PNM Energy Efficiency Program

2018 Annual Report

April 15, 2019

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Program Results Summary

PNM submits this annual report on the performance of the PNM Energy Efficiency and Load Management Program for calendar year 2018 ("2018 Program"). This annual report is based on the measurement and verification of PNM's 2018 programs performed by Evergreen Economics ("Evergreen"). The Evaluation of the 2018 Public Service Company of New Mexico Energy Efficiency and Demand Response Programs ("M&V Report") prepared by Evergreen 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. 17-00076-UT. This report covers all costs incurred in the implementation of the programs and all customer participation in the programs from January 1, 2018 through December 31, 2018.

This is the eleventh 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 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 2018.

- The 2018 Program was cost effective, as measured by the Utility Cost Test ("UCT"), with a UCT of 1.76 for the portfolio of programs.
- The total annual net savings after free rider and other adjustments were accounted for was 70.9 GWh at the customer meter, or 76.8 GWh including system losses.
- The two load management programs represent a total capacity of approximately 60 MW.
- Total program expenses were about $23.5 million.
- The average cost per kWh of lifetime energy savings from the energy efficiency programs, not including load management, was 2.9¢/kWh.

Table 1

Program	Participants	Units	Description
Residential Comprehensive	X	X	A/C units/Homes/Refrigerators
Residential Lighting		X	Light Bulbs
Commercial Comprehensive	X	X	Apartments/Projects/Distributors
Easy Savings		X	Kits mailed to Homes or from Agencies
Energy Smart (MFA)	X		Homes
New Home Const.	X		New Homes
PNM Home Works	X		Kits
Lrg. Cust. Self-Direct	X		Projects
Power Saver (LM)		X	A/C units and Small Businesses
Peak Saver (LM)	X		Premises

Table 2

Program	Participants or Units	Annual Savings (kWh)	Annual Savings (kW)	Lifetime Savings (kWh)	Total Program Costs
Residential Comp.	12,923	10,194,222	3,718	82,192,014	$ 4,995,232
Residential Lighting	911,276	17,038,069	2,119	144,539,112	$ 2,003,425
Commercial Comp.	6,635	36,677,193	6,002	324,058,672	$ 8,271,939
Easy Savings	6,211	2,323,535	84	24,397,119	$ 386,356
Energy Smart	223	321,255	36	4,593,337	$ 224,722
New Home Const.	702	1,093,236	433	16,278,453	$ 589,528
PNM Home Works	9,094	1,761,801	105	19,732,175	$ 370,346
Lrg. Cust. Self-Direct	1	403,843	44	6,461,493	$ -
Power Saver (LM)	44,430	556,737	41,340	556,737	$ 4,411,084
Peak Saver (LM)	110	508,973	15,216	508,973	$ 2,311,875
Total	**991,605**	**70,878,864**	**69,097**	**623,318,084**	**$ 23,564,505**

The difference in reported "Participants or Units" values in Table 2 when compared to the Units reported in the Measurement & Verification report can be attributed to a difference in definitions. For example, the number of units in Commercial Comprehensive in Table 2 includes individual apartment units whereas the M&V report only includes the number of apartment complexes as a whole.

Program Information

This section entails the successful strategies and accomplishments of the following programs in 2018:

(1) Commercial Comprehensive

(2) Residential Comprehensive

(3) Residential Lighting

(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) Market Transformation

(11) Self-Direct

Commercial Comprehensive

PNM contracted with DNV-GL, Inc. and with TRC Solutions to implement the Commercial Comprehensive energy efficiency program which is comprised of six sub-programs. DNV-GL implements the New Construction, Retrofit Rebates, Building Tune-Up, Quick Saver small business and Distributor Discount programs. TRC implements the Multifamily program.

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, to do 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 2018, there were 366 customer projects in the New Construction, Retrofit Rebate, Building Tune-Up and Distributor Discount programs. The projects completed at these customers' facilities resulted in just under $2,900,000 in rebates paid.

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. About $1,500,000 in incentives was paid on 312 customer projects.

The **Multifamily** program is designed to meet the needs of the hard-to-reach multifamily customer segment through 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 made significant progress in reaching numerous property owners in 2018 and in scheduling retrofits. The program completed 35 projects providing about $480,000 in rebates in 2018. Approximately 42% of the units were occupied by low income tenants.

In 2018, PNM awarded the Strategic Energy Management (SEM) Pilot incentive to Albuquerque Public Schools to implement initiatives that create lasting behavioral change using strategic management principles. The "Building Buddies" program teaches students how to demonstrate energy efficiency stewardship in their schools and at home.

Residential Comprehensive

Refrigerator Recycling: ARCA, Inc., the third-party contractor utilized for the Refrigerator Recycling program, operates a recycling center in Albuquerque. The facility disassembles all of the refrigerators and freezers collected through the program. The program was very successful in 2018 with 7,047 units recycled.

