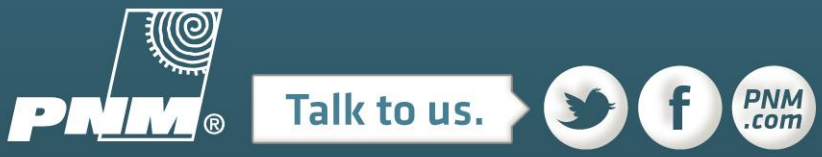
PNM 2014-2033 Integrated Resource Plan

SEPTEMBER 20, 2013



Pat O’Connell

PNM Director, Planning and Resources

AGENDA

TODAY AND SEPTEMBER 26TH

- Friday, September 20th - Discuss assumptions
- Thursday, September 26th - Plan next steps

Today's agenda

- Welcome, Introductions, Safety and Ground Rules
- Discuss PACE Price Curves
- Describe Demand Forecasting
- Describe Energy Efficiency Resource
- Present Monte Carlo Distributions
- Wrap Up and Discuss Next Meeting

SAFETY AND LOGISTICS

- Fire escape routes via stairways at east and west ends of hallway; please let us know if you require special handicap egress or special assistance
- We must obey any fire or emergency alarm; even drills/test alarms
- Restrooms – Women's room at west end; Men's room at east end
- Must sign in and sign out with security desk each time you enter the building

MEETING GROUND RULES

- Questions and comments are welcome; please be mindful of our time constraints
- Comments should be respectful of all participants
- Use name tents to indicate you have a comment or question
- Reminder: today's presentation is not PNM's plan or a financial forecast, it is an illustration of the IRP modeling process

DISCLOSURE REGARDING FORWARD LOOKING STATEMENTS

The information provided in this presentation contains scenario planning assumptions to assist in the Integrated Resource Plan public process and should not be considered statements of the company's actual plans. Any assumptions and projections contained in the presentation are subject to a variety of risks, uncertainties and other factors, most of which are beyond the company's control, and many of which could have a significant impact on the company's ultimate conclusions and plans. For further discussion of these and other important factors, please refer to reports filed with the Securities and Exchange Commission. The reports are available online at www.pnmresources.com.

The information in this presentation is based on the best available information at the time of preparation. The company undertakes no obligation to update any forward-looking statement or statements to reflect events or circumstances that occur after the date on which such statement is made or to reflect the occurrence of unanticipated events, except to the extent the events or circumstances constitute material changes in the Integrated Resource Plan that are required to be reported to the New Mexico Public Regulation Commission (NMPRC) pursuant to Rule 17.7.4 New Mexico Administrative Code (NMAC).

IRP GOALS

PNM'S 2014-2033 INTEGRATED RESOURCE PLAN

- 20-year planning horizon
- Revisit plan every three years
- Create a four-year action plan
- Improve plan through public advisory process
- File with NM Public Regulation Commission for review & acceptance

Legislation:

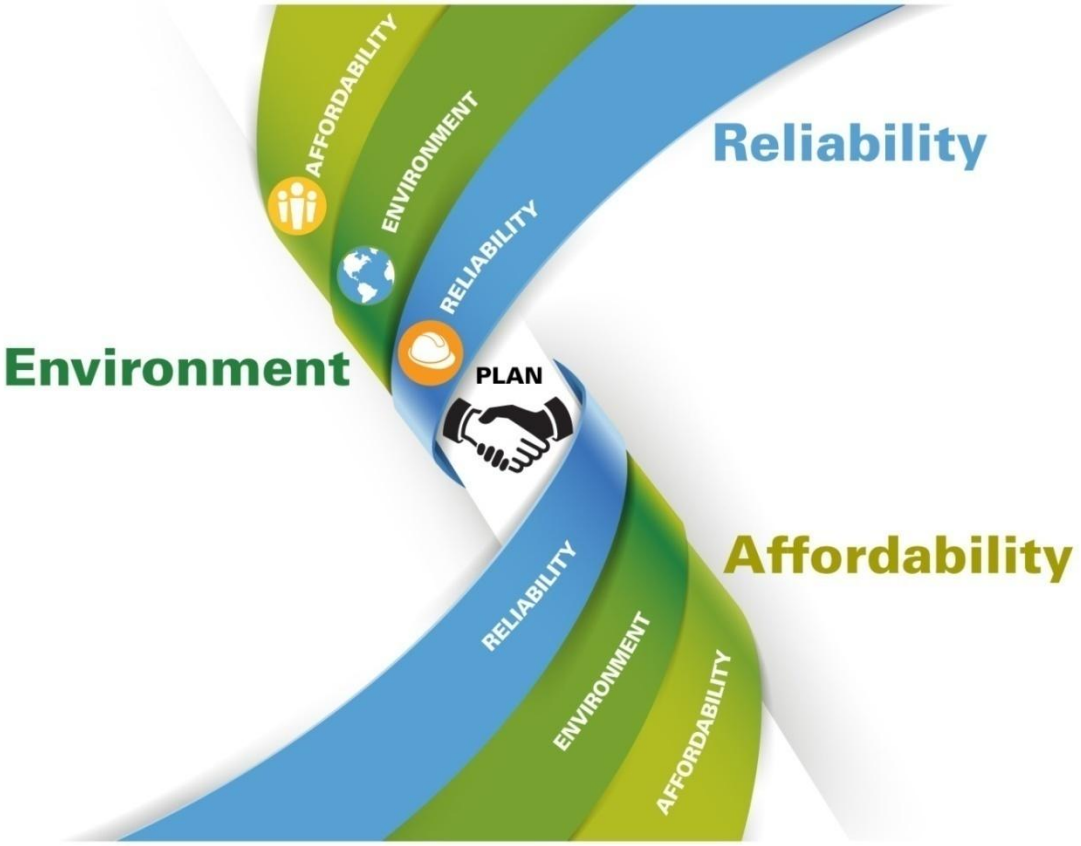
- New Mexico Public Utility Act – 62-3-1 et.seq. NMSA
- Renewable Energy Act – 62-16-1 et.seq. NMSA
- Efficient Use of Energy Act – 62-17 NMSA

NMPRC Rules:

- Integrated Resource Plans for Electric Utilities – 17.7.3 NMAC
- Renewable Energy for Electric Utilities – 17.9.572 NMAC
- Energy Efficiency – 17.7.2 NMAC

IRP GOALS

BALANCE



PACE PRICE CURVES

OVERVIEW

• PNM hired Pace Global (“Pace”) to provide a coordinated set of price curves for use in the 2014-2033 IRP process.

• PNM worked with Pace to derive three scenarios:

Reference: Conditions remain similar to what they are now

Cheap: Near term policies focus on low cost energy

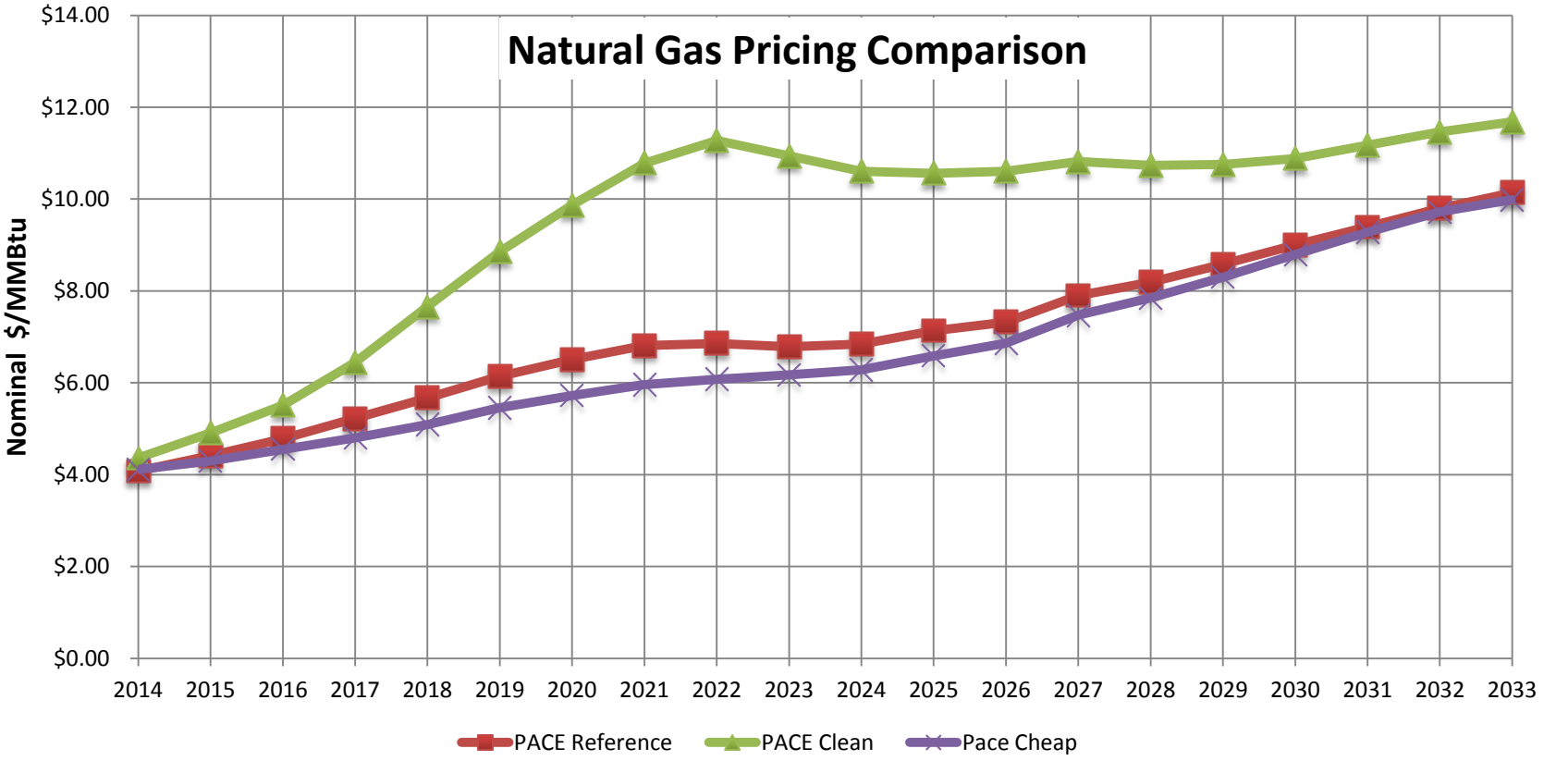
Clean: Policy balance favors additional environmental regulations

• Details of the scenarios have been provided in the “MarketLink Scenarios” document distributed at the September 17th IRP meeting.

