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,	)	**Case No. 21-_______-UT**
Applicant	)	

DIRECT TESTIMONY

OF

NICHOLAS L. PHILLIPS

January 8, 2021

NMPRC CASE NO. 21-_____-UT
INDEX TO THE DIRECT TESTIMONY OF
NICHOLAS PHILLIPS

WITNESS FOR
PUBLIC SERVICE COMPANY OF NEW MEXICO

DIRECT TESTIMONY
OF NICHOLAS L. PHILLIPS
NMPRC CASE NO. 20-_____-UT

I. INTRODUCTION AND PURPOSE

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

A. My name is Nicholas L. Phillips. I am the Director of Integrated Resource Planning for Public Service Company of New Mexico ("PNM"). My address is 414 Silver Avenue, SW, Albuquerque, New Mexico 87102.

Q. PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND PROFESSIONAL QUALIFICATIONS.

A. My educational background and relevant employment experience are summarized in PNM Exhibit NLP-1 attached to my testimony.

Q. ARE YOU SPONSORING ANY EXHIBITS WITH YOUR TESTIMONY

A. Yes. Along with my educational background and relevant employment experience as summarized in PNM Exhibit NLP-1, I am sponsoring the following Exhibits:

- PNM Exhibit NLP-2 – Load Forecast
- PNM Exhibit NLP-3 – Natural Gas Price and Carbon Emission Price Forecast
- PNM Exhibit NLP-4 – Technology Price Forecast
- PNM Exhibit NLP-5 – Matrix of Resource Planning Analysis Cases

Q. PLEASE DESCRIBE YOUR RESPONSIBILITIES AS DIRECTOR OF INTEGRATED RESOURCE PLANNING.

A. I direct PNM's Integrated Resource Planning team. The Integrated Resource Planning team is responsible for developing PNM's resource plans and the regulatory filings to support those resource plans, including the annual renewable energy portfolio procurement plan and the triennial Integrated Resource Plan ("IRP"). The Integrated Resource Planning team is also responsible for performing resource planning analysis to support abandonment and retirement decisions as well as resource additions and acquisitions, all of which require New Mexico Public Regulation Commission ("NMPRC" or "Commission") approval such as those being requested in this docket.

Q. HAVE YOU PREVIOUSLY PROVIDED TESTIMONY IN NMPRC PROCEEDINGS?

A. Yes. Cases in which I have testified before the Commission are identified in PNM Exhibit NLP-1.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. I explain PNM's resource planning analysis that supports PNM's proposed abandonment of its 13% ownership interest (200 MW) in Units 4 and 5 of the Four Corners Power Plant ("FCPP") and the related abandonment of certain associated PNM-owned assets, which include portions of the FCPP switchyard, inventory, and fuel inventory (collectively "FCPP Assets").

Q. PLEASE SUMMARIZE YOUR CONCLUSIONS.

A. PNM conducted a thorough resource planning analysis of whether to retain the FCPP Assets until the expiration of the coal supply contract in 2031, or to request authorization to abandon and sell those assets to the Navajo Transitional Energy Company ("NTEC") as proposed in this application. Based on our analysis, the proposed abandonment of the FCPP Assets and addition of replacement resources will, under the most likely cases PNM analyzed, result in cost savings for PNM's customers and a net public benefit. By abandoning its interest in FCPP and replacing that capacity with other resources, PNM's portfolio of resources will be capable of meeting the demand and energy requirements of PNM's customers at the lowest reasonable cost while reducing future carbon emissions from the generation portfolio used to serve PNM's customers.

Q. WHAT IS YOUR ESTIMATE OF COST SAVINGS FROM THE EARLY DIVESTITURE OF THE FCPP ASSETS?

A. The magnitude of savings ranges from approximately $300 million in customer savings to approximately $30 million in customer savings, depending on the assumptions for the sets of simulations. The median expected savings is approximately $142 million.

Q. HOW IS YOUR TESTIMONY ORGANIZED?

A. First, I describe the background related to PNM's interest in FCPP. Second, I detail the analytical techniques and modeling assumptions used to perform the analysis regarding the FCPP Assets. Third, I describe the results of the analysis demonstrating significant customer savings, if PNM sells the FCPP Assets as proposed rather than continuing ownership through 2031. Finally, I describe the types of capacity and energy resources that are likely to make up the replacement portfolio. PNM will undertake a request for proposals ("RFP") process to select and procure the actual replacement resources for the FCPP Assets.

II. BACKGROUND

Q. PLEASE DESCRIBE THE BACKGROUND FOR CONSIDERATION OF PNM'S PROPOSED ABANDONMENT OF THE FCPP ASSETS.

A. PNM has a 13% ownership interest in FCPP Units 4 and 5. This interest represents 200 MW of generating capacity. The current operating and coal supply agreements at FCPP expire in 2031. In the absence of the sale to NTEC, PNM expects to exit FCPP participation at that time.

In 2019, the Energy Transition Act was enacted by the New Mexico legislature and the Governor, which included financing mechanisms to facilitate utilities' early exits from existing coal generation. In addition, as part of the approval of the Revised Modified Stipulation approved in Case No. 16-00276-UT, PNM agreed to evaluate in its next IRP an exit from FCPP in 2024 and 2028 in PNM's 2020 IRP.[1] While the 2020 IRP process has been delayed as a result of the timing of the determination on the replacement resources for the San Juan Generating Station (sometimes referred to as "SJGS") in Case No. 19-00195-UT, PNM took steps to explore the possible early divestiture of the FCPP Assets.

Q DID PNM EVALUATE AN EXIT FROM FCPP IN ITS LAST IRP?

A. Yes. PNM's 2017 IRP evaluated the extent to which FCPP would provide value to PNM's customers if PNM were to continue its participation in the plant beyond 2031, when the current fuel and operating agreements expire. PNM concluded that PNM should not extend its participation in the FCPP beyond 2031.[2] PNM included the FCPP Assets as part of the Most Cost-Effective Portfolio through 2031 because at the time there was no clear early exit strategy that would allow PNM to avoid the continued obligations associated with the fuel supply and operating agreements. Consequently, there was no economic way to exit FCPP and replace its capacity and energy from alternative sources if PNM would be obligated to pay for minimum fuel, capital and O&M requirements.

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[1] In PNM's 2016 rate case (Case No. 16-00276-UT), PNM and other intervenors entered in stipulated agreements that were adopted and approved by the Commission, which included the following requirement:

> 10. PNM shall perform a cost-benefit analysis as part of its 2020 Integrated Resource Plan, on the impact of an early exit from Four Corners as a participating owner, as of 1) 2024, and 2) 2028, that includes an analysis of the cost recovery of and return on PNM's undepreciated investments in Four Corners together with full recovery of all existing contractual obligations, including default payments and penalty.

[2] PNM 2017 IRP at 105.

Q. WHAT CHANGE IN CIRCUMSTANCES ALLOWS FOR PNM'S EARLY EXIT FROM FCPP IN A MANNER THAT BRINGS ECONOMIC BENEFITS TO PNM CUSTOMERS?

A. The primary factors that make this transaction in the customers' economic interest is NTEC's agreement to acquire PNM's interest in FCPP and assume on-going fuel, operational and capital costs, and the willingness of PNM shareholders pay $75 million to NTEC as part of this transaction. The result is a one-time opportunity that allows PNM to accelerate its exit from FCPP with PNM's customers and the impacted communities to realize the benefits under the Energy Transition Act. This creates economic value for PNM's customers. Additional details regarding the conditions of the proposed transaction are discussed by PNM Witness Fallgren.

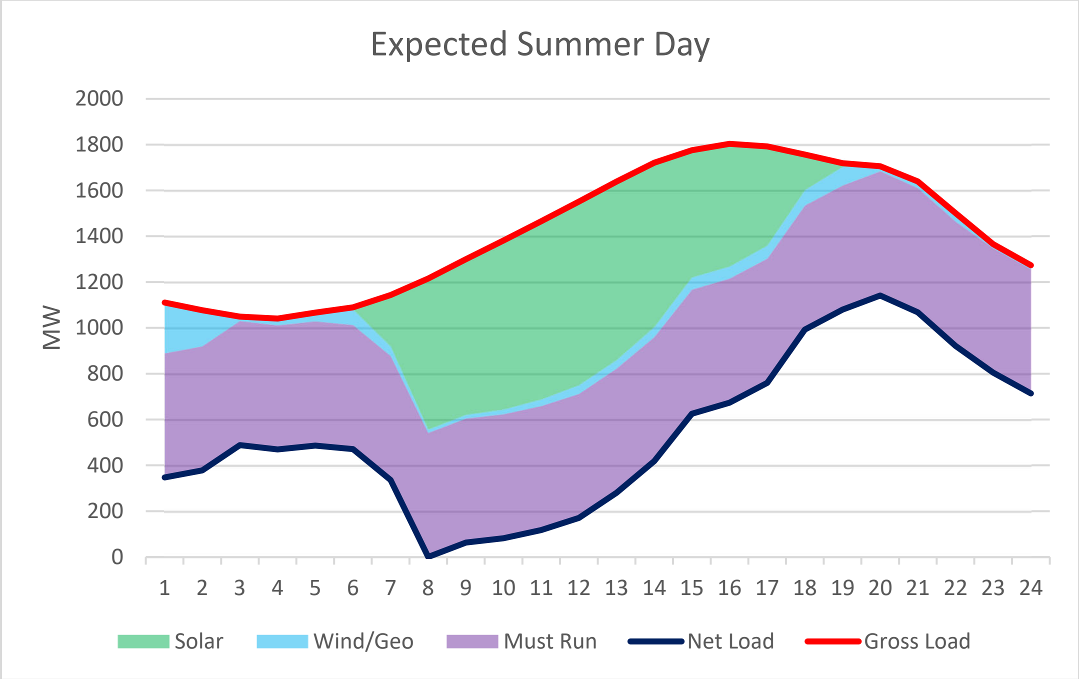
In addition to the benefits provided by the proposed NTEC transaction, an important outcome of the Energy Transition Act's focus on transitioning from coal within a low-cost financial framework is a system with less baseload resources that allows for greater operational flexibility. The proposed transaction will not only reduce customer costs and reduce carbon emissions associated with PNM's generation portfolio, but when replacement resources are approved, PNM's system should be in a better position to reliably manage the transition required by the Energy Transition Act. The next section of my testimony discusses the net public benefit for PNM's customers created by the early exit from FCPP under the agreed upon terms of the proposed transaction.

