



# Integrated Resource Plan 2025

DRAFT EXECUTIVE SUMMARY

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TENNESSEE  
VALLEY  
AUTHORITY



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We're excited to share with you TVA's draft 2025 Integrated Resource Plan (IRP) and programmatic Environmental Impact Statement (EIS). The IRP is a comprehensive, transparent study that evaluates how TVA could meet the energy needs of the Valley region for the coming decades. It considers resource needs and options, as well as physical and operational constraints, risks, and proposed resource choices. The IRP provides strategic direction for how TVA can continue to provide affordable, reliable, resilient, and increasingly cleaner power to the Tennessee Valley region. The accompanying EIS analyzes potential environmental impacts to the Valley that could result from the IRP.

Since our last IRP was completed in 2019, we have been paying close attention to key signposts – or market signals – to inform the timing of our next IRP. Over the past few years, we have experienced residential and industrial growth in the region, policy and regulatory changes, and advancements in emerging technologies, and we expect these to continue as we look forward. These changes indicated it was time to re-evaluate planning assumptions and begin work on the 2025 IRP.

TVA has solicited input from stakeholders around the Valley region to develop these draft documents and has worked closely with the IRP Working Group (IRP-WG) throughout the IRP planning process. The IRP-WG, a diverse stakeholder group, consists of 24 members representing TVA local power companies and direct served customers, research and academia, energy and environment non-governmental organizations, state and federal government, and community and economic development leaders.

The 2025 IRP is an important tool to shape how TVA provides power to the Valley region through 2050. TVA staff and the IRP-WG have designed the framework of the IRP scenarios and strategies, established inputs and assumptions, analyzed outputs, developed evaluation criteria, and evaluated results. The result of that work is the draft 2025 IRP, and the draft EIS evaluates the impacts of the IRP.

The documents are available for review and public comment through November 26. We encourage you to review the documents and share your thoughts and feedback. The documents and feedback form may be found at [www.tva.com/irp](http://www.tva.com/irp). In addition, we will be holding virtual public meetings and a number of in-person meetings around the Valley region throughout the public comment period to share the IRP and EIS and answer questions. More information about those meetings, including dates and locations, may be found at [www.tva.com/irp](http://www.tva.com/irp).

Thank you in advance for your interest, review, and feedback. Your comments will inform the recommendations that will be outlined in the final reports.

Sincerely,

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# Executive Summary

## Introduction

For more than 90 years, the Tennessee Valley Authority (TVA) has executed its mission to serve the Valley region – to provide affordable and reliable power, be a responsible steward of the environment, and support economic development. That mission continues as TVA is planning the future energy system, working to ensure power for the region for the coming decades.

TVA's 2025 Integrated Resource Plan (IRP) and associated programmatic Environmental Impact Statement (EIS) evaluate the long-term demand for power in the TVA region, the resource options available for meeting that demand, and the potential environmental, economic, and operating impacts of these options. Stakeholder input on what they would like to see in the future power system is integral to TVA's IRP process. The IRP will provide strategic direction for meeting the energy needs of TVA's customers and residents of the Valley region between now and 2050, establishing a strong planning foundation and informing TVA's next long-range financial plan.

## Why is the IRP Important?

Having the right resources at the right time to power the homes and businesses in the region requires continual and proactive planning, as it takes several years or more to develop and build new power plants to serve the region's energy needs. Periodically, TVA develops an IRP that goes beyond annual updates to take a broader view of potential electricity demand, evolving regulations, and technology advancements, and it incorporates stakeholder input into the planning process.

We live and work in one of the fastest growing regions in the nation, and strides are being made in new clean energy technologies, making the work of this IRP especially important. The IRP recommendations will shape the future power system, ensuring that the region has affordable, reliable, resilient, and increasingly cleaner energy for decades to come.

### What some IRP Working Group members had to say about the importance of TVA's 2025 IRP

"It has been enlightening to be part of TVA's IRP process. TVA's efforts to bring diverse viewpoints into the room during IRP Working Group meetings make this IRP stronger."

- Dr. Kendra Abkowitz, Sustainability Chief, City of Nashville

"The Valley faces important decisions as we tackle challenges such as shifting environmental policies and conflicting political priorities to new and expensive generation technologies. The stakes are high, so we need to get this right."

- Wes Kelley, President and CEO, Huntsville Utilities

"TVA is at a critical inflection point, and the steps our nation's largest public power provider takes to decarbonize in the IRP can position the Valley as a leader in the 21st century economy."

- David Rogers, Deputy Director Beyond Coal, Sierra Club



## TVA Overview

### TVA's Mission

TVA was created by Congress in 1933 and charged with a unique mission – to improve the quality of life in the Valley through the integrated management of the region's resources. For more than 90 years, TVA has carried out this mission to serve the region, providing affordable and reliable energy, being a responsible steward of the environment, and supporting economic development. TVA funds virtually all operations through electricity sales and power system bond financing. TVA sets rates as low as feasible and reinvests net income into power system improvements and economic development initiatives. In addition to operating and investing its revenues in its electric system, TVA provides flood control, navigation, land management and natural resource stewardship for the Tennessee River watershed.

To achieve its mission in today's environment, TVA is focused on five strategic priorities – People Advantage, Powerful Partnerships, Operational Excellence, Igniting Innovation, and Financial Strength. In concert with its mission and priorities, TVA is a leader in reducing carbon emissions and aspires to achieve net-zero by 2050.

