



PNM Energy Efficiency Program

2016 Annual Report

Public Service Company of New Mexico (PNM)

April 14, 2017

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Introduction

PNM submits this annual report on the performance of the PNM Energy Efficiency and Load Management Program for calendar year 2016 (“2016 Program”). This annual report is based on the measurement and verification of PNM’s 2016 programs performed by ADM Associates, Inc. (“ADM”). The Evaluation of 2016 Public Service Company of New Mexico Energy Efficiency & Demand Response Portfolio (“M&V Report”) prepared by ADM is submitted as a separate document.

The programs evaluated in this annual report were all approved by the New Mexico Public Regulation Commission (“NMPRC” or “Commission”) in Case No. 14-00310-UT. This report covers all costs incurred in the implementation of the programs and all customer participation in the programs from January 1, 2016 through December 31, 2016.

The following programs are included in this annual report:

- (1) Commercial Comprehensive
- (2) Residential Comprehensive
- (3) Residential Lighting
- (4) Multifamily
- (5) Refrigerator Replacement and CFL Installation
- (6) PNM Home Works
- (7) Home Energy Reports
- (8) Easy Savings Kit
- (9) Power Saver load management program
- (10) Peak Saver load management program
- (11) Market Transformation
- (12) Self-Direct

Program Results Summary

This is the ninth annual report on PNM’s Energy Efficiency Programs. Results are based upon independent measurement and verification. The following is a short summary of the overall results:

- The 2016 Program was cost effective as measured by the Utility Cost Test (“UCT”), which was 1.75 for the portfolio of programs.

- The total annual net savings after free rider and other adjustments were accounted for was 82.0 GWh at the customer meter, or 88.9 GWh including system losses.
- The two load management programs represent a total capacity of approximately 57 MW.
- Total program expenses were about 25.6 million dollars.
- The average cost per kWh of lifetime energy savings from the energy efficiency programs, not including load management, was 2.4¢/kWh.

Table 1 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 2016.

Table 1

Program	Participants or Units	Annual Savings (kWh)	Annual Savings (kW)	Lifetime Savings (kWh)	Total Program Costs
Residential Comp.	14,370	10,353,984	3,483	89,201,641	\$ 5,427,040
Residential Lighting	1,315,592	22,834,527	2,999	259,040,303	\$ 3,388,557
Multifamily	17	879,345	101	7,914,105	\$ 697,296
Commercial Comp.	735	33,675,829	5,047	388,386,984	\$ 8,049,528
Easy Savings	7,024	2,337,214	253	22,595,587	\$ 499,062
Refrigerator & CFL Repl.	2,809	215,813	25	3,209,604	\$ 129,625
Home Energy Reports	43,669	9,304,290	1,055	9,304,290	\$ 33,977
PNM Home Works	6,514	1,335,239	63	13,085,342	\$ 307,697
Large Customer Self-Direct	-	-	-	-	\$ -
PNM Power Saver	41,883	523,178	40,780	523,178	\$ 5,197,141
PNM Peak Saver	109	582,283	15,770	582,283	\$ 1,589,664
Market Transformation	-	-	-	-	\$ 304,180
Total	1,432,722	82,041,702	69,577	793,843,317	\$ 25,623,767

Program Information

Commercial Comprehensive

PNM contracted with DNV-GL, Inc. to implement the Commercial Comprehensive energy efficiency program, which is comprised of five sub-programs: New Construction, Retrofit Rebates, Building Tune-Up (focusing primarily on large businesses), Quick Saver small business and Distributor Discount (midstream).

New Construction and **Retrofit Rebates** offer pre-set and custom incentives for installing qualifying equipment in new and existing buildings, and implementing efficient designs in new buildings. In 2016, eligible equipment included 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 2016, there were 397 customer projects in the New Construction, Retrofit Rebate, Building Tune-Up and Distributor Discount programs. The projects completed at these customers' facilities resulted in over \$2,800,000 in rebates paid.

PNM **Quick Saver** is a direct-install program for small business customers who have an annual peak electric demand of 150 kW or less. It offers business customers pre-set incentives for installing qualifying lighting products and refrigeration in existing buildings. In 2016, the program focused on continuing to train participating contractors for continued and successful program implementation. About \$1,700,000 in incentives was paid on 338 customer projects.

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. JACO Environmental Inc. was the previous contractor; however, it declared bankruptcy in November 2015 and closed its doors abruptly. The program was suspended temporarily; however, the program resumed operations in April 2016 under ARCA. Although its abrupt suspension caused disruption, the program was still very successful in 2016 with 7,854 units recycled.

