
Integrated Resource Plan (IRP) Update

July 2026

Integrated Resource Plan (IRP) Overview

Hunter Hydas
Director, System Planning

TVA's Mission

Energy



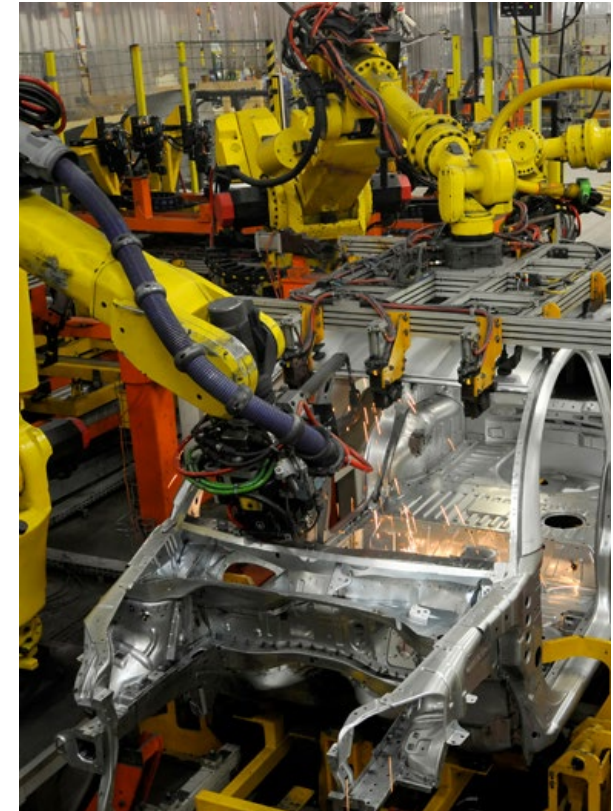
Provide affordable electric power throughout the Valley Region

Environment



Act as a steward of the Valley's natural resources

Economic Development



Serve as a catalyst for sustainable economic development

TVA's Integrated Resource Plan

The IRP is a long-term study of how TVA could meet customer demand for electricity over the next 20+ years, across a variety of futures.

A programmatic Environmental Impact Statement (EIS) that accompanies the IRP evaluates environmental effects.

An updated IRP is needed to:

- Proactively establish a strong planning foundation for the 2030s and beyond
- Inform TVA's next long-range financial plan

The IRP provides strategic direction on how TVA will continue to provide low-cost, reliable, and resilient electricity to the residents and businesses across the Valley region.



What TVA's IRP Does

The IRP will:

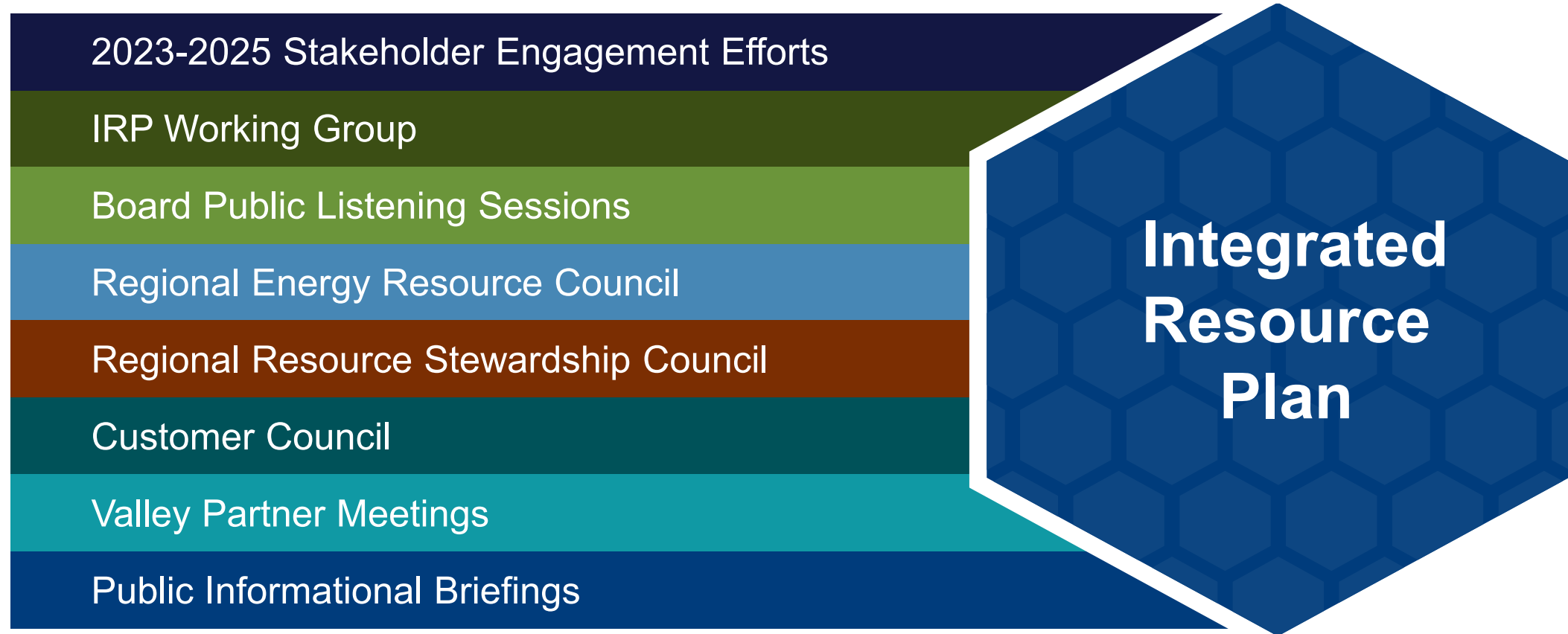
- Use least-cost planning criteria
- Incorporate resource capital, operating, fuel, and environmental compliance costs
- Utilize metrics to evaluate tradeoffs between strategies across financial, risk, environmental, and operational performance

The IRP will not:

- Establish wholesale or retail electricity rates
- Identify specific sites for new resources
- Be a Distribution Integrated Resource Plan (DIRP)

IRP Stakeholder and Public Engagement

Building off the robust 2023-25 stakeholder involvement activities, the 2026 IRP process has leveraged several of the most effective mechanisms for stakeholder engagement.



Online: tva.com/IRP / Email: IRP@tva.gov / Channels: @TVA @TVANews

Latest Updates on IRP

Spring/Summer 2023: TVA initiated the **2024 IRP**, targeting Fall 2024 completion

Spring 2024: Initial **Draft 2024 IRP** issuance paused, pending forthcoming regulation announcements

Fall 2024: TVA published the rebranded **Draft 2025 IRP**, targeting Spring 2025 completion

Spring 2025: Initial **Final 2025 IRP** completed by TVA staff; TVA Board lost quorum, delaying publication

Spring/Summer 2025: Key changes in electric utility landscape shifted some 2025 IRP baseline assumptions

Winter 2025/2026: Board quorum restored; initial discussions held on IRP path forward options

Spring 2026: Updated modeling assumptions, refreshed results, developed preliminary final recommendations

Summer 2026: **Preliminary Final IRP** issued for 30-day review and comment period

The Electric Utility Landscape Shifted in 2025

Some baseline assumptions underpinning previous 2025 IRP analysis have shifted.

