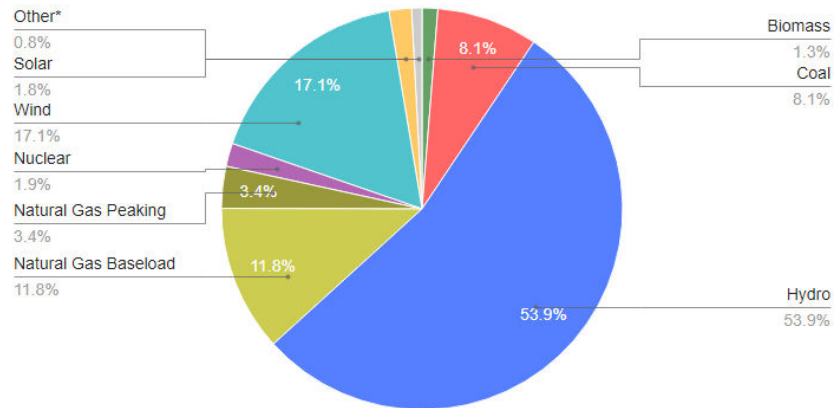


# Pacific Northwest Electricity Supply

1

## Nameplate Capacity

Pacific Northwest Generating Capacity: 64,340 mw\*

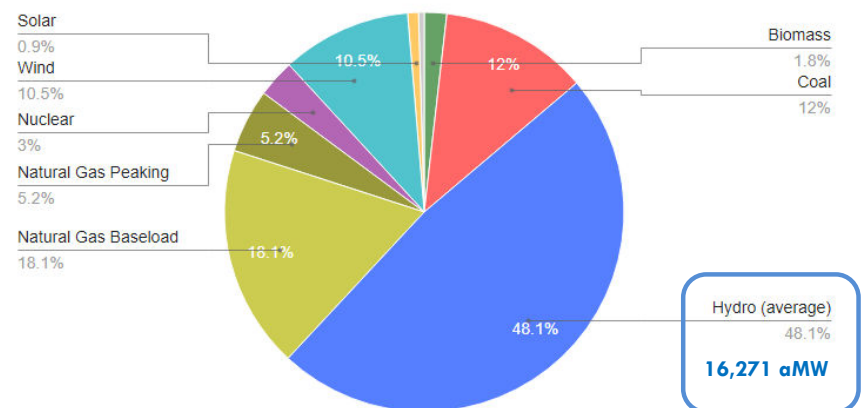


**Capacity** is essentially the 'horsepower' rating of power plants, or how much they are designed to produce at full load operation. Download chart as PNG

