OREGON DEPARTMENT OF ENERGY

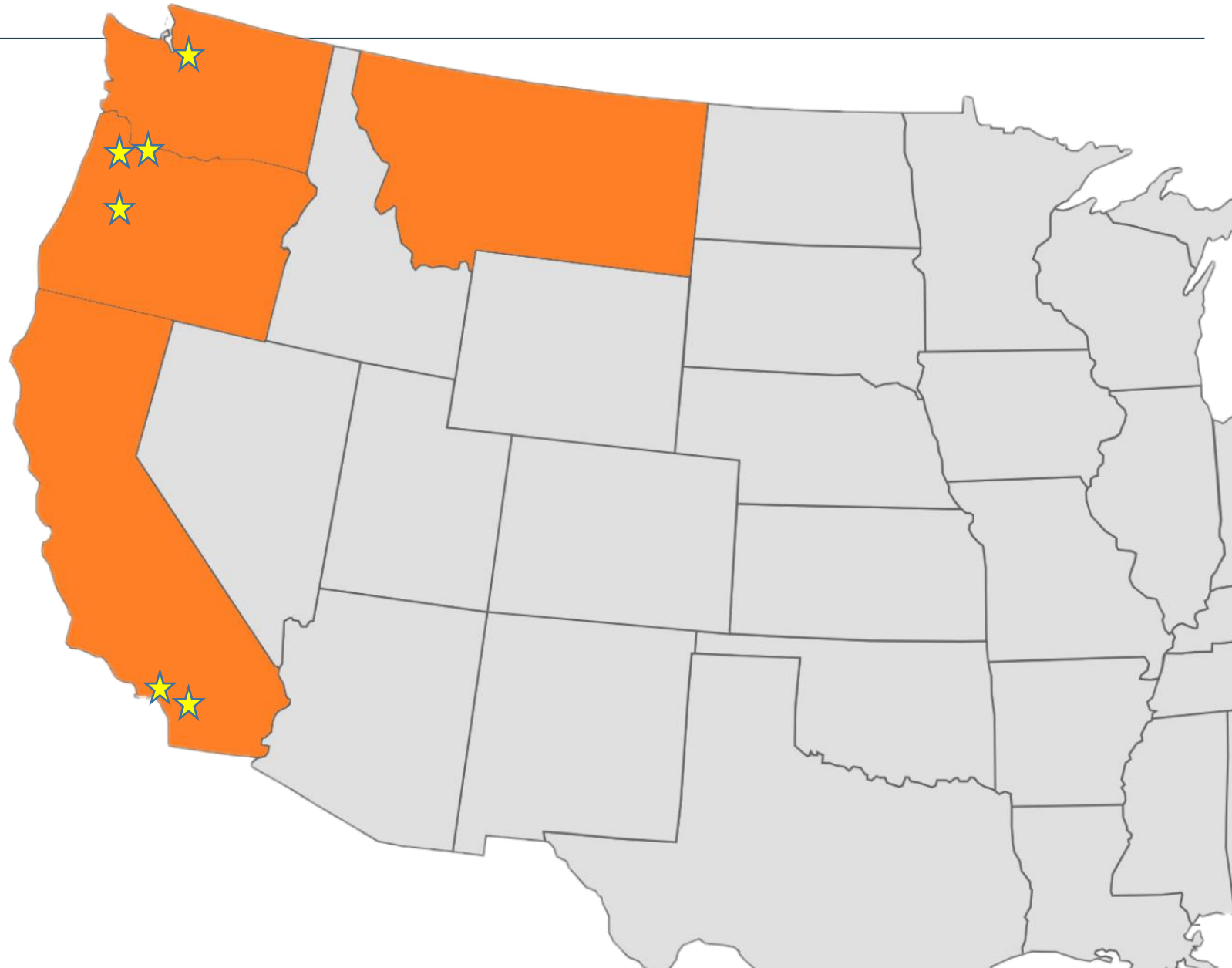
Charting a Course for Oregon's Energy Future

Adam Schultz
Lead, Electricity & Markets Policy Group
November 17, 2022

Crater Lake National Park

Charting a Course for Oregon's Energy Future

- **ODOE Review:**
  - 20 technical studies
  - Deep decarbonization and/or 100% clean energy policy targets
  - Mid-century timeframe
- **Charting a Course for Oregon's Energy Future:**
  - Policy goals are achievable
  - Many GWs of clean energy development likely required
  - All energy development will incur trade-offs
  - Can Oregon identify a path for itself that meets policies while balancing trade-offs?



