Power Supply Planning

Balancing Reliability, Affordability and the Environment

PNM's 2014 Integrated Resource Plan

Although planning is ongoing at PNM, every three years we conduct a public planning process that results in an Integrated Resource Plan (IRP), which serves as a roadmap for our company. The IRP includes a four-year action plan and a long-term look at the next 20 years that we will file with the N.M. Public Regulation Commission by June 30, 2014. (Our most recent plan was filed in 2011. We start this planning process again in 2016). The state requires us to examine the challenges and opportunities for providing energy in the future and to identify the most cost-effective power generation portfolio.

What's New?

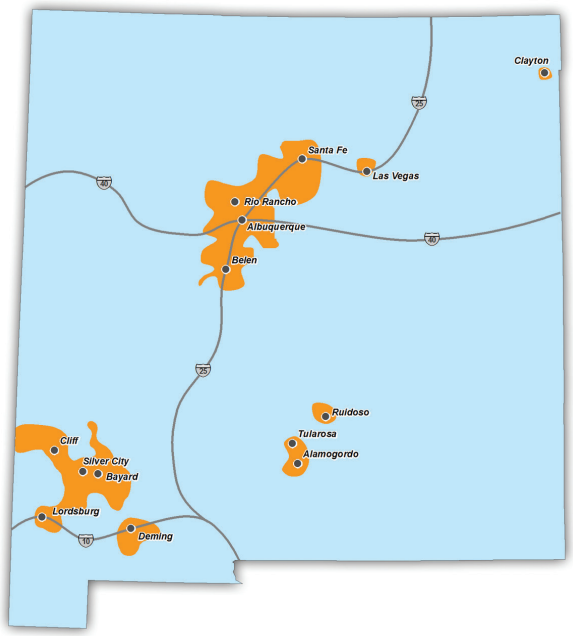
Perhaps the most significant recent development for our customers since our 2011 IRP is the alternative reached with the state and EPA to retire two units of our coal-fired San Juan Generating Station by 2017 in order to meet federal visibility requirements. Various regulatory approvals are needed before the alternative is implemented, including NMPRC approval of the settlement and a balanced portfolio of new resources. *Other developments include:*

- The nation's first grid-connected solar PV and battery storage demonstration project using smart grid technology online in 2011;
- A $190 million investment in company-owned solar:
  - 22.5 megawatts built in 2011;
  - 21.5 megawatts in 2013;
  - 23 megawatts to be built in 2014;
- Purchase of energy from 102-megawatt Red Mesa Wind Center starts Jan. 1, 2015.
- 33.2 megawatts (AC) of solar PV installed on 3,800 customer homes and businesses as of December 2013;
- A revised transmission interconnection process to facilitate wind and solar energy development in the state implemented in 2011;
- Construction was completed on the state's first utility-scale geothermal plant in late 2013 and it is now serving PNM customers.

More background on these and other topics is posted on PNM.com and PNM.com/irp.

Who We Serve

More than 500,000 residential and business customers in New Mexico in Greater Albuquerque, Rio Rancho, Los Lunas and Belen, Santa Fe, Las Vegas, Alamogordo, Ruidoso, Silver City, Deming, Bayard, Lordsburg, Clayton and the New Mexico tribal communities of the Tesuque, Cochiti, Santo Domingo, San Felipe, Santa Ana, Sandia, Isleta and Laguna Pueblos.



Follow our planning process:
Upcoming meetings and presentations will be posted at PNM.com/irp. To ask a question or leave a comment, email us at irp@PNM.com.

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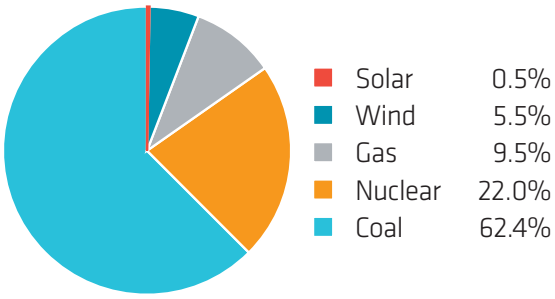
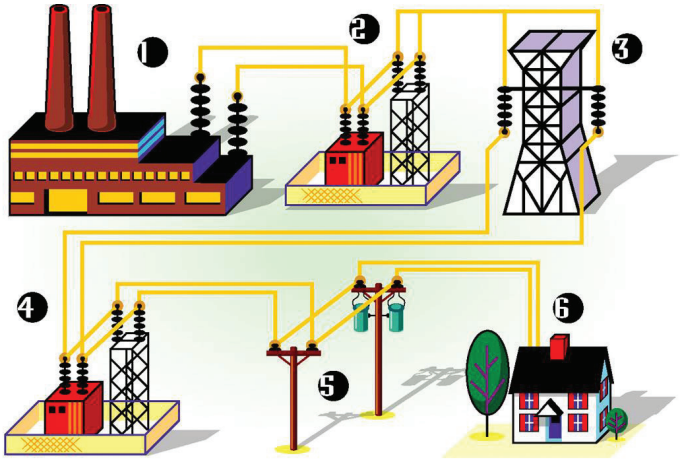
2012 Electric Generation
By Resource Type



Where Your Power Comes From Today

The table below lists power plants that provide power for PNM customers. Some plants are designed to operate most of the time while others operate only during periods of high demand or when system conditions require their use.

