



EMPOWERING THE FUTURE:

2023 INTEGRATED RESOURCE PLAN

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What is an Integrated Resource Plan (IRP)?

This Wabash Valley Power Alliance (WVPA) 2023 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 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 WVPA's IRP contain?

We divide the 2023 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 our 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. We prepare our IRP with minimal use of the RTO markets to meet future power supply needs in order to select 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.

5. **Results 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 WVPA's 2023 IRP and is intended to communicate the key concepts to our Members, other interested parties and the public.

low-cost service to our Members. The Company plans requirements holistically to avoid oversupply and manages specific resources to meet reliability needs.

WVPA serves members in both the Midcontinent Independent System Operator (MISO) and PJM wholesale electricity markets. This IRP includes changes in the MISO resource adequacy construct to plan for seasonal load Planning Reserve Margin Requirements (PRMR) and Seasonal Accreditation Capacity (SAC) for resources. With growing prevalence of intermittent resources such as solar and wind which may not be available when electricity is most needed, the new process accounts for the “tightest” hours of each season to support reliability. PJM has also recently changed its resource accreditation process which WVPA will incorporate in future IRPs. The effect of the changes causes winter needs to drive resource decisions.

WVPA considers sole and jointly owned and contracted generating resources as well as end-customer resources as part of our power supply portfolio. These include distributed generation assets as well as WVPA PowerMoves energy efficiency (EE) and PowerShift demand response (DR) programsⁱ.

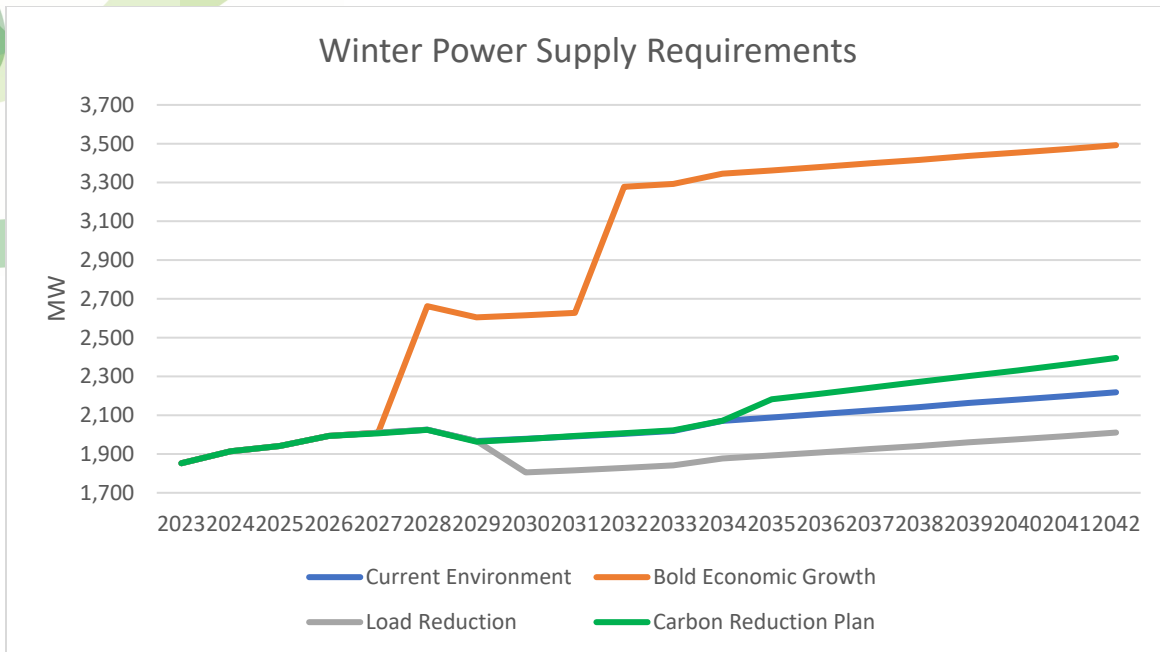
The Company’s 2023 Power Requirements Study combines the forecasts of the twenty-three individual Members and forms the basis for the IRP analysis. Pass-Through Loads are certain large power customers who are included in the Company’s total planning load because WVPA has the ultimate responsibility to meet the large power customers’ energy requirements and make purchases at market to meet the minimum reliability requirements. However, the Pass-Through Loads customers may choose to customize their power supply portfolio based on their respective risk tolerances.

