

# Wabash Valley Power 2015 Integrated Resource Plan Executive Summary January 2016



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## What is an Integrated Resource Plan (IRP)?

Wabash Valley Power Association's (Wabash Valley) 2015 IRP is a planning document that evaluates the next 20 years to assess our Members' requirements for electricity and our ability to meet that need in a reliable and competitive manner.

## Why is an IRP prepared?

Every electric utility in the State of Indiana that is publicly, municipally or cooperatively owned must prepare an IRP every two years to comply with the Indiana Utility Regulatory Commission's (IURC) "Rule 7", technically 170 IAC 4-7.

## What does Wabash Valley's IRP contain?

Wabash Valley's 2015 IRP is divided into the following five sections plus a technical appendix:

1. **Overview** – We discuss our system profile, including the Members we serve and our service area, and describe our process for developing the IRP.
2. **Resource Assessment** – We provide general characteristics of our load, such as our historical summer and winter peaks. We also provide a description of Wabash Valley's existing generation resources (supply-side) and end-customer resources (demand response, energy efficiency and distributed generation).
3. **Load Forecast** – We summarize our methodology for forecasting our Members' electricity requirements and we provide both a base case forecast and range forecasts for the next 20 years.
4. **Selection of Resource Options** – We review and analyze potential future resource options to meet our forecasted peak and energy requirements and determine our base resource plan.
5. **Scenario Analysis** – We develop scenarios to examine the impact of various uncertainties and develop alternate expansion plans to meet those requirements. We also outline our short-term action plan for the next three years.

The following Executive Summary is a brief overview of Wabash Valley's 2015 IRP and intended to communicate the key concepts to our Members, other interested parties and the public.

## Executive Summary

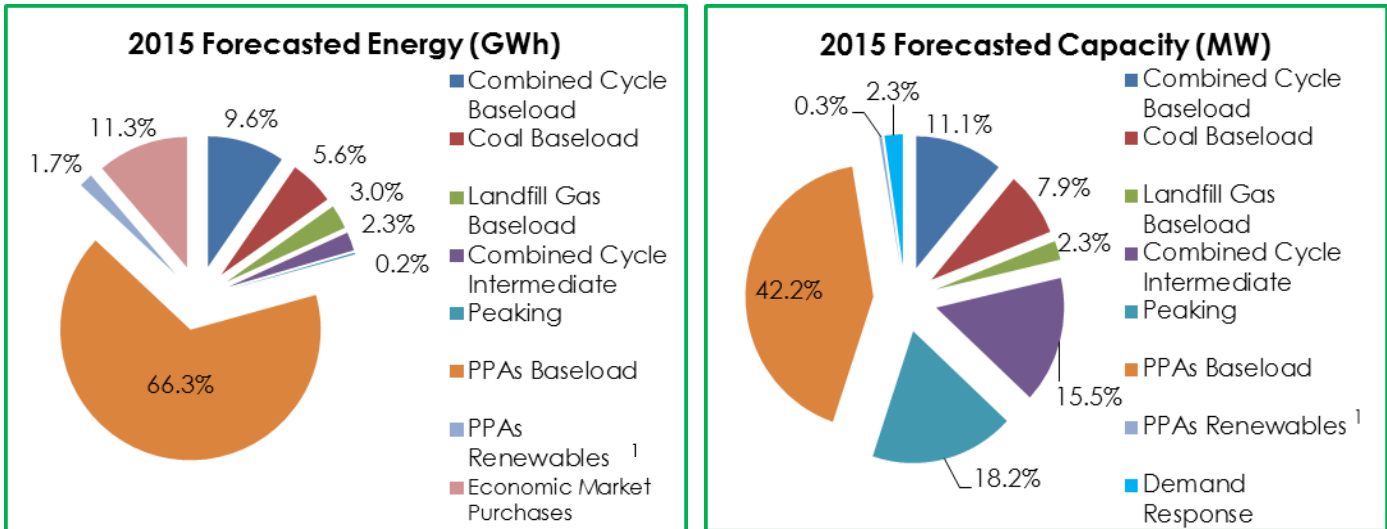
Wabash Valley is a generation and transmission (G&T) cooperative based in Indianapolis, Indiana, that provides wholesale electricity to twenty-three Members: nineteen in the northern half of Indiana, three in Illinois and one in Missouri. In turn, these distribution cooperatives supply electricity to more than 308,000 retail members. Nearly 75 percent of our retail customer base resides in Indiana, with approximately 16 percent in Illinois, and 9 percent in Missouri.

