



PNM Energy Efficiency Program

2023 Annual Report



April 15, 2024

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Introduction

The PNM Energy Efficiency Program empowers individuals and businesses across PNM’s service area to save energy and money by installing measures and/or adopting practices that result in the reduction of electric consumption or demand curtailment within their homes and businesses.

- The 2023 Program was cost effective, as measured by the Utility Cost Test (“UCT”), with a UCT of 1.30 for the portfolio of programs.
- The total annual net savings after free rider and other adjustments were accounted for was 92.02 GWh at the customer meter.
- The two load management programs represent an average hourly capacity of approximately 54.31 MW.
- Total program expenses were about \$32.2 million.
- The average cost per kWh of lifetime energy savings from the energy efficiency programs, not including load management, was 2.78 cents/kWh.

Program Results Summary

PNM submits this annual report on the performance of the PNM Energy Efficiency and Load Management Program for calendar year 2023, (“2023 Program”). This annual report is based on the measurement and verification of PNM’s 2023 programs performed by EcoMetric Consulting, LLC (“EcoMetric”). The Evaluation of the 2023 Public Service Company of New Mexico Energy Efficiency and Demand Response Programs (“M&V Report”) prepared by EcoMetric is submitted as a separate document.

The programs evaluated in this annual report were approved by the New Mexico Public Regulation Commission (“NMPRC” or “Commission”) in Case No. 20-00087-UT. This report covers all costs incurred in the implementation of the programs and all customer participation in the programs from January 1, 2023, through December 31, 2023.

This is the fifteenth annual report on PNM’s Energy Efficiency Programs. Results are based upon independent measurement and verification.

Table 1 provides the definition of “Participants or Units” by program.

Table 1

Programs	Participants	Units	Description
Residential Comp.	X	X	Cooling Equip/Appliances/Homes
Residential Products		X	Light bulbs/Non-lighting Measures
Commercial Comp.	X	X	Apartments/Projects/Distributors
Easy Savings		X	Self-install Kits Mailed to Homes
Energy Smart	X		Single Family and Multifamily Homes
New Home Const.	X		New Homes
PNM Home Works	X		Res Education/Self-install Kits
Behavioral Comp.	X		Res Reports and C&I Process Improvements
Power Saver (LM)		X	Res/Sm Bus AC Units/Smart T-Stats
Peak Saver (LM)	X		C&I Premises

Table 2 shows the total number of customer participants (or units), the annual energy and demand savings, the lifetime energy savings, and the total costs for each of the programs for calendar year 2023.

Table 2

Program	Participants or Units	Annual Savings (kWh)	Annual Savings (kW)	Lifetime Savings (kWh)	Total Program Costs
Residential Comp.	37,034	13,764,899	1,461	117,928,315	\$ 4,678,353
Residential Products	1,348,665	24,858,588	4,709	254,298,710	\$ 5,375,210
Commercial Comp.	519	33,655,473	6,559	356,748,019	\$ 9,984,129
Easy Savings	4,444	2,787,904	229	18,093,496	\$ 357,073
Energy Smart	442	1,197,483	382	17,531,146	\$ 679,721
New Home Const.	1,205	1,133,312	244	18,246,316	\$ 839,639
PNM Home Works	13,273	3,589,117	188	47,878,821	\$ 595,147
Behavioral Comp.	217,673	10,556,981	2,172	13,232,943	\$ 934,677
Power Saver (LM)	64,253	368,000	38,430	368,000	\$ 6,046,958
Peak Saver (LM)	160	111,500	15,900	111,500	\$ 2,721,166
Total	1,687,668	92,023,255	70,275	844,437,267	\$ 32,212,073

Program Information

This section highlights the successful strategies and accomplishments of the following programs in 2023.

- (1) Commercial Comprehensive
- (2) Residential Comprehensive
- (3) Residential Products
- (4) Energy Smart
- (5) PNM Home Works
- (6) New Home Construction
- (7) Easy Savings Kit
- (8) Power Saver load management

- (9) Peak Saver load management
- (10) Behavioral Comprehensive
- (11) Market Transformation
- (12) Self-Direct

Commercial Comprehensive

The Commercial Comprehensive is designed to be a one stop shop for all commercial customers. It is comprised of six sub-programs including New Construction, Retrofit Rebates (primarily large business), Building Tune-Up, Quick Saver (small business), Distributor Discount (focused on midstream incentives) programs, and the Multifamily program. PNM contracted with DNV, Inc. to implement the Commercial Comprehensive program. PNM and DNV implemented a new online application that will streamline the rebate application process and eliminate the need for customers or contractors to submit paper or Excel-based forms. Commercial contractors will receive training on the new web-based platform in early 2024 with a system-wide roll out tentatively scheduled for June 2024.

New Construction and **Retrofit Rebates** offer pre-set and custom incentives for installing qualifying equipment in new and existing buildings, and for implementing efficient designs in new buildings. Eligible equipment includes energy efficient lighting, HVAC, refrigeration, food service equipment, motors and variable speed drives, window film and plug load controls. **Building Tune-Up** offers incentives for building owners and operators to improve whole-system building efficiency through retro-commissioning, performing advanced tune-ups of air conditioning systems, and to support building operator certification training. In the PNM **Distributor Discount** program, a participating distributor sells high-efficiency equipment from an approved product list to an eligible PNM customer; the customer receives an instant discount at the point of purchase, and PNM pays the rebate directly to the distributor.

In 2023, there were 259 customer projects in the New Construction, Retrofit Rebate, Building Tune-Up, and Distributor Discount programs. The

“Our experience with the QS program managed by DNV has been exceptional. It is a turnkey approach that helps Bulldog Energy Solutions deliver kWh savings to small businesses that would ordinarily not be able to capitalize the expense of an energy project. Loren Burton, along with the rest of the DNV Team have been very supportive in helping Bulldog Energy and all the Trade Ally’s reach our goals and those of the business community.”

WELSCO LLC
Craig Shaw
Managing Partner



projects completed at these customers' facilities paid customers approximately \$3.5 million in rebates and will save over 22.6 million kWh per year.

PNM **Quick Saver** is a direct-install program for small business customers who have an annual peak electric demand of 200 kW or less. It offers business customers pre-set incentives for installing qualifying lighting products and refrigeration in existing buildings. An important aspect of the program is ongoing training of participating contractors for continued and successful program implementation. For 2023, the Quick Saver program processed over \$1.0 million in incentives on 194 customer projects which will save approximately 7.1 million kWh per year across the PNM service area.

The **Multifamily** program is designed to meet the needs of the hard-to-reach multifamily customer segment by offering an attractive mix of low-cost direct install measures, such as lighting replacement, along with deeper savings measures, such as upgrades to cooling equipment, all in one package. The program completed 55 projects, paid about \$998,000 in rebates, and achieved 2.4 million kWh of energy savings. The Multifamily program served 1,399 low-income units in 2023 and achieved over 2 GWhs in savings.

Residential Comprehensive

Refrigerator Recycling

From January 2023 to August 2023, PNM's third-party contractor ARCA, Inc. operated the Refrigerator Recycling program. In that period, the program recycled 3,385 units through its Albuquerque disassembly and recycling center for refrigerators and freezers. The Refrigerator Recycling program achieved approximately 2.3 million kWh between January and August 2023.

"[We] received our check today. Thank you so very much for your hard work in resolving this matter. You have restored our faith in customer service."

"THANK YOU, [PNM staff member] and PNM. I know it was a vendor and not PNM that caused the issue. Thanks for stepping up."

