

DOCKETED

Docket Number:	21-ESR-01
Project Title:	Energy System Reliability
TN #:	250178
Document Title:	Presentation - Outlook A Western Interconnection-wide View
Description:	3 - WECC - Presentation
Filer:	Xieng Saephan
Organization:	WECC
Submitter Role:	Public
Submission Date:	5/16/2023 5:02:30 PM
Docketed Date:	5/17/2023



2023 Summer Reliability Outlook: A Western Interconnection-wide View

May 17, 2023

Amanda Sargent
Senior Resource Adequacy Analyst

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

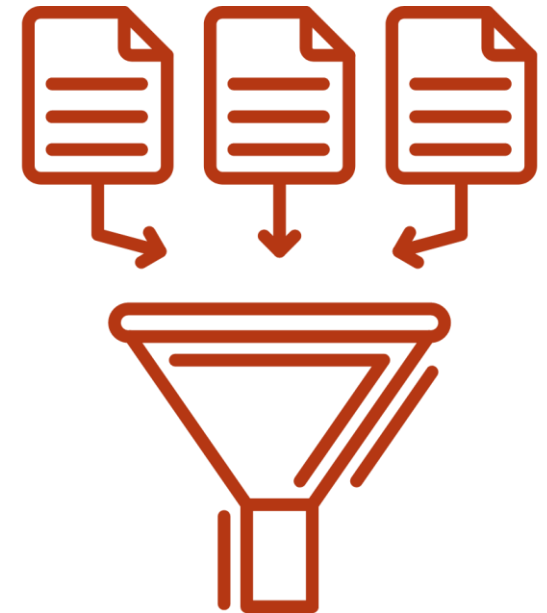
2021: 164 GW

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

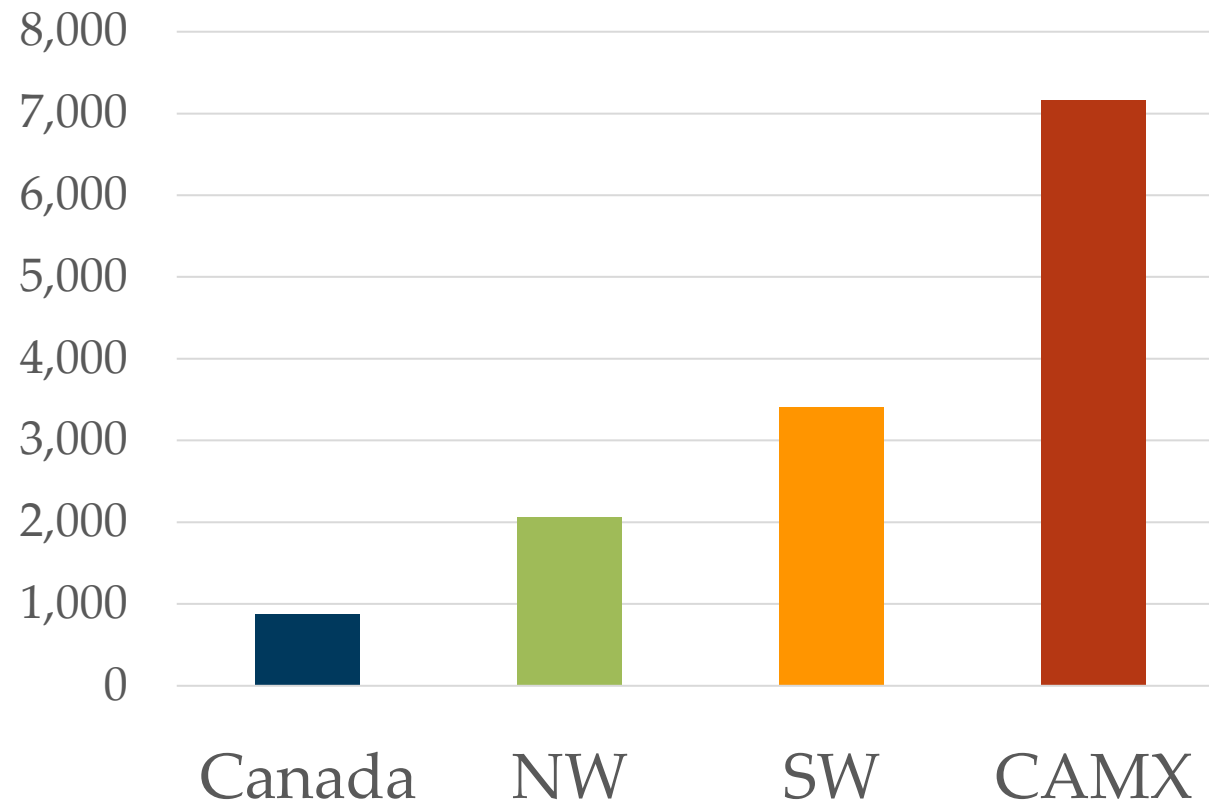
Supply Chain

- 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



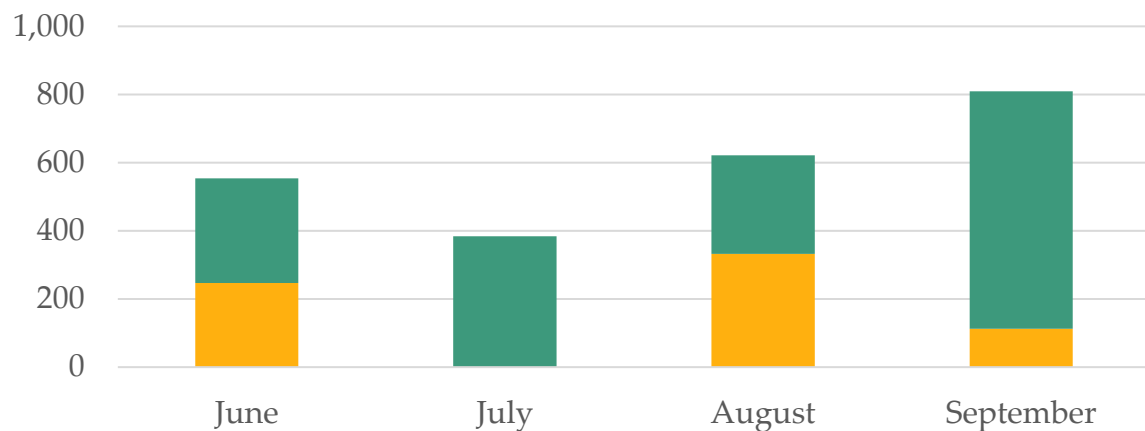
New Resources January – July 2023

Capacity of new 2023 resources with commission dates by Summer:

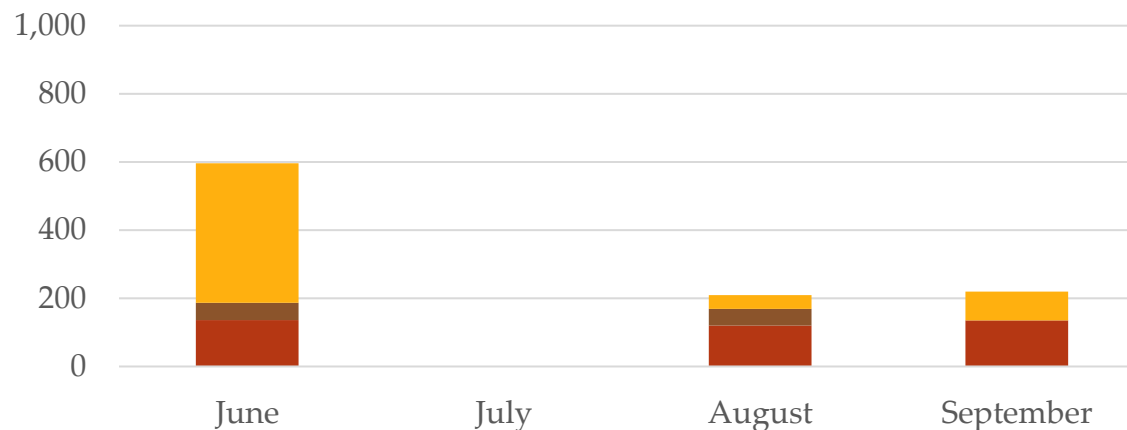


Summer 2023, Monthly Additions

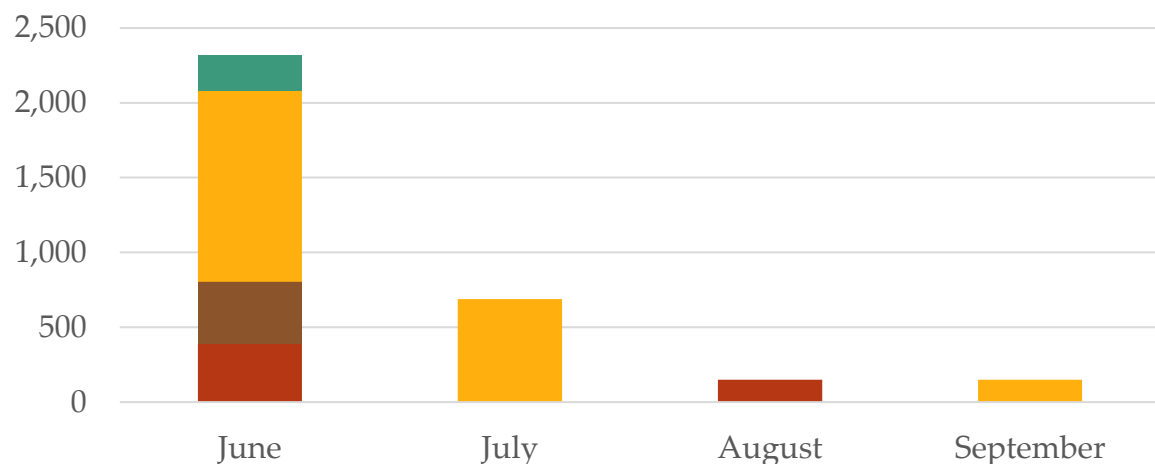
Canada Summer Resource Additions



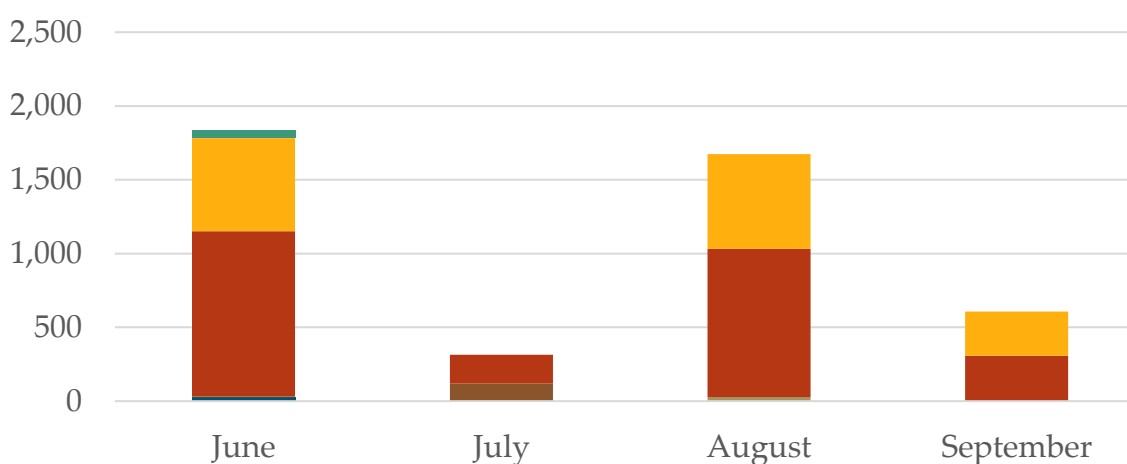
NW Summer Resource Additions



SW Summer Resource Additions



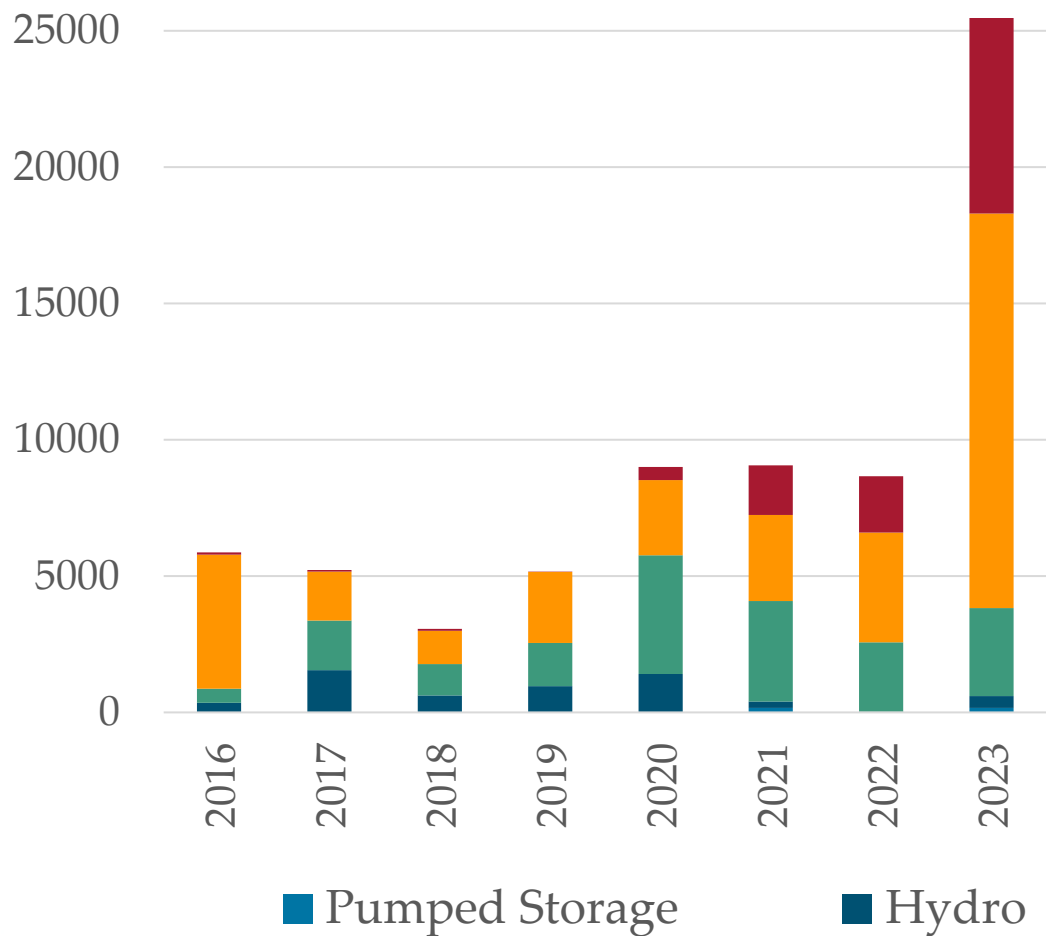
