PNM 2023-2042 IRP: Energy Efficiency/Market Dynamics/Resiliency

MINI STEERING/TECHNICAL SESSION #2

JUNE 22, 2022

DISCLOSURE REGARDING FORWARD LOOKING STATEMENTS

The information provided in this presentation contains scenario planning assumptions to assist in the Integrated Resource Plan public process and should not be considered statements of the company's actual plans. Any assumptions and projections contained in the presentation are subject to a variety of risks, uncertainties and other factors, most of which are beyond the company's control, and many of which could have a significant impact on the company's ultimate conclusions and plans. For further discussion of these and other important factors, please refer to reports filed with the Securities and Exchange Commission. The reports are available online at www.pnmresources.com.

The information in this presentation is based on the best available information at the time of preparation. The company undertakes no obligation to update any forward-looking statement or statements to reflect events or circumstances that occur after the date on which such statement is made or to reflect the occurrence of unanticipated events, except to the extent the events or circumstances constitute material changes in the Integrated Resource Plan that are required to be reported to the New Mexico Public Regulation Commission (NMPRC) pursuant to Rule 17.7.4 New Mexico Administrative Code (NMAC).

MEETING AGENDA

- Welcome and Introductions
- Energy Efficiency:
  - EE Potential Study Statement of Work
  - Review of EE modeling in the IRP
  - Open forum for any stakeholder discussion on how to incorporate the EE Potential Study into the IRP
- Reliability/Resource Adequacy/Resiliency – Technical Session #1
  - recap
  - Feedback/Questions
  - Feedback/guidance for incorporating changes to PNM's modeling
- Market Dynamics (Market Liquidity Updates/Import Limits
- Next steps and Near-Term Schedule

MEETING GROUND RULES

THE FOCUS OF THE MEETING IS THE DEVELOPMENT OF THE 2023 IRP

01

- Questions and comments are welcome – One Person Speaks at a Time

02

- Reminder; today's presentation is not PNM's plan or a financial forecast, it is an illustration of the IRP process

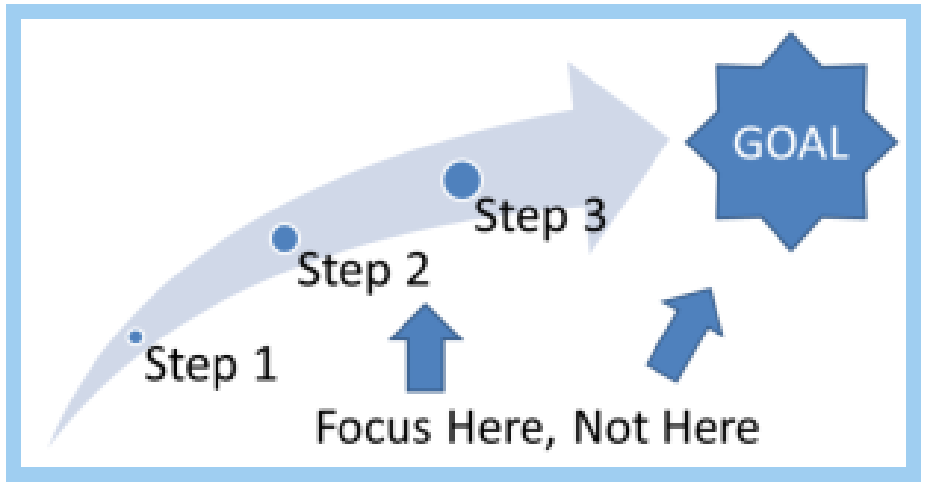
03

- When asking a question, please speak clearly and slowly as all questions will be logged and labeled with the person and organization responsible for asking the question

04

- These meetings are about the 2023 IRP, questions and comments should relate to this IRP. Any questions or comments related to other regulator proceedings should be directed towards the specific filing.

THE FOCUS OF THE MEETING IS THE DEVELOPMENT OF THE 2023 IRP



The technical sessions are about discussing the advantages and disadvantages regarding the application of different technical methodologies within the IRP modeling framework.

We are not here to focus on the results or drive towards a specific result. **We all know where we are going: 100% Carbon Free by 2040. The focus in the IRP development is how do we get there in the best way possible for PNM's customers and New Mexico.**

ENERGY EFFICIENCY - ENABLING LEGISLATION AND NMPRC RULE

Efficient Use of Energy Act (EUEA)

- Extended in 2019 legislative session
- Mandates cost-effective programs
  - Benefits must be greater than costs
  - Benefits = value of saved energy
  - Costs = all costs related to programs
- Requires independent measurement and verification (M&V)
- Funding = no less than 3% and no greater than 5% of - customer bills
- Minimum savings = 5% of 2020 sales by 2025
- PRC approved PNM's EE/LM 2021-2023 Program Plan – October 28, 2020

2023 PRELIMINARY PNM ENERGY EFFICIENCY PLAN OVERVIEW

- Evaluating all 2021 programs for consideration to continue
  - 2023 plan budget is based on 3% - 5% of customer bills
  - 2023 plan savings is based on achieving minimum 5% of 2020 retail sales (~ 400 GWh) Retail sales are defined as those customers paying Rate Rider 16
    - » 2021 savings 107 GWh
- 2023 plan budget projected to remain consistent with 2021 program plan filing (~ $90 million over 3 years)
- AEG Contracted for EE Potential Study Update
  - Statement of Work
  - Why PNM contracted
  - EE potential study in progress – completion Q3 2022
  - Used to assist/confirm program design/offerings

AEG
APPLIED ENERGY GROUP

EE Potential Study Stakeholder Kickoff Meeting

Date: June 22, 2022

Agenda

- Introductions
- Stakeholder Engagement Plan
- Study Overview
- Energy Efficiency Potential
- IRP Inputs
- Identify Strategic Issues

