

**DOCKETED**

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# 2023 Summer Reliability Outlook: A Western Interconnection-wide View

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# WECC's Footprint

**Population:** 90 million

**Area:** >1.8 million sq. mi

- Diverse landscape and climate
- Summer- & winter-peaking Northwest and Canada
- Summer-peaking Central and Southwest
- Record Summer Peaks:

**2019:** 151 GW

**2020:** 165 GW

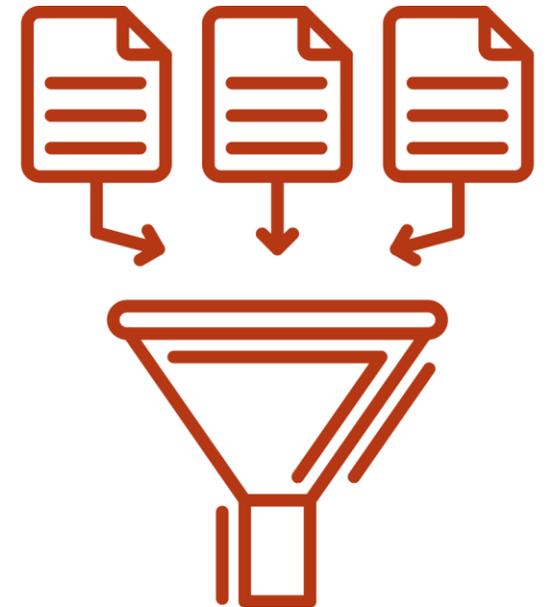
**2021:** 164 GW

**2022:** 167 GW



# Data Collection and Method Overview

- Probabilistic models through in-house MAVRIC tool
  - Assess reliability of all hours
- Load and resource data collected annually from balancing areas
- Metrics:
  - Magnitude, frequency, and timing of loss of load hours (LOLH) with expected unserved energy (EUE)
  - Planning reserve margins (PRM)
  - Timing of imports' availability



# 2023 Summer Outlook Highlights

- **All regions** show adequate reserve margins to meet demand under extreme conditions.
- CAMX and the NW show increased risk later during the peak riskiest hour, due to the variability of energy availability later in the evenings. Both would be reliant on imports.
- **Continuing reliability risks:**



**Increased supply-side shortages and fuel constraints**



**Ongoing drought in some areas, wildfire threats, expanding heat waves**

# Fuel Constraints



- Increased natural gas prices caused increased demand for coal
- Some BAs had reduced coal deliveries the past two years
- Reduced baseload availability for the foreseeable future
- Fuel rationing procedures to maximize inventories are expected to continue through summer 2023

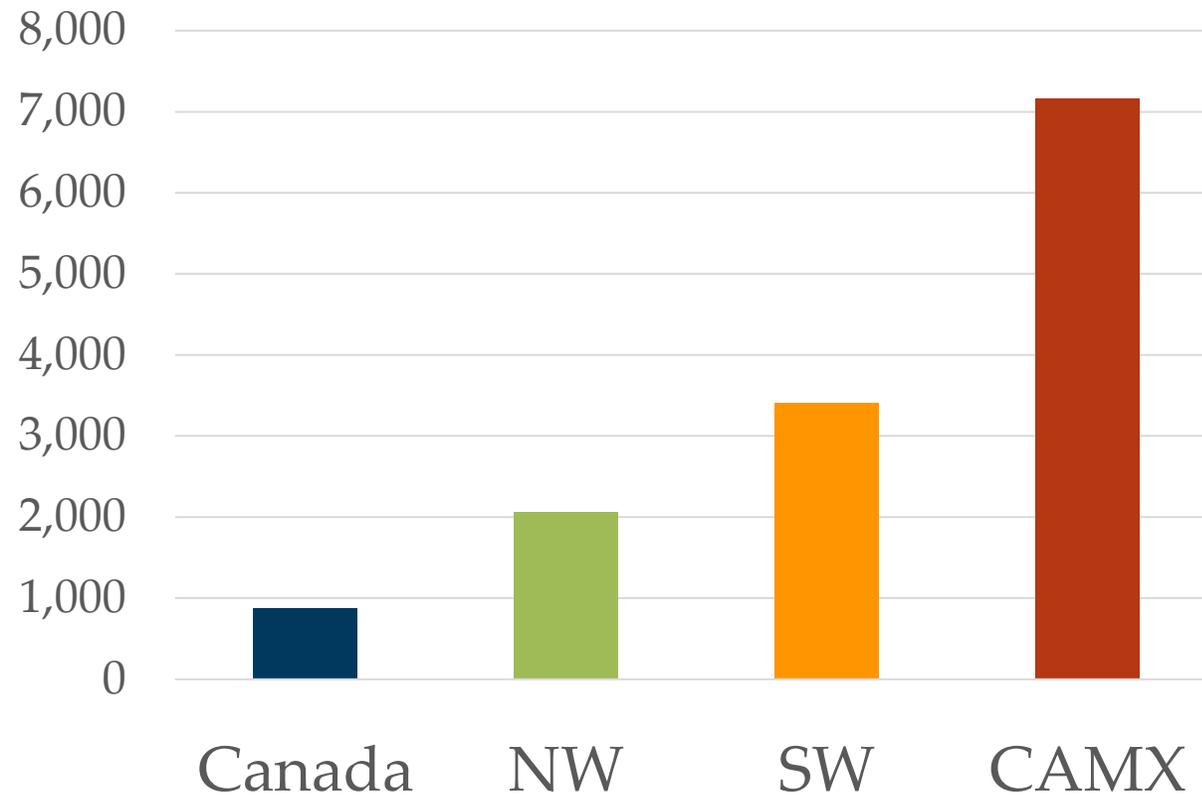
# Supply Chain

- Supply chain issues are a major concern in maintaining reliability
- Significant supply chain disruptions are affecting:
  - Commissioning new generation and transmission resources
  - Scheduling maintenance outages
  - Connecting new customers



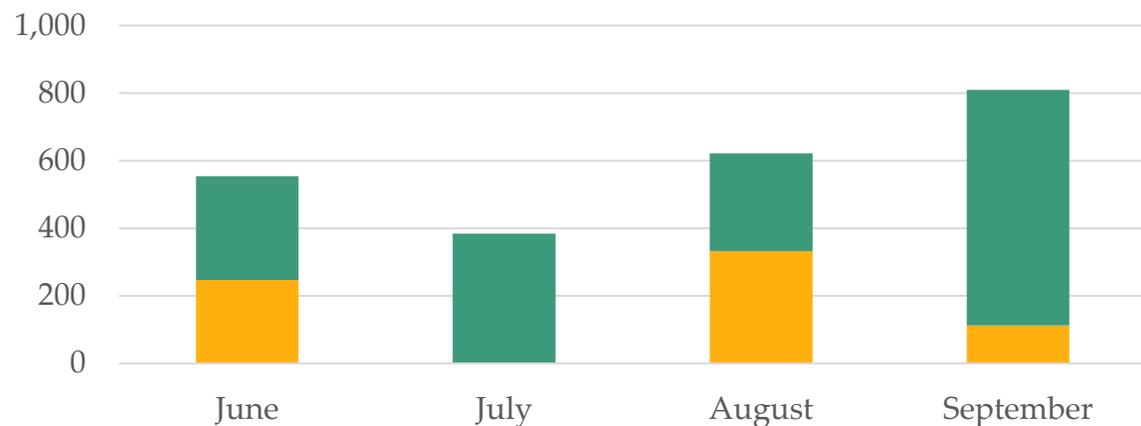
# New Resources January - July 2023

Capacity of new 2023 resources with commission dates by Summer:

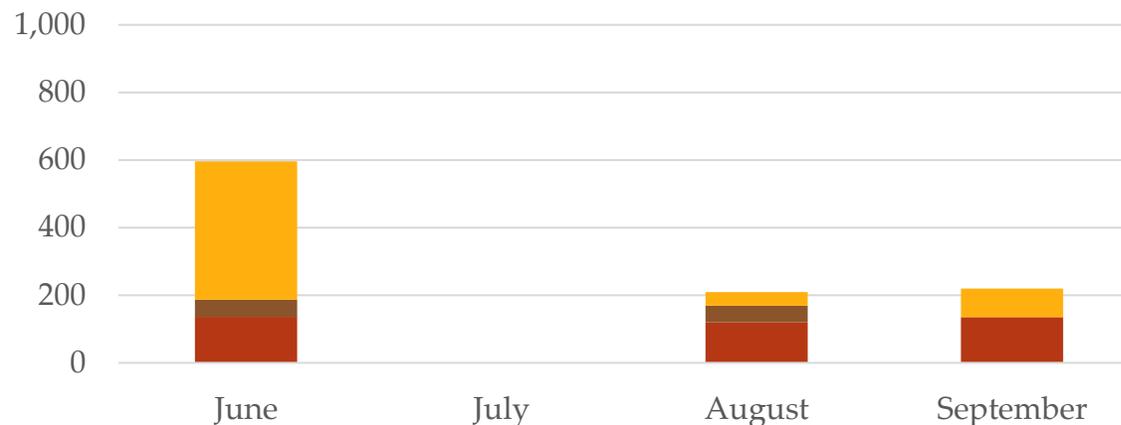


# Summer 2023, Monthly Additions

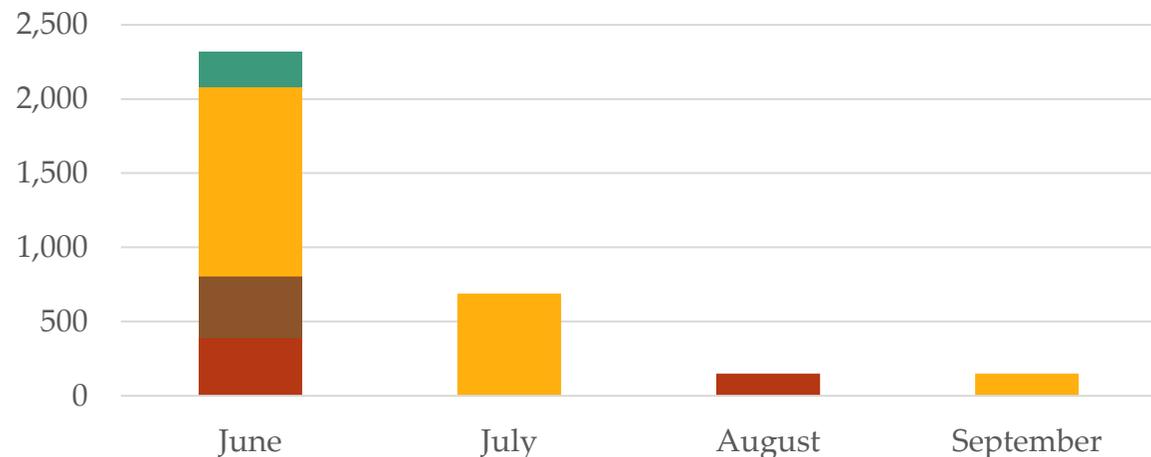
### Canada Summer Resource Additions



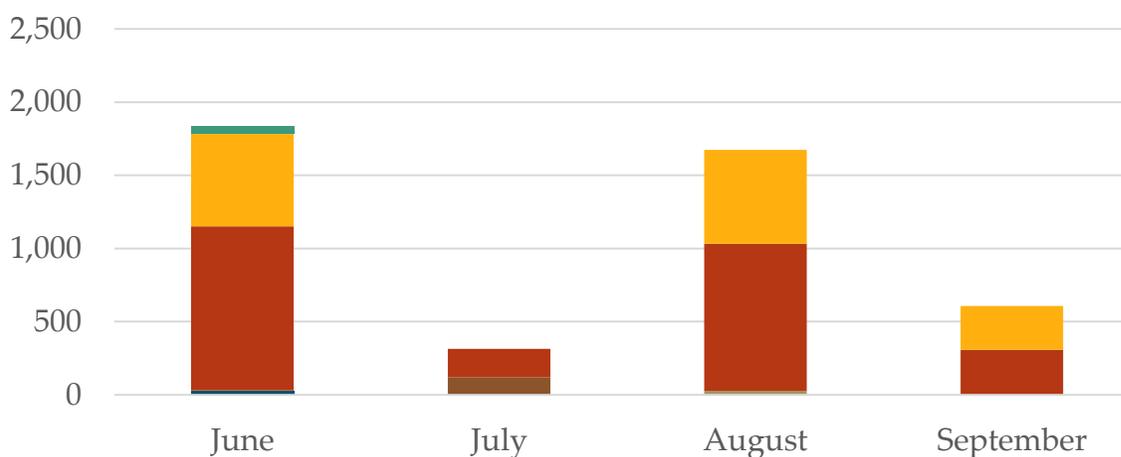
### NW Summer Resource Additions



### SW Summer