June 2, 2021

MEMORANDUM

TO: **Council Members**

FROM: **Gillian Charles**

SUBJECT: **Summary of WECC-Wide Utility Integrated Resource Plans Near-term Acquisitions**

BACKGROUND:

Presenter: Gillian Charles

Summary: Staff will present a summary of near-term resource acquisitions identified in utility integrated resource plans (IRPs) – both within the region and across the western interconnect (WECC). In addition, staff will provide a sneak peak at proposed resources in the development pipeline. This information can serve as a useful reference check when developing a power plan – however they are certainly not meant to be an apples-to-apples comparison.

Relevance: Analysis for the draft 2021 Power Plan indicates a significant buildout of regional resources in the first five years, in particular cheap solar PV and wind (~5 gigawatts of renewables by 2027 in the baseline conditions). In addition, analysis for the plan's wholesale electricity price forecast indicates a WECC-wide buildout of new resources by around 2033 that is equal in magnitude to the existing capacity in the WECC (~270 gigawatts). In total, the buildout reaches over 400 gigawatts by the end of the power planning period (2041).

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Summary of WECC-Wide Utility Integrated Resource Plans & Near-term Acquisitions

June 9, 2021

Council Meeting

Gillian Charles

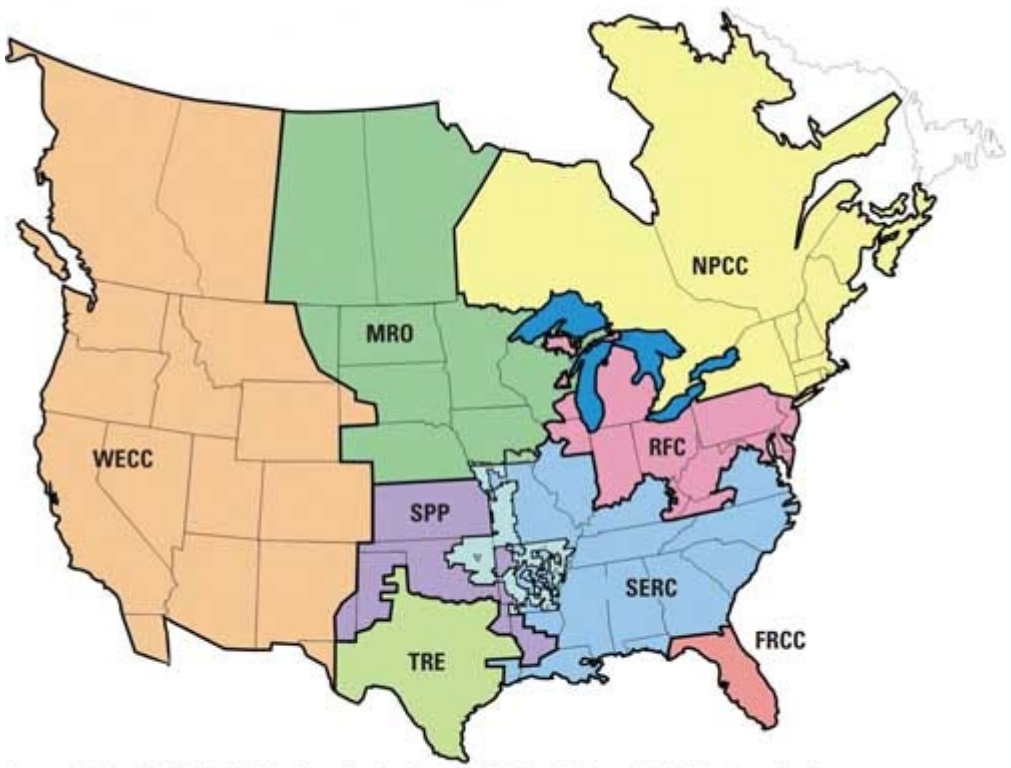
THE 2021
NORTHWEST
POWER PLAN
FOR A SECURE & AFFORDABLE
ENERGY FUTURE

Western Interconnect (WECC)

WECC covers portions of 3 countries in North America:

- **Canada** (British Columbia, Alberta)
- **United States** (Washington, Oregon, Idaho, Montana, California, Nevada, Wyoming, Utah, Colorado, Arizona, Mexico, and small portions of South Dakota and Texas)
- **Mexico** (small portion of Baja)

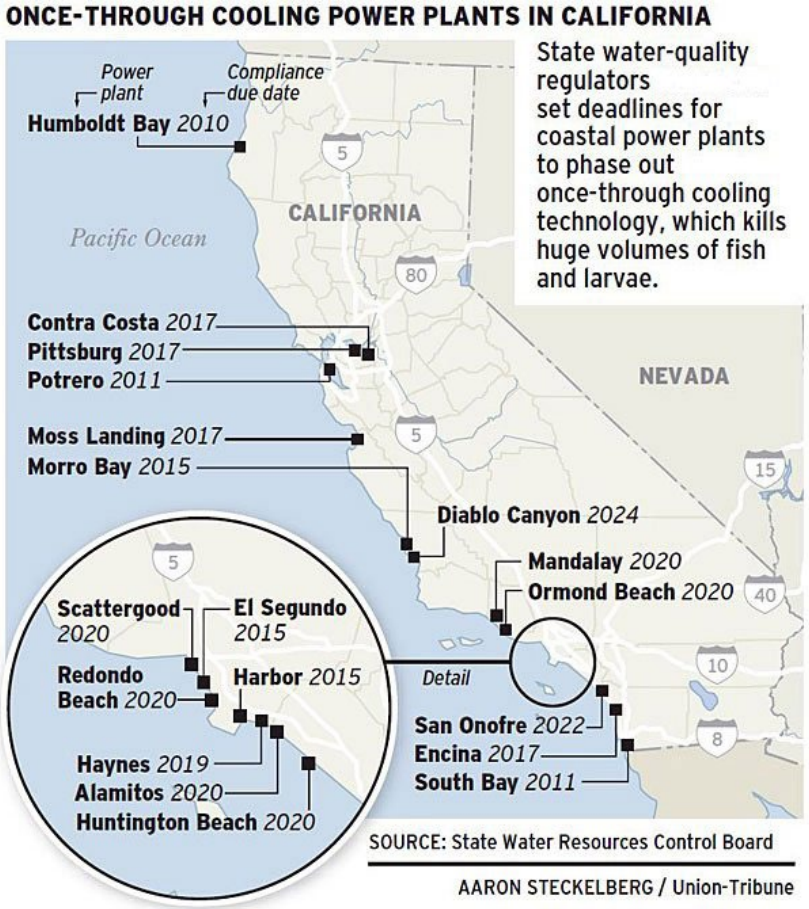
This presentation includes data from all of **WECC** and just the US portion of WECC (**US WECC**)