Home Energy Checkup and Low Income Checkup: 1,989 Home Energy Checkups were completed throughout PNM's service territory in 2018, 703 of which were for income-qualified customers. PNM customers pay a fee for a Home Energy Ambassador to come to their home and complete a walk-through energy assessment. The Ambassador installs a selection of direct install measures that the home might require, including LEDs, a low-flow showerhead, advanced power strips and faucet aerators. The Ambassador also visually inspects the home's windows and level of insulation and makes recommendations for the resident's benefit. In addition to this, the Ambassador reviews the age and condition of the existing refrigerator, dishwasher, and clothes washer in the home, and educates the PNM customer about rebates that are available for replacing these qualified appliances before they fail. Rebates for installing high efficiency cooling and Wi-Fi smart thermostats are also available. For income-qualified customers the program fee is waived and customers could qualify for a new ENERGY STAR® refrigerator to replace an older, inefficient model. In 2018, 426 refrigerators were replaced as part of this program.

Residential Cooling: This component offers rebates on the purchase and installation of advanced evaporative coolers, high efficiency air source heat pumps, ENERGY STAR room air conditioners, high efficiency refrigerated air conditioners, and ENERGY STAR variable speed pool pumps. The program was very successful and paid rebates on 3,651 coolers; 1,201 of which were for high efficiency air conditioning and heat pump units. Also rebated were 133 pool pumps, and 103 Wi-Fi smart thermostats. PNM promoted this program largely through point-of-purchase materials at big-box stores and pool supply stores and also conducted outreach to contractors who install the various technologies and who are also part of a registered trade ally list to increase ease of use for customers to participate.

Residential Lighting

In 2018, the Residential Lighting program provided rebates for 911,276 LED bulbs. There were a total of about 148 participating retail stores in the Residential Lighting program throughout 2018, comprised of about 12 different retail chains and stores that offered the markdown rebates. Participating retailers included large home improvement stores, warehouse clubs, discount retailers, drug stores, and independent hardware stores throughout the PNM service territory. The average incentive was $1.23 per bulb.

Each participating retailer displayed point-of-purchase ("POP") materials describing the benefits of LEDs, the different options available and information on the discounts provided by the program. Residential Lighting program field representatives provided participating stores with collateral and point-of-sale materials, and completed about

2,114 store visits. They also organized retailer training sessions and conducted 53 outreach events throughout the year, including several school and community events.

PNM Home Works

The PNM Home Works program provides energy efficiency education and energy saving kits to high school and fifth grade classes. The program begins with a 60 minute interactive, hands-on presentation for 5th grade students and their teachers at participating schools. The program teaches students about energy efficiency, renewable and non-renewable natural resources, and how electricity is created and delivered into homes and businesses. Each student is given a sealed energy efficiency kit to take home which includes easy-to-install technologies such as a low-flow showerhead, faucet aerators, efficient light bulbs, and an LED night light. The kit also includes a written guide to assist students and parents with installation of the efficient technologies while also learning about additional ways to reduce energy waste. The high school presentation includes a special emphasis on sustainability and on the unique energy usage footprint of a high school-aged student in the home and the kit contains a smart 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 9,094 kits to 90 schools during the 2018 spring and fall semesters within the PNM service territory.

New Home Construction

This program provides home builders with incentives to exceed the level of energy efficiency required by the applicable building code. The program offers participants incentives for highly efficient new single-family residential construction 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 on 702 homes in 2018; 106 prescriptive homes, and 596 performance homes.

Low Income Focused

Easy Savings Kit

In 2018, a total of 6,211 kits that include LEDs, low-flow showerheads and other items were distributed to low-income PNM customers. Approximately 93% of these kits were distributed by mail to customers who enrolled after receiving a direct-mail postcard that was sent to PNM customers that qualified for the program and who had not received an Easy Savings Kit in the past five years. In 2018, PNM also used several other avenues

for reaching income-qualified customers. Utilizing eight New Mexico assistance agencies across the service area, PNM was able to distribute 444 kits directly to low income customers seeking support. PNM also distributed kits directly to low income customers who attended the Albuquerque PNM Good Neighbor Fund event in October 2018.

Energy Smart

PNM contracted with the New Mexico Mortgage Finance Authority (MFA) to install LEDs and replace inefficient refrigerators. Additional efficiency measures are also included in the program including attic insulation, air and duct sealing, and programmable thermostats for installation in the homes of income-qualified PNM customers. MFA and its subcontractors replaced 164 refrigerators in the homes of PNM customers in 2018 as part of this program.

Approximately 7.3% of the total 2018 Program spending went to low income programs. In addition, it is likely that many low income customers participated in the Refrigerator Recycling and Residential Lighting programs, but income level is not known for participants in those programs.