WVPA developed four potential futures to reflect forecasted conditions and possible changes in regulation of carbon-emitting resources as well as load loss or significant load growth as described in the following table.

Potential Futures Evaluated in IRP Analysis

Future	Description	Objective
Current Environment	Assumes load from the Power Requirements Study (PRS) plus low EV growth projections, current environmental regulations, and demand side resource trends continue. Allows all technologies: NGCC, NGCT, Solar, Wind, Battery, DR and EE to compete in optimization of future resource mix.	Find the least-cost resource plan to serve forecasted Member load requirements in terms of “business as usual.”
Carbon Reduction	Assumes stricter restrictions on thermal units. All coal is retired, and gas units are limited to 50% capacity factor after 2034. Allows NG, Solar, Wind, Battery, DR and EE to compete in optimization of future resource mix.	Assess ability to serve forecasted Member load requirements while mitigating risks of stricter environmental regulations to minimize carbon output.
Load Reduction	Assumes a 150 MW load loss in 2030 which represents a 9% reduction in member load.	Understand portfolio impacts of abrupt changes in load requirements.
Bold Economic Growth	Assumes large load additions in two of the 20 years which may reflect data center or manufacturing expansions in the footprint.	Understand impacts of significant economic growth.

The forecasted load for the winter seasons, which is higher than all other seasons, for each of the four futures is shown in the graph below. The Current Environment is most likely to occur with a compounded annual growth rate (CAGR) of 1.02% for energy (MWh) and 0.98% for demand (MW).



WVPA examines potential new and existing generating resources (both independently and jointly owned) in anticipation of future capacity and energy needs, based on several decision making factors. While cost is clearly important, we also consider the technical viability of a proposed project, capacity accreditation expectations, operational flexibility, resource deliverability and location, impact on portfolio diversification, overall price risk exposure, equity requirements, and contract terms. Additionally, WVPA assesses each alternative’s environmental impact. Specific attributes of resource options including capacity factors, fixed costs, and variable costs in terms of averages or the Levelized Cost of Energy (LCOE) are shown below.

- Capacity Factor 80%
- Installed Cost \$1,287/kW
- Capacity Cost \$7.12/kW-mo
- Avg. Total Cost \$46/MWh

