# 2024 IRP Working Group

Virtual Meeting 7: July 26, 2024



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# Agenda – July 26, 2024

Modeling Assumption Updates

Updated (1) Reference (without Greenhouse Gas Rule) Scenario Results

Preliminary (6) Reference (with Greenhouse Gas Rule) Scenario Results

Next Steps

# Modeling Assumption Updates

Hunter Reed; IRP Project Manager

# IRP Scenarios and Strategies

## SCENARIOS

### 1 Reference (without Greenhouse Gas Rule)
Represents TVA's current forecast that reflects moderate population, employment, and industrial growth, weather-normal trends, growing electric vehicle use, and increasing efficiencies

### 2 Higher Growth Economy
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 Stagnant Economy
Reflects rising debt and inflation that stifle consumer demand and business investment, resulting in weaker than expected economic growth and essentially flat electricity demand

### 4 Carbon Regulation
Reflects the impact of May 2023 proposed greenhouse gas rules that target significant reductions in electric utility CO2 emissions beginning in 2030 and potential future regulations striving for net zero by 2050

### 5 Carbon Regulation Plus Growth
Reflects impact of proposed and potential future regulations along with substantial advancements in clean energy technologies, spurring economic growth and extensive electrification

### 6 Reference (with Greenhouse Gas Rule)
Reflects TVA's current forecast and incorporates the impact of greenhouse gas rules finalized in May 2024 that target significant reductions in electric utility CO2 emissions beginning in 2030

## STRATEGIES

### A Baseline Utility Planning
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 Carbon-free Innovation Focus
Emphasizes and promotes emerging, firm and dispatchable carbon-free technologies through innovation, continued research and development, and strategic partnerships

### C Carbon-free Commercial Ready Focus
Emphasizes proven carbon-free technologies like wind, solar, and storage, at both utility-scale and through customer partnerships, along with strategic transmission investment

### D Distributed and Demand-side Focus
Emphasizes existing and potentially expanded customer partnerships and programmatic solutions to reduce reliance on central station generation and promote virtual power plants

### E Resiliency Focus
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

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# Inflation Reduction Act (IRA) Tax Credits

All IRP scenarios incorporate tax credits available through the IRA.

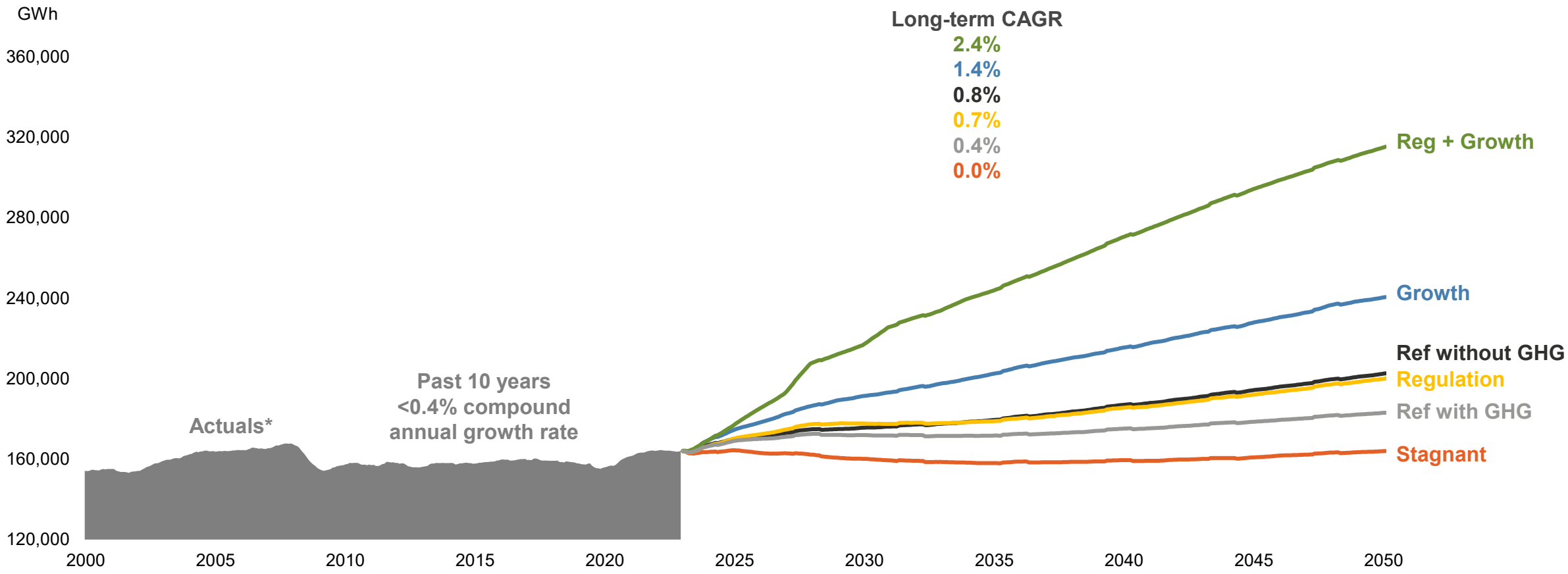
Section 45Q credits are available for sequestered $CO_2$ at CCS plants under construction before 2033.