• Overview of the work: Pat Augustine, Executive Director, Pace Global

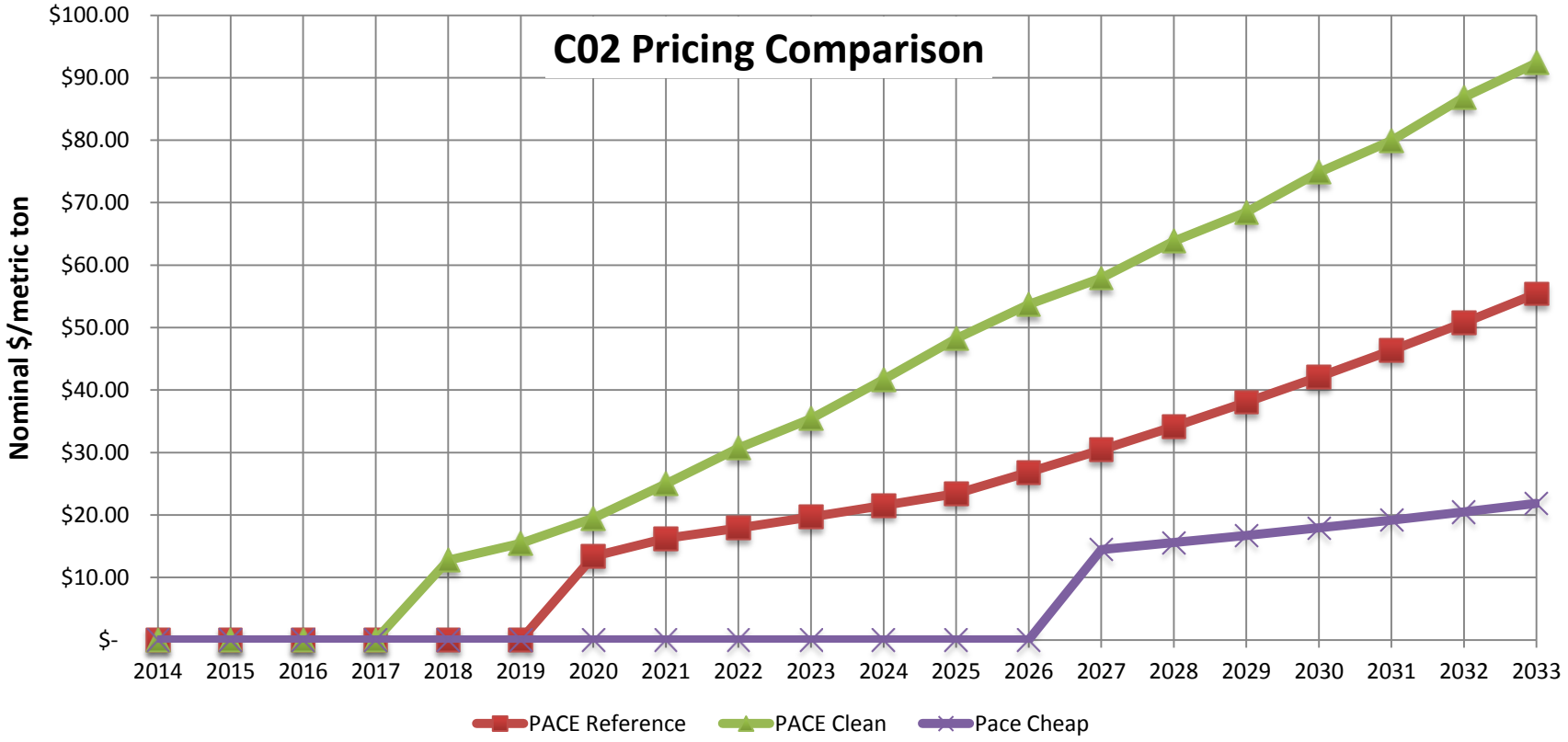
PACE PRICE CURVES

NATURAL GAS PRICES



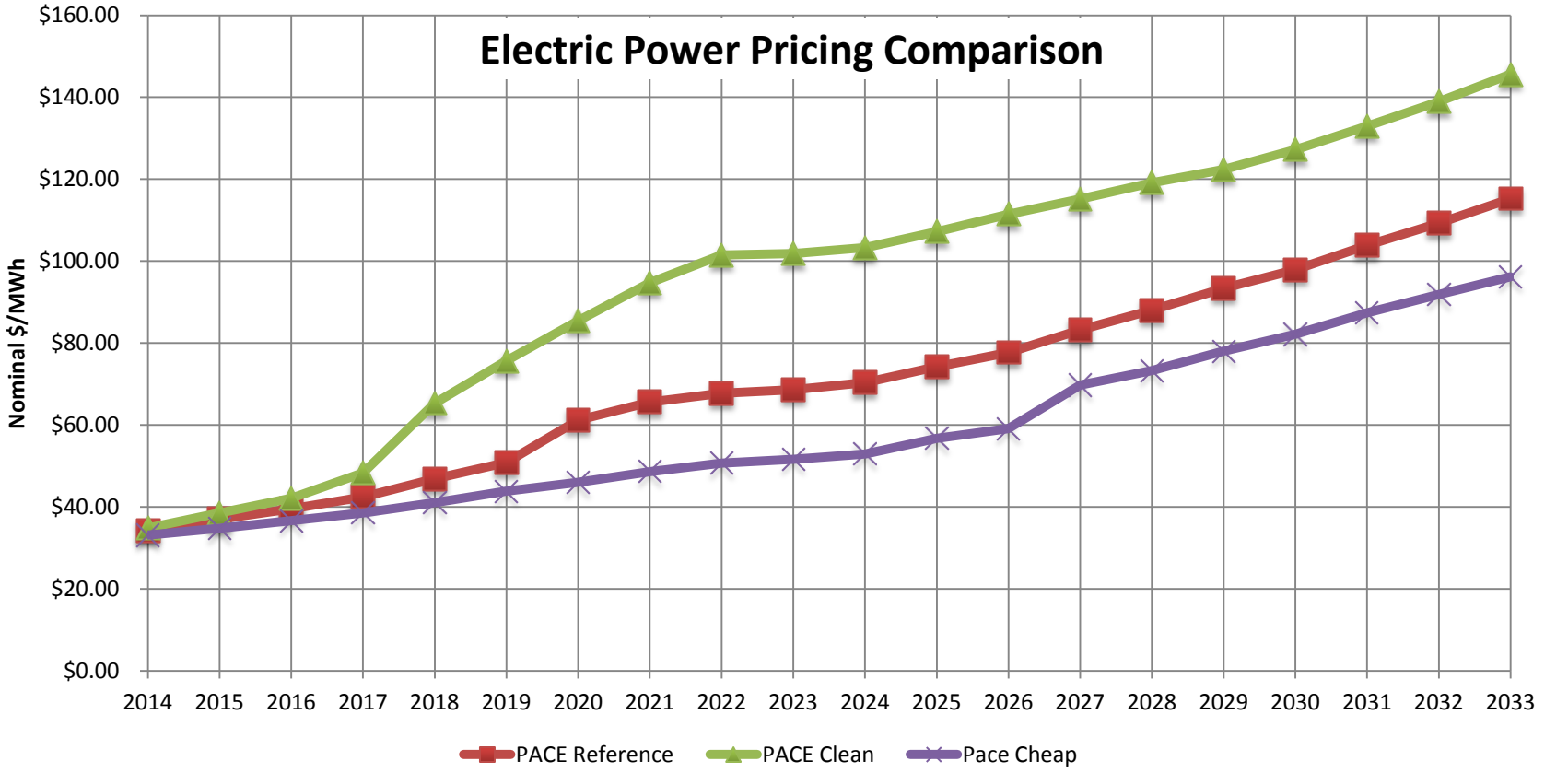
PACE PRICE CURVES

CARBON PRICES



PACE PRICE CURVES

ELECTRICITY PRICES



DEMAND FORECASTING

AGENDA

- Describe and define demand forecasting
- Discuss the elements of the IRP net system peak
- Discuss treatment of system losses within demand forecast
- Compare actual demands to previous forecasts

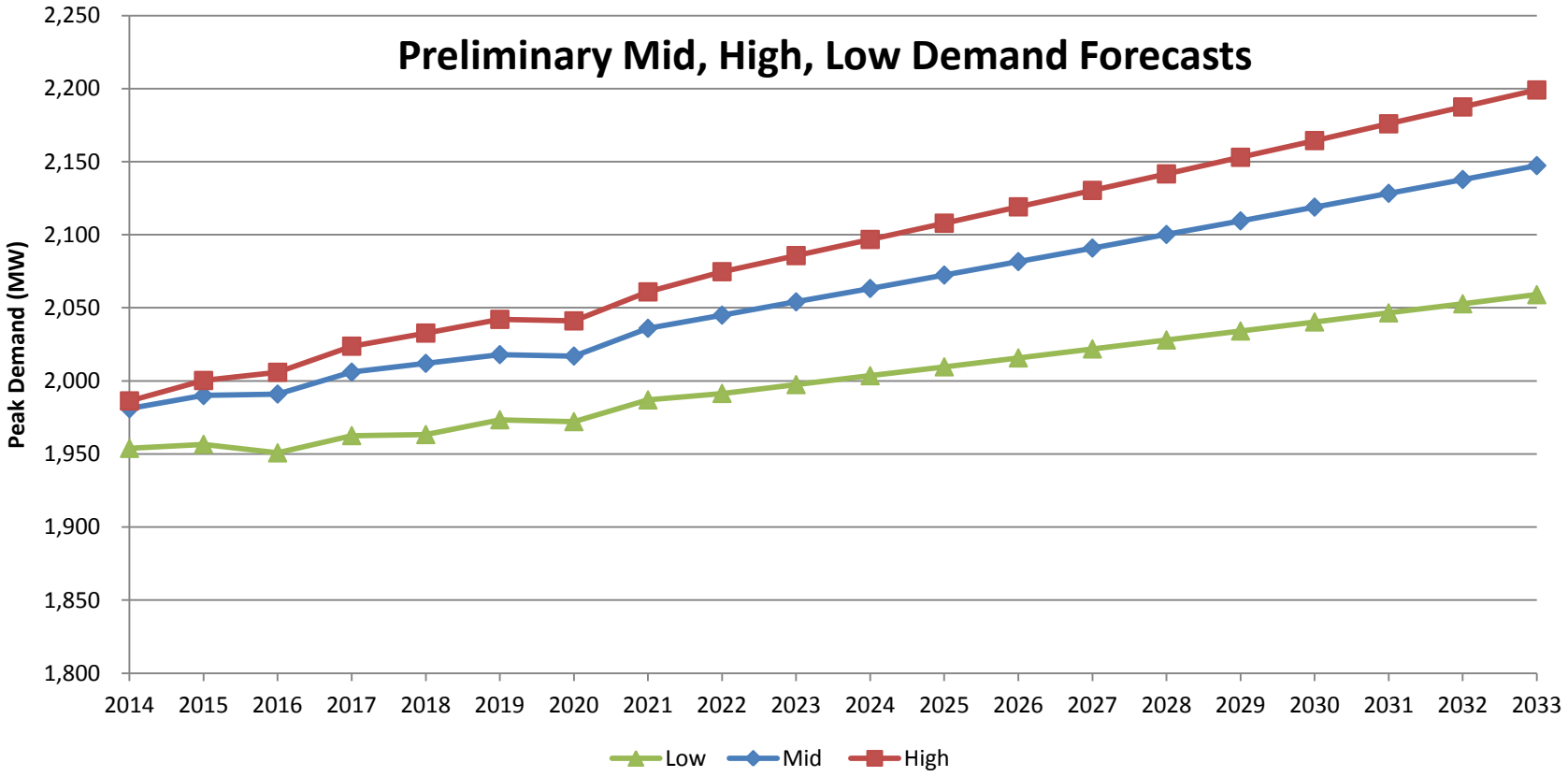
DEMAND FORECASTING

DEFINITION AND PROCESS DESCRIPTION

- PNM develops its demand forecast based on current load conditions and projected economic data, including projections for large customers, for the service territory
- Demand forecast is weather-normalized
- For IRP, three scenarios will be used: mid, high and low
- PNM's system peak always occurs during the summer (Jun-Aug) on weekdays around 5pm. Peaks are in large part driven by hot weather. While the average temperature on a summer day is about 93°, temperatures average over 98° on system peak days.
- PNM's winter peak (which usually occurs from Dec to Feb) is typically about 85% of the summer peak. The winter peak often occurs around 7pm on a weekday.