Tax Credit Phase-out

- Updated tax credit phase-outs under the One, Big, Beautiful Bill Act require construction commencement by 2027 for renewables and by 2033 for nuclear and storage resources¹.
- The majority of 2025 IRP cases assumed investment tax credits (ITC) would not be subject to phase-outs prior to 2050, therefore new requirements will increase effective resource costs, particularly for renewables.

EOs and Regulatory Relief

- The Administration issued EOs encouraging investment in existing coal and new nuclear.
- EPA announced intentions to provide regulatory relief across several rules, including GHG Rule and ELG².
- The 2025 IRP included coal end-of-life by 2035 in all core cases, and status quo Nuclear Regulatory Commission (NRC) approval process for new nuclear.

Strong Demand Growth

- The Tennessee Valley region continues to see rising electricity demand driven by population, employment, and industrial growth.
- TVA's actual and forecasted electricity demand has rapidly increased relative to the 2025 IRP's Reference Scenario and is approaching the Higher Growth Scenario primarily due to data center growth (e.g., artificial intelligence, hyperscaler, etc.).

¹Solar/wind ITC drops to 0% following 2027 construction commencement; nuclear/storage ITC includes a 3-year phase out of 75%, 50%, 0% of full value following 2033 construction commencement.

²Greenhouse Gas (GHG) Rule of 2024 and Effluent Limitation Guidelines (ELG)

IRP Framework Review

Candy Kelly
Sr. Manager, Capacity Planning

Planning is Grounded in Least-Cost Principles

In integrated resource planning, TVA applies fundamental least-cost planning principles*:

Low Cost



Risk Informed



Environmentally Responsible



Reliable and Resilient



Diverse



Flexible



*In alignment with Section 113 of the Energy Policy Act of 1992

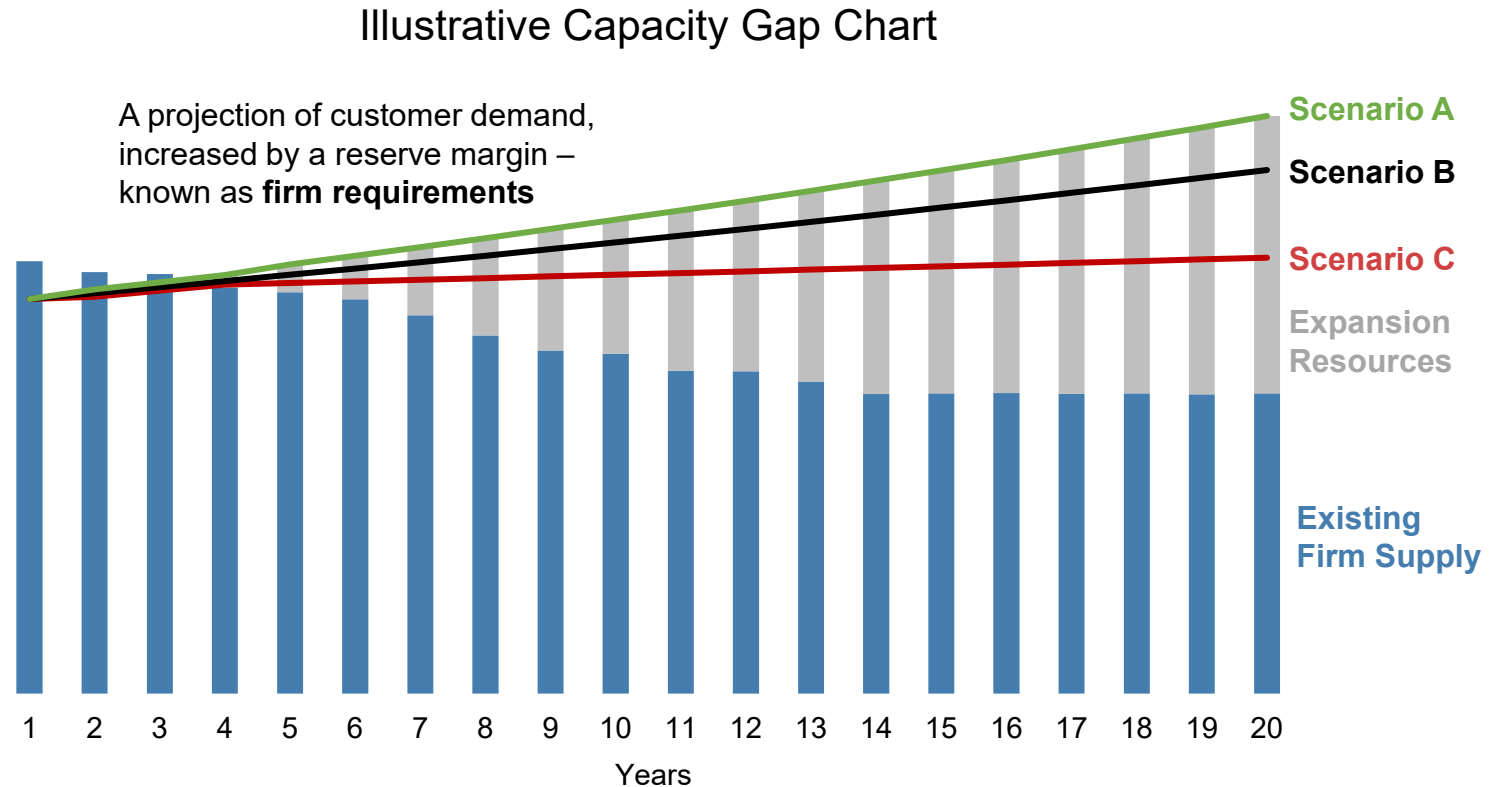
Resource Planning for Future Capacity Needs

Resource planning is about optimizing the mix of future capacity.

