



PNM Responses to EPA's September 23, 2013 GHG Stakeholder Questions

Introduction

PNM is a subsidiary of PNM Resources, headquartered in Albuquerque, NM. PNM is a vertically integrated electric utility with generation resources, transmission and distribution facilities and customer service functions. More than half a million customers throughout New Mexico are served by PNM, in multiple communities including Albuquerque, Santa Fe, Alamogordo, Bernalillo, Rio Rancho, Los Lunas, Belen, Ruidoso, Ruidoso Downs, Silver City, Bayard, Lordsburg, Deming, Las Vegas, Clayton and Tularosa. PNM also serves seven pueblo communities throughout New Mexico including Santa Ana, San Felipe and Sandia pueblos. PNM customers' energy comes from a variety of resources including coal, nuclear, natural gas, wind and solar. In 2012, PNM's generation capacity represented 41 percent coal, 38 percent natural gas, 11 percent nuclear and 10 percent renewables.

An ongoing focus for the company has been the need to provide environmental leadership while considering the customer cost impact and the effect of environmental policies on the economic viability of the state. Balancing those three interests is complicated by a rapidly changing energy landscape, driven in part by evolving technology, emerging and complex regulations, and growing consumer fragmentation, all coupled with a utility model that historically has made resource planning decisions that looked ahead for decades to come rather than months or years. PNM recognizes that actively engaging in purposeful environmental management and anticipating and strategically planning for future regulations are essential characteristics of strong environmental leadership.

Executive Summary and Recommendations

PNM has undertaken a number of measures to reduce or avoid the generation of greenhouse gas (GHG) emissions throughout its resource portfolio, including making investments in energy efficiency and renewable energy and the recent signing of the Regional Haze Term Sheet between the EPA, NMED and PNM which calls for the shutdown of 836 MW of coal at the San Juan Generating Station (San Juan). PNM has a strong interest in ensuring that these efforts constitute full compliance under EPA's GHG regulations for existing units and we wish to offer the following recommendations as EPA embarks upon the 111(d) rulemaking:

- EPA should look to setting the best system of emission reduction (BSER) standard based upon what has been adequately demonstrated within the plant fence line, including improvements to heat rate. Emission guidelines should not be based on measures such as co-firing and fuel switching because of the potentially significant economic impact to ratepayers and the fact that alternative fuels are not available everywhere.

- Section 111(d) gives states primacy in developing actions to comply with EPA guidelines. States should be able to design their own plans and programs for compliance but EPA should provide specific criteria on the basis for approving a state implementation plan (SIP).
- EPA should recognize and allow credit for planned actions involving changes to the composition of utility generating fleets. The retirement of two units at San Juan is the most significant action the company has undertaken that will result in a substantial reduction in CO₂ emissions- a 50% reduction or approximately 7 million tons per year. This translates into a 23% reduction from PNM's system-wide emissions by the end of 2017.
- PNM believes EPA should recognize the diversity of individual states and their energy resource mix. EPA can minimize regulatory uncertainty by providing clear guidance to states on how to design an approvable SIP.

PNM is appreciative of EPA's invitation to submit responses to these stakeholder questions. We recognize the valuable opportunity this affords us and we hope through our responses we can provide EPA with a good understanding of the serious efforts the company has made and continues to make to reduce our carbon footprint. We look forward to a continued dialogue and engagement with EPA and the state of New Mexico on this significant issue.

Responses to EPA's Stakeholder Questions

Below are key questions and specific answers that help frame a description of PNM carbon reduction efforts and basic principles that we believe EPA should consider when developing regulations.

1. What is state and stakeholder experience with programs that reduce CO₂ emissions in the electric power sector?

Since 2004, PNM has played an active role in advocating for mandatory, economy-wide federal climate change legislation. The company has undertaken numerous actions to reduce the carbon dioxide emissions associated with its energy production. In addition, PNM has committed to the shutdown of two coal fired electric generating units by the end of 2017. PNM has also supported the adoption of New Mexico's Renewable Energy Act and the Efficient Use of Energy Act (EUEA) and has made a significant commitment to adding both renewable energy and energy efficiency resources to our system. For example, PNM brought the New Mexico Wind Energy Center online in 2003 prior to adoption of New Mexico's state renewable energy standard.