DEMAND FORECASTING

IRP FORECASTS

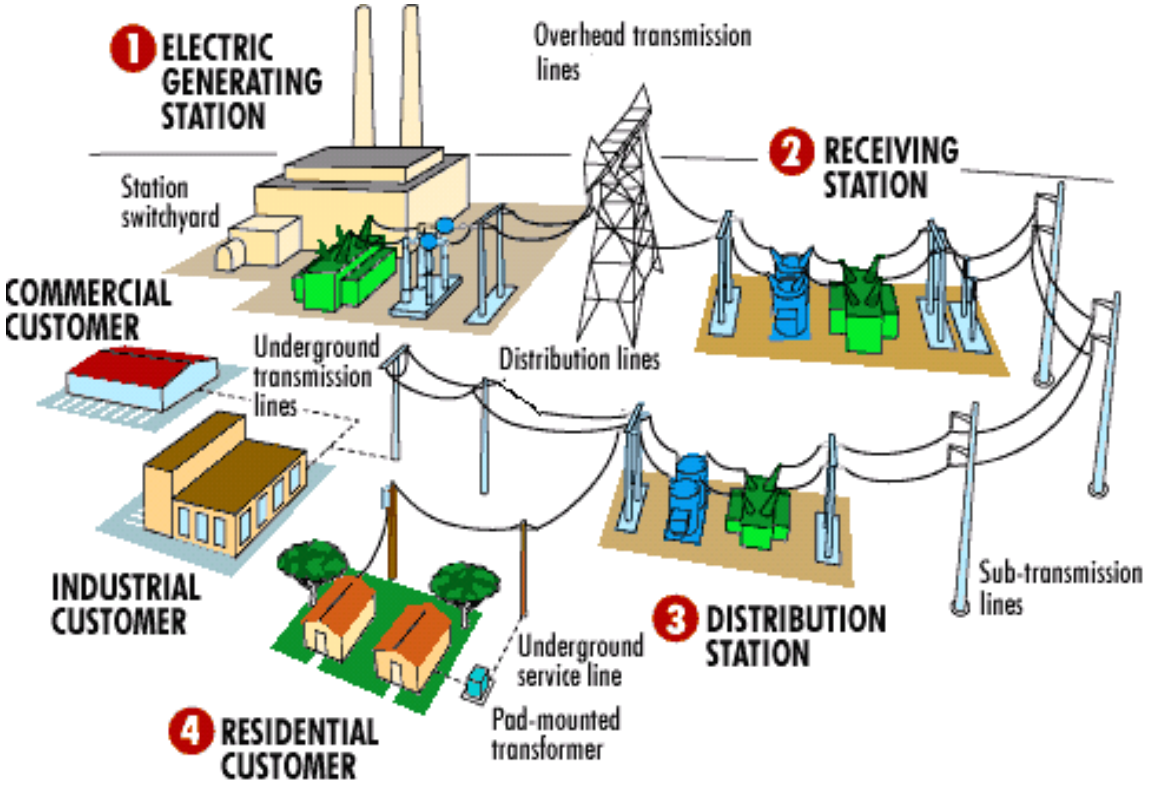


DEMAND FORECASTING

ELEMENTS OF NET SYSTEM PEAK

For IRP, supply and demands are balanced at the electric generating station.

Net system peak is the sum of retail and wholesale customer coincident peak and behind the meter demand reductions – energy efficiency and customer sited solar



DEMAND FORECAST

COMPARISON OF ACTUAL TO FORECAST

Peak Demand (MW)	2006	2007	2008	2009	2010	2011	2012	Actual	Weather-Normalized Actual
2006	1,703							1,786	1,791
2007	1,771	1,853						1,866	1,866
2008	1,807	1,909	1,909					1,838	1,917
2009	1,852	1,954	1,951	1,870				1,866	1,857
2010	1,892	1,990	1,993	1,899	1,893			1,973	1,938
2011	1,926	2,022	2,035	1,929	1,893	1,955		1,938	1,924
2012	1,966	2,064	2,080	1,951	1,903	1,963	1,960	1,948	1,924

Steve Bean

PNM Manager, Energy Efficiency Design

ENERGY EFFICIENCY

EFFICIENT USE OF ENERGY ACT (EUEA) DEFINITIONS

Energy efficiency: Measures, including energy conservation measures, or programs that target consumer behavior, equipment or devices to result in a decrease in consumption of electricity and natural gas without reducing the amount or quality of energy services.

Load management: Measures or programs that target equipment or devices to result in decreased peak electricity demand or shift demand from peak to off-peak periods.

Utility cost test: A standard that is met if the monetary costs that are borne by the public utility and that are incurred to develop, acquire and operate energy efficiency or load management resources on a life-cycle basis are less than the avoided monetary costs associated with developing, acquiring and operating the associated supply-side resources.

Energy savings: Shall not be less than savings of 5% of 2005 total retail kilowatt-hour sales to New Mexico customers in calendar year 2014 and 8% in 2020 as a result of energy efficiency and load management programs implemented starting in 2007.

Program spending: Funding for program costs for investor-owned electric utilities shall be three percent of customer bills.

ENERGY EFFICIENCY

ADDITIONAL DEFINITIONS

Demand-side resources: Energy efficiency and load management, as those terms are defined in the EUEA.

Demand response: A resource comprising programs that compensate electricity users in exchange for the ability to interrupt or reduce their electric consumption when system demand is particularly high and/or system reliability is at risk (a type of load management).

Energy savings goals: The 2014 ***statutory goal*** for PNM is 411 GWh; the 2020 goal is 658 GWH. All EE cases in the 2014 IRP are projected to meet or exceed the statutory goals.

Gross savings: The total energy and demand savings from all participants in utility programs.

Net savings: Net savings are reduced to account for the impact of free-rider participants (participants that would have implemented the energy efficiency measure even without the utility incentives). PNM reports net savings to the PRC and only net savings contribute to the statutory goals.

ENERGY EFFICIENCY

CURRENT PROGRAMS

Residential Lighting Rebates
- instant discounts on the purchase of efficient lighting at 160 stores

Refrigerator Recycling
- incentive and pick-up and recycling of older refrigerators and freezers

Energy Star Homes
- builder incentives to meet Energy Star standards

Community CFL
- distribution of CFLs at community events

Low-Income Programs
- savings kits, lighting and refrigerators for low-income customers

Comprehensive Business Rebates
- rebates for retrofits and new construction

Quick Saver™
- special rebates for small businesses

Power Saver – demand response program for residential customers

Peak Saver – demand response program for commercial customers

ENERGY EFFICIENCY

NEW PROGRAMS (PENDING NMPRC APPROVAL)

Whole House
- •home assessment ($40 – includes CFLs and more) plus high-value rebates

Low-Income Whole House
- •same as Whole House but free assessment for qualified customers

Stay Cool
- •advanced evaporative and high efficiency cooling rebates

Home Energy Reports
- •personalized reports showing energy use comparisons and savings tips

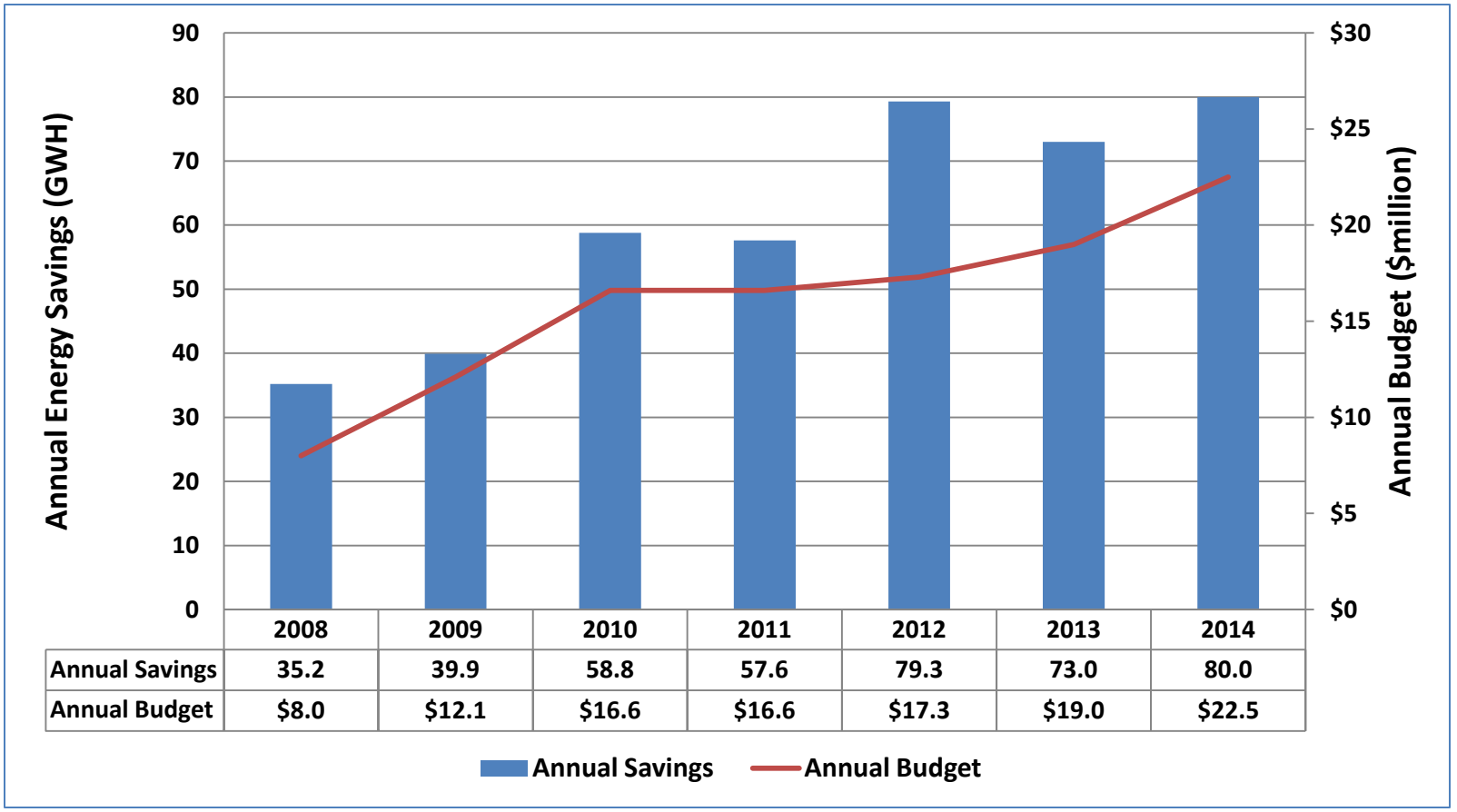
Student Efficiency Kits
- •savings kits provided to fifth grade students along with teacher curriculum