Other Low Income Programs

In addition to the three programs dedicated to low income customers, Low Income Home Energy Checkup, Easy Savings and the Energy Smart program, a large percentage of participants in two other programs are low income customers, the Multifamily program and the PNM Home Works program. Many Commercial Comprehensive program participants such as non-profit organizations, churches, and retail stores provide services in low income communities as well. In 2018, these participants received approximately $400,000 in rebates through the Commercial Comprehensive program.

Market Transformation

The goal of the Market Transformation ("MT") Program is to increase awareness of energy efficiency to induce behavioral changes that result in the adoption of energy efficient measures. In 2018, MT activities continued to focus on outreach across the PNM service territory to help customers better understand how they use energy and how to make better-informed decisions on the ways they can use energy more efficiently. This outreach took a variety of forms, including community events,

42% of the Multifamily projects, representing about 2,502 apartments, benefited low income tenants. A large percentage of students in PNM' service territory come from low income homes. PNM estimates that at least 40% of the PNM Home Works kits were provided to low income students.

social media outreach and promotional campaigns stressing the benefits of energy efficiency.

Additionally, PNM provided an on-line energy audit tool – PNM Home Energy Analyzer – for residential customers who opt to complete a short survey about their home. This tool helps customers by providing analysis and insight about how their home uses energy, offering tips to help reduce energy use and save money, and recommending other PNM programs as applicable, including rebates for replacing existing appliances with ENERGY STAR qualified appliances. Approximately half of the appliance rebates redeemed in 2018 were for customers completing the online survey.

Power Saver and Peak Saver Load Management

Peak Saver and Power Saver are the PNM load management programs. PNM customers with annual peak demand of 50 kW or greater can participate in Peak Saver and customers with annual peak demand of less than 50 kW, including residential customers, can participate in Power Saver. The load management programs were successfully utilized to offset the need for peaking resources during the summer of 2018. PNM dispatched the load management resource 12 times for a total of about 47.5 hours. The peak load curtailment amount was 62 MW. Table 2 shows the times and durations of the load curtailment events in 2018. PNM contracted with a new implementer, Enbala, to manage the Peak Saver program. As a precursor to taking over the program, Enbala conducted extensive market analysis to determine capacity potential across PNM's service territory. Through a seamless transition in working with existing contractors and other technical resources, Enbala was able to re-enroll 99% of past participants. Enbala also utilized a platform solution named Virtual Power Plant ("VPP") to conduct automatic faster demand response which harnessed a mix of distributed energy resources ("DERs"), as well as, reduced customer fatigue by enabling customers to participate without impacting their operations.

Table 2

Event Date	Start Time	End Time	Duration (Hr)
6/7/2018	3:00 PM	7:00 PM	4.0
6/12/2018	3:00 PM	7:00 PM	4.0
6/21/2018	3:00 PM	7:00 PM	4.0
6/22/2018	3:00 PM	7:00 PM	4.0
6/25/2018	3:00 PM	7:00 PM	4.0
6/27/2018	3:00 PM	7:00 PM	4.0
7/18/2018	3:00 PM	7:00 PM	4.0
7/19/2018	3:00 PM	7:00 PM	4.0
7/20/2018	3:00 PM	7:00 PM	4.0
7/25/2018	3:00 PM	7:00 PM	4.0
7/26/2018	4:00 PM	8:00 PM	3.0
8/7/2018	3:00 PM	7:00 PM	4.0
12 Events in 2018			**47.0**

On January 31, 2018, the New Mexico Public Regulation Commission ("NMPRC") issued a final order in Case No. 17-00076-UT, PNM's 2018 energy efficiency program

application, which directed Evergreen Economics, as independent program evaluator for PNM's energy efficiency and load management ("EE/LM") programs, to do 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.

