



## INDIANAPOLIS POWER & LIGHT COMPANY



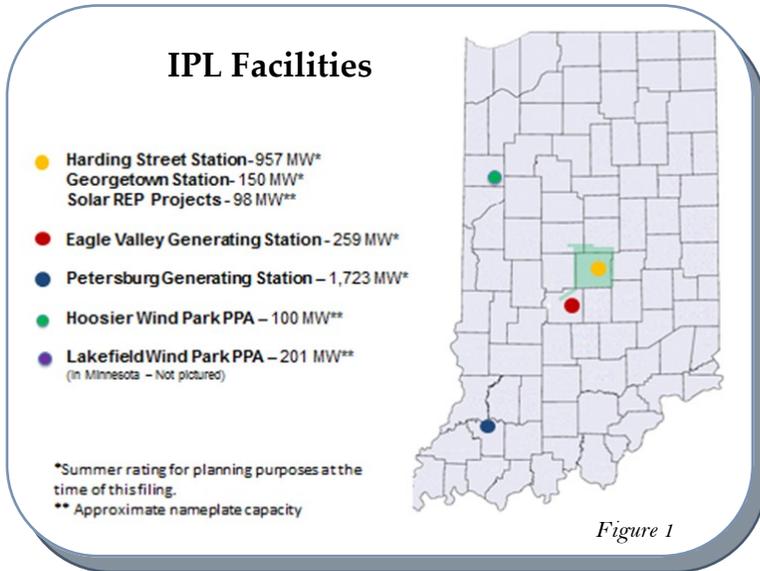
### 2014 Integrated Resource Plan Public Summary

#### What's Inside

- ◇ Existing Generation
- ◇ Public Advisory Process
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- ◇ Planning Assumptions
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October 31, 2014

IPL participates in an Integrated Resource Planning (IRP) process as required by the Indiana Administrative Code<sup>1</sup> (IAC) to identify a resource plan to reliably serve its customers for a forward looking twenty year period. Biannually, the IRP is filed with the Indiana Utility Regulatory Commission (IURC). The combination of projected customer load, existing resources, projected operating costs, anticipated environmental and other regulatory requirements, potential supply options and demand side resources are analyzed within the context of the risks of uncertain future landscapes to plan to provide electricity service in the most cost-effective and reliable way possible.



- ◇ IPL serves approximately 470,000 households and businesses in ten counties in Central Indiana, mainly in Marion County and adjoining counties.
- ◇ About 88% of IPL's customers are residential, yet the largest percentage of the Company's energy usage is from the Large Commercial and Industrial customers.

IPL owns and efficiently operates approximately 3,089 MW<sup>2</sup> of generation at four plants, over 800 miles of transmission lines, and over 11,600 miles of distribution lines as a vertically integrated investor owned utility.