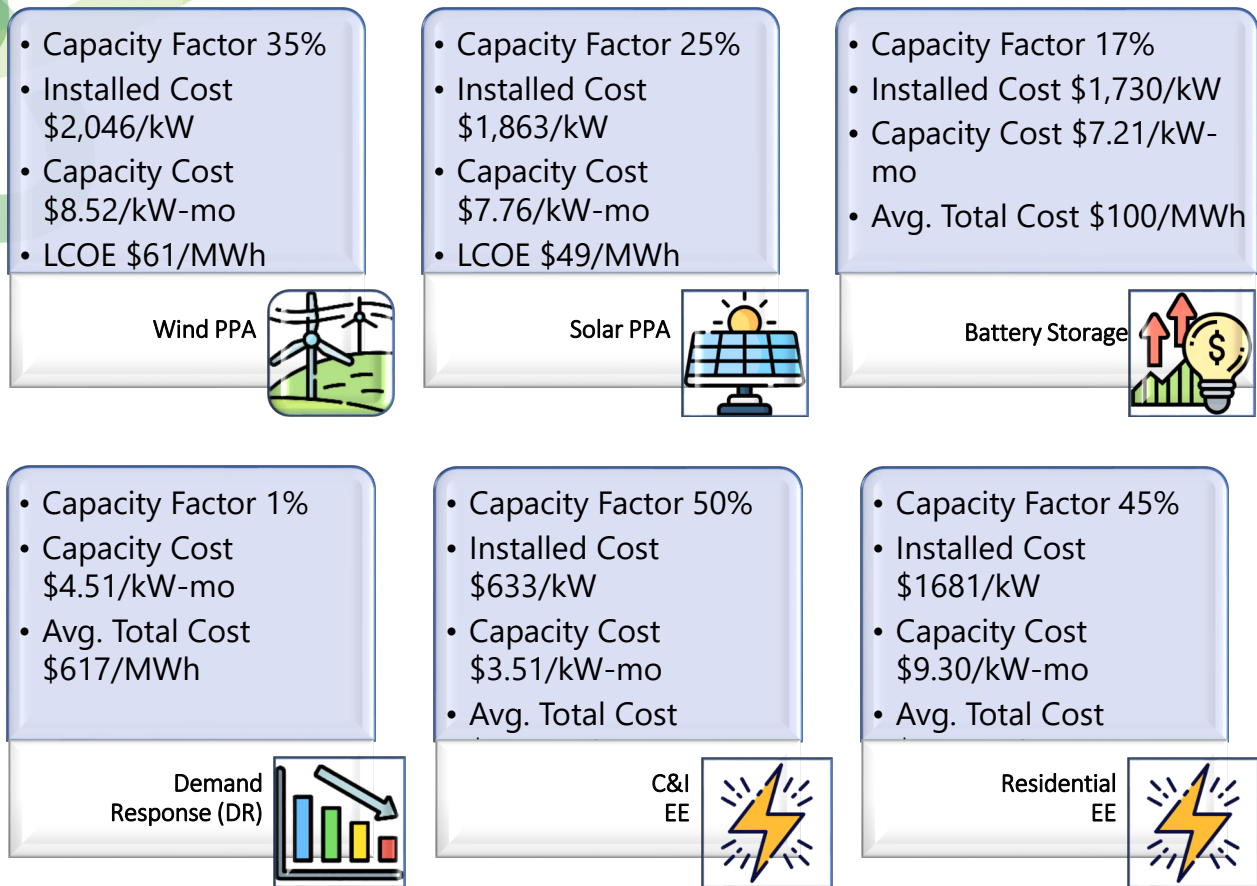
Combined Cycle Gas



- Capacity Factor 10%
- Installed Cost \$1,135/kW
- Capacity Cost \$6.28/kW-mo
