	\$0	2019	\$337,000	2020	\$433,000	After	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materails	\$100,000	
Removals	\$0	
Non-Itemized Additions	\$662,000	
Specific Cost	\$762,000	
Overhead Loads	\$9,000	
CBI Total	\$771,000	
Retirements	\$0	

Approvals				
		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$485,710	Sarah Kist	Date 10/10/18
NTEC	7.00%	\$53,968	<i>[Signature]</i>	Date 10/10/18
PNM	13.00%	\$100,226	<i>[Signature]</i>	Date 10/10/18
SRP	10.0%	\$77,097	<i>[Signature]</i>	Date 10/10/18
TEP	7.00%	\$53,968	<i>[Signature]</i>	Date 10-10-18

FCC013925 Reserve and Center Breaker Replacement			
Four Corners Participant Project	Rev FC19-22	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC19-22	Env Code: N/A	ERF Completed: Yes
In 2019 Budget: Yes	Plant Acct: 131500	Est Removal:	Est In Svc: 11 Apr 2020
<p><b>Description:</b> Replace seven (7) 4160V circuit breakers, five (5) on Reserve Center bus, one (1) on Unit 5 Center bus, and one (1) on Unit 4 Center bus. Replace thirteen (13) 480V circuit breakers, eleven (11) on 480V Reserve Bus, one (1) Unit 5 Reserve Bus Tie, and one (1) Unit 4 Reserve Bus Tie. Install transient voltage snubbers on the Reserve Station Service transformer and the Standby Station Lighting Transformer.</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to maintain unit reliability by replacing obsolete, aging breakers with new circuit breakers. Existing breakers are obsolete and are approaching end of useful life.</p> <p><b>Consequences of Delay:</b> Potential 5 day forced unit outage due to existing circuit breaker failure. Economic justification assumes 25% probability of circuit breaker failure resulting in a 5 day outage</p> <p><b>Economic Justification:</b> Benefit-Cost NPV: 3.00 M\$ Budget Category: REL</p>			

Cash Flow - 2019							
Jan	\$13,000	Apr	\$22,000	Jul	\$22,000	Oct	\$10,000
Feb	\$48,000	May	\$17,000	Aug	\$21,000	Nov	\$10,000
Mar	\$17,000	Jun	\$19,000	Sep	\$13,000	Dec	\$6,000
<b>Prior</b>	<b>\$0</b>	<b>2019</b>	<b>\$218,000</b>	<b>2020</b>	<b>\$1,000,000</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$297,000	
Removals	\$125,000	
Non-Itemized Additions	\$782,000	
Specific Cost	\$1,204,000	
Overhead Loads	\$14,000	
<b>CBI Total</b>	<b>\$1,218,000</b>	
Retirements	\$0	

Approvals				
		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$767,555	<i>Samuel Kist</i>	Date 10/10/18
NTEC	7.00%	\$85,284	<i>[Signature]</i>	Date 10/10/18
PNM	13.00%	\$158,384	<i>[Signature]</i>	Date 10/10/18
SRP	10.0%	\$121,834	<i>[Signature]</i>	Date 10/10/18
TEP	7.00%	\$85,284	<i>[Signature]</i>	Date 10-10-18

FCC014266 2nd Stage Secondary Superheater Replacement			
Four Corners Participant Project	Rev FC19-24	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC19-24	Env Code: N/A	ERF Completed: Yes
In 2019 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 11 Apr 2020

**Description:** Replace (in kind) the 2nd Stage Secondary Superheater.

**Purpose/Necessity:** The purpose of this project is to maintain Unit reliability. Equipment is original from the OEM (Babcock and Wilcox) and has been in operation since 1970. Overheating of the secondary superheater has been experienced due to internal exfoliation of the tubes which blocks the bottom of the loops, resulting in tube failures and forced outages.

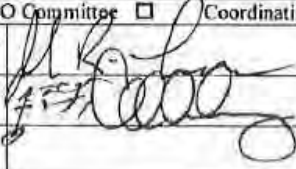
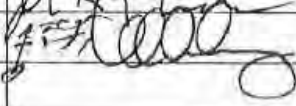
**Consequences of Delay:** Potential 10-day forced outage, at a minimum, to repair tube leak. Delayed replacement of the 2nd stage secondary superheater presents an increased risk of a tube leak resulting in a forced outage.

**Economic Justification:**

Benefit-Cost NPV: 14.00 M\$  
Budget Category: REL

Cash Flow - 2019							
Jan	\$477,000	Apr	\$25,000	Jul	\$9,000	Oct	\$16,000
Feb	\$17,000	May	\$39,000	Aug	\$9,000	Nov	\$16,000
Mar	\$1,278,000	Jun	\$9,000	Sep	\$9,000	Dec	\$93,000
Prior	\$0	2019	\$1,995,000	2020	\$7,800,000	After	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$3,500,000	
Removals	\$205,000	
Non-Itemized Additions	\$6,066,000	
Specific Cost	\$9,771,000	
Overhead Loads	\$24,000	
CBI Total	\$9,795,000	
Retirements	\$0	

Approvals				
Exhibit: ACD		E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>	
APS	63.00%	\$6,170,856		Date: 1/25/19
NTEC	7.00%	\$685,651		Date: 1/21/19
PNM	13.00%	\$1,273,351		Date:
SRP	10.0%	\$979,501		Date:
TEP	7.00%	\$685,651		Date:

FCC014266 2nd Stage Secondary Superheater Replacement							
Four Corners Participant Project	Rev FC19-24	0% Enviro.	NSR Completed: Yes				
FC Unit 5	CBI: FC19-24	Env Code: N/A	ERF Completed: Yes				
In 2019 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 11 Apr 2020				
<b>Description:</b> Replace (in kind) the 2nd Stage Secondary Superheater.							
<b>Purpose/Necessity:</b> The purpose of this project is to maintain Unit reliability. Equipment is original from the OEM (Babcock and Wilcox) and has been in operation since 1970. Overheating of the secondary superheater has been experienced due to internal exfoliation of the tubes which blocks the bottom of the loops, resulting in tube failures and forced outages.							
<b>Consequences of Delay:</b> Potential 10-day forced outage, at a minimum, to repair tube leak. Delayed replacement of the 2nd stage secondary superheater presents an increased risk of a tube leak resulting in a forced outage.							
<b>Economic Justification:</b>							
Benefit-Cost NPV:		14.00 M\$					
Budget Category:		REL					
<b>Cash Flow - 2019</b>							
Jan	\$477,000	Apr	\$25,000	Jul	\$9,000	Oct	\$16,000
Feb	\$17,000	May	\$39,000	Aug	\$9,000	Nov	\$16,000
Mar	\$1,278,000	Jun	\$9,000	Sep	\$9,000	Dec	\$93,000
<b>Prior</b>	<b>\$0</b>	<b>2019</b>	<b>\$1,995,000</b>	<b>2020</b>	<b>\$7,800,000</b>	<b>After</b>	<b>\$0</b>
<b>Cost Summary</b>							
	<b>Current Amount</b>			<b>Revised Amount</b>			
RU Materials	\$3,500,000						
Removals	\$205,000						
Non-Itemized Additions	\$6,066,000						
Specific Cost	\$9,771,000						
Overhead Loads	\$24,000						
CBI Total	\$9,795,000						
Retirements	\$0						
<b>Approvals</b>							
Exhibit: ACD		E&O Committee <input type="checkbox"/>			Coordinating Committee <input checked="" type="checkbox"/>		
APS	63.00%	\$6,170,856	Date				
NTEC	7.00%	\$685,651	Date				
PNM	13.00%	\$1,273,351	Date				
SRP	10.0%	\$979,501	Date				
TEP	7.00%	\$685,651	Date				

*X 209* 10/17/2018

PCC014266 2nd Stage Secondary Superheater Replacement							
Four Corners Participant Project		Rev FC19-24		0% Enviro.		NSR Completed: Yes	
FC Unit 5		CBI: FC19-24		Env Code: N/A		ERF Completed: Yes	
In 2019 Budget: Yes		Plant Acct: 131200		Est Removal:		Est In Svc: 11 Apr 2020	
<p><b>Description:</b> Replace (in kind) the 2nd Stage Secondary Superheater.</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to maintain Unit reliability. Equipment is original from the OEM (Babcock and Wilcox) and has been in operation since 1970. Overheating of the secondary superheater has been experienced due to internal exfoliation of the tubes which blocks the bottom of the loops, resulting in tube failures and forced outages.</p> <p><b>Consequences of Delay:</b> Potential 10-day forced outage, at a minimum, to repair tube leak. Delayed replacement of the 2nd stage secondary superheater presents an increased risk of a tube leak resulting in a forced outage.</p> <p><b>Economic Justification:</b>            Benefit-Cost NPV: 14.00 M\$            Budget Category: REL</p>							
Cash Flow - 2019							
Jan	\$477,000	Apr	\$25,000	Jul	\$9,000	Oct	\$16,000
Feb	\$17,000	May	\$39,000	Aug	\$9,000	Nov	\$16,000
Mar	\$1,278,000	Jun	\$9,000	Sep	\$9,000	Dec	\$93,000
<b>Prior</b>	<b>\$0</b>	<b>2019</b>	<b>\$1,995,000</b>	<b>2020</b>	<b>\$7,800,000</b>	<b>After</b>	<b>\$0</b>
Cost Summary							
			Current Amount			Revised Amount	
RU Materials				\$3,500,000			
Removals				\$205,000			
Non-Itemized Additions				\$6,066,000			
Specific Cost				\$9,771,000			
Overhead Loads				\$24,000			
CBI Total				\$9,795,000			
Retirements				\$0			
Approvals							
Exhibit: ACD				E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
APS		63.00%		\$6,170,856			Date
NTEC		7.00%		\$685,651			Date
PNM		13.00%		\$1,273,351			Date
SRP		10.0%		\$979,501			Date
TEP		7.00%		\$685,651			Date
					L.H. RAU		11-6-2018

FCC014266 2nd Stage Secondary Superheater Replacement			
Four Corners Participant Project	Rev FC19-24	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC19-24	Env Code: N/A	ERF Completed: Yes
In 2019 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 11 Apr 2020

**Description:** Replace (in kind) the 2nd Stage Secondary Superheater.

**Purpose/Necessity:** The purpose of this project is to maintain Unit reliability. Equipment is original from the OEM (Babcock and Wilcox) and has been in operation since 1970. Overheating of the secondary superheater has been experienced due to internal exfoliation of the tubes which blocks the bottom of the loops, resulting in tube failures and forced outages.

**Consequences of Delay:** Potential 10-day forced outage, at a minimum, to repair tube leak. Delayed replacement of the 2nd stage secondary superheater presents an increased risk of a tube leak resulting in a forced outage.

**Economic Justification:**

Benefit-Cost NPV: 14.00 MS  
Budget Category: REL

Cash Flow - 2019							
Jan	\$477,000	Apr	\$25,000	Jul	\$9,000	Oct	\$16,000
Feb	\$17,000	May	\$39,000	Aug	\$9,000	Nov	\$16,000
Mar	\$1,278,000	Jun	\$9,000	Sep	\$9,000	Dec	\$93,000
<b>Prior</b>	<b>\$0</b>	<b>2019</b>	<b>\$1,995,000</b>	<b>2020</b>	<b>\$7,800,000</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$3,500,000	
Removals	\$205,000	
Non-Itemized Additions	\$6,066,000	
Specific Cost	\$9,771,000	
Overhead Loads	\$24,000	
<b>CBI Total</b>	<b>\$9,795,000</b>	
Retirements	\$0	

Approvals			
Exhibit: ACD		E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
APS	63.00%	\$6,170,856	Date
NTEC	7.00%	\$685,651	Date
PNM	13.00%	\$1,273,351	Date
SRP	10.0%	\$979,501	Date
TEP	7.00%	\$685,651	Date 10/16/18


*[Handwritten Signature]*  
Date 10/16/18



FCC06573 SCR Catalyst Replacement 2020			
Four Corners Participant Project	Rev FC19-27	100% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC19-27	Env Code: Air	ERF Completed: Yes
In 2019 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 11 Apr 2020
<b>Description:</b> Install one (1) new layer of catalyst material in each of the two Unit 5 Selective Catalytic Reduction (SCR) reactors.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain compliance with Title V permitted NOx emission limits. SCR catalyst activity decays over time resulting in reduced NOx removal rates. Increased ammonia injection can offset the reduced catalyst activity resulting in increased ammonia slip from the system. Installation of the spare layer of SCR catalyst material will provide additional catalyst surface area to maintain the permitted NOx emission rate without exceeding the permitted ammonia slip concentration.			
<b>Consequences of Delay:</b> Non-compliance with the plants title V permit due to reduced NOx removal rate and increased ammonia slip.			
<b>Economic Justification:</b>			
Benefit-Cost NPV	0 M\$		
Budget Category:	ENV		

Cash Flow - 2019							
Jan	\$6,000	Apr	\$362,000	Jul	\$13,000	Oct	\$355,000
Feb	\$18,000	May	\$12,000	Aug	\$7,000	Nov	\$5,000
Mar	\$31,000	Jun	\$10,000	Sep	\$8,000	Dec	\$5,000
Prior	\$0	2019	\$831,000	2020	\$3,310,000	After	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$2,750,000	
Removals	\$0	
Non-Itemized Additions	\$1,378,000	
Specific Cost	\$4,128,000	
Overhead Loads	\$13,000	
CBI Total	\$4,141,000	
Retirements	\$0	

Approvals				
			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$2,608,638		Date
NTEC	7.00%	\$289,849		Date
PNM	13.00%	\$538,290	 Date <b>11-30-18</b>	Date
SRP	10.0%	\$414,070		Date
TEP	7.00%	\$289,849		Date

FCC06843 Horizontal Reheat Inlet Header Repl			
Four Corners Participant Project	Rev FC19-29	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC19-29	Env Code: N/A	ERF Completed: Yes
In 2019 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 11 Apr 2020

**Description:** Replace (in kind) the horizontal reheat inlet header on the Unit 5 boiler.

**Purpose/Necessity:** The purpose of this project is to maintain Unit reliability. The header has experienced pitting, sagging (approximately 5 inches) due to metal fatigue and is approaching end-of-life.

**Consequences of Delay:** Potential 10-day forced outage, at a minimum, to repair header leak.

**Economic Justification:**

Benefit-Cost NPV: 18.10 M\$  
Budget Category: REL

Cash Flow - 2019							
Jan	\$165,000	Apr	\$25,000	Jul	\$9,000	Oct	\$16,000
Feb	\$17,000	May	\$39,000	Aug	\$9,000	Nov	\$16,000
Mar	\$341,000	Jun	\$9,000	Sep	\$9,000	Dec	\$93,000
<b>Prior</b>	\$0	<b>2019</b>	\$746,000	<b>2020</b>	\$3,156,000	<b>After</b>	\$31,000

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$900,000	
Removals	\$45,000	
Non-Itemized Additions	\$2,933,000	
Specific Cost	\$3,878,000	
Overhead Loads	\$55,000	
<b>CBI Total</b>	<b>\$3,933,000</b>	
Retirements	\$0	

Approvals				
			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$2,477,960	<i>Syrah Kost</i>	Date 10/10/18
NTEC	7.00%	\$275,329	<i>[Signature]</i>	Date 10/10/18
PNM	13.00%	\$511,325	<i>[Signature]</i>	Date 10/10/18
SRP	10.0%	\$393,327	<i>[Signature]</i>	Date 10-10-18
TEP	7.00%	\$275,329	<i>[Signature]</i>	Date 10-10-18

FCC07206 F4 2019 Fabric Filter Bag Replacement			
Four Corners Participant Project	Rev FC19-30	100% Enviro.	NSR Completed: No
FC Unit 4	CBI: FC19-30	Env Code: Air	ERF Completed: Yes
In 2019 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 15 Dec 2019
<b>Description:</b> Replace the fabric filter bags housed in 8 compartments of the Reverse Air Fabric Filter.			
<b>Purpose/Necessity:</b> The purpose of this project is to ensure continued environmental compliance while maintaining unit operational performance in the capture and disposal management of fly ash. The fabric filter bags are approaching the end of their serviceable life and require replacement to ensure continued high efficiency particulate dust capture and removal and compliance with the PM standard defined in the Plant's Title V Permit.			
<b>Consequences of Delay:</b> Non-compliance with the PM standard defined in the Plant's Title V Permit, resulting in Unit de-rate and Unit shutdown.			
<b>Economic Justification:</b>			
Benefit-Cost NPV: 0 M\$			
Budget Category: ENV			

Cash Flow - 2019							
Jan	\$690,000	Apr	\$12,000	Jul	\$0	Oct	\$0
Feb	\$214,000	May	\$1,000	Aug	\$0	Nov	\$0
Mar	\$211,000	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	<b>\$5,000</b>	<b>2019</b>	<b>\$1,130,000</b>	<b>2020</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$560,000	
Removals	\$99,000	
Non-Itemized Additions	\$458,000	
Specific Cost	\$1,117,000	
Overhead Loads	\$13,000	
<b>CBI Total</b>	<b>\$1,130,000</b>	
Retirements	\$0	

Approvals				
			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$714,717	Sarah Kist	Date 10/10/18
NTEC	7.00%	\$79,413	<i>[Signature]</i>	Date 10/10/18
PNM	13.00%	\$147,481	<i>[Signature]</i>	Date 10/19/18
SRP	10.0%	\$113,447	<i>[Signature]</i>	Date 10/10/18
TEP	7.00%	\$79,413	<i>[Signature]</i>	Date 10-10-18

FCC07207 F5 2019 Fabric Filter Bag Replacement			
Four Corners Participant Project	Rev FC19-31	100% Enviro.	NSR Completed: No
FC Unit 5	CBI: FC19-31	Env Code: Air	ERF Completed: Yes
In 2019 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 15 Dec 2019
<b>Description:</b> Replace the fabric filter bags housed in 8 compartments of the Reverse Air Fabric Filter.			
<b>Purpose/Necessity:</b> The purpose of this project is to ensure continued environmental compliance while maintaining unit operational performance in the capture and disposal management of fly ash. The fabric filter bags are approaching the end of their serviceable life and require replacement to ensure continued high efficiency particulate dust capture and removal and compliance with the PM standard defined in the Plant's Title V Permit.			
<b>Consequences of Delay:</b> Non-compliance with the PM standard defined in the Plant's Title V Permit, resulting in Unit de-rate and Unit shutdown.			
<b>Economic Justification:</b>			
Benefit-Cost NPV: 0 M\$			
Budget Category: ENV			

Cash Flow - 2019							
Jan	\$676,000	Apr	\$210,000	Jul	\$0	Oct	\$0
Feb	\$22,000	May	\$6,000	Aug	\$0	Nov	\$0
Mar	\$214,000	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$5,000	2019	\$1,130,000	2020	\$0	After	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$560,000	
Removals	\$99,000	
Non-Itemized Additions	\$458,000	
Specific Cost	\$1,117,000	
Overhead Loads	\$13,000	
CBI Total	\$1,130,000	
Retirements	\$0	

Approvals			
		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$714,717	Date <i>Search Kit</i> 10/20/18
NTEC	7.00%	\$79,413	Date <i>[Signature]</i> 10/10/18
PNM	13.00%	\$147,481	Date <i>[Signature]</i> 10/10/18
SRP	10.0%	\$113,447	Date <i>[Signature]</i> 10/10/18
TEP	7.00%	\$79,413	Date <i>[Signature]</i> 10-10-18

FCC07960 Phase 4 Water Piping Replacement			
Four Corners Participant Project	Rev FC19-34	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC19-34	Env Code: N/A	ERF Completed: Yes
In 2019 Budget: Yes	Plant Acct: 131600	Est Removal:	Est In Svc: 11Apr 2020
<p><b>Description:</b> Replace all potable, service, SO2 make-up water and firewater piping below grade mains and above grade headers in the areas of the Unit 4 and Unit 5 SO2 pipe rack, scrubber buildings and lime processes building, including loop and branch isolation valves. All existing below-grade piping will be capped and abandoned in place and all existing above-grade piping will be demolished.</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to maintain reliability of safety-critical systems (Potable, Service, SO2 Make-up water and Firewater systems) through replacement of degraded water piping and to maintain compliance with OSHA standard 1910.151 and ANSI Z358.1. Replacement of the water piping will reduce the probability of system outages caused by main breaks in degraded piping systems.</p> <p><b>Consequences of Delay:</b> Failure of firewater piping system during a fire event could result in more extensive damage to equipment and/or elevated safety risk to personnel. Failure of potable water piping could result in increased risk to personnel safety and health of employees. Failure of service water piping could result in increased risk to unit reliability and increased risk to personnel safety and health of employees. Failure of below-grade water piping could impact plant accessibility due to the need to excavate below main entrance drives to make repairs. There was an average of 9 potable water outages between 2012 -2014 this promoted the phased water replacement projects and the number of outages has decreased for each service after each phase.</p> <p><b>Economic Justification:</b> Benefit-Cost NPV: 0 MS Budget Category: SAFETY</p>			

Cash Flow - 2019							
Jan	\$57,000	Apr	\$85,000	Jul	\$107,000	Oct	\$208,000
Feb	\$55,000	May	\$107,000	Aug	\$66,000	Nov	\$160,000
Mar	\$67,000	Jun	\$91,000	Sep	\$42,000	Dec	\$156,000
Prior	\$0	2019	\$1,200,000	2020	\$2,979,000	After	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials		\$340,000
Removals		\$500,000
Non-Itemized Additions		\$3,336,000
Specific Cost		\$4,176,000
Overhead Loads		\$4,000
CBI Total		\$4,179,000
Retirements		\$0

Approvals				
			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$2,632,822	<i>Sarah Kost</i>	Date 10/10/18
NTEC	7.00%	\$292,536	<i>[Signature]</i>	Date 10/10/18
PNM	13.00%	\$543,281	<i>[Signature]</i>	Date 10/10/18
SRP	10.0%	\$417,908	<i>[Signature]</i>	Date 10/10/18
TEP	7.00%	\$292,536	<i>[Signature]</i>	Date 10-10-18

FCC08278 2019 Baghouse Lagging and Insulation Replacement			
Four Corners Participant Project	Rev FC19-39	100% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC19-39	Env Code: Air	ERF Completed: Yes
In 2019 Budget: Yes	Plant Acct: 131100	Est Removal:	Est In Svc: 13 Dec 2019
<b>Description:</b> Replace lagging and insulation on the Unit 4 baghouse.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain a safe plant work environment by eliminating potential hazards. These replacements are intended to reduce the hazards that exist when lagging and insulation are loose creating potential unsafe conditions for plant personnel and equipment.			
<b>Consequences of Delay:</b> Potential unsafe conditions for plant personnel and equipment.			
<b>Economic Justification:</b>			
Benefit-Cost NPV: 0 M\$			
Budget Category: SAFETY			

Cash Flow - 2019							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$5,000	May	\$0	Aug	\$0	Nov	\$0
Mar	\$119,000	Jun	\$118,000	Sep	\$108,000	Dec	\$0
Prior	\$0	2019	\$350,000	2020	\$0	After	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$313,000	
Removals	\$37,000	
Non-Itemized Additions	\$0	
Specific Cost	\$350,000	
Overhead Loads	\$0	
CBI Total	\$350,000	
Retirements	\$0	

Approvals				
			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$220,465	Sarah King	Date 10/10/18
NTEC	7.00%	\$24,496	<i>[Signature]</i>	Date 10/10/18
PNM	13.00%	\$45,493	<i>[Signature]</i>	Date 10/10/18
SRP	10.0%	\$34,994	<i>[Signature]</i>	Date 10/10/18
TGP	7.00%	\$24,496	<i>[Signature]</i>	Date 10-10-18

FCC08288 2019 Baghouse Lagging and Insulation Replacement			
Four Corners Participant Project	Rev FC19-40	100% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC19-40	Env Code: Air	ERF Completed: Yes
In 2019 Budget: Yes	Plant Acct: 131100	Est Removal:	Est In Svc: 13 Dec 2019
<b>Description:</b> Replace lagging and insulation on the Unit 5 baghouse.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain a safe plant work environment by eliminating potential hazards. These replacements are intended to reduce the hazards that exist when lagging and insulation are loose creating potential unsafe conditions for plant personnel and equipment.			
<b>Consequences of Delay:</b> Potential unsafe conditions for plant personnel and equipment.			
<b>Economic Justification:</b>			
Benefit-Cost NPV: 0 M\$			
Budget Category: SAFETY			

Cash Flow - 2019							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$5,000	May	\$0	Aug	\$0	Nov	\$0
Mar	\$119,000	Jun	\$118,000	Sep	\$108,000	Dec	\$0
<b>Prior</b>	<b>\$0</b>	<b>2019</b>	<b>\$350,000</b>	<b>2020</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

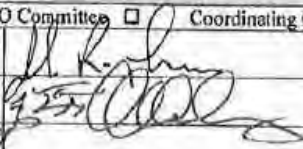
Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$313,000	
Removals	\$37,000	
Non-Itemized Additions	\$0	
Specific Cost	\$350,000	
Overhead Loads	\$0	
<b>CBI Total</b>	<b>\$350,000</b>	
Retirements	\$0	

Approvals				
			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$220,593	Sawchuk <i>[Signature]</i>	Date 10/10/18
NTEC	7.00%	\$24,510	<i>[Signature]</i>	Date 10/10/18
PNM	13.00%	\$45,519	<i>[Signature]</i>	Date 10/10/18
SRP	10.0%	\$35,015	<i>[Signature]</i>	Date 10/10/18
TEP	7.00%	\$24,510	<i>[Signature]</i>	Date 10-10-18

FCC08529 Full Horizontal Reheat Bank Replacement			
Four Corners Participant Project	Rev FC19-47	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC19-47	Env Code: N/A	ERF Completed: Yes
In 2019 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 11 Apr 2020
<b>Description:</b> Replace (in kind) the horizontal reheat inlet, intermediate, and connecting banks of the boiler. Erosion-resistant coating to be installed for purposes of extending tube life.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain Unit reliability. High ash loading and velocity have resulted in severe erosion of the horizontal reheater, resulting in tube failures and forced outages.			
<b>Consequences of Delay:</b> Potential 10-day forced outage, at a minimum, to repair tube leak. Delayed replacement of the horizontal reheater presents an increased risk of a tube leak resulting in a forced outage, as weld buildup and tube shielding places the tubing in a slightly more vulnerable state than replacement with new tubing.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:		8.20 M\$	
Budget Category:		REL.	

Cash Flow - 2019							
Jan	\$1,041,000	Apr	\$25,000	Jul	\$9,000	Oct	\$16,000
Feb	\$17,000	May	\$39,000	Aug	\$9,000	Nov	\$16,000
Mar	\$2,971,000	Jun	\$9,000	Sep	\$129,000	Dec	\$93,000
Prior	\$0	2019	\$4,372,000	2020	\$13,580,000	After	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$8,200,000	
Removals	\$435,000	
Non-Itemized Additions	\$9,294,000	
Specific Cost	\$17,929,000	
Overhead Loads	\$24,000	
CBI Total	\$17,953,000	
Retirements	\$0	

Approvals				
Exhibit: ACH		E&O Committee <input type="checkbox"/> Coordinating Committee <input checked="" type="checkbox"/>		
APS	63.00%	\$11,310,299		Date 1-25-19
NTEC	7.00%	\$1,256,700		Date 1-24-19
PNM	13.00%	\$2,333,871		Date
SRP	10.0%	\$1,795,286		Date
TEP	7.00%	\$1,256,700		Date



**FCC08529 Full Horizontal Reheat Bank Replacement**

Four Corners Participant Project	Rev FC19-47	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC19-47	Env Code: N/A	ERF Completed: Yes
In 2019 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 11 Apr 2020

**Description:** Replace (in kind) the horizontal reheat inlet, intermediate, and connecting banks of the boiler. Erosion-resistant coating to be installed for purposes of extending tube life.

**Purpose/Necessity:** The purpose of this project is to maintain Unit reliability. High ash loading and velocity have resulted in severe erosion of the horizontal reheater, resulting in tube failures and forced outages.

**Consequences of Delay:** Potential 10-day forced outage, at a minimum, to repair tube leak. Delayed replacement of the horizontal reheater presents an increased risk of a tube leak resulting in a forced outage, as weld buildup and tube shielding places the tubing in a slightly more vulnerable state than replacement with new tubing.

**Economic Justification:**  
Benefit-Cost NPV: 8.20 M\$  
Budget Category: REL

**Cash Flow - 2019**

Jan	\$1,041,000	Apr	\$25,000	Jul	\$9,000	Oct	\$16,000
Feb	\$17,000	May	\$39,000	Aug	\$9,000	Nov	\$16,000
Mar	\$2,971,000	Jun	\$9,000	Sept	\$129,000	Dec	\$93,000
<b>Prior</b>	<b>\$0</b>	<b>2019</b>	<b>\$4,372,000</b>	<b>2020</b>	<b>\$13,580,000</b>	<b>After</b>	<b>\$0</b>

**Cost Summary**

	Current Amount	Revised Amount
RU Materials	\$8,200,000	
Removals	\$435,000	
Non-Itemized Additions	\$9,294,000	
Specific Cost	\$17,929,000	
Overhead Loads	\$24,000	
<b>CBI Total</b>	<b>\$17,953,000</b>	
Retirements	\$0	

**Approvals**

Exhibit	ACH		E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>	
APS	63.00%	\$11,310,299			Date
NTEC	7.00%	\$1,256,700			Date
PNM	13.00%	\$2,333,871			Date
SRP	10.0%	\$1,795,286			Date
TEP	7.00%	\$1,256,700			Date

*[Signature]*  
Date: 10/17/2018

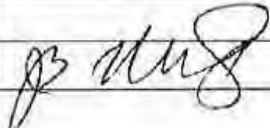


FCC08529 Full Horizontal Reheat Bank Replacement			
Four Corners Participant Project	Rev FC19-47	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC19-47	Env Code: N/A	ERF Completed: Yes
In 2019 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 11 Apr 2020
<p><b>Description:</b> Replace (in kind) the horizontal reheat inlet, intermediate, and connecting banks of the boiler. Erosion-resistant coating to be installed for purposes of extending tube life.</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to maintain Unit reliability. High ash loading and velocity have resulted in severe erosion of the horizontal reheater, resulting in tube failures and forced outages.</p> <p><b>Consequences of Delay:</b> Potential 10-day forced outage, at a minimum, to repair tube leak. Delayed replacement of the horizontal reheater presents an increased risk of a tube leak resulting in a forced outage, as weld buildup and tube shielding places the tubing in a slightly more vulnerable state than replacement with new tubing.</p> <p><b>Economic Justification:</b>            Benefit-Cost NPV: 8.20 MS            Budget Category: REL</p>			

Cash Flow - 2019							
Jan	\$1,041,000	Apr	\$25,000	Jul	\$9,000	Oct	\$16,000
Feb	\$17,000	May	\$39,000	Aug	\$9,000	Nov	\$16,000
Mar	\$2,971,000	Jun	\$9,000	Sep	\$129,000	Dec	\$93,000
<b>Prior</b>	<b>\$0</b>	<b>2019</b>	<b>\$4,372,000</b>	<b>2020</b>	<b>\$13,580,000</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$8,200,000	
Removals	\$435,000	
Non-Itemized Additions	\$9,294,000	
Specific Cost	\$17,929,000	
Overhead Loads	\$24,000	
<b>CBI Total</b>	<b>\$17,953,000</b>	
Retirements	\$0	

Approvals				
Exhibit: ACH		E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>	
APS	63.00%	\$11,310,299		Date
NTEC	7.00%	\$1,256,700		Date
PNM	13.00%	\$2,333,871		Date
SRP	10.0%	\$1,795,286		Date
TEP	7.00%	\$1,256,700		Date

  
 Date 11/16/18

FCC08576 5N FD Fan Motor Replacement			
Four Corners Participant Project	Rev FC19-50	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC19-50	Env Code: N/A	ERF Completed: Yes
In 2019 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 27 Mar 2019
<b>Description:</b> Replacement of the Unit 5 North (5N) Forced Draft (FD) fan motor with an existing spare.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain unit reliability by replacing the FD fan motor. Failure of the FD fan motor will result in an unplanned outage, or unit curtailment. The existing FD fan motor is approaching the end of useful life and requires replacement.			
<b>Consequences of Delay:</b> Reduced combustion air system reliability and subsequent increased risk to unit availability. Potential 5 day forced outage. Economic justification assumes a 20% probability of a 5 day forced outage.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:		0.20 M\$	
Budget Category:		REL	

Cash Flow - 2019							
Jan	\$36,000	Apr	(\$8,000)	Jul	\$0	Oct	\$0
Feb	\$6,000	May	\$1,000	Aug	\$0	Nov	\$0
Mar	\$61,000	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	<b>\$2,000</b>	<b>2019</b>	<b>\$95,000</b>	<b>2020</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$35,000	
Removals	\$15,000	
Non-Itemized Additions	\$44,000	
Specific Cost	\$93,000	
Overhead Loads	\$4,000	
<b>CBI Total</b>	<b>\$97,000</b>	
Retirements	\$0	

Approvals				
		I.&O Committee <input checked="" type="checkbox"/> Coordinating Committee <input type="checkbox"/>		
APS	63.00%	\$61,296	<i>Sarah K...</i>	Date 10/10/18
NTEC	7.00%	\$6,811	<i>...</i>	Date 10/10/18
PNM	13.00%	\$12,648	<i>...</i>	Date 10/10/18
SRP	10.0%	\$9,730	<i>...</i>	Date 10/10/18
TEP	7.00%	\$6,811	<i>...</i>	Date 10-10-18

FCC08579 5S PA Fan Motor Replacement			
Four Corners Participant Project	Rev FC19-51	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC19-51	Env Code: N/A	ERF Completed: Yes
In 2019 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 27 Mar 2019
<b>Description:</b> Replacement of the Unit 5 South (5S) Primary Air (PA) Fan Motor with an existing spare.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain unit reliability by replacing the PA fan motor. Failure of the PA fan motor will result in an unplanned outage, or unit curtailment. The existing PA fan motor is approaching the end of useful life and requires replacement.			
<b>Consequences of Delay:</b> Reduced combustion air system reliability and subsequent increased risk to unit availability, Potential 3 day forced outage, Economic justification assumes a 20% probability of a 3 day forced outage.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:		0.50 M\$	
Budget Category:		REL	

Cash Flow - 2019							
Jan	\$36,000	Apr	\$4,000	Jul	\$0	Oct	\$0
Feb	\$6,000	May	\$1,000	Aug	\$0	Nov	\$0
Mar	\$58,000	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	\$0	<b>2019</b>	\$106,000	<b>2020</b>	\$0	<b>After</b>	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$35,000	
Removals	\$15,000	
Non-Itemized Additions	\$53,000	
Specific Cost	\$103,000	
Overhead Loads	\$3,000	
<b>CBI Total</b>	<b>\$106,000</b>	
Retirements	\$0	

Approvals				
		E&O Committee <input checked="" type="checkbox"/> Coordinating Committee <input type="checkbox"/>		
APS	63.00%	\$66,963		Date <i>Dorothy Kist</i> 10/10/18
NTEC	7.00%	\$7,440		Date <i>[Signature]</i> 10/10/18
PNM	13.00%	\$13,818		Date <i>[Signature]</i> 10/10/18
SRP	10.0%	\$10,629		Date <i>[Signature]</i> 10-10-18
TEP	7.00%	\$7,440		Date <i>[Signature]</i> 10-10-18

FCC08584 Bottom Ash Clinker Grinder Replacement			
Four Corners Participant Project	Rev FC19-52	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC19-52	Env Code: N/A	ERF Completed: Yes
In 2019 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 27 Mar 2019
<b>Description:</b> Replace the complete north, central and south Unit 5 Bottom Ash Clinker Grinders and mixing components, with spare clinker grinders and parts from the warehouse.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain unit reliability by replacing the bottom ash clinker grinders. The existing clinker grinders are approaching the end of serviceable life. Completing this project will provide the consistent and reliable removal of bottom ash from the boiler.			
<b>Consequences of Delay:</b> Potential of 50% unit derate for 2 days if north or south clinker grinder fails and 4 days if center clinker grinder fails due to additional pipe needed to be removed for access to monorail.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:		0.10 M\$	
Budget Category:		REL-UNIT	

Cash Flow - 2019							
Jan	\$5,000	Apr	\$4,000	Jul	\$0	Oct	\$0
Feb	\$16,000	May	\$0	Aug	\$0	Nov	\$0
Mar	\$91,000	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	<b>\$0</b>	<b>2019</b>	<b>\$116,000</b>	<b>2020</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
RU Materails	\$60,000	
Removals	\$19,000	
Non-Itemized Additions	\$29,000	
Specific Cost	\$108,000	
Overhead Loads	\$8,000	
<b>CBI Total</b>	<b>\$116,000</b>	
Retirements	\$0	

Approvals				
		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$72,977	<i>[Signature]</i>	Date 10/10/18
NTEC	7.00%	\$8,109	<i>[Signature]</i>	Date 10/10/18
PNM	13.00%	\$15,059	<i>[Signature]</i>	Date 10/10/18
SRP	10.0%	\$11,584	<i>[Signature]</i>	Date 10/10/18
TCP	7.00%	\$8,109	<i>[Signature]</i>	Date 10-10-18

FCC08859 Baghouse Vent Header Replacement			
Four Corners Participant Project	Rev FC19-54	100% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC19-54	Env Code: Air	ERF Completed: Yes
In 2019 Budget: Yes	Plant Acct: 131600	Est Removal:	Est In Svc: 11 Apr 2020
<b>Description:</b> Replace eight 48" diameter vent headers in the Unit 5 baghouse with new pipe. Replacement of poppet valves and rubber expansion joints is included.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain compliance with the Title V air permit.			
<b>Consequences of Delay:</b> A baghouse vent header failure could result in the unmitigated discharge of fly ash.			
<b>Economic Justification:</b>			
Budget Category: ENV			

Cash Flow - 2019							
Jun	\$25,000	Apr	\$20,000	Jul	\$27,000	Oct	\$15,000
Feb	\$20,000	May	\$25,000	Aug	\$22,000	Nov	\$4,000
Mar	\$16,000	Jun	\$20,000	Sep	\$16,000	Dec	\$4,000
Prior	\$0	2019	\$213,000	2020	\$4,516,000	After	\$9,000

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$525,000	
Removals	\$116,000	
(Salvage)	\$0	
Non-Itemized Additions	\$4,078,000	
Specific Cost	\$4,719,000	
Overhead Loads	\$19,000	
<b>CBI Total</b>	<b>\$4,738,000</b>	
Retirements	\$0	

Approvals				
			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$2,985,240	Sarah Kist	Date 1/20/19
NTEC	7.00%	\$331,693	<i>[Signature]</i>	Date 1/23/19
PNM	13.00%	\$616,000		Date
SRP	10.0%	\$473,848		Date
TEP	7.00%	\$331,693		Date

**FCC08859 Baghouse Vent Header Replacement**

Four Corners Participant Project	Rev FC 19-54	100% Enviro.	NSR Completed: Yes
FC Unit 5	CBI FC 19-54	Env Code: Air	ERF Completed: Yes
In 2019 Budget: Yes	Plant Acct: 131600	Est Removal:	Est In Svc: 11 Apr 2020

**Description:** Replace eight 48" diameter vent headers in the Unit 5 baghouse with new pipe. Replacement of poppet valves and rubber expansion joints is included.

**Purpose/Necessity:** The purpose of this project is to maintain compliance with the Title V air permit.

**Consequences of Delay:** A baghouse vent header failure could result in the unmitigated discharge of fly ash.

**Economic Justification:**  
Budget Category: ENV

Cash Flow - 2019							
Jan	\$25,000	Apr	\$20,000	Jul	\$27,000	Oct	\$15,000
Feb	\$20,000	May	\$25,000	Aug	\$22,000	Nov	\$4,000
Mar	\$16,000	Jun	\$20,000	Sep	\$16,000	Dec	\$4,000
Prior	\$0	2019	\$213,000	2020	\$1,516,000	After	\$9,000

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$525,000	
Removals	\$116,000	
(Salvage)	\$0	
Non-Itemized Additions	\$4,078,000	
Specific Cost	\$4,719,000	
Overhead Loads	\$19,000	
<b>CBI Total</b>	<b>\$4,738,000</b>	
Retirements	\$0	

Approvals			
		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$2,985,240	Date
NTIC	7.00%	\$331,693	Date
PNM	13.00%	\$616,002	Date <i>[Signature]</i> 11-8-2018
SRP	10.0%	\$473,848	Date
TEP	7.00%	\$331,693	Date



FCC08859 Baghouse Vent Header Replacement			
Four Corners Participant Project	Rev FC19-54	100% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC19-54	Env Code: Air	ERF Completed: Yes
In 2019 Budget: Yes	Plant Acct: 131600	Est Removal:	Est In Svc: 11 Apr 2020
<p><b>Description:</b> Replace eight 48" diameter vent headers in the Unit 5 baghouse with new pipe. Replacement of poppet valves and rubber expansion joints is included.</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to maintain compliance with the Title V air permit.</p> <p><b>Consequences of Delay:</b> A baghouse vent header failure could result in the unmitigated discharge of fly ash.</p> <p><b>Economic Justification:</b> Budget Category: ENV</p>			

Cash Flow - 2019							
Jan	\$25,000	Apr	\$20,000	Jul	\$27,000	Oct	\$15,000
Feb	\$20,000	May	\$25,000	Aug	\$22,000	Nov	\$4,000
Mar	\$16,000	Jun	\$20,000	Sep	\$16,000	Dec	\$4,000
Prior	\$0	2019	\$213,000	2020	\$4,516,000	After	\$9,000

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$525,000	
Removals	\$116,000	
(Salvage)	\$0	
Non-Itemized Additions	\$4,078,000	
Specific Cost	\$4,719,000	
Overhead Loads	\$19,000	
<b>CBI Total</b>	<b>\$4,738,000</b>	
Retirements	\$0	


Approvals				
			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$2,985,240		Date
NTEC	7.00%	\$331,693		Date
PNM	13.00%	\$616,002		Date
SRP	10.00%	\$473,848		Date
TEP	7.00%	\$331,693		Date

FCC08859 Baghouse Vent Header Replacement			
Four Corners Participant Project	Rev FC19-54	100% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC19-54	Env Code: Air	ERF Completed: Yes
In 2019 Budget: Yes	Plant Acct: 131600	Est Removal:	Est In Svc: 11 Apr 2020
<p><b>Description:</b> Replace eight 48" diameter vent headers in the Unit 5 baghouse with new pipe. Replacement of poppet valves and rubber expansion joints is included.</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to maintain compliance with the Title V air permit.</p> <p><b>Consequences of Delay:</b> A baghouse vent header failure could result in the unmitigated discharge of fly ash.</p> <p><b>Economic Justification:</b> Budget Category: ENV</p>			

Cash Flow - 2019							
Jan	\$25,000	Apr	\$20,000	Jul	\$27,000	Oct	\$15,000
Feb	\$20,000	May	\$25,000	Aug	\$22,000	Nov	\$4,000
Mar	\$16,000	Jun	\$20,000	Sep	\$16,000	Dec	\$4,000
Prior	\$0	2019	\$213,000	2020	\$4,516,000	After	\$9,000

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$525,000	
Removals (Salvage)	\$116,000	
Non-Itemized Additions	\$0	
Specific Cost	\$4,078,000	
Overhead Loads	\$4,719,000	
CBI Total	\$19,000	
Retirements	\$4,738,000	
	\$0	

Approvals				
			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$2,985,240		Date
NTEC	7.00%	\$331,693		Date
PNM	13.00%	\$616,002		Date
SRP	10.0%	\$473,848		Date
TEP	7.00%	\$331,693		Date

 12-26-18

**FCC08860 Baghouse Booster Fan Motor Replacement - A**

Four Corners Participant Project	Rev FC19-55R1	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC19-55R1	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: Yes	Plant Acct: 131200	Est Removal: 01 Apr 2020	Est In Svc: 25 Apr 2020

**Reason for Revision:** The \$624K increase is to purchase a new Booster Fan Motor rather than use one from inventory. The only motor in inventory was for emergency use only.

Benefit-Cost NPV: 0.30 M\$

**Description:** Procure and install a new motor at the Unit 5 Southeast (5SE) baghouse two speed booster fan motor.

**Purpose/Necessity:** The purpose of this project is to maintain unit reliability of the baghouse booster fan motor in the event of a booster fan motor failure. The existing booster fan motor is approaching the end of useful life and require replacement.

**Consequences of Delay:** Reduced combustion air system reliability and subsequent increased risk to unit availability. Potential 16% load loss on unit 5 for 20 days. Economic justification assumes a 10% probability of a 20 day load reduction.

**Economic Justification:**

Benefit-Cost NPV: 0.40 M\$  
Budget Category: REL-UNIT

**Cash Flow - 2020**

Jan	\$19,000	Apr	\$1,319,000	Jul	\$0	Oct	\$0
Feb	\$20,000	May	(\$543,000)	Aug	\$0	Nov	\$0
Mar	\$9,000	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	\$77,000	<b>2020</b>	\$824,000	<b>2021</b>	\$0	<b>After</b>	\$0

**Cost Summary**

	Previous Amount	Revised Amount
RU Materials	\$103,000	\$567,000
Removals (Salvage)	\$15,000	\$15,000
Non-Itemized Additions	\$153,000	\$262,000
Specific Cost	\$271,000	\$843,000
Overhead Loads	\$6,000	\$58,000
<b>CBI Total</b>	<b>\$277,000</b>	<b>\$901,000</b>
Retirements		\$0

**Approvals**

		E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
APS	63.00%	\$567,520	Date
NTEC	7.00%	\$63,058	Date
PNM	13.00%	\$117,107	Date
SRP	10.0%	\$90,083	Date
TEP	7.00%	\$63,058	Date

*Thomas Fallgren*  
Thomas Fallgren, VP, PNM Generation 06/23/20

FCC08873 Fly Ash Transport System Replacement			
Four Corners Participant Project	Rev FC19-56	100% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC19-56	Env Code: Air	ERF Completed: Yes
In 2019 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 11 Apr 2020
<b>Description:</b> Replace 850 ft. of 14" fly ash transport piping from the baghouses to the fly ash surge silos.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain environmental compliance with the Title V permit. The existing pipe is approaching the end of its useful life and has degraded requiring repairs. Completion of this project will allow fly ash to be consistently transferred from the baghouse to the surge bins as necessary to avoid a reportable environmental incident (REI).			
<b>Consequences of Delay:</b> Non-compliance with Title V permit would result in temporary measures until the problem is resolved with risk of a Reportable Environmental Incident (REI).			
<b>Economic Justification:</b>			
Benefit-Cost NPV: 0 M\$			
Budget Category: ENV			

Cash Flow - 2019							
Jan	\$54,000	Apr	\$22,000	Jul	\$22,000	Oct	\$9,000
Feb	\$9,000	May	\$22,000	Aug	\$30,000	Nov	\$9,000
Mar	\$16,000	Jun	\$35,000	Sep	\$9,000	Dec	\$264,000
<b>Prior</b>	<b>\$0</b>	<b>2019</b>	<b>\$502,000</b>	<b>2020</b>	<b>\$1,246,000</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$1,405,000	
Removals	\$139,000	
Non-Itemized Additions	\$190,000	
Specific Cost	\$1,734,000	
Overhead Loads	\$14,000	
<b>CBI Total</b>	<b>\$1,748,000</b>	
Retirements	\$0	

Approvals			
		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$1,101,103	Date <i>Sarah Kist</i> 10/10/18
NTEC	7.00%	\$122,345	Date <i>[Signature]</i> 10/10/18
PNM	13.00%	\$227,212	Date <i>[Signature]</i> 10/10/18
SRP	10.0%	\$174,778	Date <i>[Signature]</i> 10/10/18
TEP	7.00%	\$122,345	Date <i>[Signature]</i> 10-10-18

FCC08923 Baghouse 13.8KV Fan Motor Protective Relay Replacement			
Four Corners Participant Project	Rev FC19-58	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC19-58	Env Code: N/A	ERF Completed: Yes
In 2019 Budget: No	Plant Acct: 131500	Est Removal:	Est In Sve: 11 Apr 2020
<b>Description:</b> Replace existing baghouse booster fan motor electromechanical relays with four (4) new microprocessor-based motor protection relays for four (4) motors in the F5 baghouse medium voltage switchgear.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain unit reliability by replacing existing protective relaying devices. The original relays have reached the end of useful life, and replacement parts are obsolete. Failure of the baghouse booster fan motor relay will result in unit curtailment. Installing newer microprocessor relays offer a higher level of security and dependability.			
<b>Consequences of Delay:</b> Reduced combustion air system reliability and subsequent increased risk to unit availability. Potential 16% load loss on unit 5 for 4 days. Economic justification assumes a 5% probability of a 5 day load reduction.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:		0.00 M\$	
Budget Category:		REL-UNIT	

Cash Flow - 2019							
Jan	\$25,000	Apr	\$43,000	Jul	\$25,000	Oct	\$41,000
Feb	\$27,000	May	\$43,000	Aug	\$38,000	Nov	\$70,000
Mar	\$43,000	Jun	\$38,000	Sep	\$25,000	Dec	\$15,000
<b>Prior</b>	\$0	<b>2019</b>	\$433,000	<b>2020</b>	\$348,000	<b>After</b>	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$26,000	
Removals	\$5,000	
(Salvage)	\$0	
Non-Itemized Additions	\$720,000	
Specific Cost	\$751,000	
Overhead Loads	\$29,000	
<b>CBI Total</b>	<b>\$781,000</b>	
Retirements	\$0	

Approvals				
		E&O Committee <input checked="" type="checkbox"/> Coordinating Committee <input type="checkbox"/>		
APS	63.00%	\$491,961	Sarah Kist	10/10/18 <small>Date</small>
NTEC	7.00%	\$54,662	<i>[Signature]</i>	10-10-18 <small>Date</small>
PNM	13.00%	\$101,516	<i>[Signature]</i>	10-10-18 <small>Date</small>
SRP	10.00%	\$78,089	<i>[Signature]</i>	10-10-18 <small>Date</small>
TEP	7.00%	\$54,662	<i>[Signature]</i>	10-10-18 <small>Date</small>

FCC08978 Condensate Pump Hoist Replacement			
Four Corners Participant Project	Rev FC19-60	0% Enviro,	NSR Completed: Yes
FC Unit 5	CBI: FC19-60	Env Code: N/A	ERF Completed: Yes
In 2019 Budget: Yes	Plant Acct: 131100	Est Removal:	Est In Svc: 11 Apr 2020
<b>Description:</b> Replace the hoist and monorail for the F5 condensate pumps.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain unit reliability by replacing the existing condensate pump hoist and monorail, which are unreliable and at end-of life. The existing monorail does not reach a suitable laydown area for the condensate pumps and needs to be extended to reach an adequately-sized landing area.			
<b>Consequences of Delay:</b> Economic justification assumes 100% load loss for 5 days to remove/repair one failed pump. Failure of one pump will result in 350 MW load loss until the pump is repaired and returned to service.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:		8.70 M\$	
Budget Category:		REL-UNIT	

Cash Flow - 2019							
Jan	\$14,000	Apr	\$20,000	Jul	\$37,000	Oct	\$9,000
Feb	\$33,000	May	\$31,000	Aug	\$30,000	Nov	\$11,000
Mar	\$22,000	Jun	\$22,000	Sep	\$15,000	Dec	\$11,000
<b>Prior</b>	<b>\$0</b>	<b>2019</b>	<b>\$253,000</b>	<b>2020</b>	<b>\$646,000</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$180,000	
Removals	\$15,000	
Non-Itemized Additions	\$694,000	
Specific Cost	\$889,000	
Overhead Loads	\$10,000	
CBI Total	\$899,000	
Retirements	\$0	

Approvals				
			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$566,630	Swarthkist	Date 10/10/18
NTEC	7.00%	\$62,959	[Signature]	Date 10/10/18
PNM	13.00%	\$116,924	[Signature]	Date 10/10/18
SRP	10.0%	\$89,941	[Signature]	Date 10/10/18
TEP	7.00%	\$62,959	[Signature]	Date 10/10/18

FCC014811 Electrical Systems - FSL Program 7							
Four Corners Participant Project		Rev FC19-64R1	0% Enviro.	NSR Completed: Yes			
FC Common		CBI: FC19-64R1	Env Code: N/A	BRF Completed: Yes			
In 2019 Budget: No		Plant Acct: 131500	Est Removal:	Est In Svc: 20 Dec 2019			
<p><b>Reason for Revision:</b> The reason for this \$423K reauthorization is due to the detailed scrub of O&amp;M work completed in 2019 that qualifies as Capital.</p> <p style="text-align: center;">Benefit-Cost NPV: 0 M\$</p>							
<p><b>Description:</b> Replacement of miscellaneous electrical equipment that meet capital requirements outlined in the RUC.</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to maintain plant reliability. Capital funds will be used for purchase and installation of new electrical equipment as failures or immediate need occurs throughout the 2019 calendar year</p> <p><b>Consequences of Delay:</b> The effect of losing an electrical equipment while replacement is procured may result in an extended unit derate and/or unit out of indeterminate duration while an immediate work around is found. Negative impact to plant reliability due to time required to obtain approvals for break-in projects.</p> <p><b>Economic Justification:</b> Benefit-Cost NPV: 0 M\$ Budget Category: NM PRG</p>							
Cash Flow - 2019							
Jan	\$0	Apr	\$39,000	Jul	\$0	Oct	\$41,000
Feb	\$0	May	\$0	Aug	\$94,000	Nov	\$500,000
Mar	\$0	Jun	\$18,000	Sep	\$3,000	Dec	\$29,000
Prior	\$0	2019	\$723,000	2020	\$0	After	\$0
Cost Summary							
		Previous Amount		Revised Amount			
RU Materials			\$200,000				\$200,000
Removals			\$100,000				\$100,000
(Salvage)							\$0
Non-Itemized Additions							\$283,000
Specific Cost			\$300,000				\$583,000
Overhead Loads							\$140,000
CBI Total			\$300,000				\$723,000
Retirements							\$0
Approvals							
				E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
APS		63.00%	\$455,622			Date:	
NTRC		7.00%	\$50,625			Date:	
PNM		13.00%	\$94,017			Date:	
SRP		10.0%	\$72,321			Date:	
TTP		7.00%	\$50,625			Date:	

*Rick Curtis* 01-29-20

FCCM4812 Water Systems/Membranes Program			
Four Corners Participant Project	Rev FC19-65	0% Enviro.	NSR Completed: Yes
FC Common	CBI: FC19-65	Env Code: N/A	ERF Completed: Yes
In 2019 Budget: Yes	Plant Acct: 131600	Est Removal: 29 Oct 2019	Est In Svc: 29 Nov 2019

**Description:** Replacement of water systems and membranes that meet capital requirements outlined in the RUC


**Purpose/Necessity:** The purpose of this project is to maintain plant reliability. Capital funds will be used for purchase and installation of new capital water systems/membranes as failures or immediate need occurs throughout the 2019 calendar year.

**Consequences of Delay:** The effect of losing water systems and membranes while a replacement is procured may result in an extended unit derate and/or unit out of indeterminate duration while an immediate work around is found. Negative impact to plant reliability due to time required to obtain approvals for break-in projects.

**Economic Justification:**  
Benefit-Cost NPV: 0.00 MS  
Budget Category: NM PRG

Cash Flow - 2019							
Jan	\$0	Apr	\$135,000	Jul	\$135,000	Oct	\$135,000
Feb	\$43,000	May	\$135,000	Aug	\$135,000	Nov	\$135,000
Mar	\$0	Jun	\$135,000	Sep	\$135,000	Dec	\$0
Prior	\$0	2019	\$1,123,000	2020	\$0	After	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$889,000	
Removals	\$0	
(Salvage)	\$0	
Non-Itemized Additions	\$232,000	
Specific Cost	\$1,121,000	
Overhead Loads	\$2,000	
CBI Total	\$1,123,000	
Retirements	\$0	

Approvals				
			E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
APS	63.00%	\$707,490		Date
NTEC	7.00%	\$78,610		Date
PNM	13.00%	\$145,990		Date
SRP	10.0%	\$112,300		Date
TEP	7.00%	\$78,610		Date

3/27/2019



FCC014810 Motors, Pumps and Valves - FSL Program 2							
Four Corners Participant Project		Rev FC19-66R1	0% Enviro.		NSR Completed: Yes		
FC Common		CBI: FC19-66R1	Env Code: N/A		ERF Completed: Yes		
In 2019 Budget: Yes		Plant Acct: 131600	Est Removal:		Est In Svc: 20 Dec 2019		
<p><b>Reason for Revision:</b> The reason for this \$3,939K reauthorization is due to the detailed scrub of O&amp;M work completed in 2019 that qualifies as Capital.</p> <p style="text-align: center;">Benefit-Cost NPV: 0.00 M\$</p>							
<p><b>Description:</b> Replacement of motors, pumps, and valves that meet capital requirements outlined in the RUC.</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to maintain plant reliability. Capital funds will be used for purchase and installation of new motors, pumps, and valves as failures or immediate need occurs throughout the 2019 calendar year.</p> <p><b>Consequences of Delay:</b> The effect of losing a motor, pump, or valve while replacement is procured may result in an extended unit derate and/or unit out of indeterminate duration while an immediate work around is found. Negative impact to plant reliability due to time required to obtain approvals for break-in projects.</p> <p><b>Economic Justification:</b>            Benefit-Cost NPV: 0.00 M\$            Budget Category: NM PRG</p>							
Cash Flow - 2019							
Jan	\$0	Apr	\$103,000	Jul	\$66,000	Oct	\$699,000
Feb	\$14,000	May	\$267,000	Aug	\$92,000	Nov	\$1,226,000
Mar	\$492,000	Jun	\$454,000	Sep	\$47,000	Dec	\$2,244,000
Prior	\$0	2019	\$5,705,000	2020	\$155,000	After	\$0
Cost Summary							
		Previous Amount		Revised Amount			
RU Materials			\$700,000				\$700,000
Removals (Salvage)			\$500,000				\$500,000
Non-Itemized Additions			\$678,000				\$4,128,000
Specific Cost			\$1,878,000				\$5,328,000
Overhead Loads			\$43,000				\$532,000
CBI Total			\$1,921,000				\$5,860,000
Retirements							\$0
Approvals							
				E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
APS		63.00%	\$3,691,879				Date
NTEC		7.00%	\$110,209				Date
PNM		13.00%	\$761,816				Date
SRP		10.0%	\$586,013				Date
TEP		7.00%	\$410,209				Date

*Rev Cash 2 2020*  
01-27-20

FCC015065 South Center Inlet Expansion Joint Repl			
Four Corners Participant Project	Rev FC19-67	100% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC19-67	Env Code: Air	ERF Completed: Yes
In 2019 Budget: No	Plant Acct: 131600	Est Removal: 11 Mar 2019	Est In Svc: 21 Mar 2019
<b>Description:</b> Unit 5 South Center Inlet Duct Expansion Joint Removal and Replacement			
<b>Purpose/Necessity:</b> The purpose of this project is to replace F5 South Center Expansion Joint because the expansion joint is reaching the end of serviceable life and needs to be replaced.			
<b>Consequences of Delay:</b> Failure of the expansion joint may result in a load loss, potential forced outage, and/or environmental non-compliance.			
<b>Economic Justification:</b>			
Benefit-Cost NPV: 17.00 M\$			
Budget Category: REL			

Cash Flow - 2019							
Jan	\$0	Apr	\$6,000	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$103,000	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	<b>\$0</b>	<b>2019</b>	<b>\$109,000</b>	<b>2020</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$5,000	
Removals	\$0	
(Salvage)	\$0	
Non-Itemized Additions	\$104,000	
Specific Cost	\$109,000	
Overhead Loads	\$0	
<b>CBI Total</b>	<b>\$109,000</b>	
Retirements	\$0	

Approvals				
			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$68,670	<i>[Signature]</i>	Date 3-7-19
NTEC	7.00%	\$7,630	<i>[Signature]</i>	Date 3-7-19
PNM	13.00%	\$14,170	<i>[Signature]</i>	Date 3-7-19
SRP	10.0%	\$10,900	<i>[Signature]</i>	Date 3-7-19
TEP	7.00%	\$7,630	<i>[Signature]</i>	Date 3-7-19

FCC015070 3A Coal Belt Replacement							
Four Corners Participant Project		Rev FC19-70		0% Enviro.		NSR Completed: Yes	
FC Units 4 & 5		CBI: FC19-70		Env Code: N/A		ERF Completed: Yes	
In 2019 Budget: No		Plant Acct: 131600		Est Removal: 02 Mar 2019		Est In Svc: 04 Mar 2019	
<p><b>Description:</b> Complete replacement of the 3A Coal Belt which is approximately 4,200 linear feet.</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to completely replace the 3A Coal Belt because it has reached the end of its usable life. Necessary preventative maintenance on the Coal Handling System must be completed prior to Summer Run to confirm Seasonal Readiness.</p> <p><b>Consequences of Delay:</b> Unit would operate at High Risk due to loss of redundancy of the Coal Handling System. A loss to generation could be incurred if the 3B Coal Belt was lost during execution of this work which justifies execution during a Dual Unit Outage.</p> <p><b>Economic Justification:</b>            Benefit-Cost NPV: 1.50 MS            Budget Category: REL.</p>							
Cash Flow - 2019							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$100,000	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	<b>\$0</b>	<b>2019</b>	<b>\$100,000</b>	<b>2020</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>
Cost Summary							
	Current Amount			Revised Amount			
RU Materials			\$50,000				
Removals			\$37,000				
(Salvage)			\$0				
Non-Itemized Additions			\$9,000				
Specific Cost			\$96,000				
Overhead Loads			\$4,000				
<b>CBI Total</b>			<b>\$100,000</b>				
Retirements			\$0				
Approvals							
				E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>		
APS		63.00%	\$63,000	Sarah Kist	4/10/19	Date	
NTEC		7.00%	\$7,000	J. L. Houghen	3/25/19	Date	
PNM		13.00%	\$13,000			Date	
SRP		10.0%	\$10,000			Date	
TEP		7.00%	\$7,000			Date	

FCC015070 3A Coal Belt Replacement			
Four Corners Participant Project	Rev FC19-70	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC19-70	Env Code: N/A	ERF Completed: Yes
In 2019 Budget: No	Plant Acct: 131600	Est Removal: 02 Mar 2019	Est In Svc: 04 Mar 2019
<b>Description:</b> Complete replacement of the 3A Coal Belt which is approximately 4,200 linear feet.			
<b>Purpose/Necessity:</b> The purpose of this project is to completely replace the 3A Coal Belt because it has reached the end of its usable life. Necessary preventative maintenance on the Coal Handling System must be completed prior to Summer Run to confirm Seasonal Readiness.			
<b>Consequences of Delay:</b> Unit would operate at High Risk due to loss of redundancy of the Coal Handling System. A loss to generation could be incurred if the 3B Coal Belt was lost during execution of this work which justifies execution during a Dual Unit Outage.			
<b>Economic Justification:</b>			
Benefit-Cost NPV		1.50 M\$	
Budget Category:		REL	

Cash Flow - 2019							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$100,000	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2019	\$100,000	2020	\$0	After	\$0

Cost Summary		
	Current Amount	Revised Amount
RI Materials	\$50,000	
Removals	\$37,000	
(Salvage)	\$0	
Non-Itemized Additions	\$9,000	
Specific Cost	\$96,000	
Overhead Loads	\$4,000	
CBI Total	\$100,000	
Retirements	\$0	

Approvals			
		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$63,000	Date:
NTEC	7.00%	\$7,000	Date:
PNM	13.00%	\$13,000	Date:
SRP	10.00%	\$10,000	Date:
TEP	7.00%	\$7,000	Date:

3-26-2019

<b>FCC015070 3A Coal Belt Replacement</b>			
Four Corners Participant Project	Rev FC19-70	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC19-70	Env Code: N/A	ERF Completed: Yes
In 2019 Budget: No	Plant Acct: 131600	Est Removal: 02 Mar 2019	Est In Svc: 04 Mar 2019

**Description:** Complete replacement of the 3A Coal Belt which is approximately 4,200 linear feet.

**Purpose/Necessity:** The purpose of this project is to completely replace the 3A Coal Belt because it has reached the end of its usable life. Necessary preventative maintenance on the Coal Handling System must be completed prior to Summer Run to confirm Seasonal Readiness.

**Consequences of Delay:** Unit would operate at High Risk due to loss of redundancy of the Coal Handling System. A loss to generation could be incurred if the 3B Coal Belt was lost during execution of this work which justifies execution during a Dual Unit Outage.

**Economic Justification:**  
 Benefit-Cost NPV: 1.50 MS  
 Budget Category: REI.

Cash Flow - 2019							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$100,000	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2019	\$100,000	2020	\$0	After	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$50,000	
Removals	\$37,000	
(Salvage)	\$0	
Non-Itemized Additions	\$9,000	
Specific Cost	\$96,000	
Overhead Loads	\$4,000	
<b>CBI Total</b>	<b>\$100,000</b>	
Retirements	\$0	

Approvals			
		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63,000 <sup>a</sup>	\$63,000	Date
NTCC	7,000 <sup>a</sup>	\$7,000	Date
PNM	13,000 <sup>a</sup>	\$13,000	Date
SRP	10,000 <sup>a</sup>	\$10,000	Date
TEP	7,000 <sup>a</sup>	\$7,000	Date

Date **04-10-19**

FCC015070 3A Coal Belt Replacement			
Four Corners Participant Project	Rev FC19-70	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC19-70	Env Code: N/A	ERF Completed: Yes
In 2019 Budget: No	Plant Acct: 131600	Est Removal: 02 Mar 2019	Est In Svc: 04 Mar 2019
<b>Description:</b> Complete replacement of the 3A Coal Belt which is approximately 4,200 linear feet.			
<b>Purpose/Necessity:</b> The purpose of this project is to completely replace the 3A Coal Belt because it has reached the end of its usable life. Necessary preventative maintenance on the Coal Handling System must be completed prior to Summer Run to confirm Seasonal Readiness.			
<b>Consequences of Delay:</b> Unit would operate at High Risk due to loss of redundancy of the Coal Handling System. A loss to generation could be incurred if the 3B Coal Belt was lost during execution of this work which justifies execution during a Dual Unit Outage.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:		1.50 MS	
Budget Category:		RHL	

Cash Flow - 2019							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$100,000	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2019	\$100,000	2020	\$0	After	\$0

Cost Summary	
	Current Amount
RU Materials	\$50,000
Removals (Salvage)	\$37,000
Non-Itemized Additions	\$0
Specific Cost	\$9,000
Overhead Loads	\$96,000
CBI Total	\$4,000
Retirements	\$100,000
	\$0

Approvals			
APS	63.00%	\$63,000	E&O Committee <input checked="" type="checkbox"/> Coordinating Committee <input type="checkbox"/>
NTEC	7.00%	\$7,000	Date: _____
PNM	13.00%	\$13,000	Date: _____
SRP	10.0%	\$10,000	Date: _____
TIP	7.00%	\$7,000	Date: _____

*John*  
3-21-19

<b>FC0015689 4-7 Pulverizer Rebuild</b>			
Four Corners Participant Project	Rev FC(9-7)	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC(9-7)	Env Code: N/A	ERF Completed: Yes
In 2019 Budget: No	Plant Acct: 131200	Est Removal: 19 Apr 2019	Est In Svc: 17 May 2019

**Description:** Rebuild the 4-7 Pulverizer. This work was originally budgeted under O&M but qualifies as Capital per the RUC. The O&M offset for this will be \$1,400K.

**Purpose/Necessity:** The purpose of this project is to maintain full load unit reliability. During the routine 3,000-hr inspection it was determined the table, yoke, roll wheels, and grinding segments reached the end of their useful life and need to be replaced.

**Consequences of Delay:** Potential extended unit de-rate or curtailment due to the loss of a redundant mill.

**Economic Justification:**  
Benefit-Cost NPV: 5.00 MS  
Budget Category: REL

Cash Flow - 2019							
Jan	\$0	Apr	\$0	Jul	\$530,000	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$870,000	Sep	\$0	Dec	\$0
Prior	\$0	2019	\$1,400,000	2020	\$0	After	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$0	
Removals	\$0	
(Salvage)	\$0	
Non-Itemized Additions	\$1,400,000	
Specific Cost	\$1,400,000	
Overhead Loads	\$0	
CBI Total	\$1,400,000	
Retirements	\$0	

Approval				
			E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
APS	63.00%	\$882,000		Date
NTEC	7.00%	\$98,000		Date
PNM	13.00%	\$182,000		Date
SRI	10.0%	\$140,000		Date
TEP	7.00%	\$98,000		Date

*[Signature]* 7/11/19

FC06752 Dry Fly Ash Disposal Area Site 4 Construction			
Four Corners Participant Project	Rev FC16-22R2	100% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC16-22R2	Env Code: Solid	ERF Completed: Yes
In 2019 Budget: Yes	Plant Acct: 131100	Est Removal: 26 Jul 2020	Est In Svc: 28 Aug 2020

**Reason for Revision:** The reason for this \$4,863K reauthorization is due to a revision in the footprint of the DFADA Site 4 from 30-acres to 42-acres and in the higher than anticipated cost of the geo-composite liner that is compatible with the current ash leachate. The 42-acre design increases ash disposal volume while decreasing the cost per cubic yard. This revision will defer the need for DFADA Site 5 Construction from 2021 to 2023.