CAMX Summer Resource Additions



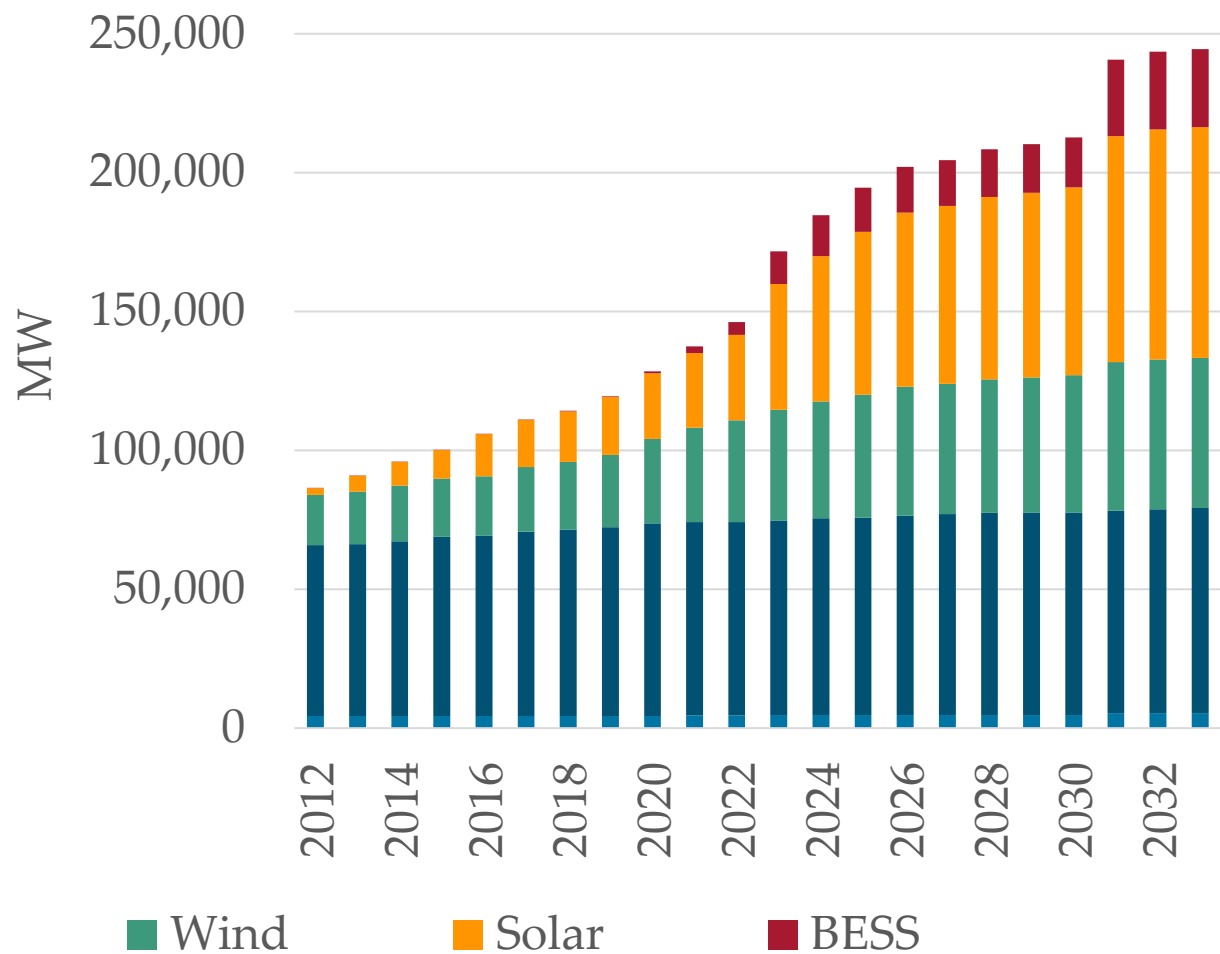
■ Biomass ■ Conventional Hydro ■ Natural Gas and Other Gases ■ Battery ■ Solar ■ Wind

Trajectories of New Renewable Resources

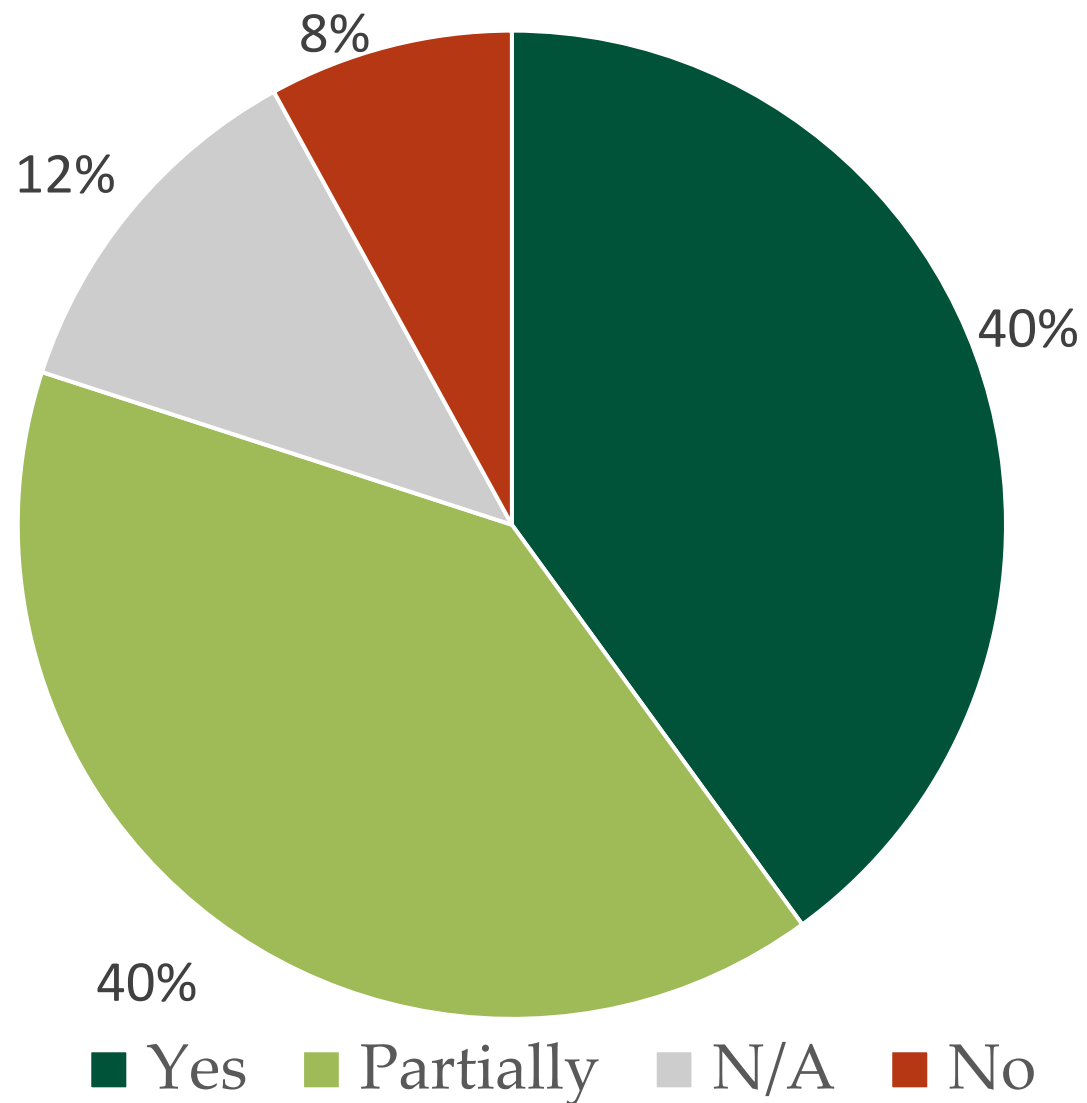
Nameplate Capacity of Incremental New Renewables 2016-2022, and 2023 Planned



