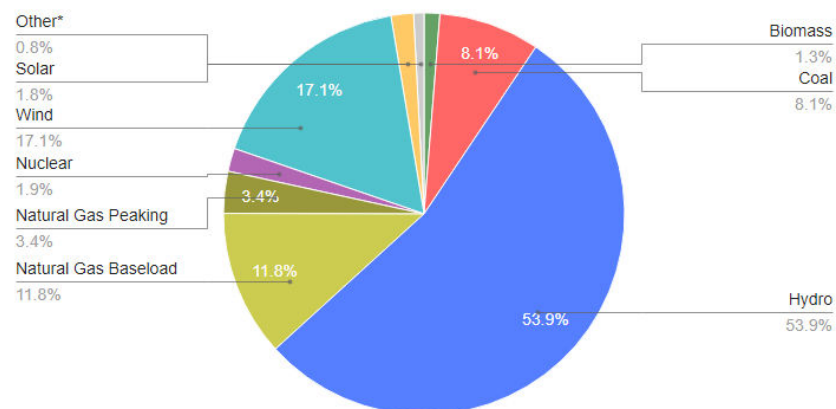


Pacific Northwest Electricity Supply

1

Nameplate Capacity

Pacific Northwest Generating Capacity: 64,340 mw*

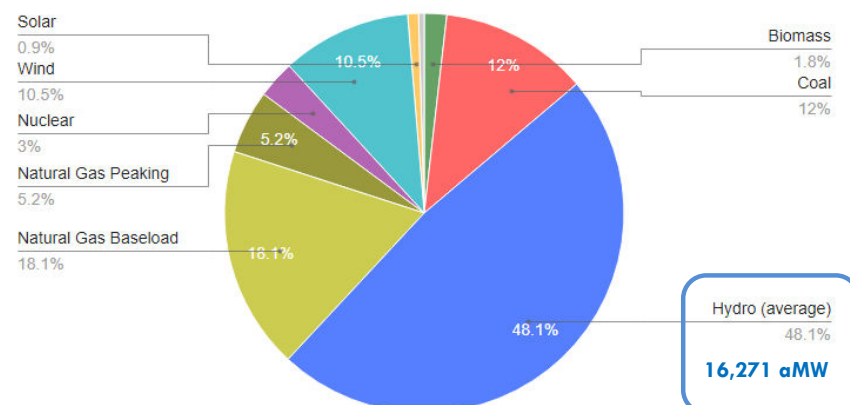


Capacity is essentially the 'horsepower' rating of power plants, or how much they are designed to produce at full load operation. Download chart as PNG

* Other includes geothermal, petroleum, and solar

Annual Energy Production

Pacific Northwest Generating Capacity: 33,828 MWa*



Capability is the maximum amount of energy the plants are capable of producing over the course of an average year. Download chart as PNG

* Other (yellow segment) includes geothermal, petroleum, and solar

Source: <https://www.nwcouncil.org/energy/energy-topics/power-supply>

BPA Hydro: Firm Energy is Spoken For

2

SONNEVILLE POWER ADMINISTRATION

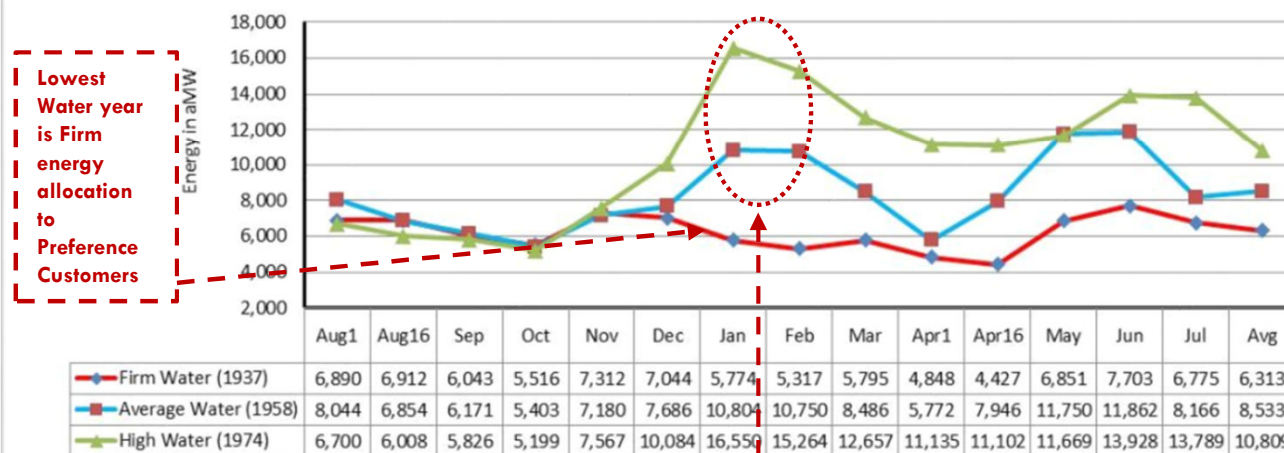
2022 Pacific Northwest
Loads and Resources Study