Q. WHY IS THERE A NEED FOR GREATER OPERATIONAL FLEXIBILITY?

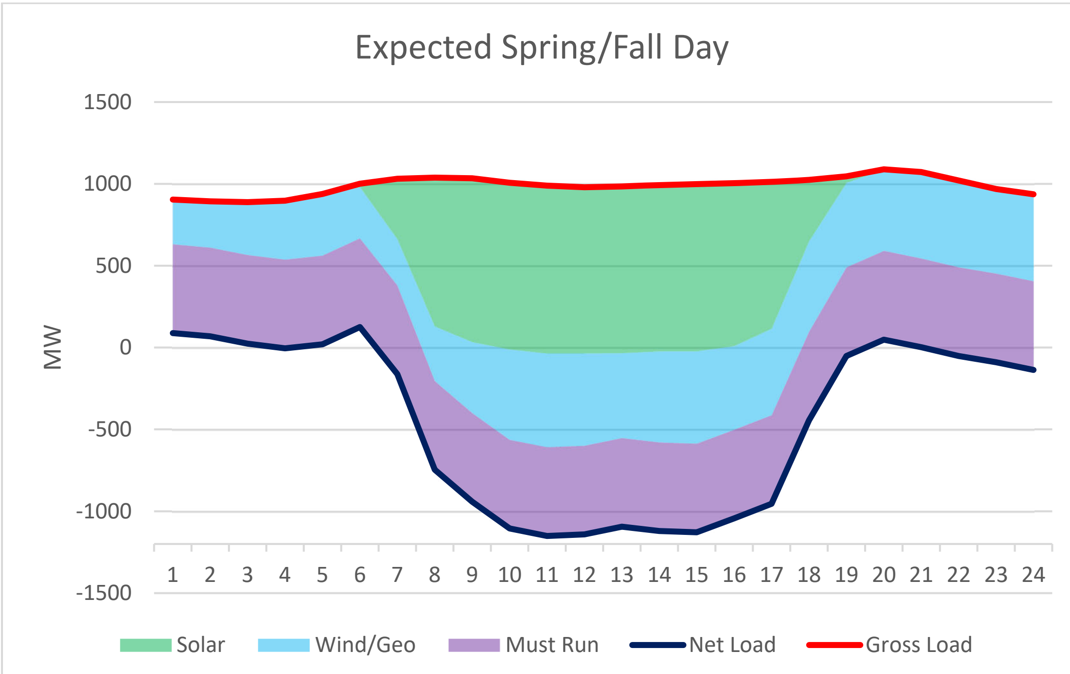
A. While baseload resources have served PNM's system requirements well in the past, the growing penetration of renewable resources will require PNM's system to become more flexible in order to maximize the deliverability of the renewable resources and reliably serve PNM's "Net Load." Because renewable resources such as wind and solar are intermittent by nature and there are requirements about how much energy on the system must be served by those types of resources, the planning paradigm shifts from gross load planning to net load planning. "Net load" is typically characterized as the gross system load less expected renewable output (and potentially minimum run requirements of inflexible generators). It is this net load that must be met by the non-renewable resources on the system. This requires more flexible resources because the net load is a much more volatile load pattern. For systems with high penetrations of solar resources, the net-load pattern also shifts the risk of the system later into the day when the sun is setting. This is a phenomenon now observed most often in California, that many people are familiar with, known as the "duck curve," which shows the timing of the imbalance between peak demand and renewable energy production in graphic depiction.

Once the San Juan replacement renewable resources are brought online in June 2022, risks similar to those recently observed in California will be present on PNM's system. Below in PNM Figures NLP-1 and 2 are plots showing some of the expected challenges PNM will face. The "must run" portions of the plots shaded in purple include the must run requirements from the Palo Verde Nuclear Generating Station ("Palo Verde") and FCPP. Reducing these amounts to a more manageable level will allow for more optimal deliverability of renewable resources. However, more flexible capacity resources such as energy storage systems and flexible combustion turbine generators capable of burning hydrogen or other non-carbon emitting fuels are required to ensure PNM maintains reliable service while meeting the increasingly stringent emissions requirements and Renewable Portfolio Standard ("RPS") prescribed by the Energy Transition Act .

PNM Figure NLP-1



PNM Figure NLP-2



Q WHAT LESSONS CAN BE LEARNED FROM THE RECENT CALIFORNIA RELIABILITY EVENTS?

A. The single biggest risk for the successful transition envisioned under the Energy Transition Act is a reliability event. In order to avoid pitfalls observed recently in California, the PNM system can learn from California's mistakes and ensure resource adequacy of its system throughout the energy transition both in terms of total reliable capacity and the type of capacity required to manage the operation flexibility requirements of the system. The California ISO conducted Preliminary Root Cause Analysis to uncover the causes of rolling blackouts suffered in California on August 14 and 15, 2020. The study attributes those events to a series of factors including: (1) extreme weather beyond what is protected against via traditional resource planning; (2) insufficient planning targets relative to shifting risks in a highly renewable system; and (3) supply challenges in the markets.[3] The report indicated five immediate actions to prevent similar circumstances from threatening system reliability in the near term. Those recommendations are:

1. Update the resource and reliability planning targets to better account for:

    a. Heat storms and other extreme events resulting from climate change like the ones encountered in both August and September;

    b. A transitioning electricity resource mix to meet the clean energy goals of the state during critical hours of grid need;

2. Ensure that the generation and storage projects that are currently under construction in California are completed by their targeted online dates;

3. Expedite the regulatory and procurement processes to develop additional resources that can be online by 2021. This will most likely focus on resources such as demand response and flexibility. This can complement the resources that are already under construction;

4. Coordinate additional procurement by non-CPUC jurisdictional entities; and

5. Enhance CAISO market practices to ensure they accurately reflect the actual balance of supply and demand during stressed operating conditions.[4]

While the energy sources and loads are obviously different between California and New Mexico, the focus on a reliable balance of supply and demand during stressed operating conditions is as critical for PNM's system as it is elsewhere. That principle is the touchstone of PNM's analysis that identified whether adequate resources will be available if PNM's early exit from Four Corners is approved.

[3] http://www.caiso.com/Documents/Preliminary-Root-Cause-Analysis-Rotating-Outages-August-2020.pdf
[4] *Id*

As shown later in this testimony at PNM Table NLP-1 and the description of the proxy replacement portfolios, the replacement portfolios were designed to meet expected resource adequacy requirements as of the time the resources would be brought online. This is a key point: that resource adequacy can be viewed as mostly technology agnostic (at least between a portfolio that includes new combustion turbines and one that relies primarily on energy storage for capacity), so long as the portfolios are designed to properly account for the fundamental differences in the effective load carrying capability of different resources and will meet loss of load probability requirements.

III. FCPP ABANDONMENT ANALYSIS

Q. PLEASE DESCRIBE THE GENERAL FRAMEWORK USED FOR THE FCPP ABANDONMENT ANALYSIS.

A. The general methods used to evaluate the FCPP Assets follow similar protocols to those used in the recent SGJS abandonment analysis filed in Case Nos. 19-00018-UT and the 2017 IRP. I examined two primary paths that compared the long-term costs of the retention of the 200 MW of capacity at FCPP with the costs of abandoning the FCPP Assets, including terms of the sale of the FCPP Assets, and replacing that capacity and energy with other sources. Both scenarios were studied under a wide range of input assumptions, including a range of different system loads, combustion turbine price forecasts, carbon emission prices, and costs for replacement resources. In all scenarios analyzed, PNM required the resulting portfolio to meet all required laws and regulations – such as the updated RPS and portfolio carbon emission requirements prescribed by the Energy Transition Act[5] – as well as PNM's planning criteria for reliability.

Q. HOW DID PNM MEASURE LONG-TERM COST SAVINGS WHEN COMPARING THE FCPP ASSETS AGAINST OTHER RESOURCE CHOICES?

A. PNM measured long-term cost savings by comparing the net present value of costs required to meet retail customer loads over a 20-year planning period under two primary scenarios: (i) assuming the continued operations of the FCPP Assets through 2031, and (ii) assuming the FCPP Assets are transferred under the terms of the proposed NTEC transaction and resources are obtained to replace the FCPP Assets. This is consistent with the requirement in the Commission's IRP Rule (17.7.3 NMAC) to consider resource portfolio costs over a 20-year planning period. PNM's calculation of long-term cost savings includes the following:

- Cost to operate and maintain existing resources over 20 years,
- Cost to build, operate, and maintain any resources added in the 20-year study period, and
- Costs associated with retiring any resources during the 20-year study period.

[5] *See* Section 62-18-10(D); I note that rules for calculating compliance have not yet been established.

When modeling the 20-year scenarios for comparison, PNM uses capacity expansion software to identify an optimal portfolio of generation, storage and demand-side resources. The resulting portfolios are constructed to be capable of reliably meeting the power and energy loads of PNM's customers and maintain sufficient reserves for emergency purposes.[6] Additionally, the candidate portfolios must meet regulatory requirements such as RPS and emission rate requirements. Other factors considered may include lead-time needed for approval and construction of a resource, location, land-use limitations and similar factors affecting the availability of resources. All the costs of construction or acquisition of resources, fuel/variable production costs, O&M, and others are translated into estimated revenue requirements. Costs are calculated for the 20-year period and converted to net present value to reflect differences in timing and to compare on an equivalent basis.

Q. DESCRIBE HOW PNM'S ANALYSIS ACCOUNTED FOR ENVIRONMENTAL AND REGULATORY REQUIREMENTS.

A. All scenarios examined were required to comply with New Mexico's RPS revised in 2019 to require 20% of retail sales to be served by renewable resources by 2020, 40% by 2025, 50% by 2030 and 80% by 2040; with zero carbon resources serving 100% of retail sales by 2045.[7] In addition, carbon emissions intensity limits of 400

[6] **Adequacy of supply.** The generating capacity of the utility's plant supplemented by the electric power regularly available from other sources must be sufficiently large so as to meet all normal demands for service and provide a reasonable reserve for emergencies. 17.9.560.13(C) NMAC.

[7] NMSA 1978, § 62-16-4(A)

lbs/MWh and 200 lbs/MWh are required in 2023 and 2032, respectively.[8] Further, all scenarios comply with PNM's corporate goal to achieve a carbon emissions-free portfolio in 2040, five years ahead of the state RPS mandate. By incorporating all of these milestones as modeling constraints, the economic impact of an early exit from FCPP is examined within the context of the Energy Transition Act's policy requirements and PNM's long-term transition to a carbon emissions-free portfolio.

Q. HOW IS SYSTEM RELIABILITY REFLECTED IN THE MODELING?

A. System reliability metrics must be met in order to comply with NMPRC and federal requirements. The analysis requires each portfolio to meet a target planning reserve margin designed to approximate Loss of Load Event ("LOLE") metrics. When PNM files for approval of replacement resources all proposed portfolios will not only satisfy planning reserve margin requirements which approximate LOLE, but a full LOLE analysis will be performed on each potential replacement portfolio to ensure system reliability metrics will be met.

Q. WHAT MODELING TOOLS DID PNM USE TO EVALUATE THE ALTERNATIVE RESOURCE SCENARIOS?

A. PNM used the EnCompass software in its resource modeling. EnCompass is a power supply optimization software by Anchor Power Solutions that uses Mixed Integer Programming to simultaneously optimize multiple objectives and

[8] NMSA 1978 § 62-18-10(D). Rules for calculating compliance have not yet been established.

constraints (financial, physical, operational, reliability, etc.). EnCompass was used to evaluate the continued operations of FCPP as well as abandonment scenarios with multiple replacement resource alternatives.

Q. WHAT ARE THE KEY ASSUMPTIONS USED IN THE ANALYSIS?

A. The various analysis scenarios include forecast assumptions regarding PNM demand and energy requirements, the costs and output characteristics of resources within PNM's existing generating fleet, fuel prices, RPS and carbon emission requirements, and financial factors such as inflation, taxes and interest rates. Key input assumptions related to the ongoing operation of the FCPP Assets include the ongoing fuel and operating costs at FCPP and ongoing capital improvement and maintenance expenses. Key input assumptions related to abandonment and replacement of the FCPP Assets include costs and output characteristics of replacement resource options, the terms of the sale agreement and securitization estimates.

Q. WHAT LOAD FORECAST DID PNM USE WHEN PERFORMING THE FCPP ABANDONMENT ANALYSIS?

A. PNM used a load forecast prepared in June 2020 by Itron, Inc., a well-recognized industry resource for electricity forecasts. The load forecast reflects PNM's most up-to-date expectations of its demand and energy requirements and will also be utilized in PNM's upcoming 2020 IRP. The forecast includes a range of demand

and energy projections based on different expectations around customer growth, use per customer, behind-the-meter solar installations, electric vehicle adoption, and building electrification. Annual summaries of the demand and energy requirements included in PNM's load forecast are presented in PNM Exhibit NLP-2.