-PNM customers affected by ARCA, Inc. bankruptcy

ARCA, Inc. ceased operating PNM's Refrigerator Recycling program in August 2023. PNM responded quickly and extensively to this unexpected event, which left some customers waiting for their refrigerator or freezer to be picked up and other customers with a bounced check. PNM hired a local logistics company, NM Transload, to pick up and store refrigerators and freezers pending the re-establishment of a replacement program. PNM's staff and contingent workers communicated with affected customers and issued replacement and compensatory funds for bounced checks. PNM made hundreds of customers whole in this process.

In the second half of 2023, PNM issued an RFP for a replacement contractor to run a re-

established refrigerator recycling program. PNM's replacement contractor, CLEARResult, plans to begin receiving and recycling refrigerators and freezers in Q2 2024.

"[The PNM Home Energy Checkup Energy Specialist] explained energy efficiency well for our appliances as to what kind would save us money on our energy bills. [He] did a thorough job installing new light bulbs where needed and discussing with us about our heating and cooling and other appliances."

"[The PNM Home Energy Checkup Energy Specialist] did a great job. He informed me of all rebates that I could qualify to receive, he mentioned good ideas to follow and said what not to do. I believe my energy usage will improve."

- Anonymous Home Energy Checkup participant survey respondents

Home Energy Checkup, Low-Income Checkup

In the Home Energy Checkup program, a Home Energy Specialist visits a customer's home and completes a walk-through energy assessment and provides a comprehensive report which includes personalized recommendations based on the conducted assessment. The Energy Specialist installs a selection of direct installation ("DI") measures, including LEDs, weather stripping, door sweeps, outlet gaskets, big gap filler, and advanced power strips. Wi-Fi smart thermostats are installed if the homeowner desires at the time of the energy assessment in homes with refrigerated air conditioning. The Energy Specialist also visually inspects and makes recommendations regarding existing windows and level of insulation in the home as well as the age and condition of the existing appliances

and provides information about available rebates for early appliance replacement with new ENERGY STAR® qualified appliances. Rebates for installing high efficiency cooling equipment, including heat pump technologies, are also available for eligible participants with old inefficient cooling equipment.

All in-home Energy Specialists are bilingual and bilingual call center Customer Representatives or virtual Energy Specialists are available upon request to ensure that customers are easily able to make appointments and have their energy efficiency questions and concerns answered. Customers have the flexibility to self-schedule appointments via the internet as well.

In 2023, PNM proactively reached out to some customers moving to a new home, sending a kit of measures and marketing encouraging them to sign up for a home energy checkup.

Income-qualified participants receive the same walk-through assessment, installed DI measures, and a comprehensive assessment report as referenced in the above paragraph. Eligible participants may also qualify for a free ENERGY STAR® refrigerator

replacement and free installation of a Wi-Fi smart thermostat for homes with refrigerated air conditioning.

PNM actively seeks out ways to collaborate in the community. PNM is collaborating with New Mexico Gas Company (“NMGC”) to offer Home Energy Checkups to income qualified residential customers living in Native American communities. For several years in a row, PNM has partnered with Prosperity Works and Energy Works to offer income qualified Home Energy Checkups and will continue to look for more opportunities to collaborate with community organizations.

For customers living in apartments, unfortunately the program cannot offer a full Home Energy Checkup because landlord approval is needed for most measures. Instead, the program offers a kit of particular measures that the customer can install themselves without endangering their deposit.

In 2023 PNM continued to offer customers a way to participate in this program virtually. The virtual offering includes rebate applications for appliances and/or cooling equipment, and customized DI measures mailed. Following the initial interaction, the customers receive a follow-up video phone call to review energy savings tips, address customer questions, and to verify that DI measures were installed.

A total of 25,113 customers throughout PNM’s service area received a Home Energy Checkup or energy savings kit, achieving over 8.2 million kWh savings.

“The PNM Cooling Rebate Program has really created a lot of opportunities for HVAC professionals in New Mexico, but we, here at [HVAC Company], are most pleased with the way it has helped us help our customers. Through this program we have been consistently able to assure homeowners that they are not just getting a great product, but that their new home comfort system has been independently verified to be so efficient as to warrant a credit from PNM.”

- Vice President, Leah Howland of Affordable Service Plumbing, Heating, Air Conditioning and Electric

Residential Midstream Cooling

Residential Midstream Cooling program offers discounted HVAC systems, heat pumps, heat pump water heaters, and smart thermostats at the distributor level. The program works with distributors across the PNM service area to offer discounts to contractors on

high efficiency cooling equipment when the unit is purchased and installed in an active residential PNM customer’s home. Because the discount is offered by distributors, customers are not required to submit paperwork to receive the benefit. A/C tune-ups are part of the program as well.

The program achieved savings of approximately 0.6 million kWh in 2023. There are 17 wholesale distributors currently participating in the program.

Residential Products

In 2023, the Residential Products program offered in-store discounts on LED bulbs, advanced power strips, ceiling fans, and air purifiers to name a few. The program also offers mail-in, online, and instant rebates on high efficiency home appliances and evaporative cooling equipment. A total of 192 retailers including large home improvement stores, warehouse clubs, discount retailers, drug stores, independent hardware, charity retailers, and dollar stores participated in the program throughout the PNM service area achieving a total of approximately 24.9 million kWh savings and providing approximately \$3.5 million in total incentives.



Contractor Lunch & Learn for Midstream Cooling Program

"We really appreciate the value and benefits the [PNM Residential Products] program brings to our customers."

-Briana, Assistant Store Manager,
East Albuquerque Lowe's

Each participating retailer displayed point-of-purchase ("POP") materials describing the benefits of LEDs, in addition to the newly expanded non-lighting product list and implemented other mass marketing strategies to engage customers. Retailer training was completed in person by field representatives in 2023. Field representatives visited participating retailers on either a bi-weekly or monthly basis depending on the retailer's sales volume. Field representatives visited stores 2,938 times in 2023.

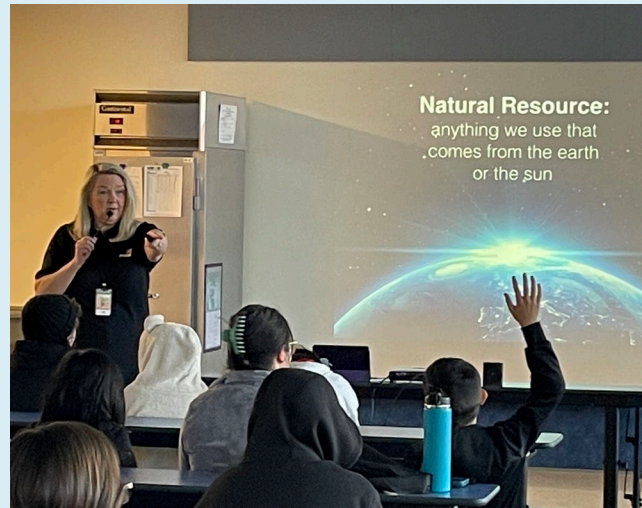
Home Works

The PNM Home Works program provides energy efficiency education and energy saving kits to fifth graders and to high school students through the Energy Innovation program. The Home Works and Energy Innovation programs were delivered through an Energy Champion e-learning course, in person presentations, and a Kahoot game with a primary focus on energy efficiency, renewable and non-renewable natural resources, and how electricity is created and delivered into homes and businesses with a special emphasis on sustainability and the unique energy usage footprint of a high school-aged student in the home. Virtual presentations are still offered if requested, however most participating schools have returned to requesting in-person presentations.

Once presentations are completed, each fifth grade and high school student receives a sealed customized PNM kit of energy efficiency devices to install at home,

which includes easy-to-install lighting and weatherization measures including outlet gaskets, weather stripping, and door sweeps and a written guide to assist students and parents with installation of the efficient technologies while also learning about additional ways to reduce energy waste in the home. The high school kit also contains a tier-two advanced power strip. Participating teachers have the opportunity to receive a mini grant to use in their classrooms to help maximize the number of surveys returned from students and to confirm students installed the kits at home. The value of the mini grant is based on student participation levels.

