



# PNM Energy Efficiency Program

2019 Annual Report



April 15, 2020

# Table of Contents

Table of Contents.....	2
Program Results Summary .....	3
Program Information.....	4
Commercial Comprehensive .....	5
Residential Comprehensive.....	6
Residential Lighting .....	7
PNM Home Works.....	7
New Home Construction.....	8
Low Income Focused .....	8
Easy Savings Kit.....	8
Energy Smart.....	9
Other Low Income Programs.....	9
Market Transformation.....	9
Power Saver and Peak Saver Load Management.....	9
Program Benefits and Goals .....	10
Tariff Collections .....	12
2019 Cost Reconciliation and Impact on 2021 Program Budget .....	13
Regulatory Proceedings .....	13
Energy Efficiency Rule Reporting Requirements .....	13
Documentation of Program Expenditures.....	13
Estimated and Actual Participation and Savings .....	15
Estimated and Actual Costs and Avoided Costs (Benefits) .....	15
Self-Direct Program Participation and Evaluation.....	16
Estimated Water and CO <sub>2</sub> Savings.....	16
Independent Measurement and Verification Report .....	17
Background and Purpose .....	17
Summary of Findings and PNM Comments.....	17

## Program Results Summary

PNM submits this annual report on the performance of the PNM Energy Efficiency and Load Management Program for calendar year 2019, (“2019 Program”). This annual report is based on the measurement and verification of PNM’s 2019, programs performed by Evergreen Economics (“Evergreen”). The Evaluation of the 2019, 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 2019, Program was cost effective, as measured by the Utility Cost Test (“UCT”), with a UCT of 1.93 for the portfolio of programs.
- The total annual net savings after free rider and other adjustments were accounted for was 78.2 GWh at the customer meter.
- The two load management programs represented a total capacity of approximately 44 MW.
- Total program expenses were about \$24 million.
- The average cost per kWh of lifetime energy savings from the energy efficiency programs, not including load management, was 2.4¢/kWh.

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, 2019 through December 31, 2019.

This is the twelfth 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**

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 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 2019.

**Table 2**

Program	Participants or Units	Annual Savings (kWh)	Annual Savings (kW)	Lifetime Savings (kWh)	Total Program Costs
Residential Comp.	11,764	9,617,940	1,910	78,915,309	\$ 4,448,747
Residential Lighting	1,026,426	25,435,684	4,424	215,694,604	\$ 2,132,739
Commercial Comp.	6,063	36,824,546	6,417	326,009,915	\$ 8,716,606
Easy Savings	6,542	2,495,642	156	26,204,243	\$ 389,507
Energy Smart	218	359,850	36	5,731,289	\$ 237,047
New Home Const.	711	1,210,595	482	18,025,763	\$ 630,155
PNM Home Works	9,540	1,890,535	195	21,173,995	\$ 452,964
Lrg. Cust. Self-Direct	1	100,781	46	100,781	\$ -
Power Saver (LM)	47,839	112,490	28,120	112,490	\$ 4,647,256
Peak Saver (LM)	92	191,262	16,189	191,262	\$ 2,407,417
<b>Total</b>	<b>1,109,196</b>	<b>78,239,326</b>	<b>57,975</b>	<b>692,159,650</b>	<b>\$ 24,062,439</b>

## Program Information

This section highlights the successful strategies and accomplishments of the following programs in 2019:

- (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 implemented the Multifamily program in 2019.

**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 2019, there were 360 customer projects in the New Construction, Retrofit Rebate, Building Tune-Up and Distributor Discount programs. The projects completed at these customers' facilities paid customers approximately \$3,200,000 in rebates.

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 \$1,150,000 in incentives was paid on 257 customer projects.