Q. WHAT COMMODITIES FORECAST DID PNM USE WHEN PERFORMING THE FCPP ABANDONMENT ANALYSIS?

A. PNM utilized a wholesale natural gas price, wholesale electric energy price and carbon emission price forecast prepared by PACE Global, an industry expert in utility commodity price forecasts. PACE Global's forecast will be utilized in PNM's upcoming 2020 IRP. Annual summaries of the forecast are presented in PNM Exhibit NLP-3.

Q. HOW DID PNM POPULATE THE DATABASE OF POTENTIAL REPLACEMENT RESOURCES FOR THE FCPP ABANDONMENT ANALYSIS?

A. PNM used information publicly available data sources such as National Renewable Energy Laboratory's ("NREL") Annual Technology Baseline, the U.S. Energy Information Administration ("EIA") Annual Energy Outlook (review of utility Integrated Resource Plans), and as well as non-public data from the San Juan RFPs and the Technology Request for Information that PNM issued in November of

2019. These data sources were incorporated in PNM's database of generic replacement resources utilized in this analysis. Because the replacement resources for FCPP will likely remain in PNM's portfolio through 2040 and beyond, PNM limited the replacement alternative in this analysis to resources that may viably contribute to a carbon emissions-free portfolio, including solar, wind, energy storage and flexible combustion turbine(s) resources under an expectation that new gas units would be converted to burn a non-carbon emitting fuel such as hydrogen by 2040. Due to the "lumpiness" of turbines,[9] the gas-to-hydrogen resources were required to be in 40 MW increments; the solar, wind and energy storage resources were allowed to be of any size due to their more modular nature. Relative pricing assumptions for the technologies are present in PNM Exhibit NLP-4. There was no ownership structure assumed for the resources (utility-owned vs PPA) – actual resources, including ownership structures, ultimately will be determined in the replacement resource filing following a competitive RFP evaluation process. I discuss later in my testimony the RFP that PNM is preparing for FCPP replacements, which will not have resource type limitations. PNM will conduct an "All-Source" RFP and will include requests for demand response resources.

[9]Turbines are designed and manufactured in discrete sizes

Q. WHY DID PNM NOT CONDUCT THE RFP FOR REPLACEMENT RESOURCES AS PART OF ANALYZING THE ABANDONMENT OF FOUR CORNERS?

A. While the final decision on replacement resources will use information from a new RFP, PNM's analysis was intended to identify if there were potential new resources that could replace FCPP. For the purposes of this filing, PNM reasonably used the most recent available data to perform its abandonment analysis and assess the potential net public benefit for the proposed transaction. The data that PNM has acquired from its last RFP is still recent enough to serve as a proxy for alternative resource options in evaluating the potential benefits of abandonment. The SJGS RFP requested bids for resources to be deployed by 2022. When adjusted by the forward technology curves developed by NREL and EIA, those potential alternatives serve as a reasonable proxy for expected prices of resources to be deployed in 2025. The amount of potential capacity that was bid into the SJGS RFP, which far exceeded identified capacity need, shows that there is an adequate amount of new capacity that can be added by 2025. Similar to PNM's IRP process, the proxy resources used in the abandonment analysis may not reflect what may actually be developed through the competitive bid process for replacement resources. However, these proxies can be relied on to reasonably quantify the estimated net public benefit associated with the proposed transaction. These generic replacement portfolios also reasonably approximate what an actual replacement portfolio would look like under different assumptions. The actual replacement portfolio will be determined after PNM issues an RFP and files a second case with the NMPRC. PNM Witness Fenton further discusses PNM's two phased approach to the FCPP abandonment and replacement resources filings allowable under the Energy Transition Act.

Q. WHAT ASSUMPTIONS DID PNM MAKE REGARDING THE SAN JUAN GENERATING STATION REPLACEMENT PORTFOLIO FOR THE FCPP ASSETS ABANDONMENT ANALYSIS?

A. PNM modeled the portfolio approved by the Commission in its Final Order in Case Nos. 19-00195-UT and 20-00182-UT.

Q. HOW WERE PNM'S UNDEPRECIATED CAPITAL INVESTMENTS ASSOCIATED WITH THE FCPP ASSETS CONSIDERED IN PNM'S ANALYSIS?

A. PNM's analysis assumed all undepreciated investments related to the FCPP Assets were recovered via a securitization bonds as more fully describe by PNM Witness Baker.

Q. DESCRIBE HOW PNM MODELED THE FCPP ASSETS IN ITS ANALYSIS.

A. Under the FCPP continues scenario, the operations and ongoing capital expenditures were based on PNM accounting data and project budgets through the expected exit date in 2031. Under the FCPP transfer scenario, PNM continues to incur operating costs through the end of 2024, when the plant is transferred to NTEC. The cost impacts of the proposed transaction are based on the terms of the NTEC purchase and sale agreement and FCPP unrecovered investment and securitization as presented in the testimony of PNM witnesses Fallgren and Baker. All existing resources were included in all scenarios and candidate replacement resources for gas, energy storage, solar and wind were allowed to be optimized for least cost.

Q. DID YOU INCLUDE ANY COSTS ASSOCIATED WITH COMPLYING WITH POTENTIAL FUTURE ENVIRONMENTAL REGULATIONS?

A. No. While there is always uncertainty surrounding the potential for future environmental regulations that may affect generation assets like FCPP, only environmental regulations known as of today were included in the analysis. If new regulations were to be promulgated by the new Biden administration or by the State of New Mexico that increased the cost of the continued participation in FCPP by PNM, this would further increase the net public benefit I describe in the next section of my testimony. Exiting the plant at the end of 2024 could be viewed as a hedge against additional future regulatory costs associated with continuing to participate in FCPP.

IV. RESULTS OF THE FCPP ABANDONMENT ANALYSIS

Q. PLEASE SUMMARIZE THE RESULTS OF THE ANALYSIS.

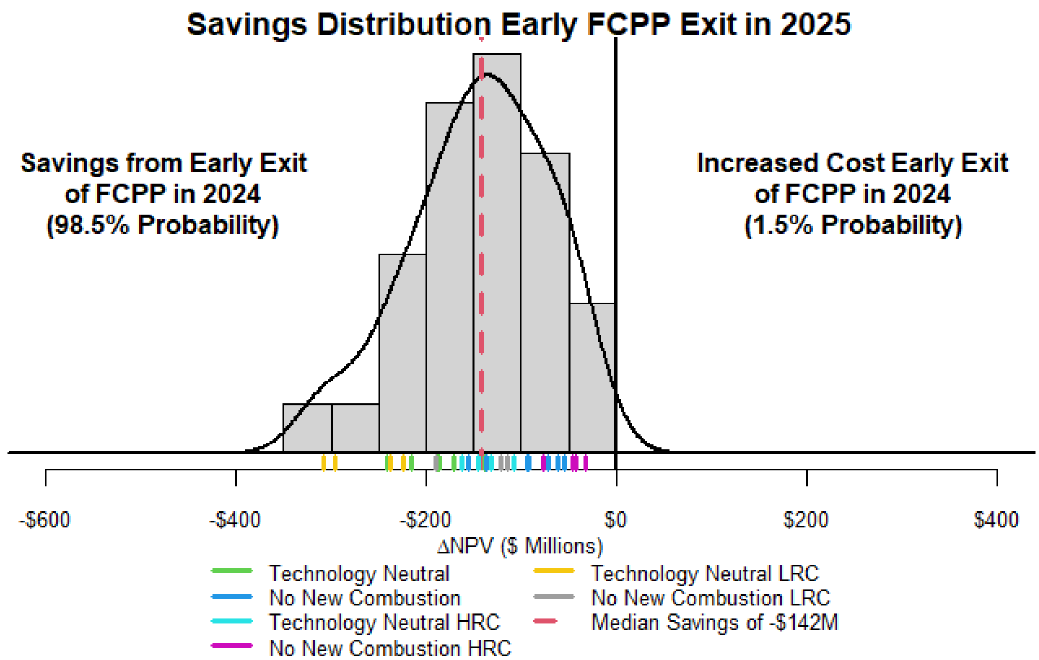
A. The results of the analysis show that the early exit from FCPP will provide savings to PNM customers under *all* potential future scenarios that PNM analyzed; however, there are a few cases that do approach a breakeven. The magnitude of savings ranges from approximately $300 million in customer savings to approximately $30 million in customer savings depending on the assumptions for the sets of simulations. The median expected savings is approximately $142 million.

PNM Figure NLP-3 below graphically presents the results of the analysis. The figure shows a histogram and approximated probability density of the cases analyzed. The area beneath the probability curve sums to 100%. Summing the area left of the breakpoint between customer savings and customer costs results in a 98.5% likelihood that customers will be better off due to exiting FCPP in 2025. Beneath the x-axis on the "rug" of the plot are color coded marks showing where the individual cases analyze fall in the savings spectrum.

With each color-coded grouping are multiple cases that examined different future load, commodity forecast, and technology cost combinations. The main groupings consist of technology restrictions, "high replacement cost" ("HRC") and "low replacement cost ("LRC") combinations. The no new combustion cases assumed that no non-carbon emitting fuel is expected to materialize and consequently no combustion turbines (or other carbon emitting resources) are allowed for replacement resources. These cases are generally more costly for customers than cases where technology type selection is neutral; however, they do still produce net savings. The technology neutral cases generally produce marginal increases in carbon emissions compared to the no new combustion cases, but all cases meet and/or exceed the ETA carbon emission requirements. PNM Figure NLP-4 presented later in this testimony depicts the carbon intensity of the reference case portfolios for both technology restricted and unrestricted cases.

The HRC set of assumptions is a combination of assumptions intended to account for a high technology cost curve for replacement resources, high gas prices and low carbon emission prices. This combination of assumptions would tend not to favor the early exit from FCPP. Indeed, when the HRC assumptions are combined with no new combustion, the savings to customers resulting from the proposed transaction diminish and approach a breakeven when compared to PNM retaining its interest in FCPP. Conversely the LRC assumptions include low technology cost curves for replacement resources, low gas prices, and high carbon emission prices.

PNM Figure NLP-3



Q. PLEASE DESCRIBE THE RANGE OF SIMULATIONS CONTRIBUTING TO THE RESULTS IN THE FIGURE.

A. The data in the figure are the differences in NPV cost between pairs of model simulations in which FCPP Assets continue operation through 2031 and in which FCPP Assets are transferred and replaced at the end of 2024. Different pairs of simulations were modeled based on external conditions defined by the following factors:

- Presence or absence of a restriction on the types of technologies eligible for replacement resources

- Mid, low, or high load forecast
- Mid, low, or high gas price forecast
- Presence or absence of carbon emissions prices
- Mid, low, or high forecasts of cost declines for renewable and energy storage resources

This range of simulations is meant to test the robustness of our conclusions to external factors uncontrolled by PNM.

Q. DO ANY SIMULATION CONDITIONS LEAD TO A NET INCREASE IN CUSTOMER COSTS?

A. No. The results of the analysis show that the early exit from FCPP will provide savings to PNM customers under all potential future scenarios that PNM analyzed. However, there are a few cases that do approach a breakeven. This results in a non-zero probability that customers could face an increased cost, but such an outcome is highly unlikely. PNM Figure NLP-3 above graphically presents the results of the analysis. The key takeaways from the figure show that in all cases PNM considered, there are net customer savings provided by the proposed NTEC transaction, which allows PNM to abandon its FCPP interest under favorable circumstances for customers.

While the magnitude of the savings varies based on the assumptions in each set of simulations, the circumstances that could result in increased customer costs are limited to cases where multiple factors must deviate significantly from PNM's Current Trends and Policy assumptions (those which reflect the PNM's view of the most likely set of conditions in the future). That confluence would require a restriction on the types of technologies considered as replacement resources, higher-than-expected gas prices, no carbon emission prices, and higher-than-expected costs for renewable and energy storage resources (meaning the prices for these technologies do not decline as much as expected). Based on the foregoing, PNM considers that it is unlikely that the abandonment of FCPP in 2024 would be more costly for customers. PNM Exhibit NLP-5 shows a complete list of modeled futures and sensitivities for this analysis.

