REGULATORY CHALLENGES IN POWER SUPPLY

2023 MEAG Power Annual Meeting

PANEL

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LEGISLATIVE AND REGULATORY OVERVIEW

- Congressional Outlook
  - Key Items Congress Must Address in 2023
    - Fiscal Year 2024 Appropriation Bills
      - Inclusion of Republican Policy Priorities as “riders”
      - Timing
    - Farm Bill and Federal Aviation Administration Reauthorization
    - National Defense Authorization Act

- Divided Congress Results in Limited Productivity
  - Major Legislative Initiatives in the Last Congress

CONGRESS: PERMITTING REFORM ACTIVITY

- Recent Congressional Actions
  - Enhanced DOE Electric Transmission Backstop Siting Authority
  - Revisions to National Environmental Policy Act Reviews
  - Ongoing Negotiations Over Additional Permitting Reforms
    - Democratic “Asks”
      - Expansion of FERC transmission cost allocation and siting authority for “green” transmission and mandatory regional transfer capacity requirements
      - Enhancement of early community engagement in permitting processes, federal funding of community intervention, enhanced assessment of cumulative impacts, increased consideration of environmental justice concerns
    - Republican “Asks”
      - Time limits on judicial review and limits on who can challenge a permit once issued
      - Limitations on states’ authority to exercise CWA Sec. 401 to stop interstate projects

REGULATORY AGENDA

- Climate Change: A Top Administration Priority
  - Early Expectation of Enhanced Regulatory Agenda for Fossil Fuels
- Whole of Government Approach
  - Integration of Climate Reduction in All Programs, Policies, and Permits
  - Reassessment of Key Climate Metrics
    - Social Cost of Carbon Calculation for Cost Benefit Analysis
      - Obama Administration set cost at $43/metric ton
      - Trump Administration revised to $7/metric ton
      - Biden Administration revised to $51/metric ton
        - Initiated an Interagency Working Group to reassess
      - EPA raised analysis to $190/ton
    - Utilization of Regulatory Agenda to Curtail Fossil Fuel Consumption

SELECT REGULATIONS OF INTEREST

- EPA GHG Rules for Fossil Fuel Stationary Sources
  - Will impact existing and new fossil fuel generation units
  - Multiple compliance pathways and deadlines depending on the source
  - Final Rule anticipated early summer 2024

- EPA Rule on Effluent Limitation Guidelines
  - Proposes stringent new effluent controls
  - Compliance by 2030 or switch to natural gas or retire by 2029
  - Final Rule anticipated in Spring of 2024

SELECT REGULATIONS OF INTEREST

- EPA Rule on Residual Risk for Mercury
  - Proposed Rule significantly increases the stringency of emissions limitations
  - Final Rule anticipated in 2024

- EPA Rule on Ozone
  - EPA to release a new standard in 2023
  - Final Rule in 2024
  - Could require additional Nox reductions by 2027 or 2028

GREEN HOUSE GAS RULES for EXISTING COAL UNITS
§ 111(d) proposed CO_2 Performance Standards

BSER = Best System of Emissions Reduction
CCUS = Carbon Capture, Utilization, and Sequestration/Storage or CCS (Carbon Capture and Storage/Sequestration)

EFFLUENT LIMITATION GUIDELINES RULE

- Scherer Units 1&2 opted for the Voluntary Inventive Program (VIP) compliance pathway in 2021 (pursuant to the 2020 ELG Rule) and remains unaffected by the 2023 Proposed ELG rule.

- The VIP option requires a **$160M investment** ($25M MEAG Power share) in Flue Gas Desulfurization (FGD) Waste Water treatment system for compliance **by 12/31/2028**.

- *The compliance deadline(s) in the GHG rule now complicates the ELG compliance decision.*

COMPLIANCE COMPLICATIONS

Scherer Units 1 & 2

Commercial Operation Date
1987/1989

2037 2047

50 – 60 Year Life?

2029 2030

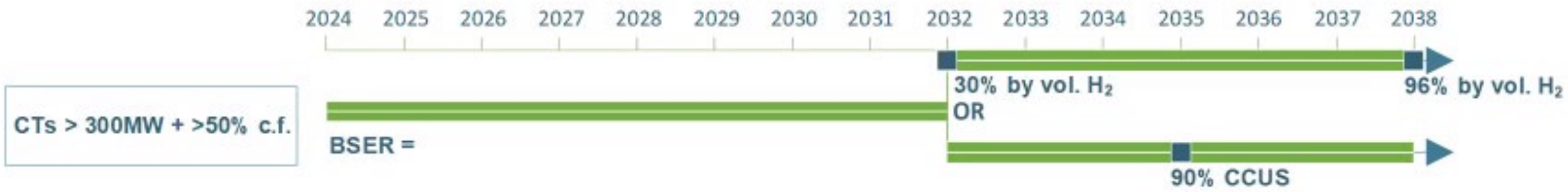
ELG Compliance

GHG Compliance:
- Retire by 2032;
- 20% CF and Retire by 2035;
- 40% NG co-firing; or
- 90% CCS

- Approved GHG State Implementation Plan (SIP) – 2027?
- ELG investment is $160M ($25M MEAG Power share) to comply by 2029 – stranded with prior investments?
- Co-firing with 40% Natural Gas (NG) by 2030 will require new pipeline to Scherer.
- 90% CCS by 2030 requires $2.4B ($720M MEAG Power share) per Unit for capture[1]. Tax credits will not offset the cost; Pipeline needed; Storage resources are limited and unproven[2].