This map illustrates Wabash Valley's composite service area. The areas identified on this system are not exclusively served by the Members. Numerous municipal electric utilities, as well as investor-owned utilities, permeate this service area.



Wabash Valley's goal is to develop and maintain a diverse portfolio of power supply resources with contract terms, fuel supplies, counterparties, and ownership options that promote reliable, low-cost service to our Members. Wabash Valley's 2015 resources are depicted in the following charts:

**2015 Resources**



Wabash Valley employs end-customer resources as part of our power supply portfolio. Wabash Valley offers the following energy efficiency (EE) and demand response (DR) programs to help customers use energy more wisely and efficiently.

**Programs**

**EE – Residential**

- Second Refrigerator/Freezer Removal Program
- Air Source Heat Pump Rebate
- Geothermal Heat Pump Rebate
- Touchstone Energy Home Program
- LED Discount Program
- LED Security Lights

**EE – Commercial & Industrial (C&I)**

- Lighting Retrofit Incentives
- HVAC Retrofit Incentives
- Schools Retrofit Program
- Agricultural Retrofit Program
- C&I Custom Retrofit Program
- Business New Construction Program

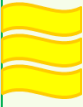
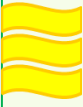


**DR**

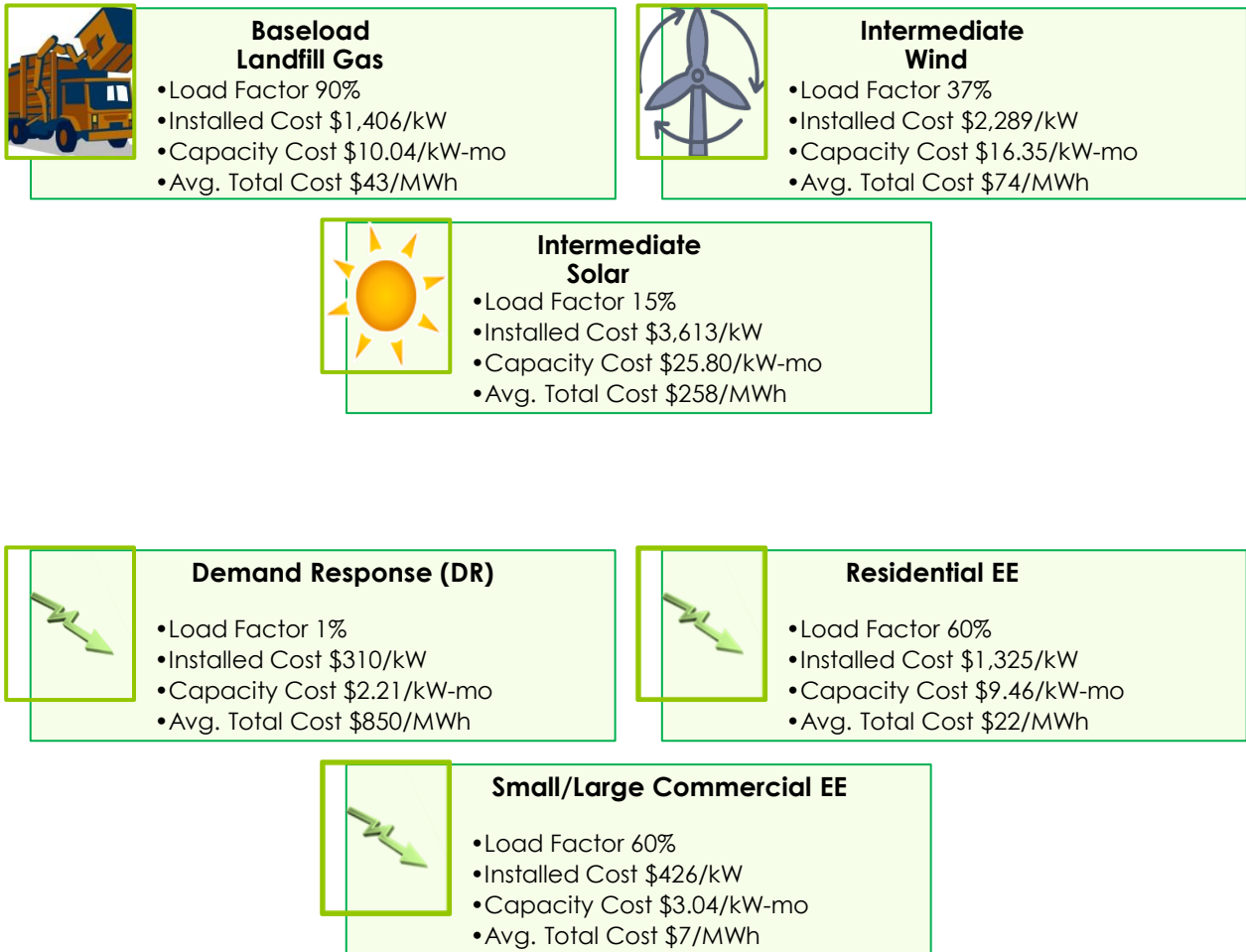
- Water Heater Program
- Air Conditioner Program
- Pool Pump Program
- Field Irrigation Program
- Entire Home Interrupt Program