Q IS IT POSSIBLE TO ABANDON FCPP UNDER THE ETA IF FCPP WAS RETAINED THROUGH 2031?

A. Yes, it would be possible for PNM to abandon FCPP in 2031 under the ETA. However, the benefit of the early divestiture of FCPP through PNM's transfer to NTEC would be lost and the delay would eliminate financial benefits to customers; it would also delay by at least six years the economic development funding to local communities and thus lose the benefits earlier efforts can bring. Also, while PNM would still be able to comply with the Renewable Energy Act's increasing RPS mandates and carbon requirements if FCPP continued to serve customers through 2031, the early divestiture provides benefits from the early reduction of the carbon emissions associated with PNM's generation portfolio used to serve customers during the 2025-2031 period. I discuss the impacts on PNM's carbon intensity of generation in my testimony below (*see* Figure NLP-4 later in this testimony).

V. PROXY REPLACEMENT PORTFOLIO

Q. PLEASE DISCUSS THE COMPOSITION OF THE PROXY REPLACEMENT PORTFOLIO(S) THAT RESULTED FROM THE ANALYSIS.

A. Generally, the model runs select resources that provide flexible power and capacity, with a resulting system energy mix that helps meet future increasing RPS requirements. While the actual replacement portfolio will not be determined until PNM issues and evaluates the upcoming RFP, the results of the analysis utilizing the generic placeholders provides reliable insight into what a potential replacement portfolio might look like and cost. Under the Current Trends and Policy assumptions (those which reflect PNM's view of the most likely set of conditions in the future), PNM started out with gas, wind, solar and energy storage technologies as replacement options. The resulting replacement portfolio(s) were primarily combinations of solar photovoltaic, energy storage and flexible combustion turbine resources that are expected to convert to hydrogen fuel (or some other non-carbon emitting fuel) by 2040. The levels of each type of resource depend upon the assumptions surrounding technology restrictions as well as the resources that would be brought online in 2023/2024 as replacements to the 114 MW of Palo Verde leases being returned. In aggregate, over the Palo Verde and

FCPP replacement period (2023-2025), PNM would expect to add approximately 80 MW of storage, 50 MW of solar, and 360 MW of flexible combustion turbine resources, if there are no technological restrictions placed on the proxy replacement portfolio. If there are technological restrictions such as the exclusion of potential hydrogen resources such that only renewable resources and energy storage resources are available, the aggregate replacement resources in the 2023-2025 timeframe would then be approximately 460 MW of storage and 210 MW of solar resources. While both proxy portfolios would provide a net benefit to customers, the technology neutral proxy portfolio would cost approximately $300 million less on a 20-year NPV basis.

PNM Table NLP-1

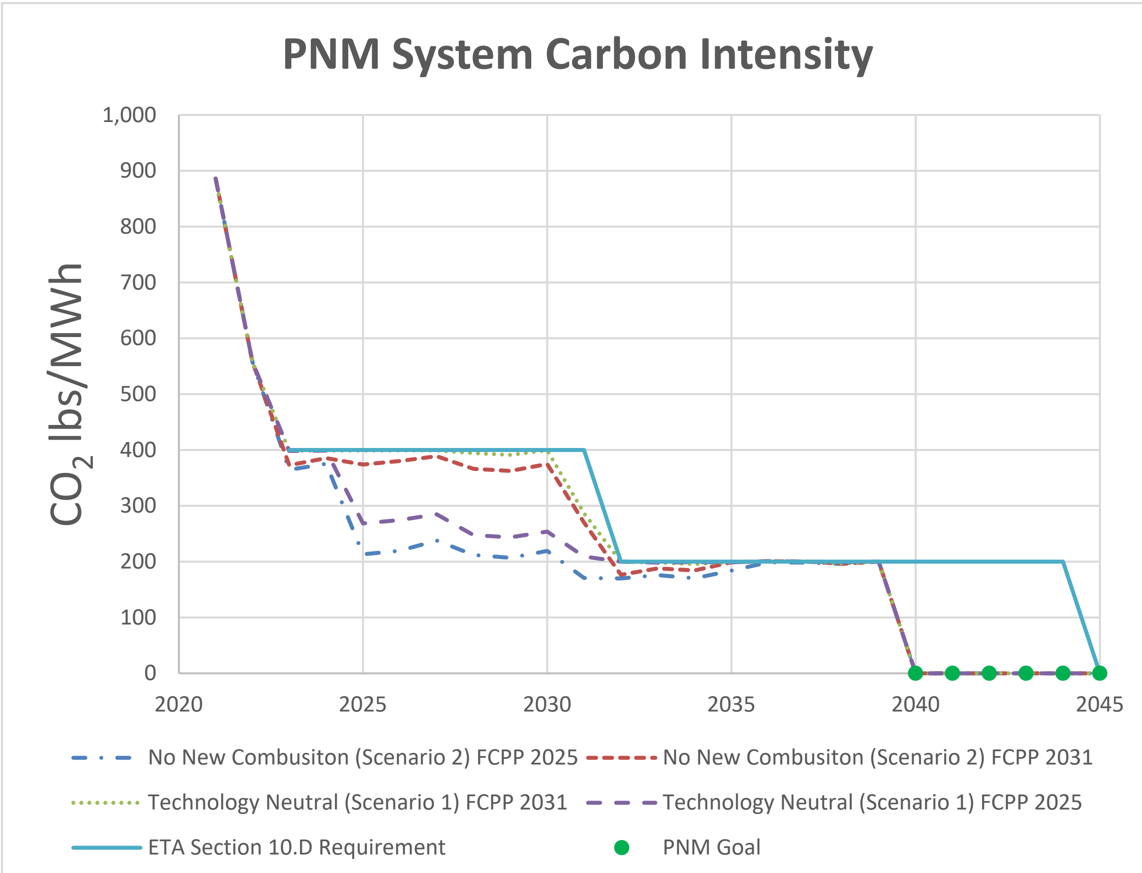
			Technology Neutral (Scenario 1)		No New Combustion (Scenario 2)		
			Exit FCPP 2024	Exit FCPP 2031	Exit FCPP 2024	Exit FCPP 2031	
Line	Years	Resource Type	Incremental Capacity (MW)	Incremental Capacity (MW)	Incremental Capacity (MW)	Incremental Capacity (MW)	Line
1	2023-2024	Combustion Turbine	280	240	0	0	1
2		Storage	24	53	305	311	2
3		Solar	(1)	9	125	53	3
4		Wind	0	0	0	0	4
5		Nuclear	(114)	(114)	(114)	(114)	5
6		Coal	(497)	(497)	(497)	(497)	6
7	2025	Combustion Turbine	80	0	0	0	7
8		Storage	57	0	156	0	8
9		Solar	57	0	95	0	9
10		Wind	0	0	0	0	10
11		Nuclear	0	0	0	0	11
12		Coal	(200)	0	(200)	0	12
13	NPV (2021$)($M)		$6,933	$7,105	$7,240	$7,335	13
14	Total 2040 Capacity (MW)		5,941	5,869	6,401	6,401	14
15	CO_2 (Tons)(M)		28.4	32.9	26.1	31.7	15

Finally, PNM reiterates that the information contained in the PNM Table NLP-1 is only a proxy used to show the net customer benefits; however, it is indicative of what replacement portfolios might be. The actual replacement resources will be determined after PNM issues and evaluates an RFP later this year. The illustrative portfolios above are all designed to meet the increasing resource adequacy requirements of a highly renewable and decarbonizing system as well as continuing to meet or exceeding all Energy Transition Act requirements. The range of portfolios is intended to demonstrate the risk-cost tradeoff associated with different potential paths, which will be further explored and examined in the upcoming IRP filing and replacement resource filings.

Q. PLEASE COMMENT ON THE CARBON INTENSITY OF THE PROXY REPLACEMENT PORTFOLIO(S)?

A. The proxy replacement portfolios will lead to significant decreases in emissions from the PNM system between 2025 and 2031. This is shown in PNM Figure NLP-4 below.

PNM Figure NLP-4



Q. GIVEN THAT PNM HAS NOT FILED AN ACTUAL PORTFOLIO OF SPECIFIC RESOURCES, HOW CAN THE COMMISSION BE ASSURED THAT ANY REPLACEMENT RESOURCES WILL BE LESS COSTLY AND AVAILABLE WHEN NEEDED?

A. There is always uncertainty when there is a lag between the time a resource decision is made and the time at which the resource goes into service. There is risk that the expected savings will not be realized should gas prices increase, or renewable and other technology costs rise, between the time of the decision to not retain the FCPP Assets and the acquisition of replacement resources.

Nonetheless, PNM reasonably expects costs of replacement resources such as battery storage and renewable facilities to be bid to PNM in its upcoming RFP at prices/costs similar to or below what was bid to PNM in SJGS RFPs. PNM has witnessed a trend of declining pricing/costs for renewable energy and battery storage. PNM expects that trend to continue. For energy storage, which is still evolving, those future price curves are more uncertain. Consequently, PNM analyzed many different scenarios to account for the uncertainty of pricing of these resource types. Relative pricing assumptions for the technologies are present in PNM Exhibit NLP-4.

Q. DOES PNM'S ANALYSIS ACCOUNT FOR THE EXTENSION OF THE FEDERAL RENEWABLE TAX CREDITS CONTAINED IN THE DECEMBER 27, 2020 OMNIBUS SPENDING BILL?

A. No. PNM's analysis has not been updated for the extension of the Investment Tax Credit ("ITC") and Production Tax Credit ("PTC") contained in recent federal legislation. In particular, the tax credit extensions contained within the bill should allow for renewable and storage replacement resources that qualify for tax credits to be less expensive than assumed in this analysis. These lower costs are expected to be passed on in lower priced bids for replacement projects covered by the extension periods and would create additional value for customers from the proposed transaction beyond what is presented earlier.

Q. HOW HAS PNM DETERMINED THERE WILL BE ADEQUATE RESOURCES TO SUPPLY CUSTOMER NEEDS IF THE PROPOSED FCPP SALE AND ABANDONMENT ARE APPROVED?

A. There are ample resources that can be procured in time for a 2024 exit from FCPP. As noted above, the RFP issued for replacement resources for the 497 MW of San Juan of coal plant capacity resulted in bids in excess of 10,000 MW of resources for delivery in 2022. In PNM's most recent RFP to replace the 114 MW from the PVNGS expiring leases, PNM received bids for approximately 6,500 MW of replacement resources. The results of these recent RFPs confirm the availability of adequate replacement resources. As discussed below, PNM will issue an RFP for replacement resources for FCPP shortly after PNM's 2020 IRP is issued at the end of January 2021.

VI. UPCOMING RFP

Q. PLEASE DESCRIBE THE UPCOMING RFP THAT PNM INTENDS TO ISSUE FOR POTENTIAL REPLACMENT RESOURCES FOR FCPP.

A. PNM will issue an all-source RFP to account for approximately 200 MW of accredited capacity needed to replace the capacity of the FCPP Assets in PNM's generating fleet shortly after PNM issues its 2020 IRP at the end of January 2021.

Since different resources provide different capacity values at PNM's net peak, the solicitation will be scaled to account for the 200 MW of firm capacity that the FCPP Assets provide. PNM will accept proposals for both utility-owned and PPA resources. The evaluation will be based on resources that provide the best value to PNM's customers and that are in alignment with PNM's long-term goal of a zero-carbon energy future. Respondents will be required to propose resources consistent with the requirements outlined in the Renewable Energy Act and NMSA 1978, § 62-13-16, including but not limited to those that maximize the use of a New Mexico work force, employ apprentices for the construction of the facilities, and advance a zero-carbon future.