Business Tune-Up
- •rebates for improving commercial building systems

http://www.pnm.com/rebates/

http://www.pnm.com/regulatory/

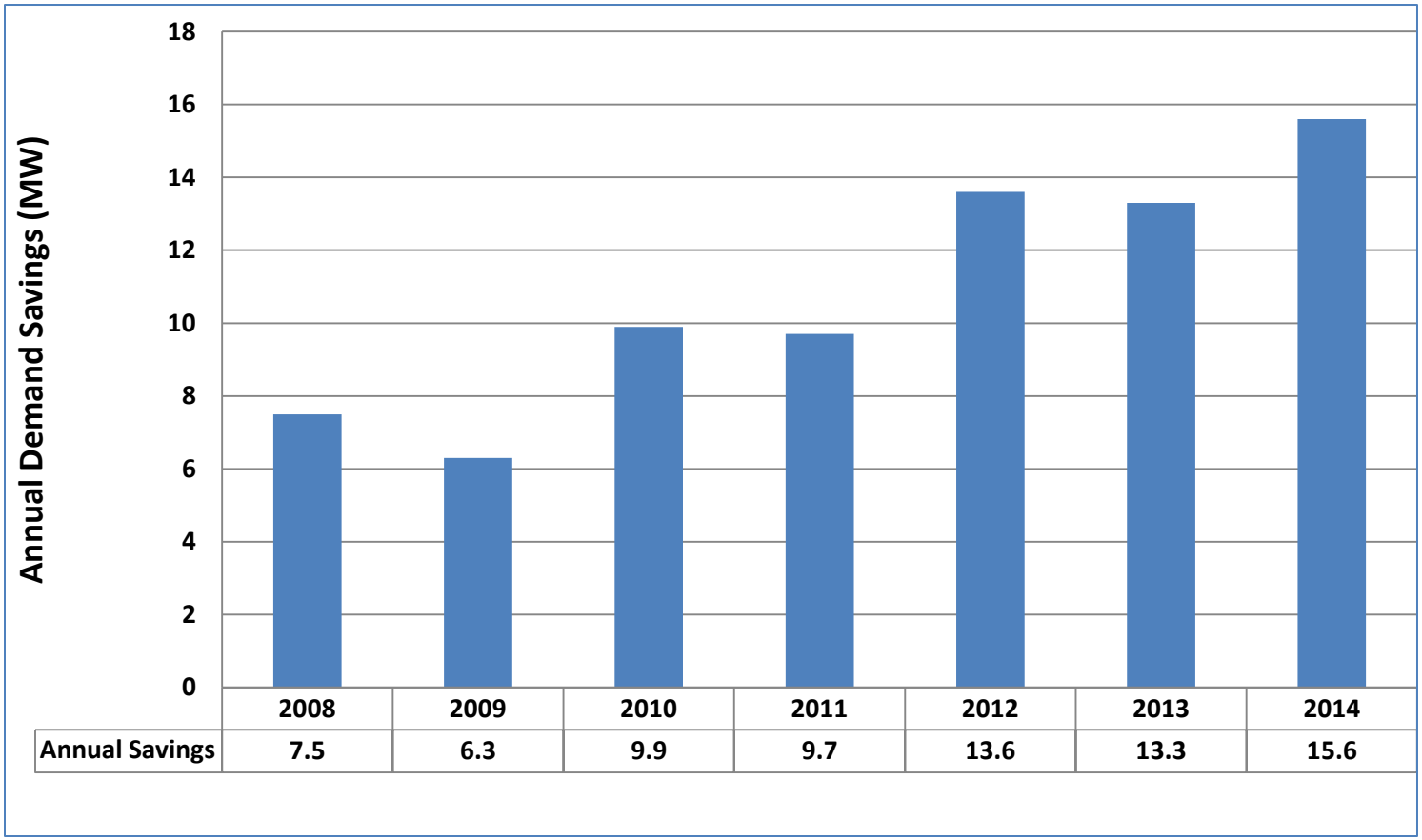
RECENT PERFORMANCE & PROJECTIONS – REPORTED TO NMPRC



	2008	2009	2010	2011	2012	2013	2014
Annual Savings	35.2	39.9	58.8	57.6	79.3	73.0	80.0
Annual Budget	$8.0	$12.1	$16.6	$16.6	$17.3	$19.0	$22.5

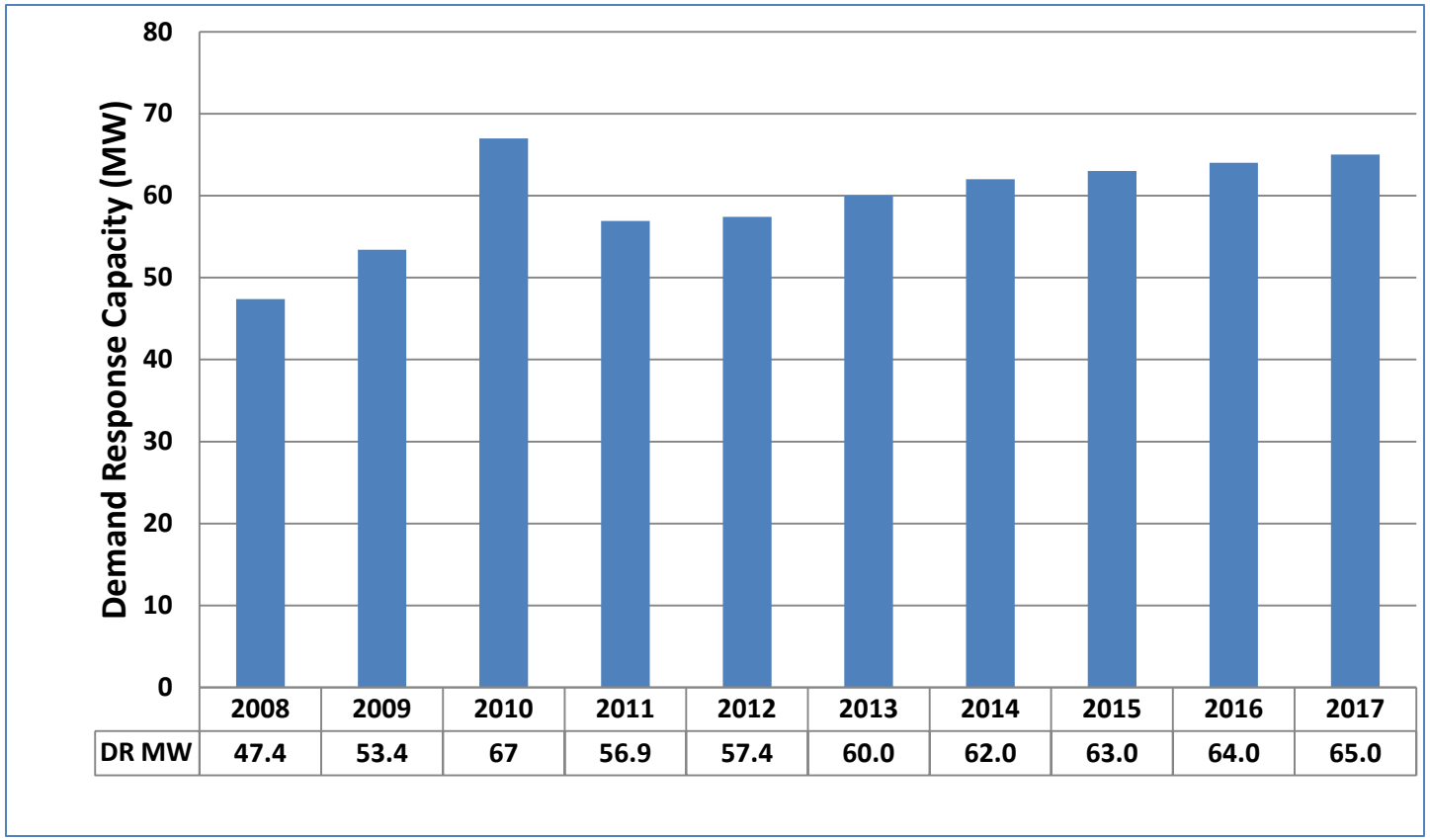
	2008	2009	2010	2011	2012	2013	2014
Cummulative Annual Savings (GWH)	35	75	134	192	271	344	424

RECENT PERFORMANCE & PROJECTIONS – REPORTED TO NMPRC



	2008	2009	2010	2011	2012	2013	2014
Annual Savings	7.5	6.3	9.9	9.7	13.6	13.3	15.6

RECENT PERFORMANCE & PROJECTIONS – REPORTED TO NMPRC



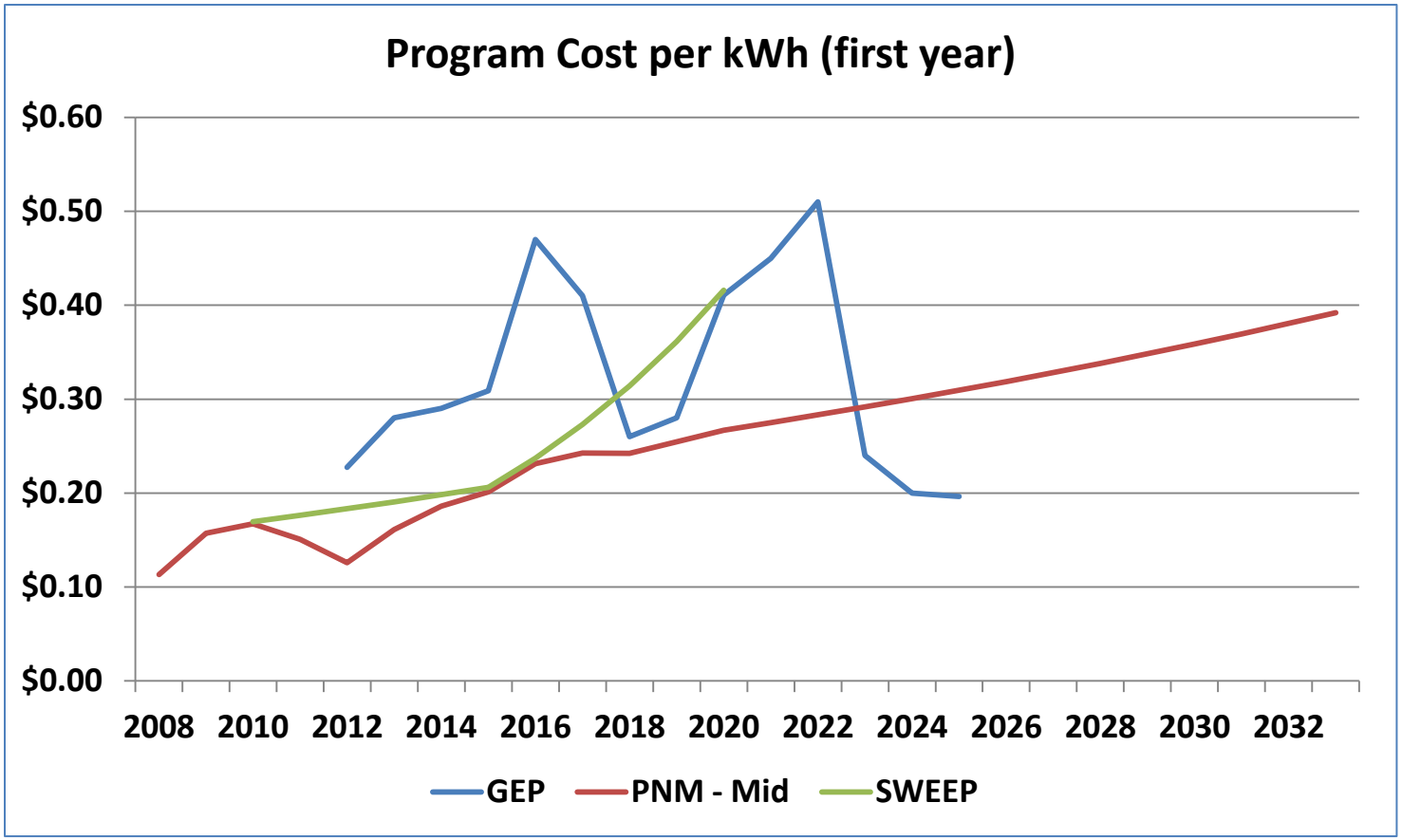
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
DR MW	47.4	53.4	67	56.9	57.4	60.0	62.0	63.0	64.0	65.0

