



IRP Public Advisory Meeting #2

Workshop with IRP Stakeholders

July 18, 2014

Barnes & Thornburg
11 South Meridian St.



Welcome and Introductions



Meeting Agenda and Guidelines

Presented by Marty Rozelle, PhD, Meeting Facilitator



Meeting Objectives

- Continue conversation on the Integrated Resource Plan, including providing new information and incorporating stakeholder feedback
- Gather comments and feedback – specifically on the four Ventyx Scenario results presented
- Continue relationship built on trust and respect



IRP Public Advisory Meeting #2

Agenda Topics

- Summary of IRP Public Advisory Meeting #1
- Demand Side Management Update
- Environmental Update
- Overview of Stakeholder Comments and Questions
- Incorporating Stakeholder Input
- Presentation of Ventyx Scenario Results
- Stakeholder Feedback and Comments



Meeting Guidelines

- Time for clarifying questions at end of each presentation
- Parking lot for items to be addressed later
- The phone line will be muted. During the allotted question time frames, you may press *6 to un-mute yourself or type a question through the web-chat function.
- To inquire about confidential information please contact Teresa Nyhart with Barnes & Thornburg, LLP at teresa.nyhart@btlaw.com



Written Comments and Feedback

- Please email comments and questions to IPL.IRP@aes.com
- All comments and questions received by August 1 will have responses posted on the IPL IRP website by August 15



Questions?



Summary of IRP Public Advisory Meeting #1

Presented by Herman Schkabla, Director of Resource Planning



IRP Public Advisory Meeting #1

May 16, 2014 --- Agenda Topics

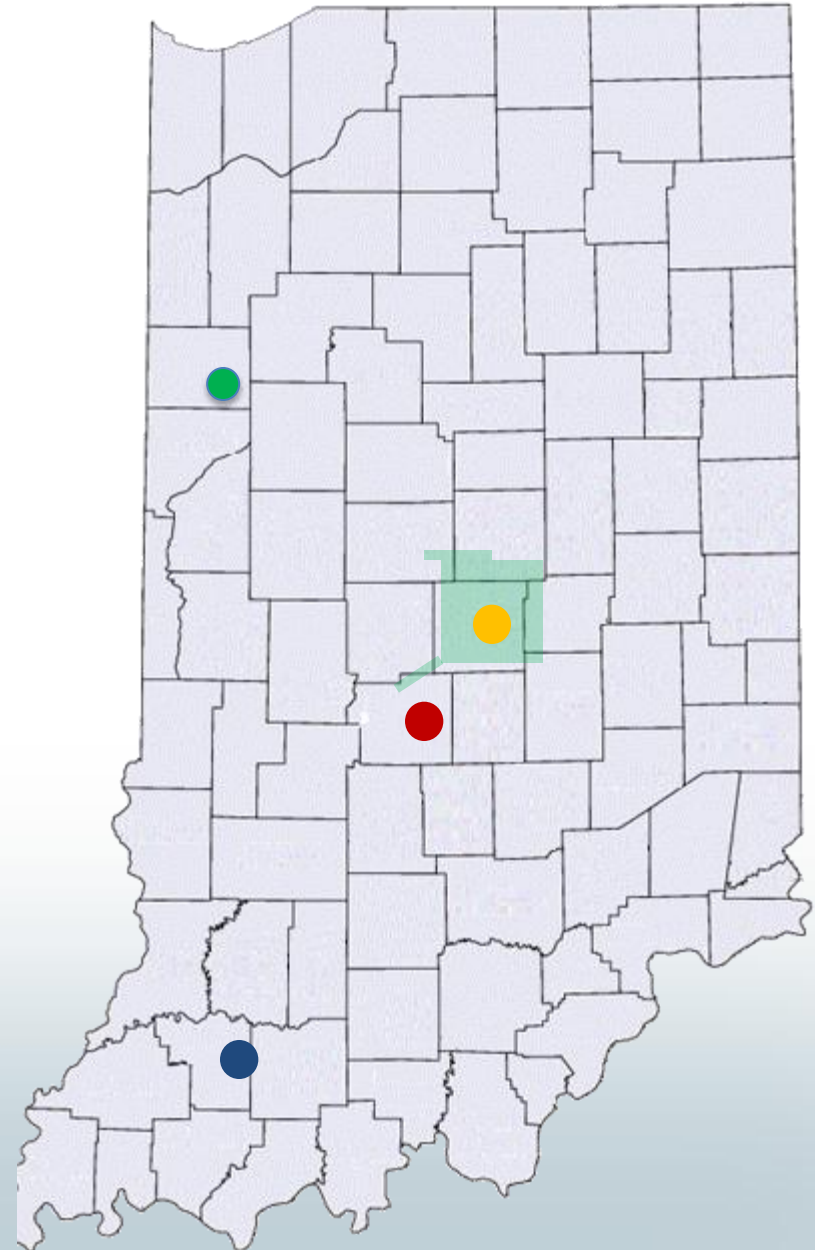
- Introduction to IPL and Integrated Resource Planning Process
- Energy and Peak Forecasts
- Demand Side Management: Energy Efficiency and Demand Response
- Planning Reserve Margin
- Generation Overview
- Environmental Overview
- Distributed Energy Resources
- Proposed Modeling Assumptions



Company Profile

- 470,000 customers*
- 1,400 employees*
- 528 sq. miles territory
- 144 substations

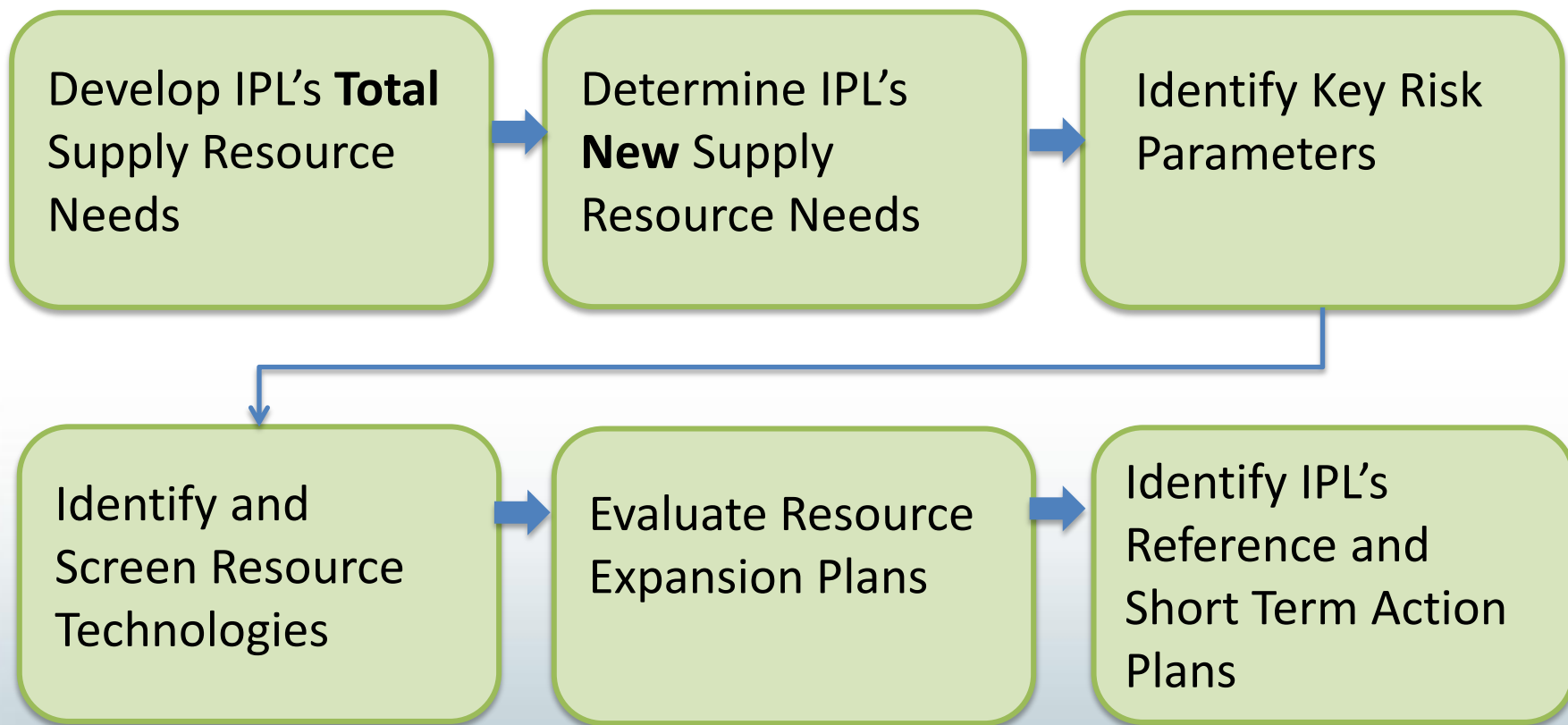
- **Harding Street Station, Georgetown Station, Solar REP Projects - 1,322 MW****
- **Eagle Valley Generating Station - 263 MW****
- **Petersburg Generating Station – 1,760 MW****
- **Hoosier Wind Park PPA – 100 MW****
- **Lakefield Wind Park PPA – 201 MW****
(In Minnesota – Not pictured)