Name	Location	Year Fully Completed	Fuel	Capacity (MW)	PNM's Share of Capacity	Operator
San Juan Generating Station	Waterflow, N.M.	1982	Coal	1,646	783	PNM
Four Corners Power Plant	Navajo Nation	1970	Coal	1,478	200	Arizona Public Service Co.
Palo Verde Nuclear Generating Station	Near Phoenix, AZ	1986	Nuclear	2,628	268	Arizona Public Service Co.
Reeves Generating Station	Albuquerque, N.M.	1962	Natural gas	154	154	PNM
Afton Generating Station	Near Las Cruces, N.M.	2007	Natural gas	230	230	PNM
Luna Energy Facility	Near Deming, N.M.	2006	Natural gas	570	185	PNM
Lordsburg Generating Station	Lordsburg, N.M.	2007	Natural gas	80	80	PNM
New Mexico Wind Energy Center	Near House, N.M.	2003	Wind	200	200	Third-party owner/operator
Valencia Energy Facility	Near Belen, N.M.	2008	Natural gas	145	145	Third-party owner/operator
Delta-Person Generating Station	Albuquerque, N.M.	2001	Natural gas	132	132	Third-party owner/operator
Demand-response programs (PNM Power Saver/PNM Peak Saver)	n/a	n/a	n/a	57	57	
PNM Solar Energy Facilities	Various locations throughout NM	2011/2013	Solar Photovoltaic	44	44	PNM
Customer Solar Program (Distributed Solar PV Facilities)	PNM Customer sites (most often roof-top panel arrays)	N/A	Solar PV	33.2	33.2	Various (customer-owned generation)
Dale Burgett Geothermal Plant	Near Lordsburg, N.M.	2013 partial	Geothermal	4	10	Cyrq Energy



When electricity leaves a power plant (1), its voltage is increased at a "step-up" substation (2). Next, the energy travels along a transmission line to the area where the power is needed (3). Once there, the voltage is decreased or "stepped-down," at another substation (4), and a distribution power line (5) carries the electricity until it reaches a home or business (6).

Energy-savings steps taken by customers since 2007 save enough energy to power 95,000 average homes a year, save 252 million gallons of water at power plants and prevent the release of 353,674 metric tons of carbon, **EQUAL TO PULLING 73,682 CARS OFF THE ROAD.**

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Resource Tradeoffs

When looking toward the future and how to meet customers' energy needs, a utility has to consider the advantages and disadvantages of each type of generation resource. The Integrated Resource Plan process explores these tradeoffs in greater depth.

Fuel Type	Advantages	Disadvantages
Coal	Inexpensive fuel Abundant supply near existing resources Low cost resource Reliable, semi-flexible operation	Produces highest level of emissions, including carbon dioxide Relatively water intensive
Nuclear	Produces no emissions Low-cost resource Reliable, fixed operation	High up-front capital cost Produces radioactive waste, for which long-term storage and disposal is not resolved Uses reclaimed water
Natural Gas	Cleaner burning than coal, including half of the carbon emissions Abundant supply in New Mexico (local production as well as access to interstate pipelines) Reliable, fully-flexible operation Flexible design options from base load to peaking plant types	Still produces emissions, including carbon Volatile in price Can achieve low water intensities at a price
Wind	No emissions or water use NM ranks 10th in the nation for wind energy production potential (Source: AWEA) No fuel cost	Intermittent in nature High up-front capital costs for equipment and transmission Requires fossil-fueled backup Wind power is often not available when customers use the most electricity.
Solar	No emissions or water use NM ranks second in the nation for solar energy production potential No fuel cost While solar energy production peak does not precisely match the peak daily hours for energy consumption, generation is during daylight hours, when usage is high	Intermittent in nature Prices have been declining, but still have high up-front capital costs for equipment Requires large land area; 8-10 acres/MW for PV Requires fossil-fueled backup Other solar technologies such as solar thermal hold promise, but have not demonstrated cost-competitiveness with solar PV for electric utility needs
Geothermal	No air emissions High capacity factor generation	High up-front capital costs Water intensive Favorable sites may not be available in all areas of the country or New Mexico
Solar Thermal	No Emissions Less operational variation than wind or solar PV No fuel cost	Intermittent in nature Water intensive High up-front capital costs

Carbon Regulation

PNM believes that the regulation of greenhouse gases will likely occur in the future. The challenge is how to achieve meaningful reductions at a national and global level, ensure electric system reliability and achieve the lowest possible cost for both residential and business customers. For planning purposes, we assume that carbon will be regulated and will model various scenarios regarding what carbon emissions from existing and future energy sources may cost our customers.