The program provided approximately 13,300 kits to 136 schools including 416 classrooms throughout the PNM service area during the 2023 spring and fall semesters. The program achieved approximately 3.6 million kWh savings in 2023.



"This program gets children thinking about saving energy. It is an engaging way to get their minds thinking about ways to save in their daily lives."

-Teacher Partner in PNM Home Works

"I was very happy to see my child so excited about all things she has learned. What an amazing program! Thank you all!"

-Parent of student participant in PNM Home Works

New Home Construction

This program incentivizes home builders to exceed the level of energy efficiency required by the applicable building code. The program offers participants incentives for building new, highly efficient, single-family residential homes through either a prescriptive or a performance path. Under the prescriptive path, home builders receive rebates for specific energy efficient technologies, whereas under the performance path home builders can choose to receive rebates for overall home performance upon verification by credentialed home energy raters. The program provided incentives for 1,205 homes in 2023, 100 of which were prescriptive homes, and 1105 of which were performance homes. Eight of the performance homes were built for Low Income customers by Habitat for Humanity. A total of 25 builders participated in the program in 2023; 20 in the central region, three in the northern region, and two home builders built homes in both central and northern regions. High mortgage interest rates impacted the program in 2023.

Low-Income Focused Programs

In 2023, the portfolio as a whole expended approximately 10.7% of the budget serving low-income customers. This includes both low income specific and market rate programs such as Home Works, Residential Products, New Home Construction, and Multifamily programs.

Easy Savings Kit

In 2023, a custom pick-a-kit portal offered low-income PNM customers the choice to customize an energy kit from a list of pre-selected DI measures that include various specialty LEDs, advanced power strip and other energy saving items. If the customer does not want to customize their own energy saving kit offerings, they may choose the option of a traditional pre-made energy kit that includes a standardized mix of DI measures from those listed above. The primary channels for recruiting customers are direct mail or email campaigns. In 2023, the measure mix was enhanced to include outlet gaskets, weather stripping as well as a door sweep. As the market changes, the measure mix will continue to be evaluated for cost effectiveness.

PNM continues to work with agencies to retain continued awareness of the PNM Easy Savings Kit program and to encourage agencies to provide information and links on their websites as applicable. In 2023, 4,444 kits were mailed to customers generating approximately 2.8 million kWh energy savings.

EnergySmart

PNM is contracted with the New Mexico Mortgage Finance Authority (“MFA”) to install LEDs and replace inefficient refrigerators. Additional weatherization efficiency measures such as attic insulation, air and duct sealing, window and door replacement, and programmable thermostats are also offered through the program to help income-qualified single family and multifamily customers save money and energy in their homes. In 2023, MFA and its subcontractors leveraged PNM and federal funding, and provided services for 225 single family homes. There were 5 multi-family projects completed which included over 215 units. The program achieved 1.2 million kWh energy savings.

Behavioral Comprehensive

Commercial Strategic Energy Management (SEM) Program

"Concise, to the point info showing me how I need to get better informed on how to conserve energy and save money. Thank you."

"Gives me a heads up on energy usage, love this information!!!!"

"I care about this. Grows my awareness into energy saving which is better for the planet. Helps me be mindful."

-Anonymous Home Energy Report recipient survey respondents

This program targets commercial and industrial customer classes by focusing on business practice change from senior management through employee staff to positively affect organizational culture in reducing energy waste and improving energy intensity. The SEM approach emphasizes the importance of equipping and enabling plant management and staff to impact energy consumption through behavioral and operational change and structured planning of facility upgrades and process improvements.

The SEM program implementer, Strategic Energy Group (SEG), in conjunction with the PNM Strategic Account Management team, recruits from a list of customers whose annual electric usage exceeds 1.5 GWh as the minimum threshold. In addition to working with the Account

Management team, other recruitment strategies include SEM overview webinars both real-time and recorded, email campaigns, and virtual lunch and learn meetings. In total, there were four participants in the SEM program for 2023 from the healthcare, education, and governmental customer segments with other prospective pending participants being engaged to participate in 2024.

By nature, a behavioral-based program sees customers realizing savings slowly over the course of a multi-year implementation process. The program achieved 1.3 million kWh energy savings in the 2023 program year.

Residential Home Energy Report Program

This behavior-based program offering utilizes more digital versus the historical paper only delivery method which reduces paper waste and offers a broader sample of participants personalized tips and efficiency rebate recommendations through a phone app, website and/or emailed report. From the online report, participants have the capability to fill in any gaps about their homes on a pre-populated online survey and view energy efficiency tips and other program offerings. They can also discover which high level end-use categories specific to their homes, such as cooling, heating and "always on" equipment, are consuming the most energy.

Over 5.8 million e-mails were sent in 2023 with a high delivery rate of 95%, and healthy open and click rates of 48% and 4% respectively. Almost 191,000 paper reports were sent to selected customers who did not have e-mail addresses on record.

This program has been very well received by participants with an average e-mail like rate of 66% and is in the top three of the most preferred means to learn about customer-specific energy consumption. This program achieved over 9.2 million kWh energy savings for the 2023 program year due to new engagement strategies in place to encourage even more behavior-based energy savings in 2023.

Market Transformation

The goal of the Market Transformation (“MT”) strategy increases awareness of energy efficiency to induce behavioral changes that result in the adoption of energy efficient measures. In 2023, MT strategy continued to focus on outreach across the PNM service area to help customers better understand how they use energy and how to make better-informed decisions on ways they can use energy more efficiently. This outreach took a variety of forms, including social media outreach and promotional campaigns highlighting the benefits of energy efficiency. The interactive and educational student presentation component of the Home Works program is also included as part of the MT strategy in increasing awareness of energy efficiency and associated behavioral changes in the next generation.

Power Saver and Peak Saver Load Management

Power Saver is a direct load control program offered to residential, small commercial (< 50 kW), and medium commercial (50 kW – 150 kW) PNM customers. There are six program components:

- Residential Digital Control Unit (DCU)
- Small Commercial DCU
- Medium Commercial DCU
- Residential Two-Way Smart Thermostat
- Residential Bring Your Own Thermostat (BYOT) – Honeywell
- Residential BYOT – Nest

To facilitate load control, participants must have a device attached to the exterior of their air conditioning unit. This “paging” device receives a paging signal that will activate a control sequence that cycles the unit’s compressor for an interval of time (usually half the time as normal) to reduce peak demand in the summer. Residential and small commercial participants receive an annual \$25 incentive for their participation. Medium commercial participants receive an annual incentive of \$9 per ton of refrigerated air conditioning. A residential smart thermostat component was added to the program in 2018 and a residential bring your own thermostat (“BYOT”) specifically promoting Google-Nest was promoted in 2023. For thermostat components, load curtailment is achieved via communication with the Wi-Fi-enabled thermostat. For the 2023 control season, the weighted number of installations were approximately; 3,400 smart thermostats, 51,600 residential DCU’s, and approximately 9,300 small and medium commercial DCU’s.

The Peak Saver program is a demand response program offered to non-residential customers with peak load contributions of at least 50 kW. The program compensates participants for reducing electric load upon dispatch during periods of high system load. Peak Saver was implemented by Generac Grid Services in 2023, who managed the enrollment, dispatch, and settlement with participating customers. During the summer

2023 demand response season, there were 148 participating facilities and two demand response events.

These load management programs were successfully utilized to offset the need for peaking resources during the summer of 2023. PNM dispatched the load management resource two times for a total of about 8 hours. The confirmed curtailment amount was 54.3 MW. Table 3 shows the times and durations of the load curtailment events in 2023. The Power Saver and Peak Saver programs were implemented by Itron and Generac Grid Services, respectively, on behalf of PNM.