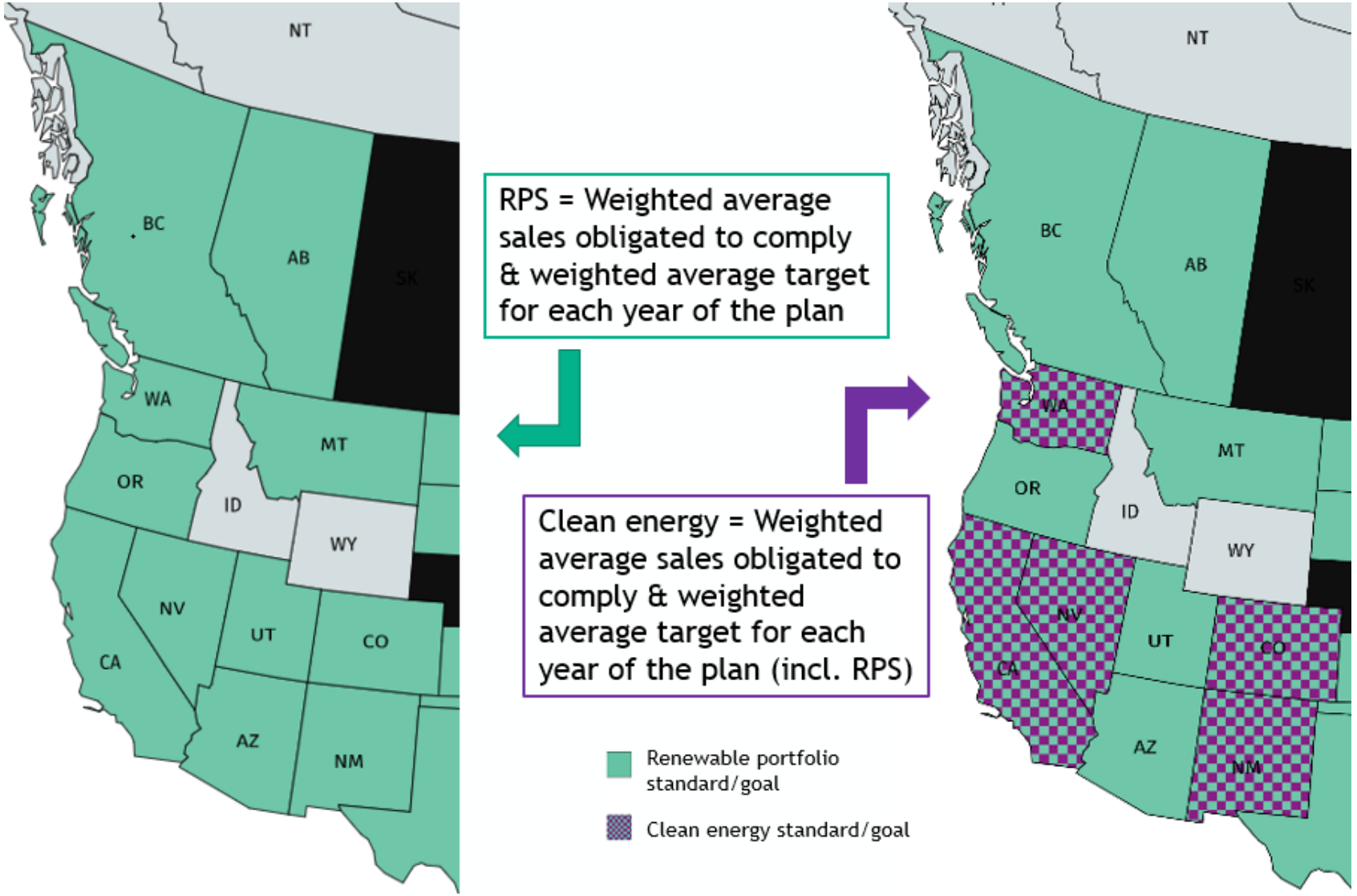
Notes: FRCC = Florida Reliability Coordinating Council, MRO = Midwest Reliability Organization, NPCC = Northeast Power Coordinating Council, RFC = Reliability First Corp., SERC = SERC Reliability Corp., SPP = Southwest Power Pool, TRE = Texas Regional Entity, WECC = Western Electric Coordinating Council.

2020 and Beyond - New Electricity Paradigm

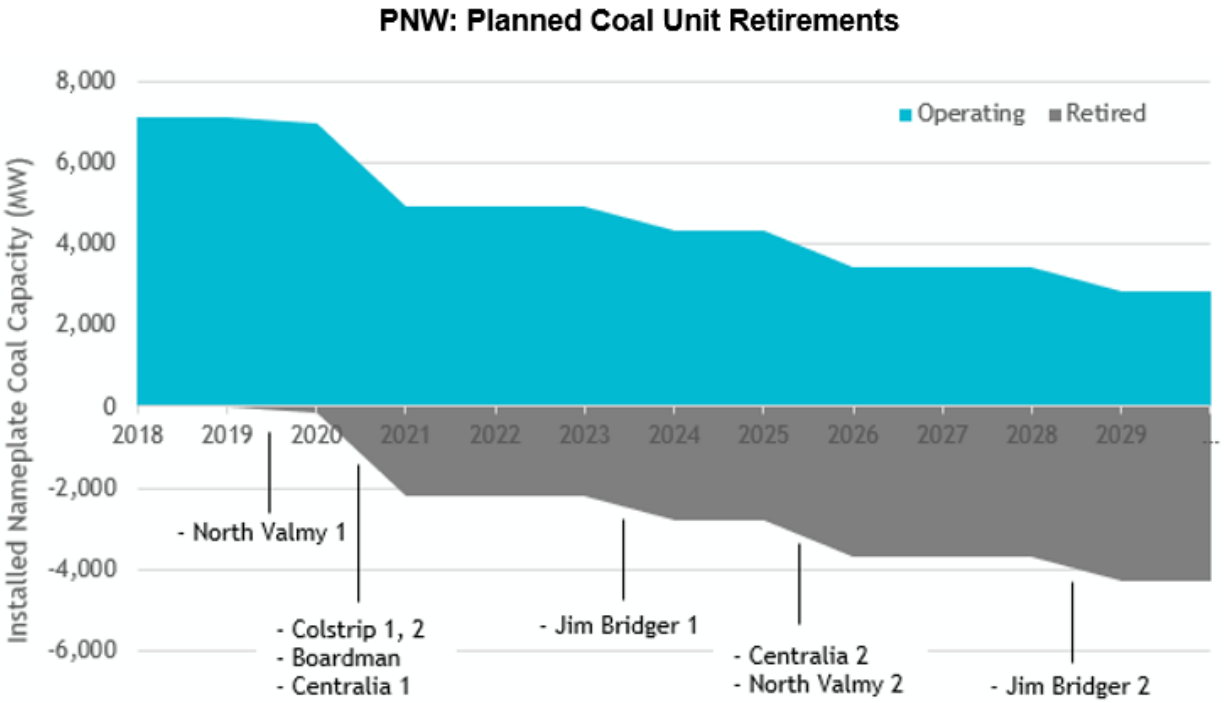
- Clean energy and greenhouse gas reduction policies and goals
- Coal unit retirements
- New natural gas build uncertainty
- Once-through cooling unit retirements or repowering
- Cheap and plentiful renewable resources