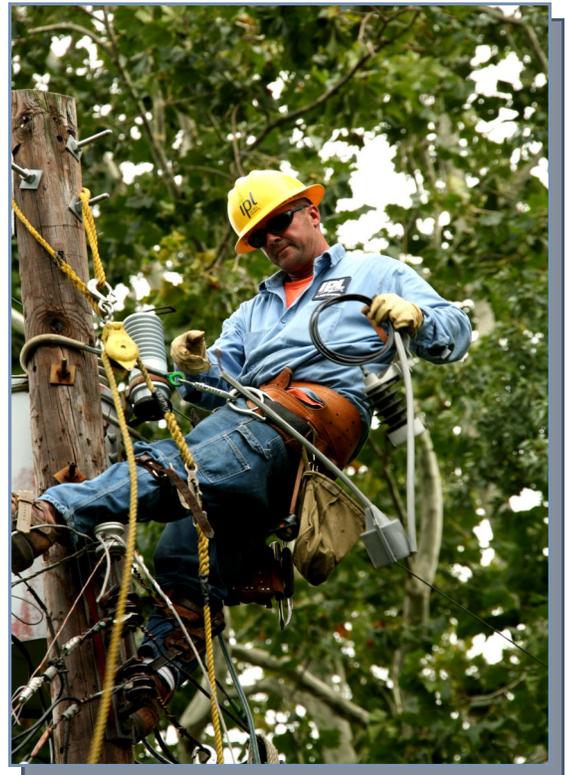
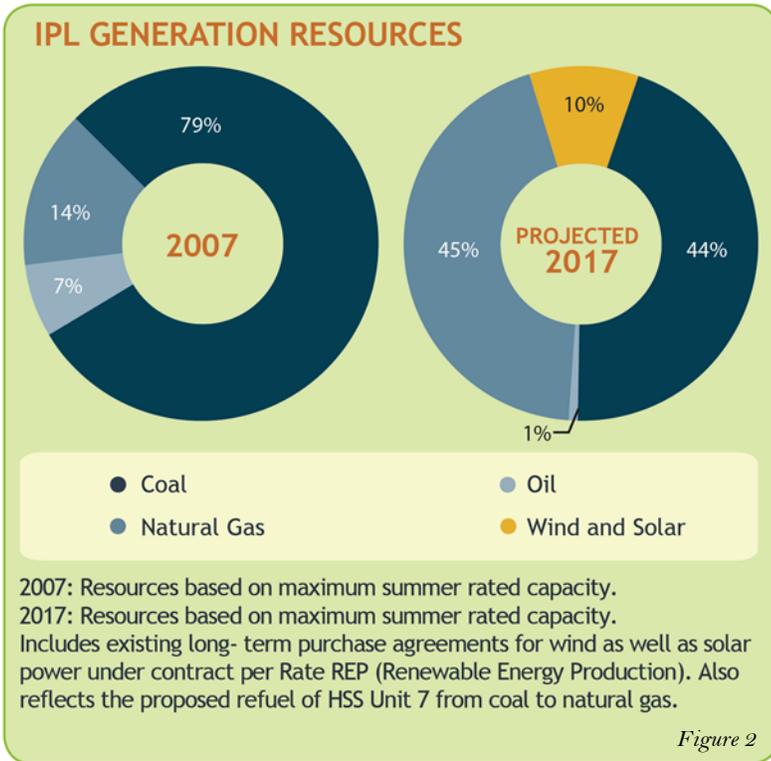
See *Figure 1* for generation sites and IPL's service territory. IPL also has purchase power agreements for approximately 98 MW of local solar generation and approximately 300 MW of wind generation.

<sup>1</sup><http://www.in.gov/legislative/iac/T01700/A00040.PDF>

<sup>2</sup>Summer rating for planning purposes at the time of this filing

## Projected 2017 Resource Portfolio

IPL has made great strides to diversify its portfolio by changing the fuel mix from 79% coal and 14% natural gas in 2007 to the projected mix of 44% coal and 45% natural gas in 2017. The Company has also added 10% wind and solar resources to its portfolio since 2007. See *Figure 2* for detail. The shift in IPL's generation mix is due to the Company's new 671 MW Eagle Valley CCGT and the refueling of Harding Street units 5 through 7<sup>1</sup> from coal to natural gas to ensure compliance with new environmental regulations.

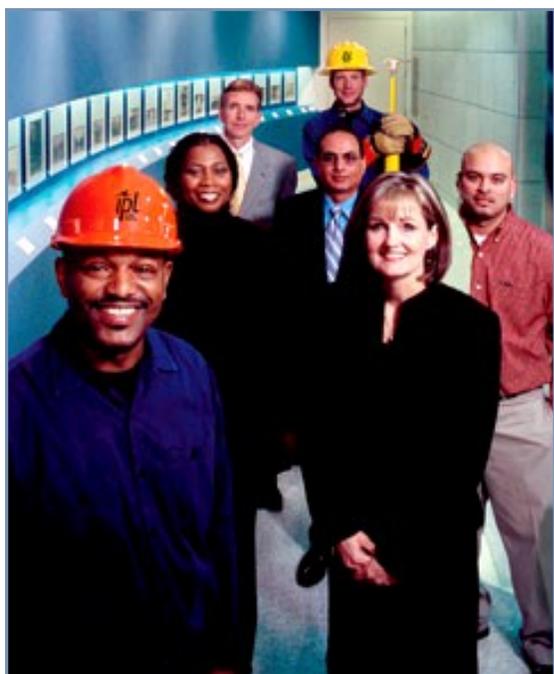


<sup>1</sup>HSS 7 refuel is pending IURC approval in Cause No. 44540

As part of a new public advisory process with our stakeholders, IPL conducted three stakeholder workshops to discuss the IRP process with interested parties and gather feedback. With the guidance of a third party facilitator, IPL provided information to and gathered information from stakeholders. After the first workshop, the Company responded to 112 comments and questions and an additional 29 comments and questions following the second meeting. The modifications made as a result of stakeholder participation are highlighted in the second presentation and incorporated in the third presentation. The three workshops and related agendas are summarized below:

- |   |   |
|---|---|
| <p><b><u>May 16, 2014</u></b></p> <ul style="list-style-type: none"> <li>◇ Introduction to IPL and Integrated Resource Planning Process</li> <li>◇ Energy and Peak Forecasts</li> <li>◇ Demand Side Management: Energy Efficiency and Demand Response</li> <li>◇ Planning Reserve Margin</li> <li>◇ Generation Overview</li> <li>◇ Environmental Overview</li> <li>◇ Distributed Energy Resources</li> <li>◇ Proposed Modeling Assumptions</li> </ul> | <p><b><u>July 18, 2014</u></b></p> <ul style="list-style-type: none"> <li>◇ Demand Side Management Update</li> <li>◇ Environmental Update</li> <li>◇ Incorporating Stakeholder Input</li> <li>◇ Presentation of Initial Scenario Results</li> </ul> |
|   | <p><b><u>October 10, 2014</u></b></p> <ul style="list-style-type: none"> <li>◇ Waste Water Analysis Results</li> <li>◇ Updated Modeling Assumptions</li> <li>◇ Presentation of Scenario Results</li> <li>◇ Short Term Action Plan</li> </ul>        |

Meeting materials, stakeholder comments and questions, and meeting summaries are available at <https://www.iplpower.com/irp/>.



IPL’s energy and peak load requirements are expected to grow at a compound annual growth rate of 0.8% and 0.9%, respectively, through 2033. IPL is required to maintain an adequate reserve margin to satisfy its load obligation as a retail jurisdictional utility in Indiana and as a member of the Midcontinent Independent System Operator (MISO).