Home Energy Checkup and Low Income Checkup: 2,389 Home Energy Checkups were completed throughout PNM's service territory in 2016, 901 of which were for income-qualified customers. PNM customers pay a fee for a Home Energy Assessor to come to their home and complete a walk through energy assessment. The assessor installs a selection of direct install measures that the home might require, including CFLs and LEDs, a programmable thermostat, a low-flow showerhead, and faucet aerators. The assessor also visually inspects the home's windows and level of insulation and makes recommendations for the resident's benefit. In addition to this, the assessor 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. 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 2016, 330 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 4,127 coolers and pool pumps. 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.

Residential Lighting

In 2016, the Residential Lighting program provided rebates for 1,315,592 LED and CFL bulbs. LED sales as a percentage of total rebates increased significantly from the 29% reported in 2015. LEDs accounted for 56% of sales through the program and CFLs comprised 44% of overall bulb

sales. There were a total of about 130 participating retail stores in the Residential Lighting program throughout 2016, comprised of 20 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 \$1.81 per bulb.

Each participating retailer displayed point-of-purchase (“POP”) materials describing the benefits of LEDs and CFLs, 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 over 2,500 store visits. They also organized retailer training sessions and conducted 57 outreach events throughout the year, including several school and community events.

Multifamily

The Multifamily program is the newest PNM energy efficiency program, which began in the spring of 2015. The 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 2016 and in scheduling retrofits. The program completed 17 projects comprising about 1,825 dwelling units in 2016. About 52% of the units were occupied by low income tenants.

PNM Home Works

This 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, an LED night light, and a written guide to assist families with installing the efficient technologies together while also learning about additional ways to reduce energy waste. The program provided 6,514 kits to 75 schools during the 2016 spring and fall semesters within the PNM service territory.

Home Energy Reports

The Commission approved discontinuation of the Home Energy Reports program for 2016. However, PNM expected that the past participants in the program would continue to save energy through making behavior changes motivated by the information provided in the reports, the last of which was received in early 2016. ADM, the independent evaluator, found that 43,669 participants had active accounts out of the original 54,000 PNM customers that were chosen to receive the home energy reports. Customers were selected to participate in the program based on their energy usage. The reports provided detailed information about their home’s energy usage including comparisons to homes of similar characteristics. The information was intended to help customers gain a clearer understanding of their energy use and how they might be able to save energy and money. ADM reviewed the energy usage of the participants compared to a control

group of similar customers that did not receive the reports and found significant savings persisted into 2016.

Easy Savings Kit

In 2016, a total of 7,024 kits were distributed to low-income PNM customers. Approximately 88% of these kits were distributed by mail to customers who enrolled after receiving a direct-mail postcard that was sent to PNM customers who had qualified for the Low Income Home Energy Assistance Program (“LIHEAP”) in the prior year and who had not received an Easy Savings Kit in the past five years. In 2016, PNM also used several other avenues for reaching income-qualified customers. Utilizing eight New Mexico assistance agencies, PNM was able to distribute 974 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 2016.

Refrigerator Replacement and CFL Installation

PNM contracted with the New Mexico Mortgage Finance Authority (MFA) to install CFLs and LEDs and replace inefficient refrigerators in the homes of income-qualified PNM customers. MFA and its subcontractors installed lighting and replaced refrigerators as necessary in the homes of 123 PNM customers in 2016 as part of this program.

Other Low Income Programs

In addition to the three programs dedicated to low income customers, Low Income Home Energy Checkup, Easy Savings and the MFA program, a large percentage of participants in two other programs are low income customers, the Multifamily program and the PNM Home Works program. About 52% of the Multifamily projects, representing about 949 apartments, benefited low income tenants. A large percentage of students in PNM’s 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. Approximately 8.2% of the total 2016 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.

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 2016, 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, social media outreach and promotional campaigns stressing the benefits of energy efficiency.

Additionally, Energy Savvy, Inc. 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. In 2016, the audit tool was expanded to include a small business version.

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 150 kW or greater can participate in Peak Saver and customers with annual peak demand of less than 150 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 2016. PNM dispatched the load management resource 8 times for a total of 29 hours. The peak load curtailment amount was 57 MW as verified by ADM. Table 2 shows the times and durations of the load curtailment events in 2016.