How do we get there?

Clean Energy Transition Institute

EVOLVED ENERGY RESEARCH

Deep Decarbonization Pathways Study:

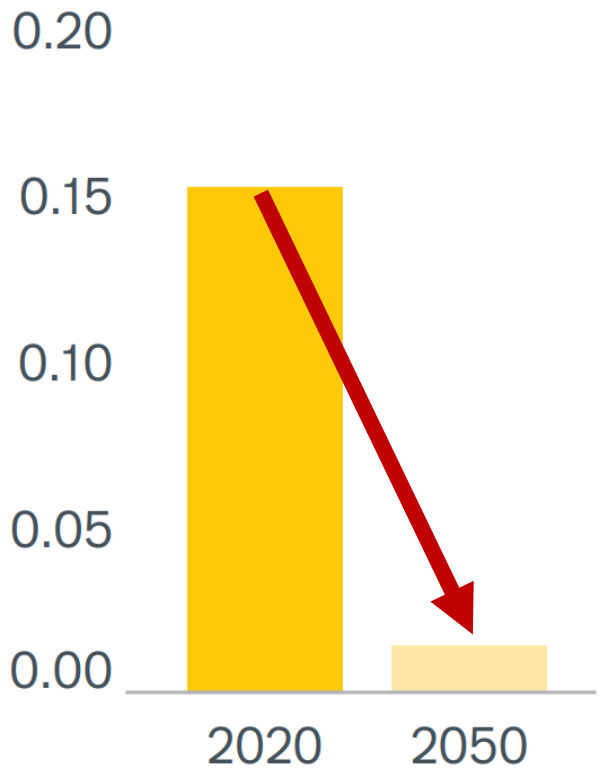
Five decarbonization strategies

(1) Energy efficiency
(2) Electricity decarbonization
(3) Fuel decarbonization
(4) Electrification
(5) Carbon capture

Source: Deep Decarbonization Pathways Study, p. 65

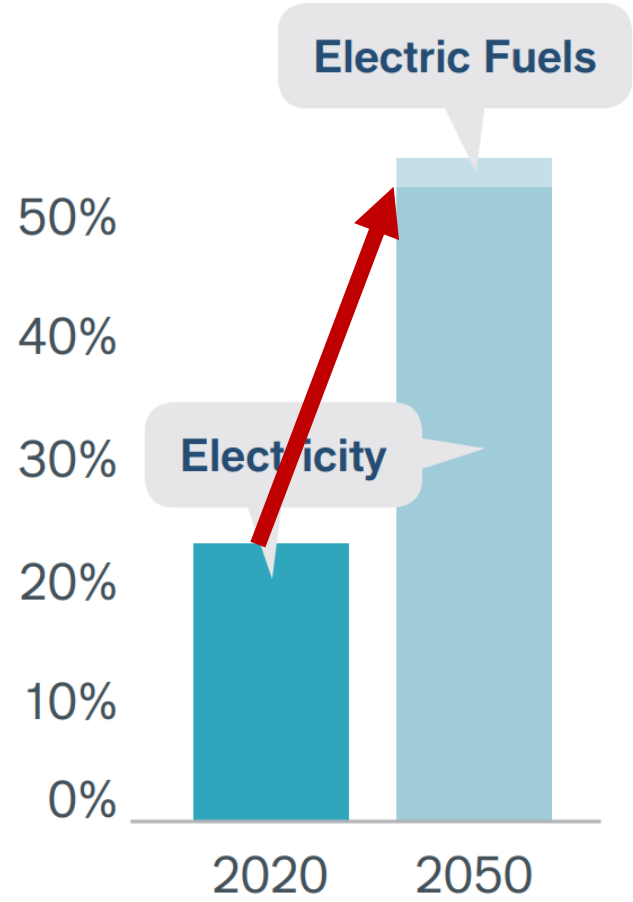
Electricity Decarbonization

Electricity Carbon Intensity (tonnes CO_2 per MWh)