*“Santa Fe Public Schools has been focused on energy and water efficiency and conservation since 2010. Our partnership with PNM through lighting and HVAC upgrades, retro-commissioning projects, and remodel/new building efficiency has allowed us to achieve rebate savings, conserve energy and has supported us in our commitment to sustainable building practices.” -Lisa Randall, Sustainability Coordinator, Santa Fe Public Schools*

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 made significant progress in reaching numerous property owners in 2019 and in scheduling retrofit projects, particularly with low-income communities. The program completed 34 projects (5,446 units) and paid about \$564,000 in rebates, and 90% of the units were occupied by low-income tenants.

## **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 2019, with 6,760 units recycled. Although participation lagged a bit in 2019, additional marketing efforts are already underway in 2020 and the program is off to a strong start.

**Home Energy Checkup and Low-Income Checkup:** In 2019, 1,926 customers throughout PNM's service territory received a Home Energy Checkup, with 39% (757) of the appointments provided for low-income customers. PNM also partnered with several housing authorities around the state including Santa Clara, Lordsburg and Las Vegas to provide 424 checkups. 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 with ENERGY STAR® qualified appliances. 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.

**Residential Cooling:** This program 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 2,915 coolers; 813 of which were for high efficiency air conditioning and heat pump units. Also rebated were 87 pool pumps and 76 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 with 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. Currently there are approximately 170 participating contractors in the program. PNM is working on plans to add a mid-stream component to the current program as well.

## Residential Lighting

In 2019, the Residential Lighting program provided rebates for 1,026,426 LED bulbs. There were a total of approximately 172 participating retail stores in the Residential Lighting program throughout 2019, comprised of about 17 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 and dollar stores throughout the PNM service area to serving the low income community. The average incentive was \$1.20 per bulb. PNM is looking at other retail measures to incorporate into this program in the future.

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 2,242 store visits. They also organized retailer training sessions and conducted 45 outreach events throughout the year, including several school and community events such as Earth Day at Alameda Zoo in Alamogordo, Career Day at E.G. Ross Elementary in Albuquerque and the Discovery Festival at the Albuquerque Convention Center.

*Teacher: “My students (families) are low income and are not educated about how to lower their usage. Students go home very excited and educate their parents on the PNM kit.”*



## PNM Home Works

The PNM Home Works program provides energy efficiency education and energy saving kits to fifth graders and high school students. The program begins with a 60-minute interactive, hands-on presentation for 5<sup>th</sup> 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 the unique energy usage footprint of a high school-aged student in the home, and the kit 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 9,540 kits to 99 schools throughout the PNM service territory during the 2019 spring and fall semesters. Eighty five percent

of elementary schools were located in the central and north central part of the PNM service area, while fifteen percent were located in regional areas including Clayton, Silver City, Lordsburg, Deming and Alamogordo. Participating high schools were located in the central and north central portion of the state.

### **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 711 homes in 2019, 36 of which were prescriptive homes and 675 of which were performance homes. A total of 34 builders participated in the program in 2019; 26 custom and 8 production builders, with five new builders in 2019. Housing permits in our service area dropped slightly in the first part of 2019, but picked up during the last part of the year and are still trending upwards in 2020.

### **Low-Income Focused Programs**

#### **Easy Savings Kit**

In 2019, a total of 6,542 kits that include LEDs, low-flow showerheads and other items were distributed to low-income PNM customers. The primary channel for recruiting customers is direct mail. Mailers are sent to PNM customers who are LIHEAP-qualified and had not received an Easy Savings Kit in the past five years. In 2019, 93% of participants received a kit by responding to the direct mail campaign. In 2019, PNM also partnered with nine New Mexico assistance agencies across the service area including Deming, Las Vegas, Silver City, Alamogordo, Ruidoso, Santa Fe and Albuquerque and created an online enrollment portal so kits could be sent directly to customers. This effort resulted in a 300% improvement over 2018 agency distribution performance.



*Prosperity Works is a non-profit and external stakeholder working to assist New Mexicans in removing barriers to economic prosperity. In 2019, PNM was fortunate to have an opportunity to collaborate with Prosperity Works through our Home Energy Checkup program providing 49 Checkups and 29 refrigerator replacements to customers in need.*

## Energy Smart

PNM contracted with the New Mexico Mortgage Finance Authority (MFA) to install LEDs and replace inefficient refrigerators. Additional efficiency measures including attic insulation, air and duct sealing and programmable thermostats are also included in the program to help income-qualified customers save energy in their homes. MFA and its subcontractors provided services and leveraged PNM funding and federal funding to serve 218 income-qualified homes and replaced 154 refrigerators in 2019.

