OREGON DEPARTMENT OF ENERGY

State of the Energy Sector in the Pacific Northwest

NW Offshore Wind (NOW) Conference

Jason Sierman

January 30, 2024

OREGON DEPARTMENT OF ENERGY

Leading Oregon to a safe, equitable, clean, and sustainable energy future.

Our Mission

The Oregon Department of Energy helps Oregonians make informed decisions and maintain a resilient and affordable energy system. We advance solutions to shape an equitable clean energy transition, protect the environment and public health, and responsibly balance energy needs and impacts for current and future generations.

What We Do

On behalf of Oregonians across the state, the Oregon Department of Energy achieves its mission by providing:

- A Central Repository of Energy Data, Information, and Analysis
- A Venue for Problem-Solving Oregon's Energy Challenges
- Energy Education and Technical Assistance
- Regulation and Oversight
- Energy Programs and Activities

NEED: MORE CLEAN ELECTRICITY AT THE RIGHT TIME & RIGHT PLACE

Common Themes: State, Region, West-Wide

1) Load Growth

- Population Growth
- Data Center Growth (Internet, A.I.)
- Weather (Colder and Hotter Peaks)

2) Extreme Weather Events

- Increased Frequency & Intensity
  - Hotter heat waves
  - Colder cold snaps
  - Changing precipitation
  - Wildfires & windstorms

3) Clean Energy & Climate Policies

- Power Grid Policies
  - Ex. Oregon's 100% Clean x 2040 (HB 2021)
- Economy-wide Policies
  - Ex. Oregon's 90% Decarb x 2050 (ODEQ – CPP)

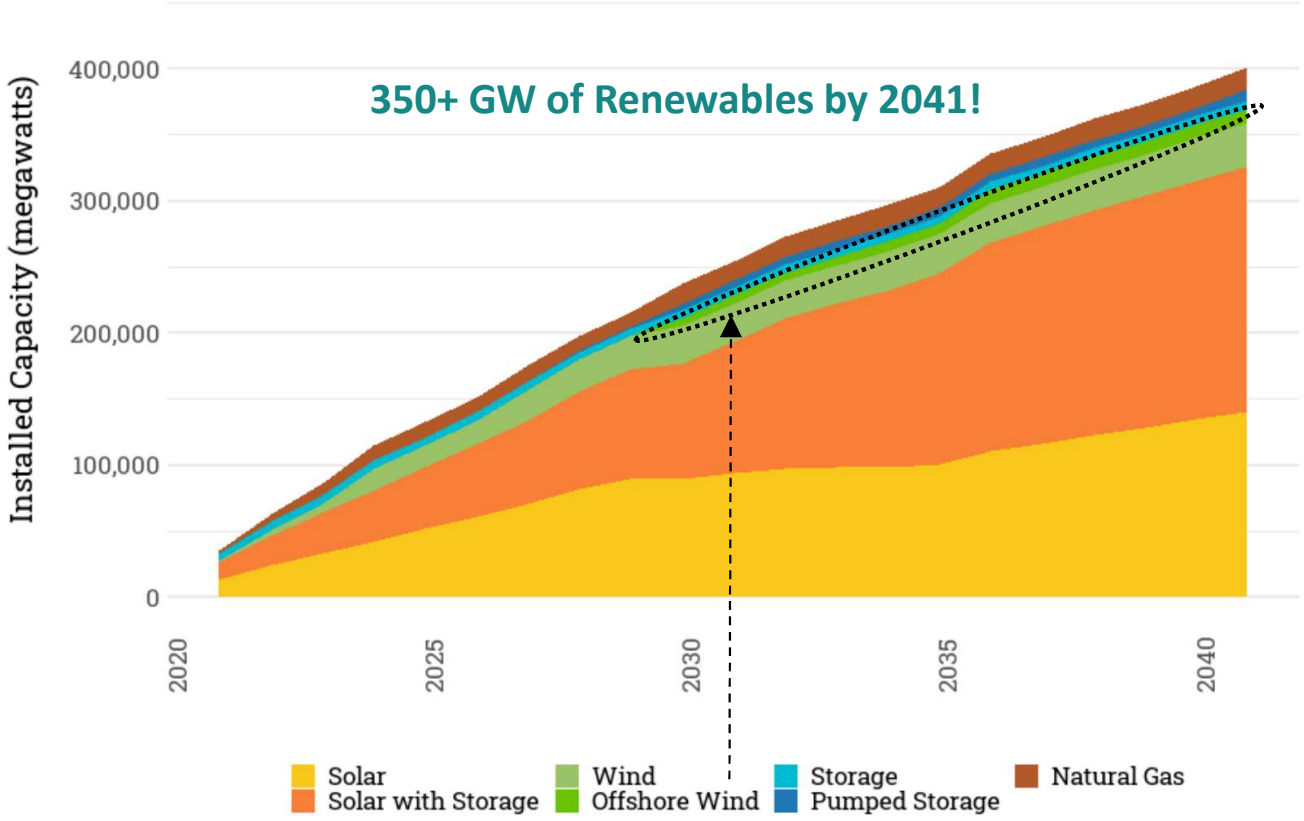
Add'l Load Growth

- Clean Transportation (EVs)
- Clean Buildings (Heat Pumps)