Table 3

Date	Start Time (MDT)	End Time (MDT)	Duration (Hr)
7/11/23	4:00 PM	8:00 PM	4
7/26/23	4:00 PM	8:00 PM	4

On October 28, 2020, the NMPRC issued a final order in Case No. 20-00087-UT, PNM's energy efficiency program application for 2021, 2022 and 2023, which directed Evergreen as independent program evaluator for PNM's energy efficiency and load management ("EE/LM") programs, to perform the following:

- In PNM's future M&V reports, the independent evaluator shall verify that load reductions from deployment of PNM's LM Programs avoided or offset the need for or use of additional peaking units or power purchases or shifted demand from peak to off peak period.

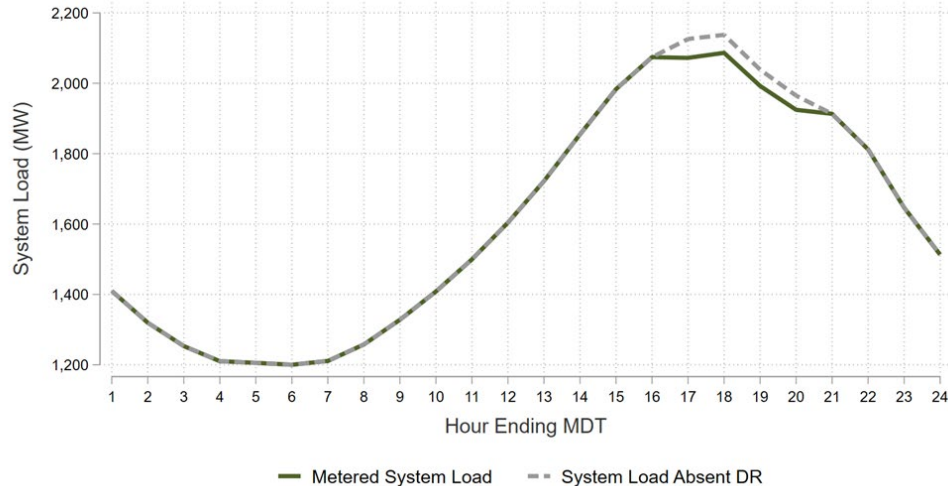
EcoMetric was chosen as the new Independent Evaluator in December 2022 and addressed these points for 2023 below. A comprehensive discussion regarding PNM's peak demand and the value of Load Management as a Resource may be found in the appropriate section in the 2023 M&V report. (The M&V report will be posted to PNM.com/regulatory).

"The evaluation team concludes that in 2023, the load management programs served as a capacity resource that avoided the need for additional supply-side peaking capacity. The summer of 2023 had both record levels of heat and gross demand, but only two events were called. The fact that the grid called for so few events illustrate the changing nature of reliability risk (when there is a risk that demand may exceed supply, or "loss of load risk") due to solar and other renewables shifting net demand (demand minus zero marginal cost renewables) away from summer afternoons and towards the summer evenings. In fact, PNM's most recent 2023 IRP predicts that the highest levels of loss load risk will be in the winter mornings by 2040.¹

[The following figure] illustrates the benefits of the load management programs on system load for a high load DR event day in 2023. Metered gross load on PNM's system peaked at 2,086 MW on July 26, 2023, during hour ending 18:00 (Mountain

¹ 2023 Integrated Resource Plan, section 7.3.5 <https://www.pnmforwardtogether.com/assets/uploads/PNM-2023-IRP-Report-corrected-2023-12-18.pdf>

Daylight Time). If we add back verified estimates of demand response performance, adjusted for line losses, the daily peak would have been 2,138 MW during hour ending 18:00 MDT. The load management programs flatten out system loads toward the top of the afternoon ramp, which reduces the quantity of peaking resources needed to balance the supply and demand.”



Program Benefits and Goals

The 2023 Program benefitted the PNM system, customers in all customer classes, the environment, and the New Mexico economy.

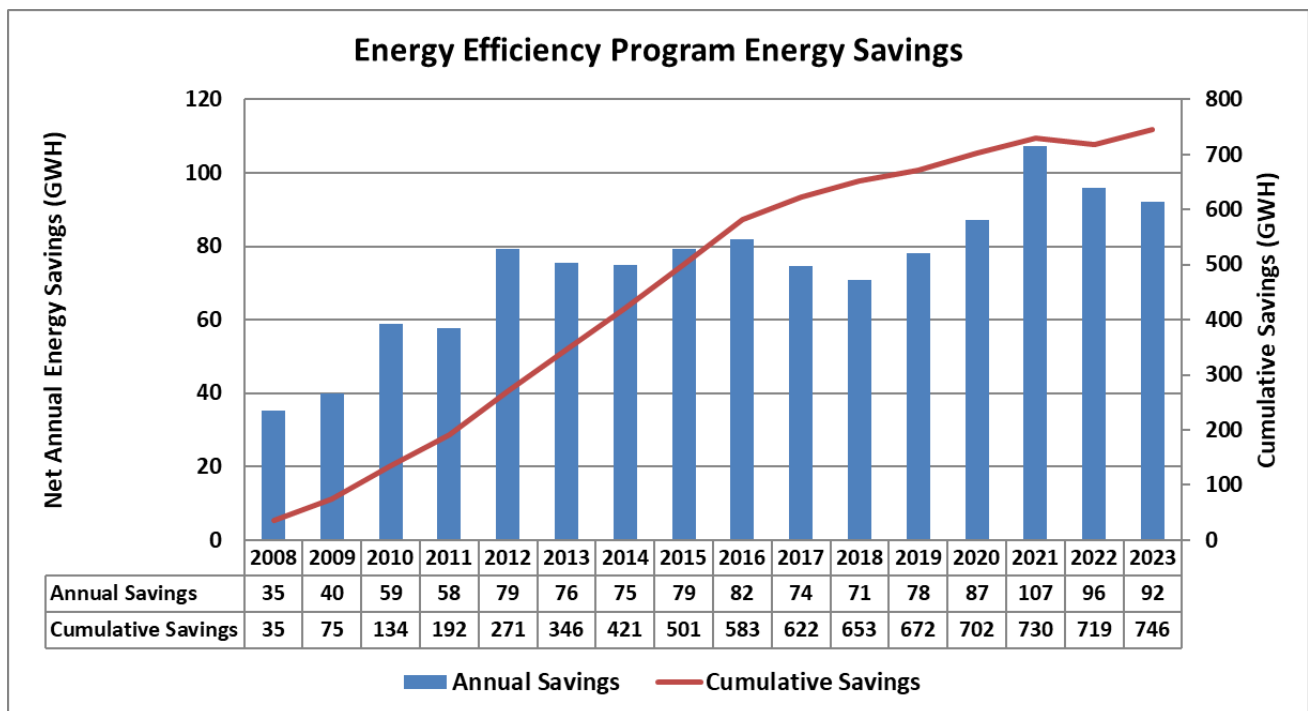
The Efficient Use of Energy Act (“EUEA”) required that PNM achieve cumulative energy savings of 411 GWh by 2014, equal to five percent (5%) of PNM’s retail sales in 2005, and 658 GWh by 2020, equal to eight percent (8%) of 2005 retail sales. PNM’s cumulative energy savings of 421 GWh through 2014 exceeded the 2014 savings requirement specified in the EUEA. PNM’s cumulative energy savings of 702 GWh through 2020 exceeded the 2020 savings target and represents approximately 8.6% of 2005 retail sales. The 2019 amendment to the EUEA requires that PNM achieve energy savings of not less than 5 percent (5%) of 2020 retail sales from its EE and LM programs implemented in years 2021 through 2025. When PNM filed its application for approval of its 2021 through 2023 EE&LM Program Plan, this target was estimated to be approximately 403 GWh. Based on actual 2020 retail sales, PNM programs will have to achieve 395 GWh or, on average, 79 GWh of annual savings in the years 2021 through 2025.