*approximate numbers
**nameplate capacity

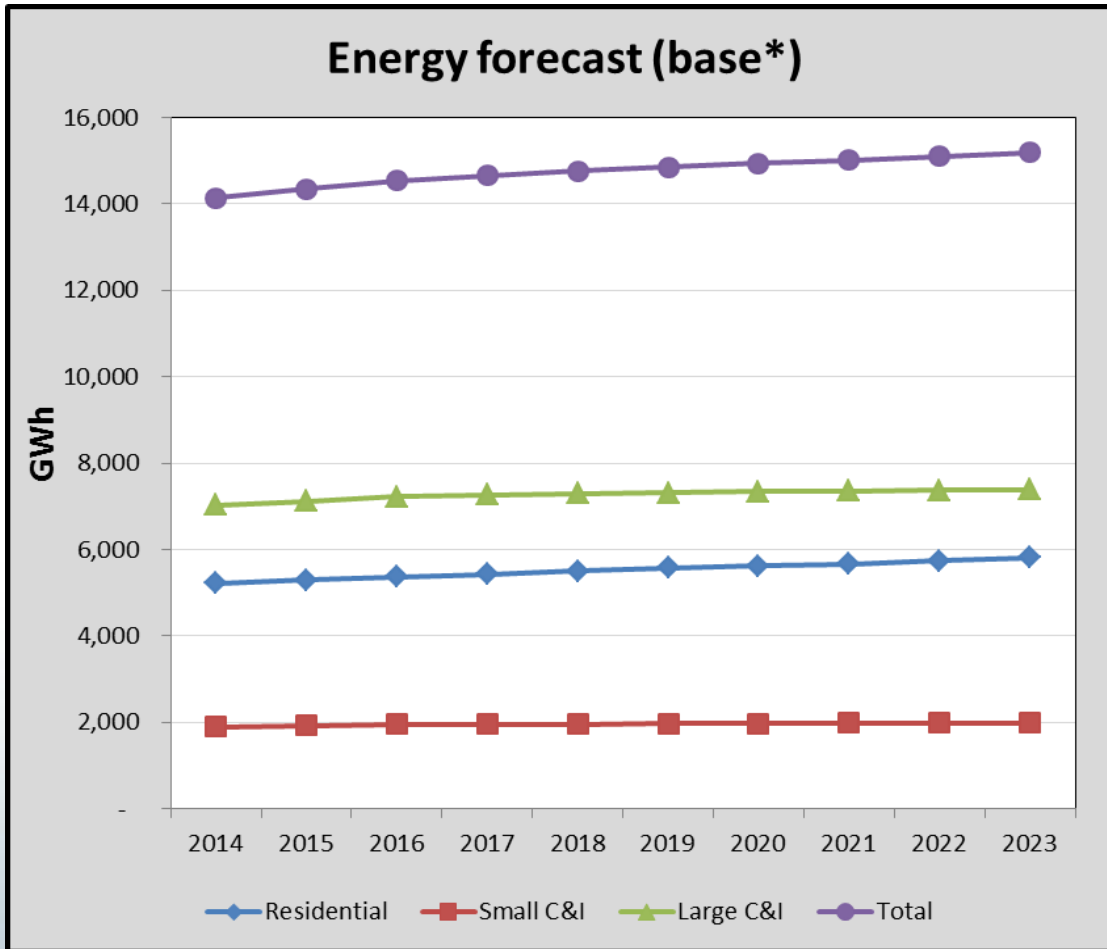


IRP Process Overview





The Forecast : Energy

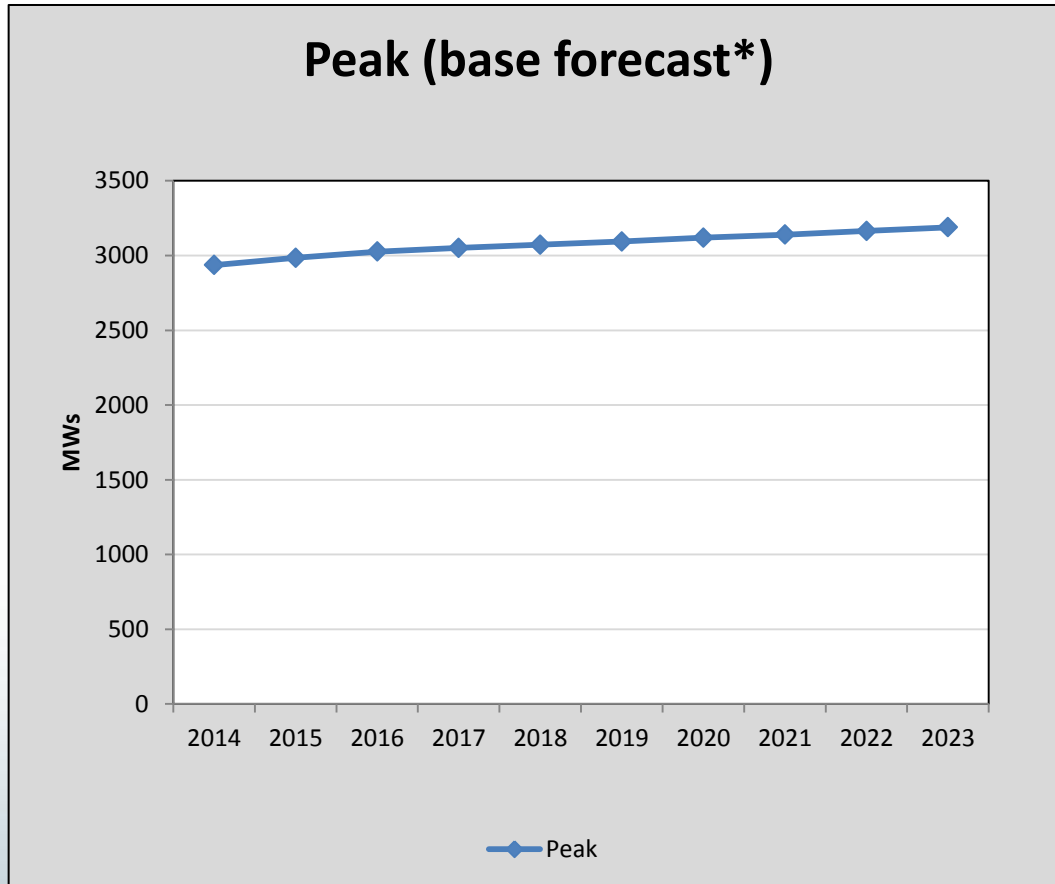


- Average **Energy** growth rates (2014-23):
- Residential: 1.2%
 - SCI: 0.6%
 - LCI: 0.6%
 - **Total: 0.8%**

* The forecast does not reflect company-sponsored DSM savings.



The Forecast : Peak



Average **Peak**
growth rate (2014-23):
0.9%

* The forecast does not reflect company-sponsored DSM savings.



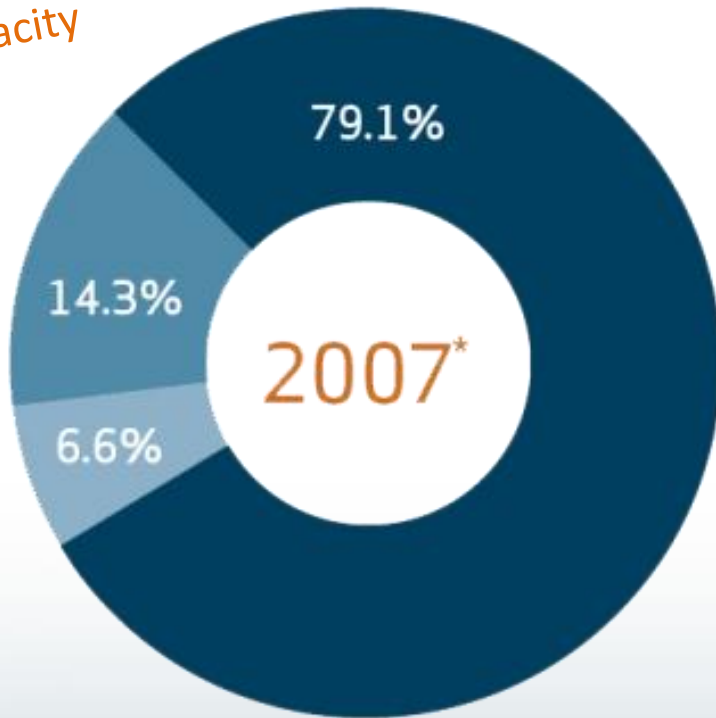
DSM Integration into IPL's Planning and Portfolio

- IPL has offered DSM programs on essentially a continuous basis since 1993
- IPL expects to continue to provide cost effective DSM programs to help our customers reduce their energy use and better manage their energy bills
- IPL reflects an ongoing level of end-use Energy Efficiency (ex. home appliance improvements) in preparation of our base case load forecast
- The 2015-2017 DSM Action Plan is being finalized
- The 2018 and beyond DSM forecast will be developed with the support of EnerNOC



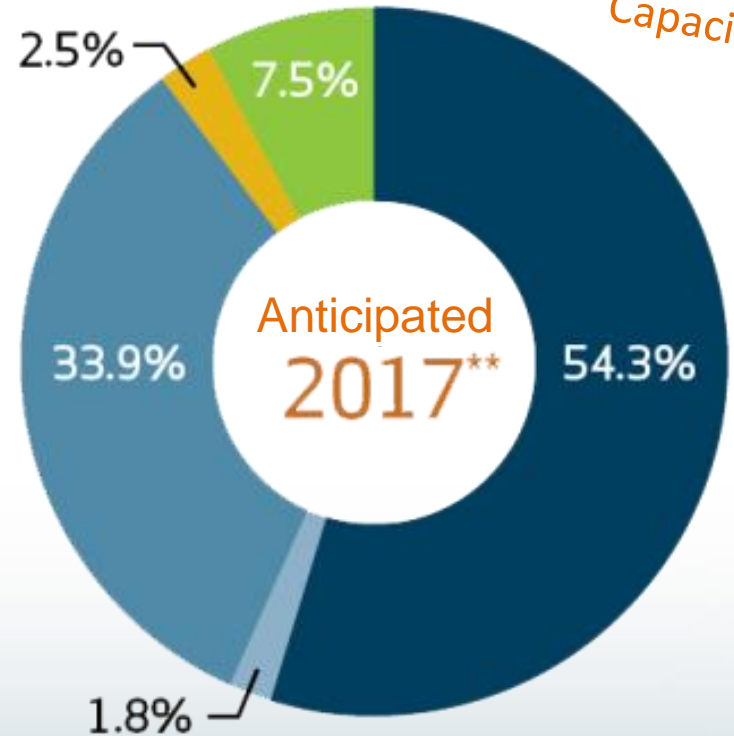
Adapting our Generation Portfolio to Respond to EPA Rules and Market Dynamics