Electrification

Electricity Share of Total Energy (percentage)

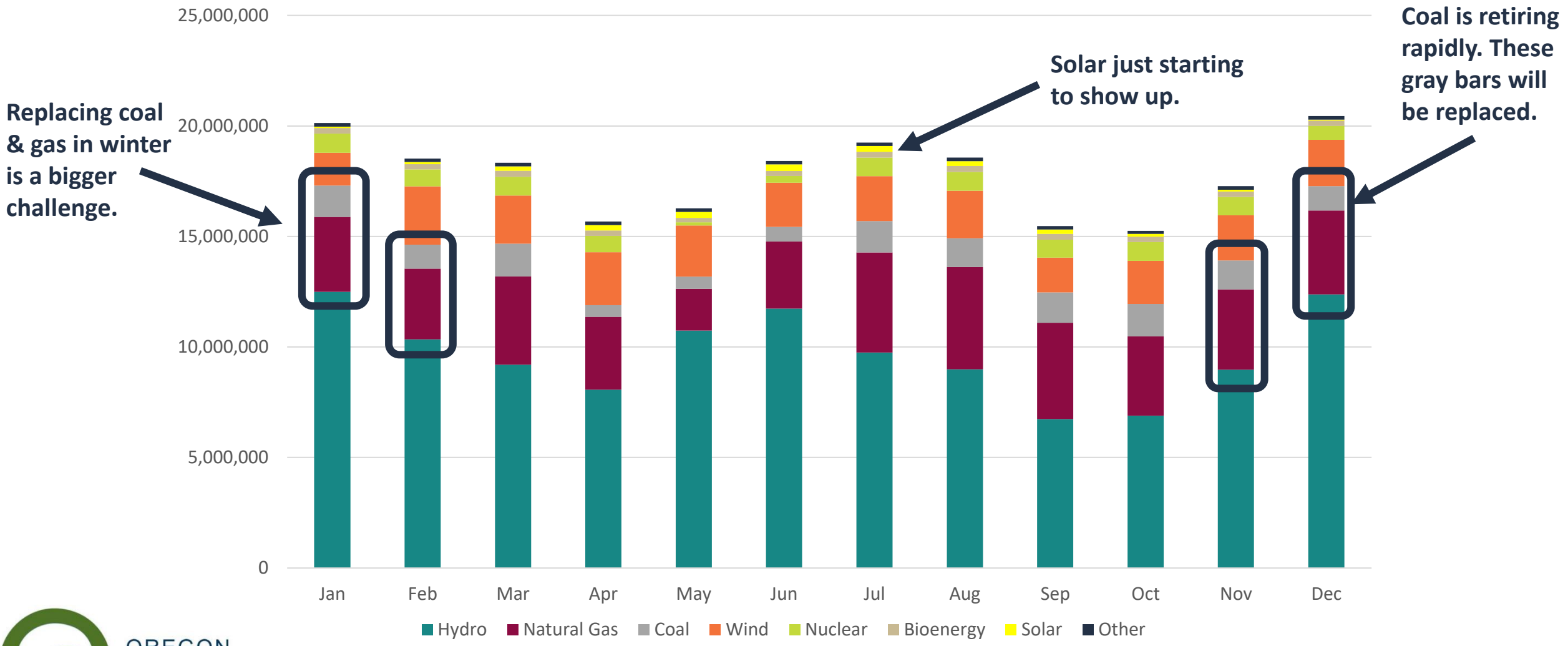


OREGON DEPARTMENT OF ENERGY

Current Electricity Resources in the Northwest

Mt. Angel Middle School | Mt. Hood

Electricity Generation in the PNW by Month (2021)