Resource Additions



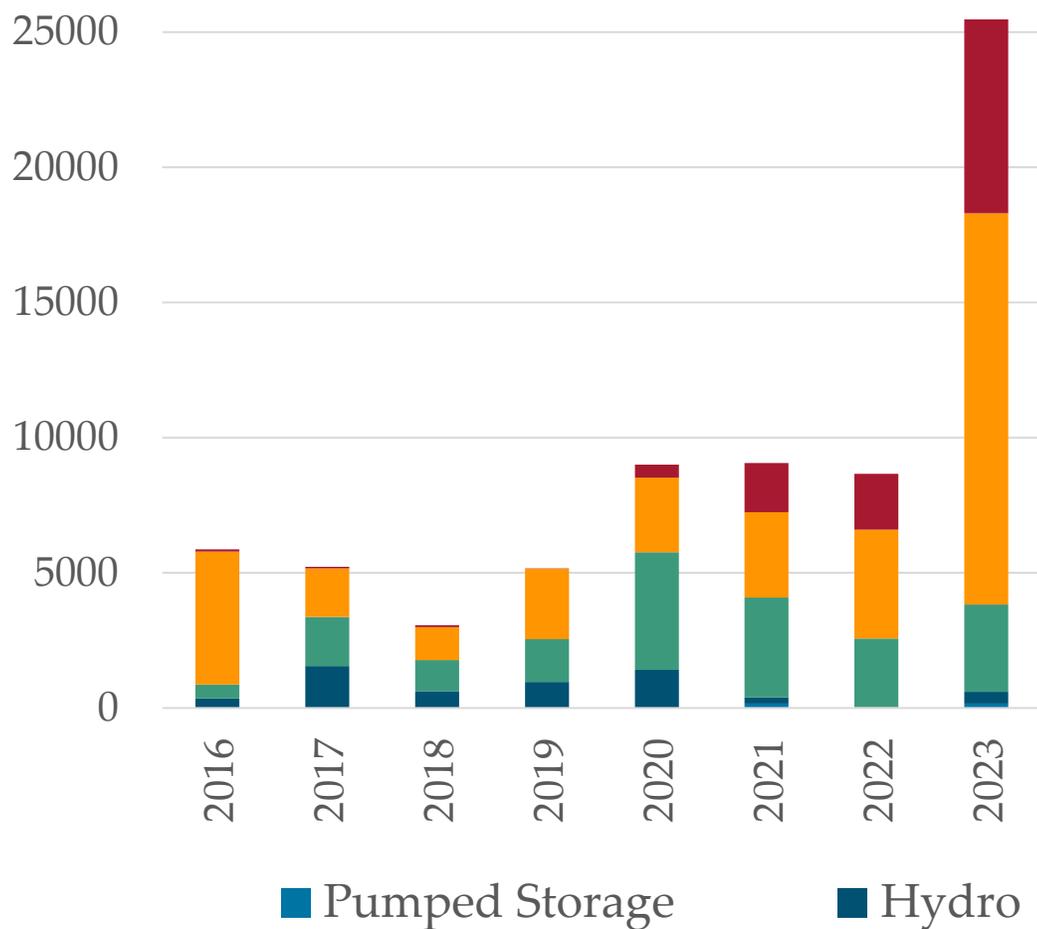
### CAMX Summer Resource Additions



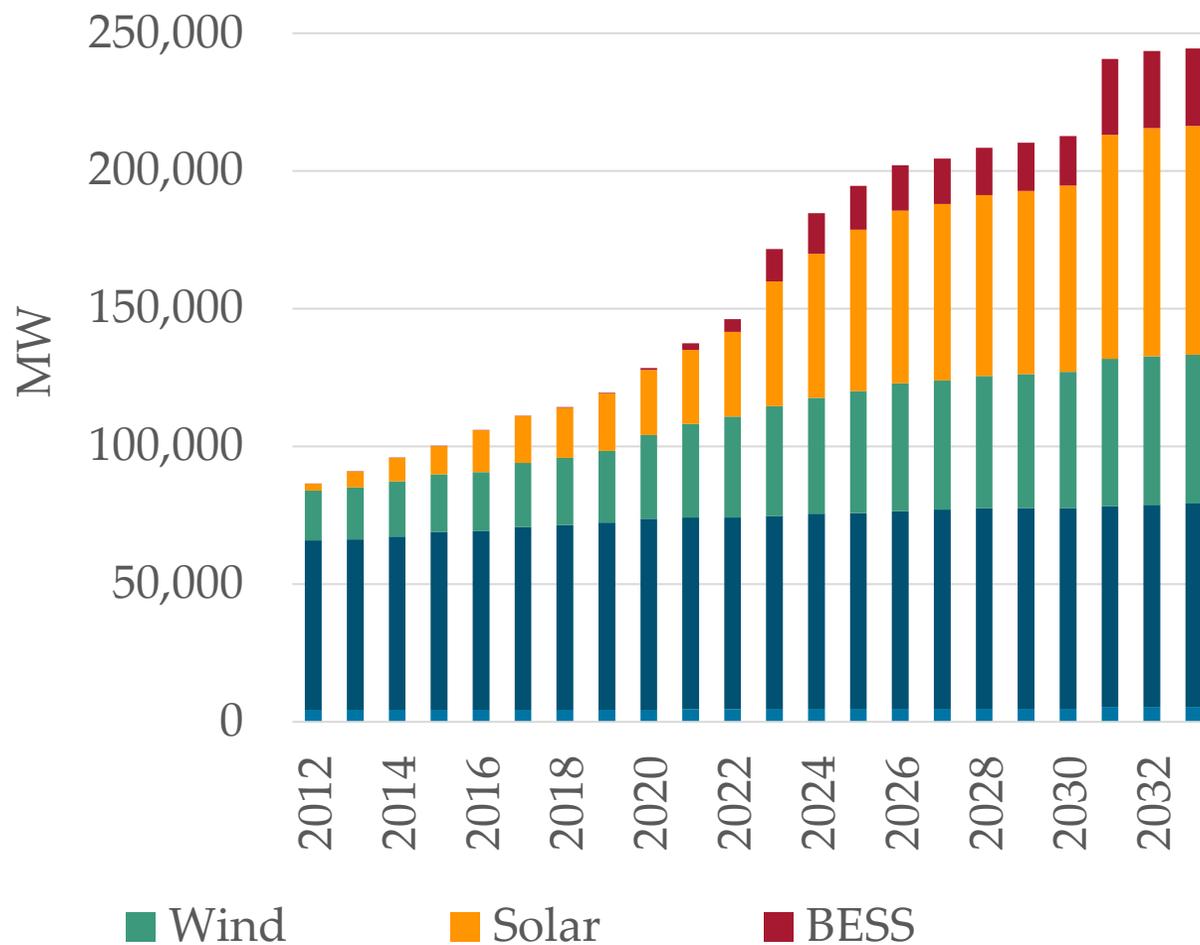
■ Biomass    ■ Conventional Hydro    ■ Natural Gas and Other Gases    ■ Battery    ■ Solar    ■ Wind