July 2022



Table 2-9

Federal System
Variability of Monthly Hydro Generation
OY 2023
Under Different Water Conditions



1. Firm energy already fully allocated to Preference Customers;
NO HYDRO LEFT FOR INCREASING ELECTRICITY DEMAND

2. In **Average & High** water years, surplus hydropower is sold
into power markets which **reduces costs** to Preference
Customers

Lower Snake River Dams: Energy & Capacity

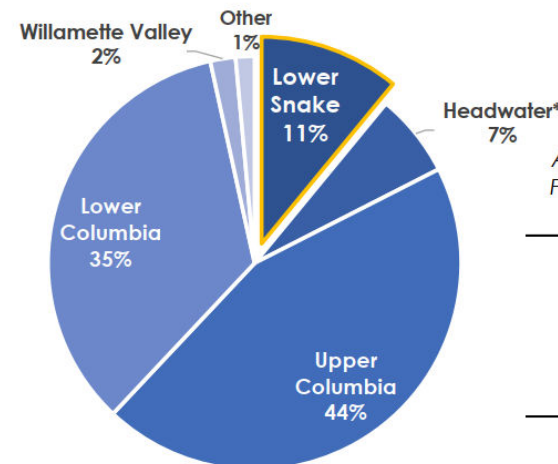
3



Lower Snake River Dams Provide Low Cost Energy and Capacity

The four Lower Snake River Dams (Lower Granite, Little Goose, Lower Monumental and Ice Harbor) have a **combined nameplate capacity of 3,033 MW**.

On average, the four projects generate **940 aMW**, which is about **11% of the Federal Columbia River Power System**.¹ The Lower Snake River Dams have a **levelized cost of generation of less than \$14/MWh**,² far below the Tier 1 rate of \$36/MWh or the price of market purchases and new renewable resources.



LSRD: 11% of Energy w/ Blackout Insurance

4

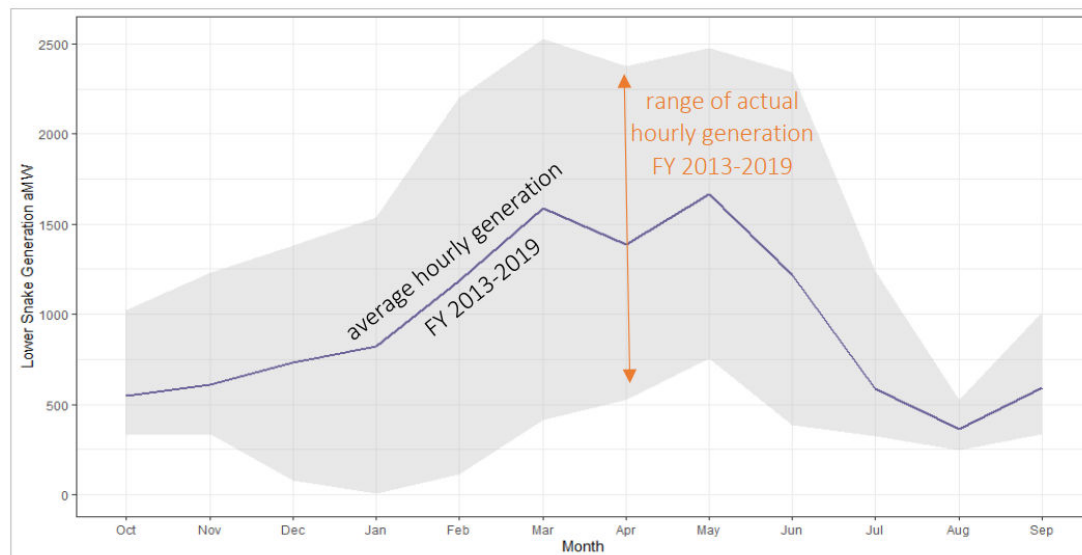
AUTOMATIC GENERATION CONTROL ON FEDERAL DAMS



Automatic Generation Control allows federal hydro operators to use the lower Snake River dams to meet electricity demands minute-to-minute while using the Columbia River dams to support wind power. There are 31 federal dams in the Northwest; the 10 largest have AGC capability.