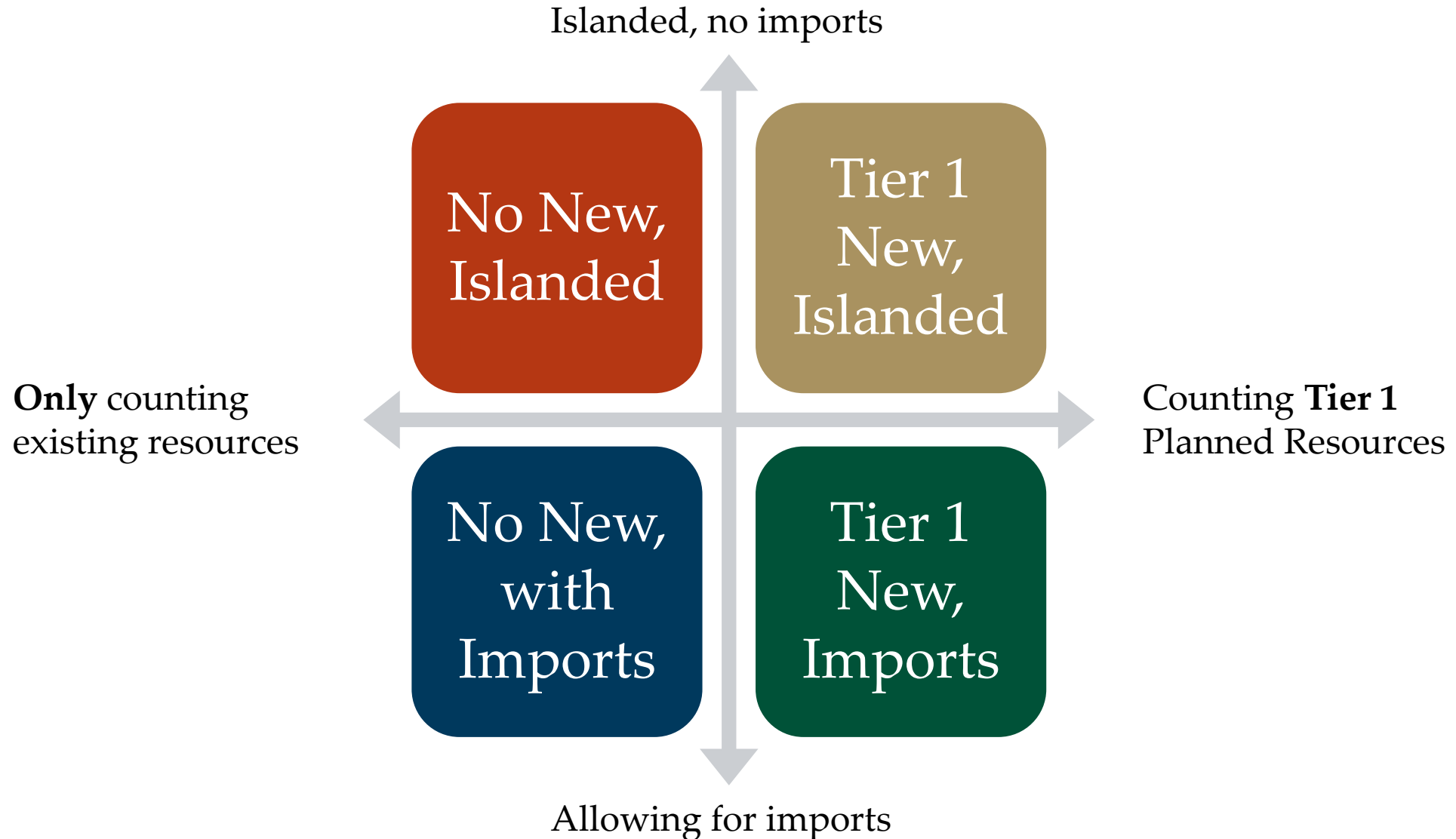
Cumulative Capacity of Renewables, 2012-2032