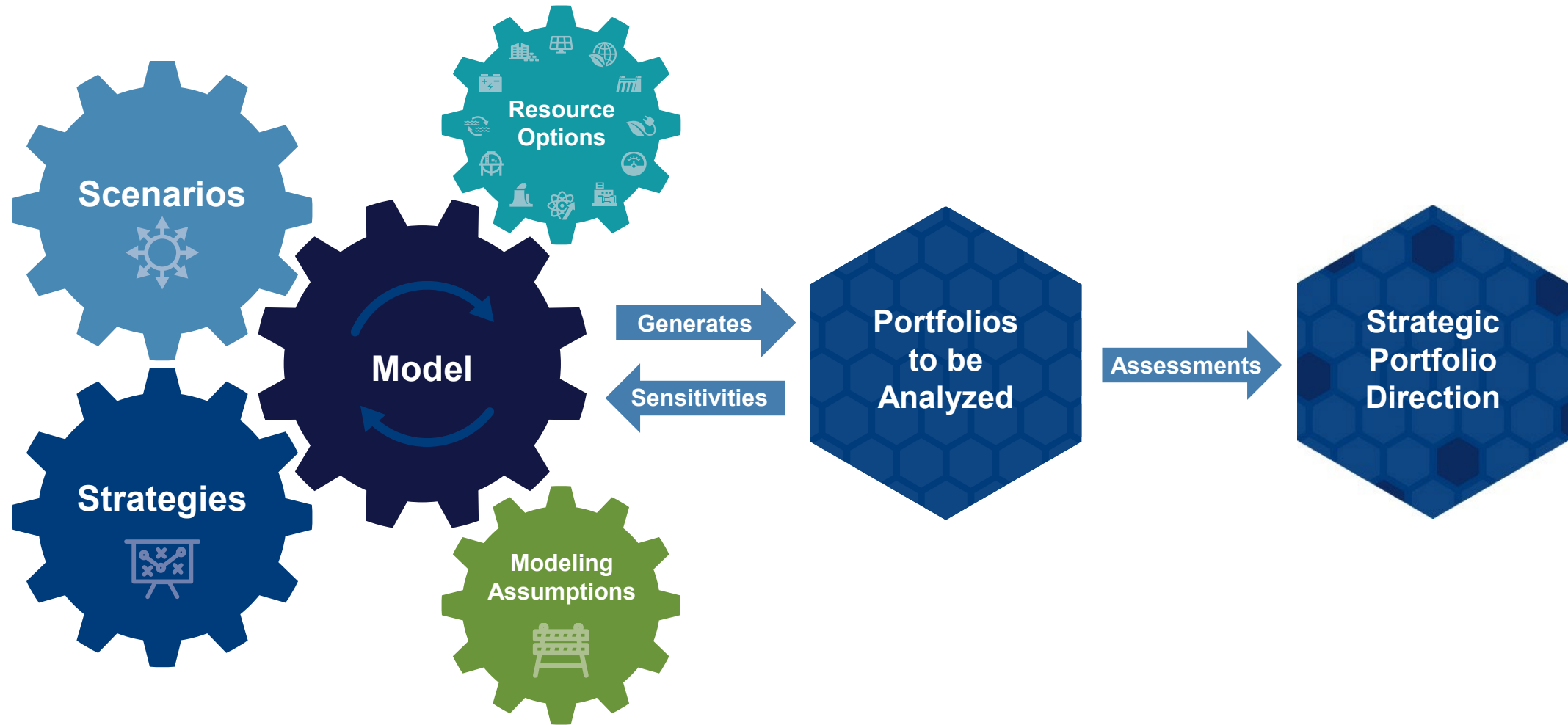
Projections of new capacity needed are filled by the most cost-effective resources.

Multiple scenarios will be explored, reflecting different levels of forecasted demand.

Multiple strategies will be explored, resulting in different resource mixes to evaluate in each scenario.



How the Integrated Resource Planning Process Works



Simplified Scenarios and Strategies

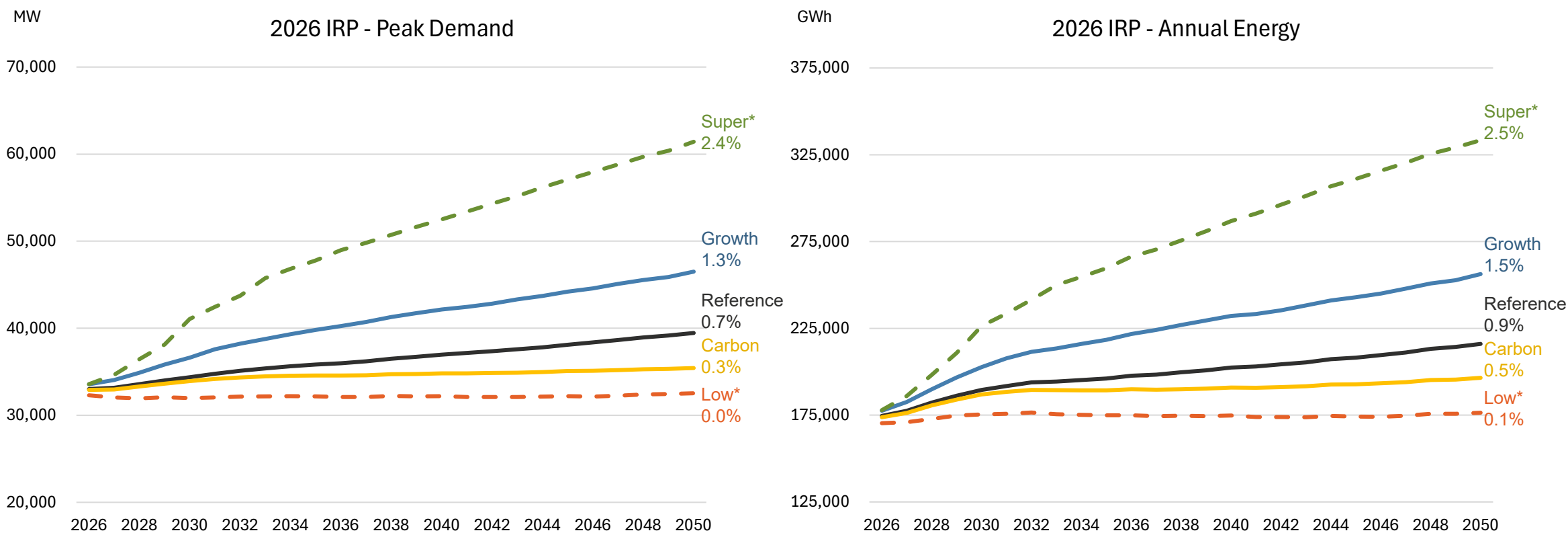
Scenarios

Scenario	Scenario Description
1. Reference	TVA's current forecast
2. High Growth	Reflects a technology-driven increase in U.S. productivity growth that stimulates the national and regional economies, resulting in substantially higher demand for electricity
3. Carbon Legislation	Reflects the impact of potential future carbon legislation designed to reduce power sector emissions

Strategies

Strategy	Strategy Description
A. Baseline Utility Planning	Represents TVA's current outlook, no resource emphasis
B. Innovation	Emphasizes emerging, firm and dispatchable technologies such as advanced nuclear and long-duration storage through innovation, continued research and development, and strategic partnerships
C. Distributed	Emphasizes distributed technologies such as batteries, renewables, and demand-side programs to reduce reliance on central station generation and utilize virtual power plants

2026 IRP Scenario Load Forecasts



Note: Percentages represent compound annual growth rates (CAGR), 2026-50
*Dashed lines represent the Supercharged and Low Load sensitivity cases, which represent the highest and lowest load trajectories studied

Summary of Resource Options

All resource types are available for selection in all cases

Major Resource Types	Nuclear	Hydro	Coal	Gas	Renewables	Storage	EE and DR
							
Resource Technologies	Advanced pressurized water reactor (APWR)	Hydro uprates	Supercritical pulverized coal	Combined cycle (CC)	Utility-scale solar	Pumped storage	Energy efficiency (EE)
	Light water small modular reactor (LW SMR)		Supercritical pulverized coal with carbon capture	CC with carbon capture	Distributed solar	Lithium-ion battery (4-hour)	Demand response (DR)
	Generation IV small modular reactor (Gen IV SMR)			Combustion turbine (CT)	Midwest wind	Advanced chemistry battery (8-hour)	
				Aeroderivative	Southeast high-hub wind	Distributed storage	
				Reciprocating engine (RICE)			

2026 IRP Strategy Design Matrix

Strategies have been consolidated with emphasis mechanisms simplified*

Strategy ¹	Utility Scale Resources							Distributed and Demand Side Resources			
	Nuclear	Coal	Gas CC and Frame CT ²	Aero CT and RICE ²	Renewables	Battery Storage	Long-duration Storage	Distributed Solar	Distributed Storage	Energy Efficiency	Demand Response
Baseline	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base	Base
Innovation	Emphasize	Base	Base	Base	Base	Base	Emphasize	Base	Base	Base	Emphasize
Distributed	Base	Base	Base	Emphasize	Emphasize	Emphasize	Base	Emphasize	Emphasize	Emphasize	Emphasize

¹All resources are available for selection in all strategies

²Natural gas-fueled CC, CT, and RICE

*The 2019 and draft 2025 IRPs included promotion at base, moderate, and high levels; the 2026 IRP will only include base and emphasize levels.

