

# PNM 2017-2036

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## Integrated Resource Plan

Balancing cost and reliability while reducing the impact on the environment

July 3, 2017



Talk to us.



## EXECUTIVE SUMMARY

### Background

Every three years, PNM is required to prepare an Integrated Resource Plan (IRP).<sup>1</sup> In this IRP, PNM has analyzed cost-effective power supply plans under two scenarios:

- San Juan Generating Station (SJGS) retires after the end of the current coal supply agreement, terminating on June 30, 2022
- SJGS continues to operate beyond 2022

The purpose of an IRP is to identify the most cost-effective resource mix that would meet the projected electricity demands of PNM's customers over the next 20 years, and to develop a four-year action plan that is consistent with that resource mix. PNM prepared this IRP for the period 2017 through 2036, examining all cost-effective resource options for its energy portfolio under a wide variety of possible futures. The plan benefitted from a robust Public Advisory Process. PNM hosted 17 meetings statewide over the past year and heard from hundreds of stakeholders. The four-year action plan describes a specific course of action that PNM expects to follow to implement the findings of the IRP. The steps in the action plan are designed to confirm the assumptions in this report and maintain flexibility to adjust the mix of new resources as the price and capabilities of renewable energy, natural gas, and energy storage technologies evolve.

### Key Findings

The most significant finding of the IRP is that retiring PNM's 497MW share of SJGS in 2022 would provide long-term cost savings for PNM's customers. The retirement will provide the opportunity to move from the fixed costs and baseload operation associated with coal plants to resources that better match varying loads and are better equipped to work with renewable energy.

*With this plan, PNM would be coal-free in 2031.*

The results of the IRP illustrate that energy needs are changing, and replacing coal supply with renewable energy and more flexible generators will save money for customers in the long run. The analysis found that exiting PNM's 13% share in the Four Corners Power Plant (FCPP) after the coal supply agreement expires in 2031 would also save money for PNM's customers. This action would eliminate all coal-fired generation from PNM's resource portfolio.

Retiring SJGS would result in the loss of jobs in the Farmington area. These high wage positions will not be easily replaced. Consistent with what PNM did to address the impact of retiring SJGS Units 2 and 3 – supporting workforce retraining and local economic development

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<sup>1</sup> In accordance with 17.7.3 New Mexico Administrative Code, Integrated Resource Plan for Electric Utilities.

programs – PNM will explore opportunities to address economic impacts with affected communities.

The assessment of coal plant retirements assumes full cost recovery of PNM's remaining investment in SJGS and Four Corners. This is consistent with core principles of the "regulatory compact," under which PNM is obligated to provide reliable and efficient service to all customers in a given area, work in their best interests and meet state and federal regulations. In return, PNM is entitled to recover the costs of providing service, including the opportunity to make a reasonable return on prudent investments.

### **New Supply-Side Resources**

PNM recognizes that renewable energy, natural gas, and energy storage technologies are rapidly evolving. The best mix of new resources currently includes solar energy and flexible natural gas-fired peaking capacity. The mix may also include energy storage, depending on the economics of the proposals PNM receives through a solicitation that the company will conduct as described in the four-year action plan. Although wind energy is also a possibility, the existing transmission system from Eastern New Mexico, where the best potential for wind supplies exists, is currently fully subscribed. This limits the ability for new wind resources to meet energy supply needs until new transmission capability is built.

Over the four-year action plan period, PNM will validate the assumptions in this report by issuing a request for proposals and may rebalance the mix of SJGS replacement resources as a result of bids received through that process.

### **Continuing Supply-Side Resources**

Through 2022, PNM's existing supply-side resources, except for SJGS, will remain a part of the cost-effective resource portfolio. These resources provide energy and capacity from renewable sources (wind, solar, and geothermal) as well as nuclear, coal, and natural gas powered resources.