# Trajectories of New Renewable Resources

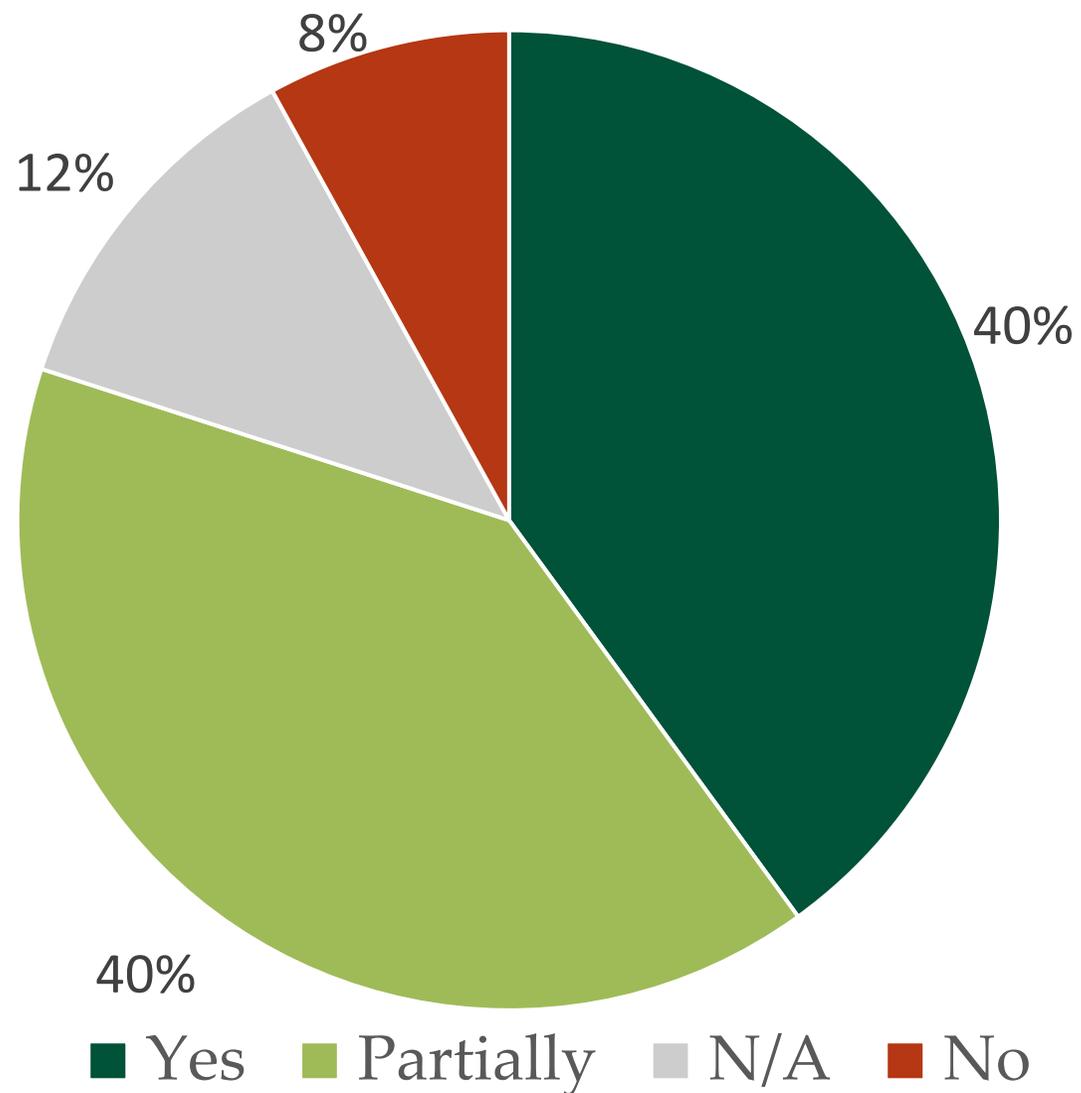
### Nameplate Capacity of Incremental New Renewables 2016-2022, and 2023 Planned



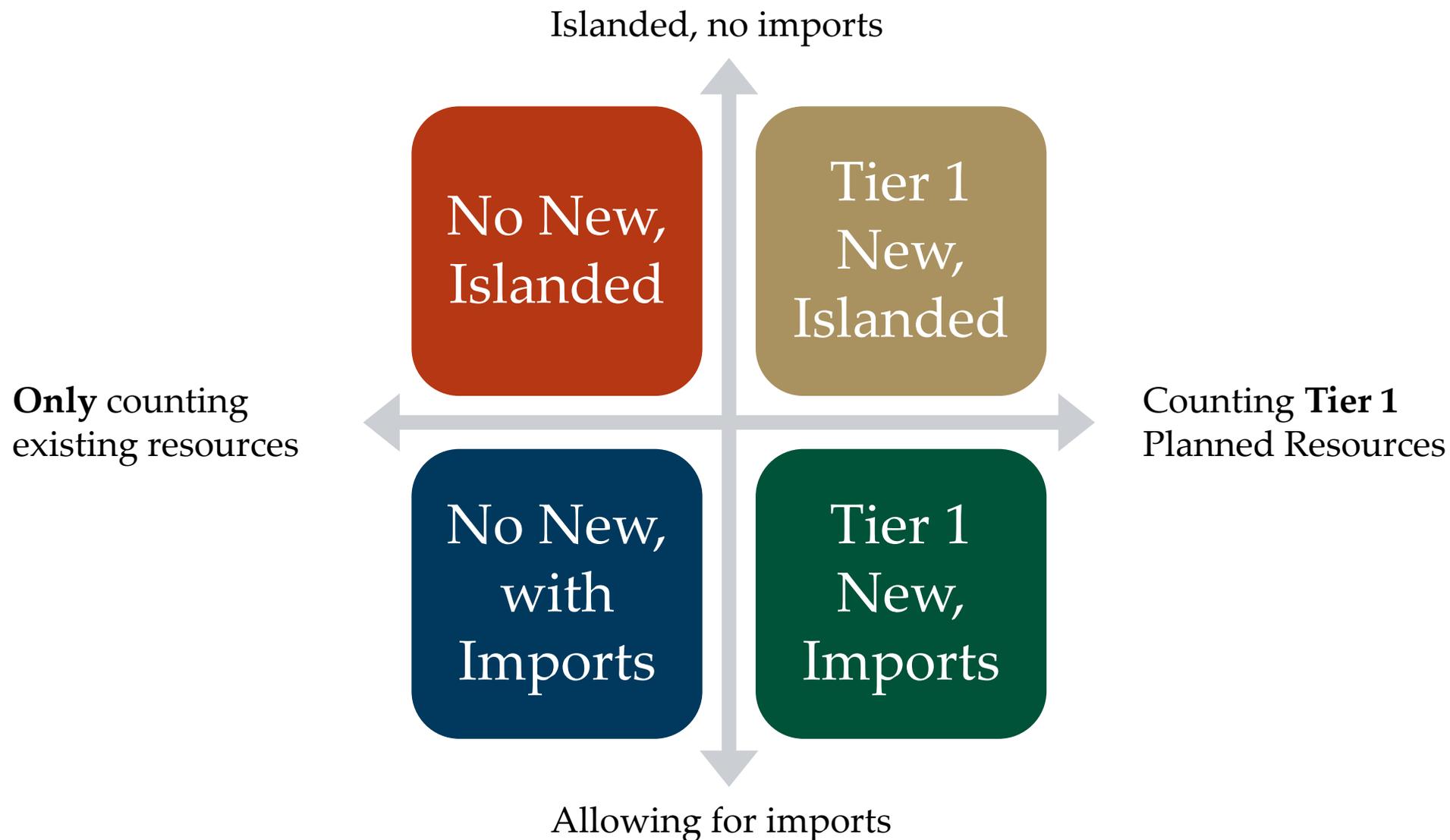
### Cumulative Capacity of Renewables, 2012-2032