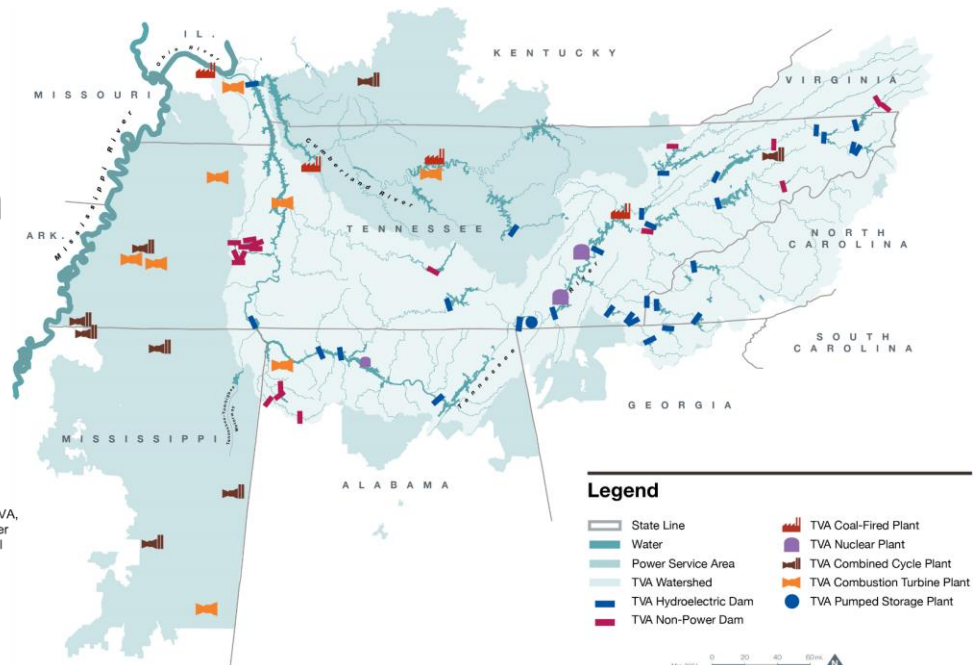
### Who We Serve

As the nation's largest public power supplier, TVA delivers affordable, reliable, and increasingly cleaner electricity to 153 local power companies and 60 direct served customers. The TVA power system serves approximately 10 million people in a seven-state, 80,000 square-mile region. TVA's portfolio has evolved over the years to a more diverse, reliable, and cleaner mix of generation resources, which today provides 55% carbon-free power. In Fiscal Year (FY) 2023, TVA delivered more than 157 billion kilowatt-hours of electricity to customers from a power supply that was 42% nuclear, 31% natural gas, 14% coal-fired, 9% hydro, and 4% wind and solar. Additionally, TVA programmatic energy efficiency efforts reduced power demand by over 1%.

To meet the region's energy needs in all types of weather, TVA maintains 41,261 megawatts (MW) of generating capability (FY 2023). TVA operates a generating asset portfolio of 32,139 MW, maintains long-term agreements with third-party power producers totaling 7,421 MW, and offers demand response programs that provide 1,701 MW of capacity. To reliably deliver energy to those we serve, TVA operates one of the nation's largest transmission systems.

## TVA Power System

In addition to assets operated by TVA, TVA also maintains long-term power purchase agreements for additional solar, wind, gas, and coal capacity.



## Objectives of Resource Planning

Integrated resource planning at TVA is grounded in least-cost principles and meets the environmental review requirements of the National Environmental Policy Act (NEPA). Least-cost planning is integral to TVA, and thorough environmental review of the IRP analysis provides valuable insights that are considered as IRP recommendations are developed.

TVA applies the following least-cost principles, aligned with Section 113 of the Energy Policy Act of 1992, to develop plans for providing affordable, reliable, resilient, and increasingly cleaner energy over the long term:



Least-cost planning evaluates cost, operational, environmental, and risk factors in order to provide reliable service at the lowest system cost. A system that is diverse, resilient, and flexible is more reliable, year in and year out, so these aspects are key considerations. Planning also explores opportunities to efficiently reduce environmental impacts. Finally, TVA evaluates variations in electricity demand, resource costs, and environmental regulations to ensure plans are risk informed and flexible to adapt as the future evolves. Metrics being used in the IRP reflect least-cost planning principles, providing insights into tradeoffs across alternative business strategies.

## Delivering on Prior IRP Recommendations

Before embarking on the 2025 IRP, it was important to evaluate the progress made on recommendations from the last IRP. The 2019 IRP provided strategic direction for renewables, system flexibility, the existing fleet, energy usage, and distribution planning. Meaningful progress has been made on all fronts:

- Developed planning dates for retiring the aging coal fleet
- Added more solar and battery storage to the resource mix
- Invested in the gas fleet to enable coal retirements and solar expansion and maintain reliability
- Evaluated energy efficiency potential to inform future efforts
- Increased investment in low-income energy efficiency programs
- Collaboratively deployed electric vehicle initiatives
- Initiated collaborative effort for regional grid transformation

Also, TVA is investing in the future transmission grid. This starts with building a state-of-the-art System Operations Center expected to be operational in 2026. The center will employ smart technologies to boost efficiency and enhance integration of distributed resources, along with advanced security systems to protect grid assets.

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## Key Signposts Informing this IRP

The 2019 IRP identified key signposts – or market signals – to monitor. These signposts were related to changing market conditions, evolving policy and regulations, and technology advancements. Movements in signposts influenced refinements to annual plans and helped identify the timing for initiating the 2025 IRP.

### Changing Market Conditions

After a decade of flat electricity demand, the TVA region is now experiencing increasing demand for electricity driven by population, employment, and industrial growth, weather trends, and increasing electric vehicle use. The region is also seeing more volatility in winter temperatures and natural gas prices that affect resource planning. Finally, TVA continues to experience increasing demand for carbon reductions and renewable energy options from residents and businesses in the region and those considering locating here.