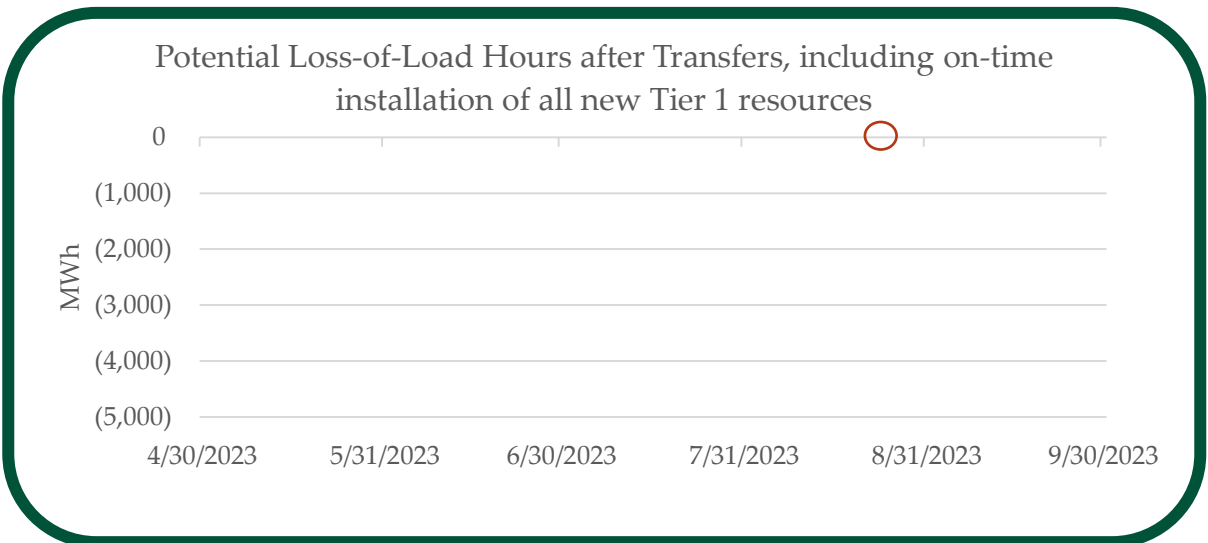
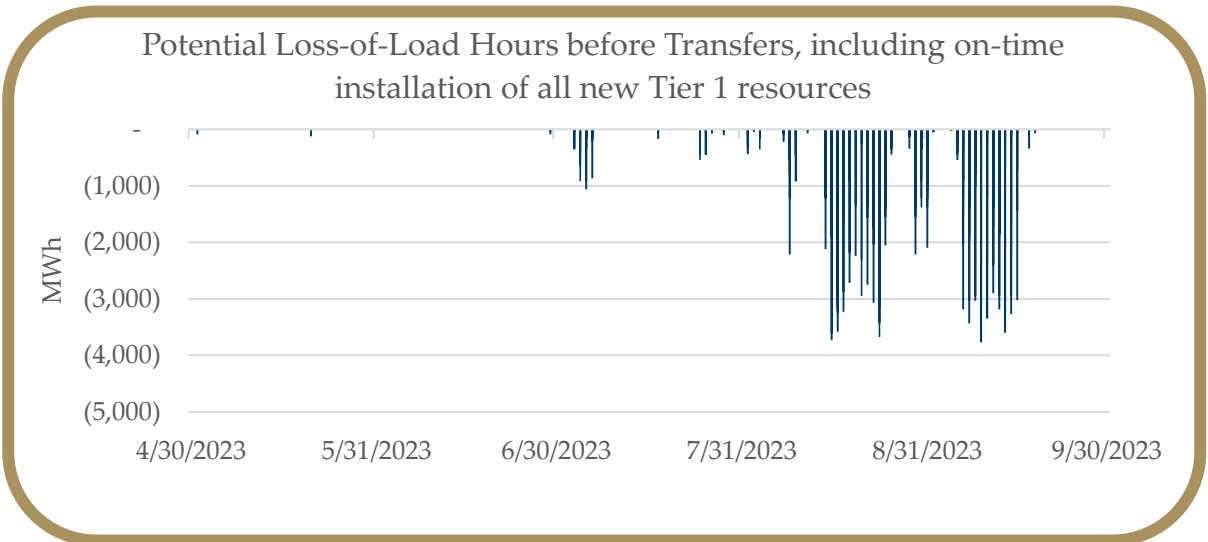
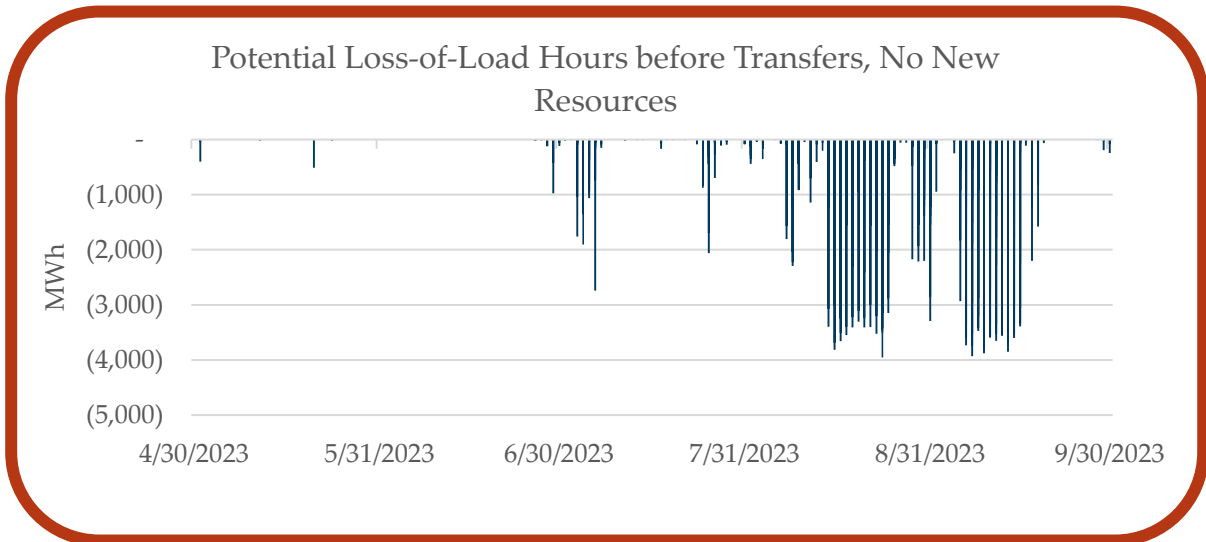
Electrification Incorporation