Figure 1 shows the annual incremental savings on the left axis and annual cumulative savings achieved through 2023 on the right axis.

The energy efficiency measures installed by PNM customers participating in PNM programs in any specific year will continue to save energy in years to come. However,

for cost-effectiveness analysis and for purposes of determining the cumulative savings applicable to the EUEA goals in 2014, 2020 and 2025, the average effective useful life (“EUL”) of the portfolio is applied. The average EUL for the portfolio is determined by dividing the total lifetime savings by the annual savings. The average portfolio EUL for the 2023 Program is 9.2 years. The average portfolio EUL has historically averaged 10 years. The decrease in EUL can mainly be attributed to impacts of the Energy Independence and Security Act (“EISA”). The annual savings from 2009 through 2013 no longer contribute to the cumulative savings since the average ten-year life for those savings has ended. The cumulative savings for 2023 in Figure 1 are the sum of all annual savings beginning in 2014.

Figure 1



The 2023 program provided almost \$13 million in rebates and helped a wide range of customers with direct incentives that offset the cost of energy efficiency improvements and lowered their electric bills. Highlights include:

- For work done in 2023, particularly in new home construction, PNM received the ENERGYSTAR® Partner of the Year award.
- Over 1.3 million products including lighting and non-lighting measures were discounted through the Residential Products program.
- More than 12,000 low-income customers benefited from the three programs that solely serve low-income customers.
- Over 519 commercial customer projects, including 194 small commercial projects, were completed in the business energy efficiency programs.

- Heat Pump adoption in 2023 increased by 226% over the 2022 program year in the Midstream Cooling program, from 115 units to 260 units, respectively.
- Heat Pump adoption in 2023 increased by 300% over the 2022 program year in the Home Energy Checkup program from 3 units to 12 in air source heat pumps and from 1 – 4 units in heat pump water heaters.

Approximately 64,000 residential and business customers participated in the demand response programs. The 2023 Energy Efficiency Program also had a significant impact on the New Mexico economy. Customer incentives are designed to pay between 25 and 75 percent of the incremental cost of an efficiency improvement. Using a multiplier factor of two, the economic impact of the customer incentives would be about \$26 million dollars. The 2023 Program also had a significant impact on local employment. Most of the PNM programs are implemented by third-party contractors who employ local staff. The 2023 third-party program implementers directly supported approximately 41 local employees. In addition, much of the \$12.8 million in incentives paid to customers supported additional employment by local companies and trade allies that provided energy efficiency improvements.

In addition, the energy savings from the 2023 Program will result in a reduction in water consumption and CO₂ emissions. Estimated water savings and reductions of CO₂ are shown in Table 10 below.

The PNM Energy Efficiency Program, now in its sixteenth year, was a key resource in PNM's 2023 Integrated Resource Plan ("2023 IRP"). The 2023 IRP evaluated many different portfolio options that could be implemented to meet expected growth in the demand for electricity for a planning period of 20 years. Energy Efficiency and Load Management programs are found to be cost-competitive alternatives when compared to meeting system needs with traditional supply-side resources. PNM identified its most cost-effective portfolio to meet the objective of the NMPRC IRP Rule which is to "identify the most cost effective portfolio of resources to supply the energy needs of customers."² The IRP Rule further provides that "For resources whose costs and service quality are equivalent, the utility should prefer resources that minimize environmental impacts."³ PNM's IRP included the impacts of the 2023 Program Plan and projected growth of programs that allow PNM to achieve the spending requirements and energy saving goals specified in the EUEA.

Tariff Collections

The costs of implementing the 2023 Program are recovered through the Energy Efficiency Rate Rider No. 16 ("Rider") on customer bills. The Rider for 2023 included a program cost rate element that was assessed monthly as a percentage (3.177% of the monthly bill charge). A profit incentive rate element was also assessed monthly as a percentage including a 2023 base element (0.219% and a 2021 reconciliation element 0.013%).

In 2023, PNM collected \$30,840,923 in program funding through the 3.177% Rider No. 16 rate element. In 2021, PNM's plan year Rider No. 16 collections exceeded

² 17.7.3.6 NMAC.

³ *Id.*

expenditures by \$2,002,249 resulting in an underage added to the amount available for program expenditures in 2023 pursuant to 17.7.2.8(E) NMAC. Accordingly, the amount of rider collections available for program funding in 2023 was \$32,843,172 (\$30,840,923+2,002,249). PNM's actual expenditures in 2023 were \$32,212,073, resulting in an under-expended amount of \$631,099. Accounting for carrying charges on monthly balances in 2023 of \$169,071 resulted in a net underage of \$800,170. The Final Order in Case No. 20-00087-UT authorized PNM to earn a Profit Incentive in 2023. PNM submitted the documentation for a tariff rider adjustment, including the program cost under-expenditure and profit incentive reconciliation, with supporting testimony, along with this annual report.

2023 Cost Reconciliation and Impact on 2025 Program Budget

In compliance with the Final Order, PNM will add the 2023 under-expended amount of \$800,170 to the approved 2025 program plan budget as approved in Case No. 20-00087-UT.

Regulatory Proceedings

On December 7, 2022, the Commission voted to approve EcoMetric to perform independent Measurement and Verification of New Mexico Energy Efficiency and Load Management programs for the 2023, 2024, and 2025 program years.

On April 17, 2023, PNM filed Advice Notice No. 603 to reconcile the collection of the 2022 program costs and profit incentive. Rider No. 16 was modified to reflect the profit incentive reconciliation, and the new rates went into effect on May 30, 2023.

Energy Efficiency Rule Reporting Requirements

The following section of the annual report provides detailed information on the performance of the 2023 Program including information required by the NMPRC Energy Efficiency Rule, Section 17.7.2.14 – Annual Report.

Documentation of Program Expenditures

All 2023 Program expenses including labor, materials, third-party expenses, and all other costs, are tracked through a unique set of accounts. Likewise, all revenue collected through the tariff rider is booked to a special regulatory asset account which is balanced against the expenses. These costs and revenues are kept separate from PNM rate-base accounting; therefore, there is no cross-subsidization and no impact on PNM's allowed rate of return. Costs specific to an individual program, such as customer incentives and third-party administration, are allocated directly to that program. Shared costs, such as internal administration, are allocated to each program in proportion to their direct costs.

Total calendar year expenditures for the 2023 Program were \$32,212,073. These expenditures include all expenses incurred by PNM to develop and implement the individual programs. The same total expenditure data was provided to EcoMetric to be included in the M&V Report. Table 4 shows the allocation of costs to the various programs for calendar year 2023.