ENERGY EFFICIENCY

LONG TERM EE PROJECTIONS – KEY ASSUMPTIONS

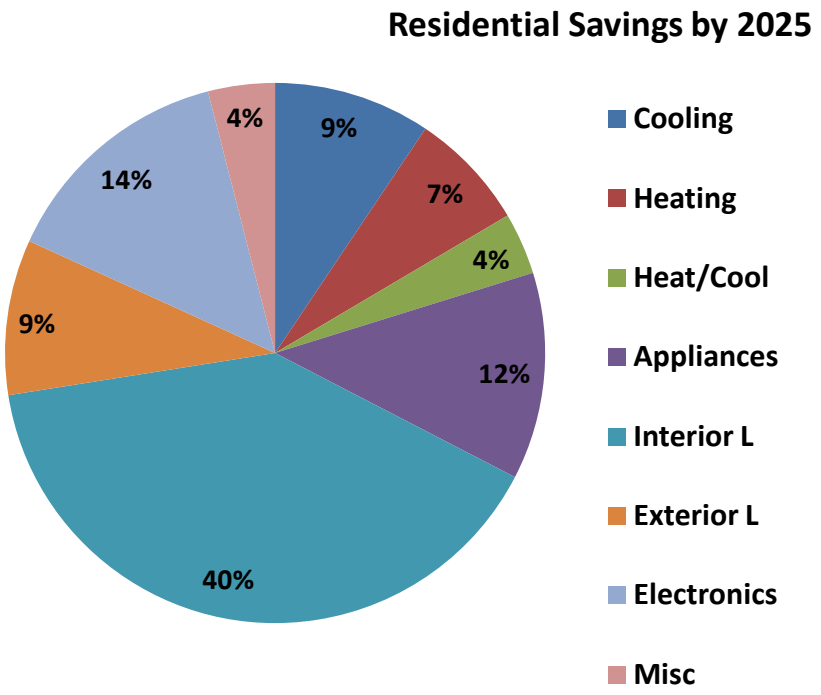
1. PNM files new energy efficiency program plan every two years
   - Last (current) filing – October 2012
   - Next filing – October 2014
2. EUEA provides for consistent long-term energy efficiency spending – 3% of customer bills
3. EE spending increases at the same rate as PNM revenue
4. Energy savings projections become a function of program design and the cost of achieving new savings
5. The cost of achieving new energy savings increases over time as least-cost options are captured (lighting, for example)
6. 2014 IRP EE projection (Mid) assumes the cost of EE per kWh saved increases at 4.5% annually
7. High and low sensitivity cases based on variation in cost escalation rate
   - If the cost to acquire new EE increases less than expected – more savings achieved
8. Demand response programs continue as a resource

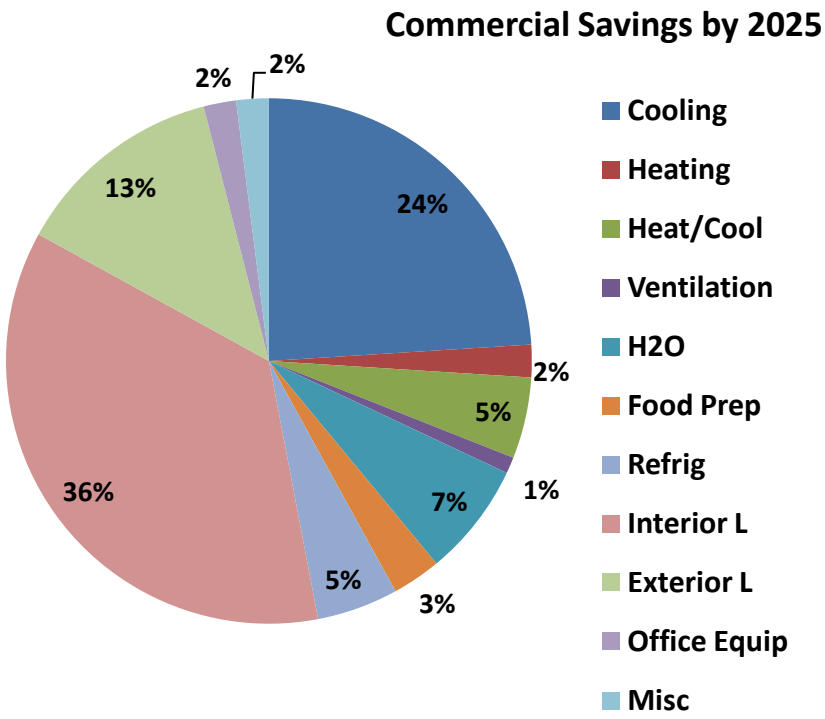
LONG TERM EE PROJECTIONS – KEY ASSUMPTIONS



Source: Derived from "Energy Efficiency Potential Study for the State of New Mexico - Volume 2"; Global Energy Partners, June 2011 ; and, "The $20 Billion Bonanza - Best Practice Electric Utility Energy Efficiency Programs and Their Benefits for the Southwest", SWEEP, October 2012.

LONG TERM EE PROJECTIONS – PROGRAM AREAS





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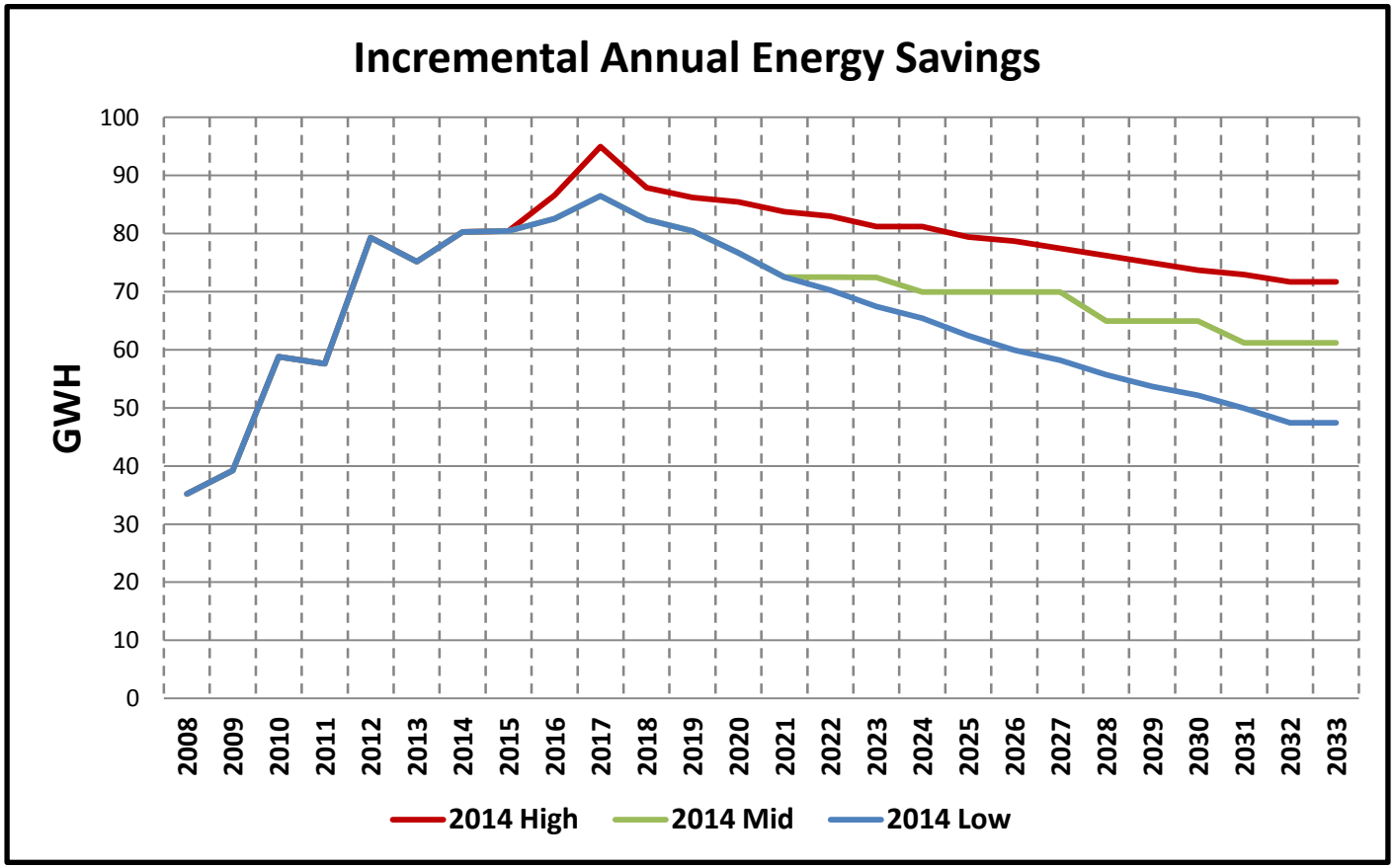
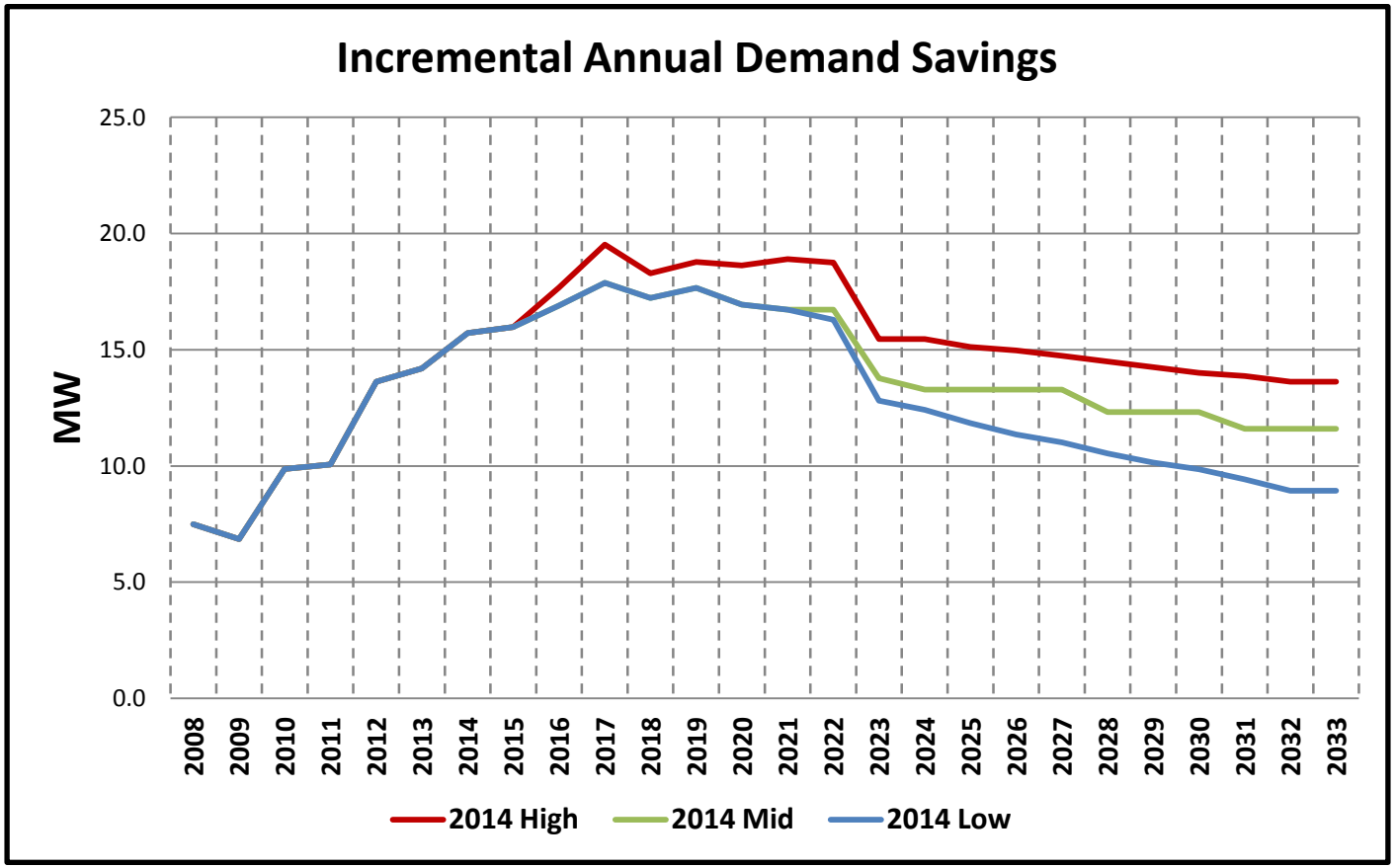
LONG TERM EE PROJECTION



