

PNM 2014-2033 Integrated Resource Plan

FEBRUARY 18, 2014



Talk to us.



WIRELESS ACCESS FOR FEB 18TH ATTENDEES

Network: Orbit-GA

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AGENDA

FEBRUARY 18TH

Today's agenda

- Welcome, Introductions, Safety and Ground Rules
- Discuss Process
- Portfolio Comparisons (continuation from Feb 7th)
 - Added value to handouts from February 7th
 - IRP Rule CO2 prices
 - Energy Efficiency
 - Drought Sensitivity
- Discuss Schedule & Plan future meetings

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
- Recycling – please help our efforts by dropping plastic or aluminum containers in the designated recycle bins

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).

PORTFOLIO ANALYSIS

PORTFOLIO MODELING AND RISK ANALYSIS WORK

- Comparing least cost Strategist[®] results
- IRP Most Cost Effective Portfolio will consider
 - Sub-hourly reliability needs
 - Renewable Portfolio Standards and EUEA
 - Qualitative and Quantitative Risk Analysis
 - Regional market cost savings and reliability support
 - FERC-NERC grid security impacts
 - Overall system performance
- Handouts are raw Strategist[®] results, PNM has not created the Most Cost Effective Portfolio that will be examined to consider items listed above

IRP GOALS

ITEMS TO CONSIDER WHEN BUILDING MOST COST EFFECTIVE PORTFOLIO

Legislation Governing Utility IRP:

- 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
 - 15 % of annual retail sales in 2015 through 2019
 - 20% of annual retail sales in 2020
 - Diversified Portfolio: 20 % Wind, 20% Solar, 5% Other, 3% DG
- Energy Efficiency – 17.7.2 NMAC

Reliability Standards:

- Planning reserve margin
- Operating reserves
- Regulation and Frequency Response
- Energy Imbalance management

PORTFOLIO COMPARISONS

- Load: refers to high, mid and low load scenarios discussed last week
- Gas and carbon: refers to PACE price scenarios
 - Mid gas, mid carbon: scenario based on extrapolation of current conditions
 - Low gas, low carbon: natural gas production occurs at lower cost and carbon regulations delayed compared to mid
 - High gas, high carbon: converse of low
- Updated handouts from February 7 to include:
 - Highlighted differences compared to reference price and mid load portfolios for each of the three SJGS replacement assumptions illustrated
 - 95th risk tail pricing for each portfolio