### Evolving Policy and Regulations

Energy policy and regulations have continued to evolve since the last IRP. The Effluent Limitations Guidelines Rule that establishes stringent wastewater discharge standards at coal plants played a role in determining planned end-of-life dates for TVA's remaining four coal plants. In 2022, the Inflation Reduction Act was signed into law, which funds several priorities, including clean energy production and investment tax credits that incentivize investment in renewable and other clean energy sources. Additionally, the Infrastructure Investment and Jobs Act funds investment in national power and water infrastructure, grid resilience and flexibility, and new clean energy demonstrations.

In May 2024, the Environmental Protection Agency (EPA) finalized a rule under the Clean Air Act that seeks to reduce greenhouse gases (GHG) by establishing carbon dioxide (CO<sub>2</sub>) emissions limits for existing coal and new natural gas power plants. EPA's new source performance standards and emission guidelines assume the application of emerging carbon capture and sequestration (CCS) technologies, while also allowing for compliance by co-firing hydrogen. The EPA also finalized a rule establishing more stringent vehicle emissions standards. These recently finalized rules are being litigated and could be stayed, vacated, or amended. The ongoing evolution of energy policy and regulations will continue to influence resource planning.

### Technology Advancements

With respect to commercial-ready technologies, TVA has gained experience with increasing amounts of new solar generation and is installing its first owned and operated grid-scale battery storage on the system. Also, progress is accelerating on emerging technologies such as advanced nuclear, carbon capture, and hydrogen production and use. TVA is collaborating with the Department of Energy, Oak Ridge National Laboratory, National Renewable Energy Laboratory, Electric Power Research Institute, universities, startup accelerators, and other industry partners to advance the viability and cost-effectiveness of these emerging technologies.

Ensuring that resources will be online to replace retiring resources, meet expected load growth, and comply with evolving regulations, as well as having confidence in new technology performance, will be essential to meeting the electricity needs of the region between now and 2050.

### Stakeholder and Public Involvement

Understanding and balancing the varying needs and priorities of TVA's approximately 10 million stakeholders is an integral part of TVA's IRP. Throughout the process, TVA has been engaging external stakeholders to gather diverse views on the future power system, challenge assumptions, and help shape the analysis and outcomes.

TVA has been involving stakeholders and the public since the IRP process began when a Notice of Intent to conduct an Environmental Impact Statement was published in the Federal Register in May 2023. That initiated

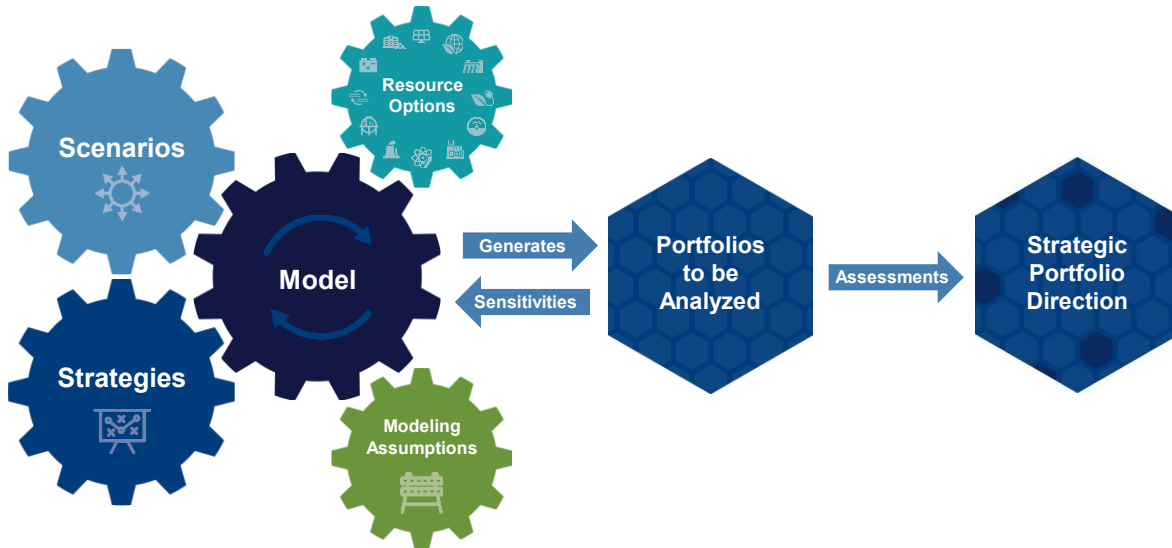
a 45-day public scoping comment period when public input was gathered to help frame the IRP effort, along with the input from the Utility of the Future Information Exchange conducted in October 2022 to July 2023. TVA established the IRP Working Group, a diverse group of stakeholders who meet regularly to provide input on all key aspects of the IRP. The Regional Energy Resource Council (RERC), a federal advisory committee that provides formal advice to the TVA Board, also is engaged in the process. Public participation is vital, and TVA has received input during quarterly Board listening sessions and at RERC meetings. TVA also provides information during public webinars and on TVA’s IRP website ([tva.com/irp](http://tva.com/irp)). An environmental justice focus is being applied to IRP engagements, with the objective to reach and gain valuable input from all communities.

The process is now entering the next phase with the publication of the draft IRP and EIS. TVA will be holding two webinars and 10 in-person meetings across the region to provide information on the IRP and opportunities for the public to ask questions during the public comment period, which runs through November 26. Insights gained from stakeholders and public input are critical as TVA plans how to meet future power demand.

