

PNM 2017 – 2036 Integrated Resource Plan

SEPTEMBER 1, 2016 TRANSMISSION, ENERGY EFFICIENCY AND
RENEWABLE ENERGY TOPICS

Steve Bean
Manager, Energy Efficiency Design



Talk to us.



AGENDA

- 1. Energy Efficiency in the 2017 IRP**
- 2. Energy Efficiency Definitions**
- 3. NM Efficient Use of Energy Act**
- 4. PNM Program Highlights**
- 5. Historic Costs and Savings**
- 6. Energy Efficiency Forecast**

ENERGY EFFICIENCY IN THE 2017 IRP

EE in IRP Rule

- Description of demand-side resources
 - Energy efficiency and load management
- Expected capacity and energy impacts
- Explanation of impact on PNM's load forecast
- Include DSM on PNM loads and resources table

Load Forecast Impact

- One of many factors affecting future energy use
- EE impact is growing due to cumulative nature of savings
 - Measures continue to save year after year
- Program funding is significant – \$26M in 2016
- Program savings = decrement to the PNM load forecast

ENERGY EFFICIENCY DEFINITIONS

Conservation

- Using less energy
 - Ex: Higher/lower temps

Energy Efficiency (EE)

- Using less energy but keeping the same or better level of service
 - Ex: replace incandescent with LED

Load Management (LM)

- Actions that reduce peak demand or shift demand to off-peak
 - Ex: Ice storage – off-peak cooling

Demand Response (DR)

- A type of load management – utility control of load
 - Ex: PNM Power Saver

Demand Side Management (DSM)

- Term that covers all of the above

ENERGY EFFICIENCY DEFINITIONS

Addressed in EE Forecast

PNM EE Programs

- Incentives cause faster uptake
 - Ex: Rebates on LED bulbs

Free Rider Savings

- Form of naturally occurring
- Participant in utility program that would have bought the equipment even without the incentive
- Reported savings = net of estimated free rider savings

Addressed in Load Forecast

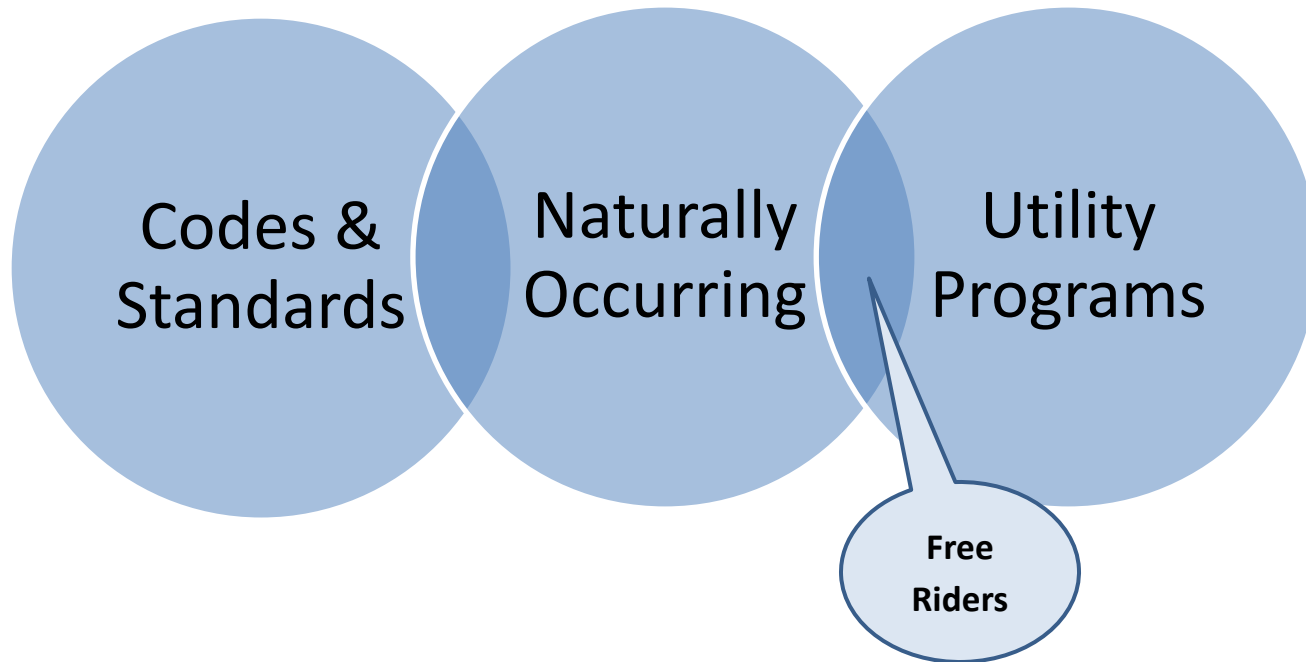
Naturally Occurring EE

- Natural productivity improvements – implicit in forecast
 - Ex: Upgrading equipment, home and business

Codes and Standards

- State building codes
 - Ex: NM code = 2009 IECC
- Federal appliance standards
 - Ex: Minimum SEER ratings

ENERGY EFFICIENCY DEFINITIONS



ENABLING LEGISLATION – EFFICIENT USE OF ENERGY ACT (EUEA)

- Enacted 2005 – amended in 2008 & 2013
- Requires utilities to offer cost-effective programs
 - Benefits must be greater than costs
 - Utility Cost Test (benefit/cost ratio)
- Independent verification of savings
 - PRC selected evaluator
- EE funding = 3% of retail revenues
- Energy savings goals
 - 2014: savings equivalent to 5% of 2005 retail sales
 - 2020: 8% of 2005 retail sales
- Solicit input from interested parties
 - PNM EE public advisory group
- Costs recovered through rate rider
 - PNM Rider 16

PNM ENERGY EFFICIENCY PROGRAMS

PROGRAM HIGHLIGHTS

Log In to My Account
Not Registered? [Sign Up](#)

Quick Links

- Pay My Bill
- Report an Outage
- Schedule Your Move Online
- Billing Options
- Upgrade Service & New Construction

Does PNM have rebates on air conditioners?
Find out more >>

www.pnm.com/rebates

PNM ENERGY EFFICIENCY PROGRAMS

PROGRAM HIGHLIGHTS

Residential Programs

Business Programs

Low Income Programs

Demand Response

Since 2008: 2 Billion kWh Saved

Residential and business customers have saved enough energy to power more than 274,000 homes for a year

More than \$53 million in customer rebates paid through 2015

Programs have saved an estimated 1.2 million metric tons of carbon dioxide & 685 million gallons of water

HOME LIGHTING DISCOUNT PROGRAM

RESIDENTIAL

Retail program that gives customers instant rebates on LEDs and CFLs. LEDs use about 80% less energy and last up to fifteen times longer than halogen bulbs.