OREGON DEPARTMENT OF ENERGY

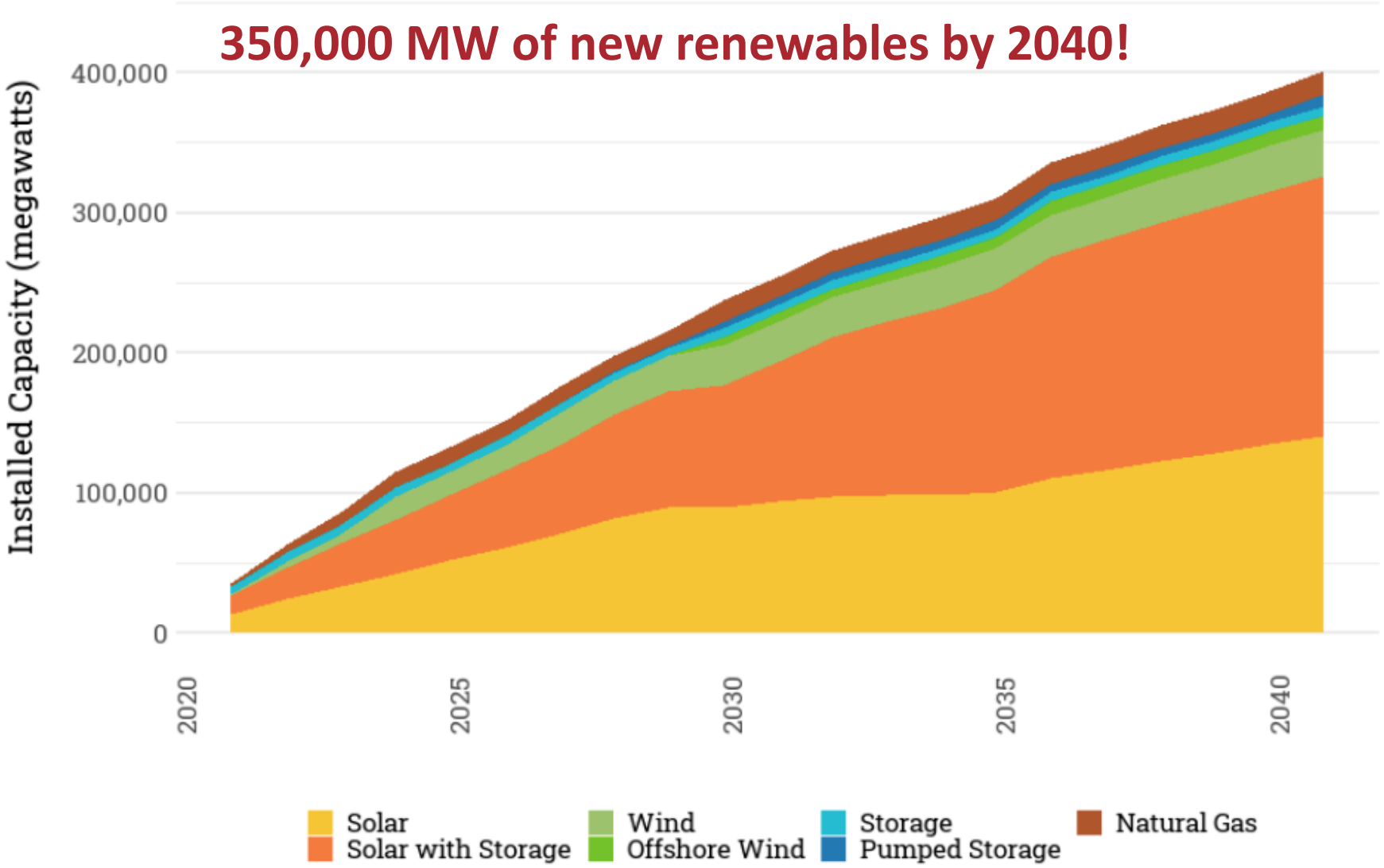
Source: EIA Form 923, 2021, page 1 (aggregate data for OR, WA, MT, ID)


OREGON
DEPARTMENT OF
ENERGY
Forecasting the Future:
Achieving 100% Clean Energy
Trillium Lake, Mt. Hood

“All models are wrong,
but some are useful.”