LONG TERM EE PROJECTION



Dean Brunton

PNM Director, Senior Financial Modeler

RISK ANALYSIS

OVERVIEW – MODELING KEY COST FACTOR VARIABILITY

The NMPRC's Rule 17.7.3, Integrated Resource Plans for Electric Utilities, requires that the IRP consider risk and uncertainty in its plan, specifically noting price volatility.

PNM's modeling shows that the input factors that both A) display significant variation in their magnitude or costs and B) have a major impact on total ratepayer cost are:

1. Natural gas prices
2. Wholesale electricity market prices
3. Load growth
4. Potential greenhouse gas emission costs

PNM employs a statistical analysis to assess portfolio risk. Historic or expected variability is represented by probability distributions that are used to create simulations of a large number of sets of conditions with which the portfolio may be faced. This statistical technique is known as Monte Carlo simulation.

RISK ANALYSIS

PRICE VOLATILITY

What is Monte Carlo analysis?

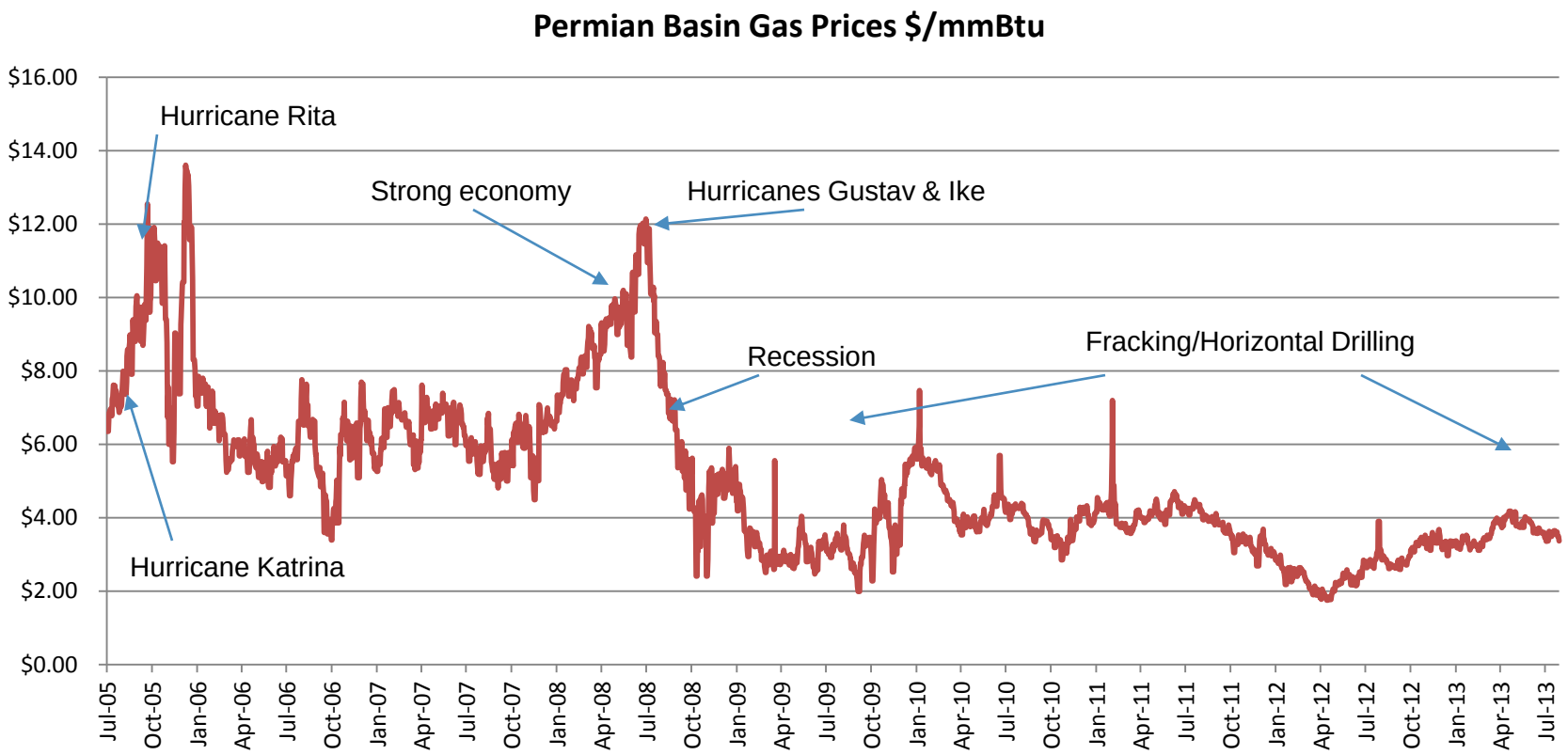
- Repeated random sampling of specific variables.
- Evaluate each of the top portfolios under the same conditions. *Stress Test*

Why perform Monte Carlo analysis on selected portfolios?

- Want to make sure that *portfolios* chosen perform well under a broad range of conditions. *Robustness*
- Balance of individual resources within a portfolio to mitigate overall system risk. *Resource Diversity*