Table 4

Programs	Admin	M&V	Promotion	Incentives (Rebates)	Third-Party Costs	Market Transformation	Total Costs
Residential Comp.	\$ 193,511	\$ -	\$ 58,154	\$ 2,052,263	\$ 2,276,264	\$ 98,161	\$ 4,678,353
Residential Products	\$ 216,353	\$ 144,639	\$ 65,018	\$ 3,474,643	\$ 1,364,810	\$ 109,747	\$ 5,375,210
Commercial Comp.	\$ 399,507	\$ 325,603	\$ 120,059	\$ 5,571,110	\$ 3,365,196	\$ 202,654	\$ 9,984,129
Easy Savings	\$ 14,770	\$ -	\$ 4,439	\$ 196,596	\$ 133,777	\$ 7,492	\$ 357,073
Energy Smart	\$ 25,489	\$ 63,490	\$ 7,660	\$ 474,906	\$ 95,246	\$ 12,930	\$ 679,721
New Home Const.	\$ 32,629	\$ 50,805	\$ 9,805	\$ 469,904	\$ 259,945	\$ 16,551	\$ 839,639
PNM Home Works	\$ 24,617	\$ -	\$ 7,398	\$ 550,645	\$ -	\$ 12,487	\$ 595,147
Behavioral Comp.	\$ 32,617	\$ 146,131	\$ 9,802	\$ -	\$ 729,582	\$ 16,545	\$ 934,677
Power Saver (LM)	\$ 247,437	\$ 64,890	\$ 74,359	\$ 15,997	\$ 5,518,760	\$ 125,515	\$ 6,046,958
Peak Saver (LM)	\$ 109,666	\$ 69,871	\$ 32,957	\$ -	\$ 2,453,044	\$ 55,629	\$ 2,721,166
Total	\$ 1,296,596	\$ 865,430	\$ 389,650	\$ 12,806,063	\$ 16,196,623	\$ 657,711	\$ 32,212,073

The total approved budget for 2023 was \$29,591,783 and the total actual expenses for the year were \$32,212,073; therefore, total spending was nine percent above the approved budget. Table 5 shows the budgeted amounts, the actual expenditures, and the variances for each program.

Table 5

Programs	Approved Budget	2023 Actual Costs	Variance (\$)
Residential Comp.	\$ 6,401,076	\$ 4,678,353	\$ (1,722,723)
Residential Products	\$ 3,818,094	\$ 5,375,210	\$ 1,557,116
Commercial Comp.	\$ 9,344,269	\$ 9,984,129	\$ 639,861
Easy Savings	\$ 601,759	\$ 357,073	\$ (244,686)
Energy Smart	\$ 247,881	\$ 679,721	\$ 431,840
New Home Const.	\$ 697,681	\$ 839,639	\$ 141,958
PNM Home Works	\$ 585,524	\$ 595,147	\$ 9,623
Behavioral Comp.	\$ 1,082,907	\$ 934,677	\$ (148,230)
Power Saver (LM)	\$ 4,648,499	\$ 6,046,958	\$ 1,398,459
Peak Saver (LM)	\$ 2,164,093	\$ 2,721,166	\$ 557,073
Total	\$ 29,591,783	\$ 32,212,073	\$ 2,620,291

Estimated and Actual Participation and Savings

Table 6 presents estimated and actual customer participation (or units), annual energy savings and annual peak demand savings for each program. Estimated values represent the targets for calendar year 2023. Please note that all energy savings are reported as savings at the customer meter.

Table 6

Program	Estimated Participants or Units	Actual Participants or Units	Estimated Savings (kWh)	Actual Savings (kWh)	Estimated Savings (kW)	Actual Savings (kW)
Residential Comp.	15,391	37,034	10,897,019	13,764,899	4,141	1,461
Residential Products	1,025,230	1,348,665	34,014,261	24,858,588	4,530	4,709
Commercial Comp.	633	519	40,510,823	33,655,474	7,890	6,559
Easy Savings	7,000	4,444	1,729,000	2,787,904	252	229
Energy Smart	200	442	360,000	1,197,483	33	382
New Home Const.	750	1,205	669,375	1,133,312	240	244
PNM Home Works	12,850	13,273	1,928,200	3,589,117	124	188
Behavioral Comp.	329,179	217,673	22,668,726	10,556,981	2,723	2,172
Power Saver (LM)	-	64,253	2,050,000	368,000	55,000	38,430
Peak Saver (LM)	-	160	1,000,000	111,500	25,000	15,900
Total	1,391,233	1,687,668	115,827,403	92,023,255	99,933	70,275

Estimated and Actual Costs and Avoided Costs (Benefits)

Table 7 presents the net present value of estimated and actual monetary costs and benefits for each program. Estimated costs and benefits are those contained in the 2023 Program Plan, approved in Case No. 20-00087-UT. The actual net present value of monetary benefits was determined by taking the discounted value of the annual avoided costs times the annual savings over the effective useful life of each program. Please see Appendix A for PNM avoided costs.

Table 7

Program	Estimated NPV of Monetary Costs	Actual NPV of Monetary Costs	Estimated NPV of Monetary Benefits	Actual NPV of Monetary Benefits
Residential Comp.	\$ 6,401,076	\$ 4,678,353	\$ 5,859,690	\$ 3,502,194
Residential Products	\$ 3,818,094	\$ 5,375,210	\$ 8,484,211	\$ 10,725,144
Commercial Comp.	\$ 9,344,269	\$ 9,984,129	\$ 12,729,361	\$ 15,035,958
Easy Savings	\$ 601,759	\$ 357,073	\$ 643,072	\$ 570,651
Energy Smart	\$ 247,881	\$ 679,721	\$ 142,761	\$ 1,227,810
New Home Const.	\$ 697,681	\$ 839,639	\$ 455,895	\$ 798,036
PNM Home Works	\$ 585,524	\$ 595,147	\$ 451,264	\$ 1,100,688
Behavioral Comp.	\$ 1,082,907	\$ 934,677	\$ 1,512,448	\$ 537,825
Power Saver (LM)	\$ 4,648,499	\$ 6,046,958	\$ 7,262,770	\$ 5,912,179
Peak Saver (LM)	\$ 2,164,093	\$ 2,721,166	\$ 3,301,259	\$ 2,445,482
Total	\$ 29,591,783	\$ 32,212,073	\$ 40,842,732	\$ 41,855,967

Cost Effectiveness Evaluation

Table 8 presents the Utility Cost Test (“UCT”) ratio for each program and for the total portfolio of programs as determined by the independent evaluator. The UCT ratio is the ratio of actual monetary benefits to monetary costs. The UCT of the total portfolio of programs as determined by the independent evaluator was 1.29.

Table 8

Program Name	Net UCT
Residential Comp.	0.75
Refrigerator Recycling	0.61
Home Energy Checkup	1.01
LI Home Energy Checkup	0.64
Midstream Cooling	0.58
Residential Products	2.40
Commercial Comp.	1.51
Easy Savings	1.60
Energy Smart (MFA)	1.81
New Home Const.	0.95
Behavioral Comp.	0.58
Home Works	1.85
Power Saver (LM)	0.98
Peak Saver (LM)	0.90
Total	1.30

Table 9 reflects actual UCT results based on 2023 M&V analysis and also indicates the Low-Income contribution to the portfolio results.

Table 9

Program	kWh	kW	Lifetime kWh	EUL	LI% of Budget	Total Cost	2023 UCT
Residential Comp.	13,764,899	1,461	117,928,315	7.0	27.1%	\$ 4,678,353	0.75
Refrig. Recycl.	2,311,070	538	11,301,132	4.9	0.0%	\$ 919,382	0.61
HEC - Mkt	8,255,867	467	73,890,011	9.0	0.0%	\$ 1,606,730	1.01
HEC - LI	2,562,808	279	22,937,133	9.0	100.0%	\$ 1,265,536	0.64
Midstream Cooling	635,154	177	9,800,040	15.4	0.0%	\$ 886,705	0.58
Residential Products	24,858,588	4,709	254,298,710	10.2	12.0%	\$ 5,375,210	2.40
Commercial Comp.	33,655,474	6,559	356,748,019	10.6	8.2%	\$ 9,984,129	1.51
Easy Savings	2,787,904	229	18,093,496	6.5	100.0%	\$ 357,073	1.60
Energy Smart (MFA)	1,197,483	382	17,531,146	14.6	100.0%	\$ 679,721	1.81
New Home Const.	1,133,312	244	18,246,316	16.1	4.0%	\$ 839,639	0.95
Behavioral Comp.	10,556,981	2,172	13,232,943	2.0	0.0%	\$ 934,677	0.58
Home Works	3,589,117	188	47,878,821	13.3	40.0%	\$ 595,147	1.85
Power Saver (LM)	368,000	38,430	368,000	1.0	0.0%	\$ 6,046,958	0.98
Peak Saver (LM)	111,500	15,900	111,500	1.0	0.0%	\$ 2,721,166	0.90
Total	92,023,257	70,275	844,437,267			\$ 32,212,073	1.30

Self-Direct Program Participation and Evaluation

PNM received no Self-Direct applications in 2023.