## 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 – the Multifamily program and the PNM Home Works program - are low-income. Many Commercial Comprehensive program participants such as non-profit organizations, churches, and retail stores provide services in low-income communities as well. In 2019, these participants received approximately \$624,000 in rebates through the Commercial Comprehensive program.

## 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 2019, MT strategy 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 ways they can use energy more efficiently. This outreach took a variety of forms, including community events, social media outreach and promotional campaigns, stressing the benefits of energy efficiency.

Additionally, PNM provided an online 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 37% of the total appliance rebates redeemed in 2019 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

*Over 90% of the Multifamily projects, representing about 5,446 dwelling units benefited low income tenants. A large percentage of students in the PNM service area come from low income homes.*

*PNM also estimates that at least 40% of the PNM Home Works kits were provided to low income students.*

customers, can participate in Power Saver. The load management programs were successfully utilized to offset the need for peaking resources during the summer of 2019. PNM dispatched the load management resource three times for a total of about 12 hours. The peak load curtailment amount was 42 MW. Table 2 shows the times and durations of the load curtailment events in 2019. Enbala implements the Peak Saver program on behalf of PNM.

**Table 2**

<b>Date</b>	<b>Start Time</b>	<b>End Time</b>	<b>Duration (Hr)</b>
7/10/2019	3:00 PM	7:00 PM	4.0
8/27/2019	3:00 PM	7:00 PM	4.0
9/4/2019	3:00 PM	7:00 PM	4.0
<b>3 Events in 2019</b>			<b>12.0</b>

On January 31, 2019, the New Mexico Public Regulation Commission ("NMPRC") issued a final order in Case No. 17-00076-UT, PNM's 2019 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 in the Load Management as a Resource of the M&V Report. Evergreen concluded that "in 2019, the LM Programs served a capacity resource that avoided the need for additional supply-side peaking capacity."

## Program Benefits and Goals

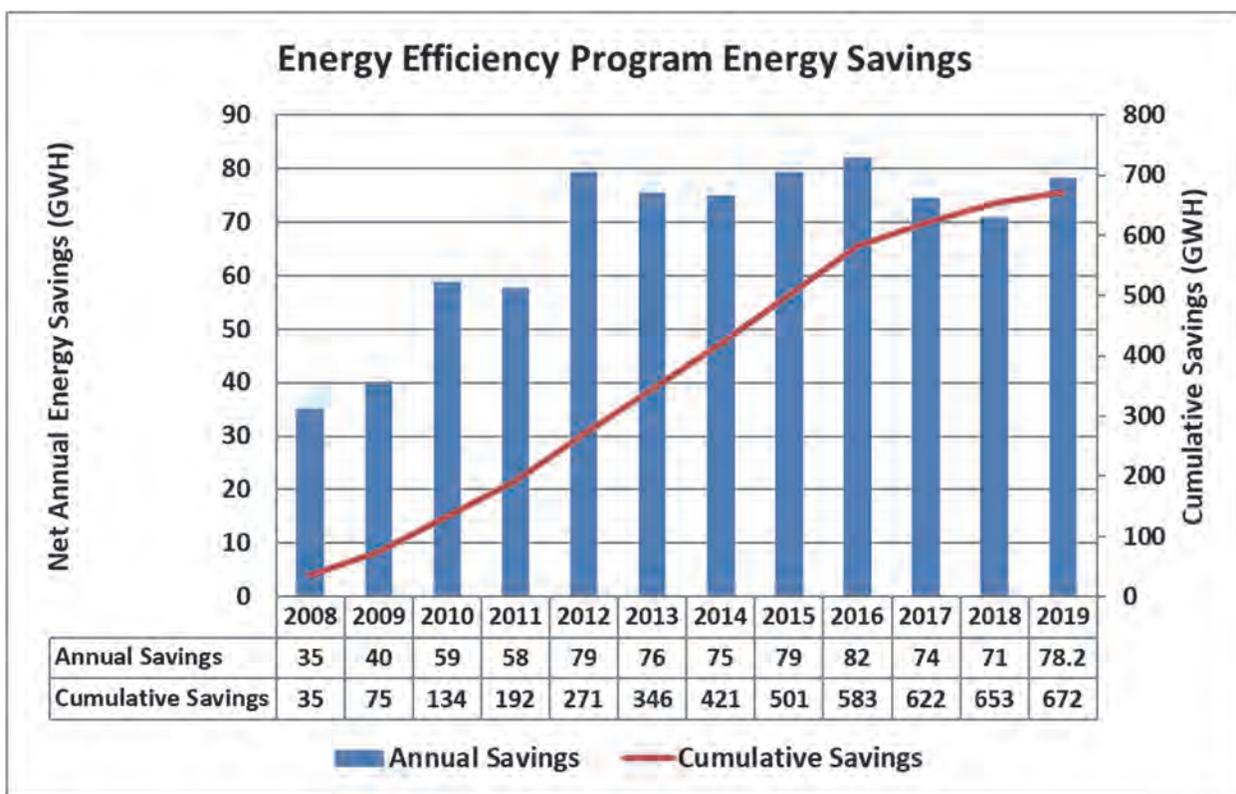
The 2019 Program benefitted the PNM system, customers in all customer classes, the environment and the New Mexico economy.