Clean and Renewable Policies and Goals

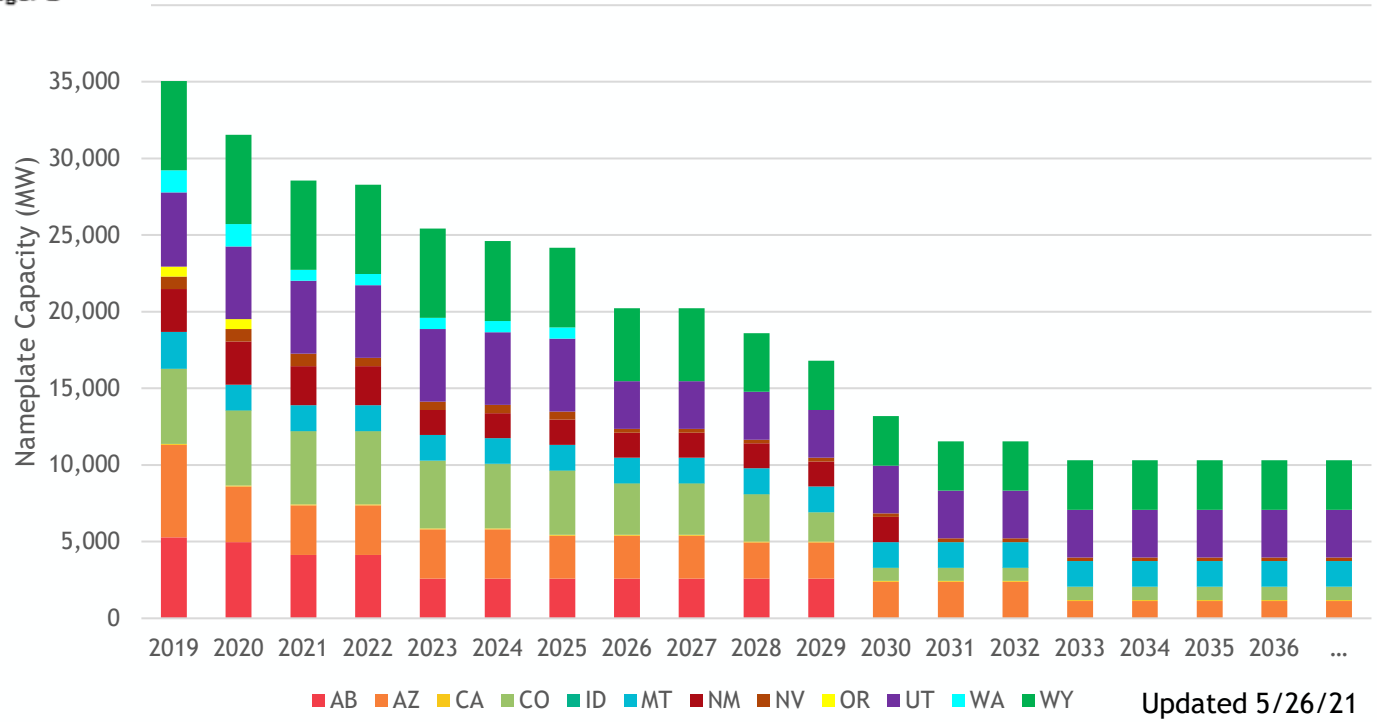


Coal Unit Retirements



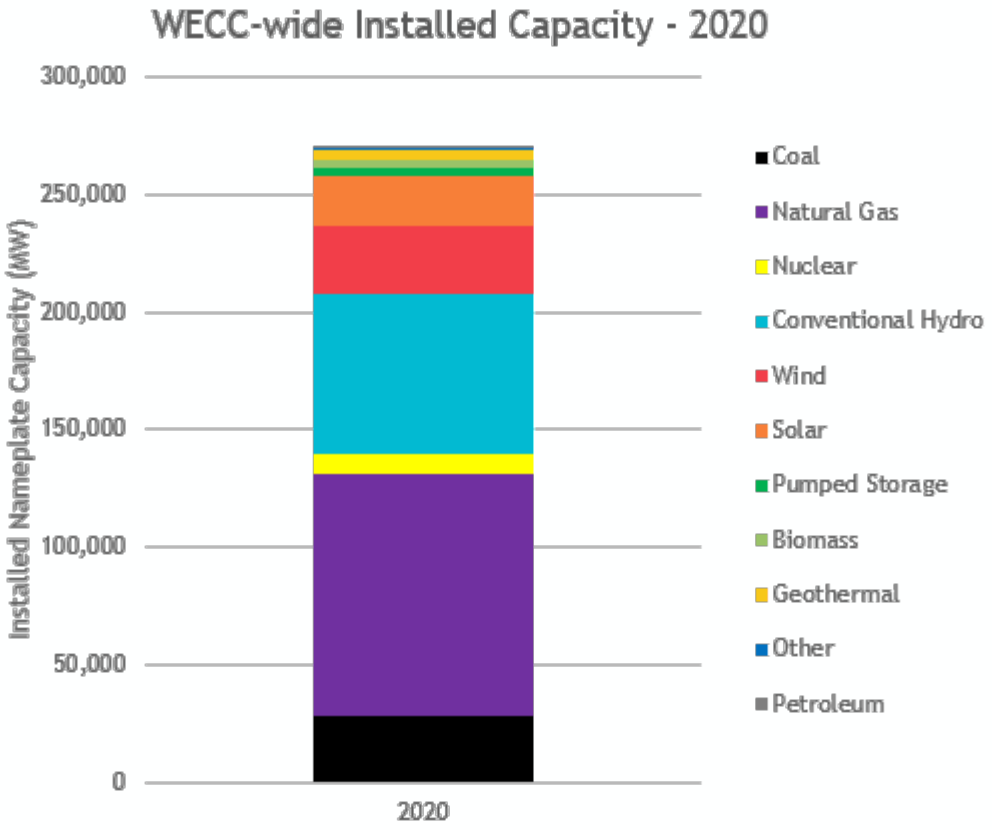
By 2030, WECC will have about 40% of the installed coal capacity it had in operation in 2019, going from ~35,000 megawatts to ~13,500 megawatts in just over a decade

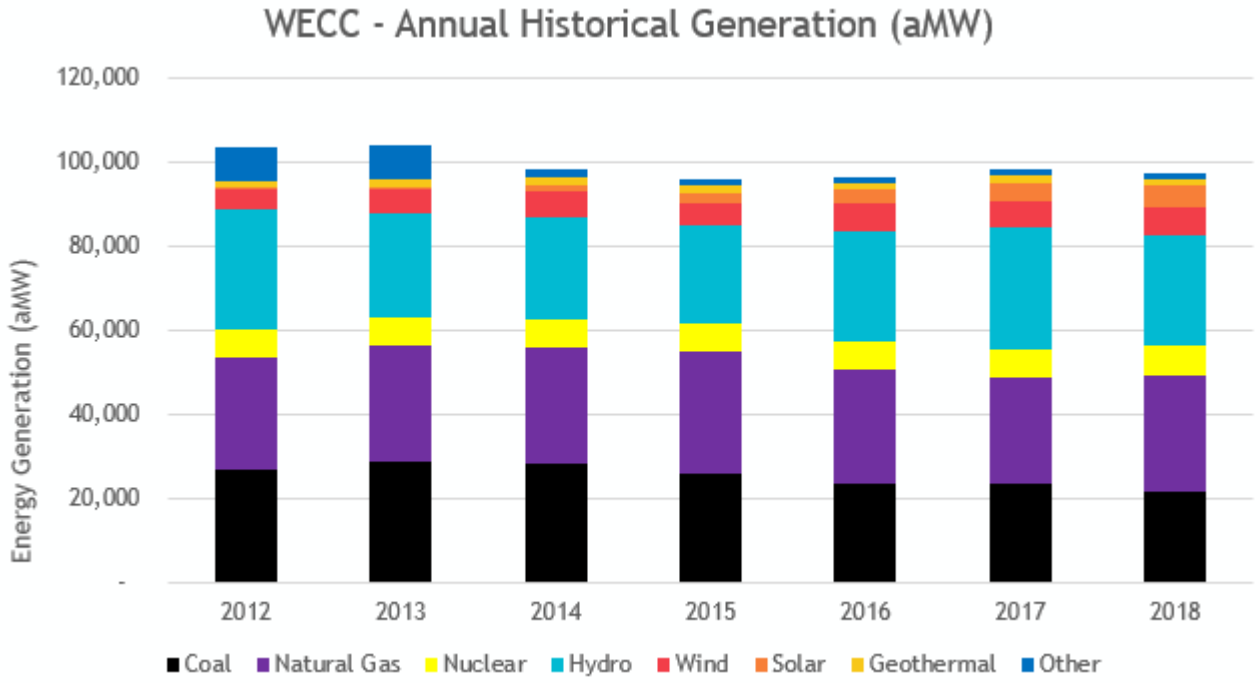
By 2028, the Pacific Northwest will have retired ~ 4,400 megawatts of its coal capacity, leaving just four units in operation (Colstrip 3, 4 and Jim Bridger 3, 4)