- Since 2007 PNM customers have purchased over 8 million discounted light bulbs.
- In 2015 there were a total of 160 participating retail stores comprised of 20 different retail chains and stores.
- The average incentive in 2015 was \$1.55 per bulb with CFLs averaging \$0.93 per bulb and LEDs averaging \$3.07 per bulb.

15
Incandescents



1.5
CFLs

1 LED

COOLING REBATE PROGRAM

RESIDENTIAL

- Mail-in rebate for energy-efficient evaporative coolers, ENERGY STAR room air conditioners, central air conditioning and pool pumps.
- Rebates:
 - Advanced Evaporative (12" rigid media): \$300
 - SEER 15 – 18 AC: \$100 - \$600
 - Energy Star Window AC \$25
 - Variable speed pool pump: \$300



REFRIGERATOR RECYCLING

RESIDENTIAL

Program overview:

- Re-launch Start date: April 1, 2016
- Customers receive a rebate, free haul away of appliance
- Call or go online for appointment



GET \$50 FOR YOUR OLD FRIDGE OR FREEZER. WE'LL EVEN PICK IT UP FOR FREE.

Recycle your old working refrigerator or freezer and PNM will pay you \$50. You'll save up to \$20 a month on your electric bill. You'll do some good for the environment and your wallet.

Visit PNM.com/fridge for details, or call [800-444-7777](tel:800-444-7777) to schedule a free pickup.

This program is available to all PNM residential and business customers. Customers must own the unit(s) being recycled and the units must be in working order. There is a limit of two units per residential address, no limit on commercial accounts. Savings are based on an older refrigerator being recycled and not replaced.

THINK ENERGY! PNM HOME WORKS

STUDENTS

- Think Energy! PNM Home Works provides educational in-class presentation and take-home energy kits that include energy efficiency products, such as, LEDs, low-flow showerhead, and an LED night light
- 63 elementary schools throughout PNM territory
- 5800 students received a kit in 2015 and 6500 students will receive a kit in 2016
- Proposing to expand to high schools in 2017



EASY SAVINGS KIT

INCOME QUALIFIED

Program overview:

- Offered to select residential and qualified energy assistance customers.
- Free Easy Savings kit is sent via mail order or through agency partners.
- Includes energy efficient products for installation and tips on how to save energy and money.



HOME ENERGY CHECKUP

RESIDENTIAL / INCOME QUALIFIED

Three Direct Installation Options: \$15 - \$30 - \$45

- Up to 20 CFLs or LEDs (replacing incandescent or halogen)
- 2 LED nightlights (replacing incandescent)
- Water heating items (gas homes funded by NMGC)
 - Up to 2 low-flow showerheads
 - Kitchen and bathroom faucet aerators
- 2 smart power strips
- Programmable thermostat (for homes with refrigerated A/C)
- iConnect diagnostic performance test for A/C system

Plus rebates on high efficiency appliances, HVAC and insulation (co-funded w/NMGC)

Income qualified customers receive the Home Energy Checkup free, and could also qualify for a free refrigerator replacement.

COMMERCIAL CUSTOMER PROGRAMS

BUSINESS

- **Retrofit and New Construction** : Pre-set and custom incentives to install energy-efficient equipment in their existing or new facilities
- **Quicksaver Small Business**: An onsite energy assessment identifies energy saving opportunities. The program pays on average 70% of the project costs to the contractor and the customer pays the difference.
- **Advanced AC-Tune-up**: Trained professionals provide diagnostic and inspection services to improve the efficiency of commercial HVAC systems.
- **Multifamily**: Rebates to participating trade allies and property owners to install energy efficiency upgrades in dwelling units and common areas.