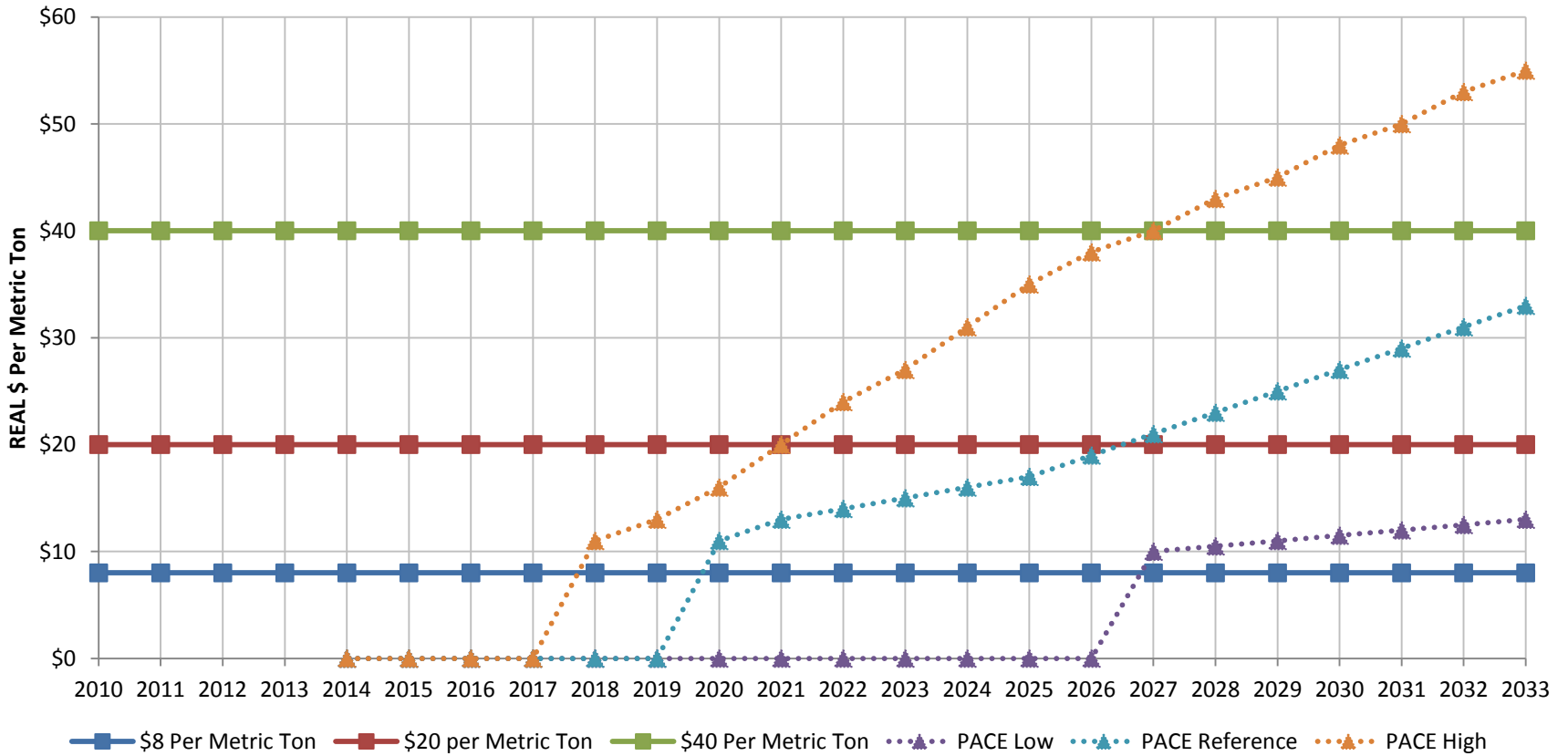
IMPACT OF IRP RULE CARBON PRICES

DESCRIPTION AND ASSUMPTIONS

- PNM is required to examine the following carbon prices in IRP:
 - \$8 per metric ton starting in 2010 and escalating at 2.5% annually
 - \$20 per metric ton starting in 2010 and escalating at 2.5% annually
 - \$40 per metric ton starting in 2010 and escalating at 2.5% annually
- Also consider \$0 per metric ton
- Following graph illustrates how these prices compare to PACE reference carbon pricing used in the analysis to date
- Handouts illustrate the impact on least cost portfolio optimization