## Planning Approach

### Key Planning Elements

TVA used a rigorous and comprehensive scenario and strategy approach to evaluate potential paths for providing affordable, reliable, resilient, and increasingly cleaner energy into the future. Stakeholder feedback was a key component in the development of all model inputs.














TVA utilized input from the IRP Working Group and public comments to design scenarios and strategies to be evaluated in the IRP. Scenarios explored possible futures that TVA may find itself operating in that have varying levels of electricity demand, environmental policy and regulations, and technology advancements. Strategies modeled alternative approaches TVA could employ to meet electricity demand by emphasizing certain resource options. TVA also used input from the IRP Working Group to develop the set of resource options to be considered in the IRP analysis.

For each unique scenario and strategy combination, the planning model solved for the lowest-cost portfolio. Combining the various scenarios and strategies generated potential resource portfolios to be analyzed using metrics that reflect TVA’s mission and least-cost planning principles. The draft EIS evaluated the environmental impacts of potential changes in the portfolio. Further analysis will be performed to answer questions based on IRP Working Group input and public comments on the draft IRP and EIS. Collectively, these evaluations will inform the IRP recommendations for strategic portfolio direction that will be included in the final IRP report.

## Scenarios and Strategies

The six external scenarios and five business strategies evaluated in the IRP are summarized below. Scenario 6 incorporates the EPA’s final GHG Rule that was released during the development of the draft IRP analysis. The net-zero regulation scenarios (4 and 5) reflect the draft GHG Rule, which also included regulations that may be adopted in the future related to existing gas plants.

SCENARIOS		STRATEGIES	
	<b>Reference (without Greenhouse Gas Rule)</b> Represents TVA’s current forecast that reflects moderate population, employment, and industrial growth, weather-normal trends, growing electric vehicle use, and increasing efficiencies		<b>Baseline Utility Planning</b> Represents TVA’s current outlook based on least-cost planning, incorporating existing programs and a planning reserve margin target. This reserve margin target applies in all strategies
	<b>Higher Growth Economy</b> Reflects a technology-driven increase in U.S. productivity growth that stimulates the national and regional economies, resulting in substantially higher demand for electricity		<b>Carbon-free Innovation Focus</b> Emphasizes and promotes emerging, firm and dispatchable carbon-free technologies through innovation, continued research and development, and strategic partnerships
	<b>Stagnant Economy</b> Reflects rising debt and inflation that stifle consumer demand and business investment, resulting in weaker than expected economic growth and essentially flat electricity demand		<b>Carbon-free Commercial Ready Focus</b> Emphasizes proven carbon-free technologies like wind, solar, and storage, at both utility-scale and through customer partnerships, along with strategic transmission investment
	<b>Net-zero Regulation</b> Reflects the impact of the May 2023 draft Greenhouse Gas Rule that targets significant reductions in electric utility CO <sub>2</sub> emissions beginning in 2030 and potential future utility regulations striving for net-zero by 2050		<b>Distributed and Demand-side Focus</b> Emphasizes existing and potentially expanded customer partnerships and programmatic solutions to reduce reliance on central station generation and promote virtual power plants
	<b>Net-zero Regulation Plus Growth</b> Reflects the impact of the May 2023 draft Greenhouse Gas Rule and potential future utility regulations, along with substantial advancements in clean energy technologies, that spur economic growth and extensive electrification		<b>Resiliency Focus</b> Emphasizes smaller units and the promotion of storage, along with strategic transmission investment, to drive wider geographic resource distribution and additional resiliency across the system
	<b>Reference (with Greenhouse Gas Rule)</b> Reflects TVA’s current forecast and incorporates the impact of the Greenhouse Gas Rule finalized in May 2024 that targets significant reductions in electric utility CO <sub>2</sub> emissions beginning in 2030		

## Resource Options

Maintaining diversity in the resource mix is fundamental to TVA’s ability to provide affordable, reliable, resilient, and increasingly cleaner energy to the residents, businesses, and industries in the region. The IRP analysis considered the addition of a wide range of supply-side generating resources, distributed generating resources, and demand-side management resources. The major resource types evaluated in the IRP include nuclear, hydro, coal, natural gas, renewables, storage, and energy efficiency and demand response (EE and DR).

Nuclear	Hydro	Coal	Gas	Renewables	Storage	EE and DR
<ul style="list-style-type: none"> <li>Advanced pressurized water reactor</li> <li>Light water small modular reactor</li> <li>Gen IV small modular reactor</li> </ul>	<ul style="list-style-type: none"> <li>Hydro uprates</li> </ul>	<ul style="list-style-type: none"> <li>Supercritical pulverized coal</li> <li>Supercritical pulverized coal w/carbon capture</li> </ul>	<ul style="list-style-type: none"> <li>Combined cycle</li> <li>Combined cycle w/ carbon capture</li> <li>Combustion turbine</li> <li>Aeroderivative</li> <li>Reciprocating engine</li> <li>Hydrogen blending</li> <li>Combined heat and power</li> </ul>	<ul style="list-style-type: none"> <li>Utility scale solar</li> <li>Distributed solar</li> <li>Midwest wind</li> <li>Southeast high-hub wind</li> <li>High Voltage Direct Current wind</li> </ul>	<ul style="list-style-type: none"> <li>Pumped storage</li> <li>Lithium-ion battery</li> <li>Advanced chemistry battery</li> <li>Distributed storage</li> </ul>	<ul style="list-style-type: none"> <li>Energy efficiency</li> <li>Demand response</li> </ul>