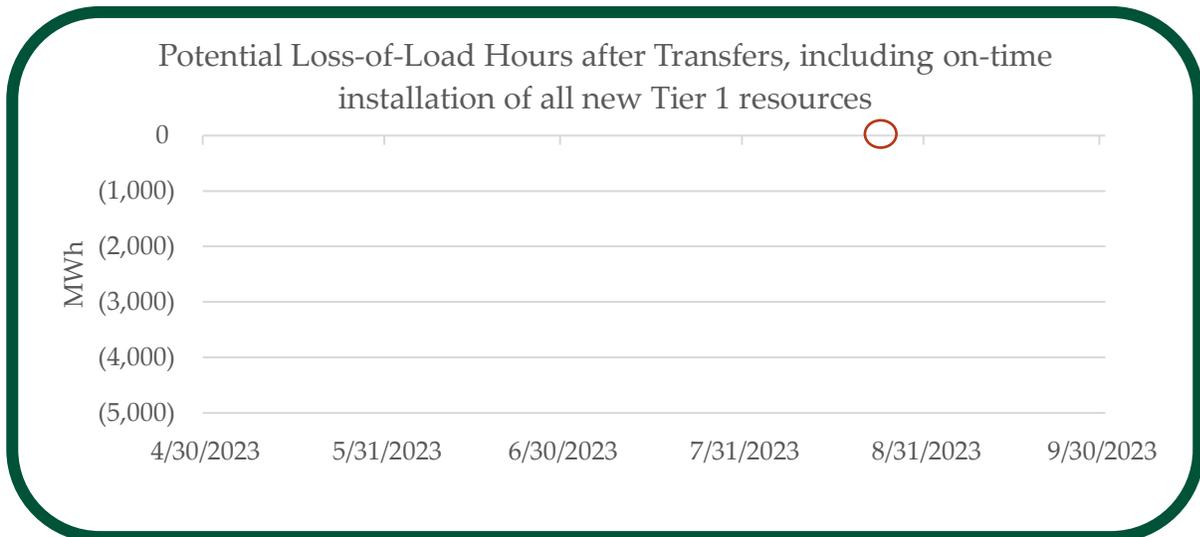
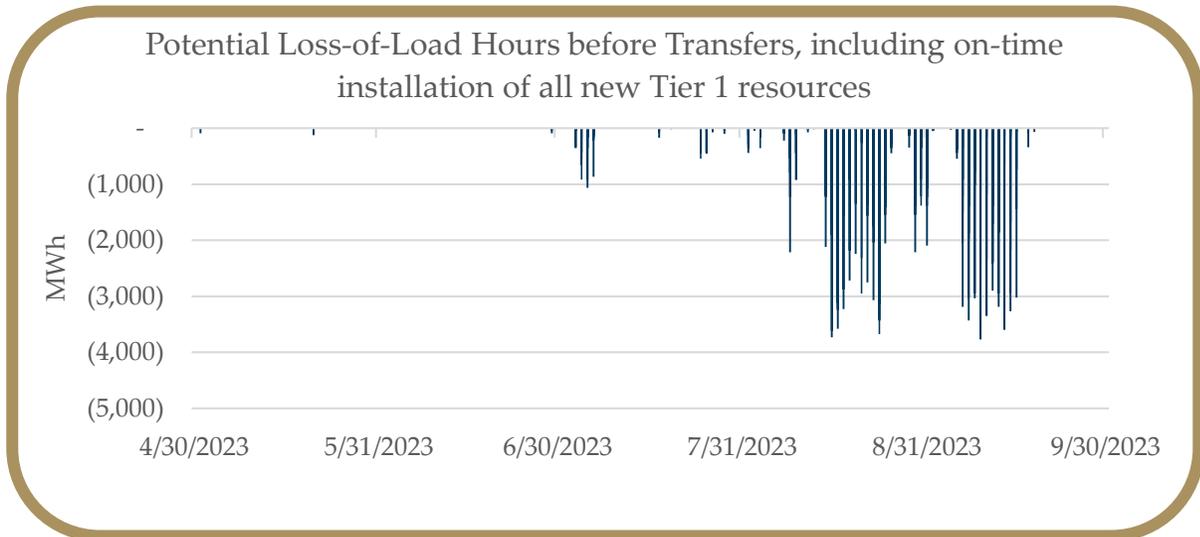
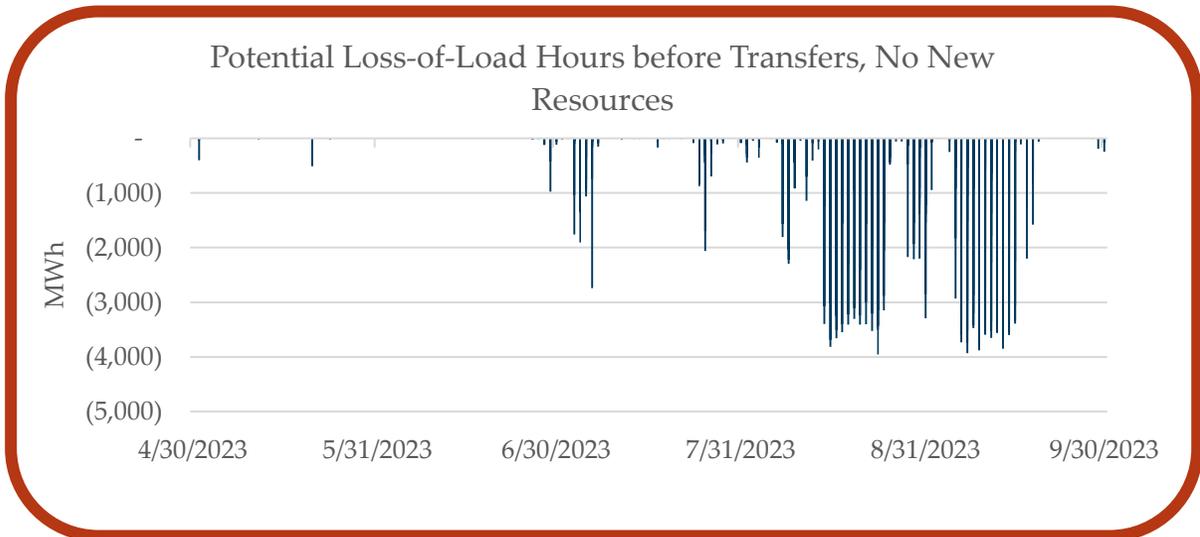
# Electrification Incorporation