Snapshot of States w/ 100% Clean Energy Targets

**Idaho Power & Avista Targets*

SCALE OF NEED: WEST-WIDE CONTEXT



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

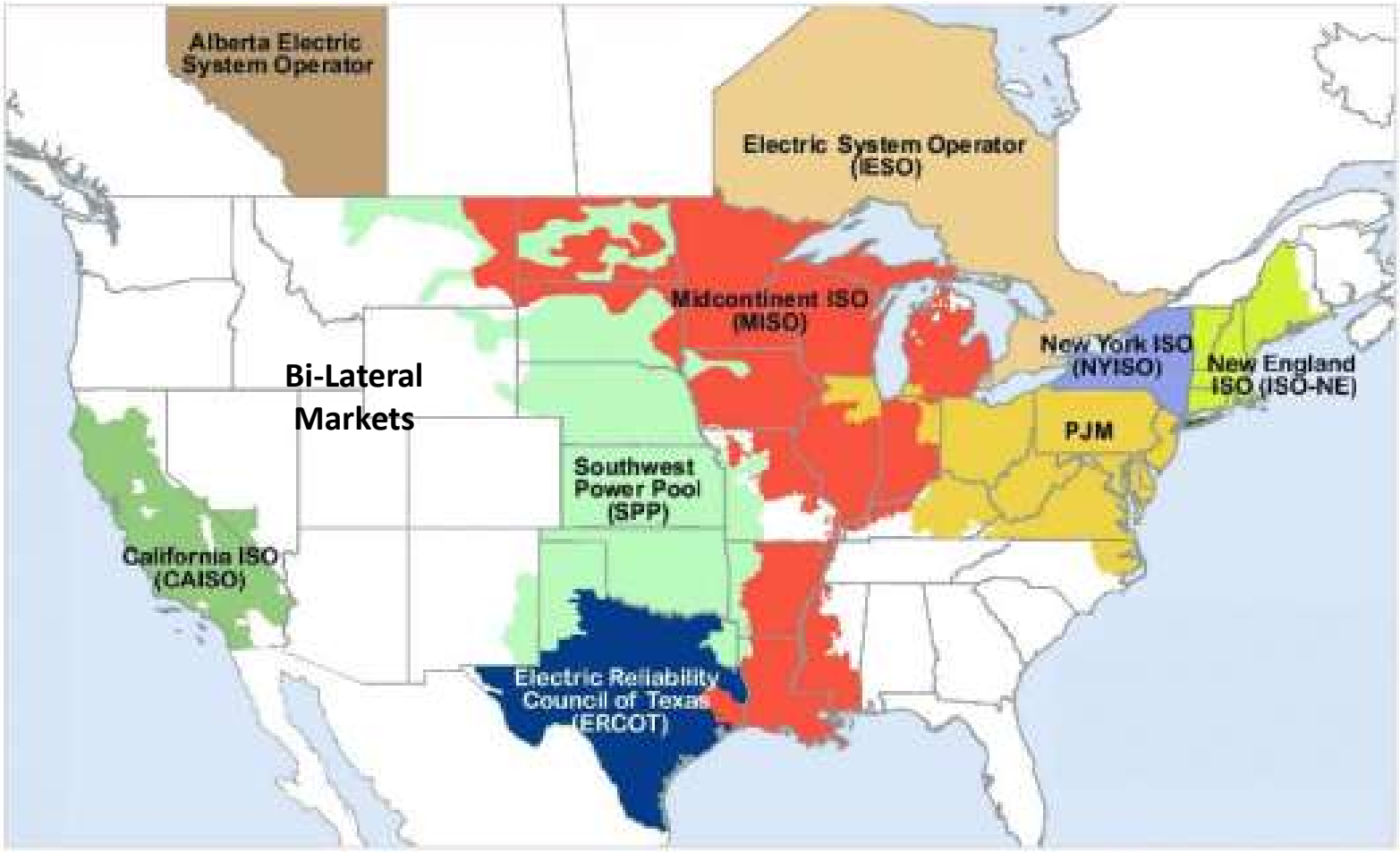
Source, p. 51

West-wide Projection: Baseline projection for what will be required across western states to meet clean energy targets

Diversity is least cost, least risk.