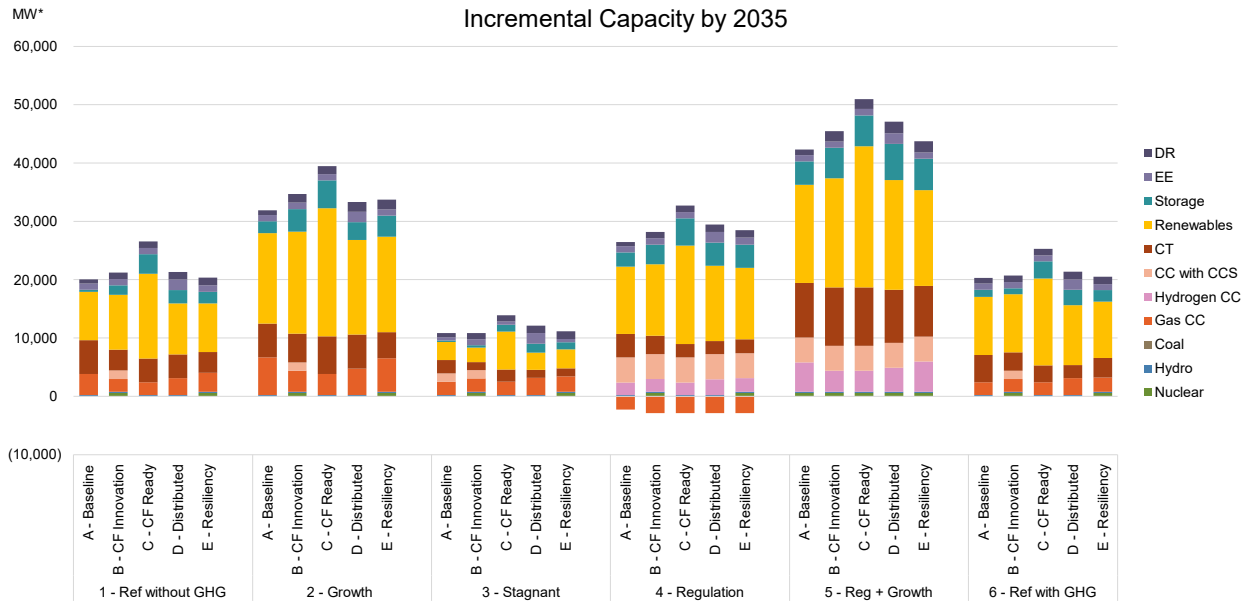
## Portfolio Results

During the IRP process, TVA – with significant input from stakeholders and the public – considered a wide range of future scenarios, various business strategies, and a diverse mix of resource options. Applying the five strategies in the six scenarios generated 30 potential resource portfolios to analyze. The model analyzed how to achieve the lowest-cost portfolio for each unique scenario and strategy combination.

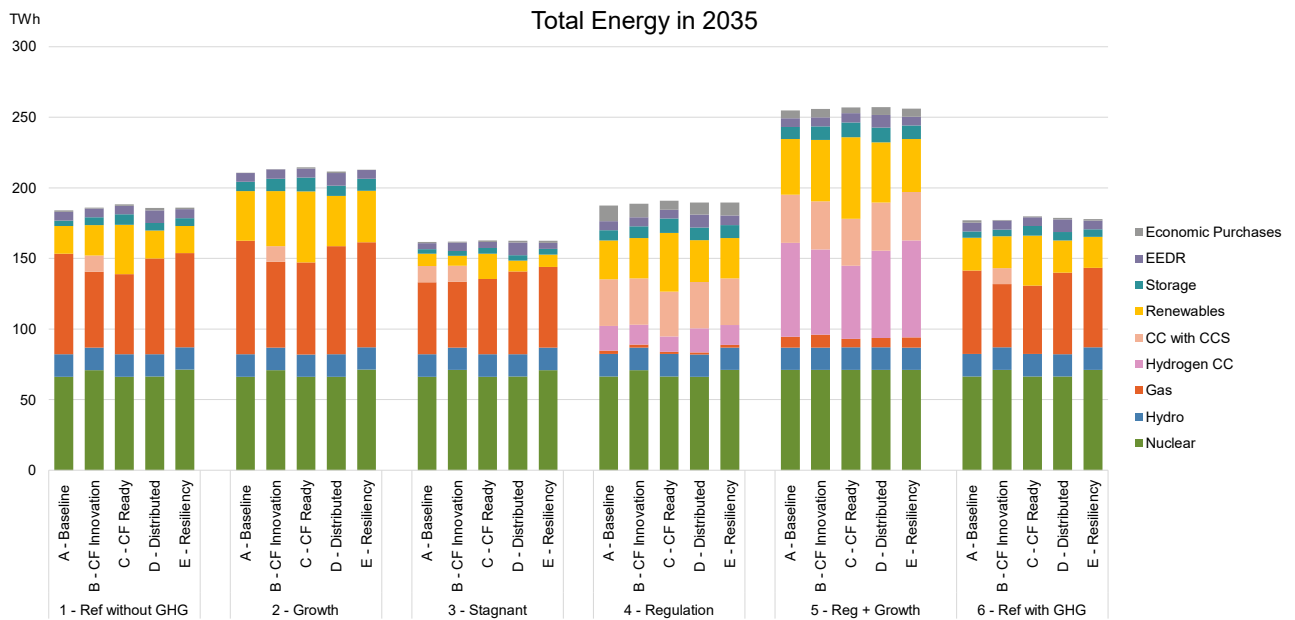


## 2035 Portfolios

The charts below show the portfolio results for 2035. Results are presented in two ways – incremental capacity changes from now through 2035 and total energy in 2035. Incremental capacity represents the new resources selected to fill capacity needs, including incremental resource additions and retirements. Capacity needs are driven by forecasted growth in energy demand and the retirement or expiration of over 10,000 MW of coal, gas, and renewable capacity. Total energy represents the economic dispatch of resources in the capacity plans for each portfolio. The results for each scenario are grouped together. Within a scenario, strategy results are grouped by resource type, which varies based on strategy focus and the impact on portfolio optimization.