Estimated Water and CO2 Savings

Table 10 shows the estimated carbon dioxide (“CO₂”) emission reductions and water savings associated with the PNM portfolio of programs. The annual avoided CO₂ emissions and water savings for the 2023 Program were determined by multiplying the PNM weighted-average emissions rate and water consumption by the annual and lifetime energy savings.

Table 10

Emission Impact	Avoided Electric Emissions Rate (Metric Tons/GWh)	Annual Avoided Emissions (Metric tons)	Lifetime Avoided Emissions (Metric tons)
CO ₂ Reduced	257	23,667	217,178
Water Impact	Water Consumption (gal/MWh)	Annual Water Saved (gal)	Lifetime Water Saved (gal)
Water Saved	218.0	20,061,070	184,087,324

Independent Measurement and Verification Report

PNM contracted with EcoMetric to conduct the independent evaluation of the 2023 Program. The M&V Report is submitted as a separate document along with this annual report. A summary of some of the more important findings and recommendations, along with comments from PNM, is provided below.

Background and Purpose

On December 7, 2022, the Commission approved the selection of EcoMetric as the state-wide independent evaluator for the 2023, 2024 and 2025 program years. EcoMetric also contracted with Demand Side Analytics to perform further detailed analyses for the Home Energy Reports, and Demand Response programs. EcoMetric conducted an independent evaluation of the 2023 Program and their M&V Report is based on data from January 1, 2023, through December 31, 2023. PNM worked closely with EcoMetric and DSA to provide the data and necessary program information to complete the 2023 M&V Report. Data included, participant information, participant energy use, utility costs and budgets, avoided costs, and implementer costs including incentive information.

Summary of Findings and PNM Comments

The overall portfolio of programs was found to be cost effective. The results of the M&V analysis will be used to adjust technical assumptions made by PNM regarding program performance, unit savings and net-to-gross values. The M&V Report contains specific findings and recommendations which are summarized in the following section.

EcoMetric and DSA performed detailed evaluations of the Peak Saver, Power Saver, Commercial Comprehensive, New Home Construction, Home Energy Reports, and Energy Smart programs.

The detailed evaluations include verification of energy and demand savings, calculation methods, surveys of participants and contractors, and assessing how the programs were implemented to provide recommendations for improvements. For the remaining programs, EcoMetric performed “desk reviews” to verify energy and demand savings, evaluate program assumptions expenses and perform cost effectiveness calculations for all programs.

Key Findings and Recommendations

EcoMetric and DSA provided detailed results and recommendations for the following projects based upon their own calculations and survey results.

Commercial Comprehensive

Impact evaluation activities for the Commercial Comprehensive program included detailed engineering reviews of the Retrofit Rebate, Multifamily, New Construction, Direct Install (Quick Saver), Building Tune-Up, Midstream sub-programs.

The majority of the gross impact evaluation activities were devoted to engineering desk reviews of sample projects. The sample was stratified to cover a range of different measure types so that no single measure (often lighting) would dominate the desk reviews. The sample was also stratified based on total energy savings within each measure group. Overall, the sampling strategy ensured that a mix of projects in terms of both project size and measure type would be included in the desk reviews.

Findings & Recommendations

Ecometric performed surveys of the Quick saver and Retrofit Rebate participants. Surveys included company demographic information, source of program awareness, motivation for participation, and overall satisfaction including:

- PNM as an energy provider
- The rebate program overall
- The equipment installed through the program
- The contractor who installed the equipment
- Overall quality of the equipment installation
- The time it took to receive the rebate
- The dollar amount of the rebate
- Interactions with PNM
- The overall value of the equipment for the price they paid
- The time and effort required to participate
- The project application process

Respondents from both the Quick Saver sub-program and Retrofit Rebate sub-program generally expressed high levels of satisfaction, with well over two-thirds of respondents in both groups reporting that they were very satisfied with most factors.

Quick Saver respondents reported being most satisfied with the equipment installed through the program and the contractor who installed the equipment (83% and 82% reported being very satisfied, respectively). Retrofit Rebate respondents were most satisfied with the contractor who installed the equipment and the rebate program overall (95% and 94% reported being very satisfied, respectively).

The evaluation team also conducted 11 interviews with contractors who participated in the Commercial Comprehensive program in PY2023. The interviews covered the following topics:

- Contractor background and program involvement;
- The role and influence of the PNM program on the market; and
- Program satisfaction.

Surveys show that the contractors' overall knowledge of the rebate process and the variety of sources that led them to the program suggest that PNM has been successful at making rebate information readily available to contractors.

Several contractors reported that PNM is doing a good job reaching intended audiences.

The interviews suggest that contractors are proactive with their promotion of the program. Contractors also reported that the rebates influence the type of equipment they suggest to customers.

Contractors tended to rate the Commercial Comprehensive program highly.

Overall recommendations across all sub programs were uniform: The supplied information for the programs did not always include ex ante calculation steps and the documentation was not always clear for the evaluation team's review. Sometimes, the calculation methods were not quite consistent with TRM or white-paper methodologies. In some instances, lighting measures were not Energy Star or Design Lights Consortium approved. Also, building types should be more carefully documented to account for interactive coincident energy factors.

More specific information may be found in the "PY2023 Evaluation of the Public Service Company of New Mexico Energy Efficiency and Load Management Programs" which may be found in the Energy Efficiency section at PNM.com/regulatory.

Residential Behavioral Home Energy Reports

The PNM Home Energy Reports ("HER") program provides customers with information on their energy consumption that includes a comparison with a matched set of similar households. As part of the design, the program implementer randomly assigns customers to a treatment group that receives the HER that provides tips on how to reduce energy consumption. Those customers not in the treatment group are randomly assigned to the control group and do not receive the report.

The primary data used for this analysis was monthly electric billing data for the treatment and control group homes. Due to the timing of this analysis, DSA was not able to get a complete record of 2023 bills for the relevant homes. For most customers, the last bill comes from October 2023. Therefore, DSA was not able to directly estimate savings accrued in November 2023 or December 2023. Instead, DSA used savings from November 2022 and December 2022 as a proxy for November-December 2023 savings.

Expectedly, consumption is highest in the summer months and lowest in the shoulder months. For the waves that were launched in 2021, there were an average of 39 monthly records per home. For the waves that were launched in 2023, there were an average of 23 monthly records per home.

Findings & Recommendations

Verified savings for the Home Energy Reports program increased by over 300% compared to 2022. The increase had little to do with the increased number of homes treated in 2023. Rather, the increased rate of savings among the two original waves from 2021 drove the growth in program savings.

EcoMetric estimated peak demand savings for the HER program even though PNM's implementer did not claim peak kW savings. While the load shape of behavioral savings cannot be measured without AMI, it would be virtually impossible to save 9,219 MWh amongst a diverse group of homes without lowering peak demand. EcoMetric estimated the savings would be load following. They further recommended the 2021 Email Expansion and 2023 Paper Expansion waves to require more frequent or aggressive messaging to produce statistically significant savings.