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. PNM's cumulative savings of 672 GWh have exceeded the 2020 savings target and represent approximately 8.2% of 2005 retail sales. Figure 1 shows the annual incremental savings, on the left axis, and annual cumulative savings achieved through 2019 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 2019 Program is approximately nine (9) years, which is similar to the portfolio EUL reported for the years 2008 through 2015 and 2017 and 2018. The EUL in 2016 was ten years. The annual savings from 2008 through 2010 no longer contribute to the cumulative savings since the nine year life for those savings has ended. Therefore, cumulative savings for 2019 are the sum of all annual savings beginning in 2011. The latest amendment to the EUEA requires that PNM will need to achieve energy efficiency savings of 5 percent of 2020, retail sales. This target is estimated to be approximately 403 GWh. PNM programs will have to achieve (on average) 80 GWh of annual savings in years 2021 through 2025.

Figure 1



The 2019, program provided about \$9 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:

- 6,760 inefficient refrigerators and freezers were removed from the market
- 1,026,426 LED bulbs were discounted through the Residential Lighting program
- More than 16,000 low-income customers benefited from the five programs that serve low-income customers
- 660 commercial customers, including over 276 small commercial accounts, participated in the business energy efficiency programs
- 5,446 apartments were renovated with high-efficiency equipment.

Approximately 48,000 residential and business customers participated in the demand response programs. The 2019 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 \$18 million dollars. The 2019 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 2019 Program directly supported approximately 34 local employees of these third-parties. In addition, much of the \$9 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 2019 Program will result in a reduction in water consumption and CO<sub>2</sub> emissions. Estimated water savings and reductions of CO<sub>2</sub> are shown in Table 10 below.

The PNM Energy Efficiency Program, now in its thirteenth year, and will play a key resource in the upcoming 2020 Integrated Resource Plan (“2020 IRP”). The 2020 IRP will examine 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 will be identifying 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”.<sup>1</sup> PNM’s IRP will include the projected impacts of the 2021 Program Plan and projected growth of 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 2019 Program are recovered through the Energy Efficiency Rate Rider No. 16 (“Rider”) on customer 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 2019, PNM collected \$25,095,255 in program funding through the 3% Rider No. 16 rate element. In 2019, PNM’s plan year Rider No. 16 collections exceeded expenditures by \$424,452, resulting in an underage to be added to the amount available for program expenditures in 2021 pursuant to 17.7.2.8(E) NMAC. Accordingly, the amount of the rider collections available for program funding in 2019 was \$24,765,708 (\$25,406,331 - \$640,623). PNM’s actual expenditures in 2019 were \$24,062,439, resulting in an under-expended amount of \$392,194. Accounting for carrying charges on monthly balances in 2019 resulted in a net underage of \$424,452. The Final Order in Case No. 17-00076-UT authorized PNM to earn a Profit Incentive in 2019. PNM submitted the documentation