\* Other includes geothermal, petroleum, and solar

## Annual Energy Production

Pacific Northwest Generating Capacity: 33,828 MWa\*



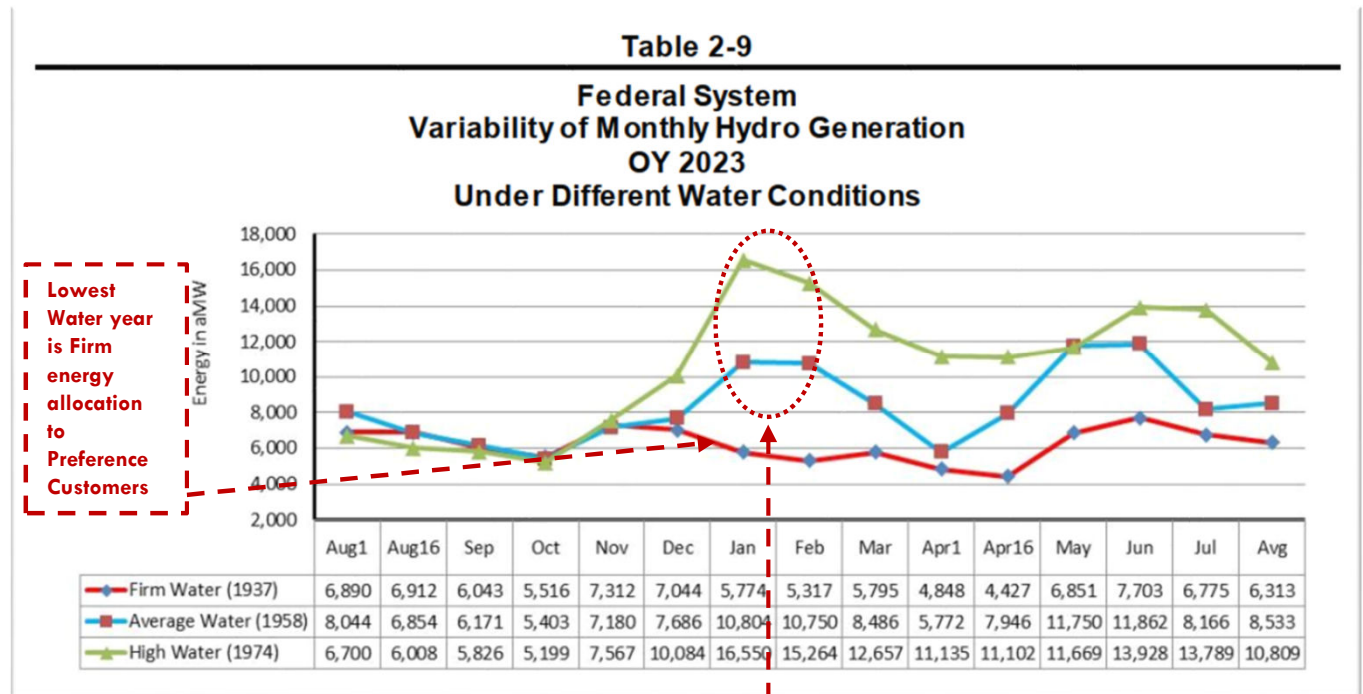
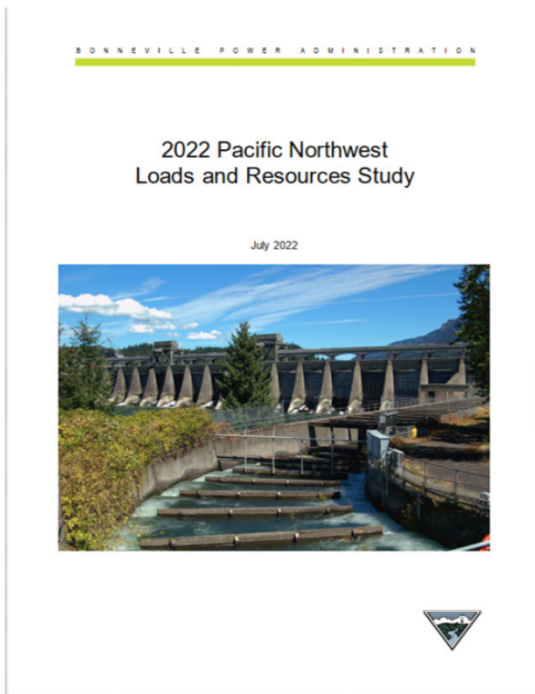
**Capability** is the maximum amount of energy the plants are capable of producing over the course of an average year. Download chart as PNG

\* 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



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

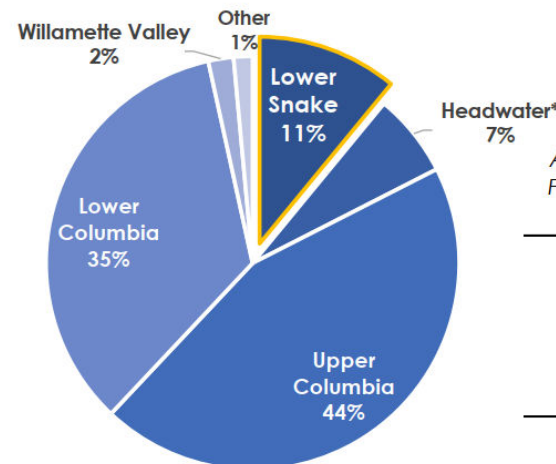
3



## 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**.<sup>1</sup> The Lower Snake River Dams have a **levelized cost of generation of less than \$14/MWh**,<sup>2</sup> far below the Tier 1 rate of \$36/MWh or the price of market purchases and new renewable resources.