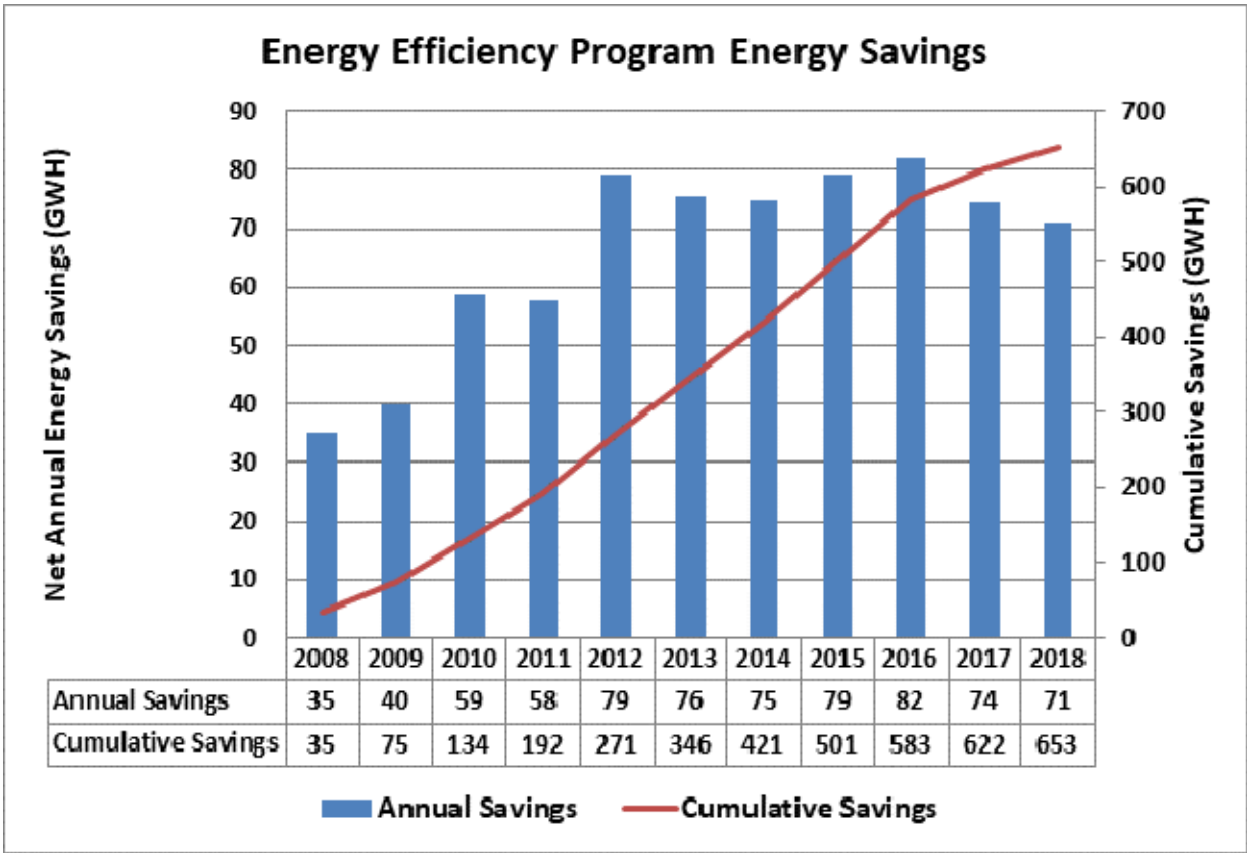
Evergreen addressed these points on pages 17 and 18 of the M&V Report. Evergreen concluded: “that in 2018 the LM Programs served a capacity resource that avoided the need for additional supply-side peaking capacity.”

Program Benefits and Goals

The 2018 Program benefitted the PNM system, customers in all customer classes, the environment and the New Mexico economy. The Efficient Use of Energy Act (“EUEA”) requires that PNM achieve cumulative 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 savings of 421 GWh through 2014 exceeded the 2014 savings requirement specified in the EUEA. Figure 1 shows the annual incremental savings, on the left axis, and annual cumulative savings achieved through 2018 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 and 2020, 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 2018 Program is nine (9) years, which is the same portfolio EUL reported for the years 2008 through 2015 and 2017. The EUL in 2016 was ten years. The 2008 and 2009 annual savings no longer contribute to the cumulative savings since the nine year life for those savings has ended. Therefore, cumulative savings for 2018 are the sum of all annual savings beginning in 2010. Beginning in 2019 PNM programs will have to achieve on average 62 GWH of annual savings in years 2019 and 2020 in order to achieve the 2020 savings requirement of 658 GWH.

Figure 1



A wide range of customers participated in the 2018 Program. In the Refrigerator Recycling program, 7,047 inefficient refrigerators and freezers were removed from the market. 911,276 LED bulbs were discounted through the Residential Lighting program and more than 13,000 low-income customers benefited from the five programs that serve low-income customers. 678 commercial customers, including over 312 small commercial accounts, participated in the business energy efficiency programs and 5,957 apartments were renovated with high efficiency equipment. In addition, approximately 35,000 residential and business customers participated in the demand response programs. Customers who participated in the programs received additional benefits through direct incentives that offset the cost of energy efficient improvements and through lower electric bills. The 2018 Program provided rebates and other incentives valued at about $9.2 million directly to customers.

The 2018 Program also had a significant impact on the New Mexico economy. Customer incentives are designed to pay between 25 percent 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 $18 million dollars. The 2018 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 2018 Program directly supported approximately 37 local employees of these third-parties. In addition, much of the $9.2 million in incentives paid to customers supported additional employment by local companies that provided the energy efficiency improvements.