San Juan Generating Station Best Available Retrofit Technology Determination

In February of 2013, the U.S. Environmental Protection Agency (EPA), the New Mexico Environment Department (NMED) and PNM signed an agreement to address the Clean Air Act requirements for regional haze and interstate transport for visibility (Term Sheet) for the San Juan Generating Station (San Juan). San Juan is a four unit, coal-fired power plant with a gross output of 1800 megawatts (MW). PNM owns 46 percent of the station and operates the plant on behalf of eight other owners, including Tucson Electric Power, MSR Public Power, City of Anaheim, City of Farmington, Southern California Public Power Authority, Tri-State, Los Alamos County and Utah Associated Municipal Power Systems. The agreement outlines a plan to retire two of the units (combined total capacity of 836 MW) at San Juan by the end of 2017, and to install selective non-catalytic reduction as the Best Available Retrofit Technology (BART) technology on the remaining two units by 2016 for further control of nitrogen oxides.

On September 5, 2013, the New Mexico Environmental Improvement Board approved a new revised New Mexico State Implementation Plan (Revised SIP) that encompasses the Term Sheet. The EPA received the Revised SIP from NMED on October 18, 2013. EPA’s completeness determination is expected on or about December 17, 2013 with a final decision expected in the fall of 2014.

The two-unit retirement at San Juan will result in a significant reduction in overall emissions, including a substantial decrease in GHG emissions. San Juan’s 2012 CO₂ emissions were 14,699,967 tons. The expected reduction in potential CO₂ emissions once the two-unit shutdown occurs is 50% or over 7 million tons per year. This will result in an approximately 23% reduction in CO₂ emissions across PNM’s resource portfolio by the end of 2017. Table 1 provides a summary of the overall emission reduction percentages based upon the implementation of the Revised SIP.

Table 1. San Juan Generating Station Revised SIP Emissions Reductions (%)¹

	carbon dioxide (CO ₂)	nitrogen oxides (NO _x)	sulfur dioxide (SO ₂)	particulate matter (PM)	carbon monoxide (CO)	volatile organics (VOCs)	mercury (Hg)
Revised San Juan SIP	50%	62%	67%	50%	44%	50%	50%

The Revised SIP positions PNM and the other owners at SJGS for an improved environmental future by reducing not only haze-forming emissions but also CO₂ emissions. PNM believes that San Juan’s owners should receive credit towards compliance with the GHG New Source Performance Standard (NSPS) under Section 111(d) for the retirement of two large coal units.

New Mexico Renewable Portfolio Standard

In March 2007, New Mexico passed SB 418, which directs investor-owned utilities to generate 20% of total retail sales to New Mexico customers from renewable energy resources by 2020, with interim standards of 10% by 2011 and 15% by 2015. The bill also establishes a standard for rural electric cooperatives of 10% by 2020. On July 1 of every year, investor-owned utilities must file a report to the New Mexico Public Regulation Commission on its procurement and generation of renewable energy during the prior calendar year and submit a procurement plan.

PNM’s existing portfolio of renewable energy sources includes:

- 200 MW New Mexico Wind Energy Center (in-service 2003),
- 22.5 MW PNM-owned solar facilities in five locations across New Mexico (in-service 2011),
- 21 MW of customer owned solar, approximately 3,400 residential and business customers (since 2006) and
- ½ MW of PNM owned solar with battery storage (Prosperity Project).

¹ The values in Table 1 are the percentage reductions in potential emissions based on the rated capacity of the Units at 85% capacity.