Benefit-Cost NPV: 0 M\$

**Description:** Construction of a 30-acre Lined Dry Ash Disposal Facility to store coal combustion residuals.

**Purpose/Necessity:** The purpose of this project is to continue operation of Units 4 and 5 while meeting the EPA CCR regulations. The storage area (DFADA Sites 1 through 3) is expected to reach capacity by 2018. Continued operation of Units 4 and 5 requires an ash disposal facility in compliance with regulations, which require disposal in a RCRA Subtitle D compliant landfill.

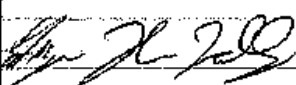
**Consequences of Delay:** Coal Combustion Residuals may not be created without a destination for storage. Non-compliance with EPA CCR regulations.

**Economic Justification:**

Budget Category: ENV

Cash Flow - 2019							
Jan	(\$2,000)	Apr	\$1,000	Jul	\$481,000	Oct	\$586,000
Feb	\$6,000	May	\$0	Aug	\$136,000	Nov	\$582,000
Mar	\$5,000	Jun	\$45,000	Sep	\$1,154,000	Dec	\$121,000
Prior	\$597,000	2019	\$3,114,000	2020	\$7,474,000	After	\$0

Cost Summary		
	Previous Amount	Revised Amount
RU Materials		\$2,586,000
Removals		\$0
(Salvage)		\$0
Non-Itemized Additions	\$6,781,000	\$8,554,000
Specific Cost	\$6,781,000	\$11,140,000
Overhead Loads	\$47,000	\$45,000
CBI Total	\$6,828,000	\$11,184,000
Retirements		\$0

Approvals				
			E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
APS	63.00%	\$7,046,202		Date
NTEC	7.00%	\$782,911		Date
PNM	13.00%	\$1,453,978		Date 7/11/19
SRP	10.0%	\$1,118,445		Date
TEP	7.00%	\$782,911		Date



FCC08266 SCBA Tank/Pack Set Equipment Replacements			
Four Corners Participant Project	Rev FC19-72	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC19-72	Env Code: N/A	ERF Completed: Yes
In 2019 Budget: No	Plant Acct: 131600	Est Removal: 16 Aug 2019	Est In Svc: 30 Aug 2019

**Description:** Replace (20) Honeywell SCBA Cylinders.

**Purpose/Necessity:** The current cylinders are reaching the end of their 15-year serviceable life. APS will be out of compliance with OSHA 29 CFR 1910.146 in August 2019 if replacements are not purchased.

**Consequences of Delay:** Non-compliance with OSHA 29 CFR 1910.146

**Economic Justification:**

Budget Category: SAFETY

Cash Flow - 2019							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$22,000	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2019	\$22,000	2020	\$0	After	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials		\$24,000
Removals		\$3,000
(Salvage)		\$0
Non-Itemized Additions		(\$4,000)
Specific Cost		\$22,000
Overhead Loads		\$0
CBI Total		\$22,000
Retirements		\$0

Approvals			
		F&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$14,156	Date
NTEC	7.00%	\$1,573	Date
PNM	13.00%	\$2,921	Date 8/26/19
SRP	10.0%	\$2,247	Date
TEP	7.00%	\$1,573	Date

<b>FCG015702 4-4 Pulverizer Rebuild</b>			
Four Corners Participant Project	Rev FCI9-73	0% Enviro	NSR Completed: Yes
FC Unit 4	CBI FCI9-73	Env Code: N/A	ERF Completed: Yes
Jan 2019 Budget No	Plant Acc: 131200	Est Removal: 05 Jun 2019	Est In Svc: 14 Jun 2019

**Description:** Rebuild the 4-4 Pulverizer Grinding Zone. This work was originally budgeted under O&M but major components associated with the rebuild qualify as Capital per the RUC. The O&M offset for this will be \$400K.

**Purpose/Necessity:** The purpose of this project is to maintain full load unit reliability. During the routine 3,000-hr inspection it was determined the grinding segments (Table/Bowl Assembly) and roll assembly (Rollers/Ball Mill) had reached the end of their useful life.

**Consequences of Delay:** Potential extended unit de-rate or curtailment due to the loss of a redundant mill.

**Economic Justification:**  
Benefit-Cost NPV: 5.06 MS  
Budget Category: REL

Cash Flow - 2019							
Jan	\$0	Apr	\$0	Jul	\$419,000	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2019	\$419,000	2020	\$0	After	\$0

Cost Summary	
	Current Amount
RU Materials	\$216,000
Removals	\$125,000
(Salvage)	\$0
Non-Itemized Additions	\$78,000
Specific Cost	\$419,000
Overhead Loads	\$0
CBI Total	\$419,000
Retirements	\$0

Approvals			
		E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
APS	63.00%	\$263,828	Date
NTEC	7.00%	\$29,314	Date
PNM	13.00%	\$54,441	Date 1/27/19
SRP	10.0%	\$41,877	Date
TEP	7.00%	\$29,314	Date

<b>FCG015703545 Pulverizer Rebuild</b>			
Four Corners Participant Project	Rev FC19-74	0% Enclino	NSR Completed: Yes
FC Unit 5	CBI: FC19-74	Env Code: N/A	ERR Completed: Yes
In 2019 Budget: No	Plant Acct: 131200	Est Removal: 01 Jul 2019	Est In Svc: 30 Aug 2019

**Description:** Rebuild the 5-5 Pulverizer. This work was originally budgeted under O&M but major components associated with the rebuild qualify as Capital per the RUC. There is no funding available for an O&M offset.

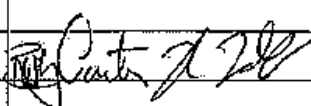
**Purpose/Necessity:** The purpose of this project is to maintain full load unit reliability. During the routing Plant operations the throat assembly (Rifflers) failed resulting in an emergent failure of the 5-5 Pulverizer and it was determined the table (Table/Bowl Assembly), grinding segments (Table/Bowl Assembly), yoke (Pulverizer Bowl/Ring Seat), throats (Rifflers), roll assembly (Rollers/Ball Mill), seal air assembly (Seal Air System), gear drive (Turning Gear Assembly), ring seat (Pulverizer Bowl Assembly/Ring Seat) and classifier had reached the end of their useful life.

**Consequences of Delay:** Potential extended unit de-rate or curtailment due to the loss of a redundant mill.

**Economic Justification:**  
Benefit-Cost NPV: 5.06 M\$  
Budget Category: REL

Cash Flow - 2019							
Jan	\$0	Apr	\$0	Jul	\$1,400,000	Oct	\$0
Feb	\$0	May	\$0	Aug	\$74,000	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2019	\$1,474,000	2020	\$0	After	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$629,000	
Removals	\$280,000	
(Salvage)	\$0	
Non-Itemized Additions	\$565,000	
Specific Cost	\$1,474,000	
Overhead Loads	\$0	
CBI Total	\$1,474,000	
Retirements	\$0	

Approvals				
			E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
APS	63.00%	\$928,620		Date
NTEC	7.00%	\$103,180		Date
PNM	13.00%	\$191,620		Date 7/27/19
SRP	10.0%	\$147,400		Date
TEP	7.00%	\$103,180		Date

<b>FCG015702 4-4 Pulverizer Rebuild</b>			
Four Corners Participant Project	Rev FCI9-73	0% Enviro	NSR Completed: Yes
FC Unit 4	CBI FCI9-73	Env Code: N/A	ERF Completed: Yes
Jan 2019 Budget No	Plant Acc: 131200	Est Removal: 05 Jun 2019	Est In Svc: 14 Jun 2019

**Description:** Rebuild the 4-4 Pulverizer Grinding Zone. This work was originally budgeted under O&M but major components associated with the rebuild qualify as Capital per the RUC. The O&M offset for this will be \$400K.

**Purpose/Necessity:** The purpose of this project is to maintain full load unit reliability. During the routine 3,000-hr inspection it was determined the grinding segments (Table/Bowl Assembly) and roll assembly (Rollers/Ball Mill) had reached the end of their useful life.

**Consequences of Delay:** Potential extended unit de-rate or curtailment due to the loss of a redundant mill.

**Economic Justification:**  
Benefit-Cost NPV: 5.06 MS  
Budget Category: REL

Cash Flow - 2019							
Jan	\$0	Apr	\$0	Jul	\$419,000	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2019	\$419,000	2020	\$0	After	\$0

Cost Summary	
	Current Amount
RU Materials	\$216,000
Removals	\$125,000
(Salvage)	\$0
Non-Itemized Additions	\$78,000
Specific Cost	\$419,000
Overhead Loads	\$0
CBI Total	\$419,000
Retirements	\$0

Approvals				
			E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
APS	63.00%	\$263,828		Date
NTEC	7.00%	\$29,314		Date
PNM	13.00%	\$54,441	<i>[Signature]</i>	Date 1/27/19
SRP	10.0%	\$41,877		Date
TEP	7.00%	\$29,314		Date

<b>FCG015703545 Pulverizer Rebuild</b>			
Four Corners Participant Project	Rev FC19-74	0% Envylin	NSR Completed: Yes
FC Unit 5	CBI: FC19-74	Env Code: N/A	ERR Completed: Yes
In 2019 Budget: No	Plant Acct: 131200	Est Removal: 01 Jul 2019	Est In Svc: 30 Aug 2019

**Description:** Rebuild the 5-5 Pulverizer. This work was originally budgeted under O&M but major components associated with the rebuild qualify as Capital per the RUC. There is no funding available for an O&M offset.

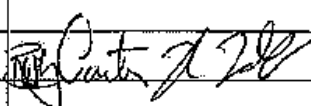
**Purpose/Necessity:** The purpose of this project is to maintain full load unit reliability. During the routing Plant operations the throat assembly (Rifflers) failed resulting in an emergent failure of the 5-5 Pulverizer and it was determined the table (Table/Bowl Assembly), grinding segments (Table/Bowl Assembly), yoke (Pulverizer Bowl/Ring Seat), throats (Rifflers), roll assembly (Rollers/Ball Mill), seal air assembly (Seal Air System), gear drive (Turning Gear Assembly), ring seat (Pulverizer Bowl Assembly/Ring Seat) and classifier had reached the end of their useful life.

**Consequences of Delay:** Potential extended unit de-rate or curtailment due to the loss of a redundant mill.

**Economic Justification:**  
Benefit-Cost NPV: 5.06 M\$  
Budget Category: REL

Cash Flow - 2019							
Jan	\$0	Apr	\$0	Jul	\$1,400,000	Oct	\$0
Feb	\$0	May	\$0	Aug	\$74,000	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2019	\$1,474,000	2020	\$0	After	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$629,000	
Removals	\$280,000	
(Salvage)	\$0	
Non-Itemized Additions	\$565,000	
Specific Cost	\$1,474,000	
Overhead Loads	\$0	
CBI Total	\$1,474,000	
Retirements	\$0	

Approvals				
			E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
APS	63.00%	\$928,620		Date
NTEC	7.00%	\$103,180		Date
PNM	13.00%	\$191,620		Date 7/27/19
SRP	10.0%	\$147,400		Date
TEP	7.00%	\$103,180		Date

FCC015760 Chlorination Skid for the Circulating Water System			
Four Corners Participant Project	Rev FC19-75	100% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC19-75	Env Code: Water	ERF Completed: Yes
In 2019 Budget: No	Plant Acct: 131100	Est Removal: 25 Oct 2019	Est In Svc: 15 Nov 2019

**Description:** Replace the existing manual F45 Circulating Water Pump Intake Chlorine Feeder with a self-contained, automatic Feeder System. This is an emergent project that now qualifies as Capital.

**Purpose/Necessity:** The purpose of this project is to maintain environmental compliance by improving the reliability and dispersal accuracy of chlorination injection at the F45 Circulating Water Pump Intake by replacing the existing manual Feeder System with a self-contained, automatic Feeder System.

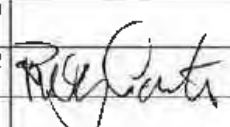
**Consequences of Delay:** Potential over chlorination would violate the the Four Corners NPDES Permit and result in a Reportable Environmental Incident (REI).


**Economic Justification:**

Benefit-Cost NPV: 0 M\$  
Budget Category: ENV

Cash Flow - 2019							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$48,000
Feb	\$0	May	\$0	Aug	\$3,000	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$2,000	Dec	\$0
Prior	\$0	2019	\$52,000	2020	\$0	After	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$20,000	
Removals	\$1,000	
(Salvage)	\$0	
Non-Itemized Additions	\$23,000	
Specific Cost	\$44,000	
Overhead Loads	\$8,000	
CBI Total	\$52,000	
Retirements	\$0	

Approvals				
			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$33,835		Date
NTEC	7.00%	\$3,759		Date
PNM	13.00%	\$6,982		Date 8/27/19
SRP	10.0%	\$5,371		Date
TEP	7.00%	\$3,759		Date

FCC015983 5-3 Pulverizer Rebuild							
Four Corners Participant Project		Rev FC19-78	0% Enviro.	NSR Completed: Yes			
FC Unit 5		CBI: FC19-78	Env Code: N/A	ERF Completed: Yes			
In 2019 Budget: No		Plant Acct: 131200	Est Removal: 28 Oct 2019	Est In Svc: 25 Nov 2019			
<p><b>Description:</b> Rebuild the 5-3 Pulverizer. This work was originally budgeted under O&amp;M but components associated with the rebuild qualify as Capital per the RUC. There is no funding available for an O&amp;M offset.</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to maintain full load unit reliability. The 5-3 Pulverizer was scheduled for a 40,000-lr Rebuild in 2019 and determined the table (Table/Bowl Assembly), yoke (Pulverizer Bowl/Ring Seat), grinding segments (Table/Bowl Assembly), roll assembly (Rollers/Ball Mill), ring seat (Pulverizer Bowl Assembly/Ring Seat), and classifier have reached the end of their useful life.</p> <p><b>Consequences of Delay:</b> Potential extended unit de-rate or curtailment due to the loss of a redundant mill.</p> <p><b>Economic Justification:</b>            Benefit-Cost NPV: 4.80 M\$            Budget Category: REL</p>							
Cash Flow - 2019							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$510,000
Feb	\$0	May	\$0	Aug	\$0	Nov	\$636,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$132,000
Prior	\$0	2019	\$1,278,000	2020	\$0	After	\$0
Cost Summary							
	Current Amount			Revised Amount			
RU Materials	\$387,000						
Removals	\$315,000						
(Salvage)	\$0						
Non-Itemized Additions	\$577,000						
Specific Cost	\$1,278,000						
Overhead Loads	\$0						
CBI Total	\$1,278,000						
Retirements	\$0						
Approvals							
				E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
APS	63.00%	\$805,453				Date	
NTEC	7.00%	\$89,495				Date	
PNM	13.00%	\$166,205				Date	
SRP	10.0%	\$127,850				Date	
TEP	7.00%	\$89,495				Date	

10/7/19

FCC016254 North Primary Air Duct Expansion Joint #0021 Replacement			
Four Corners Participant Project	Rev FC19-85	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC19-85	Env Code: N/A	ERF Completed: Yes
In 2019 Budget: No	Plant Acct: 131200	Est Removal: 25 Dec 2019	Est In Svc: 28 Dec 2019

**Description:** Unit 4 North Primary Air Duct Expansion Joint #0021 removal and replacement.

**Purpose/Necessity:** The purpose of this project is to replace F5 North Primary Air (PA) Duct Expansion Joint #0021 because the expansion joint reached the end of serviceable life and experienced an emergent failure resulting in a Forced Outage. The unit cannot come online until the expansion joint is replaced.

**Consequences of Delay:** Failure of the expansion joint may result in a load loss, potential forced outage, and/or environmental non-compliance.

**Economic Justification:**  
Budget Category: REL

Cash Flow - 2020							
Jan	\$75,000	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2020	\$75,000	2021	\$0	After	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$18,000	
Removals	\$28,000	
(Salvage)	\$0	
Non-Itemized Additions	\$29,000	
Specific Cost	\$75,000	
Overhead Loads	\$0	
CBI Total	\$75,000	
Retirements	\$0	

Approvals				
			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$46,940		Date
NTEC	7.00%	\$5,216		Date
PNM	13.00%	\$9,686	<i>Rory Cauth</i>	Date 1/23/20
SRP	10.0%	\$7,451		Date
TEP	7.00%	\$5,216		Date



**Four Corners O&M Budget Item**

Plant: FC Power Plant  
 Budget Year: 2019  
 Cost Of Project: 269,160  
 System: Fuel  
 Sub-System: FL-Fuel  
 Current System Health: Yellow  
 Projected System Health: [REDACTED]  
 Risk Type:  Environmental  
 Generation  
 Regulatory  
 Safety

Number: 18-2019  
 Budget Type: RT  
 Unit: Units 4 & 5  
 Date: 5/10/2018  
 Priority: 3  
 Frequency: One-Time  
 Prepared By: Delbert Josea

**Job Title:** U4&5 3A and 3B Coal Conveyor Gearbox Replacement

**Description of Work:**

Replace 3A and 3B coal conveyor gear reducer assemblies with motors and new couplings.

**Purpose And Necessity:**

The existing gearbox is becoming obsolete and out dated. Parts have long lead time to research and have made. Gear reducer shaft seals leak, gearbox gear teeth are wearing. Couplings have been inspected and found to have teeth worn due to inadequate lubrication. Will replace the existing gearbox assemblies with an upgraded version for easy removal and low maintenance and to have one type or brand of gearbox on all conveyors. We currently have different types/ brand of gearboxes on the system.

**Potential Adverse Consequences:**

Risk of gearbox failure and the loss of one conveyor system plus wear on the other conveyor system. With new gearboxes, the systems should be reliable with compatible parts.

Allocation	%	\$
APS	63	169,571
PSNM	13	34,991
SRP	10	26,916
TEP	7	18,841
NTEC	7	18,841
<b>Total</b>	<b>100</b>	<b>269,160</b>

FCC07208 F4 2020 Fabric Filter Bag Replacement			
Four Corners Participant Project	Rev FC20-02	100% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC20-02	Env Code: Air	ERF Completed: Yes
In 2020 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 29 May 2020

**Description:** Replace the fabric filter bags housed in 8 compartments of the Reverse Air Fabric Filter.

**Purpose/Necessity:** The purpose of this project is to ensure continued environmental compliance while maintaining unit operational performance in the capture and disposal management of fly ash. The fabric filter bags are approaching the end of their serviceable life and require replacement to ensure continued high efficiency particulate dust capture and removal and compliance with the PM standard defined in the Plant's Title V Permit.

**Consequences of Delay:** Non-compliance with the PM standard defined in the Plant's Title V Permit, resulting in Unit de-rate and Unit shutdown.

**Economic Justification:**

Benefit-Cost NPV: 0 M\$  
Budget Category: ENV

**Cash Flow - 2020**

Jan	\$4,000	Apr	\$387,000	Jul	\$3,000	Oct	\$0
Feb	\$218,000	May	\$137,000	Aug	\$0	Nov	\$0
Mar	\$393,000	Jun	\$3,000	Sep	\$0	Dec	\$0
<b>Prior</b>	\$0	<b>2020</b>	\$1,146,000	<b>2021</b>	\$0	<b>After</b>	\$0

**Cost Summary**

	Current Amount	Revised Amount
RU Materials	\$560,000	
Removals	\$100,000	
(Salvage)	\$0	
Non-Itemized Additions	\$486,000	
Specific Cost	\$1,146,000	
Overhead Loads	\$0	
<b>CBI Total</b>	<b>\$1,146,000</b>	
Retirements	\$0	

**Approvals**

		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
APS	63.00%	\$721,897	Sarah Rist	Date	10/9/19
NTEC	7.00%	\$80,211	S. H. Hsu	Date	10/9/19
PNM	13.00%	\$148,963	B. B. Bly	Date	12/5/19
SRP	10.0%	\$114,587	W. W. W.	Date	10-9-19
TEP	7.00%	\$80,211	J. W. B.	Date	10-9-19

FCC07209 F5 2020 Fabric Filter Bag Replacement			
Four Corners Participant Project	Rev FC20-03	100% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC20-03	Env Code: Air	ERF Completed: Yes
In 2020 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 29 May 2020
<b>Description:</b> Replace the fabric filter bags housed in 8 compartments of the Reverse Air Fabric Filter.			
<b>Purpose/Necessity:</b> The purpose of this project is to ensure continued environmental compliance while maintaining unit operational performance in the capture and disposal management of fly ash. The fabric filter bags are approaching the end of their serviceable life and require replacement to ensure continued high efficiency particulate dust capture and removal and compliance with the PM standard defined in the Plant's Title V Permit.			
<b>Consequences of Delay:</b> Non-compliance with the PM standard defined in the Plant's Title V Permit, resulting in Unit de-rate and Unit shutdown.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:		0 M\$	
Budget Category:		ENV	

Cash Flow - 2020							
Jan	\$4,000	Apr	\$386,000	Jul	\$3,000	Oct	\$0
Feb	\$218,000	May	\$138,000	Aug	\$0	Nov	\$0
Mar	\$392,000	Jun	\$3,000	Sep	\$0	Dec	\$0
<b>Prior</b>	<b>\$0</b>	<b>2020</b>	<b>\$1,146,000</b>	<b>2021</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$560,000	
Removals	\$100,000	
(Salvage)	\$0	
Non-Itemized Additions	\$486,000	
Specific Cost	\$1,146,000	
Overhead Loads	\$0	
<b>CBI Total</b>	<b>\$1,146,000</b>	
Retirements	\$0	

Approvals				
		E&O Committee <input checked="" type="checkbox"/> Coordinating Committee <input type="checkbox"/>		
APS	63.00%	\$721,939	<i>S. S. H. Kist</i>	Date 10/9/19
NTEC	7.00%	\$80,215	<i>S. S. H. Kist</i>	Date 10/9/19
PNM	13.00%	\$148,972	<i>[Signature]</i>	Date 12/5/19
SRP	10.0%	\$114,594	<i>[Signature]</i>	Date 10-9-19
TEP	7.00%	\$80,215	<i>[Signature]</i>	Date 10-9-19

FCC08867 Steam Chest Valve Trim Replacement			
Four Corners Participant Project	Rev FC20-09	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC20-09	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: Yes	Plant Acct: 131400	Est Removal:	Est In Svc: 30 Apr 2020
<b>Description:</b> Replacement of steam chest valve trim for the four main steam stop valves and the four main control valves.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain plant reliability. Replacement set of valve trim will allow APS to have three total sets of identical valve trim (two in operation, one spare) to rotate in and out of service during outages.			
<b>Consequences of Delay:</b> Risk of not having a matching set of spare valve trim for critical turbine valves. Potential 14 day forced outage. Economic justification assumes a 19% probability of a 14 day forced outage.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:		7.40 M\$	
Budget Category:		REL-UNIT	

Cash Flow - 2020							
Jan	\$398,000	Apr	\$180,000	Jul	\$11,000	Oct	\$0
Feb	\$460,000	May	\$97,000	Aug	\$0	Nov	\$0
Mar	\$565,000	Jun	\$7,000	Sep	\$0	Dec	\$0
<b>Prior</b>	<b>\$0</b>	<b>2020</b>	<b>\$1,718,000</b>	<b>2021</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$1,000,000	
Removals	\$50,000	
(Salvage)	\$0	
Non-Itemized Additions	\$654,000	
Specific Cost	\$1,704,000	
Overhead Loads	\$14,000	
<b>CBI Total</b>	<b>\$1,718,000</b>	
Retirements	\$0	

Approvals					
			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>	
APS	63.00%	\$1,082,503	<i>Search Kost</i>		Date 10/9/19
NTEC	7.00%	\$120,278	<i>[Signature]</i>		Date 10/9/19
PNM	13.00%	\$223,374	<i>[Signature]</i>		Date 12/5/19
SRP	10.0%	\$171,826	<i>[Signature]</i>		Date 10-9-19
TEP	7.00%	\$120,278	<i>[Signature]</i>		Date 10-9-19

FCC013555 Turbine Minor Overhaul - 2020			
Four Corners Participant Project	Rev FC20-20	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC20-20	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: Yes	Plant Acct: 131400	Est Removal:	Est In Svc: 30 Apr 2020
<b>Description:</b> Minor turbine overhaul including open, close, disassembly, inspection and assembly of speed matching valve.			
<b>Purpose/Necessity:</b> The purpose of this project is to proactively avoid valve and component failure and potential safety risk and maintain long term unit reliability.			
<b>Consequences of Delay:</b> Repair requirements will increase with continued operation and unit runtime. Potential 25 day forced outage. Economic justification assumes a 35% probability of a 25 day forced outage.			
<b>Economic Justification:</b>			
Benefit-Cost NPV: 43.00 M\$			
Budget Category: REL			

Cash Flow - 2020							
Jan	\$129,000	Apr	\$93,000	Jul	\$0	Oct	\$0
Feb	\$123,000	May	\$14,000	Aug	\$0	Nov	\$0
Mar	\$129,000	Jun	\$7,000	Sep	\$0	Dec	\$0
<b>Prior</b>	\$0	<b>2020</b>	\$495,000	<b>2021</b>	\$0	<b>After</b>	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$85,000	
Removals	\$10,000	
(Salvage)	\$0	
Non-Itemized Additions	\$389,000	
Specific Cost	\$484,000	
Overhead Loads	\$12,000	
<b>CBI Total</b>	<b>\$495,000</b>	
Retirements	\$0	


Approvals				
			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$312,060	Sarah Kist	Date 10/9/19
NTEC	7.00%	\$34,673	S. Johnson	Date 10/9/19
PNM	13.00%	\$64,393	[Signature]	Date 12/5/19
SRP	10.0%	\$49,533	[Signature]	Date 10-9-19
TEP	7.00%	\$34,673	[Signature]	Date 10-9-19

FCC013857 Boiler 201A Valve Replacement			
Four Corners Participant Project	Rev FC20-23	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC20-23	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: No	Plant Acct: 131200	Est Removal:	Est In Svc: 30 Apr 2020
<b>Description:</b> Replace the boiler 201A MOV block valve and actuator with an in-kind valve and actuator from inventory.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain unit reliability by reducing the risk of delayed start-ups due to leaking stop valves. The valves are approaching the end of their serviceable life and are experiencing leaking at the valve seat and packing which has resulted in start-up delays and extended outages.			
<b>Consequences of Delay:</b> Potential 5 day forced outage. Economic justifications assumes a 10% probability of a 5 day forced outage.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:		6.30 M\$	
Budget Category:		NM PRG	

Cash Flow - 2020							
Jan	\$6,000	Apr	\$81,000	Jul	\$3,000	Oct	\$0
Feb	\$112,000	May	\$6,000	Aug	\$0	Nov	\$0
Mar	\$87,000	Jun	\$6,000	Sep	\$0	Dec	\$0
<b>Prior</b>	\$0	<b>2020</b>	\$301,000	<b>2021</b>	\$4,000	<b>After</b>	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$85,000	
Removals	\$6,000	
(Salvage)	\$0	
Non-Itemized Additions	\$206,000	
Specific Cost	\$297,000	
Overhead Loads	\$8,000	
<b>CBI Total</b>	<b>\$305,000</b>	
Retirements	\$0	

Approvals				
			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$192,158	Sarah Kist	Date 10/9/19
NTEC	7.00%	\$21,351	S. H. H.	Date 10/9/19
PNM	13.00%	\$39,652	[Signature]	Date 12/5/19
SRP	10.0%	\$30,501	[Signature]	Date 10-9-19
TEP	7.00%	\$21,351	[Signature]	Date 10-9-19

FCC015753 Pulverizer Primary Air Damper Replacement							
Four Corners Participant Project	Rev FC20-35R1	0% Enviro.	NSR Completed: Yes				
FC Unit 5	CBI: FC20-35R1	Env Code: N/A	ERF Completed: Yes				
In 2020 Budget: Yes	Plant Acct: 131200	Est Removal: 27 Mar 2020	Est In Svc: 01 May 2020				
<p><b>Reason for Revision:</b> The \$180K increase is due to adding the scope for the removal/installation of new Tight Shut-Off (TSO) Valves on Pulverizers 5-3, 5-6, 5-7, and 5-8 which provide the first line of defense to suffocate a potential fire in the Pulverizer.</p> <p style="text-align: center;">Benefit-Cost NPV: 0.50 M\$</p>							
<p><b>Description:</b> Replace the Pulverizer Primary Air Dampers for all (8) Pulverizers on Unit 5.</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to maintain full load unit reliability. If the Primary Air Dampers do not operate correctly the Pulverizer is unable to provide the correct air temperature for optimal performance resulting in a possible Unit derate. Existing dampers are nearing end of useful life and parts are obsolete.</p> <p><b>Consequences of Delay:</b> Pulverizer inefficiency and the Pulverizer Primary Air Dampers serve as a second line of defense to suffocate a potential Pulverizer fire.</p> <p><b>Economic Justification:</b> Benefit-Cost NPV: 0.50 MS Budget Category: REL</p>							
Cash Flow - 2020							
Jan	\$27,000	Apr	\$25,000	Jul	\$6,000	Oct	\$0
Feb	\$222,000	May	\$22,000	Aug	\$6,000	Nov	\$0
Mar	\$526,000	Jun	(\$172,000)	Sep	\$6,000	Dec	\$0
<b>Prior</b>	<b>\$228,000</b>	<b>2020</b>	<b>\$668,000</b>	<b>2021</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>
Cost Summary							
	Previous Amount			Revised Amount			
RU Materials				\$140,000	\$209,000		
Removals				\$50,000	\$50,000		
(Salvage)					\$0		
Non-Itemized Additions				\$526,000	\$622,000		
Specific Cost				\$716,000	\$880,000		
Overhead Loads					\$16,000		
CBI Total				\$716,000	<b>\$896,000</b>		
Retirements					\$0		
Approvals							
				E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
APS	63.00%	\$564,437			Date		
NTEC	7.00%	\$62,715			Date		
PNM	13.00%	\$116,471			Date		
SRP	10.0%	\$89,593			4/13/2020		
TEP	7.00%	\$62,715			Date		

FCC015754 Waste Slurry Sump Replacement			
Four Corners Participant Project	Rev FC20-36	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC20-36	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 30 Apr 2020
<b>Description:</b> Replace the (6) Unit 5 Waste Slurry Sump Pumps, (14) 6" Control Valves and Actuators, and the associated piping.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain unit reliability. The existing pumps, valving, and piping have corroded over time due to the chemicals present in the Waste Slurry and are approaching end of useful life.			
<b>Consequences of Delay:</b> An inoperable Waste Slurry Sump could result in costly equipment damage and additional repairs as a result of flooding in the area. Potential disruption to Waste Slurry Processing and inability to dispose of excess Waste Slurry in the area or routing excess Waste Slurry to the URS.			
<b>Economic Justification:</b>			
	Benefit-Cost NPV:	4.10 M\$	
	Budget Category:	REL	

Cash Flow - 2020							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$275,000	May	\$0	Aug	\$0	Nov	\$0
Mar	\$275,000	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2020	\$550,000	2021	\$0	After	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$192,000	
Removals	\$25,000	
(Salvage)	\$0	
Non-Itemized Additions	\$333,000	
Specific Cost	\$550,000	
Overhead Loads	\$0	
CBI Total	\$550,000	
Retirements	\$0	

Approvals				
			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$346,500	<i>Sarah Kist</i>	Date 10/9/19
NTEC	7.00%	\$38,500	<i>S. Hill</i>	Date 10/9/19
PNM	13.00%	\$71,500	<i>[Signature]</i>	Date 12/5/17
SRP	10.0%	\$55,000	<i>[Signature]</i>	Date 10-9-19
TEP	7.00%	\$38,500	<i>[Signature]</i>	Date 10-9-15



FCC015367 DCS Card Replacement			
Four Corners Participant Project	Rev FC20-52	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC20-52	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: Yes	Plant Acct: 131500	Est Removal:	Est In Svc: 30 Apr 2020
<p><b>Description:</b> The purpose of this project is to maintain unit reliability by replacing obsolete DCS cards and power supplies that have reached end of life. The existing DCS cards in Cabinets L5 and L15 have been identified by ABB as extremely urgent for replacement. New power supplies will offer a higher level of dependability.</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to maintain plant reliability by replacing outdated and obsolete components of the Unit 5 DCS. The existing components have reached the end of their useful life and are no longer support by the OEM. Failure of these components could attribute to unit trips.</p> <p><b>Consequences of Delay:</b> Reduced DCS reliability and subsequent increased risk to unit availability.</p> <p><b>Economic Justification:</b> Benefit-Cost NPV: 1.26 MS Budget Category: REL</p>			

Cash Flow - 2020							
Jan	\$1,106,000	Apr	\$220,000	Jul	\$0	Oct	\$0
Feb	\$12,000	May	\$4,000	Aug	\$0	Nov	\$0
Mar	\$24,000	Jun	\$4,000	Sep	\$0	Dec	\$0
<b>Prior</b>	<b>\$642,000</b>	<b>2020</b>	<b>\$1,370,000</b>	<b>2021</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$220,000	
Removals	\$20,000	
(Salvage)	\$0	
Non-Itemized Additions	\$1,767,000	
Specific Cost	\$2,007,000	
Overhead Loads	\$4,000	
<b>CBI Total</b>	<b>\$2,011,000</b>	
Retirements	\$0	

Approvals				
			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$1,267,200	Sarah Kist	Date 12/9/19
NTEC	7.00%	\$140,800	S. Seltzer	Date 10/9/19
PNM	13.00%	\$261,486	[Signature]	Date 12/5/19
SRP	10.0%	\$201,143	[Signature]	Date 10-9-19
TEP	7.00%	\$140,800	[Signature]	Date 10-9-19

FCC015204 2020 Vehicle Replacement			
Four Corners Participant Project	Rev FC20-62	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC20-62	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: No	Plant Acct: 131600	Est Removal:	Est In Svc: 20 Apr 2020
<b>Description:</b> Replacement of Plant vehicles to provide Plant personnel with vehicles to maintain reliable plant operation.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain plant reliability. These new vehicles will be used for maintenance and transportation of Plant personnel and equipment. The current fleet of Plant vehicles is reaching the end of its serviceable life, unreliable, and costly to maintain.			
<b>Consequences of Delay:</b> Risk to unit reliability while not having suitable vehicles for efficient maintenance activities. Aging equipment may also result in increased O&M costs.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:		0.34 MS	
Budget Category:		REL	

Cash Flow - 2020							
Jan	\$750,000	Apr	\$50,000	Jul	\$0	Oct	\$0
Feb	\$600,000	May	\$0	Aug	\$0	Nov	\$0
Mar	\$200,000	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2020	\$1,600,000	2021	\$0	After	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$50,000	
Removals (Salvage)	\$0	
Non-Itemized Additions	\$1,550,000	
Specific Cost	\$1,600,000	
Overhead Loads	\$0	
CBI Total	\$1,600,000	
Retirements	\$0	

Approvals			
		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$1,008,000	<i>Searchlight</i> Date 10/9/19
NTEC	7.00%	\$112,000	<i>S. W. Jr</i> Date 10/9/19
PNM	13.00%	\$208,000	<i>[Signature]</i> Date 12/5/19
SRP	10.0%	\$160,000	<i>[Signature]</i> Date 10-9-19
TEP	7.00%	\$112,000	<i>[Signature]</i> Date 10-9-19

FCC016309 North Primary Air Duct Expansion Joint #0017 Replacement			
Four Corners Participant Project	Rev FC20-72	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC20-72	Env Code:	ERF Completed: Yes
In 2020 Budget: No	Plant Acct: 131200	Est Removal: 14 Jan 2020	Est In Svc: 21 Jan 2020

**Description:** Unit 4 North Primary Air Duct Expansion Joint #0017 removal and replacement.

**Purpose/Necessity:** The purpose of this project is to replace F4 North Primary Air (PA) Duct Expansion Joint #0017 because the expansion joint reached the end of serviceable life and experienced an emergent failure resulting in a Forced Outage. The unit cannot come online until the expansion joint is replaced.

**Consequences of Delay:** Failure of the expansion joint may result in a load loss, potential forced outage, and/or environmental non-compliance.

**Economic Justification:**

Benefit-Cost NPV: 18.30 M\$  
Budget Category: REL

**Cash Flow - 2020**

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$82,000	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2020	\$82,000	2021	\$0	After	\$0

**Cost Summary**

	Current Amount	Revised Amount
RU Materials	\$29,000	
Removals	\$12,000	
(Salvage)	\$0	
Non-Itemized Additions	\$40,000	
Specific Cost	\$82,000	
Overhead Loads	\$0	
CBI Total	\$82,000	
Retirements	\$0	

**Approvals**

		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>	
APS	63.00%	\$51,554		Date
NIEC	7.00%	\$5,728		Date
PNM	13.00%	\$10,638	<i>Reg Carter</i>	Date: 2/19/20
SRP	10.0%	\$8,183		Date
TEP	7.00%	\$5,728		Date

CBI 6216 SCR to Primary Air Duct Expansion Joint Replacement			
Plant/General Participation Project	Rev. FC 20-74	9% ERM's	NSR Completed/ Yes
TC Unit 4	CBI 6216-74	Est. Code	SRP Completed/ Yes
In 2020 Budget No.	Plant Acct. 131200	Est. Removal 20 Apr 2020	Est. In Svc. 01 May 2020

**Description:** Replace 10 Expansion Joints in the Unit 4 SCR to Primary Air ductwork.

**Purpose/Necessity:** The purpose of this project is to replace the 10 Expansion Joints that have reached the end of their useable life due to Fly Ash erosion and abrasion which can ultimately result in leaks and/or ruptures. Inspections conducted during the January 2020 F4 Forced Outage indicated replacement is required prior to Summer Run.

**Consequences of Delay:** Failure of the expansion joint may result in a load loss, potential forced outage, and/or environmental non-compliance.

**Economic Justification:**

Benefit-Cost NPV: 17.70 M\$  
Budget Category: REL

Cash Flow - 2020							
Jan	\$0	Apr	\$1,213,000	Jul	\$0	Oct	\$0
Feb	\$114,000	May	\$86,000	Aug	\$0	Nov	\$0
Mar	\$208,000	Jun	\$5,000	Sep	\$0	Dec	\$0
Prior	\$0	2020	\$1,626,000	2021	\$0	After	\$0

Cost Summary	
	Current Amount
RU Materials	\$225,000
Removals	\$35,000
(Salvage)	\$0
Non-Itemized Additions	\$1,355,000
Specific Cost	\$1,615,000
Overhead Loads	\$11,000
CBI Total	\$1,626,000
Retirements	\$0

Approval			
		E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
APS	63.00%	\$1,024,073	Date
NTEC	7.00%	\$113,786	Date
PNM	13.00%	\$211,317	Date
SRP	10.0%	\$162,551	Date
TEP	7.00%	\$113,786	Date

*Ref: [Signature] 3/10/2020*

<p align="center"><b>Replace 8 Expansion Joints in the Unit 5 SCR to Primary Air Ductwork Replacement</b></p>			
Four Corners Participial Project	Rev: FC20-73	02% Bny/16	NSR Completed: Yes
FC Unit: 5	OP: FC20-73	Env Code:	BRF Completed: Yes
In 2020 Budget No:	Plant Acct: 131200	Est. Remain: 04 Mar 2020	Est. In Svc: 01 May 2020

**Description:** Replace 8 Expansion Joints in the Unit 5 SCR to Primary Air ductwork.

**Purpose/Necessity:** The purpose of this project is to replace the 8 Expansion Joints that have reached the end of their useable life due to Fly Ash erosion and abrasion which can ultimately result in leaks and/or ruptures. Inspections conducted during the December 2019 Forced Outage indicated replacement is required prior to Summer Run.

**Consequences of Delay:** Failure of the expansion joint may result in a load loss, potential forced outage, and/or environmental non-compliance.

**Economic Justification:**

Benefit-Cost NPV: 18.10 M\$  
Budget Category: REL

Cashflow - 2020							
Jan	\$0	Apr	\$259,000	Jul	\$0	Oct	\$0
Feb	\$99,000	May	\$70,000	Aug	\$0	Nov	\$57,000
Mar	\$462,000	Jun	\$5,000	Sep	\$0	Dec	\$0
Prior	\$0	2020	\$992,000	2021	\$0	After	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$180,000	
Removals	\$30,000	
(Salvage)	\$0	
Non-Itemized Additions	\$727,000	
Specific Cost	\$937,000	
Overhead Loads	\$15,000	
CBI Total	\$952,000	
Retirements	\$0	

Approval				
			E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
APS	63.00%	\$600,015		Date
NTEC	7.00%	\$66,668		Date
PNM	13.00%	\$123,813	<i>Roy Carter</i>	Date 3/2/2020
SRP	10.0%	\$95,240		Date
TEP	7.00%	\$66,668		Date

**FCC016412 T-7 Bearing Replacement**

Four Corners Participant Project	Rev FC20-75R1	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC20-75R1	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: No	Plant Acct: 131400	Est Removal:	Est In Svc: 01 Jun 2020

**Reason for Revision:** The purpose for this reauthorization is to cancel CBI FC20-75R1. An inspection determined the bearing does not need to be replaced.

**Description:** Replace the #7 Bearing on the HP Turbine.

**Purpose/Necessity:** The purpose of this project is to maintain unit reliability. Currently, the T-7 Bearing is experiencing high vibration. The intent of this project is to replace the T-7 Bearing during the Planned Spring 2020 Outage because the OEM will be on-site.

**Consequences of Delay:** Loss of unit reliability and potential bearing failure resulting in a Forced Outage.

**Economic Justification:**

Benefit-Cost NPV: 13.90 M\$  
Budget Category: REL

**Cash Flow - 2020**

Jan	\$0	Apr	\$1,000	Jul	\$0	Oct	\$0
Feb	\$0	May	\$34,000	Aug	\$0	Nov	\$0
Mar	\$1,000	Jun	(\$35,000)	Sep	\$0	Dec	\$0
<b>Prior</b>	\$0	<b>2020</b>	\$0	<b>2021</b>	\$0	<b>After</b>	\$0

**Cost Summary**

	Previous Amount	Revised Amount
RU Materials	\$10,000	\$10,000
Removals	\$7,000	\$7,000
(Salvage)		\$0
Non-Itemized Additions	\$79,000	(\$17,000)
Specific Cost	\$95,000	\$0
Overhead Loads	\$3,000	\$0
<b>CBI Total</b>	<b>\$98,000</b>	<b>\$0</b>
Retirements		\$0

**Approvals**

		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>	
APS	63.00%	\$222		Date
NTEC	7.00%	\$25		Date
PNM	13.00%	\$46	<i>Roy Carter</i>	Date
SRP	10.0%	\$35		6/17/2020
TEP	7.00%	\$25		Date

**FCC016413 North Absorber Module Expansion Joint Replacement**

Four Corners Participant Project	Rev FC20-76	100% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC20-76	Env Code: Air	ERF Completed: Yes
In 2020 Budget: No	Plant Acct: 131200	Est Removal: 01 Apr 2020	Est In Svc: 01 May 2020

**Description:** Replace the North Absorber Module Inlet Duct Expansion Joint.

**Purpose/Necessity:** The purpose of this project is to maintain Environmental compliance. The existing expansion joint is leaking which has resulted in a risk of flue gas discharge and potential Forced Outage.

**Consequences of Delay:** Loss of unit reliability, potential expansion joint failure, and Forced Outage.

**Economic Justification:**

Budget Category: ENV

**Cash Flow - 2020**

Jan	\$0	Apr	\$46,000	Jul	\$0	Oct	\$0
Feb	\$0	May	\$3,000	Aug	\$0	Nov	\$0
Mar	\$52,000	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	\$0	<b>2020</b>	\$100,000	<b>2021</b>	\$0	<b>After</b>	\$0

**Cost Summary**

	<b>Current Amount</b>	<b>Revised Amount</b>
RU Materials	\$10,000	
Removals	\$8,000	
(Salvage)	\$0	
Non-Itemized Additions	\$83,000	
Specific Cost	\$100,000	
Overhead Loads	\$0	
<b>CBI Total</b>	<b>\$100,000</b>	
Retirements	\$0	

**Approvals**

		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>	
APS	63.00%	\$63,248		Date
NTEC	7.00%	\$7,028		Date
PNM	13.00%	\$13,051	<i>Roy Carter</i>	Date 3/10/2020
SRP	10.0%	\$10,039		Date
TEP	7.00%	\$7,028		Date

**FCC016421 SCR Air Preheater Rotor Seal Replacement**

Four Corners Participant Project	Rev FC20-77R1	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC20-77R1	Env Code: N/A	ERF Completed: Yes
In 2021 Budget: No	Plant Acct: 131200	Est Removal: 01 Apr 2020	Est In Svc: 01 May 2020

**Reason for Revision:** This \$63K increase is a result of construction cost being higher than anticipated.

Benefit-Cost NPV: 6.00 M\$

**Description:** Replace the rotor seals on the north and south Unit 5 Air Preheaters.

**Purpose/Necessity:** The purpose of this project is to maintain unit reliability. The replacement of the seals is necessary to maintain unit heat rate as well as to minimize oxygen leakage and fly ash carryover into the primary and secondary air systems. The seals are a high wear item and have reached the end of their serviceable life.

**Consequences of Delay:** Continued operation will result in higher unit heat rate, higher O2 leakage rates and higher fly ash carryover into the primary and secondary air systems, and potential forced outage if seals fail completely or expansion joints are damaged.

**Economic Justification:**

Benefit-Cost NPV: 6.00 M\$  
Budget Category: REL

**Cash Flow - 2021**

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	\$179,000	<b>2021</b>	\$0	<b>2022</b>	\$0	<b>After</b>	\$0

**Cost Summary**

	Previous Amount	Revised Amount
RU Materials	\$20,000	\$60,000
Removals	\$10,000	\$35,000
(Salvage)		\$0
Non-Itemized Additions	\$94,000	\$83,000
Specific Cost	\$124,000	\$178,000
Overhead Loads		\$1,000
<b>CBI Total</b>	<b>\$124,000</b>	<b>\$179,000</b>
Retirements		\$0

**Approvals**

		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$112,946	Date
NTEC	7.00%	\$12,550	Date
PNM	13.00%	\$23,306	Date
SRP	10.0%	\$17,928	Date
TEP	7.00%	\$12,550	Date



**Four Corners O&M Budget Item**

Plant: FC Power Plant  
 Budget Year: 2019  
 Cost Of Project: 171,975  
 System: Waste Processing  
 Sub-System: WP-Waste Processing  
 Current System Health: Red  
 Projected System Health: Yellow  
 Risk Type:  Environmental  
    Generation  
    Regulatory  
    Safety

Number: 28-2019  
 Budget Type: RT  
 Unit: Units 4 & 5  
 Date: 5/15/2018  
 Priority: 2  
 Frequency: One-Time  
 Prepared By: Coy B. Cody

**Job Title:** U4&5 Hydro-Bin Overflow Piping & Header Replacement

**Description of Work:**

Remove and replace hydro-bin overflow (down-comer) and header piping to install flange fitted piping. Install new pipe hanger and supports as needed to maintain the new piping structurally supported. Scaffolding will need to be built to access the piping off the hydro-bin and headers. 10" schedule 40 piping N2 = 120 linear ft. S1 = 30 linear ft. N1 = 30 linear ft. Header 14" schedule 40 piping. Two (2) 90 degree elbows - very corroded. 20 linear ft.

**Purpose And Necessity:**

The purpose of replacing hydro-bin overflow (down-comer) and header piping is to maintain the system's reliability. The existing conditions of pipe original material thickness is thinning due to corrosion that has caused major leaks and spills. This piping has been patched too many times in the past where it is now determined to be beyond repair.

**Potential Adverse Consequences:**

The potential consequence for not replacing hydro-bin overflow piping and header is high risk of increasing spills and leaks due to corrosion damages. Piping system will continue to thin by corrosion until failure. This may result in unit outage for not replacing this system.

Allocation	%	\$
APS	63	108,344
PSNM	13	22,357
SRP	10	17,198
TEP	7	12,038
NTEC	7	12,038
<b>Total</b>	<b>100</b>	<b>171,975</b>

**Four Corners O&M Budget Item**

Plant: FC Power Plant  
 Budget Year: 2019  
 Cost Of Project: 251,008  
 System: Waste Processing  
 Sub-System: WP-Waste Processing  
 Current System Health: Yellow  
 Projected System Health: Yellow  
 Risk Type:  Environmental  
    Generation  
    Regulatory  
    Safety

Number: 30-2019  
 Budget Type: RT  
 Unit: Units 4 & 5  
 Date: 5/15/2018  
 Priority: 3  
 Frequency: One-Time  
 Prepared By: Coy & Cody

**Job Title:** U4&5 Surge Silo Crane Jib Replacement

**Description of Work:**

Remove and replace surge silo crane jib. This scope will include replacing some of the surge silo roof tops and I-beams, as needed. Ensure replacement crane jib is structurally sound and rated for holisting heavy equipment. This does not include the hoist, or any lifting device.

**Purpose And Necessity:**

The purpose of replacing surge silo crane jib is to restore the use and purpose it was originally built for. The existing crane jib cannot be used any more given the lack of structural support from the rooftop of the surge silo.

**Potential Adverse Consequences:**

The potential consequence of not replacing existing crane jib is risk of someone using it when it doesn't have a proper weight capacity rating and is lacking structural support. Any further use of this crane jib will put people at danger.

Allocation	%	\$
APS	63	158,135
PSNM	13	32,631
SRP	10	25,101
TEP	7	17,571
NTEC	7	17,571
<b>Total</b>	<b>100</b>	<b>251,008</b>

Backup supporting spreadsheet for the \$73 million CapEx from July 1, 2020 through Dec 31, 2024 in Exhibit TGF-3

FCPP Clearings By Project (in thousands)  
Decommissioning Projects removed from this listing  
Includes Switchyard projects but removed to net to column E

CB/Project Number	Funding Project	Period	Clearings	Per Budget	Remove Budget Switchyard Clearings	Total Budget w/o Switchyard	Justifications
FC18-22R1	FC008546	Freight Elevator Replacement	260				Safety
FC20-16	FC0012908	Miscellaneous Lagging & Insulation Replacement - 2020	78				Safety
FC19-21	FC0013855	Boiler 200 Valve Replacement	153				Reliability
FC20-17	FC0012909	Miscellaneous Lagging & Insulation Replacement - 2020	78				Safety
FC20-36	FC0015754	Waste Slurry Sump Replacement	75				Reliability
FC20-57	PE015763	FC Potable Water Bldg HVAC	11				Reliability
FC20-58	PE015777	FC HVAC Misc Equipment Replacement	39				Reliability
FC20-59	PE015778	FC Plant Building Misc Equipment Replacement	40				Reliability
FC20-60	PE015779	FC Plant Exterior Misc Replacement	13				Reliability
FC18-29	FC008150	Heat Trace - Phase 2	391				Reliability
FC19-17	FC0013055	Fire Warning Detection System Replacement	418				Safety
FC20-29	FC0015133	Water Systems/Membranes Program - 2020	65				Reliability
FC20-30R1	FC0015143	Motors, Pumps and Valves - 2020	618				Reliability
FC20-33	FC0015383	Coal Handling Replacements - 2020	39				Reliability
FC20-34	FC0015752	Pulverizer Grinding Zone and Gear Drive Replacements	455				Reliability
FC20-71	FC008103	2020 Plant Tools	39				Reliability
FC20-79	FC0016427	F 45 SO2 Reversing Conveyor Platform Struc. Repl - Break-in	60				Safety
FC20-80	FC0016439	Supply Chain Optimization - FC Contract Mgmt License Fee 2020-2022 - Break-in	25				Reliability
FC20-81	FC0016440	Supply Chain Optimization - Contract Mgmt Implementation - Break-in	10				Reliability
FC16-22R2	FC006752	Dry Fly Ash Disposal Area Site 4 Construction	1,486				Regulatory
FC17-45R2	FCC07701	Bottom Ash Sluice Water Recycle	1,785				Regulatory
FC18-34R1	FCC06814	Return Water Pond	764				Regulatory
FC16-23R1	FCC07573	Dry Fly Ash Disposal Section A Closure	151				Regulatory
		Allowance for Emerging Projects	26				
		A&G Loads + AFUDC	318	7,384	(222)	7,172	
<b>2021</b>							
FC21-01	FC0012910	Miscellaneous Lagging & Insulation Replacement - 2021	39				Safety
FC21-08	FC007210	2021 Fabric Filter Bag Replacement	152				Regulatory
FC21-31	FC0015368	Baghouse Poppet Valve Actuator Replacement	73				Reliability
FC21-37	FC008575	4X FD Fan Motor Replacement	16				Reliability
FC21-38	FC008578	4X PA Fan Motor Replacement	16				Reliability
FC21-40	FC008863	Baghouse Booster Fan Motor Replacement - A	35				Reliability
FC21-43	FC0016424	DCS Power Supplies Replacement	112				Reliability
FC21-46	FC006555	Startup Valve Replacement (205)	56				Reliability
FC20-04	FC008317	2021 Turbine Minor Overhaul	273				Regulatory
FC20-06	FC008473	Baghouse Vent Header Replacement	636				Regulatory
FC20-10	FC008872	Fly Ash Transport System Replacement	172				Regulatory
FC20-11	FC008897	Scrubber Outlet Dampers	337				Regulatory
FC20-14	FC0012891	Burner Replacement - Phase 2	1,596				Regulatory
FC20-15	FC0012896	Safety Valve Replacement	196				Regulatory
FC20-18	FC0012934	Fly Ash Level Indicator Replacement	60				Regulatory
FC20-19	FC0013149	Lime Feed Header Replacement	88				Regulatory
FC20-21	FC0013854	Boiler 200 Valve Replacement	125				Reliability
FC20-24	FC0014253	Coal Piping Knife Gate Isolation Valve	162				Reliability
FC20-26	FC0014942	Economizer Inlet Block Valve Replacement	148				Reliability
FC20-31	FC0015279	Baghouse North Elevator Replacement	153				Reliability
FC20-32	FC0015280	Baghouse South Elevator Replacement	149				Reliability
FC20-39	FC008917	T-621 Auxiliary Transformer Replacement	212				Reliability
FC20-40	FC009075	Reheat Connecting Bank Replacement	771				Reliability
FC20-42	FC0012938	Boiler Feedwater Miniflow Piping Replacement	241				Reliability
FC20-43	FC0012942	Boiler Feed Pump Discharge Check Valve Replacement	73				Reliability
FC20-46	FC0014272	1st Point Feedwater Inlet MOV Replacement	102				Reliability
FC20-49	FC0014866	Thickener Replacement	775				Reliability

Backup supporting spreadsheet for the \$73 million CapEx from July 1, 2020 through Dec 31, 2024 in Exhibit TGF-3

FOPP Clearings By Project (in thousands)  
Decommissioning Projects removed from this listing  
Includes Switchyard projects but removed to net to column E

CB/Project Number	Funding Project	Period	Clearings	Per Budget	Remove Budget Switchyard Clearings	Total Budget w/o Switchyard	Justifications
FC20-64	FC008797	4th Point Feedwater Heater Replacement	355				Reliability
FC20-67	FC0016807	Condenser Expansion Joint Replacement	98				Reliability
FC19-25	FC0014267	2nd Stage Secondary Superheater Replacement	2,122				Reliability
FC19-26	FC003957	1st Stage Pendant Secondary Superheater Replacement	553				Reliability
FC19-28	FC006840	Horizontal Reheat Inlet Header Repl	745				Reliability
FC19-41	FC008309	Exciter Replacement	565				Reliability
FC19-61	FC009069	Boiler Convection Pass Tube Replacement	1,293				Reliability
FC21-02	FC0012911	Miscellaneous Lagging & Insulation Replacement - 2021	39				Safety
FC21-09	FC007211	2021 Fabric Filler Bag Replacement	152				Safety
FC21-21	FC0016148	Baghouse North Elevator Replacement	148				Safety
FC21-22	FC0016149	Baghouse South Elevator Replacement	147				Safety
FC21-32	FC008585	Bottom Ash Clinker Grinder Replacement	36				Reliability
FC20-27	FC0014943	Economizer Inlet Block Valve Replacement	143				Reliability
FC20-44	FC0012943	Boiler Feedwater Discharge Block Valve Replacement	163				Reliability
FC20-47	FC0014273	1st Point Feedwater Inlet MOV Replacement	99				Reliability
FC20-63	FC008798	4th Point Feedwater Heater Replacement	469				Reliability
FC21-39	FC008861	Baghouse Booster Fan Motor Replacement - C	33				Reliability
FC20-70	FC006587	6th Point Feedwater Heater Replacement	195				Reliability
FC19-38	FC008229	Pulverizer Motor Replacement	48				Reliability
FC21-04	FC0015134	Water Systems/Membranes Program - 2021	46				Reliability
FC21-06	FC0015384	Coal Handling Replacements - 2021	72				Reliability
FC21-07	FC0016078	Pulverizer Grinding Zone and Gear Drive Replacements - 2021	455				Reliability
FC21-10	FC008232	2021 Plant Tools	39				Reliability
FC21-13	FC0015071	Purchase New 75 Ton Crane	57				Safety
FC21-33	FC0015100	Phase 6 Water Piping Replacement	195				Safety
FC21-34	FC0014803	Area Lighting Replacement Phase 3	207				Safety
FC21-45	FC0016659	DCS Card and Power Supplies Replacement	114				Reliability
FC21-47	FC0016380	Baghouse Air Compressor Replacement	87				Reliability
FC21-49	PE016574	Bag House Control Room HVAC	16				Regulatory
FC21-50	PE016621	4160 MCC HVAC	20				Regulatory
FC21-51	PE016577	FC Admin Basement Gen	20				Regulatory
FC21-52	PE016818	Polymer Building HVAC Replacement	27				Regulatory
FC21-53	PE016824	Exterior - Planned/ Predictive Replacement	13				Safety
FC21-54	PE016823	HVAC - Planned/ Predictive Replacement	39				Safety
FC21-55	PE016821	Building - Planned/ Predictive Replacement	39				Safety
FC20-07	FC0089547	Main Elevator Modernization	167				Safety
FC20-13	FC008996	U46 Sulfur Tank Addition	107				Safety
FC20-48	FC0014276	Ash Sluice Piping Replacement	119				Regulatory
FC20-56	PE015678	Training Building Remodel/Refurbishment	334				Reliability
FC20-01	FC006576	SCR Catalyst Layer Replacement 2021	426				Reliability
FC20-05	FC008406	2021 CBI Development	157				- MOVE TO 2021 (Reliability)
FC20-25	FC0014802	Area Lighting Replacement Phase 2	33				- MOVE TO 2021 (Safety)
FC20-25R1	FC0015123	FC Electrical Systems - 2020	176				- MOVE TO 2021 (Reliability)
		Allowance for Emerging Projects	74				
		A&G Loads + AFUDC	687	17,900	(537)	17,363	
<b>2022</b>							
FC21-46	FC006555	Startup Valve Replacement (205)	2				Reliability
FC20-10	FC008872	Fly Ash Transport System Replacement	111				Regulatory
FC20-11	FC008897	Scrubber Outlet Dampers	163				Regulatory
FC20-39	FC008917	T-621 Auxiliary Transformer Replacement	189				Reliability
FC19-28	FC006840	Horizontal Reheat Inlet Header Repl	5				Reliability
FC20-31	FC0015279	Baghouse North Elevator Replacement	0				Safety
FC20-32	FC0015280	Baghouse South Elevator Replacement	2				Safety
FC20-64	FC008797	4th Point Feedwater Heater Replacement	1				Reliability

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FOPP Clearings By Project (in thousands)  
Decommissioning Projects removed from this listing  
Includes Switchyard projects but removed to net to column E

CB/Project Number	Funding Project	Period	Clearings	Per Budget	Remove Budget Switchyard Clearings	Total Budget w/o Switchyard	Justifications
FC20-70	FCC06587	6th Point Feedwater Heater Replacement	0				Reliability
FC21-47	FCC016380	Baghouse Air Compressor Replacement	4				Reliability
FC20-07	FCC08547	Main Elevator Modernization	1				Safety
FC21-19	FCC015096	South Train Lime Weigh Belt Feeders Replacement	150				Reliability
FC21-15	FCC015073	Lime Storage Tank Agiator Gearbox Replacement	72				Reliability
FC21-17	FCC015077	Reverse Air Fan Outlet Damper Replacement	568				Reliability
FC21-25	FCC015079	DA Pegging Steam Control Valve Replacement	59				Reliability
FC21-27	FCC015085	Boiler FW Booster Pump Replacement	106				Reliability
FC21-29	FCC015093	Superheater Spray CV And Block Valves Replacement	85				Reliability
FC21-35	FCC06570	GSJ Transformer T641 Replacement	594				Reliability
FC21-41	FCC08924	Baghouse 13.8KV Fan Motor Protective Relay Replacement	80				Reliability
FC21-14	FCC015072	Lime Storage Tank Agiator and Gearbox Replacement	120				Reliability
FC21-16	FCC015076	Reverse Air Fan Outlet Damper Replacement	87				Reliability
FC21-20	FCC015097	North & South Train Lime Weigh Belt Feeders Replacement	246				Reliability
FC21-26	FCC015080	DA Pegging Steam Control Valve Replacement	59				Reliability
FC21-28	FCC015086	Boiler FW Booster Pump Replacement	106				Reliability
FC21-30	FCC015094	Superheater Spray CV And Block Valves Replacement	85				Reliability
FC21-12	FCC012928	North Area Sump Replacement	155				Regulatory
FC21-23	FCC08548	Lime Silo Elevator Replacement	141				Safety
FC21-24	FCC013147	Bottom Ash Control Valve Replacement	69				Safety
FC21-44	FCC016351	Fire Warning Detection System Replacement - Phase 2	310				Reliability
FC21-42	FCC016656	Potable Water Treatment System Upgrade	137				Safety
FC21-48	FCC013745	HMI Upgrade	188				Regulatory
FC20-08	FCC08730	Phase 5 Water Piping Replacement	513				Safety
FC20-38R1	FCC015707	Supply Chain Optimization System Development	388				Reliability
FC19-37	FCC08151	Heat Trace - Phase 3	452				Reliability
NO CBI	PENDING	Motors, Pumps and Valves - 2022	650				Reliability
NO CBI	PENDING	Pulverizer Grinding Zone and Gear Drive Replacements - 2022	455				Reliability
NO CBI	PENDING	F5 2022 Fabric Filter Bag Replacement	156				Regulatory
NO CBI	PENDING	F4 2022 Fabric Filter Bag Replacement	156				Regulatory
NO CBI	PENDING	2023 CBI Development	147				Reliability
NO CBI	PENDING	Four Corners Vibration Monitoring System	130				Reliability
NO CBI	PENDING	Miscellaneous Lagging & Insulation Replacement - 2022	107				Safety
NO CBI	PENDING	Baghouse Air Compressor Replacement - 2022	98				Reliability
NO CBI	PENDING	Microsoft License Agrmt, 2022-2024	61				Reliability
NO CBI	PENDING	Morgan Dam Piezometer Install	54				Reliability
NO CBI	PENDING	Lease Boundary Security Fence	47				Reliability
NO CBI	PENDING	Water Systems/Membranes Program - 2022	46				Reliability
NO CBI	PENDING	Coal Handling Replacements - 2022	39				Reliability
NO CBI	PENDING	Primary Superheater Replacement	29				Reliability
NO CBI	PENDING	Bottom Ash Clinker Grinder Replacement	27				Reliability
NO CBI	PENDING	Slurry Density Control Valves Replacement	11				Reliability
NO CBI	PENDING	Feedwater Particle Monitor Replacement	11				Reliability
NO CBI	PENDING	Feedwater Particle Monitor Replacement	11				Reliability
NO CBI	PENDING	Condensate Pump #3 Replacement	10				Reliability
NO CBI	PENDING	Condensate Pump #2 Replacement	10				Reliability
NO CBI	PENDING	Confined Space/High Angle/Low Angle Rescue Equipment	9				Safety
NO CBI	PENDING	SCBA Tank/Pack Set Equipment Replacements - Year 2	7				Safety
NO CBI	PENDING	Slurry Density Control Valves Replacement	6				Reliability
NO CBI	PENDING	Contract Management License Fee Renewal (2022)	13				Reliability
NO CBI	PENDING	FC Admin Warehouse HVAC	6				Reliability
NO CBI	PENDING	FC Fire Brigade HVAC	20				Reliability
NO CBI	PENDING	FC SO2 C&M Bldg 69 roof	95				Reliability
NO CBI	PENDING	FC HVAC Misc Equipment Replacement	39				Reliability
NO CBI	PENDING	FC Plant Building Misc Equipment Replacement	39				Reliability

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FCPP Clearings By Project (in thousands)  
Decommissioning Projects removed from this listing  
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CB/Project Number	Funding Project	Period	Clearings	Per Budget	Remove Budget Switchyard Clearings	Total Budget w/o Switchyard	Justifications
NO CBI	PENDING	FC Plant Exterior Misc Replacement	13				Reliability
NO CBI	PENDING	River Station Discharge Metal Piping Replacement	252				Reliability
NO CBI	PENDING	Plant Pavement & Drainage Replacement	252				Reliability
NO CBI	PENDING	FC Electrical Systems - 2022	210				Reliability
NO CBI	PENDING	Coal Dust Elimination Phase 4	186				Safety
NO CBI	PENDING	Security Check-Point Enhancement & Relocation	182				Reliability
NO CBI	PENDING	River Station Concrete Discharge Piping Repl	128				Reliability
NO CBI	PENDING	Waste Oil Secondary Containment	111				Regulatory
NO CBI	PENDING	Miscellaneous Lagging and Insulation Replacement - 2022	111				Safety
NO CBI	PENDING	Ash Haul Road Repaving - 2020	87				Reliability
NO CBI	PENDING	2022 Plant Tools	87				Reliability
NO CBI	PENDING	O2 Injection System Replacement	98				Reliability
NO CBI	PENDING	FC Combined Waste Treatment Pond (CWTP) Construction	1,174				Regulatory
FC21-05	FCC015144	PNM Adjustment for December Motors, Pumps and Valves - 2021	826				Reliability
FC21-03	FCC015124	PNM Adjustment for December FC Electrical Systems - 2021	206				Reliability
FC19-32	FCC07348	PNM Adjustment Highway and Road Paving	508				Reliability
FC21-11	FCC08407	PNM Adjustment 2022 CBI Development	153				Reliability
FC18-39	FCC06902	PNM Adjustment CCR Groundwater Mitigation	255				Regulatory
		Allowance for Emerging Projects	1,819				
		A&G Loads + AFUDC	537	14,930	(448)	14,482	
<b>2023</b>							
NO CBI	PENDING	River Station Discharge Metal Piping Replacement	14				Reliability
NO CBI	PENDING	Plant Pavement & Drainage Replacement	14				Reliability
NO CBI	PENDING	FC Electrical Systems - 2022	1				Reliability
NO CBI	PENDING	Coal Dust Elimination Phase 4	31				Safety
NO CBI	PENDING	Security Check-Point Enhancement & Relocation	49				Reliability
NO CBI	PENDING	River Station Concrete Discharge Piping Repl	2				Reliability
NO CBI	PENDING	Waste Oil Secondary Containment	2				Regulatory
NO CBI	PENDING	Miscellaneous Lagging and Insulation Replacement - 2022	2				Safety
NO CBI	PENDING	Ash Haul Road Repaving - 2020	14				Reliability
NO CBI	PENDING	2022 Plant Tools	14				Reliability
NO CBI	PENDING	SO2 Intake Water Pumps Replacement	54				Reliability
NO CBI	PENDING	Area Lighting Replacement Phase 4	208				Safety
NO CBI	PENDING	North #1 Hydrobin Cone Replacement	217				Safety
NO CBI	PENDING	Plant Elevator Replacement - 2022	260				Reliability
NO CBI	PENDING	Baghouse Booster Fan Motor Replacement - B	104				Reliability
NO CBI	PENDING	PH Sampling Stations Replacement	122				Reliability
NO CBI	PENDING	PH Sampling Stations Replacement	121				Reliability
NO CBI	PENDING	River Intake 316b Upgrade	400				Reliability
NO CBI	PENDING	Boiler Waterwall Replacement	102				Reliability
NO CBI	PENDING	Surge Bin Coal Feeder Replacement	279				Reliability
NO CBI	PENDING	Reverse Air Fan Inlet Damper Replacement	52				Reliability
NO CBI	PENDING	High Energy Pipe Hanger Replacement	39				Reliability
NO CBI	PENDING	High Energy Pipe Hanger Replacement	33				Reliability
NO CBI	PENDING	F4 Scrubber Inlet Dampers Replacement	195				Regulatory
NO CBI	PENDING	F5 Scrubber Inlet Dampers Replacement	195				Regulatory
NO CBI	PENDING	Motors, Pumps and Valves - 2023	650				Reliability
NO CBI	PENDING	Pulverizer Grinding Zone and Gear Drive Replacements - 2023	455				Reliability
NO CBI	PENDING	FC Electrical Systems - 2023	169				Reliability
NO CBI	PENDING	F4 2023 Fabric Filter Bag Replacement	160				Regulatory
NO CBI	PENDING	F5 2023 Fabric Filter Bag Replacement	159				Regulatory
NO CBI	PENDING	2024 CBI Development	147				Reliability