Source: BPA Fact Sheet March 2016

- ✓ 4 of 10 federal dams with automatic generation control
- ✓ Minute-to-Minute Demand/Supply Balancing
- ✓ 25% of BPA Operating Reserves (Blackout Insurance)
- ✓ Critical winter energy capability & voltage support on BPA transmission system

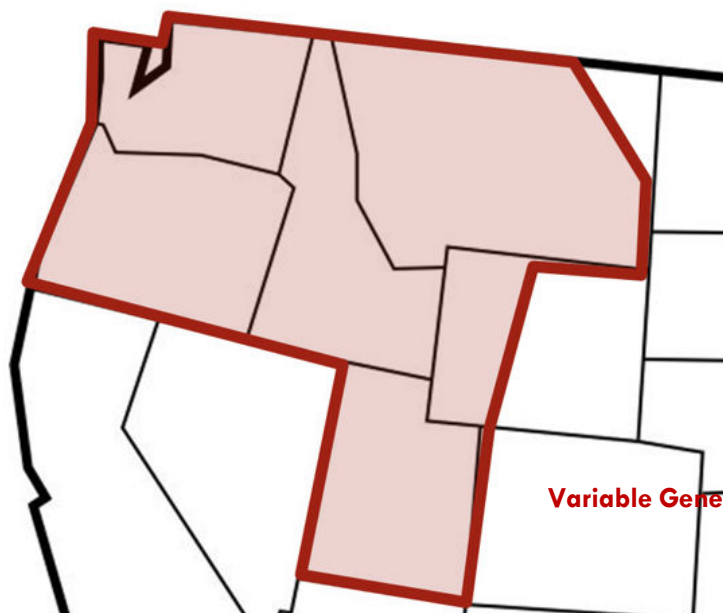


Source: [USACE Water Control Data](#)