PNM has the following renewable energy sources under development:

- 20 MW PNM owned solar,
- 1.5 MW of PNM owned solar for Sky Blue™ Program,
- 10 MW of geothermal energy (Power Purchase Agreement for all energy produced from new facility located near Animas, NM) and
- Additional 9 MW of customer owned solar programs.

PNM is also proposing to build 23 MW of PNM-owned solar (tracking photovoltaic) in 2014 and purchase 102.5 MW of wind through a purchase power agreement from the Red Mesa Wind Energy Center in Cibola County in 2015.

In addition, ongoing modeling related to the proposed two unit coal shutdown at San Juan initially indicates that solar could serve as a viable economic resource for replacement power, when combined with nuclear and natural gas resources. PNM issued a Request for Proposal for additional renewable resources in late November to assess current renewable pricing for replacement power options.

PNM is also looking at ways to bring more renewables on its system that would not be part of the Renewable Portfolio Standard, including community solar and specific large customer solar projects.

By 2015, PNM's wind, solar and geothermal energy sources will produce the amount of electricity used by 135,000 average homes and reduce CO₂ emissions by 915,000 metric tons, the equivalent of taking 191,000 cars off the road for a year.

Energy Efficiency²

The State of New Mexico has adopted a number of policies to support utility funding for and implementation of customer end-use energy efficiency programs in the state. PNM played a major role in supporting New Mexico's energy efficiency legislation, resulting in the passage of the EUEA, which provided for gas and electric utilities to offer energy efficiency to its customers. Shortly after energy efficiency legislation passed in 2007, PNM was the first utility in the state to introduce a suite of electric energy efficiency programs that have provided tremendous results in energy and cost savings and environmental benefits. In addition, PNM customer participation in these programs helps PNM avoid and delay costs associated with energy production. Under the state's current energy efficiency requirements electric investor-owned utilities are required to reduce electricity use by 5% of total 2005 retail sales by 2014 and 8% by 2020 by investing in energy efficiency programs.

The EUEA requires PNM to hire an independent program evaluator, approved by the New Mexico Public Regulation Commission, to measure and verify energy savings from these programs and report these annually to the NMPRC. Since 2007, PNM has invested \$70 million dollars in program costs associated with customer energy efficiency and load reduction programs. In 2013, PNM is expected to invest another \$18 million and will spend an estimated \$22 million in 2014. These programs have saved 270,830 MW-hr and helped PNM postpone investment in new power generation.

Since 2007, PNM residential and business customers saved enough energy to serve more than 95,000 homes and earned more than \$27 million in customer rebates. Together, these programs have avoided an estimated 353,674 metric tons of CO₂.

² See Appendix A for a listing of PNM's Energy Efficiency Programs.

CO₂ Reporting Requirements and Reduction Calculations

PNM reports power plant CO₂ emissions from electric generating units (EGUs) over 25 MW to the EPA quarterly in electronic data reports (EDRs) submitted via the ECMPS Client Tool. In addition, PNM reports CO₂ emissions from EGUs and from general stationary fuel combustion sources annually in emission inventories submitted to the EPA via the electronic Greenhouse Gas Reporting Tool (e-GGRT). The quarterly EDRs are prepared and submitted in accordance with 40 CFR Part 75 requirements. The annual GHG inventories are prepared and submitted in accordance with 40 CFR 98 requirements.

Using 40 CFR Part 75 procedures, EGU CO₂ emissions are calculated using measured fuel flow (natural gas plants) or stack flow (coal-fired Units) and diluent gas (CO₂ or O₂) continuous emission monitoring systems (CEMS). For general stationary fuel combustion sources, CO₂ emissions are calculated in accordance with 40 CFR 98 methodology using fuel usage and annual high heating values.

To ensure validity and accuracy, PNM routinely tests the measuring and monitoring equipment that collects data used to determine CO₂ emissions. In accordance with 40 CFR 75 and 40 CFR 98 requirements, the CEMS and fuel flow meters undergo a series of quality assurance/quality control testing and audits throughout the year. The CEMS undergo daily calibrations, quarterly linearity tests and annual relative accuracy testing audits (RATAs). The fuel flow meters are calibrated annually. Additionally, preventative and corrective maintenance is scheduled to ensure the equipment continues to accurately measure emissions.