Table 2

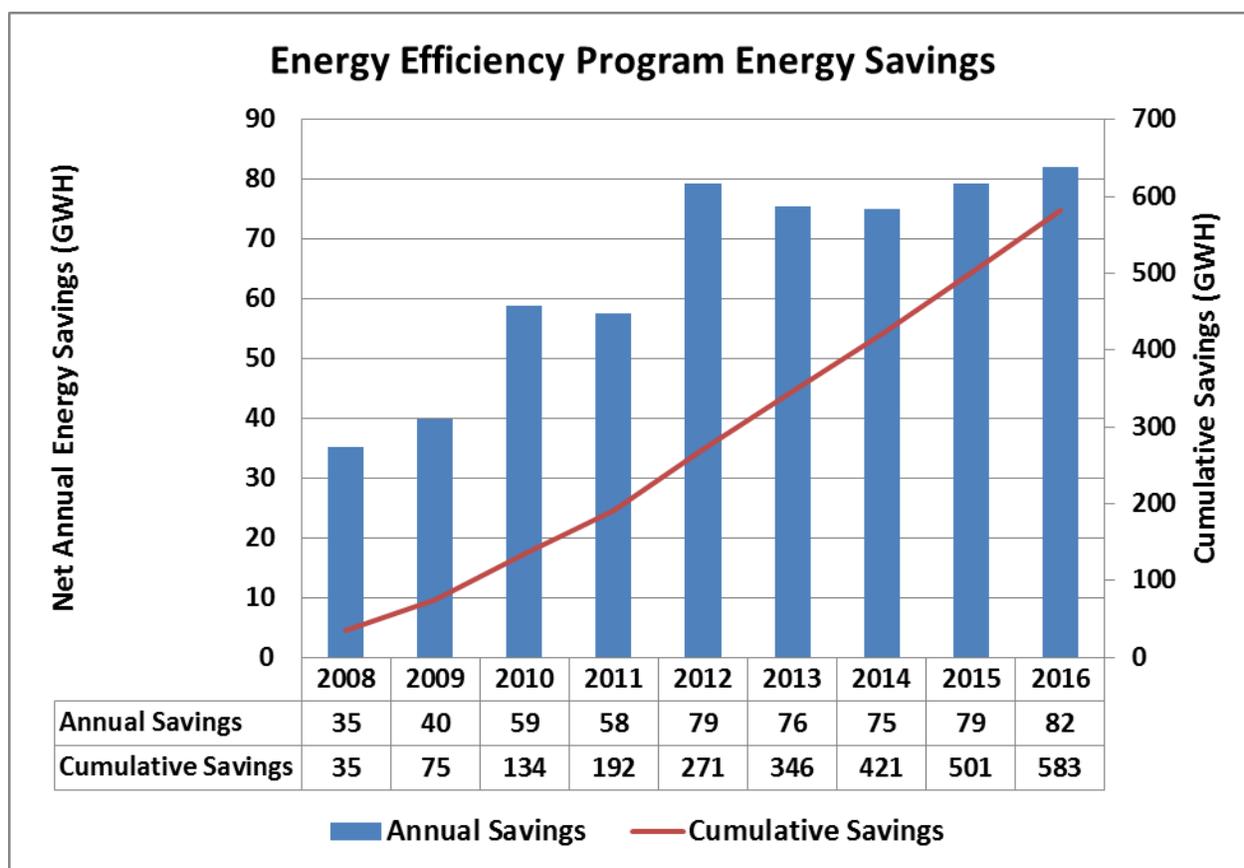
Event Date	Start Time	End Time	Duration (Hr)
6/8/2016	2:00 PM	6:00 PM	4.0
6/9/2016	2:00 PM	6:00 PM	4.0
6/10/2016	2:00 PM	6:00 PM	4.0
6/15/2016	2:00 PM	6:00 PM	4.0
6/16/2016	2:00 PM	6:00 PM	4.0
6/20/2016	2:00 PM	6:00 PM	4.0
6/21/2016	2:00 PM	6:00 PM	4.0
7/27/2016	5:00 PM	6:00 PM	1.0
8 Events in 2016			29.0

Program Benefits and Goals

The 2016 Program benefitted the PNM system, customers in all customer classes, the environment and the New Mexico economy. The Efficient Use of Energy Act (“Act”) 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 Act. Figure 1 shows the annual incremental savings, on the left axis, and annual cumulative savings achieved through 2016 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 2016 Program is ten years, which slightly longer than the nine year EUL of the previous years from 2008 through 2015. Therefore, cumulative savings for 2016 are the sum of all annual savings beginning in 2008. Beginning in 2017, the 2008 annual savings will no longer contribute to the cumulative savings since the nine year life for those savings will end in 2016. PNM programs will have to achieve on average 67 GWH of annual savings in years 2017 through 2020 in order to achieve the 2020 savings requirement of 658 GWH.