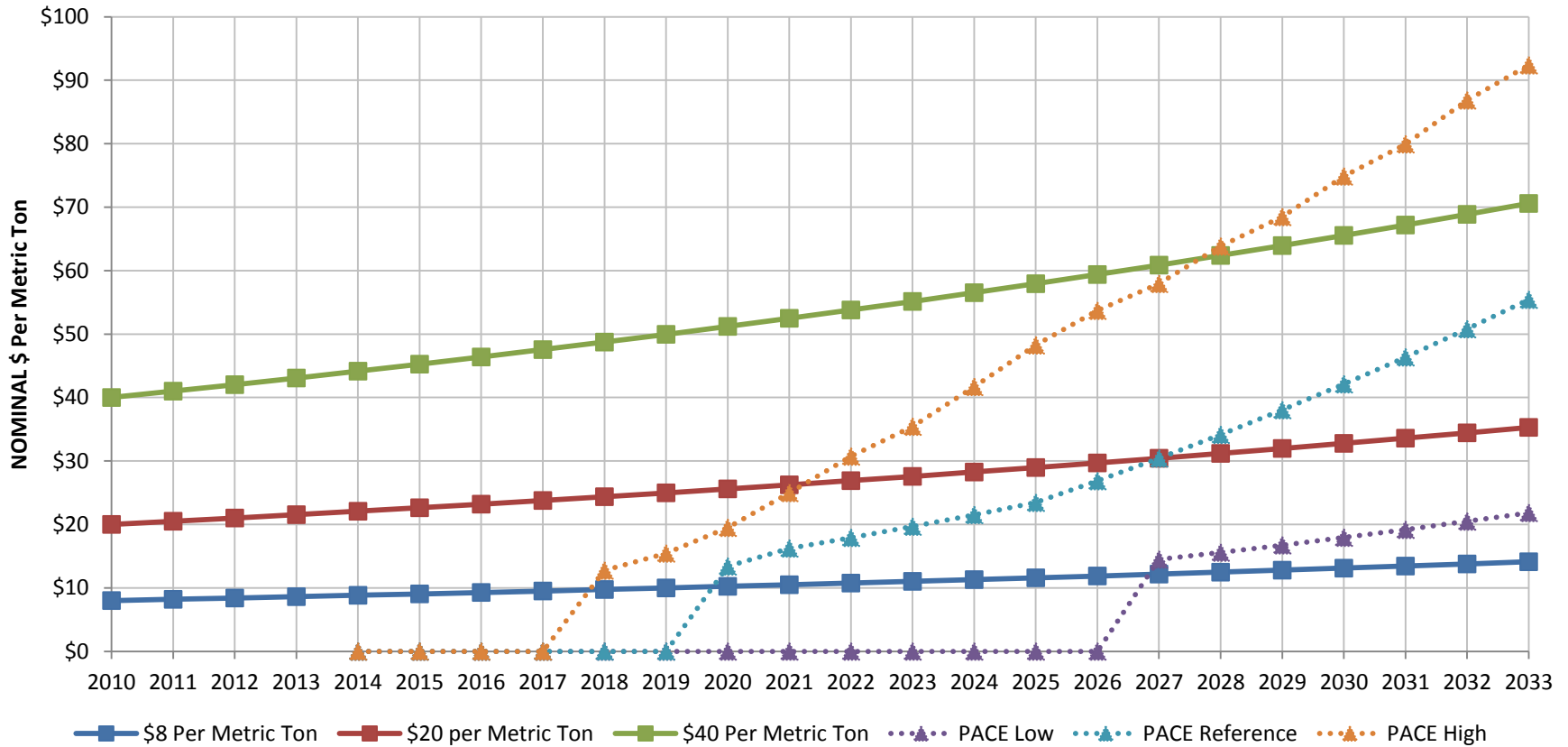
IRP RULE CARBON PRICES

COMPARISON TO PACE REFERENCE PRICES (REAL DOLLARS)



IRP RULE CARBON PRICES

COMPARISON TO PACE REFERENCE PRICES (NOMINAL DOLLARS)