PNM uses EPA's GHG emissions calculator combined with current resource data to determine estimated carbon reductions for the energy efficiency programs.

2. How should EPA set the performance standard for state plans?

Setting Performance Standards

Section 111(d) of the Clean Air Act provides states with the primary responsibility and authority to establish and implement performance standards for existing fossil-fired electric generation sources. Performance standards apply to "sources" and must be achievable by each source.

In establishing the emissions guidelines, EPA is required to define the parameters for states to set performance standards for sources using the BSER that has been determined to have been "adequately demonstrated." Section 111(d) allows for consideration of the cost of achieving such reductions and any non-air quality health and environmental impacts and energy requirements that may result. Currently, there are no GHG controls for existing sources that could serve as the basis for an emission standard. EPA should draft its guidelines for setting the performance standard based upon what CO₂ emissions reductions can be achieved within the plant fence line, including improvements to heat rate. EPA should not propose emission guidelines based on measures such as co-firing and fuel switching because of the potentially significant economic impact on utility ratepayers and the fact that alternative fuels are not available in all locations.

Ultimately, regardless of how the emissions standards are set, they must be achievable. PNM strongly believes that BSER for existing sources should be limited to those technologies and efficiency improvement measures that have been "adequately demonstrated" and can be implemented at the emissions source. BSER should not be defined to include partial or full carbon capture and storage (CCS)

on existing coal or gas units since CCS is neither commercially available nor economically feasible at this time. In setting the federal emissions guidelines, EPA should also subcategorize and set separate emissions standards for different fuel and generation technology based on what reductions can be achieved with adequately demonstrated, commercially available and cost-effective technology. For example, there should be separate emissions standards for coal-fired units and natural gas-fired units, and further sub-categorization for pulverized and fluidized bed coal-fired boilers, and combined cycle and simple cycle natural gas turbines.

An issue that is of concern to PNM is the potential that modifying an existing source to meet Section 111(d) requirements could trigger New Source Review (NSR). Energy efficiency options that improve heat rate and emissions performance such as the repair or replacement of economizers, superheaters and reheaters are the kinds of projects that have triggered NSR enforcement actions by EPA. PNM observes that concerns associated with triggering NSR have prevented efficiency upgrades to fossil plants in our industry that have resulted in lost opportunities for meaningful carbon reductions.

State Primacy and Flexibility Under Section 111(d)

Section 111(d) of the Clean Air Act gives states primacy in developing actions to comply with EPA guidelines. Although states should have the opportunity to adopt compliance strategies that are best aligned with their state energy policy and electric generation resource mix, EPA will need to provide guidance on the range of the emissions reduction measures states may use for compliance and what procedures and criteria states should use to demonstrate equivalency. Potential equivalent systems-based measures include actual and planned plant retirement, fleet averaging, renewable energy, energy efficiency programs, clean energy standards and market-based mechanisms such as emissions trading.

PNM supports EPA Section 111(d) guidelines that give states flexibility to develop compliance approaches to meet the emissions guidelines established by EPA, including the potential for allowance for CO₂ emissions reductions at the source and reductions that take place outside of the plant fence line. In addition, States should have the flexibility to use either (1) a rate-based standards based on unit specific characteristics, or (2) a mass-based standard on a per-unit or state-wide basis. A mass-based standard may provide an easier way to measure compliance and lends to the concept of including CO₂-emission reducing measures that occur outside the plant fence line.

PNM supports EPA allowing compliance credit for planned actions involving changes to the composition of its generating fleet. The retirement of two units at San Juan is the most significant action the company has undertaken that will result in a substantial reduction in CO₂ emissions- 50% reduction from total plant emissions and an approximately 23% reduction from PNM's system-wide emissions. PNM strongly believes the power sector should be able to receive credit for emission reductions caused by plant closures, and not be exposed to the risk of stranded investments as a result of complying with other environmental regulations.