Q. WILL PNM PROVIDE THE RFP TO STAKEHOLDERS FOR REVIEW PRIOR TO ISSUANCE OF THE RFP TO THE PUBLIC?

A. Yes, PNM will provide the RFP to stakeholders ahead of issuance to solicit feedback on the language and scope of the RFP.

Q. WHEN DOES PNM ANTICIPATE FILING ITS APPLICATION FOR COMMISSION APPROVAL OF THE PROPOSED REPLACEMENT RESOURCES?

A. As discussed by PNM witness Fallgren, PNM plans to file an application for approval of proposed FCPP replacement resources before the end of 2021. Assuming abandonment of FCPP is approved, this will allow adequate time for the final selection and approval of replacement resources to allow them to be available by the end of 2024 when the FCPP is proposed to be abandoned.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes, it does.

GCG#527517

Nicholas L. Phillips
EDUCATIONAL AND PROFESSIONAL SUMMARY

Address: Public Service Company of New Mexico 414 Silver Avenue, SW, MS-0915, Albuquerque, New Mexico 87102

Position: Director, Integrated Resource Planning, June 2019 to present

Education: Bachelor of Science in Electrical Engineering, Washington University in St. Louis/University of Missouri - St. Louis Joint Engineering Program

Master of Engineering in Electrical Engineering, Electric Power and Energy Systems, Iowa State University of Science and Technology

Master of Science in Computational Finance and Risk Management, University of Washington Seattle

Employment: Employed by Public Service Company of New Mexico since 2019.

Principal with Brubaker & Associates, Inc. ("BAI"), a consulting firm specializing in public utility regulation, energy and economics.

Professional Affiliations: Member of the Institute of Electrical and Electronic Engineers ("IEEE") Power Engineering Society

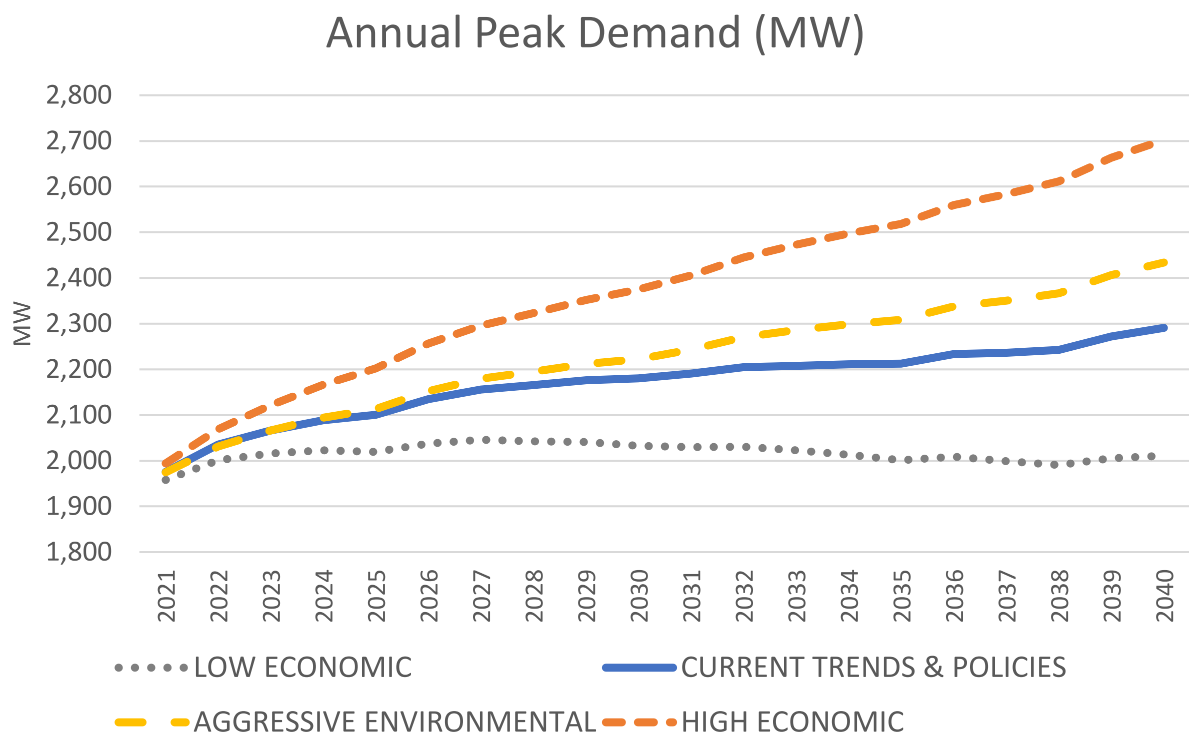
Testimony/Affidavits Presented Before:
Kansas Public Service Commission
Michigan Public Service Commission
Missouri Public Service Commission
Wisconsin Public Service Commission
Wyoming Public Service Commission
California Public Utilities Commission
Nevada Public Utilities Commission
Idaho Public Utilities Commission
Federal Energy Regulatory Commission
New Mexico Public Regulation Commission

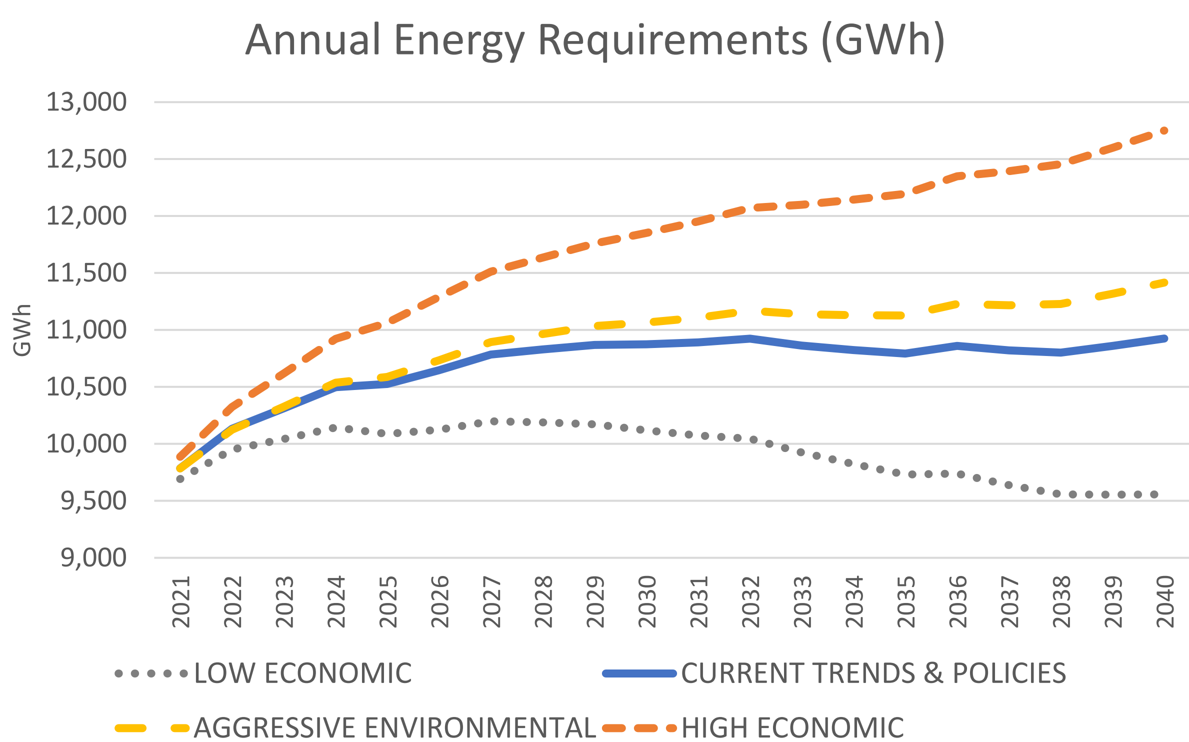
NMPRC Testimony:

Case No. 13-00390-UT	PNM’s SJGS Units 1 and 4 Abandonment
Case No. 15-00261-UT	PNM’s 2015 General Rate Case
Case No. 15-00312-UT	PNM’s AMI Application
Case No. 16-00276-UT	PNM’s 2016 General Rate Case
Case No. 17-00044-UT	SPS Application for Wind CCN & PPA
Case No. 19-00018-UT	PNM’s SJGS Units 2 and 3 Abandonment
Case No. 19-00195-UT	PNM’s SJGS Replacement Resources Application
Case No. 20-00087-UT	PNM’s Energy Efficiency 2021 Plan Application
Case No. 20-00124-UT	PNM’s 2021 Renewable Energy Plan
Case No. 20-00182-UT	PNM’s SJGS Replacement Resources Compliance Application