Updated 5/26/21

WECC – Installed Capacity & Historical Generation



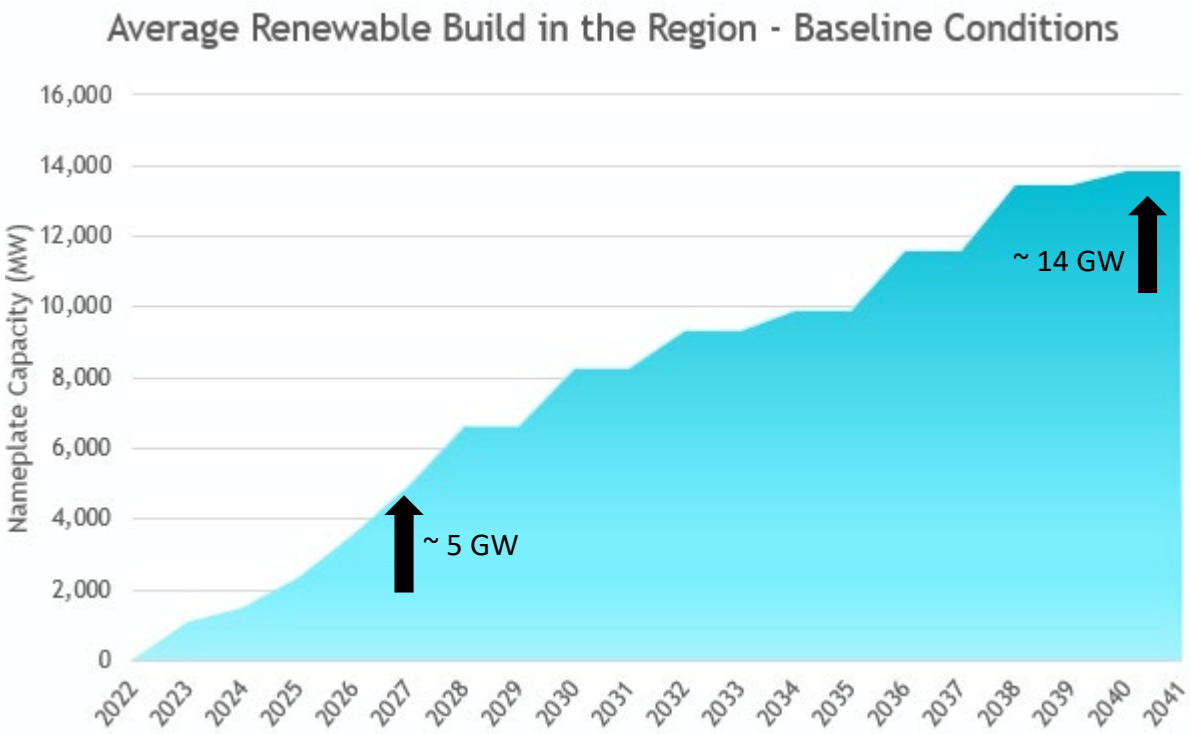


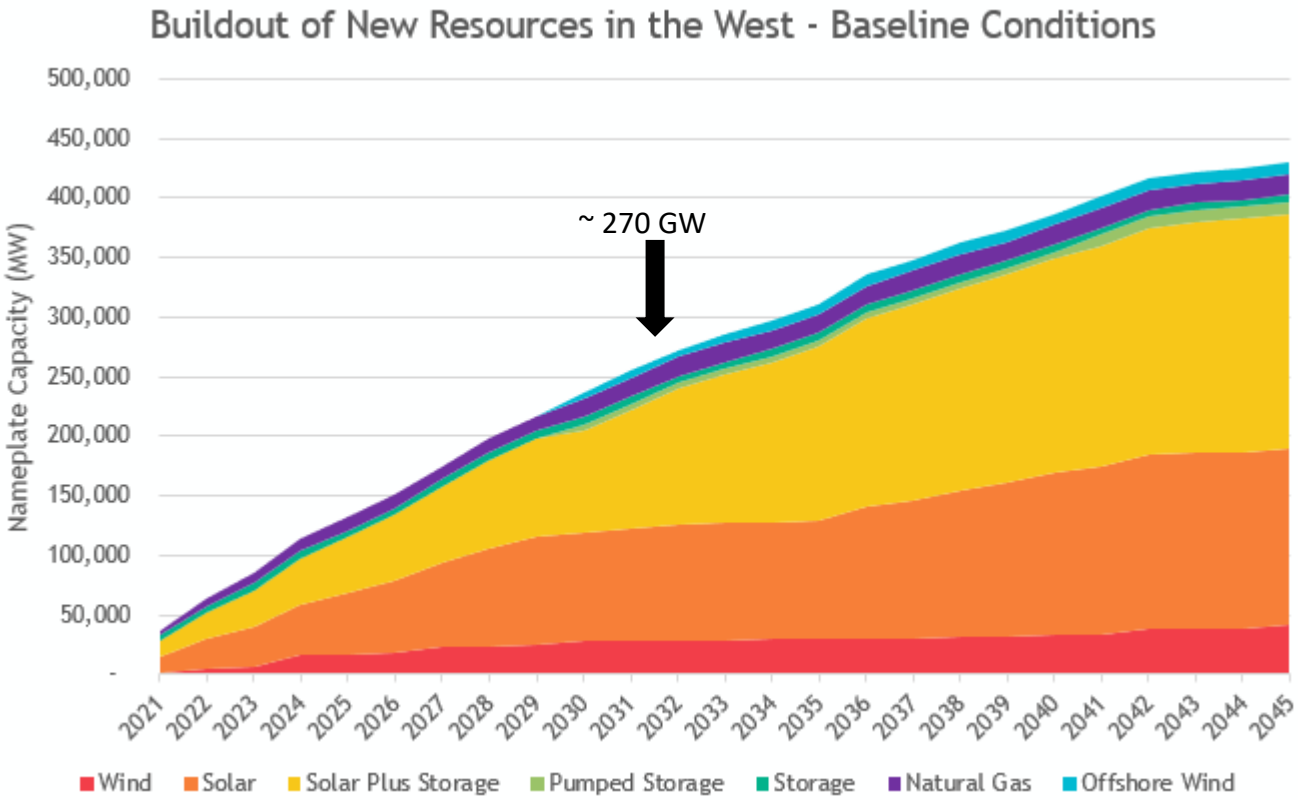
Data Source: WECC Resource List, 4/31/21

Data Source: WECC State of the Interconnect

Potential Buildout* of New Resources – Region & WECC

Roughly 5 GW of new renewable resources acquired in Pacific Northwest (Power Act Region) in the action plan period