[1] As spent capital. FEED study for Prairie State U2, August 8, 2022
2 NETL report "CO2 Transport and Storage Costs", August 2019

GREEN HOUSE GAS RULES for EXISTING GAS UNITS
§ 111(d) proposed CO_2 Performance Standards

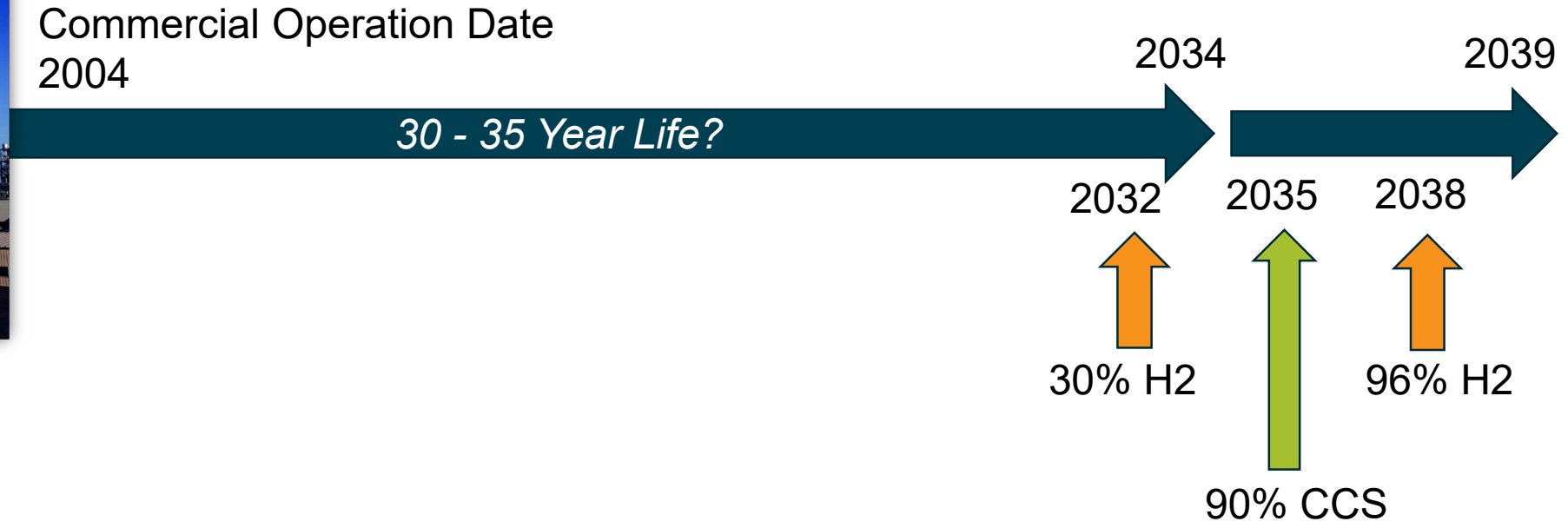


- Wansley U9 Combined Cycle currently not implicated by the proposed standards.
    - MEAG Power CT units are 250 MW each

- *EPA is taking comments on BSER for remaining existing gas units with a rule at a later time.*