# Scenarios Matrix

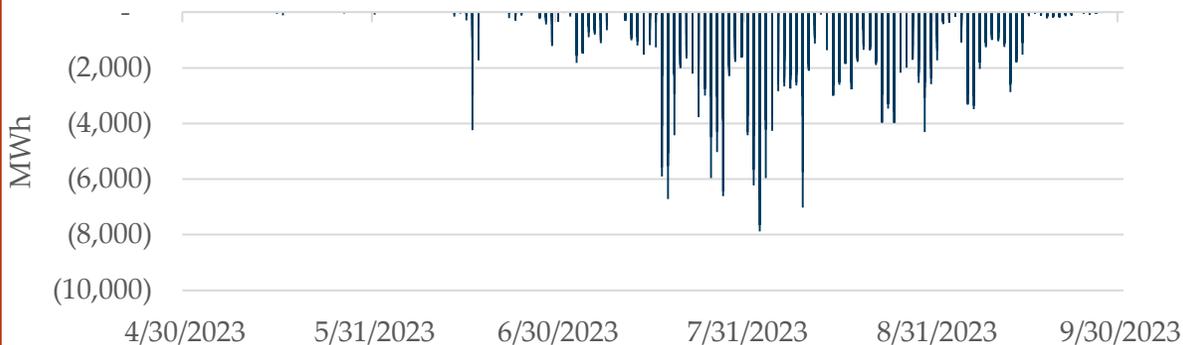


# California-Mexico

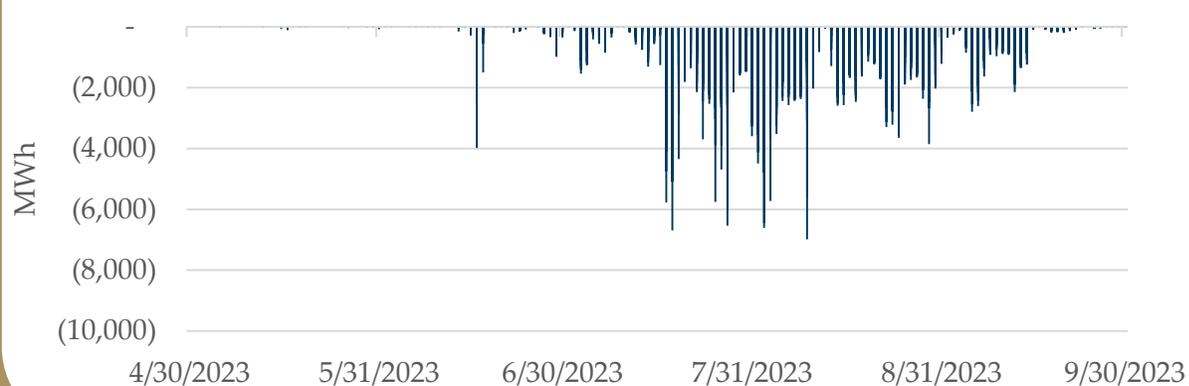


# Northwest

Potential Loss-of-Load Hours before Transfers, No New Resources



Potential Loss-of-Load Hours before Transfers, including on-time installation of all new Tier 1 resources



Potential Loss-of-Load Hours after Transfers, No New Resources

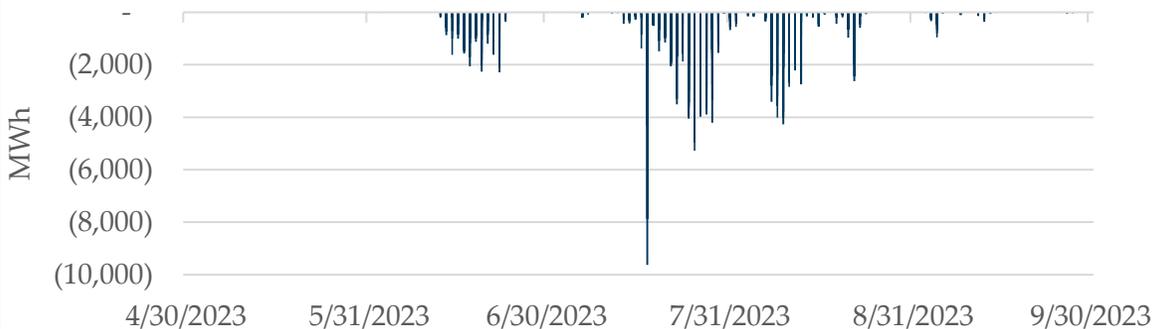


Potential Loss-of-Load Hours after Transfers, including on-time installation of all new Tier 1 resources



# Southwest

Magnitude of 2023 SW Potential Loss-of-Load Hours before Transfers, No New Resources



Magnitude of 2023 SW Potential Loss-of-Load Hours **before** Transfers, including on-time installation of all Tier 1 resources



Magnitude of 2023 SW Potential Loss-of-Load Hours after Transfers, No New Resources

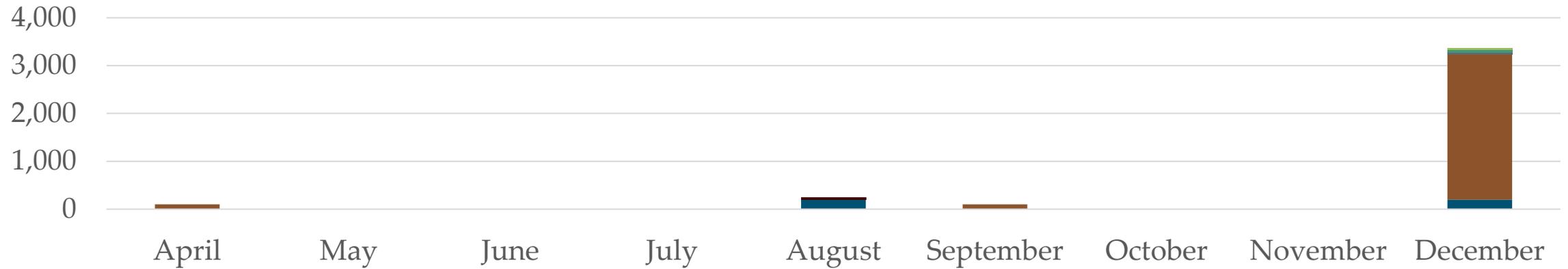


Magnitude of 2023 SW Potential Loss-of-Load Hours **after** Transfers, including on-time installation of all Tier 1 resources