Capacity



- Coal
- Natural Gas
- Oil

Capacity



- Wind
- Solar

*Resources based on maximum summer rated capacity

**Includes long-term PPAs & anticipated Rate REP contracts; plans subject to Commission approval



Environmental Regulations

- Current Environmental Regulations/Environmental Projects
 - Mercury and Air Toxics Standard (MATS)
 - NPDES Water Discharge Permits
- Future Environmental Regulations
 - Coal Combustion Residuals (CCR)
 - 316(b) – Cooling water intake structures
 - Greenhouse Gas (GHG) New Source Performance Standards (NSPS)
 - National Ambient Air Quality Standards (NAAQS)
 - Clean Air Interstate Rule (CAIR) Replacement Rule

NPDES= National Pollutant Discharge Elimination System



Distributed Generation

- Distributed generation can be difficult to implement on a large scale
- Solar has the best opportunity for growth in the IPL service territory but is currently challenging as a least cost resource
- Actively monitoring trends in Distributed Generation and Distributed Energy Resources

Ventyx's Agenda

- Introduction to North American Power Reference Case
 - Load and Resources
 - Natural Gas
 - Coal Forecast
 - Emissions Market
 - Renewables
 - Scenarios
- Proposed IPL Modeling Assumptions
 - Natural Gas Prices
 - Market Power Prices
 - Carbon Policy
 - Modeling

Reference Case Scenario Descriptions –

Modeling results were not presented at the May 16, 2014 meeting

- **Base Gas Price**
 - Base Reference Case assumptions
 - No CO2 emissions cap
- **Low gas price**
 - Ventyx subjective view of 10th percentile of probability distribution
 - Corresponds to production costs for best shale plays
- **High gas price**
 - Ventyx subjective view of 90th percentile of probability distribution
 - Corresponds to limited shale supply scenario
- **Federal environmental legislation**
 - CO2 emissions cap 2020 start, 80% below 2005 levels by 2050
 - RPS begins in 2020 and later target is 12% of retail sales by utilities with load greater than 4 Terawatt hours (TWh)



Questions?



Demand Side Management Update

Presented by Jake Allen, DSM Program Development Manager



Recent Developments

- IPL has made a filing for approval of a DSM Plan for 2015/2016 in Cause No. 44497
- Testimony filed in Cause No. 44441 regarding large customer's ability to opt-out of DSM
 - First window for opt-out (July 1, 2014) has closed
- Numerous comments on the IURC General Administrative Order have been made, providing recommendations for future DSM in Indiana



2015-2016 DSM Plan Filed - Cause No. 44497

- Cause No. 44497 seeks Commission approval of a 2 Year Plan (2015-2016); however, a 3 Year Action Plan (2015-2017) was included in the prepared filing
- Petition filed on May 30, 2014
- Plan includes 13 DSM Programs (9 Residential; 4 Business)
- Target EE Savings approx. 1.2% of sales (total sales before large customer opt-out)
- Expect to continue collaboration with Citizens Gas



IPL's Proposed DSM Programs - Cause No. 44497

Segment	2015/2016 Proposed Programs	Program Description
RES	Lighting	Prescriptive lighting buy down
RES	Income Qualified Weatherization	Audit with direct install measures including air sealing and insulation
RES	Home Energy Assessment	Walk through assessment with direct install measures and energy efficient recommendations
RES	School Education – Kits	Energy efficient kits and education to eligible students
RES	Multifamily	Direct install measures delivered in multifamily housing units
RES	Online Energy Assessment	Online assessment with kit delivery as fulfillment
RES	Appliance Recycling	Recycling of inefficient refrigerators, freezers, and window AC units
RES	Peer Comparison	Home energy reports
RES	Air Conditioning Load Management	Direct load control
BUS	Prescriptive Rebates	Prescriptive rebates for qualifying measures
BUS	Custom Rebates	Custom rebates for qualifying measures
BUS	Small Business Direct Install	Walk through assessment with direct install measures and energy efficient recommendations
BUS	Air Conditioning Load Management	Direct Load Control



Proposal for Current Offerings - RESIDENTIAL

Current Residential Programs	2015/2016 Proposal
Home Energy Assessment (was Energizing Indiana Program)	IPL will begin to administer
Income Qualified Weatherization (was EI Program)	IPL will begin to administer
Residential Lighting (was EI Program)	IPL will begin to administer
Energy Efficient Schools – Education (was EI Program)	IPL will begin to administer
Residential New Construction	Program not continued
Online Energy Assessment w/ Kit	IPL will continue to administer
Multifamily Direct Install	IPL will continue to administer
Appliance Recycling	IPL will continue to administer
Peer Comparison Report	IPL will continue to administer
CoolCents® Residential ACLM	IPL will continue to administer
Residential Renewables	Program not continued

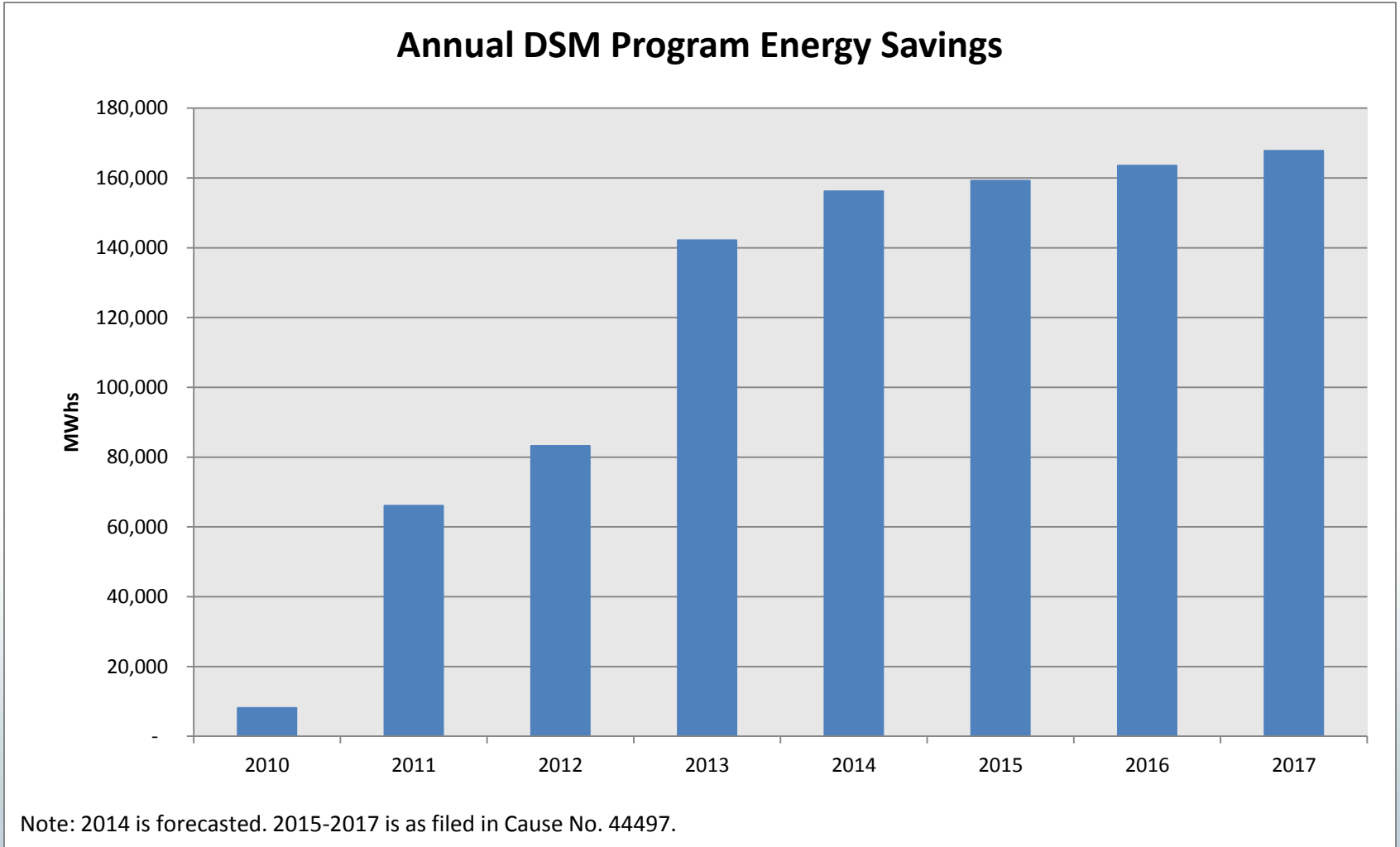


Proposal for Current Offerings - BUSINESS

Current Business Programs	2015/2016 Proposal
Energy Efficient Schools - Audit & DI (was EI Program)	Program discontinued; Schools will continue to have EE opportunities
C&I Prescriptive – Core (was EI Program)	IPL will administer moving forward; measures merged with IPL Business Energy Incentives
C&I Renewables	Program not continued
CoolCents® C&I ACLM	IPL will continue to administer
C&I Renewables Multifamily Direct Install	IPL will continue to administer
Business Energy Incentive Program – Prescriptive/Custom	IPL will continue to administer. Combined with Prescriptive Measures from EI Core