Scenarios Matrix

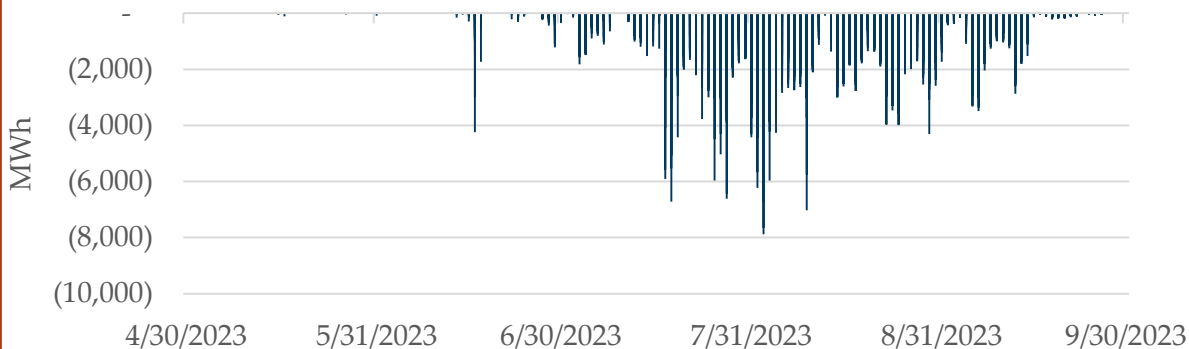


California-Mexico

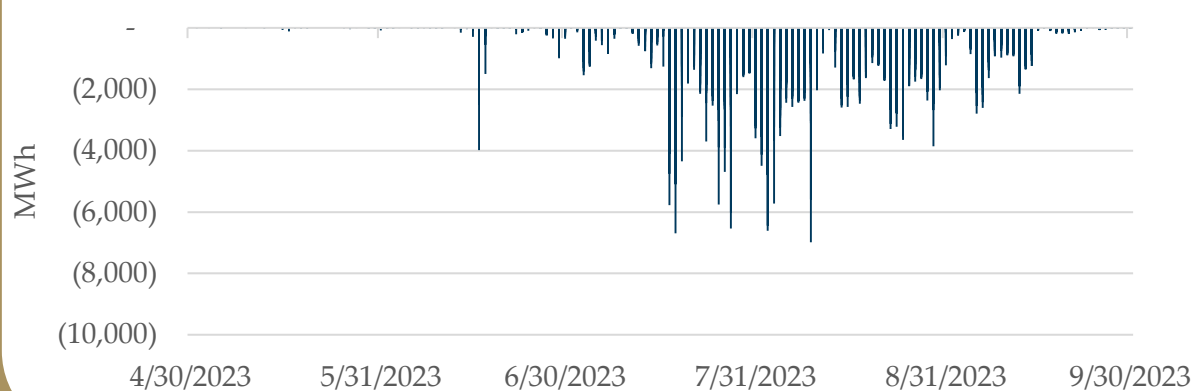


Northwest

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

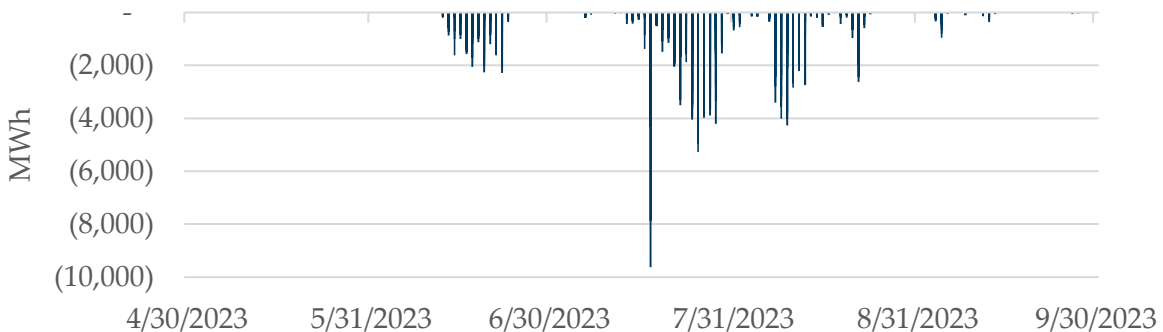


Potential Loss-of-Load Hours after Transfers, including on-time installation of all new Tier 1 resources

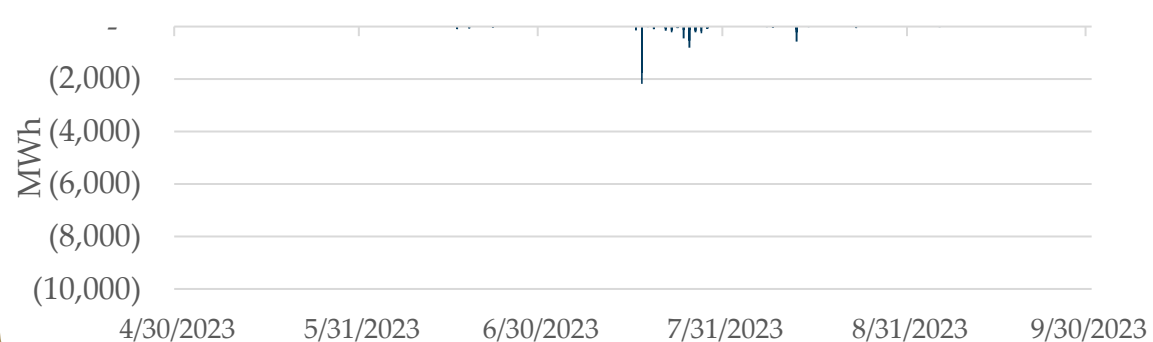


Southwest

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



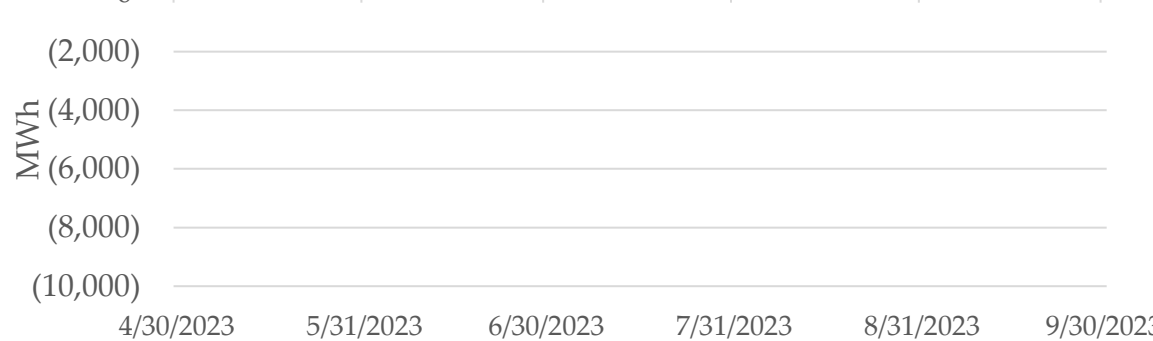
Magnitude of 2023 SW Potential Loss-of-Load Hours **before** Transfers, including on-time installation of all Tier 1 resources



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

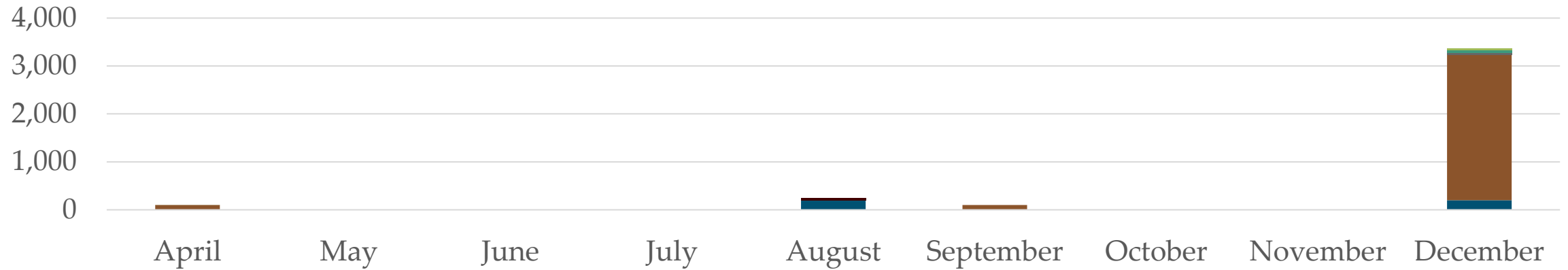


Magnitude of 2023 SW Potential Loss-of-Load Hours **after** Transfers, including on-time installation of all Tier 1 resources