# Additional Reference Slides

# 2023 Planned Retirements

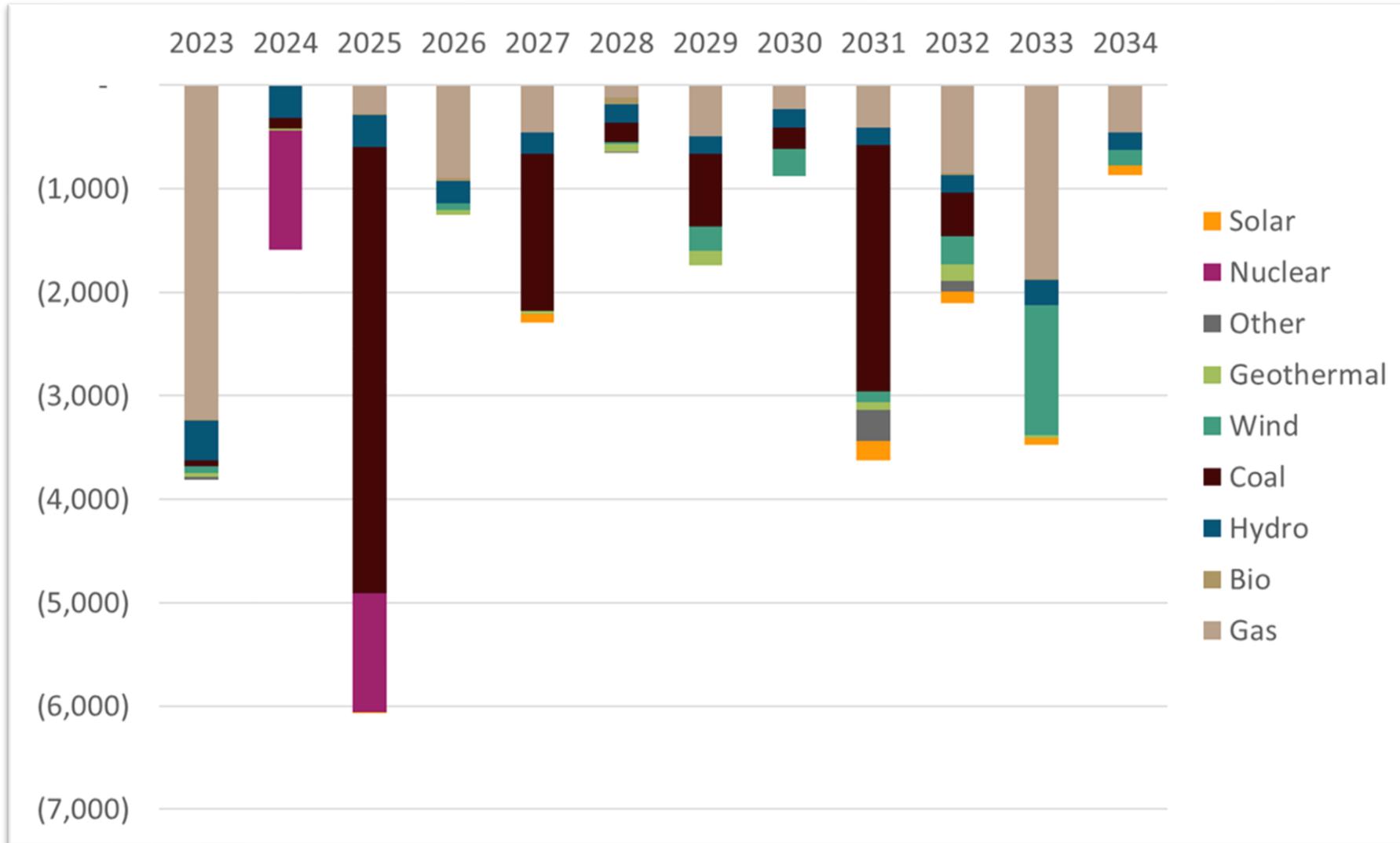


■ Conventional Hydro ■ Natural Gas and Other Gases ■ Other ■ Wind ■ Biomass ■ Geothermal ■ Coal