DEMAND RESPONSE PROGRAMS

BUSINESS AND RESIDENTIAL

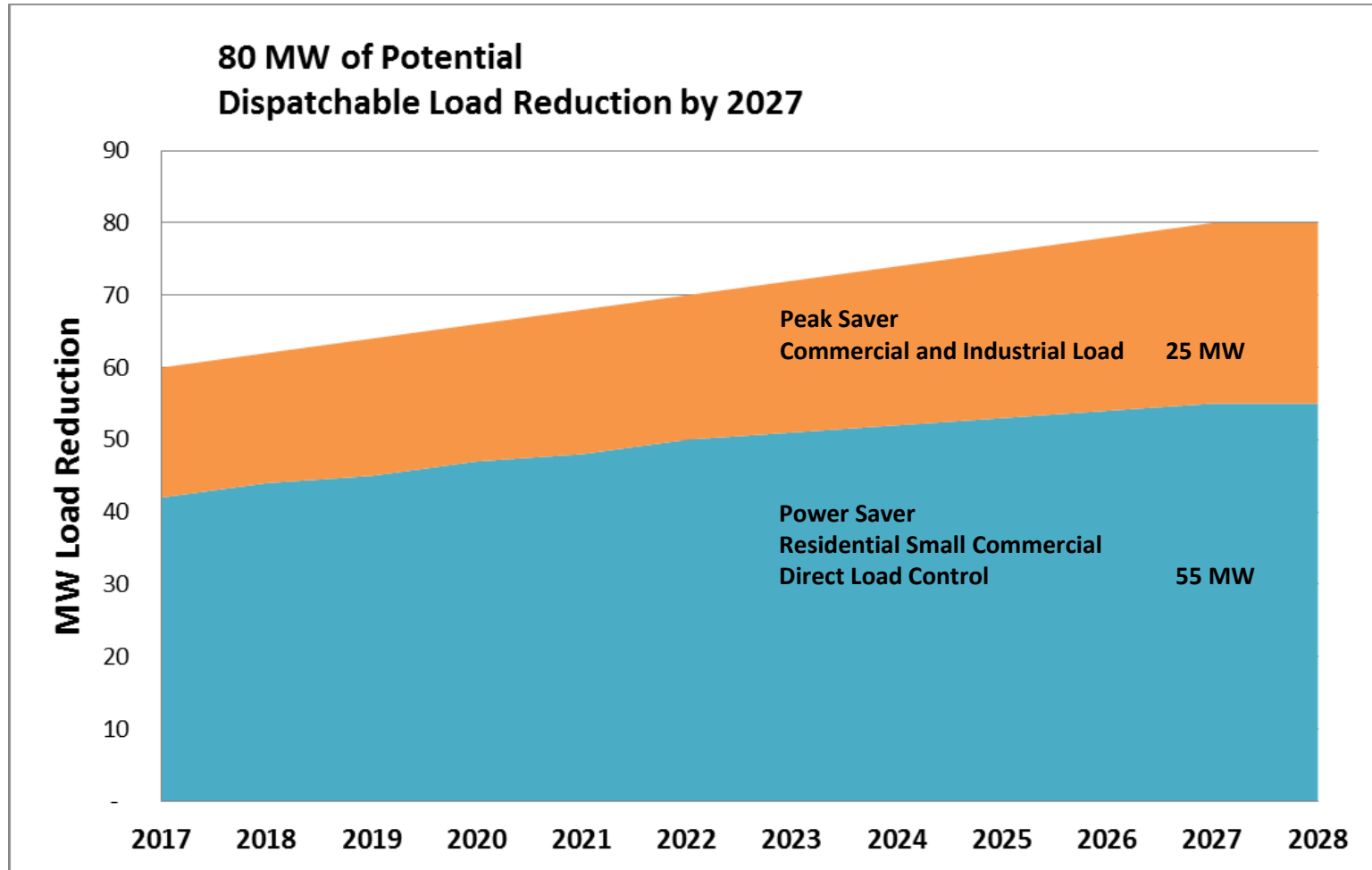
Power Saver - Residential and small commercial customers

- A device is installed on refrigerated air conditioning units that reduces the compressor run time during an event

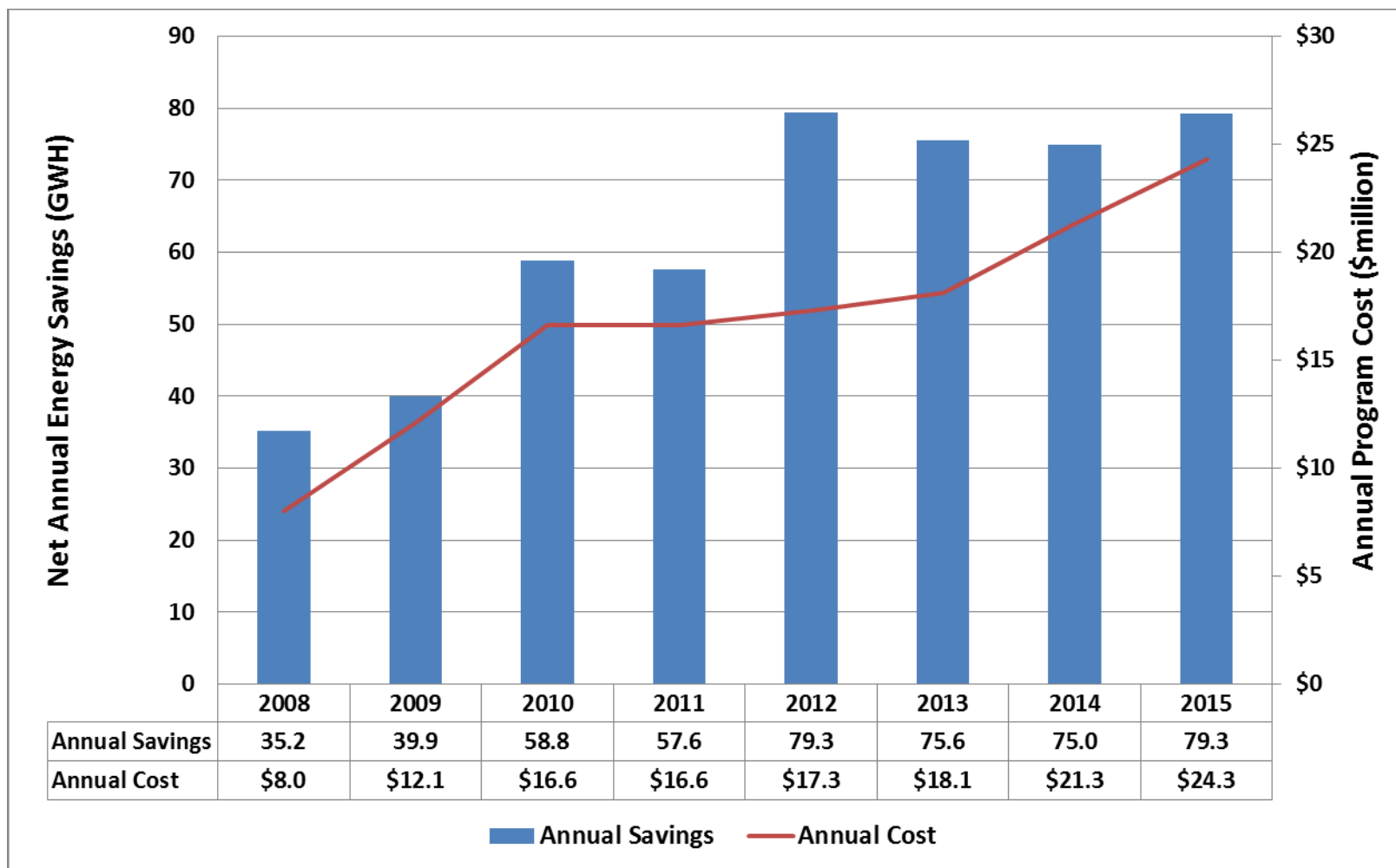
Peak Saver – Larger businesses

- Customers agree to control non-essential loads during events
- Load reduction capacity is “dispatched” by PNM system operators
- Utilized on hot summer days to help relieve system peak demand
- 15 “events” in 2015 with average capacity of 59.4 MW
- Currently, about 36,000 customers participate