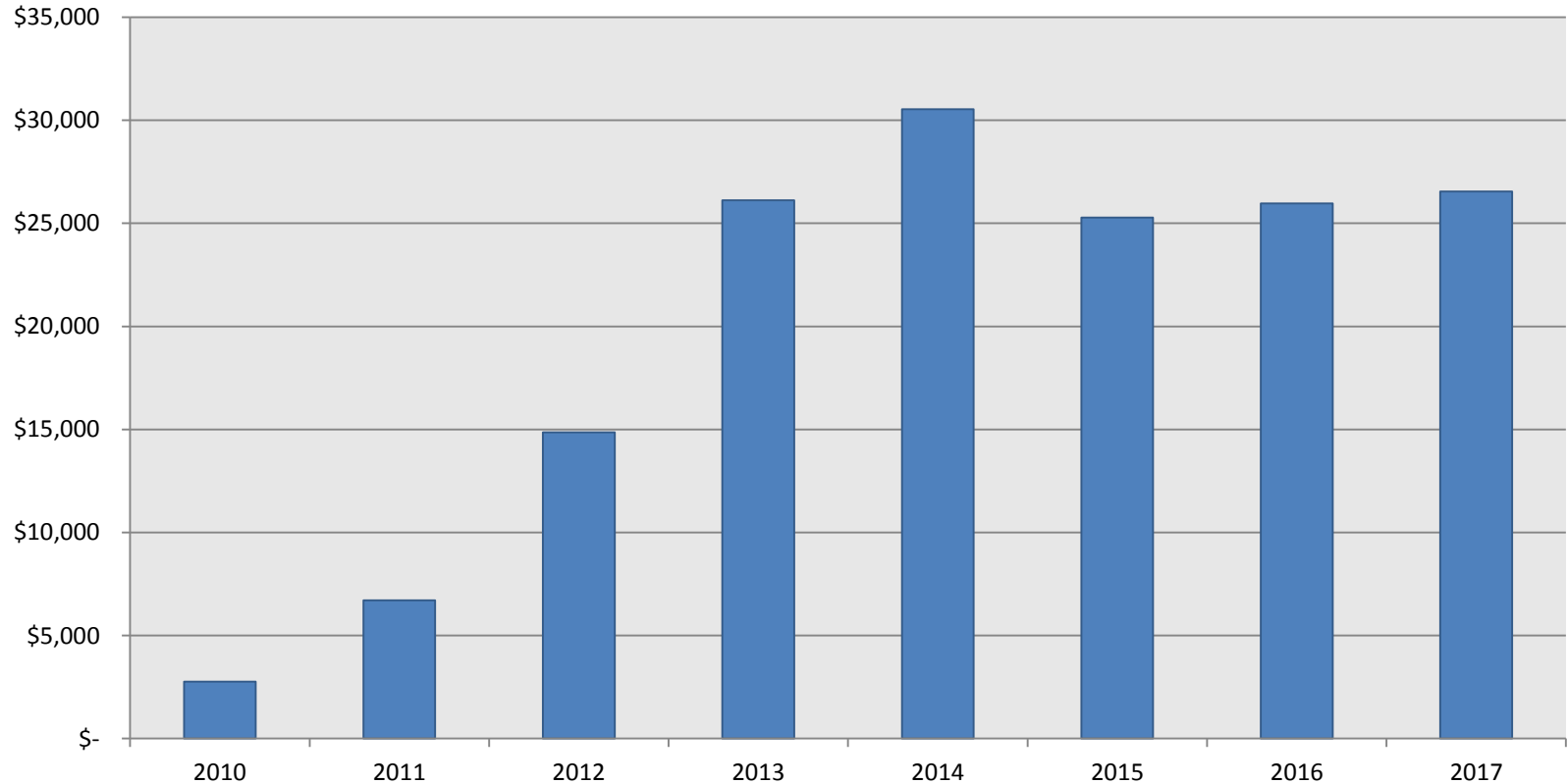
DSM Energy Savings





DSM Spending

Annual DSM Program Expenditures



Note: 2014 is forecasted. 2015-2017 is as filed in Cause No. 44497.



Other DSM Considerations

- Update on Large Commercial & Industrial Customer opt-out of participation in IPL DSM Programs
 - First opt-out opportunity was July 1, 2014
 - Next opt-out opportunity is January 1, 2015
 - 41 IPL customers opted out
 - These 41 customers had 231 services
 - Annual sales to these customers are about 1,800 GWH or about 13% of total IPL sales
- Working with Applied Energy Group (formerly known as EnerNOC) on 2018-2034 DSM potential
- EPA Clean Power Plan
 - Proposed rule issued June 2, 2014



Other DSM Considerations

- Commission Report to Legislature
 - Recommendations on future DSM
 - Due not later than August 15, 2014 – pursuant to SEA 340
 - Review of recent DSM efforts in Indiana
- Procurement of Energy Service Providers
 - For Program Delivery (2015-2016)
 - Collaboration with Citizens Gas and Oversight Board



IPL Remains Committed to Providing Cost Effective DSM to Our Customers

- In Cause No. 44497, IPL is requesting approval to spend about the same amount as the current level for DSM, while achieving...
- ...About the same amount of annual savings in 2015/2016 as the current level for DSM
- IPL is retaining most of the existing programs and adding a new program – Small Business Direct Install



Questions?



Environmental Update

Presented by Angelique Olinger, Director of Environmental Policy



Environmental Updates

- 316(b)
 - Final Rule Released May 19, 2014
 - Consistent with Proposed Rule
- Clean Power Plan
 - Proposed Rule Released June 2, 2014



Clean Power Plan

- EPA's Clean Power Plan would reduce Carbon emissions from the power sector nationwide by 30% by 2030 from 2005 levels
- State-specific rate-based (lbs CO₂/MWhr) goals for carbon intensity
 - 1,607 lb/MWh – 2020-2029 average
 - 1,531 lb/MWh – 2030+
- Best System of Emission Reductions
 - cost
 - technical feasibility
 - other factors
- States must develop plans to achieve these reductions
- State Plan or Multi-state Plan



Timing

- 120 day comment period begins after publication in Federal Register
- Four public hearings will be held
- Final Rule expected June 1, 2015
- State Plans due June 30, 2016 with potential for 1-2 year extension
- Compliance with “interim goal” on average over the ten-year period from 2020-2029
- Compliance with “final goal” in 2030 and thereafter



EPA's Building Blocks

- EPA based required reductions on "building blocks" which States may incorporate into State Plans
 - Heat Rate improvements at EGUs;
 - Substituting generation from coal-fired EGUs with generation from existing NGCCs;
 - Substituting generation from coal-fired EGUs with generation from renewables;
 - Demand Side Energy Efficiency; and/or
- State may elect to use some or all of these measure to varying degrees in their State regulations or they may use other measures

EGU-Electric Generating Unit

NGCC- Natural Gas Combined Cycle



Potential Impacts

- Impacts will be heavily dependent upon State Plans and remain largely uncertain at this time, but may include:
 - Required heat rate improvements
 - Decreased dispatch of coal-fired units
 - Increased dispatch of renewables and existing NGCCs
 - Additional demand side EE measures
- Eagle Valley CCGT is not subject to the Rule because construction will commence after January 2014



Questions?



Overview of Stakeholder Comments and Questions

*Facilitated by Marty Rozelle, PhD
Explanations by IPL Team*



IPL's Feedback Response Table

- IPL responded to 112 stakeholder comments and questions
- All questions and responses were posted in IPL's Feedback Response Table on the IPL IRP webpage on June 20
- Today, IPL will briefly review selected questions and responses



Energy and Demand Forecast

- 10 year forecast but 20 year plan?
- DSM assumptions in the forecast?
- Forecast consistent with industry-wide forecasts?

Please see the Feedback Response Table on IPL's IRP webpage for all questions and answers.



Demand Side Management

- How will IPL meet future DSM goals?
- Status of Applied Energy Group's 2018 and beyond DSM forecast?

Please see the Feedback Response Table on IPL's IRP webpage for all questions and answers.



Renewables/ Environmental

- Keep Renewable Energy Certificates (“REC”) in Indiana?
- Combined heat and power opportunities?
- Many questions addressed the proposed EPA rule on CO₂. An update will be provided today.

Please see the Feedback Response Table on IPL’s IRP webpage for all questions and answers.



IPL's Modeling

- Define base case and reference case?
- Regional model vs. company specific model?
- Does IPL's model compare the cost of running generating units to the cost of purchasing or selling energy on the market?

Please see the Feedback Response Table on IPL's IRP webpage for all questions and answers.



IPL's Modeling (cont.)

- How are off system sales treated within the model?
- Retirement dates of all IPL plants?
- What would motivate an earlier retirement?
- Harding St 7 upgrades cost vs. Harding St 7 replacement generation costs?

Please see the Feedback Response Table on IPL's IRP webpage for all questions and answers.



Modeling Assumptions/ Inputs

- Many of the questions asked how DSM and CO2 will be treated in the model. An update on both will be provided today.
- There were also detailed modeling questions that can be addressed as we cover the initial modeling results today

Please see the Feedback Response Table on IPL's IRP webpage for all questions and answers.



Questions?



Incorporating Stakeholder Input

Presented by Herman Schkabl, Director of Resource Planning



Results from Public Advisory Meeting #1

Key Risk Factor	Number of Responses
Amount and cost of energy generated by natural gas	4
Amount and cost of energy generated by coal	6
Amount and cost of energy generated by wind turbines	7
Amount and cost of energy generated by solar facilities	5
Amount and cost of energy generated by other renewable sources (biomass, landfill gas, geothermal, etc.)	7
Amount and cost of consumer-initiated energy generation (“rooftop solar” / net metering)	10
Level of federal “carbon tax” imposed on power plant emissions	11
Level of government environmental regulations for air and water quality	10
Level of consumer energy conservation through voluntary programs (energy efficiency, etc.)	8
Load forecast	2
Cost of electricity delivered to the consumer (\$ / megawatt hour)	5

Other Key Risk Factors Identified: (1) Level of energy conservation through mandatory programs, (2) Cost of climate change resulting in weather calamities, (3) Effects of water scarcity, (4) Health effects of emissions, (5) Industrial customers dropping load through constructing own generation or co-generation



Addressing Top Stakeholder Risk Factors

- Cost assumptions for wind turbines
 - Reduced the Ventyx reference case cost assumption for new wind resources by \$200/KW to reflect declining costs for wind generation
- Carbon/GHG Assumptions
 - Included in the Ventyx environmental scenario
 - Will incorporate the “EPA Clean Power Plan” into the IPL base case scenario



Addressing Top Stakeholder Risk Factors

- DSM/EE
 - Will incorporate updated projections from Applied Energy Group analysis
 - Provide transparency on cost/benefit analysis evaluated on a consistent basis with supply-side options
 - Ventyx Model is not the best tool for DSM cost/benefit analysis
- Distributed Generation Impact
 - Will reduce energy forecast to reflect increasing level of customer dis gen (e.g. 2% by 2020, 4% by 2030)



Retirement Timing of Remaining Coal Units

- IPL is conducting a detailed parallel assessment of continued operation of its big 5 coal units
 - Part of upcoming IURC regulatory filing to develop a compliance plan for waste water rules (NPDES)
 - Unable to provide results at this time
- The NPDES compliance plan and supporting analysis will be integrated into the final 2014 IRP

NPDES – National Pollutant Discharge Elimination System



Questions?