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<sup>1</sup> “PNM 2017 – 2036 Integrated Resource Plan”, July 2017, p. 13.

for a tariff rider adjustment, including the program cost under-expenditure and profit incentive reconciliation, with supporting testimony, along with this annual report.

### 2019 Cost Reconciliation and Impact on 2021 Program Budget

In compliance with the Final Order in Case No. 17-00076-UT, PNM will add the 2019 under-expended amount of \$424,452 to the 2021 program plan budget shown in Table 3 below. Table 3 provides the original program budgets, savings and UCT results for calendar year 2021.

**Table 3**

2021 Programs	Budget	Annual kWh Savings	Lifetime kWh Savings	Annual kW Savings	UCT
Residential Comp.	\$ 5,941,915	10,487,791	88,380,725	4,009	0.81
Commercial Comp.	\$ 9,734,602	42,626,996	371,745,275	8,324	1.38
Behavioral Comp	\$ 1,841,795	22,589,734	42,254,734	2,723	0.69
Residential Lighting/Retail Products	\$ 3,889,740	32,623,280	291,978,357	4,309	2.09
Easy Savings	\$ 574,128	1,729,000	18,154,500	252	1.13
Energy Smart (MFA)	\$ 245,029	360,000	5,734,800	33	0.59
New Home Const.	\$ 722,660	758,625	11,295,926	272	0.72
Home Works	\$ 578,786	1,928,200	21,595,840	124	0.78
Power Saver (LM)	\$ 5,318,011	2,020,000	2,020,000	52,000	1.28
Peak Saver (LM)	\$ 2,519,532	1,000,000	1,000,000	25,000	1.30
<b>Total</b>	<b>\$ 31,366,198</b>	<b>116,123,626</b>	<b>854,160,158</b>	<b>97,046</b>	<b>1.29</b>

### Regulatory Proceedings

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.

On April 15, 2019, PNM filed Advice Notice 558 to reconcile the collection of the 2018, program costs and profit incentive. Rider 16 was modified to reflect the profit incentive reconciliation, and the new rates went into effect May 29, 2019.

### Energy Efficiency Rule Reporting Requirements

The following section of the annual report provides detailed information on the performance of the 2019 Program including information required by the NMPRC Energy Efficiency Rule, Section 17.7.2.14 – Annual Report.

### Documentation of Program Expenditures

All 2019 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 2019 Program were \$24,062,439. 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 2019.

**Table 4**

Programs	Admin	M&V	Promotion	Incentives (Rebates)	Third-Party Costs	Market Transf.	Total Costs
Residential Comp.	\$ 187,063	\$ -	\$ 38,782	\$ 1,661,584	\$ 2,476,246	\$ 85,072	\$ 4,448,747
Residential Lighting	\$ 88,407	\$ 30,235	\$ 18,329	\$ 1,234,448	\$ 721,115	\$ 40,206	\$ 2,132,739
Commercial Comp.	\$ 362,286	\$ 100,681	\$ 75,109	\$ 4,963,544	\$ 3,050,226	\$ 164,760	\$ 8,716,606
Easy Savings	\$ 16,068	\$ 7,374	\$ 3,331	\$ 200,237	\$ 155,190	\$ 7,307	\$ 389,507
Energy Smart	\$ 9,967	\$ -	\$ 2,066	\$ 188,726	\$ 31,754	\$ 4,533	\$ 237,047
New Home Const.	\$ 26,187	\$ 7,374	\$ 5,429	\$ 377,013	\$ 202,243	\$ 11,909	\$ 630,155
PNM Home Works	\$ 18,736	\$ 7,374	\$ 3,884	\$ 389,523	\$ 24,925	\$ 8,521	\$ 452,964
Power Saver (LM)	\$ 192,261	\$ 74,871	\$ 39,860	\$ -	\$ 4,252,827	\$ 87,436	\$ 4,647,256
Peak Saver (LM)	\$ 98,218	\$ 71,576	\$ 20,363	\$ -	\$ 2,172,592	\$ 44,668	\$ 2,407,417
<b>Total</b>	<b>\$ 999,194</b>	<b>\$ 299,487</b>	<b>\$ 207,153</b>	<b>\$ 9,015,075</b>	<b>\$ 13,087,118</b>	<b>\$ 454,412</b>	<b>\$ 24,062,439</b>