Credit for Early Action

A number of states have implemented policies or taken actions that have achieved significant CO₂ emission reductions in advance of the EPA Section 111(d) rulemaking. These programs have and will contribute to emissions reductions following the adoption of the new EPA CO₂ performance standard for existing sources. These early action efforts have been paid for by shareholders and ratepayers and should be recognized by EPA and allowed to be credited towards future compliance obligations.

Recognition by EPA of these voluntary, early actions in the guidance document increases the cost-effectiveness of any given level of emission reductions and creates a more consistent and equitable CO₂ regulatory program among states.

Regarding setting a baseline from which to measure future CO₂ emission reductions, PNM suggests that EPA align Section 111(d) with other EPA regulations such as the PSD “past actual” emissions determination method. For example, PNM would support the use of a 5-year look back period (2005-2009) that allows companies to average the two highest year periods during that time.

3. What requirements should state plans meet, and what flexibility should be provided to states in developing their plans?

President Obama has set a goal of reducing U.S. GHG emissions by 17% from a 2005 baseline emission level by 2020. The power sector is making significant strides in the reduction of greenhouse gas emissions. CO₂ emissions from electric generating units are projected to decrease by 14 percent below 2005 levels by 2020 (EIA, 2013). PNM believes the power sector should not be solely responsible for achieving the President’s goal. There are other sectors that should be considered and if such consideration can occur within the legal constraints of Section 111(d), utility companies and their ratepayers should not bear the entirety of the significant economic impacts likely to result from the rulemaking. Ultimately, greater CO₂ emission reductions could be realized.

States should have broad flexibility in developing programs both inside and outside the plant fence line in order to comply with the Section 111(d) emissions standard. PNM believes states should be able to design their own plans and programs for compliance but EPA should provide specific criteria on the basis for approving a SIP. If EPA allows states to pursue alternative, flexible compliance approaches, such as credit for plant retirement, trading and fleet averaging, interstate cooperation in the regulation of CO₂ emissions will be an important design issue.

Section 111(d) establishes a process for state-specific plans. PNM has ownership in generation and transmission facilities across states and on the Navajo Nation (in New Mexico). For a utility like PNM that has ownership in power generation in different states and tribal jurisdictions and across different EPA regions, state and tribal plan requirements must be consistent and designed to allow the opportunity to use flexible mechanisms for compliance purposes, including mechanisms that facilitate interstate cooperation to implement the Section 111(d) standards.

PNM would like to offer an example of how a number of western states cooperatively developed a cross-state emissions trading program to support compliance with EPA’s regional haze rule. Under 40 CFR § 51.309 of the Clean Air Act (the “Section 309 SIP”), New Mexico along with Utah and Wyoming participate in the Western Regional Air Partnership’s Western Backstop Sulfur Dioxide (SO₂) Trading Program. The Western Backstop trading program is a successful example of states and EPA working together to establish a “backstop” emissions reduction program that will assure required emissions reductions will be achieved. Section 309 required participating states to adopt regional haze strategies that were based on recommendations from the Grand Canyon Visibility Transport Commission for protecting the 16 Class I areas on the Colorado Plateau. Section 308(e)(2) provided states with the option to implement or require participation in an emissions trading program or other alternative measures rather than require sources subject to Regional Haze Best Available Retrofit Technology

(BART) to install, operate and maintain additional control technology to meet an established emission limit on a continuous basis. The Western Backstop SO₂ Trading Program is currently in place but not operating as the three states are meeting and exceeding the reasonable progress with respect to SO₂ emission reductions toward the national goal of achieving natural visibility conditions for these 16 Class 1 areas.