Figure 1



A wide range of customers participated in the 2016 Program. In the Refrigerator Recycling program, 7,854 inefficient refrigerators and freezers were removed from the market. 737,844 LED and 577,748 CFL light bulbs were discounted through the Residential Lighting program and more than 11,000 low-income customers benefited from the four programs that specifically serve low-income customers. 735 commercial customers, including over 338 small commercial accounts, participated in the business energy efficiency programs. In addition, approximately 32,000 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 2016 Program provided rebates and other incentives valued at about \$10.8 million directly to customers.

The 2016 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 \$22 million dollars. The 2016 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 2016 Program directly supported approximately 34 local employees of these third-parties. In addition, much of the \$11.9 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 2016 Program will result in a reduction in water consumption and CO₂ emissions. Estimated water savings and reductions of CO₂ are shown in Table 9 below.

The PNM Energy Efficiency Program, now in its tenth year, is a key resource in the 2014 Integrated Resource Plan (“2014 IRP”) and will be included in the upcoming 2017 IRP. The 2014 IRP examined many different portfolio options that could be implemented to meet expected growth in the demand for electricity from 2014 to 2033. 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 as “the portfolio of existing and new resources that meets electric system demand, provides acceptable system reliability and operational flexibility, and meets applicable legal and regulatory requirements, at the lowest reasonable cost to customers”.¹ PNM’s IRP includes the projected impacts of the 2016 Program and projected growth of the programs that will allow PNM to achieve the spending requirements and energy saving goals specified in the Act.

Tariff Collections

The costs of implementing the 2016 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 and a profit incentive rate element also assessed monthly as a percentage (0.206%).

Actual program expenses for calendar year 2016 were \$25,623,767 and over-collected program costs from 2015 were \$1,187,366. During calendar year 2016, PNM had actual collections of \$22,740,253 through the 3.0% program cost element of Rider 16. This resulted in an under collection of \$1,696,148. However, PNM also owes \$39,466 in carrying charges on the monthly balances. This resulted in a total under-collection of \$1,656,682. In compliance with the Final Order in Case No. 16-00096-UT, PNM will deduct the 2016 under-collection amount from the proposed 2018 program plan budget, which PNM filed concurrently with this annual report. The Final Order in Case 14-00310-UT authorized PNM to earn a Profit Incentive in 2016. PNM submitted the documentation for a tariff rider adjustment, including surcharge factor, projected revenue, and a summary of beginning balances and amounts collected under Rider 16, showing the program cost under-collection and profit incentive reconciliation, with supporting testimony, in a separate reconciliation filing submitted concurrent with this annual report.

Regulatory Proceedings

On April 15, 2016, PNM filed its 2017 energy efficiency and load management program plan application (2017 Plan) with the Commission (Case No. 16-00096-UT). A public hearing was held September 14, 2016 and a second hearing on the uncontested stipulation was held October 26, 2016. On January 11, 2017, The Commission issued an Order Adopting and Approving the Certification of Stipulation in Case No. 16-00096-UT. Pursuant to that order, PNM filed an Advice Notice to modify the Energy Efficiency Rider, which became effective January 27, 2017.

¹ “Electric Integrated Resource Plan: 2014 – 2033, July 2014, p. iii.

On April 15, 2016, PNM filed an Advice Notice to modify the Rider to reconcile 2015 program costs and profit incentive. The changes went into effect May 26, 2016.

Energy Efficiency Rule Reporting Requirements

The following section of the annual report provides detailed information on the performance of the 2016 Program including information required by the NMPRC Energy Efficiency Rule, Section 17.7.2.14 – Annual Report.

Documentation of Program Expenditures

All 2016 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 2016 Program were \$25,623,767. These expenditures include all expenses incurred by PNM to develop and implement the individual programs. The same total expenditure data was provided to ADM to be included in the M&V Report. Table 3 shows the allocation of costs to the various programs for calendar year 2016.