2017 IRP DEMAND RESPONSE FORECAST



ANNUAL ENERGY SAVINGS & PROGRAM COSTS



IMPACT ON PNM RETAIL SALES



1. FERC Form 1 and Annual EE Reports

ENERGY EFFICIENCY FORECAST ASSUMPTIONS

Factors Impacting EE Forecast

1. Total Portfolio Funding Forecast
2. Program Mix Projections
3. Program Cost Assumptions – \$/kWh Saved

Other Assumptions

EE Usage Profiles

- Converts annual savings to hourly

Customer Participation

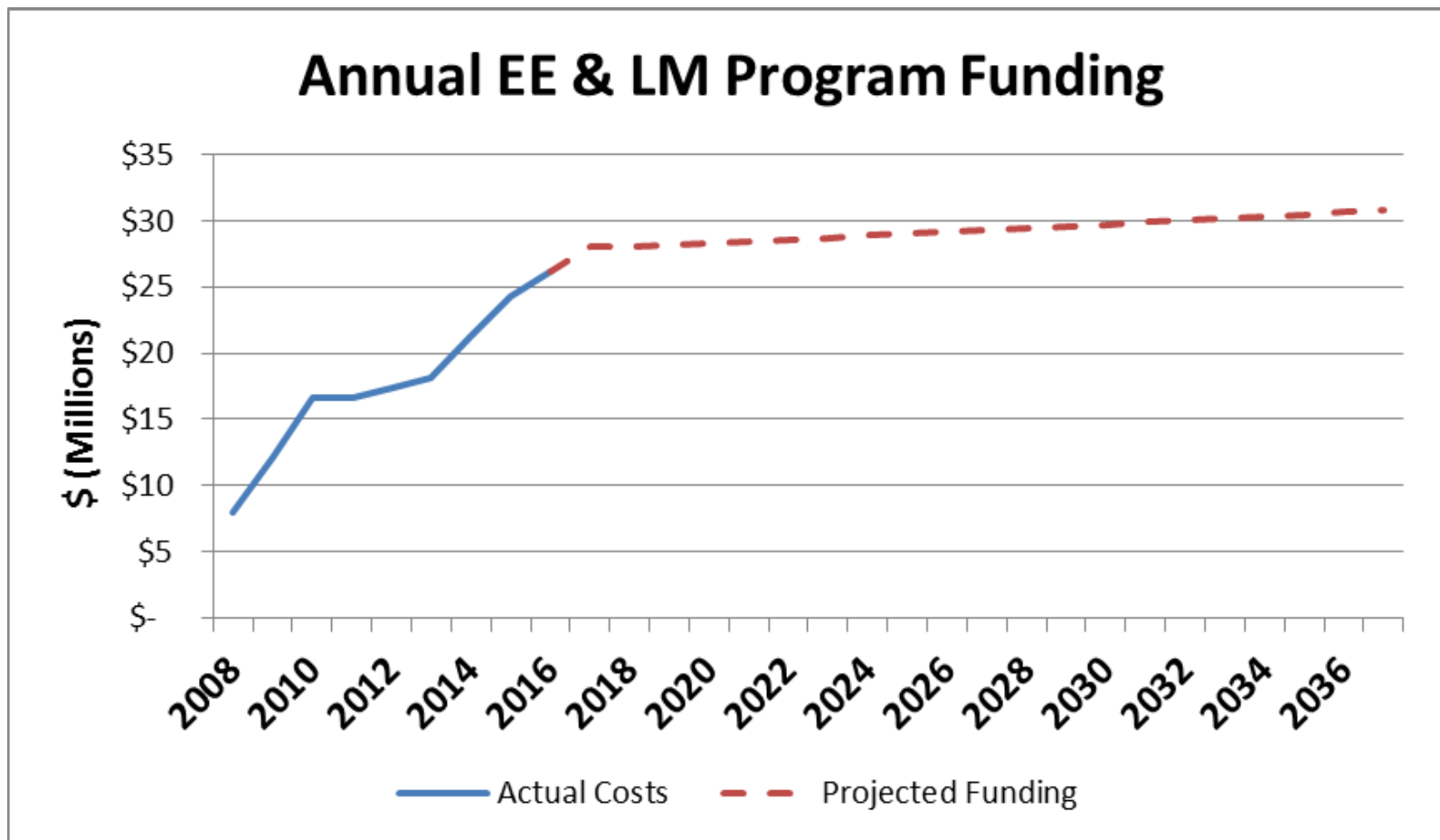
- *Assumed to continue participating as long as programs are attractive*

ENERGY EFFICIENCY FORECAST ASSUMPTIONS

Total Portfolio Funding Assumptions

1. Forecast period aligned with IRP: 2017 – 2036
2. Funding level as defined by EUEA
 - 3% of retail revenues continues through forecast period
3. Projected 2017 funding based on latest EE/LM Plan filing
 - Filed April 2016
 - Based on approval of rates as filed in Case 15-00261-UT
 - Proposed budget = \$28M
 - Actual budget to be adjusted per Final Order
4. Future EE/LM funding
 - Annual funding escalates at ½% beginning 2019