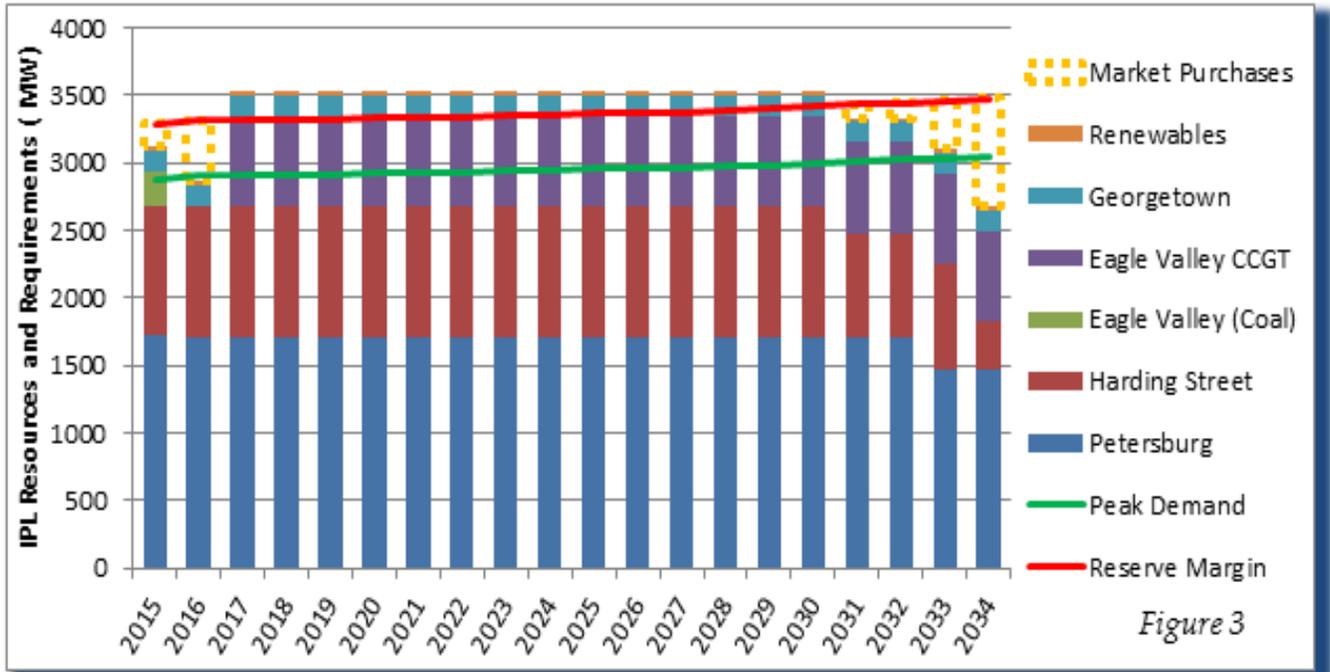


Figure 3

Figure 3 shows IPL’s projected reserve margin compared to the available resources, assuming no resource additions other than those proposed and approved by the IURC as described on page 3. The capacity deficit prior to 2017 is met by market purchases. Once refueling and new generation construction is complete in 2017, IPL does not experience a capacity shortfall until 2030.



The electric utility industry continues to evolve through technology advancements, fluctuations in customer consumption, changes in state and federal energy policies, uncertainty of long-term fuel supply and prices, and a multitude of other factors. Since the impacts these factors will have on the future utility industry landscape remains largely uncertain, IPL models multiple possible scenarios to evaluate various futures.

IPL, with assistance from its stakeholders and consultants, created eight scenarios (depicted below in *Figure 4*) to target three major resource drivers– potential Greenhouse Gas regulation, natural gas prices, and load variation. Potential Greenhouse Gas regulation is quantified using four distinct CO<sub>2</sub> costs: IPL-EPA Shadow price (Moderate-EPA), Federal legislation Ventyx Fall 2013 price (High), Mass Cap ICF price (Moderate-ICF), and a zero cost scenario (Low). Additionally, high, low, and base forecasts were used for natural gas and load forecasts.

The use of multiple scenarios allows IPL to identify a Preferred Portfolio that will be competitive in a wide range of future landscapes.

No.	Scenario Name	Gas/Market Price	CO <sub>2</sub> Price	Load Forecast
1	Base	Base	Moderate-EPA	Base
2	High Load	Base	Moderate-EPA	High
3	Low Load	Base	Moderate-EPA	Low
4	High Gas	High	Moderate-EPA	Base
5	Low Gas	Low	Moderate-EPA	Base
6	High Environmental	Environmental	High	Base
7	Environmental	Mass Cap	Moderate-ICF	Base
8	Low Environmental	Base	Low	Base

Figure 4

The future impacts on IPL’s resource plan continue to be uncertain amidst anticipated regulations pertaining to waste, water, air and emissions coupled with dynamic fuel cost forecasts, electricity market structural change and variable electricity price forecasts. In addition to the future landscapes, the selection of a Preferred Portfolio is dependent on a variety of input assumptions, including the customer growth rate and the cost assumptions in *Figure 5*.

**Modeling Cost Inputs**

1. Natural gas costs
2. Coal costs, by region
3. Energy costs, peak and off-peak
4. Capacity costs purchased on the open market
5. Demand side management costs and benefits
6. Costs of constructing or retrofitting generation
7. Costs of future environmental regulations

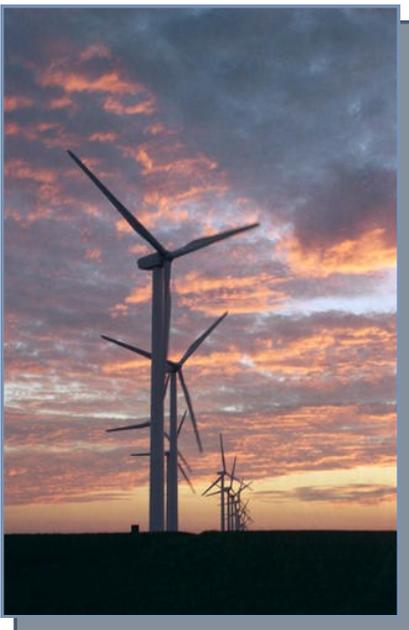
*Figure 5*

Assumptions 1 through 4 were provided to IPL by Ventyx, a consulting firm known nationwide to produce reliable forecasts. Assumption 5 was guided by Applied Energy Group (“AEG”), a consulting firm with energy efficiency and demand response expertise. Assumptions 6 through 8 were developed internally by IPL experts based on current and future regulations and market research and trends.