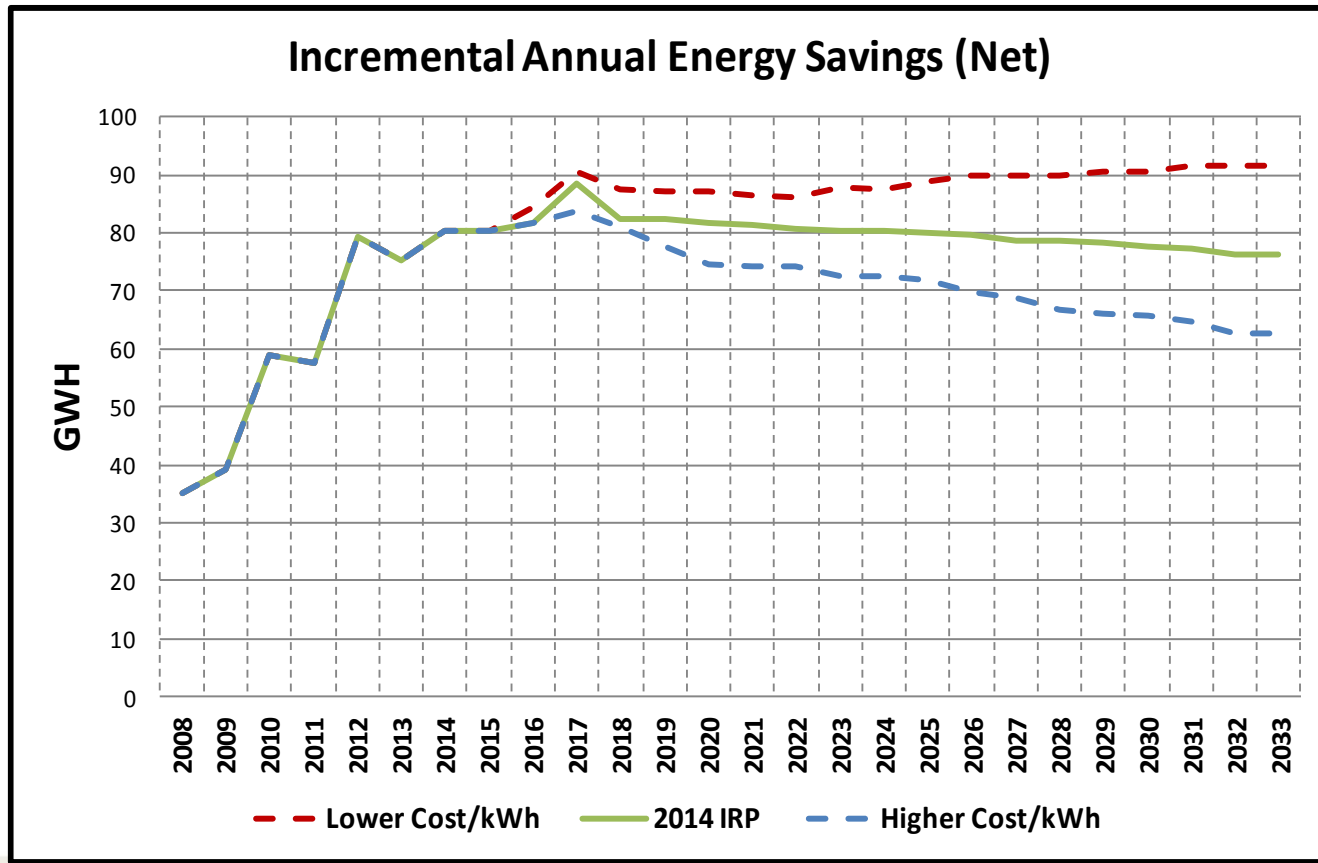
ENERGY EFFICIENCY SENSITIVITY

DESCRIPTION AND ASSUMPTIONS

- PNM will file for approval of new and continuing energy efficiency programs later this year
- Program plan filing will transition to the new Efficient Use of Energy Act requirement to spend 3% of sales to achieve energy efficiency savings
- PNM's estimated energy efficiency savings were presented on September 20, 2013
- Total savings achieved per dollar spent can vary – it may be more and it may be less