Introductions

Kelly Marrin
Managing Director
Role: Project Director

Barb Ryan
Project Manager
Role: RASS Advisor

Len Bergman
Manager
Role: Project Manager

Rob Strange
Product Manager
Role: Modeling Lead

Eli Morris
Managing Director
Role: IRP Input Lead

Fuong Nguyen
Lead Analyst
Role: Analysis Lead

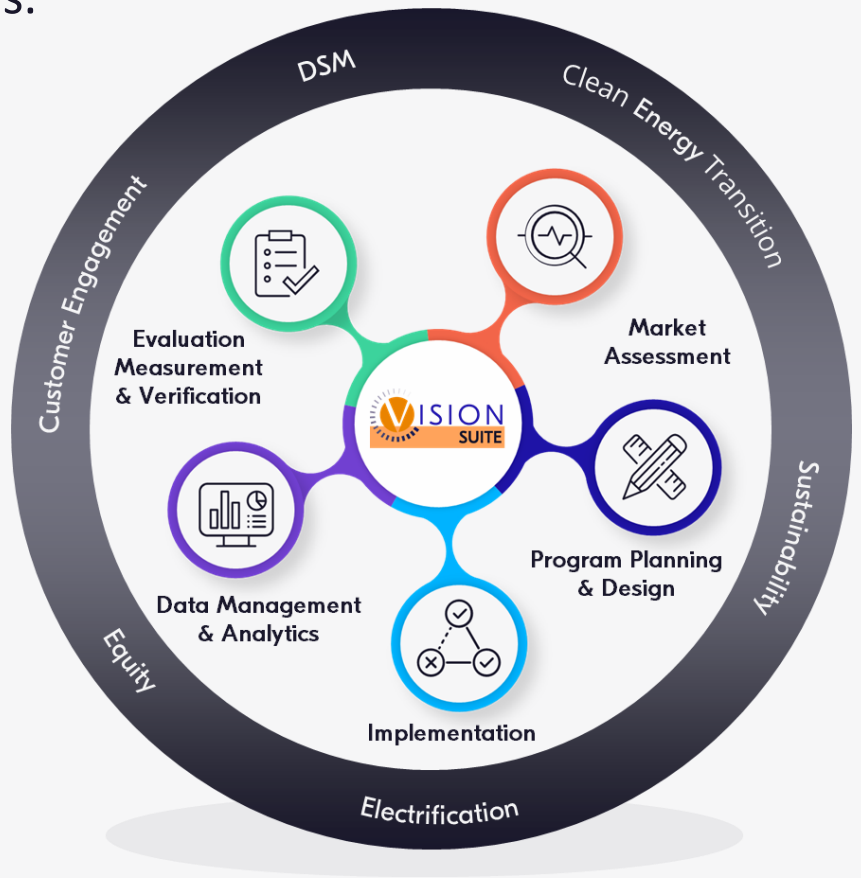
Presenter

About AEG

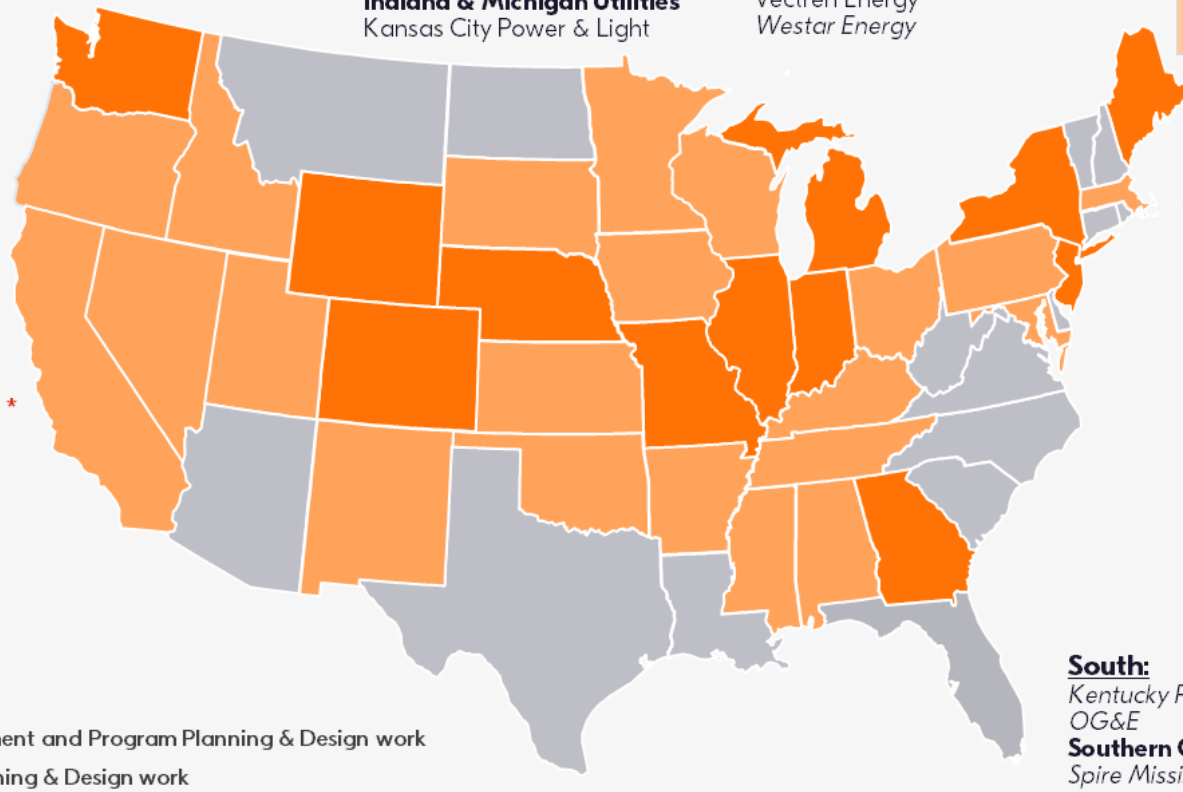
Founded in 1981 | Join Ameresco 2011

AEG provides expertise, products, and insights to utilities and other agencies to solve current and future business and sustainability needs.

85	Dedicated Professionals
49	States and provinces in which we've worked
200+	Utility and govt. clients served
1,000+	Projects completed



Our DSM Potential Study and Program Planning Footprint



West:
Avista Energy *
BPA *
Cascade Natural Gas *
Chelan PUD
Cheyenne LFP *
Colorado Electric *
Cowlitz PUD *
HECO
Idaho Power *
Inland P&L *
LADWP
NV Energy
Oregon Trail EC
PacifiCorp *
PNGC
PG&E *
Portland General Electric
Public Service New Mexico *
Seattle City Light *
State of Hawaii *
State of New Mexico
Tacoma Power *
Xcel/SPS

Midwest:
Ameren Illinois *
Ameren Missouri *
Black Hills Power *
Citizens Energy
Empire District Electric *
Indianapolis P&L*
Indiana & Michigan Utilities
Kansas City Power & Light
MERC
NIPSCO *
Omaha Public Power District *
Peoples' Gas/ North Shore Gas *
Spire Missouri
State of Michigan
Sunflower Electric
Vectren Energy *
Westar Energy

Regional & National:
Midcontinent ISO *
EEI/IEE *
EPRI
FERC

Northeast:
Berkshire Gas
Central Hudson G&E *
Con Edison of NY *
Efficiency Maine *
Liberty Utilities *
New Jersey BPU
Orange & Rockland *
PECO Energy
PSEG Long Island
Rockland Electric
Unitil

South:
Kentucky Power *
OG&E
Southern Company / Georgia Power
Spire Mississippi
State of Maryland – EmPOWER *
TVA

Key

* Two or more studies

Bold = Both Market Assessment and Program Planning & Design work

Italics = Only Program Planning & Design work

As of January 2022

- 60 potential studies in last 5 years, 17 for Midwest utilities and MISO
- Long-standing relationships with more than a dozen clients

Stakeholder Engagement Plan

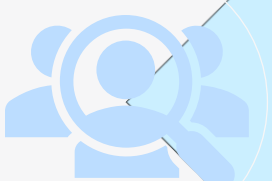
Engaging Early and Often

Meeting	Stakeholder Kickoff Meeting	Draft Potential Results	Refined Potential Results and Draft IRP Bundles	Share Final Results
Timing	June 2022	August 2022	September 2022	October 2022
Purpose	• Provide an overview of the DSM Potential Study and IRP input development • Identify stakeholder positions on key issues for the DSM Potential Study	• Review draft results of the DSM Potential Study • Gather initial feedback from stakeholders on the results of the study	• Review refined results of the Potential Study and draft bundles • Gather stakeholder feedback on results	