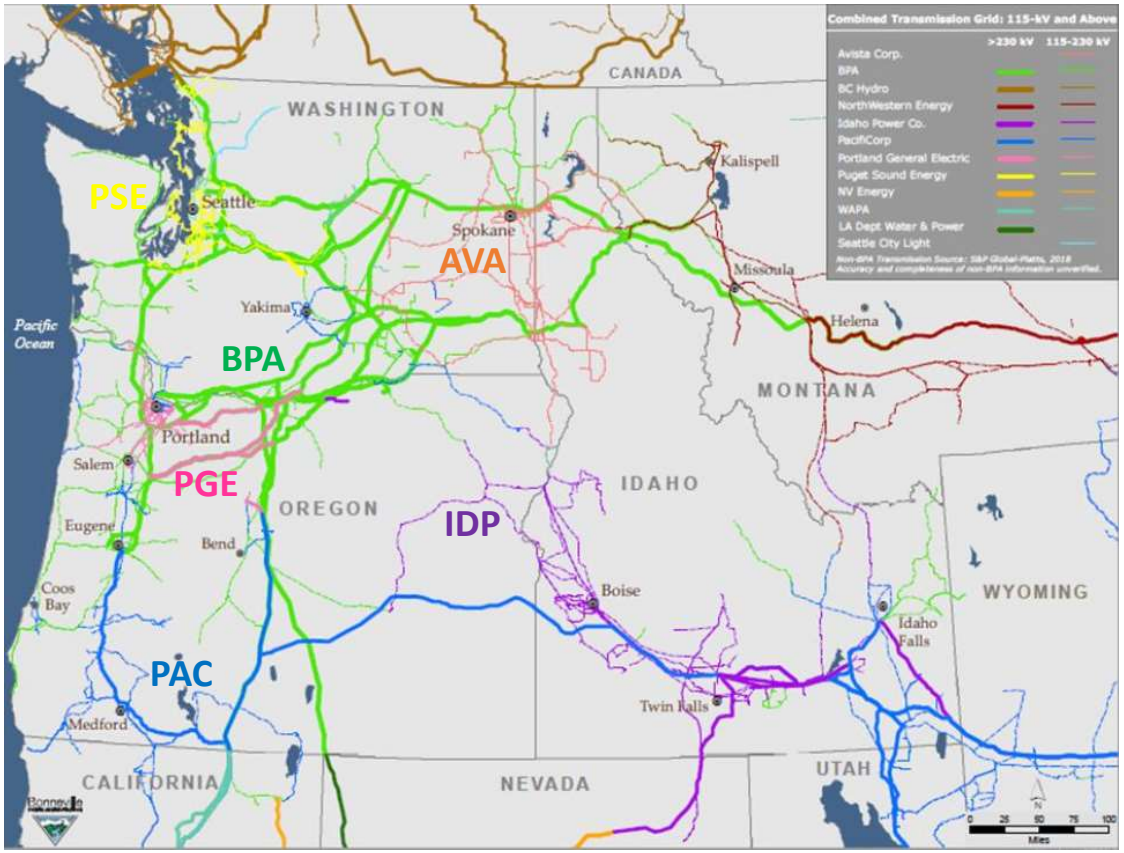
Can it all get built in time? Where?