Average Annual Generation from the Federal Columbia River Power System

Project Basin	aMW
Lower Snake	940
Headwater *	559
Upper Columbia	3,814
Lower Columbia	2,958
Willamette Valley	169
Other	126
<b>TOTAL</b>	<b>8,567</b>

# LSRD: 11% of Energy w/ Blackout Insurance

4

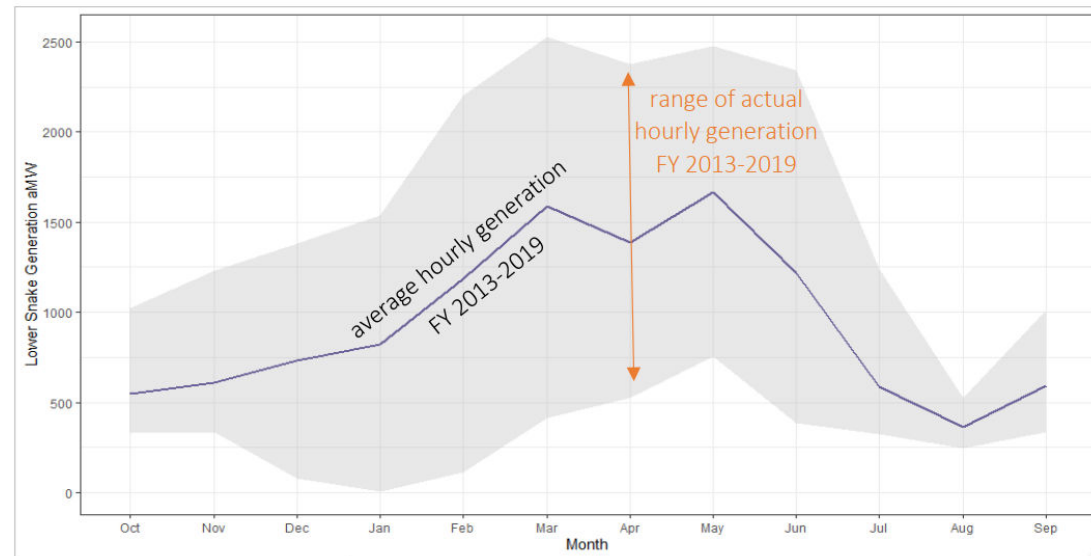
## AUTOMATIC GENERATION CONTROL ON FEDERAL DAMS



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



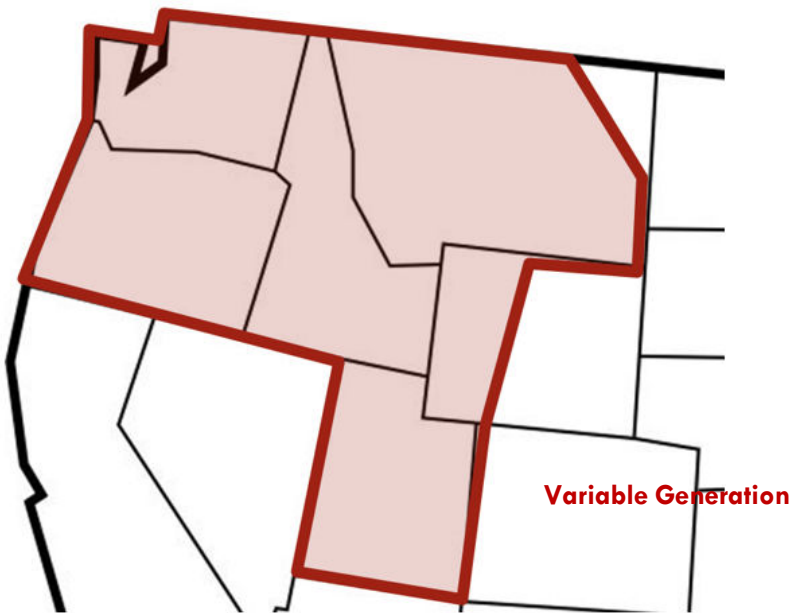
Source: [USACE Water Control Data](#)