Study Overview

Study Objectives

There are 3 overarching objectives for the study

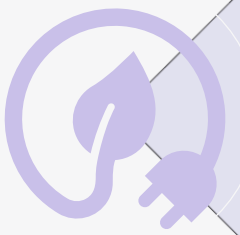


Incorporate Key Updates from the 2019 Study

- Incorporate results from the 2020 RASS that AEG completed with Itron
- Perform limited updates to the measure list

Develop New Projection of EE Potential

- Use AEG's upgraded potential assessment tool VisionInsight
- Align with Itron's EE forecast and program scenarios
- Project technical, economic, achievable, and programmatic EE potential through 2042



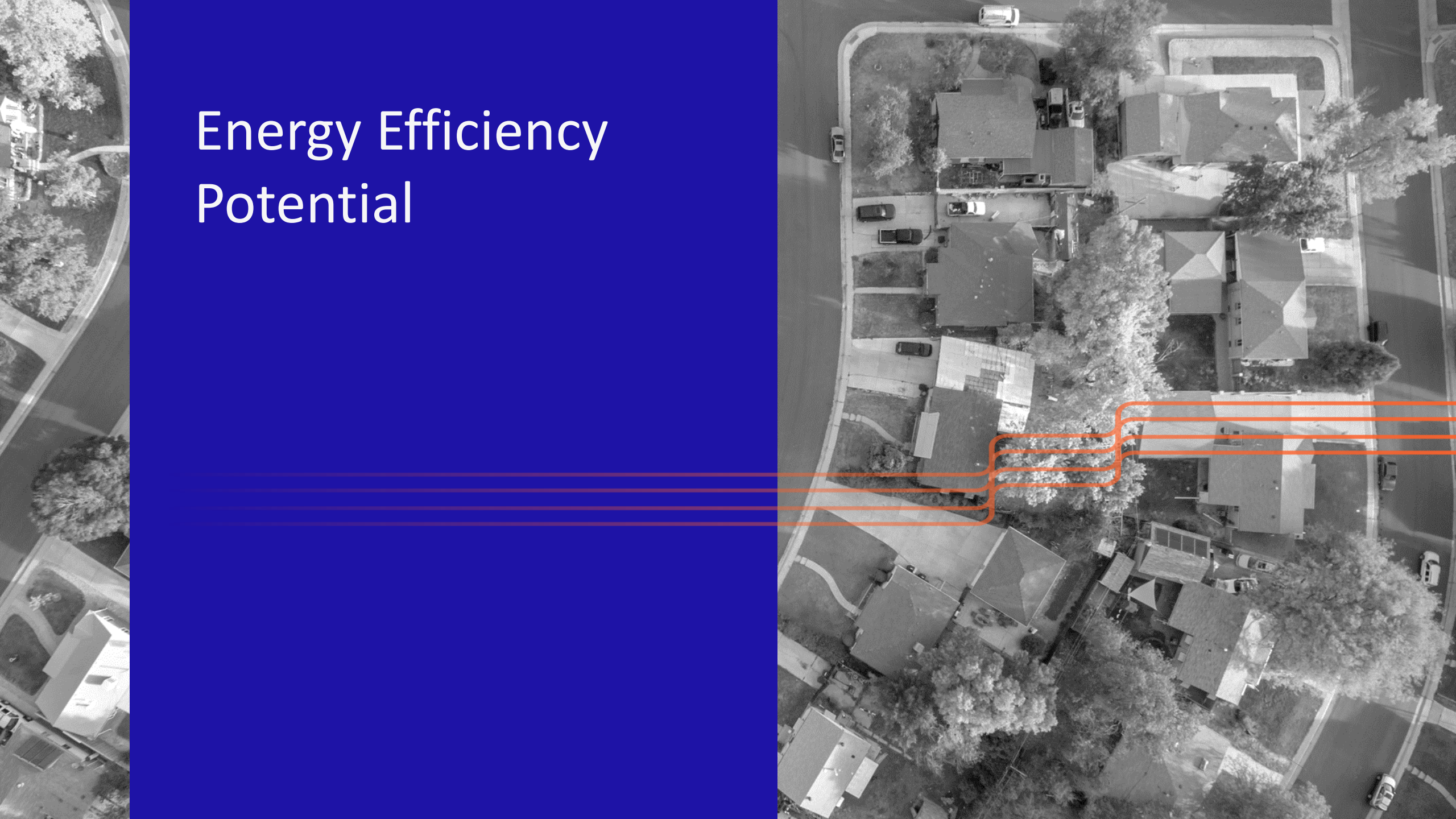
IRP Bundle Development

- Determine the "right" number of EE bundles based on the previous study
- Develop bundle cutoffs
- Supply finalized bundles in IRP format

Project Timeline

Task	May	June	July	Aug	Sept	Oct
Task 1: Project Kickoff Meeting	Agenda & Memo					
Task 1: Data Collection & Validation	Data Request					
Task 1: Update Market Characterization	Analysis	Report				
Task 1 : EE Potential		Analysis	Prelim	Final		
Task 2: Program Potential		Analysis	Prelim	Final		
Task 2: Potential Reporting			Draft	Final		
Task 3: Load Shapes			Analysis	Final		
Task 4: IRP Bundles and Doc Memo				Prelim	Final	

Energy Efficiency Potential



Energy Efficiency Potential Approach

Market Characterization

- Customer segmentation
- Utility data
- Residential Surveys
- Secondary data

Identify and Characterize Measures

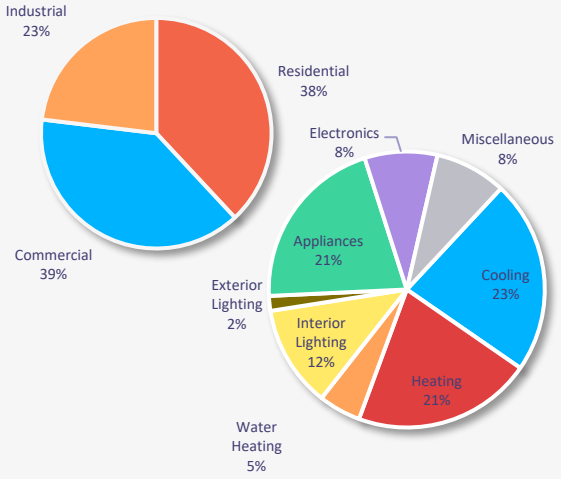
- Efficiency equipment
- Retrofit opportunities
- Emerging technologies

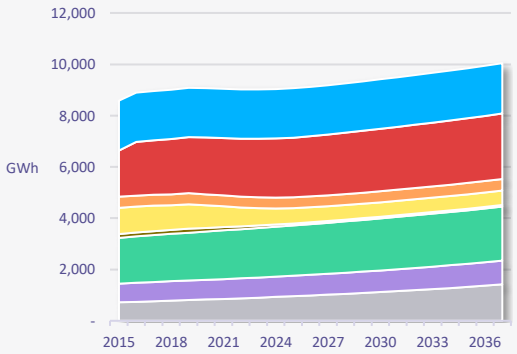
Baseline Projection

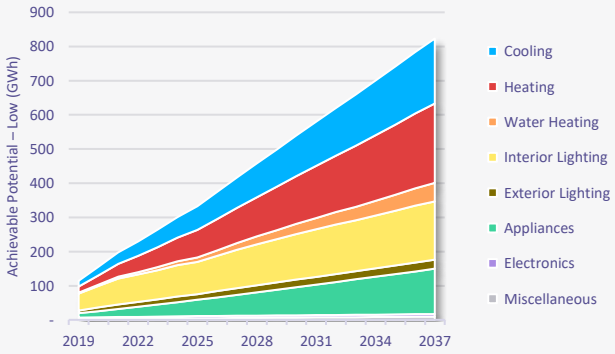
- Utility forecasts
- Stock turnover
- Codes and standards

