# 2020 INTEGRATED RESOURCE PLAN EXECUTIVE SUMMARY November 2021

**WABASH VALLEY POWER ASSOCIATION, INC.**
**d/b/a WABASH VALLEY POWER ALLIANCE**

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Wabash Valley POWER ALLIANCE

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

Wabash Valley Power Alliance's (Wabash Valley or the Company) 2020 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 competetive manner.

## Why do we prepare an IRP?

Every electric utility in the State of Indiana that is publicly, municipally or cooperatively owned must prepare an IRP every three 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?

We divide Wabash Valley's 2020 IRP 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 the changing energy landscape. We also 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 and Forecasting Methodology** – We summarize our methodology for forecasting our Members' electricity requirements and we provide both a base case forecast and alternative forecasts for the next 20 years.

4. **Selection of Resource Options** – We identify new resource alternatives to meet our forecasted peak and energy requirements. Furthermore, we outline the scenarios, potential futures and sensitivities analyzed in our resource portfolio modeling; and we explain the features of our base resource plan. It should be noted that Wabash Valley prepares our IRP with minimal use of the RTO markets to meet future power supply needs. Wabash Valley selects resources that we believe can reasonably be relied upon to meet our long-term resource requirements. The Company believes that too much reliance on future incremental capacity market purchases produces substantial price volatility risk that goes against the essential purpose of the IRP. However, if we did allow the model to select a greater amount of incremental capacity market purchases, the modeling results would be considerably different due to the current, much lower, market prices.

5. **Scenario Analysis** – We study the performance of options for meeting our future needs under a wide range of conditions. We also outline our short-term action plan for the next three years.

The following Executive Summary shares a brief overview of Wabash Valley's 2020 IRP and is intended to communicate the key concepts to our Members, other interested parties and the public.

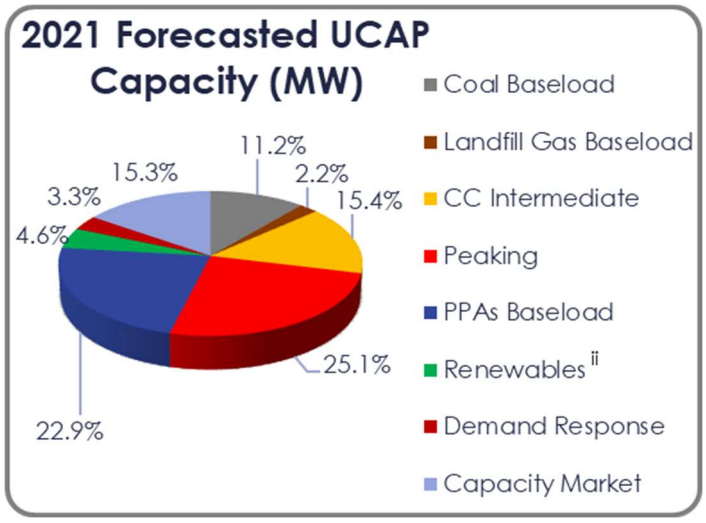
## Executive Summary

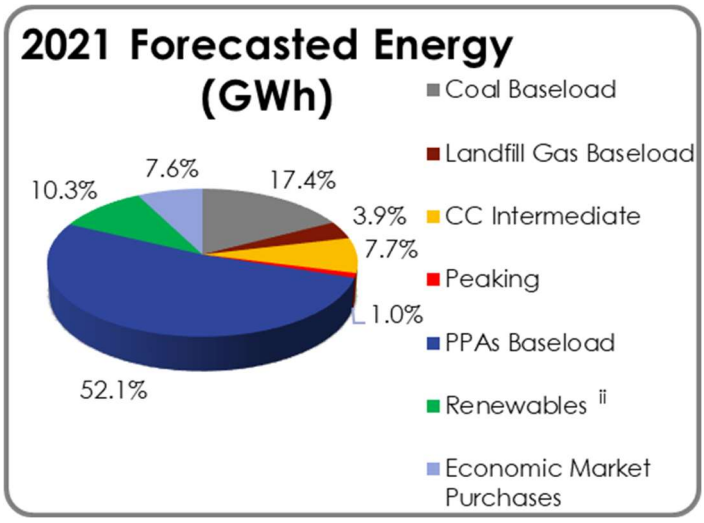
Wabash Valley is a generation and transmission (G&T) cooperative based in Indianapolis, Indiana, that provides wholesale electricity to twenty-three Members: nineteen in the northern half of Indiana, three in Illinois and one in Missouri. In turn, these distribution cooperatives supply electricity to more than 325,000 retail members. Nearly 76 percent of our retail customer base resides in Indiana, with approximately 16 percent in Illinois, and 8 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 types, counterparties, and ownership options that promote reliable, low-cost service to our Members. The Company plans requirements holistically to avoid oversupply and manages specific resources to meet reliability needs. Wabash Valley's 2021 resources are depicted in the following charts:

**2021 Resources**[i]




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** | **EE – Commercial & Industrial (C&I)** |
|---|---|
| • Air Source Heat Pump Rebate<br>• Geothermal Heat Pump Rebate<br>• Dual Fuel Air Source Heat Pump Rebate<br>• Energy Star Variable Speed Pool Pumps<br>• Heat Pump Water Heaters<br>• POWER MOVES® Home Program | • Lighting Retrofit Incentives<br>• HVAC Retrofit Incentives<br>• C&I Custom Retrofit Program<br>• Business New Construction Program |
| **DR - Residential** | **DR - Commercial & Industrial (C&I)** |
| • Water Heater Program<br>• Air Conditioner Program<br>• Wi-Fi Thermostat Program<br>• Pool Pump Program<br>• Field Irrigation Program<br>• Entire Home Interrupt Program<br>• Ditch Pump Program<br>• Grain Dryer Program | • C&I Program |

Wabash Valley's 2020 IRP is based on the Company's 2021 Power Requirements Study that combines the forecasts of the twenty-three individual Members. Pass-Through Loads are certain large power customers who are included in the Company'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, the Pass-Through Loads customers have the ability to customize their power supply portfolio based on their respective risk tolerances. Wabash Valley's base case load forecast indicates the following:

| Key Data | 2022 | 2040 | CAGR[1] % |
|---|---|---|---|
| Energy Sales (GWh) (excl. Pass-Through Loads) | 7,398 | 8,488 | 0.8% |
| Energy Sales (GWh) (incl. Pass-Through Loads) | 8,413 | 9,595 | 0.7% |
| Summer Coincident Peak Demand (MW) (excl. Pass-Through Loads) | 1,528 | 1,769 | 0.8% |
| Summer Coincident Peak Demand (MW) (incl. Pass-Through Loads) | 1,655 | 1,908 | 0.8% |

Wabash Valley continues to examine potential new and existing peaking, intermediate, baseload and renewable[i] generating resources (both independently and jointly owned) in anticipation of capacity and energy needs in 2022 and beyond. Wabash Valley employs several decision making factors in selecting new power supply resources. While price is clearly important, 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. Specific attributes of resources are shown below.

- Capacity Factor 70%
- Installed Cost $1,100/kW
- Capacity Cost $5.70/kW-mo
- Avg. Total Cost $43/MWh