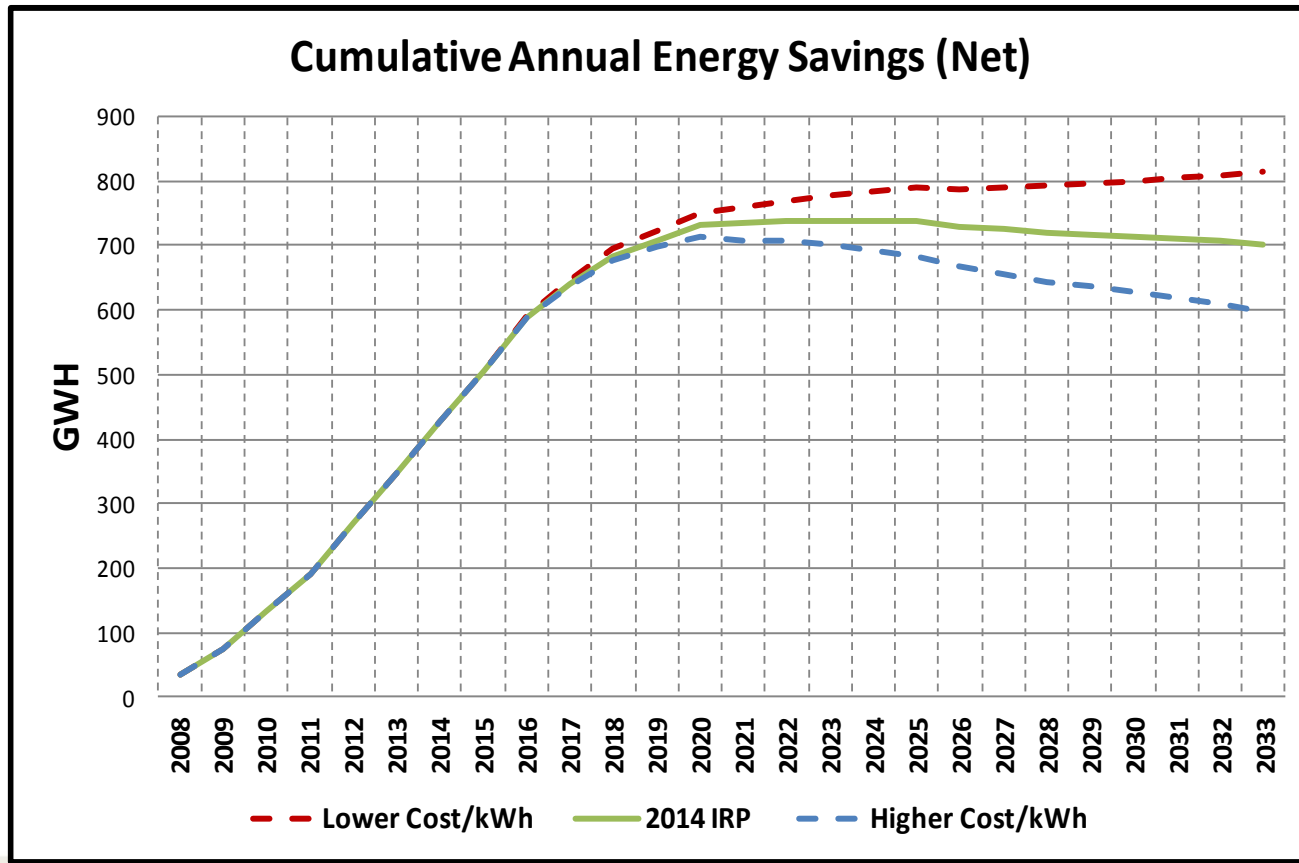
ENERGY EFFICIENCY SENSITIVITY

RESOURCE VARIATIONS IN THE CASES – INCREMENTAL



ENERGY EFFICIENCY SENSITIVITY

RESOURCE VARIATIONS IN THE CASES – CUMULATIVE



ENERGY EFFICIENCY SENSITIVITY

OBSERVATIONS

- Portfolio comparisons provided in handouts
- Variations in the effectiveness of the energy efficiency resource can defer or accelerate the need for other resources
- Deferrals or accelerations occur in the next decade, so variations in the effectiveness of the energy efficiency resource do not affect the near term portfolio decisions