WHAT-IF COMPLIANCE CHALLENGES

Wansley CC U9

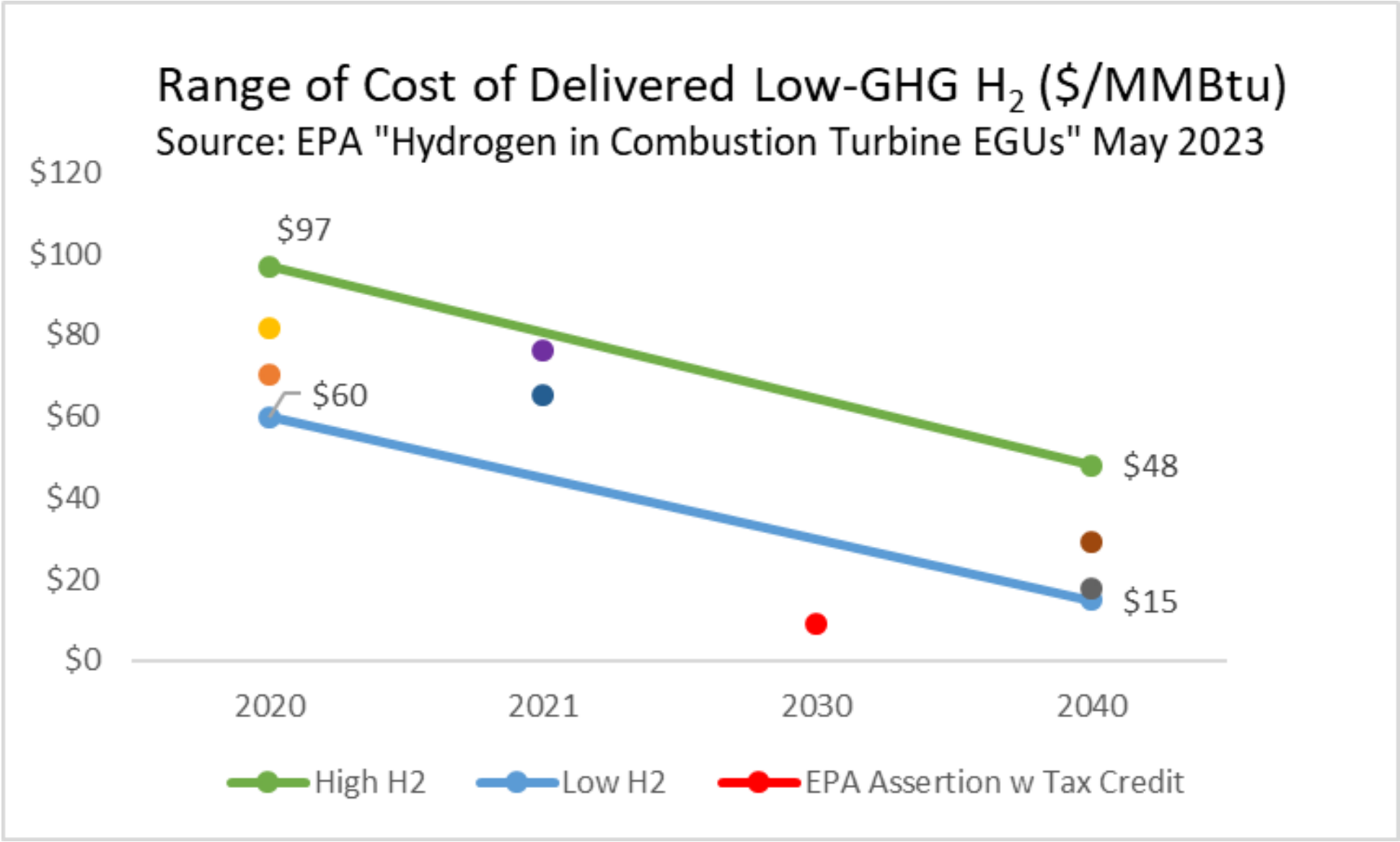


- Low-GHG H_2 requires significant upstream infrastructure development.
- Retrofit costs for carbon capture are estimated at $850M[1]. Tax credits will not offset the cost; Pipeline needed; Storage resources limited and unproven.

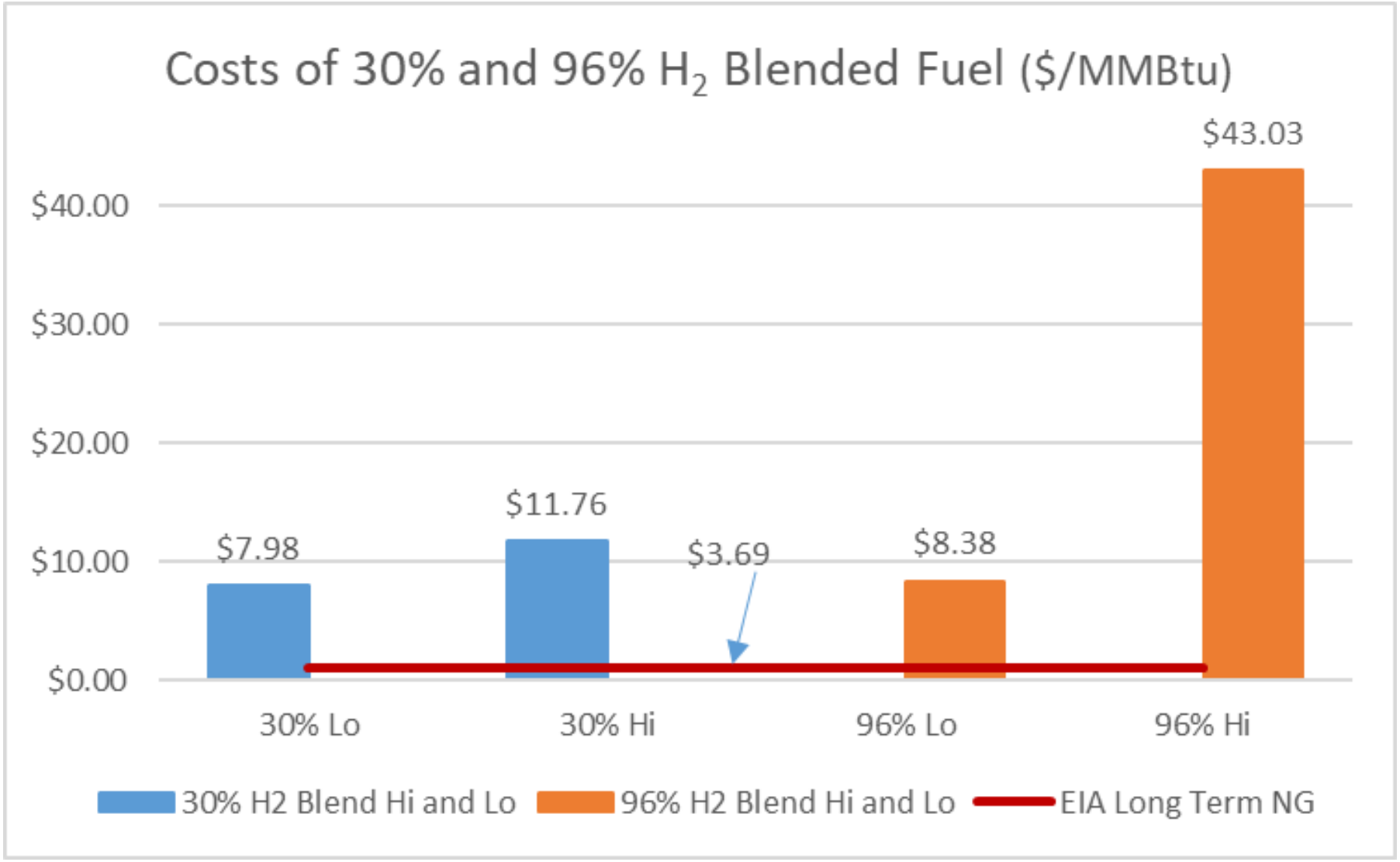
[1] As spent capital. EPA "GHG Mitigation Measures: Carbon Capture and Storage for Combustion Turbines", May 2023