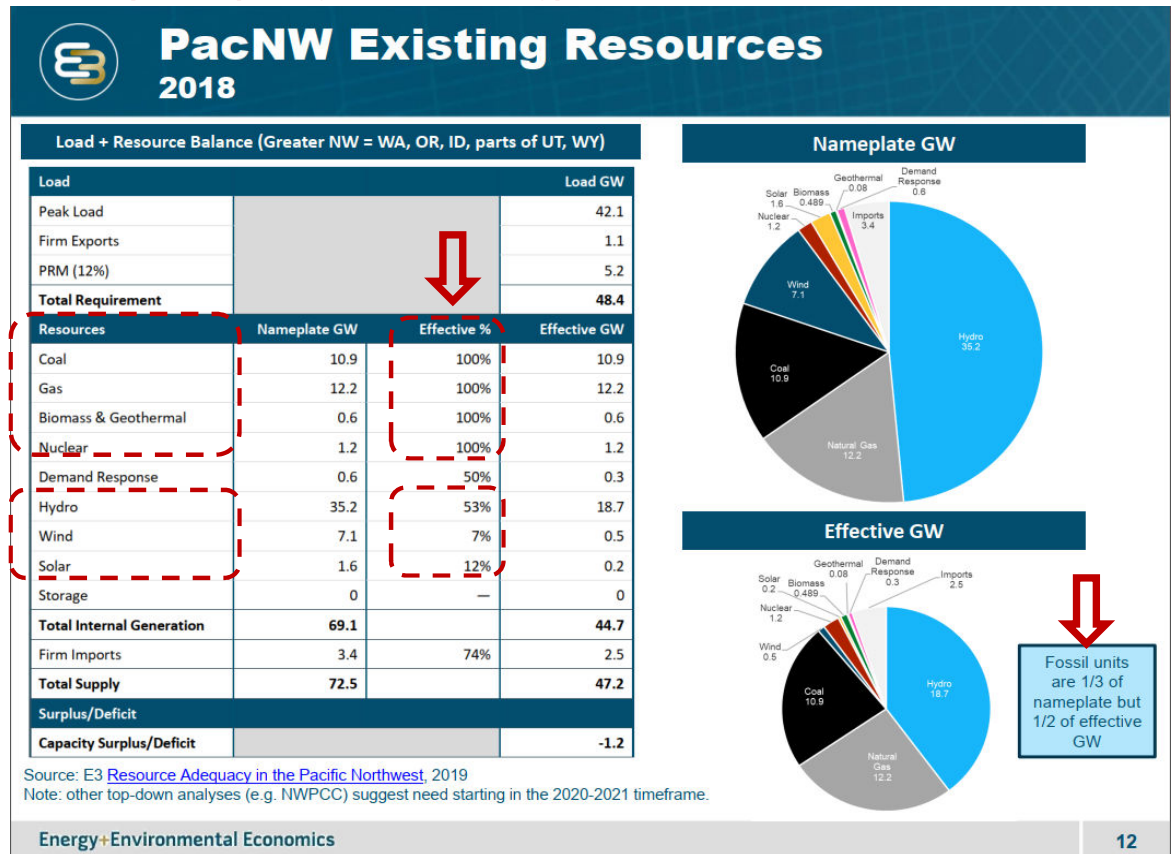
# “Effective” Capacity Resources in PNW

5

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



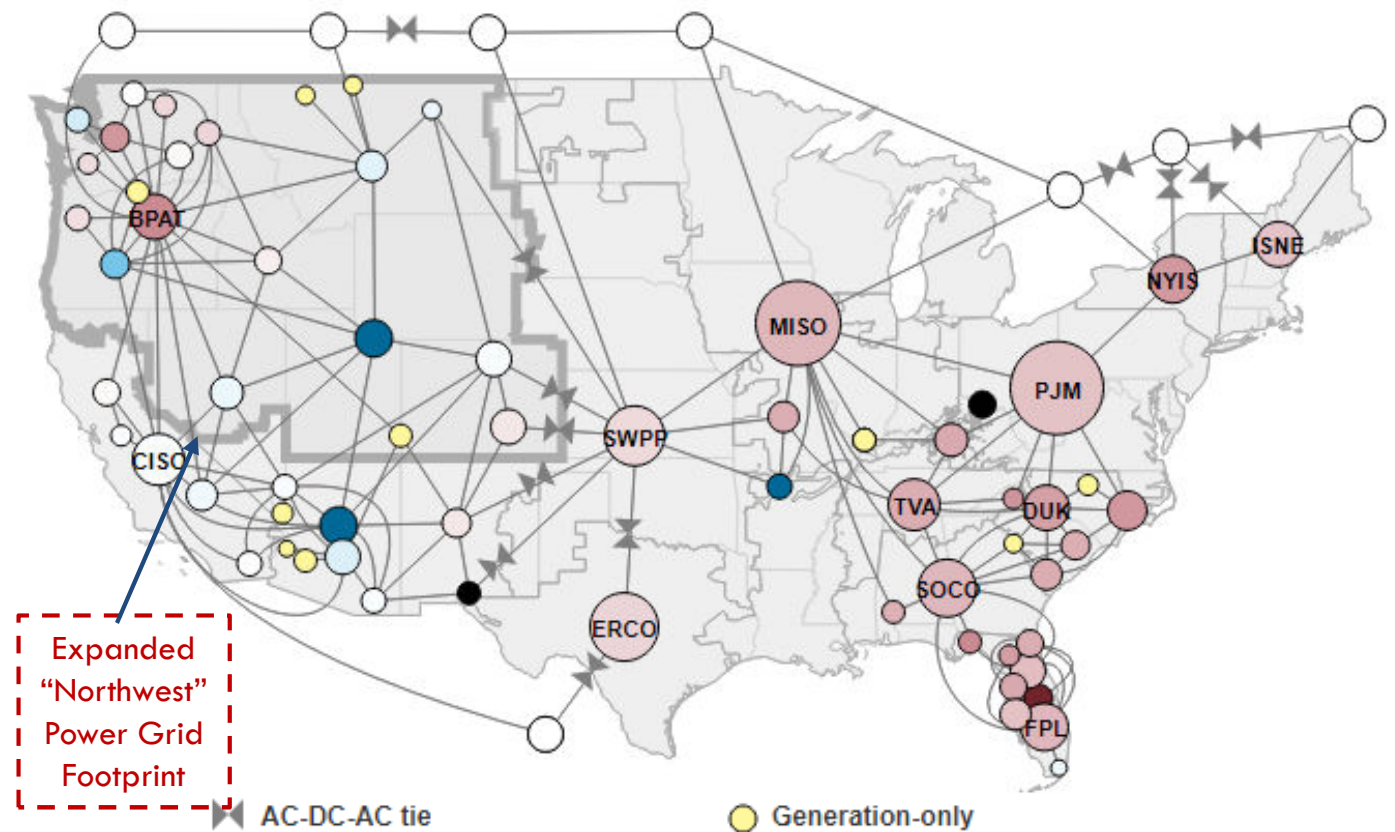
Balancing Authority Areas include: *Avista, Bonneville Power Administration, Chelan County PUD, Douglas County PUD, Grant County PUD, Idaho Power, NorthWestern Energy, PacifiCorp (East & West), Portland General Electric, Puget Sound Energy, Seattle City Light, Tacoma Power, Western Area Power Administration*