Presentation of Ventyx Scenario Results

*Presented by Diane Crockett, Ventyx and
Herman Schkabra, Director of Resource Planning*

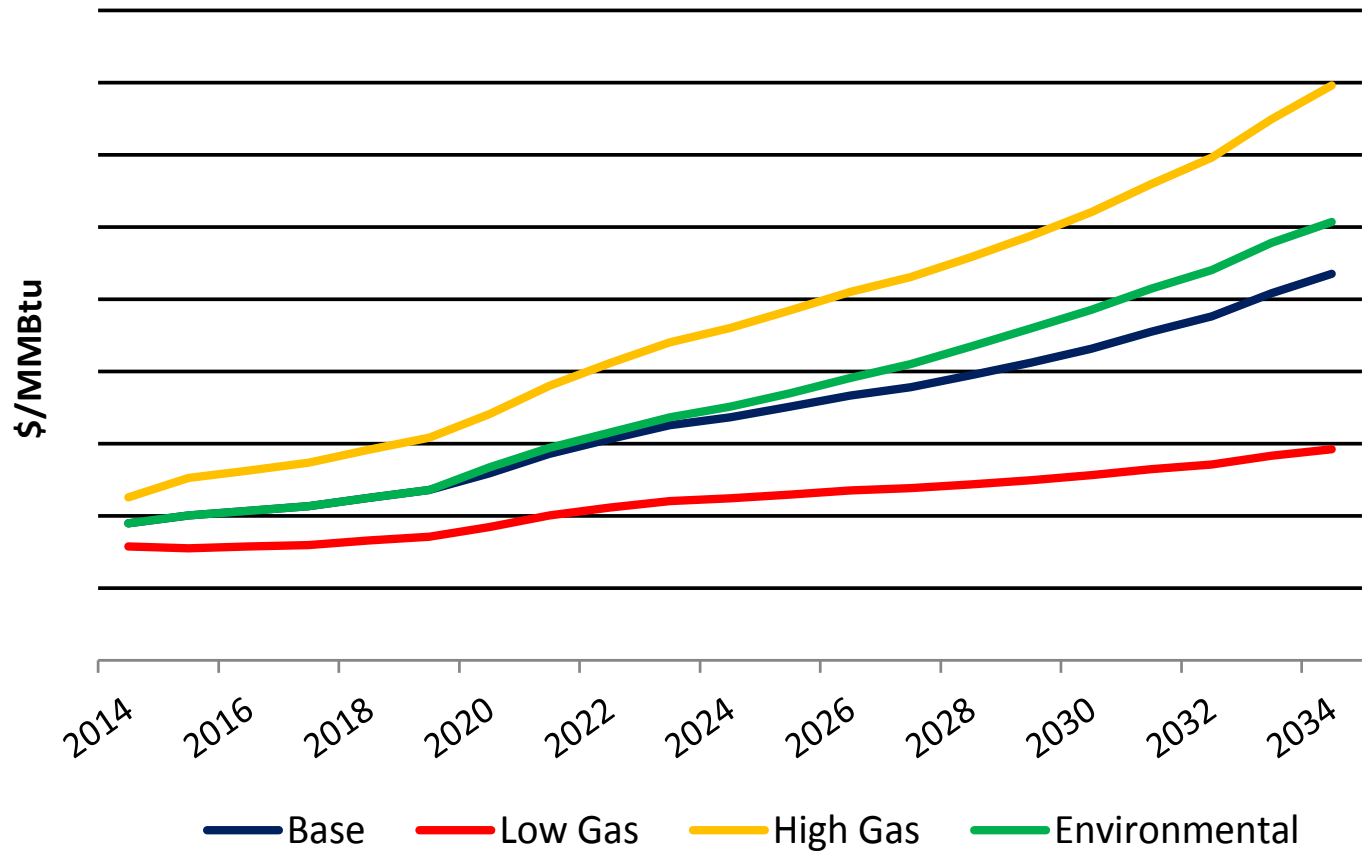


Reference Case Scenario Descriptions

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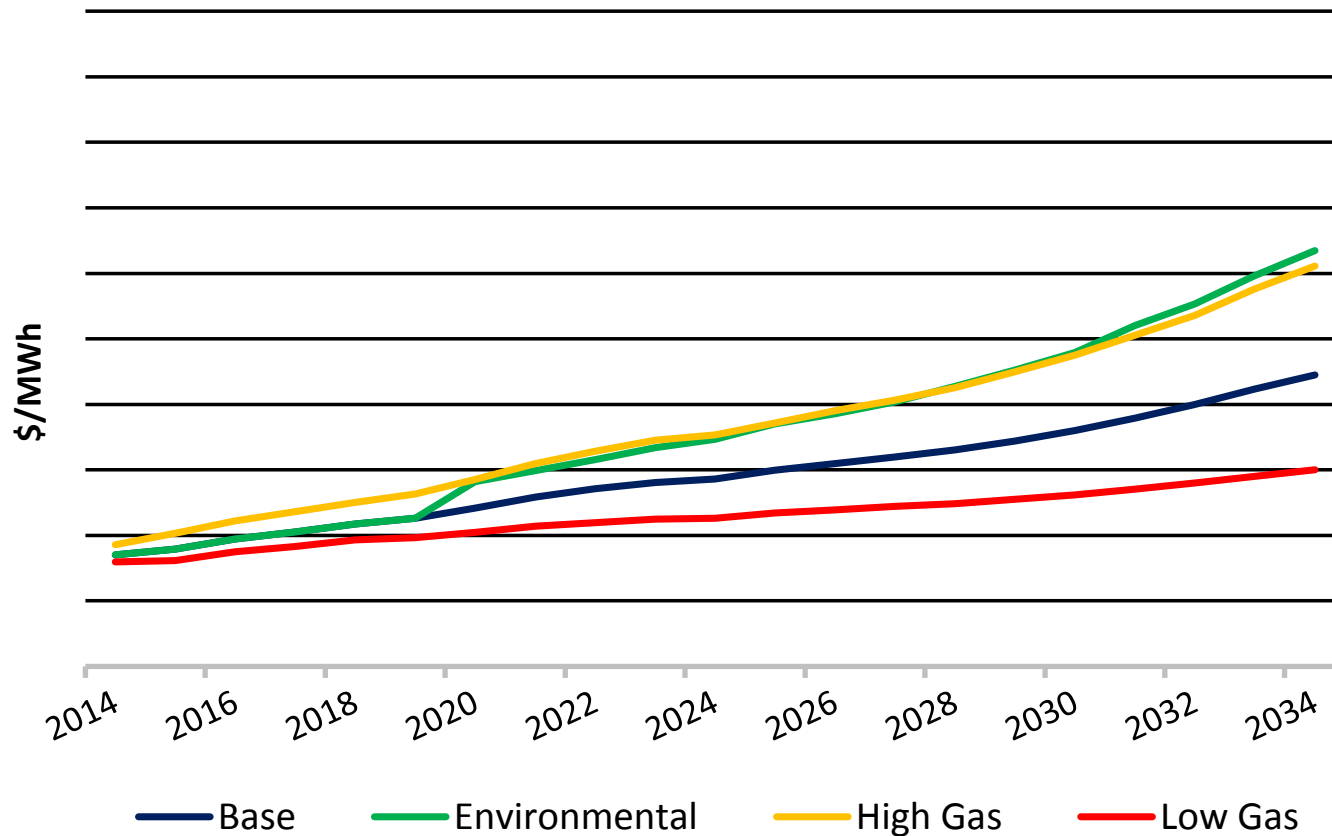


Henry Hub Proposed Annual Gas Price Forecast (Fall 2013 Reference Case \$/MMBtu)