GREEN HOUSE GAS RULES for NEW GAS UNITS
§ 111(b) proposed CO_2 Performance Standards

RESOURCE PLANNING CHALLENGES – H_2 PATHWAY

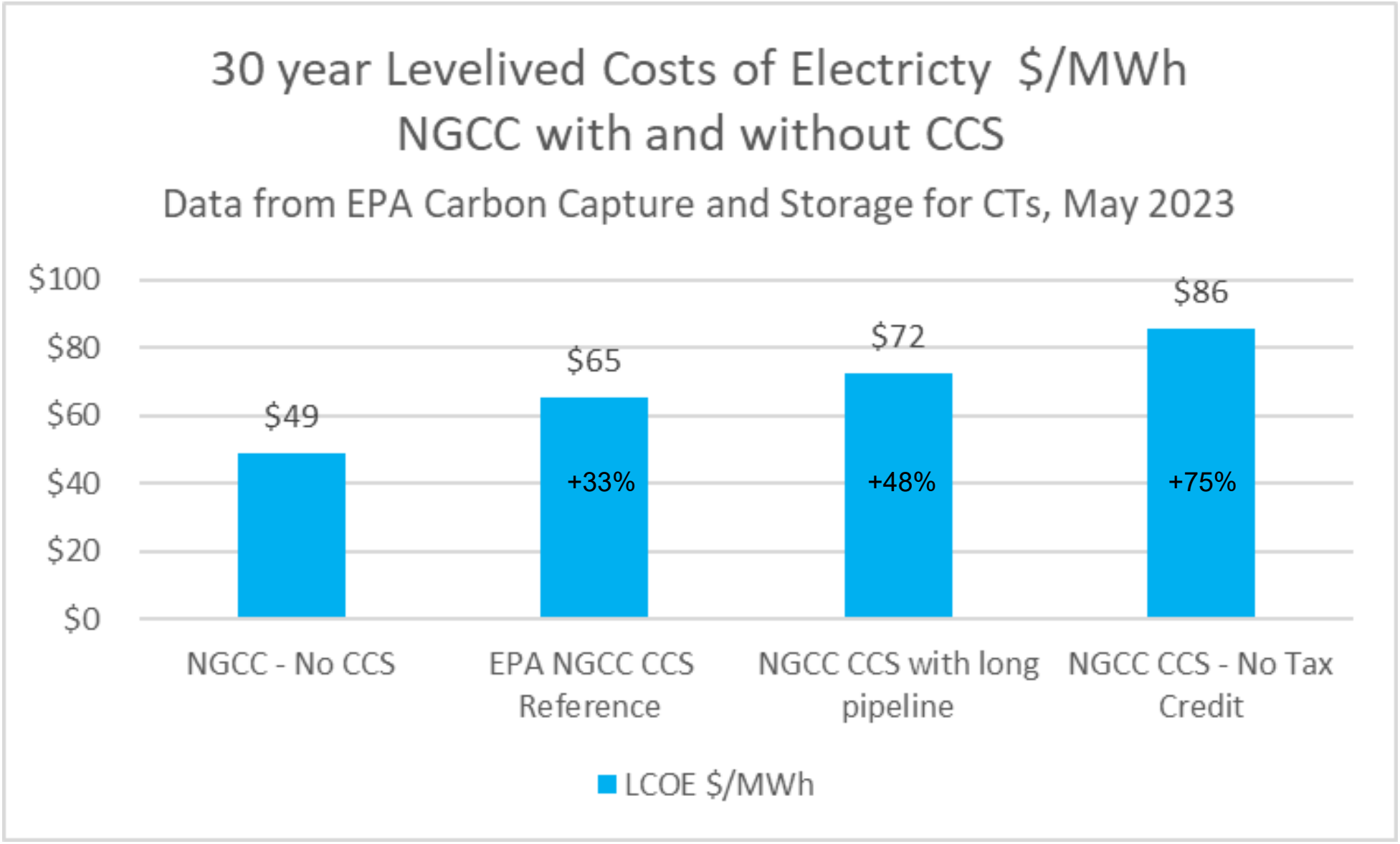


RESOURCE PLANNING CHALLENGES – H_2 PATHWAY



Derived from EPA "Hydrogen in Combustion Turbine Electric Generating Units", May 2023

RESOURCE PLANNING CHALLENGES – CCS PATHWAY



CONFLICTING NEEDS – RELIABILITY VS CLEAN GRID

- Fossil fuel resources remain the dominate supply (1)
  - Natural gas percent of total capacity - 43.70%
  - Coal percent of total capacity - 17.10%
  - Total fossil fuel capacity - 786,310 MWs
- Primary source of dispatchable and resilient supply
- Electric Power Supply Association (EPSA) statement on GHG proposed rules
  - President and CEO Todd Snitchler – “Once again **aspirational policy is getting ahead of operational reality**. If finalized these aggressive rules will undoubtedly drive up energy cost and lead to a substantial number of power plant retirements when experts have warned that we already face a reliability crisis”