Table 3

Programs	Administration	Promotion	M&V	Incentives (Rebates)	Third-Party Costs	Total Costs
Residential Comp.	\$ 261,464	\$ 330,824	\$ 53,619	\$ 2,308,717	\$ 2,472,416	\$ 5,427,040
Residential Lighting	\$ 162,984	\$ 84,832	\$ -	\$ 2,387,317	\$ 753,425	\$ 3,388,557
Multifamily	\$ 34,938	\$ -	\$ 15,811	\$ 186,108	\$ 460,440	\$ 697,296
Commercial Comp.	\$ 384,115	\$ 245,639	\$ 118,925	\$ 4,450,693	\$ 2,850,157	\$ 8,049,528
Easy Savings	\$ 23,949	\$ 36,669	\$ 6,874	\$ 210,810	\$ 220,760	\$ 499,062
Refrigerator & CFL Repl.	\$ 7,705	\$ -	\$ 10,311	\$ 82,204	\$ 29,405	\$ 129,625
Home Energy Reports	\$ 1,235	\$ -	\$ 8,593	\$ -	\$ 24,149	\$ 33,977
PNM Home Works	\$ 14,972	\$ 36,739	\$ -	\$ 143,132	\$ 112,854	\$ 307,697
PNM Power Saver	\$ 252,351	\$ 37,293	\$ 10,999	\$ 1,512,755	\$ 3,383,744	\$ 5,197,141
PNM Peak Saver	\$ 76,816	\$ 36,659	\$ 10,999	\$ 607,000	\$ 858,190	\$ 1,589,664
Market Transformation	\$ 14,801	\$ 289,379	\$ -	\$ -	\$ -	\$ 304,180
Total	\$ 1,235,330	\$ 1,098,033	\$ 236,131	\$ 11,888,735	\$ 11,165,538	\$ 25,623,767

The Commission approved program budgets in its order issued on April 29, 2015 in Case No. 14-00310-UT. The total approved budget for 2016 was \$26,213,826 and the total actual expenses for the year were \$25,623,767; therefore, total spending was about 2.3 percent (2.3%) 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. Residential Lighting, Easy Savings and PNM Home Works had higher than expected participation. Participation in the Power Saver and Peak load management programs was lower than expected. Table 4 shows the budgeted amounts, the actual expenditures, and the variances for each program.

Table 4

Programs	Approved Budget	2016 Actual Costs	Variance (\$)	Variance (%)
Residential Comprehensive	\$ 5,275,728	\$ 5,427,040	\$ 151,311	3%
Residential Lighting	\$ 2,516,902	\$ 3,388,557	\$ 871,656	35%
Multifamily	\$ 737,733	\$ 697,296	\$ (40,437)	-5%
Commercial Comprehensive	\$ 7,506,442	\$ 8,049,528	\$ 543,086	7%
Easy Savings	\$ 389,916	\$ 499,062	\$ 109,146	28%
Refrigerator and CFL Replacement	\$ 161,975	\$ 129,625	\$ (32,350)	-20%
Home Energy Reports	\$ -	\$ 33,977	\$ 33,977	
PNM Home Works	\$ 248,429	\$ 307,697	\$ 59,268	24%
PNM Power Saver	\$ 6,892,593	\$ 5,197,141	\$(1,695,451)	-25%
PNM Peak Saver	\$ 2,008,168	\$ 1,589,664	\$ (418,504)	-21%
Market Transformation	\$ 475,941	\$ 304,180	\$ (171,761)	-36%
Total	\$ 26,213,826	\$25,623,767	\$ (590,059)	-2.3%

Estimated and Actual Participation and Savings

Table 5 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 2016. 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 5

Program	Estimated Participants/ Units	Actual Participants/ Units	Estimated Savings (kWh)	Actual Savings (kWh)	Estimated Savings (kW)	Actual Savings (kW)
Residential Comp.	15,516	14,370	13,652,216	10,353,984	5,629	3,483
Residential Lighting	770,000	1,315,592	14,417,997	22,834,527	1,661	2,999
Multifamily	13	17	1,978,187	879,345	285	101
Commercial Comp.	927	735	36,457,681	33,675,829	7,280	5,047
Easy Savings	6,000	7,024	1,132,951	2,337,214	132	253
Refrigerator & CFL Repl.	2,618	2,809	250,299	215,813	41	25
Home Energy Reports	-	43,669	-	9,304,290	-	1,055
PNM Home Works	5,500	6,514	599,056	1,335,239	66	63
PNM Power Saver	-	41,883	625,000	523,178	50,000	40,780
PNM Peak Saver	-	109	800,000	582,283	20,000	15,770
Total			69,913,386	82,041,702	85,094	69,577

Estimated and Actual Costs and Avoided Costs (Benefits)

Table 6 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 2016 Program Plan in Case No. 14-00310-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 6