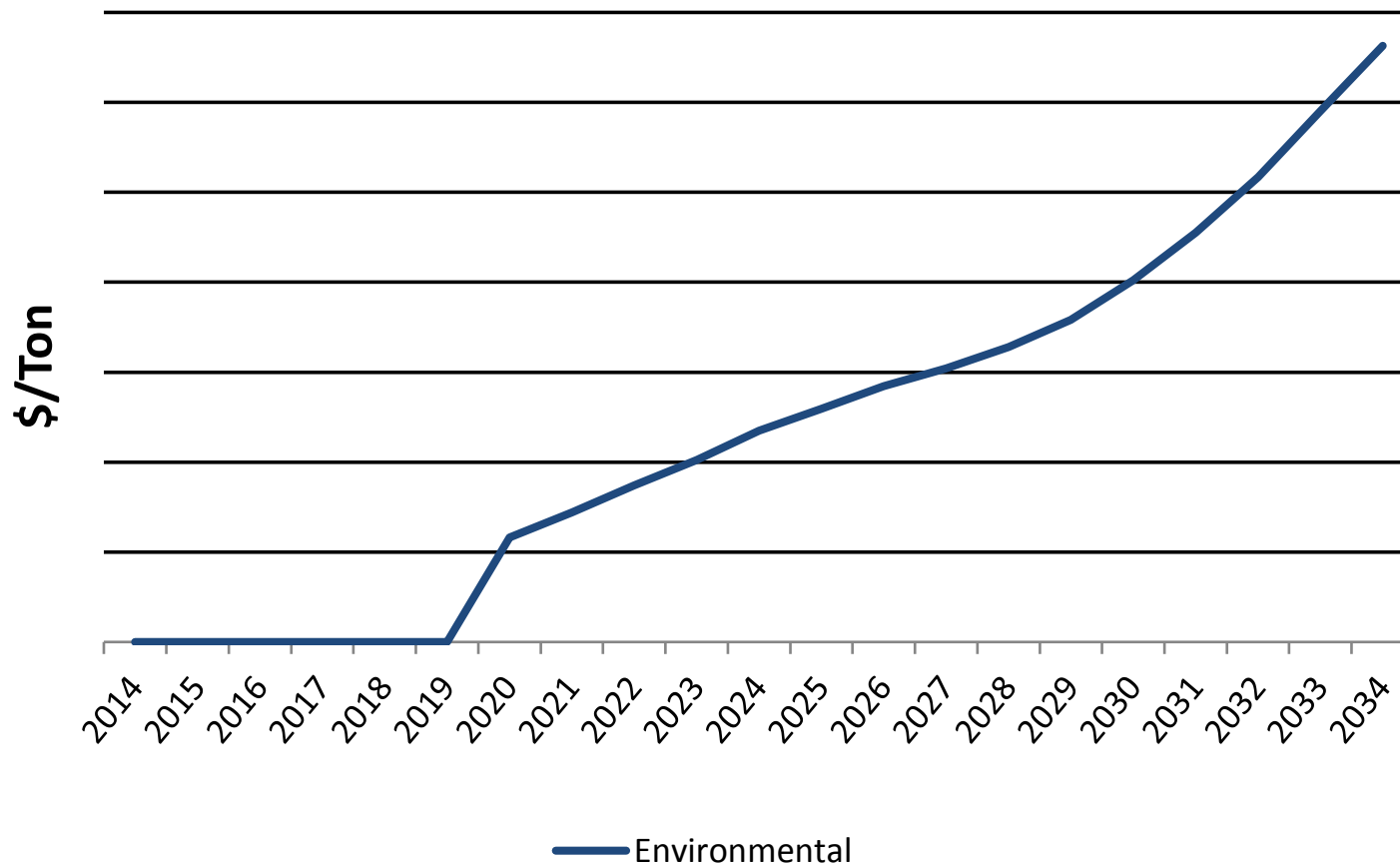


Proposed Annual MISO-Indiana Market Prices (7x24)(Fall 2013 Reference Case \$/MWh)





Proposed Carbon Prices (\$/Ton)



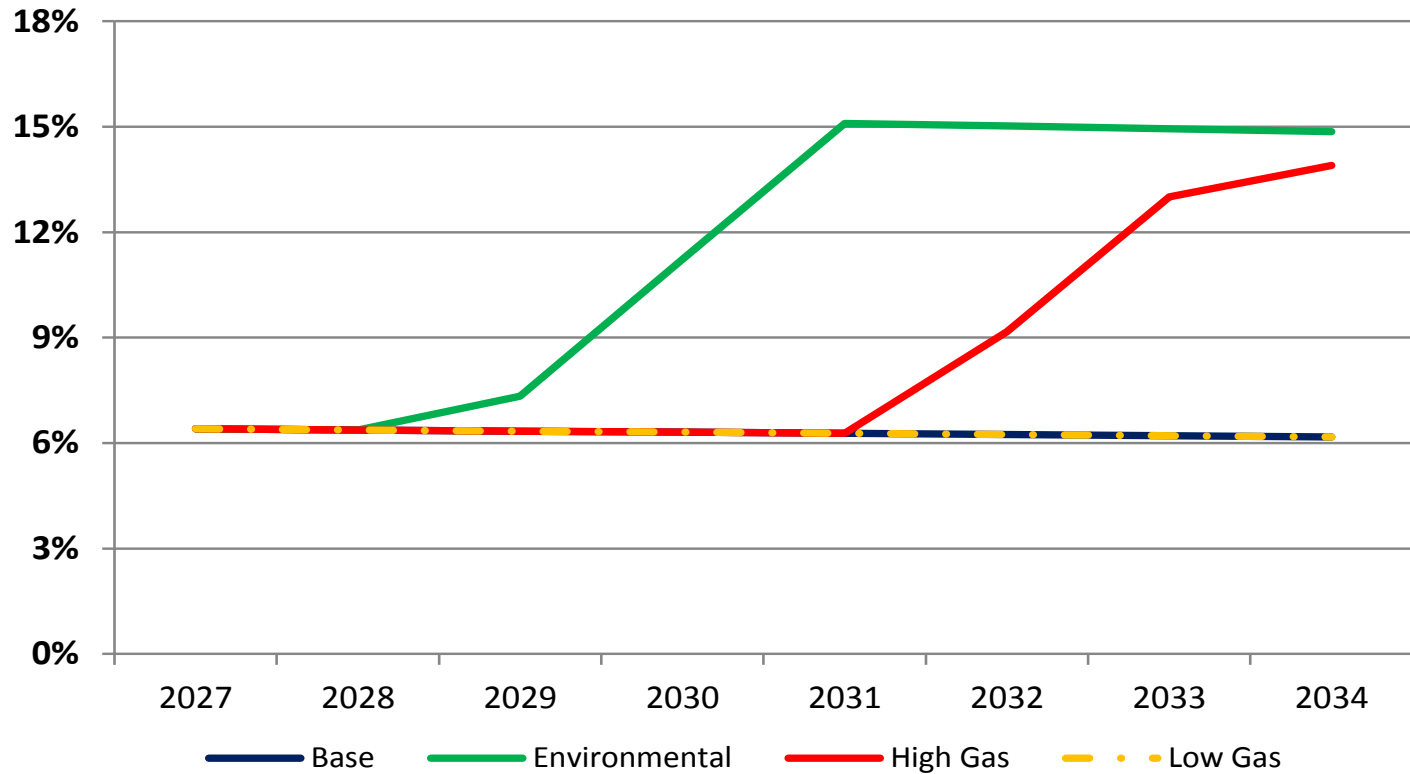


Results - Expansion Plans

YEAR	Base	Environmental	High Gas	Low Gas	Unit Retirements
2015	Market 150 MW	Market 150 MW	Market 150 MW	Market 150 MW	
2016	Market 450 MW	Market 450 MW	Market 450 MW	Market 450 MW	
2017	EV CCGT 644 MW	EV CCGT 644 MW	EV CCGT 644 MW	EV CCGT 644 MW	
2018 - 2028					
2029		Wind 50 MW			
2030	Market 50 MW	Wind 200 MW	Market 50 MW	Market 50 MW	
2031	CC 200 MW Market 50 MW	CC 200 MW Wind 200 MW	CC 200 MW Market 50 MW	CC 200 MW Market 50 MW	HS ST5 100 MW HS ST6 100 MW
2032	Market 100 MW	Market 50 MW	Wind 150MW Market 50 MW	Market 100 MW	
2033	CC 200 MW Market 150 MW	CC 400 MW	Wind 200 MW CC 200 MW Market 100 MW	CC 400 MW	Pete1 220 MW
2034	CC 400 MW Market 150 MW	CC 200 MW Market 100 MW	Wind 50 MW CC 400 MW Market 100 MW	CC 200 MW Market 150 MW	HS7 405 MW



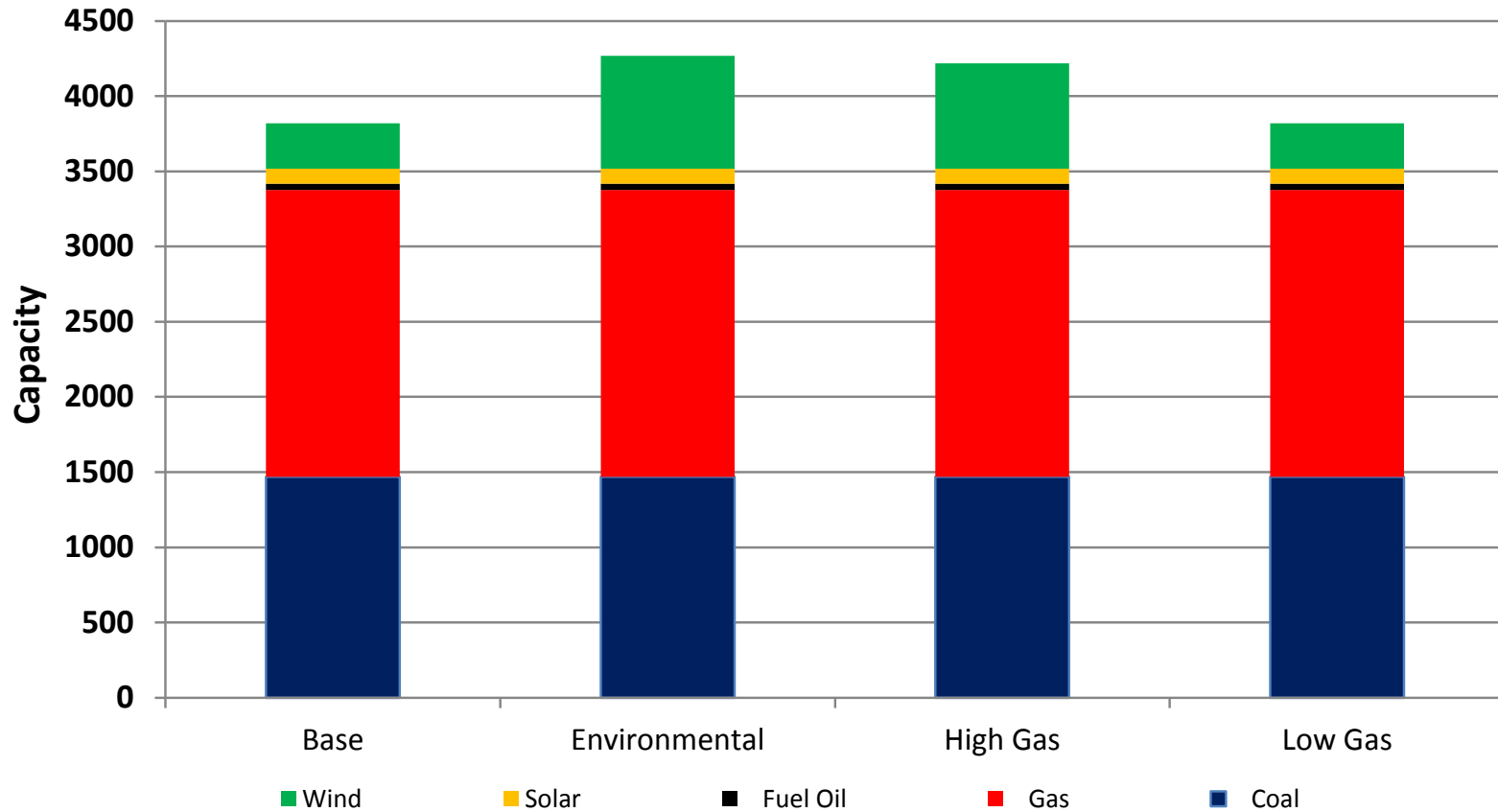
Wind/Solar Generation as Percent of Load