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FCPP Clearings By Project (in thousands)  
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CB/Project Number	Funding Project	Period	Clearings	Per Budget	Remove Budget Switchyard Clearings	Total Budget w/o Switchyard	Justifications
NO CBI	PENDING	Coal Handling Replacements - 2023	130				Reliability
NO CBI	PENDING	F4 Opacity Meter Replacement	65				Regulatory
NO CBI	PENDING	F5 Opacity Meter Replacement	65				Regulatory
NO CBI	PENDING	Miscellaneous Lagging & Insulation Replacement - 2023	65				Safety
NO CBI	PENDING	Miscellaneous Lagging & Insulation Replacement - 2023	65				Safety
NO CBI	PENDING	F4 Fiberglass Lime Feed Header Replacement	65				Reliability
NO CBI	PENDING	Absorber Building Make-Up Water Piping Replacement	65				Reliability
NO CBI	PENDING	Absorber Building Process Liquor Piping Replacement	65				Reliability
NO CBI	PENDING	Water Systems/Membranes Program - 2023	46				Reliability
NO CBI	PENDING	FD Fan Motor Replacement	46				Reliability
NO CBI	PENDING	2023 Plant Tools	39				Reliability
NO CBI	PENDING	Bottom Ash Clinker Grinder Replacement	28				Reliability
NO CBI	PENDING	Condensate Pump #3 Replacement	10				Reliability
NO CBI	PENDING	SCBA Tank/Pack Set Equipment Replacements - Year 3	7				Safety
NO CBI	PENDING	Hazmat Operations Level Equipment	4				Safety
NO CBI	PENDING	Phase 7 Water Piping Replacement	715				Safety
NO CBI	PENDING	FC Bag House Chnrl Rm Roof	41				Safety
NO CBI	PENDING	FC Bldg 114 Roof	9				Safety
NO CBI	PENDING	FC HVAC Misc Equipment Replacement	39				Reliability
NO CBI	PENDING	FC Plant Building Misc Equipment Replacement	39				Reliability
NO CBI	PENDING	FC Plant Exterior Misc Equipment Replacement	13				Reliability
NO CBI	PENDING	345/500 Substation Hardening	1,374				Reliability
NO CBI	PENDING	SCR Catalyst replacement 2023	449				Reliability
NO CBI	PENDING	F45 ELG Plant Modifications	3,285				Reliability
NO CBI	PENDING	Allowance for Emerging Projects	1,113				Regulatory
		A&G Loads + AFUDC	371	12,661	(380)	12,281	Regulatory
		<b>2024</b>					
NO CBI	PENDING	1st Stage Pendant Secondary Superheater Replacement - Phase II	950				Reliability
NO CBI	PENDING	Circ Water Pump Replacement 2024	443				Reliability
NO CBI	PENDING	Boiler Nose Replacement	412				Reliability
NO CBI	PENDING	Convection Pass Water Tube Replacement	540				Reliability
NO CBI	PENDING	Furnace Waterwall Replacement	533				Reliability
NO CBI	PENDING	GSU Transformer T-1092 Replacement	458				Reliability
NO CBI	PENDING	APH Basket Replacement	701				Reliability
NO CBI	PENDING	Third Pass Waterwall Tube Replacement	519				Reliability
NO CBI	PENDING	HP-IP-LP Turbine Major Overhaul	1,443				Reliability
NO CBI	PENDING	Scrubber Outlet Dampers	617				Reliability
NO CBI	PENDING	Heat Trace - Phase 4	450				Regulatory
NO CBI	PENDING	DCS Upgrade	390				Reliability
NO CBI	PENDING	Baghouse Turning Vane Replacement	397				Reliability
NO CBI	PENDING	Baghouse Expansion Joint Replacements	684				Reliability
NO CBI	PENDING	Ground Detection System Replacement	136				Reliability
NO CBI	PENDING	Baghouse Air Locks Replacements	330				Reliability
NO CBI	PENDING	Steam Piping Hanger replacement	325				Reliability
NO CBI	PENDING	SO2 Scrubber Expansion Joint Replacement	214				Reliability
NO CBI	PENDING	Baghouse Bypass Poppets/Actuators Replacement	239				Reliability
NO CBI	PENDING	Coal Pipe Repl	540				Reliability
NO CBI	PENDING	Boiler Turbine Valve Replacement	88				Reliability
NO CBI	PENDING	North End Compressed Air System Replacement	95				Reliability
NO CBI	PENDING	Lime Feed Header Replacement	65				Reliability
NO CBI	PENDING	Battery Replacement - 2023	13				Reliability
NO CBI	PENDING	Circ Water Piping replacement	349				Reliability
NO CBI	PENDING	Motors, Pumps and Valves - 2024	650				Reliability
NO CBI	PENDING	Ash Haul Road Repaving - 2024	498				Reliability

Backup supporting spreadsheet for the \$73 million CapEx from July 1, 2020 through Dec 31, 2024 in Exhibit TGF-3

FCPP Clearings By Project (in thousands)  
Decommissioning Projects removed from this listing  
Includes Switchyard projects but removed to net to column E

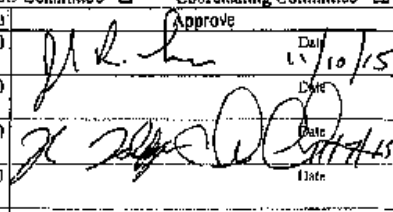
CB/Project Number	Funding Project	Period	Clearings	Per Budget	Remove Budget Switchyard Clearings	Total Budget w/o Switchyard	Justifications
NO CBI	PENDING	Pulverizer Grinding Zone and Gear Drive Replacements - 2024	455				Reliability
NO CBI	PENDING	Aux Boiler Component replacement	285				Reliability
NO CBI	PENDING	FC Electrical Systems - 2024	169				Reliability
NO CBI	PENDING	F5 2024 Fabric Filler Bag Replacement	163				Regulatory
NO CBI	PENDING	F4 2024 Fabric Filler Bag Replacement	163				Regulatory
NO CBI	PENDING	2025 CBI Development	147				
NO CBI	PENDING	Turbine Seal & Packing Replacement	130				Reliability
NO CBI	PENDING	SCR to Primary Air Duct Expansion Joint Replacement	112				Reliability
NO CBI	PENDING	Miscellaneous Lagging & Insulation Replacement - 2024	65				Reliability
NO CBI	PENDING	Miscellaneous Lagging & Insulation Replacement - 2024	65				Safety
NO CBI	PENDING	Water Systems/Membranes Program - 2024	46				Safety
NO CBI	PENDING	Coal Handling Replacements - 2024	39				Reliability
NO CBI	PENDING	2024 Plant Tools	39				Reliability
NO CBI	PENDING	Bottom Ash Clinker Grinder Replacement	32				Reliability
NO CBI	PENDING	Baghouse Booster Fan Motor Replacement - B	29				Reliability
NO CBI	PENDING	Baghouse Booster Fan Motor Replacement - D	29				Reliability
NO CBI	PENDING	Battery Replacement - 2024	13				Reliability
NO CBI	PENDING	Circ Water Piping replacement	11				Reliability
NO CBI	PENDING	Contract Management License Fee Renewal (2024)	13				Reliability
NO CBI	PENDING	Inventory Optimization License Fee Renewal (2024)	2				Reliability
NO CBI	PENDING	FC Warehouse Paving	10				Reliability
NO CBI	PENDING	FC HVAC Misc Equipment Replacement	39				Reliability
NO CBI	PENDING	FC Plant Building Misc Equipment Replacement	39				Reliability
NO CBI	PENDING	FC Plant Exterior Misc Replacement	13				Reliability
NO CBI	PENDING	SCR Catalyst replacement 2024	477				Regulatory
NO CBI	PENDING	Ash Disposal Site 5	3,072				Regulatory
NO CBI	PENDING	Partial Upper Economizer Replacement	478				Reliability
NO CBI	PENDING	Steam Piping Hanger replacements	181				Reliability
NO CBI	PENDING	Boiler Nose Replacement	132				Reliability
NO CBI	PENDING	Partial Economizer Replacement	447				Reliability
NO CBI	PENDING	Lower Economizer Replacement	937				Reliability
NO CBI	PENDING	Lower Economizer Replacement	169				Reliability
NO CBI	PENDING	Convection Pass Water Tube Replacement	143				Reliability
NO CBI	PENDING	Boiler Waterwall Replacement	91				Reliability
NO CBI	PENDING	Furnace Waterwall Replacement	78				Reliability
NO CBI	PENDING	Primary Superheater Replacement	65				Reliability
NO CBI	PENDING	Scrubber Duct Re lining	28				Reliability
NO CBI	PENDING	APH Basket Replacement	439				Reliability
NO CBI	PENDING	Coal Silo Liner Installation	244				Reliability
NO CBI	PENDING	Third Pass Waterwall Tube Replacement	243				Reliability
NO CBI	PENDING	Heat Trace - Phase 5	195				Reliability
NO CBI	PENDING	HP-IP-LP Turbine Major Overhaul	195				Reliability
NO CBI	PENDING	Cold Reheat Line Repl, Incl Supports	137				Reliability
NO CBI	PENDING	DCS Upgrade	130				Reliability
NO CBI	PENDING	Baghouse Turning Vane Replacement	122				Reliability
NO CBI	PENDING	Baghouse Bypass Poppets/Actuators Replacement	75				Reliability
NO CBI	PENDING	Baghouse Air Locks Replacements	70				Reliability
NO CBI	PENDING	Misc Expansion Joint Replacements	65				Reliability
NO CBI	PENDING	SO2 Scrubber Expansion Joint Replacement	65				Reliability
NO CBI	PENDING	Ground Detection System Replacement	58				Reliability
NO CBI	PENDING	Baghouse & SO2 Instrument Air Dryers Replacement	43				Reliability
NO CBI	PENDING	Coal Pipe Repl	39				Reliability
NO CBI	PENDING	6th Point Feedwater Heater Replacement	33				Reliability
NO CBI	PENDING	Allowance for Deferred Projects	(900)				
NO CBI	PENDING	A&G Loads + AFUDC	606				
					(670)	21,653	
					22,323		



Backup supporting spreadsheet for the \$73 million CapEx from July 1, 2020 through Dec 31, 2024 in Exhibit TGF-3

F CPP Clearings By Project (in thousands)  
Decommissioning Projects removed from this listing  
Includes Switchyard projects but removed to net to column E

CB/Project Number	Funding Project	Period	Clearings	Per Budget	Remove Budget Switchyard Clearings	Total Budget w/o Switchyard	Justifications
		Total Clearings July 2020 - December 2024		75,208	(2,256)	72,951	Baker Testimony

Four Companies Participant Project FC Units 4 & 5	Site W.A. Rev'd Obj: 1622	EPA CCR Dry Good Solids Est. Removal:	NSR Completed: Yes EPR Completed: Yes Est. In Svc: 07/13/2018				
<b>Description:</b> Construction of a 30-acre Lined Dry Ash Disposal Facility to store coal combustion residuals.							
<b>Purpose/Necessity:</b> The purpose of this project is to continue operation of Units 4 and 5 while meeting the EPA CCR regulations. The storage area (DFADA Sites 1 through 3) is expected to reach capacity by 2018. Continued operation of Units 4 and 5 requires an ash disposal facility in compliance with regulations, which require disposal in a RCRA Subtitle D compliant landfill.							
<b>Consequences of Delay:</b> Coal Combustion Residuals may not be created without a destination for storage. Non-compliance with EPA CCR regulations.							
<b>Economic Justification:</b> Benefit-Cost NPV: (\$4.20) MS Budget Category: ENV							
<b>Monthly Schedule</b>							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$23,000
Feb	\$0	May	\$0	Aug	\$0	Nov	\$29,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$30,000
Prior	\$0	2016	\$102,000	2017	\$2,993,000	After	\$3,861,000
<b>Cost Summary</b>							
		<b>Current Amount</b>			<b>Revised Amount</b>		
Additions		\$6,890,000					
Removals		\$0					
(Salvage)		\$0					
Overhead Loads		\$66,000					
CBI Total		\$6,956,000					
Retirements		\$0					
<b>Approvals</b>							
Exhibit: AAY		E&O Committee <input type="checkbox"/>			Coordinating Committee <input checked="" type="checkbox"/>		
Organization	Ownership	Share	Approve		Date		
APS	63.00%	4,382,280			12/10/15		
RFP	7.00%	486,920			Date		
PNM	13.00%	904,280			Date		
SRP	10.0%	695,600			Date		
TEP	7.00%	486,920			Date		

ECC0675210 - Fly Ash Disposal Area Site 3 Construction			
Four Corners Participant Project	SG3 WA Rev 0	100% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: 16-22	Env Code: Solid	ERF Completed: Yes
In 2016 Budget: No	Plant Acct:	Est Removal:	Est In Svc: 07/13/2018

**Description:** Construction of a 30-acre Lined Dry Ash Disposal Facility to store coal combustion residuals.

**Purpose/Necessity:** The purpose of this project is to continue operation of Units 4 and 5 while meeting the EPA CCR regulations. The storage area (DFADA Sites 1 through 3) is expected to reach capacity by 2018. Continued operation of Units 4 and 5 requires an ash disposal facility in compliance with regulations, which require disposal in a RCRA Subtitle D compliant landfill.

**Consequences of Delay:** Coal Combustion Residuals may not be created without a destination for storage. Non-compliance with EPA CCR regulations.

**Economic Justification:**

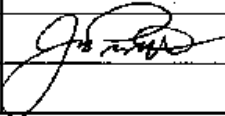
Benefit-Cost NPV: (\$4.20) M\$  
Budget Category: ENV

Cashflow: 2016							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$23,000
Feb	\$0	May	\$0	Aug	\$0	Nov	\$29,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$50,000
Prior	\$0	2016	\$102,000	2017	\$2,993,000	After	\$3,861,000

**Cost Summary**

	Current Amount	Revised Amount
Additions	\$6,890,000	
Removals	\$0	
(Salvage)	\$0	
Overhead Loads	\$66,000	
CBI Total	\$6,956,000	
Retirements	\$0	

**Approvals**

Exhibit: AAY		F&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
Organization	Ownership	Share	Approve	Date	
APS	63.00%	4,382,280		Date	
EPE	7.00%	486,920		Date	
PNM	13.00%	904,280		Date	
SRP	10.0%	695,600		Date	
TEP	7.00%	486,920		10-28-15 Date	

FC 006752 Dry Fly Ash Disposal Area Site 2 Construction			
Four Corners Participant Project	SG3 WA Rev 0	100% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: 16-22	Env Code: Solid	ERF Completed: Yes
In 2016 Budget: No	Plant Acct:	Est Removal:	Est In Svc: 07/13/2018
<b>Description:</b> Construction of a 30-acre Lined Dry Ash Disposal Facility to store coal combustion residuals.			
<b>Purpose/Necessity:</b> The purpose of this project is to continue operation of Units 4 and 5 while meeting the EPA CCR regulations. The storage area (DFADA Sites 1 through 3) is expected to reach capacity by 2018. Continued operation of Units 4 and 5 requires an ash disposal facility in compliance with regulations, which require disposal in a RCRA Subtitle D compliant landfill.			
<b>Consequences of Delay:</b> Coal Combustion Residuals may not be created without a destination for storage. Non-compliance with EPA CCR regulations.			
<b>Economic Justification:</b>			
Benefit-Cost NPV: (\$4.20) MS			
Budget Category: ENV			

Cash Flow - 2016							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$23,000
Feb	\$0	May	\$0	Aug	\$0	Nov	\$29,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$50,000
Prior	\$0	2016	\$102,000	2017	\$2,993,000	After	\$3,861,000

Cost Summary		
	Current Amount	Revised Amount
Additions	\$6,890,000	
Removals	\$0	
(Salvage)	\$0	
Overhead Loads	\$66,000	
CBI Total	\$6,956,000	
Retirements	\$0	

Approvals			
Exhibit: AAY		E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
Organization	Ownership	Share	Approve
APS	63.00%	4,382,280	Date
EPE	7.00%	486,920	Date
PNM	13.00%	904,280	Date
SRP	10.0%	695,600	Date
TEP	7.00%	486,920	Date

*[Signature]* Date 27 Oct 2015

Four Corners Participant Project	302 W. Ave	Enviro	NSR Completed: Yes
RC Unit: 1 & 5	Chm 152	Phase: Solid	ERR Completed: Yes
In 2016 Budget: No	Rm: Add	Use: Removal	Est In Svc: 07/13/2018

**Description:** Construction of a RCRA Subtitle D compliant cover for closure of a 90-acre area of the DFADA Sites 1, 2, and 3.

**Purpose/Necessity:** The purpose of this project is to comply with environmental regulations by constructing a Subtitle D compliant cap to achieve closure since the DFADA sites will have reached capacity.

**Consequences of Delay:** Increased risk of particulate emissions. Lose benefit of coinciding construction excavation projects with closure project to efficiently utilize excavated borrow as cover material. Out of compliance with CCR regulation EPA rule [RIN-2050-AB81].

**Economic Justification:**  
Benefit-Cost NPV: (\$2.30) M\$  
Budget Category: ENV

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$25,000
Feb	\$0	May	\$0	Aug	\$0	Nov	\$31,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$25,000
<b>Prior</b>	<b>\$0</b>	<b>2016</b>	<b>\$82,000</b>	<b>2017</b>	<b>\$1,704,000</b>	<b>After</b>	<b>\$2,060,000</b>

Cost Summary		Current Amount	Revised Amount
Additions		\$3,764,000	
Removals		\$0	
(Salvage)		\$0	
Overhead Loads		\$82,000	
<b>CBI Total</b>		<b>\$3,846,000</b>	
Retirements		\$0	

Approvals		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
Organization	Ownership	Share	Approve	Date	Date
APS	61.00%	2,422,980	<i>[Signature]</i>	11/9/15	
EPE	7.00%	269,220			
PNM	13.00%	499,980	<i>[Signature]</i>	11/7/15	
SRP	10.0%	384,600			
TEP	7.00%	269,220			

Four Corners Participant Project	SG3 WA Rev 0	100% Enviro:	NSR Completed: Yes
FC Units 4 & 5	CBI-16-23	Env Code: Solid	ERF Completed: Yes
In 2016 Budget: No	Plant Acct:	Est Removal:	Est In Svc: 07/13/2018

**Description:** Construction of a RCRA Subtitle D compliant cover for closure of a 90-acre area of the DFADA Sites 1, 2, and 3.

**Purpose/Necessity:** The purpose of this project is to comply with environmental regulations by constructing a Subtitle D compliant cap to achieve closure since the DFADA sites will have reached capacity.

**Consequences of Delay:** Increased risk of particulate emissions. Lose benefit of coinciding construction excavation projects with closure project to efficiently utilize excavated borrow as cover material. Out of compliance with CCR regulation EPA rule [RIN-2050-AE81].

**Economic Justification:**  
Benefit-Cost NPV: (\$2.30) M\$  
Budget Category: ENV

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$25,000
Feb	\$0	May	\$0	Aug	\$0	Nov	\$31,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$25,000
<b>Prior</b>	<b>\$0</b>	<b>2016</b>	<b>\$82,000</b>	<b>2017</b>	<b>\$1,704,000</b>	<b>After</b>	<b>\$2,060,000</b>

Cost Summary		Current Amount	Revised Amount
Additions		\$3,764,000	
Removals		\$0	
(Salvage)		\$0	
Overhead Loads		\$82,000	
<b>CBI Total</b>		<b>\$3,846,000</b>	
Retirements		\$0	

Approvals		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
Organization	Ownership	Share	Approve		
APS	63.00%	2,422,980			Date
EPE	7.00%	269,220			Date
PNM	13.00%	499,980			Date
SRP	10.0%	384,600	<i>[Signature]</i>	10/28/15	Date
TEP	7.00%	269,220	<i>[Signature]</i>	10-28-15	Date

**FCC07701 Bottom Ash Sluice Water Recycle**

Four Corners Participant Project	Rev FC17-45R2	100% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC17-45R2	Env Code: Water	ERF Completed: Yes
In 2020 Budget: Yes	Plant Acct: 131100	Est Removal: 01 Aug 2020	Est In Svc: 01 Sep 2020

**Reason for Revision:** This \$2,549M increase is due to construction of the concrete tanks, per the engineering structural floor design, to create stability over the existing ash and soil to maintain structural integrity and prevent leaks.

**Description:** Construction of a closed loop bottom ash transport system. The system will be comprised of two (2) agitated tanks and pumping and piping systems to create the closed loop system.

**Purpose/Necessity:** The purpose of this project is to comply with 40 CFR; Part 423 EPA Effluent Limitation Guidelines (ELG) and Part 257 Coal Combustion Residual (CCR). ELG will not allow for continued discharge to Morgan Lake of water used for conveyance of Bottom Ash.

**Consequences of Delay:** Non-compliance with EPA CCR and ELG regulations.

**Economic Justification:**

Benefit-Cost NPV: 0 M\$  
Budget Category: ENV


**Cash Flow - 2020**

Jan	\$504,000	Apr	\$212,000	Jul	\$685,000	Oct	\$48,000
Feb	\$304,000	May	\$519,000	Aug	\$566,000	Nov	\$5,000
Mar	\$1,000,000	Jun	\$572,000	Sep	\$202,000	Dec	\$0
<b>Prior</b>	\$9,112,000	<b>2020</b>	\$4,617,000	<b>2021</b>	\$0	<b>After</b>	\$0

**Cost Summary**

	Previous Amount	Revised Amount
RU Materials	\$7,500,000	\$7,500,000
Removals		\$0
(Salvage)		\$0
Non-Itemized Additions	\$3,489,000	\$6,133,000
Specific Cost	\$10,989,000	\$13,633,000
Overhead Loads	\$191,000	\$95,000
<b>CBI Total</b>	<b>\$11,180,000</b>	<b>\$13,729,000</b>
Retirements		\$0

**Approvals**

		E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
APS	63.00%	\$8,649,102			Date
NTEC	7.00%	\$961,011			Date
PNM	13.00%	\$1,784,735			Date
SRP	10.0%	\$1,372,873		Thomas Fallgren, VP, PNM Generation	06/23/20
TEP	7.00%	\$961,011			Date

**FCC08546 Freight Elevator Replacement - 2018**

Four Corners Participant Project	Rev FC18-22	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC18-22	Env Code: N/A	ERF Completed: Yes
In 2018 Budget: Yes	Plant Acct: 311	Est Removal: 29 Jan 2019	Est In Svc: 11 Apr 2019

**Description:** Replace freight elevator.

**Purpose/Necessity:** The purpose of this project is to replace the freight elevator in order to maintain a safe and reliable system to comply with the OSHA General Duty Clause and recommendations found in the HKA Vertical Transportation Comprehensive Maintenance and Condition Audit completed in September 2016. The elevator is reaching the end of its serviceable life and must be replaced.

**Consequences of Delay:** Continued limited access to areas of the Plant due to disabled elevator. Increased costs from delayed operation, maintenance, and repairs of plant equipment due to limited access caused by non-functioning freight elevator.

**Economic Justification:**  
Benefit-Cost NPV: 0.10 M\$  
Budget Category: SAFETY

**Cash Flow - 2018**

Jan	\$0	Apr	\$39,000	Jul	\$17,000	Oct	\$39,000
Feb	\$0	May	\$18,000	Aug	\$17,000	Nov	\$17,000
Mar	\$31,000	Jun	\$39,000	Sep	\$17,000	Dec	\$20,000
Prior	\$0	2018	\$255,000	2019	\$1,382,000	After	\$0

**Cost Summary**

	Current Amount	Revised Amount
Additions	\$1,472,000	
Removals	\$146,000	
(Salvage)	(\$2,000)	
Specific Cost	\$1,618,000	
Overhead Loads	\$19,000	
CBI Total	\$1,637,000	
Retirements	\$0	

**Approvals**

			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>	
ACA	7.00%	\$114,597	<i>James E. Hatfield</i>	Date	10/10/17
APS	63.00%	\$1,031,373	<i>[Signature]</i>	Date	10/10/17
PNM	13.00%	\$212,823	<i>[Signature]</i>	Date	10/10/17
SRI	10.0%	\$163,710	<i>[Signature]</i>	Date	10/10/17
TEP	7.00%	\$114,597	<i>[Signature]</i>	Date	10/10/17



**FCC08546 Freight Elevator Replacement**

Four Corners Participant Project	Rev FC18-22R1	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC18-22R1	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: No	Plant Acct: 131100	Est Removal: 31 Jul 2020	Est In Svc: 31 Aug 2020

**Reason for Revision:** This \$403K increase is due to the delay in delivery of the permanent elevator. The delay resulted in rental cost for a temporary construction elevator to support the 2020 Spring Outage and the replacement of the elevator mast supports.

**Description:** Replace freight elevator.

**Purpose/Necessity:** The purpose of this project is to replace the freight elevator in order to maintain a safe and reliable system to comply with the OSHA General Duty Clause and recommendations found in the HKA Vertical Transportation Comprehensive Maintenance and Condition Audit completed in September 2016. The elevator is reaching the end of its serviceable life and must be replaced.

**Consequences of Delay:** Continued limited access to areas of the Plant due to disabled elevator. Increased costs from delayed operation, maintenance, and repairs of plant equipment due to limited access caused by non-functioning freight elevator.

**Economic Justification:**

Benefit-Cost NPV:  
 Budget Category: SAFETY

**Cash Flow - 2020**

Jan	\$153,000	Apr	\$145,000	Jul	\$212,000	Oct	\$0
Feb	\$36,000	May	\$107,000	Aug	\$182,000	Nov	\$0
Mar	\$89,000	Jun	\$65,000	Sep	\$0	Dec	\$0
<b>Prior</b>	\$1,006,000	<b>2020</b>	\$990,000	<b>2021</b>	\$0	<b>After</b>	\$0


**Cost Summary**

	Previous Amount	Revised Amount
RU Materials	\$1,472,000	\$1,472,000
Removals	\$146,000	\$146,000
(Salvage)	(\$2,000)	\$0
Non-Itemized Additions	\$1,000	\$366,000
Specific Cost	\$1,618,000	\$1,984,000
Overhead Loads	\$19,000	\$13,000
<b>CBI Total</b>	\$1,637,000	<b>\$1,997,000</b>
Retirements		\$0

**Approvals**

		E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
APS	63.00%	\$1,257,804	Date
NTEC	7.00%	\$139,756	Date
PNM	13.00%	\$259,547	Date
SRP	10.0%	\$199,651	Date
TEP	7.00%	\$139,756	Date

*Thomas Pallgren*  
 Thomas Pallgren, VP, PNM Generation 06/23/20

FCC08150 Heat Trace - Phase 2							
Four Corners Participant Project	Rev FC18-29	0% Enviro.	NSR Completed: Yes				
FC Units 4 & 5	CBI: FC18-29	Env Code: N/A	ERF Completed: Yes				
In 2018 Budget: Yes	Plant Acct: 355	Est Removal: 29 Apr 2019	Est In Svc: 01 Oct 2019				
<b>Description:</b> Replace four (4) existing heat trace systems in the F45 Scrubber Absorber area, including heat trace panels, transformers, and heat trace cables.							
<b>Purpose/Necessity:</b> The purpose of this project is to maintain unit reliability by replacing the heat trace system. In February, 2011, the plant experienced significant challenges with freezing due to insufficient heat tracing resulting in a forced outage. The original Unit 5 heat trace panels are outdated resistor-based technology and are at the end of their useful life. Replacement parts for existing heat trace panels are no longer available. This project is classified as a strategic initiative related to compliance with NERC Reliability Guideline - Generating Unit Winter Weather Readiness - Current Industry Practices.							
<b>Consequences of Delay:</b> Potential total 5 days of forced outages. Economic justification assumes a 50% probability of 5 each 1 day forced outages.							
<b>Economic Justification:</b>							
Benefit-Cost NPV: 4.00 MS							
Budget Category: REL							
Cash Flow - 2018							
Jan	\$0	Apr	\$80,000	Jul	\$83,000	Oct	\$45,000
Feb	\$61,000	May	\$99,000	Aug	\$51,000	Nov	\$58,000
Mar	\$121,000	Jun	\$92,000	Sep	\$49,000	Dec	\$15,000
<b>Prior</b>	<b>\$0</b>	<b>2018</b>	<b>\$754,000</b>	<b>2019</b>	<b>\$4,460,000</b>	<b>After</b>	<b>\$0</b>
Cost Summary							
	Current Amount			Revised Amount			
Additions				\$4,619,000			
Removals				(\$571,000)			
(Salvage)				(\$5,000)			
Specific Cost				\$5,190,000			
Overhead Loads				\$24,000			
CBI Total				<b>\$5,214,000</b>			
Retirements				\$0			
Approvals							
Exhibit ABX				F&O Committee <input type="checkbox"/> Coordinating Committee <input checked="" type="checkbox"/>			
NTCC	7.00%	\$364,988					Date
APS	63.00%	\$3,284,892					Date
PNM	13.00%	\$677,835					Date 8/24/2010
SRP	10.0%	\$521,411					Date
TEP	7.00%	\$364,988					Date

**FCC06814 Return Water Pond**

Four Corners Participant Project	Rev FC18-34	100% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC18-34	Env Code: Solid	ERF Completed: Yes
In 2018 Budget: Yes	Plant Acct: 341	Est Removal: 29 Jun 2018	Est In Svc: 03 Dec 2018

**Description:** Installation of a Return Water Pond (RWP) consisting of a 5 acre composite-lined CCR impoundment that replaces the function of the Lined Decant Water Pond (LDWP) for temporary storage of Lined Ash Impoundment (LAI) and Pond 3 Pump-house discharges. The water within the RWP will be pumped back to the plant for re-use. The RWP will be located on the bluff adjacent to the FHI yard.

**Purpose/Necessity:** The purpose of this project is to provide temporary storage for pumped drain down of the LAI and pumped discharge from Pond 3 Pump-house. A new storage pond will be required when the existing LDWP is closed in accordance with Federal CCR Disposal Regulations (40 CFR 257).

**Consequences of Delay:** If the LDWP closes (as early as 2019), there will be no replacement storage if this project does not proceed.

**Economic Justification:**  
Benefit-Cost NPV: 0 M\$  
Budget Category: ENV

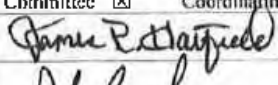

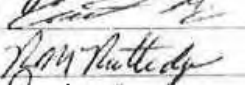
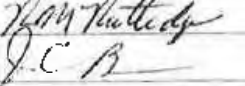

**Cash Flow - 2018**

Jan	\$8,000	Apr	\$53,000	Jul	\$525,000	Oct	\$231,000
Feb	\$75,000	May	\$160,000	Aug	\$658,000	Nov	\$125,000
Mar	\$69,000	Jun	\$355,000	Sep	\$658,000	Dec	\$83,000
Prior	\$0	2018	\$3,000,000	2019	\$285,000	After	\$0

**Cost Summary**

	Current Amount	Revised Amount
Additions	\$2,969,000	
Removals	\$294,000	
(Salvage)	\$0	
Specific Cost	\$3,263,000	
Overhead Loads	\$21,000	
CBI Total	\$3,284,000	
Retirements	\$0	

**Approvals**

		F&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
ACA	7.00%	\$229,914	<div style="display: flex; justify-content: space-between;"> <div style="text-align: center;">             Date 10/16/17         </div> </div>
APS	63.00%	\$2,069,226	<div style="display: flex; justify-content: space-between;"> <div style="text-align: center;">             Date 10/10/17         </div> </div>
PNM	13.00%	\$426,983	<div style="display: flex; justify-content: space-between;"> <div style="text-align: center;">             Date 10/10/17         </div> </div>
SRP	10.0%	\$328,449	<div style="display: flex; justify-content: space-between;"> <div style="text-align: center;">             Date 10/16/17         </div> </div>
TEP	7.00%	\$229,914	<div style="display: flex; justify-content: space-between;"> <div style="text-align: center;">             Date 10/10/17         </div> </div>

**FCC08902 CCR Groundwater Mitigation**

Four Corners Participant Project	Rev FC18-39	100% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC18-39	Env Code: Water	ERF Completed: Yes
In 2018 Budget: Yes	Plant Acct: 341	Est Removal:	Est In Svc: 14 Sep 2020

**Description:** The project scope will consist of investigating and assessing Corrective Measures (40 CFR 257.95 and 257.96) followed by selection, design, and implementation of Corrective Action for the Multi-unit CCR Impoundment (LAI and LDWP) and the Upper Retention Sump. Corrective action is currently expected to consist of the construction of up to twelve (12) extraction wells.

**Purpose/Necessity:** The purpose of this project is to comply with Federal CCR Disposal regulations (40 CFR Part 257). The first round of groundwater sampling at the two CCR Units has shown a potential exceedance in fluoride. Additional rounds of sampling and testing, followed by statistical evaluation of all the collected data is required to determine if groundwater mitigation is necessary. The project was identified following an evaluation of likely Corrective Action obligations pursuant to U.S. EPA's 2015 final rule governing the disposal of coal combustion residuals from electric utilities, pursuant to RCRA Subtitle D (40 CFR 257.95 through 257.98).

**Consequences of Delay:** Non-compliance with Federal CCR Disposal regulations (40 CFR Part 257).

**Economic Justification:**  
 Benefit-Cost NPV: 0 M\$  
 Budget Category: ENV

**Cash Flow - 2018**

Jan	\$2,000	Apr	\$56,000	Jul	\$85,000	Oct	\$173,000
Feb	\$44,000	May	\$74,000	Aug	\$132,000	Nov	\$138,000
Mar	\$40,000	Jun	\$85,000	Sep	\$179,000	Dec	\$58,000
<b>Prior</b>	<b>\$0</b>	<b>2018</b>	<b>\$1,067,000</b>	<b>2019</b>	<b>\$1,182,000</b>	<b>After</b>	<b>\$337,000</b>

**Cost Summary**

	Current Amount	Revised Amount
Additions	\$2,738,000	
Removals	\$0	
(Salvage)	\$0	
Specific Cost	\$2,738,000	
Overhead Loads	\$47,000	
<b>CBI Total</b>	<b>\$2,785,000</b>	
Retirements	\$0	

**Approvals**

				E&O Committee <input checked="" type="checkbox"/> Coordinating Committee <input type="checkbox"/>	
				Date	Date
4CA	7.00%	\$194,954	<i>James E. Steinfeld</i>	10/16/17	
APS	63.00%	\$1,754,585	<i>J.R. [Signature]</i>	10/10/17	
PNM	13.00%	\$362,057	<i>[Signature]</i>	10/10/17	
SRP	10.0%	\$278,506	<i>Rob [Signature]</i>	10/10/17	
TEP	7.00%	\$194,954	<i>[Signature]</i>	10/10/17	

FCC013055 Fire Warning Detection System Replacement			
Four Corners Participant Project	Rev FC19-17	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC19-17	Env Code: N/A	ERF Completed: Yes
In 2019 Budget: Yes	Plant Acct: 131100	Est Removal:	Est In Svc: 11 Apr 2020
<p><b>Description:</b> Replace the fire warning detection workstation in the control room and five (5) alarm collection junction boxes. Replace the existing fire warning detection system in thirteen (13) buildings/areas. Install new fire warning detection system in three (3) buildings/areas. Connect existing smoke detectors in three (3) CEMS buildings to local fire detection control panels. Connect existing fire warning detection control panels in the five (5) power distribution centers into the new fire warning detection system.</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to maintain safe operation of the plant to protect personnel and equipment. The existing fire detection system and server is not functioning and parts for repair and refurbishment are obsolete. Installation of a new plant wide fire detection system, and fire detection server is required to protect plant equipment and personnel per the International Building Code (IBC) 2003.</p> <p><b>Consequences of Delay:</b> Risk to plant personnel, potential damage or loss of equipment, and non-compliance with International Building Code (IBC) 2003 and AEGIS Insurance Services, Inc. property risk assessment.</p> <p><b>Economic Justification:</b>                      Benefit-Cost NPV: 0 M\$                      Budget Category: SAFETY</p>			

Cash Flow - 2019							
Jan	\$0	Apr	\$28,000	Jul	\$151,000	Oct	\$307,000
Feb	\$81,000	May	\$99,000	Aug	\$261,000	Nov	\$279,000
Mar	\$22,000	Jun	\$158,000	Sep	\$299,000	Dec	\$282,000
<b>Prior</b>	<b>\$0</b>	<b>2019</b>	<b>\$1,967,000</b>	<b>2020</b>	<b>\$1,345,000</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$615,000	
Removals	\$164,000	
Non-Itemized Additions	\$2,525,000	
Specific Cost	\$3,304,000	
Overhead Loads	\$8,000	
<b>CBI Total</b>	<b>\$3,312,000</b>	
Retirements	\$0	

Approvals			
			E&O Committee <input checked="" type="checkbox"/> Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$2,086,340	 Date: 10/10/18
NTEC	7.00%	\$231,816	 Date: 10/10/18
PNM	13.00%	\$430,515	 Date: 10/10/18
SRP	10.0%	\$331,165	 Date: 10/10/18
TEP	7.00%	\$231,816	 Date: 10-10-18

FCC013855 Boiler 200 Valve Replacement			
Four Corners Participant Project	Rev FC19-21	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC19-21	Env Code: N/A	ERF Completed: Yes
In 2019 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 11 Apr 2020
<b>Description:</b> Replace the two (2) 16" primary superheater stop valves (5HCV-591B and 5HCV-591C) with in kind valves including actuators.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain unit reliability by reducing the risk of delayed start-ups due to leaking stop valves. The valves are approaching the end of useful life and are currently experiencing leak by at the valve seat, pressure seal ring and packing causing start-up delays and extended outages.			
<b>Consequences of Delay:</b> A stop valve failure results in start-up delays and can extend outages if the valve cannot be repaired in place. A typical failure has a 25% probability and results in up to 13 days in start-up delays or up to a 6 week extended outage if the valve has to be removed for emergency refurbishment.			
<b>Economic Justification:</b>			
	Benefit-Cost NPV:	10.90 M\$	
	Budget Category:	REL	

Cash Flow - 2019							
Jan	\$45,000	Apr	\$24,000	Jul	\$21,000	Oct	\$2,000
Feb	\$16,000	May	\$18,000	Aug	\$16,000	Nov	\$4,000
Mar	\$17,000	Jun	\$25,000	Sep	\$15,000	Dec	\$4,000
<b>Prior</b>	<b>\$0</b>	<b>2019</b>	<b>\$207,000</b>	<b>2020</b>	<b>\$1,038,000</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$180,000	
Removals	\$15,000	
Non-Itemized Additions	\$1040,000	
Specific Cost	\$1,235,000	
Overhead Loads	\$10,000	
CBI Total	\$1,245,000	
Retirements	\$0	

Approvals				
		E&O Committee <input checked="" type="checkbox"/> Coordinating Committee <input type="checkbox"/>		
APS	63.00%	\$784,449	<i>Sarah Kisl</i>	Date 10/12/18
NTEC	7.00%	\$87,161	<i>[Signature]</i>	Date 10/19/18
PNM	13.00%	\$161,870	<i>[Signature]</i>	Date 10/10/18
SRP	10.0%	\$124,516	<i>[Signature]</i>	Date 10/10/18
TEP	7.00%	\$87,161	<i>[Signature]</i>	Date 10-10-18

FCC014207 2nd Stage Secondary Superheater Replacement			
Four Corners Participant Project	Rev FC19-25	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC19-25	Env Code: N/A	ERF Completed: Yes
In 2019 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 10 Apr 2021

**Description:** Replace (in kind) the 2nd Stage Secondary Superheater.

**Purpose/Necessity:** The purpose of this project is to maintain Unit reliability. Equipment is original from the OEM (Babcock and Wilcox) and has been in operation since 1969. Overheating of the secondary superheater has been experienced due to internal exfoliation of the tubes which blocks the bottom of the loops, resulting in tube failures and forced outages.

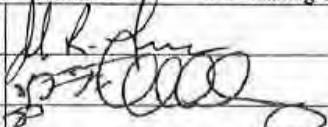
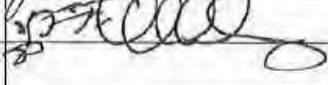
**Consequences of Delay:** Potential 10-day forced outage, at a minimum, to repair tube leak. Delayed replacement of the 2nd stage secondary superheater presents an increased risk of a tube leak resulting in a forced outage.

**Economic Justification:**

Benefit-Cost NPV: 12.10 M\$  
Budget Category: REL

Cash Flow - 2019							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$5,000
Feb	\$32,000	May	\$0	Aug	\$0	Nov	\$440,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$12,000
<b>Prior</b>	<b>\$0</b>	<b>2019</b>	<b>\$489,000</b>	<b>2020</b>	<b>\$1,529,000</b>	<b>After</b>	<b>\$7,450,000</b>

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$3,500,000	
Removals	\$205,000	
Non-Itemized Additions	\$5,783,000	
Specific Cost	\$9,443,000	
Overhead Loads	\$24,000	
<b>CBI Total</b>	<b>\$9,467,000</b>	
Retirements	\$0	

Approvals				
Exhibit: ACE		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>	
APS	63.00%	\$5,964,315		Date 1/25/19
NTEC	7.00%	\$662,702		Date 1-24-19
PNM	13.00%	\$1,230,732		Date
SRP	10.0%	\$946,717		Date
TEP	7.00%	\$662,702		Date

FCC014267 2nd Stage Secondary Superheater Replacement			
Four Corners Participant Project	Rev FC19-25	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC19-25	Env Code: N/A	ERF Completed: Yes
In 2019 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 10 Apr 2021
<b>Description:</b> Replace (in kind) the 2nd Stage Secondary Superheater.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain Unit reliability. Equipment is original from the OEM (Babcock and Wilcox) and has been in operation since 1969. Overheating of the secondary superheater has been experienced due to internal exfoliation of the tubes which blocks the bottom of the loops, resulting in tube failures and forced outages.			
<b>Consequences of Delay:</b> Potential 10-day forced outage, at a minimum, to repair tube leak. Delayed replacement of the 2nd stage secondary superheater presents an increased risk of a tube leak resulting in a forced outage.			
<b>Economic Justification:</b>			
Benefit-Cost NPV: 12.10 M\$		Budget Category: REL	


Cash Flow - 2019							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$5,000
Feb	\$32,000	May	\$0	Aug	\$0	Nov	\$440,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$12,000
Prior	\$0	2019	\$489,000	2020	\$1,529,000	After	\$7,450,000

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$3,500,000	
Removals	\$205,000	
Non-Itemized Additions	\$5,783,000	
Specific Cost	\$9,443,000	
Overhead Loads	\$24,000	
CBI Total	\$9,467,000	
Retirements	\$0	

Approvals			
Exhibit: ACE		E&O Committee <input type="checkbox"/> Coordinating Committee <input checked="" type="checkbox"/>	
APS	63.00%	\$5,964,315	Date
NTEC	7.00%	\$662,702	Date
PNM	13.00%	\$1,230,732	Date
SRP	10.0%	\$946,717	Date
TEP	7.00%	\$662,702	Date

*[Handwritten Signature]* 10/17/2010



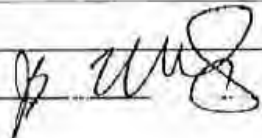
FGC014267 2nd Stage Secondary Superheater Replacement							
Four Corners Participant Project		Rev FC19-25		0% Enviro.		NSR Completed: Yes	
FC Unit 4		CBI: FC19-25		Env Code: N/A		ERF Completed: Yes	
In 2019 Budget: Yes		Plant Acct: 131200		Est Removal:		Est In Svc: 10 Apr 2021	
<p><b>Description:</b> Replace (in kind) the 2nd Stage Secondary Superheater.</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to maintain Unit reliability. Equipment is original from the OEM (Babcock and Wilcox) and has been in operation since 1969. Overheating of the secondary superheater has been experienced due to internal exfoliation of the tubes which blocks the bottom of the loops, resulting in tube failures and forced outages.</p> <p><b>Consequences of Delay:</b> Potential 10-day forced outage, at a minimum, to repair tube leak. Delayed replacement of the 2nd stage secondary superheater presents an increased risk of a tube leak resulting in a forced outage.</p> <p><b>Economic Justification:</b>            Benefit-Cost NPV: 12.10 M\$            Budget Category: REL</p>							
Cash Flow - 2019							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$5,000
Feb	\$32,000	May	\$0	Aug	\$0	Nov	\$440,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$12,000
<b>Prior</b>	<b>\$0</b>	<b>2019</b>	<b>\$489,000</b>	<b>2020</b>	<b>\$1,529,000</b>	<b>After</b>	<b>\$7,450,000</b>
Cost Summary							
	<b>Current Amount</b>			<b>Revised Amount</b>			
RU Materials	\$3,500,000						
Removals	\$205,000						
Non-Itemized Additions	\$5,783,000						
Specific Cost	\$9,443,000						
Overhead Loads	\$24,000						
CBI Total	\$9,467,000						
Retirements	\$0						
Approvals							
Exhibit: ACE				E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
APS	63.00%	\$5,964,315			Date		
NTEC	7.00%	\$662,702			Date		
PNM	13.00%	\$1,230,732			Date		
SRP	10.0%	\$946,717			Date		
TEP	7.00%	\$662,702			Date		

FCC014267 2nd Stage Secondary Superheater Replacement			
Four Corners Participant Project	Rev FC19-25	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC19-25	Env Code: N/A	ERF Completed: Yes
In 2019 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 10 Apr 2021
<b>Description:</b> Replace (in kind) the 2nd Stage Secondary Superheater.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain Unit reliability. Equipment is original from the OEM (Babcock and Wilcox) and has been in operation since 1969. Overheating of the secondary superheater has been experienced due to internal exfoliation of the tubes which blocks the bottom of the loops, resulting in tube failures and forced outages.			
<b>Consequences of Delay:</b> Potential 10-day forced outage, at a minimum, to repair tube leak. Delayed replacement of the 2nd stage secondary superheater presents an increased risk of a tube leak resulting in a forced outage.			
<b>Economic Justification:</b>			
Benefit-Cost NPV: 12.10 MS			
Budget Category: REL			

Cash Flow - 2019							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$5,000
Feb	\$32,000	May	\$0	Aug	\$0	Nov	\$440,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$12,000
<b>Prior</b>	<b>\$0</b>	<b>2019</b>	<b>\$489,000</b>	<b>2020</b>	<b>\$1,529,000</b>	<b>After</b>	<b>\$7,450,000</b>

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$3,500,000	
Removals	\$205,000	
Non-Itemized Additions	\$5,783,000	
Specific Cost	\$9,443,000	
Overhead Loads	\$24,000	
<b>CBI Total</b>	<b>\$9,467,000</b>	
Retirements	\$0	

Approvals			
Exhibit: ACE		E&O Committee <input type="checkbox"/> Coordinating Committee <input checked="" type="checkbox"/>	
APS	63.00%	\$5,964,315	Date
NTEC	7.00%	\$662,702	Date
PNM	13.00%	\$1,230,732	Date
SRP	10.0%	\$946,717	Date
TEP	7.00%	\$662,702	Date

  
 Date 10/16/18

FCC03957 1st Stage Pendant Secondary Superheater Replacement			
Four Corners Participant Project	Rev FC19-26	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC19-26	Env Code: N/A	ERF Completed: Yes
In 2019 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 10 Apr 2021
<b>Description:</b> Replace the lower section (lower 10'-6") of the tube bundles and the trailing edge tubes up to the penthouse on all 53 bundles in the 1st stage pendant secondary superheater (SSH).			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain unit reliability by replacing the tubes that are approaching end of useful life. Inspection and lab analysis of tube failures has identified portions of the 1st stage pendant SSH with long term overheating damage, steam side oxidation, and external erosion. Tube leaks resulting from this damage are causing forced outages.			
<b>Consequences of Delay:</b> Potential 10 day forced outage. Economic justification assumes a 95% probability of a 10 day forced outage.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:		12.40 M\$	
Budget Category:		REL	

Cash Flow - 2019							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$14,000
Feb	\$0	May	\$0	Aug	\$0	Nov	\$11,000
Mar	\$62,000	Jun	\$0	Sep	\$0	Dec	\$11,000
<b>Prior</b>	<b>\$0</b>	<b>2019</b>	<b>\$98,000</b>	<b>2020</b>	<b>\$127,000</b>	<b>After</b>	<b>\$4,025,000</b>

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$593,000	
Removals	\$300,000	
Non-Itemized Additions	\$3,341,000	
Specific Cost	\$4,234,000	
Overhead Loads	\$16,000	
<b>CBI Total</b>	<b>\$4,250,000</b>	
Retirements	\$0	

Approvals				
		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$2,677,645	<i>Scarrah Kist</i>	Date 10/10/18
NTEC	7.00%	\$297,516	<i>[Signature]</i>	Date 10/12/18
PNM	13.00%	\$552,530	<i>[Signature]</i>	Date 10/10/18
SRP	10.0%	\$425,023	<i>[Signature]</i>	Date 10/10/18
TEP	7.00%	\$297,516	<i>[Signature]</i>	Date 10/10/18

FCC06840 Horizontal Reheat Inlet Header Repl			
Four Corners Participant Project	Rev FC19-28	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC19-28	Env Code: N/A	ERF Completed: Yes
In 2019 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 10 Apr 2021

**Description:** Replace (in kind) the horizontal reheat inlet header.

**Purpose/Necessity:** The purpose of this project is to maintain Unit reliability. The header has experienced pitting, sagging (approximately 5 inches) due to metal fatigue and is approaching end-of-life.

**Consequences of Delay:** Potential 10-day forced outage, at a minimum, to repair header leak.

**Economic Justification:**

Benefit-Cost NPV: 14.60 M\$  
Budget Category: REL

FP 715-19017  
NO Y0082704  
RO Y0082707

Cash Flow - 2019							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$5,000
Feb	\$31,000	May	\$0	Aug	\$0	Nov	\$20,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$12,000
Prior	\$0	2019	\$68,000	2020	\$695,000	After	\$5,003,000

Cost Summary		
	Current Amount	Revised Amount
RU Materials	117,000	\$900,000
Removals	5,850	\$45,000
Non-Itemized Additions	618,540	\$4,758,000
Specific Cost		\$5,703,000
Overhead Loads	8.190	\$63,000
CBI Total		\$5,766,000
Retirements		\$0

Approvals				
Exhibit: ACF			E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
APS	63.00%	\$3,632,716		Date: 1/25/19
NTEC	7.00%	\$403,635		Date: 1-24-19
PNM	13.00%	\$749,608		Date:
SRP	10.0%	\$576,622		Date:
TEP	7.00%	\$403,635		Date:

**PCC06840 Horizontal Reheat Inlet Header Repl**

Four Corners Participant Project	Rev FC19-28	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC19-28	Env Code: N/A	ERF Completed: Yes
In 2019 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 10 Apr 2021

**Description:** Replace (in kind) the horizontal reheat inlet header.

**Purpose/Necessity:** The purpose of this project is to maintain Unit reliability. The header has experienced pitting, sagging (approximately 5 inches) due to metal fatigue and is approaching end-of-life.

**Consequences of Delay:** Potential 10-day forced outage, at a minimum, to repair header leak.

**Economic Justification:**  
 Benefit-Cost NPV: 14.60 M\$  
 Budget Category: RII.

Cash Flow - 2019							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$5,000
Feb	\$31,000	May	\$0	Aug	\$0	Nov	\$20,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$12,000
<b>Prior</b>	<b>\$0</b>	<b>2019</b>	<b>\$68,000</b>	<b>2020</b>	<b>\$695,000</b>	<b>After</b>	<b>\$5,003,000</b>

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$900,000	
Removals	\$45,000	
Non-Itemized Additions	\$4,758,000	
Specific Cost	\$5,703,000	
Overhead Loads	\$63,000	
<b>CBI Total</b>	<b>\$5,766,000</b>	
Retirements	\$0	

Approvals			
Exhibit: ACF		E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
APS	63.00%	\$3,632,716	Date
NTEC	7.00%	\$403,635	Date
PNM	13.00%	\$749,608	Date
SRP	10.0%	\$576,622	Date
TTEP	7.00%	\$403,635	Date

*[Signature]*  
10/17/2018

FCC08529 Full Horizontal Reheat Bank Replacement			
Four Corners Participant Project	Rev FC19-47	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC19-47	Env Code: N/A	ERF Completed: Yes
In 2019 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 11 Apr 2020
<p><b>Description:</b> Replace (in kind) the horizontal reheat inlet, intermediate, and connecting banks of the boiler. Erosion-resistant coating to be installed for purposes of extending tube life.</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to maintain Unit reliability. High ash loading and velocity have resulted in severe erosion of the horizontal reheater, resulting in tube failures and forced outages.</p> <p><b>Consequences of Delay:</b> Potential 10-day forced outage, at a minimum, to repair tube leak. Delayed replacement of the horizontal reheater presents an increased risk of a tube leak resulting in a forced outage, as weld buildup and tube shielding places the tubing in a slightly more vulnerable state than replacement with new tubing.</p> <p><b>Economic Justification:</b> Benefit-Cost NPV: 8.20 MS Budget Category: REL</p>			

Cash Flow - 2019							
Jan	\$1,041,000	Apr	\$25,000	Jul	\$9,000	Oct	\$16,000
Feb	\$17,000	May	\$39,000	Aug	\$9,000	Nov	\$16,000
Mar	\$2,971,000	Jun	\$9,000	Sep	\$129,000	Dec	\$93,000
Prior	\$0	2019	\$4,372,000	2020	\$13,580,000	After	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$8,200,000	
Removals	\$435,000	
Non-Itemized Additions	\$9,294,000	
Specific Cost	\$17,929,000	
Overhead Loads	\$24,000	
CBI Total	\$17,953,000	
Retirements	\$0	

Approvals				
Exhibit: ACH			E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
APS	63.00%	\$11,310,299		Date
NTEC	7.00%	\$1,256,700		Date
PNM	13.00%	\$2,333,871		Date
SRP	10.0%	\$1,795,286	<i>W. R. All</i>	Date
TCP	7.00%	\$1,256,700		Date

FCC06840 Horizontal Reheat Inlet Header Repl			
Four Corners Participant Project	Rev FC19-28	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC19-28	Env Code: N/A	ERF Completed: Yes
In 2019 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 10 Apr 2021
<b>Description:</b> Replace (in kind) the horizontal reheat inlet header.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain Unit reliability. The header has experienced pitting, sagging (approximately 5 inches) due to metal fatigue and is approaching end-of-life.			
<b>Consequences of Delay:</b> Potential 10-day forced outage, at a minimum, to repair header leak.			
<b>Economic Justification:</b>			
Benefit-Cost NPV: 14.60 M\$			
Budget Category: REL			

Cash Flow - 2019							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$5,000
Feb	\$31,000	May	\$0	Aug	\$0	Nov	\$20,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$12,000
Prior	\$0	2019	\$68,000	2020	\$695,000	After	\$5,003,000

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$900,000	
Removals	\$45,000	
Non-Itemized Additions	\$4,758,000	
Specific Cost	\$5,703,000	
Overhead Loads	\$63,000	
CBI Total	\$5,766,000	
Retirements	\$0	

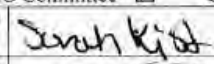


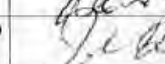

Approvals				
Exhibit: ACF		E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>	
APS	63.00%	\$3,632,716		Date
NTEC	7.00%	\$403,635		Date
PNM	13.00%	\$749,608		Date
SRP	10.0%	\$576,622		Date
TEP	7.00%	\$403,635		Date

Date 10/16/18

FCC07348 Highway and Road Paving			
Four Corners Participant Project	Rev FC19-32	0% Enviro.	NSR Completed: Yes
FC Common	CBI: FC19-32	Env Code: N/A	ERF Completed: Yes
In 2019 Budget: Yes	Plant Acct: 131100	Est Removal:	Est In Svc: 30 Sep 2019
<p><b>Description:</b> Install 2" asphaltic concrete overlay to the existing plant access road from the San Juan River Bridge to the plant entrance. Complete pavement section replacement of 17 areas where pavement has shown distress over the life of the pavement. Complete repave and installation of underdrains near the San Juan River Bridge.</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to maintain safe access to the plant by providing a 2" asphalt overlay of the existing 6.6 mile plant entrance road to extend the life of the road for the estimated remaining plant life expectancy. The entrance road has reached the end of its design life. Completing this project will alleviate increasing maintenance costs and extend the life of the road as well as maintain contractual agreements with Navajo Indian Reservation to maintain the existing road for the life of the plant.</p> <p><b>Consequences of Delay:</b> Potential violation of existing lease agreement.</p> <p><b>Economic Justification:</b> Benefit-Cost NPV: 0 M\$ Budget Category: REG</p>			

Cash Flow - 2019							
Jan	\$55,000	Apr	\$507,000	Jul	\$711,000	Oct	\$235,000
Feb	\$100,000	May	\$583,000	Aug	\$711,000	Nov	\$5,000
Mar	\$58,000	Jun	\$710,000	Sep	\$499,000	Dec	\$4,000
<b>Prior</b>	<b>\$132,000</b>	<b>2019</b>	<b>\$4,177,000</b>	<b>2020</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$1,000,000	
Removals	\$150,000	
(Salvage)	\$0	
Non-Itemized Additions	\$3,156,000	
Specific Cost	\$4,306,000	
Overhead Loads	\$3,000	
CBI Total	\$4,309,000	
Retirements	\$0	

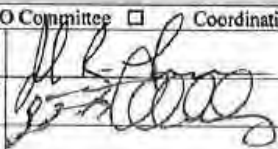
Approvals			
		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$2,714,759	 Date: 10/10/18
NTEC	7.00%	\$301,640	 Date: 10/10/18
PNM	13.00%	\$560,188	 Date: 10-10-18
SRP	10.0%	\$430,914	 Date: 10/10/18
TEP	7.00%	\$301,640	 Date: 10-10-18



FCC08151 Heat Trace - Phase 3			
Four Corners Participant Project	Rev FC19-37	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC19-37	Env Code: N/A	ERF Completed: Yes
In 2019 Budget: No	Plant Acct: 131500	Est Removal:	Est In Svc: 25 Sep 2020
<p><b>Description:</b> Replace the existing outdated and failing heat trace system in the F45 Scrubber Absorber area. Replace existing heat trace panels EF0, EF1, EF2, EF3, EF4, EF5, EF6, and EF7, the heat trace transformers, heat trace cable, and accessories with these panels. Existing pipe insulation will be replaced.</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to maintain unit reliability by replacing the heat trace system. The original heat trace panels are outdated resistor-based technology and are at the end of their useful life. Replacement parts for existing heat trace panels are no longer available. This project is classified as a reliability initiative related to compliance with NERC Guideline - Generating Unit Winter Weather Readiness - Current Industry Practices.</p> <p><b>Consequences of Delay:</b> Continued unplanned outages in cold weather conditions due to failure of heat trace resulting in loss of scrubber absorber area equipment, instruments, and systems. Potential total 5 days of forced outages. Economic justification assumes a 50% probability of 5 each 1 day forced outages.</p> <p><b>Economic Justification:</b>                      Benefit-Cost NPV: 0.00 M\$                      Budget Category: REG</p>			

Cash Flow - 2019							
Jan	\$130,000	Apr	\$114,000	Jul	\$59,000	Oct	\$18,000
Feb	\$106,000	May	\$59,000	Aug	\$41,000	Nov	\$17,000
Mar	\$104,000	Jun	\$65,000	Sep	\$35,000	Dec	\$4,000
Prior	\$0	2019	\$751,000	2020	\$7,406,000	After	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$240,000	
Removals	\$398,000	
(Salvage)	\$0	
Non-Itemized Additions	\$7,492,000	
Specific Cost	\$8,130,000	
Overhead Loads	\$28,000	
CBI Total	\$8,158,000	
Retirements	\$0	

Approvals				
			E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
APS	63.00%	\$5,139,413	 Date 1/25/19 Date -24-19 Date Date	
NTEC	7.00%	\$571,046		
PNM	13.00%	\$1,060,514		
SRP	10.0%	\$815,780		
TEP	7.00%	\$571,046		

FCC08151 Heat Trace - Phase 3			
Four Corners Participant Project	Rev FC19-37	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC19-37	Env Code: N/A	ERF Completed: Yes
In 2019 Budget: No	Plant Aect: 131500	Est Removal:	Est In Svc: 25 Sep 2020

**Description:** Replace the existing outdated and failing heat trace system in the F45 Scrubber Absorber area. Replace existing heat trace panels EF0, EF1, EF2, EF3, EF4, EF5, EF6, and EF7, the heat trace transformers, heat trace cable, and accessories with these panels. Existing pipe insulation will be replaced.


**Purpose/Necessity:** The purpose of this project is to maintain unit reliability by replacing the heat trace system. The original heat trace panels are outdated resistor-based technology and are at the end of their useful life. Replacement parts for existing heat trace panels are no longer available. This project is classified as a reliability initiative related to compliance with NERC Guideline - Generating Unit Winter Weather Readiness - Current Industry Practices.

**Consequences of Delay:** Continued unplanned outages in cold weather conditions due to failure of heat trace resulting in loss of scrubber absorber area equipment, instruments, and systems. Potential total 5 days of forced outages. Economic justification assumes a 50% probability of 5 each 1 day forced outages.

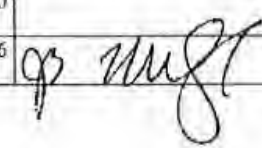
**Economic Justification:**  
 Benefit-Cost NPV: 0.00 M\$  
 Budget Category: REG

Cash Flow - 2019							
Jan	\$130,000	Apr	\$114,000	Jul	\$59,000	Oct	\$18,000
Feb	\$106,000	May	\$59,000	Aug	\$41,000	Nov	\$17,000
Mar	\$104,000	Jun	\$65,000	Sep	\$35,000	Dec	\$4,000
<b>Prior</b>	<b>\$0</b>	<b>2019</b>	<b>\$751,000</b>	<b>2020</b>	<b>\$7,406,000</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$240,000	
Removals	\$398,000	
(Salvage)	\$0	
Non-Itemized Additions	\$7,492,000	
Specific Cost	\$8,130,000	
Overhead Loads	\$28,000	
<b>CBI Total</b>	<b>\$8,158,000</b>	
Retirements	\$0	

Approvals				
			E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
APS	63.00%	\$5,139,413		Date
NTEC	7.00%	\$571,046		Date
PNM	13.00%	\$1,060,514		Date
SRP	10.0%	\$815,780		10/17/2018
TEP	7.00%	\$571,046		Date

FGC08151 Heat Trace - Phase 3							
Four Corners Participant Project		Rev FC19-37	0% Enviro.	NSR Completed: Yes			
FC Units 4 & 5		CBI: FC19-37	Env Code: N/A	ERF Completed: Yes			
In 2019 Budget: No		Plant Acct: 131500	Est Removal:	Est In Svc: 25 Sep 2020			
<p><b>Description:</b> Replace the existing outdated and failing heat trace system in the F45 Scrubber Absorber area. Replace existing heat trace panels EF0, EF1, EF2, EF3, EF4, EF5, EF6, and EF7, the heat trace transformers, heat trace cable, and accessories with these panels. Existing pipe insulation will be replaced.</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to maintain unit reliability by replacing the heat trace system. The original heat trace panels are outdated resistor-based technology and are at the end of their useful life. Replacement parts for existing heat trace panels are no longer available. This project is classified as a reliability initiative related to compliance with NERC Guideline - Generating Unit Winter Weather Readiness - Current Industry Practices.</p> <p><b>Consequences of Delay:</b> Continued unplanned outages in cold weather conditions due to failure of heat trace resulting in loss of scrubber absorber area equipment, instruments, and systems. Potential total 5 days of forced outages. Economic justification assumes a 50% probability of 5 each 1 day forced outages.</p> <p><b>Economic Justification:</b>            Benefit-Cost NPV: 0.00 M\$            Budget Category: REG</p>							
Cash Flow - 2019							
Jan	\$130,000	Apr	\$114,000	Jul	\$59,000	Oct	\$18,000
Feb	\$106,000	May	\$59,000	Aug	\$41,000	Nov	\$17,000
Mar	\$104,000	Jun	\$65,000	Sep	\$35,000	Dec	\$4,000
Prior	\$0	2019	\$751,000	2020	\$7,406,000	After	\$0
Cost Summary							
		Current Amount		Revised Amount			
RU Materials			\$240,000				
Removals			\$398,000				
(Salvage)			\$0				
Non-Itemized Additions			\$7,492,000				
Specific Cost			\$8,130,000				
Overhead Loads			\$28,000				
CBI Total			\$8,158,000				
Retirements			\$0				
Approvals							
				E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
APS		63.00%	\$5,139,413			Date	
NTEC		7.00%	\$571,046			Date	
PNM		13.00%	\$1,060,514			Date	
SRP		10.0%	\$815,780		<i>W.R. [Signature]</i>	Date	11-6-2018
TEP		7.00%	\$571,046			Date	

FCC08151 Heat Trace - Phase 3							
Four Corners Participant Project	Rev FC19-37	0% Enviro.	NSR Completed: Yes				
FC Units 4 & 5	CBI: FC19-37	Env Code: N/A	ERF Completed: Yes				
In 2019 Budget: No	Plant Acct: 131500	Est Removal:	Est In Svc: 25 Sep 2020				
<p><b>Description:</b> Replace the existing outdated and failing heat trace system in the F45 Scrubber Absorber area. Replace existing heat trace panels EF0, EF1, EF2, EF3, EF4, EF5, EF6, and EF7, the heat trace transformers, heat trace cable, and accessories with these panels. Existing pipe insulation will be replaced.</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to maintain unit reliability by replacing the heat trace system. The original heat trace panels are outdated resistor-based technology and are at the end of their useful life. Replacement parts for existing heat trace panels are no longer available. This project is classified as a reliability initiative related to compliance with NERC Guideline - Generating Unit Winter Weather Readiness - Current Industry Practices.</p> <p><b>Consequences of Delay:</b> Continued unplanned outages in cold weather conditions due to failure of heat trace resulting in loss of scrubber absorber area equipment, instruments, and systems. Potential total 5 days of forced outages. Economic justification assumes a 50% probability of 5 each 1 day forced outages.</p> <p><b>Economic Justification:</b> Benefit-Cost NPV: 0.00 MS Budget Category: REG</p>							
Cash Flow - 2019							
Jan	\$130,000	Apr	\$114,000	Jul	\$59,000	Oct	\$18,000
Feb	\$106,000	May	\$59,000	Aug	\$41,000	Nov	\$17,000
Mar	\$104,000	Jun	\$65,000	Sep	\$35,000	Dec	\$4,000
Prior	\$0	2019	\$751,000	2020	\$7,406,000	After	\$0
Cost Summary							
	Current Amount			Revised Amount			
RU Materials	\$240,000						
Removals	\$398,000						
(Salvage)	\$0						
Non-Itemized Additions	\$7,492,000						
Specific Cost	\$8,130,000						
Overhead Loads	\$28,000						
CBI Total	\$8,158,000						
Retirements	\$0						
Approvals							
				E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
APS	63.00%	\$5,139,413		Date			
NTEC	7.00%	\$571,046		Date			
PNM	13.00%	\$1,060,514		Date			
SRP	10.0%	\$815,780		Date			
FEP	7.00%	\$571,046		Date			
						Date 10/16/18	

FCC08229 Pulverizer Motor Replacement			
Four Corners Participant Project	Rev FC19-38	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI; FC19-38	Env Code: N/A	ERF Completed: Yes
In 2019 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 11 Apr 2020
<b>Description:</b> Replacement of a Unit 5 Pulverizer motor with a new motor.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain unit reliability and to avoid load reduction in the event of a pulverizer motor failure. The existing pulverizer motors are approaching the end of useful life, are obsolete, aging and are increasingly prone to failures.			
<b>Consequences of Delay:</b> Potential 13% load loss on unit 5 for 3 days due to failure of two pulverizer motors. Economic justification assumes a 10% probability of a 3 day load reduction.			
<b>Economic Justification:</b>			
Benefit-Cost NPV: 0.40 M\$			
Budget Category: REL.			