# Balancing Authorities Share Capacity & Energy

6

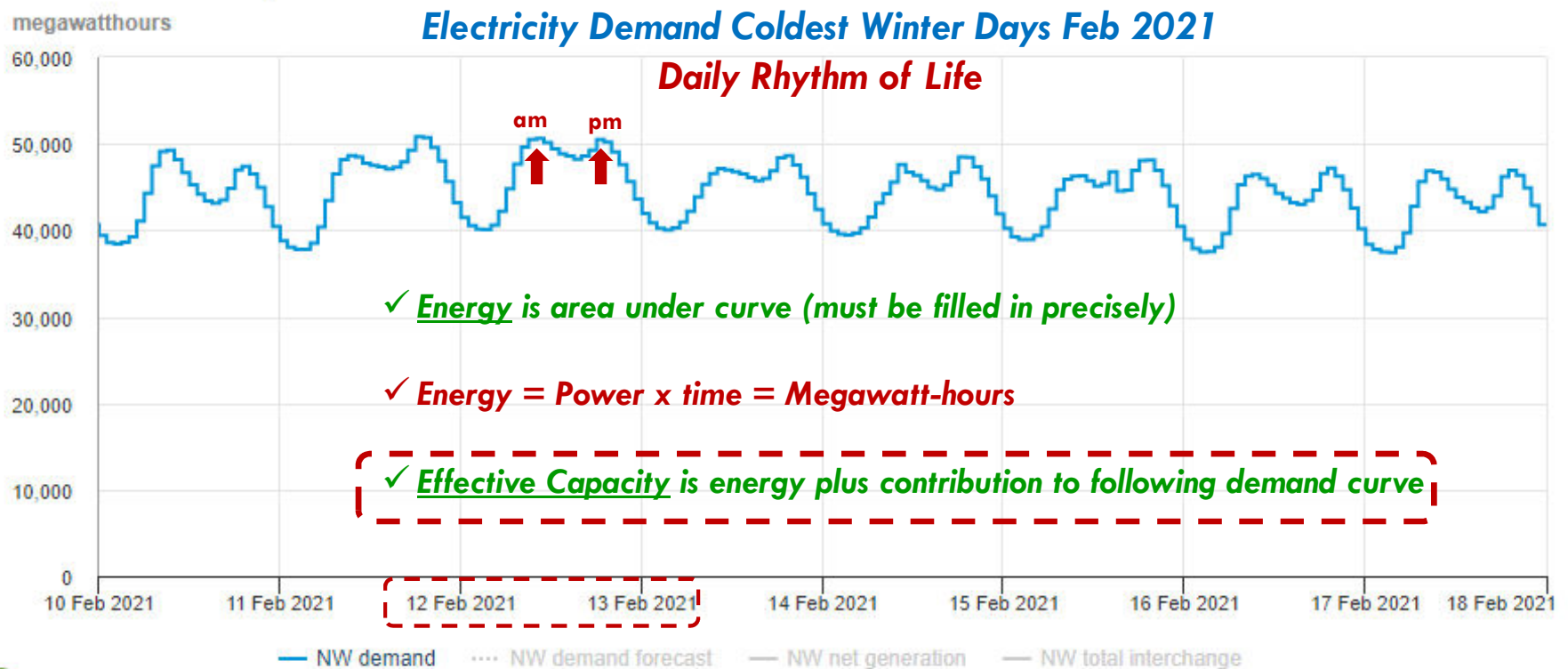
- ✓ **38 Balancing Area Authorities** in Western Power Grid
- ✓ High level of operational coordination
- ✓ Maintain demand (Load) & supply (Resource) balance through scheduled generation imports and exports