**Baseload Combined Cycle Gas**

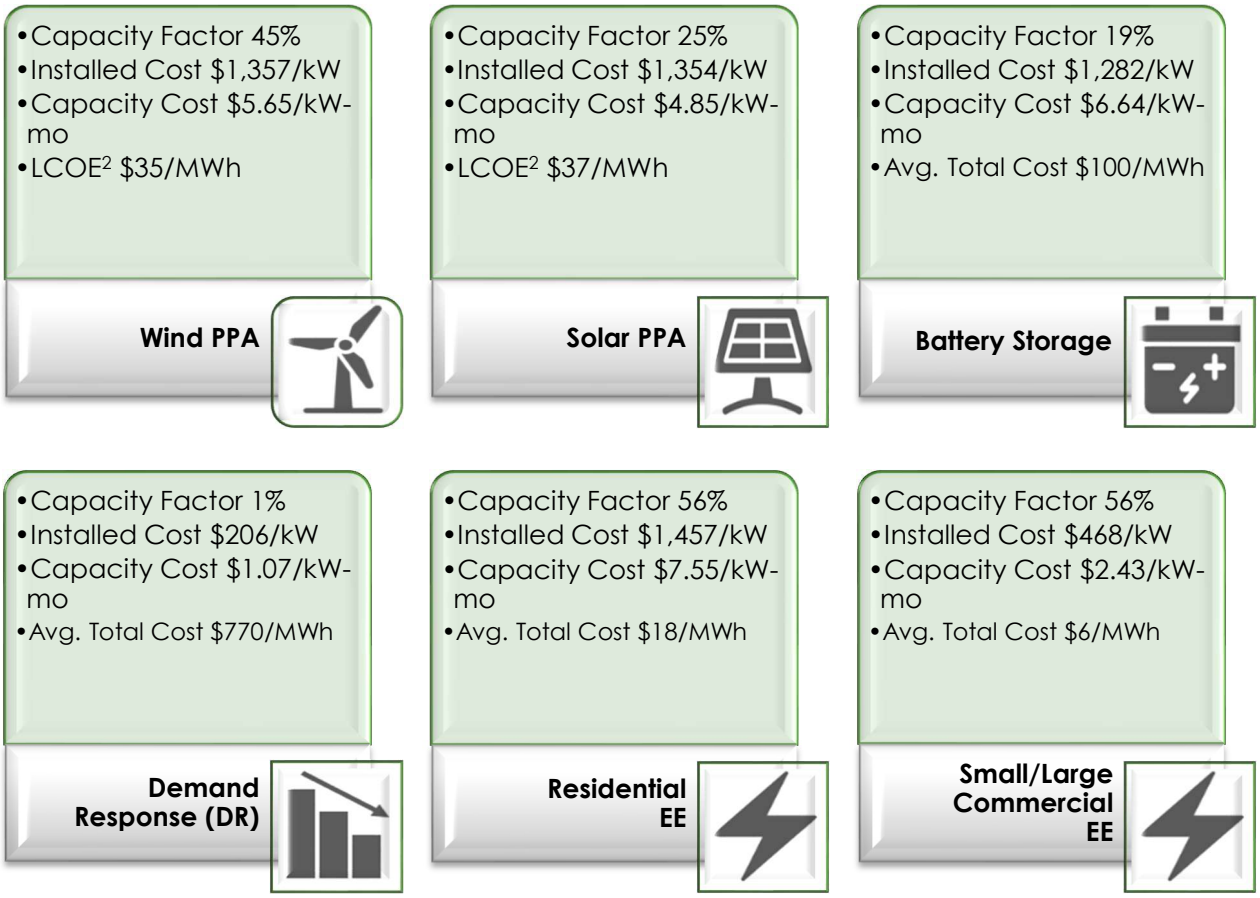
- Capacity Factor 35%
- Installed Cost $1,100/kW
- Capacity Cost $5.70/kW-mo
- Avg. Total Cost $59/MWh

**Intermediate Combined Cycle Gas**

- Capacity Factor 7%
- Installed Cost $969/kW
- Capacity Cost $5.02/kW-mo
- Avg. Total Cost $177/MWh

**Peaking Combustion Turbine Gas**

[1] Compounded Annual Growth Rate

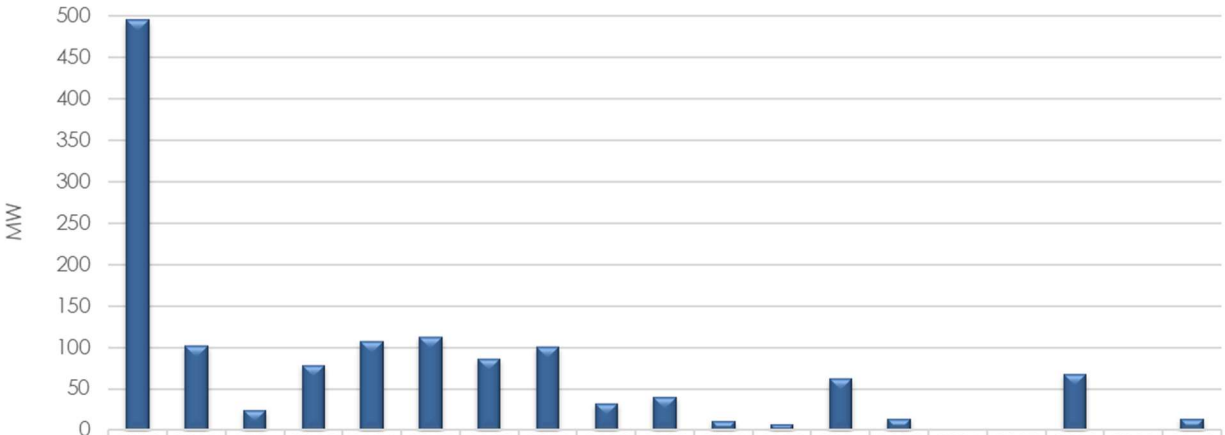



Wabash Valley has developed and maintains a detailed resource plan to serve forecasted Member load requirements. The base resource plan indicates capacity needs starting in 2022; and Wabash Valley anticipates meeting these needs in a diversified manner. In September 2021, Wabash Valley announced a plan to target net-zero carbon dioxide emissions in our power generation portfolio by 2050, which included interim goals. Due to the recent timing of this announcement, this specific target was not included in the current IRP resource plan but will be built into future planning and IRP processes.