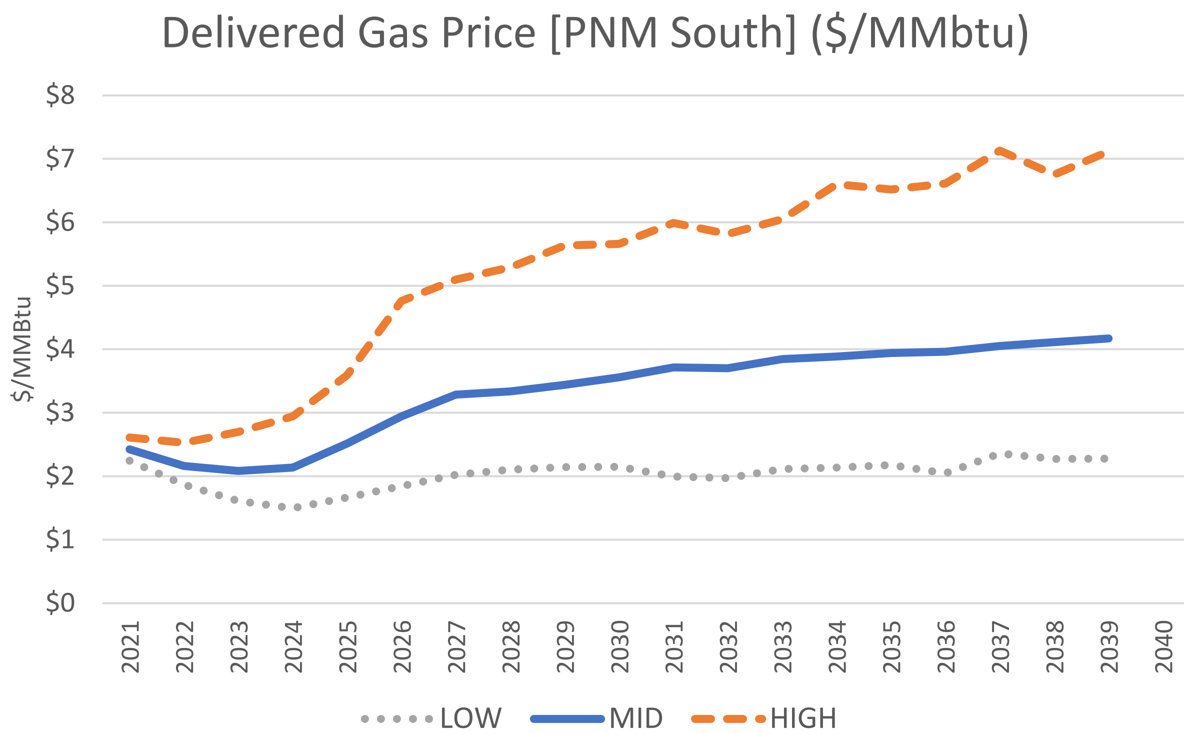
GCG#527489

PNM Exhibit NLP-2

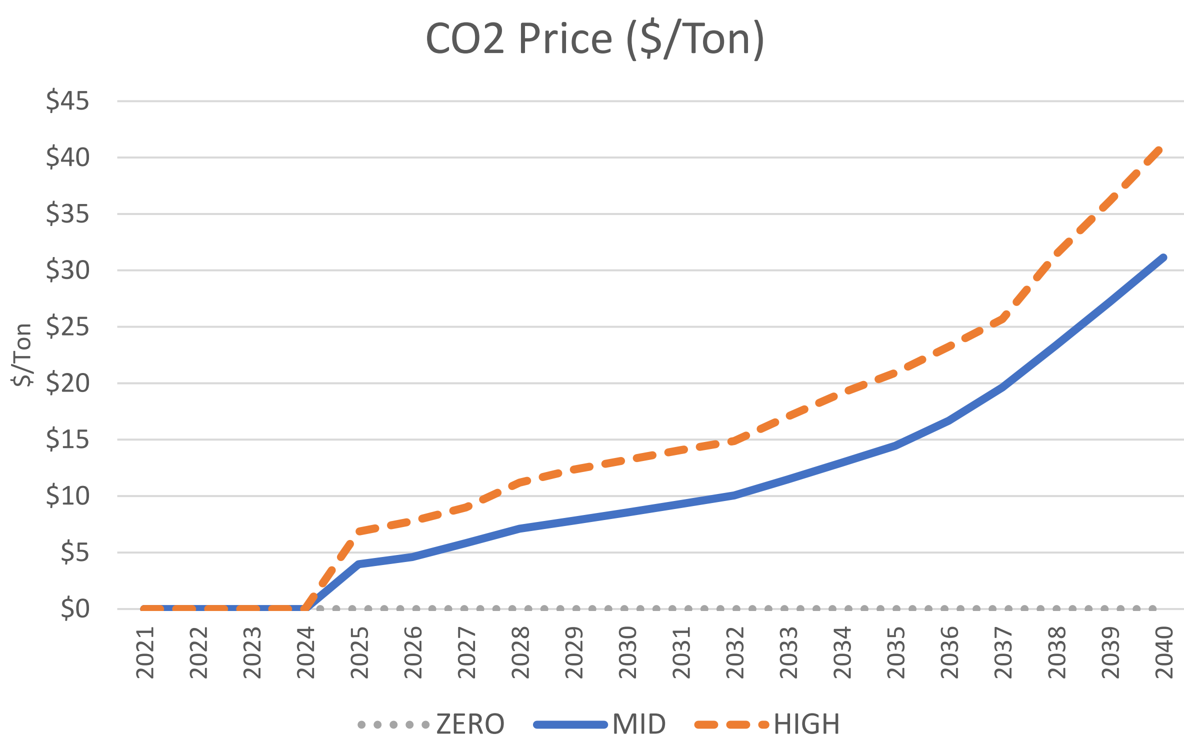


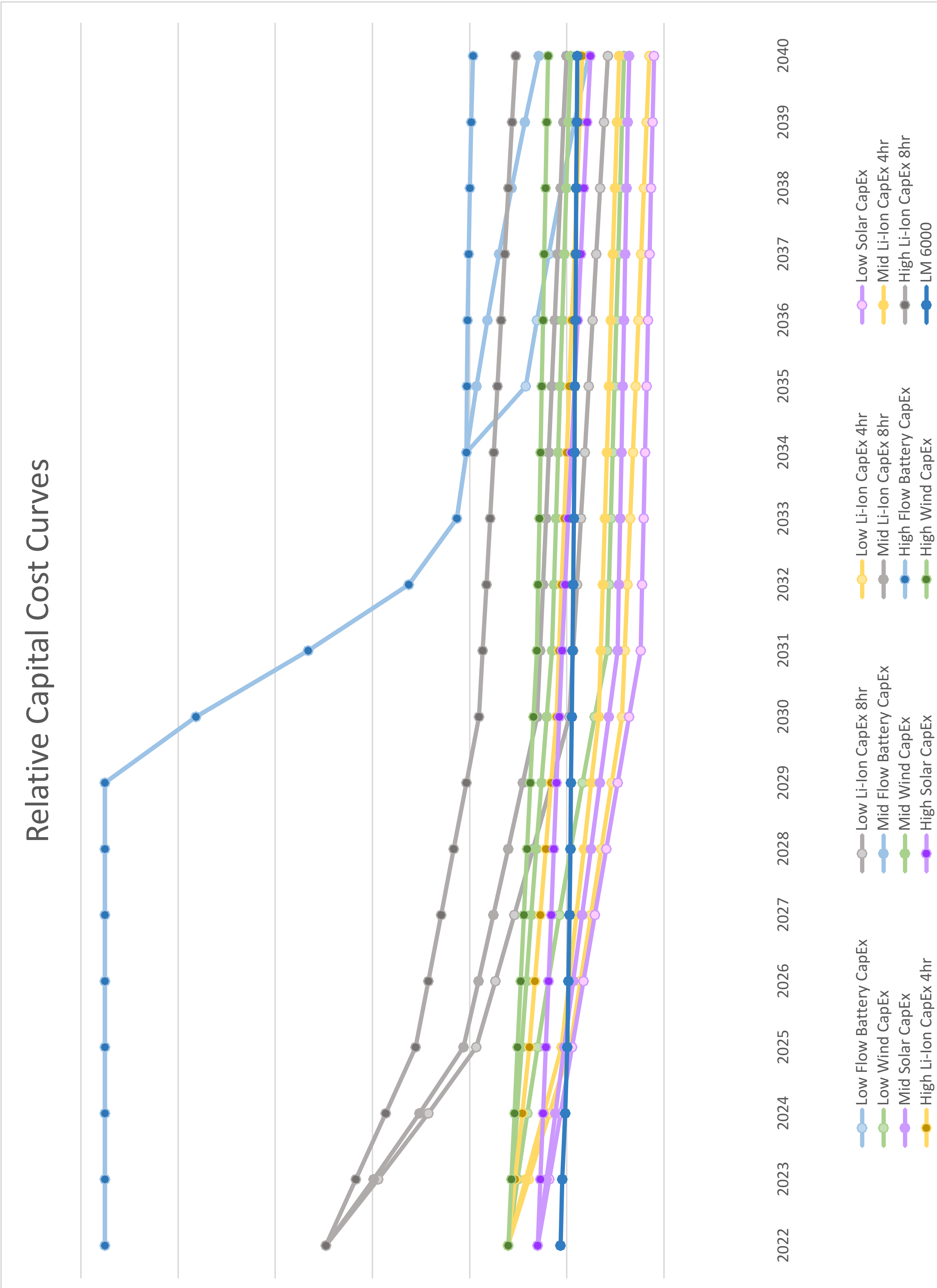


PNM Exhibit NLP-3



Note: *Delivered hydrogen fuel price assumed for 2040 is $39.80/MMBtu*




Relative Capital Cost Curves
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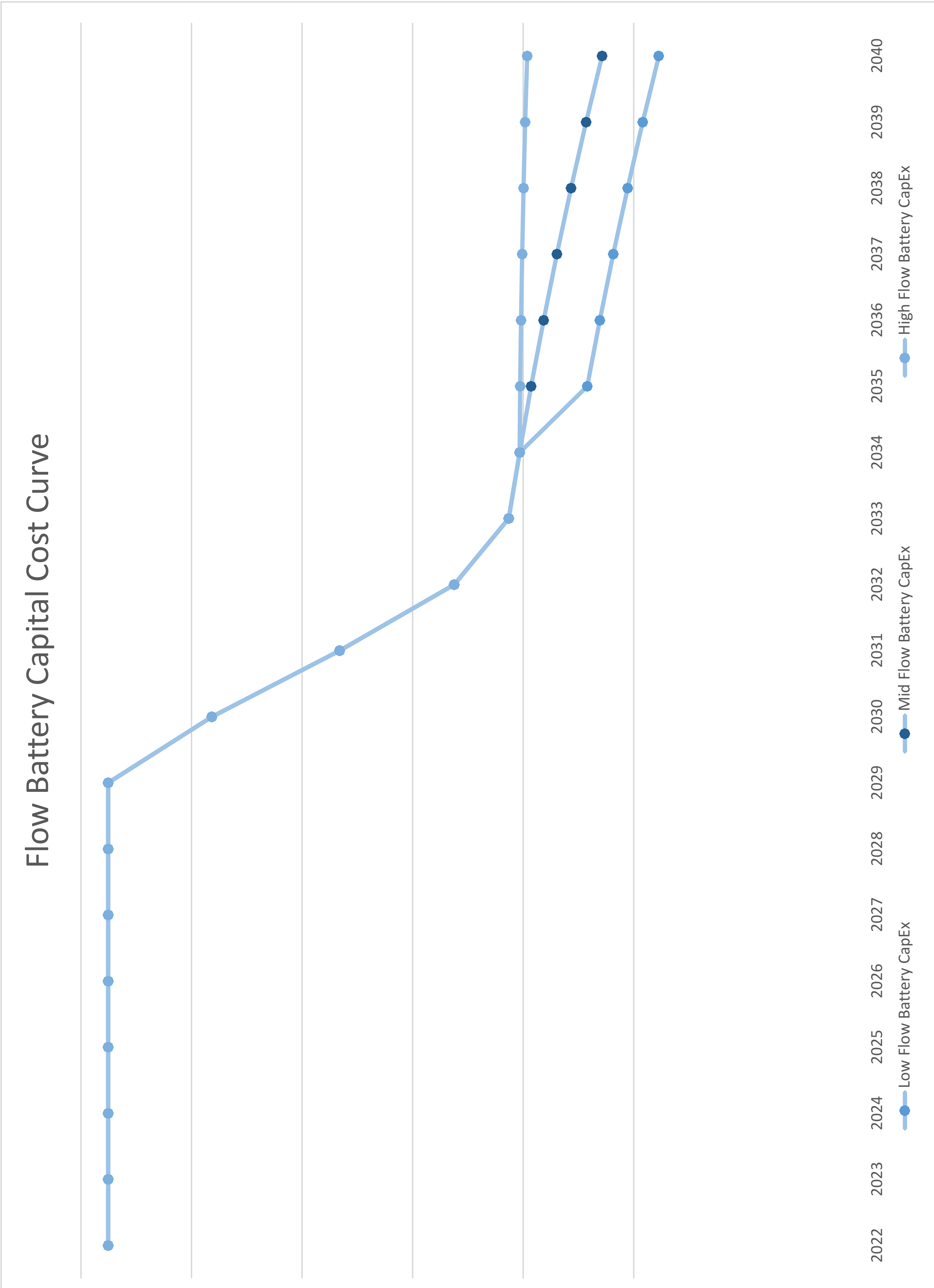
Low Flow Battery CapEx
Low Wind CapEx
Mid Solar CapEx
High Li-Ion CapEx 4hr
Low Li-Ion CapEx 8hr
Mid Flow Battery CapEx
Mid Wind CapEx
High Solar CapEx
Low Li-Ion CapEx 4hr
Mid Li-Ion CapEx 8hr
High Flow Battery CapEx
High Wind CapEx
Low Solar CapEx
Mid Li-Ion CapEx 4hr
High Li-Ion CapEx 8hr
LM 6000