In addition, the energy savings from the 2018 Program will result in a reduction in water consumption and CO_2 emissions. Estimated water savings and reductions of CO_2 are shown in Table 9 below.

The PNM Energy Efficiency Program, now in its twelfth year, is a key resource in the 2017 Integrated Resource Plan ("2017 IRP"). The 2017 IRP examined many different portfolio options that could be implemented to meet expected growth in the demand for electricity from 2017 to 2036. Energy efficiency and load management programs were consistently found to be lower-cost 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. For resources whose costs and service quality are equivalent, the utility should prefer resources that minimize environmental impacts".[1] PNM's IRP includes the projected impacts of the 2018 Program and projected growth of the programs that will allow PNM to achieve the spending requirements and energy saving goals specified in the EUEA.

Tariff Collections

The costs of implementing the 2018 Program are recovered through the Energy Efficiency Rate Rider No. 16 ("Rider") on customers' bills. The current Rider includes a program cost rate element that is currently assessed monthly as a percentage (3.00%) of the monthly bill charge. A profit incentive rate element is also assessed monthly as a percentage (0.202%).

In 2018, PNM collected $25,507,775 in program funding through the 3% Rider No. 16 rate element. In 2016, PNM's plan year expenditures exceeded its Rider No. 16 collections by $1,656,682, resulting in an overage to be subtracted from the amount available for program expenditures in 2018 pursuant to 17.7.2.8(E) NMAC. Accordingly, the amount of the rider collections available for program funding in 2018 was $23,851,093 ($25,507,775 - $1,656,682). PNM's actual expenditures in 2018 were $23,564,505, resulting in an under-expended amount of $286,588. Accounting for carrying charges on monthly balances in 2018 resulted in a net underage of $284,732. The Final Order in Case No. 17-00076-UT authorized PNM to earn a Profit Incentive in 2018. 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.

2018 Cost Reconciliation and Impact on 2020 Program Budget

In compliance with the Final Order in Case No. 17-00076-UT, PNM will add the 2018 under-expended amount of $284,732 to the 2020 program plan budget shown in Table 3 below. Table 3 provides the original program budgets, and savings and UCT results for calendar year 2020.

[1] "PNM 2017 – 2036 Integrated Resource Plan", July 2017, p. 13.

Table 3

2020 Programs	Budget	Annual kWh Savings	Lifetime kWh Savings	kW Savings	2020 UCT
Residential Comp.	$ 5,012,016	10,830,911	88,132,016	3,988	1.57
Residential Lighting	$ 2,250,984	17,010,000	136,080,000	1,985	3.38
Commercial Comp.	$ 8,802,641	28,509,514	249,881,462	4,886	1.60
Easy Savings	$ 388,606	2,318,800	23,188,000	87	2.83
Energy Smart (MFA)	$ 241,696	321,243	5,461,131	36	1.00
New Home Const.	$ 645,267	1,207,140	20,521,380	479	2.57
Home Works	$ 528,498	1,940,000	19,400,000	120	2.00
Power Saver (LM)	$ 5,013,094	1,970,000	1,970,000	47,000	1.50
Peak Saver (LM)	$ 2,523,529	1,000,000	1,000,000	25,000	1.52
Total	**$ 25,406,331**	**65,107,608**	**545,633,990**	**83,580**	**1.75**

Regulatory Proceedings

On January 31, 2018, The Commission issued an Order Partially Approving Certification of Stipulation in Case No. 17-00076-UT. Pursuant to that order, PNM filed an Advice Notice to modify the Energy Efficiency Rider, which became effective February 28, 2018.

On April 13, 2018, PNM filed Advice Notice 549 to reconcile the collection of the 2017 program costs and profit incentive. Rider 16 was modified to reflect the profit incentive reconciliation and the new rates went into effect May 29, 2018.

On January 16, 2019, the Commission voted to renew the contract with Evergreen Economics to perform independent measurement and verification of New Mexico energy efficiency and load management programs for the 2019 and 2020 program years.

Energy Efficiency Rule Reporting Requirements

The following section of the annual report provides detailed information on the performance of the 2018 Program including information required by the NMPRC Energy Efficiency Rule, Section 17.7.2.14 – Annual Report.

Documentation of Program Expenditures

All 2018 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 the PNM allowed rate-of-return. Costs specific to an individual program, such as customer incentives and targeted promotion, 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 2018 Program were $23,564,505. These expenditures include all expenses incurred by PNM to develop and implement the individual programs. The same total expenditure data was provided to Evergreen to be included in the M&V Report. Table 4 shows the allocation of costs to the various programs for calendar year 2018.