Potential Estimation

- Technical , Economic, and Achievable
- Scenarios around Statutory Goals







2020 Residential Appliance Saturation Survey

Objectives

- Gather current information about residential customers
- Update market characterization, baseline forecast and EE potential
- Maintain consistency with previous RASS studies

Topics

- Customer and dwelling characteristics
- Appliance saturations
- EE program awareness

Approach

- Target = 500
- Mail-to-web in 2020; mail only prior years

Analysis

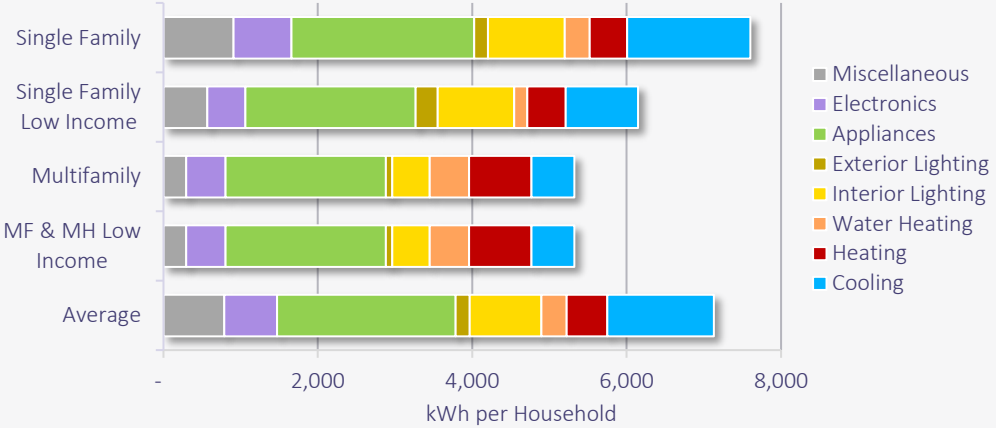
- Review and prepare crosstabs
- Saturation inputs for EE and comparisons to prior years

Market Characterization

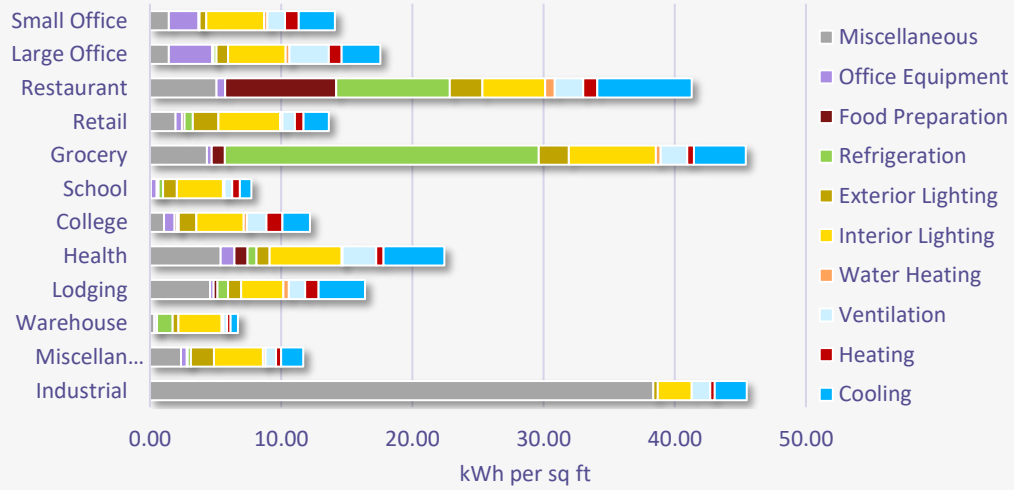
Key Elements and Drivers

- Market characterization is anchored to actual sales and customers in the study base year (2021)
- Segment residential sector based on dwelling type and income
- Segment commercial sector by building type using SIC codes
- Fully characterize energy consumption by sector, segment, end-use, and technology
  - We call these “market profiles”
- **Market Profiles Determine the baseline load, bound technical potential, and establish eligibility to adopt EE measures**

Residential Market Characterization from 2019 PNM DSM Potential Study

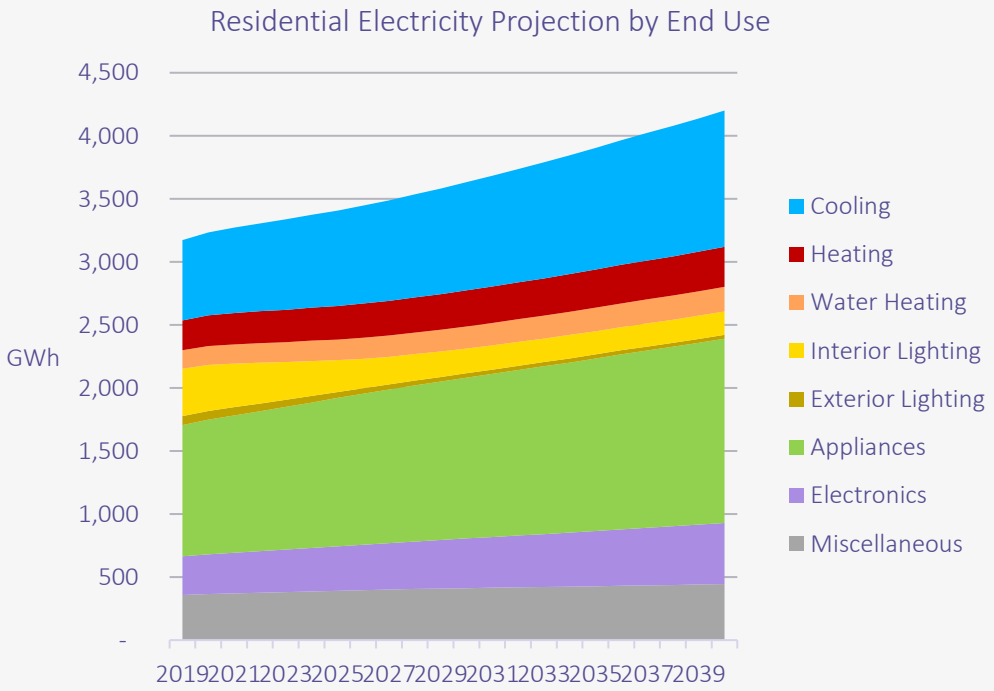


Commercial Market Characterization from 2019 PNM DSM Potential Study



Baseline Projection

- Projects end-use consumption in the absence of future program interventions
  - This is the basis from which potential is estimated
- Accounts for:
  - Differences by sector, and segment
  - Base-year market characterization
  - Customer growth
  - Codes and standards **(including EISA)**
  - Equipment turnover rates
  - Efficient measure penetration
  - Trends in equipment saturations
- We will align our projection with PNM / Itron's load forecasts
  - We will not match exactly, but will be close