Flow Battery Capital Cost Curve
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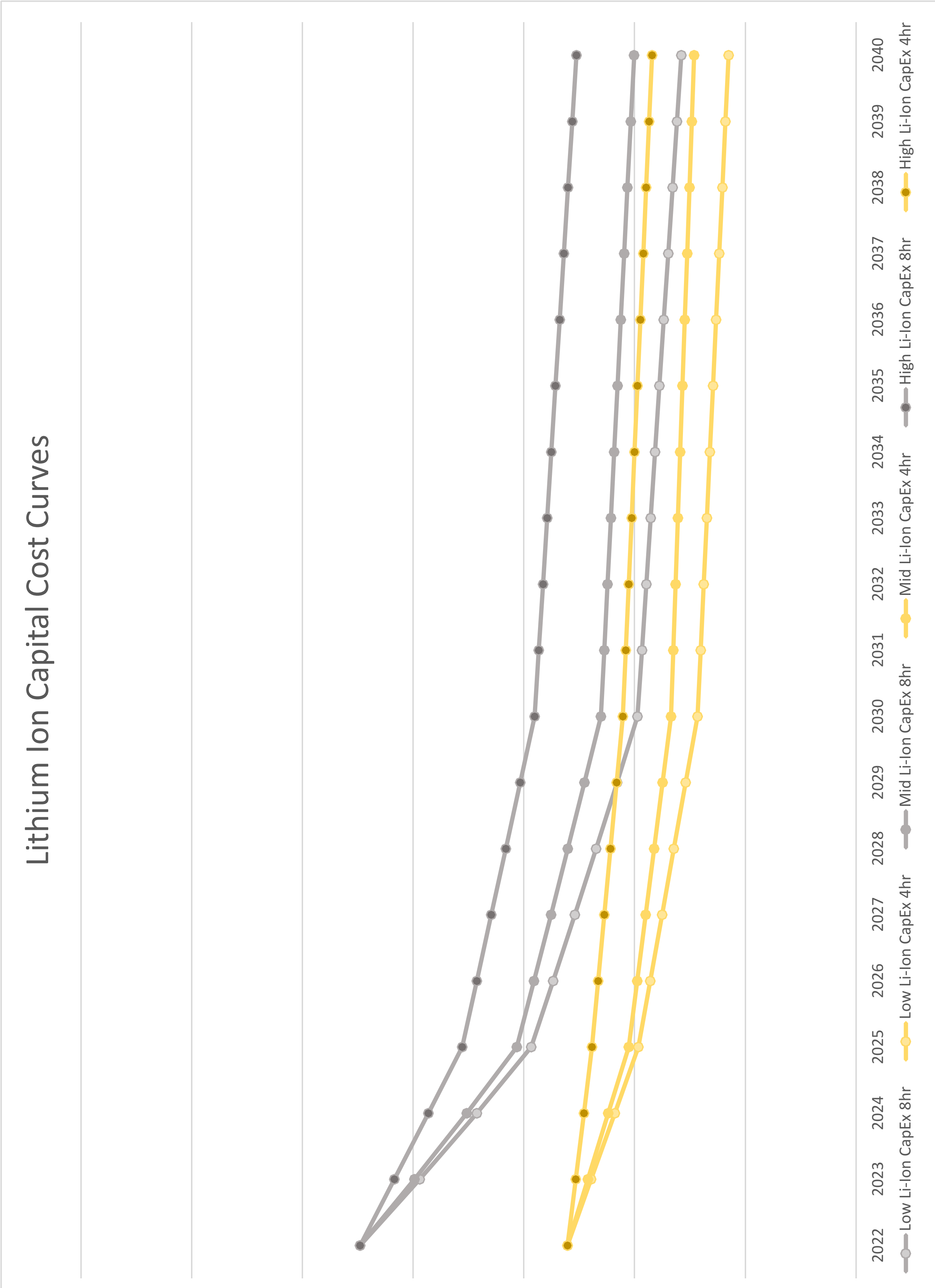
2040
Low Flow Battery CapEx
Mid Flow Battery CapEx
High Flow Battery CapEx


Lithium Ion Capital Cost Curves
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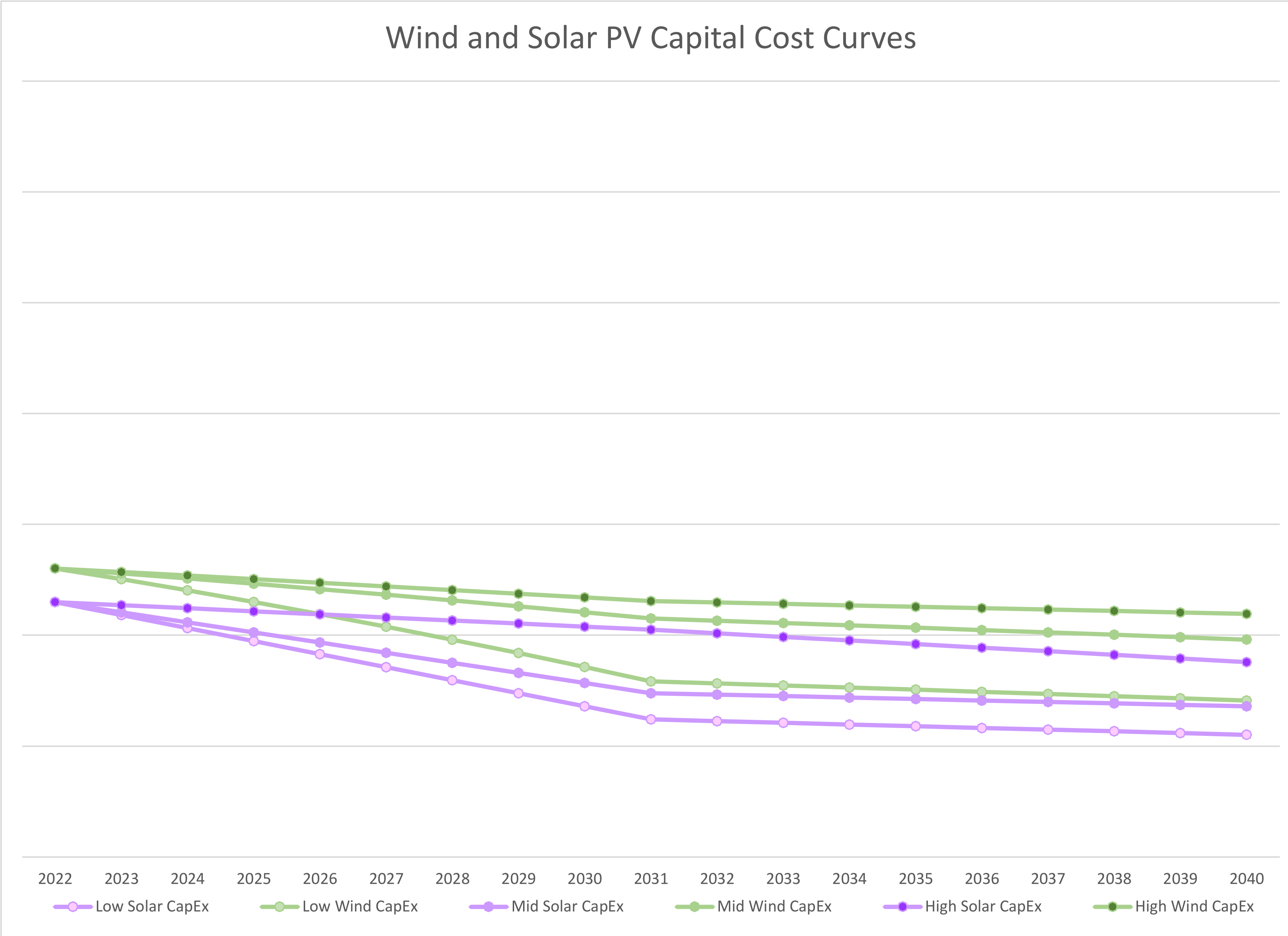
Low Li-Ion CapEx 8hr
Low Li-Ion CapEx 4hr
Mid Li-Ion CapEx 8hr
Mid Li-Ion CapEx 4hr
High Li-Ion CapEx 8hr
High Li-Ion CapEx 4hr


Wind and Solar PV Capital Cost Curves
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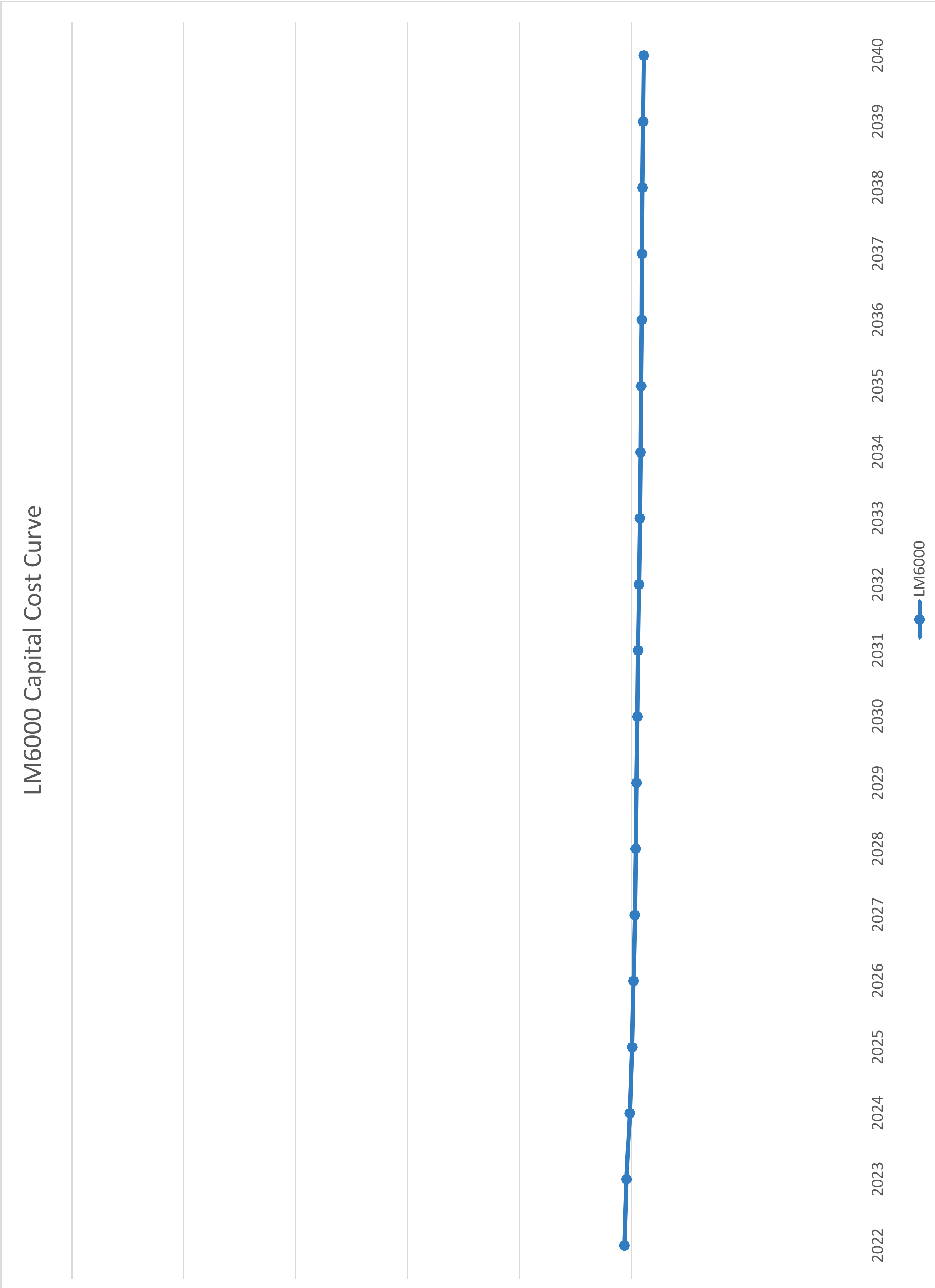
2040
Low Solar CapEx
Low Wind CapEx
Mid Solar CapEx
Mid Wind CapEx
High Solar CapEx
High Wind CapEx