- Statistician George Box

A view of one model: New Resources in the West

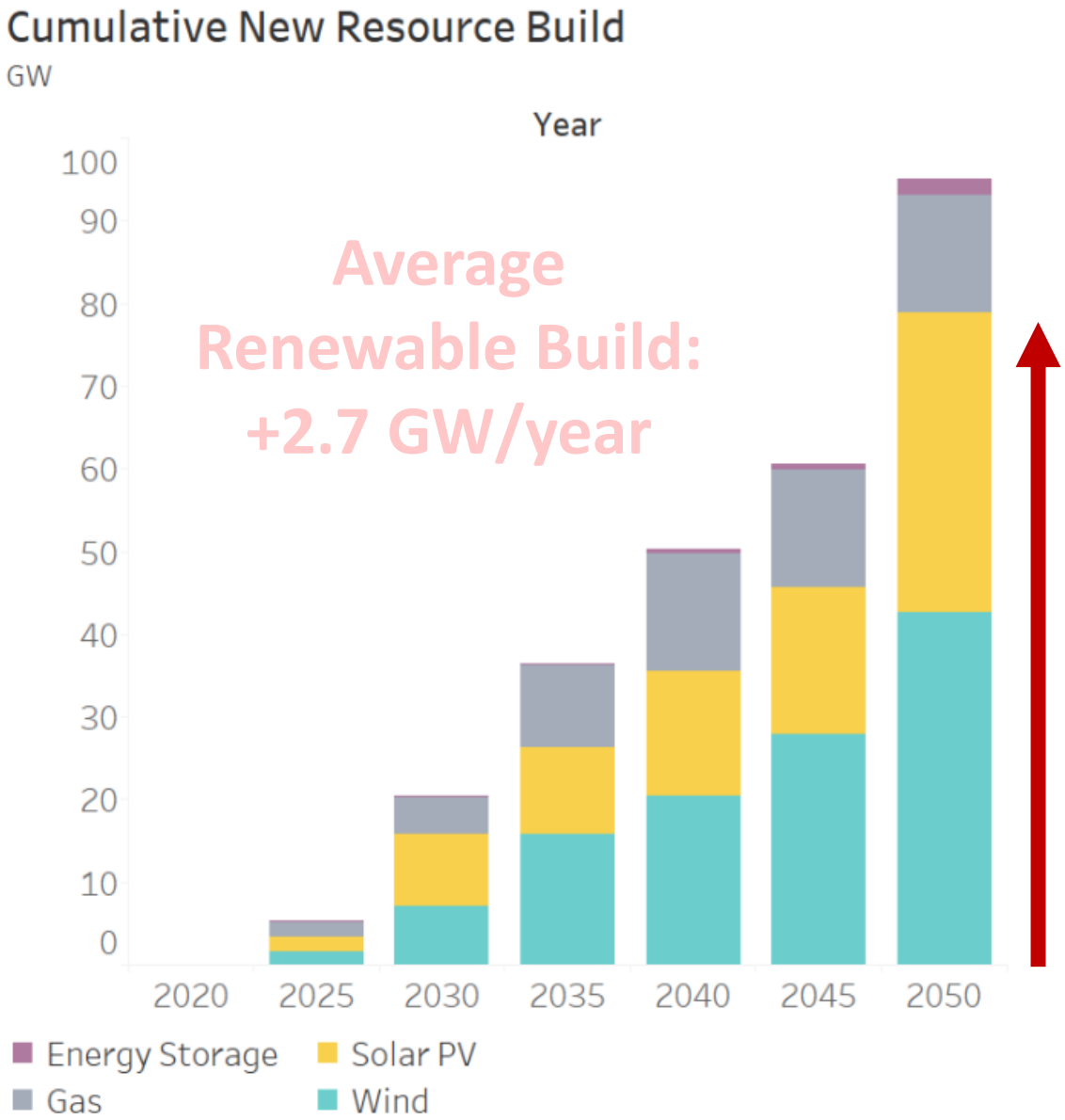


THE 2021 NORTHWEST POWER PLAN
FOR A SECURE & AFFORDABLE ENERGY FUTURE

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

Source: 2021 Power Plan, p. 51

A view of one model: New Resources in the Northwest



80 GW of New Solar & Wind Capacity

Clean Energy Transition Institute