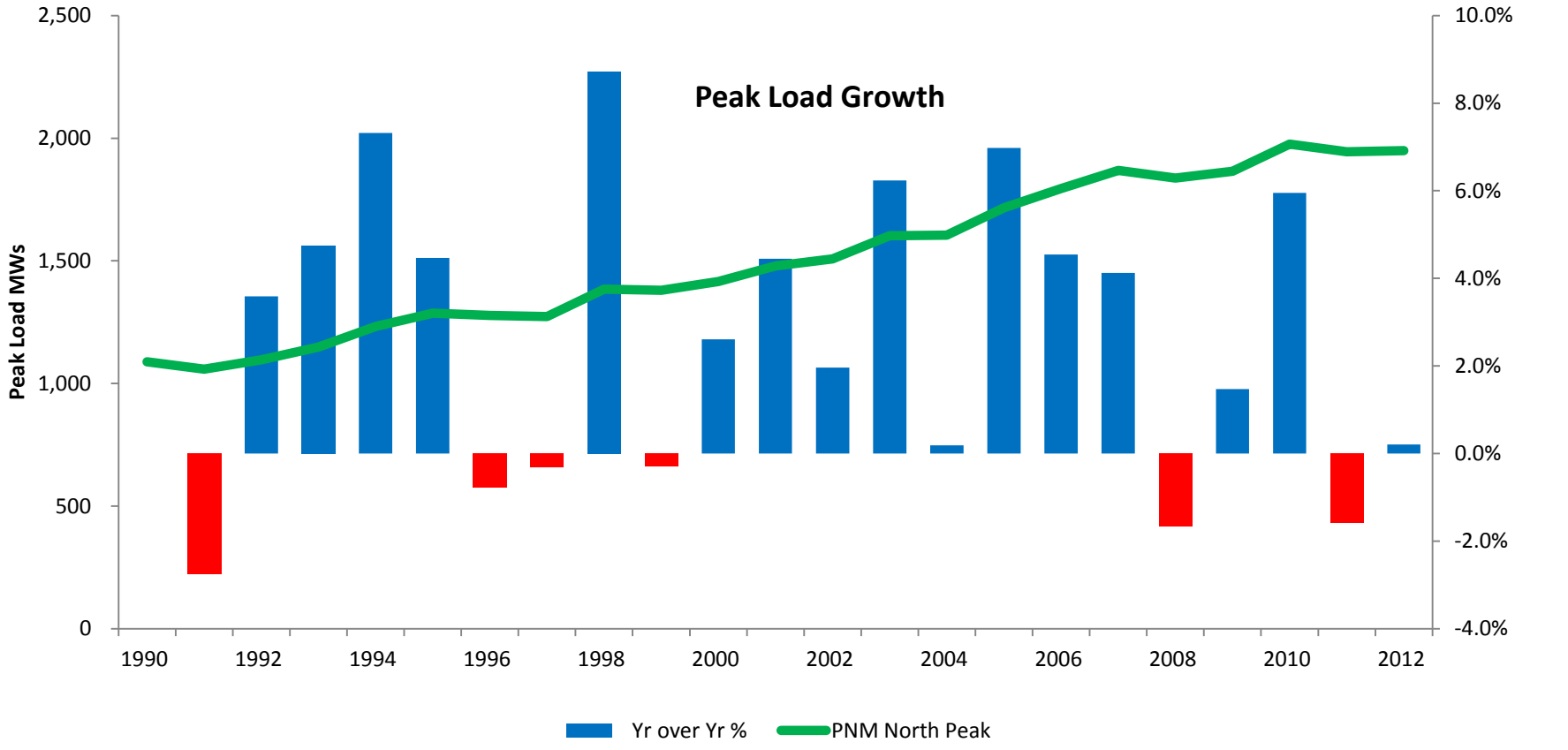
RISK ANALYSIS

PRICE VOLATILITY – NATURAL GAS



INPUT FACTOR VOLATILITY EXAMPLE

QUANTITATIVE RISK ANALYSIS: LOAD GROWTH VARIABILITY



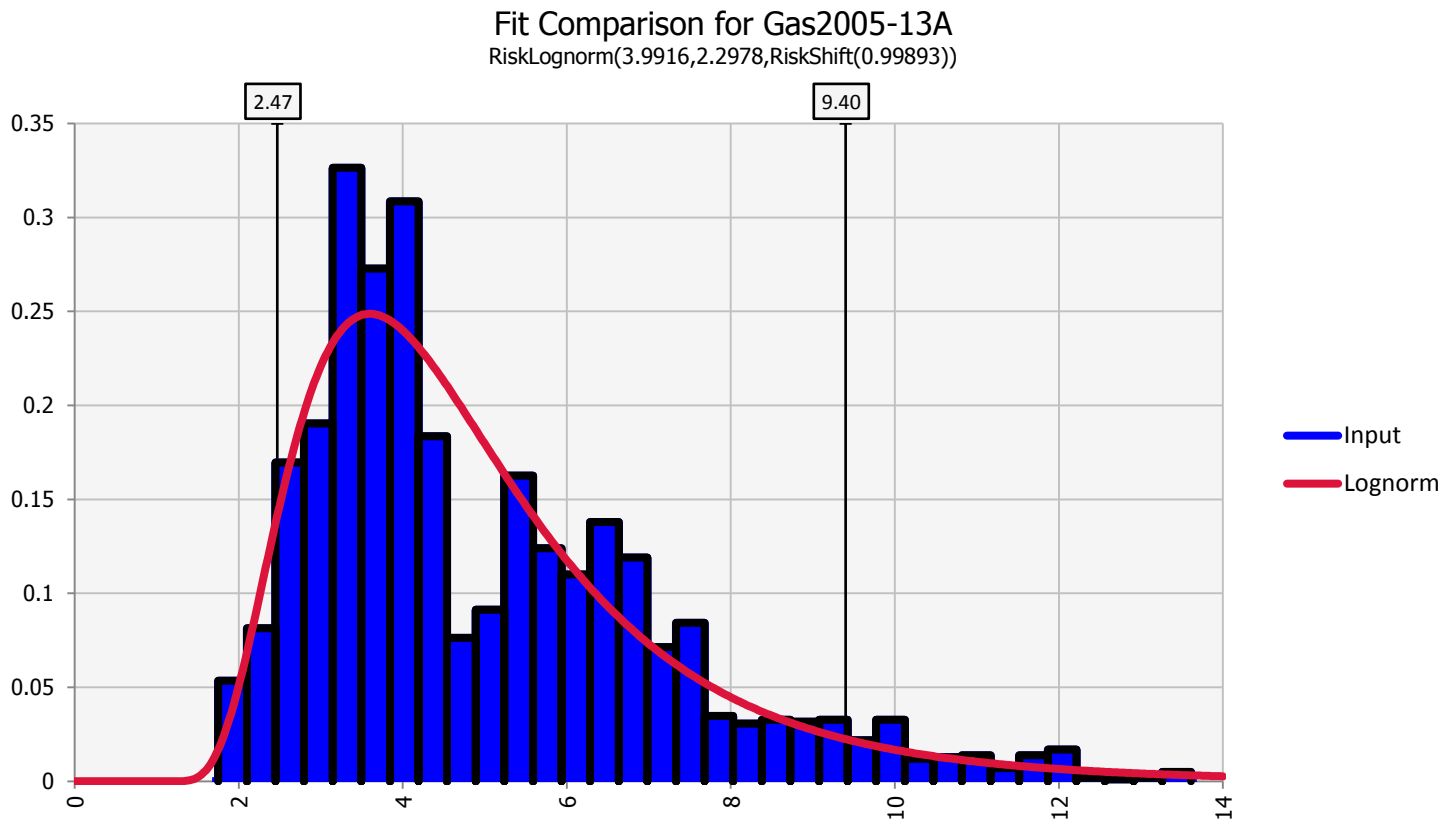
RISK ANALYSIS

HISTORIC VARIABILITY – GAS PRICE AND LOAD GROWTH

PNM Load Growth variability (retail load)		Peak MWs
2012 PNM North		1,949
Mean Annual % Growth	1990 - 2012	2.7%
Std Deviation		3.3%
	% of mean	122.5%
	High	8.7%
	Low	-2.8%
Natural Gas Prices -- Daily		Jul05 - Jul13
	Mean	$4.98
El Paso Permian	Std Deviation	$2.16
Hub ID# 746680	% of mean	43.4%
	High	$13.61
	Low	$1.75

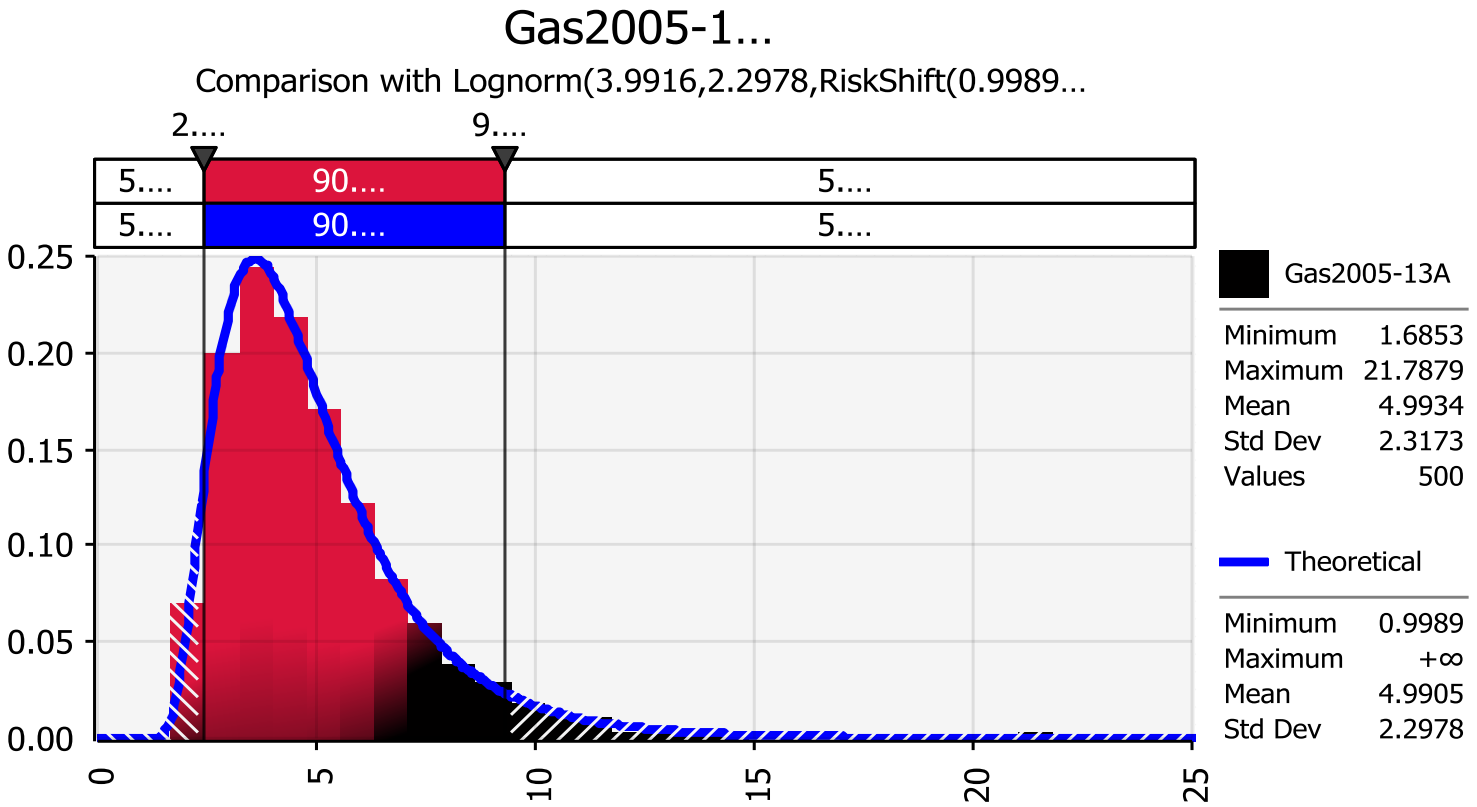
RISK ANALYSIS

NATURAL GAS PRICES – DISTRIBUTION FIT OF HISTORICAL PRICES



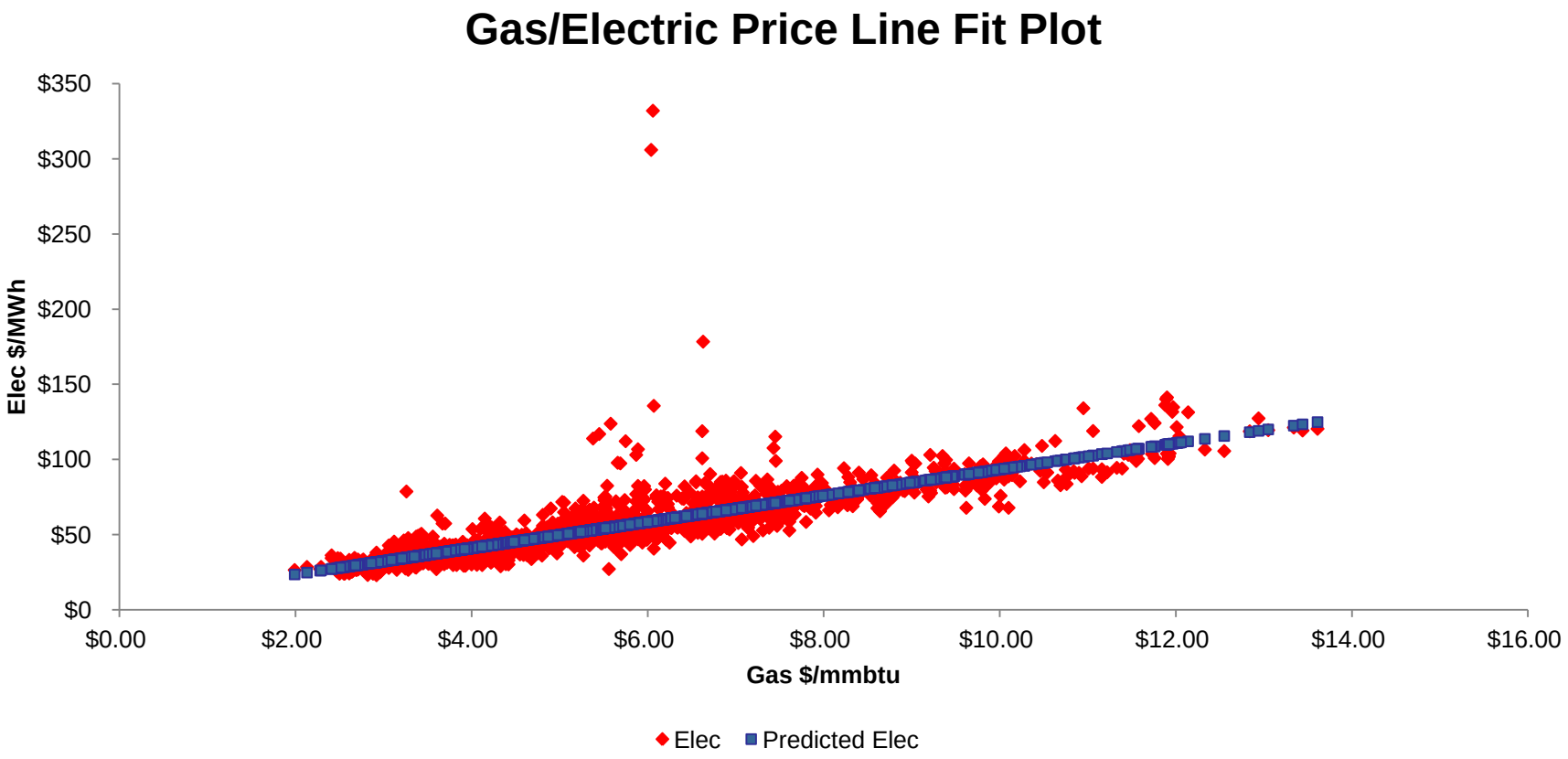
ANALYZE – GAS PRICE VARIABILITY

MONTE CARLO SIMULATION VS. HISTORIC DISTRIBUTION OF PERMIAN BASIN GAS PRICES



RISK ANALYSIS

PRICE VOLATILITY – GAS AND ELECTRIC PRICE RELATIONSHIP (2005-2013)