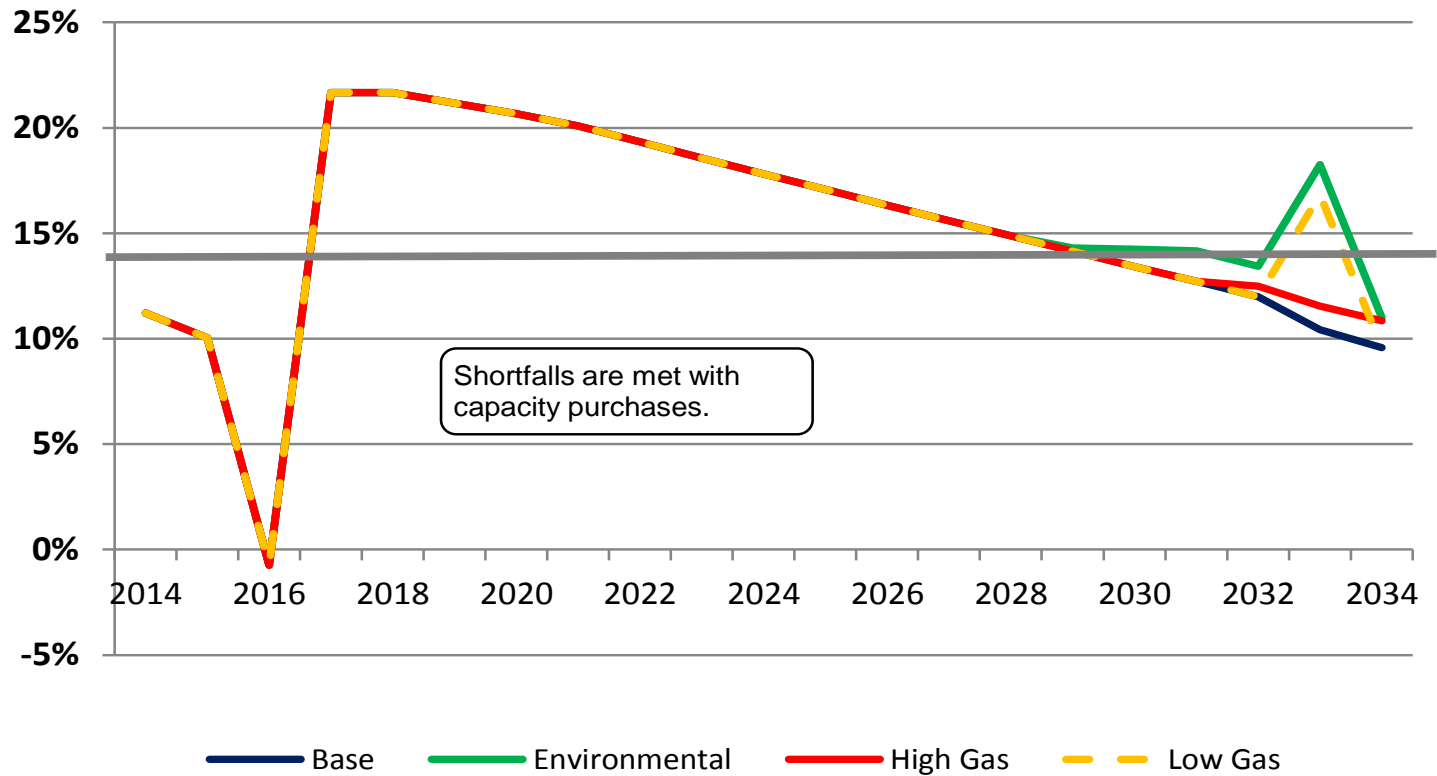
Generation Mix in 2034

Generation Mix in 2034





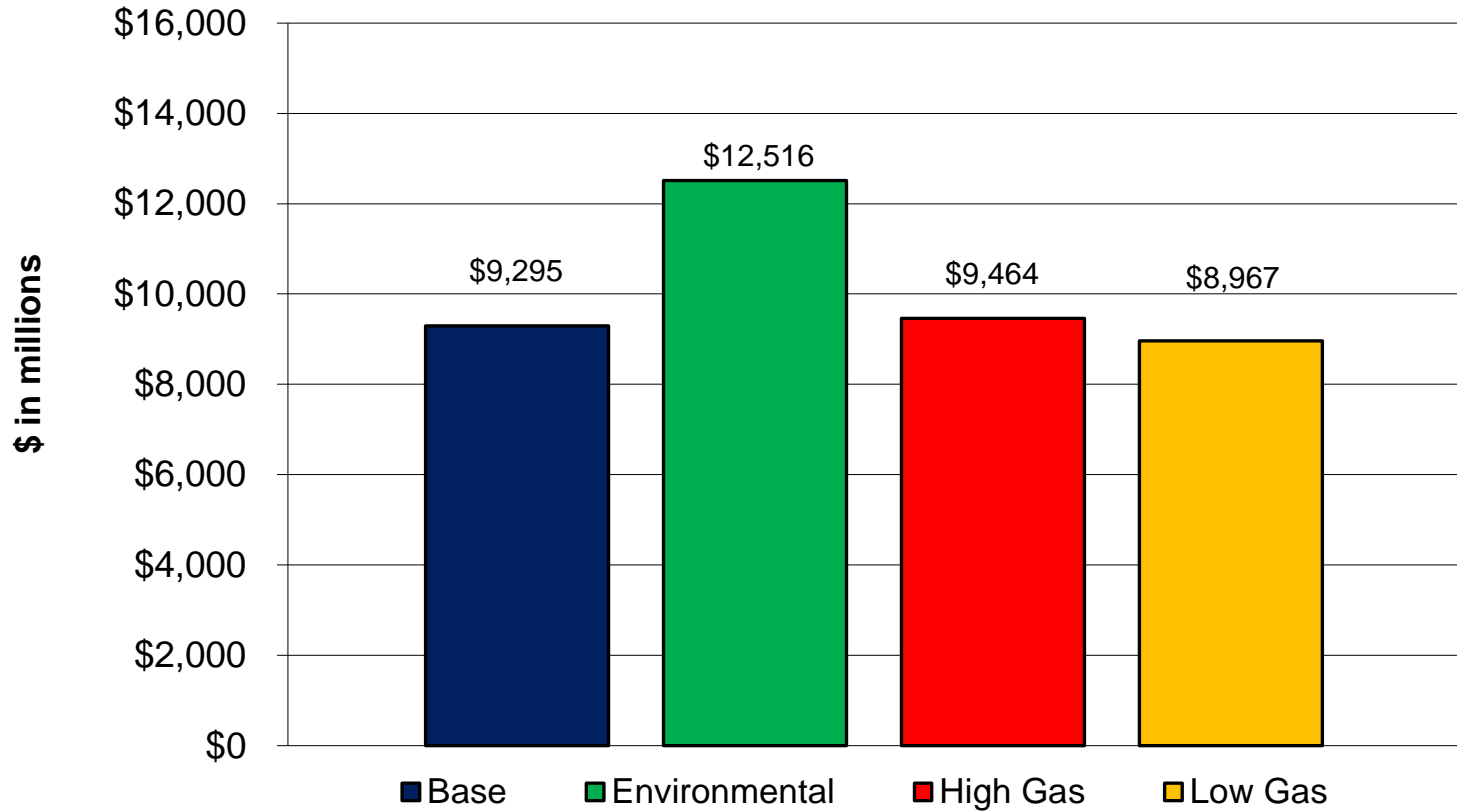
Reserve Margins





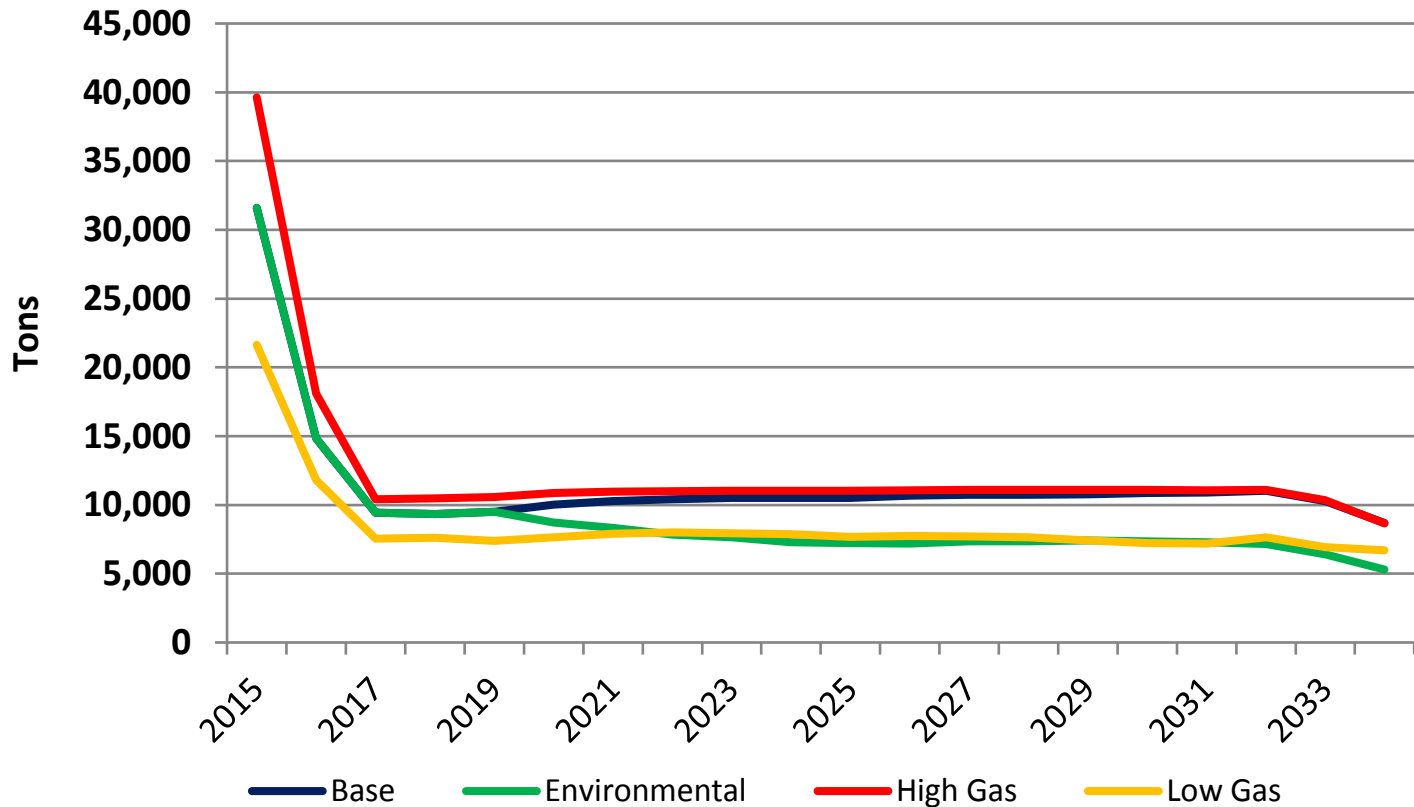
Present Value of Revenue Requirements

PVRR (2015-2034)