Program	Estimated NPV of Monetary Costs	Actual NPV of Monetary Costs	Estimated NPV of Monetary Benefits	Actual NPV of Monetary Benefits
Residential Comp.	\$ 4,877,707	\$ 5,017,139	\$ 9,469,785	\$ 5,980,399
Residential Lighting	\$ 2,327,017	\$ 3,132,622	\$ 5,914,970	\$ 9,191,199
Multifamily	\$ 682,076	\$ 644,630	\$ 900,406	\$ 306,938
Commercial Comp.	\$ 6,940,127	\$ 7,441,553	\$19,901,706	\$ 15,207,571
Easy Savings	\$ 360,499	\$ 461,369	\$ 453,207	\$ 969,668
Refrigerator & CFL Repl.	\$ 149,755	\$ 119,834	\$ 198,648	\$ 134,121
Home Energy Reports	\$ -	\$ 31,411	\$ -	\$ 417,089
PNM Home Works	\$ 229,687	\$ 284,457	\$ 266,044	\$ 422,435
PNM Power Saver	\$ 4,970,019	\$ 3,900,185	\$ 5,792,539	\$ 5,114,273
PNM Peak Saver	\$ 1,794,745	\$ 1,414,099	\$ 2,359,730	\$ 1,998,813
Market Transformation	\$ 440,034	\$ 281,205	\$ -	\$ -
Total	\$ 22,771,666	\$ 22,728,504	\$45,257,036	\$ 39,742,505

Cost Effectiveness Evaluation

Table 7 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 6 above. The UCT ratio for the Multifamily program was less than 1.0. The Multifamily program serves a hard to reach customer segment and energy efficiency projects in multifamily properties can have a long life cycle to complete. The program completed 17 large multifamily dwelling projects covering 1,825 apartment units in 2016 and has numerous projects in the works for 2017. PNM is confident that when those projects are completed in 2017, the program will be cost effective. The Commission approved combining the Multifamily program with the Commercial Comprehensive program for 2017 which PNM believes will also improve the cost-effectiveness of the program in 2017

Table 7

Program	UCT
Residential Comp.	1.19
Residential Lighting	2.93
Multifamily	0.48
Commercial Comp.	2.04
Easy Savings	2.10
Refrigerator & CFL Repl.	1.12
Home Energy Reports	13.28
PNM Home Works	1.49
PNM Power Saver*	1.31
PNM Peak Saver*	1.41
Market Transformation	-
Total	1.75

* UCT for remaining contract term

Self-Direct Program Participation and Evaluation

PNM did not receive applications for the Self-Direct program in 2016.

Estimated Water and CO₂ Savings

Table 9 shows the estimated CO₂ emission reductions and water savings associated with the PNM portfolio of programs. The annual avoided CO₂ emissions and water savings for the 2016 Program were determined by multiplying the PNM weighted-average emissions rate and water consumption by the annual and lifetime energy savings.

Table 8

Emission Impact	Avoided Electric Emissions Rate (Metric Tons/GWh)	Annual Avoided Emissions (Metric tons)	Lifetime Avoided Emissions (Metric tons)
CO ₂ Reduced	621.9	51,020	493,672
Water Impact	Water Consumption (gal/MWH)	Annual Water Saved (gal)	Lifetime Water Saved (gal)
Water Saved	326.5	26,784,154	259,166,028

Independent Measurement and Verification Report

PNM contracted with ADM to conduct the independent evaluation of the 2016 Program. The M&V Report is submitted as an attachment to 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 November 8, 2012 the Commission approved the selection of ADM as the state-wide independent evaluator and approved the M&V budget and scope of work for a three year term to conduct annual measurement and verification analysis for the years 2013 – 2015. The Commission approved a one year extension of ADM to continue as the evaluator through 2016 on December 9, 2015. ADM conducted independent evaluation of the 2016 Program and their M&V Report is based on data from January 1, 2016 through December 31, 2016. PNM worked closely with ADM to provide the data necessary to complete the 2016 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 but one of the individual programs was 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.

Refrigerator Recycling

ADM Program Recommendations

- **Correct minor tracking issues**
- **Investigate issues pertaining to wait times.** Wait times between scheduling and pick-up and wait times for rebates had the lowest satisfaction scores of all program elements included in the survey. Some survey respondents remarked that wait times were as long as six weeks between scheduling and pick-up; program staff should set a goal of a four-week maximum turnaround.
- **Maintain PY2015 savings assumptions.** The Unit Energy Consumption of recycled appliances increased in 2016 but this runs counter to a trend of consistent decline. PNM should maintain PY2015 values as they are conservative estimates of UEC.

PNM Response

- The tracking issues were on the part of the contractor and not PNM, and we work monthly to verify data that is being uploaded by our contractors.
- PNM feels this has been resolved; however, it is a metric we monitor regularly. The primary driver for the long wait times was the fact that ARCA had to take the program over from a prior implementer that declared bankruptcy and left the program.
- PNM agrees that a quantified savings value could be more compelling, and will incorporate ADM's suggestion into its marketing materials.