ENERGY EFFICIENCY FORECAST ASSUMPTIONS



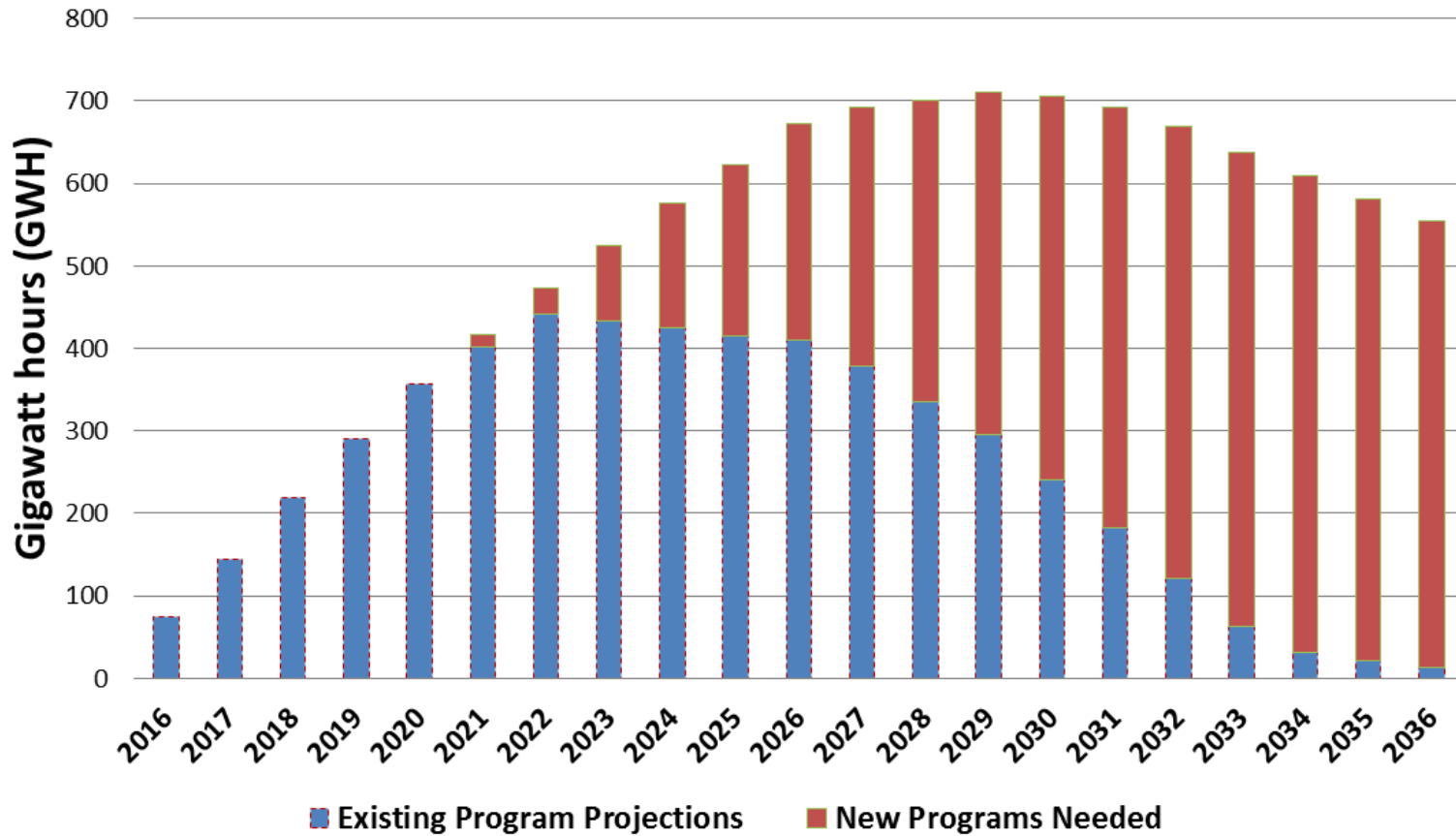
ENERGY EFFICIENCY FORECAST ASSUMPTIONS

Program Mix Assumptions

1. Existing EE programs
 - Individual forecasts over near term (4 to 6 years)
 - Effective useful life varies by program (historical average = 9 yr.)
2. Future EE programs
 - Generic – 50/50 split between residential/commercial programs
 - Generic savings ramp up beginning in 2021 as existing program forecasts end
 - Total savings adjusted to match annual budget targets
 - Effective useful life: residential = 12 yr.; commercial = 11 yr.
3. Load management programs (DR)
 - Individual programs forecasted through planning period