IPL assumed that there will be a cost associated with emitting CO<sub>2</sub> in seven of its eight scenarios due to the EPA’s proposed Clean Power Plan rule. This cost will result in coal generation being partially replaced with natural gas fired generation resulting in higher off-peak energy prices (as coal generation normally sets the off-peak price). It may also result in additional renewable generation.

Aside from the planned retirement of Eagle Valley coal fired units 3 through 6 in 2016 and the planned refuel of Harding Street units 5 through 7<sup>1</sup> from coal to natural gas in 2016, the model was allowed to choose optimal unit retirement dates based on production costs.

## IPL’s Preferred Portfolio



From the eight scenarios, IPL used sophisticated modeling techniques to develop five resource expansion plans and their corresponding cost to customers. Plans one and two included no early retirements while plans three through five included the early retirement of Petersburg units 1 and 2. At the conclusion of modeling, the Base Case, or plan one, provided the reasonable least cost to customers over the planning period and was identified as the Preferred Portfolio.

Plan one is expected to provide the lowest reasonable cost of power to IPL’s customers while meeting environmental and reliability constraints and reflecting emerging preference for, and the viability of customer self-generation. Plan one only adds new generation when an IPL unit is retired, which is reflective of the projected moderate energy growth rate for Indianapolis. As seen in *Figure 6*, IPL has sufficient resources to meet its load requirements until 2031 when Harding Street units 5 and 6 are planned to retire and be replaced with new natural gas generation.

<sup>1</sup>IPL’s request to refuel HSS 7 is pending with the IURC in Cause No. 44540.



Plan one provides reliable electric utility service, at a reasonable cost, through a combination of existing resources, new resources and demand-side management programs. IPL will maintain adequate capacity resources to serve its customers' peak demand and required MISO reserve margin needs throughout the planning period.

The following Figure 6 provides a long-term yearly description of the Preferred Portfolio—Plan one.

YEAR	Retirements	New Resource
2015-2030	None	None
2031	Harding Street Units 5 and 6	Combined Cycle Natural Gas 200 MW
2032	None	None
2033	Petersburg Unit 1	Combined Cycle Natural Gas 200 MW
2034	Harding Street Unit 7	Combined Cycle Natural Gas 400 MW

Figure 6

### Short Term Action Plan

IPL’s short-term action plan covering 2015 through 2017 identifies the initial steps toward the Company’s longer-term resource strategy, as described in the Preferred Portfolio. The short term action plan focuses on managing the impacts of implementing the recommendations that resulted from the 2011 IRP. The following recommendations from the 2011 and 2014 IRP are in the process of being implemented over the 2015-2017 period:

- ◇ Continue to offer Commission approved cost-effective DSM programs (See IURC Cause No. 44497)
- ◇ Retire Eagle Valley Units 3 through 6
- ◇ Construct the new 671 MW Eagle Valley CCGT (See IURC Cause No. 44339)
- ◇ Refuel Harding Street Units 5 and 6 from coal to natural gas (See IURC Cause No. 44339)
- ◇ Install environmental control equipment to comply with MATS regulations (See IURC Cause No. 44242)
- ◇ Plan for the refueling of Harding Street Unit 7 from coal to natural gas to comply with NPDES permits—pending Commission approval (See IURC Cause No. 44540)
- ◇ Complete construction of transmission facilities
- ◇ Purchase capacity for MISO planning years 2015-2016 and 2016-2017

Because Integrated Resource Planning is an iterative process, IPL will complete another IRP in 2016 incorporating updated and/or new assumptions. IPL thanks stakeholders for their involvement in the 2014 IRP. Please visit <https://www.iplpower.com/irp/> to access detailed presentations and the IRP document.