Cash Flow - 2019							
Jan	\$53,000	Apr	\$0	Jul	\$5,000	Oct	\$14,000
Feb	\$39,000	May	\$0	Aug	\$7,000	Nov	\$1,000
Mar	\$15,000	Jun	\$5,000	Sep	\$78,000	Dec	\$0
Prior	\$0	2019	\$217,000	2020	\$0	After	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materails	\$140,000	
Removals	\$0	
Non-Itemized Additions	\$74,000	
Specific Cost	\$214,000	
Overhead Loads	\$3,000	
CBI Total	\$217,000	
Retirements	\$0	

Approvals			
		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$136,604	Date 10/10/18 <i>Sarah Kist</i>
NTEC	7.00%	\$15,178	Date 10/12/18 <i>[Signature]</i>
PNM	13.00%	\$28,188	Date 10/10/18 <i>[Signature]</i>
SRP	10.0%	\$21,683	Date 10/10/18 <i>[Signature]</i>
TEP	7.00%	\$15,178	Date 10-10-18 <i>[Signature]</i>

FCC08309 Exciter Replacement			
Four Corners Participant Project	Rev FC19-41	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC19-41	Env Code: N/A	ERF Completed: Yes
In 2019 Budget: No	Plant Acct: 131100	Est Removal:	Est In Svc: 10 Apr 2021
<b>Description:</b> Replace the existing HP and LP generator exciters, non-segregated bus and climate-controlled enclosures.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain unit reliability by replacing exciters that are approaching end of serviceable life. The existing exciters have a history of reliability issues due to overheating. The new exciters will be equipped with enclosures designed to protect and cool the exciters.			
<b>Consequences of Delay:</b> Potential 5 day forced outage. Economic justification assumes a 5% probability of a 5 day forced outage.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:		0.20 MS	
Budget Category:		REL-UNIT	

Cash Flow - 2019							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$60,000
Feb	\$45,000	May	\$0	Aug	\$36,000	Nov	\$44,000
Mar	\$0	Jun	\$0	Sep	\$73,000	Dec	\$41,000
<b>Prior</b>	<b>\$0</b>	<b>2019</b>	<b>\$298,000</b>	<b>2020</b>	<b>\$1,292,000</b>	<b>After</b>	<b>\$2,194,000</b>

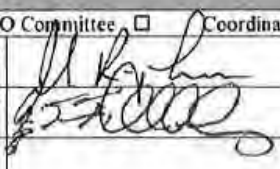
Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$1,425,000	
Removals	\$430,000	
(Salvage)	\$0	
Non-Itemized Additions	\$1,848,000	
Specific Cost	\$3,703,000	
Overhead Loads	\$82,000	
<b>CBI Total</b>	<b>\$3,784,000</b>	
Retirements	\$0	

Approvals				
		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$2,384,054	<i>Sarah Kest</i>	Date 10/10/18
NTEC	7.00%	\$264,895	<i>Joe Fe</i>	Date 10/10/18
PNM	13.00%	\$491,948	<i>[Signature]</i>	Date 10/10/18
SRP	10.0%	\$378,421	<i>[Signature]</i>	Date 10/10/18
TEP	7.00%	\$264,895	<i>[Signature]</i>	Date 10-10-18

FCC09069 Boiler Convection Pass Tube Replacement			
Four Corners Participant Project	Rev FC19-61	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC19-61	Env Code: N/A	ERF Completed: Yes
In 2019 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 10 Apr 2021
<b>Description:</b> Replace (in kind) the complete front convection pass waterwall (CPWW) including lower inlet header and upper junction header, and the complete rear CPWW including the lower inlet header and upper outlet header.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain Unit reliability by reducing tube failures in the CPWW. Inspection and lab analysis of recent CPWW tube failures has identified internal cracking due to corrosion fatigue and external wall thinning (wastage) due to erosion. Tube leaks resulting from this damage are causing forced outages.			
<b>Consequences of Delay:</b> Potential 10-day forced outage, at a minimum, to repair tube leak.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:		14.70 M\$	
Budget Category:		REL.	

Cash Flow - 2019							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$5,000
Feb	\$32,000	May	\$0	Aug	\$0	Nov	\$20,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$12,000
<b>Prior</b>	<b>\$0</b>	<b>2019</b>	<b>\$69,000</b>	<b>2020</b>	<b>\$1,000,000</b>	<b>After</b>	<b>\$4,580,000</b>

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$4,273,000	
Removals	\$423,000	
Non-Itemized Additions	\$928,000	
Specific Cost	\$5,624,000	
Overhead Loads	\$24,000	
<b>CBI Total</b>	<b>\$5,648,000</b>	
Retirements	\$0	

Approvals				
Exhibit: ACI			E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
APS	63.00%	\$3,558,406		Date 1/25/19
NTEC	7.00%	\$395,378		Date 1-24-19
PNM	13.00%	\$734,274		Date
SRP	10.0%	\$564,826		Date
TEP	7.00%	\$395,378		Date

FCC09069 Boiler Convection Pass Tube Replacement							
Four Corners Participant Project	Rev FC19-61	0% Enviro.	NSR Completed: Yes				
FC Unit 4	CBI: FC19-61	Env Code: N/A	ERF Completed: Yes				
In 2019 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 10 Apr 2021				
<p><b>Description:</b> Replace (in kind) the complete front convection pass waterwall (CPWW) including lower inlet header and upper junction header, and the complete rear CPWW including the lower inlet header and upper outlet header.</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to maintain Unit reliability by reducing tube failures in the CPWW. Inspection and lab analysis of recent CPWW tube failures has identified internal cracking due to corrosion fatigue and external wall thinning (wastage) due to erosion. Tube leaks resulting from this damage are causing forced outages.</p> <p><b>Consequences of Delay:</b> Potential 10-day forced outage, at a minimum, to repair tube leak.</p> <p><b>Economic Justification:</b>            Benefit-Cost NPV: 14.70 MS            Budget Category: REL.</p>							
Cash Flow - 2019							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$5,000
Feb	\$32,000	May	\$0	Aug	\$0	Nov	\$20,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$12,000
Prior	\$0	2019	\$69,000	2020	\$1,000,000	After	\$4,580,000
Cost Summary							
	Current Amount			Revised Amount			
RU Materials	\$4,273,000						
Removals	\$423,000						
Non-Itemized Additions	\$928,000						
Specific Cost	\$5,624,000						
Overhead Loads	\$24,000						
CBI Total	\$5,648,000						
Retirements	\$0						
Approvals							
Exhibit: ACI				E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
APS	63.00%	\$3,558,406					Date
NTEC	7.00%	\$395,378					Date
PNM	13.00%	\$734,274					Date
SRP	10.0%	\$564,826					Date
TEP	7.00%	\$395,378					Date

*John Zaly* 10/17/2019



FCC09069 Boiler Convection Pass Tube Replacement							
Four Corners Participant Project		Rev FC19-61	0% Enviro.	NSR Completed: Yes			
FC Unit 4		CBI: FC19-61	Env Code: N/A	ERF Completed: Yes			
In 2019 Budget: Yes		Plant Acct: 131200	Est Removal:	Est In Svc: 10 Apr 2021			
<p><b>Description:</b> Replace (in kind) the complete front convection pass waterwall (CPWW) including lower inlet header and upper junction header, and the complete rear CPWW including the lower inlet header and upper outlet header.</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to maintain Unit reliability by reducing tube failures in the CPWW. Inspection and lab analysis of recent CPWW tube failures has identified internal cracking due to corrosion fatigue and external wall thinning (wastage) due to erosion. Tube leaks resulting from this damage are causing forced outages.</p> <p><b>Consequences of Delay:</b> Potential 10-day forced outage, at a minimum, to repair tube leak.</p> <p><b>Economic Justification:</b>            Benefit-Cost NPV: 14.70 M\$            Budget Category: REL.</p>							
Cash Flow - 2019							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$5,000
Feb	\$32,000	May	\$0	Aug	\$0	Nov	\$20,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$12,000
<b>Prior</b>	<b>\$0</b>	<b>2019</b>	<b>\$69,000</b>	<b>2020</b>	<b>\$1,000,000</b>	<b>After</b>	<b>\$4,580,000</b>
Cost Summary							
		Current Amount		Revised Amount			
RU Materials			\$4,273,000				
Removals			\$423,000				
Non-Itemized Additions			\$928,000				
Specific Cost			\$5,624,000				
Overhead Loads			\$24,000				
CBI Total			\$5,648,000				
Retirements			\$0				
Approvals							
Exhibit: ACI				E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
APS		63.00%	\$3,558,406			Date	
NTEC		7.00%	\$395,378			Date	
PNM		13.00%	\$734,274			Date	
SRP		10.0%	\$564,826			Date	
TEP		7.00%	\$395,378			Date	

*Will Ball* 11-6-2018

FCC09069 Boiler Convection Pass Tube Replacement			
Four Corners Participant Project	Rev FC19-61	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC19-61	Env Code: N/A	ERF Completed: Yes
In 2019 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 10 Apr 2021
<p><b>Description:</b> Replace (in kind) the complete front convection pass waterwall (CPWW) including lower inlet header and upper junction header, and the complete rear CPWW including the lower inlet header and upper outlet header.</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to maintain Unit reliability by reducing tube failures in the CPWW. Inspection and lab analysis of recent CPWW tube failures has identified internal cracking due to corrosion fatigue and external wall thinning (wastage) due to erosion. Tube leaks resulting from this damage are causing forced outages.</p> <p><b>Consequences of Delay:</b> Potential 10-day forced outage, at a minimum, to repair tube leak.</p> <p><b>Economic Justification:</b> Benefit-Cost NPV: 14.70 MS Budget Category: REL</p>			

Cash Flow - 2019							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$5,000
Feb	\$32,000	May	\$0	Aug	\$0	Nov	\$20,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$12,000
<b>Prior</b>	<b>\$0</b>	<b>2019</b>	<b>\$69,000</b>	<b>2020</b>	<b>\$1,000,000</b>	<b>After</b>	<b>\$4,580,000</b>

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$4,273,000	
Removals	\$423,000	
Non-Itemized Additions	\$928,000	
Specific Cost	\$5,624,000	
Overhead Loads	\$24,000	
<b>CBI Total</b>	<b>\$5,648,000</b>	
Retirements	\$0	

Approvals			
Exhibit: ACI		E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
APS	63.00%	\$3,558,406	Date
NTEC	7.00%	\$395,378	Date
PNM	13.00%	\$734,274	Date
SRP	10.0%	\$564,826	Date
TEP	7.00%	\$395,378	Date

  
 Date: 10/16/18

FCC06576 SCR Catalyst Replacement 2021			
Four Corners Participant Project	Rev FC20-01	100% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC20-01	Env Code: Air	ERF Completed: Yes
In 2020 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 10 Apr 2021
<b>Description:</b> Installation of one new layer of catalyst material in each of the two Unit 4 Selective Catalytic Reduction (SCR) reactors.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain environmental compliance with Title V Permit.			
<b>Consequences of Delay:</b> Non-compliance with the Title V Permit due to reduced NOx removal rate and increased ammonia slip.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:		0 M\$	
Budget Category:		ENV	

Cash Flow - 2020							
Jan	\$4,000	Apr	\$30,000	Jul	\$243,000	Oct	\$337,000
Feb	\$23,000	May	\$17,000	Aug	\$571,000	Nov	\$10,000
Mar	\$41,000	Jun	\$13,000	Sep	\$7,000	Dec	\$671,000
<b>Prior</b>	\$0	<b>2020</b>	\$1,967,000	<b>2021</b>	\$1,310,000	<b>After</b>	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$2,750,000	
Removals	\$0	
(Salvage)	\$0	
Non-Itemized Additions	\$494,000	
Specific Cost	\$3,244,000	
Overhead Loads	\$33,000	
<b>CBI Total</b>	<b>\$3,277,000</b>	
Retirements	\$0	

Approvals			
		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$2,064,770	<i>Search Reaf</i> Date 10/9/19
NTEC	7.00%	\$229,419	<i>SJH</i> Date 10/9/19
PNM	13.00%	\$426,064	<i>[Signature]</i> Date 10/5/19
SRP	10.0%	\$327,741	<i>[Signature]</i> Date 10-9-19
TEP	7.00%	\$229,419	<i>[Signature]</i> Date 10-9-19

FCC08317 2021 Turbine Minor Overhaul			
Four Corners Participant Project	Rev FC-20-04	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC-20-04	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: Yes	Plant Acct: 131400	Est Removal:	Est In Svc: 10 Apr 2021
<b>Description:</b> Minor turbine overhaul including open, close disassembly, and assembly of speed matching valve, replacement of main stop valve trim and main control valve trim.			
<b>Purpose/Necessity:</b> The purpose of the project is to proactively avoid valve and component failure and potential safety risk and maintain long-term unit reliability.			
<b>Consequences of Delay:</b> Repair requirements will increase with continued operation and unit runtime. Potential 25 day forced outage. Economic justification assumes a 50% probability of a 25 day forced outage.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:		43.60 MS	
Budget Category:		REL-UNIT	

Cash Flow - 2020							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$9,000
Feb	\$0	May	\$0	Aug	\$0	Nov	\$745,000
Mar	\$24,000	Jun	\$0	Sep	\$0	Dec	\$4,000
<b>Prior</b>	<b>\$0</b>	<b>2020</b>	<b>\$783,000</b>	<b>2021</b>	<b>\$1,335,000</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$800,000	
Removals	\$50,000	
(Salvage)	\$0	
Non-Itemized Additions	\$1,255,000	
Specific Cost	\$2,105,000	
Overhead Loads	\$13,000	
<b>CBI Total</b>	<b>\$2,118,000</b>	
Retirements	\$0	

Approvals				
			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$1,334,484	Sarah Kist	Date 10/9/19
NTEC	7.00%	\$148,276	S.H. [Signature]	Date 10/9/19
PNM	13.00%	\$275,370	[Signature]	Date 12/5/17
SRP	10.0%	\$211,823	[Signature]	Date 10-9-19
TEP	7.00%	\$148,276	[Signature]	Date 10-9-19

FCC08406 2021 CBI Development			
Four Corners Participant Project	Rev FC20-05	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC20-05	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: Yes	Plant Acct:	Est Removal:	Est In Svc: 31 Dec 2020
<b>Description:</b> Fund the development of 2021 Four Corners project capital budget items (CBIs).			
<b>Purpose/Necessity:</b> The purpose of this project is to strategically provide funding in 2020 for the CBI development of 2021 Four Corners CBI projects, thereby enabling the capitalization of initial project development costs in the year that the costs occur. The cost incurred under this CBI shall be billed against this CBI in 2020 and then redistributed to all approved 2021 CBIs and reflected as 2020 actual expenditures under said approved 2021 CBIs.			
<b>Consequences of Delay:</b> Charge CBI development effort to APS capital overhead.			
<b>Economic Justification:</b>			
Budget Category: STRATEGIC			

Cash Flow - 2020							
Jan	\$96,000	Apr	\$244,000	Jul	\$110,000	Oct	\$23,000
Feb	\$158,000	May	\$161,000	Aug	\$72,000	Nov	\$23,000
Mar	\$150,000	Jun	\$137,000	Sep	\$29,000	Dec	\$18,000
<b>Prior</b>	\$0	<b>2020</b>	\$1,221,000	<b>2021</b>	\$0	<b>After</b>	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials		\$0
Removals		\$0
(Salvage)		\$0
Non-Itemized Additions		\$1,165,000
Specific Cost		\$1,165,000
Overhead Loads		\$56,000
<b>CBI Total</b>		<b>\$1,221,000</b>
Retirements		\$0

Approvals			
		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$769,139	<i>Sarah Kist</i> 10/9/19 Date
NTEC	7.00%	\$85,460	<i>Sellman</i> 10/9/19 Date
PNM	13.00%	\$158,711	<i>[Signature]</i> 12/5/19 Date
SRP	10.0%	\$122,086	<i>[Signature]</i> 10-9-19 Date
TEP	7.00%	\$85,460	<i>[Signature]</i> 10-9-19 Date

FCC08473 Baghouse Vent Header Replacement			
Four Corners Participant Project	Rev FC20-06	100% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC20-06	Env Code: Air	ERF Completed: Yes
In 2020 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 10 Apr 2021
<b>Description:</b> Replace each of the eight 48" diameter vent headers and poppet valves in the Unit 4 baghouse.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain compliance with the Title V air permit.			
<b>Consequences of Delay:</b> Non-compliance with Title V Permit with risk of a Reportable Environmental Incident (REI). A baghouse vent header failure results in a forced outage. A typical failure has a 25% probability and results in a 5-day outage for emergency repairs.			
<b>Economic Justification:</b>			
Benefit-Cost NPV: 0 M\$			
Budget Category: ENV			

Cash Flow - 2020							
Jan	\$0	Apr	\$17,000	Jul	\$238,000	Oct	\$20,000
Feb	\$15,000	May	\$22,000	Aug	\$571,000	Nov	\$13,000
Mar	\$48,000	Jun	\$17,000	Sep	\$17,000	Dec	\$6,000
<b>Prior</b>	<b>\$0</b>	<b>2020</b>	<b>\$984,000</b>	<b>2021</b>	<b>\$3,896,000</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$525,000	
Removals	\$151,000	
(Salvage)	\$0	
Non-Itemized Additions	\$4,191,000	
Specific Cost	\$4,867,000	
Overhead Loads	\$13,000	
<b>CBI Total</b>	<b>\$4,880,000</b>	
Retirements	\$0	

Approvals				
		E&O Committee <input checked="" type="checkbox"/> Coordinating Committee <input type="checkbox"/>		
APS	63.00%	\$3,074,515	Sarah Kist	Date 10/9/19
NTEC	7.00%	\$341,613	S. H. fur	Date 10/9/19
PNM	13.00%	\$634,424	P. B. G.	Date 12/5/19
SRP	10.0%	\$488,018	K. W.	Date 10-9-19
TEP	7.00%	\$341,613	J. B.	Date 10-9-19

FCC08547 Main Elevator Modernization			
Four Corners Participant Project	Rev FC20-07	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC20-07	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: Yes	Plant Acct: 131100	Est Removal:	Est In Svc: 05 Nov 2021
<b>Description:</b> Complete Modernization of the Unit 4/5 Main elevator to be in compliance with OSHA General Safety Clause Section 5(a)(1).			
<b>Purpose/Necessity:</b> The purpose of this project is to modernize F4/5 Main elevator in order to maintain a safe and reliable system to comply with the OSHA General Duty Clause and recommendations found in the HKA Vertical Transportation Comprehensive Maintenance and Condition Audit completed in September 2016. The elevator is reaching the end of its serviceable life and must be repaired.			
<b>Consequences of Delay:</b> Continued limited access to areas of the Plant due to elevator sometime being out of service. Increased costs from delayed operation, maintenance, and repairs of plant equipment due to limited access caused by non-functioning main elevator.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:		0 M\$	
Budget Category:		SAFETY	

Cash Flow - 2020							
Jan	\$0	Apr	\$0	Jul	\$33,000	Oct	\$27,000
Feb	\$0	May	\$64,000	Aug	\$27,000	Nov	\$31,000
Mar	\$0	Jun	\$27,000	Sep	\$31,000	Dec	\$9,000
<b>Prior</b>	<b>\$0</b>	<b>2020</b>	<b>\$248,000</b>	<b>2021</b>	<b>\$1,034,000</b>	<b>After</b>	<b>\$10,000</b>

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$600,000	
Removals	\$38,000	
(Salvage)	\$0	
Non-Itemized Additions	\$648,000	
Specific Cost	\$1,286,000	
Overhead Loads	\$7,000	
<b>CBI Total</b>	<b>\$1,293,000</b>	
Retirements	\$0	

Approvals				
			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$814,364	Sarah Kist	Date 10/9/19
NTEC	7.00%	\$90,485	S.H. Jr	Date 10/9/19
PNM	13.00%	\$168,043	R.B. Jr	Date 12/15/17
SRP	10.0%	\$129,264	Alton	Date 10-9-19
TEP	7.00%	\$90,485	J.B.	Date 10-9-19

**FCC08730 Phase 5 Water Piping Replacement**

Four Corners Participant Project FC Units 4 & 5 In 2020 Budget: Yes	Rev FC20-08 CBI: FC20-08 Plant Acct: 131600	0% Enviro. Env Code: N/A Est Removal:	NSR Completed: Yes ERF Completed: Yes Est In Svc: 30 Nov 2021
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**Description:** Replace all potable, service, SO2 make-up water and firewater piping below grade mains and above grade headers in the areas of the Unit 4 and Unit 5 SO2 pipe rack, scrubber buildings and lime processes building, including loop and branch isolation valves. All existing below-grade piping will be capped and abandoned in place and all existing above-grade piping will be demolished.

**Purpose/Necessity:** The purpose of this project is to maintain reliability of safety-critical systems (Potable, Service, SO2 Make-up water and Firewater systems) through replacement of degraded water piping and to maintain compliance with OSHA standard 1910.151 and ANSI Z358.1. Replacement of the water piping will reduce the probability of system outages caused by main breaks in degraded piping systems.

**Consequences of Delay:** Failure of firewater piping system during a fire event could result in more extensive damage to equipment and/or elevated safety risk to personnel. Failure of potable water piping could result in increased risk to personnel safety and health of employees. Failure of service water piping could result in increased risk to unit reliability and increased risk to personnel safety and health of employees. Failure of below-grade water piping could impact plant accessibility due to the need to excavate below main entrance drives to make repairs. There was an average of 9 potable water outages between 2012 -2014 this promoted the phased water replacement projects and the number of outages has decreased for each service after each phase.

**Economic Justification:**  
Benefit-Cost NPV: 0 M\$  
Budget Category: SAFETY

**Cash Flow - 2020**

Jan	\$4,000	Apr	\$67,000	Jul	\$165,000	Oct	\$417,000
Feb	\$52,000	May	\$86,000	Aug	\$67,000	Nov	\$310,000
Mar	\$102,000	Jun	\$92,000	Sep	\$67,000	Dec	\$281,000
Prior	\$0	2020	\$1,731,000	2021	\$3,784,000	After	\$0

**Cost Summary**

	Current Amount	Revised Amount
RU Materials	\$340,000	
Removals	\$500,000	
(Salvage)	\$0	
Non-Itemized Additions	\$4,666,000	
Specific Cost	\$5,506,000	
Overhead Loads	\$9,000	
CBI Total	\$5,515,000	
Retirements	\$0	

**Approvals**

Exhibit: ACJ		E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
APS	63.00%	\$3,474,287		<i>[Signature]</i>	Date 12/16/19
NTEC	7.00%	\$386,032		<i>[Signature]</i>	Date 12/15/2019
PNM	13.00%	\$716,916			Date
SRP	10.0%	\$551,474			Date
TEP	7.00%	\$386,032			Date





FCC08730 Phase 5 Water Piping Replacement							
Four Corners Participant Project		Rev FC20-08	0% Enviro.		NSR Completed: Yes		
FC Units 4 & 5		CBI: FC20-08	Env Code: N/A		ERF Completed: Yes		
In 2020 Budget: Yes		Plant Acct: 131600	Est Removal:		Est In Svc: 30 Nov 2021		
<p><b>Description:</b> Replace all potable, service, SO2 make-up water and firewater piping below grade mains and above grade headers in the areas of the Unit 4 and Unit 5 SO2 pipe rack, scrubber buildings and lime processes building, including loop and branch isolation valves. All existing below-grade piping will be capped and abandoned in place and all existing above-grade piping will be demolished.</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to maintain reliability of safety-critical systems (Potable, Service, SO2 Make-up water and Firewater systems) through replacement of degraded water piping and to maintain compliance with OSHA standard 1910.151 and ANSI Z358.1. Replacement of the water piping will reduce the probability of system outages caused by main breaks in degraded piping systems.</p> <p><b>Consequences of Delay:</b> Failure of firewater piping system during a fire event could result in more extensive damage to equipment and/or elevated safety risk to personnel. Failure of potable water piping could result in increased risk to personnel safety and health of employees. Failure of service water piping could result in increased risk to unit reliability and increased risk to personnel safety and health of employees. Failure of below-grade water piping could impact plant accessibility due to the need to excavate below main entrance drives to make repairs. There was an average of 9 potable water outages between 2012 -2014 this promoted the phased water replacement projects and the number of outages has decreased for each service after each phase.</p> <p><b>Economic Justification:</b>            Benefit-Cost NPV: 0 MS            Budget Category: SAFETY</p>							
Cash Flow - 2020							
Jan	\$4,000	Apr	\$67,000	Jul	\$165,000	Oct	\$437,000
Feb	\$52,000	May	\$86,000	Aug	\$67,000	Nov	\$310,000
Mar	\$102,000	Jun	\$92,000	Sep	\$67,000	Dec	\$281,000
<b>Prior</b>	<b>\$0</b>	<b>2020</b>	<b>\$1,731,000</b>	<b>2021</b>	<b>\$3,784,000</b>	<b>After</b>	<b>\$0</b>
Cost Summary							
	Current Amount			Revised Amount			
RU Materials	\$340,000						
Removals	\$500,000						
(Salvage)	\$0						
Non-Itemized Additions	\$4,666,000						
Specific Cost	\$5,506,000						
Overhead Loads	\$9,000						
CBI Total	\$5,515,000						
Retirements	\$0						
Approvals							
Exhibit: ACJ				E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
APS		63.00%	\$3,474,287				Date
NTEC		7.00%	\$386,032				Date
PNM		13.00%	\$716,916				Date
SRP		10.0%	\$551,474	D.H. PAUL			Date
TEP		7.00%	\$386,032				Date

FCC08730 Phase 5 Water Piping Replacement			
Four Corners Participant Project	Rev FC20-08	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC20-08	Eav Code: N/A	ERF Completed: Yes
In 2020 Budget: Yes	Plant Acct: 131600	Est Removal:	Est In Svc: 30 Nov 2021
<p><b>Description:</b> Replace all potable, service, SO2 make-up water and firewater piping below grade mains and above grade headers in the areas of the Unit 4 and Unit 5 SO2 pipe rack, scrubber buildings and lime processes building, including loop and branch isolation valves. All existing below-grade piping will be capped and abandoned in place and all existing above-grade piping will be demolished.</p> <p><b>Purpose/Necessity:</b> The purpose of (his project is to maintain reliability of safety-critical systems (Potable, Service, SO2 Make-up water and Firewater systems) through replacement of degraded water piping and to maintain compliance with OSHA standard 1910.151 and ANSI Z358.1. Replacement of the water piping will reduce the probability of system outages caused by main breaks in degraded piping systems.</p> <p><b>Consequences of Delay:</b> Failure of firewater piping system during a fire event could result in more extensive damage to equipment and/or elevated safety risk to personnel. Failure of potable water piping could result in increased risk to personnel safety and health of employees. Failure of service water piping could result in increased risk to unit reliability and increased risk to personnel safety and health of employees. Failure of below-grade water piping could impact plant accessibility due to the need to excavate below main entrance drives to make repairs. There was an average of 9 potable water outages between 2012 -2014 this promoted the phased water replacement projects and the number of outages has decreased for each service after each phase.</p> <p><b>Economic Justification:</b> Benefit-Cost NPV: 0 M\$ Budget Category: SAFETY</p>			

Cash Flow - 2020							
Jan	\$4,000	Apr	\$67,000	Jul	\$165,000	Oct	\$437,000
Feb	\$52,000	May	\$86,000	Aug	\$67,000	Nov	\$310,000
Mar	\$102,000	Jun	\$92,000	Sep	\$67,000	Dec	\$281,000
<b>Prior</b>	<b>\$0</b>	<b>2020</b>	<b>\$1,731,000</b>	<b>2021</b>	<b>\$3,784,000</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$340,000	
Removals	\$500,000	
(Salvage)	\$0	
Non-Itemized Additions	\$4,666,000	
Specific Cost	\$5,506,000	
Overhead Loads	\$9,000	
<b>CBI Total</b>	<b>\$5,515,000</b>	
Retirements	\$0	

Approvals				
Exhibit: ACJ			E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
APS	63.00%	\$3,474,287		Date
NTEC	7.00%	\$386,032		Date
PNM	13.00%	\$716,916		Date
SRP	10.0%	\$551,474		Date
TEP	7.00%	\$386,032		Date

*[Signature]* 17 Oct 2019

FCC08872 Fly Ash Transport System Replacement			
Four Corners Participant Project	Rev FC20-10	100% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC20-10	Env Code: Air	ERF Completed: Yes
In 2020 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 10 Apr 2021

**Description:** Replace approximately 1,500 ft of 14" fly ash transport lines from the Baghouses to the Fly Ash Surge Silos.

**Purpose/Necessity:** The purpose of this project is to maintain environmental compliance with the Title V Permit. The existing pipe is approaching the end of its useful life and has degraded requiring repairs. Completion of this project will allow fly ash to be consistently transferred from the baghouse to the surge bins as necessary to avoid a reportable environmental incident (REI).

**Consequences of Delay:** Non-compliance with Title V permit would result in temporary measures until the problem is resolved with risk of a Reportable Environmental Incident (REI).

**Economic Justification:**

Benefit-Cost NPV: 0 MS  
Budget Category: ENV

Cash Flow - 2020							
Jan	\$20,000	Apr	\$16,000	Jul	\$28,000	Oct	\$16,000
Feb	\$27,000	May	\$25,000	Aug	\$16,000	Nov	\$20,000
Mar	\$41,000	Jun	\$16,000	Sep	\$25,000	Dec	\$20,000
<b>Prior</b>	\$0	<b>2020</b>	\$272,000	<b>2021</b>	\$2,498,000	<b>After</b>	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$150,000	
Removals	\$265,000	
(Salvage)	\$0	
Non-Itemized Additions	\$2,331,000	
Specific Cost	\$2,746,000	
Overhead Loads	\$24,000	
<b>CBI Total</b>	<b>\$2,770,000</b>	
Retirements	\$0	

Approvals			
		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$1,745,246	Sarah Kist Date 10/9/19
NTEC	7.00%	\$193,916	S.H.H. Date 10/9/19
PNM	13.00%	\$360,130	[Signature] Date 12/5/19
SRP	10.0%	\$277,023	[Signature] Date 10-9-19
TEP	7.00%	\$193,916	[Signature] Date 10-9-19

FCC08897 Scrubber Outlet Dampers			
Four Corners Participant Project	Rev FC20-11	100% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC20-11	Env Code: Air	ERF Completed: Yes
In 2020 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 10 Apr 2021
<b>Description:</b> Replacement of 5 scrubber outlet dampers approaching end of life to avoid risk of malfunction along with 10 seal air fans (2 per damper).			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain compliance with the 2015 Consent Decree by procuring and installing new "like kind" dampers to replace the existing scrubber outlet dampers that are approaching the end of their design life. The dampers have experienced operating problems and man-safe isolation no longer occurs without manual intervention from plant maintenance. Completing this project on the Unit 4 scrubber will prevent the outlet dampers from releasing flue gas to the environment through leaking seals and joints. Ability to isolate absorber modules while maintaining plant operation to do routine maintenance online or address failures is critical to meeting emissions rates and plant outputs is required.			
<b>Consequences of Delay:</b> Non-compliance with Title V Permit with a risk of Reportable Environmental Incident (REI).			
<b>Economic Justification:</b>			
Benefit-Cost NPV: 0 M\$			
Budget Category: ENV			

Cash Flow - 2020							
Jan	\$0	Apr	\$21,000	Jul	\$1,034,000	Oct	\$10,000
Feb	\$29,000	May	\$21,000	Aug	\$32,000	Nov	\$6,000
Mar	\$52,000	Jun	\$273,000	Sep	\$21,000	Dec	\$6,000
<b>Prior</b>	\$0	<b>2020</b>	\$1,506,000	<b>2021</b>	\$3,298,000	<b>After</b>	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$2,000,000	
Removals	\$107,000	
(Salvage)	\$0	
Non-Itemized Additions	\$2,675,000	
Specific Cost	\$4,782,000	
Overhead Loads	\$21,000	
<b>CBI Total</b>	<b>\$4,803,000</b>	
Retirements	\$0	

Approvals					
		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
APS	63.00%	\$3,026,899	<i>Sarah Kist</i>	Date	10/9/19
NTEC	7.00%	\$336,322	<i>SJH</i>	Date	10/9/19
PNM	13.00%	\$624,598	<i>JTB</i>	Date	12/5/17
SRP	10.0%	\$480,460	<i>John</i>	Date	10-9-19
TEP	7.00%	\$336,322	<i>JTB</i>	Date	10-9-19

FCC08996 U45 Sulfur Tank Addition			
Four Corners Participant Project	Rev FC20-13	100% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC20-13	Env Code: Air	ERF Completed: Yes
In 2020 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 31 Mar 2021

**Description:** Purchase and install an additional Sulfur Tank and pump.

**Purpose/Necessity:** The purpose of this project is to increase the storage capacity of elemental sulfur and provide system redundancy by the addition of a second storage tank and forwarding system. Sulfur use has increased 50% due to new mercury rules. The current tank is undersized and is struggling to keep up with demand and no backup tank is available in case of any maintenance issues. Currently a new shipment is required every 7 to 9 days.

**Consequences of Delay:** Failure of the system could result in excessive scaling within the Absorber Modules which would inhibit the Absorber's ability to remove SO<sub>2</sub>. Failure to remove at least 95% of the SO<sub>2</sub> could result in a violation of the Title V Permit.

**Economic Justification:**

Benefit-Cost NPV: 0 M\$  
Budget Category: ENV

**Cash Flow - 2020**

Jan	\$4,000	Apr	\$40,000	Jul	\$30,000	Oct	\$65,000
Feb	\$34,000	May	\$35,000	Aug	\$28,000	Nov	\$11,000
Mar	\$66,000	Jun	\$39,000	Sep	\$14,000	Dec	\$11,000
<b>Prior</b>	\$0	<b>2020</b>	\$376,000	<b>2021</b>	\$484,000	<b>After</b>	\$0

**Cost Summary**

	Current Amount	Revised Amount
RU Materials	\$29,000	
Removals	\$0	
(Salvage)	\$0	
Non-Itemized Additions	\$819,000	
Specific Cost	\$848,000	
Overhead Loads	\$12,000	
<b>CBI Total</b>	<b>\$860,000</b>	
Retirements	\$0	

**Approvals**

		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
APS	63.00%	\$541,665	<i>Sarah Kist</i>	Date	10/9/19
NTEC	7.00%	\$60,185	<i>S. H. H.</i>	Date	10/9/19
PNM	13.00%	\$111,772	<i>J. H. H.</i>	Date	12/5/19
SRP	10.0%	\$85,979	<i>M. H. H.</i>	Date	10-9-19
TEP	7.00%	\$60,185	<i>J. H. H.</i>	Date	10-9-19

**FC2012891 Burner Replacement - Phase 2**

Four Corners Participant Project	Rev FC20-14	100% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC20-14	Env Code: Air	ERF Completed: Yes
In 2020 Budget: No	Plant Acct: 131200	Est Removal:	Est In Svc: 10 Apr 2021

**Description:** Replace the remaining 24 burners not replaced in 2018.

**Purpose/Necessity:** The purpose of this project is to maintain compliance with MACT regulations. The current coal burners were installed in 1990 and are approaching the end of their usable life. Inspections in 2015 and 2016 have reported erosion on the major components of register vanes, internal strut, and perforated plates. The condition of the burners results in increased emissions and decrease in efficiency.

**Consequences of Delay:** Noncompliance with MACT. Increased costs to maintain burner operations and risk of unit derate due to burner failure. Risk of fire in the windbox from damaged coal barrels. Increase generation of unburnt coal particles.

**Economic Justification:**  
 Benefit-Cost NPV: 0 M\$  
 Budget Category: ENV

**Cash Flow - 2020**

Jan	\$5,000	Apr	\$15,000	Jul	\$42,000	Oct	\$124,000
Feb	\$15,000	May	\$788,000	Aug	\$26,000	Nov	\$80,000
Mar	\$499,000	Jun	\$336,000	Sep	\$26,000	Dec	\$4,000
Prior	\$0	2020	\$1,960,000	2021	\$6,162,000	After	\$0

**Cost Summary**

	Current Amount	Revised Amount
RU Materials	\$2,890,000	
Removals	\$358,000	
(Salvage)	\$0	
Non-Itemized Additions	\$4,854,000	
Specific Cost	\$8,102,000	
Overhead Loads	\$20,000	
CBI Total	\$8,122,000	
Retirements	\$0	

**Approvals**

			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
APS	63.00%	\$5,116,590	<i>[Signature]</i>	Date 12/16/19
NTEC	7.00%	\$568,510	<i>[Signature]</i>	Date 12/5/2019
PNM	13.00%	\$1,055,804		Date
SRP	10.0%	\$812,157		Date
TEP	7.00%	\$568,510		Date

Project Name	Project No.	Project Code	Project Status
Four Burners Individual Project	1000000000	1000000000	Approved
Unit No.	Unit Code	Unit Status	Unit Name
1000000000	1000000000	1000000000	1000000000

**Description:** Replace the remaining 24 burners not replaced in 2018.

**Purpose/Necessity:** The purpose of this project is to maintain compliance with MACT regulations. The current coal burners were installed in 1990 and are approaching the end of their usable life. Inspections in 2015 and 2016 have reported erosion on the major components of register vanes, internal strut, and perforated plates. The condition of the burners results in increased emissions and decrease in efficiency.

**Consequences of Delay:** Noncompliance with MACT. Increased costs to maintain burner operations and risk of unit derate due to burner failure. Risk of fire in the windbox from damaged coal barrels. Increase generation of unburnt coal particles.

**Economic Justification:**  
Benefit-Cost NPV: 0 M\$  
Budget Category: BNV

Month	2019	2020	2021	2022	2023	2024
Jan	\$5,000	\$15,000	\$42,000	\$26,000	\$26,000	\$124,000
Feb	\$15,000	\$788,000	\$26,000	\$26,000	\$26,000	\$80,000
Mar	\$499,000	\$336,000	\$26,000	\$26,000	\$26,000	\$4,000
Apr	\$0	\$0	\$0	\$0	\$0	\$0
May	\$0	\$0	\$0	\$0	\$0	\$0
Jun	\$0	\$0	\$0	\$0	\$0	\$0
Jul	\$0	\$0	\$0	\$0	\$0	\$0
Aug	\$0	\$0	\$0	\$0	\$0	\$0
Sep	\$0	\$0	\$0	\$0	\$0	\$0
Oct	\$0	\$0	\$0	\$0	\$0	\$0
Nov	\$0	\$0	\$0	\$0	\$0	\$0
Dec	\$0	\$0	\$0	\$0	\$0	\$0
Total	\$519,000	\$1,139,000	\$94,000	\$78,000	\$78,000	\$208,000

Category	Amount
RJ Materials	\$2,890,000
Removals	\$358,000
(Salvage)	\$0
Non-Itemized Additions	\$4,854,000
Specific Cost	\$8,102,000
Overhead Loads	\$20,000
CBI Total	\$8,122,000
Retirements	\$0

Department	Percentage	Amount	Date
APS	63.00%	\$5,116,590	
NTEC	7.00%	\$568,510	
PNM	13.00%	\$1,055,804	11/27/2019
SRP	10.00%	\$812,157	
TTP	7.00%	\$568,510	



FCC012891 Burner Replacement - Phase 2			
Four Corners Participant Project	Rev FC20-14	100% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC20-14	Env Code: Air	ERF Completed: Yes
In 2020 Budget: No	Plant Acct: 131200	Est Removal:	Est In Svc: 10 Apr 2021

**Description:** Replace the remaining 24 burners not replaced in 2018.

**Purpose/Necessity:** The purpose of this project is to maintain compliance with MACT regulations. The current coal burners were installed in 1990 and are approaching the end of their usable life. Inspections in 2015 and 2016 have reported erosion on the major components of register vanes, internal strut, and perforated plates. The condition of the burners results in increased emissions and decrease in efficiency.

**Consequences of Delay:** Noncompliance with MACT. Increased costs to maintain burner operations and risk of unit derate due to burner failure. Risk of fire in the windbox from damaged coal barrels. Increase generation of unburnt coal particles.

**Economic Justification:**

Benefit-Cost NPV: 0 M\$  
Budget Category: ENV

Cash Flow - 2020							
Jan	\$5,000	Apr	\$15,000	Jul	\$42,000	Oct	\$124,000
Feb	\$15,000	May	\$788,000	Aug	\$26,000	Nov	\$80,000
Mar	\$499,000	Jun	\$336,000	Sep	\$26,000	Dec	\$4,000
<b>Prior</b>	<b>\$0</b>	<b>2020</b>	<b>\$1,960,000</b>	<b>2021</b>	<b>\$6,162,000</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$2,890,000	
Removals	\$358,000	
(Salvage)	\$0	
Non-Itemized Additions	\$4,854,000	
Specific Cost	\$8,102,000	
Overhead Loads	\$20,000	
CBI Total	\$8,122,000	
Retirements	\$0	

Approvals				
			E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
APS	63.00%	\$5,116,590		Date
NTEC	7.00%	\$568,510		Date
PNM	13.00%	\$1,055,804		Date
SRP	10.0%	\$812,157	<i>DM R All</i>	Date 12-21-2019
TEP	7.00%	\$568,510		Date

FCC012891 Burner Replacement - Phase 2							
Four Corners Participant Project		Rev FC20-14		100% Enviro.		NSR Completed: Yes	
FC Unit 4		CBI: FC20-14		Env Code: Air		ERF Completed: Yes	
In 2020 Budget: No		Plant Acct: 131200		Est Removal:		Est In Svc: 10 Apr 2021	
<b>Description:</b> Replace the remaining 24 burners not replaced in 2018.							
<b>Purpose/Necessity:</b> The purpose of this project is to maintain compliance with MACT regulations. The current coal burners were installed in 1990 and are approaching the end of their usable life. Inspections in 2015 and 2016 have reported erosion on the major components of register vanes, internal strut, and perforated plates. The condition of the burners results in increased emissions and decrease in efficiency.							
<b>Consequences of Delay:</b> Noncompliance with MACT. Increased costs to maintain burner operations and risk of unit derate due to burner failure. Risk of fire in the windbox from damaged coal barrels. Increase generation of unburnt coal particles.							
<b>Economic Justification:</b>							
Benefit-Cost NPV:		0 M\$					
Budget Category:		ENV					
Cash Flow - 2020							
Jan	\$5,000	Apr	\$15,000	Jul	\$42,000	Oct	\$124,000
Feb	\$15,000	May	\$788,000	Aug	\$26,000	Nov	\$80,000
Mar	\$499,000	Jun	\$336,000	Sep	\$26,000	Dec	\$4,000
Prior	\$0	2020	\$1,960,000	2021	\$6,162,000	After	\$0
Cost Summary							
	Current Amount			Revised Amount			
RU Materials	\$2,890,000						
Removals	\$358,000						
(Salvage)	\$0						
Non-Itemized Additions	\$4,854,000						
Specific Cost	\$8,102,000						
Overhead Loads	\$20,000						
CBI Total	\$8,122,000						
Retirements	\$0						
Approvals							
				E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
APS		63.00%	\$5,116,590			Date	
NTEC		7.00%	\$568,510			Date	
PNM		13.00%	\$1,055,804			Date	
SRP		10.0%	\$812,157			Date	
TEP		7.00%	\$568,510			Date	

*UTM* 17 OCT 2019

FCC012896 Safety Valve Replacement			
Four Corners Participant Project	Rev FC20-15	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC20-15	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 10 Apr 2021
<p><b>Description:</b> Replace 6 boiler safety valves (all 5 convection pass valves and 1 south main steam valve) with newer model safety valves. A body drain and a vent drip pan will be added to each safety valve to prevent corrosion of internal valve components.</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to maintain unit reliability by reducing the risk of forced outages due to malfunctioning safety valves. Required replacement parts to rebuild the existing safety valves are not available off the shelf and need to be custom fabricated at an extra cost and long lead time.</p> <p><b>Consequences of Delay:</b> A safety valve failure results in a forced outage. A typical failure has a 2.5% probability and results in an 15-day outage for emergency repairs.</p> <p><b>Economic Justification:</b>            Benefit-Cost NPV: 6.50 M\$            Budget Category: REL</p>			

Cash Flow - 2020							
Jan	\$0	Apr	\$16,000	Jul	\$22,000	Oct	\$6,000
Feb	\$38,000	May	\$30,000	Aug	\$27,000	Nov	\$9,000
Mar	\$49,000	Jun	\$167,000	Sep	\$6,000	Dec	\$9,000
<b>Prior</b>	\$0	<b>2020</b>	\$377,000	<b>2021</b>	\$1,131,000	<b>After</b>	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$360,000	
Removals (Salvage)	\$57,000 \$0	
Non-Itemized Additions	\$1,081,000	
Specific Cost	\$1,498,000	
Overhead Loads	\$10,000	
<b>CBI Total</b>	<b>\$1,508,000</b>	
Retirements	\$0	

Approvals				
		E&O Committee <input checked="" type="checkbox"/> Coordinating Committee <input type="checkbox"/>		
APS	63.00%	\$950,032	Sarah Kist	Date 10/9/19
NTEC	7.00%	\$105,559	S. Hoffman	Date 10/9/19
PNM	13.00%	\$196,038	R. DeG	Date 12/5/19
SRP	10.0%	\$150,799	[Signature]	Date 10-9-19
TEP	7.00%	\$105,559	[Signature]	Date 10-9-19

FCC012908 Miscellaneous Lagging & Insulation Replacement - 2020			
Four Corners Participant Project	Rev FC20-16	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC20-16	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 18 Nov 2020
<b>Description:</b> Replace miscellaneous lagging and insulation meeting RUC requirement for sections costing \$50k and above.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain a safe plant work environment by eliminating potential hazards. These replacements are intended to reduce the hazards that exist when lagging and insulation are loose or deteriorating and therefore not maintaining surface temperature requirements, creating potential unsafe conditions for plant personnel and equipment.			
<b>Consequences of Delay:</b> If not replaced, personnel may come in contact with hot surfaces or may be struck by falling debris.			
<b>Economic Justification:</b>			
Benefit-Cost NPV: 0 MS			
Budget Category: SAFETY			

Cash Flow - 2020							
Jan	\$0	Apr	\$200,000	Jul	\$200,000	Oct	\$199,000
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	\$0	<b>2020</b>	\$599,000	<b>2021</b>	\$0	<b>After</b>	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials		\$0
Removals		\$0
(Salvage)		\$0
Non-Itemized Additions		\$599,000
Specific Cost		\$599,000
Overhead Loads		\$0
<b>CBI Total</b>		<b>\$599,000</b>
Retirements		\$0

Approvals			
		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$377,496	Sarah List Date 10/9/19
NTEC	7.00%	\$41,944	S J H Date 10/9/19
PNM	13.00%	\$77,896	[Signature] Date 12/5/19
SRP	10.0%	\$59,920	[Signature] Date 10-5-19
TEP	7.00%	\$41,944	[Signature] Date 10-9-15

FCC012909 Miscellaneous Lagging & Insulation Replacement - 2020			
Four Corners Participant Project	Rev FC20-17	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC20-17	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: No	Plant Acct: 131200	Est Removal:	Est In Svc: 18 Nov 2020
<b>Description:</b> Replace miscellaneous lagging and insulation meeting RUC requirement for sections costing \$50K and above.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain a safe plant work environment by eliminating potential hazards. These replacements are intended to reduce the hazards that exist when lagging and insulation are loose or deteriorating and therefore not maintaining surface temperature requirements, creating potential unsafe conditions for plant personnel and equipment			
<b>Consequences of Delay:</b> If not replaced, personnel may come in contact with hot surfaces or may be struck by falling debris.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:		0 M\$	
Budget Category:		SAFETY	

Cash Flow - 2020							
Jan	\$0	Apr	\$200,000	Jul	\$200,000	Oct	\$199,000
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	\$0	<b>2020</b>	\$599,000	<b>2021</b>	\$0	<b>After</b>	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$0	
Removals	\$0	
(Salvage)	\$0	
Non-Itemized Additions	\$599,000	
Specific Cost	\$599,000	
Overhead Loads	\$0	
<b>CBI Total</b>	<b>\$599,000</b>	
Retirements	\$0	

Approvals			
		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$377,496	Sarah Kiat <span style="float: right;">Date 10/9/19</span>
NTEC	7.00%	\$41,944	S.H. <span style="float: right;">Date 10/9/19</span>
PNM	13.00%	\$77,896	<i>[Signature]</i> <span style="float: right;">Date 12/5/17</span>
SRP	10.0%	\$59,920	<i>[Signature]</i> <span style="float: right;">Date 10-9-19</span>
TEP	7.00%	\$41,944	<i>[Signature]</i> <span style="float: right;">Date 10-9-19</span>

FCC012934 Fly Ash Level Indicator Replacement			
Four Corners Participant Project	Rev FC20-18	100% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC20-18	Env Code: Air	ERF Completed: Yes
In 2020 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 10 Apr 2021

**Description:** Replace level indication system on the F4 fly ash bin.

**Purpose/Necessity:** The purpose of this project is to maintain environmental compliance with the Title V air permit. The existing level indication system has reached the end of useful life and is not functioning thus requiring the bin level verification to be performed visually by operations personnel.

**Consequences of Delay:** Overfilling the fly ash bin could result in an unmitigated discharge of fly ash.

**Economic Justification:**

Benefit-Cost NPV: 0 M\$  
Budget Category: ENV

Cash Flow - 2020							
Jan	\$7,000	Apr	\$38,000	Jul	\$23,000	Oct	\$4,000
Feb	\$4,000	May	\$34,000	Aug	\$17,000	Nov	\$4,000
Mar	\$47,000	Jun	\$23,000	Sep	\$22,000	Dec	\$4,000
<b>Prior</b>	<b>\$0</b>	<b>2020</b>	<b>\$227,000</b>	<b>2021</b>	<b>\$223,000</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$48,000	
Removals	\$10,000	
(Salvage)	\$0	
Non-Itemized Additions	\$387,000	
Specific Cost	\$445,000	
Overhead Loads	\$5,000	
<b>CBI Total</b>	<b>\$450,000</b>	
Retirements	\$0	

Approvals				
			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$283,421	<i>Samuel Hoad</i>	Date 10/9/19
NTEC	7.00%	\$31,491	<i>S. Hoad</i>	Date 10/9/19
PNM	13.00%	\$58,484	<i>[Signature]</i>	Date 12/5/19
SRP	10.0%	\$44,988	<i>[Signature]</i>	Date 10-9-19
TEP	7.00%	\$31,491	<i>[Signature]</i>	Date 10-9-19

FCC013149 Lime Feed Header Replacement							
Four Corners Participant Project	Rev FC20-19	100% Enviro.	NSR Completed: Yes				
FC Unit 4	CBI: FC20-19	Env Code: Air	ERF Completed: Yes				
In 2020 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 10 Apr 2021				
<b>Description:</b> Replace rubber lined carbon steel piping (~230 LF) from supply feed pump to Unit 4 absorber.							
<b>Purpose/Necessity:</b> The purpose of this project is to maintain compliance with the Title V air permit.							
<b>Consequences of Delay:</b> Failure of the absorber feed line could lead to noncompliance with the SO2 removal requirements of the Title V air permit.							
<b>Economic Justification:</b>							
Benefit-Cost NPV: 0 M\$							
Budget Category: ENV							
Cash Flow - 2020							
Jan	\$0	Apr	\$29,000	Jul	\$29,000	Oct	\$3,000
Feb	\$6,000	May	\$24,000	Aug	\$24,000	Nov	\$10,000
Mar	\$33,000	Jun	\$24,000	Sep	\$20,000	Dec	\$6,000
Prior	\$0	2020	\$210,000	2021	\$467,000	After	\$0
Cost Summary							
	Current Amount			Revised Amount			
RU Materials	\$37,000						
Removals	\$15,000						
(Salvage)	\$0						
Non-Itemized Additions	\$614,000						
Specific Cost	\$665,000						
Overhead Loads	\$12,000						
CBI Total	\$677,000						
Retirements	\$0						
Approvals							
				E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
APS	63.00%	\$426,692		Sarah Kost	Date	10/9/19	
NTEC	7.00%	\$47,410		S. H. H.	Date	10/9/19	
PNM	13.00%	\$88,048			Date	12/5/19	
SRP	10.0%	\$67,729			Date	10-9-19	
TEP	7.00%	\$47,410			Date	10-9-19	

FCC013854 Boiler 200 Valve Replacement			
Four Corners Participant Project	Rev FC20-21	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC20-21	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 10 Apr 2021
<b>Description:</b> Replace the two 16" Primary Superheater Stop Valves (4HCV-591B and 4HCV-591C) with like-kind valves. The existing actuators will be reused.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain unit reliability by reducing the risk of delayed start-ups due to leaking stop valves. The Primary Superheater Stop Valves are approaching the end of useful life and are currently experiencing leak by at the valve seat, pressure seal ring, and packing causing start-up delays and extended outages.			
<b>Consequences of Delay:</b> A stop valve failure results in start-up delays and can extend outages if the valve cannot be repaired in place. A typical failure has a 25% probability and results in up to 13 days in start-up delays or up to a 6 week extended outage if the valve has to be removed for emergency refurbishment.			
<b>Economic Justification:</b>			
	Benefit-Cost NPV:	9.50 M\$	
	Budget Category:	NM PRG	

Cash Flow - 2020							
Jan	\$4,000	Apr	\$13,000	Jul	\$17,000	Oct	\$9,000
Feb	\$18,000	May	\$13,000	Aug	\$13,000	Nov	\$8,000
Mar	\$30,000	Jun	\$14,000	Sep	\$18,000	Dec	\$8,000
<b>Prior</b>	<b>\$0</b>	<b>2020</b>	<b>\$165,000</b>	<b>2021</b>	<b>\$797,000</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$330,000	
Removals	\$20,000	
(Salvage)	\$0	
Non-Itemized Additions	\$609,000	
Specific Cost	\$959,000	
Overhead Loads	\$3,000	
<b>CBI Total</b>	<b>\$961,000</b>	
Retirements	\$0	

Approvals				
			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$605,553	Sarah Kist	Date 10/9/19
NTEC	7.00%	\$67,284	S.H.H.	Date 10/9/19
PNM	13.00%	\$124,955	J.D.B.	Date 12/5/19
SRP	10.0%	\$96,120	J.H.S.	Date 10-9-19
TEP	7.00%	\$67,284	J.M.R.	Date 10-9-19



FCC014253 Coal Piping Knife Gate Isolation Valve			
Four Corners Participant Project	Rev FC20-24	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC20-24	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 10 Apr 2021
<b>Description:</b> Replace the 48 knife gate pulverizer isolation valves in the coal pipes between the auto swing valves and the burners.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain unit safety by replacing the pulverizer isolation valves. These valves are used to isolate the pulverizers and auto swing valves. Without proper sealing knife gate valves, the auto swing valves cannot be isolated and worked on and there is a risk of gas entry into the pulverizers, creating a potentially unsafe condition. Section 9.4.5.1.2 of NFPA 85, specifies the dust-tight valve requirements for pulverized coal fueled boilers. NFPA 85 defines a dust-tight valve as a tight-seating valve installed in the fuel supply pipe to the burner to allow or stop flow.			
<b>Consequences of Delay:</b> Assume risk of poor isolation valve reliability and potentially longer coal pulverizer downtime. Compromised isolation could lead to a safety issue restricting access to the pulverizers. Non-compliance with NFPA 85 as valves may not maintain dust-tight seating.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:	0 M\$		
Budget Category:	SAFETY		

Cash Flow - 2020							
Jan	\$3,000	Apr	\$9,000	Jul	\$10,000	Oct	\$151,000
Feb	\$17,000	May	\$7,000	Aug	\$13,000	Nov	\$23,000
Mar	\$36,000	Jun	\$11,000	Sep	\$152,000	Dec	\$9,000
<b>Prior</b>	<b>\$0</b>	<b>2020</b>	<b>\$440,000</b>	<b>2021</b>	<b>\$799,000</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$384,000	
Removals	\$106,000	
(Salvage)	\$0	
Non-Itemized Additions	\$731,000	
Specific Cost	\$1,221,000	
Overhead Loads	\$19,000	
<b>CBI Total</b>	<b>\$1,239,000</b>	
Retirements	\$0	

Approvals				
			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$780,836	Sarah Leist	Date 12/9/19
NTEC	7.00%	\$86,760	S. Hoffman	Date 10/9/19
PNM	13.00%	\$161,125	[Signature]	Date 12/5/19
SRP	10.0%	\$123,942	[Signature]	Date 10-9-19
TEP	7.00%	\$86,760	[Signature]	Date 10-9-19

FCC014802 Area Lighting Replacement Phase 2							
Four Corners Participant Project	Rev FC20-25	0% Enviro.	NSR Completed: Yes				
FC Units 4 & 5	CBI: FC20-25	Env Code: N/A	ERF Completed: Yes				
In 2020 Budget: No	Plant Acct: 131100	Est Removal:	Est In Svc: 30 Nov 2020				
<b>Description:</b> Replace the F45 area lighting fixtures in the F4/F5 Boiler, turbine building, and waste processing building.							
<b>Purpose/Necessity:</b> Existing lighting fixtures in the F4/F5 boiler, turbine building, and waste processing have deteriorated over time and have reached the end of their useful life. Light fixture replacement will be completed to maintain compliance with OSHA 1926.56(a) Table D-3 Minimum Illumination Intensities in Foot-Candles.							
<b>Consequences of Delay:</b> Current lighting levels do not meet IES minimum foot-candle recommendations. Low lighting levels throughout the plant create hazards to personnel and require the use of temporary lighting for routine tasks.							
<b>Economic Justification:</b>							
Benefit-Cost NPV: 0 M\$							
Budget Category: SAFETY							
Cash Flow - 2020							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$96,000
Feb	\$0	May	\$0	Aug	\$3,000	Nov	\$96,000
Mar	\$10,000	Jun	\$0	Sep	\$95,000	Dec	\$0
Prior	\$0	2020	\$300,000	2021	\$0	After	\$0
Cost Summary							
	Current Amount			Revised Amount			
RU Materials				\$280,000			
Removals				\$20,000			
(Salvage)				\$0			
Non-Itemized Additions				\$0			
Specific Cost				\$300,000			
Overhead Loads				\$0			
CBI Total				\$300,000			
Retirements				\$0			
Approvals							
				E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
APS		63.00%	\$188,999	Sarah Kist		Date	1/8/20
NTEC		7.00%	\$21,000	SEP		Date	12/11/19
PNM		13.00%	\$39,000			Date	
SRP		10.0%	\$30,000			Date	
TEP		7.00%	\$21,000			Date	

FCC014802 Area Lighting Replacement Phase 2			
Four Corners Participant Project	Rev FC20-25	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC20-25	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: No	Plant Acct: 131100	Est Removal:	Est In Svc: 30 Nov 2020
<b>Description:</b> Replace the F45 area lighting fixtures in the F4/F5 Boiler, turbine building, and waste processing building.			
<b>Purpose/Necessity:</b> Existing lighting fixtures in the F4/F5 boiler, turbine building, and waste processing have deteriorated over time and have reached the end of their useful life. Light fixture replacement will be completed to maintain compliance with OSHA 1926.56(a) Table D-3 Minimum Illumination Intensities in Foot-Candles.			
<b>Consequences of Delay:</b> Current lighting levels do not meet IFS minimum foot-candle recommendations. Low lighting levels throughout the plant create hazards to personnel and require the use of temporary lighting for routine tasks.			
<b>Economic Justification:</b>			
Benefit-Cost NPV: 0 M\$			
Budget Category: SAFETY			

Cash Flow - 2020							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$96,000
Feb	\$0	May	\$0	Aug	\$3,000	Nov	\$96,000
Mar	\$10,000	Jun	\$0	Sep	\$95,000	Dec	\$0
Prior	\$0	2020	\$300,000	2021	\$0	After	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$280,000	
Removals	\$20,000	
(Salvage)	\$0	
Non-Itemized Additions	\$0	
Specific Cost	\$300,000	
Overhead Loads	\$0	
<b>CBI Total</b>	<b>\$300,000</b>	
Retirements	\$0	

Approvals			
		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$188,999	Date
NTTC	7.00%	\$21,000	Date
PNM	13.00%	\$39,000	Date
SRP	10.0%	\$30,000	Date
TEP	7.00%	\$21,000	Date

*[Signature]*  
Date: 01-08-2020

FCC014802 Area Lighting Replacement Phase 2			
Four Corners Participant Project	Rev FC20-25	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC20-25	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: No	Plant Acct: 131100	Est Removal:	Est In Svc: 30 Nov 2020
<b>Description:</b> Replace the F45 area lighting fixtures in the F4/F5 Boiler, turbine building, and waste processing building.			
<b>Purpose/Necessity:</b> Existing lighting fixtures in the F4/F5 boiler, turbine building, and waste processing have deteriorated over time and have reached the end of their useful life. Light fixture replacement will be completed to maintain compliance with OSHA 1926.56(a) Table D-3 Minimum Illumination Intensities in Foot-Candles.			
<b>Consequences of Delay:</b> Current lighting levels do not meet IES minimum foot-candle recommendations. Low lighting levels throughout the plant create hazards to personnel and require the use of temporary lighting for routine tasks.			
<b>Economic Justification:</b>			
Benefit-Cost NPV: 0 MS			
Budget Category: SAFETY			

Cash Flow - 2020							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$96,000
Feb	\$0	May	\$0	Aug	\$3,000	Nov	\$96,000
Mar	\$10,000	Jun	\$0	Sep	\$95,000	Dec	\$0
Prior	\$0	2020	\$300,000	2021	\$0	After	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$280,000	
Removals	\$20,000	
(Salvage)	\$0	
Non-Itemized Additions	\$0	
Specific Cost	\$300,000	
Overhead Loads	\$0	
CBI Total	\$300,000	
Retirements	\$0	

Approvals			
		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$188,999	Date
NTEC	7.00%	\$21,000	Date
PNM	13.00%	\$39,000	Date <i>12/5/19</i>
SRP	10.0%	\$30,000	Date
TEP	7.00%	\$21,000	Date <i>10-21-19</i>

FCC014942 Economizer Inlet Block Valve Replacement			
Four Corners Participant Project	Rev FC20-26	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC20-26	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 10 Apr 2021
<b>Description:</b> Replace the two 16" Economizer Inlet Block Valves on Unit 4 with newer model like-kind valves.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain unit reliability by reducing risk of extended outages caused by malfunctioning or leaking valves. The existing valves were purchased in 1966 and are approaching end of usable life. Replacement parts are not available off-the-shelf and must be custom fabricated at an extra cost and long lead time, or scavenged from other valves.			
<b>Consequences of Delay:</b> A leaking block valve poses a potential safety risk to personnel and results in wasted feedwater. Economic justification assumes a 20% probability of a 10-day forced outage.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:		3.30 M\$	
Budget Category:		REL	

Cash Flow - 2020							
Jan	\$0	Apr	\$101,000	Jul	\$13,000	Oct	\$29,000
Feb	\$18,000	May	\$10,000	Aug	\$13,000	Nov	\$13,000
Mar	\$35,000	Jun	\$10,000	Sep	\$18,000	Dec	\$9,000
<b>Prior</b>	<b>\$0</b>	<b>2020</b>	<b>\$269,000</b>	<b>2021</b>	<b>\$872,000</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$330,000	
Removals	\$34,000	
(Salvage)	\$0	
Non-Itemized Additions	\$777,000	
Specific Cost	\$1,141,000	
Overhead Loads	\$0	
<b>CBI Total</b>	<b>\$1,141,000</b>	
Retirements	\$0	

Approvals					
		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
APS	63.00%	\$718,965	Sarah Krist	Date	10/9/19
NTEC	7.00%	\$79,885	S. [Signature]	Date	10/9/19
PNM	13.00%	\$148,358	[Signature]	Date	12/5/19
SRP	10.0%	\$114,121	[Signature]	Date	10-9-19
TEP	7.00%	\$79,885	[Signature]	Date	10-9-19

FCC014943 Economizer Inlet Block Valve Replacement			
Four Corners Participant Project	Rev FC20-27	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC20-27	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 28 Apr 2021
<b>Description:</b> Replace the two 16" Economizer Inlet Block Valves on Unit 5 with newer model like-kind valves.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain unit reliability by reducing risk of extended outages caused by malfunctioning or leaking valves. The existing valves were purchased in 1966 and are approaching end of usable life. Replacement parts are not available off-the-shelf and must be custom fabricated at an extra cost and long lead time, or scavenged from other valves.			
<b>Consequences of Delay:</b> A leaking block valve poses a potential safety risk to personnel and results in wasted feedwater. Economic justification assumes a 20% probability of a 10-day forced outage.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:		3.30 MS	
Budget Category:		REL	

Cash Flow - 2020							
Jan	\$0	Apr	\$18,000	Jul	\$10,000	Oct	\$21,000
Feb	\$11,000	May	\$10,000	Aug	\$10,000	Nov	\$11,000
Mar	\$35,000	Jun	\$102,000	Sep	\$12,000	Dec	\$8,000
<b>Prior</b>	<b>\$0</b>	<b>2020</b>	<b>\$248,000</b>	<b>2021</b>	<b>\$854,000</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$330,000	
Removals	\$34,000	
(Salvage)	\$0	
Non-Itemized Additions	\$738,000	
Specific Cost	\$1,102,000	
Overhead Loads	\$0	
<b>CBI Total</b>	<b>\$1,102,000</b>	
Retirements	\$0	

Approvals				
			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$694,403	Sarah Kist	Date 10/9/19
NTEC	7.00%	\$77,156	Sulthe	Date 10/9/19
PNM	13.00%	\$143,290	[Signature]	Date 12/5/19
SRP	10.0%	\$110,223	[Signature]	Date 10-9-19
TEP	7.00%	\$77,156	[Signature]	Date 10-9-19

FCC015123 FC Electrical Systems - 2020			
Four Corners Participant Project	Rev FC20-28	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC20-28	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: Yes	Plant Acct: 131500	Est Removal:	Est In Svc: 30 Nov 2020
<b>Description:</b> Replacement of miscellaneous electrical equipment that meet capital requirements outlined in the RUC.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain plant reliability. Capital funds will be used for purchase and installation of new electrical equipment as failures or immediate need occurs throughout the 2020 calendar year			
<b>Consequences of Delay:</b> The effect of losing an electrical equipment while replacement is procured may result in an extended unit derate and/or unit out of indeterminate duration while an immediate work around is found. Negative impact to plant reliability due to time required to obtain approvals for break-in projects.			
<b>Economic Justification:</b>			
Budget Category: NM PRG			

Cash Flow - 2020							
Jan	\$0	Apr	\$0	Jul	\$63,000	Oct	\$0
Feb	\$0	May	\$63,000	Aug	\$0	Nov	\$63,000
Mar	\$47,000	Jun	\$0	Sep	\$63,000	Dec	\$0
<b>Prior</b>	<b>\$0</b>	<b>2020</b>	<b>\$300,000</b>	<b>2021</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$200,000	
Removals	\$0	
(Salvage)	\$0	
Non-Itemized Additions	\$100,000	
Specific Cost	\$300,000	
Overhead Loads	\$0	
<b>CBI Total</b>	<b>\$300,000</b>	
Retirements	\$0	

Approvals			
		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$189,000	Sarah Kist Date 10/9/19
NTEC	7.00%	\$21,000	SdHjm Date 10/9/19
PNM	13.00%	\$39,000	[Signature] Date 12/5/19
SRP	10.0%	\$30,000	[Signature] Date 10-9-19
TEP	7.00%	\$21,000	[Signature] Date 10-9-15

**FCC015123 FC Electrical Systems - 2020**

Four Corners Participant Project	Rev FC20-28R1	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC20-28R1	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: Yes	Plant Acct: 131500	Est Removal:	Est In Svc: 07 Dec 2020

**Reason for Revision:** This \$1,050K increase is due to the volume of Capital electrical components replaced to date being higher than originally budgeted (\$127K), the emergent replacement of the F4 Hot & Cold Air Damper Controllers and Linkages (\$317K) during the F4 Spring Outage, and to increase the allowance for emergent Capital electrical component replacements allocated to this Collector in 2020 (\$606K).

**Description:** Replacement of miscellaneous electrical equipment that meet capital requirements outlined in the RUC.

**Purpose/Necessity:** The purpose of this project is to maintain plant reliability. Capital funds will be used for purchase and installation of new electrical equipment as failures or immediate need occurs throughout the 2020 calendar year

**Consequences of Delay:** The effect of losing an electrical equipment while replacement is procured may result in an extended unit derate and/or unit out of indeterminate duration while an immediate work around is found. Negative impact to plant reliability due to time required to obtain approvals for break-in projects.

**Economic Justification:**

Budget Category: NM PRG

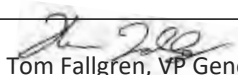
**Cash Flow - 2020**

Jan	\$122,000	Apr	\$282,000	Jul	\$0	Oct	\$0
Feb	\$139,000	May	\$0	Aug	\$0	Nov	\$194,000
Mar	\$166,000	Jun	\$224,000	Sep	\$223,000	Dec	\$0
<b>Prior</b>	\$0	<b>2020</b>	\$1,350,000	<b>2021</b>	\$0	<b>After</b>	\$0

**Cost Summary**

	Previous Amount	Revised Amount
RU Materials	\$20,000	\$20,000
Removals	\$5,000	\$5,000
(Salvage)		\$0
Non-Itemized Additions	\$275,000	\$1,253,000
Specific Cost	\$300,000	\$1,278,000
Overhead Loads		\$72,000
<b>CBI Total</b>	\$300,000	<b>\$1,350,000</b>
Retirements		\$0

**Approvals**

		E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
APS	63.00%	\$850,500		Date	
NTEC	7.00%	\$94,500		Date	
PNM	13.00%	\$175,500		Date	May 28, 2020
SRP	10.0%	\$135,000		Date	
TEP	7.00%	\$94,500		Date	



**FCC015123 FC Electrical Systems - 2020**

Four Corners Participant Project	Rev FC20-28R2	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC20-28R2	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: Yes	Plant Acct: 131500	Est Removal:	Est In Svc: 07 Dec 2020

**Reason for Revision:** This \$233K increase is due to the volume of Capital electrical components replaced to date being higher than originally budgeted and to increase the allowance for emergent Capital electrical component replacements allocated to this Collector in 2020.

**Description:** Replacement of miscellaneous electrical equipment that meet capital requirements outlined in the RUC.

**Purpose/Necessity:** The purpose of this project is to maintain plant reliability. Capital funds will be used for purchase and installation of new electrical equipment as failures or immediate need occurs throughout the 2020 calendar year

**Consequences of Delay:** The effect of losing an electrical equipment while replacement is procured may result in an extended unit derate and/or unit out of indeterminate duration while an immediate work around is found. Negative impact to plant reliability due to time required to obtain approvals for break-in projects.