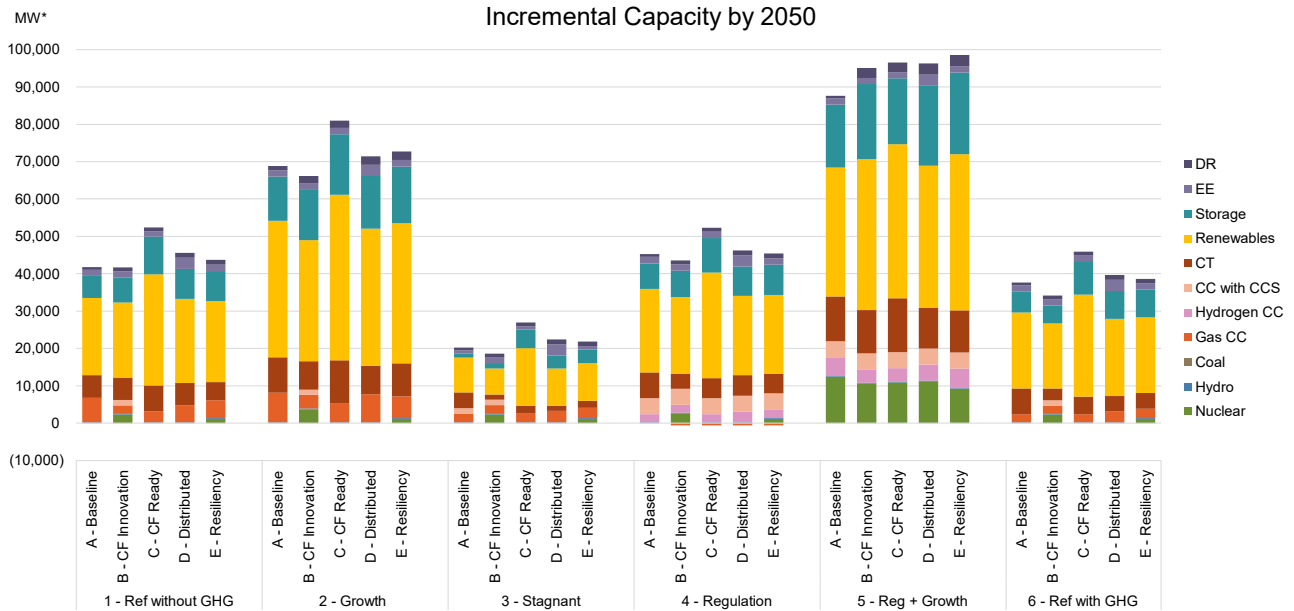


\* MW summer net dependable capacity, except for renewables and storage that are shown in nameplate.

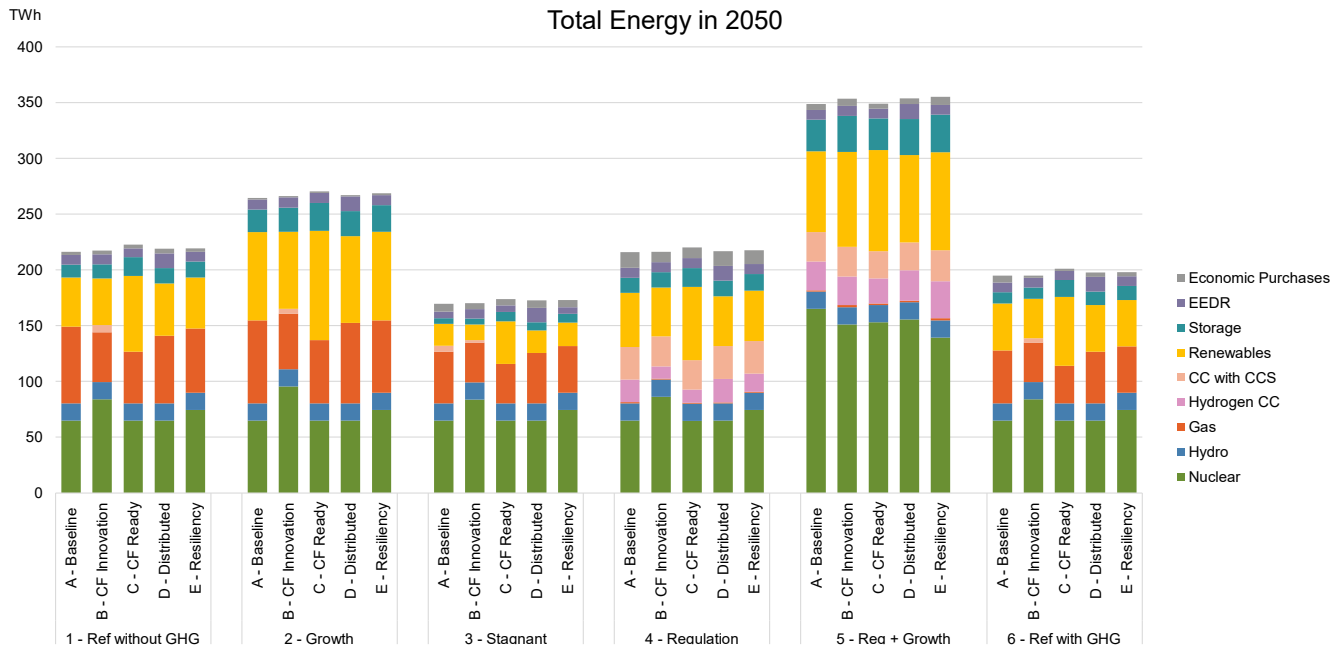


## 2050 Portfolios

The charts below show the portfolio results for 2050, including incremental capacity changes from now through 2050 and total energy in 2050. Capacity needs are driven by forecasted growth in energy demand and the retirement or expiration of over 13,000 MW of coal, gas, and renewable capacity. Total energy represents the economic dispatch of resources in the capacity plans for each portfolio.