Wabash Valley's 2015 IRP is based upon Wabash Valley's 2015 Power Requirements Study which combines the forecasts of the twenty-three individual Members. Pass-Through Loads are certain large power customers who are included in Wabash Valley's total planning load because Wabash Valley has the ultimate responsibility to meet the large power customers' energy requirements and make purchases at market to meet the minimum reliability requirements. However, each Pass-Through Loads customer works directly with Wabash Valley to make power supply decisions based on their respective risk tolerances. Wabash Valley's base case load forecast indicates the following:

<b>Key Data</b>			<b>Average Growth</b>
	<b>2016</b>	<b>2034</b>	<b>%</b>
Total Customers (approximate)	314,000	362,000	0.8%
Energy Growth (GWH) (excl. Pass-Through Loads)	7,557	8,731	0.8%
Energy Growth (GWH) (incl. Pass-Through Loads)	8,229	9,827	1.0%
Demand Growth Coincident Peak Demand (MW) (excl. Pass-Through Loads)	1,521	1,793	0.9%
Demand Growth Coincident Peak Demand (MW) (incl. Pass-Through Loads)	1,611	1,935	1.0%

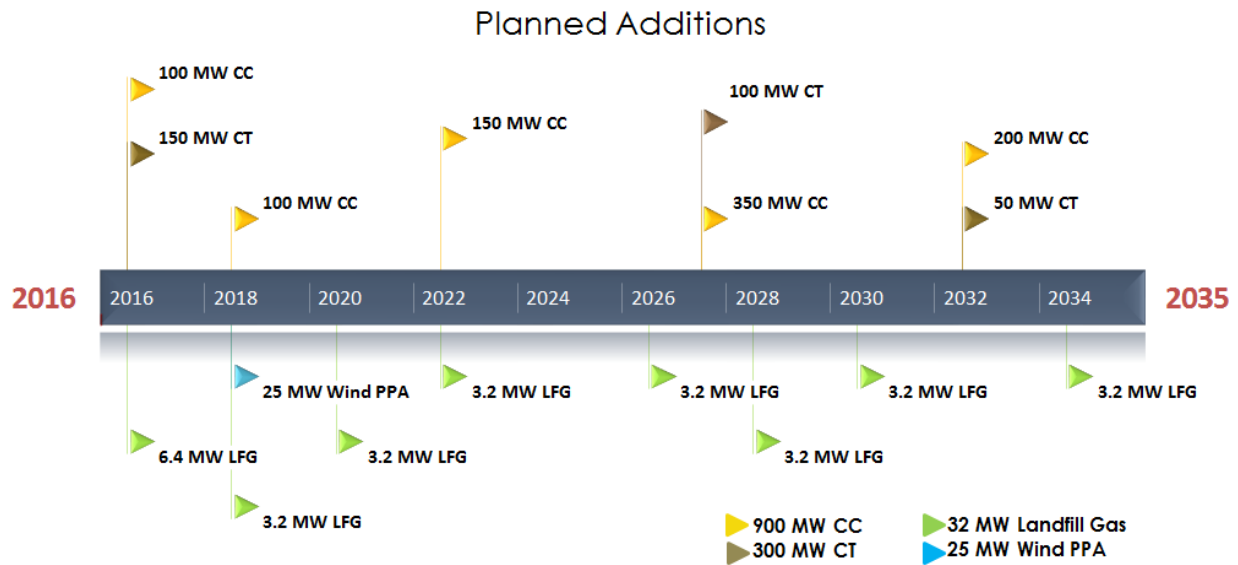
Wabash Valley consistently examines potential new peaking, intermediate and baseload generating resources (both independently and jointly, both existing and new) in anticipation of capacity needs in 2016 and beyond. Wabash Valley employs several decision making factors in selecting new power supply resources. While price is clearly important, and is depicted below, Wabash Valley also considers the technical viability of a proposed project, operational flexibility, resource deliverability and location, impact on diversification of Wabash Valley's power portfolio, overall price risk exposure, equity requirements and contract term. Additionally, Wabash Valley assesses each alternative's environmental impact.