Sensitivity Analysis Strengthens Results

Sensitivities vary key assumptions to isolate the impacts of a change in that assumption

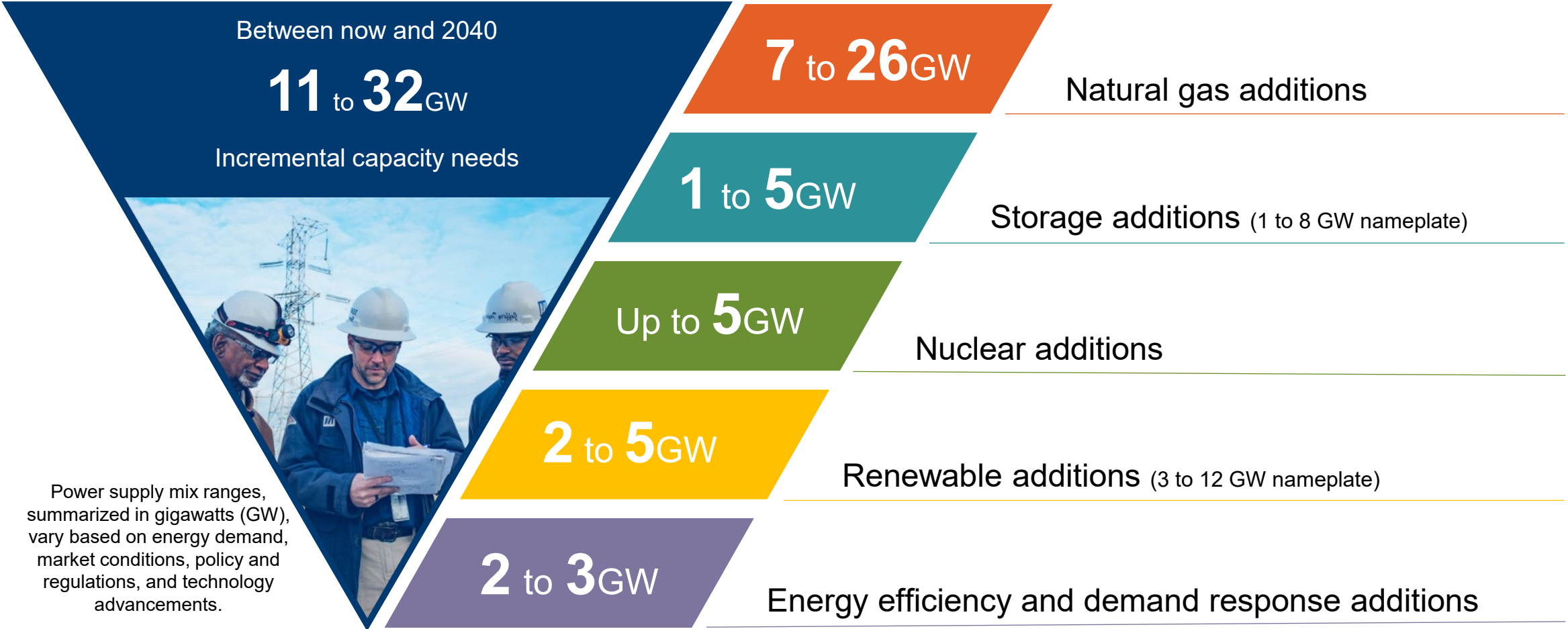
2026 IRP sensitivity themes and cases:

- Electricity demand changes
 - Supercharged Growth (~double load by 2050)
 - Low Growth (~flat load through 2050)
- Resource costs and availability
 - Lower gas resource costs
 - Lower renewable and storage costs
 - Alternative coal end of life assumptions
 - Higher EE availability and deployment
- Natural gas commodity prices (+/- 2 standard (std) deviation)

IRP Modeling Results

Hunter Reed
IRP Project Manager

Final IRP Summary Results through 2040



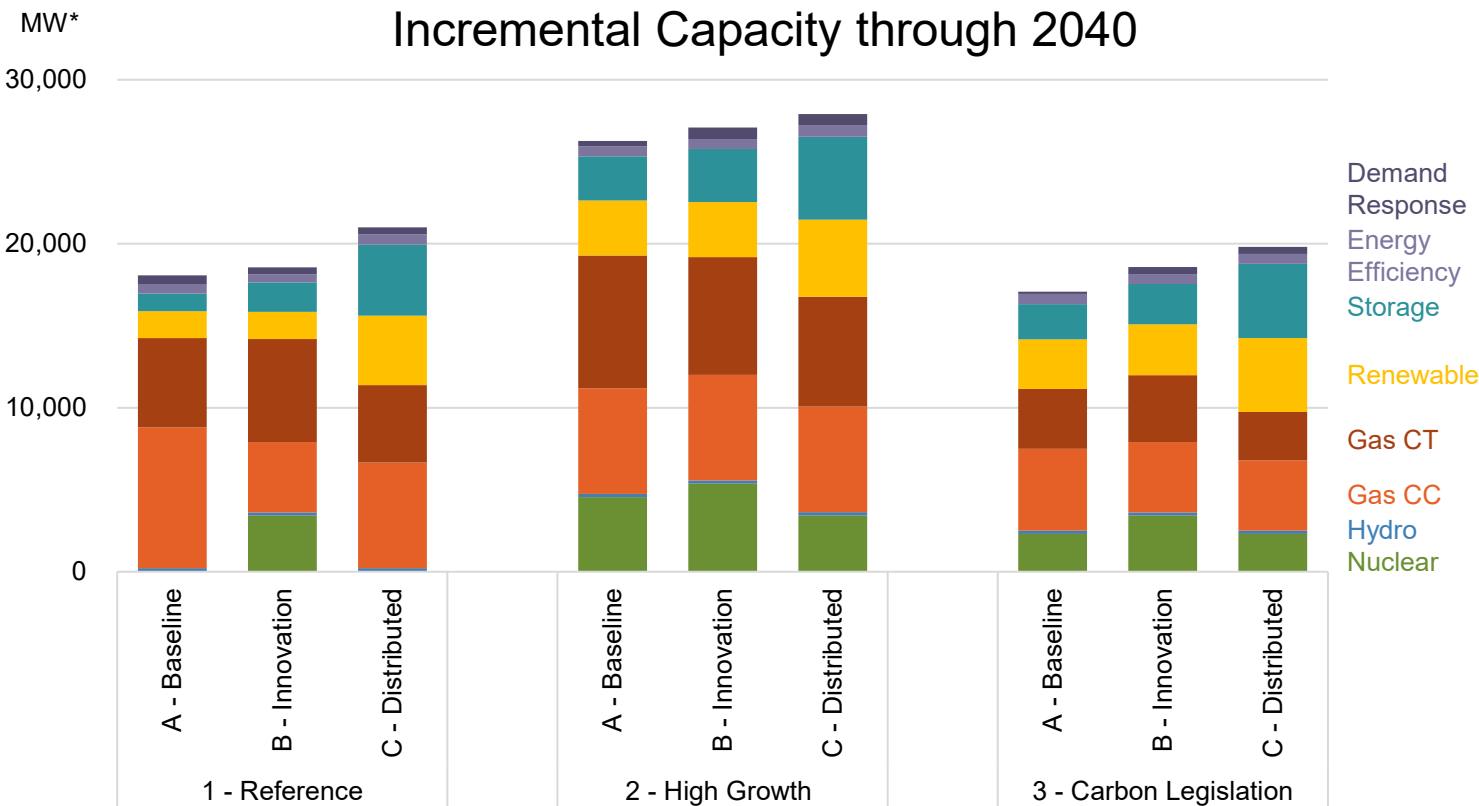
Incremental Capacity through 2040

Results reflect system need for firm, dispatchable capacity, particularly gas.