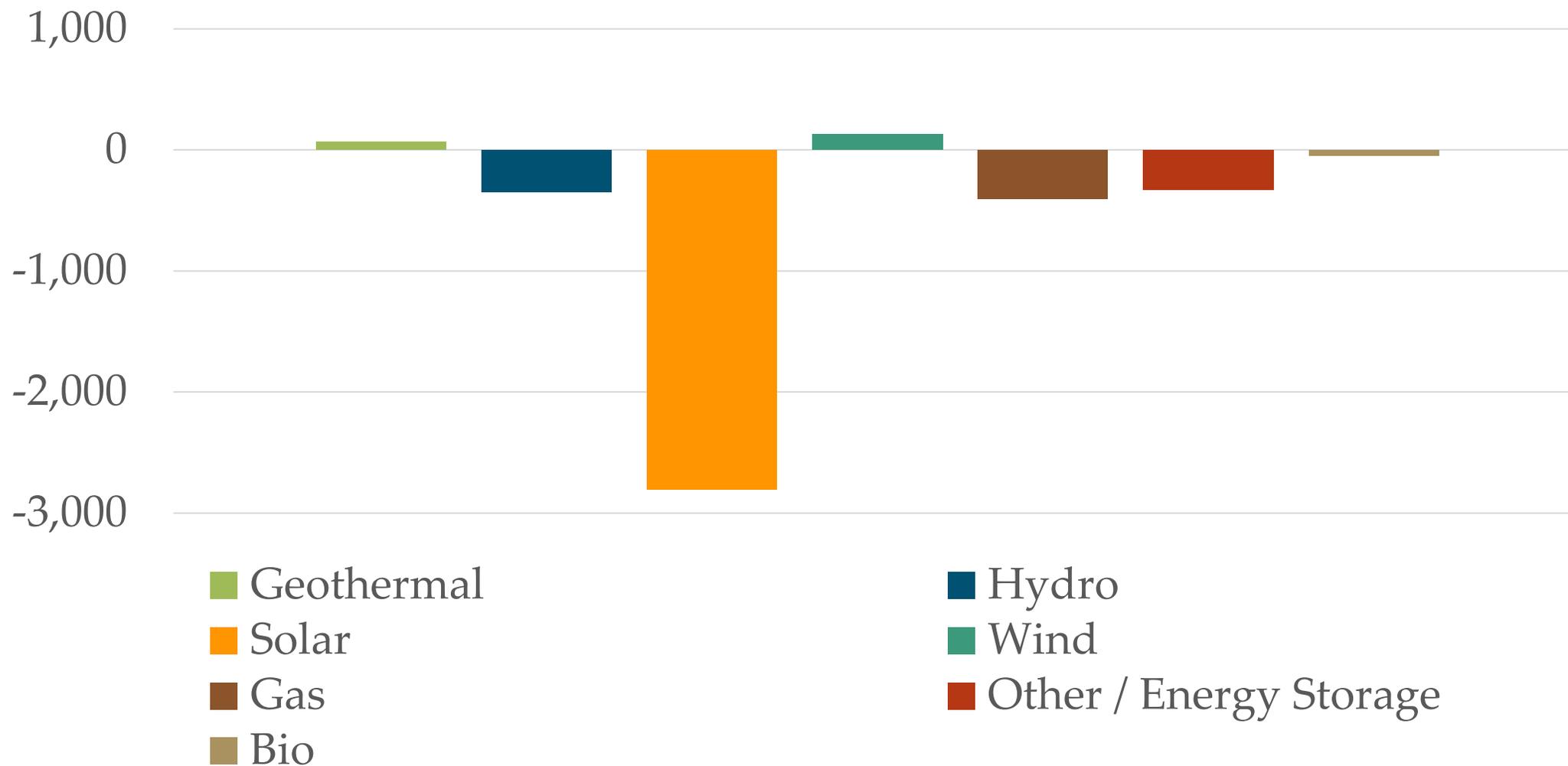
by Resource Type



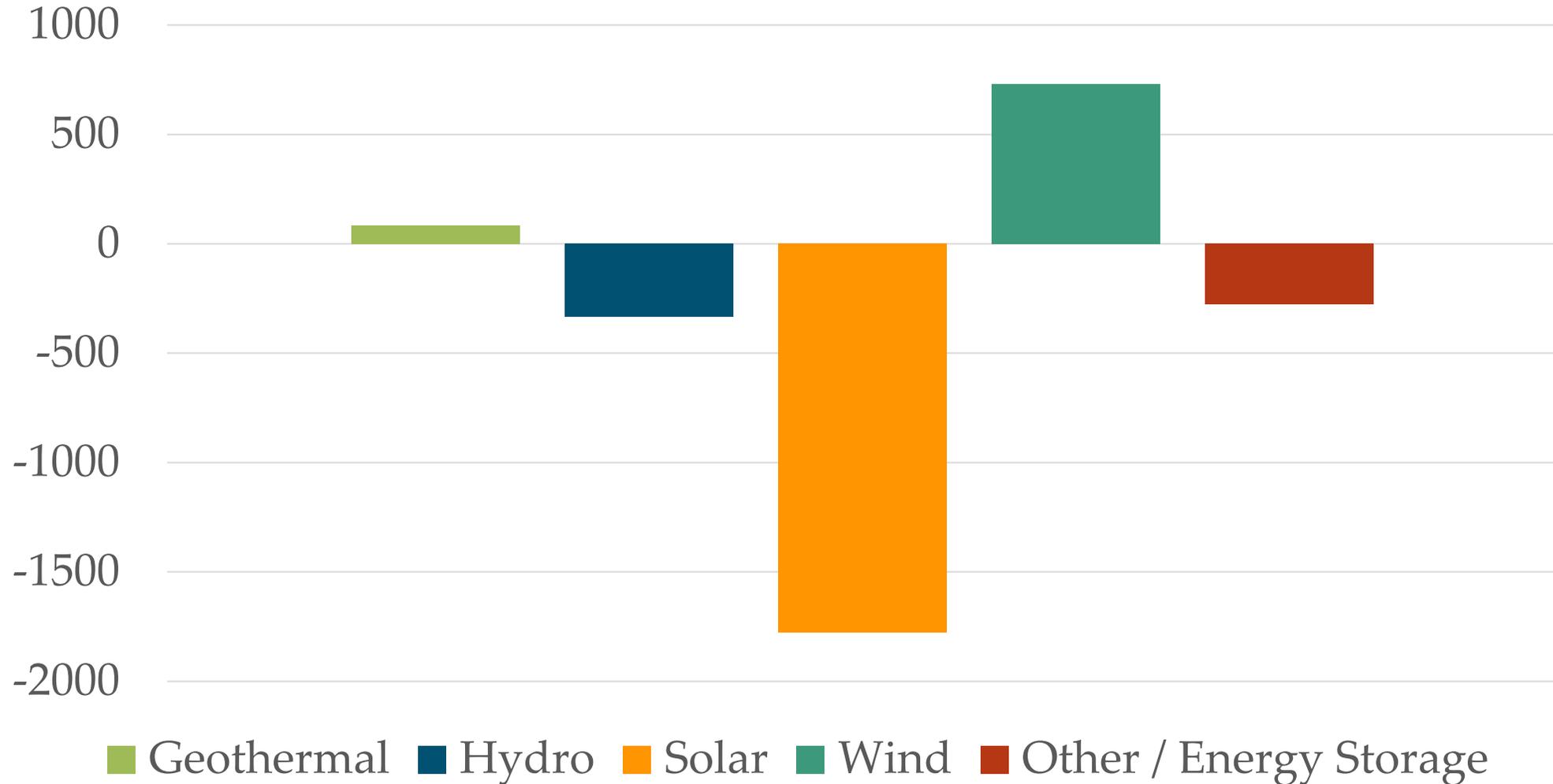
# Long-term Planned Retirements



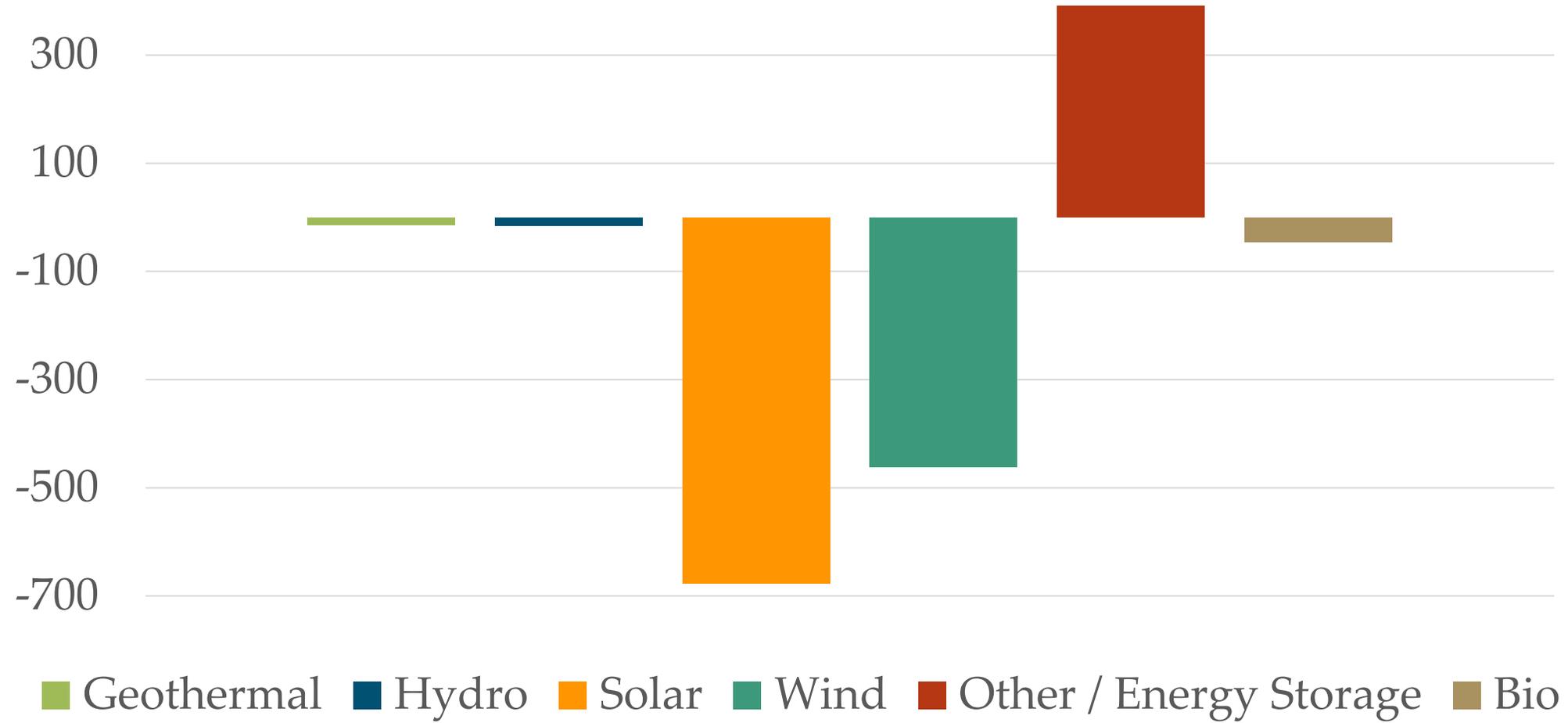
# West's 2022 Resource Plan Deltas



# NW Region: 2022 Resource Plan Changes



# CAMX Region: 2022 Resource Plan Changes



# SW Region: 2022 Resource Plan Changes