LI Lighting and Refrigerator Replacement

ADM Program Recommendations

- **Exempt this program from annual evaluations.** The program is limited in scope and its activities are externally limited by the efforts of MFA and of the WAP. The volume of participation and savings in this program has dropped significantly from prior years (with savings less than half of what was reported in the last evaluation in 2013). Given the narrow program scope, low participation volume, and limited measure offering the Evaluators recommend that this program continue as exempted from annual review.

PNM Response

- PNM agrees with this recommendation and will plan to have this program evaluated every three years.

Residential Cooling and Pool Pumps

ADM Program Recommendations

- **Provide a clear, step-by-step application guide for refrigerated air systems.** Refrigerated air participants were several times more likely to report difficulties with the application process. Program staff should include a flow chart with key milestones so as to assist applicants with the process.

- **Track performance metrics related to application processing.** This would include the percent of applications by measure that require resubmittal, application processing time, and time elapsed to deliver the rebate check.
- **Provide links to eligible equipment on the PNM website or in other marketing collateral.** Respondents reported difficulties identifying eligible equipment. Program materials should provide links to the Energy Star Products Selector to assist with this issue.
- **Identify marketing approaches that reach refrigerated air customers prior to their decision-making.** Refrigerated air survey respondents were significantly more likely to indicate having learned of the program after having selected their equipment or after already having completed installation

PNM Response

- PNM will work with the program implementer to address potential solutions to the application. PNM is aware that critical pieces of information such as model number and other industry markers are missing from the application. Contractor education is important and the implementer will be meeting with distributors on this issue.
- PNM’s Website provides lists of eligible evaporative cooler, room air conditioner, and pool pump models. Additionally, most eligible evaporative cooler models are listed in the actual rebate brochure. Due to the variety/complexity of eligible refrigerated air systems available in the marketplace it is unrealistic to provide links on PNM’s Website. CLEAResult continues to work with contractors to stress the importance of suggesting PNM’s rebates earlier in the sales process, and to ensure systems are pre-qualified prior to sale.
- PNM is working at the distributor/contractor channel to inform them prior to meeting with potential customers.

PNM Peak Saver

ADM Program Recommendations

- **Identify whether each participating facility should receive a prior-hour adjustment factor.** This is applied to account for hot weather on peak days, but much of the load reduction from Peak Saver comes from process load curtailment. The Evaluators recommend that PNM instruct implementation staff to identify whether a participant is a “Process Load Curtailer” or a “Commercial Load Curtailer”. “Commercial Load Curtailers” would have a prior-hour adjustment applied whereas “Process Load Curtailers” would not.
- **Schedule follow-up meetings with consistent underperformers.** In both June and July, close to 50% of participants met less than 75% of their load nomination. Program implementation staff should identify consistent under-performers to either reassess their nomination or to identify ways to achieve higher load reductions.

- **Cross-promote with Building Tune-Up program offerings.** There are significant synergies between Peak Saver and the large facility RCx options in PNM's Building Tune-Up Program, but they have different program implementers. PNM should encourage cross-promotion of these two programs through means such as allowing both implementers to participate in customer meetings if the customer is amenable.

PNM Response

- PNM understands this issue and will be addressing this in the 2018 program filing.
- PNM will address this matter with the program implementer EnerNOC.
- This is an excellent point, and PNM will work with the marketing aspects of both programs to promote the program synergies.

Commercial Comprehensive

ADM Program Recommendations

- **Use a minimum of two weeks of metered data for industrial projects.** Some industrial projects were metered for one week, and realization for these projects varied widely.
- **Update needed for prescriptive heat pumps and Variable Refrigerant Flow (VRF) system savings calculation.** Heat pumps and VRFs electrically heat the space that results in additional savings during heating season. The existing prescriptive method could underestimate savings in cold climates.
- **Add measure lives to QuickSaver tracking.** The lifetime kWh field in the Retrofit Rebates and New Construction data is very useful in supporting EM&V; if possible, program staff should add a similar field to QuickSaver tracking.
- **Verify that all savings are reported.** The Evaluators found numerous instances where tracking data for custom projects failed to show a claimed kW or lifetime kWh value. These values were filled in based on EULs from other similar projects.
- **Consider offering coil cleaning and filter change under Advance AC Tune Up only to facilities without engineering staffs.** The evaluator visited multiple schools that participated in the Advanced AC Tune Up program. Because school districts have professional staffs maintaining the facility, they had scheduled maintenance to keep coils and filters clean.