PNW & MOST OF WEST ARE NOT PART OF AN RTO

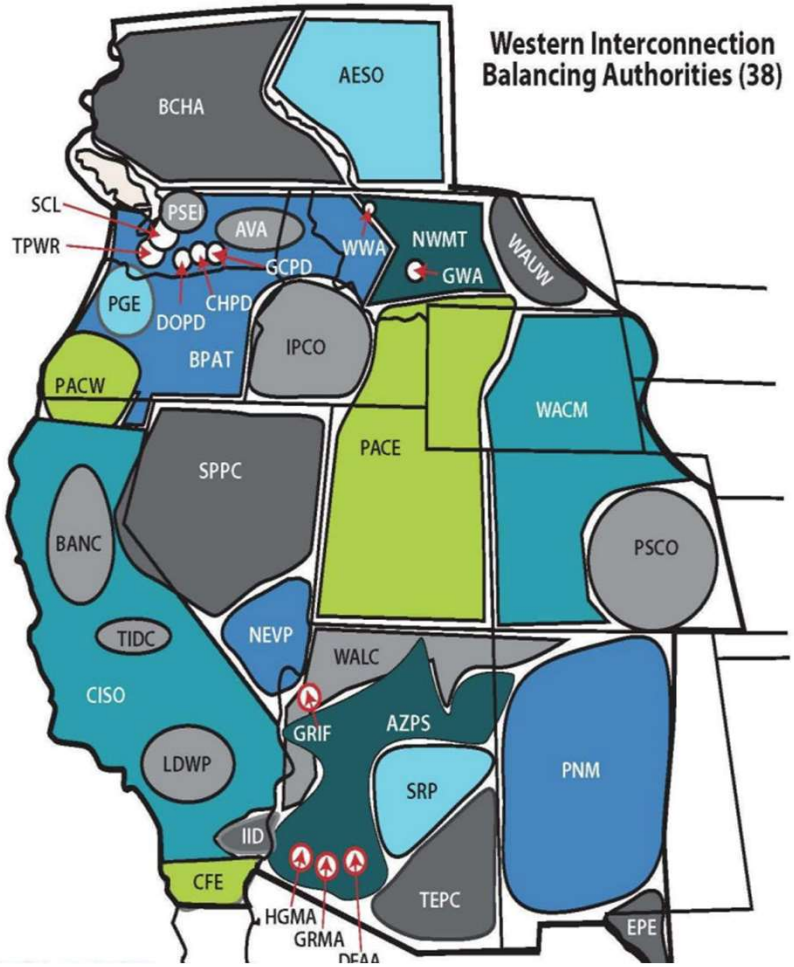


Source: FERC

NON-RTO TRANSMISSION SERVICE & PLANNING

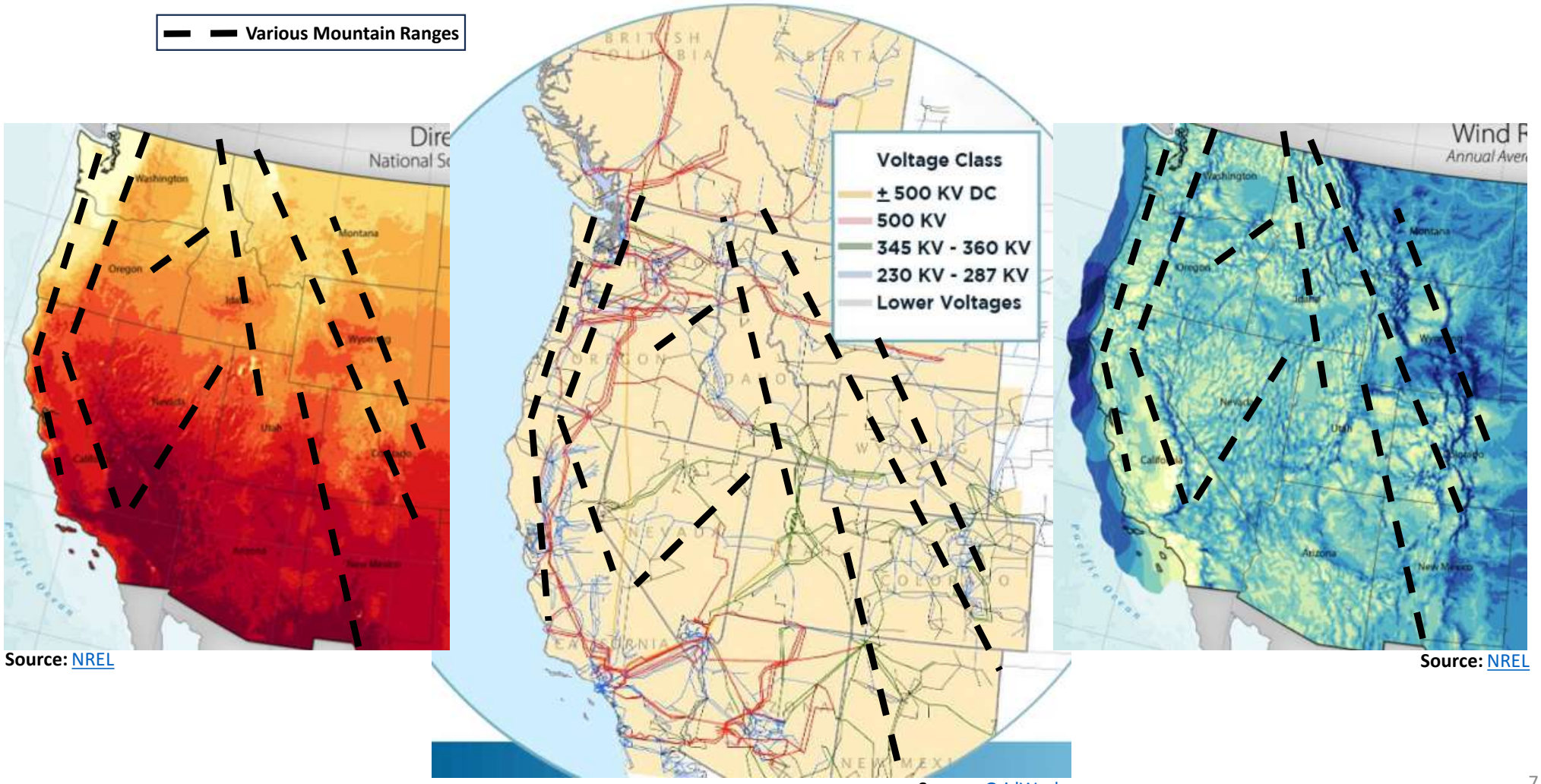


Source: BPA



Source: Synapse

EXISTING TRANSMISSION / SOLAR & WIND QUALITY



Source: NREL

Source: GridWorks

Source: NREL

SC*O0

OSW POTENTIAL BENEFIT: SYSTEM RELIABILITY & RESILIENCE

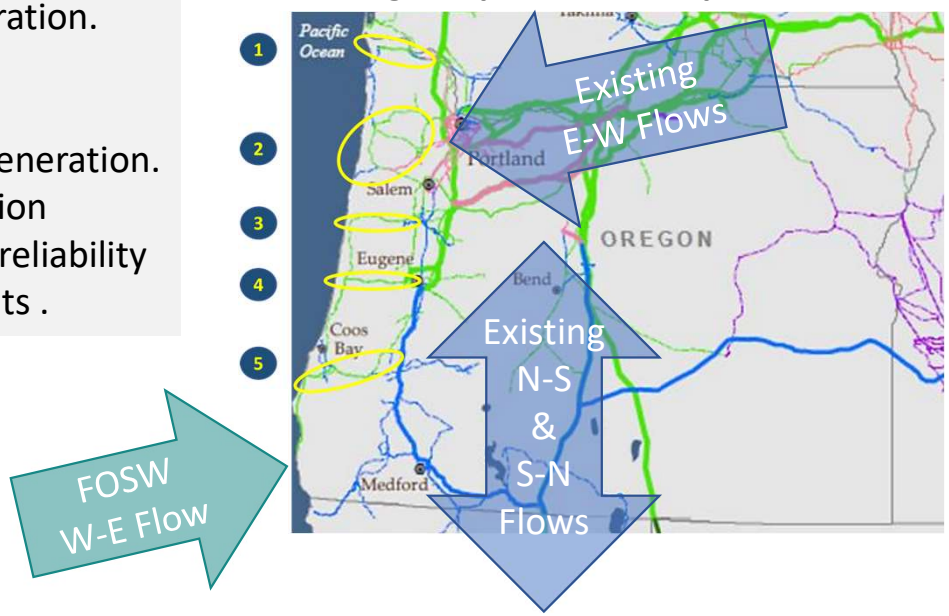