The 2023 Email Refill group was not randomized, lacks equivalence, and therefore does not return reliable savings estimates. Since the launch was not properly implemented, we recommend dissolving this wave and requiring all new waves to be properly randomized.

Energy Smart (LI) Program

To evaluate the impacts of the Energy Smart program, the evaluation team conducted a deemed savings review of the energy saving measures provided by the program. In the deemed savings review, we attempted to confirm the source of savings cited by PNM and/or replicate the per-unit savings values if savings were based on an algorithm from the New Mexico TRM. The evaluation team reviewed only those measures, whose NEAT audit reports were generated. The inputs in these reports were reviewed by the evaluation team and compared to the New Mexico TRM. The evaluation team also reviewed the Program Data to look for any irregularities or abnormalities in the reported data.

To evaluate the impacts of the Energy Smart program, the evaluation team conducted an interview with one trade ally from a pool of three potential trade allies for whom valid contact data were available.

Findings & Recommendations

For Energy Smart (LI) programs, the evaluation team was not able to replicate the ex-ante savings for all projects using the supplied project documentation (NEAT reports) and the assumptions, algorithms and baseline values provided in the New Mexico TRM.

For a few measures, ex ante reported zero peak kW savings. For these measures, a positive peak kW savings must be calculated consistent with the New Mexico TRM.

The evaluation team observed that for all projects, the replaced Refrigerator had varying volume capacities and annual kWh consumption. However, the Program Data reported the same per-unit kWh and kW savings for all the projects. For nine projects whose NEAT reports were provided, the replaced Refrigerator model in the Program Data did not match with the model in the project documentation (NEAT audit reports).

For Pipe Wrap and Faucet Aerators, the NEAT reports do not report actual pre and post R values or accurately report actual measure data.

It is recommended to collect actual measure data and inputs and calculate savings consistent with the New Mexico TRM. It is further recommended to use actual NEAT data in the savings calculations, this applies to measures including refrigerators, air sealing, infiltration, pipe wrap, and window replacements.

Peak Saver

One-minute interval load data is used to calculate load impacts using a customer baseline (“CBL”) method per the contract between PNM and Generac Grid Services. A CBL is an estimate of what participant loads would have been absent the DR event dispatch. Load impacts are the difference between the CBL and the metered load during the event. The evaluator was able to replicate the calculations used for contract settlement. The peak impact as reported by the implementer results in an average event capacity of 35,700 kW. Evaluator-calculated performance resulted in an average performance of 15,900 kW. The difference is largely a result of prior hour adjustments to the measured baseline prior to the event.

Findings & Recommendations

EcoMetric recommends the multiplicative adjustment to be symmetric rather than asymmetric, and to set a cap on the adjustment factors. This has been addressed in the latest contract for the Peak Saver program.

Examine load data for solar patterns or pre-pumping/pre-cooling on event days. Pre-pumping/pre-cooling on event days is fine, but sites that do so should not receive the adjustment factor (or the adjustment factor should be based on weather rather than load).

For sites with solar, consider using a smaller adjustment factor cap, using an additive adjustment, or removing the adjustment factor altogether. PNM has considered these factors in the latest Peak saver contract terms.

PNM should also consider collecting all meter channels for sites with solar PV. This would allow the CBL to fully capture the load shape of sites that are net exporters during key times of day. It's possible that these sites reduced load and thus became larger exporters than they would have been on a non-event day, but the available data doesn't allow for a measurement. Also, an additive adjustment may work better than a multiplicative one for sites whose load can cross zero during the event period or adjustment window.

Set DR performance equal to the battery discharge to measure the performance of solar + storage sites provided that the battery system records telemetry, the site does not discharge their battery on non-event days, and does not engage in other curtailment activities within the facility.

PNM has considered the prior two points and is planning on implementing these recommendations.

Power Saver

There were four Power Saver events during the summer 2023 demand response season. There were two Power Saver events and two residential and small commercial measurement and verification events during the summer 2023 demand response season. The two measurement and verification events only affected 300 test sites and were held for the purpose of testing communication equipment.

All events used a 50% cycling strategy where curtailment is based on the runtime in the previous hour. The peak contract capacity as determined by the maximum 15-minute capacity during an event was 60,790 kW. The realized gross energy savings was 368,000 kWh and the realized net demand savings (calculated as an hourly average reduction) was 38,430 kW.

Findings & Recommendations

The EcoMetric team recommends that ex ante program impacts from 5:00 PM to 6:00 PM MDT at 100°F, de-rated for operability, be used for reporting, cost-effectiveness, and planning.

EcoMetric notes that the connected load assumption Itron uses to convert air conditioner runtime to electric demand for the thermostat program components is high given the average air conditioner size in the region. However, they note the current BYOT and Two-Way thermostat offerings only represent a small fraction of the Power Saver resource capability, but as they grow it will be important to base the load impact calculations on sound assumptions.

For the BYOT Nest component, thermostat setpoints are increased by three degrees during the event (while the other residential thermostat components use a cycling

strategy). This results in relatively large impacts in the first event hour that get increasingly smaller throughout the event. If this shape is a concern for PNM, consider discussing the curtailment algorithm with Nest. Using different offsets in each event hour (+2 in the first, +3 in the second, and +4 in the third and fourth) could flatten out the impacts, or Nest could implement a cycling strategy similar to the other components.

Appendix A – PNM Avoided Costs

The following table provides the avoided energy, demand and carbon costs for calendar year 2023. These costs were used in the PNM cost-effectiveness model and by EcoMetric in its program evaluation. These are the avoided costs included in PNM’s most recently approved energy efficiency plan, Case No. 20-00087-UT.

Avoided Energy and Capacity Costs EE and DR	EE Energy Capacity (\$/kWyr)	EE Avoided T & D (\$/kWyr)	EE Total Capacity (\$/kW-yr)	EE Energy (incl CO ₂) (\$/kWh)	DR MW (\$/kW-yr)	Avoided Energy Cost DR (\$/kWh)
2021	\$0.00	\$5.00	\$5.00	\$0.009	\$30.42	\$0.00
2022	\$159.13	\$5.08	\$164.20	\$0.012	\$139.59	\$0.00
2023	\$148.55	\$5.15	\$153.70	\$0.014	\$119.80	\$0.00
2024	\$141.06	\$5.23	\$146.29	\$0.013	\$135.53	\$0.00
2025	\$149.81	\$5.31	\$155.11	\$0.015	\$150.01	\$0.00
2026	\$155.65	\$5.39	\$161.04	\$0.017	\$129.07	\$0.00
2027	\$138.36	\$5.47	\$143.83	\$0.016	\$125.84	\$0.00
2028	\$134.22	\$5.55	\$139.77	\$0.019	\$125.84	\$0.00
2029	\$139.38	\$5.63	\$145.02	\$0.020	\$125.84	\$0.00
2030	\$129.56	\$5.72	\$135.28	\$0.019	\$113.44	\$0.00
2031	\$121.17	\$5.80	\$126.97	\$0.021	\$101.00	\$0.00
2032	\$110.58	\$5.89	\$116.47	\$0.029	\$80.64	\$0.00
2033	\$133.42	\$5.98	\$139.39	\$0.026	\$141.75	\$0.00
2034	\$130.84	\$6.07	\$136.91	\$0.028	\$141.75	\$0.00
2035	\$128.52	\$6.16	\$134.68	\$0.029	\$141.75	\$0.00
2036	\$126.14	\$6.25	\$132.40	\$0.030	\$140.99	\$0.00
2037	\$118.09	\$6.34	\$124.43	\$0.028	\$91.05	\$0.00
2038	\$136.97	\$6.44	\$143.41	\$0.030	\$160.06	\$0.00
2039	\$129.03	\$6.54	\$135.57	\$0.030	\$65.70	\$0.00