“Effective” Capacity Resources in PNW

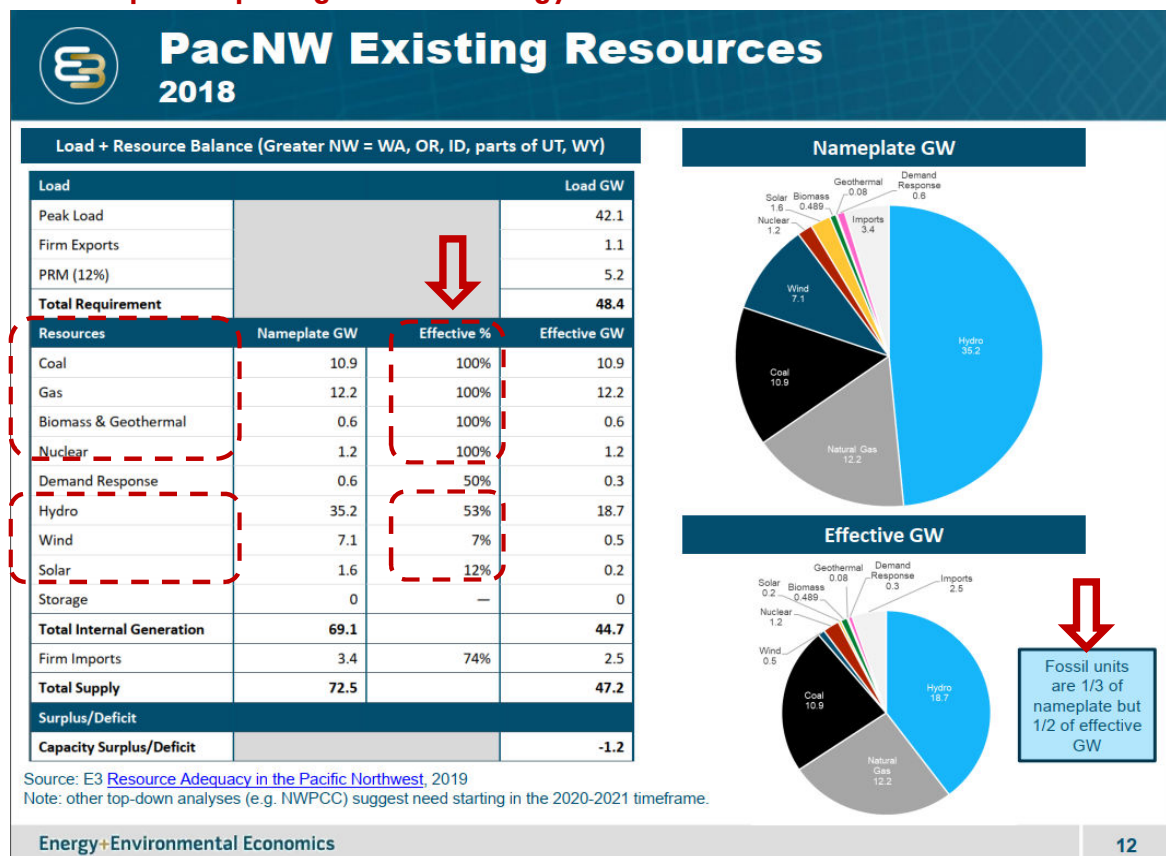
5

Study was provided to WA State Legislature & Governor’s Office prior to passage of Clean Energy Transformation Act



Variable Generation

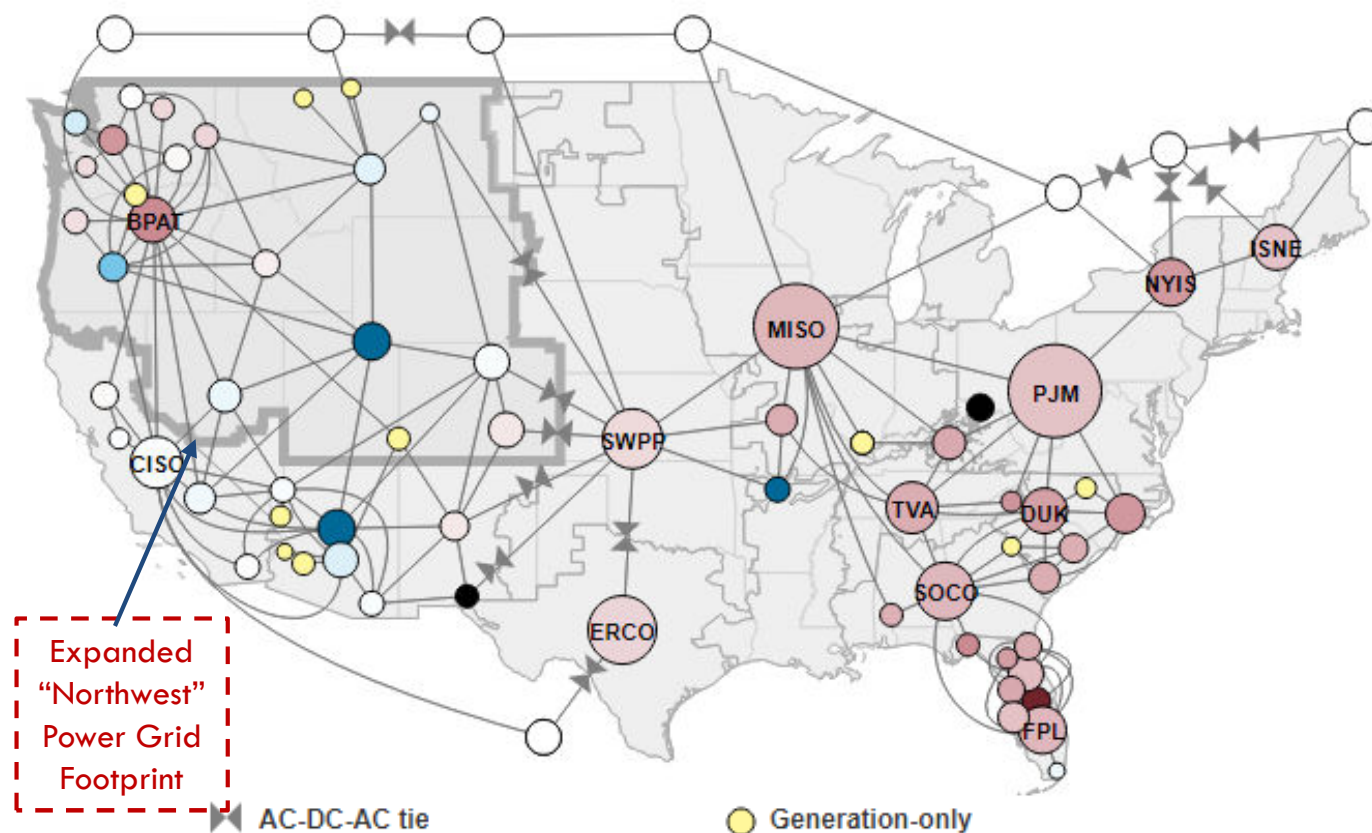
Balancing Authority Areas include: Avista, Bonneville Power Administration, Chelan County PUD, Douglas County PUD, Grant County PUD, Idaho Power, NorthWestern Energy, PacifiCorp (East & West), Portland General Electric, Puget Sound Energy, Seattle City Light, Tacoma Power, Western Area Power Administration