Innovation and Distributed strategies result in higher levels of nuclear and renewable expansion, respectively.

Higher gas prices and electric load in High Growth scenario result in increased nuclear, storage, and renewable expansion.

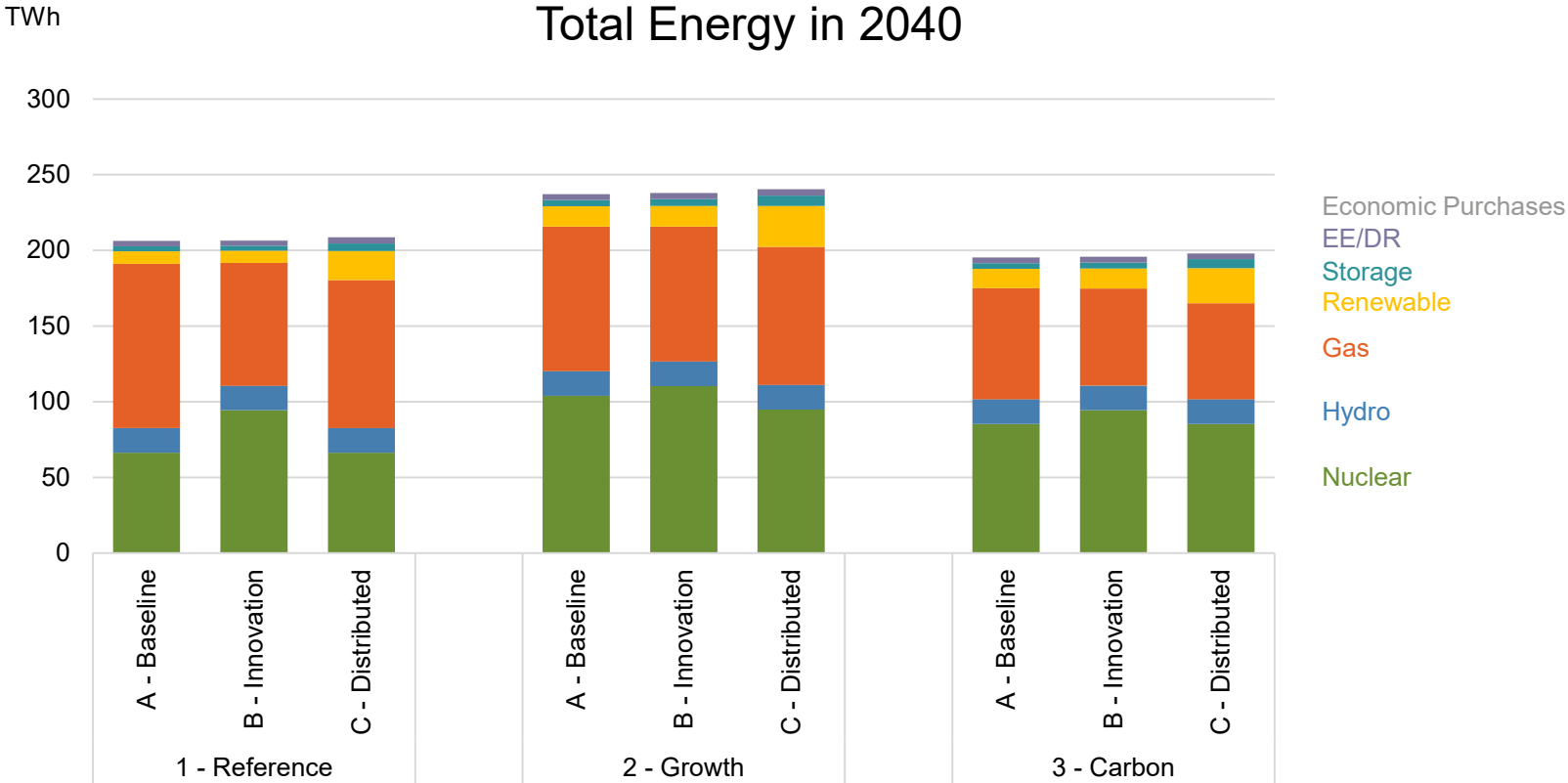
Carbon Legislation scenario reflects increased nuclear and renewable expansion.



*MW summer net dependable capacity.

Total Energy in 2040

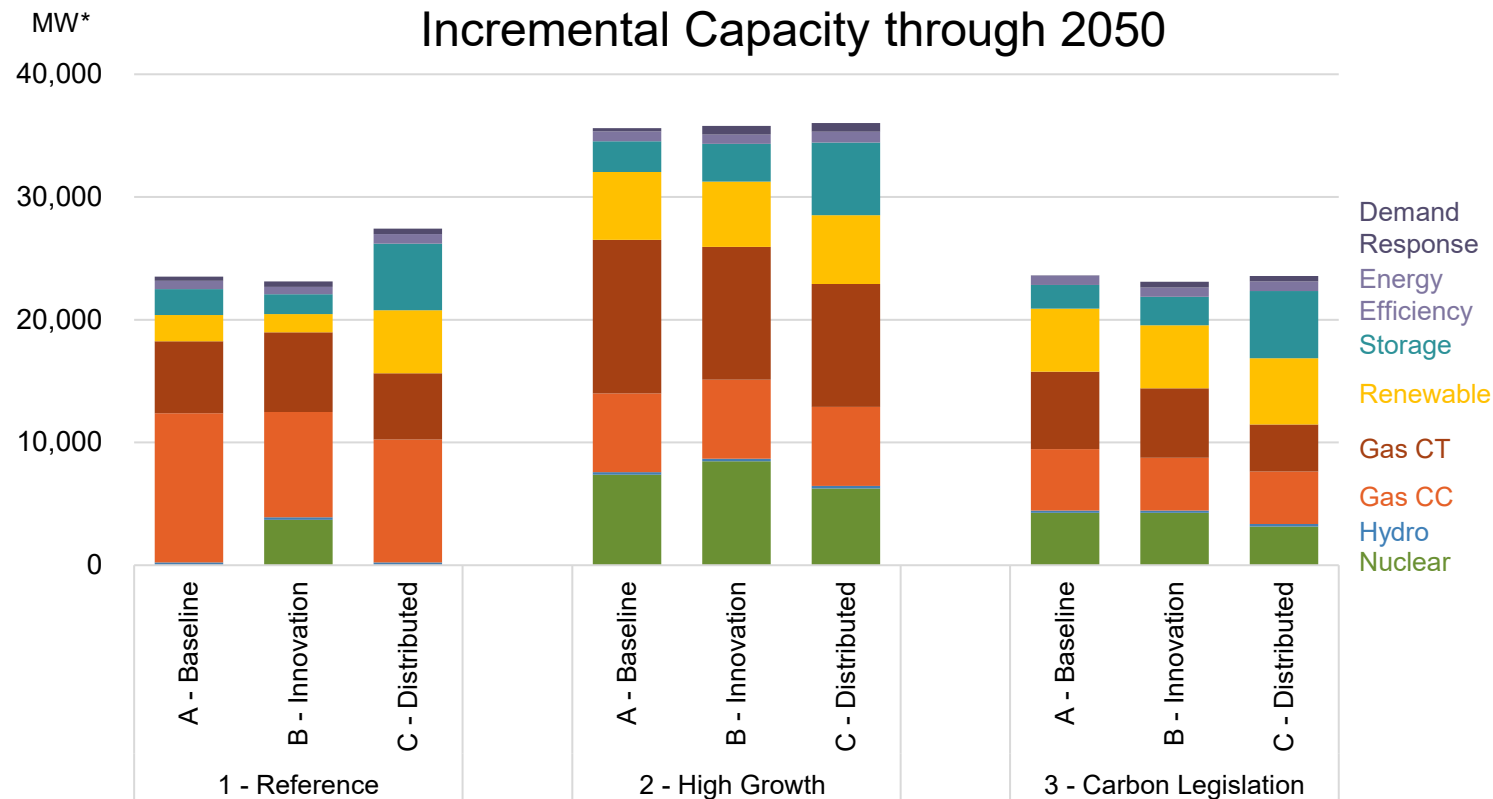
Total energy plans represent the annual generation, expressed in terawatt-hours (TWh), expected from the economic dispatch of the resources available in each portfolio.