**Economic Justification:**

Budget Category: NM PRG

**Cash Flow - 2020**

Jan	\$122,000	Apr	\$282,000	Jul	\$123,000	Oct	\$100,000
Feb	\$139,000	May	\$268,000	Aug	\$50,000	Nov	\$58,000
Mar	\$166,000	Jun	\$206,000	Sep	\$50,000	Dec	\$19,000
<b>Prior</b>	\$0	<b>2020</b>	\$1,583,000	<b>2021</b>	\$0	<b>After</b>	\$0

**Cost Summary**

	Previous Amount	Revised Amount
RU Materials	\$20,000	\$20,000
Removals	\$5,000	\$5,000
(Salvage)		\$0
Non-Itemized Additions	\$1,253,000	\$1,429,000
Specific Cost	\$1,278,000	\$1,454,000
Overhead Loads	\$72,000	\$129,000
<b>CBI Total</b>	\$1,350,000	<b>\$1,583,000</b>
Retirements		\$0

**Approvals**

		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$997,186	Date
NTEC	7.00%	\$110,798	Date
PNM	13.00%	\$205,769	Date
SRP	10.0%	\$158,284	Date
TEP	7.00%	\$110,798	Date

*Roy Carter* Roy Carter 8/20/20

FCC015133 Water Systems/Membranes Program - 2020			
Four Corners Participant Project	Rev FC20-29	0% Enviro.	NSR Completed: Yes
PC Units 4 & 5	CBI: FC20-29	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: Yes	Plant Acct: 131600	Est Removal:	Est In Svc: 30 Nov 2020
<b>Description:</b> Replacement of water systems and membranes that meet capital requirements outlined in the RUC.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain plant reliability. Capital funds will be used for purchase and installation of new capital water systems/membranes as failures or immediate need occurs throughout the 2020 calendar year.			
<b>Consequences of Delay:</b> The effect of losing water systems and membranes while a replacement is procured may result in an extended unit derate and/or unit out of indeterminate duration while an immediate work around is found. Negative impact to plant reliability due to time required to obtain approvals for break-in projects.			
<b>Economic Justification:</b>			
Budget Category:		NM PRG	

Cash Flow - 2020							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$336,000	Jun	\$330,000	Sep	\$330,000	Dec	\$0
<b>Prior</b>	\$0	<b>2020</b>	\$996,000	<b>2021</b>	\$0	<b>After</b>	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$600,000	
Removals	\$0	
(Salvage)	\$0	
Non-Itemized Additions	\$370,000	
Specific Cost	\$970,000	
Overhead Loads	\$26,000	
<b>CBI Total</b>	<b>\$996,000</b>	
Retirements	\$0	

Approvals			
		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$627,387	Sarah Kist Date 10/9/19
NTEC	7.00%	\$69,710	S. Kist Date 10/9/19
PNM	13.00%	\$129,461	[Signature] Date 12/5/17
SRP	10.0%	\$99,585	[Signature] Date 10-9-19
TEP	7.00%	\$69,710	[Signature] Date 10-9-19

FCC015143 Motors, Pumps and Valves - 2020			
Four Corners Participant Project	Rev FC20-30	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC20-30	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: No	Plant Acct: 131200	Est Removal:	Est In Svc: 30 Nov 2020
<b>Description:</b> Replacement of motors, pumps, and valves that meet capital requirements outlined in the RUC.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain plant reliability. Capital funds will be used for purchase and installation of new motors, pumps, and valves as failures or immediate need occurs throughout the 2020 calendar year.			
<b>Consequences of Delay:</b> The effect of losing a motor, pump, or valve while replacement is procured may result in an extended unit derate and/or unit out of indeterminate duration while an immediate work around is found. Negative impact to plant reliability due to time required to obtain approvals for break-in projects.			
<b>Economic Justification:</b>			
Budget Category: NM PRG			

Cash Flow - 2020							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$1,001,000	Jun	\$1,000,000	Sep	\$500,000	Dec	\$500,000
<b>Prior</b>	<b>\$0</b>	<b>2020</b>	<b>\$3,001,000</b>	<b>2021</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$700,000	
Removals	\$0	
(Salvage)	\$0	
Non-Itemized Additions	\$2,301,000	
Specific Cost	\$3,001,000	
Overhead Loads	\$0	
<b>CBI Total</b>	<b>\$3,001,000</b>	
Retirements	\$0	

Approvals				
			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$1,890,630	Sarah Kist	Date 10/9/19
NTEC	7.00%	\$210,070	S.H.H.	Date 10/9/19
PNM	13.00%	\$390,130	[Signature]	Date 12/5/19
SRP	10.0%	\$300,100	[Signature]	Date 10-9-19
TEP	7.00%	\$210,070	[Signature]	Date 10-5-19

**FCC015143 Motors, Pumps and Valves - 2020**

Four Corners Participant Project	Rev FC20-30R1	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC20-30R1	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 07 Dec 2020

**Reason for Revision:** The reason for this \$1,750K increase is due to increasing the allowance for emergent work allocated to this Collector.

**Description:** Replacement of motors, pumps, and valves that meet capital requirements outlined in the RUC.

**Purpose/Necessity:** The purpose of this project is to maintain plant reliability. Capital funds will be used for purchase and installation of new motors, pumps, and valves as failures or immediate need occurs throughout the 2020 calendar year.

**Consequences of Delay:** The effect of losing a motor, pump, or valve while replacement is procured may result in an extended unit derate and/or unit out of indeterminate duration while an immediate work around is found. Negative impact to plant reliability due to time required to obtain approvals for break-in projects.

**Economic Justification:**

Budget Category: NM PRG


**Cash Flow - 2020**

Jan	\$383,000	Apr	\$1,665,000	Jul	\$0	Oct	\$0
Feb	\$552,000	May	\$2,000	Aug	\$0	Nov	\$200,000
Mar	\$1,544,000	Jun	\$202,000	Sep	\$202,000	Dec	\$0
<b>Prior</b>	\$0	<b>2020</b>	\$4,750,000	<b>2021</b>	\$0	<b>After</b>	\$0

**Cost Summary**

	Previous Amount	Revised Amount
RU Materials	\$700,000	\$700,000
Removals		\$10,000
(Salvage)		\$0
Non-Itemized Additions	\$2,301,000	\$3,532,000
Specific Cost	\$3,001,000	\$4,242,000
Overhead Loads		\$508,000
<b>CBI Total</b>	\$3,001,000	<b>\$4,750,000</b>
Retirements		\$0

**Approvals**

		E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
APS	63.00%	\$2,992,564		Date	
NTEC	7.00%	\$332,507		Date	
PNM	13.00%	\$617,513		Date	
SRP	10.0%	\$475,010	Tom Fallgren, VP Generation	Date	May 28, 2020
TEP	7.00%	\$332,507		Date	

**FCC015143 Motors, Pumps and Valves - 2020**

Four Corners Participant Project	Rev FC20-30R2	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC20-30R2	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 07 Dec 2020

**Reason for Revision:** The reason for this \$1,712K increase is due to the volume of Capital Motors, Pumps and Valves components replaced to date being higher than originally budgeted and to increase the allowance for emergent Capital Motors, Pumps and Valve component replacements allocated to this Collector in 2020.

**Description:** Replacement of motors, pumps, and valves that meet capital requirements outlined in the RUC.

**Purpose/Necessity:** The purpose of this project is to maintain plant reliability. Capital funds will be used for purchase and installation of new motors, pumps, and valves as failures or immediate need occurs throughout the 2020 calendar year.

**Consequences of Delay:** The effect of losing a motor, pump, or valve while replacement is procured may result in an extended unit derate and/or unit out of indeterminate duration while an immediate work around is found. Negative impact to plant reliability due to time required to obtain approvals for break-in projects.

**Economic Justification:**

Budget Category: NM PRG

**Cash Flow - 2020**

Jan	\$383,000	Apr	\$1,665,000	Jul	\$619,000	Oct	\$282,000
Feb	\$552,000	May	\$27,000	Aug	\$201,000	Nov	\$200,000
Mar	\$1,544,000	Jun	\$740,000	Sep	\$201,000	Dec	\$47,000
<b>Prior</b>	\$0	<b>2020</b>	\$6,462,000	<b>2021</b>	\$0	<b>After</b>	\$0

**Cost Summary**

	Previous Amount	Revised Amount
RU Materials	\$700,000	\$700,000
Removals	\$10,000	\$10,000
(Salvage)		\$0
Non-Itemized Additions	\$3,533,000	\$5,245,000
Specific Cost	\$4,243,000	\$5,955,000
Overhead Loads	\$507,000	\$507,000
<b>CBI Total</b>	\$4,750,000	<b>\$6,462,000</b>
Retirements		\$0

**Approvals**

		E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
APS	63.00%	\$4,071,028	Date
NTEC	7.00%	\$452,336	Date
PNM	13.00%	\$840,053	Date
SRP	10.0%	\$646,195	Date
TEP	7.00%	\$452,336	Date

*Thomas Fallgren*  
 Thomas Fallgren - VP, PNM Generation 08/20/20

FCC015279 Baghouse North Elevator Replacement			
Four Corners Participant Project	Rev FC20-31	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC20-31	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: Yes	Plant Acct: 131100	Est Removal:	Est In Svc: 30 Nov 2020
<b>Description:</b> Replace Unit 4 Baghouse North elevator. Elevator is currently disabled.			
<b>Purpose/Necessity:</b> The purpose of this project is to replace the F4 Baghouse North elevator in order to maintain a safe and reliable system and comply with the recommendations found in the HKA Vertical Transportation Comprehensive Maintenance and Condition Audit completed in September 2016. The elevator is reaching the end of its serviceable life and must be replaced.			
<b>Consequences of Delay:</b> Continued limited access to areas in the plant due to disabled elevators. Increased costs from delayed operation, maintenance, and repairs of plant equipment due to limited access caused by non-functioning elevator.			
<b>Economic Justification:</b>			
Benefit-Cost NPV: 0 M\$			
Budget Category: SAFETY			

Cash Flow - 2020							
Jan	\$3,000	Apr	\$62,000	Jul	\$12,000	Oct	\$517,000
Feb	\$16,000	May	\$49,000	Aug	\$17,000	Nov	\$110,000
Mar	\$93,000	Jun	\$12,000	Sep	\$37,000	Dec	\$118,000
<b>Prior</b>	\$0	<b>2020</b>	\$1,047,000	<b>2021</b>	\$25,000	<b>After</b>	\$0

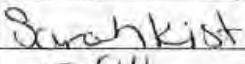


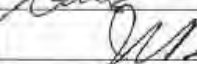

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$380,000	
Removals	\$167,000	
(Salvage)	\$0	
Non-Itemized Additions	\$506,000	
Specific Cost	\$1,053,000	
Overhead Loads	\$19,000	
<b>CBI Total</b>	<b>\$1,072,000</b>	
Retirements	\$0	

Approvals			
		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$675,246	Sarah Kist <span style="float: right;">Date 10/9/19</span>
NTEC	7.00%	\$75,027	S J H <span style="float: right;">Date 10/9/19</span>
PNM	13.00%	\$139,336	<i>[Signature]</i> <span style="float: right;">Date 12/5/19</span>
SRP	10.0%	\$107,182	<i>[Signature]</i> <span style="float: right;">Date 10-9-19</span>
TEP	7.00%	\$75,027	<i>[Signature]</i> <span style="float: right;">Date 10-9-19</span>

FCC015280 Baghouse South Elevator Replacement			
Four Corners Participant Project	Rev FC20-32	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC20-32	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: Yes	Plant Acct: 131100	Est Removal:	Est In Svc: 30 Nov 2020
<b>Description:</b> Replace Unit 4 Baghouse South elevator. Elevator is currently disabled.			
<b>Purpose/Necessity:</b> The purpose of this project is to replace the F4 Baghouse South elevator in order to maintain a safe and reliable system to comply with the recommendations found in the HKA Vertical Transportation Comprehensive Maintenance and Condition Audit completed in September 2016. The elevator is reaching the end of its serviceable life and must be replaced.			
<b>Consequences of Delay:</b> Continued limited access to areas in the plant due to disabled elevators. Increased costs from delayed operation, maintenance, and repairs of plant equipment due to limited access caused by non-functioning elevator.			
<b>Economic Justification:</b>			
Benefit-Cost NPV: 0 M\$			
Budget Category: SAFETY			

Cash Flow - 2020							
Jan	\$3,000	Apr	\$62,000	Jul	\$12,000	Oct	\$517,000
Feb	\$18,000	May	\$49,000	Aug	\$17,000	Nov	\$110,000
Mar	\$91,000	Jun	\$12,000	Sep	\$37,000	Dec	\$118,000
<b>Prior</b>	\$0	<b>2020</b>	\$1,046,000	<b>2021</b>	\$25,000	<b>After</b>	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$380,000	
Removals	\$167,000	
(Salvage)	\$0	
Non-Itemized Additions	\$506,000	
Specific Cost	\$1,053,000	
Overhead Loads	\$19,000	
<b>CBI Total</b>	<b>\$1,071,000</b>	
Retirements	\$0	

Approvals			
		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$674,994	 Date 10/9/19
NTEC	7.00%	\$74,999	 Date 10/9/19
PNM	13.00%	\$139,284	 Date 12/5/19
SRP	10.0%	\$107,142	 Date 10-9-19
TEP	7.00%	\$74,999	 Date 10-9-19

FCC015383 Coal Handling Replacements - 2020			
Four Corners Participant Project	Rev FC20-33	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC20-33	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: No	Plant Acct: 131200	Est Removal:	Est In Svc: 30 Nov 2020
<b>Description:</b> Replacement of miscellaneous Coal Handling components that meet Capital requirements outlined in the RUC.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain plant reliability. Capital funds will be used for purchase and installation of new Coal Handling components as failures or immediate need occurs throughout the 2020 calendar year.			
<b>Consequences of Delay:</b> The effect of losing coal handling equipment while replacement is procured may result in an extended unit derate and/or unit out of service for an indeterminate duration while an immediate work around is found. Additionally, Unit would operate at High Risk if there is a loss of redundancy in the Coal Handling System.			
<b>Economic Justification:</b>			
Budget Category: REL			

Cash Flow - 2020							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$325,000	Jun	\$325,000	Sep	\$325,000	Dec	\$325,000
<b>Prior</b>	\$0	<b>2020</b>	\$1,300,000	<b>2021</b>	\$0	<b>After</b>	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$200,000	
Removals	\$0	
(Salvage)	\$0	
Non-Itemized Additions	\$1,100,000	
Specific Cost	\$1,300,000	
Overhead Loads	\$0	
<b>CBI Total</b>	<b>\$1,300,000</b>	
Retirements	\$0	

Approvals			
		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$819,000	Sarah Kerst Date 10/9/19
NTEC	7.00%	\$91,000	S. S. Hoffman Date 10/9/19
PNM	13.00%	\$169,000	[Signature] Date 12/5/19
SRP	10.0%	\$130,000	[Signature] Date 10-9-19
TEP	7.00%	\$91,000	[Signature] Date 10-9-19



FCC015752 Pulverizer Grinding Zone and Gear Drive Replacements			
Four Corners Participant Project	Rev FC20-34	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC20-34	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: No	Plant Acct: 131200	Est Removal:	Est In Svc: 30 Nov 2020
<b>Description:</b> Replacement of pulverizer and gear drive components that meet Capital requirements outlined in the RUC.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain full load unit reliability. Capital funds will be used for purchase and installation of new pulverizer components and gear drive components as failures or immediate need occurs throughout the 2020 calendar year.			
<b>Consequences of Delay:</b> Potential extended unit de-rate or curtailment due to the loss of a redundant mill.			
<b>Economic Justification:</b>			
Budget Category:		REL	

Cash Flow - 2020							
Jan	\$0	Apr	\$875,000	Jul	\$0	Oct	\$0
Feb	\$0	May	\$875,000	Aug	\$0	Nov	\$875,000
Mar	\$875,000	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	\$0	<b>2020</b>	\$3,500,000	<b>2021</b>	\$0	<b>After</b>	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$600,000	
Removals (Salvage)	\$0	
Non-Itemized Additions	\$2,900,000	
Specific Cost	\$3,500,000	
Overhead Loads	\$0	
CBI Total	\$3,500,000	
Retirements	\$0	

Approvals				
		E&O Committee <input checked="" type="checkbox"/> Coordinating Committee <input type="checkbox"/>		
APS	63.00%	\$2,205,000	Sarah Kist	Date 10/9/19
NTEC	7.00%	\$245,000	S. Hoffman	Date 10/9/19
PNM	13.00%	\$455,000		Date 12/5/19
SRP	10.0%	\$350,000		Date 10-9-19
TEP	7.00%	\$245,000		Date 10-9-19

FCC015754 Waste Slurry Sump Replacement			
Four Corners Participant Project	Rev FC20-36	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC20-36	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 30 Apr 2020
<b>Description:</b> Replace the (6) Unit 5 Waste Slurry Sump Pumps, (14) 6" Control Valves and Actuators, and the associated piping.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain unit reliability. The existing pumps, valving, and piping have corroded over time due to the chemicals present in the Waste Slurry and are approaching end of useful life.			
<b>Consequences of Delay:</b> An inoperable Waste Slurry Sump could result in costly equipment damage and additional repairs as a result of flooding in the area. Potential disruption to Waste Slurry Processing and inability to dispose of excess Waste Slurry in the area or routing excess Waste Slurry to the URS.			
<b>Economic Justification:</b>			
	Benefit-Cost NPV:	4.10 MS	
	Budget Category:	REL	

Cash Flow - 2020							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$275,000	May	\$0	Aug	\$0	Nov	\$0
Mar	\$275,000	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2020	\$550,000	2021	\$0	After	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$192,000	
Removals	\$25,000	
(Salvage)	\$0	
Non-Itemized Additions	\$333,000	
Specific Cost	\$550,000	
Overhead Loads	\$0	
CBI Total	\$550,000	
Retirements	\$0	

Approvals			
		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$346,500	Sarah Kist Date 10/9/19
NTEC	7.00%	\$38,500	S JH Date 10/9/19
PNM	13.00%	\$71,500	[Signature] Date 12/5/17
SRP	10.0%	\$55,000	[Signature] Date 10-9-19
TEP	7.00%	\$38,500	[Signature] Date 10-9-19

**FCC015707 Supply Chain Optimization System Development**

Four Corners Participant Project	Rev FC20-38R1	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC20-38R1	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: No	Plant Acct: 430320	Est Removal:	Est In Svc: 30 Sep 2022

**Reason for Revision:** This \$365K decrease is due to the creation of (4) additional Four Corners Supply Chain Projects based on their associated costs and In Service Dates in lieu of executing this work as one single project. The (4) additional Four Corners Supply Chain Projects are: 1) FC20-80 FCC016439 FC Contract Mgmt License Fee 2020-2022 (\$176,860), 2) FC20-81 FCC016440 FC Contract Mgmt Implementation (\$76,939), 3) FC20-82 FCC016441 FC Inventory Optimization (\$76,991), and 4) FC Contract Mgmt License Fee 2023-2024 (\$33,750) will be shown on the 2021 Capital LRF.

Benefit-Cost NPV: 3.35 M\$

**Description:** Develop and implement a replacement for the Procurement and Warehousing System known as Materials Logistic Information System (MLIS).

**Purpose/Necessity:** The purpose of this project is to replace the existing Procurement and Warehousing System MLIS with a modernized Supply Chain Management (SCM) Platform which will improve system functionality, streamline/standardize processes and inventory levels, electronic contract management, data management, and user interface. MLIS is a 20+ year old Procurement and Warehousing System that is obsolete and does not allow for effective functionality with other Enterprise systems which requires significant manual interfaces by the user.

**Consequences of Delay:** Inability to close functionality gaps and continued inefficiencies and limitations with current SCM Platform.

**Economic Justification:**

Budget Category: STRATEGIC

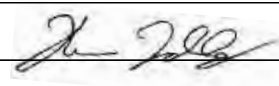
**Cash Flow - 2020**

Jan	\$0	Apr	\$47,000	Jul	\$33,000	Oct	\$202,000
Feb	\$0	May	\$26,000	Aug	\$40,000	Nov	\$26,000
Mar	\$206,000	Jun	\$26,000	Sep	\$27,000	Dec	\$62,000
<b>Prior</b>	\$0	<b>2020</b>	\$694,000	<b>2021</b>	\$1,218,000	<b>After</b>	\$1,071,000

**Cost Summary**

	Previous Amount	Revised Amount
RU Materials	\$2,160,000	\$2,160,000
Removals (Salvage)		\$0
Non-Itemized Additions	\$1,188,000	\$823,000
Specific Cost	\$3,347,000	\$2,982,000
Overhead Loads		\$0
<b>CBI Total</b>	\$3,347,000	<b>\$2,982,000</b>
Retirements		\$0

**Approvals**

		E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
APS	63.00%	\$1,878,950		Date	
NTEC	7.00%	\$208,772		Date	
PNM	13.00%	\$387,720		Date	04/08/2020
SRP	10.0%	\$298,246		Date	
TEP	7.00%	\$208,772		Date	

FCC08917 T-621 Auxiliary Transformer Replacement			
Four Corners Participant Project	Rev FC20-39	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC20-39	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: No	Plant Acct: 131100	Est Removal:	Est In Svc: 10 Apr 2021

**Description:** Procure a new "like kind" auxiliary transformer to replace existing Auxiliary Transformer (T-621). Replace the Unit 4 60 MVA Auxiliary Transformer (T-621), the associated secondary power cable, and the control cables. Furnish and install a new dissolved gas analyzer.

**Purpose/Necessity:** The purpose of this project is to maintain unit reliability. The Unit 4 auxiliary transformer T-641 was found to be in poor condition during the 2016 Outage. Power and control cables are also deteriorated and in poor condition and are nearing the end of the serviceable life.

**Consequences of Delay:** Potential 30 day forced outage. Economic justification assumes a 10% probability of a 30 day forced outage.

**Economic Justification:**

Benefit-Cost NPV: 5.50 M\$  
Budget Category: REL-UNIT

Cash Flow - 2020							
Jan	\$4,000	Apr	\$222,000	Jul	\$41,000	Oct	\$4,000
Feb	\$28,000	May	\$465,000	Aug	\$24,000	Nov	\$432,000
Mar	\$90,000	Jun	\$54,000	Sep	\$88,000	Dec	\$4,000
Prior	\$0	2020	\$1,454,000	2021	\$1,581,000	After	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$2,635,000	
Removals	\$390,000	
(Salvage)	\$0	
Non-Itemized Additions	\$0	
Specific Cost	\$3,025,000	
Overhead Loads	\$10,000	
CBI Total	\$3,036,000	
Retirements	\$0	

Approvals				
			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$1,912,487	Sarah Leist	Date 1/8/2020
NTEC	7.00%	\$212,499	SY	Date 12/4/17
PNM	13.00%	\$394,640		Date.
SRP	10.0%	\$303,569		Date.
TEP	7.00%	\$212,499		Date.

FCC08917 T-621 Auxiliary Transformer Replacement			
Four Corners Participant Project	Rev FC20-39	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC20-39	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: No	Plant Acct: 131100	Est Removal:	Est In Svc: 10 Apr 2021
<p><b>Description:</b> Procure a new "like kind" auxiliary transformer to replace existing Auxiliary Transformer (T-621). Replace the Unit 4 60 MVA Auxiliary Transformer (T-621), the associated secondary power cable, and the control cables. Furnish and install a new dissolved gas analyzer.</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to maintain unit reliability. The Unit 4 auxiliary transformer T-641 was found to be in poor condition during the 2016 Outage. Power and control cables are also deteriorated and in poor condition and are nearing the end of the serviceable life.</p> <p><b>Consequences of Delay:</b> Potential 30 day forced outage. Economic justification assumes a 10% probability of a 30 day forced outage.</p> <p><b>Economic Justification:</b>            Benefit-Cost NPV: 5.50 M\$            Budget Category: REL-UNIT</p>			

Cash Flow - 2020							
Jan	\$4,000	Apr	\$222,000	Jul	\$41,000	Oct	\$4,000
Feb	\$28,000	May	\$465,000	Aug	\$24,000	Nov	\$432,000
Mar	\$90,000	Jun	\$54,000	Sep	\$88,000	Dec	\$4,000
Prior	\$0	2020	\$1,454,000	2021	\$1,581,000	After	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$2,635,000	
Removals	\$390,000	
(Salvage)	\$0	
Non-Itemized Additions	\$0	
Specific Cost	\$3,025,000	
Overhead Loads	\$10,000	
CBI Total	\$3,036,000	
Retirements	\$0	

Approvals			
		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$1,972,487	Date
NTEC	7.00%	\$212,499	Date
PNM	13.00%	\$394,640	Date
SRP	10.0%	\$303,569	Date
TEP	7.00%	\$212,499	Date

01-08-2020

FCC08917 T-621 Auxiliary Transformer Replacement			
Four Corners Participant Project	Rev FC20-39	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC20-39	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: No	Plant Acct: 131100	Est Removal:	Est In Svc: 10 Apr 2021
<p><b>Description:</b> Procure a new "like kind" auxiliary transformer to replace existing Auxiliary Transformer (T-621). Replace the Unit 4 60 MVA Auxiliary Transformer (T-621), the associated secondary power cable, and the control cables. Furnish and install a new dissolved gas analyzer.</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to maintain unit reliability. The Unit 4 auxiliary transformer T-641 was found to be in poor condition during the 2016 Outage. Power and control cables are also deteriorated and in poor condition and are nearing the end of the serviceable life.</p> <p><b>Consequences of Delay:</b> Potential 30 day forced outage. Economic justification assumes a 10% probability of a 30 day forced outage.</p> <p><b>Economic Justification:</b>            Benefit-Cost NPV: 5.50 MS            Budget Category: REL-UNIT</p>			

Cash Flow - 2020							
Jan	\$4,000	Apr	\$222,000	Jul	\$41,000	Oct	\$4,000
Feb	\$28,000	May	\$465,000	Aug	\$24,000	Nov	\$432,000
Mar	\$90,000	Jun	\$54,000	Sep	\$88,000	Dec	\$4,000
Prior	\$0	2020	\$1,454,000	2021	\$1,581,000	After	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$2,635,000	
Removals	\$390,000	
(Salvage)	\$0	
Non-Itemized Additions	\$0	
Specific Cost	\$3,025,000	
Overhead Loads	\$10,000	
CBI Total	\$3,036,000	
Retirements	\$0	

Approvals				
		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$1,912,487		Date
NTEC	7.00%	\$212,499		Date
PNM	13.00%	\$394,640	<i>[Signature]</i>	Date 12/5/19
SRP	10.0%	\$303,569		Date
TEP	7.00%	\$212,499	<i>[Signature]</i>	Date 10-21-19

**FCC09075 Reheat Connecting Bank Replacement**

Four Corners Participant Project	Rev FC20-40	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC20-40	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: Yes	Plant Acct: I31200	Est Removal:	Est In Svc: 10 Apr 2021

**Description:** Replace (in kind) the horizontal reheat connecting bank of the boiler. Erosion-resistant coating shall be installed for purposes of extending tube life.

**Purpose/Necessity:** The purpose of this project is to maintain Unit reliability. High ash loading and velocity have resulted in severe erosion of the horizontal reheater, resulting in tube failures and forced outages.

**Consequences of Delay:** Economic justification assumes a 25% probability of a 10-day forced outage, at a minimum, to repair a tube leak. Delayed replacement of the horizontal reheater presents an increased risk of tube leaks, and weld buildup and tube shielding place the tubing in a slightly more vulnerable state than replacement with new tubing.

**Economic Justification:**  
Benefit-Cost NPV: 4.90 M\$  
Budget Category: REL-UNIT

**Cash Flow - 2020**

Jan	\$10,000	Apr	\$7,000	Jul	\$371,000	Oct	\$21,000
Feb	\$371,000	May	\$21,000	Aug	\$720,000	Nov	\$7,000
Mar	\$31,000	Jun	\$8,000	Sep	\$9,000	Dec	\$7,000
Prior	\$0	2020	\$1,584,000	2021	\$4,348,000	After	\$0

**Cost Summary**

	Current Amount	Revised Amount
RU Materials	\$1,500,000	
Removals	\$194,000	
(Salvage)	\$0	
Non-Itemized Additions	\$4,214,000	
Specific Cost	\$5,909,000	
Overhead Loads	\$23,000	
CBI Total	\$5,932,000	
Retirements	\$0	

**Approvals**

Exhibit: ACL		E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>	
APS	63.00%	\$3,736,854		Date 12/16/19
NTEC	7.00%	\$415,206		Date 12/15/2019
PNM	13.00%	\$771,097		Date
SRP	10.0%	\$593,152		Date
TEP	7.00%	\$415,206		Date

Unit Code: PNM Unit (P) 301	Rev: 10/20/2019	Est. No: 1000000000	Est. Title: Replace Horizontal Reheater Connecting Bank
Project: 1000000000	Est. No: 1000000000	Est. Title: Replace Horizontal Reheater Connecting Bank	Est. No: 1000000000
10/20/2019 Budget: Yes	10/20/2019 Budget: Yes	10/20/2019 Budget: Yes	10/20/2019 Budget: Yes

**Description:** Replace (in kind) the horizontal reheater connecting bank of the boiler. Erosion-resistant coating shall be installed for purposes of extending tube life.

**Purpose/Necessity:** The purpose of this project is to maintain Unit reliability. High ash loading and velocity have resulted in severe erosion of the horizontal reheater, resulting in tube failures and forced outages.

**Consequences of Delay:** Economic justification assumes a 25% probability of a 10-day forced outage, at a minimum, to repair a tube leak. Delayed replacement of the horizontal reheater presents an increased risk of tube leaks, and weld buildup and tube shielding place the tubing in a slightly more vulnerable state than replacement with new tubing.

**Economic Justification:**  
Benefit-Cost NPV: 4.90 ME  
Budget Category: RBL-UNIT

Monthly					
Jan	\$10,000	Apr	\$7,000	Jul	\$371,000
Feb	\$371,000	May	\$21,000	Aug	\$720,000
Mar	\$31,000	Jun	\$8,000	Sep	\$9,000
Oct	\$21,000	Nov	\$7,000	Dec	\$7,000
2020	\$384,000	2021	\$372,000	2022	\$372,000

Cost Summary	
RU Materials	\$1,500,000
Removals (Salvage)	\$194,000
Non-Itemized Additions	\$0
Specific Cost	\$4,214,000
Overhead Loads	\$5,909,000
CBI Total	\$23,000
Retirements	\$5,932,000
	\$0

Exhibit: ACL			
APS	63.00%	\$3,736,854	E&O Committee <input type="checkbox"/> Coordinating Committee <input checked="" type="checkbox"/>
NTEC	7.00%	\$415,206	Date
PNM	13.00%	\$771,897	Date
SRP	10.0%	\$593,155	Date
TEP	7.00%	\$415,206	Date

*[Handwritten signature and date: 11/27/2019]*



FCC09075 Reheat Connecting Bank Replacement			
Four Corners Participant Project	Rev FC20-40	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC20-40	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 10 Apr 2021
<b>Description:</b> Replace (in kind) the horizontal reheat connecting bank of the boiler. Erosion-resistant coating shall be installed for purposes of extending tube life.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain Unit reliability. High ash loading and velocity have resulted in severe erosion of the horizontal reheater, resulting in tube failures and forced outages.			
<b>Consequences of Delay:</b> Economic justification assumes a 25% probability of a 10-day forced outage, at a minimum, to repair a tube leak. Delayed replacement of the horizontal reheater presents an increased risk of tube leaks, and weld buildup and tube shielding place the tubing in a slightly more vulnerable state than replacement with new tubing.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:		4.90 M\$	
Budget Category:		REL-UNIT	

Cash Flow - 2020							
Jan	\$10,000	Apr	\$7,000	Jul	\$371,000	Oct	\$21,000
Feb	\$371,000	May	\$21,000	Aug	\$720,000	Nov	\$7,000
Mar	\$31,000	Jun	\$8,000	Sep	\$9,000	Dec	\$7,000
Prior	\$0	2020	\$1,584,000	2021	\$4,348,000	After	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$1,500,000	
Removals	\$194,000	
(Salvage)	\$0	
Non-Itemized Additions	\$4,214,000	
Specific Cost	\$5,909,000	
Overhead Loads	\$23,000	
CBI Total	\$5,932,000	
Retirements	\$0	

Approvals				
Exhibit: ACL			E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
APS	63.00%	\$3,736,854		Date
NTEC	7.00%	\$415,206		Date
PNM	13.00%	\$771,097		Date
SRP	10.0%	\$593,152	<i>D. W. R. All</i>	Date
TEP	7.00%	\$415,206		Date

FCC09075 Reheat Connecting Bank Replacement			
Four Corners Participant Project	Rev FC20-40	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC20-40	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 10 Apr 2021
<p><b>Description:</b> Replace (in kind) the horizontal reheat connecting bank of the boiler. Erosion-resistant coating shall be installed for purposes of extending tube life.</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to maintain Unit reliability. High ash loading and velocity have resulted in severe erosion of the horizontal reheater, resulting in tube failures and forced outages.</p> <p><b>Consequences of Delay:</b> Economic justification assumes a 25% probability of a 10-day forced outage, at a minimum, to repair a tube leak. Delayed replacement of the horizontal reheater presents an increased risk of tube leaks, and weld buildup and tube shielding place the tubing in a slightly more vulnerable state than replacement with new tubing.</p> <p><b>Economic Justification:</b>            Benefit-Cost NPV: 4.90 M\$            Budget Category: REL-UNIT</p>			

Cash Flow - 2020							
Jan	\$10,000	Apr	\$7,000	Jul	\$371,000	Oct	\$21,000
Feb	\$371,000	May	\$21,000	Aug	\$720,000	Nov	\$7,000
Mar	\$31,000	Jun	\$8,000	Sep	\$9,000	Dec	\$7,000
<b>Prior</b>	<b>\$0</b>	<b>2020</b>	<b>\$1,584,000</b>	<b>2021</b>	<b>\$4,348,000</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$1,500,000	
Removals	\$194,000	
(Salvage)	\$0	
Non-Itemized Additions	\$4,214,000	
Specific Cost	\$5,909,000	
Overhead Loads	\$23,000	
<b>CBI Total</b>	<b>\$5,932,000</b>	
Retirements	\$0	

Approvals				
Exhibit: ACL			E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
APS	63.00%	\$3,736,854		Date
NTEC	7.00%	\$415,206		Date
PNM	13.00%	\$771,097		Date
SRP	10.0%	\$593,152		Date
TEP	7.00%	\$415,206		Date

*[Signature]* 17 Oct 2019

FCC012938 Boiler Feedwater Miniflow Piping Replacement			
Four Corners Participant Project	Rev FC20-42	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC20-42	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: Yes	Plant Aect: 131200	Est Removal:	Est In Svc: 10 Apr 2021
<p><b>Description:</b> Replace four (4) 4 inch carbon steel minimum flow boiler feedwater lines from the branch connection off the main feedwater header to the condenser. Piping will include new piping components including control valves, stop valves, instrumentation and orifice plates.</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to maintain unit reliability of the boiler feedwater system. The components of this system have reached end of useful life. Completing this project by replacing the minimum flow lines would allow the boiler feedwater pumps to operate within their design constraints necessary to continue the smooth start-up operation of the Unit. Piping design will incorporate adequate design for flow accelerated corrosion and 2-phase flow beyond the control valve.</p> <p><b>Consequences of Delay:</b> Economic justification assumes 30% probability of 100% load loss for 3 days to replace the sections of piping.</p> <p><b>Economic Justification:</b> Benefit-Cost NPV: 2.40 M\$ Budget Category: REL</p>			

Cash Flow - 2020							
Jan	\$0	Apr	\$43,000	Jul	\$55,000	Oct	\$46,000
Feb	\$67,000	May	\$52,000	Aug	\$52,000	Nov	\$47,000
Mar	\$70,000	Jun	\$72,000	Sep	\$43,000	Dec	\$47,000
<b>Prior</b>	<b>\$0</b>	<b>2020</b>	<b>\$595,000</b>	<b>2021</b>	<b>\$1,290,000</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$249,000	
Removals	\$200,000	
(Salvage)	\$0	
Non-Itemized Additions	\$1,414,000	
Specific Cost	\$1,863,000	
Overhead Loads	\$22,000	
<b>CBI Total</b>	<b>\$1,884,000</b>	
Retirements	\$0	

Approvals				
			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$1,187,163	Sarah Kist	Date 10/9/19
NTEC	7.00%	\$131,907	S. H. Jr	Date 10/9/19
PNM	13.00%	\$244,970	[Signature]	Date 12/5/19
SRP	10.0%	\$188,439	[Signature]	Date 10-9-19
TEP	7.00%	\$131,907	[Signature]	Date 10-9-19

FCC012942 Boiler Feed Pump Discharge Check Valve Replacement			
Four Corners Participant Project	Rev FC20-43	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC20-43	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: No	Plant Acct: 131200	Est Removal:	Est In Svc: 10 Apr 2021

**Description:** Replace the south side boiler feed pump discharge check valve.

**Purpose/Necessity:** The purpose of this project is to maintain unit reliability of the boiler feedwater system. The check valve is approaching the end of useful life, replacing the south side boiler feed pump check valve would allow the boiler feedwater pumps to operate within their design constraints necessary to continue the smooth start-up operation of the unit and protection of the pump. Failure of this valve could lead to damage or failure of the boiler feed pump.

**Consequences of Delay:** Possible failure of the south side boiler feed pump. Economic analysis assumes a 63% probably of failure resulting in an 8 day forced outage

**Economic Justification:**

Benefit-Cost NPV: 1.90 M\$  
Budget Category: REL

Cash Flow - 2020							
Jan	\$0	Apr	\$19,000	Jul	\$23,000	Oct	\$21,000
Feb	\$24,000	May	\$19,000	Aug	\$19,000	Nov	\$22,000
Mar	\$59,000	Jun	\$19,000	Sep	\$26,000	Dec	\$22,000
<b>Prior</b>	\$0	<b>2020</b>	\$272,000	<b>2021</b>	\$398,000	<b>After</b>	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$105,000	
Removals (Salvage)	\$5,000 \$0	
Non-Itemized Additions	\$545,000	
Specific Cost	\$655,000	
Overhead Loads	\$15,000	
<b>CBI Total</b>	<b>\$670,000</b>	
Retirements	\$0	

Approvals			
		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$422,108	<i>Sarah West</i> 10/9/19 Date
NTEC	7.00%	\$46,901	<i>S. Lipp</i> 10/2/19 Date
PNM	13.00%	\$87,102	<i>[Signature]</i> 12/5/19 Date
SRP	10.0%	\$67,001	<i>[Signature]</i> 10-9-19 Date
TEP	7.00%	\$46,901	<i>[Signature]</i> 10-9-19 Date

FCC012943 Boiler Feedwater Discharge Block Valve Replacement			
Four Corners Participant Project	Rev FC20-44	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC20-44	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: No	Plant Acct: 131200	Est Removal:	Est In Svc: 28 Apr 2021
<b>Description:</b> Replace the U5 north and south boiler feed pump block valves and actuators (5MOV2139 and 5MOV2140) providing an isolation point for the feed pumps and return valves.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain unit reliability of the boiler feedwater system. Completing this project by replacing the block valves would allow isolation for LOTO of the boiler feed pumps, so that they may be worked on safely while the unit is online.			
<b>Consequences of Delay:</b> Necessity to bring down the unit to do work on the boiler feed pumps for safe LOTO			
<b>Economic Justification:</b>			
Benefit-Cost NPV:		2.00 M\$	
Budget Category:		REL	

Cash Flow - 2020							
Jan	\$0	Apr	\$21,000	Jul	\$30,000	Oct	\$25,000
Feb	\$30,000	May	\$21,000	Aug	\$21,000	Nov	\$22,000
Mar	\$49,000	Jun	\$75,000	Sep	\$32,000	Dec	\$22,000
<b>Prior</b>	<b>\$0</b>	<b>2020</b>	<b>\$347,000</b>	<b>2021</b>	<b>\$970,000</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$436,000	
Removals	\$15,000	
(Salvage)	\$0	
Non-Itemized Additions	\$854,000	
Specific Cost	\$1,305,000	
Overhead Loads	\$13,000	
<b>CBI Total</b>	<b>\$1,318,000</b>	
Retirements	\$0	

Approvals			
		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$829,498	 Date 10/9/19
NTEC	7.00%	\$92,166	 Date 10/9/19
PNM	13.00%	\$171,166	 Date 12/5/19
SRP	10.0%	\$131,666	 Date 10-9-19
TEP	7.00%	\$92,166	 Date 10-9-19

FCC014272 1st Point Inlet MOV Replacement			
Four Corners Participant Project	Rev FC20-46	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC20-46	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: No	Plant Acct: 131200	Est Removal:	Est In Svc: 10 Apr 2021

**Description:** Replace the Unit 4 North 1st Point Inlet MOV (4MOV2222) and actuator.

**Purpose/Necessity:** The purpose of this project is to maintain the reliability of the north 1st Point MOV to ensure continued reliability of the Unit operation.

**Consequences of Delay:** Potential of a 5 day forced outage. Economic justification assumes a 5% probability of a 5 day forced outage

**Economic Justification:**

Benefit-Cost NPV: 4.40 M\$

Budget Category: REL

Cash Flow - 2020							
Jan	\$0	Apr	\$14,000	Jul	\$18,000	Oct	\$18,000
Feb	\$20,000	May	\$14,000	Aug	\$19,000	Nov	\$6,000
Mar	\$44,000	Jun	\$15,000	Sep	\$14,000	Dec	\$6,000
Prior	\$0	2020	\$189,000	2021	\$593,000	After	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$200,000	
Removals	\$17,000	
(Salvage)	\$0	
Non-Itemized Additions	\$559,000	
Specific Cost	\$775,000	
Overhead Loads	\$6,000	
CBI Total	\$781,000	
Retirements	\$0	

Approvals					
		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
APS	63.00%	\$492,073	Sarah List	Date	10/9/19
NTEC	7.00%	\$54,675	SJH/jm	Date	10/9/19
PNM	13.00%	\$101,539	[Signature]	Date	12/5/19
SRP	10.0%	\$78,107	[Signature]	Date	10-9-19
TEP	7.00%	\$54,675	[Signature]	Date	10-9-19

FCC014273 1st Point Inlet MOV Replacement			
Four Corners Participant Project	Rev FC20-47	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC20-47	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: No	Plant Acct: 131200	Est Removal:	Est In Svc: 28 Apr 2021

**Description:** Replace the Unit 5 North 1st Point Inlet MOV (5MOV2222) and actuator.

**Purpose/Necessity:** The purpose of this project is to maintain the reliability of the north 1st Point MOV to ensure continued reliability of the Unit operation.

**Consequences of Delay:** Potential of a 5 day forced outage. Economic justification assumes a 5% probability of a 5 day forced outage.

**Economic Justification:**

Benefit-Cost NPV: 4.50 M\$  
Budget Category: REL

Cash Flow - 2020							
Jan	\$0	Apr	\$13,000	Jul	\$13,000	Oct	\$22,000
Feb	\$10,000	May	\$13,000	Aug	\$13,000	Nov	\$13,000
Mar	\$50,000	Jun	\$13,000	Sep	\$19,000	Dec	\$9,000
<b>Prior</b>	\$0	<b>2020</b>	\$184,000	<b>2021</b>	\$576,000	<b>After</b>	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$200,000	
Removals	\$17,000	
(Salvage)	\$0	
Non-Itemized Additions	\$536,000	
Specific Cost	\$752,000	
Overhead Loads	\$8,000	
<b>CBI Total</b>	<b>\$760,000</b>	
Retirements	\$0	

Approvals			
		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$479,026	<i>Sam List</i> Date 10/9/19
NTEC	7.00%	\$53,225	<i>SD Hsu</i> Date 10/9/19
PNM	13.00%	\$98,847	<i>[Signature]</i> Date 12/5/17
SRP	10.0%	\$76,036	<i>[Signature]</i> Date 10-9-19
TEP	7.00%	\$53,225	<i>[Signature]</i> Date 10-9-19

FCC014276 Ash Sluice Piping Replacement			
Four Corners Participant Project	Rev FC20-48	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC20-48	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: No	Plant Acct: 131200	Est Removal:	Est In Svc: 10 Apr 2021
<p><b>Description:</b> Replace the above ground Ash Sluice Piping at Unit 4 and Unit 5 (~700LF of 12" carbon steel piping including insulation and heat tracing).</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to increase the reliability of the bottom ash flush water system by restoring required material integrity.</p> <p>The existing ash sluice water pipe, made of carbon steel, has corroded below code minimum wall thickness in multiple areas. Multiple repairs have been previously performed due to holes in the system.</p> <p><b>Consequences of Delay:</b> The potential for a forced outage is significant if the sluice water flow is lost. A failure in this system would result in an estimated 4-5 days of lost generation.</p> <p><b>Economic Justification:</b> Benefit-Cost NPV: 10.00 M\$ Budget Category: REL</p>			

Cash Flow - 2020							
Jan	\$4,000	Apr	\$34,000	Jul	\$34,000	Oct	\$8,000
Feb	\$28,000	May	\$29,000	Aug	\$28,000	Nov	\$12,000
Mar	\$59,000	Jun	\$29,000	Sep	\$9,000	Dec	\$11,000
<b>Prior</b>	\$0	<b>2020</b>	\$284,000	<b>2021</b>	\$627,000	<b>After</b>	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$350,000	
Removals	\$34,000	
(Salvage)	\$0	
Non-Itemized Additions	\$512,000	
Specific Cost	\$896,000	
Overhead Loads	\$15,000	
<b>CBI Total</b>	<b>\$911,000</b>	
Retirements	\$0	

Approvals			
		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$573,723	Sarah List 10/9/19 Date
NTEC	7.00%	\$63,747	SLH 10/9/19 Date
PNM	13.00%	\$118,387	12/15/19 Date
SRP	10.0%	\$91,067	10-9-19 Date
TEP	7.00%	\$63,747	JAR 10-9-19 Date



<b>FCC014866 Thickener Replacement</b>							
Four Corners Participant Project	Rev FC20-49	100% Enviro.	NSR Completed: Yes				
FC Unit 4	CBI: FC20-49	Env Code: Water	ERF Completed: Yes				
In 2020 Budget: Yes	Plant Acct: 131100	Est Removal:	Est In Svc: 31 May 2021				
<p><b>Description:</b> Replace the center drive unit and the associated structural supports, drive mechanism, rake arms, underflow piping, pipe bridge, cenosphere piping, and controls/sensors on the F4 Thickener Tank. Refine the existing concrete floor and thickener tank shell interior and exterior walls.</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to maintain unit reliability by replacing key components of the thickener system that has reached the end of useful life.</p> <p><b>Consequences of Delay:</b> Potential 13 day forced dual unit outage. Forced outage would be required if the F4 Thickener Tank failed during the time the F5 Thickener Tank was out of service. Economic justification assumes a 5% probability of a 13-day dual unit forced outage.</p> <p><b>Economic Justification:</b> Benefit-Cost NPV: 3.20 M\$ Budget Category: REL</p>							
<b>Cash Flow - 2020</b>							
Jan	\$23,000	Apr	\$41,000	Jul	\$48,000	Oct	\$14,000
Feb	\$41,000	May	\$449,000	Aug	\$240,000	Nov	\$14,000
Mar	\$72,000	Jun	\$367,000	Sep	\$543,000	Dec	\$21,000
Prior	\$0	2020	\$1,874,000	2021	\$4,074,000	After	\$0
<b>Cost Summary</b>							
	<b>Current Amount</b>			<b>Revised Amount</b>			
RU Materials	\$0						
Removals	\$345,000						
(Salvage)	\$0						
Non-Itemized Additions	\$5,555,000						
Specific Cost	\$5,900,000						
Overhead Loads	\$48,000						
CBI Total	\$5,948,000						
Retirements	\$0						
<b>Approvals</b>							
Exhibit: ACM			E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>		
APS	63.00%	\$3,747,228	  Date: 12/16/19 Date: 12/15/2019				
NTEC	7.00%	\$416,359					
PNM	13.00%	\$773,238					
SRP	10.00%	\$594,798					
TTP	7.00%	\$416,359					

Project Name: Philadelphia Project	Request: 2020	100% Finno	100% Completed
Request Code: 0000	Request Code: 0000	Request Code: 0000	Request Code: 0000
2020 Budget Code: 0000	2020 Budget Code: 0000	2020 Budget Code: 0000	2020 Budget Code: 0000

**Description:** Replace the center drive unit and the associated structural supports, drive mechanism, rake arms, underflow piping, pipe bridge, cenosphere piping, and controls/sensors on the F4 Thickener Tank. Reline the existing concrete floor and thickener tank shell interior and exterior walls.

**Purpose/Necessity:** The purpose of this project is to maintain unit reliability by replacing key components of the thickener system that has reached the end of useful life.

**Consequences of Delay:** Potential 13 day forced dual unit outage. Forced outage would be required if the F4 Thickener Tank failed during the time the F5 Thickener Tank was out of service. Economic justification assumes a 5% probability of a 13-day dual unit forced outage.

**Economic Justification:**

Benefit-Cost NPV: 3.20 M\$  
Budget Category: REL

Jan	\$23,000	Apr	\$41,000	Jul	\$48,000	Oct	\$14,000
Feb	\$41,000	May	\$449,000	Aug	\$240,000	Nov	\$14,000
Mar	\$72,000	Jun	\$367,000	Sep	\$543,000	Dec	\$21,000
Total	\$0	2020	\$0	2021	\$1,023,000	2022	\$0

RU Materials	\$0
Removals	\$145,000
(Salvage)	\$0
Non-Itemized Additions	\$5,555,000
Specific Cost	\$5,900,000
Overhead Loads	\$48,000
CBI Total	\$5,948,000
Retirements	\$0

Exhibit: ACM	E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
APS	63.00%	\$3,747,228	Date	
NTEC	7.00%	\$416,359	Date	
PNM	13.00%	\$773,238	Date	11/27/2019
SRP	10.0%	\$594,798	Date	
TEP	7.00%	\$416,359	Date	

FCC014866 Thickener Replacement			
Four Corners Participant Project	Rev FC20-49	100% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC20-49	Env Code: Water	ERF Completed: Yes
In 2020 Budget: Yes	Plant Acct: 131100	Est Removal:	Est In Svc: 31 May 2021
<p><b>Description:</b> Replace the center drive unit and the associated structural supports, drive mechanism, rake arms, underflow piping, pipe bridge, cenosphere piping, and controls/sensors on the F4 Thickener Tank. Refine the existing concrete floor and thickener tank shell interior and exterior walls.</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to maintain unit reliability by replacing key components of the thickener system that has reached the end of useful life.</p> <p><b>Consequences of Delay:</b> Potential 13 day forced dual unit outage. Forced outage would be required if the F4 Thickener Tank failed during the time the F5 Thickener Tank was out of service. Economic justification assumes a 5% probability of a 13-day dual unit forced outage.</p> <p><b>Economic Justification:</b>            Benefit-Cost NPV: 3.20 MS            Budget Category: REL</p>			

Cash Flow - 2020							
Jan	\$23,000	Apr	\$41,000	Jul	\$48,000	Oct	\$14,000
Feb	\$41,000	May	\$449,000	Aug	\$240,000	Nov	\$14,000
Mar	\$72,000	Jun	\$367,000	Sep	\$543,000	Dec	\$21,000
<b>Prior</b>	\$0	<b>2020</b>	<b>\$1,874,000</b>	<b>2021</b>	<b>\$4,074,000</b>	<b>After</b>	\$0


Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$0	
Removals	\$345,000	
(Salvage)	\$0	
Non-Itemized Additions	\$5,555,000	
Specific Cost	\$5,900,000	
Overhead Loads	\$48,000	
<b>CBI Total</b>	<b>\$5,948,000</b>	
Retirements	\$0	

Approvals				
Exhibit: ACM			E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
APS	63.00%	\$3,747,228		Date
NTEC	7.00%	\$416,359		Date
PNM	13.00%	\$773,238		Date
SRP	10.0%	\$594,798	WHL R AU	Date
TEP	7.00%	\$416,359		Date


FCC014866 Thickener Replacement			
Four Corners Participant Project	Rev FC20-49	100% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC20-49	Env Code: Water	ERF Completed: Yes
In 2020 Budget: Yes	Plant Acct: 131100	Est Removal:	Est In Svc: 31 May 2021
<p><b>Description:</b> Replace the center drive unit and the associated structural supports, drive mechanism, rake arms, underflow piping, pipe bridge, cenosphere piping, and controls/sensors on the F4 Thickener Tank. Reline the existing concrete floor and thickener tank shell interior and exterior walls.</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to maintain unit reliability by replacing key components of the thickener system that has reached the end of useful life.</p> <p><b>Consequences of Delay:</b> Potential 13 day forced dual unit outage. Forced outage would be required if the F4 Thickener Tank failed during the time the F5 Thickener Tank was out of service. Economic justification assumes a 5% probability of a 13-day dual unit forced outage.</p> <p><b>Economic Justification:</b> Benefit-Cost NPV: 3.20 MS Budget Category: REL</p>			

Cash Flow - 2020							
Jan	\$23,000	Apr	\$41,000	Jul	\$48,000	Oct	\$14,000
Feb	\$41,000	May	\$449,000	Aug	\$240,000	Nov	\$14,000
Mar	\$72,000	Jun	\$367,000	Sep	\$543,000	Dec	\$21,000
Prior	\$0	2020	\$1,874,000	2021	\$4,074,000	After	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$0	
Removals	\$345,000	
(Salvage)	\$0	
Non-Itemized Additions	\$5,555,000	
Specific Cost	\$5,900,000	
Overhead Loads	\$48,000	
CBI Total	\$5,948,000	
Retirements	\$0	

Approvals				
Exhibit: ACM			E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
APS	63.00%	\$3,747,228		Date
NTEC	7.00%	\$416,359		Date
PNM	13.00%	\$773,238		Date
SRP	10.0%	\$594,798		Date
TEP	7.00%	\$416,359		Date 17 Oct 20 9

PE015678 FC Training Building Remodel							
FC Participant Project	Rev FC20-56	0% Enviro.	NSR Completed: Yes				
FC	CBI: FC20-56	Env Code:	ERF Completed: Yes				
In 2020 Budget: Yes	Plant Acct: 131100	Est Removal:	Est In Svc: 01 Dec 2021				
<p><b>Description:</b> Remodel the FC Training Building (approximately 11,000sf) to include four new training rooms, buildout of lockers and showers, fix way finding issues, repair the roof, and install a complete potable water system.</p> <p><b>Purpose/Necessity:</b> The purpose of this remodel is to provide the Four Corners Power Plant with an updated centralized training zone for employees and a location to facilitate interactions with external groups.</p> <p><b>Consequences of Delay:</b> Lower quality of training due to delays in scheduling. Danger of entrapment in case of an emergency. Continued theft issues.</p> <p><b>Economic Justification:</b> Budget Category: REL.</p>							
Cash Flow							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$476,000
Prior	\$0	2020	\$476,000	2021	\$2,284,000	After	\$0
Cost Summary							
	Current Amount			Revised Amount			
RU Materials	\$1,400,000						
Removals	\$0						
(Salvage)	\$0						
Non-Itemized Additions	\$1,360,000						
Specific Cost	\$2,760,000						
Overhead Loads	\$0						
CBI Total	\$2,760,000						
Retirements	\$0						
Approvals							
				E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>		
APS	63.00%	\$1,738,800		Sarah Kist	Date		
NTEC	7.00%	\$193,200		S.H.	Date 11/6/2020		
PNM	13.00%	\$358,800			Date		
SRP	10.0%	\$276,000			Date		
TEP	7.00%	\$193,200			Date		

PE013678 FC Training Building Remodel							
<b>FC Participant Project</b>		Rev FC20-56		0% Enviro.		NSR Completed: Yes	
<b>FC</b>		CBI: FC20-56		Env Code:		ERF Completed: Yes	
<b>In 2020 Budget: Yes</b>		Plant Acct: 131100		Est Removal:		Est In Svc: 01 Dec 2021	
<p><b>Description:</b> Remodel the FC Training Building (approximately 11,000sf) to include four new training rooms, buildout of lockers and showers, fix way finding issues, repair the roof, and install a complete potable water system.</p> <p><b>Purpose/Necessity:</b> The purpose of this remodel is to provide the Four Corners Power Plant with an updated centralized training zone for employees and a location to facilitate interactions with external groups.</p> <p><b>Consequences of Delay:</b> Lower quality of training due to delays in scheduling. Danger of entrapment in case of an emergency. Continued theft issues.</p> <p><b>Economic Justification:</b> Budget Category: REL</p>							
Cash Flow							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$476,000
<b>Prior</b>	<b>\$0</b>	<b>2020</b>	<b>\$476,000</b>	<b>2021</b>	<b>\$2,284,000</b>	<b>After</b>	<b>\$0</b>
Cost Summary							
	<b>Current Amount</b>			<b>Revised Amount</b>			
RU Materials	\$1,400,000						
Removals	\$0						
(Salvage)	\$0						
Non-Itemized Additions	\$1,360,000						
Specific Cost	\$2,760,000						
Overhead Loads	\$0						
<b>CBI Total</b>	<b>\$2,760,000</b>						
Retirements	\$0						
Approvals							
				E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
APS	63.00%	\$1,738,800				Date	
NTEC	7.00%	\$193,200				Date	
PNM	13.00%	\$358,800				Date	12/17/19
SRP	10.0%	\$276,000					Date
TEP	7.00%	\$193,200				Date	

PE015678 FC Training Building Remodel			
FC Participant Project	Rev FC20-56	0% Enviro.	NSR Completed: Yes
FC	CBI: FC20-56	Env Code:	ERF Completed: Yes
In 2020 Budget: Yes	Plant Acct: 131100	Est Removal:	Est In Svc: 01 Dec 2021
<b>Description:</b> Remodel the FC Training Building (approximately 11,000sf) to include four new training rooms, buildout of lockers and showers, fix way finding issues, repair the roof, and install a complete potable water system.			
<b>Purpose/Necessity:</b> The purpose of this remodel is to provide the Four Corners Power Plant with an updated centralized training zone for employees and a location to facilitate interactions with external groups.			
<b>Consequences of Delay:</b> Lower quality of training due to delays in scheduling. Danger of entrapment in case of an emergency. Continued theft issues.			
<b>Economic Justification:</b>			
Budget Category: REL			

Cash Flow							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$476,000
<b>Prior</b>	<b>\$0</b>	<b>2020</b>	<b>\$476,000</b>	<b>2021</b>	<b>\$2,284,000</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$1,400,000	
Removals	\$0	
(Salvage)	\$0	
Non-Itemized Additions	\$1,360,000	
Specific Cost	\$2,760,000	
Overhead Loads	\$0	
<b>CBI Total</b>	<b>\$2,760,000</b>	
Retirements	\$0	

Approvals			
		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$1,738,800	Date
NTEC	7.00%	\$193,200	Date
PNM	13.00%	\$358,800	Date
SRP	10.0%	\$276,000	Date
TEP	7.00%	\$193,200	Date

*[Signature]* 01-08-2021

PE015678 FC Training Building Remodel			
FC Participant Project	Rev FC20-56	0% Enviro.	NSR Completed: Yes
FC	CBI: FC20-56	Env Code:	ERF Completed: Yes
In 2020 Budget: Yes	Plant Acct: 131100	Est Removal:	Est In Svc: 01 Dec 2021
<b>Description:</b> Remodel the FC Training Building (approximately 11,000sf) to include four new training rooms, buildout of lockers and showers, fix way finding issues, repair the roof, and install a complete potable water system.			
<b>Purpose/Necessity:</b> The purpose of this remodel is to provide the Four Corners Power Plant with an updated centralized training zone for employees and a location to facilitate interactions with external groups.			
<b>Consequences of Delay:</b> Lower quality of training due to delays in scheduling, Danger of entrapment in case of an emergency. Continued theft issues.			
<b>Economic Justification:</b>			
Budget Category: REL			

Cash Flow							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$476,000
<b>Prior</b>	\$0	<b>2020</b>	\$476,000	<b>2021</b>	\$2,284,000	<b>After</b>	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$1,400,000	
Removals (Salvage)	\$0	
Non-Itemized Additions	\$1,360,000	
Specific Cost	\$2,760,000	
Overhead Loads	\$0	
<b>CBI Total</b>	<b>\$2,760,000</b>	
Retirements	\$0	

Approvals			
		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$1,738,800	Date
NTEC	7.00%	\$193,200	Date
PNM	13.00%	\$358,800	Date
SRP	10.0%	\$276,000	Date
TEP	7.00%	\$193,200	Date

*JUR* 10-9-15



PE015763 FC Potable Water Bldg HVAC Replacement			
FC Participant Project	Rev FC20-57	0% Enviro.	NSR Completed: Yes
FC	CBI: FC20-57	Env Code:	ERF Completed: Yes
In 2020 Budget: Yes	Plant Acct: 131100	Est Removal: 01 Jan 2020	Est In Svc: 01 Dec 2020
<b>Description:</b> Install 10 ton HVAC system at the FC Potable Water Bldg. # 83.			
<b>Purpose/Necessity:</b> The purpose of this install is to maintain 75 degree temperature for consistent readings taken by the EPA to maintain compliance with Potable Water Standards.			
<b>Consequences of Delay:</b> Unreliable readings being taken from the water and chemicals. EPA is monitoring the water and chemicals. Inadequate ventilation for employee environment, if above 80 degrees the chemicals start to off-gas.			
<b>Economic Justification:</b> Budget Category: REL			

Cash Flow - 2020							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$83,000
<b>Prior</b>	<b>\$0</b>	<b>2020</b>	<b>\$83,000</b>	<b>2021</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$50,000	
Removals	\$0	
(Salvage)	(\$3,000)	
Non-Itemized Additions	\$35,000	
Specific Cost	\$82,000	
Overhead Loads	\$1,000	
<b>CBI Total</b>	<b>\$83,000</b>	
Retirements	\$0	

Approvals				
			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$52,080	Sarah Kist	Date 10/9/19
NTEC	7.00%	\$5,787	SJK	Date 10/9/19
PNM	13.00%	\$10,747	[Signature]	Date 12/5/19
SRP	10.0%	\$8,267	[Signature]	Date 12-9-19
TEP	7.00%	\$5,787	[Signature]	Date 10-9-19

PE015777 FC 2020 HVAC- Misc. Equip. Replacement- ADJUSTER			
FC Participant Project	Rev FC20-58	0% Enviro.	NSR Completed: Yes
FC	CBI: FC20-58	Env Code:	ERF Completed: Yes
In 2020 Budget: Yes	Plant Acct: 131100	Est Removal:	Est In Svc: 31 Dec 2020
<b>Description:</b> 2020 Funding for the replacement of miscellaneous HVAC equipment/components that meet capital requirements, as defined by RUC - 221 Air Handling Unit.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain plant HVAC reliability. Capital budget will be used for purchases and installation of new Capital HVAC equipment as failures or immediate need occurs throughout the 2020 calendar year.			
<b>Consequences of Delay:</b> Negative impact to the plant's response to obtaining approvals needed for Capital HVAC requirements.			
<b>Economic Justification:</b>			
Budget Category: REL			

Cash Flow - 2020							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$300,000
<b>Prior</b>	<b>\$0</b>	<b>2020</b>	<b>\$300,000</b>	<b>2021</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$160,000	
Removals	\$0	
(Salvage)	\$0	
Non-Itemized Additions	\$137,000	
Specific Cost	\$297,000	
Overhead Loads	\$3,000	
<b>CBI Total</b>	<b>\$300,000</b>	
Retirements	\$0	

Approvals				
		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$189,000	Sambhokist	Date 10/9/19
NTEC	7.00%	\$21,000	S. S. H	Date 10/9/19
PNM	13.00%	\$39,000	<del>Signature</del>	Date 12/5/19
SRP	10.0%	\$30,000	Signature	Date 10-9-19
TEP	7.00%	\$21,000	Signature	Date 10-9-19

PE015778 FC 2020 Plant Building - Misc. Equip. Replacement - ADJUSTER			
FC Participant Project FC In 2020 Budget: Yes	Rev FC20-59 CBI: FC20-59 Plant Acct: 131100	0% Enviro. Env Code: Est Removal:	NSR Completed: Yes ERF Completed: Yes Est In Svc: 31 Dec 2020
<p><b>Description:</b> 2020 Funding for the replacement of Capital building components (i.e. foundations, walls, roofs, ceilings, stairs, floor coverings, windows, plumbing and fixtures, built-ins, office lighting, conventional doors and partitions, decorations and modular trailer buildings) that meet Capital requirements as defined by the RUC - 050 Buildings.</p> <p><b>Purpose/Necessity:</b> The purpose of this project is to maintain building safety. This funding will be used for the replacement of Capital building components as failures or immediate need occurs throughout the 2020 calendar year.</p> <p><b>Consequences of Delay:</b> Risk to plant personnel safety.</p> <p><b>Economic Justification:</b> Budget Category: REL</p>			

Cash Flow - 2020							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$300,000
<b>Prior</b>	<b>\$0</b>	<b>2020</b>	<b>\$300,000</b>	<b>2021</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$160,000	
Removals	\$0	
(Salvage)	\$0	
Non-Itemized Additions	\$137,000	
Specific Cost	\$297,000	
Overhead Loads	\$3,000	
<b>CBI Total</b>	<b>\$300,000</b>	
Retirements	\$0	

Approvals				
			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$189,000	Search list	Date 10/9/19
NTEC	7.00%	\$21,000	Sills for	Date 10/9/19
PNM	13.00%	\$39,000	[Signature]	Date 12/5/19
SRP	10.0%	\$30,000	[Signature]	Date 12-9-19
TEP	7.00%	\$21,000	[Signature]	Date 10-9-19

PE015779 FC 2020 Plant Exterior - Misc. Replacement - ADJUSTER			
FC Participant Project	Rev FC20-60	0% Enviro.	NSR Completed: Yes
FC	CBI: FC20-60	Env Code:	ERF Completed: Yes
In 2020 Budget: Yes	Plant Acct: 131100	Est Removal:	Est In Svc: 31 Dec 2020
<b>Description:</b> 2020 Funding for the replacement of Capital exterior components (i.e. paving, concrete, fencing, etc...) that meet Capital requirements as defined by RUC - 015 (paving) or RUC - 020 (fences and barriers).			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain plant accessibility safety. This funding will be used for the replacement of Capital exterior site components as failures or immediate need occurs throughout the 2020 calendar year.			
<b>Consequences of Delay:</b> Negative impact to the plant's response to obtaining approvals needed to address Capital exterior component failures or identification of safety related issues.			
<b>Economic Justification:</b>			
Budget Category: REL			

Cash Flow - 2020							
Jan.	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$100,000
<b>Prior</b>	\$0	<b>2020</b>	\$100,000	<b>2021</b>	\$0	<b>After</b>	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$55,000	
Removals	\$0	
(Salvage)	\$0	
Non-Itemized Additions	\$44,000	
Specific Cost	\$99,000	
Overhead Loads	\$1,000	
<b>CBI Total</b>	<b>\$100,000</b>	
Retirements	\$0	

Approvals				
		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$63,000	Sarah Kist	Date 10/9/19
NTEC	7.00%	\$7,000	SAB	Date 10/9/19
PNM	13.00%	\$13,000	[Signature]	Date 12/5/19
SRP	10.0%	\$10,000	[Signature]	Date 10-9-19
TEP	7.00%	\$7,000	[Signature]	Date 10-9-19

FCC08797 4th Point Feedwater Heater Replacement			
Four Corners Participant Project	Rev FC20-64	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC20-64	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 10 Apr 2021

**Description:** Replace the Unit 4 East and West 4th Point Feedwater Heaters.

**Purpose/Necessity:** The purpose of this project is to ensure continued unit reliability, increase efficiency and avoid a forced outage due to the LP Feedwater Heaters being taken out-of-service. The existing LP Feedwater heaters are at the end of their serviceable life. Inspections have identified Flow Accelerated Corrosion (FAC) damage which require shell repairs.

**Consequences of Delay:** Delay in replacement of the heater will increase the probability of failure and forced outage or de-rate, require a higher heat rate in boiler, and increase operating stress on Feedwater System.