Table 4

Programs	Admin	Promotion	M&V	Incentives (Rebates)	Third-Party Costs	Market Transf.	Total Costs
Residential Comp.	$ 181,574	$ 48,960	$ 139,546	$ 2,153,372	$ 2,378,318	$ 93,462	$ 4,995,232
Residential Lighting	$ 83,342	$ 10,414	$ 83,296	$ 1,123,346	$ 665,543	$ 37,484	$ 2,003,425
Commercial Comp.	$ 319,711	$ 21,644	$ 122,494	$ 4,926,240	$ 2,727,080	$ 154,769	$ 8,271,939
Easy Savings	$ 10,538	$ 7,847	$ -	$ 200,319	$ 160,424	$ 7,229	$ 386,356
Energy Smart	$ 6,080	$ 7,839	$ 1,837	$ 188,946	$ 15,815	$ 4,205	$ 224,722
New Home Const.	$ 24,716	$ 7,857	$ 22,049	$ 327,591	$ 196,285	$ 11,030	$ 589,528
PNM Home Works	$ 19,683	$ 7,846	$ 5,261	$ 330,626	$ -	$ 6,929	$ 370,346
Power Saver (LM)	$ 162,243	$ 8,048	$ 61,247	$ -	$ 4,097,014	$ 82,532	$ 4,411,084
Peak Saver (LM)	$ 61,319	$ 7,943	$ 61,247	$ -	$ 2,138,110	$ 43,256	$ 2,311,875
Total	**$ 869,207**	**$ 128,396**	**$ 496,977**	**$ 9,250,441**	**$ 12,378,589**	**$ 440,896**	**$ 23,564,505**

The Commission approved the program budget in its order issued on January 31, 2018 in Case No. 17-00076-UT. The total approved budget for 2018 was $23,605,119 and the total actual expenses for the year were $23,564,505; therefore, total spending was about 0.17% percent (0.17%) below the approved budget. The variations in individual program costs from the budgeted amounts were primarily due to customer participation being higher or lower than projected. The Peak Saver load management program had higher participation than expected. The decrease in program costs from the budgeted amounts for Commercial Comprehensive was due to a number of large customer projects that had high energy savings at a lower rebate cost than the budgeted estimate. Residential Lighting cost was lower due to lower than expected costs of LED bulbs, which resulted in lower amounts paid for rebates. Table 5 shows the budgeted amounts, the actual expenditures, and the variances for each program.

Table 5

Programs	Approved Budget	2018 Actual Costs	Variance ($)
Residential Comp.	$ 4,720,978	$ 4,901,770	$ 180,792
Residential Lighting	$ 2,399,564	$ 1,965,940	$ (433,623)
Commercial Comp.	$ 8,610,630	$ 8,117,169	$ (493,460)
Easy Savings	$ 367,086	$ 379,127	$ 12,041
Energy Smart	$ 221,263	$ 220,517	$ (746)
New Home Const.	$ 560,355	$ 578,498	$ 18,143
PNM Home Works	$ 513,220	$ 363,416	$ (149,803)
Power Saver (LM)	$ 4,199,882	$ 4,328,552	$ 128,670
Peak Saver (LM)	$ 1,697,650	$ 2,268,619	$ 570,969
Market Transf.	$ 314,492	$ 440,896	$ 126,404
Total	**$ 23,605,119**	**$ 23,564,505**	**$ (40,614)**

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. The Self-Direct program is included in Table 9 below. Estimated values represent the targets for calendar year 2018. Please note that all energy savings are reported as the savings at the customer meter. Total savings to PNM include additional savings of 8.3 percent (8.3%) to account for system losses.

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.	13,575	12,923	9,718,507	10,194,222	3,695	3,718
Residential Lighting	950,000	911,276	17,520,489	17,038,069	2,318	2,119
Commercial Comp.	4,805	6,635	37,702,616	36,677,193	5,713	6,002
Easy Savings	6,200	6,211	2,062,120	2,323,535	223	84
Energy Smart	135	223	348,626	321,255	38	36
New Home Const.	650	702	580,125	1,093,236	208	433
PNM Home Works	9,500	9,094	1,947,500	1,761,801	92	105
Power Saver (LM)			750,000	556,737	45,000	41,340
Peak Saver (LM)			720,000	508,973	18,000	15,216
Total			**71,349,984**	**70,475,021**	**75,287**	**69,053**