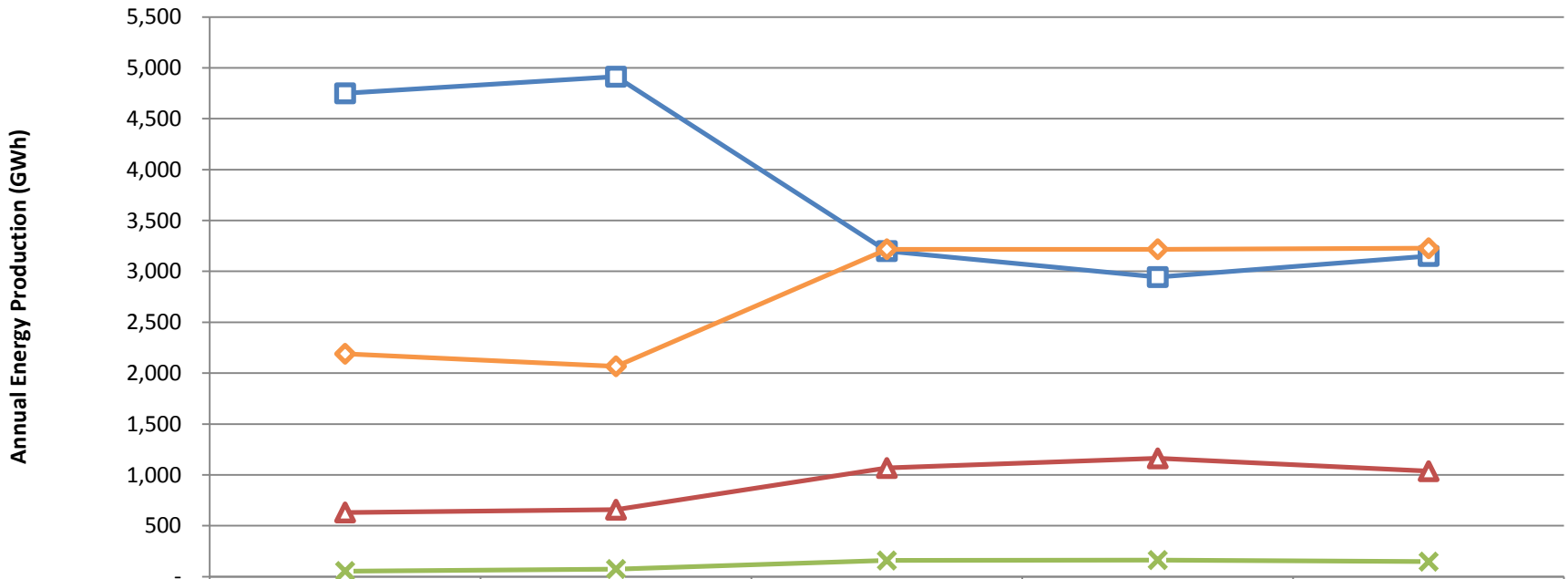
DROUGHT SENSITIVITY

DESCRIPTION AND ASSUMPTIONS

- PNM's generation resources use varying amounts of water
- To test impact on portfolio selection, PNM imposed a drought condition at the San Juan Generating Station (water intensive resource)
- Drought condition for years 2017 through 2019
- Drought period was chosen since this is when PNM will need to add new resources to the portfolio
- SJGS annual output was curtailed by approx 25% during this time (does not affect peak contribution)