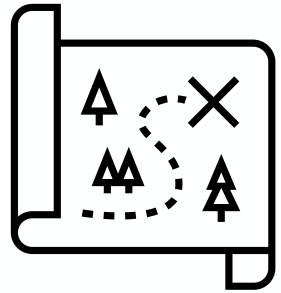
Roughly 200 GW of new resources acquired across the WECC by 2028
(For reference, the installed nameplate capacity in 2020 was ~270 GW)

*Analyses from draft 2021 Power Plan, baseline conditions

Integrated Resource Plans

Aggregate of US WECC-wide (portion of) and region-wide identified new resources

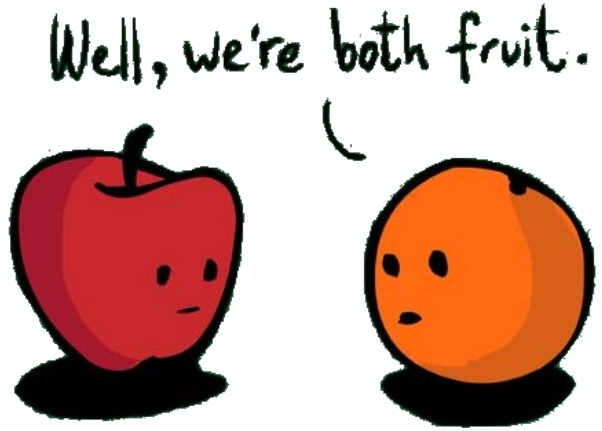
What is an IRP?



- An Integrated Resource Plan is a utility's roadmap to understand and plan for future resource needs
- Least-cost, least-risk analysis includes:
  - Load and resource balance
  - Forecast of future demand, fuel prices, market
  - Cost and availability of new energy efficiency and generating resources
  - Various scenarios
- Action plan (2 – 5 years), along with a long-term strategy (20+ years)
- IRPs are developed every 2-3 years; continuous evolution
- Extensive stakeholder outreach and engagement
- IRPs tied to procurement requests

Each utility is unique – aka "caveats"

- Every utility is unique, and thus every IRP is unique
- When aggregating identified resource needs, it is important to keep in mind that IRPs are reflective of a moment in time – some are pre- "clean policy" and are being updated (but not available yet)
- Utilities have different ways of structuring IRPs
  - Some IRPs have very specific resources and dates, some have ranges
  - Staff has made assumptions in order to aggregate
- Most "certainty" in action plan period – typically the next 2-5 years; some utilities do not provide resource acquisition estimates beyond that



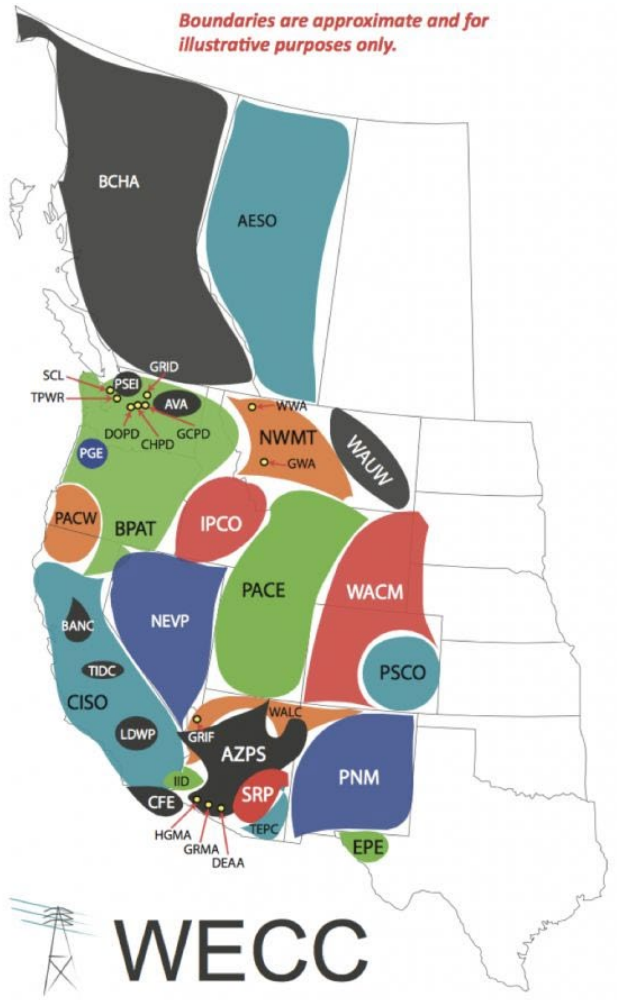
❖ The Council's power plan is not intended to be compared with aggregate regional or western-interconnect IRPs; rather, it is a good reference check

- ❖ We coordinate with WECC-wide stakeholders to ensure we are representing external to the region loads, policies, planned retirements, and resource limitations in our price forecast

IRPs Aggregated in Analysis

IRP or Bulk Procurement Request	Latest IRP/IRP Update
Avista	April 2021
Puget Sound Energy	April 2021
Idaho Power	Oct 2020
NorthWestern Energy	Dec 2020
PacifiCorp	Oct 2019
Portland General Electric	Jan 2021
Arizona Public Service	June 2020
Nevada Energy	Dec 2019
Tucson Electric Power	June 2020
Public Service of Colorado (Xcel)	March 2021
El Paso Electric Co	Jan 2019
Public Service of New Mexico	Jan 2021
California CEC IRP/CPUC Procurements*	2020/2021