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 2018 Program Plan in Case No. 17-00076-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.	$ 4,366,777	$ 4,558,109	$ 8,282,543	$ 6,342,052
Residential Lighting	$ 2,219,532	$ 1,828,109	$ 10,241,907	$ 6,022,373
Commercial Comp.	$ 7,964,600	$ 7,548,078	$ 19,512,340	$ 14,654,891
Easy Savings	$ 339,544	$ 352,547	$ 1,009,677	$ 856,871
Energy Smart	$ 204,662	$ 205,057	$ 260,328	$ 210,112
New Home Const.	$ 518,314	$ 537,940	$ 705,198	$ 1,203,680
PNM Home Works	$ 474,714	$ 337,937	$ 678,756	$ 699,460
Power Saver (LM)	$ 3,721,745	$ 4,025,079	$ 7,088,655	$ 5,791,218
Peak Saver (LM)	$ 1,457,789	$ 2,109,567	$ 2,765,028	$ 2,140,111
Total	**$21,267,677**	**$ 21,502,423**	**$ 50,544,432**	**$ 37,920,768**

Cost Effectiveness Evaluation

Table 8 presents the Utility Cost Test or UCT ratio for each program and for the total portfolio of programs. The UCT ratio is the ratio of actual monetary benefits to monetary costs that are shown in Table 7. The UCT of the total portfolio of programs was 1.76 and all individual programs had a UCT greater than 1.0.

Table 8

Program	UCT
Residential Comp.	1.39
Residential Lighting	3.29
Commercial Comp.	1.94
Easy Savings	2.43
Energy Smart	1.02
New Home Const.	2.24
PNM Home Works	2.07
PNM Power Saver	1.44
PNM Peak Saver	1.01
Total	**1.76**

Self-Direct Program Participation and Evaluation

PNM received and approved one application for the Self-Direct program in 2018. PNM reviewed the application, communicated the approval to the customer and notified the Commission. The project consisted of lighting retrofits at an educational facility and met the simple payback criteria of between one and seven years. Table 9 provides the energy savings, effective useful life, simple payback and customer cost for the project.

Table 9

Project Name	kWh savings	kW savings	EUL (Yr)	Lifetime kWh	Simple Payback (Yr)	Project Cost
Project 1	403,843	44	16	6,461,493	4	$ 79,819

Estimated Water and CO_2 Savings

Table 10 shows the estimated CO_2 emission reductions and water savings associated with the PNM portfolio of programs. The annual avoided CO_2 emissions and water savings for the 2018 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	542.0	38,419	337,865
Water Impact	**Water Consumption (gal/MWH)**	**Annual Water Saved (gal)**	**Lifetime Water Saved (gal)**
Water Saved	328.0	23,248,268	204,448,332

Independent Measurement and Verification Report

PNM contracted with Evergreen Economics to conduct the independent evaluation of the 2018 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 comment from PNM, is provided below.

Background and Purpose

On May 17, 2017 the Commission approved the selection of Evergreen Economics as the state-wide independent evaluator and approved the M&V budget and scope of work for a two year term to conduct annual measurement and verification analysis for the years 2017 – 2018. Evergreen conducted independent evaluation of the 2018 Program and their M&V Report is based on data from January 1, 2018 through December 31, 2018. PNM worked closely with Evergreen to provide the data necessary to complete the 2018 M&V Report. This included rebate processing and participant files, budget data by program and avoided-cost information.

Summary of Findings and PNM Comments

The total portfolio of programs was found to be cost effective and all of the individual programs were 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 many specific findings and recommendations which are summarized in the following section.

Key Points

The evaluator performed program impact evaluations, performed cost effectiveness tests, and made process recommendations. As in 2017, the evaluator made recommendations requesting improved tracking data quality, as well as, additional tracking information. Also, the evaluator requested that a central location be used for all program savings assumptions.

Commercial Comprehensive

The Commercial Comprehensive program consists of the following sub-programs; Quick Saver, Retrofit Rebates, New Construction, Midstream and Multifamily. The process evaluation activities, which included surveys with Retrofit Rebate and Quick Saver participants as well as interviews with Multifamily and New Construction participants, noted that nearly all interviewees were either “satisfied” or “very satisfied.” Very few instances of participant dissatisfaction were reported, with some recommendations to simplify the project application process. The evaluator mentioned that the diversity of contractor backgrounds and prior experience with utility efficiency programs suggests an opportunity to better meet contractor needs with tiered program information, outreach, and engagement that distinguishes between large, regional market actors and more locally-focused smaller businesses.

To determine the mix of projects to evaluate, a statistically significant sample of projects, stratified by savings and measure type, was defined for detailed desk reviews. Detailed calculations were performed by the evaluator on 102 separate projects and they compared results with the savings calculated by the implementer. The evaluator requested the implementer include documentation whenever changes in the processing database are made. Documentation is noted in the post inspection reports; however, PNM is working with the implementer to include comments in the Excel files supplied to the evaluator to facilitate their desk reviews. To determine verified savings, the evaluator referred to the PNM workpapers and/or the TRM. For each sub-program, the evaluator determined an Engineering Adjustment Factor (“EAF”) by dividing the verified savings by the reported savings value. Since only a sample of projects was evaluated, the adjustment factor was then applied to all projects for each sub-program.