Incremental Capacity through 2050

Capacity expansion results follow similar trends when moving from 2040 to 2050.

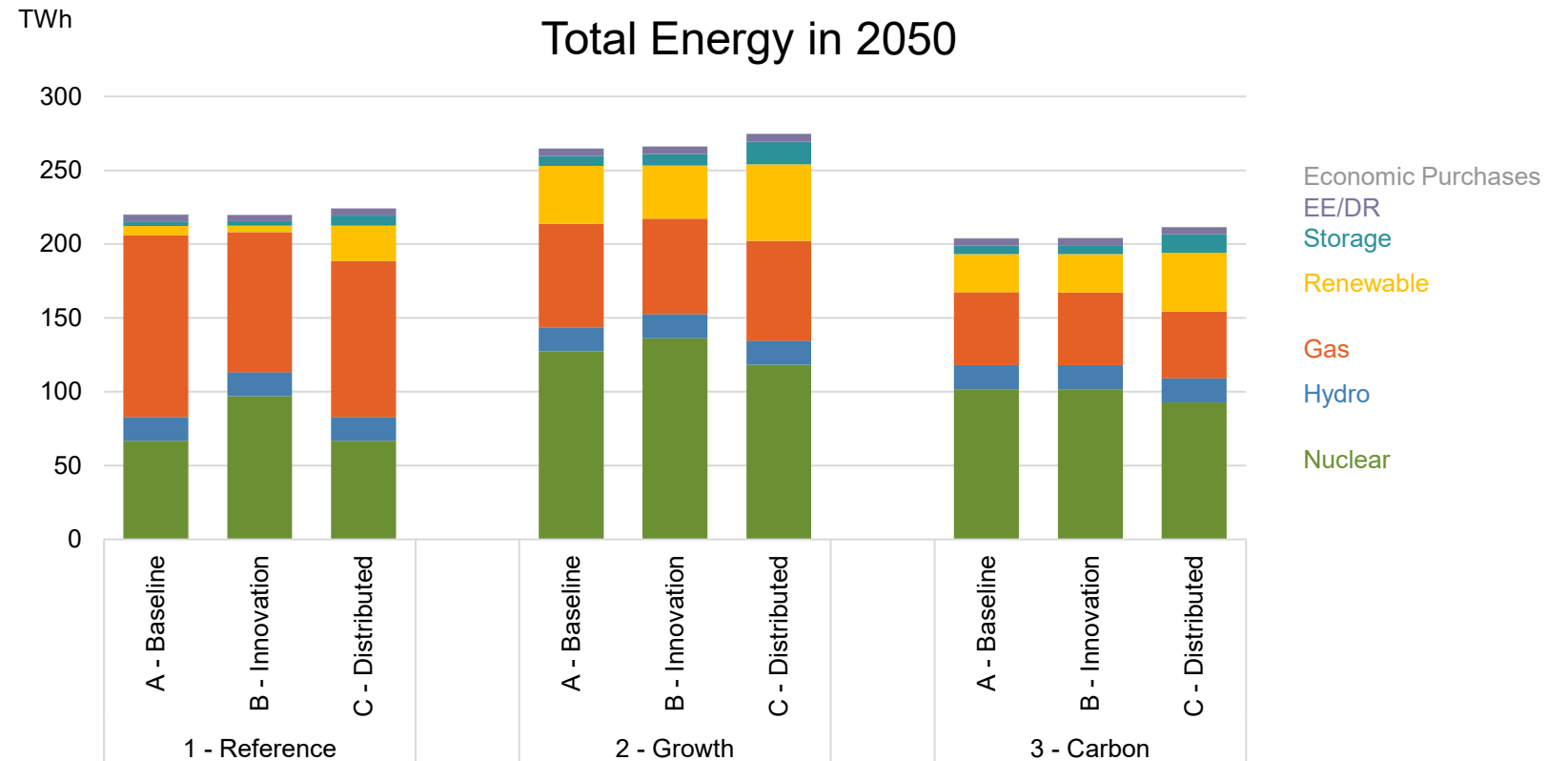
As tax credits for nuclear phase-out, expansion solar tends to fill higher amounts of incremental energy need in the 2040s for the High Growth and Carbon Legislation scenarios.



*MW summer net dependable capacity.

Total Energy in 2050

Total energy plans represent the annual generation, expressed in terawatt-hours (TWh), expected from the economic dispatch of the resources available in each portfolio.