In the immediate years, Wabash Valley expects to meet our incremental capacity needs primarily by purchasing capacity through bilateral transactions or the regional transmission organization (RTO) capacity auctions. Currently, capacity market prices appear favorable, as supported by indicative bilateral quotes, and our optimization model selected capacity market purchases as a viable preferred option. Although capacity market prices remain favorable beyond the next few years, the risk of relying on that option increases. Therefore, we limit the amount of capacity market purchases our optimization model may select resulting in more competition among all supply-side and demand-side resource options. The following graphs depict incremental capacity market purchases and cumulative planned additions, stated in installed capacity (ICAP) values, over the 20-year plan horizon for the base resource plan.

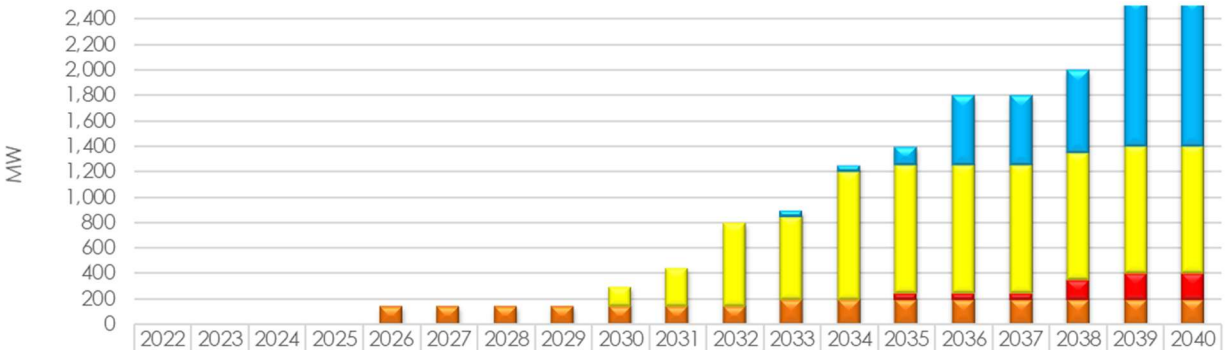
[2] Levelized Cost of Energy

## Incremental Capacity Market Purchases



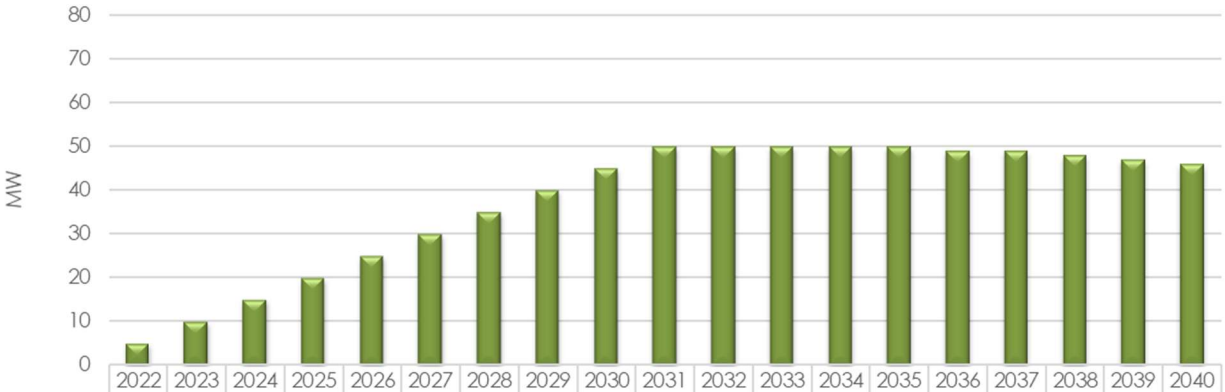

| | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 | 2038 | 2039 | 2040 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Market | 496 | 103 | 25 | 80 | 108 | 114 | 87 | 102 | 33 | 41 | 12 | 8 | 64 | 15 | 0 | 0 | 69 | 0 | 15 |

## Cumulative Natural Gas & Renewable[ii] Planned Additions (ICAP)




| | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 | 2038 | 2039 | 2040 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Wind PPA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 50 | 50 | 150 | 550 | 550 | 650 | 1150 | 1150 |
| Solar PPA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 150 | 300 | 650 | 650 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| CT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 50 | 50 | 50 | 150 | 200 | 200 |
| CC | 0 | 0 | 0 | 0 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 |