The Commission approved the program budget in its order issued on January 31, 2019 in Case No. 17-00076-UT. The total approved budget for 2019 was \$24,765,708 and the total actual expenses for the year were \$24,062,439; therefore, total spending was about 2.84% percent (2.84%) 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. For instance, a usually cool summer in 2019 contributed to lower participation rates in the Residential Cooling program. Residential Lighting cost was lower due to lower than anticipated adoption rates of higher priced specialty 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	2019 Actual Costs	Variance (\$)
Residential Comp.	\$ 4,855,667	\$ 4,363,675	\$ (491,992)
Residential Lighting	\$ 2,288,030	\$ 2,092,534	\$ (195,496)
Commercial Comp.	\$ 8,695,133	\$ 8,551,847	\$ (143,287)
Easy Savings	\$ 384,015	\$ 382,200	\$ (1,815)
Energy Smart	\$ 238,772	\$ 232,514	\$ (6,258)
New Home Const.	\$ 624,042	\$ 618,246	\$ (5,796)
PNM Home Works	\$ 522,105	\$ 444,443	\$ (77,661)
Power Saver (LM)	\$ 4,589,997	\$ 4,559,820	\$ (30,177)
Peak Saver (LM)	\$ 2,270,547	\$ 2,362,749	\$ 92,203
Market Transf.	\$ 297,401	\$ 454,412	\$ 157,011
<b>Total</b>	<b>\$ 24,765,708</b>	<b>\$ 24,062,439</b>	<b>\$ (703,269)</b>

## 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 2019. Please note that all energy savings are reported as the 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.	13,575	11,764	9,942,038	9,617,940	3,695	1,910
Residential Lighting	900,000	911,276	16,598,358	25,435,684	2,318	4,424
Commercial Comp.	853	6,063	37,687,279	36,824,546	5,713	6,417
Easy Savings	6,200	6,542	2,062,120	2,495,642	223	156
Energy Smart	2,850	218	366,731	359,850	38	36
New Home Const.	750	711	669,375	1,210,595	208	482
PNM Home Works	9,500	9,540	1,947,500	1,890,535	92	195
Power Saver (LM)			1,070,000	112,490	45,000	28,120
Peak Saver (LM)			880,000	191,262	18,000	16,189
<b>Total</b>			<b>71,223,401</b>	<b>78,138,545</b>	<b>75,287</b>	<b>57,929</b>

## 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 2019 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	\$ 4,545,106	\$ 8,282,543	\$ 5,998,472
Residential Lighting	\$ 2,219,532	\$ 1,828,156	\$ 10,241,907	\$ 5,777,773
Commercial Comp.	\$ 7,964,600	\$ 7,548,287	\$ 19,512,340	\$ 17,182,602
Easy Savings	\$ 339,544	\$ 352,558	\$ 1,009,677	\$ 872,319
Energy Smart	\$ 204,662	\$ 205,063	\$ 260,328	\$ 218,633
New Home Const.	\$ 518,314	\$ 537,954	\$ 705,198	\$ 1,316,055
PNM Home Works	\$ 474,714	\$ 337,945	\$ 678,756	\$ 698,887
Power Saver (LM)	\$ 3,721,745	\$ 4,025,193	\$ 7,088,655	\$ 6,258,288
Peak Saver (LM)	\$ 1,457,789	\$ 2,109,634	\$ 2,765,028	\$ 3,251,686
<b>Total</b>	<b>\$21,267,677</b>	<b>\$ 21,489,897</b>	<b>\$ 50,544,432</b>	<b>\$ 41,574,716</b>