(1) APPA America’s Electric Generation Capacity 2023 Update

CONFLICTING NEEDS – RELIABILITY VS CLEAN GRID

- Federal Energy Regulatory Commission (FERC) comments to Senate Energy and Natural Resources Committee
  - Commissioner James Danly – “looming crisis in our electricity market”
  - Commissioner Mark Phillips – “The United States is heading for a very catastrophic situation in terms of reliability”
  - Acting Chairman Willie Phillips – “We face unprecedented challenges to the reliability of our nation’s electric system”
- NERC Comments to Senate Energy and Natural Resources Committee
  - President and CEO Jim Robb – “Unless reliability and resilience are appropriately prioritized, current trends indicate the potential for more frequent and more serious long duration reliability disruption”

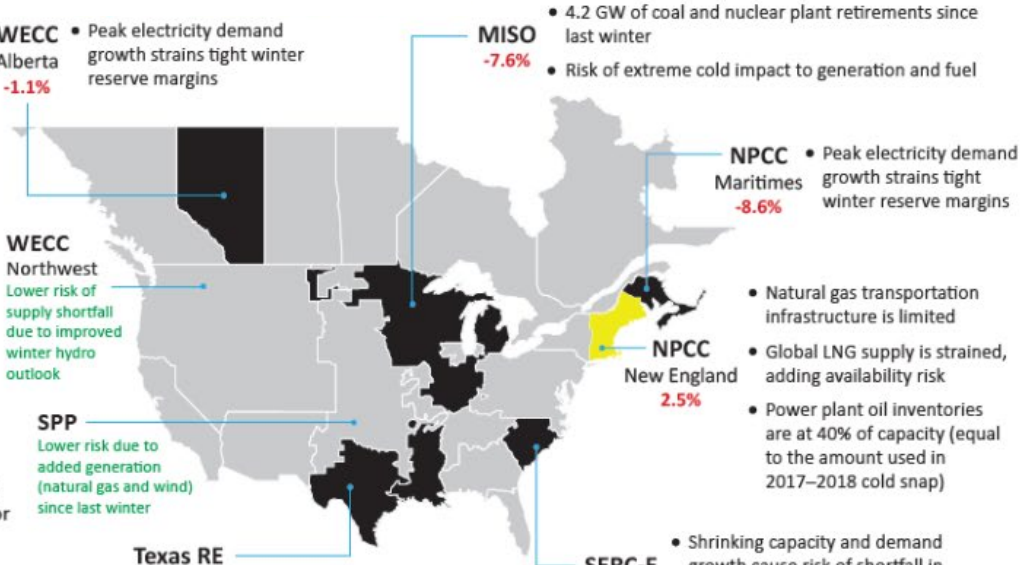
NERC RELIABILITY EVALUATIONS

NERC 2022-2023 winter reliability assessment

NERC's annual Winter Reliability Assessment evaluates the generation resource and transmission system adequacy needed to meet projected winter peak demands and operating reserves as well as identifies potential reliability issues for the 2022–2023 winter period. Under normal or mild winter weather, the BPS has a sufficient supply of capacity resources. However, some areas are highly vulnerable to extreme and prolonged cold weather and may require load-shedding procedures to maintain reliability. Generators face heightened fuel risk for this winter due to railroad transportation uncertainty and global energy supply issues.

Key Actions

- **Cold Weather Preparations:** Generators should, while considering NERC's cold weather preparations alert, prepare for winter conditions and communicate with grid operators.
- **Fuel:** Generators should take early action to assure fuel and communicate plant availability. Reliability Coordinators and Balancing Authorities should monitor fuel supply adequacy, prepare and train for energy emergencies, and test protocols.
- **State Regulators and Policymakers:** States regulators should preserve critical generation resources at risk of retirement prior to the winter season and support requests for environmental and transportation waivers. Support electric load and natural gas local distribution company conservation and public appeals during emergencies. In New England, the states should support fuel replenishment efforts using all means possible.



Extreme Weather Risk

Winter weather conditions that exceed projections could expose power system generation and fuel delivery infrastructure vulnerabilities. Increased demand caused by frigid temperatures, coupled with higher than anticipated generator forced outages and derates, could result in energy deficiencies that require system operators to take emergency operating actions, up to and including firm load shedding.

Fuel Limitations During Extended Cold

Limited natural gas infrastructure can impact winter reliability due to increased heating demand and the potential for supply disruptions. While New England expects to have sufficient energy during a mild or moderate winter, reliability risk is elevated during a period of extended extreme cold conditions. Oil reserves are below normal levels. During extreme cold, switching fuel types is not always successful.

NERC RELIABILITY EVALUATIONS

2023 Summer Reliability Assessment

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

While the increased deployments of wind, solar, and batteries positively impact resource adequacy for normal summer peak demand, two-thirds of North America is at risk of energy shortfalls this summer during periods of extreme demand. The elevated risk outlook is driven by a combination of conventional generation retirements, a substantial increase in forecast peak demand, and an increasing threat to reliability from a wide-spread heat event.

SPP and MISO: With little excess firm capacity, wind energy output is key to meeting normal summer peak demand and more extreme demand levels. Low wind and high demand periods can result in energy emergencies.