RISK ANALYSIS

PRICE VOLATILITY

Electricity Price Forecast Formula ($/mwh)

$$\text{Price}_{elec} = \$4.16 + 7.866 \times \text{Price}_{gas} + 0.398 \times \text{Price}_{CO2} + \text{variance}$$

Natural Gas Prices ($/mmBtu):

Distribution = Log Normal; mean = $4.99, std. dev. = $2.30

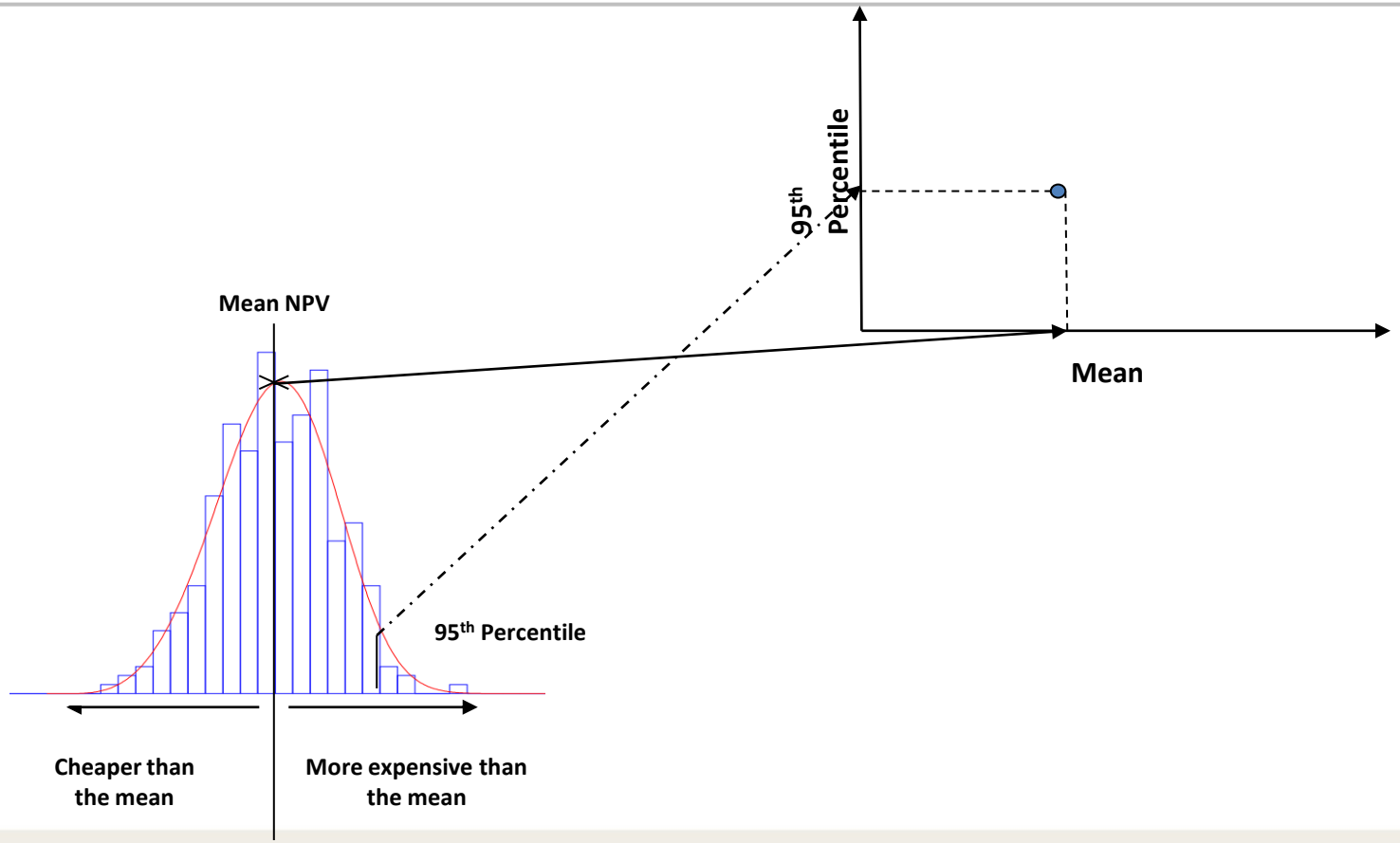
Carbon Prices ($/tonne):

Distribution = Normal; mean = $20.00, std. dev. = $10.00

(normalized mean to Pace projection each year)

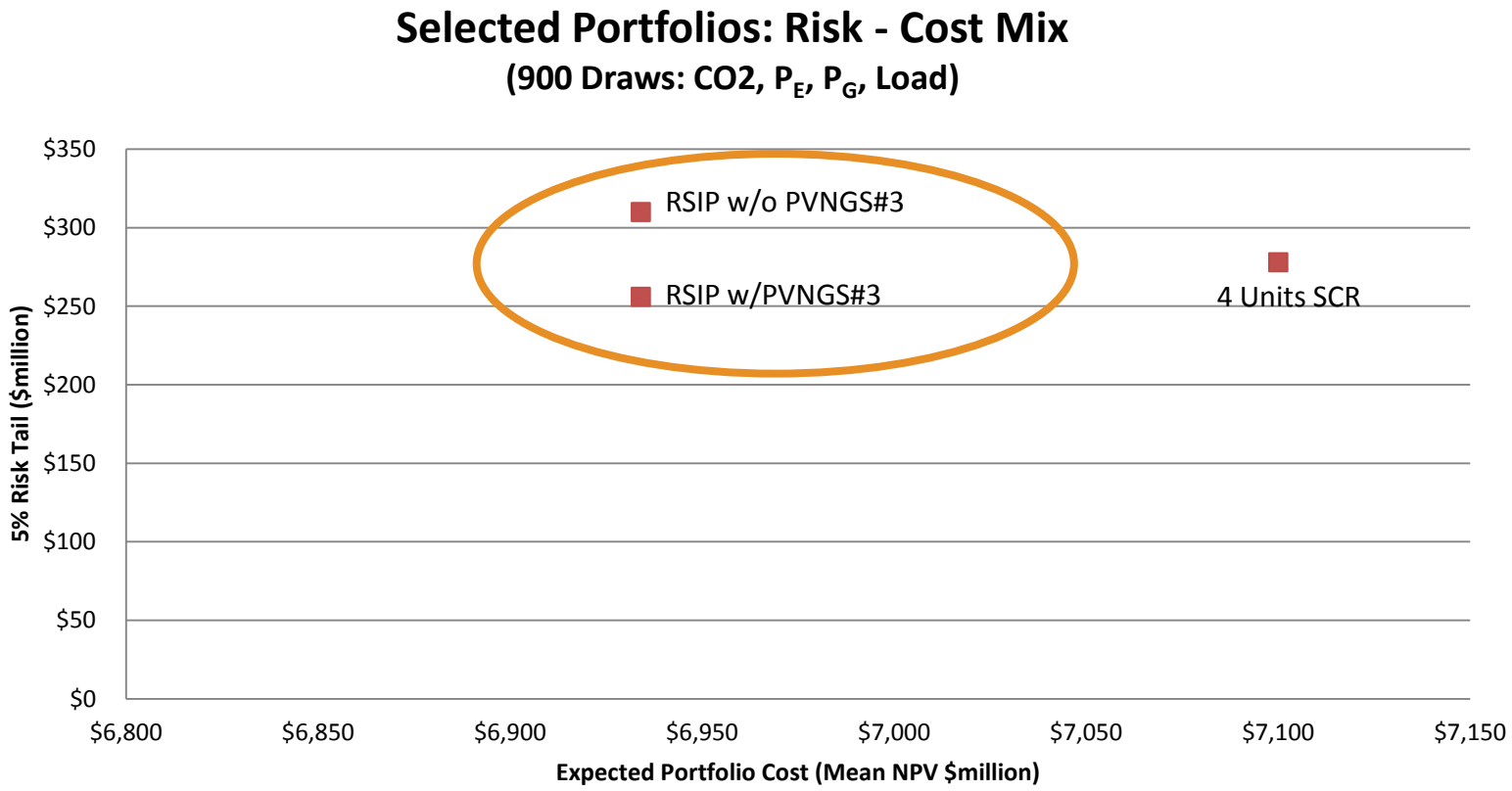
PORTFOLIO RISK AND COST RESULTS

PLOTTING THE SIMULATION OUTCOMES FOR A PORTFOLIO



RISK ANALYSIS

MONTE CARLO SIMULATIONS – COST AND RISK RESULTS



WRAP UP DISCUSSION

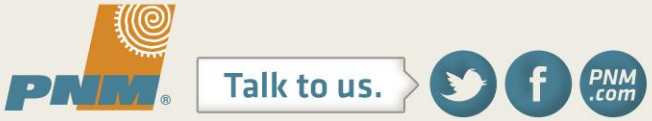
MEETINGS

- Tuesday, September 17th: Illustrate the process
- Friday, September 20th: Discuss assumptions
- Thursday, September 26th: Plan next steps

Thursday, September 26th Agenda

- Welcome, Introductions, Safety and Ground Rules
- Review responses to questions received to date
- Discuss IRP Work Plan to complete the process
- Wrap up and discuss potential dates for the next meeting

Thank you



MAKE SURE WE HAVE UP TO DATE CONTACT INFORMATION FOR YOU

www.pnm.com/irp for documents

irp@pnm.com for e-mails

Register your email on sign-in sheets for alerts of upcoming meetings and notices that we have posted new information to the website.

Meetings Schedule:

Tuesday, Sept. 17, 2013, 8 a.m.- noon

Friday, Sept. 20, 2013, 8 a.m.- noon

Thursday, Sept. 26, 2013, 8 a.m.- noon