	<p><b>Baseload Combined Cycle Gas</b></p> <ul style="list-style-type: none"> <li>• Load Factor 70%</li> <li>• Installed Cost \$1,141/kW</li> <li>• Capacity Cost \$8.15/kW-mo</li> <li>• Avg. Total Cost \$42/MWh</li> </ul>		<p><b>Intermediate Combined Cycle Gas</b></p> <ul style="list-style-type: none"> <li>• Load Factor 35%</li> <li>• Installed Cost \$1,141/kW</li> <li>• Capacity Cost \$8.15/kW-mo</li> <li>• Avg. Total Cost \$61/MWh</li> </ul>
	<p><b>Baseload Pulverized Coal</b></p> <ul style="list-style-type: none"> <li>• Load Factor 85%</li> <li>• Installed Cost \$3,577/kW</li> <li>• Capacity Cost \$25.55/kW-mo</li> <li>• Avg. Total Cost \$67/MWh</li> </ul>		<p><b>Peaking CT</b></p> <ul style="list-style-type: none"> <li>• Load Factor 7%</li> <li>• Installed Cost \$944/kW</li> <li>• Capacity Cost \$6.74/kW-mo</li> <li>• Avg. Total Cost \$183/MWh</li> </ul>



Wabash Valley has developed and maintains a detailed resource plan to serve forecasted Member load requirements. Since Wabash Valley's composite load requirements show an average load factor of approximately 60% to 70%, the company plans to attain a power supply resource ratio of approximately 65% baseload/intermediate capacity to 35% peaking capacity with a move toward a greater percentage of natural gas units (e.g. combined cycle and peakers). The base expansion plan indicates that Wabash Valley has capacity needs starting in 2016. Wabash Valley anticipates meeting these needs in a diversified manner.

Planned additions over the 20 year plan horizon for the base expansion plan are depicted in the following timeline.



Additionally, the base expansion plan proposes we add 50 MW of EE and 16 MW of DR.

In 2016, Wabash Valley plans to retire the steam turbine at Wabash River Unit 1 and convert the combustion turbine at Wabash River Unit 8. Wabash Valley also plans to place a 6.4 MW landfill gas plant in-service in 2016. To supplement these activities in 2016, Wabash Valley's base expansion plan shows that we need to add approximately 100 MW of baseload combined cycle and 150 MW of peaking combustion turbine resources. In January 2016, Wabash Valley petitioned the Indiana Utility Regulatory Commission (IURC) for an issuance of a Certificate of Public Convenience and Necessity to purchase and own an existing baseload coal resource totaling approximately 83 MW. We believe this acquisition will be an effective long term low cost hedge for our Members. However, we decided not to include this 83 MW resource within this IRP since the necessary approvals to complete this transaction are ongoing at the time of this IRP filing.