# 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

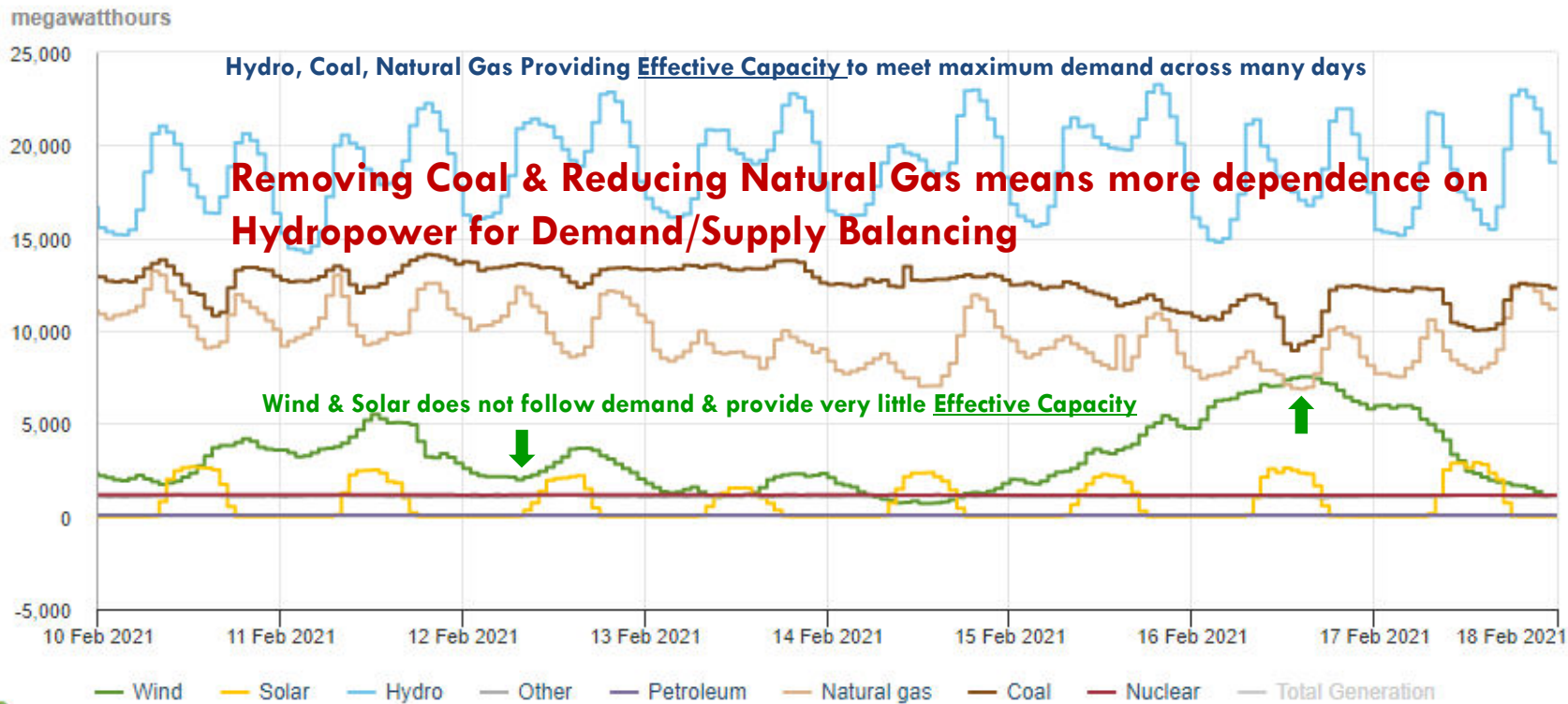


 Source: U.S. Energy Information Administration

# Hydropower: Dominates Demand/Supply Balance in NW

8

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

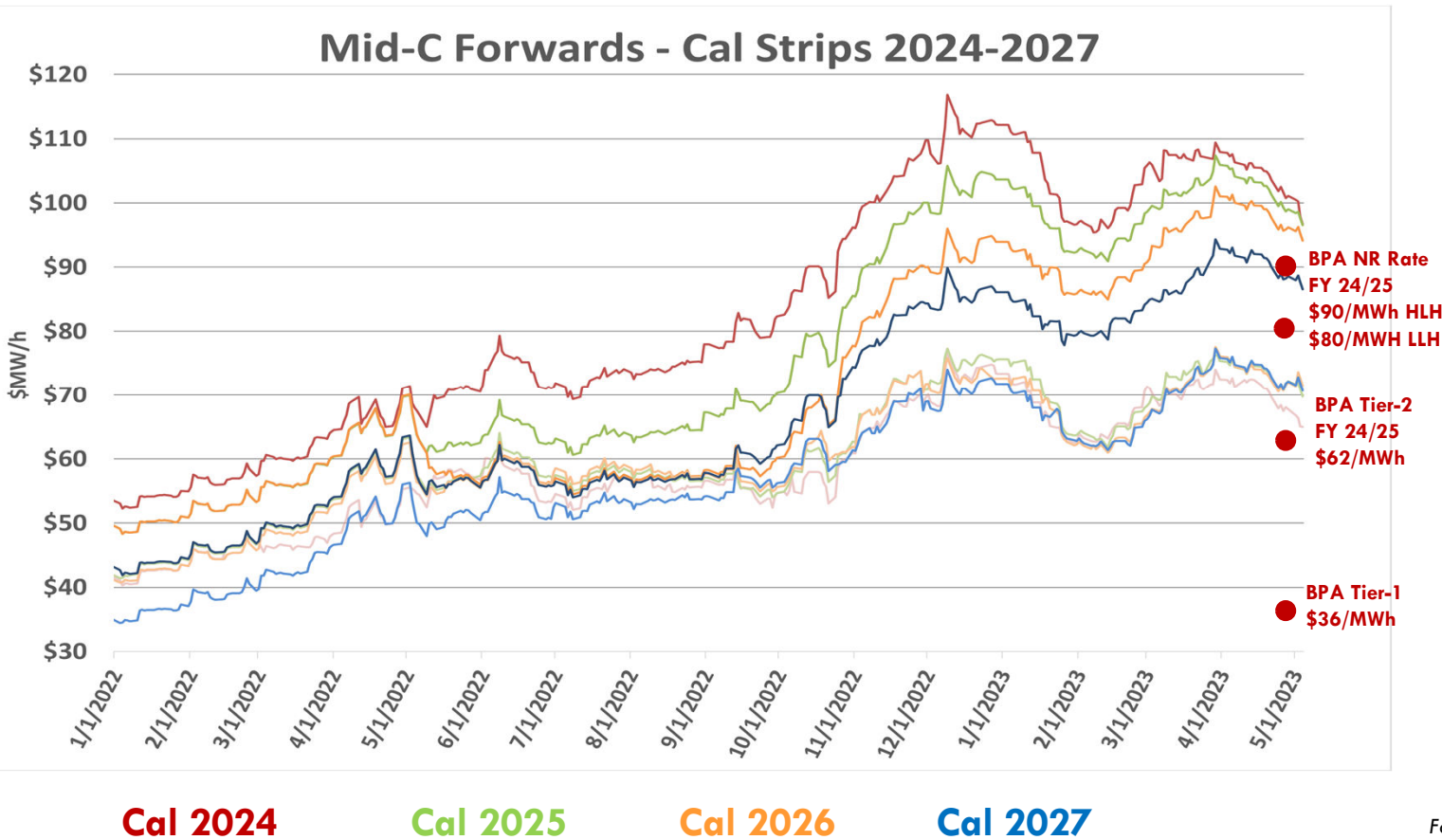


Source: U.S. Energy Information Administration



# Northwest Power Market Forward Calendar Strip Price Curves

9



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
<b>2023</b>	<b>101.06</b>	<b>73.85</b>
<b>2024</b>	<b>96.70</b>	<b>64.98</b>
<b>2025</b>	<b>96.51</b>	<b>69.74</b>
<b>2026</b>	<b>94.11</b>	<b>71.51</b>
<b>2027</b>	<b>86.53</b>	<b>70.69</b>

Forwards are marked by ICE Updated 5/5/2023

# Northwest Power Prices Quarterly – 2024

10