Most scenarios assume a 40% investment tax credit (ITC) for all eligible resources that does not phase-out during the study period.

Carbon Regulation scenario (4) assumes power sector emission declines trigger the IRA phase-out in 2034.

Carbon Regulation Plus Growth scenario (5) assumes the maximum amount of the ITC (50%) is achievable for all eligible resources, and the ITC and Section 45Q credit availability are extended through the full study period.

# IRP Energy Demand Forecasts




* Weather normalized actuals. Excludes USEC



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# Updated (1) Reference (without Greenhouse Gas Rule) Scenario Results

Hunter Reed; IRP Project Manager

# Preliminary (6) Reference (with Greenhouse Gas Rule) Scenario Results

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# EPA Final Rule Summary

EPA issued final rule setting limits on $CO_2$ emissions from new gas-fired combustion turbines and existing coal, oil, and gas-fired steam generating units

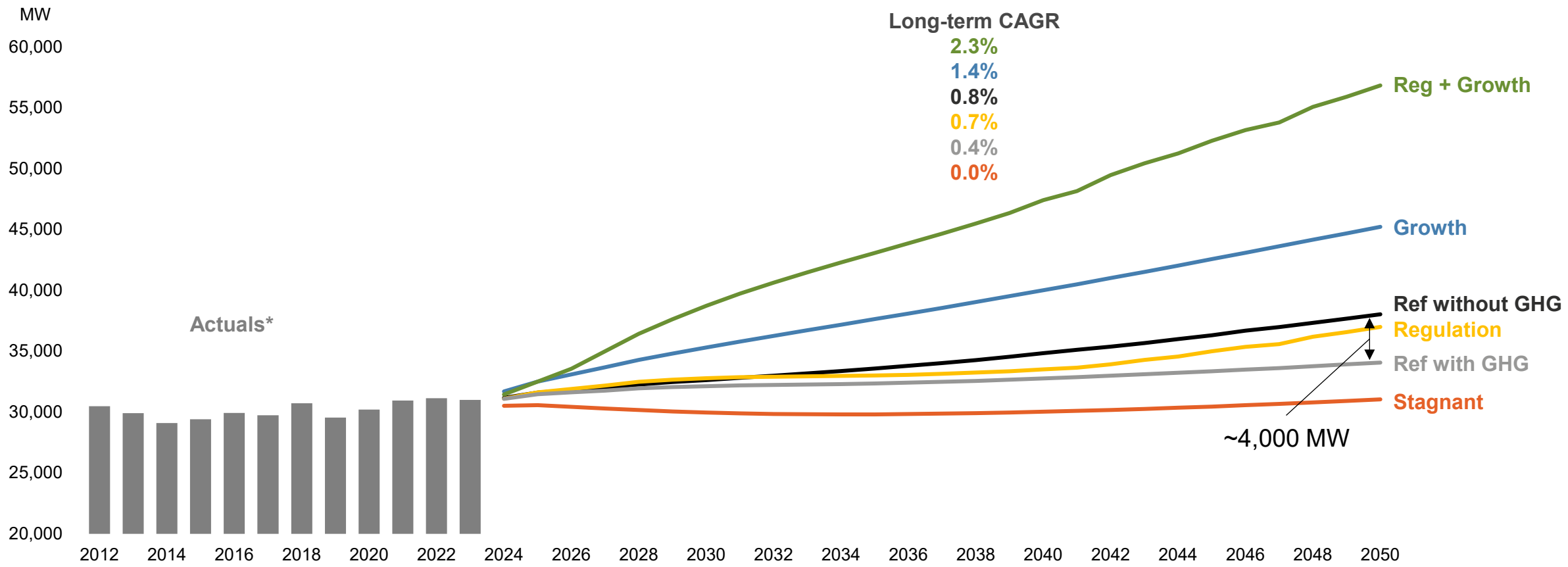
Main differences from proposed rule are:

- Removal of requirements on existing gas turbines
- Changes in compliance dates
- Temporary exemptions for reliability
- Less focus on hydrogen as a compliance pathway (the standards are now technology neutral)

Compliance pathways largely a function of capacity factors and retirement date, which are summarized in the table

| Category | Compliance Pathway |
|---|---|
| New low load gas (<20% capacity factor) | Low emitting fuel (natural gas) |
| New intermediate load gas (<40%) | Efficient simple cycle/ combined cycle generation |
| New baseload gas (>40%) | Phase 1: combined cycle<br>Phase 2: carbon capture |
| Existing coal retiring by 2032 | Exempt |
| Existing coal retiring by 2039 | Gas co-firing |
| Existing coal operating beyond 2039 | Carbon capture |

# IRP Peak Demand Forecasts

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# Next Steps and Announcements