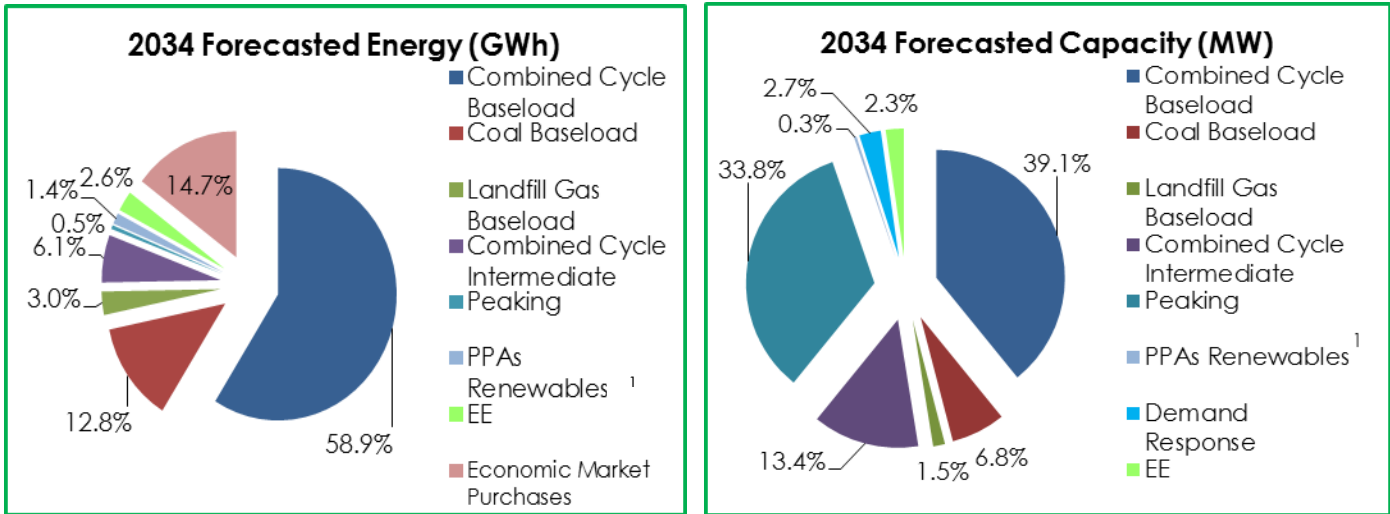
To round out Wabash Valley's 2016-2018 three year plan, our base expansion plan indicates we need to add another 100 MW of baseload combined cycle in 2018 to partially replace capacity and energy lost when a unit contingent power purchase agreement expires at the end of 2017. In addition, Wabash Valley plans to purchase 25 MW of wind power from an Indiana wind project that is expected to begin commercial operation in the first quarter of 2018 and construct a 3.2 MW landfill gas plant in 2018. Also, throughout the three year period, Wabash Valley plans to save up to 14 MW of capacity through our EE programs. Although our optimization model did not choose our DR programs in the early years of our 20 year plan horizon, Wabash Valley may choose to continue to build DR resources in the near term. Wabash Valley will continually evaluate available projects that are expected to provide cost effective



renewable<sup>1</sup> energy and seek alliances, partnerships and opportunities for joint operations with other electric utilities.

At the end of our 20 year plan horizon in 2034, Wabash Valley's current base expansion plan forecasts that our energy and capacity needs will be served as depicted in the following charts:

**2034 Resources**



Wabash Valley's power supply team analyzes all opportunities to improve the company's power supply portfolio while being cognizant of any regulation that may impact these sources. These opportunities may include the purchase/sale of generating assets, purchase/sale of cost-based power agreements and purchase/sale of fixed priced forward contracts. We analyze these opportunities to evaluate risk, reliability, and cost impact to our Members. While Wabash Valley has developed and maintains a detailed resource plan to serve forecasted Member load requirements, we may adjust that plan if we are able to take advantage of economic opportunities that present themselves.

<sup>1</sup> Wabash Valley supports renewable energy by owning landfill gas generation and purchasing the output from wind farms and biogas generators. Wabash Valley sells, separately, the environmental attributes associated with this generation to its members and third parties, and therefore does not claim the generation as renewable within our own supply portfolio.