On average the EAF for 2018 was much closer to 1.0 when compared to 2017 which demonstrates the ability of the implementer to work with the recommendations of the evaluator. Many comments by the evaluator were the result of a misunderstanding of how the implementer calculated savings. All other observations have either been corrected or are being addressed going forward.

Peak Saver

The evaluator verified the capacity as calculated by the implementer and then calculated a capacity with adjustments made to the baseline. In 2017 the evaluator made note of some of the issues with the day-of baseline adjustment factors. This remained an issue for the 2018 control season, however, the day-of adjustments for the 2019 season will be limited to customers who are more weather sensitive and do not pre-load prior to the start of the event. This correction will improve the cost-effectiveness of the program.

Power Saver

The Power Saver program is a direct load control program which means the implementer can send a signal to a controller on a refrigerated air conditioning unit. The controller uses an adaptive algorithm to cycle the compressor at half of the run time of the previous hour, thereby lowering coincident demand and saving energy. The evaluator verified the calculations of the implementer using 5-minute data comparing curtail and control groups. The implementer and contract capacity is calculated using the highest 15-minute kW demand reduction throughout the event. The evaluator reported the average hourly demand over each event hour. The hourly average value represents a lower capacity than the peak capacity.

Residential Lighting

The evaluator uses an econometric based elasticity model to determine the effectiveness of the upstream buy-down program. Data tracking inconsistencies prevented the calculation to be performed for the 2018 program year and the 2017 results were used. This issue has been corrected for the 2019 program year. The elasticity model estimates the effect of sales of a discounted lamp when compared to the original price of the lamp. Historically, in-store intercept surveys have been performed, however, bias errors occur with this methodology. Bias is introduced with intercept surveys due to a relatively small number of customers being surveyed compared to the overall volume of lamps sold, and also because of the hypothetical purchase scenarios that are part of that type of survey. The unavailability of customer specific information is another justification for the elasticity model due to the upstream nature of the program. The elasticity was estimated by bulb type (standard or specialty) and retailer (warehouse and non-warehouse). The overall NTG is estimated to be 0.64 based on the 2017 model. It was also reemphasized that the bulb price be recorded in the database which has been addressed.

Home Energy Checkup

PNM savings assumptions were verified, and only small engineering adjustments were applied, however, the evaluator recommends more consistent and clearly documented sources of deemed savings. The evaluator suggested targeting older homes to participate in the Home Energy Checkup program. The data revealed that 75% of the homes were built sometime after the year 2000. PNM will look into approaches to target older housing stock going forward.

Energy Smart

The evaluator had noted the following, “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. During the review of per-unit kW savings, we found that the kW savings shown in the tracking data were not the final kW savings claimed by PNM. PNM confirmed the alternate source of kW

savings used for the Energy Smart program and we were able to confirm the source of those savings. However, we suggest that PNM track the claimed kW savings in the program tracking data, as is done for kWh savings, in order to keep all program savings in one location. Ultimately, we were able to confirm the source of savings or replicate savings for all measures, and found these values to be reasonable." PNM is consolidating all data assumptions going forward.

New Home Construction

The evaluator interviewed seven homebuilders associated with the program and satisfaction with the program was high, but one participant commented on the dollar amount of the rebate being low. All seven PNM builder interviewees said they were "very satisfied" with their interactions with ICF and the reasonableness of the rebate application process. Most interviewed also reported that the program was very influential in their decision to improve upon the Home Energy Rating (HER) level they built to normally.

Appendix A – PNM Avoided Costs

The following table provides the avoided energy, demand and carbon costs for calendar year 2018. These costs were used in the PNM cost-effectiveness model and by Evergreen in its program evaluation. These are the avoided costs included in PNM's most recently approved energy efficiency plan, Case No. 17-00076-UT.

	Energy ($/kWh)	Capacity ($/kW-yr)	CO2 ($/kWh)
2018	$0.0286	$129.00	$ -
2019	$0.0298	$129.00	$ -
2020	$0.0343	$129.00	$ -
2021	$0.0369	$129.00	$ -
2022	$0.0395	$129.00	$0.0030
2023	$0.0398	$129.00	$0.0027
2024	$0.0404	$129.00	$0.0023
2025	$0.0419	$129.00	$0.0028
2026	$0.0429	$129.00	$0.0032
2027	$0.0431	$129.00	$0.0041
2028	$0.0436	$129.00	$0.0050
2029	$0.0440	$129.00	$0.0055
2030	$0.0445	$129.00	$0.0060
2031	$0.0447	$129.00	$0.0065
2032	$0.0450	$129.00	$0.0066
2033	$0.0455	$129.00	$0.0067
2034	$0.0453	$129.00	$0.0068
2035	$0.0455	$129.00	$0.0069