Balancing Authorities Share Capacity & Energy

6

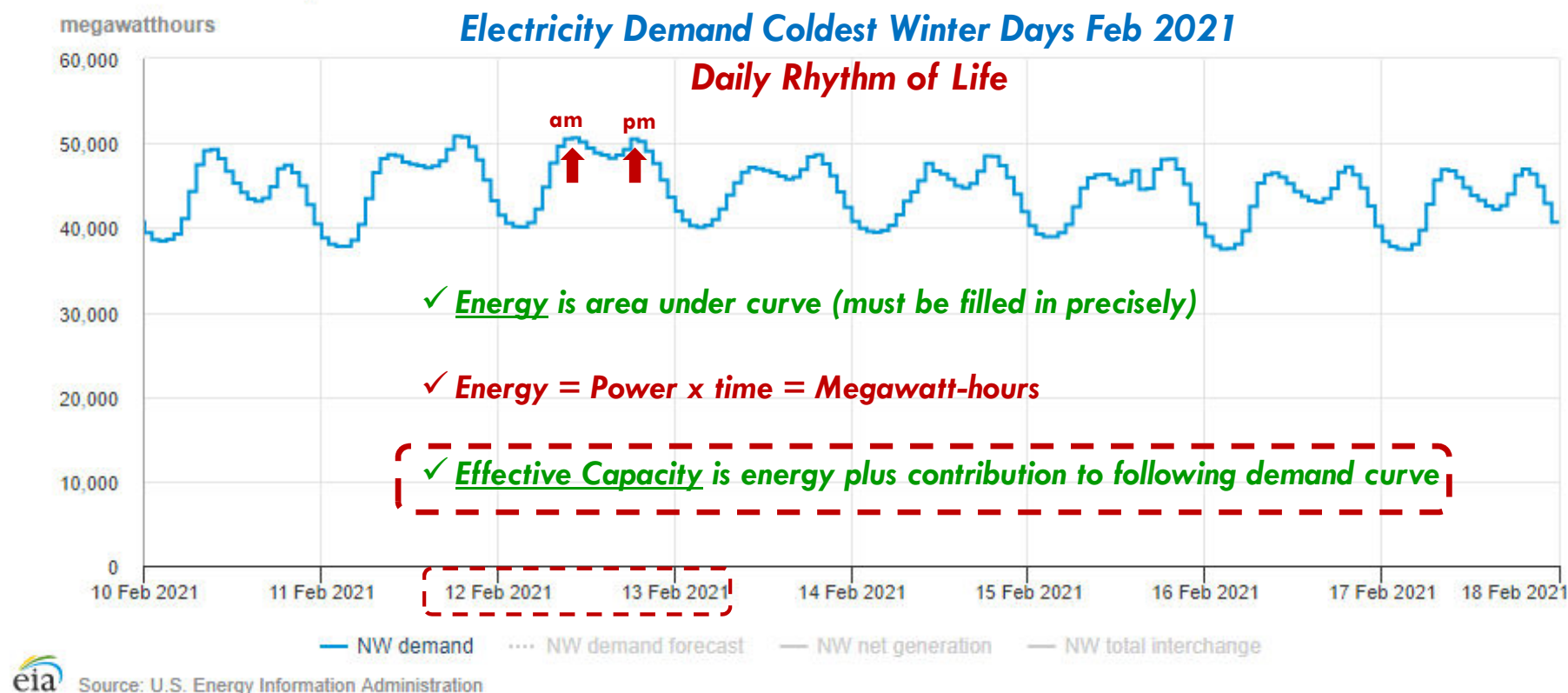
- ✓ **38 Balancing Area Authorities** in Western Power Grid
- ✓ High level of operational coordination
- ✓ Maintain demand (Load) & supply (Resource) balance through scheduled generation imports and exports