DROUGHT SENSITIVITY

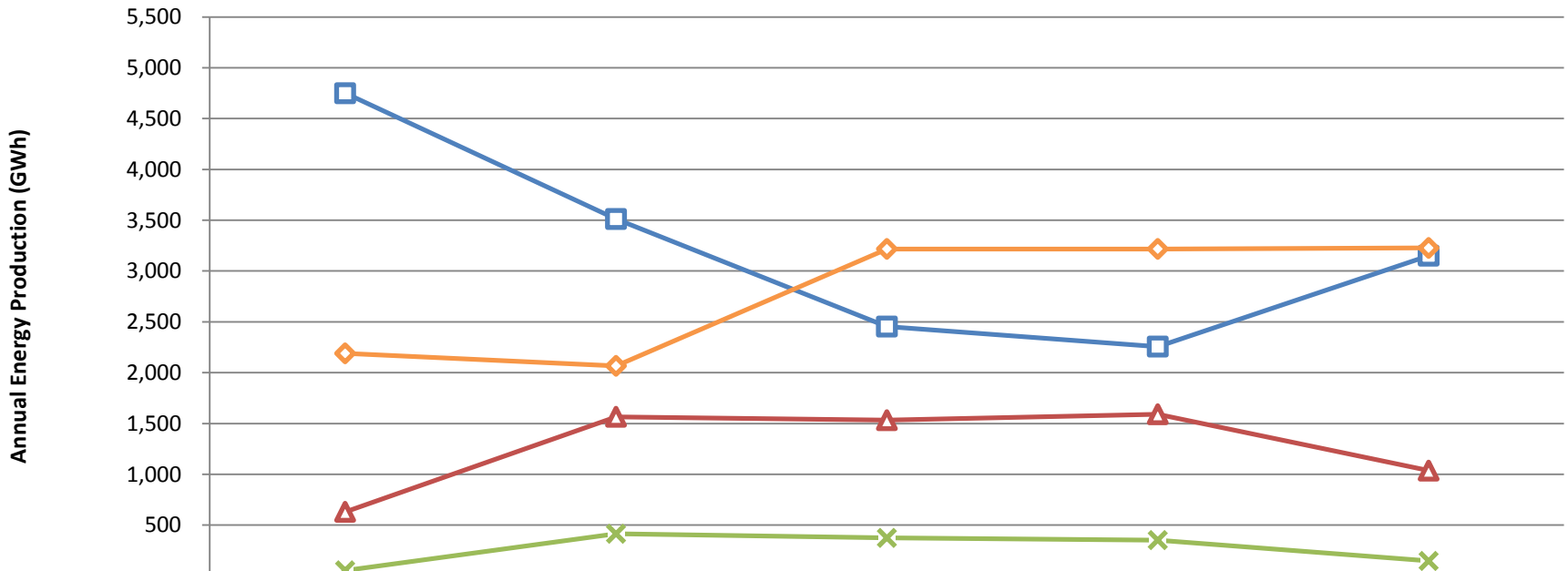
RESULTS OF ANALYSIS – REVISED SIP + PV3 (WITHOUT DROUGHT IMPACT)



	2016	2017	2018	2019	2020
San Juan	4,750	4,913	3,199	2,944	3,151
Palo Verde	2,190	2,068	3,218	3,218	3,227
Afton & Luna	632	658	1,068	1,163	1,037
Peakers	55	75	159	163	148

DROUGHT SENSITIVITY

RESULTS OF ANALYSIS – REVISED SIP + PV3 (WITH DROUGHT IMPACT)



	2016	2017	2018	2019	2020
San Juan	4,750	3,512	2,454	2,257	3,151
Palo Verde	2,190	2,068	3,218	3,218	3,227
Afton & Luna	632	1,566	1,533	1,592	1,037
Peakers	55	415	375	353	148

DROUGHT SENSITIVITY

RESULTS OF ANALYSIS – LOSS OF LOAD HOURS

Year	RSIP + PV3	RSIP + PV3 (Drought)
2014	11.58	11.58
2015	5.91	5.91
2016	2.12	2.12
2017	3.51	68.47
2018	1.66	8.62
2019	1.82	8.89
2020	1.70	1.70
2021	2.86	2.86
2022	1.55	1.55
2023	1.62	1.62
2024	1.85	1.85
2025	3.25	3.25
2026	2.13	2.13
2027	1.72	1.72
2028	1.26	1.26
2029	1.90	1.90
2030	1.47	1.47
2031	0.74	0.74
2032	1.08	1.08
2033	1.47	1.47
Total	51.20	130.19

DROUGHT SENSITIVITY

OBSERVATIONS

- Resource portfolio does not change with modeled drought
- Drought condition increases system costs by \$75 M (NPV)
- Addition of Palo Verde 3 makes portfolio more drought tolerant
- Drought condition decreases system reliability (ability to count upon resources when needed) in drought years
- Water curtailment at San Juan has low probability, given PNM's water rights

NEXT MEETING AGENDA

CONTINUE PORTFOLIO ANALYSIS

- Follow up on comments from today's meeting
- Adding solar sensitivity to the wind sensitivity presented in December
- Risk and trend analysis presentation
- Discuss report preparation
- Meeting scheduled for March 11, 9:00 AM

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

Friday, Oct. 4, 2013, 8 a.m.- noon

Friday, Nov. 15, 2013, 8 a.m.- noon

IRP GOALS

BALANCE