- Avg. Total Cost \$169/MWh

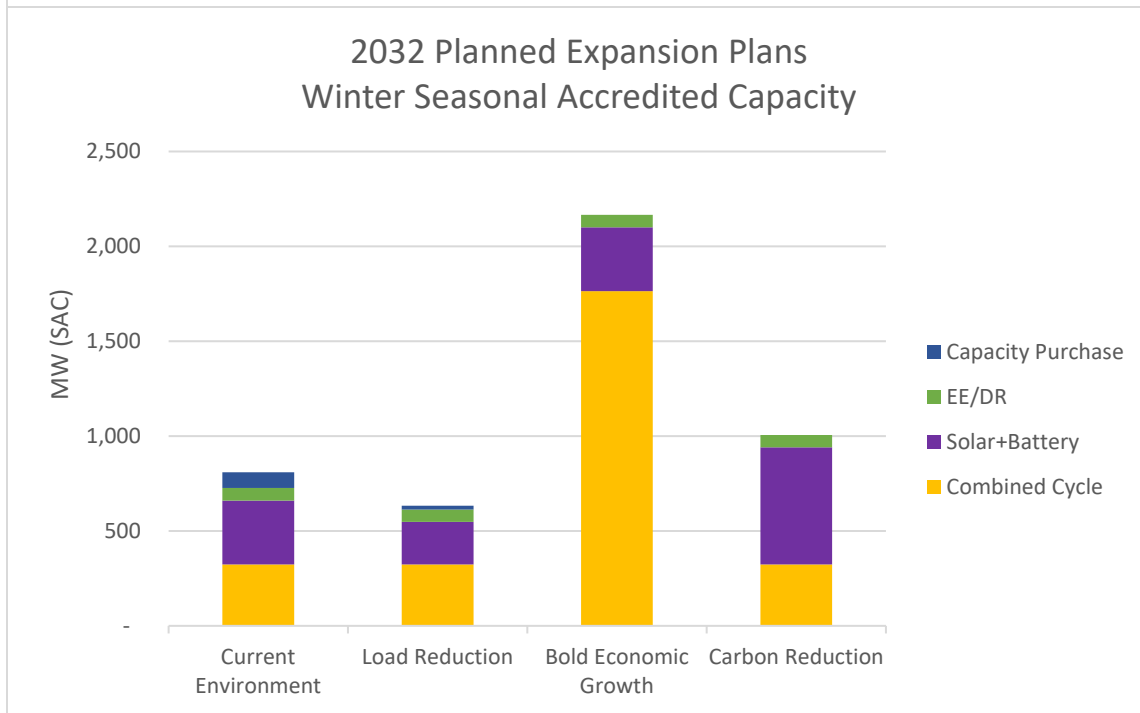
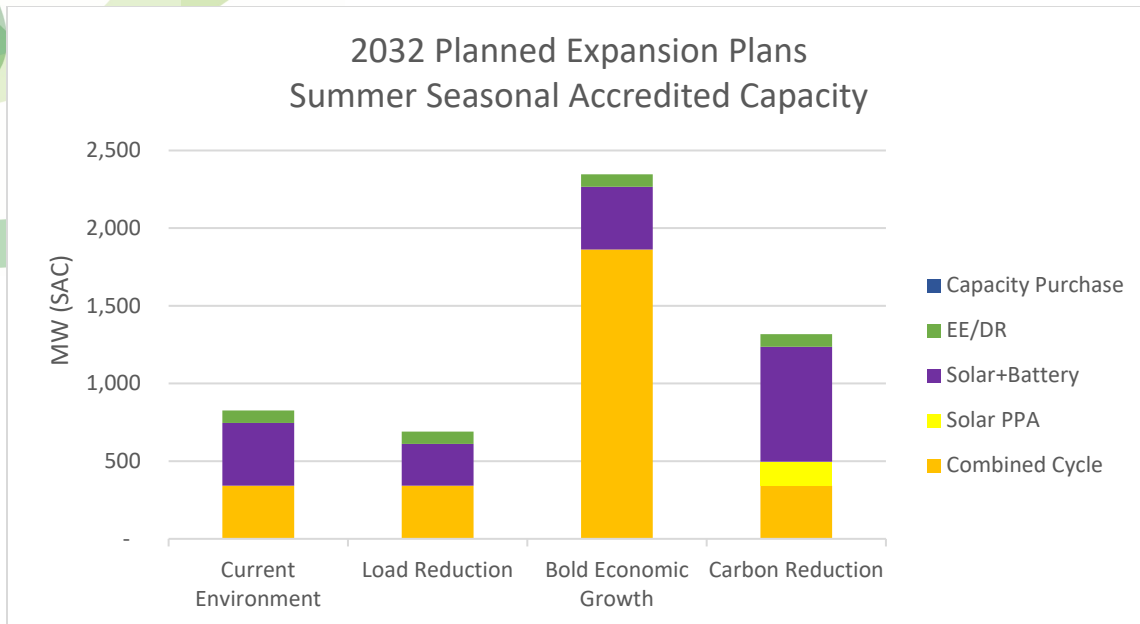
Peaking Combustion Turbine Gas