Residential Projection from 2019 PNM DSM Potential Study

Measure Identification and Characterization

Identify Universe of Measures

- Previous Study
- Current Programs
- Emerging Technology Literature
- AEG Databases
- Other Sources

Measure Screening

- Applicability to sectors and segments
- Codes and Standards
- Transformed Markets
- Unreliable Cost, Savings, or Availability

Measure Characterization

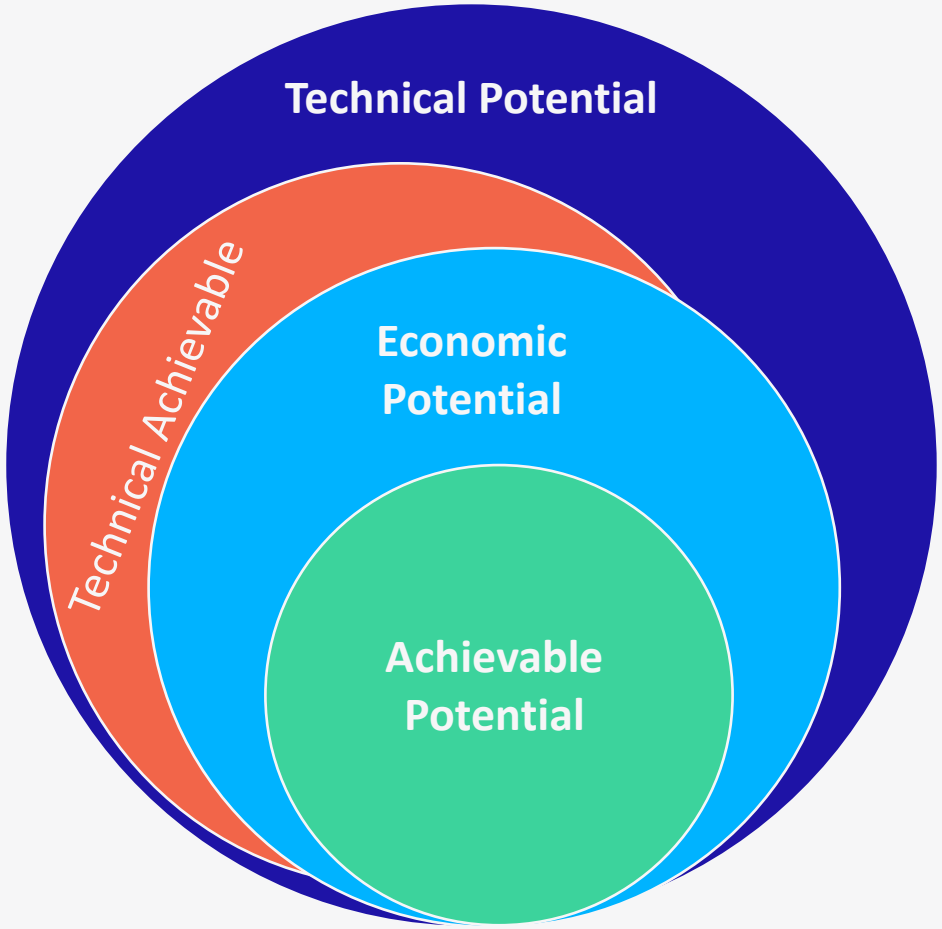
- Measure Source Hierarchy
- Fully describe measure attributes
- Comparison to previous study assumptions
- Documentation of sources

Study Integration

- Energy Efficiency Potential
- Potential Programs

Estimating Energy Efficiency Potential

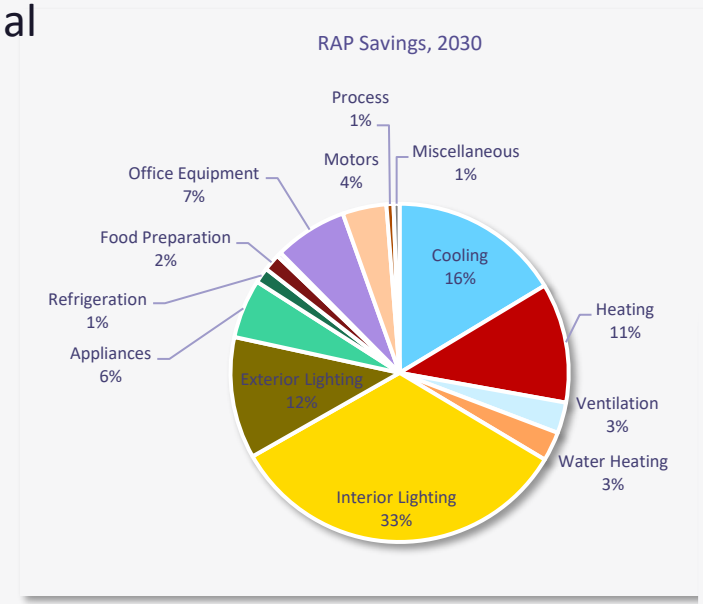
- Potential is estimated by creating an alternate sales forecast incorporating efficient measure adoption and calculating the change from the baseline
- AEG will calculate five distinct levels of potential:
  - Technical
  - Technical Achievable
  - Economic
  - Achievable
- AEG will also incorporate various scenarios that represent achievement of Statutory spending goals

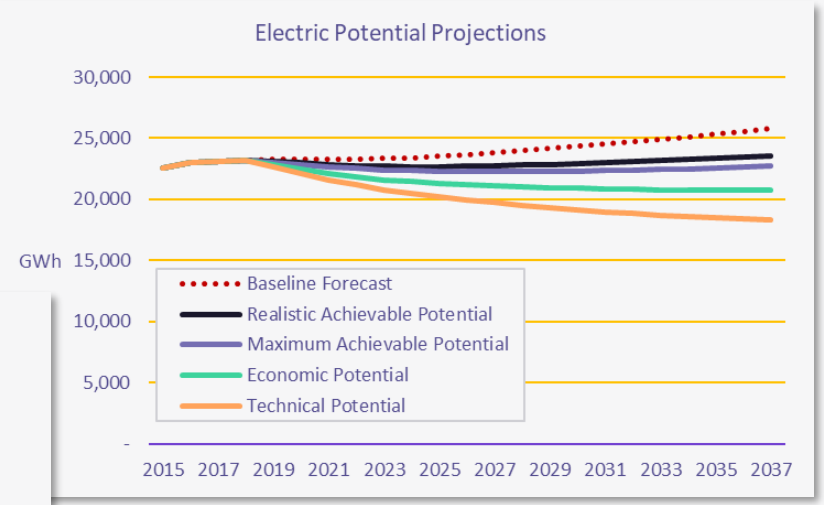


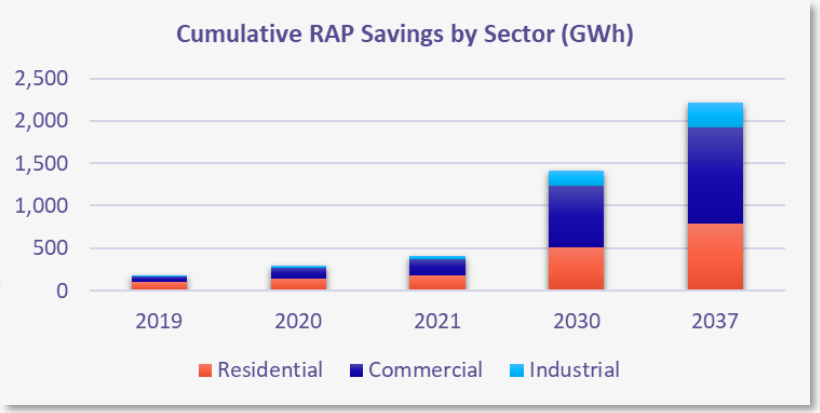
Outcomes from EE Potential Assessment

Provides a foundation for the development of IRP Bundles

- Understanding of mix of opportunities and associated costs
- Top measures for energy and seasonal peak savings
- Reasonable timeline of measure adoption over time