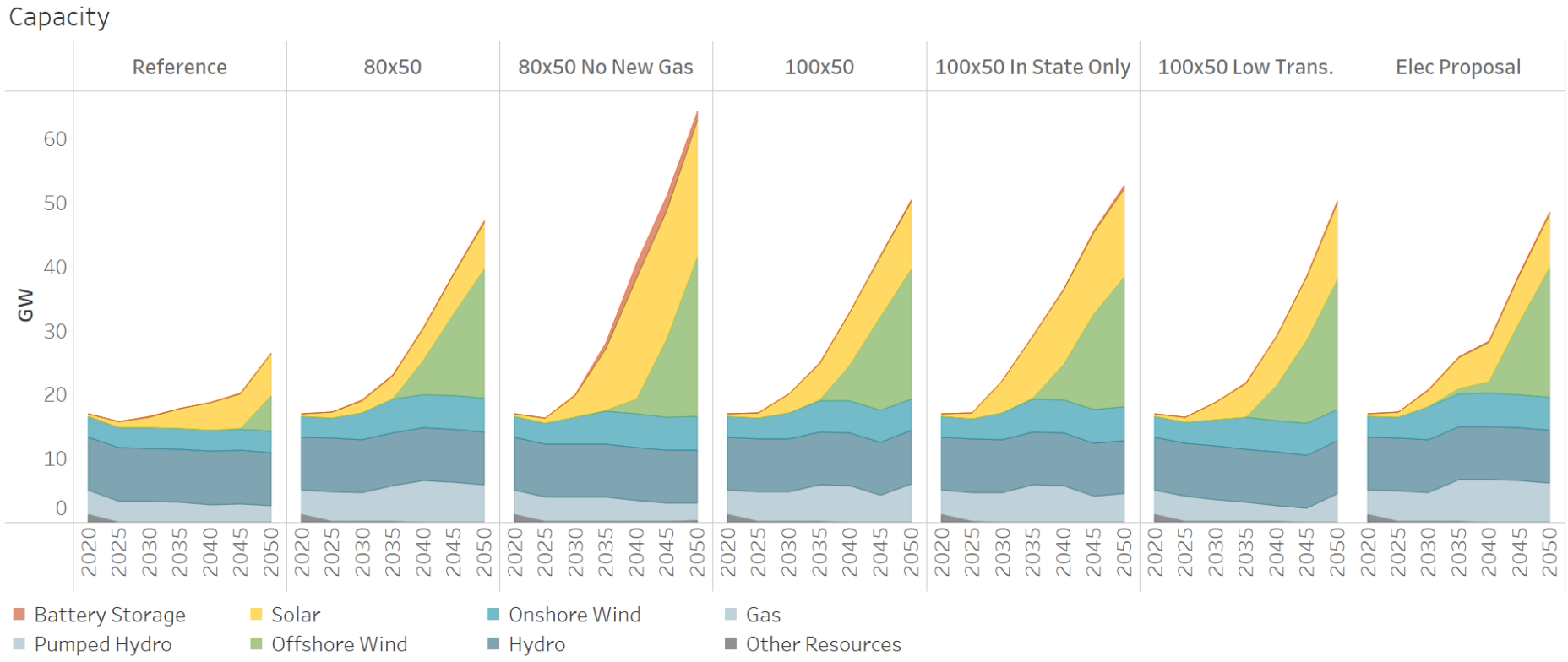
EVOLVED ENERGY RESEARCH

Deep Decarbonization Pathways Study:

Cumulative new resource build (renewables, gas, and storage) through 2050 in the Pacific Northwest.

Source: Deep Decarbonization Pathways Study, p. 73

A view of one model: New Resources in Oregon



EVOLVED ENERGY RESEARCH

Oregon Clean Pathways Study:

Modeling different scenarios for Oregon through 2050.

Across Modeled Scenarios:

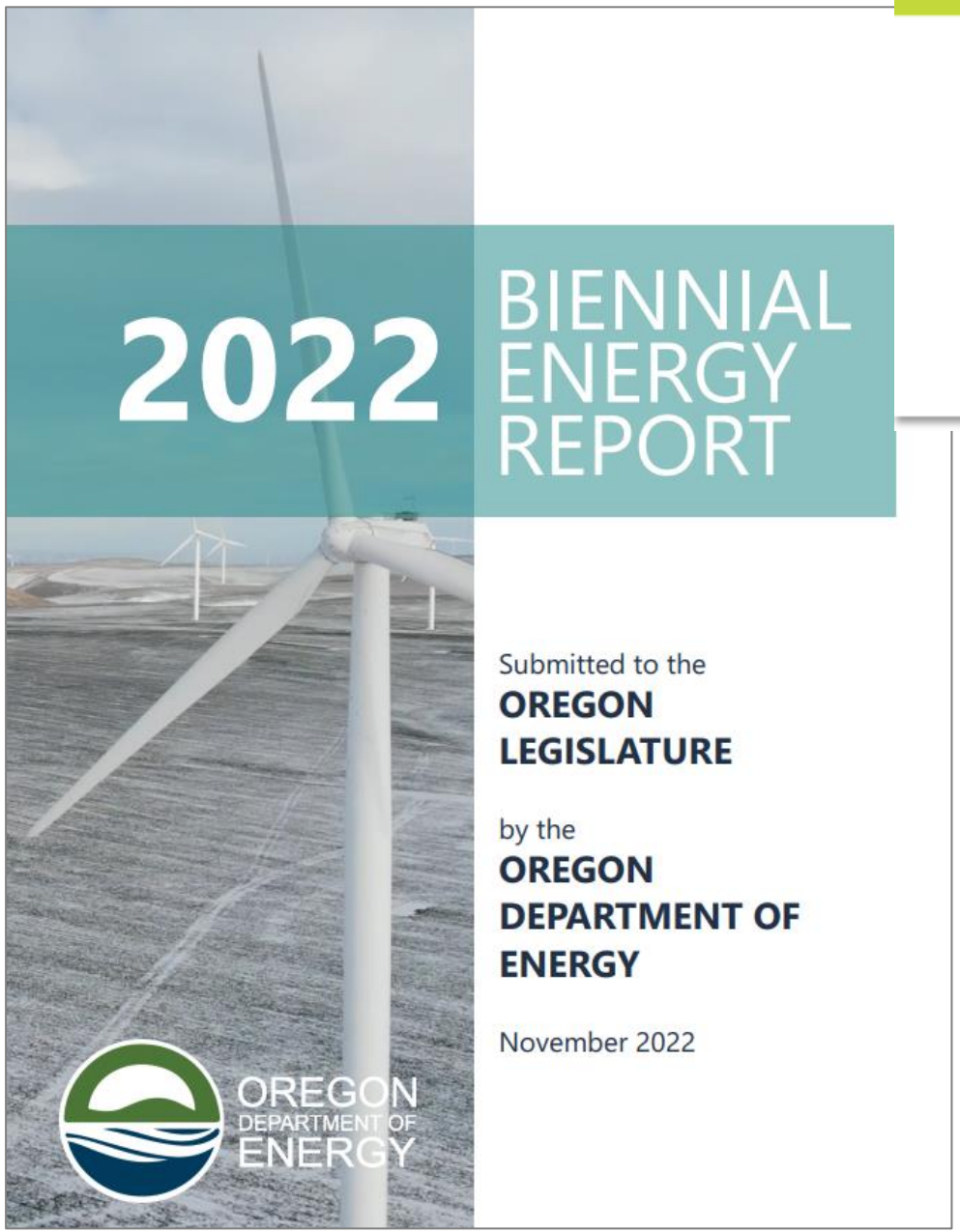
~30 GW of new renewables needed by 2050

Source: Oregon Clean Pathways Study, p. 39

Next Steps: Charting Oregon's Path to 2050

- **Limits of Electrification**
  - **Transportation—**Medium- and heavy-duty, marine, aviation
  - **Heating—**Repurposing gas infrastructure for low-carbon fuels?
- **Scale of Clean Energy Deployment**
  - Solar vs. onshore wind vs. offshore wind? Role for distributed renewables? Types of storage? Role for SMRs and RH2?
- **Oregon's Path to 2050:**
  - Can Oregon identify a path to achieve the state's mid-century clean energy and climate goals while balancing trade-offs?

OREGON DEPARTMENT OF ENERGY



Policy Brief: Charting a Course for Oregon's Energy Future

Part I: Introduction
Part II: Electric Sector
Part III: Natural Gas Sector
Part IV: Transportation Sector
Part V: Pathway Tradeoffs

energyinfo.oregon.gov/ber

Thank you!

Adam Schultz
Lead, Electricity & Markets Policy Group
Oregon Department of Energy
Adam.Schultz@energy.Oregon.gov

www.oregon.gov/energy

OREGON DEPARTMENT OF ENERGY