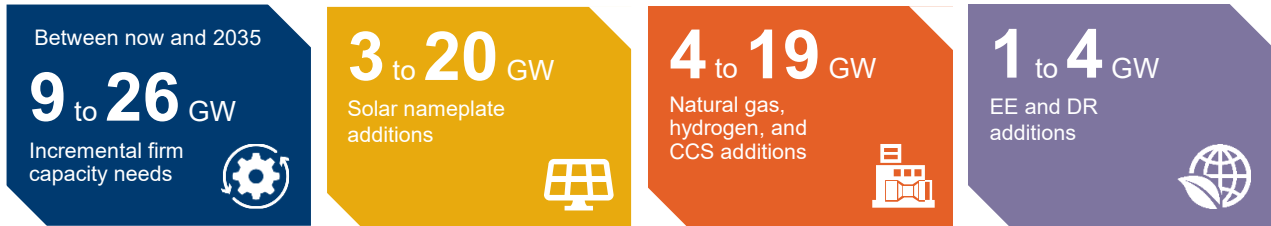
\* MW summer net dependable capacity, except for renewables and storage that are shown in nameplate.



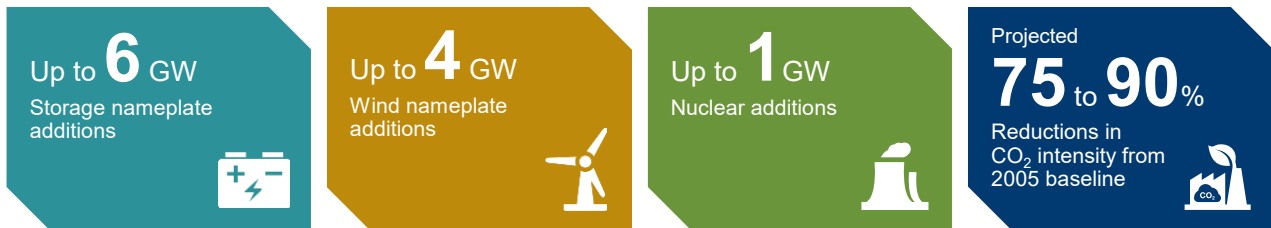
## Key Themes

Uncertainty in electricity demand, environmental regulations, and available technologies increases with time. The IRP analyzes potential ways the resource portfolio might evolve between now and 2050 to respond to changes in these key drivers, and insights gained from evaluating the entire planning horizon will inform strategic portfolio direction between now and 2035. Key themes are expressed in gigawatts (GW), with one GW providing enough energy to power about 585,000 average homes.

Looking across all portfolios through 2035, draft IRP results suggest:



**In all scenarios, TVA will continue to provide AFFORDABLE, RELIABLE, RESILIENT, and increasingly CLEANER energy for the region for decades to come.**























Power supply mix ranges, summarized in gigawatts (GW), vary based on energy demand, market conditions, policy and regulations, and technology advancements.

- New capacity is needed in all scenarios to replace retiring and expiring capacity, support economic growth, and enable further electrification of the economy.
- Firm, dispatchable technologies are needed to ensure system reliability throughout the year.
- Solar expansion plays an increasingly substantial role, providing economic, carbon-free energy.
- Gas expansion serves broad system needs, with the potential for emerging carbon capture and hydrogen options to enable deeper decarbonization.
- Energy efficiency deployment reduces energy needs, particularly between now and 2035, and demand response programs grow with the system and the use of smart technologies.
- Storage expansion accelerates, driven by evolving battery technologies and the potential for additional pumped storage.
- Wind additions have the potential to add more diversity and carbon-free energy to the resource mix.
- New nuclear technologies, with continued advancements, can also support load growth and deeper decarbonization.

As other sectors of the economy electrify, almost all resource types – both supply and demand-side – will be required to meet system needs. In all scenarios, TVA will continue to provide affordable, reliable, resilient, and increasingly cleaner energy for the region for years to come.

## Strategy Performance

Reflecting least-cost planning principles and with input from the IRP Working Group, TVA developed a set of metrics to assess the performance of the portfolios. Metrics were grouped into four categories – low cost, risk informed, environmentally responsible, and diverse, reliable, and flexible. Metrics were calculated for the 30 portfolios and were used to evaluate strategy performance for each category, as summarized below.

Strategy	Low Cost	Risk Informed	Environmentally Responsible	Diverse, Reliable, and Flexible
<b>A</b> Baseline Utility Planning				
<b>B</b> Carbon-free Innovation Focus				
<b>C</b> Carbon-free Commercial Ready Focus				
<b>D</b> Distributed and Demand-side Focus				
<b>E</b> Resiliency Focus				
	Good	Better	Even Better	Best

Looking across the metric categories, there are key tradeoffs to consider. Key takeaways include:

- Strategy A that applies baseline utility planning is the lowest cost strategy overall, but it has less reduction in CO<sub>2</sub> intensity than the alternative strategies.
- While Strategy B is the most expensive strategy, as it requires upfront investments in clean energy technology innovation, it achieves similar levels of decarbonization as Strategy C over the long term and reduces regulatory and financial risk.
- Strategy C that promotes carbon-free commercial ready technologies is second lowest in cost, achieves the fastest near-term reductions in CO<sub>2</sub> intensity, and reduces regulatory and financial risk.
- Strategies D and E generally rank in the middle across the metric categories.
- All strategies include timeline, technological, transmission, and/or market depth uncertainty and execution risks, which are amplified by load growth and regulatory impacts.
- Maintaining sufficient system flexibility to meet dynamic changes in load will require balancing renewable and dispatchable resource additions over time, especially in growth scenarios.