IRP Inputs


FINANCIAL REPORT
NEWS
3.45 2.58 6.58 12.3
9.42 3.56
7.42 8.52 6.47
5.42 0.58 6.02
9.42 3.56 7.43

Modeling Energy Efficiency Potential within the IRP

The EE Potential Assessment will identify the EE opportunities in PNM's service territory through 2042

Energy efficiency measures can be considered on par with supply-side resources based on their availability, hourly impacts, cost, and life.

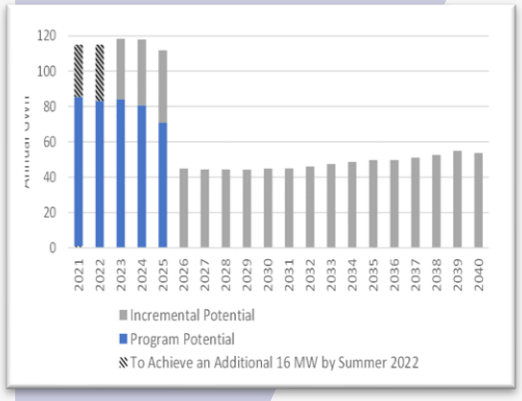
- Program potential is the best representation of energy efficiency's likely effect on loads and resource needs, however:
  - HB 291 savings targets only run through 2025 with guidance to establish targets through 2029
  - The Program Potential is already screened for cost-effectiveness, so does not allow the IRP to consider higher-cost energy efficiency measures based on changing resource needs

To enable modeling energy efficiency as a resource within the IRP, AEG developed hourly supply curves representing program potential and additional opportunities not deemed cost-effective within the potential study

AEG Supply Curve Bundling Methodology

Identify Incremental Potential

- Use technical achievable potential as a starting point
- Incorporate acceptance rates but ignore cost-effectiveness
- Remove program potential to account for statutory goals



Define Bundles

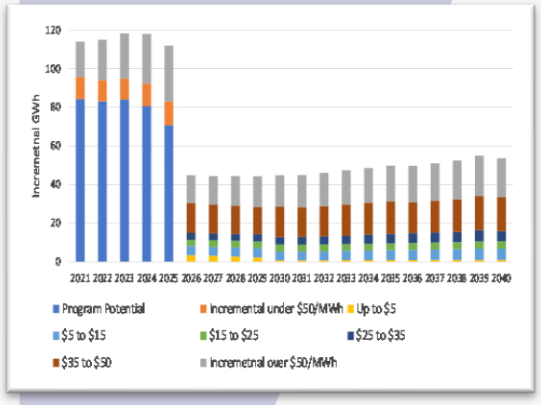
- Cut offs defined using levelized cost of conserved energy
- Measures are assigned to bundles
- Measures are matched to calibrated load shapes

Statutory Period 2021-2025	Post-Statutory Period 2026-2040
Program Potential	n/a
Up to $50/MWh[1]	Up to $5/MWh
	$5/MWh to $15/MWh
	$15/MWh to $25/MWh
	$25/MWh to $35/MWh
	$35/MWh to $50/MWh
Over $50/MWh	Over $50/MWh

Savings & Costs for each Bundle

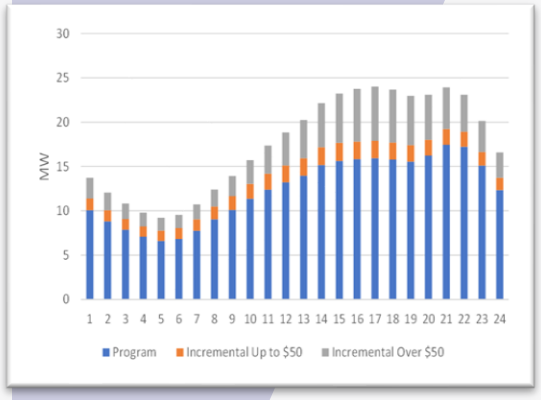
Calculate the following for each bundle based on measures:

- Annual incremental energy savings
- Weighted average cost
- Measure life

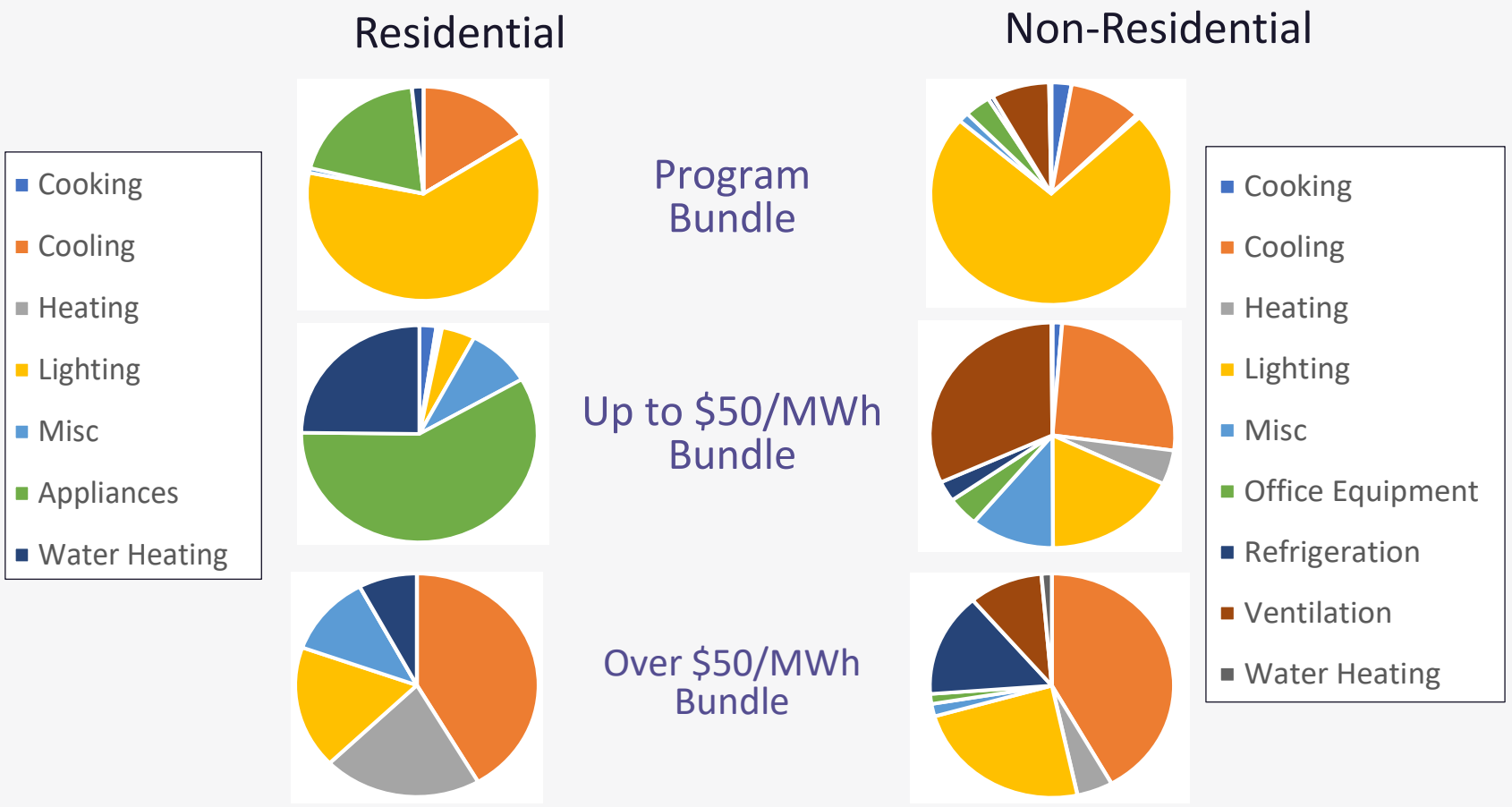


Hourly Impacts

- Estimate the hourly impacts for each bundle
- Spread measure level impacts over hourly load shapes
- Summarize load shapes



Example Bundle Composition - 2021



Comments or Strategic Issues?

Thank You.

Phone: 631-434-1414

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OPEN FORUM – ENERGY EFFICIENCY

Any questions, clarifications or concerns with how the potential study will be incorporated into the IRP?

JUNE 8TH TECHNICAL SESSION – RECAP

Key Topics Covered

- IRP Modeling Framework
  - Capacity Expansion/Loss of Load Probability modeling
- ELCC Modeling Synergies
- ELCC - LOLE Versus EUE metrics
  - Any feedback on additional metrics?

- Any feedback or new ideas regarding Resource Adequacy/Reliability/Resiliency modeling discussed from previous meetings?

Neighbor Modeling – SERVM Update

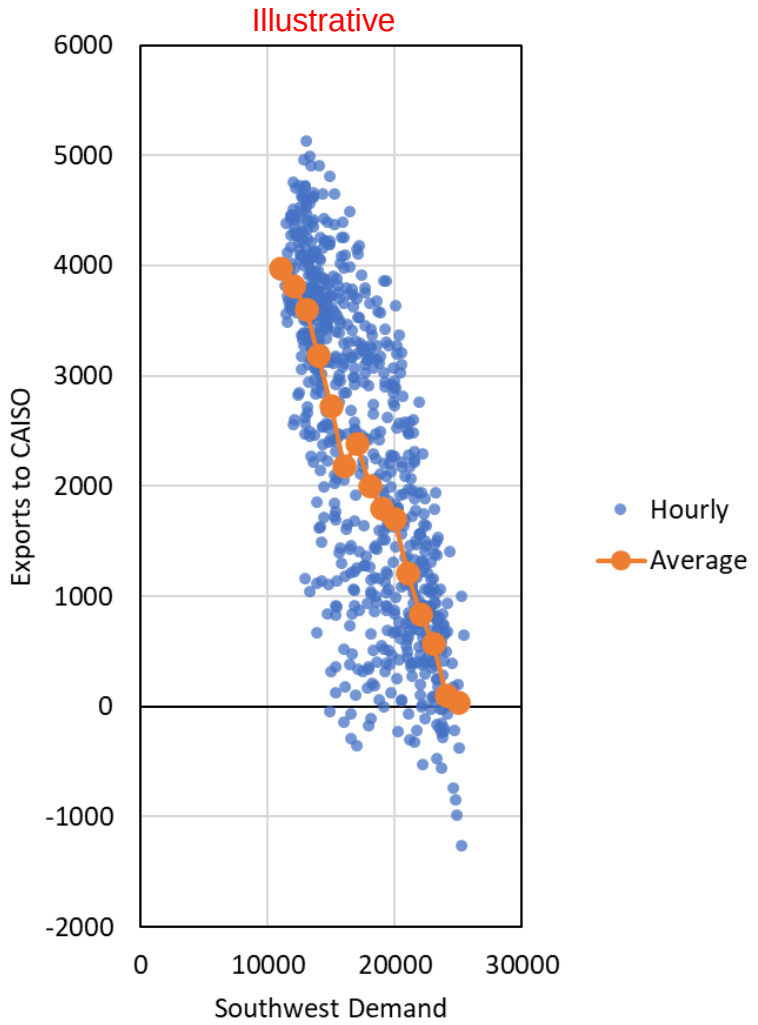
- **Updating Tier 1 Neighbor Loads and Resources**
  - Based on recent Southwest E3 study data
  - Public ERP and IRP data for PSCO and SPS
- **Modeling concerns from previous resource adequacy analyses which may overstate import capability**
  - Modeling may be missing surplus generation sales from Arizona to California /Nevada
    - Potential to capture historical net sales to California/Nevada as discussed on the next slide
  - Concerned that as energy limited resource such as storage and DR are added to surrounding systems, participants may be less likely to sell those resources during net peak periods

Neighbor Modeling

IRP analysis generally includes Tier-1 connections to PNM in the modeling framework