OSW's location at the grid's western edge can bolster the reliability & resilience of both the coastal and regional power system.

Coastal power systems currently served by **distant** generation.

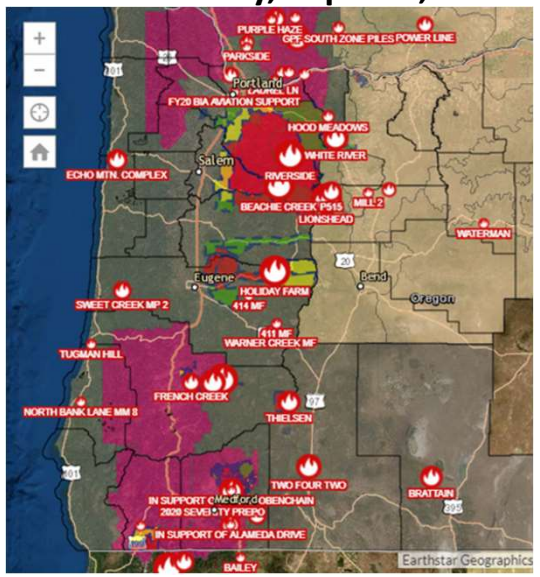
OSW could provide:

- **Coastal** large-scale generation.
- Transmission expansion resulting in **regional** reliability and resilience benefits .