PNM owns 288 MW of Palo Verde Nuclear Generating Station (PVNGS) and leases another 114 MW, with leases of 104 MW expiring in 2023 and 10 MW expiring in 2024. Retention of this leased capacity beyond 2025 avoids the need to replace it with carbon emitting generation, preserving the CO<sub>2</sub> emission reductions that result from the coal plant retirements. Moreover, retention of the leased capacity preserves carbon-free baseload capacity that is needed, particularly after the retirement of all of PNM's coal-fired baseload resources. Maintaining PVNGS capacity also minimizes freshwater use and serves as a balance against potential increases in natural gas prices.

## Access to Power Markets

PNM utilizes energy purchases and sales from the wholesale market to enhance reliability and reduce costs to customers. Power markets are changing rapidly. PNM’s plan includes an assessment of how best to maintain real-time opportunities to purchase and sell energy by studying the costs and benefits of joining the California Energy Imbalance Market (EIM).

## Assess and Update Existing Systems

As part of the IRP analysis, PNM studied its power transmission system to identify locations for new resources that would not require construction of additional transmission. Retiring SJGS and Four Corners will require replacement resources in the Four Corners region. Some locations are preferable to others in terms of the cost to interconnect new resources and the need to maintain adequate energy supply throughout PNM’s Balancing Area.

The four-year action plan includes an assessment of PNM’s oldest power plant: the three-unit Reeves Generating Station. Maintaining energy supply at Reeves is a critical element of PNM’s system reliability for Albuquerque. PNM will consider possible technology improvements to phase out the older generators and replace them with new, more flexible supplies or energy storage.

## The Most Cost-Effective Portfolio

The Most Cost-Effective Portfolio (MCEP) is summarized in Figure 1. PNM recommends this plan because it best meets the objectives to “identify the most cost-effective portfolio of resources to supply the energy needs of customers. For resources whose costs and service quality are equivalent, the utility should prefer resources that minimize environmental impacts.” This plan cost-effectively maintains a reasonable reliability expectation, while achieving the lowest freshwater use and carbon emissions and meeting regulatory requirements.

Figure 1. MCEP Summary

<b>BEFORE 2022</b>	<ul style="list-style-type: none"><li>• Meet RPS and EUEA targets</li><li>• Execute four-year action plan</li></ul>
<b>IN 2022</b>	<ul style="list-style-type: none"><li>• Retire PNM’s SJGS capacity</li><li>• Retain PVNGS leases</li><li>• Replace SJGS with renewable resources, natural gas peaking capacity, and potentially energy storage</li></ul>
<b>AFTER 2022</b>	<ul style="list-style-type: none"><li>• Build new transmission to transmit wind energy from Eastern New Mexico</li><li>• Meet load growth with additional renewable energy, gas peaking, or energy storage</li><li>• Replace expiring Valencia purchase in 2028</li><li>• Pursue replacement of Four Corners coal plant in 2031</li></ul>

## Four-Year Action Plan

The Recommendations Section of this IRP further details the four-year action plan. In summary, PNM will do the following over the plan period:

- Continue to develop and implement energy efficiency and demand management programs
- Add renewable energy resources to maintain compliance with the Renewable Portfolio Standard (RPS)
- Explore options to maintain system supply and reliability
  - Assess the costs and benefits of joining the California Energy Imbalance Market
  - Participate in regional transmission planning groups
  - Complete an economic assessment of the Reeves Generating Station to develop a plan for Reeves that coordinates with the need for replacement resources, assuming PNM retires SJGS in 2022
- File for SJGS abandonment with the New Mexico Public Regulation Commission
  - Issue a request for proposals to for energy storage, renewable energy and flexible natural gas resources to confirm the assumptions and analysis results in this report and to further refine the mix of replacement resources assuming SJGS retires in 2022
  - Make a filing with the NMPRC to determine the extent to which SJGS should continue serving PNM's retail customer's needs after June 30, 2022. This filing will occur after July 1, 2018, but no later than December 31, 2018
  - Define SJGS replacement resource siting requirements by analyzing transmission system needs
- Secure the PVNGS leased capacity
- Identify the best opportunities to increase transmission capacity to Eastern New Mexico to allow for future expansion of wind energy resources
- Conduct the 2020-2040 Integrated Resource Plan