Model Results

WVPA models these inputs and Company financial information to produce resource expansion plans by season for each of the four futures. The table below indicates potential resource additions in terms of the SAC for summer and winter in 2032 as a snapshot to highlight changes.



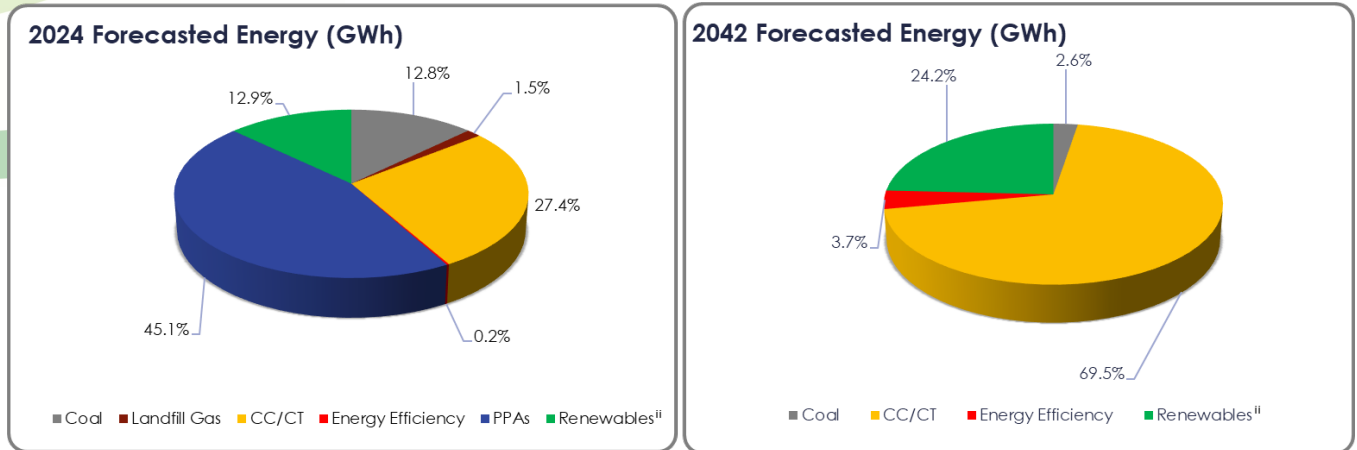
Preferred Resource Plan

We created a scorecard to measure these five attributes for each plan: reliability, stability, affordability, resiliency, and environmental sustainability to compare the results in Section 5 of the IRP. WVPA considers the Current Environment its preferred resource plan. It includes adding winter capacity starting in 2025 and incrementally by season throughout the forecast period. We anticipate meeting these needs in a diversified manner including existing resources in the MISO and PJM markets, bilateral capacity purchases and DR program expansion for near-term needs. From 2030 to 2040, our capacity needs are met by a more diverse mix of resources, including additional solar and battery PPA purchases, EE and DR resources and incremental capacity market purchases.

The forecasted retirement of owned generation and the expiration of existing purchase power agreements drives the need for additional resources by 2032. WVPA will continually evaluate available projects that show potential to provide cost effective renewableⁱⁱ energy and seek alliances, partnerships and opportunities for joint operations with other electric utilities.

At the end of our 20-year plan horizon, WVPA's preferred resource plan forecasts a dramatic change in our energy needs as depicted in the following charts comparing 2024 and 2042 results.

2024 and 2042 Resources



Our Power Supply 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 WVPA 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.

Short-term Action Plan

WVPA made substantial progress towards the activities outlined in our 2020 IRP short-term action plan.

- The PPA contract for 199 MW of solar power from Speedway Solar, located in Shelby County, Indiana, was terminated due to force majeure conditions in 2022. The developer cited extreme cost increases that prohibited the expected construction and COD in 2024.
- WVPA worked with our joint owners to extend the retirement of Gibson Unit 5 from 2026 to 2029.

- WVPA coordinated residential and C&I EE and DR programs and worked to increase Member participation in these programs.
- WVPA completed DER and EV pilot programs, improved DG tracking and considered new technologies and business models for future programs.
- WVPA and its Members prepared letters of intent for federal funding to provide cost effective renewableⁱⁱ energy.
- WVPA incorporated changes due to the RTO's resource adequacy constructs including seasonal requirements and resource accreditation into its risk mitigation efforts and long-term planning.
- To continually improve reliability, investments were made in upgrades and additions to WVPA's transmission system. The Company maintained its investment position within the Joint Transmission System (JTS).
- WVPA managed its resources to meet its capacity and reliability requirements of MISO, PJM and NERC.
- WVPA monitored developments surrounding the carbon emission pollution standards for new, modified, reconstructed and existing electric utility generating units and other environmental legislation. The Company incorporated knowledge at this time into the current IRP.
- WVPA continues to seek alliances, partnerships and opportunities for joint operations with other electric utilities. These activities may include participation in new or existing power production facilities and combined system planning. The Company anticipates that these strategies have the potential to produce lower costs and mitigate risks.

Major activities in the next three years include:

- WVPA will continue to coordinate various residential and C&I EE and DR programs and work to increase Member participation in these programs.
- WVPA will monitor the changing energy landscape and adjust to incorporate changes to the RTO's resource adequacy constructs including system attribute enhancements.

- To continually improve reliability, expenditures will be made in upgrades or additions to WVPA's transmission system. The Company also plans to maintain its investment position within the JTS.
- WVPA will manage its resources to meet its capacity and reliability requirements of MISO, PJM and NERC.
- WVPA will monitor developments surrounding the carbon emission pollution standards for new, modified, reconstructed and existing electric utility generating units and other environmental legislation. The Company expects to take the necessary steps to meet requirements and manage the cost impacts for the Members.
- WVPA may seek alliances, partnerships and opportunities for joint operations with other electric utilities. These activities may include participation in new or existing power production facilities and combined system planning. The Company anticipates that these strategies have the potential to produce lower costs and mitigate risks.

ⁱ See www.powermoves.com for more information.

ⁱⁱ WVPA supports renewable energy by owning landfill gas and solar generation and purchasing the output from wind, solar and biogas facilities. WVPA 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.