ENERGY EFFICIENCY FORECAST ASSUMPTIONS

2017 IRP Cumulative Annual Energy Savings

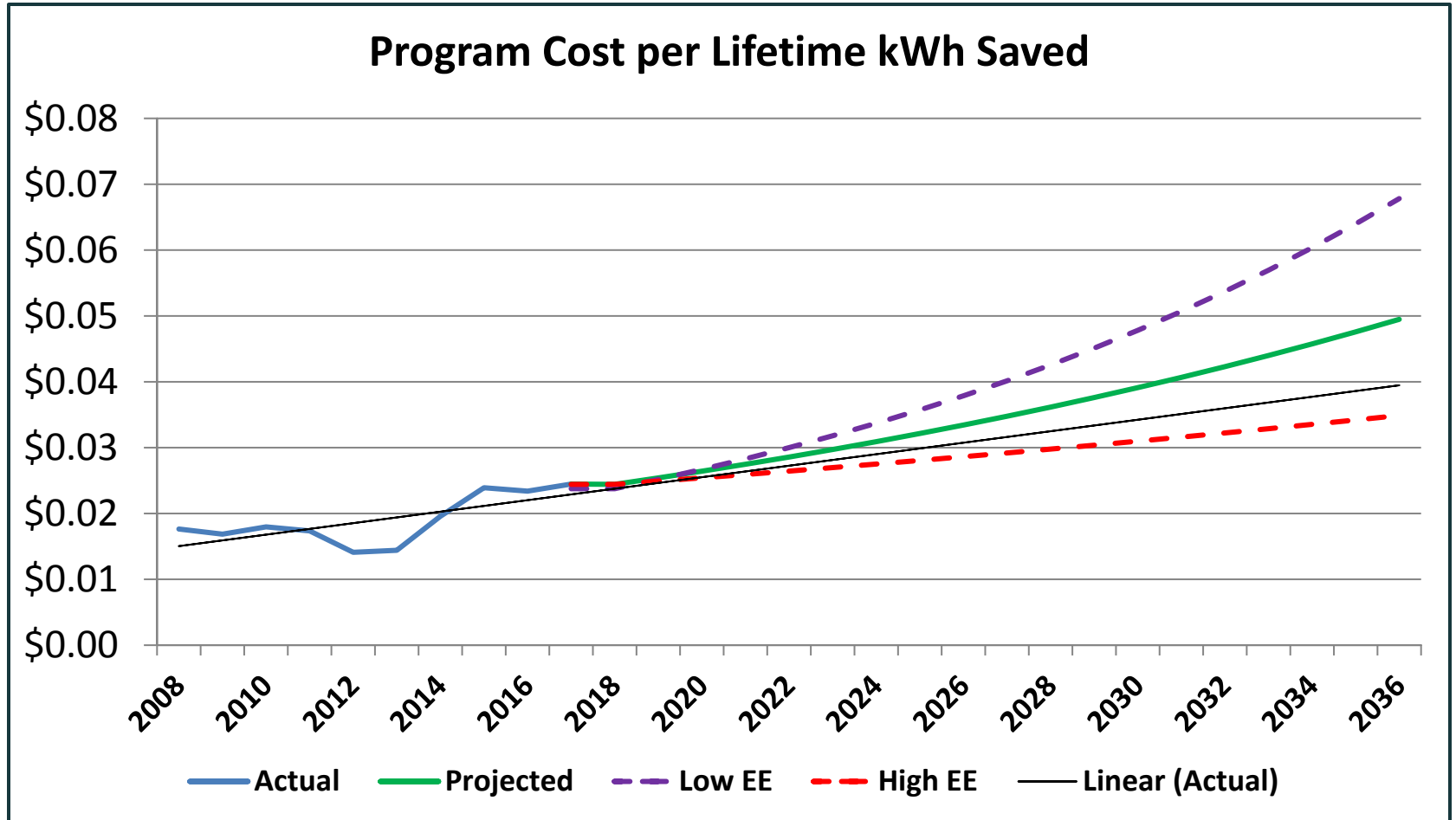


ENERGY EFFICIENCY FORECAST ASSUMPTIONS

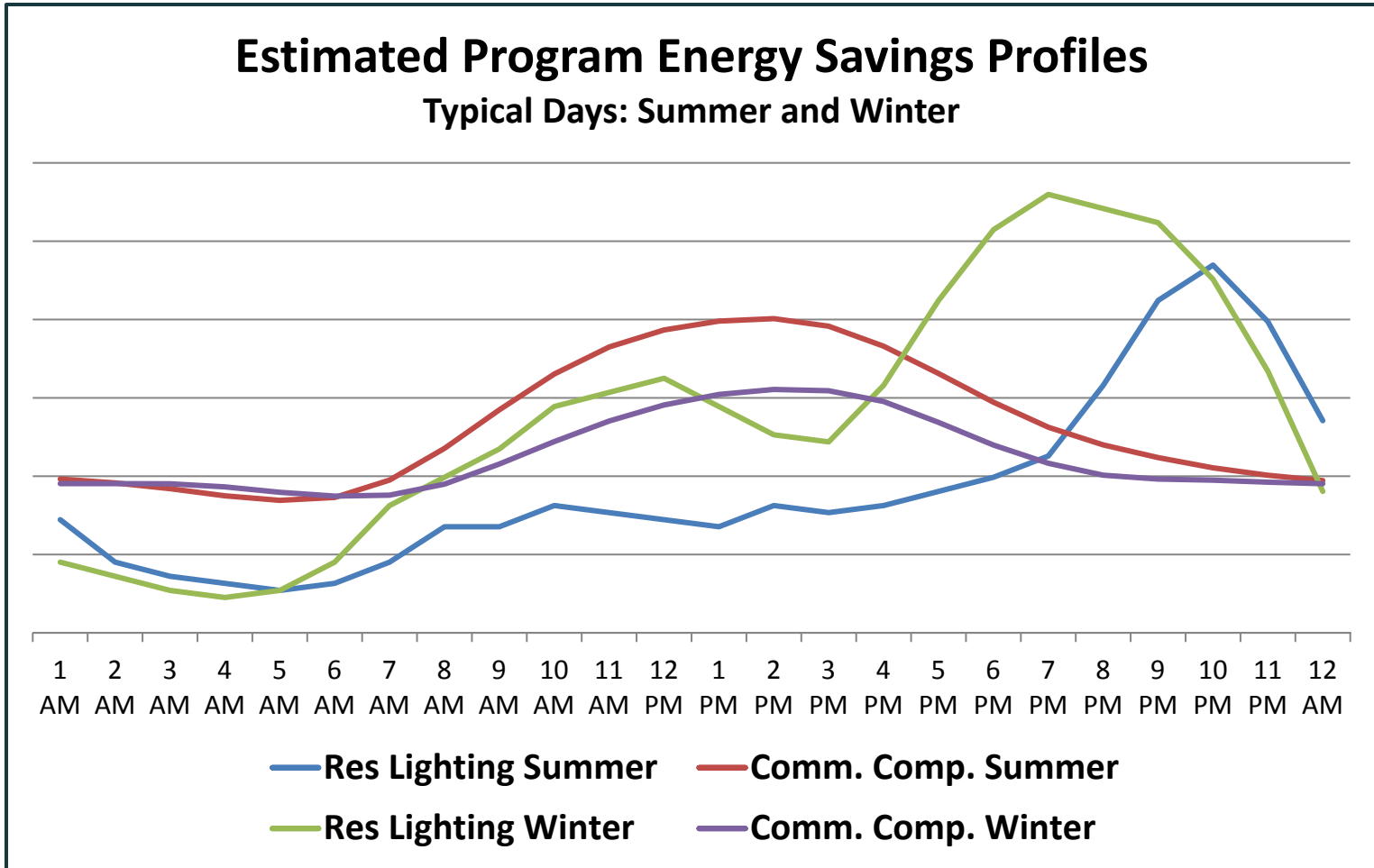
Program Cost Assumptions

1. Program incentives and costs are increasing
 - Ratio of program cost per kWh saved is increasing
 - 2012 – 2017 average escalation rate = 12%
2. Base case escalation assumption – \$/kWh saved
 - 4% beginning 2019
3. Higher savings sensitivity assumption
 - 2% escalation rate beginning in 2019
 - Lower escalation = more savings at given budget
4. Lower savings sensitivity assumptions
 - 6% escalation rate beginning in 2019
 - 2017 funding level at 2016 level (\$26M)
 - Higher escalation and lower budget = less savings