Additional Reference Slides

2023 Planned Retirements

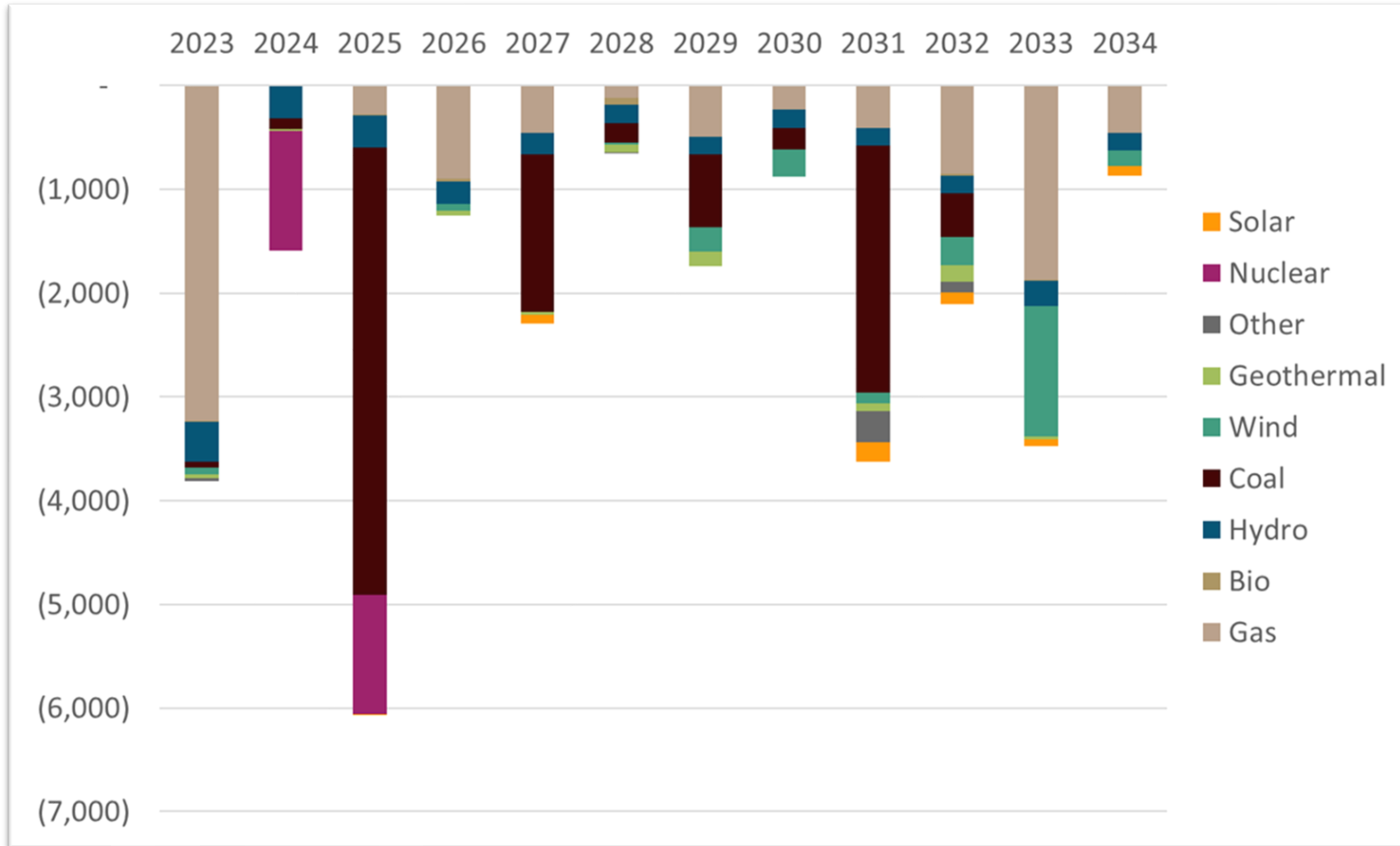


■ Conventional Hydro ■ Natural Gas and Other Gases ■ Other ■ Wind ■ Biomass ■ Geothermal ■ Coal