Sales from these utilities represent about ~ **70%** portion of US WECC



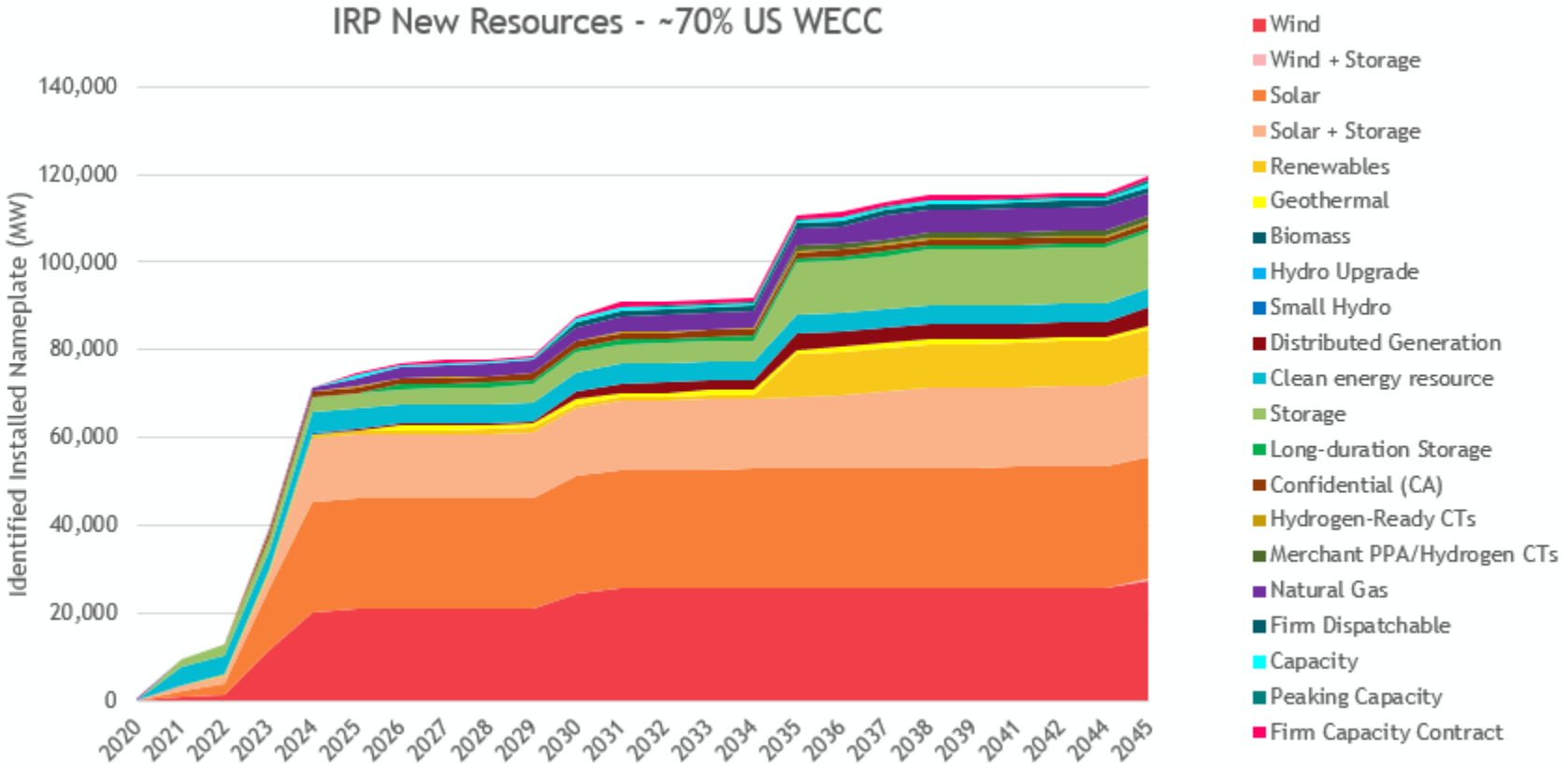
Source: Western Electricity Coordinating Council

* The California Energy Commission (CEC) develops a state-wide IRP, followed by the California Public Utilities Commission issuing new procurement estimates for the state's load serving entities

Aggregated Identified New Generating Resource* Needs (Cumulative) - ~70% of US WECC

2022 – 2025 timeframe with most "certainty"

- ~70,000 MW new capacity identified by 2024, of which almost **ALL** is clean or renewable
- ~90,000 MW new capacity identified by 2030
- ~110,000 MW new capacity identified by 2035

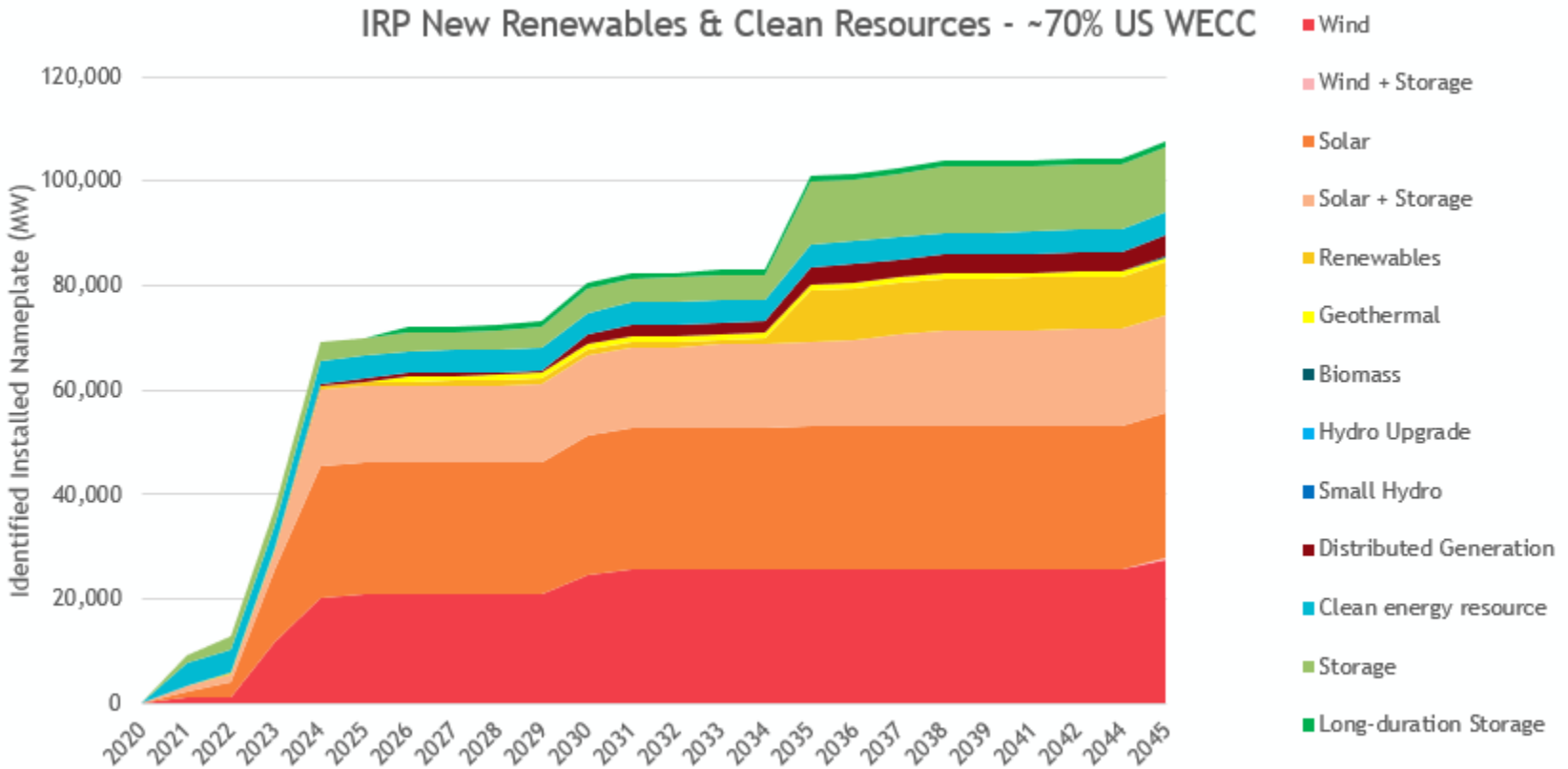


* Aggregation does not include demand-side resources such as energy efficiency, demand response, and in some cases distributed generation

Clean or Renewable

Aggregated Identified New Generating Resource* Needs (Cumulative) - ~70% of US WECC