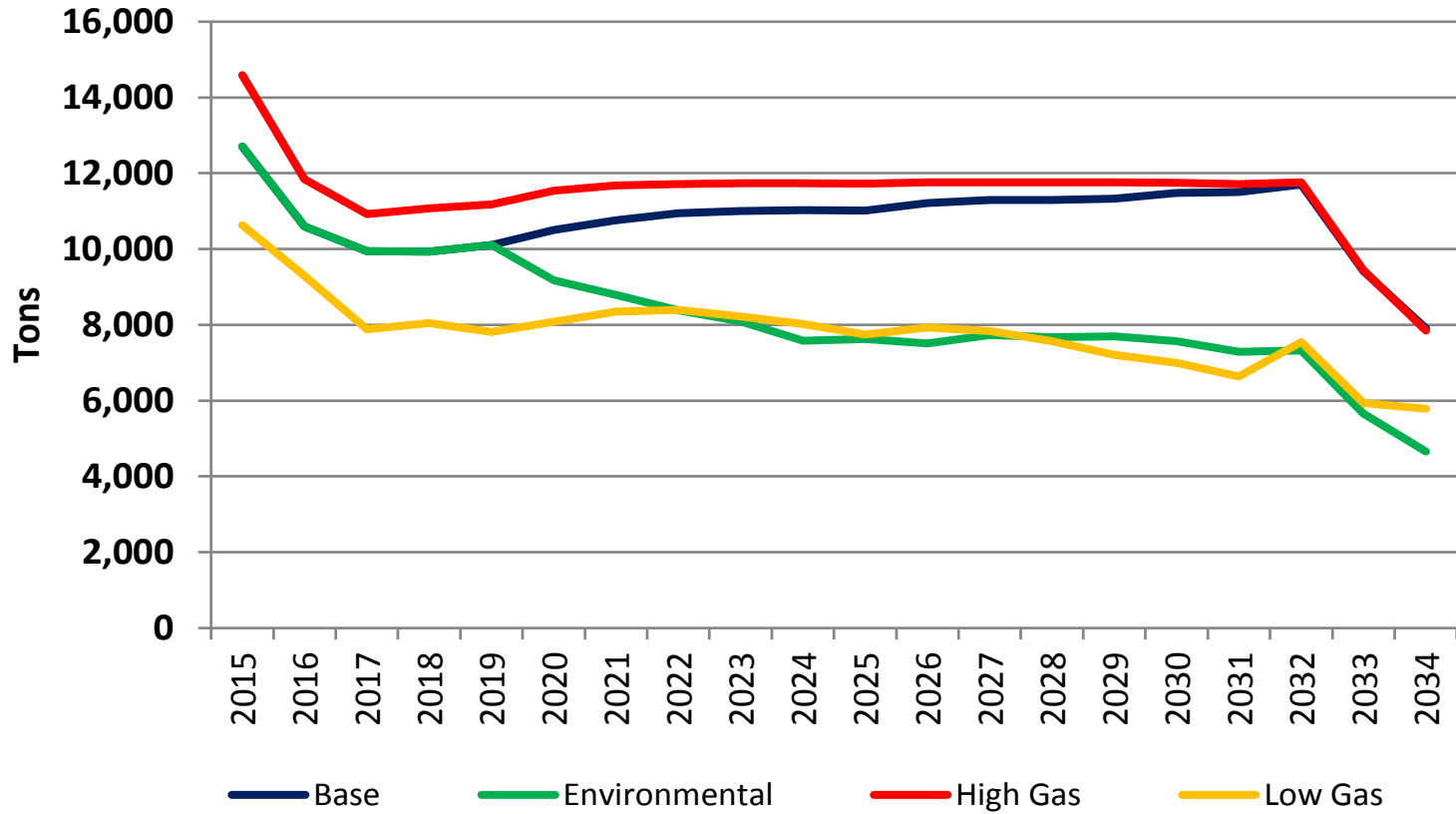


SO₂ Emissions



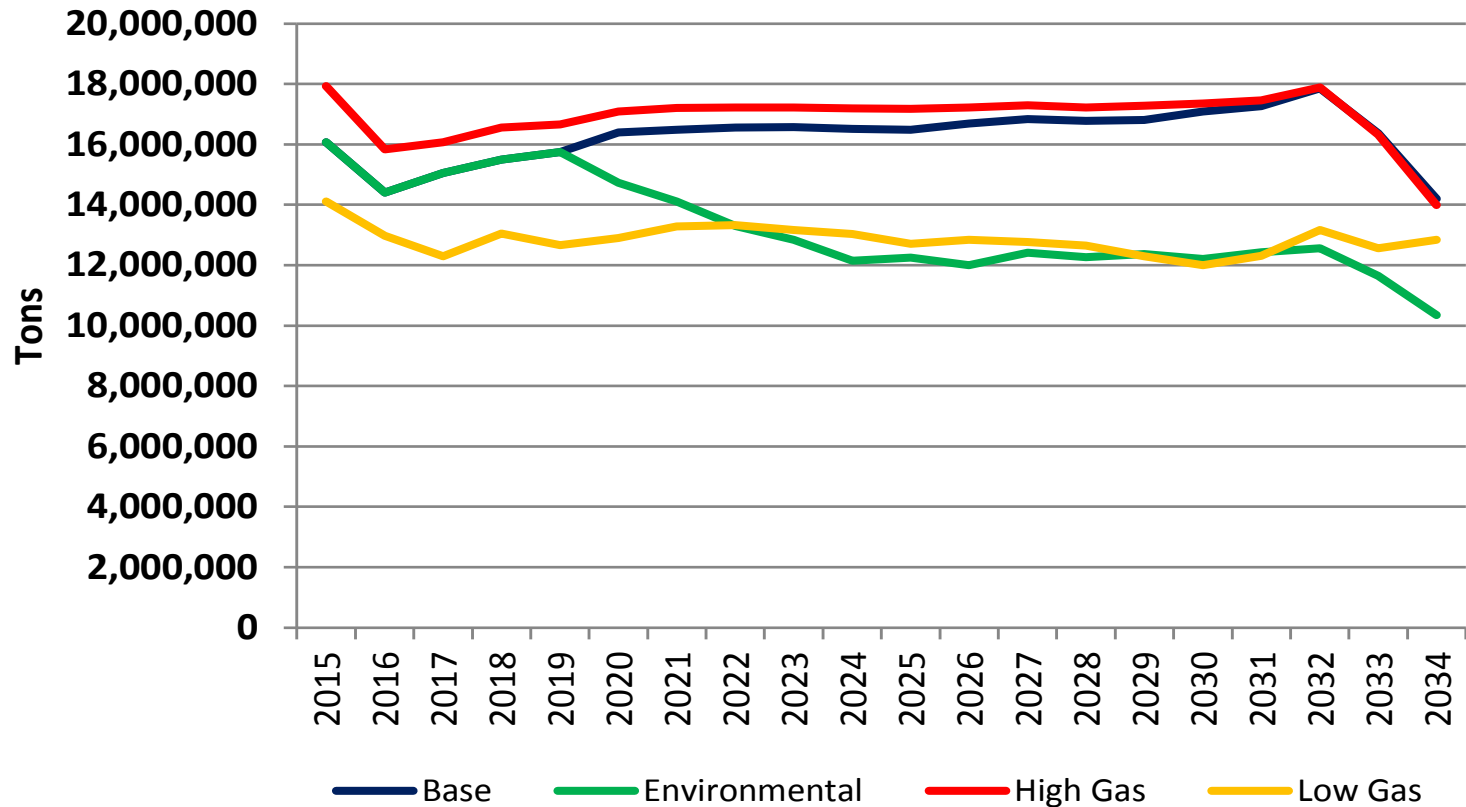


NO_x Emissions





CO₂ Emissions





Conclusions from IPL's Initial Modeling

- IPL does not have a need for new capacity resources for the next 15 years
 - Eagle Valley CCGT in 2017
 - Low load growth + DSM/EE
 - Subject to change if NPDES evaluation indicates earlier retirement of big 5 coal units
- Combined cycle is a preferred capacity resource addition in all scenarios
- Wind is added in the environmental and high gas scenarios



Questions?



Stakeholder Feedback and Comments

Facilitated by Marty Rozelle, PhD



Next Steps

Presented by Marty Rozelle, PhD



Next Steps

Schedule for the Rest of 2014

July 25, 2014	IRP Public Advisory Meeting #2 Notes Posted to IPL Website
August 1, 2014	Deadline to Submit Comments/Questions to IPL.IRP@aes.com
August 15, 2014	IPL's Response to Comments/Questions Will be Posted to IPL Website
September 23, 2014	IRP Public Advisory Meeting #3 – Final modeling results presented
October 31, 2014	Submit IRP Document to the IURC

Give us your feedback. IPL is here to listen to you.



Thank You!