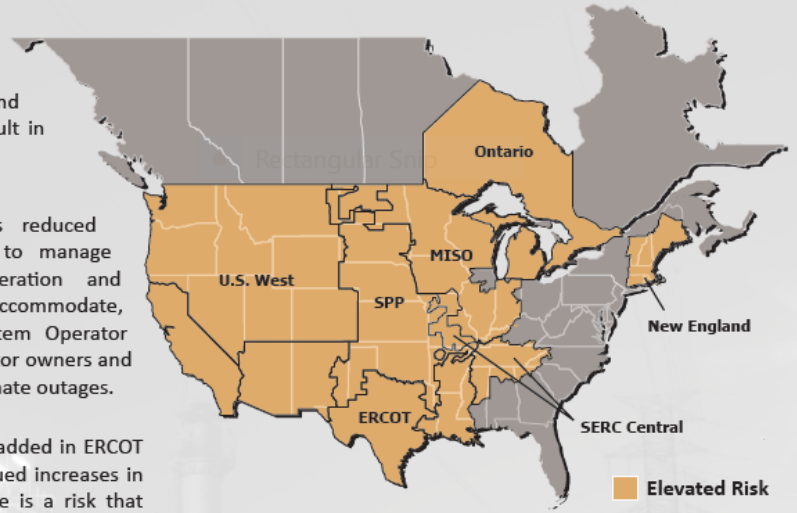
Ontario: Extended nuclear refurbishment has reduced available capacity, resulting in limited reserves to manage unplanned outages and peak demand. Generation and transmission outages will be increasingly difficult to accommodate, a condition that the Independent Electricity System Operator expects to persist for the foreseeable future. Generator owners and system operators must act conservatively and coordinate outages.

ERCOT: More than 4 GW of solar resources were added in ERCOT since last summer; however, this is offset by continued increases in forecasted demand due to economic growth. There is a risk that dispatchable generation can be insufficient for high demand levels when wind output is unusually low.

SERC Central: A higher peak demand forecast and less supply capacity this summer will challenge operators to maintain reserves in extreme scenarios. Conditions could again require appeals for load reductions and energy emergencies for external assistance.

New England: While ISO New England expects to have sufficient capacity to meet summer peak demand, reserve margins are projected to be lower this summer due to less generation and firm imports. Operators are more likely to require conservative operating procedures for managing capacity deficiencies.

U.S. West: Wide-area heat events can drive demand well-above normal and strain resources and the transmission network. Under an extreme summer peak load, California would need to rely on increased imports to maintain adequate reserves. Conditions could again require voluntary or controlled load relief.

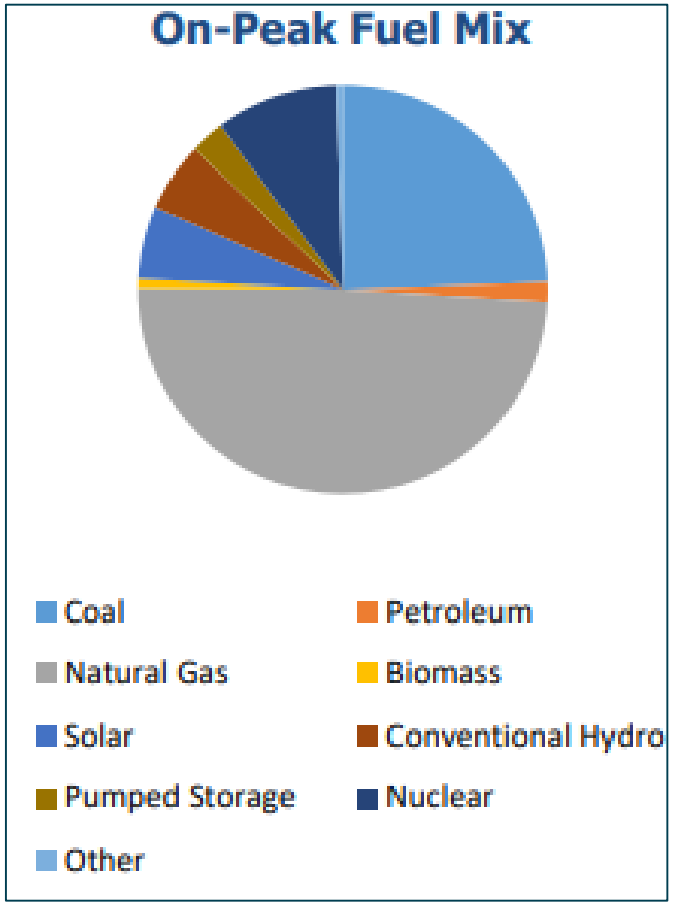


Highlighted areas depict energy shortages during extreme conditions.

2023 Summer Reliability Assessment Video

NERC SOUTHEAST ASSESSMENT

Adequate supply but reliant on fossil fuels

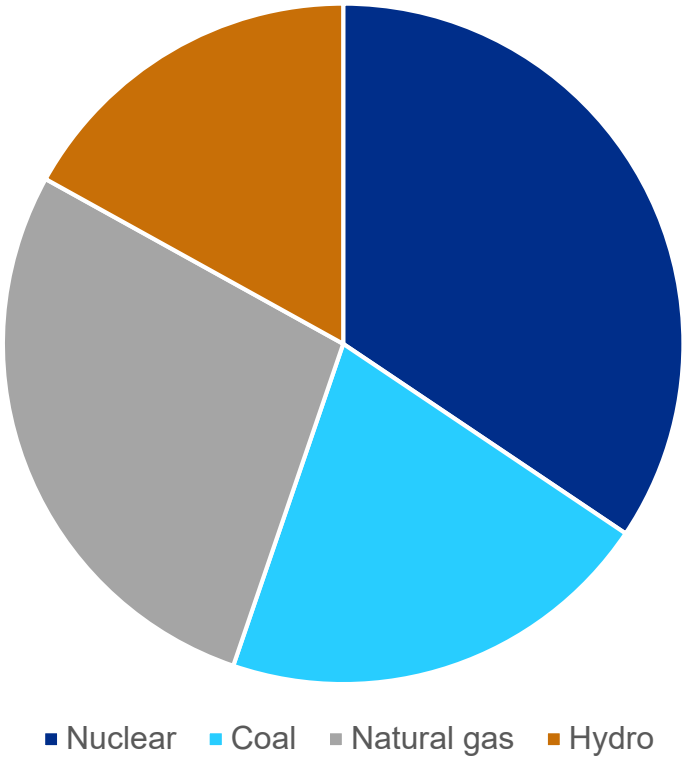


(capacity)