The use of fresh water in power plants on a per megawatt-hour generated basis has dropped by 22.3 percent since 2004 due to the growth of renewable energy sources, the 2007 expansion of our Afton Generating Station that has both air and water cooling systems and using gray water for cooling at Luna Generating Station (natural gas).

By 2015, our wind, solar and geothermal resources will provide the equivalent amount of energy to power approximately 136,000 average homes (using 600 kWh per month) and reduce carbon dioxide emissions by approximately 916,000 metric tons – **THE EQUIVALENT OF TAKING 191,000 CARS OFF THE ROAD ANNUALLY.**

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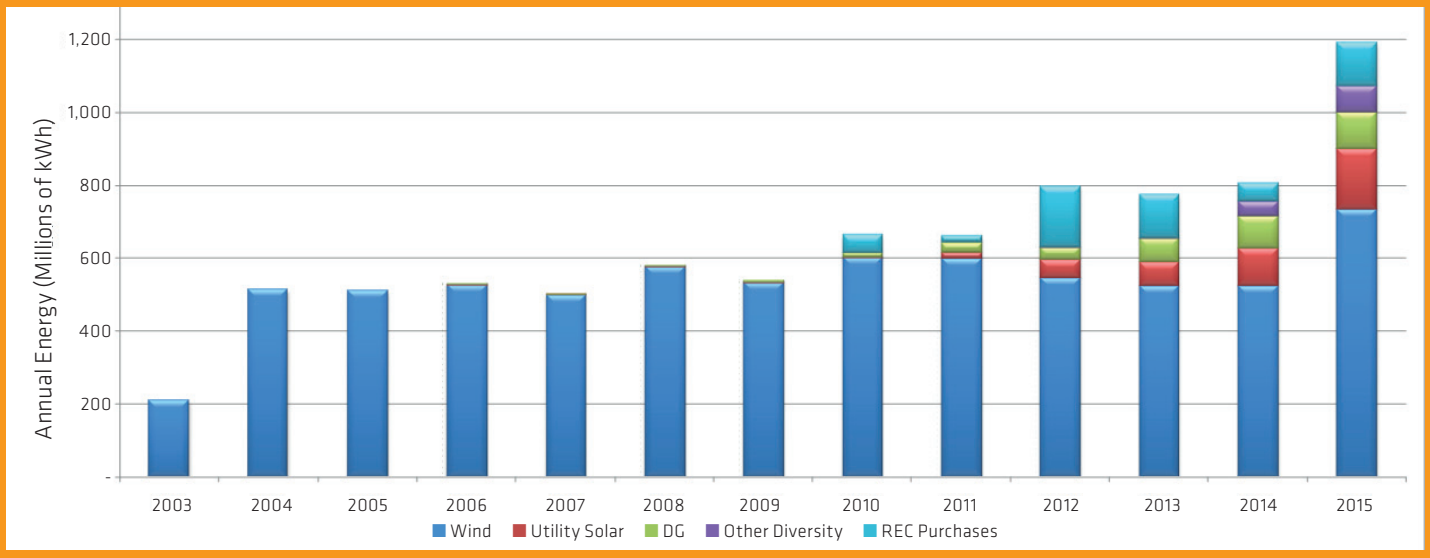
Renewable Energy - Solar, Wind, Geothermal

The chart shows the growth in PNM's renewable energy portfolio over a decade. Energy production for 2013 onward is projected based on resources existing and planned. Note that wind output varies from year to year.

PNM Renewable Energy



Vital Infrastructure: Power Lines

PNM has 3,189 miles of transmission lines, which move power long distances between power plants and areas of high electric demand, and 11,149 miles of distribution lines, which carry power from 276 neighborhood substations to customers' homes and businesses. The installation and upkeep of these lines is critical to providing reliable electric service.

The Northern New Mexico transmission system delivers power to serve customers in northern communities, including the Albuquerque, Santa Fe and Las Vegas areas, as well as customers in Valencia County south of Albuquerque. About 90 percent of our total load is within the northern transmission system boundary.

Projections of the transmission requirement for serving the combined northern customer load and obligations to other customers that use our transmission system show a need to expand existing transmission or generation in future years. Possible solutions include new power resources, power line additions, reinforcements that increase capacity or programs that decrease loads such as the PNM Power Saver program.

More than 40 percent of our transmission system is used by other utilities and independent generators who need to move power from their own energy sources to customers in New Mexico, Arizona, California or to other utilities.

PNM Renewable Generation
Throughout the State

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