Hydro Dominates Demand/Supply Balance in NW

7

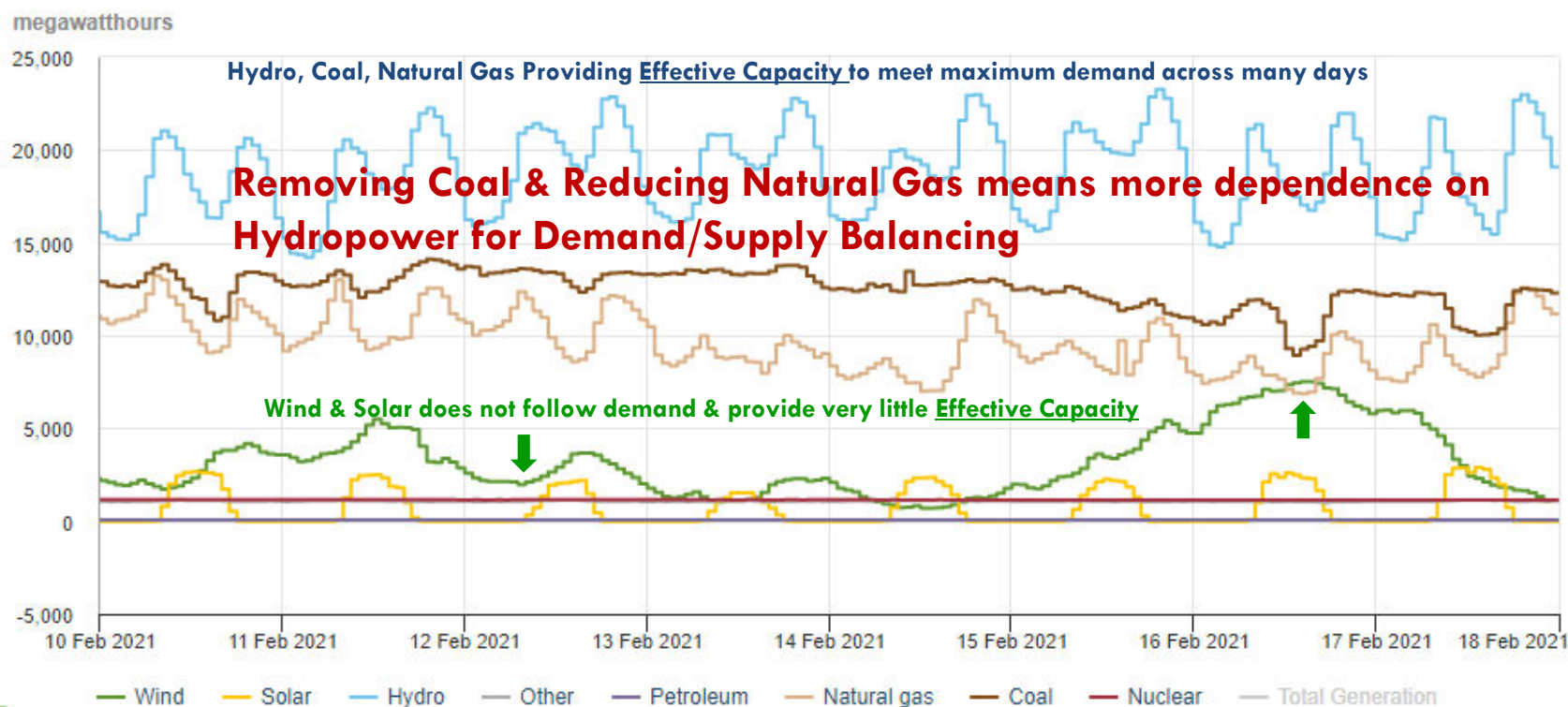
Northwest (NW) region electricity overview (demand, forecast demand, net generation, and total interchange)
2/10/2021 – 2/17/2021, Mountain Time



Hydropower: Dominates Demand/Supply Balance in NW

8

Northwest (NW) region electricity generation by energy source 2/10/2021 – 2/17/2021, Mountain Time