**Economic Justification:**

Benefit-Cost NPV: 4.30 M\$  
Budget Category: REL-UNIT

Cash Flow - 2020							
Jan	\$28,000	Apr	\$22,000	Jul	\$146,000	Oct	\$171,000
Feb	\$152,000	May	\$22,000	Aug	\$20,000	Nov	\$16,000
Mar	\$35,000	Jun	\$26,000	Sep	\$16,000	Dec	\$16,000
<b>Prior</b>	\$0	<b>2020</b>	\$670,000	<b>2021</b>	\$2,062,000	<b>After</b>	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$700,000	
Removals	\$145,000	
(Salvage)	\$0	
Non-Itemized Additions	\$1,887,000	
Specific Cost	\$2,732,000	
Overhead Loads	\$0	
<b>CBI Total</b>	<b>\$2,732,000</b>	
Retirements	\$0	

Approvals				
			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$1,721,442	Sarah Kist	10/9/19
NTEC	7.00%	\$191,271	S.H.H.	10/9/19
PNM	13.00%	\$355,218	[Signature]	12/5/19
SRP	10.00%	\$273,245	[Signature]	10-9-19
TEP	7.00%	\$191,271	[Signature]	10-9-19

FCC06587 6th Point Feedwater Heater Replacement			
Four Corners Participant Project	Rev FC20-70	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC20-70	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 29 Oct 2021
<b>Description:</b> Replace the Unit 5 West 6th Point Feedwater Heater.			
<b>Purpose/Necessity:</b> The purpose of this project is to ensure continued unit reliability, increase efficiency and avoid a forced outage or de-rate due to the LP Feedwater Heater being taken out-of-service. The existing LP Feedwater Heater is at the end of its serviceable life. Approximately 14% of tubes are plugged and the Feedwater Heater was designed with only 10% excess tubes.			
<b>Consequences of Delay:</b> Delayed replacement of the Feedwater Heater will increase the probability of failure and forced outage or de-rate, require a higher heat rate in boiler, and increase operating stress on Feedwater System.			
<b>Economic Justification:</b>			
Benefit-Cost NPV:		2.60 M\$	
Budget Category:		REL-UNIT	

Cash Flow - 2020							
Jan	\$16,000	Apr	\$16,000	Jul	\$16,000	Oct	\$125,000
Feb	\$78,000	May	\$16,000	Aug	\$16,000	Nov	\$16,000
Mar	\$54,000	Jun	\$16,000	Sep	\$16,000	Dec	\$16,000
<b>Prior</b>	\$0	<b>2020</b>	\$405,000	<b>2021</b>	\$1,094,000	<b>After</b>	\$2,000

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$350,000	
Removals	\$70,000	
(Salvage)	\$0	
Non-Itemized Additions	\$1,079,000	
Specific Cost	\$1,499,000	
Overhead Loads	\$2,000	
<b>CBI Total</b>	<b>\$1,501,000</b>	
Retirements	\$0	


Approvals			
Exhibit: 0		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$945,847	Santisteban 11/9/19 Date
NTEC	7.00%	\$105,094	Santisteban 10/9/19 Date
PNM	13.00%	\$195,175	[Signature] 12/5/17 Date
SRP	10.0%	\$150,134	[Signature] 10-9-19 Date
TEP	7.00%	\$105,094	[Signature] 10-9-19 Date

FCC08103 2020 Plant Tools			
Four Corners Participant Project	Rev FC20-71	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC20-71	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: No	Plant Acct: 439400	Est Removal:	Est In Svc: 30 Nov 2020
<b>Description:</b> Replacement of plant tools to maintain reliable plant operation.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain plant reliability. These new tools and equipment will be used for maintenance, inspection and repair of plant equipment. Adding to the inventory of plant tools and diagnostic equipment increases maintenance efficiency and reduces equipment failures by improving and expanding the plant's monitoring and problem detection capabilities. The tools will be purchased, as required, by the plant throughout 2020.			
<b>Consequences of Delay:</b> Risk to unit reliability while waiting on replacement tools. The effect of waiting on tools while a replacement is procured may result in an extended duration of equipment out of service while being maintained.			
<b>Economic Justification:</b> Budget Category: NM PRG			

Cash Flow - 2020							
Jan	\$0	Apr	\$101,000	Jul	\$100,000	Oct	\$100,000
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2020	\$300,000	2021	\$0	After	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$285,000	
Removals	\$0	
(Salvage)	\$0	
Non-Itemized Additions	\$15,000	
Specific Cost	\$300,000	
Overhead Loads	\$0	
CBI Total	\$300,000	
Retirements	\$0	

Approvals			
		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$188,748	Date 1/8/20
NTEC	7.00%	\$20,972	Date 12/11/19
PNM	13.00%	\$38,948	Date
SRP	10.0%	\$29,960	Date
TEP	7.00%	\$20,972	Date

FCC08103 2020 Plant Tools							
Four Corners Participant Project		Rev FC20-71	0% Enviro.	NSR Completed: Yes		ERF Completed: Yes	
FC Units 4 & 5		CBI: FC20-71	Env Code: N/A	Est In Svc: 30 Nov 2020			
In 2020 Budget: No		Plant Acct: 439400	Est Removal:				
<b>Description:</b> Replacement of plant tools to maintain reliable plant operation.							
<b>Purpose/Necessity:</b> The purpose of this project is to maintain plant reliability. These new tools and equipment will be used for maintenance, inspection and repair of plant equipment. Adding to the inventory of plant tools and diagnostic equipment increases maintenance efficiency and reduces equipment failures by improving and expanding the plant's monitoring and problem detection capabilities. The tools will be purchased, as required, by the plant throughout 2020.							
<b>Consequences of Delay:</b> Risk to unit reliability while waiting on replacement tools. The effect of waiting on tools while a replacement is procured may result in an extended duration of equipment out of service while being maintained.							
<b>Economic Justification:</b>							
Budget Category:		NM PRG					
<b>Cash Flow - 2020</b>							
Jan	\$0	Apr	\$101,000	Jul	\$100,000	Oct	\$100,000
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	<b>\$0</b>	<b>2020</b>	<b>\$300,000</b>	<b>2021</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>
<b>Cost Summary</b>							
	<b>Current Amount</b>			<b>Revised Amount</b>			
RU Materials	\$285,000						
Removals	\$0						
(Salvage)	\$0						
Non-Itemized Additions	\$15,000						
Specific Cost	\$300,000						
Overhead Loads	\$0						
CBI Total	\$300,000						
Retirements	\$0						
<b>Approvals</b>							
				E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
APS	63.00%	\$188,748				Date	
NTEC	7.00%	\$20,972				Date	
PNM	13.00%	\$38,948				Date	12/9/19
SRP	10.0%	\$29,960				Date	
TEP	7.00%	\$20,972				Date	

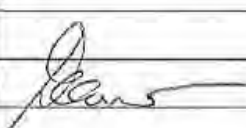


FCC08103 2020 Plant Tools			
Four Corners Participant Project	Rev FC20-71	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC20-71	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: No	Plant Acct: 439400	Est Removal:	Est In Svc: 30 Nov 2020
<b>Description:</b> Replacement of plant tools to maintain reliable plant operation.			
<b>Purpose/Necessity:</b> The purpose of this project is to maintain plant reliability. These new tools and equipment will be used for maintenance, inspection and repair of plant equipment. Adding to the inventory of plant tools and diagnostic equipment increases maintenance efficiency and reduces equipment failures by improving and expanding the plant's monitoring and problem detection capabilities. The tools will be purchased, as required, by the plant throughout 2020.			
<b>Consequences of Delay:</b> Risk to unit reliability while waiting on replacement tools. The effect of waiting on tools while a replacement is procured may result in an extended duration of equipment out of service while being maintained.			
<b>Economic Justification:</b>			
Budget Category: NM PRG			

Cash Flow - 2020							
Jan	\$0	Apr	\$101,000	Jul	\$100,000	Oct	\$100,000
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	\$0	<b>2020</b>	\$300,000	<b>2021</b>	\$0	<b>After</b>	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials	\$285,000	
Removals	\$0	
(Salvage)	\$0	
Non-Itemized Additions	\$15,000	
Specific Cost	\$300,000	
Overhead Loads	\$0	
<b>CBI Total</b>	<b>\$300,000</b>	
Retirements	\$0	

Approvals			
		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$188,748	Date
NTEC	7.00%	\$20,972	Date
PNM	13.00%	\$38,948	Date
SRP	10.0%	\$29,960	Date
TEP	7.00%	\$20,972	Date


 01-08-2020

FCC08103 2020 Plant Tools							
Four Corners Participant Project		Rev FC20-71	0% Enviro.		NSR Completed: Yes		
FC Units 4 & 5		CBI: FC20-71	Env Code: N/A		ERF Completed: Yes		
In 2020 Budget: No		Plant Acct: 439400	Est Removal:		Est In Svc: 30 Nov 2020		
<b>Description:</b> Replacement of plant tools to maintain reliable plant operation.							
<b>Purpose/Necessity:</b> The purpose of this project is to maintain plant reliability. These new tools and equipment will be used for maintenance, inspection and repair of plant equipment. Adding to the inventory of plant tools and diagnostic equipment increases maintenance efficiency and reduces equipment failures by improving and expanding the plant's monitoring and problem detection capabilities. The tools will be purchased, as required, by the plant throughout 2020.							
<b>Consequences of Delay:</b> Risk to unit reliability while waiting on replacement tools. The effect of waiting on tools while a replacement is procured may result in an extended duration of equipment out of service while being maintained.							
<b>Economic Justification:</b>							
Budget Category:		NM PRG					
<b>Cash Flow - 2020</b>							
Jan	\$0	Apr	\$101,000	Jul	\$100,000	Oct	\$100,000
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2020	\$300,000	2021	\$0	After	\$0
<b>Cost Summary</b>							
	Current Amount			Revised Amount			
RU Materials	\$285,000						
Removals	\$0						
(Salvage)	\$0						
Non-Itemized Additions	\$15,000						
Specific Cost	\$300,000						
Overhead Loads	\$0						
CBI Total	\$300,000						
Retirements	\$0						
<b>Approvals</b>							
		E&O Committee <input checked="" type="checkbox"/>			Coordinating Committee <input type="checkbox"/>		
APS	63.00%	\$188,748	Date				
NTEC	7.00%	\$20,972	Date				
PNM	13.00%	\$38,948	Date				
SRP	10.0%	\$29,960	Date				
TEP	7.00%	\$20,972	Date				
		<i>JRB</i>			1-7-20		

**FCC016427 Reversing Conveyor Platform Structure Replacement**

Four Corners Participant Project	Rev FC20-79	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC20-79	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: No	Plant Acct: 131100	Est Removal: 09 Jun 2020	Est In Svc: 31 Jul 2020

**Description:** Replace the reversing/transfer conveyor north platform and associated structural steel.

**Purpose/Necessity:** The purpose of this project is to maintain safe operation of the plant to protect personnel and equipment by maintaining compliance with OSHA 1910.22. The existing platform and supporting steel in the area has corroded significantly and poses a safety concern for personnel walking on it.

**Consequences of Delay:** Risk to plant personnel, non-compliance with OSHA 1910.22 "Subpart D Walking-Working Surfaces - General Requirements", and potential damage or loss of equipment due to failing structural members.

**Economic Justification:**

Budget Category: SAFETY

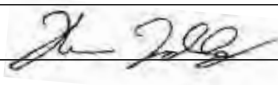
**Cash Flow - 2020**

Jan	\$0	Apr	\$43,000	Jul	\$121,000	Oct	\$8,000
Feb	\$0	May	\$85,000	Aug	\$72,000	Nov	\$13,000
Mar	\$0	Jun	\$107,000	Sep	\$9,000	Dec	\$4,000
<b>Prior</b>	<b>\$0</b>	<b>2020</b>	<b>\$462,000</b>	<b>2021</b>	<b>\$0</b>	<b>After</b>	<b>\$0</b>

**Cost Summary**

	<b>Current Amount</b>	<b>Revised Amount</b>
RU Materials	\$50,000	
Removals	\$50,000	
(Salvage)	\$0	
Non-Itemized Additions	\$344,000	
Specific Cost	\$444,000	
Overhead Loads	\$18,000	
<b>CBI Total</b>	<b>\$462,000</b>	
Retirements	\$0	

**Approvals**

		E&O Committee <input type="checkbox"/>		Coordinating Committee <input checked="" type="checkbox"/>	
APS	63.00%	\$291,023		Date	
NTEC	7.00%	\$32,336		Date	
PNM	13.00%	\$60,052		Date	04/08/2020
SRP	10.0%	\$46,194		Date	
TEP	7.00%	\$32,336		Date	

FCC016439 Supply Chain Optimization - FC Contract Mgmt License Fee 2020-2022			
Four Corners Participant Project	Rev FC20-80	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC20-80	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: No	Plant Acct: 430320	Est Removal:	Est In Svc: 01 Sep 2020

**Description:** Develop and implement a replacement for the Procurement and Warehousing System known as Materials Logistic Information System (MLIS).

**Purpose/Necessity:** This project is specific to the Contract Management Licensing Fee for years 2020 - 2022 associated with CBI FC20-38R1 FCC015707: Supply Chain Optimization System Development.

**Consequences of Delay:** Inability to close functionality gaps and continued inefficiencies and limitations with current SCM Platform.

**Economic Justification:**

Benefit-Cost NPV: Reference CBI FC20-38R1  
Budget Category: STRATEGIC

Cash Flow - 2020							
Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$150,000	Jun	\$0	Sep	\$0	Dec	\$0
Prior	\$0	2020	\$150,000	2021	\$27,000	After	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials		\$0
Removals		\$0
(Salvage)		\$0
Non-Itemized Additions		\$177,000
Specific Cost		\$177,000
Overhead Loads		\$0
CBI Total		\$177,000
Retirements		\$0

Approvals			
		F&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$111,422	Date
NTEC	7.00%	\$12,380	Date
PNM	13.00%	\$22,992	Date 4/8/20
SRP	10.0%	\$17,686	Date
TEP	7.00%	\$12,380	Date

FCC016440 Supply Chain Optimization - Contract Mgmt Implementation			
Four Corners Participant Project	Rev FC20-81	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC20-81	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: No	Plant Acct: 430320	Est Removal:	Est In Svc: 01 Sep 2020

**Description:** Develop and implement a replacement for the Procurement and Warehousing System known as Materials Logistic Information System (MLIS).

**Purpose/Necessity:** This project is specific to the Contract Management Implementation costs associated with CBI FC20-38R1 FCC015707: Supply Chain Optimization System Development.

**Consequences of Delay:** Inability to close functionality gaps and continued inefficiencies and limitations with current SCM Platform.

**Economic Justification:**

Benefit-Cost NPV: Reference CBI FC20-38R1  
Budget Category: STRATEGIC

Cash Flow - 2020							
Jan	\$0	Apr	\$1,000	Jul	\$0	Oct	\$7,000
Feb	\$0	May	\$4,000	Aug	\$0	Nov	\$1,000
Mar	\$30,000	Jun	\$4,000	Sep	\$1,000	Dec	\$1,000
<b>Prior</b>	\$0	<b>2020</b>	\$50,000	<b>2021</b>	\$27,000	<b>After</b>	\$0

Cost Summary		
	Current Amount	Revised Amount
RU Materials		\$77,000
Removals		\$0
(Salvage)		\$0
Non-Itemized Additions		\$0
Specific Cost		\$77,000
Overhead Loads		\$0
CBI Total		\$77,000
Retirements		\$0

Approvals			
		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$48,472	Date
NTEC	7.00%	\$5,386	Date
PNM	13.00%	\$10,002	Date <i>4/8/20</i>
SRP	10.0%	\$7,694	Date
TEP	7.00%	\$5,386	Date

**FCC016807 Condenser Expansion Joint Replacement**

Four Corners Participant Project	Rev FC20-87	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC20-87	Env Code: N/A	ERF Completed: Yes
In 2020 Budget: No	Plant Acct: 131400	Est Removal: 01 Apr 2021	Est In Svc: 25 Apr 2021

**Description:** Replace the LPA and LPB condenser expansion joints.

**Purpose/Necessity:** The purpose of this project is to maintain unit reliability. The existing expansion joints are original equipment (50 years old) and reached the end of useful life. Helium testing indicates expansion joints are causing air in-leakage and reduced plant performance and water quality.

**Consequences of Delay:** Increase in plant heat rate and corresponding operational costs.

**Economic Justification:**

Benefit-Cost NPV: 22.20 M\$  
 Budget Category: REL

**Cash Flow - 2020**

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$25,000
Feb	\$0	May	\$0	Aug	\$0	Nov	\$25,000
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	\$0	<b>2020</b>	\$50,000	<b>2021</b>	\$700,000	<b>After</b>	\$0

**Cost Summary**

	<b>Current Amount</b>	<b>Revised Amount</b>
RU Materials	\$100,000	
Removals	\$25,000	
(Salvage)	\$0	
Non-Itemized Additions	\$625,000	
Specific Cost	\$750,000	
Overhead Loads	\$0	
<b>CBI Total</b>	<b>\$750,000</b>	
Retirements	\$0	

**Approvals**

		E&O Committee <input type="checkbox"/>	Coordinating Committee <input checked="" type="checkbox"/>
APS	63.00%	\$472,500	Date
NTEC	7.00%	\$52,500	Date
PNM	13.00%	\$97,500	Date
SRP	10.0%	\$75,000	Date
TEP	7.00%	\$52,500	Date

**FCC012910 Miscellaneous Lagging & Insulation Replacement - 2021**

Four Corners Participant Project	Rev FC21-01	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC21-01	Env Code: N/A	ERF Completed: Yes
In 2021 Budget: Yes	Plant Acct: 131600	Est Removal:	Est In Svc: 07 Dec 2021

**Description:** Replace miscellaneous lagging and insulation meeting RUC requirement for sections costing \$50k and above.

**Purpose/Necessity:** The purpose of this project is to maintain a safe plant work environment by eliminating potential hazards. These replacements are intended to reduce the hazards that exist when lagging and insulation are loose or deteriorating and therefore not maintaining surface temperature requirements, creating potential unsafe conditions for plant personnel and equipment.

**Consequences of Delay:** If not replaced, personnel may come in contact with hot surfaces or may be struck by falling debris.

**Economic Justification:**

Budget Category: SAFETY

**Cash Flow - 2021**

Jan	\$0	Apr	\$100,000	Jul	\$100,000	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$100,000	Dec	\$0
<b>Prior</b>	\$0	<b>2021</b>	\$300,000	<b>2022</b>	\$0	<b>After</b>	\$0

**Cost Summary**

	<b>Current Amount</b>	<b>Revised Amount</b>
RU Materials	\$70,000	
Removals	\$50,000	
(Salvage)	\$0	
Non-Itemized Additions	\$180,000	
Specific Cost	\$300,000	
Overhead Loads	\$0	
<b>CBI Total</b>	<b>\$300,000</b>	
Retirements	\$0	

**Approvals**

		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$189,000	Date
NTEC	7.00%	\$21,000	Date
PNM	13.00%	\$39,000	Date
SRP	10.0%	\$30,000	Date
TEP	7.00%	\$21,000	Date

## FCC012910 F4 Miscellaneous Lagging & Insulation Replacement, CBI 21-01

### Description

The purpose of this project is to maintain a safe plant work environment by eliminating potential hazards. These replacements are intended to reduce the hazards that exist when lagging and insulation are loose or deteriorating and therefore not maintaining surface temperature requirements, creating potential unsafe conditions for plant personnel and equipment.

### Scope

- Test insulation for asbestos.
- Submit NESHAP notification.
- Coordinate work plan with other contractors scheduled to work in the same area.
- Erect scaffolding as needed to access areas of work.
- Clean working areas of fly ash.
- Remove insulation and lagging in areas identified for replacement including disposal.
- Install new insulation and lagging including replacement of any damaged standoffs.
- Remove scaffolding.

### Exclusions

No repairs to underlying ducts or structure.  
Scaffolding and lighting for internal duct inspection will be O&M.  
No IFC package is required.  
No engineered equipment is required.  
No as-built drawings will be required.  
No CIP considerations.

### Constraints

Space for lifting equipment could be limited. Coordination with other Suppliers schedule to work in the same vicinity is required.  
Coordination required with O&M schedule of work to repair any leaks identified.  
Safety precaution required for potential ash buildup becoming dislodged during demolition.  
Submittal of NESHAP notification form is required.  
All spend shall be complete by September 30, 2021.

### Assumptions

No ESP services are required or budgeted.  
POM exclusions will be obtained for IFC Package and Equipment Delivery.  
APS will direct-hire a specialty contractor to remove flyash from work area prior to removal of lagging and insulation.  
APS will test for asbestos prior to start of outage.  
More than 160 square feet of insulation will be disturbed so a NESHAP notification is required.



**FCC012911 Miscellaneous Lagging & Insulation Replacement - 2021**

Four Corners Participant Project	Rev FC21-02	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC21-02	Env Code: N/A	ERF Completed: Yes
In 2021 Budget: Yes	Plant Acct: 131600	Est Removal:	Est In Svc: 07 Dec 2021

**Description:** Replace miscellaneous lagging and insulation meeting RUC requirement for sections costing \$50K and above.

**Purpose/Necessity:** The purpose of this project is to maintain a safe plant work environment by eliminating potential hazards. These replacements are intended to reduce the hazards that exist when lagging and insulation are loose or deteriorating and therefore not maintaining surface temperature requirements, creating potential unsafe conditions for plant personnel and equipment

**Consequences of Delay:** If not replaced, personnel may come in contact with hot surfaces or may be struck by falling debris.

**Economic Justification:**

Budget Category: SAFETY

**Cash Flow - 2021**

Jan	\$0	Apr	\$100,000	Jul	\$100,000	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$100,000	Dec	\$0
<b>Prior</b>	\$0	<b>2021</b>	\$300,000	<b>2022</b>	\$0	<b>After</b>	\$0

**Cost Summary**

	<b>Current Amount</b>	<b>Revised Amount</b>
RU Materials	\$70,000	
Removals	\$50,000	
(Salvage)	\$0	
Non-Itemized Additions	\$180,000	
Specific Cost	\$300,000	
Overhead Loads	\$0	
<b>CBI Total</b>	<b>\$300,000</b>	
Retirements	\$0	

**Approvals**

		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$189,000	Date
NTEC	7.00%	\$21,000	Date
PNM	13.00%	\$39,000	Date
SRP	10.0%	\$30,000	Date
TEP	7.00%	\$21,000	Date

**FCC012911 F5 Miscellaneous Lagging & Insulation Replacement, CBI 21-02**

**Description**

The purpose of this project is to maintain a safe plant work environment by eliminating potential hazards. These replacements are intended to reduce the hazards that exist when lagging and insulation are loose or deteriorating and therefore not maintaining surface temperature requirements, creating potential unsafe conditions for plant personnel and equipment.

**Scope**

- Test insulation for asbestos.
- Submit NESHAP notification.
- Coordinate work plan with other contractors scheduled to work in the same area.
- Erect scaffolding as needed to access areas of work.
- Clean working areas of fly ash.
- Remove insulation and lagging in areas identified for replacement including disposal.
- Install new insulation and lagging including replacement of any damaged standoffs.
- Remove scaffolding.

**Exclusions**

No repairs to underlying ducts or structure.  
Scaffolding and lighting for internal duct inspection will be O&M.  
No IFC package is required.  
No engineered equipment is required.  
No as-built drawings will be required.  
No CIP considerations.

**Constraints**

Space for lifting equipment could be limited. Coordination with other Suppliers schedule to work in the same vicinity is required.  
Coordination required with O&M schedule of work to repair any leaks identified.  
Safety precaution required for potential ash buildup becoming dislodged during demolition.  
Submittal of NESHAP notification form is required.  
All spend shall be complete by September 30, 2021.

**Assumptions**

No ESP services are required or budgeted.  
POM exclusions will be obtained for IFC Package and Equipment Delivery.  
APS will direct-hire a specialty contractor to remove flyash from work area prior to removal of lagging and insulation.  
APS will test for asbestos prior to start of outage.  
More than 160 square feet of insulation will be disturbed so a NESHAP notification is required.

**FCC015124 FC Electrical Systems - 2021**

Four Corners Participant Project	Rev FC21-03	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC21-03	Env Code: N/A	ERF Completed: Yes
In 2021 Budget: Yes	Plant Acct: 131500	Est Removal:	Est In Svc: 07 Dec 2021

**Description:** Replacement of miscellaneous electrical equipment that meet capital requirements outlined in the RUC.

**Purpose/Necessity:** The purpose of this project is to maintain plant reliability. Capital funds will be used for purchase and installation of new electrical equipment as failures or immediate need occurs throughout the 2021 calendar year

**Consequences of Delay:** The effect of losing electrical equipment while replacements are procured may result in an extended unit derate and/or unit outage of indeterminate duration while an immediate work around is found. Negative impact to plant reliability due to time required to obtain approvals for break-in projects.

**Economic Justification:**

Budget Category: NM PRG

**Cash Flow - 2021**

Jan	\$0	Apr	\$0	Jul	\$317,000	Oct	\$0
Feb	\$0	May	\$317,000	Aug	\$0	Nov	\$317,000
Mar	\$317,000	Jun	\$0	Sep	\$317,000	Dec	\$0
<b>Prior</b>	\$0	<b>2021</b>	\$1,587,000	<b>2022</b>	\$0	<b>After</b>	\$0

**Cost Summary**

	<b>Current Amount</b>	<b>Revised Amount</b>
RU Materials	\$20,000	
Removals	\$5,000	
(Salvage)	\$0	
Non-Itemized Additions	\$1,562,000	
Specific Cost	\$1,587,000	
Overhead Loads	\$0	
<b>CBI Total</b>	<b>\$1,587,000</b>	
Retirements	\$0	

**Approvals**

			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$999,810		Date
NTEC	7.00%	\$111,090		Date
PNM	13.00%	\$206,310		Date
SRP	10.0%	\$158,700		Date
TEP	7.00%	\$111,090		Date

**FCC015124 F45 FC Electrical Systems, CBI 21-03**

**Description**

The purpose of this project is to maintain plant reliability. Capital funds will be used for purchase and installation of new electrical equipment as failures or immediate need occurs throughout the 2021 calendar year.

**Scope**

Purchase of new capital electrical equipment. Removal of existing electrical equipment. Installation of new electrical equipment. Required labor and miscellaneous parts required for removal and installation. Electrical equipment must meet capital RUC criteria.

**Exclusions**

Purchase of spare electrical equipment.

CIP Considerations.

Engineering support from ESP cannot be charged to this Collector. If ESP is required a discrete project shall be required.

POM exclusions for IFC and Equipment Delivery do not apply to this collector.

**Constraints**

The Project Information Sheet shall be completed by the Plant for each piece of equipment replaced under this Collector.

Asset unitization will be provided for each piece of equipment replaced under this Collector.

**Assumptions**

No ESP services required or budgeted.

Capital project management will be notified in advance of purchasing/installing electrical equipment covered under this project to allow for timely forecast adjustments.

**FCC015134 Water Systems/Membranes Program - 2021**

Four Corners Participant Project	Rev FC21-04	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC21-04	Env Code: N/A	ERF Completed: Yes
In 2021 Budget: Yes	Plant Acct: 131600	Est Removal:	Est In Svc: 07 Dec 2021

**Description:** Replacement of water systems and membranes that meet capital requirements outlined in the RUC.

**Purpose/Necessity:** The purpose of this project is to maintain plant reliability. Capital funds will be used for purchase and installation of new capital water systems/membranes as failures or immediate need occurs throughout the 2021 calendar year.

**Consequences of Delay:** The effect of losing water systems and membranes while a replacement is procured may result in an extended unit derate and/or unit outage of indeterminate duration while an immediate work around is found. Negative impact to plant reliability due to time required to obtain approvals for break-in projects.

**Economic Justification:**

Budget Category: NM PRG

**Cash Flow - 2021**

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$88,000	Jun	\$88,000	Sep	\$88,000	Dec	\$88,000
<b>Prior</b>	\$0	<b>2021</b>	\$350,000	<b>2022</b>	\$0	<b>After</b>	\$0

**Cost Summary**

	<b>Current Amount</b>	<b>Revised Amount</b>
RU Materials	\$10,000	
Removals	\$5,000	
(Salvage)	\$0	
Non-Itemized Additions	\$335,000	
Specific Cost	\$350,000	
Overhead Loads	\$0	
<b>CBI Total</b>	<b>\$350,000</b>	
Retirements	\$0	

**Approvals**

			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$220,500		Date
NTEC	7.00%	\$24,500		Date
PNM	13.00%	\$45,500		Date
SRP	10.0%	\$35,000		Date
TEP	7.00%	\$24,500		Date

**FCC015134 F45 Water Systems/Membranes Program - 2021, CBI 21-04**

**Description**

The purpose of this project is to maintain plant reliability. Capital funds will be used for purchase and installation of new capital water systems/membranes as failures or immediate need occurs throughout the 2021 calendar year.

**Scope**

Purchase of new capital water systems and membranes. Removal of existing water systems and membranes. Installation of new water systems and membranes. Required labor and miscellaneous parts required for removal and installation. Water systems and membranes must meet capital RUC criteria.

**Exclusions**

Purchase of spare water systems and membranes.

CIP Considerations.

Engineering support from ESP cannot be charged to this Collector. If ESP is required a discrete project shall be required.

POM compliance for IFC and Equipment Delivery does not apply to this collector.

**Constraints**

The Project Information Sheet shall be completed by the Plant for each piece of equipment replaced under this Collector.

Asset unitization information will be provided for each piece of equipment replaced under this Collector.

**Assumptions**

No ESP services required or budgeted.

Capital project management will be notified in advance of purchasing/installing motors, pumps, and valves covered under this project to allow for timely forecast adjustments.

**FCC015144 Motors, Pumps and Valves - 2021**

Four Corners Participant Project	Rev FC21-05	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC21-05	Env Code: N/A	ERF Completed: Yes
In 2021 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 07 Dec 2021

**Description:** Replacement of motors, pumps, and valves that meet capital requirements outlined in the RUC.

**Purpose/Necessity:** The purpose of this project is to maintain plant reliability. Capital funds will be used for purchase and replacement of motors, pumps, and valves as failures or immediate need occurs throughout the 2021 calendar year.

**Consequences of Delay:** The effect of losing a motor, pump, or valve while replacement is procured may result in an extended unit derate and/or unit outage of indeterminate duration while an immediate work around is found. Negative impact to plant reliability due to time required to obtain approvals for break-in projects.

**Economic Justification:**

Budget Category: NM PRG

**Cash Flow - 2021**

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$1,588,000	Jun	\$1,588,000	Sep	\$1,588,000	Dec	\$1,587,000
<b>Prior</b>	\$0	<b>2021</b>	\$6,350,000	<b>2022</b>	\$0	<b>After</b>	\$0

**Cost Summary**

	<b>Current Amount</b>	<b>Revised Amount</b>
RU Materials	\$50,000	
Removals	\$10,000	
(Salvage)	\$0	
Non-Itemized Additions	\$6,290,000	
Specific Cost	\$6,350,000	
Overhead Loads	\$0	
<b>CBI Total</b>	<b>\$6,350,000</b>	
Retirements	\$0	

**Approvals**

			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$4,000,185		Date
NTEC	7.00%	\$444,465		Date
PNM	13.00%	\$825,435		Date
SRP	10.0%	\$634,950		Date
TEP	7.00%	\$444,465		Date

**FCC015144 F45 Motors, Pumps and Valves - 2021, CBI 21-05**

**Description**

The purpose of this project is to maintain plant reliability. Capital funds will be used for purchase and replacement of motors, pumps, and valves as failures or immediate need occurs throughout the 2021 calendar year.

**Scope**

Purchase of new capital motors, pumps, and valves. Removal of existing motors, pumps, and valves. Installation of new motors, pumps, and valves. Required labor and miscellaneous parts required for removal and installation. Motors, pumps, and valves must meet capital RUC criteria.

**Exclusions**

Purchase of spare motors, pumps, or valves.

CIP considerations.

Engineering support from ESP cannot be charged to this collector. If ESP services are required a discrete project shall be required.

POM compliance for IFC and Equipment Delivery does not apply to this collector.

**Constraints**

The Project Information Sheet shall be completed by the Plant for each piece of equipment replaced under this collector.

Asset unitization will be provided for each piece of equipment replaced under this collector.

**Assumptions**

No ESP services required or budgeted.

Capital project management will be notified in advance of purchasing/installing motors, pumps, and valves covered under this project to allow for timely forecast adjustments.



**FCC015384 Coal Handling Replacements - 2021**

Four Corners Participant Project	Rev FC21-06	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC21-06	Env Code: N/A	ERF Completed: Yes
In 2021 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 07 Dec 2021

**Description:** Replacement of miscellaneous coal handling and pulverizer equipment that meet capital requirements outlined in the RUC.

**Purpose/Necessity:** The purpose of this project is to maintain plant reliability. Capital funds will be used for purchase and installation of new coal handling and pulverizer equipment as failures or immediate need occurs throughout the 2021 calendar year.

**Consequences of Delay:** The effect of losing coal handling or pulverizer equipment may result in an extended unit derate and/or unit out of service for an indeterminate duration while an immediate work around is found. Negative impact to plant reliability due to time required to obtain approvals for break-in projects.

**Economic Justification:**

Budget Category: NM PRG

**Cash Flow - 2021**

Jan	\$0	Apr	\$150,000	Jul	\$0	Oct	\$0
Feb	\$105,000	May	\$0	Aug	\$0	Nov	\$0
Mar	\$150,000	Jun	\$75,000	Sep	\$75,000	Dec	\$0
<b>Prior</b>	\$0	<b>2021</b>	\$555,000	<b>2022</b>	\$0	<b>After</b>	\$0

**Cost Summary**

	<b>Current Amount</b>	<b>Revised Amount</b>
RU Materials	\$250,000	
Removals	\$50,000	
(Salvage)	\$0	
Non-Itemized Additions	\$255,000	
Specific Cost	\$555,000	
Overhead Loads	\$0	
<b>CBI Total</b>	<b>\$555,000</b>	
Retirements	\$0	

**Approvals**

			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$349,650		Date
NTEC	7.00%	\$38,850		Date
PNM	13.00%	\$72,150		Date
SRP	10.0%	\$55,500		Date
TEP	7.00%	\$38,850		Date

**FCC015384 F45 Coal Handling Replacements - 2021, CBI 21-06**

**Description**

The purpose of this project is to maintain plant reliability. Capital funds will be used for purchase and installation of new coal handling and pulverizer equipment as failures or immediate need occurs throughout the 2021 calendar year.

**Scope**

Purchase of new capital coal handling or pulverizer equipment. Removal of existing coal handling or pulverizer equipment. Installation of new coal handling or pulverizer equipment. Required labor and miscellaneous parts required for removal and installation. Coal handling and pulverizer equipment must meet capital RUC criteria.

**Exclusions**

Purchase of spare coal handling or pulverizer equipment.

Engineering support from ESP cannot be charged to this collector. If ESP services are required a discrete project shall be required.

POM compliance for IFC and Equipment Delivery does not apply to this collector.

**Constraints**

The Project Information Sheet shall be completed by the Plant for each piece of equipment replaced under this collector.

Asset unitization will be provided for each piece of equipment replaced under this collector.

**Assumptions**

No ESP services required or budgeted.

Capital project management will be notified in advance of purchasing/installing electrical equipment covered under this project to allow for timely forecast adjustments.

**FCC016078 Pulverizer Grinding Zone and Gear Drive Replacements - 2021**

Four Corners Participant Project	Rev FC21-07	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC21-07	Env Code: N/A	ERF Completed: Yes
In 2021 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 07 Dec 2021

**Description:** Replacement of pulverizer and gear drive components that meet capital requirements outlined in the RUC.

**Purpose/Necessity:** The purpose of this project is to maintain full load unit reliability. Capital funds will be used for purchase and installation of new pulverizer components and gear drive components as failures or immediate need occurs throughout the 2021 calendar year.

**Consequences of Delay:** Potential extended unit de-rate or curtailment due to the loss of a redundant mill.

**Economic Justification:**

Budget Category: NM PRG

**Cash Flow - 2021**

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$875,000	Jun	\$875,000	Sep	\$875,000	Dec	\$875,000
<b>Prior</b>	\$0	<b>2021</b>	\$3,500,000	<b>2022</b>	\$0	<b>After</b>	\$0

**Cost Summary**

	<b>Current Amount</b>	<b>Revised Amount</b>
RU Materials	\$600,000	
Removals	\$5,000	
(Salvage)	\$0	
Non-Itemized Additions	\$2,895,000	
Specific Cost	\$3,500,000	
Overhead Loads	\$0	
<b>CBI Total</b>	<b>\$3,500,000</b>	
Retirements	\$0	

**Approvals**

			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$2,205,000		Date
NTEC	7.00%	\$245,000		Date
PNM	13.00%	\$455,000		Date
SRP	10.0%	\$350,000		Date
TEP	7.00%	\$245,000		Date

**FCC016078 F45 Pulverizer Grinding Zone and Gear Drive Replacements - 2021, CBI 21-07**

**Description**

The purpose of this project is to maintain full load unit reliability. Capital funds will be used for purchase and installation of new pulverizer components and gear drive components as failures or immediate need occurs throughout the 2021 calendar year.

**Scope**

Purchase of new pulverizer and gear drive components. Removal of existing pulverizer and gear drive components. Required labor and miscellaneous parts required for removal and installation. Pulverizer and gear drive components must meet capital RUC criteria.

**Exclusions**

Purchase of pulverizer and gear drive components. Required materials managed by the Plant through the Assured Stock Program with B&W.

CIP considerations.

Engineering support from ESP cannot be charged to this Collector. If ESP is required a discrete project shall be required.

Motor replacements will be covered under FCC015144 Motors, Pumps, & Valves - 2021.

POM compliance for IFC and Equipment Delivery does not apply to this collector.

**Constraints**

The Project Information Sheet shall be completed by the Plant for each piece replacement under this Collector.

Asset unitization will be provided for each piece of equipment replaced under this Collector.

**Assumptions**

No ESP services required or budgeted.

Installation and labor costs will be based on the existing Pulverizer PO with the MMC.

Capital project management will be notified in advance of purchasing/installing pulverizer and gear drive components covered under this project to allow for timely forecast adjustments.

**FCC07210 2021 Fabric Filter Bag Replacement**

Four Corners Participant Project	Rev FC21-08	100% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC21-08	Env Code: Air	ERF Completed: Yes
In 2021 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 31 May 2021

**Description:** Replace all fabric filter bags housed in eight (8) compartments of the Reverse Air Fabric Filter.

**Purpose/Necessity:** The purpose of this project is to ensure continued environmental compliance while maintaining unit operational performance. The fabric filter bags are approaching the end of their serviceable life and require replacement to ensure continued high efficiency particulate dust capture and removal, and maintain compliance with the PM standard defined in the Plant's Title V Permit.

**Consequences of Delay:** Non-compliance with the PM standard defined in the Plant's Title V Permit, will result in a Unit de-rate and eventual Unit shutdown.

**Economic Justification:**

Budget Category: ENV

**Cash Flow - 2021**

Jan	\$3,000	Apr	\$392,000	Jul	\$3,000	Oct	\$0
Feb	\$217,000	May	\$149,000	Aug	\$3,000	Nov	\$0
Mar	\$398,000	Jun	\$3,000	Sep	\$0	Dec	\$0
<b>Prior</b>	\$0	<b>2021</b>	\$1,170,000	<b>2022</b>	\$0	<b>After</b>	\$0

**Cost Summary**

	<b>Current Amount</b>	<b>Revised Amount</b>
RU Materials	\$445,000	
Removals	\$100,000	
(Salvage)	\$0	
Non-Itemized Additions	\$625,000	
Specific Cost	\$1,170,000	
Overhead Loads	\$0	
<b>CBI Total</b>	<b>\$1,170,000</b>	
Retirements	\$0	

**Approvals**

			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$737,198		Date
NTEC	7.00%	\$81,911		Date
PNM	13.00%	\$152,120		Date
SRP	10.0%	\$117,016		Date
TEP	7.00%	\$81,911		Date

**FCC07210 F4 2021 Fabric Filter Bag Replacement, CBI 21-08**

**Description**

The purpose of this project is to ensure continued environmental compliance while maintaining unit operational performance. The fabric filter bags are approaching the end of their serviceable life and require replacement to ensure continued high efficiency particulate dust capture and removal and maintain compliance with the PM standard defined in the Plant's Title V Permit.

**Scope**

Obtain compartment and airlock LOTO.

Replace all bags in each of the following eight (8) compartments: TBD.

Inspect box beams wall attachment points. Build temporary scaffolds if beams are broken. Repair as required. – O&M

Inspect vent headers and identify leaks.

Vacuum walkway isles as required for safe access.

Cut and lower bags one at a time into garbage bags.

Remove cut bags and caps from the thimbles.

Remove old bars, springs, washers, and pins. Save the pins and washers for reuse.

Repair or replace thimbles as required.

Replace door gasket on all 6 doors.

Install new bars and springs.

Install bags

Install 4" port in hopper inlet (where directed by Owner) with 4" cap.

Vacuum out fly ash hopper.

Install Neutralite. 52 bags per compartment. Contractor to order Neutralite (is not a stock item in the warehouse).

**Exclusions**

Bypass damper work

NDE inspections will be conducted by the System Health Team.

If Teflon Bags are installed, Neutralite is not required.

**Constraints**

Coordinating w/ plant operations to take compartments out-of-service.

Confirm that hopper and tube sheet wash down is suitable while unit is online.

No bag replacement activities can occur during the summer runtime season (June 1 - September 15).

Material procurement must occur in the prior calendar year. Materials will be pulled from warehouse.

**Assumptions**

Listed as non-outage, so bags are replaced on-line, one compartment at a time.

Ventilation & monitoring of off-line compartment to be provided by Contractor.

Air locks will be replaced from plant inventory (not a RU).

**FCC07211 2021 Fabric Filter Bag Replacement**

Four Corners Participant Project	Rev FC21-09	100% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC21-09	Env Code: Air	ERF Completed: Yes
In 2021 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 31 May 2021

**Description:** Replace all fabric filter bags housed in eight (8) compartments of the Reverse Air Fabric Filter.

**Purpose/Necessity:** The purpose of this project is to ensure continued environmental compliance while maintaining unit operational performance. The fabric filter bags are approaching the end of their serviceable life and require replacement to ensure continued high efficiency particulate dust capture and removal, and maintain compliance with the PM standard defined in the Plant's Title V Permit.

**Consequences of Delay:** Non-compliance with the PM standard defined in the Plant's Title V Permit, will result in a Unit de-rate and eventual Unit shutdown.

**Economic Justification:**

Budget Category: ENV

**Cash Flow - 2021**

Jan	\$3,000	Apr	\$392,000	Jul	\$3,000	Oct	\$0
Feb	\$217,000	May	\$149,000	Aug	\$3,000	Nov	\$0
Mar	\$398,000	Jun	\$3,000	Sep	\$0	Dec	\$0
<b>Prior</b>	\$0	<b>2021</b>	\$1,170,000	<b>2022</b>	\$0	<b>After</b>	\$0

**Cost Summary**

	<b>Current Amount</b>	<b>Revised Amount</b>
RU Materials	\$445,000	
Removals	\$100,000	
(Salvage)	\$0	
Non-Itemized Additions	\$625,000	
Specific Cost	\$1,170,000	
Overhead Loads	\$0	
<b>CBI Total</b>	<b>\$1,170,000</b>	
Retirements	\$0	

**Approvals**

		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$737,198		Date
NTEC	7.00%	\$81,911		Date
PNM	13.00%	\$152,120		Date
SRP	10.0%	\$117,016		Date
TEP	7.00%	\$81,911		Date

**FCC07211 F5 2021 Fabric Filter Bag Replacement, CBI 21-09**

**Description**

The purpose of this project is to ensure continued environmental compliance while maintaining unit operational performance. The fabric filter bags are approaching the end of their serviceable life and require replacement to ensure continued high efficiency particulate dust capture and removal and maintain compliance with the PM standard defined in the Plant's Title V Permit.

**Scope**

Obtain compartment and airlock LOTO.  
Replace all bags in each of the following eight (8) compartments: TBD.  
Inspect box beams wall attachment points. Build temporary scaffolds if beams are broken. Repair as required. – O&M  
Inspect vent headers and identify leaks.  
Vacuum walkway isles as required for safe access.  
Cut and lower bags one at a time into garbage bags.  
Remove cut bags and caps from the thimbles.  
Remove old bars, springs, washers, and pins. Save the pins and washers for reuse.  
Repair or replace thimbles as required.  
Replace door gasket on all 6 doors.  
Install new bars and springs.  
Install bags  
Install 4" port in hopper inlet (where directed by Owner) with 4" cap.  
Vacuum out fly ash hopper.  
Install Neutralite. 52 bags per compartment. Contractor to order Neutralite (is not a stock item in the warehouse).

**Exclusions**

Bypass damper work  
NDE inspections will be conducted by the System Health Team.  
If Teflon Bags are installed, Neutralite is not required.

**Constraints**

Coordinating w/ plant operations to take compartments out-of-service.  
Confirm that hopper and tube sheet wash down is suitable while unit is online.  
No bag replacement activities can occur during the summer runtime season (June 1 - September 15).  
Material procurement must occur in the prior calendar year. Materials will be pulled from warehouse.

**Assumptions**

Listed as non-outage, so bags are replaced on-line, one compartment at a time.  
Ventilation & monitoring of off-line compartment to be provided by Contractor.  
Air locks will be replaced from plant inventory (not a RU).



**FCC08232 2021 Plant Tools**

Four Corners Participant Project	Rev FC21-10	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC21-10	Env Code: N/A	ERF Completed: Yes
In 2021 Budget: Yes	Plant Acct: 439400	Est Removal:	Est In Svc: 30 Nov 2021

**Description:** Replace plant tools.

**Purpose/Necessity:** The purpose of this project is to ensure plant reliability through safe and effective use of tools in the monitoring, maintenance, inspection, and repair of plant equipment. Adding to the inventory of plant tools and diagnostic equipment allows for the replacement of tools that have reached the end of their serviceable life, improvement in maintenance efficiency, and a reduction in equipment failures, through effective monitoring and problem detection capabilities. The tools will be purchased, as required, by the plant throughout 2021.

**Consequences of Delay:** The degradation of maintenance effectiveness and quality in the servicing of plant equipment impacting Unit reliability and availability.

**Economic Justification:**

Budget Category: NM PRG

**Cash Flow - 2021**

Jan	\$0	Apr	\$101,000	Jul	\$100,000	Oct	\$100,000
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	\$0	<b>2021</b>	\$300,000	<b>2022</b>	\$0	<b>After</b>	\$0

**Cost Summary**

	<b>Current Amount</b>	<b>Revised Amount</b>
RU Materials	\$285,000	
Removals	\$0	
(Salvage)	\$0	
Non-Itemized Additions	\$15,000	
Specific Cost	\$300,000	
Overhead Loads	\$0	
<b>CBI Total</b>	<b>\$300,000</b>	
Retirements	\$0	

**Approvals**

		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$188,748		Date
NTEC	7.00%	\$20,972		Date
PNM	13.00%	\$38,948		Date
SRP	10.0%	\$29,960		Date
TEP	7.00%	\$20,972		Date

**FCC08232 F45 2021 Plant Tools, CBI 21-10**

**Description**

The purpose of this project is to ensure plant reliability through safe and effective use of tools in the monitoring, maintenance, inspection, and repair of plant equipment. Adding to the inventory of plant tools and diagnostic equipment allows for the replacement of tools that have reached the end of their serviceable life, improvement in maintenance efficiency, and a reduction in equipment failures, through effective monitoring and problem detection capabilities. The tools will be purchased, as required, by the plant throughout 2021.

**Scope**

Purchase of new tools and equipment to be used for the monitoring, maintenance, inspection and repair of plant equipment. Tools must meet capital RUC criteria and have a replacement value of \$1,000 or greater.

**Exclusions**

Tools required for specific capital project installations.

**Constraints**

All POs for tools shall be issued by September 30, 2021 for delivery in 2021.

**Assumptions**

All purchases will be made using APS labor.

No ESP design services required.

POM exclusion will be approved for Equipment Delivery as equipment procurement will be on an as-needed basis.

POM exclusion will be approved for IFC Package as it will not follow a planned design, procure, construct schedule.

Tools meet capital RUC criteria and have a replacement value of \$1,000 or greater.

**FCC08407 2022 CBI Development**

Four Corners Participant Project	Rev FC21-11	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC21-11	Env Code: N/A	ERF Completed: Yes
In 2021 Budget: No	Plant Acct: 131200	Est Removal:	Est In Svc: 31 Dec 2021

**Description:** Fund the 2022 Four Corners Capital Budget Items (CBIs) project development.

**Purpose/Necessity:** The purpose of this project is to provide funding in 2021 for the CBI development of 2022 Four Corners CBI projects, thereby enabling the capitalization of initial project development costs in the year that the costs occur and discretely to the 2022 projects identified for development.

**Consequences of Delay:** If funding is not approved, CBI development effort will be charged to APS capital overhead, increasing the capital overhead costs to all FC projects, and not discretely to the FC projects to which the cost is incurred.

**Economic Justification:**

Budget Category: STRATEGIC

**Cash Flow - 2021**

Jan	\$86,000	Apr	\$227,000	Jul	\$34,000	Oct	\$30,000
Feb	\$227,000	May	\$167,000	Aug	\$32,000	Nov	\$13,000
Mar	\$225,000	Jun	\$86,000	Sep	\$32,000	Dec	\$13,000
<b>Prior</b>	\$0	<b>2021</b>	\$1,174,000	<b>2022</b>	\$0	<b>After</b>	\$0

**Cost Summary**

	<b>Current Amount</b>	<b>Revised Amount</b>
RU Materials	\$0	
Removals	\$0	
(Salvage)	\$0	
Non-Itemized Additions	\$1,150,000	
Specific Cost	\$1,150,000	
Overhead Loads	\$23,000	
<b>CBI Total</b>	<b>\$1,174,000</b>	
Retirements	\$0	

**Approvals**

		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$739,476	Date
NTEC	7.00%	\$82,164	Date
PNM	13.00%	\$152,590	Date
SRP	10.0%	\$117,377	Date
TEP	7.00%	\$82,164	Date

**FCC08407 2022 CBI Development, CBI 21-11**

**Description**

The purpose of this project is provide funding in 2021 for the CBI development of 2022 Four Corners CBI projects, thereby enabling the capitalization of initial project development costs in the year that the costs occur and discretely to the 2022 projects identified for development.

**Scope**

All costs under this CBI will be billed against this CBI in 2021 and then redistributed to all approved 2022 CBIs & reflected as 2021 expenditures.

OE services for WA development, which will include project preliminary engineering, typical of Phase 2 project evolution by ESP, ESP project management, scheduling updates and services. Project control change management services, assist in project file and documentation management, administrative support, EPMS/PDS support services, project meeting schedules and coordination.

**Exclusions**

Detailed design, development of equipment and installation specifications, procurement of equipment, signing of construction contracts, and the as-built of drawings to site conditions.

**Constraints**

A CBI Development effort is limited to determining the project scope of services and project scope of work via collaborative efforts with OEM, suppliers, and various stakeholders to ensure project viability and capitalization criteria is met, and project scope, cost, and schedule is defined to an accuracy that complies with APS and Participant Owner permitted variance Agreements.

**Assumptions**

Unknown quantity of CBI's, based on preliminary LRF estimate assume 50 CBI's. At APS direction, used approximately \$25K for outside services in a JV "Journal Voucher" category.

This project's Kick Off, WA approval need to occur before the base project CBI development occurs in January of 1st year.

This jobs (FCC08407) KO meeting will be held in 2020. Shortly followed by its CBI approval, SG2 approval, SG3 approval in order to push money into the CBI phase 1 of the target CBIs in 2021.

POM exclusions will be obtained for IFC Package and Equipment Delivery.

This job should close at the end of the year of the CBI effort, 2021 in this case.

**FCC012928 North Area Sump Replacement**

Four Corners Participant Project	Rev FC21-12	100% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC21-12	Env Code: Water	ERF Completed: Yes
In 2021 Budget: Yes	Plant Acct: 131600	Est Removal:	Est In Svc: 10 May 2022

**Description:** Replace pumps, agitators, platforms, local control panel, and piping.

**Purpose/Necessity:** The purpose of this project is to ensure compliance with Effluent Limitation Guidelines (40 CFR Part 243) while maintaining reliability of the sump. Existing pumps are at end of serviceable life, and an unpermitted or unregulated discharge of the sump could result in a reportable environmental incident (REI).

**Consequences of Delay:** Risk of non-compliance with ELG rules, resulting in a potential REI.

**Economic Justification:**

Budget Category: ENV

**Cash Flow - 2021**

Jan	\$0	Apr	\$36,000	Jul	\$35,000	Oct	\$8,000
Feb	\$42,000	May	\$17,000	Aug	\$51,000	Nov	\$12,000
Mar	\$41,000	Jun	\$20,000	Sep	\$48,000	Dec	\$12,000
<b>Prior</b>	\$0	<b>2021</b>	\$322,000	<b>2022</b>	\$872,000	<b>After</b>	\$0

**Cost Summary**

	<b>Current Amount</b>	<b>Revised Amount</b>
RU Materials	\$124,000	
Removals	\$24,000	
(Salvage)	\$0	
Non-Itemized Additions	\$1,002,000	
Specific Cost	\$1,150,000	
Overhead Loads	\$45,000	
<b>CBI Total</b>	<b>\$1,195,000</b>	
Retirements	\$0	

**Approvals**

		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$752,756		Date
NTEC	7.00%	\$83,640		Date
PNM	13.00%	\$155,331		Date
SRP	10.0%	\$119,485		Date
TEP	7.00%	\$83,640		Date

## FCC012928 F45 North Area Sump Replacement, CBI 21-12

### Description

The purpose of this project is to ensure compliance with Effluent Limitation Guidelines (40 CFR Part 243) while maintaining reliability of the sump. Existing pumps are at end of serviceable life, and an unpermitted or unregulated discharge of the sump could result in a reportable environmental incident (REI).

### Scope

- Install a temporary barrier around the sump to divert water flows during the construction period.
- Demolish piping and piping components through trench to vertical run alongside fly ash building.
- Pull back electrical supply and instrumentation wiring to nearest junction box.
- Demolish pumps and agitators.
- Demolish grating and support steel.
- Vacuum solids and clean sump.
- Install support steel, grating, and equipment baseplates.
- Install pumps and agitators.
- Install piping, piping components, and sump level transmitter.
- Install a new sump level transmitter.
- Install a new local control panel.
- Reconnect electrical supply and instrumentation.
- Install new power feed for 2nd agitator.

### Exclusions

Replacement of existing electrical cables.

Control modifications and replacement of control wiring.

Modifications to the piping trench external to the sump.

Replacement of existing sump lighting.

Repair of sump structure as required by CFD analysis or pump or agitator manufacturers (work to be performed under O&M costs).

Installation of sump structure liner to protect from corrosion and erosion (work to be performed under O&M costs).

### Constraints

Flows to the sump will have to be diverted around the sump during the construction period.

Construction should take place outside of summer run period.

### Assumptions

Redesign will include 2 agitators to improve mixing and reduce solids buildup.

New pumps will be sized equivalent to the existing pumps, including flow capacity and total dynamic head.

Piping will be replaced with same material and size as existing.

Agitators and pumps are controlled from local control panel with no connection to DCS.

Pumps and Agitators are powered from the Material Handling MCC room located on the 3rd floor of the fly ash building. The existing Material Handling electrical equipment has enough capacity for any new electrical loads required for the project.

Existing power cables are long enough to reach the new pumps and one of the two agitators.

No sump structure or pump capacity modifications will be required for any new flows routed into the sump.

Sump discharge will remain routed to the drain system retention pond.

Flows will be able to be temporarily diverted from the sump and construction work will not require a Unit outage.

**FCC015071 Purchase New 75 Ton Crane**

Four Corners Participant Project	Rev FC21-13	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC21-13	Env Code: N/A	ERF Completed: Yes
In 2021 Budget: Yes	Plant Acct: 439642	Est Removal:	Est In Svc: 30 Nov 2021

**Description:** Purchase of a 75 Ton Crane.

**Purpose/Necessity:** The purpose of this project is to capitalize the cost of a crane used in servicing of Plant equipment, ensuring continued plant reliability. The plant currently rents a crane to use for the servicing of plant equipment and incurs on-going annual rental costs.

**Consequences of Delay:** Continue to incur ongoing rental costs.

**Economic Justification:**

Benefit-Cost NPV: 0.00 MS  
Budget Category: REL

**Cash Flow - 2021**

Jan	\$2,000	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$432,000	May	\$0	Aug	\$0	Nov	\$0
Mar	\$6,000	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	\$0	<b>2021</b>	\$440,000	<b>2022</b>	\$0	<b>After</b>	\$0

**Cost Summary**

	<b>Current Amount</b>	<b>Revised Amount</b>
RU Materials	\$667,000	
Removals	\$0	
(Salvage)	\$0	
Non-Itemized Additions	(\$227,000)	
Specific Cost	\$440,000	
Overhead Loads	\$0	
<b>CBI Total</b>	<b>\$440,000</b>	
Retirements	\$0	

**Approvals**

			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$277,052		Date
NTEC	7.00%	\$30,784		Date
PNM	13.00%	\$57,169		Date
SRP	10.0%	\$43,977		Date
TEP	7.00%	\$30,784		Date



**FCC015071 F45 Purchase New 75 Ton Crane, CBI 21-13**

**Description**

The purpose of this project is to capitalize the cost of a crane used in servicing of Plant equipment, ensuring continued plant reliability. The plant currently rents a crane to use for the servicing of plant equipment and incurs on-going annual rental costs.

**Scope**

- Purchase a 75-ton, rough terrain crane.
- Vendor to service existing rental crane on site prior to turnover to APS.

**Exclusions**

Crane costs associated with specific capital projects.

**Constraints**

N/A

**Assumptions**

Cost estimate based on quote of 2018 Link Belt RT 75 ton crane for purchase of the crane being used on site as of April 2019.

**FCC015072 Lime Storage Tank Agitator and Gearbox Replacement**

Four Corners Participant Project	Rev FC21-14	100% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC21-14	Env Code:	ERF Completed: Yes
In 2021 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 19 Mar 2022

**Description:** Replace the Lime Slurry Storage Tank Agitator and Gearbox.

**Purpose/Necessity:** The purpose of this project is to maintain reliability of the Lime Slurry Feed System to ensure continued operation of the Unit. Inspection of the components revealed degradation of the equipment and the agitator is nearing the end of serviceable life.

**Consequences of Delay:** Failure of the agitator or gearbox will result in a unit derate due to insufficient Lime Slurry Feed. In the event of a gearbox failure, a forced outage to make repairs. The economic justification assumes a 10% probability of a forced outage. The estimated duration of a forced outage is 7 days.

**Economic Justification:**

Benefit-Cost NPV: 4.30 M\$  
 Budget Category: REL

**Cash Flow - 2021**

Jan	\$0	Apr	\$22,000	Jul	\$13,000	Oct	\$9,000
Feb	\$22,000	May	\$9,000	Aug	\$26,000	Nov	\$9,000
Mar	\$35,000	Jun	\$9,000	Sep	\$25,000	Dec	\$9,000
<b>Prior</b>	\$0	<b>2021</b>	\$189,000	<b>2022</b>	\$732,000	<b>After</b>	\$0

**Cost Summary**

	<b>Current Amount</b>	<b>Revised Amount</b>
RU Materials	\$365,000	
Removals	\$35,000	
(Salvage)	\$0	
Non-Itemized Additions	\$505,000	
Specific Cost	\$905,000	
Overhead Loads	\$16,000	
<b>CBI Total</b>	<b>\$921,000</b>	
Retirements	\$0	

**Approvals**

		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>
				Date
APS	63.00%	\$580,208		Date
NTEC	7.00%	\$64,468		Date
PNM	13.00%	\$119,725		Date
SRP	10.0%	\$92,097		Date
TEP	7.00%	\$64,468		Date

**FCC015072 F4 Lime Storage Tank Agitator and Gearbox Replacement, CBI 21-14**

**Description**

The purpose of this project is to maintain reliability of the Lime Slurry Feed System to ensure continued operation of the Unit. Inspection of the components revealed degradation of the equipment and the agitator is nearing the end of serviceable life.

**Scope**

- Demo and remove existing F4 Lime Storage Tank agitator (shaft and blades) and gearbox.
- Modify existing baseplate to account for new gearbox mounting configuration.
- Procure and install new F4 Lime Storage Tank agitator (shaft and blades) and gearbox.
- Re-terminate power and control cables for gearbox.

**Exclusions**

Replacement of existing tank and controls.

Replacement of existing motor.

Replacement of existing walkway and grating.

**Constraints**

Outage of F4 of at least 9 days is required.

Long lead time items of 23 weeks for wetted parts and 23 weeks for gearbox plus shipment time.

Pre-construction draining of tank is required.

**Assumptions**

Existing power source and controls to be re-used.

Existing tank and agitator support steel and baseplate steel to be re-used.

Cross-tie piping cannot be used to provide lime slurry to F4 from F5 if F5 is operating due to capacity limitations.

Crane required for installation.

Project to be completed in combination with FCC015073 - F5 Lime Storage Tank Agitator Gearbox Replacement such that one equipment supplier and one installation contractor will be chosen for completion of both projects. Engineering costs are assumed to be split between projects.

**FCC015073 Lime Storage Tank Agitator Gearbox Replacement**

Four Corners Participant Project	Rev FC21-15	100% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC21-15	Env Code:	ERF Completed: Yes
In 2021 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 02 Apr 2022

**Description:** Replace the Lime Slurry Storage Tank Agitator Gearbox.

**Purpose/Necessity:** The purpose of this project is to maintain reliability of the Lime Slurry Feed System to ensure continued operation of the Unit. Inspection of the components revealed degradation of the equipment and the gearbox is nearing the end of serviceable life.

**Consequences of Delay:** Failure of the gearbox will result in a unit derate due to insufficient Lime Slurry Feed. In the event of a gearbox failure, a forced outage of up to 7-days is required to make repairs. The economic justification assumes a 10% probability of a 7-day outage.

**Economic Justification:**

Benefit-Cost NPV: 4.50 M\$  
 Budget Category: REL

**Cash Flow - 2021**

Jan	\$0	Apr	\$20,000	Jul	\$9,000	Oct	\$7,000
Feb	\$20,000	May	\$6,000	Aug	\$26,000	Nov	\$7,000
Mar	\$35,000	Jun	\$6,000	Sep	\$22,000	Dec	\$9,000
<b>Prior</b>	\$0	<b>2021</b>	\$166,000	<b>2022</b>	\$385,000	<b>After</b>	\$0

**Cost Summary**

	<b>Current Amount</b>	<b>Revised Amount</b>
RU Materials	\$150,000	
Removals	\$20,000	
(Salvage)	\$0	
Non-Itemized Additions	\$366,000	
Specific Cost	\$535,000	
Overhead Loads	\$17,000	
<b>CBI Total</b>	<b>\$552,000</b>	
Retirements	\$0	

**Approvals**

		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$347,678	Date
NTEC	7.00%	\$38,631	Date
PNM	13.00%	\$71,743	Date
SRP	10.0%	\$55,187	Date
TEP	7.00%	\$38,631	Date

### **FCC015073 F5 Lime Storage Tank Agitator Gearbox Replacement, CBI 21-15**

#### **Description**

The purpose of this project is to maintain reliability of the Lime Slurry Feed System to ensure continued operation of the Unit. Inspection of the components revealed degradation of the equipment and the gearbox is nearing the end of serviceable life.

#### **Scope**

- Demo existing Lime Storage Tank gearbox.
- Modify existing baseplate to account for new mounting configuration.
- Procure and install new Lime Storage Tank gearbox.
- Re-terminate existing power and control cables on new gearbox.

#### **Exclusions**

Replacement of agitator.  
Replacement of existing tank and controls.  
Replacement of existing motor.  
Replacement of existing walkway and grating.

#### **Constraints**

Long lead time items of 23 weeks plus shipment time for gearbox replacement.

#### **Assumptions**

Existing agitator wetted parts (shaft and blades) to be re-used.  
Existing power source to be re-used.  
Cross-tie piping cannot be used to provide lime slurry to Unit 5 from Unit 4 if Unit 4 is operating due to capacity limitations.  
Crane required for installation.  
New gearbox will be compatible with existing agitator and existing motor.  
Project to be completed in combination with FCC015072 - F4 Lime Storage Tank Agitator and Gearbox Replacement such that one equipment supplier and one installation contractor will be chosen for completion of both projects. Engineering costs are shared between projects.  
Lead paint and asbestos testing will be by required.  
Outage is not required to replace the gearbox as duration of agitator downtime during construction is less than that in which lime will settle out of solution due to agitator not operating.

**FCC015076 Reverse Air Fan Outlet Damper Replacement**

Four Corners Participant Project	Rev FC21-16	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC21-16	Env Code: N/A	ERF Completed: Yes
In 2021 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 19 Mar 2022

**Description:** Replace all four Reverse Air Fan Outlet Dampers for the Unit 4 Reverse Air Fans.

**Purpose/Necessity:** The purpose of this project is to maintain unit reliability of the Unit 4 baghouse and Unit. The F4 Reverse Air Fan Dampers no longer function having reached the end of their serviceable life and must be manually forced open by Operations. Loss of reverse air damper control will lead to accelerated fabric filter bag degradation and replacement, placing the unit at increased risk of derate or extended outage.

**Consequences of Delay:** Damper failure and inability to adequately clean the baghouse compartments would result in a forced 30-day outage to replace the bags and dampers. The economics justification assumes a 40% probability of failure in the first year.

**Economic Justification:**

Benefit-Cost NPV: 0.10 M\$  
 Budget Category: REL

**Cash Flow - 2021**

Jan	\$0	Apr	\$10,000	Jul	\$10,000	Oct	\$10,000
Feb	\$22,000	May	\$10,000	Aug	\$22,000	Nov	\$10,000
Mar	\$47,000	Jun	\$10,000	Sep	\$22,000	Dec	\$14,000
<b>Prior</b>	\$0	<b>2021</b>	\$189,000	<b>2022</b>	\$490,000	<b>After</b>	\$0

**Cost Summary**

	<b>Current Amount</b>	<b>Revised Amount</b>
RU Materials	\$42,000	
Removals	\$57,000	
(Salvage)	\$0	
Non-Itemized Additions	\$567,000	
Specific Cost	\$666,000	
Overhead Loads	\$13,000	
<b>CBI Total</b>	<b>\$680,000</b>	
Retirements	\$0	

**Approvals**

		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
APS	63.00%	\$428,134		Date	
NTEC	7.00%	\$47,570		Date	
PNM	13.00%	\$88,345		Date	
SRP	10.0%	\$67,958		Date	
TEP	7.00%	\$47,570		Date	

## FCC015076 F4 Reverse Air Fan Outlet Damper Replacement, CBI 21-16

### Description

The purpose of this project is to maintain unit reliability of the Unit 4 baghouse and Unit. The F4 Reverse Air Fan Dampers no longer function having reached the end of their serviceable life and must be manually forced open by Operations. Loss of reverse air damper control will lead to accelerated fabric filter bag degradation and replacement, placing the unit at increased risk of derate or extended outage.

### Scope

- Replace the 4 reverse air outlet dampers and actuators on the Unit 4 fans.
- Install scaffolding as required for demolition and installation.
- Demo existing reverse air fan outlet dampers and actuators.
- Utilize ESP support to procure and install new dampers, actuators, hardware, and gaskets.
- Re-install control and control cables to actuator.
- Re-install existing insulation jackets on sides of dampers.

### Exclusions

No duct modifications will be required.  
Existing fans and motors to be re-used.  
Control cables will be re-used.  
Inlet damper replacement.

### Constraints

Unit outage required for installation.  
Limited space is available for staging and movement around damper area.

### Assumptions

New dampers will fit in same bolt pattern and same dimensions as existing dampers.  
New dampers and actuators will be compatible with existing actuator controls.  
Estimated lead time of 10 weeks after receipt of order.  
Replacement actuators will have similar air requirements as the existing actuators.  
Project to be completed in combination with FCC015077 - F5 Reverse Air Fan Damper Replacement Phase I such that the same equipment supplier and installation contractor is performing the work.  
Lead paint and asbestos material testing by APS.  
Existing instrument air tubing will be replaced within 3 feet of the actuators.  
A crane is not required for construction.

**FCC015077 Reverse Air Fan Outlet Damper Replacement**

Four Corners Participant Project	Rev FC21-17	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC21-17	Env Code: N/A	ERF Completed: Yes
In 2021 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 03 Apr 2022

**Description:** Replace all four Reverse Air Fan Outlet Dampers for the Unit 5 Reverse Air Fans.

**Purpose/Necessity:** The purpose of this project is to maintain reliability by ensuring the continued reliability of the Unit 5 baghouse and Unit. The Reverse Air Fan Dampers no longer function having reached the end of their serviceable life and must be manually forced open by Operations. Loss of reverse air damper control will lead to accelerated fabric filter bag degradation and replacement, placing the unit at increased risk of derate or extended outage.

**Consequences of Delay:** Damper failure and inability to adequately clean the baghouse compartments would result in a forced 30-day outage to replace the bags and dampers. The economic justification assumes a 40% probability of failure in the first year.

**Economic Justification:**

Benefit-Cost NPV: 0.10 M\$  
 Budget Category: REL

**Cash Flow - 2021**

Jan	\$0	Apr	\$10,000	Jul	\$10,000	Oct	\$10,000
Feb	\$17,000	May	\$10,000	Aug	\$20,000	Nov	\$10,000
Mar	\$42,000	Jun	\$10,000	Sep	\$17,000	Dec	\$14,000
<b>Prior</b>	\$0	<b>2021</b>	\$172,000	<b>2022</b>	\$500,000	<b>After</b>	\$0

**Cost Summary**

	<b>Current Amount</b>	<b>Revised Amount</b>
RU Materials	\$42,000	
Removals	\$57,000	
(Salvage)	\$0	
Non-Itemized Additions	\$560,000	
Specific Cost	\$659,000	
Overhead Loads	\$14,000	
<b>CBI Total</b>	<b>\$673,000</b>	
Retirements	\$0	

**Approvals**

			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$423,858		Date
NTEC	7.00%	\$47,095		Date
PNM	13.00%	\$87,463		Date
SRP	10.0%	\$67,279		Date
TEP	7.00%	\$47,095		Date



## FCC015077 F5 Reverse Air Fan Outlet Damper Replacement, CBI 21-17

### Description

The purpose of this project is to maintain reliability by ensuring the continued reliability of the Unit 5 baghouse and Unit. The Reverse Air Fan Dampers no longer function having reached the end of their serviceable life and must be manually forced open by Operations. Loss of reverse air damper control will lead to accelerated fabric filter bag degradation and replacement, placing the unit at increased risk of derate or extended outage.