LM6000 Capital Cost Curve
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LM6000

Simulation	PVRR ($000s)	"Future"	Sensitivity	FCPP Retirement	New Combustion Resources	Load Forecast	BTM PV Forecast	EV Adoption Forecast	Building Electrification Forecast	Gas Price Forecast	Elec Price Forecast	CO2 Price Forecast	Renewable & Battery Capital Costs	Federal Tax Credits
CTP-NNC	$7,240,180	Current Trends and Policy		2025	No	Mid	Mid	Mid	Mid	Mid	Mid	Mid	Mid	Expire
CTP-TN	$6,956,641	Current Trends and Policy		2025	Allowed	Mid	Mid	Mid	Mid	Mid	Mid	Mid	Mid	Expire
CTP-TN-Relax Turbine Constraint	$6,933,317	Current Trends and Policy		2025	Allowed	Mid	Mid	Mid	Mid	Mid	Mid	Mid	Mid	Expire
CTP-NNC-Relax Turbine Constraint	$7,240,501	Current Trends and Policy		2025	No	Mid	Mid	Mid	Mid	Mid	Mid	Mid	Mid	Expire
CTP-NNC-HC	$7,842,390	Current Trends and Policy	High Cost	2025	No	Mid	Mid	Mid	Mid	High	High	Zero	High	Expire
CTP-TN-HC	$7,409,077	Current Trends and Policy	High Cost	2025	Allowed	Mid	Mid	Mid	Mid	High	High	Zero	High	Expire
CTP-NNC-LC	$7,060,608	Current Trends and Policy	Low Cost	2025	No	Mid	Mid	Mid	Mid	Low	Low	High	Low	Expire
CTP-TN-LC	$6,752,237	Current Trends and Policy	Low Cost	2025	Allowed	Mid	Mid	Mid	Mid	Low	Low	High	Low	Expire
HES-NNC	$9,259,350	Current Trends and Policy	Symmetrical High	2025	Allowed	Mid	Mid	Mid	Mid	High	High	High	High	Expire
HES-TN	$8,558,099	Current Trends and Policy	Symmetrical High	2025	Allowed	Mid	Mid	Mid	Mid	High	High	High	High	Expire
LES-NNC	$6,288,696	Current Trends and Policy	Symmetrical Low	2025	Allowed	Mid	Mid	Mid	Mid	Low	Low	Zero	Low	Expire
LES-TN	$6,075,006	Current Trends and Policy	Symmetrical Low	2025	Allowed	Mid	Mid	Mid	Mid	Low	Low	Zero	Low	Expire
CTP-NNC-FCPP 2031	$7,334,819	Current Trends and Policy		2031	No	Mid	Mid	Mid	Mid	Mid	Mid	Mid	Mid	Expire
CTP-TN-FCPP 2031	$7,129,107	Current Trends and Policy		2031	Allowed	Mid	Mid	Mid	Mid	Mid	Mid	Mid	Mid	Expire
CTP-TN-FCPP 2031-Relax Turbine Constraint	$7,104,709	Current Trends and Policy		2031	Allowed	Mid	Mid	Mid	Mid	Mid	Mid	Mid	Mid	Expire
CTP-NNC-FCPP 2031-Relax Turbine Constraint	$7,334,602	Current Trends and Policy		2031	No	Mid	Mid	Mid	Mid	Mid	Mid	Mid	Mid	Expire
CTP-NNC-FCPP 2031-HC	$7,885,614	Current Trends and Policy	High Cost	2031	No	Mid	Mid	Mid	Mid	High	High	Zero	High	Expire
CTP-TN-FCPP 2031-HC	$7,515,943	Current Trends and Policy	High Cost	2031	Allowed	Mid	Mid	Mid	Mid	High	High	Zero	High	Expire
CTP-NNC-FCPP 2031-LC	$7,181,945	Current Trends and Policy	Low Cost	2031	No	Mid	Mid	Mid	Mid	Low	Low	High	Low	Expire
CTP-TN-FCPP 2031-LC	$6,976,930	Current Trends and Policy	Low Cost	2031	Allowed	Mid	Mid	Mid	Mid	Low	Low	High	Low	Expire
HES-NNC-FCPP 2031	$9,321,200	Current Trends and Policy	Symmetrical High	2031	Allowed	Mid	Mid	Mid	Mid	High	High	High	High	Expire
HES-TN-FCPP 2031	$8,745,245	Current Trends and Policy	Symmetrical High	2031	Allowed	Mid	Mid	Mid	Mid	High	High	High	High	Expire
LES-NNC-FCPP 2031	$6,444,686	Current Trends and Policy	Symmetrical Low	2031	Allowed	Mid	Mid	Mid	Mid	Low	Low	Zero	Low	Expire
LES-TN-FCPP 2031	$6,290,268	Current Trends and Policy	Symmetrical Low	2031	Allowed	Mid	Mid	Mid	Mid	Low	Low	Zero	Low	Expire
LE-NNC	$6,413,446	Low Econ		2025	No	Low	Low	Low	Mid	Low	Low	Mid	Mid	Expire
LE-TN	$6,189,559	Low Econ		2025	Allowed	Low	Low	Low	Mid	Low	Low	Mid	Mid	Expire
LE*-NNC	$6,578,442	Low Econ		2025	No	Low	Low	Low	Mid	Mid	Mid	Mid	Mid	Expire
LE*-TN	$6,395,597	Low Econ		2025	Allowed	Low	Low	Low	Mid	Mid	Mid	Mid	Mid	Expire
LE-NNC-HC	$7,048,731	Low Econ	High Cost	2025	No	Low	Low	Low	Mid	High	High	Zero	High	Expire
LE-TN-HC	$6,703,340	Low Econ	High Cost	2025	Allowed	Low	Low	Low	Mid	High	High	Zero	High	Expire
LE-NNC-LC	$6,414,840	Low Econ	Low Cost	2025	No	Low	Low	Low	Mid	Low	Low	High	Low	Expire
LE-TN-LC	$6,225,822	Low Econ	Low Cost	2025	Allowed	Low	Low	Low	Mid	Low	Low	High	Low	Expire
LE-NNC-FCPP 2031	$6,591,044	Low Econ		2031	No	Low	Low	Low	Mid	Low	Low	Mid	Mid	Expire
LE-TN-FCPP 2031	$6,426,440	Low Econ		2031	Allowed	Low	Low	Low	Mid	Low	Low	Mid	Mid	Expire
LE*-NNC-FCPP 2031	$6,715,879	Low Econ		2031	No	Low	Low	Low	Mid	Mid	Mid	Mid	Mid	Expire
LE*-TN-FCPP 2031	$6,584,448	Low Econ		2031	Allowed	Low	Low	Low	Mid	Mid	Mid	Mid	Mid	Expire
LE-NNC-FCPP 2031-HC	$7,125,973	Low Econ	High Cost	2031	No	Low	Low	Low	Mid	High	High	Zero	High	Expire
LE-TN-FCPP 2031-HC	$6,834,241	Low Econ	High Cost	2031	Allowed	Low	Low	Low	Mid	High	High	Zero	High	Expire
LE-NNC-FCPP 2031-LC	$6,604,360	Low Econ	Low Cost	2031	No	Low	Low	Low	Mid	Low	Low	High	Low	Expire
LE-TN-FCPP 2031-LC	$6,462,862	Low Econ	Low Cost	2031	Allowed	Low	Low	Low	Mid	Low	Low	High	Low	Expire
HE-NNC	$8,309,730	High Econ		2025	No	High	High	High	High	Mid	Mid	Mid	Mid	Expire
HE-TN	$7,881,715	High Econ		2025	Allowed	High	High	High	High	Mid	Mid	Mid	Mid	Expire
HE-NNC-HC	$9,132,512	High Econ	High Cost	2025	No	High	High	High	High	High	High	Zero	High	Expire
HE-TN-HC	$8,403,444	High Econ	High Cost	2025	Allowed	High	High	High	High	High	High	Zero	High	Expire
HE-NNC-LC	$8,123,319	High Econ	Low Cost	2025	No	High	High	High	High	Low	Low	High	Low	Expire
HE-TN-LC	$7,608,991	High Econ	Low Cost	2025	Allowed	High	High	High	High	Low	Low	High	Low	Expire
HE-NNC-FCPP 2031	$8,402,166	High Econ		2031	No	High	High	High	High	Mid	Mid	Mid	Mid	Expire
HE-TN-FCPP 2031	$8,123,691	High Econ		2031	Allowed	High	High	High	High	Mid	Mid	Mid	Mid	Expire
HE-NNC-FCPP 2031-HC	$9,165,291	High Econ	High Cost	2031	No	High	High	High	High	High	High	Zero	High	Expire
HE-TN-FCPP 2031-HC	$8,549,195	High Econ	High Cost	2031	Allowed	High	High	High	High	High	High	Zero	High	Expire
HE-NNC-FCPP 2031-LC	$8,238,210	High Econ	Low Cost	2031	No	High	High	High	High	Low	Low	High	Low	Expire
HE-TN-FCPP 2031-LC	$7,917,438	High Econ	Low Cost	2031	Allowed	High	High	High	High	Low	Low	High	Low	Expire
AGG-NNC	$7,803,831	Aggressive Environmental		2025	No	Mid	High	High	High	High	High	High	Low	Renewed
AGG-TN	$7,530,720	Aggressive Environmental		2025	Allowed	Mid	High	High	High	High	High	High	Low	Renewed
AGG-NNC-HC	$8,121,507	Aggressive Environmental	High Cost	2025	No	Mid	High	High	High	High	High	Zero	High	Renewed
AGG-TN-HC	$7,501,320	Aggressive Environmental	High Cost	2025	Allowed	Mid	High	High	High	High	High	Zero	High	Renewed
AGG-NNC-LC	$7,261,259	Aggressive Environmental	Low Cost	2025	No	Mid	High	High	High	Low	Low	High	Low	Renewed
AGG-TN-LC	$6,873,163	Aggressive Environmental	Low Cost	2025	Allowed	Mid	High	High	High	Low	Low	High	Low	Renewed
AGG-NNC-FCPP 2031	$7,858,799	Aggressive Environmental		2031	No	Mid	High	High	High	High	High	High	Low	Renewed
AGG-TN-FCPP 2031	$7,669,224	Aggressive Environmental		2031	Allowed	Mid	High	High	High	High	High	High	Low	Renewed
AGG-NNC-FCPP 2031-HC	$8,167,552	Aggressive Environmental	High Cost	2031	No	Mid	High	High	High	High	High	Zero	High	Renewed
AGG-TN-FCPP 2031-HC	$7,663,497	Aggressive Environmental	High Cost	2031	Allowed	Mid	High	High	High	High	High	Zero	High	Renewed
AGG-NNC-FCPP 2031-LC	$7,381,997	Aggressive Environmental	Low Cost	2031	No	Mid	High	High	High	Low	Low	High	Low	Renewed
AGG-TN-FCPP 2031-LC	$7,169,261	Aggressive Environmental	Low Cost	2031	Allowed	Mid	High	High	High	Low	Low	High	Low	Renewed

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	)	**Case No. 21-_______-UT**
PUBLIC SERVICE COMPANY OF NEW MEXICO,	)	
Applicant	)	

SELF AFFIRMATION

NICHOLAS L. PHILLIPS, Director, Integrated Resource Planning, at 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 **Direct Testimony of Nicholas L. Phillips** and it is true and correct based on my personal knowledge and belief.

DATED this 8th day of January, 2021.

/s/ Nicholas L. Phillips
NICHOLAS L. PHILLIPS

GCG#527498