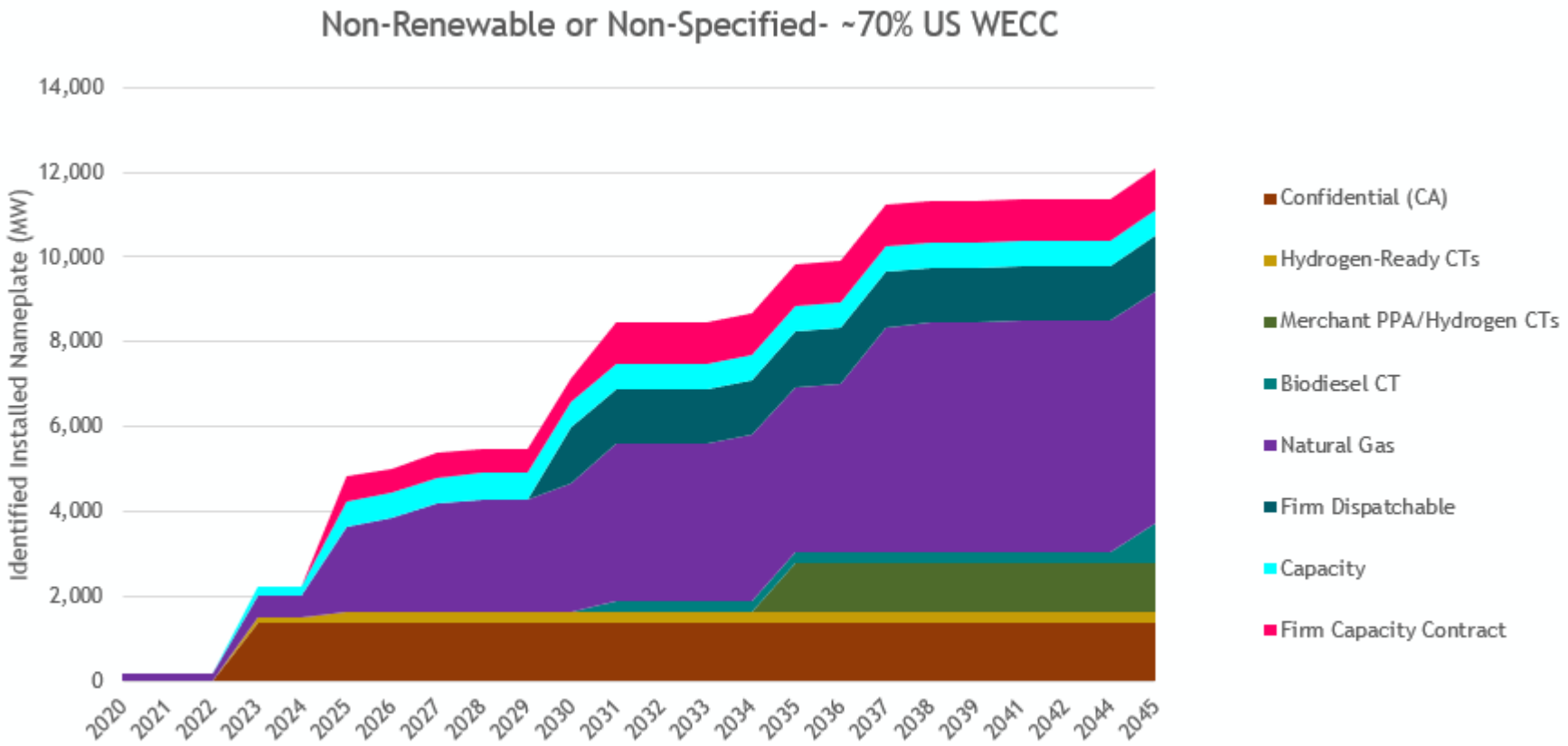
- Significant wind, solar, and solar + storage
- Standalone storage and some clean energy-specified new resources
- Some geothermal and biomass, as well as hydro
- Distributed generation – often rooftop solar
- Repowered wind is not explicitly included in these identified resources



OTHERS

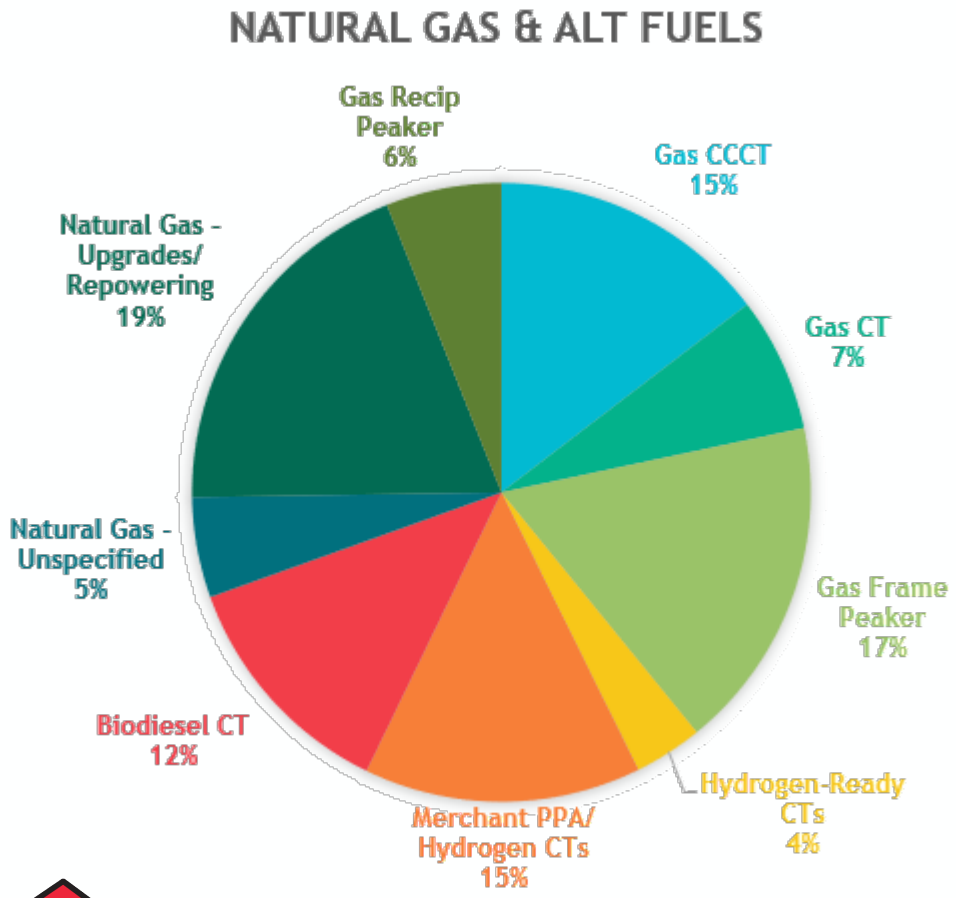
Aggregated Identified New Generating Resource* Needs (Cumulative) - ~70% of US WECC

- Non-specified contracts seeking dispatchable and capacity resources could be met with any combination of technologies including renewables, gas, nuclear, storage, and demand side resources
- Often solicited as an "all source" request for proposals