4. What can EPA do to facilitate state plan development and implementation?

PNM believes EPA should recognize the diversity of individual states and their energy resource mix. It is important that EPA minimize regulatory uncertainty by providing clear guidance to states on how to design an approvable SIP. EPA should establish criteria for such things as state emissions budgets, designs for market-based approaches and allow an adequate compliance schedule. With respect to state emissions budgets, EPA's guidance should consider the ability for states to have different budgets taking into account such things as state generation sources and fuel supply. EPA guidance should also encourage harmonization of performance standards between states or regions to enable fleet averaging and trading of emissions credits for compliance purposes between two or more states.

Appendix A

The following programs are included in PNM's Energy Efficiency Portfolio:

- Residential Lighting: Customers receive instant discounts on compact fluorescent light bulbs ("CFLs") purchased at over 170 participating retail outlets.
- Refrigerator Recycling: Residential and commercial customers receive a rebate for recycling a qualifying refrigerator or freezer. PNM provides free pick-up and recycles more than 95 percent of the materials at an Albuquerque recycling center established specifically for this program.
- Whole House (New Program for 2014): Provides a home energy assessment, direct installation of CFLs, programmable thermostat, low-flow showerheads and faucet aerators and rebate forms valued at \$75-\$500 for replacement of older HVAC units, refrigerators, dishwashers, clothes washers, variable-speed pool pumps and advanced evaporative coolers. Low-income participants receive a free refrigerator upgrade if applicable.
- Stay Cool (New Program for 2014): Instant or mail-in rebates will be available at major retail outlets for the purchase of solid-media advanced evaporative cooling units, Energy Star qualified room AC units and high SEER (14 and above) central AC units.
- Student Efficiency Kits (New Program for 2014): Home efficiency and energy education kits will be provided to fifth grade teachers to send home with their students. Training and energy curriculum will also be provided for the teachers.
- Home Energy Reports: Multiple reports per year will be sent to targeted residential customers comparing their energy usage statistics to average usage along with recommendations and education about energy efficiency opportunities.
- Community CFL: PNM cooperates with community organizations to distribute CFL bulbs at community events.
- Refrigerator Replacement and CFL Installation: Income-qualified customers receive new ENERGY STAR® qualified refrigerator and CFLs installed by a contractor. New Mexico Mortgage Finance Authority ("MFA") administers this program as part of their New Mexico Energy Smart program.
- Easy Savings: PNM low-income customers receive a kit that contains six (6) CFL bulbs of their choice of various wattages, a low-flow showerhead and other items including educational information on low-cost ways to save energy. The kits are delivered by mail and through participating agencies.
- Commercial Comprehensive: This flagship program for non-residential customers is comprised of four sub-programs. The New Construction program offers incentives for completing new construction projects that are more energy efficient than what is required by New Mexico building code; the Retrofit Rebate program allows customers to select options from a menu and receive a specific rebate per unit, or they can propose a system improvement that is not included on the pre-set menu and that delivers verifiable savings; the Building Tune-Up program provides incentives for improving the system efficiency of small to large commercial buildings that are not performing as designed; and the small business or QuickSaver™ program which provides small business customers (less than 100 kW demand) with an attractive, low-cost option for directly installing energy saving measures.
- Load Management: The Load Management program is comprised of two sub-programs, Power Saver and Peak Saver. The Power Saver program controls refrigerated air conditioning units in participating homes and small businesses during periods of peak demand. Peak Saver is

designed to help large commercial customers reduce the amount of energy they require during peak demand periods. Load Management participants are paid an annual incentive based on the amount of peak demand managed by the program.

- Market Transformation: This program promotes the adoption of energy efficient products and services, with the goal of inducing lasting behavioral changes in the marketplace. The program funds educational and community outreach activities and broad-based energy efficiency promotional efforts.
- Self-Direct: This program allows large customers (with energy usage greater than seven million kWh per year) to receive credits for energy efficiency improvements made at its facilities. Credits for approved self-direct programs may be used to offset up to seventy percent of the energy efficiency tariff rider.