MEAG POWER RESOURCES

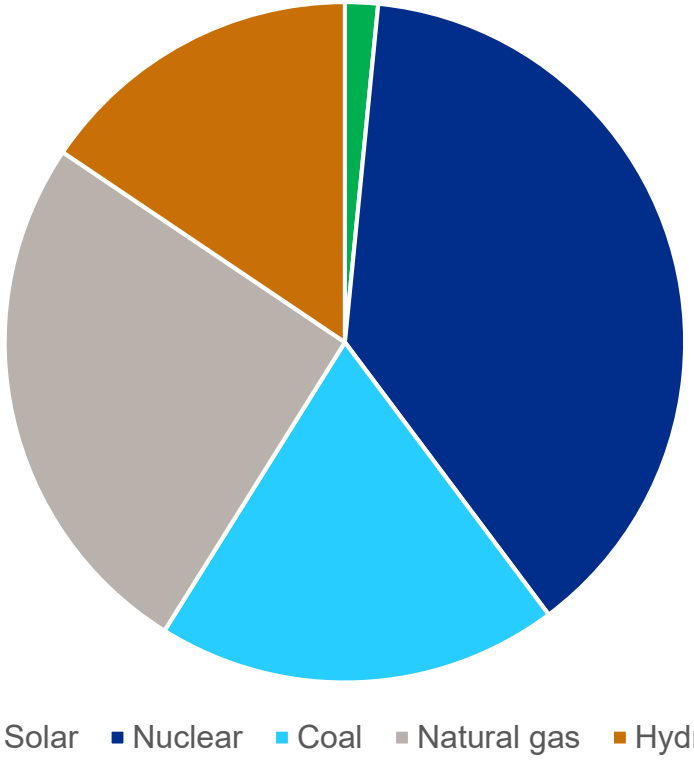
Adequate supply but reliant on fossil fuels

2023 On Peak Fuel Mix
(Percent of Capacity)



Includes 150 MW Addison PPA
Reserve margin 19%

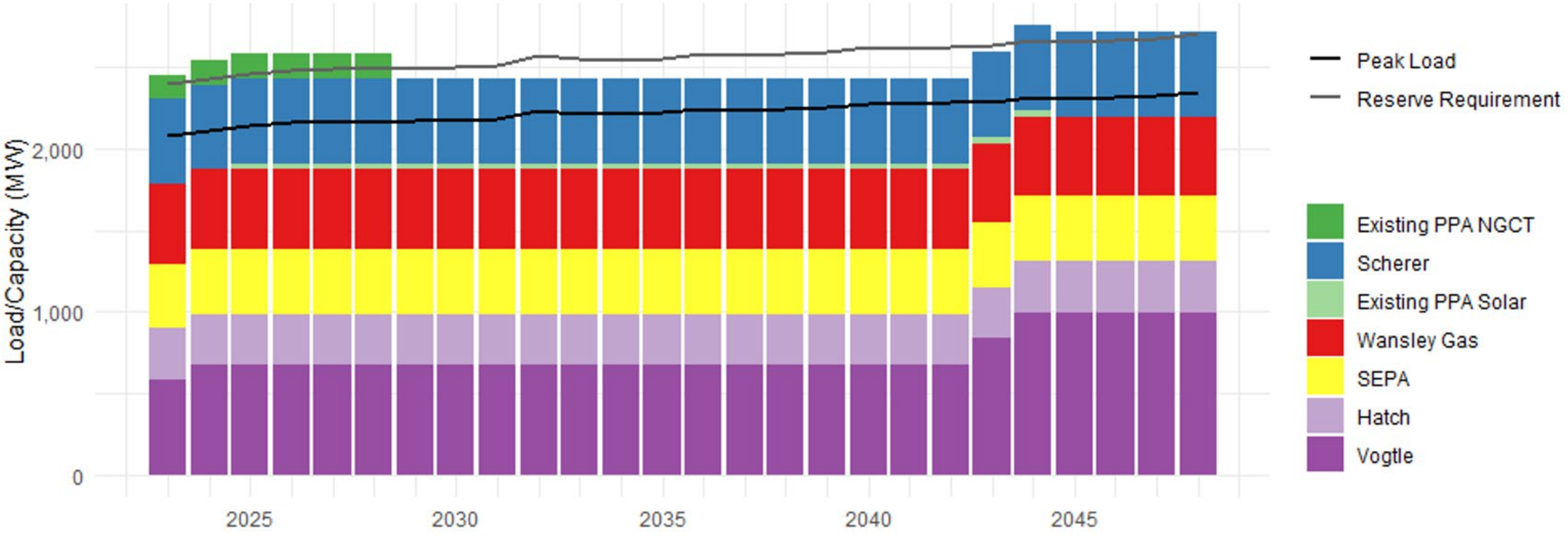
2025 On Peak Fuel Mix
(Percent of Capacity)