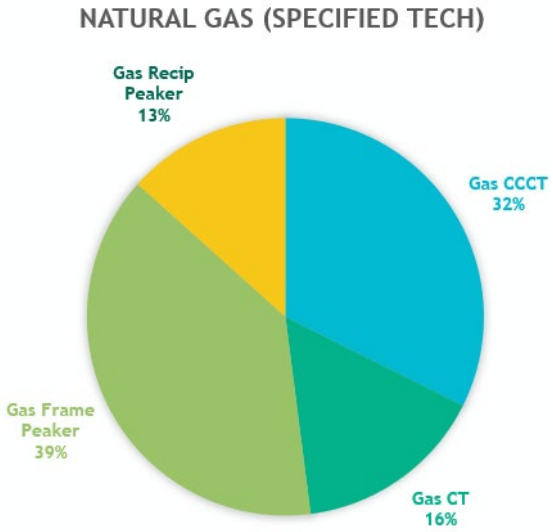


Gas & Alt. Fuel

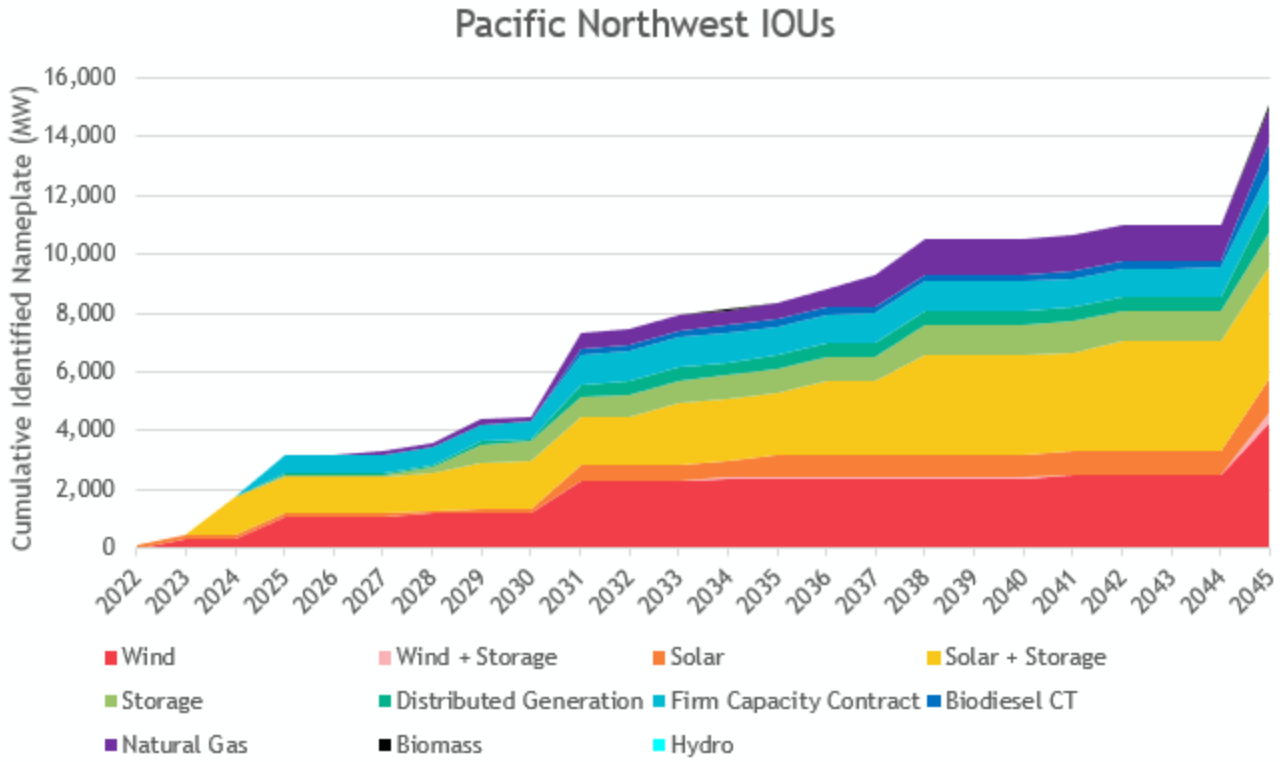
Aggregated Identified New Generating Resource* Needs (Cumulative) - ~70% of US WECC



- California – no new natural gas, but ~1,500 MW of efficiency improvements, repowering, and expansions at existing plants
- Introduction of alternative fueled combustion turbines
- Of the new natural gas (specified technology), about 32% CCCT and 68% gas peakers



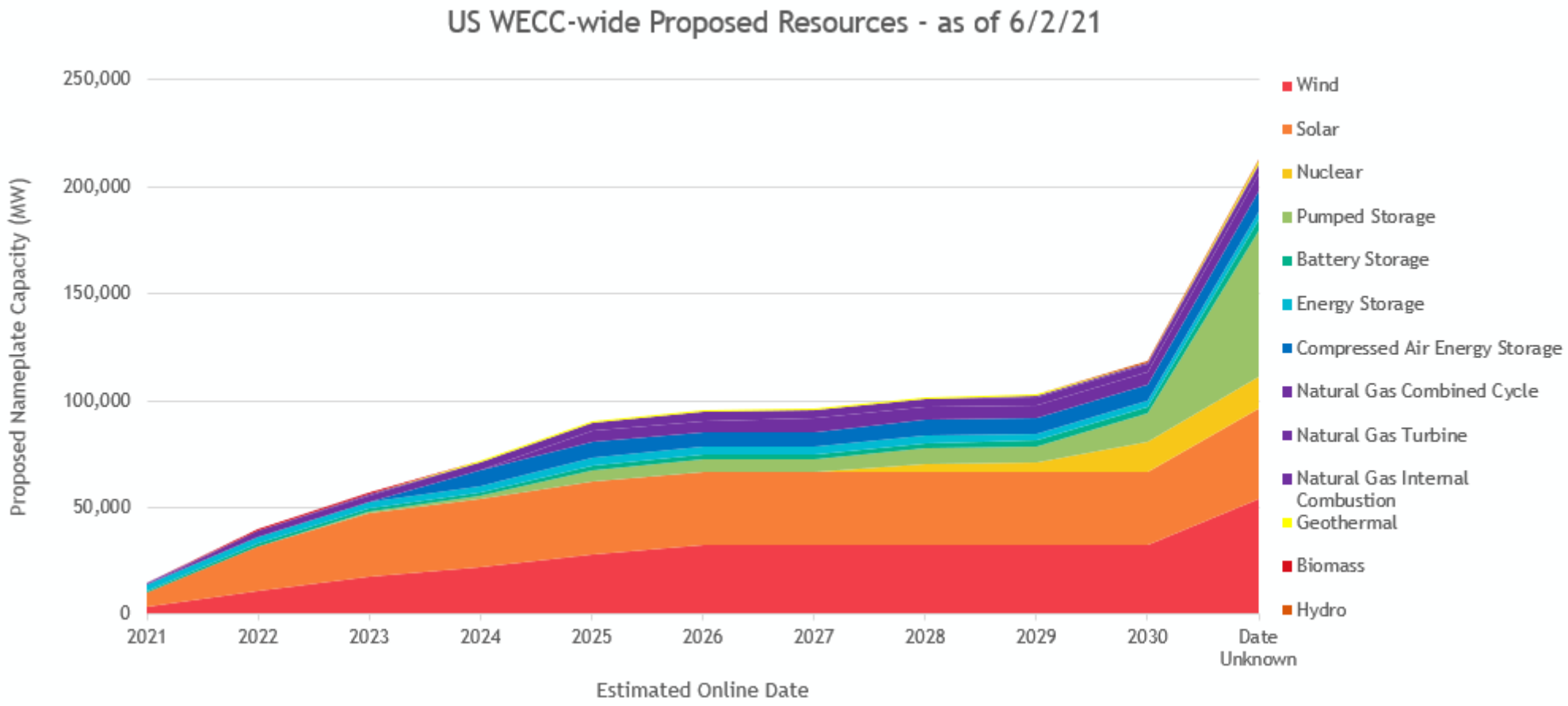
Aggregated Identified IOU New Generating Resource* Needs (Cumulative) – Power Act Region



* Aggregation does not include demand-side resources such as energy efficiency, demand response, and in some cases distributed generation

Proposed Project Dev’t Queue

Proposed Projects in the Development Pipeline (Completely separate from IRP data)



Data compiled from S&P Global


Questions?