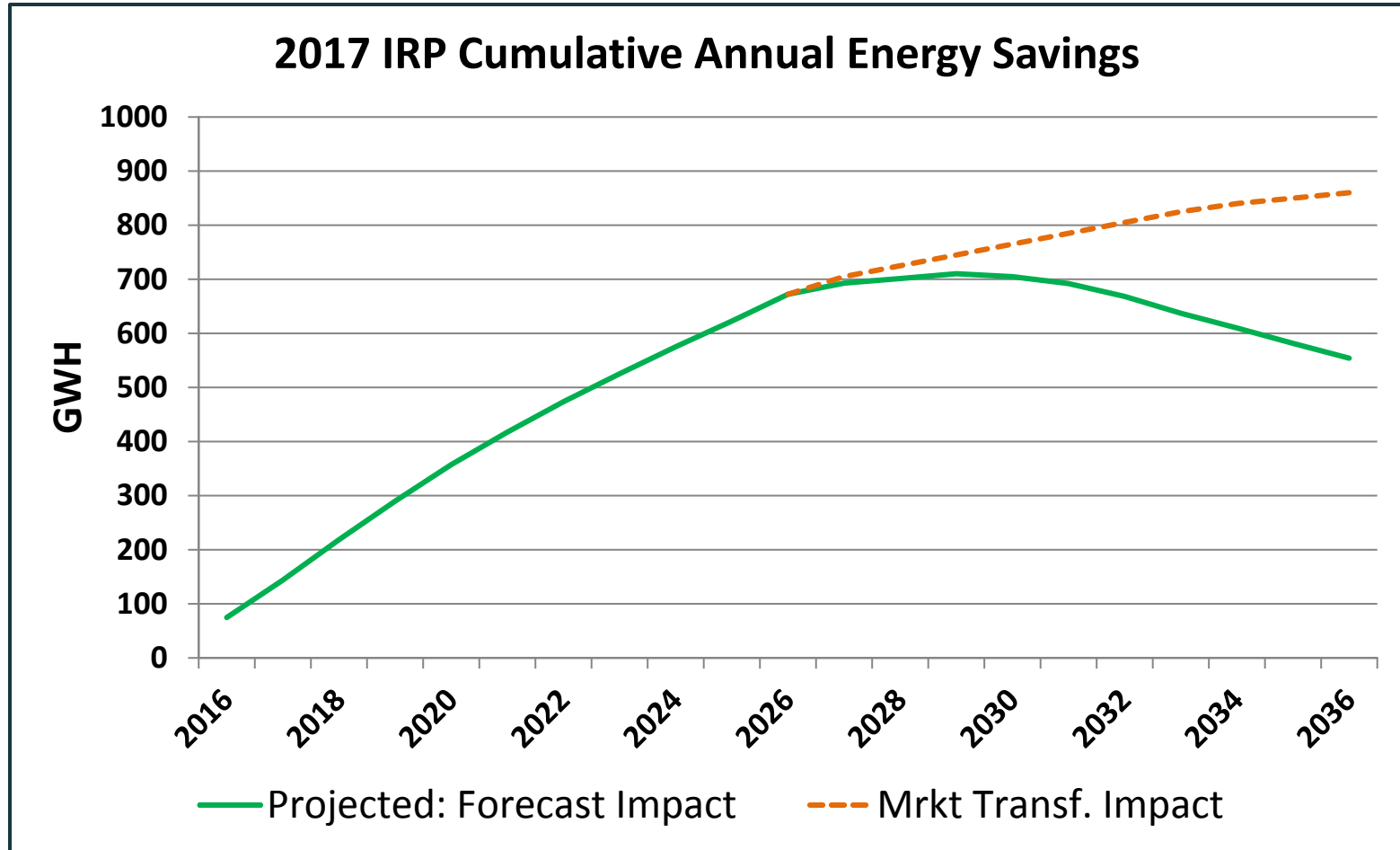
ENERGY EFFICIENCY FORECAST ASSUMPTIONS



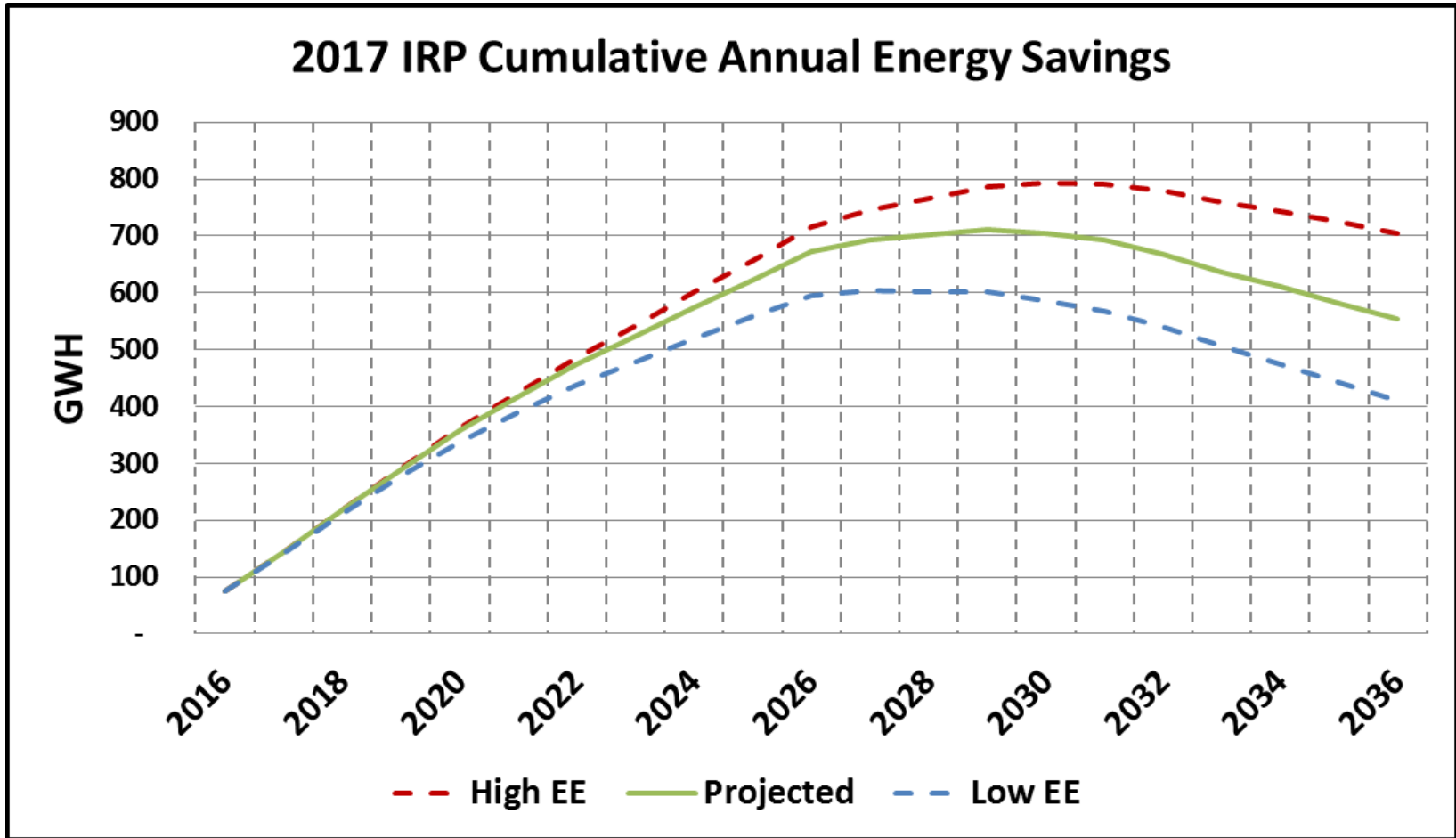
ENERGY EFFICIENCY FORECAST ASSUMPTIONS



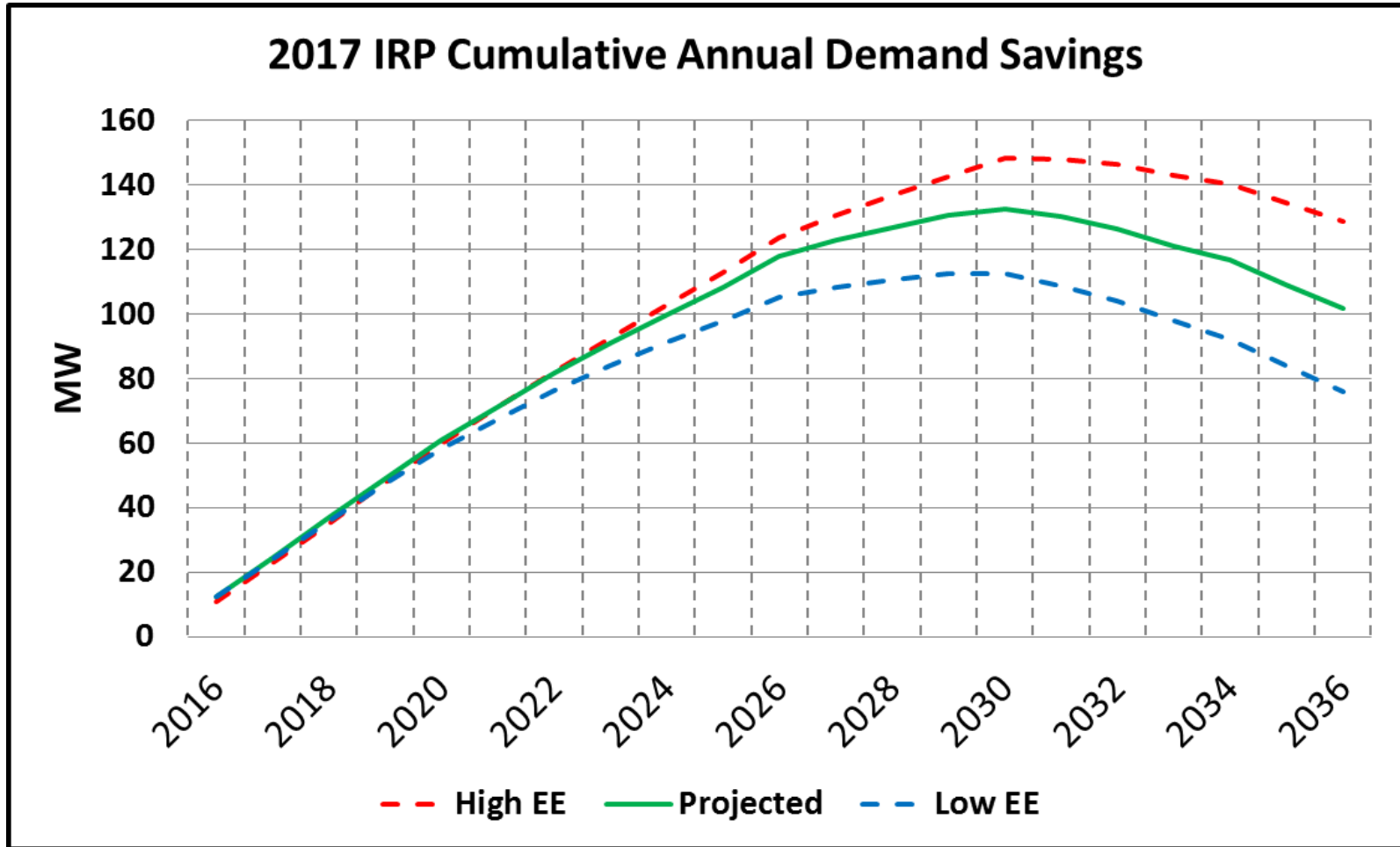
ENERGY EFFICIENCY FORECAST



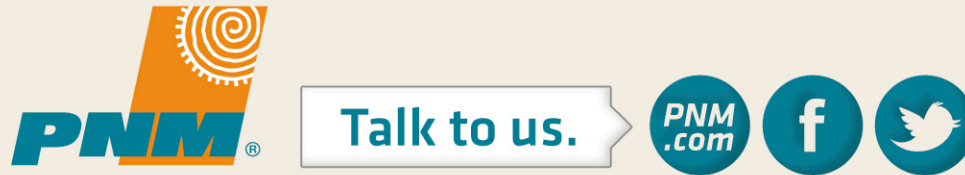
ENERGY EFFICIENCY FORECAST



ENERGY EFFICIENCY FORECAST



THANK YOU !



PNM Energy Efficiency Reports & Plans
www.pnm.com/regulatory