### Scope

- Replace the 4 reverse air outlet dampers and actuators on the Unit 5 fans.
- Install scaffolding as required for demolition and installation.
- Demo existing reverse air fan inlet dampers and actuators.
- Utilize ESP support to procure new dampers, actuators, hardware, and gaskets.
- Re-install control cables to actuator.
- Re-install existing insulation jackets on sides of dampers.

### Exclusions

No duct modifications will be required.  
Existing fans and motors to be re-used.  
Existing control cables will be re-used.  
Inlet damper replacement.

### Constraints

Unit outage is required for installation.  
Limited space is available for staging and movement around damper area.

### Assumptions

New dampers will fit in same bolt pattern and same dimensions as existing dampers.  
New dampers and actuators will be compatible with existing actuator controls.  
Replacement actuators will have similar air requirements to the existing actuators.  
Estimated lead time of 10 weeks after receipt of order.  
Project to be completed in combination with FCC015076 - F4 Reverse Air Fan Damper Replacement Phase I such that the same equipment supplier and installation contractor is performing the work.  
Lead and asbestos testing by APS.  
Existing instrument air tubing will be replaced within 3 feet of the actuators.  
A crane is not required for construction.

**FCC015096 South Train Lime Weigh Belt Feeders Replacement**

Four Corners Participant Project	Rev FC21-19	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC21-19	Env Code: N/A	ERF Completed: Yes
In 2021 Budget: Yes	Plant Acct: 131600	Est Removal:	Est In Svc: 17 May 2022

**Description:** Purchase and replace the two (2) Lime Weigh Belt Feeders for 4S Slaking.

**Purpose/Necessity:** The purpose of this project is to maintain unit reliability. The lime weigh belt feeders are approaching the end of their serviceable life and require replacement. Replacement parts are obsolete. Equipment must be removed to be repaired.

**Consequences of Delay:** Reduced lime slaking reliability and subsequent risk of potential 56 day forced outage or unit de-rate. Economic justification assumes a 30% probability of a 56 day forced unit de-rate by 50%.

**Economic Justification:**

Benefit-Cost NPV: 4.10 M\$  
Budget Category: REL

**Cash Flow - 2021**

Jan	\$0	Apr	\$18,000	Jul	\$11,000	Oct	\$19,000
Feb	\$30,000	May	\$19,000	Aug	\$26,000	Nov	\$11,000
Mar	\$33,000	Jun	\$7,000	Sep	\$34,000	Dec	\$11,000
<b>Prior</b>	\$0	<b>2021</b>	\$217,000	<b>2022</b>	\$940,000	<b>After</b>	\$0

**Cost Summary**

	<b>Current Amount</b>	<b>Revised Amount</b>
RU Materials	\$140,000	
Removals	\$40,000	
(Salvage)	\$0	
Non-Itemized Additions	\$926,000	
Specific Cost	\$1,106,000	
Overhead Loads	\$51,000	
<b>CBI Total</b>	<b>\$1,157,000</b>	
Retirements	\$0	

**Approvals**

		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$728,703	Date
NTEC	7.00%	\$80,967	Date
PNM	13.00%	\$150,367	Date
SRP	10.0%	\$115,667	Date
TEP	7.00%	\$80,967	Date

## FCC015096 F4 South Train Lime Weigh Belt Feeders Replacement, CBI 21-19

### Description

The purpose of this project is to maintain unit reliability. The lime weigh belt feeders are approaching the end of their serviceable life and require replacement. Replacement parts are obsolete. Equipment must be removed to be repaired.

### Scope

- Purchase two (2) lime weigh belt feeders.
- De-terminate existing power and control cables from the existing weigh belt feeders.
- Remove existing feeders from the 4S slaker train and feeder actuated valves.
- Install new lime weigh belt feeders, VFDs, and feeder actuated inlet valves. Re-connect or install new power and control cables to new weigh belts.
- Remove and replace lime feed actuated valves.

### Exclusions

The feeders will not control aerated/flushing materials.  
Any structural modifications to existing equipment supports.

### Constraints

Existing 2-Ton crane may not have sufficient capacity for new equipment and a specialty rigging company will be required.  
Estimated 12-14 week lead time after document approval for weigh belt feeders.  
Environment coordination is required for equipment removal waste.  
FCC015076 and FCC015077 cannot be performed in parallel without unit derate and must be performed in series.

### Assumptions

Equipment mounting supports will not require modification.  
Control wiring is sufficient and will not require relocation of connections. New equipment controls will be designed to tie into existing control system.  
Specialty rigging required for lift and removal.  
Equipment removal and lifting will not require removal or replacement of surrounding equipment.  
New weigh belts feeders will include variable frequency drives (VFDs).  
Weigh belt feeders will not require an outage to be replaced and can be replaced while the Units are online if the 4N weigh belt feeders are operating.  
A specialty rigging company is required for removal and placement.  
ESP costs are split with project FCC015077 as projects are assumed to be completed in parallel.

**FCC015097 North & South Train Lime Weigh Belt Feeders Replacement**

Four Corners Participant Project	Rev FC21-20	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC21-20	Env Code: N/A	ERF Completed: Yes
In 2021 Budget: Yes	Plant Acct: 131600	Est Removal:	Est In Svc: 23 Aug 2022

**Description:** Purchase and replace of four (4) Lime Weigh Belt Feeders for 5N and 5S slaking.

**Purpose/Necessity:** The purpose of this project is to maintain unit reliability. The lime weigh belt feeders are approaching the end of their serviceable life and require replacement. Replacement parts are obsolete. Equipment must be removed to be repaired.

**Consequences of Delay:** Reduced lime slaking system reliability and subsequent risk of potential 56 day forced outage or unit de-rate. Economic justification assumes a 10% probability of a 56 day forced unit de-rate by 50%.

**Economic Justification:**

Benefit-Cost NPV: 4.20 M\$  
 Budget Category: REL

**Cash Flow - 2021**

Jan	\$0	Apr	\$19,000	Jul	\$11,000	Oct	\$38,000
Feb	\$39,000	May	\$39,000	Aug	\$11,000	Nov	\$30,000
Mar	\$38,000	Jun	\$11,000	Sep	\$41,000	Dec	\$9,000
<b>Prior</b>	\$0	<b>2021</b>	\$286,000	<b>2022</b>	\$1,606,000	<b>After</b>	\$0

**Cost Summary**

	<b>Current Amount</b>	<b>Revised Amount</b>
RU Materials	\$280,000	
Removals	\$80,000	
(Salvage)	\$0	
Non-Itemized Additions	\$1,488,000	
Specific Cost	\$1,848,000	
Overhead Loads	\$44,000	
<b>CBI Total</b>	<b>\$1,892,000</b>	
Retirements	\$0	

**Approvals**

		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$1,192,070		Date
NTEC	7.00%	\$132,452		Date
PNM	13.00%	\$245,983		Date
SRP	10.0%	\$189,217		Date
TEP	7.00%	\$132,452		Date

## FCC015097 F5 North & South Train Lime Weigh Belt Feeders Replacement, CBI 21-20

### Description

The purpose of this project is to maintain unit reliability. The lime weigh belt feeders are approaching the end of their serviceable life and require replacement. Replacement parts are obsolete. Equipment must be removed to be repaired.

### Scope

- Purchase four (4) lime weigh belt feeders.
- De-terminated existing power and control cables from the existing weigh belt feeders.
- Remove existing feeders and actuated valves from the 5S/5N slaker train.
- Install new lime weigh belt feeders, VFDs, and feeder actuated inlet valves. Re-connect or install new power and control cables to new weigh belts.
- Remove and replace lime feed actuated valves.

### Exclusions

The feeders will not control aerated/flushing materials.  
Any structural modifications to existing equipment supports.

### Constraints

Existing 2-Ton crane may not have sufficient capacity for new equipment and a specialty rigging company will be required.  
Estimated 12-14 week lead time post after document approval for weigh belt feeders.  
Environmental coordination is required for equipment removal waste.  
FCC015096 cannot be constructed in parallel with this project and must be constructed in series to avoid unit derate.

### Assumptions

Equipment mounting supports will not require modification.  
Control wiring is sufficient and will not require relocation of connections. New equipment controls will be designed to tie into existing control system.  
Specialty rigging required for lift and removal.  
Equipment removal and lifting will not require removal or replacement of surrounding equipment.  
New weigh belt feeders will include variable frequency drives (VFDs).  
A specialty rigging company is required for removal and placement.  
Two weigh belt feeders can be replaced at a time without an outage while the other feeders remain operational.  
ESP costs are split with project FCC015076 as projects are assumed to be completed in parallel.

**FCC016148 Baghouse North Elevator Replacement**

Four Corners Participant Project	Rev FC21-21	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC21-21	Env Code: N/A	ERF Completed: Yes
In 2021 Budget: Yes	Plant Acct: 131100	Est Removal:	Est In Svc: 13 Oct 2021

**Description:** Replace the Unit 5 Baghouse North Elevator.

**Purpose/Necessity:** The purpose of this project is to maintain a safe and reliable elevator system to comply with the OSHA General Duty Clause and recommendations found in the HKA Vertical Transportation Comprehensive Maintenance and Condition Audit completed in September 2016. The elevator is reaching the end of its serviceable life and must be replaced.

**Consequences of Delay:** Potential non-compliance with the OSHA General Safety Clause Section 5(a)1. Continued limited access to areas of the Plant due to the elevator becoming disabled. Increased costs from delayed operation, maintenance, and repairs of plant equipment due to limited access caused by a non-functioning elevator.

**Economic Justification:**

Budget Category: SAFETY

**Cash Flow - 2021**

Jan	\$19,000	Apr	\$45,000	Jul	\$18,000	Oct	\$381,000
Feb	\$16,000	May	\$48,000	Aug	\$14,000	Nov	\$17,000
Mar	\$81,000	Jun	\$19,000	Sep	\$469,000	Dec	\$11,000
<b>Prior</b>	\$0	<b>2021</b>	\$1,138,000	<b>2022</b>	\$2,000	<b>After</b>	\$0

**Cost Summary**

	<b>Current Amount</b>	<b>Revised Amount</b>
RU Materials	\$226,000	
Removals	\$53,000	
(Salvage)	\$0	
Non-Itemized Additions	\$828,000	
Specific Cost	\$1,107,000	
Overhead Loads	\$33,000	
<b>CBI Total</b>	<b>\$1,140,000</b>	
Retirements	\$0	

**Approvals**

		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$718,237	Date
NTEC	7.00%	\$79,804	Date
PNM	13.00%	\$148,208	Date
SRP	10.0%	\$114,006	Date
TEP	7.00%	\$79,804	Date

## FCC016148 F5 Baghouse North Elevator Replacement, CBI 21-21

### Description

The purpose of this project is to maintain a safe and reliable elevator system to comply with the OSHA General Duty Clause and recommendations found in the HKA Vertical Transportation Comprehensive Maintenance and Condition Audit completed in September 2016. The elevator is reaching the end of its serviceable life and must be replaced.

### Scope

Obtain turnkey procurement and installation by an approved elevator vendor. Reuse all existing lighting services but include communication and safety alarms in new elevators as well as modifications to the power supply and controls systems as required to accommodate the new elevator. Engineering and design deliverables are required on the part of the ESP to design and detail connections between the new elevator and the existing mount points as well as electrical/controls modifications to support the new elevator.

- Complete a 3D scan of the existing elevator and support locations.
- ESP services required to develop design packages (both structural and electrical) and procurement packages for the work.
- Elevator supplier required to provide design, procurement, and installation services for new rack and pinion elevator.
- LOTO out the existing elevator, including electrical feeds.
- Replace track assembly and hoistway equipment.
- Replace control system (complete) new motor, shaft and hoist.
- Replace cab enclosure (complete).
- Use and installation of NEMA rated equipment.
- Complete electrical modifications as required to supply 480 V and 120 V power to the elevator.
- Install new controllers and selectors, including wiring and fixtures.
- Elevator supplier shall complete necessary modifications to the elevator controls system and provide communication and safety alarms in new elevators and terminate in a junction box at the base to the elevator.
- Elevator test is to be completed prior to placing in service.
- Elevator supplier is responsible for hauling and disposing of old elevator and components removed during work.

### Exclusions

Upgraded design changes to the existing structure, foundations, or safety barriers.  
Rental of a temporary elevator during construction.

### Constraints

Availability of necessary manufacturer's resources.  
Long lead times due to elevator components being foreign manufactured (long lead materials).  
Complications and delays, such as material delays may significantly impact the construction schedule.  
O&M / Plant buyers will need to ensure Service Contracts for long-term elevator support are in place.  
Project reintroduction meeting must take place in October 2020 in order to meet desired schedule.  
Construction needs to occur after the 2021 major outage but needs be completed before the 2022 major outage.  
Project will have CIP considerations and must go through the required review process.

**Assumptions**

The three rack & pinion elevators will be designed and bid concurrently in 2021 [FCC08548, FCC016148, and FCC016149].

Existing foundation and supporting steel are adequate for loads of the new replacement elevators, except as noted for the mounting locations which may require modification.

Forklift and crane are required to complete the construction demolition and new elevator installation.

Pit lights are not required because the elevator is at ground level and does not have a traditional pit.

Elevator test is to be completed with 3rd party testing company.

Work does not require an outage but will be coordinated to minimize the downtime for executing construction during pre-outage, outage, or Summer Run.

Lead paint and asbestos materials testing by APS.



**FCC016149 Baghouse South Elevator Replacement**

Four Corners Participant Project	Rev FC21-22	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC21-22	Env Code: N/A	ERF Completed: Yes
In 2021 Budget: Yes	Plant Acct: 131100	Est Removal:	Est In Svc: 24 Nov 2021

**Description:** Replace the Unit 5 Baghouse South Elevator.

**Purpose/Necessity:** The purpose of this project is to maintain a safe and reliable elevator system to comply with the OSHA General Duty Clause and recommendations found in the HKA Vertical Transportation Comprehensive Maintenance and Condition Audit completed in September 2016. The elevator is reaching the end of its serviceable life and must be replaced.

**Consequences of Delay:** Potential non-compliance with the OSHA General Safety Clause Section 5(a)1. Continued limited access to areas of the Plant due to the elevator becoming disabled. Increased costs from delayed operation, maintenance, and repairs of plant equipment due to limited access caused by a non-functioning elevator.

**Economic Justification:**

Budget Category: SAFETY

**Cash Flow - 2021**

Jan	\$19,000	Apr	\$45,000	Jul	\$18,000	Oct	\$338,000
Feb	\$16,000	May	\$48,000	Aug	\$7,000	Nov	\$508,000
Mar	\$81,000	Jun	\$19,000	Sep	\$14,000	Dec	\$17,000
<b>Prior</b>	\$0	<b>2021</b>	\$1,131,000	<b>2022</b>	\$13,000	<b>After</b>	\$0

**Cost Summary**

	<b>Current Amount</b>	<b>Revised Amount</b>
RU Materials	\$226,000	
Removals	\$53,000	
(Salvage)	\$0	
Non-Itemized Additions	\$832,000	
Specific Cost	\$1,111,000	
Overhead Loads	\$33,000	
<b>CBI Total</b>	<b>\$1,144,000</b>	
Retirements	\$0	

**Approvals**

		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$720,637	Date
NTEC	7.00%	\$80,071	Date
PNM	13.00%	\$148,703	Date
SRP	10.0%	\$114,387	Date
TEP	7.00%	\$80,071	Date

## FCC016149 F5 Baghouse South Elevator Replacement, CBI 21-22

### Description

The purpose of this project is to maintain a safe and reliable elevator system to comply with the OSHA General Duty Clause and recommendations found in the HKA Vertical Transportation Comprehensive Maintenance and Condition Audit completed in September 2016. The elevator is reaching the end of its serviceable life and must be replaced.

### Scope

Obtain turnkey procurement and installation by an approved elevator vendor. Reuse all existing lighting services but include communication and safety alarms in new elevators as well as modifications to the power supply and controls systems as required to accommodate the new elevator. Engineering and design deliverables are required on the part of the ESP to design and detail connections between the new elevator and the existing mount points as well as electrical/controls modifications to support the new elevator.

- Complete a 3D scan of the existing elevator and support locations.
- ESP services required to develop design packages (both structural and electrical) and procurement packages for the work.
- Elevator supplier required to provide design, procurement, and installation services for new rack and pinion elevator.
- LOTO out the existing elevator, including electrical feeds.
- Replace track assembly and hoistway equipment.
- Replace control system (complete) new motor, shaft and hoist.
- Replace cab enclosure (complete).
- Use and installation of NEMA rated equipment.
- Complete electrical modifications as required to supply 480 V and 120 V power to the elevator.
- Install new controllers and selectors, including wiring and fixtures.
- Elevator supplier shall complete necessary modifications to the elevator controls system and provide communication and safety alarms in new elevators and terminate in a junction box at the base to the elevator.
- Elevator test is to be completed prior to placing in service.
- Elevator supplier is responsible for hauling and disposing of old elevator and components removed during work.

### Exclusions

Upgraded design changes to the existing structure, foundations, or safety barriers.  
Rental of a temporary elevator during construction.

### Constraints

Availability of necessary manufacturer's resources.  
Long lead times due to elevator components being foreign manufactured (long lead materials).  
Complications and delays, such as material delays may significantly impact the construction schedule.  
O&M / Plant buyers will need to ensure Service Contracts for long-term elevator support are in place.  
Project reintroduction meeting must take place in October 2020 in order to meet desired schedule.  
Construction needs to occur after the 2021 major outage but needs be completed before the 2022 major outage.  
Project will have CIP considerations and must go through the required review process.

**Assumptions**

The three rack & pinion elevators will be designed and bid concurrently in 2021 [FCC08548, FCC016148, and FCC016149].

Existing foundation and supporting steel are adequate for loads of the new replacement elevators, except as noted for the mounting locations which may require modification.

Forklift and crane are required to complete the construction demolition and new elevator installation.

Pit lights are not required because the elevator is at ground level and does not have a traditional pit.

Elevator test is to be completed with 3rd party testing company.

Work does not require an outage but will be coordinated to minimize the downtime for executing construction during pre-outage, outage, or Summer Run.

Lead paint and asbestos materials testing by APS.

**FCC08548 Lime Silo Elevator Replacement**

Four Corners Participant Project	Rev FC21-23	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC21-23	Env Code: N/A	ERF Completed: Yes
In 2021 Budget: Yes	Plant Acct: 131100	Est Removal:	Est In Svc: 28 Feb 2022

**Description:** Replace the Unit 4/5 Lime Silo Elevator.

**Purpose/Necessity:** The purpose of this project is to maintain a safe and reliable elevator system to comply with the OSHA General Duty Clause and recommendations found in the HKA Vertical Transportation Comprehensive Maintenance and Condition Audit completed in September 2016. The elevator is reaching the end of its serviceable life and must be replaced.

**Consequences of Delay:** Potential non-compliance with the OSHA General Safety Clause Section 5(a)1. Continued limited access to areas of the Plant due to the elevator becoming disabled. Increased costs from delayed operation, maintenance, and repairs of plant equipment due to limited access caused by a non-functioning elevator.

**Economic Justification:**

Budget Category: SAFETY

**Cash Flow - 2021**

Jan	\$0	Apr	\$19,000	Jul	\$45,000	Oct	\$13,000
Feb	\$26,000	May	\$16,000	Aug	\$48,000	Nov	\$10,000
Mar	\$53,000	Jun	\$16,000	Sep	\$20,000	Dec	\$14,000
<b>Prior</b>	\$0	<b>2021</b>	\$281,000	<b>2022</b>	\$807,000	<b>After</b>	\$0

**Cost Summary**

	<b>Current Amount</b>	<b>Revised Amount</b>
RU Materials	\$170,000	
Removals	\$55,000	
(Salvage)	\$0	
Non-Itemized Additions	\$826,000	
Specific Cost	\$1,051,000	
Overhead Loads	\$36,000	
<b>CBI Total</b>	<b>\$1,087,000</b>	
Retirements	\$0	

**Approvals**

		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$684,994	Date
NTEC	7.00%	\$76,110	Date
PNM	13.00%	\$141,348	Date
SRP	10.0%	\$108,729	Date
TEP	7.00%	\$76,110	Date

### **FCC08548 F45 Lime Silo Elevator Replacement, CBI 21-23**

#### **Description**

The purpose of this project is to maintain a safe and reliable elevator system to comply with the OSHA General Duty Clause and recommendations found in the HKA Vertical Transportation Comprehensive Maintenance and Condition Audit completed in September 2016. The elevator is reaching the end of its serviceable life and must be replaced.

#### **Scope**

Obtain turnkey procurement and installation by an approved elevator vendor. Reuse all existing lighting services but include communication and safety alarms in new elevators as well as modifications to the power supply and controls systems as required to accommodate the new elevator. Engineering and design deliverables are required on the part of the ESP to design and detail connections between the new elevator and the existing mount points as well as electrical/controls modifications to support the new elevator.

- Complete a 3D scan of the existing elevator and support locations.
- ESP services required to develop design packages (both structural and electrical) and procurement packages for the work.
- Elevator supplier required to provide design, procurement, and installation services for new rack and pinion elevator.
- LOTO out the existing elevator, including electrical feeds.
- Replace track assembly and hoistway equipment.
- Replace control system (complete) new motor, shaft and hoist.
- Replace cab enclosure (complete).
- Use and installation of NEMA rated equipment.
- Complete electrical modifications as required to supply 480 V and 120 V power to the elevator.
- Install new controllers and selectors, including wiring and fixtures.
- Elevator supplier shall complete necessary modifications to the elevator controls system and provide communication and safety alarms in new elevators and terminate in a junction box at the base to the elevator.
- Elevator test is to be completed prior to placing in service.
- Elevator supplier is responsible for hauling and disposing of old elevator and components removed during work.

#### **Exclusions**

Upgraded design changes to the existing structure, foundations, or safety barriers.  
Rental of a temporary elevator during construction.

#### **Constraints**

Availability of necessary manufacturer's resources.  
Long lead times due to elevator components being foreign manufactured (long lead materials).  
Complications and delays, such as material delays may significantly impact the construction schedule.  
O&M / Plant buyers will need to ensure Service Contracts for long-term elevator support are in place.  
Project reintroduction meeting must take place in early 2021 in order to meet desired schedule.  
Construction needs to occur after the 2021 major outage but needs be completed before the 2022 major outage.

Project will have CIP considerations and must go through the required review process.

**Assumptions**

The three rack & pinion elevators will be designed and bid concurrently in 2021 [FCC08548, FCC016148, and FCC016149].

Existing foundation and supporting steel are adequate for loads of the new replacement elevators, except as noted for the mounting locations which may require modification.

Forklift and crane are required to complete the construction demolition and new elevator installation.

Pit lights are not required because the elevator is at ground level and does not have a traditional pit.

Elevator test is to be completed with 3rd party testing company.

Work does not require an outage but will be coordinated to minimize the downtime for executing construction during pre-outage, outage, or Summer Run.

Lead paint and asbestos materials testing by APS.

**FCC013147 Bottom Ash Control Valve Replacement**

Four Corners Participant Project	Rev FC21-24	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC21-24	Env Code: N/A	ERF Completed: Yes
In 2021 Budget: Yes	Plant Acct: 131600	Est Removal:	Est In Svc: 02 Apr 2022

**Description:** Replace eight (8) 12-inch, pneumatic knife gate valves and actuators on the bottom ash transport lines.

**Purpose/Necessity:** The purpose of this project is to maintain unit reliability by reducing risk of malfunctioning bottom ash control valves. The existing valves are approaching the end of their serviceable life. They are old, allow leak by, and currently require manual manipulation to operate.

**Consequences of Delay:** Should one of the existing valves fail, potential to be unable to control and direct bottom ash flow, resulting in a unit derate. Economic justification assumes a 25% probability of a two day unit derate of 25%.

**Economic Justification:**

Benefit-Cost NPV: 0.20 M\$  
 Budget Category: REL

**Cash Flow - 2021**

Jan	\$0	Apr	\$22,000	Jul	\$19,000	Oct	\$4,000
Feb	\$22,000	May	\$25,000	Aug	\$17,000	Nov	\$4,000
Mar	\$47,000	Jun	\$17,000	Sep	\$17,000	Dec	\$7,000
<b>Prior</b>	\$0	<b>2021</b>	\$200,000	<b>2022</b>	\$327,000	<b>After</b>	\$0

**Cost Summary**

	<b>Current Amount</b>	<b>Revised Amount</b>
RU Materials	\$0	
Removals	\$11,000	
(Salvage)	\$0	
Non-Itemized Additions	\$504,000	
Specific Cost	\$515,000	
Overhead Loads	\$12,000	
<b>CBI Total</b>	<b>\$528,000</b>	
Retirements	\$0	

**Approvals**

		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$332,344	Date
NTEC	7.00%	\$36,927	Date
PNM	13.00%	\$68,579	Date
SRP	10.0%	\$52,753	Date
TEP	7.00%	\$36,927	Date

**FCC013147 F45 Bottom Ash Control Valve Replacement, CBI 21-24**

**Description**

The purpose of this project is to maintain unit reliability by reducing risk of malfunctioning bottom ash control valves. The existing valves are approaching the end of their serviceable life. They are old, allow leak by, and currently require manual manipulation to operate.

**Scope**

Procure eight (8) 12-inch, pneumatic knife gate valves with covers and actuators. There is an estimated 12-week lead time on these items.

Test piping and valve for lead paint.

Test gaskets, cable, etc. for asbestos.

LOTO and drain/vent pipe in accordance with APS procedures.

Remove valves and actuators

Remove all demolition waste and remove materials to areas designated by APS.

Rig, lift, and stage knife gate valves and materials to location.

Install replacement valves and actuators (with associated covers).

Perform leak test

Remove LOTOs

Engineering Service Provider (ESP) to provide technical specification for procurement package and Issue for Construction package for knife gate valve installation. ESP to update existing equipment data books and system descriptions. ESP to incorporate all field or contractor red-lines into final as-built drawings and upload to APS EDMS system.

**Exclusions**

Replacement of piping.

Structural modifications.

Pipe stress analysis.

**Constraints**

An outage will be required. Plant personnel have reported that the bottom ash discharge valves are unreliable and thus there is not a viable isolation point to stagger the valve replacement in order to avoid the need for an outage.

Valves are located on top of hydrobins. A crane will be required to lift valves into location.

**Assumptions**

No new design scope required. All eight valves are to be like-kind replacement.

Valve procurement and construction will be competitively bid.

Lead paint and asbestos testing by APS.

Knife gate valve and actuator weight will not change significantly and should not require any additional stress analysis or supports.

Valve dimensions will be equivalent to existing valve to enable fit up.

Loading and stresses on pipe and structural steel will not change.

No welding is required.

Actuator cables and tubing to be reused.



**FCC015079 DA Pegging Steam Control Valve Replacement**

Four Corners Participant Project	Rev FC21-25	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC21-25	Env Code: N/A	ERF Completed: Yes
In 2021 Budget: Yes	Plant Acct: 131600	Est Removal:	Est In Svc: 19 Mar 2022

**Description:** Replace the DA pegging steam control valves 4CV-0231A and 4CV-0231B.

**Purpose/Necessity:** The purpose of this project is to maintain unit reliability by replacing the DA pegging steam control valves 4CV-0231A and 4CV-0231B. Existing valves are approaching the end of serviceable life, have worn stems and packing glands, and are not sealing well.

**Consequences of Delay:** These valves are used to provide pegging steam to the deaerator during start-up. Economic justification assumes probability of failure is 15%, and if the pegging steam control valves are out of service, pegging steam can be taken from the Aux Steam System to achieve start-up, but a 3-day forced outage is estimated to complete the procedure.

**Economic Justification:**

Benefit-Cost NPV: 1.40 M\$  
Budget Category: REL

**Cash Flow - 2021**

Jan	\$24,000	Apr	\$13,000	Jul	\$14,000	Oct	\$5,000
Feb	\$15,000	May	\$26,000	Aug	\$5,000	Nov	\$4,000
Mar	\$42,000	Jun	\$6,000	Sep	\$5,000	Dec	\$8,000
<b>Prior</b>	\$0	<b>2021</b>	\$167,000	<b>2022</b>	\$284,000	<b>After</b>	\$0

**Cost Summary**

	<b>Current Amount</b>	<b>Revised Amount</b>
RU Materials	\$90,000	
Removals	\$8,000	
(Salvage)	\$0	
Non-Itemized Additions	\$336,000	
Specific Cost	\$434,000	
Overhead Loads	\$17,000	
<b>CBI Total</b>	<b>\$450,000</b>	
Retirements	\$0	

**Approvals**

		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$283,736		Date
NTEC	7.00%	\$31,526		Date
PNM	13.00%	\$58,549		Date
SRP	10.0%	\$45,038		Date
TEP	7.00%	\$31,526		Date

**FCC015079 F4 DA Pegging Steam Control Valve Replacement, CBI 21-25**

**Description**

The purpose of this project is to maintain unit reliability by replacing the DA pegging steam control valves 4CV-0231A and 4CV-0231B. Existing valves are approaching the end of serviceable life, have worn stems and packing glands, and are not sealing well.

**Scope**

Procure like-kind replacement Control Valves and actuators.  
Test piping, existing valves, and insulation for lead paint and asbestos.  
Remove insulation and lagging.  
Disconnect electrical and air supply.  
Remove valves and temporarily support pipe.  
Prep pipe ends for welding.  
Disassemble Control Valves prior to installation.  
Install new Control Valves and actuators.  
Perform NDE on welds as required.  
Remove temporary supports and restore electrical and air connections.  
Restore insulation and lagging.  
Remove LOTOs.

**Exclusions**

No pipe replacement is included.  
Pipe stress analysis will not be performed.

**Constraints**

Unit Outage is required

**Assumptions**

Procurement and construction specifications by ESP.  
Lead paint and asbestos material testing by APS.  
Insulation and lagging can be re-used.  
Replacement valves will be like-kind with existing, including actuators and positioners (dimensions, air and electrical requirements will not change).  
Replacement valves will weigh the same as existing valves +/-10%.  
No Crane or scaffolding will be required.  
Post-Weld Heat Treatment (PWHT) is not required.  
Procurement will be competitively bid and awarded to one Supplier for both Units 4 & 5 (FCC015079 and FCC015080).  
Construction will be competitively bid and awarded to one Supplier for both Units 4 & 5 (FCC015079 and FCC015080).  
Piping will be UT tested prior to commencement of work to confirm no pipe replacement is required.  
A field technician provided by the valve manufacturer will stroke and calibrate valves during commissioning.

**FCC015080 DA Pegging Steam Control Valve Replacement**

Four Corners Participant Project	Rev FC21-26	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC21-26	Env Code: N/A	ERF Completed: Yes
In 2021 Budget: Yes	Plant Acct: 131600	Est Removal:	Est In Svc: 02 Apr 2022

**Description:** Replace the DA pegging steam control valves 5CV-0231A and 5CV-0231B.

**Purpose/Necessity:** The purpose of this project is to maintain unit reliability by replacing the DA pegging steam control valves 5CV-0231A and 5CV-0231B. Existing valves are approaching the end of serviceable life, have worn stems and packing glands, and are not sealing well.

**Consequences of Delay:** These valves are used to provide pegging steam to the deaerator during start-up. Economic justification assumes probability of failure is 15%, and if the pegging steam control valves are out of service, pegging steam can be taken from the Aux Steam System to achieve start-up, but a 3-day forced outage is estimated to complete the procedure.

**Economic Justification:**

Benefit-Cost NPV: 1.40 M\$  
 Budget Category: REL

**Cash Flow - 2021**

Jan	\$24,000	Apr	\$13,000	Jul	\$14,000	Oct	\$5,000
Feb	\$15,000	May	\$26,000	Aug	\$5,000	Nov	\$4,000
Mar	\$42,000	Jun	\$6,000	Sep	\$5,000	Dec	\$8,000
<b>Prior</b>	\$0	<b>2021</b>	\$167,000	<b>2022</b>	\$284,000	<b>After</b>	\$0

**Cost Summary**

	<b>Current Amount</b>	<b>Revised Amount</b>
RU Materials	\$90,000	
Removals	\$8,000	
(Salvage)	\$0	
Non-Itemized Additions	\$336,000	
Specific Cost	\$434,000	
Overhead Loads	\$17,000	
<b>CBI Total</b>	<b>\$450,000</b>	
Retirements	\$0	

**Approvals**

		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>
				Date
APS	63.00%	\$283,736		Date
NTEC	7.00%	\$31,526		Date
PNM	13.00%	\$58,549		Date
SRP	10.0%	\$45,038		Date
TEP	7.00%	\$31,526		Date

**FCC015080 F5 DA Pegging Steam Control Valve Replacement, CBI 21-26**

**Description**

The purpose of this project is to maintain unit reliability by replacing the DA pegging steam control valves 5CV-0231A and 5CV-0231B. Existing valves are approaching the end of serviceable life, have worn stems and packing glands, and are not sealing well.

**Scope**

Procure like-kind replacement Control Valves and actuators.  
Test piping, existing valves, and insulation for lead paint and asbestos.  
Remove insulation and lagging.  
Disconnect electrical and air supply.  
Remove valves and temporarily support pipe.  
Prep pipe ends for welding.  
Disassemble Control Valves prior to installation.  
Install new Control Valves and actuators.  
Perform NDE on welds as required.  
Remove temporary supports and restore electrical and air connections.  
Restore insulation and lagging.  
Remove LOTOs.

**Exclusions**

No pipe replacement is included.  
Pipe stress analysis will not be performed.

**Constraints**

Unit Outage is required

**Assumptions**

Procurement and construction specifications by ESP.  
Lead paint and asbestos material testing by APS.  
Insulation and lagging can be re-used.  
Replacement valves will be like-kind with existing, including actuators and positioners (dimensions, air and electrical requirements will not change).  
Replacement valves will weigh the same as existing valves +/-10%.  
No Crane or scaffolding will be required.  
Post-Weld Heat Treatment (PWHT) is not required.  
Procurement will be competitively bid and awarded to one Supplier for both Units 4 & 5 (FCC015079 and FCC015080).  
Construction will be competitively bid and awarded to one Supplier for both Units 4 & 5 (FCC015079 and FCC015080).  
Piping will be UT tested prior to commencement of work to confirm no pipe replacement is required.  
A field technician provided by the valve manufacturer will stroke and calibrate valves during commissioning.

**FCC015085 Boiler FW Booster Pump Replacement**

Four Corners Participant Project	Rev FC21-27	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC21-27	Env Code: N/A	ERF Completed: Yes
In 2021 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 19 Mar 2022

**Description:** Replace the existing center boiler feedwater booster pump and procure a new spare booster pump.

**Purpose/Necessity:** The purpose of this project is to increase unit reliability by replacing the center boiler feedwater booster pump and procuring a new spare booster pump for Unit 4. The existing booster pumps have been refurbished numerous times and are nearing end of serviceable life. Inspection reports indicate rotor misalignment and heavy rubbing on wear rings, throat bushings, and bearings.

**Consequences of Delay:** The Boiler FW Booster pumps are designed to a 3 x 50% capacity arrangement. The estimated probability of two pumps failing is 10%, which would result in a 50% Unit derate for 17 days, until the spare pump could be installed. The risk of re-occurrence of this event would remain given the degraded condition of the existing spare Boiler FW Booster pump.

**Economic Justification:**

Benefit-Cost NPV: 11.00 M\$  
 Budget Category: REL

**Cash Flow - 2021**

Jan	\$4,000	Apr	\$5,000	Jul	\$187,000	Oct	\$6,000
Feb	\$4,000	May	\$30,000	Aug	\$8,000	Nov	\$4,000
Mar	\$176,000	Jun	\$7,000	Sep	\$8,000	Dec	\$8,000
<b>Prior</b>	\$0	<b>2021</b>	\$446,000	<b>2022</b>	\$369,000	<b>After</b>	\$0

**Cost Summary**

	<b>Current Amount</b>	<b>Revised Amount</b>
RU Materials	\$327,000	
Removals	\$92,000	
(Salvage)	\$0	
Non-Itemized Additions	\$380,000	
Specific Cost	\$800,000	
Overhead Loads	\$16,000	
<b>CBI Total</b>	<b>\$816,000</b>	
Retirements	\$0	

**Approvals**

		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
APS	63.00%	\$513,683		Date	
NTEC	7.00%	\$57,076		Date	
PNM	13.00%	\$105,998		Date	
SRP	10.0%	\$81,537		Date	
TEP	7.00%	\$57,076		Date	

## FCC015085 F4 Boiler FW Booster Pump Replacement, CBI 21-27

### Description

The purpose of this project is to increase unit reliability by replacing the center boiler feedwater booster pump and procuring a new spare booster pump for Unit 4. The existing booster pumps have been refurbished numerous times and are nearing end of serviceable life. Inspection reports indicate rotor misalignment and heavy rubbing on wear rings, throat bushings, and bearings.

### Scope

Procure like-kind booster feed pump.  
LOTO booster feed pump and associated mechanical and electrical potential hazards.  
Remove insulation and lagging on suction and discharge piping as necessary.  
Remove existing center boiler feed booster pump and return to warehouse.  
Remove motor and temporarily store for re-installation. Remove pump coupling.  
Remove existing sole plate.  
Complete inspection of foundation.  
Install new sole plate and layer of epoxy/grout to pedestal.  
Restore temporarily removed pump motor to sole plate.  
Install new booster feed pump and reconnect all piping components. Install new pump coupling.  
Reconnect all electrical components.  
Complete cleaning and flush of lube oil system.  
Restore insulation and lagging.  
Remove LOTOs and begin commissioning procedures.

### Exclusions

Testing for lead paint and asbestos by APS.  
Replacement of any pump components not specifically listed in the Scope, including pump motors, lube oil components, associated piping, and coupling guard.

### Constraints

40-week lead time for new pump.  
Unit 4 booster pumps rotate in opposite direction as Unit 5 booster pumps and are not easily interchangeable.  
For on-line replacement of the pump, Boiler Feedwater isolation to and from the pump must be assured.

### Assumptions

Procurement and construction specifications by ESP, in parallel with Unit 5 project (FCC015086).  
Procurement will be competitively bid and awarded to one Supplier for both Units 4 & 5 (FCC015085 and FCC015086).  
Construction will be competitively bid and awarded to one Supplier for both Units 4 & 5 (FCC015085 and FCC015086).  
Rework of existing piping will not be required.  
Refurbishment of existing pump to be done under O&M.  
Warehouse credit to be received for cost of new pump.  
New pump will be compatible with existing pump motors.  
No structural pedestal repairs required. Sole plate replacement and grouting will be used to achieve level pumps.

Work will be scheduled to coincide with Unit 4 outage.

Feedwater booster pump can be isolated for on-line replacement, if work extends beyond outage.

**FCC015086 Boiler FW Booster Pump Replacement**

Four Corners Participant Project	Rev FC21-28	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC21-28	Env Code: N/A	ERF Completed: Yes
In 2021 Budget: No	Plant Acct: 131200	Est Removal:	Est In Svc: 02 Apr 2022

**Description:** Replace the existing center boiler feedwater booster pump and procure a new spare booster pump.

**Purpose/Necessity:** The purpose of this project is to increase unit reliability by replacing the center boiler feedwater booster pump and procuring a new spare booster pump for Unit 5. The existing booster pumps have been refurbished numerous times and are nearing end of serviceable life. Inspection reports indicate rotor misalignment and heavy rubbing on wear rings, throat bushings, and bearings.

**Consequences of Delay:** The Boiler FW Booster pumps are designed to a 3 x 50% capacity arrangement. The estimated probability of two pumps failing is 10%, which would result in a 50% Unit derate for 17 days, until the spare pump could be installed. The risk of re-occurrence of this event would remain given the degraded condition of the existing spare Boiler FW Booster pump.

**Economic Justification:**

Benefit-Cost NPV: 11.00 M\$  
 Budget Category: REL

**Cash Flow - 2021**

Jan	\$4,000	Apr	\$5,000	Jul	\$187,000	Oct	\$6,000
Feb	\$4,000	May	\$30,000	Aug	\$8,000	Nov	\$4,000
Mar	\$176,000	Jun	\$7,000	Sep	\$8,000	Dec	\$8,000
<b>Prior</b>	\$0	<b>2021</b>	\$446,000	<b>2022</b>	\$369,000	<b>After</b>	\$0

**Cost Summary**

	<b>Current Amount</b>	<b>Revised Amount</b>
RU Materials	\$327,000	
Removals	\$92,000	
(Salvage)	\$0	
Non-Itemized Additions	\$380,000	
Specific Cost	\$800,000	
Overhead Loads	\$16,000	
<b>CBI Total</b>	<b>\$816,000</b>	
Retirements	\$0	

**Approvals**

		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$513,814		Date
NTEC	7.00%	\$57,090		Date
PNM	13.00%	\$106,025		Date
SRP	10.0%	\$81,558		Date
TEP	7.00%	\$57,090		Date



**FCC015086 F5 Boiler FW Booster Pump Replacement, CBI 21-28**

**Description**

The purpose of this project is to increase unit reliability by replacing the center boiler feedwater booster pump and procuring a new spare booster pump for Unit 5. The existing booster pumps have been refurbished numerous times and are nearing end of serviceable life. Inspection reports indicate rotor misalignment and heavy rubbing on wear rings, throat bushings, and bearings.

**Scope**

Procure like-kind booster feed pump.  
LOTO booster feed pump and associated mechanical and electrical potential hazards.  
Remove insulation and lagging on suction and discharge piping as necessary.  
Remove existing center boiler feed booster pump and return to warehouse.  
Remove motor and temporarily store for re-installation. Remove pump coupling.  
Remove existing sole plate.  
Complete inspection of foundation.  
Install new sole plate and layer of epoxy/grout to pedestal.  
Restore temporarily removed pump motor to sole plate.  
Install new booster feed pump and reconnect all piping components. Install new pump coupling.  
Reconnect all electrical components.  
Complete cleaning and flush of lube oil system.  
Restore insulation and lagging.  
Remove LOTOs and begin commissioning procedures.

**Exclusions**

Testing for lead paint and asbestos by APS.  
Replacement of any pump components not specifically listed in the Scope, including pump motors, lube oil components, associated piping, and coupling guard.

**Constraints**

40-week lead time for new pump.  
Unit 5 booster pumps rotate in opposite direction as Unit 4 booster pumps and are not easily interchangeable.  
For on-line replacement of the pump, Boiler Feedwater isolation to and from the pump must be assured.

**Assumptions**

Procurement and construction specifications by ESP, in parallel with Unit 4 project (FCC015085).  
Procurement will be competitively bid and awarded to one Supplier for both Units 4 & 5 (FCC015085 and FCC015086).  
Construction will be competitively bid and awarded to one Supplier for both Units 4 & 5 (FCC015085 and FCC015086).  
Pump can be isolated for on-line replacement if necessary.  
Refurbishment of existing pump to be done under O&M.  
Warehouse credit to be received for cost of new pump.  
Rework of existing piping will not be required.  
New pump will be compatible with existing pump motors.

No structural pedestal repairs required. Sole plate replacement and grouting will be used to achieve level pumps.

Work will be scheduled to coincide with Unit 5 outage.

Feedwater booster pump can be isolated for on-line replacement, if work extends beyond outage.

**FCC015093 Superheater Spray CV And Block Valves Replacement**

Four Corners Participant Project	Rev FC21-29	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC21-29	Env Code: N/A	ERF Completed: Yes
In 2021 Budget: No	Plant Acct: 131600	Est Removal:	Est In Svc: 19 Mar 2022

**Description:** Replace the four (4) superheater attemperator spray control valves and associated isolation block valves on Unit 4.

**Purpose/Necessity:** The purpose of this project is to maintain unit reliability by replacing the existing superheater attemperator control valves and isolation valves. The existing valves have reached the end of their serviceable life and replacement parts are not available.

**Consequences of Delay:** Failure of one or more superheater attemperator spray control valve will result in main steam temperature control problems that could lead to overheating of downstream piping and steam turbine components. The valves have not been rebuilt in several years, because replacement parts are no longer available. As a result, the probability of failure is estimated at 35%, which would result in a forced outage lasting 14 days.

**Economic Justification:**

Benefit-Cost NPV: 2.00 M\$  
 Budget Category: REL

**Cash Flow - 2021**

Jan	\$24,000	Apr	\$21,000	Jul	\$24,000	Oct	\$5,000
Feb	\$15,000	May	\$15,000	Aug	\$8,000	Nov	\$5,000
Mar	\$35,000	Jun	\$27,000	Sep	\$9,000	Dec	\$9,000
<b>Prior</b>	\$0	<b>2021</b>	\$197,000	<b>2022</b>	\$458,000	<b>After</b>	\$0

**Cost Summary**

	<b>Current Amount</b>	<b>Revised Amount</b>
RU Materials	\$184,000	
Removals	\$14,000	
(Salvage)	\$0	
Non-Itemized Additions	\$440,000	
Specific Cost	\$639,000	
Overhead Loads	\$17,000	
<b>CBI Total</b>	<b>\$655,000</b>	
Retirements	\$0	

**Approvals**

		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$412,711		Date
NTEC	7.00%	\$45,857		Date
PNM	13.00%	\$85,163		Date
SRP	10.0%	\$65,510		Date
TEP	7.00%	\$45,857		Date

### **FCC015093 Superheater Spray CV & Block Valves Replacement, CBI 21-29**

#### **Description**

The purpose of this project is to maintain unit reliability by replacing the existing superheater attemperator control valves and isolation valves. The existing valves have reached the end of their serviceable life and replacement parts are not available.

#### **Scope**

Procure and deliver new superheater attemperator spray control and isolation valves, with new pneumatic actuators.  
Test for lead and asbestos in the affected piping, insulation, and lagging.  
LOTO valves and associated mechanical and electrical potential hazards.  
Remove insulation and lagging.  
Disconnect electrical and air.  
Remove valves and temporarily support pipe.  
Prep pipe ends for welding.  
Install CVs and isolation valves, including new actuators and positioners.  
Perform 100% NDE on welds.  
Restore air and electrical connections.  
Replace heat tracing.  
Remove temporary supports.  
Restore insulation and lagging.  
Remove LOTOs.  
Perform start-up and commissioning procedures.

#### **Exclusions**

Replacement of superheater attemperator spray nozzle and liner are excluded.  
Pipe stress analysis is not required.

#### **Constraints**

Unit Outage is required.  
Lead time for control valves is 27 weeks.

#### **Assumptions**

No crane is required.  
No scaffold is required.  
Scope of work will be considered a boiler repair and not an alteration.  
Construction contractor will be required to hold a current R-stamp.  
Minor modifications to instrument air tubing may be required.  
Instrument cable is in good condition and can be re-used for the new valves.  
Replacement valves will weight the same as existing valves +/- 10%.  
No pipe replacement is required.  
Valves can be welded in place without the need to disassemble/reassemble the valves.  
Post-Weld Heat Treatment (PWHT) is not required.  
Lead paint and asbestos testing by APS.  
Power cables to existing heat trace panel are functional and can be re-used.  
Procurement and construction will be competitively bid.

Procurement will be competitively bid and awarded to one Supplier for both Units 4 & 5 (FCC015093 and FCC015194).

Construction will be competitively bid and awarded to one Supplier for both Units 4 & 5 (FCC015093 and FCC015194).

APS E&I technicians will stroke and calibrate valves.

Replacement valves will qualify as a like-kind replacement.

**FCC015094 Superheater Spray CV And Block Valves Replacement**

Four Corners Participant Project	Rev FC21-30	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC21-30	Env Code: N/A	ERF Completed: Yes
In 2021 Budget: Yes	Plant Acct: 131600	Est Removal:	Est In Svc: 02 Apr 2022

**Description:** Replace the four (4) superheater attemperator spray control valves and associated isolation block valves on Unit 5.

**Purpose/Necessity:** The purpose of this project is to maintain unit reliability by replacing the existing superheater attemperator control valves and isolation valves. The existing valves have reached the end of their serviceable life and replacement parts are not available.

**Consequences of Delay:** Failure of one or more superheater attemperator spray control valve will result in main steam temperature control problems that could lead to overheating of downstream piping and steam turbine components. The valves have not been rebuilt in several years, because replacement parts are no longer available. As a result, the probability of failure is estimated at 35%, which would result in a forced outage lasting 14 days.

**Economic Justification:**

Benefit-Cost NPV: 2.00 M\$  
 Budget Category: REL

**Cash Flow - 2021**

Jan	\$24,000	Apr	\$21,000	Jul	\$24,000	Oct	\$5,000
Feb	\$15,000	May	\$15,000	Aug	\$8,000	Nov	\$5,000
Mar	\$35,000	Jun	\$27,000	Sep	\$9,000	Dec	\$9,000
<b>Prior</b>	\$0	<b>2021</b>	\$197,000	<b>2022</b>	\$458,000	<b>After</b>	\$0

**Cost Summary**

	<b>Current Amount</b>	<b>Revised Amount</b>
RU Materials	\$184,000	
Removals	\$14,000	
(Salvage)	\$0	
Non-Itemized Additions	\$440,000	
Specific Cost	\$639,000	
Overhead Loads	\$17,000	
<b>CBI Total</b>	<b>\$655,000</b>	
Retirements	\$0	

**Approvals**

		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$412,711	Date
NTEC	7.00%	\$45,857	Date
PNM	13.00%	\$85,163	Date
SRP	10.0%	\$65,510	Date
TEP	7.00%	\$45,857	Date

## FCC015094 Superheater Spray CV & Block Valves Replacement, CBI 21-30

### Description

The purpose of this project is to maintain unit reliability by replacing the existing superheater attemperator control valves and isolation valves. The existing valves have reached the end of their serviceable life and replacement parts are not available.

### Scope

Procure and deliver new superheater attemperator spray control and isolation valves, with new pneumatic actuators.  
Test for lead and asbestos in the affected piping, insulation, and lagging.  
LOTO valves and associated mechanical and electrical potential hazards.  
Remove insulation and lagging.  
Disconnect electrical and air.  
Remove valves and temporarily support pipe.  
Prep pipe ends for welding.  
Install CVs and isolation valves, including new actuators and positioners.  
Perform 100% NDE on welds.  
Restore air and electrical connections.  
Replace heat tracing.  
Remove temporary supports.  
Restore insulation and lagging.  
Remove LOTOs.  
Perform start-up and commissioning procedures.

### Exclusions

Replacement of superheater attemperator spray nozzle and liner are excluded.  
Pipe stress analysis is not required.

### Constraints

Unit Outage is required.  
Lead time for control valves is 27 weeks.

### Assumptions

No crane is required.  
No scaffold is required.  
Scope of work will be considered a boiler repair and not an alteration.  
Construction contractor will be required to hold a current R-stamp.  
Minor modifications to instrument air tubing may be required.  
Instrument cable is in good condition and can be re-used for the new valves.  
Replacement valves will weigh the same as existing valves +/- 10%.  
No pipe replacement is required.  
Valves can be welded in place without the need to disassemble/reassemble the valves.  
Post-Weld Heat Treatment (PWHT) is not required.  
Lead paint and asbestos testing by APS.  
Power cables to existing heat trace panel are functional and can be re-used.  
Procurement and construction will be competitively bid.

Procurement will be competitively bid and awarded to one Supplier for both Units 4 & 5 (FCC015093 and FCC015194).

Construction will be competitively bid and awarded to one Supplier for both Units 4 & 5 (FCC015093 and FCC015194).

APS E&I technicians will stroke and calibrate valves.

Replacement valves will qualify as a like-kind replacement.



**FCC015368 Baghouse Poppet Valve Actuator Replacement**

Four Corners Participant Project	Rev FC21-31	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC21-31	Env Code: N/A	ERF Completed: Yes
In 2021 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 10 Apr 2021

**Description:** Replace forty-four (44) baghouse Reverse Air Poppet Actuators.

**Purpose/Necessity:** The purpose of this project is to maintain unit reliability by replacing forty-four (44) Reverse Air Poppet Actuators in the Unit 4 baghouses. Reverse Air Poppet Valves are used in the automatic cleaning cycle of baghouse compartments to keep bags clean. Existing actuators are at end of serviceable life with many actuators leaking air.

**Consequences of Delay:** Inadequate cleaning of baghouse bags and unbalanced flow between compartments, decreasing bag life and potentially causing a high differential pressure alarm. Accelerated bag deterioration increases the required frequency of bag replacements by an estimated 10%, at an added annual cost of \$100,000.

**Economic Justification:**

Benefit-Cost NPV: 0.10 M\$  
 Budget Category: REL

**Cash Flow - 2021**

Jan	\$98,000	Apr	\$18,000	Jul	\$4,000	Oct	\$0
Feb	\$246,000	May	\$7,000	Aug	\$4,000	Nov	\$0
Mar	\$185,000	Jun	\$4,000	Sep	\$0	Dec	\$0
<b>Prior</b>	\$0	<b>2021</b>	\$565,000	<b>2022</b>	\$0	<b>After</b>	\$0

**Cost Summary**

	<b>Current Amount</b>	<b>Revised Amount</b>
RU Materials	\$139,000	
Removals	\$63,000	
(Salvage)	\$0	
Non-Itemized Additions	\$343,000	
Specific Cost	\$545,000	
Overhead Loads	\$20,000	
<b>CBI Total</b>	<b>\$565,000</b>	
Retirements	\$0	

**Approvals**

		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$356,053	Date
NTEC	7.00%	\$39,561	Date
PNM	13.00%	\$73,471	Date
SRP	10.0%	\$56,516	Date
TEP	7.00%	\$39,561	Date

**FCC015368 Baghouse Poppet Actuator Valve Replacement, CBI 21-31**

**Description**

The purpose of this project is to maintain unit reliability by replacing forty-four (44) Reverse Air Poppet Actuators in the Unit 4 baghouses. Reverse Air Poppet Valves are used in the automatic cleaning cycle of baghouse compartments to keep bags clean. Existing actuators are at end of serviceable life with many actuators leaking air.

**Scope**

Verify warehouse inventory and pull forty-four (44) new Reverse Air Poppet Actuators from warehouse.  
LOTO Reverse Air Poppet Actuators and associated mechanical and electrical potential hazards.  
Disconnect compressed air and control cable from actuators.  
Remove existing Reverse Air Poppet Actuators.  
Install new actuators and reconnect compressed air and electrical.  
Remove LOTOs.  
Perform start-up and commissioning procedures.

**Exclusions**

Replacement or repair of any poppet valve components, except actuators.

**Constraints**

Outage-related.  
Material Request (MR) needs to be submitted in Fall 2020 for a Spring 2021 installation.

**Assumptions**

Poppet discs, seating plates, packing rings, shafts, and support frames do not need to be replaced.  
No modifications to instrument air or conduit connections to actuators is required.  
Equipment will be available from the warehouse prior to construction.  
No lead paint or asbestos abatement is required.  
No scaffold is required.  
ESP support for construction bid specification only.

**FCC015100 Phase 6 Water Piping Replacement**

Four Corners Participant Project	Rev FC21-33	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC21-33	Env Code: N/A	ERF Completed: Yes
In 2021 Budget: Yes	Plant Acct: 131600	Est Removal:	Est In Svc: 01 Oct 2021

**Description:** Replace all Potable, Service, and Firewater piping below grade mains and above grade headers, including loop and branch isolation valves. All piping will be routed above grade except where system crosses roads or equipment access-ways. All existing below-grade piping will be capped and abandoned in place, and all existing above-grade piping will be demolished.

**Purpose/Necessity:** The purpose of this project is to maintain compliance with OSHA standard 1910.151 and ANSI Z358.1, ensure reliability of safety-critical systems (Potable and Firewater systems) through replacement of degraded water piping. Replacement of the water piping will reduce the probability of system outages caused by main breaks in degraded piping systems.

**Consequences of Delay:** Risk of failure of Potable water piping resulting in increased risk to personnel safety and health of employees and noncompliance with OSHA and ANSI Standards. Failure of Firewater systems during a fire event could result in more extensive damage to equipment and or personnel safety.

**Economic Justification:**

Budget Category: SAFETY

**Cash Flow - 2021**

Jan	\$4,000	Apr	\$119,000	Jul	\$195,000	Oct	\$33,000
Feb	\$51,000	May	\$292,000	Aug	\$243,000	Nov	\$33,000
Mar	\$72,000	Jun	\$186,000	Sep	\$264,000	Dec	\$8,000
<b>Prior</b>	\$0	<b>2021</b>	\$1,499,000	<b>2022</b>	\$0	<b>After</b>	\$0

**Cost Summary**

	<b>Current Amount</b>	<b>Revised Amount</b>
RU Materials	\$0	
Removals	\$0	
(Salvage)	\$0	
Non-Itemized Additions	\$1,470,000	
Specific Cost	\$1,470,000	
Overhead Loads	\$29,000	
<b>CBI Total</b>	<b>\$1,499,000</b>	
Retirements	\$0	

**Approvals**

		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$944,539	Date
NTEC	7.00%	\$104,949	Date
PNM	13.00%	\$194,905	Date
SRP	10.0%	\$149,927	Date
TEP	7.00%	\$104,949	Date

**FCC015100 F45 Phase 6 Water Piping Replacement, CBI 21-33**

**Description**

The purpose of this project is to maintain compliance with OSHA standard 1910.151 and ANSI Z358.1, ensure reliability of safety-critical systems (Potable and Firewater systems) through replacement of degraded water piping. Replacement of the water piping will reduce the probability of system outages caused by main breaks in degraded piping systems.

**Scope**

Design/ Procurement

Phase 6 Water Piping will replace the firewater and potable water that connects from the Phase 2 future connection and continues to the Admin Building and Warehouse.

This scope was previously bid under Phase 3 Water Piping Replacement. The Phase 3 bid package will be updated for the limited scope, and the Phase 3 drawing package will be revised to only include the applicable scope.

Demolition

Removal of piping and system equipment will occur after the new Potable and Firewater systems are installed. New Potable and Firewater systems shall be installed and tied into the existing branch connections before removal can begin.

Coordinate necessary isolation, LOTO and other right to work permitting prior to initiation of work on equipment.

Asbestos and lead testing will be coordinated by APS.

All above grade existing Potable and Firewater piping shall be removed.

Below grade existing Potable and Firewater piping shall be abandoned in place and capped except where new piping is to be routed below grade to cross roads and access ways. In these cases the existing piping will be demolished and capped as required.

Installation

Contractor shall furnish and install all pipe, fittings, hangers, supports, guides, anchors, pipe shoes, structural extensions, and associated material required to complete the piping systems as indicated on the attachments and as specified. Piping furnished and installed is identified in the attached Potable and Firewater Quantities Spreadsheet, Potable and Firewater Piping Plan, and Potable and Firewater routing pictures.

Piping erection and installation includes the following:

Installation of hangers, supports, and anchors.

Holes, flashings, and concrete inserts.

Fabrication and erection of piping systems.

Field welding.

Makeup of flanged, screwed, and solder joints.

Connections to equipment and existing piping.

Furnishing and installing miscellaneous valves.

Install miscellaneous valves furnished by others.

Flushing and disinfecting complete potable water system.

Testing of piping systems.

#### Road Repair

Where new piping crosses roads or equipment access-ways, piping will be installed below grade. Pipe trench excavation will comply with requirements of OSHA 29 CFR Part 1926. Trench will be backfilled with suitable compacted material and surfacing repaired to match existing.

Road crossing installation schedule shall be coordinated with plant to minimize obstruction to the main plant entrance and other drive access-ways. Where installations occur in locations not accessible by temporary alternate traffic paths, construction shall maintain half the roadway to be accessible.

#### Exclusions

All underground piping is abandoned in place.  
IFC date and equipment delivery will not be POM compliant.

#### Constraints

Underground piping will be installed in high traffic areas and will require coordination to allow for normal plant activity.

Other ongoing construction projects could delay and restrict pipe route access if not properly coordinated.

#### Assumptions

Underground utilities in the areas where pipe will be installed below grade are accurately documented.  
LOTO is accessible and the existing tie-points can be isolated.

Existing system pumps have adequate flow and pressure for new piping arrangement.

One construction specification will be developed with the intent of hiring one general contractor to perform the complete scope of work.

**FCC08585 Bottom Ash Clinker Grinder Replacement**

Four Corners Participant Project	Rev FC21-32	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC21-32	Env Code: N/A	ERF Completed: Yes
In 2021 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 28 Apr 2021

**Description:** Replace the complete north, central and south Bottom Ash Clinker Grinders and mixing components, with spare clinker grinders and parts from the warehouse. Replace associated bottom ash hoppers and hydro-ejectors, and replace bottom ash discharge piping, from hydro-ejectors to discharge block valves.

**Purpose/Necessity:** The purpose of this project is to maintain unit reliability by replacing the bottom ash clinker grinders and hoppers. The existing clinker grinders are approaching the end of serviceable life. Completing this project will provide the consistent and reliable removal of bottom ash from the boiler.

**Consequences of Delay:** Potential of forced unit outage for 2 days if the north or south clinker grinder fails and 4 days if the center clinker grinder fails. Year-1 probability of a Clinker Grinder failing is 75%.

**Economic Justification:**

Benefit-Cost NPV: 0.30 M\$  
Budget Category: REL-UNIT

**Cash Flow - 2021**

Jan	\$5,000	Apr	\$185,000	Jul	\$0	Oct	\$0
Feb	\$5,000	May	\$5,000	Aug	\$0	Nov	\$0
Mar	\$345,000	Jun	(\$265,000)	Sep	\$0	Dec	\$0
<b>Prior</b>	\$0	<b>2021</b>	\$280,000	<b>2022</b>	\$0	<b>After</b>	\$0

**Cost Summary**

	Current Amount	Revised Amount
RU Materials	\$225,000	
Removals	\$20,000	
(Salvage)	\$0	
Non-Itemized Additions	\$31,000	
Specific Cost	\$276,000	
Overhead Loads	\$5,000	
<b>CBI Total</b>	<b>\$280,000</b>	
Retirements	\$0	

**Approvals**

		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$176,527	Date	
NTEC	7.00%	\$19,614	Date	
PNM	13.00%	\$36,426	Date	
SRP	10.0%	\$28,020	Date	
TEP	7.00%	\$19,614	Date	

## FCC08585 Bottom Ash Clinker Grinder Replacement, CBI 21-32

### Description

The purpose of this project is to maintain unit reliability by replacing the bottom ash clinker grinders and hoppers. The existing clinker grinders are approaching the end of serviceable life. Completing this project will provide the consistent and reliable removal of bottom ash from the boiler.

### Scope

Schedule and plan construction support.

Verify clinker grinders, hoppers, hydro-ejectors, and associated material is available in the warehouse and submit a material request.

LOTO clinker grinders and associated mechanical and electrical potential hazards.

Remove bottom ash discharge piping from clinker grinders to discharge header. Complete additional piping and electrical modifications as necessary to access and remove clinker grinders.

Disconnect and remove the north, center, and south clinker grinders, bottom ash hoppers, and hydro-ejectors.

Install new clinker grinders and bottom ash hoppers. Reconnect all piping components and electrical components accordingly.

Install new hydro-ejectors and bottom ash discharge piping.

Remove LOTOs.

Perform start-up and commissioning procedures.

### Exclusions

Replacement of clinker grinder motors.

New electrical, controls, or air service requirements.

Modifications to existing pipe routing.

Refurbishment of existing clinker grinders and equipment prior to return to warehouse.

### Constraints

System must be flushed and locked out prior to construction.

Work will be done during the planned outage scheduled for 2021.

### Assumptions

Equipment will be available from the warehouse prior to construction.

Removed clinker grinders and hoppers can be rebuilt and placed back into inventory, so the project cost for these items is net zero.

Monorail and bottom ash pit hoists are functional and will be used for removal and install of clinker grinders.

Piping may be removed temporarily for access to the bottom ash pits monorail

New piping will be procured by APS.

No heat trace is installed on the affected piping.

Double work shifts will be required to complete work within scheduled outage duration.

No lead paint or asbestos abatement is required.

No repairs to foundation pedestals are required.

Riley vacuuming costs will be JV'ed to CCR Fuels Cleanup (O&M).

Project management by Aecom.

ESP support only for incorporating contractor relines, if necessary.

**FCC014803 Area Lighting Replacement Phase 3**

Four Corners Participant Project	Rev FC21-34	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC21-34	Env Code: N/A	ERF Completed: Yes
In 2021 Budget: Yes	Plant Acct: 131100	Est Removal:	Est In Svc: 15 Oct 2021

**Description:** Replace the F45 area lighting fixtures in the F4/F5 Boiler, Tripper Deck, O2 Deck, Condensate Storage Tanks Area, Low Pressure Feedwater Point Heater Area, Circulating Water Intake Area, Waste Processing Area, and under the new SCR.

**Purpose/Necessity:** Existing lighting fixtures in the F4/F5 boiler and turbine have deteriorated over time and have reached the end of their useful life. Light fixture replacement will be completed to maintain compliance with OSHA 1926.56(a) Table D-3 Minimum Illumination Intensities in Foot-Candles.

**Consequences of Delay:** Current lighting levels do not meet IES minimum foot-candle recommendations. Low lighting levels throughout the plant create hazards to personnel and require the use of temporary lighting for routine tasks.

**Economic Justification:**

Budget Category: SAFETY

**Cash Flow - 2021**

Jan	\$12,000	Apr	\$19,000	Jul	\$137,000	Oct	\$0
Feb	\$38,000	May	\$137,000	Aug	\$9,000	Nov	\$0
Mar	\$977,000	Jun	\$266,000	Sep	\$0	Dec	\$0
<b>Prior</b>	\$0	<b>2021</b>	\$1,594,000	<b>2022</b>	\$0	<b>After</b>	\$0

**Cost Summary**

	<b>Current Amount</b>	<b>Revised Amount</b>
RU Materials	\$835,000	
Removals	\$175,000	
(Salvage)	\$0	
Non-Itemized Additions	\$573,000	
Specific Cost	\$1,583,000	
Overhead Loads	\$11,000	
<b>CBI Total</b>	<b>\$1,594,000</b>	
Retirements	\$0	

**Approvals**

		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$1,004,335	Date
NTEC	7.00%	\$111,593	Date
PNM	13.00%	\$207,244	Date
SRP	10.0%	\$159,418	Date
TEP	7.00%	\$111,593	Date



### **FCC014803 F45 Area Lighting Replacement, CBI 21-34**

#### **Description**

The purpose of this project is to replace the existing lighting fixtures in the F4/F5 boiler and turbine which have deteriorated over time and have reached the end of their useful life. Light fixture replacement will be completed to maintain compliance with OSHA 1926.56(a) Table D-3 Minimum Illumination Intensities in Foot-Candles.

#### **Scope**

Phase 3 lighting shall be replaced in the following areas, by priority: (Coordinate with F45 Area Lighting Replacement Phase 1, FCC014590 and F45 Area Lighting Replacement Phase 2, FCC014802).

Boiler Level 4 through the Top

Tripper Deck Area

F4/F5 O2 Deck

F4/F5 Condensate Storage Tank Area

F4/F5 Feedwater Point Heater Area

F4/F5 Circulating Water Intake Area

Waste Processing (Truck Bays, Stairs, Top of new Fly Ash Silos, Top of old Fly Ash Silos, Reversing Conveyor, North/South Side of Reversing Conveyor)

Under the SCR (new design). Only portion of work with ESP Services.

#### **Exclusions**

Replacement of existing fixture wiring.

Replacement of existing fixture raceway.

Replacement of panelboards or distribution transformers.

POM exclusions will be required for equipment delivery.

#### **Constraints**

CIP certified contractors will be required to access CIP PSP areas.

Lighting panels and wiring that are near end of life may require replacement.

#### **Assumptions**

Lighting system has capacity for new LED lighting.

Lighting shall be outdoor type, 5000k or 9000k, LED.

Replacement of existing power cable, raceway, panelboards, and distribution transformers have not been included in phases 1, 2, or 3.

Installation of new power cable and raceway is only included for new lighting system design located under the SCR.

ESP Services will only be required to design new lighting in area underneath the SCR and to tally total number of fixtures in other areas.

Any areas that are not finished during phase 3 will be pushed to FCC014804 – Area Lighting Project Phase 4.

**FCC06570 GSU Transformer T641 Replacement**

Four Corners Participant Project	Rev FC21-35	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC21-35	Env Code: N/A	ERF Completed: Yes
In 2021 Budget: Yes	Plant Acct: 131500	Est Removal:	Est In Svc: 19 Mar 2022

**Description:** Install a new like-kind generator step-up (GSU) transformer in the North GSU position (T1742) and move the North GSU transformer to the spare pad to replace the existing spare GSU transformer (T641).