Includes 150 MW Addison PPA
Reserve margin 24%

MEAG POWER - SUPPLY VERSUS DEMAND

Resource and Load Balance



Notes: Includes Scherer 1&2 and Wansley CC operating through 2048

WHAT MEAG POWER IS DOING

- Engage to influence rules
  - Prepare MEAG Power comments
    - Focus on our specific concerns
  - Support industry comments APPA, LPPC, AFFORD
  - Engage with USEPA, GAEPD and other stakeholders on issues

- Evaluate future options – be proactive
  - What retirement date is likely?
  - What resources are available to maintain reliability?
  - Are there options to address the uncertainty?
  - The IRP process will provide more information including options

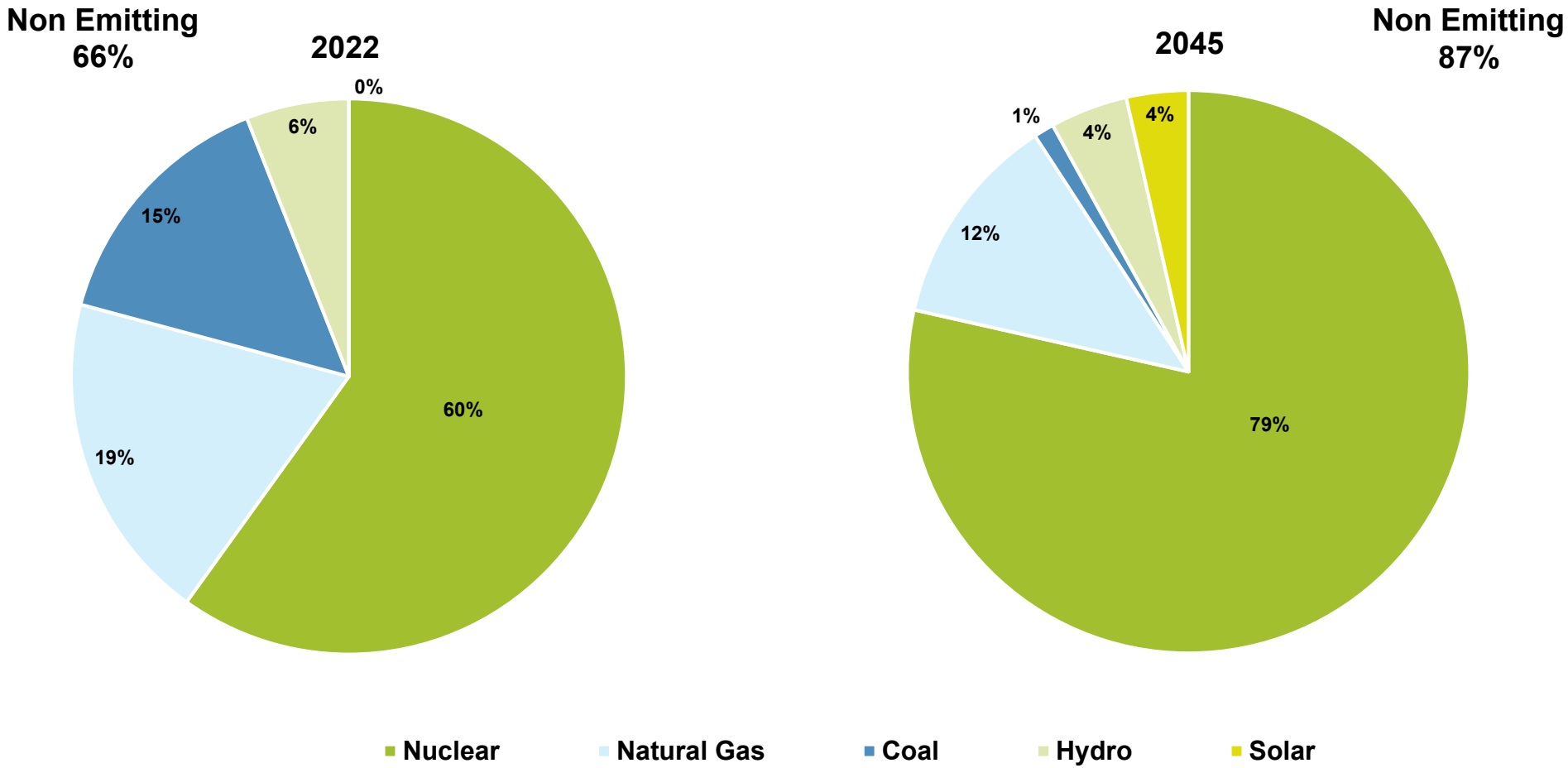
WHAT MEAG POWER IS DOING

- Participants remain in strong position
  - Vogtle 3 and 4 completion on the horizon – 500 MWs total in 2044
  - Strong non-emitting portfolio
    - Nuclear (Vogtle 1-4 and Hatch 1-2): 1308 MWs
    - SEPA (hydro): 398 MWs

- This foundation allows for future flexibility in new resources
  - Solar can provide energy benefits
  - Consider short term options as technology changes
  - Peaking resources may be better option

ORDERLY TRANSITION CAN BE ACHIEVED

Projections show fossil energy supply reduce from 34% to 13%
Fossil resources remain available for reliability and resiliency



Assumes Hatch Nuclear Station license extension

OUR MISSION

To provide our Participants with **competitive** and **reliable** electric power to enhance the quality of life in their communities.