Historically, Tier-1 connections have exported significant MW into CAISO

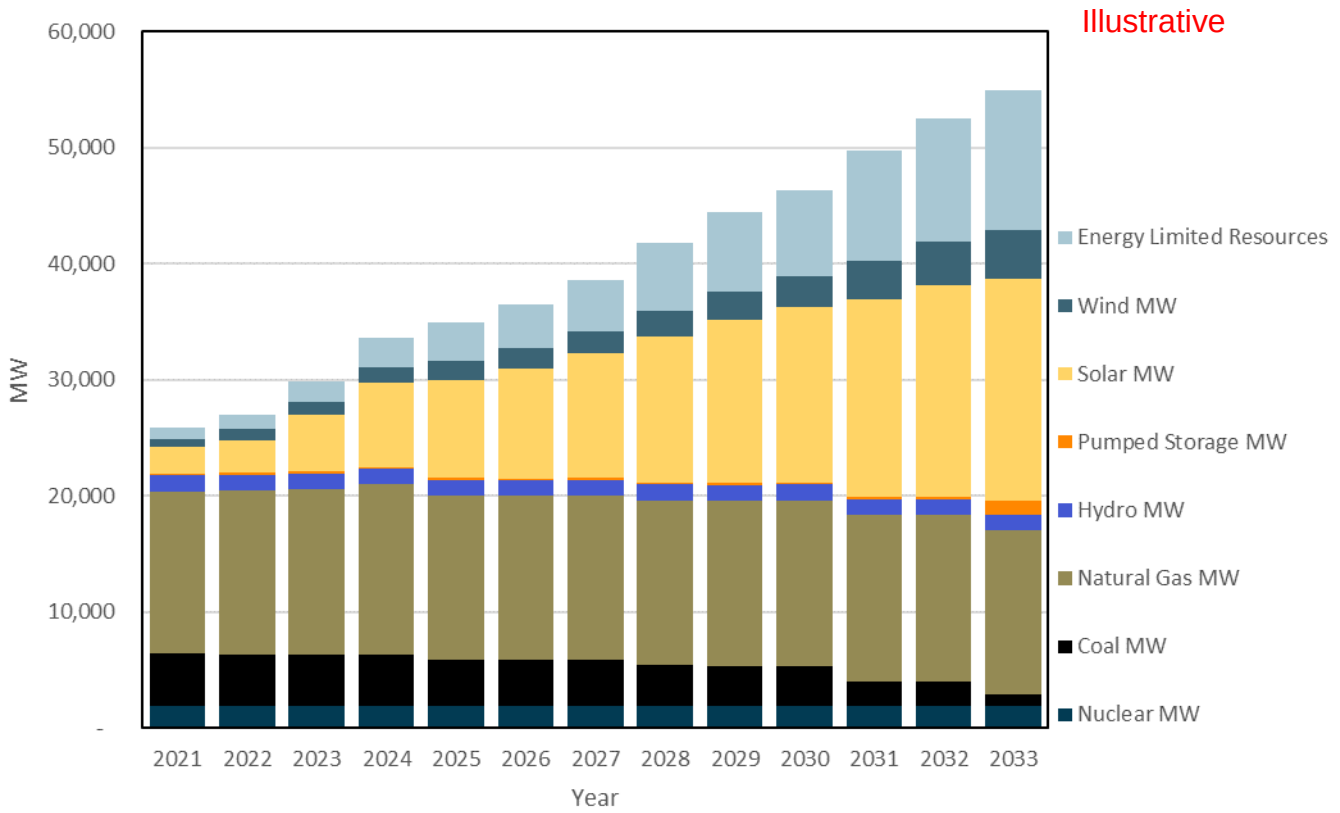
Inclusion of CAISO exports may better capture illiquidity in bi-laterial capacity opportunities for PNM



ASTRAPÉ CONSULTING
innovation in electric system planning

Evolving Neighboring Resource Mixes

- **The study also intends to capture the changing opportunities for PNM to purchase capacity (to charge storage at night , to serve net peak requirements, etc.)**



Neighbor Modeling

- **Import Limits – Currently same as PV Replacement Case and 2020 IRP**
  - SERVM allows for sharing based on economics and transmission constraints in all hours except for the following constraints
    - Limited to 200-300 MW in all hours when load is greater than 85% of the gross peak load
    - Summer (June – August) evening net peak load hours
      - Limit to 100-150 MW for hours 16-18 when load is greater than 85% of gross peak load
      - Limit to 50 MW for hours 19-22 from June to August when hourly gross load is greater than 80% of the gross peak load
        - 80% of gross load during hours 19-22 ensures this limit occurs on peak load days
    - No plans to change this currently based on continued resource adequacy concerns in WECC but will be reviewed after the 2022 summer

2023 IRP PUBLIC ADVISORY PROCESS

WE WOULD LIKE TO HEAR FROM YOU

We did not receive any feedback to these questions posted during the last public meeting:

1. What did we do well in the last (2020) IRP and where can we improve?
2. Any additional ideas for technical discussions?
3. What is the proper way to balance reliability, customer cost and accelerating the transition to clean energy?
4. How can we be more collaborative throughout the process with our public stakeholders?

We would also like to hear your ideas on the how we incorporate key drivers from the AEG Potential Study SOW and the 2023 IRP so we can begin these discussions at our July 6, 2022 meeting.

NEAR TERM SCHEDULE

FUTURE MEETING TIME & LOCATION

When: July 6, 2022

Topic: Public Advisory Technical Session #3: Load Forecast Scope of Work / Methodology & Candidate Resource Pricing Methodology

Start Time: 9:00 AM

Location: Virtual

Due to the vast majority of participants attending virtually, we have decided to make future sessions virtual meetings until circumstances warrant in person attendance. If there is strong interest to resume in person meetings for future sessions, please email us at IRP@pnm.com. We will continue to notify everyone through the email service list regarding upcoming meeting dates, topics and locations (virtual or in person).

NEAR TERM SCHEDULE

FUTURE MEETING TIME & LOCATION

When: July 27, 2022

Topic: Technical Session #4: IRP Modeling Updates/Techniques

Start Time: 9:00 AM

Location: Virtual

Due to the vast majority of participants for the first two meetings attending virtually, we have decided to make future sessions virtual meetings until circumstances warrant in person attendance. If there is strong interest to resume in person meetings for future sessions, please email us at IRP@pnm.com. We will continue to notify everyone through the email service list regarding upcoming meeting dates, topics and locations (virtual or in person).

PUBLIC ADVISORY TOPICS AND SCHEDULE

UPCOMING PUBLIC INPUT MEETING DATES*

July 6, 2022: Technical Session #3 – Load Forecast/Candidate Pricing Methodology

July 27, 2022: Technical Session #4 – IRP Modeling Updates/Techniques

August 3, 2022 – Technical Session #5 – Other Modeling Assumptions

August 17, 2022: Steering Meeting #4 – Other External/Internal Studies

August 30, 2022: Steering Meeting #5 – Public Advisory Group Day

------Begin Monthly Meetings--------

September 21, 2022: Steering Meeting #6 – Modeling Inputs #1 – Existing System/Inputs

October 11, 2022: Steering Meeting #7 – Modeling Inputs #2 – Scenario Building

November 15, 2022: Steering Meeting #8 – Modeling Inputs #3 – Markets/Reliability/RFI

December 13, 2022: Steering Meeting #9 – Modeling Inputs #4 - Transmission

*meeting dates are subject to change. Dates are being finalized and will be posted on the website along with individual registration links.

PUBLIC ADVISORY TOPICS AND SCHEDULE

UPCOMING 2023 PUBLIC INPUT MEETING DATES*

January 17, 2023: Steering Meeting #10 – Modeling Results #1

February 14, 2023: Steering Meeting #11 – Modeling Results #2

March 14, 2023: Steering Meeting #12 – Draft IRP for comments

April 11, 2023: Steering Meeting #13 – Public Advisory Group Feedback Session #1

May 16, 2023: Steering Meeting #14 – Public Advisory Group Feedback Session #1

June 13, 2023: Steering Meeting #15 - Final IRP Presented (last meeting)

July 3, 2023: File IRP

*meeting dates are subject to change. Dates are being finalized and will be posted on the website along with individual registration links.

NEXT MEETING

We encourage you to send in your thoughts ahead of time to IRP@pnm.com so that we can summarize them and distribute them for the next meeting. Please have your submissions in by June 16, 2022.

MAKE SURE WE HAVE UP TO DATE CONTACT INFORMATION FOR YOU

www.pnm.com/irp for documents

IRP@pnm.com for e-mails

Register your email on sign-in sheets to receive alerts of upcoming meetings and notices that we have posted to the website.

Thank you