## Environmental Impacts

The draft EIS is a programmatic review that broadly assesses the natural, cultural, and socioeconomic impacts associated with the 2025 IRP. The primary study area described in the draft EIS includes the TVA service area. For some resources, such as air quality and climate change, the assessment area extends beyond the TVA region. The five strategies are the basis for the alternatives discussed in the draft EIS. Baseline Utility Planning (Strategy A) is the No Action Alternative, and the remaining four strategies are the Action Alternatives. The draft EIS analyzes and identifies the relative impacts of the five strategies on the natural and human environment.



Highlights of draft EIS observations include:

Environmental Resources	Summary of Impacts
Air Quality	<ul style="list-style-type: none"> <li>• Results indicate long-term reductions in air emissions of all types, largely driven by the expected retirement of all coal facilities by 2035 in all strategies.</li> <li>• Strategies B and C promote carbon-free resources; Strategy B has the greatest NO<sub>x</sub> reductions, and Strategy C has the greatest SO<sub>2</sub> and mercury reductions.</li> </ul>
Climate and Greenhouse Gases	<ul style="list-style-type: none"> <li>• All strategies lead to reductions in CO<sub>2</sub> emissions and intensity.</li> <li>• Strategies B and C have the lowest CO<sub>2</sub> emissions, while Strategy A that applies baseline utility planning has the highest CO<sub>2</sub> emissions.</li> </ul>
Water Resources	<ul style="list-style-type: none"> <li>• In most cases, water use decreases between 2025 and 2050 due to expected coal retirements by 2035, except in Scenario 5 where new nuclear generation increases water consumption.</li> <li>• Water use is lowest in Strategy C, which has the highest renewable additions, and is highest in Strategy B that has the highest nuclear additions.</li> </ul>
Land Resources	<ul style="list-style-type: none"> <li>• Land requirements for new power resources increase for all strategies, primarily driven by solar expansion.</li> <li>• Requirements are highest in Strategy C that has the highest solar buildout.</li> </ul>
Solid and Hazardous Waste	<ul style="list-style-type: none"> <li>• Coal combustion residuals decrease and drop to zero by 2035 due to expected coal retirements.</li> <li>• Strategies have similar levels of other solid and hazardous waste with minor variations due to the nuclear, gas, and renewable resource mix.</li> </ul>

Environmental impacts do not differ as much between strategies as they do between scenarios, as the scenario that materializes for forecasted load and regulatory impacts is the primary driver of environmental profiles. For most environmental resources, the impacts would be greatest in Scenarios 2 and 5 (Higher Growth Economy and Net-zero Regulation Plus Growth) and would be lowest under Scenario 4 (Net-zero Regulation).

The environmentally preferable alternatives are Strategies B and C that emphasize carbon-free resources and achieve similar CO<sub>2</sub> emissions reductions over the planning horizon. These strategies have tradeoffs across other environmental metrics, with higher water consumption in Strategy B and higher land use in Strategy C.

While the IRP is not site-specific, environmental justice (EJ) considerations help guide TVA’s public outreach strategies for the IRP. Also, the draft IRP and EIS provide insights into potential impacts to communities with EJ concerns. For example, the average system cost metric is directionally indicative of overall trends in customer bills (Strategy A is the lowest cost strategy overall), and metrics related to emissions are directionally indicative of air quality trends in the region (Strategies B and C have the lowest emissions overall). Site-specific aspects of actions that are later proposed to implement the IRP will be addressed in tiered environmental reviews.

In the final EIS, TVA will quantitatively and qualitatively evaluate the final IRP recommendations to determine the environmental impacts. Public comments on the draft IRP and EIS will be addressed in the final EIS.

## Developing IRP Recommendations

TVA, the IRP Working Group, and the Regional Energy Resource Council (RERC) are continuing to review and discuss key elements of the draft IRP and EIS results. After the public comment period concludes, TVA will review additional input received from the Working Group, the RERC, other key stakeholders, and the public. This input will help refine the list of additional analyses to be performed and considered in developing the IRP recommendations.

The final IRP will contain additional analysis and summarize the process for developing IRP recommendations, which will include:

- Power supply mix ranges by resource type
- Recommended strategic portfolio direction through 2035
- Key signposts and how they will influence portfolio direction from 2035 to 2050

The final IRP will also discuss implementation plans. In Spring/Summer 2025, the final IRP and EIS will be made available to the public for at least 30 days prior to consideration by the TVA Board. Subject to the Board's direction, an official Record of Decision will then be posted. The more site-specific effects of actions that are later proposed to implement the IRP will be addressed in tiered environmental reviews.

## **Conclusion**

TVA encourages stakeholders and the public to review the draft IRP and EIS and provide comments on the analysis and what they would like to see in their future power system. The draft IRP and EIS provide information on planning the future system, stakeholder engagement, process and methodology, and portfolio results and assessments, along with an environmental impacts analysis. TVA looks forward to stakeholder and public feedback on the IRP to help chart the course for the region's future energy system.