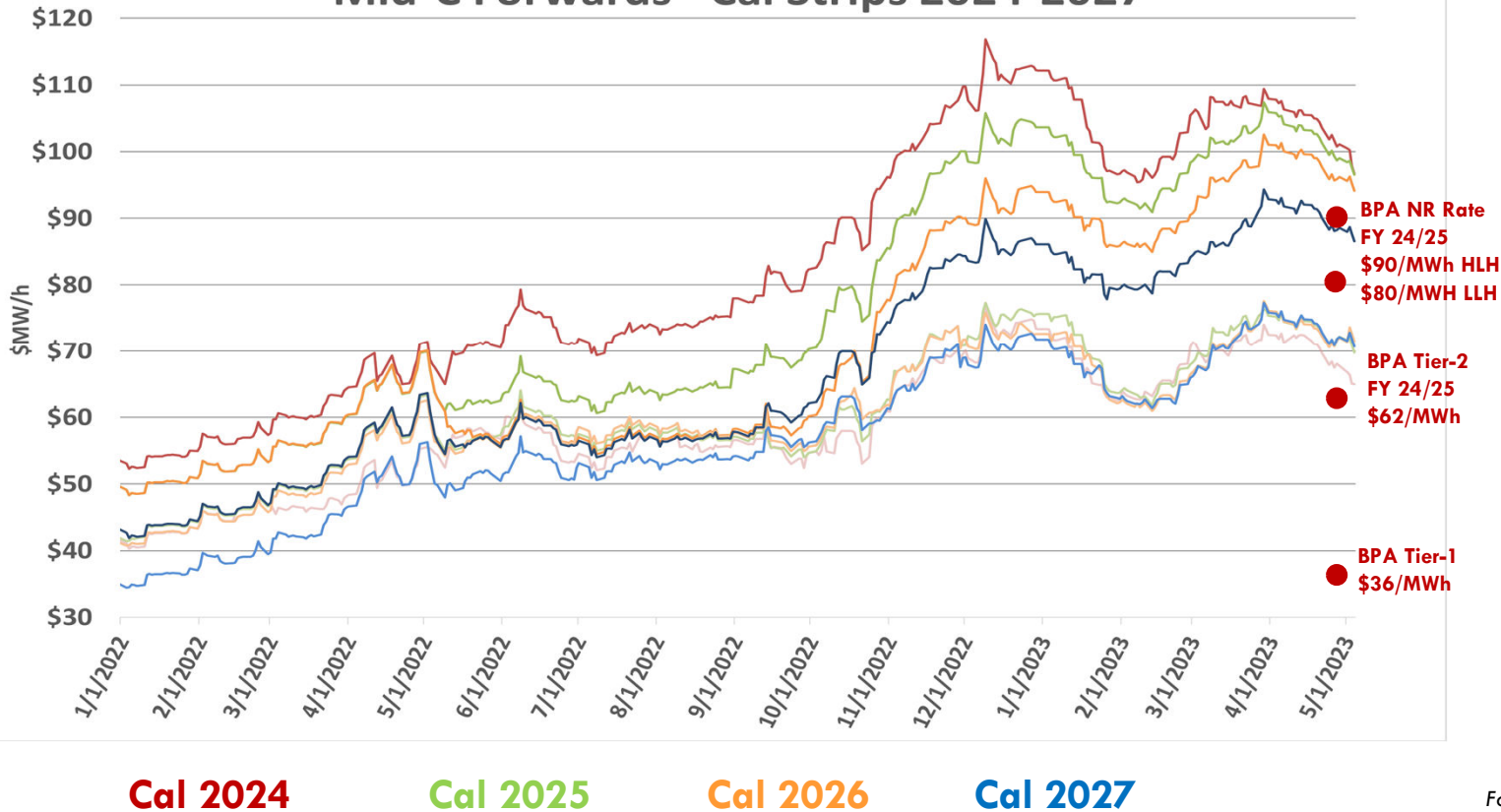


Source: U.S. Energy Information Administration

Northwest Power Market Forward Calendar Strip Price Curves

9

Mid-C Forwards - Cal Strips 2024-2027



Strip	Peak	Off Peak
2017	25.53	16.66
2018	36.10	23.72
2019	37.52	33.28
2020	24.57	16.99
2021	56.00	38.00
2022	93.30	68.20
2023	101.06	73.85
2024	96.70	64.98
2025	96.51	69.74
2026	94.11	71.51
2027	86.53	70.69

Forwards are marked by ICE Updated 5/5/2023

Northwest Power Prices Quarterly – 2024

10