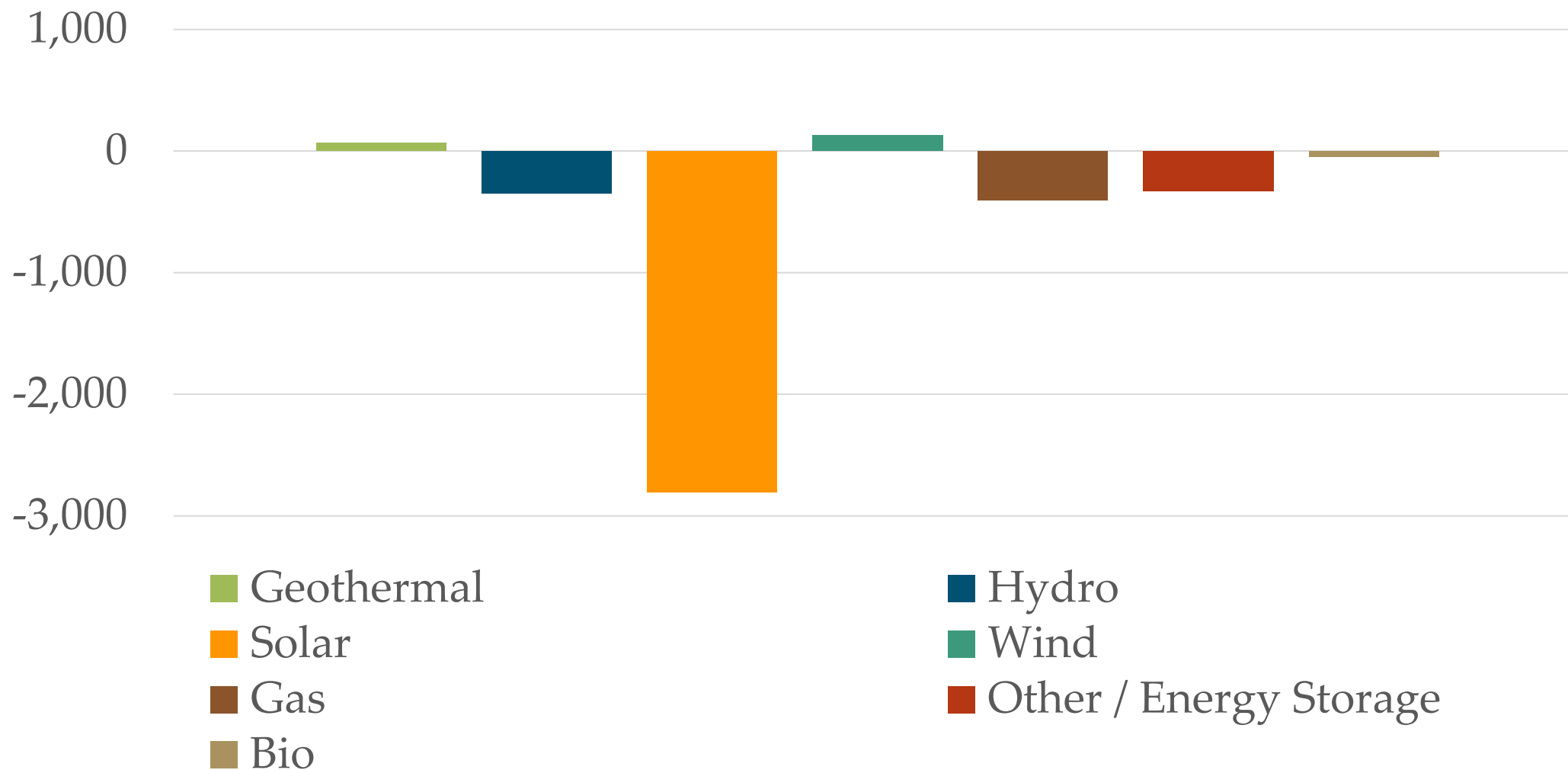
by Resource Type



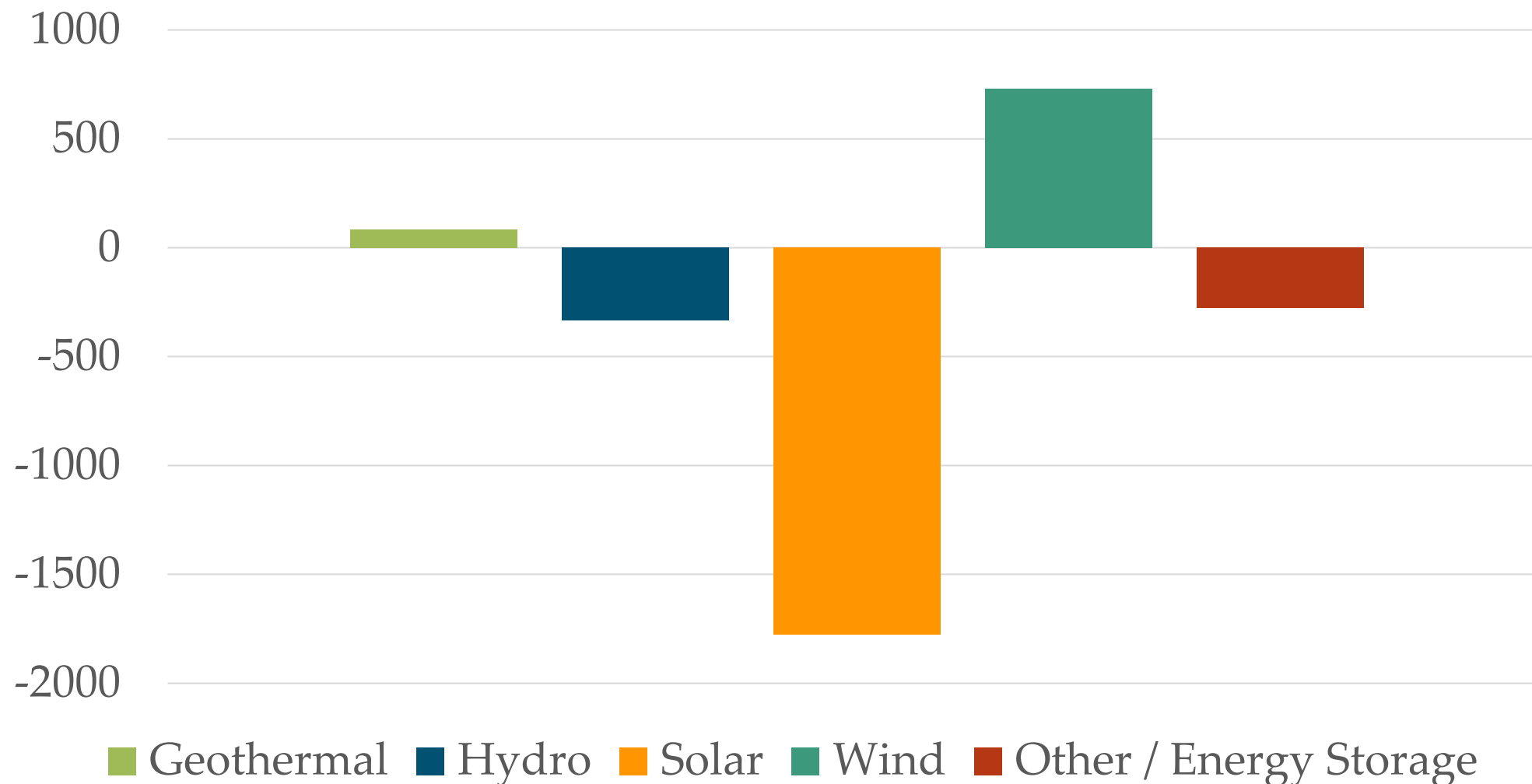
Long-term Planned Retirements



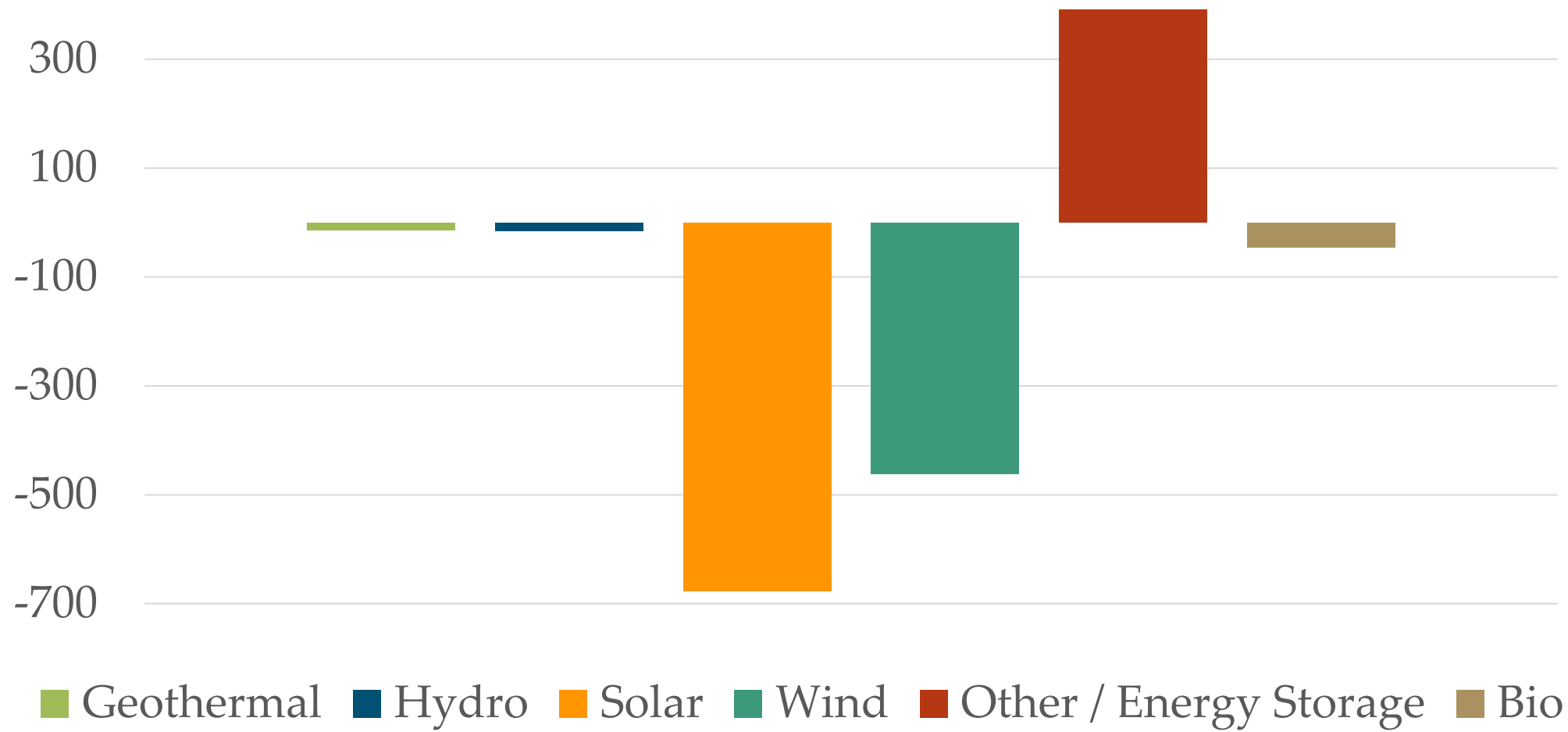
West's 2022 Resource Plan Deltas



NW Region: 2022 Resource Plan Changes



CAMX Region: 2022 Resource Plan Changes



SW Region: 2022 Resource Plan Changes