**Purpose/Necessity:** The purpose of this project is to maintain unit reliability by ensuring that a reliable spare GSU transformer is available for use. The existing GSU spare transformer is 50 years old and test results indicate that it has reached the end of its serviceable life.

**Consequences of Delay:** Failure of an in-service GSU transformer could result in a 30-day forced outage to install the spare GSU and a potential 12-month forced outage if the failed transformer cannot be repaired or the spare transformer fails. Economic justification assumes a 5% probability of an in-service GSU transformer failing resulting in a 30-day forced outage to install the spare GSU transformer.

**Economic Justification:**

Benefit-Cost NPV: 7.30 M\$  
 Budget Category: REL-UNIT

**Cash Flow - 2021**

Jan	\$22,000	Apr	\$283,000	Jul	\$43,000	Oct	\$3,000
Feb	\$280,000	May	\$21,000	Aug	\$14,000	Nov	\$4,000
Mar	\$135,000	Jun	\$812,000	Sep	\$1,052,000	Dec	\$4,000
<b>Prior</b>	\$0	<b>2021</b>	\$2,673,000	<b>2022</b>	\$1,893,000	<b>After</b>	\$0

**Cost Summary**

	<b>Current Amount</b>	<b>Revised Amount</b>
RU Materials	\$2,100,000	
Removals	\$28,000	
(Salvage)	(\$25,000)	
Non-Itemized Additions	\$2,438,000	
Specific Cost	\$4,541,000	
Overhead Loads	\$25,000	
<b>CBI Total</b>	<b>\$4,566,000</b>	
Retirements	\$0	

**Approvals**

		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$2,876,504	Date
NTEC	7.00%	\$319,612	Date
PNM	13.00%	\$593,564	Date
SRP	10.0%	\$456,588	Date
TEP	7.00%	\$319,612	Date

## FCC06570 GSU Transformer T641 Replacement, CBI 21-35

### Description

The purpose of this project is to maintain unit reliability by ensuring that a reliable spare GSU transformer is available for use. The existing GSU spare transformer is 50 years old and test results indicate that it has reached the end of its serviceable life.

### Scope

Procure a new GSU transformer.  
Drain transformer T641 and coordinate with APS Asset Recovery for off-site disposal.  
LOTO and install grounds to facilitate the removal of T1742 from the service position.  
Determinate high side cable and disconnect iso-phase bus duct.  
Move T1742 from the service position to the spare pad.  
Lay-up T1742 in accordance with OEM recommendations for long term storage.  
Install new 120V power feeder to T1742 for control cabinet space heaters per OEM long term storage requirements.  
Install new GSU transformer in the service position.  
Assemble new transformer, fill with oil and connect high side cables and isophase bus duct.  
Remove LOTOs and grounds.  
Commission new transformer.

### Exclusions

Project scope does not include developing new specification for transformer. Existing APS transformer specification and drawings will be reviewed, revised as needed for this project, and used for bidding and procurement.  
Modifications or replacement of Isophase bus duct.is not included.  
Modifications to existing spare and in-service GSU foundations is not included.

### Constraints

Transformer lead time is approximately 12 to 13 months from receipt of order.  
Existing spare (T641) and North In-Service transformer (T1742) must be removed from the pad prior to arrival of the new transformer.  
Disposal of oil from T641 will need to be coordinated with the site environmental rep.  
Disposal of T641 transformer must be coordinated through APS Asset Recovery.  
Estimated installation duration is 18 days but upcoming planned outages are only scheduled for 12 days.

### Assumptions

No modification to or installation of new masonry fire walls is required.  
A witnessed Factory Acceptance Test is required.  
Removal of transformers T641 and T1742 will not require a dual unit outage.  
Removal of transformers T641 and T1742 will use a track and gantry system.  
Existing spare transformer pad is in good condition and adequate to support the weight of T1742.  
Unit 4 North In-Service transformer pad is adequate for weight of new purchased transformer.  
Costs are included for removal, testing, and disposal of the T641 transformer oil.  
Transformer T641 will be immediately transferred off site in coordination with APS Asset Recovery team.  
Serveron Dissolved Gas Analyzer system can be reused for the new transformer.  
Existing Isophase is in good condition and adequate to be used with new transformer.

Existing power supply for cooling fans will be re-used on the new transformer installed in the in-service position.

Existing control signals will be rewired, no new control signals will be added on the new transformer installed in the in-service position.

Existing control cabinet is in the same location as the new transformer control cabinet.

There will be no changes to the existing oil containment or fire protection system.

**FCC08575 4X FD Fan Motor Replacement**

Four Corners Participant Project	Rev FC21-37	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC21-37	Env Code: N/A	ERF Completed: Yes
In 2021 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 10 Apr 2021

**Description:** Replace the North-Center (4NC) Forced Draft (FD) fan motor.

**Purpose/Necessity:** The purpose of this project is to maintain unit reliability by replacing the FD fan motor. The existing FD fan motor is approaching the end of useful life and requires replacement.

**Consequences of Delay:** Failure of a FD Fan Motor will result in a 5-day forced outage. The probability of a FD fan motor failure is estimated at 20%.

**Economic Justification:**

Benefit-Cost NPV: 0.70 M\$  
 Budget Category: REL-UNIT

**Cash Flow - 2021**

Jan	\$117,000	Apr	(\$105,000)	Jul	\$1,000	Oct	\$0
Feb	\$101,000	May	\$1,000	Aug	\$0	Nov	\$0
Mar	\$6,000	Jun	\$1,000	Sep	\$0	Dec	\$0
<b>Prior</b>	\$0	<b>2021</b>	\$122,000	<b>2022</b>	\$0	<b>After</b>	\$0

**Cost Summary**

	<b>Current Amount</b>	<b>Revised Amount</b>
RU Materials	\$100,000	
Removals	\$10,000	
(Salvage)	\$0	
Non-Itemized Additions	\$8,000	
Specific Cost	\$118,000	
Overhead Loads	\$5,000	
<b>CBI Total</b>	<b>\$122,000</b>	
Retirements	\$0	

**Approvals**

		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$76,974	Date
NTEC	7.00%	\$8,553	Date
PNM	13.00%	\$15,884	Date
SRP	10.0%	\$12,218	Date
TEP	7.00%	\$8,553	Date

**FCC08575 F4 4X FD Fan Motor Replacement, CBI 21-37**

**Description**

The purpose of this project is to maintain unit reliability by replacing the FD fan motor. The existing FD fan motor is approaching the end of useful life and requires replacement.

**Scope**

APS will contract out removal and installation of an existing FD motor.

**Exclusions**

Structural modifications to existing foundation.

Electrical work except for disconnecting and reconnecting existing conductors.

**Constraints**

Motor replacement will occur during an outage and other contractors will be working in the area.

Coordination will be required.

Special forklift required from 3rd party contractor to handle the size of the motor.

**Assumptions**

Existing spare motor is available in the warehouse. POM exclusions will be required for equipment delivery.

Modifications to motor base plates will not be required.

Motors will either be changed during outage or in the event of an existing motor failure. Project costs do not include expediting of mobilization of contractor.

Project cost assume motor will be re-wound and placed back in warehouse thus resulting in a \$0 cost for materials.

No structural or electrical changes will be required to replace an existing motor with an existing spare.

During cooler weather, full load production can be achieved with only three FD fans. Warmer weather requires all four FD fans operation to achieve full production.

**FCC08578 4X PA Fan Motor Replacement**

Four Corners Participant Project	Rev FC21-38	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC21-38	Env Code: N/A	ERF Completed: Yes
In 2021 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 25 Apr 2021

**Description:** Replace the 4S Primary Air (PA) Fan Motor.

**Purpose/Necessity:** The purpose of this project is to maintain unit reliability by replacing the PA fan motor. The existing PA fan motor is approaching the end of useful life and requires replacement.

**Consequences of Delay:** Failure of a Primary Air fan motor will result in a 4-day forced outage. The probability of a primary air fan motor failure is estimated at 20%.

**Economic Justification:**

Benefit-Cost NPV: 0.60 M\$  
Budget Category: REL-UNIT

**Cash Flow - 2021**

Jan	\$117,000	Apr	(\$105,000)	Jul	\$1,000	Oct	\$0
Feb	\$101,000	May	\$1,000	Aug	\$0	Nov	\$0
Mar	\$6,000	Jun	\$1,000	Sep	\$0	Dec	\$0
<b>Prior</b>	\$0	<b>2021</b>	\$122,000	<b>2022</b>	\$0	<b>After</b>	\$0

**Cost Summary**

	Current Amount	Revised Amount
RU Materials	\$100,000	
Removals	\$10,000	
(Salvage)	\$0	
Non-Itemized Additions	\$8,000	
Specific Cost	\$118,000	
Overhead Loads	\$5,000	
<b>CBI Total</b>	<b>\$122,000</b>	
Retirements	\$0	

**Approvals**

		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$76,974		Date
NTEC	7.00%	\$8,553		Date
PNM	13.00%	\$15,884		Date
SRP	10.0%	\$12,218		Date
TEP	7.00%	\$8,553		Date

**FCC08578 F4 4X PA Fan Motor Replacement, CBI 21-38**

**Description**

The purpose of this project is to maintain unit reliability by replacing the PA fan motor. The existing PA fan motor is approaching the end of useful life and requires replacement.

**Scope**

Retrieve the spare primary air fan motor from the warehouse.  
Establish LOTO.  
De-terminate all cables and unbolt existing FD fan motor from the baseplate.  
Remove existing FD fan motor and transport to warehouse.  
Set and bolt replacement motor to baseplate.  
Align motor.  
Re-terminate all power and control cables.  
Remove LOTO.  
Bump motor to confirm rotation.  
Test run motor.

**Exclusions**

Structural modifications to existing foundation.  
Electrical work except for disconnecting and reconnecting existing conductors.  
No modifications or repair to anchor bolts.  
Pedestal is in good condition and will not be replaced.  
Electrical work except for disconnecting and reconnecting existing conductors.  
ESP Services are not required.  
POM exclusions will be required for equipment delivery and IFC package.

**Constraints**

Motor replacement will occur during an outage.  
Other contractors will be working in the area. Coordination will be required.  
Special forklift required from 3rd party contractor to handle the size of the motor.

**Assumptions**

Replacement motor is available in the warehouse.  
Labor will be performed by APS personnel  
Baseplate is in good condition and will not require repairs and/or surface machining.  
Motor can be re-wound and placed back in warehouse thus resulting in a \$0 cost for materials.  
Existing motor to be rewound using O&M funding.  
No structural or electrical changes will be required to replace an existing motor with an existing spare.  
Existing anchor bolts are in good condition and can be reused for new motor.  
During cooler weather, full load production can be achieved with only three FD fans. Warmer weather requires all four FD fans operation to achieve full production.



**FCC08861 Baghouse Booster Fan Motor Replacement - C**

Four Corners Participant Project	Rev FC21-39	0% Enviro.	NSR Completed: Yes
FC Unit 5	CBI: FC21-39	Env Code: N/A	ERF Completed: Yes
In 2021 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 28 Apr 2021

**Description:** Replace the Northeast (SNE) Baghouse two-speed Booster Fan Motor.

**Purpose/Necessity:** The purpose of this project is to maintain unit reliability by avoiding unplanned outages or load reductions due to the failure of a Booster Fan Motor. The existing Booster Fan Motor is approaching the end of useful life and requires replacement.

**Consequences of Delay:** Failure of a baghouse booster fan would result in a 20% load curtailment for 20 days. The estimated probability of a motor failure is 10%.

**Economic Justification:**

Benefit-Cost NPV: 0.60 M\$  
 Budget Category: REL-UNIT

**Cash Flow - 2021**

Jan	\$6,000	Apr	\$189,000	Jul	\$0	Oct	\$0
Feb	\$33,000	May	\$5,000	Aug	\$0	Nov	\$0
Mar	\$704,000	Jun	(\$681,000)	Sep	\$0	Dec	\$0
<b>Prior</b>	\$0	<b>2021</b>	\$256,000	<b>2022</b>	\$0	<b>After</b>	\$0

**Cost Summary**

	<b>Current Amount</b>	<b>Revised Amount</b>
RU Materials	\$751,000	
Removals	\$35,000	
(Salvage)	\$0	
Non-Itemized Additions	(\$534,000)	
Specific Cost	\$252,000	
Overhead Loads	\$5,000	
<b>CBI Total</b>	<b>\$256,000</b>	
Retirements	\$0	

**Approvals**

			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$161,572		Date
NTEC	7.00%	\$17,952		Date
PNM	13.00%	\$33,340		Date
SRP	10.0%	\$25,646		Date
TEP	7.00%	\$17,952		Date

**FCC08861 F5 Baghouse Booster Fan Motor Replacement - C, CBI 21-39**

**Description**

The purpose of this project is to maintain unit reliability by avoiding unplanned outages or load reductions due to the failure of a Booster Fan Motor. The existing Booster Fan Motor is approaching the end of useful life and requires replacement.

**Scope**

Retrieve booster fan motor from warehouse.

Establish a LOTO.

Disconnect and pull back 13.8kV motor leads, motor space heater leads, bearing thermocouple leads, and stator RTD leads.

Remove structural steel above existing booster fan motor.

Unbolt motor, remove from support base, and transport to warehouse.

Set and bolt new motor on support base.

Align motor.

Reconnect 13.8kV motor leads, motor space heater leads, bearing thermocouple leads, and stator RTD leads.

Remove LOTO.

Bump motor and confirm rotation.

**Exclusions**

No new raceways or conductors are included.

No modifications to motor baseplate or base support.

No modifications to anchor bolts.

Pedestal is in good condition and will not be replaced.

POM exclusions will be required for equipment delivery and IFC package.

ESP services not required.

**Constraints**

Structural steel will need to be removed to access the baghouse booster fan motor.

Motor replacement will occur during an outage.

Other contractors will be working in the area. Coordination will be required.

Crane placement for this work will need to be on the mine side of the fence. Coordination will be required with the mine. Some of the coal pile may need to be moved.

MSHA certification may be required for the crane operator and others working on the project.

**Assumptions**

Motor is available in the warehouse.

Removal of structural steel will not require any temporary structural modifications.

No modifications are required to the motor base plate or support base.

Existing anchor bolts are in good condition and can be reused for new motor.

Existing cabling is in good condition and can be re-used.

Motor can be reconditioned and placed back in warehouse thus resulting in a \$0 cost for materials.

Existing motor to be re-wound under O&M funding.

Scaffolding will be required to facilitate work on the booster fan motor.

**FCC08863 Baghouse Booster Fan Motor Replacement - A**

Four Corners Participant Project	Rev FC21-40	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC21-40	Env Code: N/A	ERF Completed: Yes
In 2021 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 28 Apr 2021

**Description:** Replace the Unit 4 Southeast (4SE) Baghouse two speed Booster Fan Motor with a spare motor from inventory. Return motor to warehouse, rewind, and place as existing spare motor.

**Purpose/Necessity:** The purpose of this project is to maintain unit reliability of the Baghouse Booster Fan Motor and to avoid unplanned outages or load reduction in the event of a Booster Fan Motor failure. The existing Booster Fan Motor is approaching the end of useful life and requires replacement.

**Consequences of Delay:** Reduced combustion air system reliability and subsequent increased risk to unit availability. Potential 20% load loss on unit 4 for 20 days. Economic justification assumes a 10% probability of a 20 day load reduction.

**Economic Justification:**

Benefit-Cost NPV: 0.60 M\$  
 Budget Category: REL-UNIT

**Cash Flow - 2021**

Jan	\$722,000	Apr	\$42,000	Jul	\$0	Oct	\$0
Feb	\$196,000	May	(\$712,000)	Aug	\$0	Nov	\$0
Mar	\$20,000	Jun	\$0	Sep	\$0	Dec	\$0
<b>Prior</b>	\$0	<b>2021</b>	\$268,000	<b>2022</b>	\$0	<b>After</b>	\$0

**Cost Summary**

	<b>Current Amount</b>	<b>Revised Amount</b>
RU Materials	\$751,000	
Removals	\$35,000	
(Salvage)	\$0	
Non-Itemized Additions	(\$541,000)	
Specific Cost	\$245,000	
Overhead Loads	\$23,000	
<b>CBI Total</b>	<b>\$268,000</b>	
Retirements	\$0	

**Approvals**

		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$168,621	Date
NTEC	7.00%	\$18,736	Date
PNM	13.00%	\$34,795	Date
SRP	10.0%	\$26,765	Date
TEP	7.00%	\$18,736	Date

## FCC08863 F4 Baghouse Booster Fan Motor Replacement - A, CBI 21-40

### Description

The purpose of this project is to maintain unit reliability of the Baghouse Booster Fan Motor and to avoid unplanned outages or load reduction in the event of a Booster Fan Motor failure. The existing Booster Fan Motor is approaching the end of useful life and requires replacement.

### Scope

Retrieve booster fan motor from warehouse.

Establish a LOTO.

Disconnect and pull back 13.8V motor leads, motor space heater leads, bearing thermocouple leads, and stator RTD leads.

Remove structural steel above existing booster fan motor.

Unbolt motor, remove from support base, and transport to warehouse.

Set and bolt new motor on support base.

Align motor.

Reconnect 13.8kV motor leads, motor space heater leads, bearing thermocouple leads, and stator RTD leads.

Remove LOTO

Bump motor and confirm rotation.

### Exclusions

No new raceways or conductors are included.

No modifications to motor baseplate or base support.

No modifications to anchor bolts.

Pedestal is in good condition and will not be replaced.

POM exclusions will be required for equipment delivery and IFC package.

ESP services not required.

### Constraints

Structural steel will need to be removed to access the baghouse booster fan motor.

Motor replacement will occur during an outage.

Other contractors will be working in the area. Coordination will be required.

Crane placement for this work will need to be on the mine side of the fence. Coordination will be required with the mine. Some of the coal pile may need to be moved.

MSHA certification may be required for the crane operator and others working on the project.

### Assumptions

Motor is available in the warehouse.

Removal of structural steel will not require any temporary structural modifications.

No modifications are required to the motor base plate or support base.

Existing anchor bolts are in good condition and can be reused for new motor.

Existing cabling is in good condition and can be re-used.

Motor can be reconditioned and placed back in warehouse thus resulting in a \$0 cost for materials.

Existing motor to be re-wound under O&M funding.

Scaffolding will be required to facilitate work on the booster fan motor.

**FCC08924 Baghouse 13.8KV Fan Motor Protective Relay Replacement**

Four Corners Participant Project	Rev FC21-41	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC21-41	Env Code: N/A	ERF Completed: Yes
In 2021 Budget: Yes	Plant Acct: 131500	Est Removal:	Est In Svc: 19 Mar 2022

**Description:** Replace existing baghouse booster fan motor electromechanical relays with four (4) new microprocessor-based motor protection relays for four (4) motors in the F4 baghouse 13.8kV medium voltage switchgear.

**Purpose/Necessity:** The purpose of this project is to maintain unit reliability by replacing existing protective relaying devices. The original relays have reached the end of useful life, and replacement parts are obsolete. Installing newer microprocessor relays offer a higher level of security and dependability.

**Consequences of Delay:** Failure of the baghouse booster fan motor relay will result in unit curtailment of approximately 16% load loss for 5 days. Economic justification assumes a 5% probability of a 5 day load reduction.

**Economic Justification:**

Benefit-Cost NPV: 0.00 M\$  
 Budget Category: REL-UNIT

**Cash Flow - 2021**

Jan	\$11,000	Apr	\$31,000	Jul	\$31,000	Oct	\$5,000
Feb	\$50,000	May	\$45,000	Aug	\$15,000	Nov	\$5,000
Mar	\$67,000	Jun	\$55,000	Sep	\$5,000	Dec	\$5,000
<b>Prior</b>	\$0	<b>2021</b>	\$325,000	<b>2022</b>	\$282,000	<b>After</b>	\$10,000

**Cost Summary**

	<b>Current Amount</b>	<b>Revised Amount</b>
RU Materials	\$26,000	
Removals	\$5,000	
(Salvage)	\$0	
Non-Itemized Additions	\$558,000	
Specific Cost	\$589,000	
Overhead Loads	\$29,000	
<b>CBI Total</b>	<b>\$617,000</b>	
Retirements	\$0	

**Approvals**

		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$389,003	Date
NTEC	7.00%	\$43,223	Date
PNM	13.00%	\$80,270	Date
SRP	10.0%	\$61,747	Date
TEP	7.00%	\$43,223	Date

**FCC08924 F4 Baghouse 13.8KV Fan Motor Protective Relay, CBI 21-41**

**Description**

The purpose of this project is to maintain unit reliability by replacing existing protective relaying devices. The original relays have reached the end of useful life, and replacement parts are obsolete. Installing newer microprocessor relays offer a higher level of security and dependability.

**Scope**

Contract with an ESP to develop protective relay schematics, wiring diagrams, prefabricated panel layouts, protective relay calculations, settings, and installation specifications.  
Update CIP asset inventory. Contract with specialty electrical contractor or APS P&C to prefabricate and install new microprocessor based protective relays during a unit outage.  
Test baghouse switchgear for lead coatings and test existing cable insulation for asbestos.  
Install new cables or terminate existing spare conductors from Unit 4 baghouse medium voltage switchgear to baghouse DCS cabinet for new IO associated with new microprocessor relays.  
Program the DCS to function with the new microprocessor relays.  
Update the DCS Graphics to show the status of the microprocessor relays.  
Fabricate and install cover plates for removed devices.  
Mount protective relays into panel and pre-wire to test switches to decrease installation time in the field.  
Panel may be steel of the same thickness as original or aluminum stiffened for rigidity.  
Paint panel to match existing panel color.

**Exclusions**

Replacement of motor remote temperature device (RTD) and associated conductor between the motor and relay cabinet.  
Replacement of motor differential current transformers (CT) and associated conductor between the motor and relay cabinet.

**Constraints**

Work must be performed during a unit outage.  
CIP certified contractors will be required to access CIP PSP areas.  
CIP coordination within APS project schedules is required.

**Assumptions**

Protective relay panels will be fabricated prior to installation to reduce the overall installation duration.  
New protective relays can be installed during a 12-day unit outage.  
Cable tray has sufficient capacity for new DCS conductors between the relay and DCS cabinet.  
Lead testing will be required for removal of existing relay panels.  
Asbestos testing by APS will be required before removing or cutting any existing cables.  
New infrastructure is required for the Real-time Automated Controller.

**FCC016351 Fire Warning Detection System Replacement - Phase 2**

Four Corners Participant Project	Rev FC21-42	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC21-42	Env Code: N/A	ERF Completed: Yes
In 2021 Budget: Yes	Plant Acct: 131600	Est Removal:	Est In Svc: 30 Sep 2022

**Description:** Replace the existing fire warning detection systems in the baghouse control room, scrubber waste process control room, warehouse, make-up water pump building, lime process building, polymer building, polymer tank area, and training building. Install new fire warning detection system in the administration building and maintenance/planning building to comply with IEC 2003 group B for occupied spaces. Install new fiber optic jumpers to connect all fire detection panels to the fire detection workstation in the control room. Install new cable to connect the existing fire detection panels in the air compressor building and general services switchgear to the fire detection workstation in the control room.

**Purpose/Necessity:** The purpose of this project is to maintain safe operation of the plant and to protect personnel and equipment in accordance with the recommendations from the 2017 Property Risk Assessment by AEGIS Insurance Services and to ensure continued compliance with the International Building Code (IBC) 2003. The existing fire detection system, fire detection server and interconnecting control cable has reached the end of its serviceable life. Replacement parts for repair and refurbishment are obsolete.

**Consequences of Delay:** Risk to plant personnel safety, potential damage or loss of equipment, and non-compliance with International Building Code (IBC) and AEGIS Insurance Services, Inc. property risk assessment.

**Economic Justification:**

Budget Category: SAFETY

**Cash Flow - 2021**

Jan	\$61,000	Apr	\$22,000	Jul	\$204,000	Oct	\$8,000
Feb	\$113,000	May	\$155,000	Aug	\$204,000	Nov	\$2,000
Mar	\$8,000	Jun	\$155,000	Sep	\$172,000	Dec	\$2,000
<b>Prior</b>	\$0	<b>2021</b>	\$1,106,000	<b>2022</b>	\$1,275,000	<b>After</b>	\$0

**Cost Summary**

	<b>Current Amount</b>	<b>Revised Amount</b>
RU Materials	\$340,000	
Removals	\$80,000	
(Salvage)	\$0	
Non-Itemized Additions	\$1,902,000	
Specific Cost	\$2,322,000	
Overhead Loads	\$58,000	
<b>CBI Total</b>	<b>\$2,380,000</b>	
Retirements	\$0	

**Approvals**

		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$1,499,435	Date
NTEC	7.00%	\$166,604	Date
PNM	13.00%	\$309,407	Date
SRP	10.0%	\$238,006	Date
TEP	7.00%	\$166,604	Date

**FCC0016351 F45 Fire Warning Detection System Replacement – Phase 2, CBI 21-42**

**Description**

The purpose of this project is to maintain safe operation of the plant and to protect personnel and equipment in accordance with the recommendations from the 2017 Property Risk Assessment by AEGIS Insurance Services and to ensure continued compliance with the International Building Code (IBC) 2003. The existing fire detection system, fire detection server and interconnecting control cable has reached the end of its serviceable life. Replacement parts for repair and refurbishment are obsolete.

**Scope**

Furnish and install new fire warning detection systems in the following buildings:

1. Bldg #2 – Admin Building
2. Bldg #59 – Maintenance/Planning Building

Demolish existing fire detection system, furnish and install new fire warning detection systems in the following buildings:

1. Bldg #30 – Training Building
2. Bldg #61 – Baghouse Control Room
3. Bldg #64 – Scrubber Waste Process Control Room
4. Bldg #70 – Scrubber Absorber Building
5. Bldg #71 – Scrubber Warehouse
6. Bldg #72 – Scrubber Make-Up Water Pump Building
7. Bldg #73 – Scrubber Lime Process Building
8. Bldg #74 – Scrubber Polymer Building & Tank Area

Furnish and install new single-mode fiber cable jumpers between the fire detection control panel and fiber cable patch panel in each of the following buildings:

1. Bldg #2 – Admin Building
2. Bldg #30 – Training Building
3. Bldg #59 – Maintenance/Planning Building
4. Bldg #61 – Baghouse Control Room
5. Bldg #64 – Scrubber Waste Process Control Room
6. Bldg #70 – Scrubber Absorber Building
7. Bldg #71 – Scrubber Warehouse
8. Bldg #72 – Scrubber Make-Up Water Pump Building
9. Bldg #73 – Scrubber Lime Process Building
10. Bldg #74 – Scrubber Polymer Building

Furnish and install new twisted pair cable and raceway (as necessary) to connect existing fire warning detection panels in the buildings listed below to the new system fire detection systems in F45 control room and training building:

1. Bldg #113 – General Services Switchgear
2. Bldg #118/129 – Main Air Compressor Building & Power Distribution Center



Program new fire detection control panels into the new fire detection workstation in the F45 Control Room to allow the control room operators to monitor, view, and access all wired fire panels throughout the plant.

**Exclusions**

Fire suppression system or controls will not be modified.  
Existing Simplex fire detection control panels in General Services Switchgear building and Main Air Compressor building will not be replaced.

**Constraints**

Plant fire detection systems will be required to be de-activated when targeted for replacement or service under this project.  
During these periods of fire detection system de-activation, Plant will be required to establish provisions to be in place and plant procedures to be followed so as to mitigate any risk potential during the stated fire detection system de-activation.

**Assumptions**

Design of the Phase 2 fire detection systems were completed in Phase 1 (FCC013055).  
Phase 2 estimates are based off of Phase 1 (FCC013055) bid proposals.  
All planned work scope associated with Phase 1 (FCC013055) is complete and functional prior to starting construction on Phase 2 (this project).  
All of the Phase 2 work can be performed without the need for an outage.  
Fire detection panels will communicate through the fiber optic network cable.  
Fire suppression system or controls will not be modified.  
Fire detection system shall not control plant systems.

**FCC016424 DCS Power Supplies Replacement**

Four Corners Participant Project	Rev FC21-43	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC21-43	Env Code: N/A	ERF Completed: Yes
In 2021 Budget: Yes	Plant Acct: 131500	Est Removal:	Est In Svc: 25 Apr 2021

**Description:** Replace DCS power supplies that are approaching their end of life.

**Purpose/Necessity:** The purpose of this project is to maintain plant reliability by replacing outdated and obsolete components of the Unit 4 DCS. The existing power supplies in cabinet L4 are approaching their end of useful life and are no longer supported by the OEM.

**Consequences of Delay:** Reduced DCS reliability and subsequent increased risk to unit availability.

**Economic Justification:**

Benefit-Cost NPV: 1.60 M\$  
 Budget Category: REL

**Cash Flow - 2021**

Jan	\$383,000	Apr	\$107,000	Jul	\$4,000	Oct	\$0
Feb	\$19,000	May	\$9,000	Aug	\$0	Nov	\$0
Mar	\$340,000	Jun	\$4,000	Sep	\$0	Dec	\$0
<b>Prior</b>	\$0	<b>2021</b>	\$865,000	<b>2022</b>	\$0	<b>After</b>	\$0

**Cost Summary**

	<b>Current Amount</b>	<b>Revised Amount</b>
RU Materials	\$450,000	
Removals	\$10,000	
(Salvage)	\$0	
Non-Itemized Additions	\$387,000	
Specific Cost	\$847,000	
Overhead Loads	\$18,000	
<b>CBI Total</b>	<b>\$865,000</b>	
Retirements	\$0	

**Approvals**

			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$545,060		Date
NTEC	7.00%	\$60,562		Date
PNM	13.00%	\$112,473		Date
SRP	10.0%	\$86,518		Date
TEP	7.00%	\$60,562		Date

**FCC016424 F4 DCS Power Supplies Replacement, CBI 21-43**

**Description**

The purpose of this project is to maintain plant reliability by replacing outdated and obsolete components of the Unit 4 DCS. The existing power supplies in cabinet L4 are approaching their end of useful life and are no longer supported by the OEM.

**Scope**

Replace power supplies in the Unit 4 DCS:

Cabinet L4: PCU 10, 11, 12, 13, 14, 20, 21, 22, 23, 24, 40, 41, 43, 50, 53, 54, 64

Cabinet 4N90-11R

**Exclusions**

IFC Design package from ESP. ESP will provided limited support for procurement and construction activities.

**Constraints**

Outage required for power supply installation.

CIP considerations will be necessary for equipment and access.

DCS Power Supplies must be purchased through an approved CIP Supplier in accordance with NERC CIP-013 Compliance requirements.

**Assumptions**

Project will be approved to begin in 2020 so as to meet the 2021 outage schedule.

Services will be sole-sourced to the DCS OEM, ABB, for equipment and installation.

POM exclusions for Equipment Delivery.

POM exclusions for IFC Package as it not follow a planned design, procure, construct schedule.

<b>FCC016656 Potable Water Treatment System Upgrade</b>			
Four Corners Participant Project	Rev FC21-44	100% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC21-44	Env Code: Water	ERF Completed: Yes
In 2021 Budget: Yes	Plant Acct:	Est Removal:	Est In Svc: 07 Feb 2022
<b>Description:</b> Install a new potable water tank, new interconnecting piping, new potable water monitoring instrumentation, and modify one of the existing FRP potable water tanks.			
<b>Purpose/Necessity:</b> Maintain compliance with the Safe Drinking Water Act and EPA potable water disinfection requirements..			
<b>Consequences of Delay:</b> The potable water treatment system is in risk of non-compliance with EPA potable water disinfection requirements.			
<b>Economic Justification:</b>			
Budget Category: ENV			

**Cash Flow - 2021**

Jan	\$0	Apr	\$38,000	Jul	\$38,000	Oct	\$25,000
Feb	\$38,000	May	\$21,000	Aug	\$40,000	Nov	\$25,000
Mar	\$41,000	Jun	\$21,000	Sep	\$38,000	Dec	\$73,000
<b>Prior</b>	\$0	<b>2021</b>	\$397,000	<b>2022</b>	\$658,000	<b>After</b>	\$0

**Cost Summary**

	<b>Current Amount</b>	<b>Revised Amount</b>
RU Materials	\$42,000	
Removals	\$0	
(Salvage)	\$0	
Non-Itemized Additions	\$986,000	
Specific Cost	\$1,028,000	
Overhead Loads	\$27,000	
<b>CBI Total</b>	<b>\$1,055,000</b>	
Retirements	\$0	

**Approvals**

		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$664,773		Date
NTEC	7.00%	\$73,864		Date
PNM	13.00%	\$137,175		Date
SRP	10.0%	\$105,520		Date
TEP	7.00%	\$73,864		Date

## FCC016656 F45 Potable Water Treatment System Upgrade, CBI 21-44

### Description

The purpose of this project is to maintain compliance with the Safe Drinking Water Act and EPA potable water disinfection requirements.

### Scope

- Procure a new 10,000 gallon potable water tank.
- Design existing tank modifications (additional flange, internal standpipe, and LIT nozzle) and balance of plant components including a foundation, piping, and controls for the new potable water system components.
- Install a foundation for the new tank.
- Install the new potable water tank.
- Install new interconnecting piping, water quality monitoring instrumentation, and flow control instrumentation.
- Install heat trace and insulation.
- Utilize a short outage to tie-in to the existing potable water flow path and modify the existing potable water tank and piping.
- Sanitize/clean all equipment and obtain NSF-61 certification for all equipment and materials.
- Startup and commission all new equipment and materials.

### Exclusions

The existing chemical feed systems will be re-used.

One existing potable water tank will be modified but will not be replaced in its entirety.

### Constraints

An outage to the potable water system is required for this work.

A crane will be required to lift the new potable water tank.

CIP Access is required for new instrumentation cable installation.

Scaffolding is required inside the potable water building for installation.

### Assumptions

Tank procurement will not require a competitive bid event as cost for tank will be less than \$50,000.

A geotech report exists for the soil in the area of the new foundation. No new geotech specification or report is needed.

Below grade potholing is required in the area of the new foundation to verify no below grade obstructions exist in the footprint of the new tank foundation.

Lead paint and asbestos testing by APS.

A NESHAP notification will not be required.

A crane is required for lifting the new potable water tank.

No new drainage system or connection to drain piping is required for the new tank, only a drain valve with a blind flange will be required.

No significant defects will be found upon inspection and cleaning of the existing potable water tanks.

The existing chemical feed systems have adequate capacity to inject chemical as needed for the new potable water system flowrate.

Both of the 1/2" nozzles on existing Tank A are spare and the tank does not require modifications by the FRP tank contractor.

Tank foundation height will be high enough such that the new tank can overflow by gravity to the existing potable water tank.

**FCC016659 DCS Card and Power Supplies Replacement**

Four Corners Participant Project	Rev FC21-45	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC21-45	Env Code: N/A	ERF Completed: Yes
In 2021 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 28 Apr 2021

**Description:** Replace DCS cards and power supplies in the F45 common cabinets.

**Purpose/Necessity:** The purpose of this project is to maintain plant reliability by replacing outdated and obsolete DCS components common to Units 4 and 5. The existing components have reached the end of their useful life and are no longer supported by the OEM. Failure of these components could attribute to loss of common systems and corresponding trips and/or derates.

**Consequences of Delay:** Reduced DCS reliability and subsequent increased risk to unit and common system availability.

**Economic Justification:**

Benefit-Cost NPV: 3.00 M\$  
 Budget Category: REL

**Cash Flow - 2021**

Jan	\$65,000	Apr	\$285,000	Jul	\$4,000	Oct	\$0
Feb	\$126,000	May	\$13,000	Aug	\$0	Nov	\$0
Mar	\$383,000	Jun	\$4,000	Sep	\$0	Dec	\$0
<b>Prior</b>	\$0	<b>2021</b>	\$880,000	<b>2022</b>	\$0	<b>After</b>	\$0

**Cost Summary**

	<b>Current Amount</b>	<b>Revised Amount</b>
RU Materials	\$500,000	
Removals	\$10,000	
(Salvage)	\$0	
Non-Itemized Additions	\$358,000	
Specific Cost	\$868,000	
Overhead Loads	\$12,000	
<b>CBI Total</b>	<b>\$880,000</b>	
Retirements	\$0	

**Approvals**

		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$554,537	Date
NTEC	7.00%	\$61,615	Date
PNM	13.00%	\$114,428	Date
SRP	10.0%	\$88,022	Date
TEP	7.00%	\$61,615	Date

**FCC016659 F45 DCS Card and Power Supplies Replacement, CBI 21-45**

**Description**

The purpose of this project is to maintain plant reliability by replacing outdated and obsolete DCS components common to Units 4 and 5. The existing components have reached the end of their useful life and are no longer supported by the OEM. Failure of these components could attribute to loss of common systems and corresponding trips and/or derates.

**Scope**

Replace cards and power supplies in the Unit 45 common DCS:

Cabinet L1: PCU 46, 55, 57, 90, COMM1, COMM2

Cabinet L9: PCU 70, 79, 81

Cabinet BH: COMM Relay

**Exclusions**

IFC Design package from ESP. ESP will provide limited support for procurement and construction activities.

**Constraints**

Dual Unit Outage required for card and power supply installation.

CIP considerations will be necessary for equipment and access.

DCS Power Supplies must be purchased through an approved CIP Supplier in accordance with NERC CIP-013 Compliance requirements.

**Assumptions**

Project will be approved to begin in 2020 so as to meet the 2021 outage schedule.

Services will be sole-sourced to the DCS OEM, ABB, for equipment and installation.

POM exclusions for Equipment Delivery.

POM exclusions for IFC Package as it does not follow a planned design, procure, construct schedule.



**FCC06555 Startup Valve Replacement (205)**

Four Corners Participant Project	Rev FC21-46	0% Enviro.	NSR Completed: Yes
FC Unit 4	CBI: FC21-46	Env Code: N/A	ERF Completed: Yes
In 2021 Budget: Yes	Plant Acct: 131200	Est Removal:	Est In Svc: 10 Apr 2021

**Description:** Replace existing B&W "205" valve, a stop-check valve with motor operator, located near the flash tank in the Primary Superheater to Secondary Superheater bypass.

**Purpose/Necessity:** The purpose of this project is to maintain unit reliability. The existing valve and actuator are original equipment (50 years old) and are approaching their end of useful life. Spare parts are no longer available and a rebuild of the valve is not feasible. The once-thru boiler cannot start the unit if the "205" valve does not operate correctly. Valve failure can also cause unit outage when the plant is online.

**Consequences of Delay:** The once-thru boiler is unable to start up if the 205 valve does not operate correctly. Economic justification assumes probability of failure is 40%, causing a 3-day startup delay for an assumed repair of the valve.

**Economic Justification:**

Benefit-Cost NPV: 4.40 M\$  
 Budget Category: REL-UNIT

**Cash Flow - 2021**

Jan	\$8,000	Apr	\$9,000	Jul	\$0	Oct	\$0
Feb	\$196,000	May	\$8,000	Aug	\$0	Nov	\$0
Mar	\$209,000	Jun	\$3,000	Sep	\$0	Dec	\$0
<b>Prior</b>	\$0	<b>2021</b>	\$434,000	<b>2022</b>	\$0	<b>After</b>	\$13,000

**Cost Summary**

	<b>Current Amount</b>	<b>Revised Amount</b>
RU Materials	\$150,000	
Removals	\$10,000	
(Salvage)	\$0	
Non-Itemized Additions	\$268,000	
Specific Cost	\$428,000	
Overhead Loads	\$19,000	
<b>CBI Total</b>	<b>\$447,000</b>	
Retirements	\$0	

**Approvals**

		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$281,502	Date	
NTEC	7.00%	\$31,278	Date	
PNM	13.00%	\$58,088	Date	
SRP	10.0%	\$44,683	Date	
TEP	7.00%	\$31,278	Date	

### FCC06555 F4 Startup Valve Replacement (205), CBI 21-46

#### **Description**

The purpose of this project is to maintain unit reliability. The existing valve and actuator are original equipment (50 years old) and are approaching their end of useful life. Spare parts are no longer available and a rebuild of the valve is not feasible. The once-thru boiler cannot start the unit if the "205" valve does not operate correctly. Valve failure can also cause unit outage when the plant is online.

#### **Scope**

Specify and procure the new stop-check valve w/ motor operator.  
Develop rigging plan for installation and removal of the existing valve, and hoisting the new valve w/ motor operator inside the powerhouse and up near top of boiler.  
Erect and remove any scaffolding required to access valve.  
Remove and replace any insulation, insulation and piping to be tested for asbestos and lead paint, and abated if necessary.  
Remove and install new valve, motor operator, and any required piping pup pieces.  
Disconnect and reconnect all associated power and control wiring.  
Post weld heat treatment as required by weld procedure.

#### **Exclusions**

Steam piping modifications (with the exception of pup pieces).  
Asbestos (if in insulation) & lead paint removal by APS.

#### **Constraints**

Move and removal of the heavy valve/ w motor operator to the "205" location.  
Work must occur during a unit outage.  
Use of crane may need to be shared among other projects.  
Work area will need to be shared with other projects going on in vicinity.

#### **Assumptions**

No steam piping modifications or pipe stress analysis will be required.  
No power cable or control wiring modifications.  
Project to be plant-engineered with minimal ESP support.  
POM exclusion for equipment delivery will be obtained.

**FCC016380 Baghouse Air Compressor Replacement**

Four Corners Participant Project	Rev FC21-47	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC21-47	Env Code:	ERF Completed: Yes
In 2021 Budget: Yes	Plant Acct: 131500	Est Removal:	Est In Svc: 01 Dec 2021

**Description:** Replace the 0S baghouse air compressor.

**Purpose/Necessity:** The purpose of this project is to maintain reliability of the baghouse compressed air system to ensure continued reliability of the Unit operation. The baghouse air compressors have been found to be in poor condition upon inspections, resulting in a recommendation for replacement.

**Consequences of Delay:** Potential for a 2-day forced 50% de-rate of one unit (Unit 4 or Unit 5) baghouse compartments due to inability to supply compressed air to users within the baghouse compressed air system. It is assumed that a temporary air compressor would be rented to supply air to the system for the duration required to repair a system failure. The economic justification assumes a 20% chance of a forced outage.

**Economic Justification:**

Benefit-Cost NPV: 1.00 M\$  
Budget Category: REL

**Cash Flow - 2021**

Jan	\$30,000	Apr	\$39,000	Jul	\$17,000	Oct	\$15,000
Feb	\$20,000	May	\$20,000	Aug	\$20,000	Nov	\$155,000
Mar	\$78,000	Jun	\$34,000	Sep	\$230,000	Dec	\$14,000
<b>Prior</b>	\$0	<b>2021</b>	\$670,000	<b>2022</b>	\$33,000	<b>After</b>	\$0

**Cost Summary**

	<b>Current Amount</b>	<b>Revised Amount</b>
RU Materials	\$170,000	
Removals	\$6,000	
(Salvage)	\$0	
Non-Itemized Additions	\$507,000	
Specific Cost	\$683,000	
Overhead Loads	\$20,000	
<b>CBI Total</b>	<b>\$703,000</b>	
Retirements	\$0	

**Approvals**

			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$443,076		Date
NTEC	7.00%	\$49,231		Date
PNM	13.00%	\$91,428		Date
SRP	10.0%	\$70,330		Date
TEP	7.00%	\$49,231		Date

## FCC016380 F45 Baghouse Air Compressor Replacement, CBI 21-47

### Description

The purpose of this project is to maintain reliability of the baghouse compressed air system to ensure continued reliability of the Unit operation. The baghouse air compressors have been found to be in poor condition upon inspections, resulting in a recommendation for replacement.

### Scope

- Procure a new air compressor.
- Pour the air compressor pad extension prior to system outage.
- Replace air compressor breaker.
- Route new conduit and power cable prior to system outage.
- LOTO the existing air compressor system.
- Temporarily attach a rental compressor outlet to the compressed air system.
- Determine and temporarily support piping from the existing air compressor.
- Demolish power cable for the existing air compressor.
- Lift and remove the existing air compressor.
- Lift and install the new compressor.
- Re-install piping for new air compressor.
- Terminate piping and electrical cables to the new air compressor.

### Exclusions

Control or communications upgrades or changes for the compressor.  
Replacement of the inlet filter, dryer, or air receiver.  
Replacement of the baghouse air compressor building HVAC.  
Replacement of other baghouse air compressors; undergoing further evaluation.

### Constraints

A Unit outage or rental compressor is required for replacement of the compressor.  
A crane is required to lift the new compressor.  
Project work is required to start in 2020 for project to meet in-service date of December 1, 2021.  
Compressor will likely have CIP implications due to programmable controller.

### Assumptions

A forklift is required to lift the new compressor.  
The existing system description will be updated for the new compressor model.  
Existing ETAP model, alarm response manual, and control logic will not be updated.  
The new compressor will match the capacity of the existing compressor of 805 scfm at 125 psig.  
The compressor pedestal will be extended for the new compressor.  
Compressor supply and installation contracts will be competitively bid.  
LOTO valves are accessible and in good working condition to achieve system LOTO.  
The existing inlet air filter, air dryer, and air receivers are in good condition and will be re-used.  
A rental compressor will supply air to the compressed air system during construction.

**FCC013745 HMI Upgrade**

Four Corners Participant Project	Rev FC21-48	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC21-48	Env Code: N/A	ERF Completed: Yes
In 2021 Budget: Yes	Plant Acct: 131601	Est Removal:	Est In Svc: 31 May 2022

**Description:** Replace current control operator console Human Machine Interface (HMI) with actively supported industrial HMI system. This includes new server and client hardware, network equipment, network and server infrastructure, and security components.

**Purpose/Necessity:** Standardization of hardware and software is a primary driver to reducing ongoing IT O&M costs as well as adhering to IS security requirements. The current FC HMI S+ system uses Windows 7, MS Server 2008 and SQL Server 2012. These systems went out of vendor support in 2019 and need to be replaced.

**Consequences of Delay:** Operator control system that is unsupported by vendors, not able to be updated, and not in compliance with security requirements.

**Economic Justification:**

Benefit-Cost NPV: 4.00 M\$  
 Budget Category: REL-UNIT

**Cash Flow - 2021**

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$441,000
<b>Prior</b>	\$0	<b>2021</b>	\$441,000	<b>2022</b>	\$1,008,000	<b>After</b>	\$0

**Cost Summary**

	<b>Current Amount</b>	<b>Revised Amount</b>
RU Materials	\$200,000	
Removals	\$0	
(Salvage)	\$0	
Non-Itemized Additions	\$1,249,000	
Specific Cost	\$1,449,000	
Overhead Loads	\$0	
<b>CBI Total</b>	<b>\$1,449,000</b>	
Retirements	\$0	

**Approvals**

		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$912,870	Date
NTEC	7.00%	\$101,430	Date
PNM	13.00%	\$188,370	Date
SRP	10.0%	\$144,900	Date
TEP	7.00%	\$101,430	Date

## FCC013745 F45 HMI Upgrade CBI 21-48

### Description

Replace operator console, Human Machine Interface with actively support industrial HMI system. This includes new server and client hardware, network equipment, network and server infrastructure.

### Scope

Replace existing Unit 5 OIS in the Unit 4/5 Bailey Room. ABB to provide removal and installation of all hardware and wiring.

- 1.5OIS01
- 2.5OIS02
- 3.5OIS03
- 4.5OIS04

Replace existing Unit 5 OIS in the SO2 Control Room. ABB to provide removal and installation of all hardware and wiring.

- 1.15OIS1

Replace existing Unit 5 OIC in the Unit 4/5 Bailey Room. Each OIC will be replaced with 2 24" monitors and associated keyboard and mouse. ABB to provide removal and installation of all hardware and wiring.

- 1.5OIC5

Replace existing Unit 5 OIC in the Unit 4/5 Control Room. Each OIC will be replaced with 2 24" monitors and associated keyboard and mouse. ABB to provide removal and installation of all hardware and wiring.

- 1.5OIC1
- 2.5OIC2
- 3.5OIC3
- 4.5OIC4
- 5.5OIC5

Replace existing Unit 5 Large Screen Monitors in the Unit 4/5 Control Room. Each Monitor will be replaced with 1 50" monitor. ABB to provide removal and installation of all hardware and wiring.

- 1.SPC1
- 2.SPC2
- 3.SPC3
- 4.SPC4

ABB to install new software and commission the new Unit 5 OIS & OIC.

**Exclusions**

- 1.OEM only (ABB)

**Constraints**

- 1.Control room access may be limited.
- 2.All work is to be completed during the 2017 Unit 5 outage.

**Assumptions**

- 1.Existing HMI consols can be removed without interfering Unit 4 operations.
- 2.Minimal wiring required. ABB to provide and install as necessary.
- 3.Decreased HVAC loading.
- 4.Existing Large Screen Monitor brackets will be reused.

**PE016574 Bag House Control Room HVAC**

FC Participant Project	Rev FC21-49	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC21-49	Env Code:	ERF Completed: Yes
In 2021 Budget: Yes	Plant Acct: 131100	Est Removal:	Est In Svc: 03 Dec 2021

**Description:** Replace 25 ton HVAC unit in the Bag House Control Room.

**Purpose/Necessity:** The control room is a CIP area. The current unit has reached the end of it's useful life. It is not functioning and is beyond repair due to age.

**Consequences of Delay:** Equipment overheating and failure.

**Economic Justification:**

Budget Category: REG

**Cash Flow**

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$124,000
<b>Prior</b>	\$0	<b>2021</b>	\$124,000	<b>2022</b>	\$0	<b>After</b>	\$0

**Cost Summary**

	<b>Current Amount</b>	<b>Revised Amount</b>
RU Materials	\$120,000	
Removals	\$0	
(Salvage)	\$0	
Non-Itemized Additions	\$4,000	
Specific Cost	\$124,000	
Overhead Loads	\$0	
<b>CBI Total</b>	<b>\$124,000</b>	
Retirements	\$0	

**Approvals**

		E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$77,828	Date
NTEC	7.00%	\$8,648	Date
PNM	13.00%	\$16,060	Date
SRP	10.0%	\$12,354	Date
TEP	7.00%	\$8,648	Date



**PE016574 F5 Bag House Control Room HVAC, CBI 21-49**

**Description**

The purpose of this project is to replace the current Carrier Rooftop Unit because the Baghouse is not functioning and is beyond repair due to age. (1976). It is recommended to replace the unit with a “Like for Like” new Trane Constant Volume Packaged Rooftop Unit with DX Cooling and Electric Heat. The new unit will be placed on a Curb Adapter to provide the same supply and return ducting as what is in place. A standalone TD5 Touchscreen display with human interface thermostat will be installed and connected to the new Trane unit for controls.

**Scope**

Provide labor and materials to remove existing 1976 Carrier Rooftop unit from Baghouse and install new “like for like” Trane 27.5-Ton Packaged Rooftop Unit and Curb Adapter. This Turnkey proposal includes Mechanical, Electrical, Crane and start-up of unit with one-year parts and labor warranty.

- On-site Trane Service Technician will establish LOTOs and procedure documentation for project.
- Disconnect Electrical from existing Carrier unit
- Disconnect Carrier unit from roof support
- Use included Crane to remove Carrier unit and properly dispose of per EPA guidelines
- Use Crane to install new Curb Adapter
- Use Crane to install new 27.5-Ton Trane RTU on Curb Adapter and secure in place
- Connect to existing supply and return ducting
- Run new copper pipe condensate drain
- Install a new electrical disconnect, extend and connect electrical to newly installed Trane RTU
- Install new stand-alone TD5 Touchscreen thermostat
- Perform Trane Certified Start up and ensure proper operation

**Exclusions**

N/A

**Constraints**

Total Failure of the HVAC system, no cooling or heating to the building.

**Assumptions**

All work/replacements will be made in accordance with APS Real Estate & Facilities Master Specifications and quality standards.

<b>PE016621 4160 MCC HVAC</b>			
FC Participant Project	Rev FC21-50	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC21-50	Env Code:	ERF Completed: Yes
In 2021 Budget: Yes	Plant Acct: 1331100	Est Removal:	Est In Svc: 03 Dec 2021

**Description:** Install new cooling unit for 4160 volt Breaker Room at entrance of Unit 4 Aux bay.

**Purpose/Necessity:** The Breaker Room is a low physical CIP area. All doors must remain shut reducing air circulation.

**Consequences of Delay:** Breaker Room equipment will be damaged and operation impaired from overheating without proper cooling.

**Economic Justification:** REG

Budget Category:

**Cash Flow**

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$151,000
<b>Prior</b>	\$0	<b>2021</b>	\$151,000	<b>2022</b>	\$0	<b>After</b>	\$0

**Cost Summary**

	<b>Current Amount</b>	<b>Revised Amount</b>
RU Materials	\$120,000	
Removals	\$0	
(Salvage)	\$0	
Non-Itemized Additions	\$31,000	
Specific Cost	\$151,000	
Overhead Loads	\$0	
<b>CBI Total</b>	<b>\$151,000</b>	
Retirements	\$0	

**Approvals**

		E&O Committee <input checked="" type="checkbox"/>		Coordinating Committee <input type="checkbox"/>	
APS	63.00%	\$95,177		Date	
NTEC	7.00%	\$10,575		Date	
PNM	13.00%	\$19,640		Date	
SRP	10.0%	\$15,107		Date	
TEP	7.00%	\$10,575		Date	

**PE016621 FC 4160 MCC HVAC Replacement, CBI 21-50**

**Description**

The purpose of this project is to install a new cooling unit for 4160-volt Breaker Room at entrance of Unit 4 Aux bay. The old 1475 cfm swamp cooler is not working correctly and needs to be replaced.

**Scope**

Provide labor and materials to remove existing 1976 Carrier Rooftop unit from Baghouse and install new "like for like" Trane 27.5-Ton Packaged Rooftop Unit and Curb Adapter. This Turnkey proposal includes Mechanical, Electrical, Crane and start-up of unit with one-year parts and labor warranty.

**Exclusions**

N/A

**Constraints**

Additional maintenance costs for electrical equipment if the building is overheating.

Failure of both the HVAC system and the equipment in the breaker room.

**Assumptions**

All work/replacements will be made in accordance with APS Real Estate & Facilities Master Specifications and quality standards.

**PE016577 Admin Building Generator**

FC Participant Project	Rev FC21-51	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC21-51	Env Code:	ERF Completed: Yes
In 2021 Budget: Yes	Plant Acct: 131100	Est Removal:	Est In Svc: 03 Dec 2021

**Description:** Replace the backup power generator for the Plant computer network server which is located at the Administration Building.

**Purpose/Necessity:** The existing generator has reached the end of its useful life and is unreliable.

**Consequences of Delay:** Unable to provide backup power to the computer network server which puts process control, security, CIP, communications, environmental compliance, etc at risk.

**Economic Justification:**

Budget Category: REG

**Cash Flow**

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$150,000
<b>Prior</b>	\$0	<b>2021</b>	\$150,000	<b>2022</b>	\$0	<b>After</b>	\$0

**Cost Summary**

	<b>Current Amount</b>	<b>Revised Amount</b>
RU Materials	\$150,000	
Removals	\$0	
(Salvage)	\$0	
Non-Itemized Additions	\$0	
Specific Cost	\$150,000	
Overhead Loads	\$0	
<b>CBI Total</b>	<b>\$150,000</b>	
Retirements	\$0	

**Approvals**

			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$94,500		Date
NTEC	7.00%	\$10,500		Date
PNM	13.00%	\$19,500		Date
SRP	10.0%	\$15,000		Date
TEP	7.00%	\$10,500		Date

**PE016577 FC Admin Basement Generator, CBI 21-51**

**Description**

The purpose of this project is to remove and replace the existing Generac Generator. The existing generator has reached the end of its useful life and is unreliable.

**Scope**

Disconnect power and LP gas line and unbolt unit from concrete pad. Existing Concrete Pad 48" W X 96" L will remain and be reused. The new 50KW Cat Generator is 42.5" W X 92.6" L will fit on existing concrete slab. New redhead bolts will be installed into concrete slab to anchor down slab.

- Auto transfer switch replaced with new unit.
- Existing conduit will be reused and is in good condition and already penetrating the building. And all connections on the new unit will have the Generator disconnect in same location as the existing unit. Therefore very little modification will be needed.
- Conductors are the right size for the new 100 amp unit which requires 1AWG which is rated for 120 amps. We will meg all the conductors and record before termination.
- LP gas hook up and testing will be provided by LP vendor as per there spec.
- Will remove and Demo Existing Generator and dispose off site
- Will remove and Demo LP tanks and lines and dispose off site
- Fabrication and modification hook up
- Onsite Training Generator and ATS
- 1 week Rental 50 kw generator
- 500 gal Propane Tank

**Exclusions**

N/A

**Constraints**

N/A

**Assumptions**

All work/replacements will be made in accordance with APS Real Estate & Facilities Master Specifications and quality standards.

**PE016818 FC Polymer Building HVAC Replacement**

FC Participant Project	Rev FC21-52	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC21-52	Env Code:	ERF Completed: Yes
In 2021 Budget: Yes	Plant Acct:131100	Est Removal:	Est In Svc: 03 Dec 2021

**Description:** Replace existing 35 ton split system HVAC for the Polymer Building (Building #74) with a 15 ton unit for the first floor and a 15 ton unit for the second floor electrical room. Two units will allow a HVAC unit outage to only impact one floor.

**Purpose/Necessity:** The existing unit has reached the end of its useful life and is no longer reliable.

**Consequences of Delay:** Electrical equipment will be damaged and operation impaired from overheating without proper cooling.

**Economic Justification:**

Budget Category: REL

**Cash Flow**

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$209,000
<b>Prior</b>	\$0	<b>2021</b>	\$209,000	<b>2022</b>	\$0	<b>After</b>	\$0

**Cost Summary**

	<b>Current Amount</b>	<b>Revised Amount</b>
RU Materials	\$40,000	
Removals	\$0	
(Salvage)	\$0	
Non-Itemized Additions	\$169,000	
Specific Cost	\$209,000	
Overhead Loads	\$0	
<b>CBI Total</b>	<b>\$209,000</b>	
Retirements	\$0	

**Approvals**

			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$131,620		Date
NTEC	7.00%	\$14,624		Date
PNM	13.00%	\$27,160		Date
SRP	10.0%	\$20,892		Date
TEP	7.00%	\$14,624		Date

**PE016818 FC Polymer Building HVAC Replacement, CBI 21-52**

**Description**

The purpose of this project is to replace the existing 35-ton Split system HVAC for both 1st floor and 2nd floor and splitting with two 15-ton units for better control, so outage only affects one area.

**Scope**

Remove existing bulky split system off the roof and replace with two new units ducted in separately between two floors.

Existing unit is an R22 refrigerant based unit and need to get into compliance with refrigeration ruling to alternate refrigerant.

**Exclusions**

N/A

**Constraints**

Accessibility with Crane, 30-foot piping and electrical bridge in the area. Crane parking challenge includes 10-degree slope on north side and south side big tanks and piping obstruction.

**Assumptions**

All work/replacements will be made in accordance with APS Real Estate & Facilities Master Specifications and quality standards.

**PE016824 FC Plant Exterior Misc. Replacement - 2021**

FC Participant Project	Rev FC21-53	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC21-53	Env Code:	ERF Completed: Yes
In 2021 Budget: Yes	Plant Acct: 131100	Est Removal:	Est In Svc: 31 Dec 2021

**Description:** Funding for the replacement of Capital exterior components (i.e. paving, concrete, fencing, etc...) that meet Capital requirements as defined by RUC - 015 (paving) or RUC - 020 (fences and barriers).

**Purpose/Necessity:** The purpose of this project is to maintain plant accessibility safety. This funding will be used for the replacement of Capital exterior site components as failures or immediate need occurs throughout the 2021 calendar year.

**Consequences of Delay:** Negative impact to the plant's response to obtaining approvals needed to address Capital exterior component failures or identification of safety related issues.

**Economic Justification:**

Budget Category: SAFETY

**Cash Flow**

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$100,000
<b>Prior</b>	\$0	<b>2021</b>	\$100,000	<b>2022</b>	\$0	<b>After</b>	\$0

**Cost Summary**

	<b>Current Amount</b>	<b>Revised Amount</b>
RU Materials	\$55,000	
Removals	\$0	
(Salvage)	\$0	
Non-Itemized Additions	\$45,000	
Specific Cost	\$100,000	
Overhead Loads	\$0	
<b>CBI Total</b>	<b>\$100,000</b>	
Retirements	\$0	

**Approvals**

			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$63,000		Date
NTEC	7.00%	\$7,000		Date
PNM	13.00%	\$13,000		Date
SRP	10.0%	\$10,000		Date
TEP	7.00%	\$7,000		Date



**PE016824 FC Exterior – Miscellaneous Replacements 2021, CBI 21-53**

**Description**

The purpose of this project is to maintain plant accessibility and safety. Capital budget will be used for the replacement of Capital exterior site components (i.e., paving, concrete, fencing etc.) as failures or immediate need occurs throughout the calendar year.

**Scope**

The replacement of damaged/failing paving systems, damaged/failing fencing systems and the replacement of damaged/failing concrete/concrete pads/sidewalks. All of these Include required labor and miscellaneous parts required for removal and installation.

Funding for the replacement of Exterior site components that meets capital requirements as defined by RUC – 015 (Paving) or RUC – 020 (Fences & Barriers).

Items included in RUC – 015 (Paving) include:

- \*The initial construction, or replacement, or removal without replacement, of a road, sidewalk, curb, parking lot, heliport or components with a cost of \$25,000 or greater.
- \*Recovering of a road or parking area without removing old covering if greater than \$10,000.
- \*First covering of a complete roadway or parking area with a slurry base sealer (approximately 1/4 - 3/8 inch covering).

Items included in RUC – 020 (Fences & Barriers) include:

- \*The initial installation of a fence or wall to enclose a facility
- \*The replacement or removal without replacement of a fence or wall if greater than 100 linear feet.

**Exclusions**

Purchase of spare materials.

Non-capital replacements as defined by the RUC.

**Constraints**

Exterior site component replacement must meet the retirement requirements to be capitalized.

**Assumptions**

All replacements will be made in accordance with APS Master Specifications and quality standards.

POM excluded as equipment procurement will be on an as need basis and will not follow a planned design, procure, construct schedule.

**PE016823 FC HVAC Misc. Equipment Replacement - 2021**

FC Participant Project	Rev FC21-54	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC21-54	Env Code:	ERF Completed: Yes
In 2021 Budget: Yes	Plant Acct: 1331100	Est Removal:	Est In Svc: 31 Dec 2021

**Description:** 2021 Funding for the replacement of miscellaneous HVAC equipment/components that meet capital requirements, as defined by RUC - 221 Air Handling Unit.

**Purpose/Necessity:** The purpose of this project is to maintain plant HVAC reliability. Capital budget will be used for purchases and installation of new Capital HVAC equipment as failures or immediate need occurs throughout the 2021 calendar year.

**Consequences of Delay:** Negative impact to the plant's response to obtaining approvals needed for Capital HVAC requirements.

**Economic Justification:**

Budget Category: NM-PRG

**Cash Flow**

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$300,000
<b>Prior</b>	\$0	<b>2021</b>	\$300,000	<b>2022</b>	\$0	<b>After</b>	\$0

**Cost Summary**

	<b>Current Amount</b>	<b>Revised Amount</b>
RU Materials	\$160,000	
Removals	\$0	
(Salvage)	\$0	
Non-Itemized Additions	\$140,000	
Specific Cost	\$300,000	
Overhead Loads	\$0	
<b>CBI Total</b>	<b>\$300,000</b>	
Retirements	\$0	

**Approvals**

			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$189,000		Date
NTEC	7.00%	\$21,000		Date
PNM	13.00%	\$39,000		Date
SRP	10.0%	\$30,000		Date
TEP	7.00%	\$21,000		Date

**PE016823 FC HVAC – Miscellaneous Equipment Replacements 2021, CBI 21-54**

**Description**

The purpose of this project is to maintain plant HVAC reliability. Capital budget will be used for purchase and installation of new capital HVAC equipment as failures or immediate need occurs throughout the 2021 calendar year.

**Scope**

Purchase and installation of HVAC equipment as required by the plant. Specific HVAC equipment to be purchased will be determined during WA preparation for individual projects.

The Capital budget will be used for the replacement of HVAC equipment/components to maintain plant reliability as needs occur throughout the calendar year that meets capital requirements as defined by RUC – 221 Air Handling Units. This includes but is not limited to the complete replacement of an Air Handling Unit, an Air Filtration Unit, Air Conditioning Unit, Fan Assembly (over 10,000 CFM), and Evaporation Coolers (replacement of 4 or more on a building at the same time).

**Exclusions**

Purchase of spare materials & equipment.

Non-capital HVAC equipment as defined by the RUC.

**Constraints**

HVAC equipment must meet the retirement requirements to be capitalized.

**Assumptions**

All replacements will be made in accordance with APS Master Specifications and quality standards.

POM excluded as equipment procurement will be on an as need basis and will not follow a planned design, procure, construct schedule.

Includes removal of existing HVAC equipment.

**PE016821 FC Plant Building Misc. Equipment Replacement - 2021**

FC Participant Project	Rev FC21-55	0% Enviro.	NSR Completed: Yes
FC Units 4 & 5	CBI: FC21-55	Env Code:	ERF Completed: Yes
In 2021 Budget: Yes	Plant Acct: 131100	Est Removal:	Est In Svc: 31 Dec 2021

**Description:** 2021 Funding for the replacement of Capital building components (i.e. foundations, walls, roofs, ceilings, stairs, floor coverings, windows, plumbing and fixtures, built-ins, office lighting, conventional doors and partitions, decorations and modular trailer buildings) that meet Capital requirements as defined by the RUC - 050 Buildings.

**Purpose/Necessity:** The purpose of this project is to maintain building safety. This funding will be used for the replacement of Capital building components as failures or immediate need occurs throughout the 2021 calendar year.

**Consequences of Delay:** Risk to plant personnel safety.

**Economic Justification:**

Budget Category: SAFETY

**Cash Flow**

Jan	\$0	Apr	\$0	Jul	\$0	Oct	\$0
Feb	\$0	May	\$0	Aug	\$0	Nov	\$0
Mar	\$0	Jun	\$0	Sep	\$0	Dec	\$300,000
<b>Prior</b>	\$0	<b>2021</b>	\$300,000	<b>2022</b>	\$0	<b>After</b>	\$0

**Cost Summary**

	<b>Current Amount</b>	<b>Revised Amount</b>
RU Materials	\$160,000	
Removals	\$0	
(Salvage)	\$0	
Non-Itemized Additions	\$140,000	
Specific Cost	\$300,000	
Overhead Loads	\$0	
<b>CBI Total</b>	<b>\$300,000</b>	
Retirements	\$0	

**Approvals**

			E&O Committee <input checked="" type="checkbox"/>	Coordinating Committee <input type="checkbox"/>
APS	63.00%	\$189,000		Date
NTEC	7.00%	\$21,000		Date
PNM	13.00%	\$39,000		Date
SRP	10.0%	\$30,000		Date
TEP	7.00%	\$21,000		Date

**PE016821 FC Building – Miscellaneous Equipment Replacements 2021, CBI 21-55**

**Description**

The purpose of this project is to maintain building reliability and safety. The capital budget will be used for the replacement of Building components as failures or immediate need occurs throughout the calendar year.

**Scope**

The replacement of damaged building components and/or systems; includes required labor and miscellaneous arts required for removal and installation.

This is funding for the replacement of Building components that meets capital requirements as defined by RUC – 050 Buildings. This includes the replacement, addition, or removal of any of the following if the total cost is \$10,000 or greater:

Foundations or Substructure, Structural Steel, Exterior Walls, Insulation, Ceilings, Indoor Lighting, Stairs, Handrail, Ramps, Floors, Floor Covering (Carpet, Tile), Window Covering (Drapes, Blinds, Screens, Film), Windows, Ladders, Built-in Items (including but not limited to: Counters, Cabinets, Sinks, Tubs and Basins, Shower/Bathroom, Facilities and Lockers), Internal Plumbing (Water and Sewer), Roof (complete), Interior Walls, Conventional Doors and Frames (Metal, Wood or Glass), Movable Partitions (Initial Install).

**Exclusions**

Purchase of spare materials.

Non-capital replacements as defined by the RUC.

**Constraints**

Building component replacement must meet the retirement requirements to be capitalized.

**Assumptions**

All replacements will be made in accordance with APS Master Specifications and quality standards.

POM excluded as equipment procurement will be on an as need basis and will not follow a planned design, procure, construct schedule.

**BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION**

**IN THE MATTER OF THE APPLICATION )  
OF PUBLIC SERVICE COMPANY OF NEW )  
MEXICO FOR APPROVAL OF THE )  
ABANDONMENT OF THE FOUR CORNERS )  
POWER PLANT AND ISSUANCE OF A )  
SECURITIZED FINANCING ORDER )  
)  
PUBLIC SERVICE COMPANY OF )  
NEW MEXICO, )  
)  
Applicant. )**

**Case No. 21-00017-UT**

**SELF AFFIRMATION**

**THOMAS G. FALLGREN, Vice President of Generation for Public Service Company of New Mexico**, upon penalty of perjury under the laws of the State of New Mexico, affirm and state: I have read the foregoing **Supplemental Testimony of Thomas G. Fallgren** and it is true and correct based on my personal knowledge and belief.

DATED this 15th day of March, 2021.

/s/ Thomas G. Fallgren \_\_\_\_\_  
**THOMAS G. FALLGREN**