Oregon's predominant power flows



Wildfire Snapshot from Oregon RAPTOR at 7 a.m. Friday, Sept. 11, 2020



Slide 8

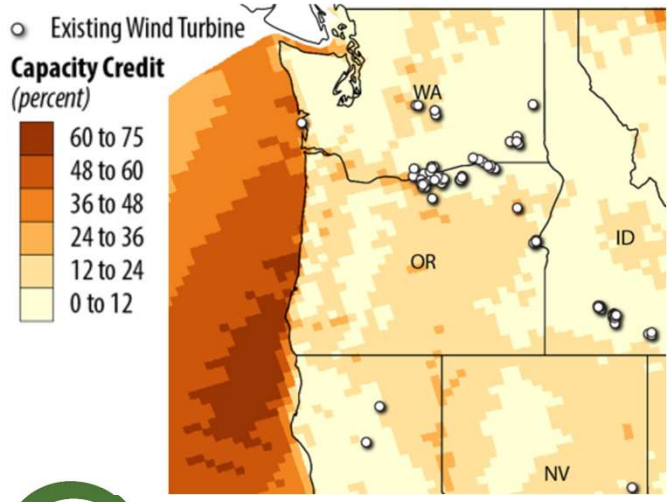
SC*O0 Should we spell out R & R? I don't know what that means.
SPLITT Christy * ODOE, 2022-09-19T19:16:13.136

OSW POTENTIAL BENEFIT: GENERATION DIVERSITY

OSW's timing can provide critical reliability contributions to a 100% clean power grid.

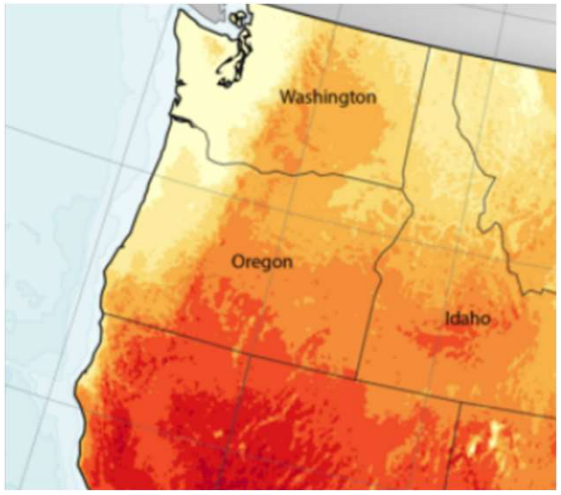
- Complementary Output: Timing of OSW output complements loads and output of onshore clean energy across days, nights, and seasons.