Summary Strategy Performance

Strategy		Low Cost	Risk Informed	Environmentally Responsible			Diverse, Reliable, and Flexible
				Land	Water	Air	
A	Baseline Utility Planning						
B	Innovation						
C	Distributed						

Good

Better

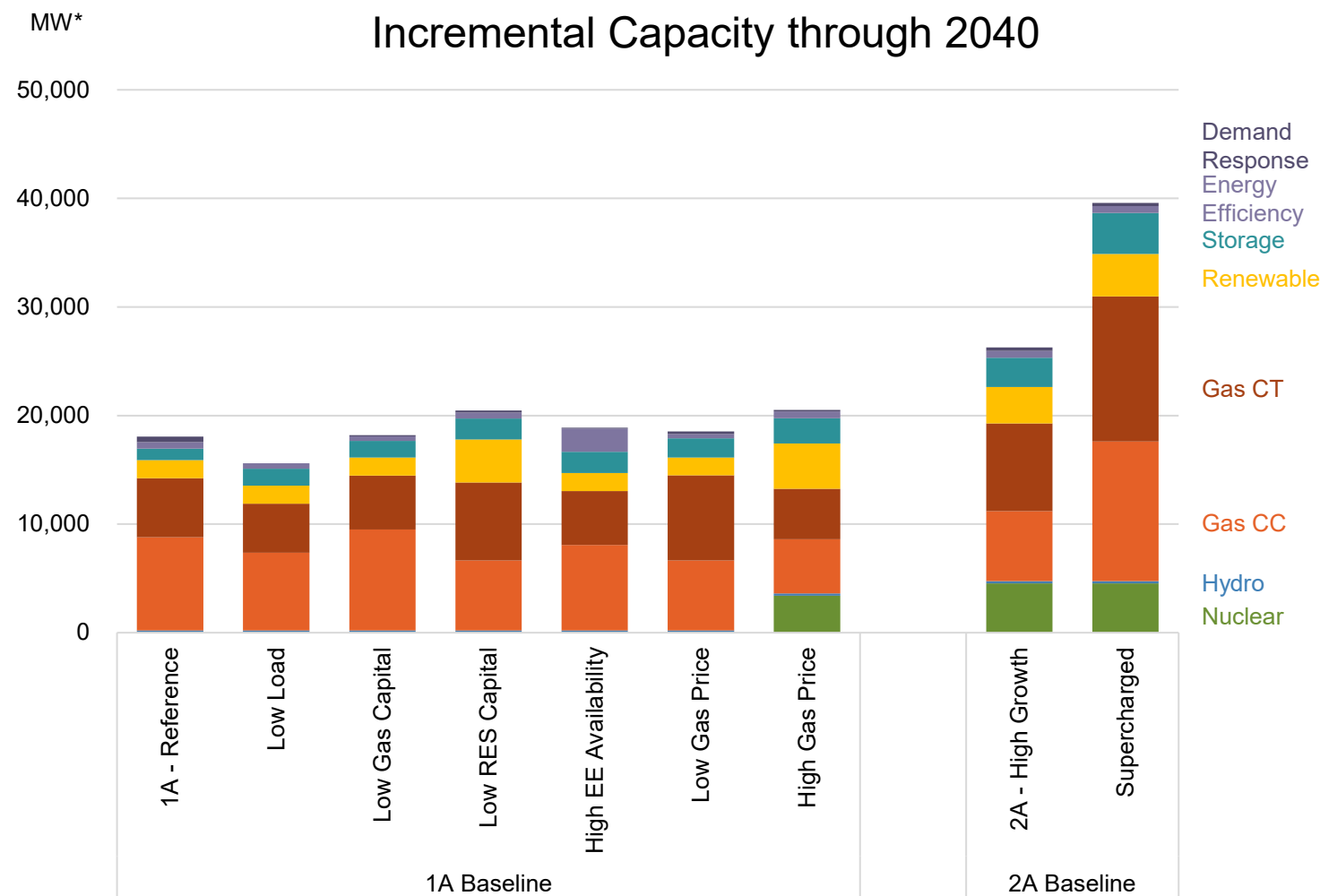
Best

Sensitivity Results

Most sensitivity cases are based off case 1A, except Supercharged Growth which is based off 2A.

Most cases remain within total resource coverage of the nine core cases, except High EE Availability and Deployment and Supercharged Growth.

Additionally, earlier and later coal end of life cases were evaluated and show very little variation in incremental capacity by 2040; rather, it is the timing of resource additions that differs.



* MW summer net dependable capacity.

Highlights of Preliminary EIS Observations

Environmental Resource	Observations
Air quality	Long-term reductions in all air emissions based on expected end of life for existing coal units*
Climate and greenhouse gasses	Long-term reductions in CO2 emissions and intensity, lowest in Strategies B and C
Water resources	Long-term reductions in water use for all cases; water consumption rises in cases with nuclear expansion, highest in Strategy B
Fuel requirements	Long-term increases in natural gas consumption, highest in Strategy A
Solid and hazardous waste	Long-term production of coal combustion residuals drops to zero based on expected end of life for existing coal units*
Land resources	Long-term increases in land use requirements, particularly to support renewable expansion, highest in Strategy C
Socioeconomics	Minor impacts that tend to be localized based on future, site-specific asset decisions
Overall observations	IRP strategies feature environmental tradeoffs, such as Distributed (C) having the highest land use, Innovation (B) having the highest water consumption, and Baseline (A) having the highest air quality and climate impacts

*Subject to site-specific TVA Board approval and further environmental review

Preliminary IRP Recommendations

Hunter Reed
IRP Project Manager

IRP Recommendations: Purpose and Key Components

Purpose

Board-approved guidance based on least-cost planning principles

Guardrails for future resource additions

Guides asset plan over the next 5 to 10 years

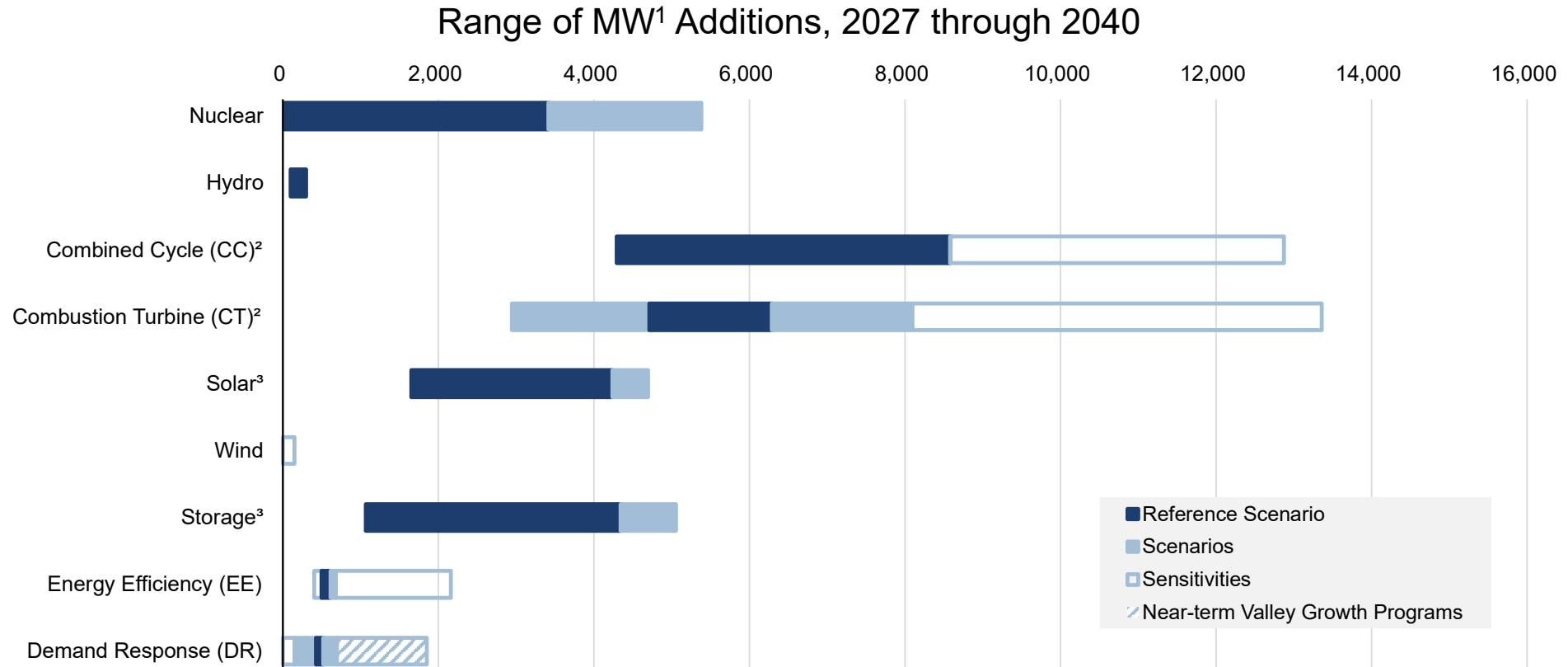
Key Components

Power supply mix ranges by resource type (through 2040 and 2050)