### 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 1.93 and all individual programs had a UCT greater than 1.0.

**Table 8**

Program	UCT
Residential Comp.	1.32
Residential Lighting	3.16
Commercial Comp.	2.28
Easy Savings	2.47
Energy Smart	1.07
New Home Const.	2.45
PNM Home Works	2.07
PNM Power Saver	1.55
PNM Peak Saver	1.54
<b>Total</b>	<b>1.93</b>

### Self-Direct Program Participation and Evaluation

PNM received and approved one application for the Self-Direct program in 2019. 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	100,781	42	10	1,007,810	0	\$ -

### Estimated Water and CO<sub>2</sub> Savings

Table 10 shows the estimated CO<sub>2</sub> emission reductions and water savings associated with the PNM portfolio of programs. The annual avoided CO<sub>2</sub> emissions and water savings for the 2019 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 <sub>2</sub> Reduced	542.0	42,409	375,180

Water Impact	Water Consumption (gal/MWH)	Annual Water Saved (gal)	Lifetime Water Saved (gal)
Water Saved	291.0	22,767,644	201,418,458

## Independent Measurement and Verification Report

PNM contracted with Evergreen Economics to conduct the independent evaluation of the 2019 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 – 2019. Evergreen conducted independent evaluation of the 2019 Program and their M&V Report is based on data from January 1, 2019 through December 31, 2019. PNM worked closely with Evergreen to provide the data necessary to complete the 2019 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. 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. The evaluator made recommendations regarding tracking data quality

### 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.

The evaluator requested the implementer improve upon the 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 work papers 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. The EAF was 1.007 for 2019 programs.

### Residential Lighting

The evaluator uses an econometric based elasticity model to determine the effectiveness of the upstream buy-down program. 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 0.68. The kWh savings have increased by 36 percent from 2018 due to the HVAC interactive effects, meaning that air-conditioning loads are reduced because LEDs produce less heat. The kW savings are up by 21 percent from 2018.

### Home Works

PNM’s Home Works program provides energy efficiency education and kits of easy-to-install energy efficiency and water saving measures such as LEDs, faucet aerators, and low-flow showerheads to elementary and high school students. As part of the evaluators review, they were able to replicate the per unit savings values used by PNM based on the assumptions in the New Mexico TRM. For all school kit measures, the evaluator was able to create an estimate of kWh savings that was very close to the ex-ante values. For the total Home Works kit savings, the engineering adjustment factor was 0.9714, meaning that the gross realized savings were found to be about 97 percent of the original values supplied by PNM.

### Easy Savings

The Easy Savings program provides LED light bulbs, an LED nightlight, an efficient showerhead, a kitchen and bathroom sink aerator, and a shower timer. PNM provides an Easy Savings kit to its customers (particularly low income households) that request one.

The impact evaluation consisted of a deemed savings review for the measures included in the Easy Savings kits. Based on the measures provided in the kits, the evaluation team used



the New Mexico TRM to calculate the total deemed savings for each kit. The most significant difference was due to including an HVAC interactive adjustment for the LED bulbs. This resulted in only a slight change in the kWh savings numbers, an increase of 2 percent relative to the original ex ante values. For the kW savings, the inclusion of the HVAC interactive effects had a much more significant impact, resulting in an increase in demand savings of about 76 percent.

### 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 and 2018 the evaluator noted issues with the day-of baseline adjustment factors. This remained an issue for the 2019 control season; however, the day-of adjustments for the 2020 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 five-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.



## Appendix A – PNM Avoided Costs

The following table provides the avoided energy, demand and carbon costs for calendar year 2019. 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.

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