Avg. Wind Credit to Grid Needs



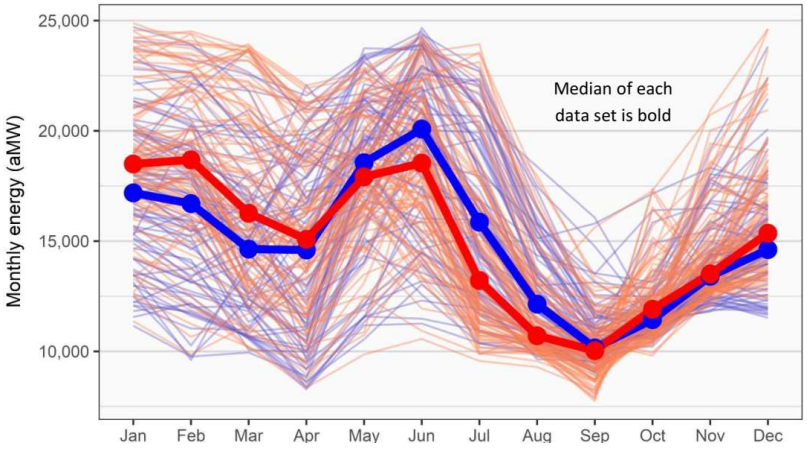
Source

Avg. Solar Irradiance



Source

Median Monthly Hydro Output

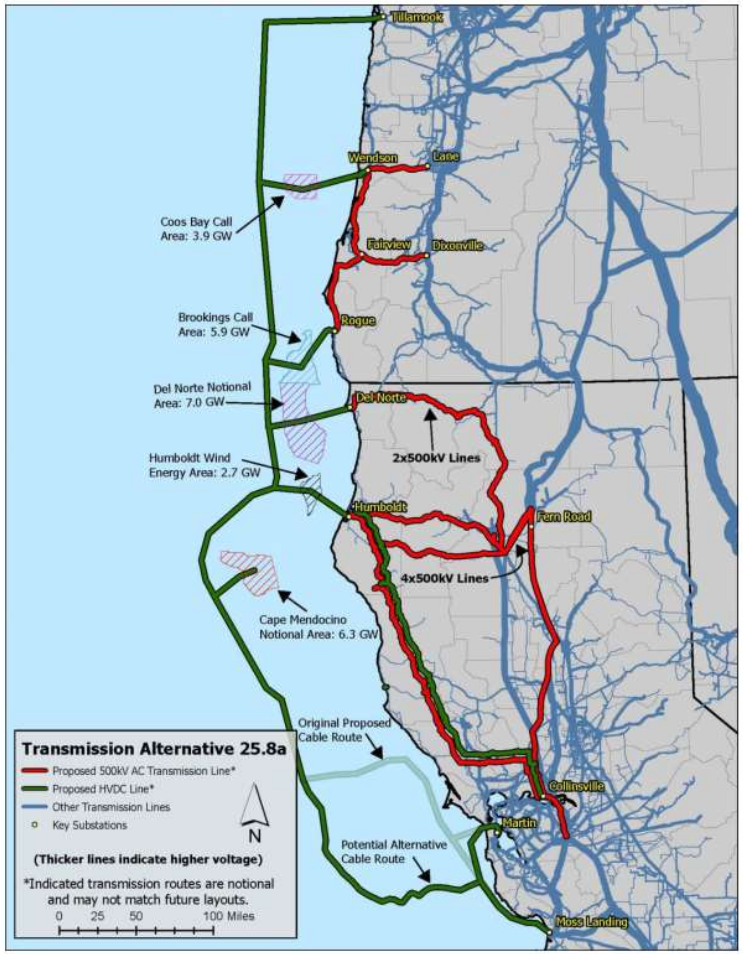


Historical

Forecast w/ Climate Change

Source

N. CA / S. OR OSW TRANSMISSION STUDY



Source: Schatz CEC Final Report – 1/12/24

- **2023 study prepared for the California Energy Commission to inform state's AB 525 Strategic Plan to develop offshore wind, with planning goals of 2 to 5 GW by 2030; 25 GW by 2045.**
  - Led and published by the Schatz Energy Research Center - Cal Poly Humboldt, in collaboration with the Oregon Dept. of Energy and U.S. Dept. of Defense

Development Scenario	Total OSW Capacity	# of Transmission Alternatives
Low	7.2 GW	2
Mid Range	12.4 GW	6
High	25.8 GW	2

Development Scenario	OSW Capacity S. Oregon	OSW Capacity N. California	Total OSW Capacity
Low	3.1 GW	4.1 GW	7.2 GW
Mid Range	3.1 GW	9.3 GW	12.4 GW
High	9.8 GW	16.0 GW	25.8 GW

Source: Schatz CEC Presentation – 5/25/23

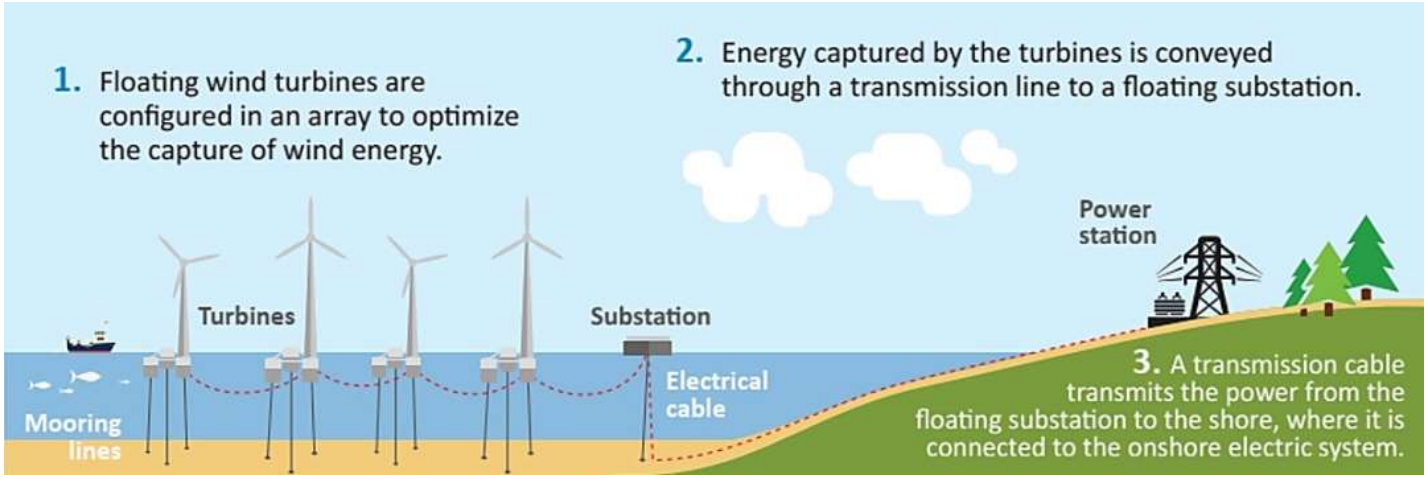
OSW POTENTIAL CHALLENGE: CONCERNS FOR EFFECTS ON OCEAN & LAND USERS AND THE ENVIRONMENT

Avoiding & mitigating effects from OSW on **coastal communities, existing industries, the environment, and cultural resources** could be a significant challenge.