## Cumulative EE/DR and Battery Planned Additions (ICAP)




| | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 | 2038 | 2039 | 2040 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Battery | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EE | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 50 | 50 | 50 | 50 | 49 | 49 | 48 | 47 | 46 |
| DR | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

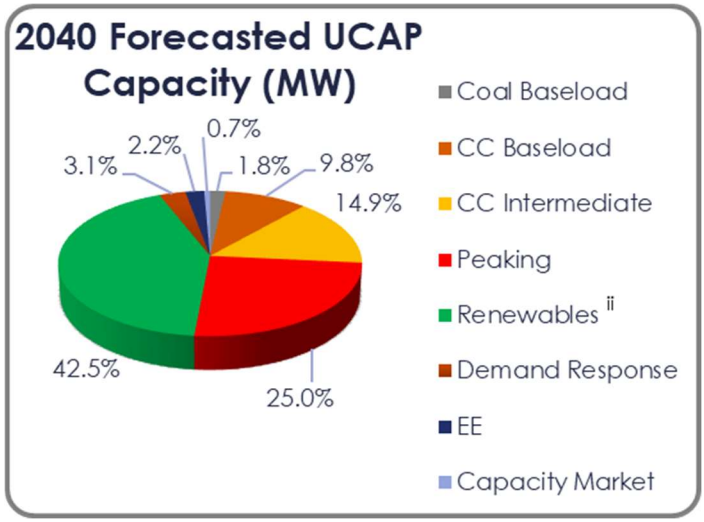
From 2022 to 2025, Wabash Valley plans to make incremental capacity market purchases. During this same time frame, Wabash Valley will also meet needs through our EE programs and by purchasing 199 MW of power from the Speedway Solar project starting in 2024.

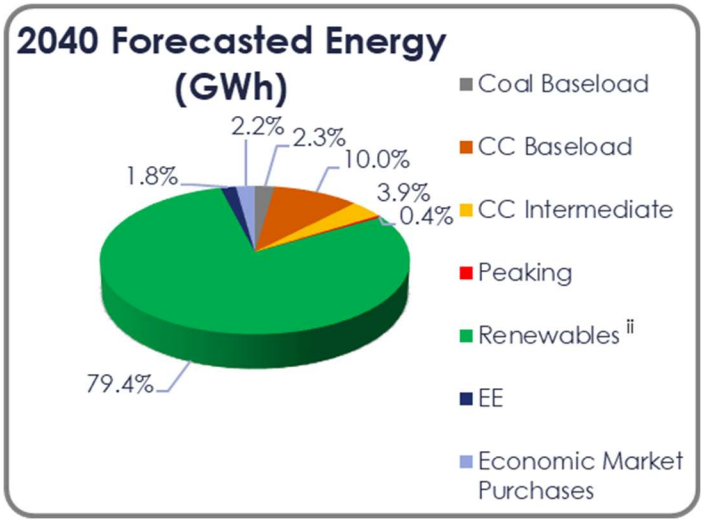
From 2026 to 2029, Wabash Valley's base resource plan capacity needs are largely met by 150 MW of baseload combined cycle resources along with EE programs and incremental capacity market purchases. From 2030 to 2040, our capacity needs are met by a more diverse mix of resources, including additional baseload combined cycle, significant wind and solar PPA purchases, combustion turbine, EE programs and incremental capacity market purchases. The forecasted retirement of owned generation and the expiration of existing purchase power agreements drives the need for these new or additional resources. While our optimization model did not choose DR programs during our 20-year plan horizon, at the request of our Members Wabash Valley will continue to deliver and enhance our DR program offerings.

Wabash Valley will continually evaluate available projects that show potential to provide cost effective renewable[ii] energy and seek alliances, partnerships and opportunities for joint operations with other electric utilities.

At the end of our 20-year plan horizon in 2040, Wabash Valley's current base resource plan forecasts that our energy and capacity needs will be served as depicted in the following charts.

**2040 Resources[i]**



Wabash Valley's Risk & Resource Portfolio Department analyzes all opportunities to improve the Company's power supply portfolio while being cognizant of any regulation that may affect 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 arise.

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[i] Forecasted Capacity (MW) stated in unforced capacity (UCAP) values.

[ii] Wabash Valley supports renewable energy by owning landfill gas and solar generation and purchasing the output from wind, solar and biogas facilities. Wabash Valley sells, separately, the environmental attributes associated with this generation to third parties, and therefore does not claim the generation as renewable within our own supply portfolio.