Strategic portfolio direction – recommended actions

Key signposts and planning implications

Power Supply Mix Ranges through 2040

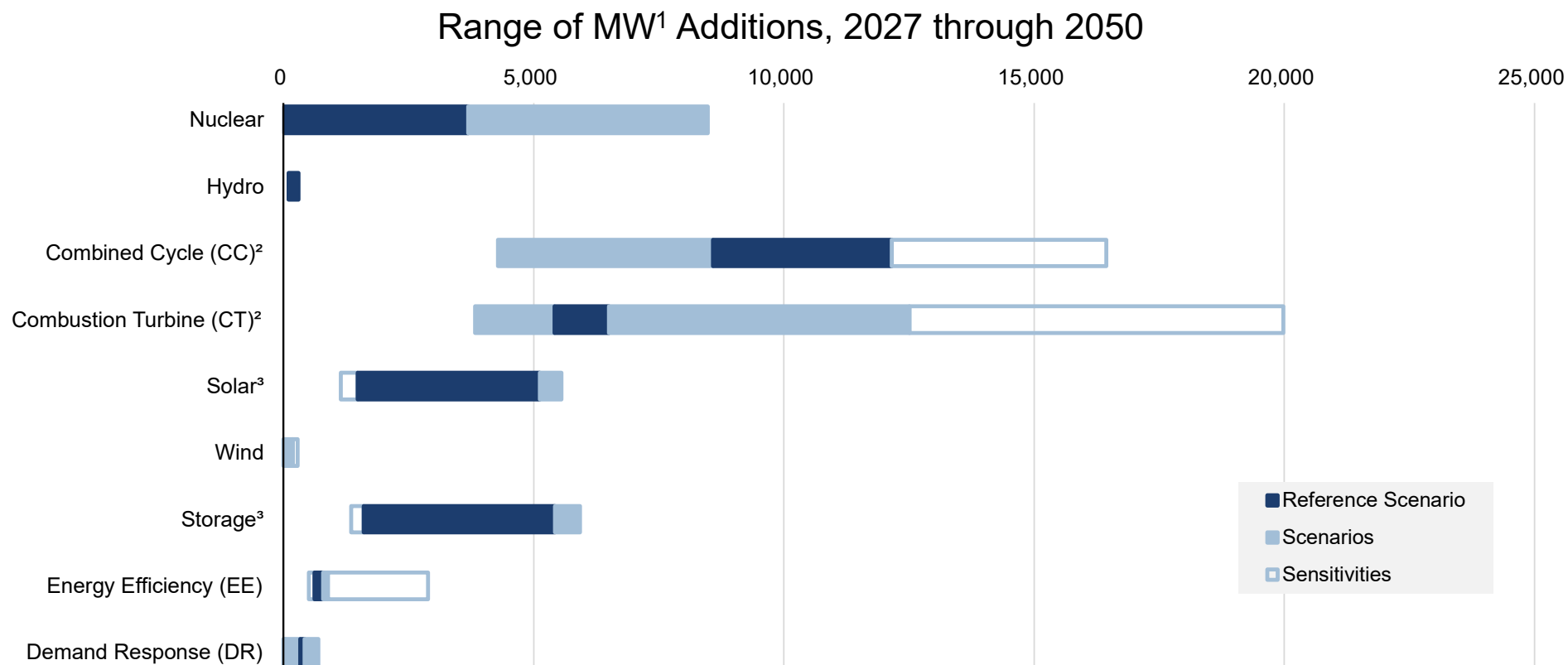


¹MW capacity expressed in summer net dependable capacity.

²Solar and storage include utility-scale and distributed resource additions.

³CC and CT additions could include control technologies, such as carbon capture and sequestration, alternative fuel co-firing (e.g., hydrogen), or gas re-firing of existing coal burners.

Power Supply Mix Ranges through 2050



¹MW capacity expressed in summer net dependable capacity.

²Solar and storage include utility-scale and distributed resource additions.

³CC and CT additions could include control technologies, such as carbon capture and sequestration, alternative fuel co-firing (e.g., hydrogen), or gas re-firing of existing coal burners.

Strategic Portfolio Direction – Recommended Actions

Existing Resources

- Invest in the hydro and nuclear fleets and pursue nuclear license extensions to maintain low-cost generation
- Invest in the gas and storage fleets to maintain reliability
- Continue operation of the coal fleet, subject to regulatory requirements, to reduce total system cost and reliability risk

Supply-side Resource Additions

- Add firm, dispatchable gas to maintain system reliability and enhance flexibility
- Add firm, dispatchable storage to maintain system reliability and improve system efficiency
- Pursue solar to reduce total system costs or meet customer needs
- Suspend wind additions given cost and portfolio fit challenges

Demand-side Resource Additions

- Utilize demand response and behind-the-meter resources to enable near-term interconnection of new industrial loads
- Partner with customers to leverage cost-effective energy efficiency and demand response
- Collaborate with local power companies on the evolution of distributed generation programs

Grid and Innovation Enablement

- Prepare for Gen III+ and Gen IV nuclear to support load growth and reduce fuel volatility and regulatory risks while pursuing external funding opportunities
- Pursue transmission system enhancements to deliver low-cost generation resources
- Collaborate with industry partners to evaluate emerging technologies, such as fusion and long-duration storage

Key Signposts

Movement in key signposts can signal potential shifts in the portfolio mix and indicate the appropriate timing for the next IRP.

Theme		Signpost
 Changing Market Conditions		Electricity demand
		Natural gas prices
		Customer needs
		Resource costs
 Evolving Policy and Regulations		Shifts in U.S. energy policy
		Tax credits and incentives
		Regulatory requirements
		Permitting and siting challenges
 Emerging Technologies		Advanced nuclear technologies
		Advanced storage technologies

Next Steps

Hunter Hydas
Director, System Planning

Next Steps

Update key stakeholders during Preliminary Final IRP and EIS 30-day review and comment period

- Presenting IRP results and preliminary recommendations with the Regional Energy Resource Council (RERC) on July 14

Complete Final IRP and EIS documents, incorporating applicable public feedback

Publish documents ahead of presenting for TVA Board consideration, expected at the August TVA Board meeting

Q&A

Q&A Panelists

Amy Edge

- Senior Director, Stakeholder Engagement
- Q&A panel moderator

Hunter Hydas

- Director, System Planning

Candy Kelly

- Senior Manager, Capacity Planning

Hunter Reed

- Project Manager, 2026 Integrated Resource Plan