Examples - potential impacts to: Fishing, Shipping, Military, Tribes, Coastal Citizens, Tourists, Others

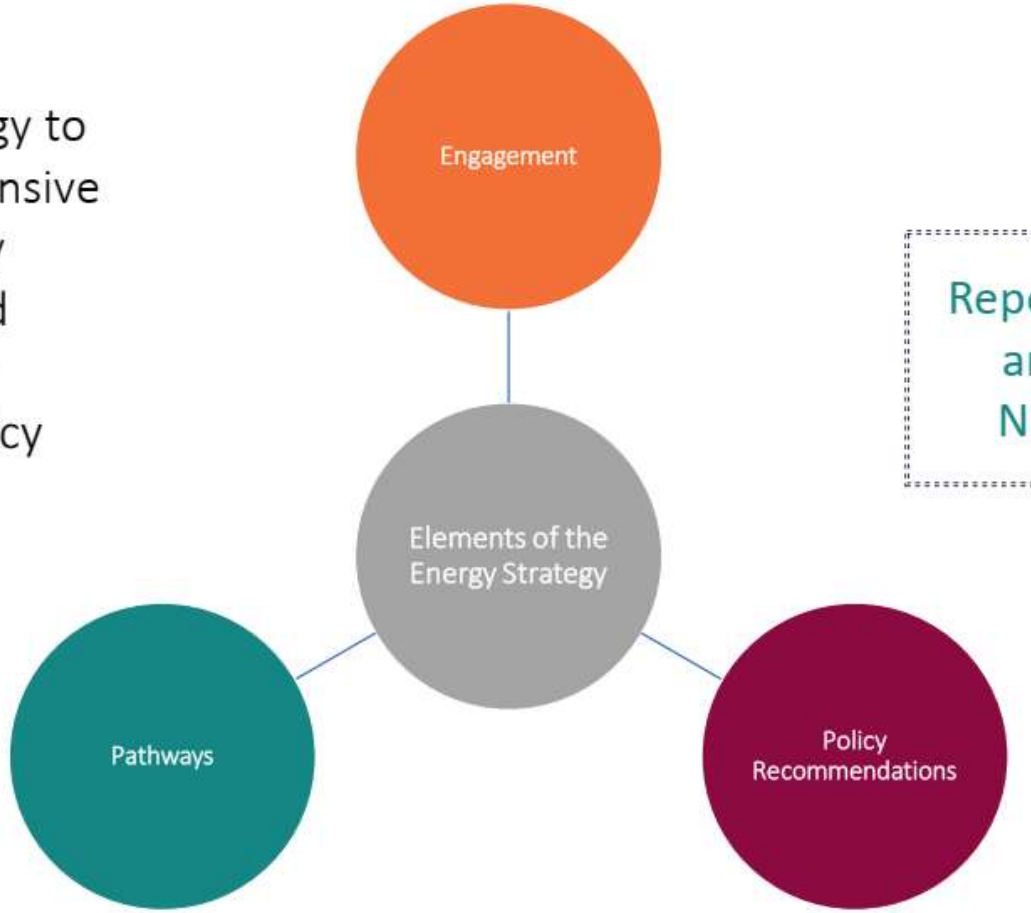
Examples - potential impacts to:

- Local & migratory fish & wildlife
  - Marine & land-based species
  - Birds
  - Others
- Sensitive habitats
  - Marine
  - Seafloor
  - Estuary
  - Land-based
  - Others



HB 3630, STATE ENERGY STRATEGY

Directs the Oregon Department of Energy to develop a comprehensive state energy strategy identifying optimized pathways to achieve Oregon's energy policy objectives.



Report to the Governor and Legislature by November 1, 2025

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Questions?

State Energy Strategy webpage:
https://www.oregon.gov/energy/Data-and-Reports/Pages/Energy-Strategy.aspx

Contact us: energy.strategy@energy.oregon.gov

ODOE's website: www.oregon.gov/energy

Thank you!

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