PNM Response

- PNM will ensure that enough meter data is gathered for sufficient measurement of results.
- Updates will be made to properly account for heating savings for heat-pump projects.
- PNM will work with the program implementer to ensure that measure lives are tracked in all programs, and that all savings values (including kW) are properly accounted for.

- PNM partially agrees; however, the A/C Tune-up does more than simply clean coils and check filters. The diagnostic tool measures the system performance and refrigerant charge and condenser and evaporator pressure and temperature. The incentive may need to be re-evaluated to ensure cost-effectiveness.

Home Energy Check-up

ADM Program Recommendations

- **Develop an educational brochure and references for advanced power strips.** The Evaluators recommended an educational brochure showing (1) how to use the power strip and (2) what types of equipment will provide savings when installed with the power strip be included with the equipment.
- **Enforce installation rules for LED night lights.** The high percent of night lights installed in empty sockets is problematic in that it increases energy use for program participants.
- **Collect detailed information for tracking data.** The Evaluators recommend collecting data with details on room of installation for CFLs and LEDs, and GPM information for faucet aerators and showerhead.

PNM Response

- Implementer is currently working on a two-sided piece with one side illustrating a typical TV installation, and the reverse illustrating a typical computer installation. Implementer commented that some entertainment systems are either inaccessible or overly complex for the installer to attempt.
- PNM is hesitant to enforce the installation rules per se; however, the installer is aware of the issue and will encourage replacement of existing nightlights. The nightlights are very popular among the participants and many remark that they don't need to turn on a room light if they up in the middle of the night.

PNM Multifamily

ADM Program Recommendations

- **Encourage trade allies to install lamps.** Discussion with program staff revealed that contractors are sometimes hesitant to install light bulbs, and will leave this task to property managers. Direct install by contractors helps ensure that all lamps have been installed in the same locations specified in the project application.
- **Adjust lighting savings calculator.** Evaluators found that the savings calculator used to generate expected kWh and kW savings associated with lighting projects contained incorrect assumptions.

PNM Response

- The Trade Ally is responsible for the completion of installation, and does not submit the rebate request until the installations are complete. The typical practice is to deliver the equipment one to two weeks prior to the start of common/exterior retrofits. The next step is to allow the property manager one to two weeks to complete the in-unit installations. Rebate Requests are filed after there is installation confirmation. It should be noted that the evaluator did not cite any discrepancies between claimed installations and site inspection results. PNM believes that there will be fewer tenant issues if the property manager oversees the in-unit installations.
- The savings assumptions will be corrected.

Easy Savings Kit

ADM Program Recommendations

- **Revise savings to reflect 2016 evaluation results.** This program will not receive an evaluation until 2019. In the interim program years, kit savings should be:
 - 332.52 kWh
 - .036 kW
 - 15.93 Therms
 - 9.67 EUL
- **Focus outreach on multifamily and mobile/manufactured housing.** These market segments have higher prevalence of electric water heating and would provide increased savings

PNM Response

- The program inputs have been made.
- PNM does not have this type of customer data that would enable this type of targeted marketing.

Appendix A – PNM Avoided Costs

The following table provides the avoided energy, demand and carbon costs for calendar year 2016. These costs were used in the PNM cost-effectiveness model and by ADM in its program evaluation. These are the avoided costs included in PNM’s most recently approved energy efficiency plan, Case No. 16-00096-UT.

	Energy (\$/kWh)	Capacity (\$/kW-yr)	CO₂ (\$/kWh)
2016	\$ 0.0350	\$80.00	\$ -
2017	\$ 0.0238	\$80.00	\$ -
2018	\$ 0.0271	\$80.00	\$ -
2019	\$ 0.0289	\$80.00	\$ -
2020	\$ 0.0299	\$80.00	\$ -
2021	\$ 0.0311	\$80.00	\$ -
2022	\$ 0.0327	\$80.00	\$ 0.0111
2023	\$ 0.0342	\$80.00	\$ 0.0122
2024	\$ 0.0356	\$80.00	\$ 0.0134
2025	\$ 0.0371	\$80.00	\$ 0.0146
2026	\$ 0.0387	\$80.00	\$ 0.0167
2027	\$ 0.0403	\$80.00	\$ 0.0189
2028	\$ 0.0420	\$80.00	\$ 0.0212
2029	\$ 0.0438	\$80.00	\$ 0.0237
2030	\$ 0.0457	\$80.00	\$ 0.0262
2031	\$ 0.0476	\$80.00	\$ 0.0288
2032	\$ 0.0496	\$80.00	\$ 0.0316
2033	\$ 0.0517	\$80.00	\$ 0.0345
2034	\$ 0.0539	\$80.00	\$ 0.0345