Oregon Department of **ENERGY**

Oregon Energy Strategy

JANUARY 2025

OREGON DEPARTMENT OF ENERGY

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

Our Mission

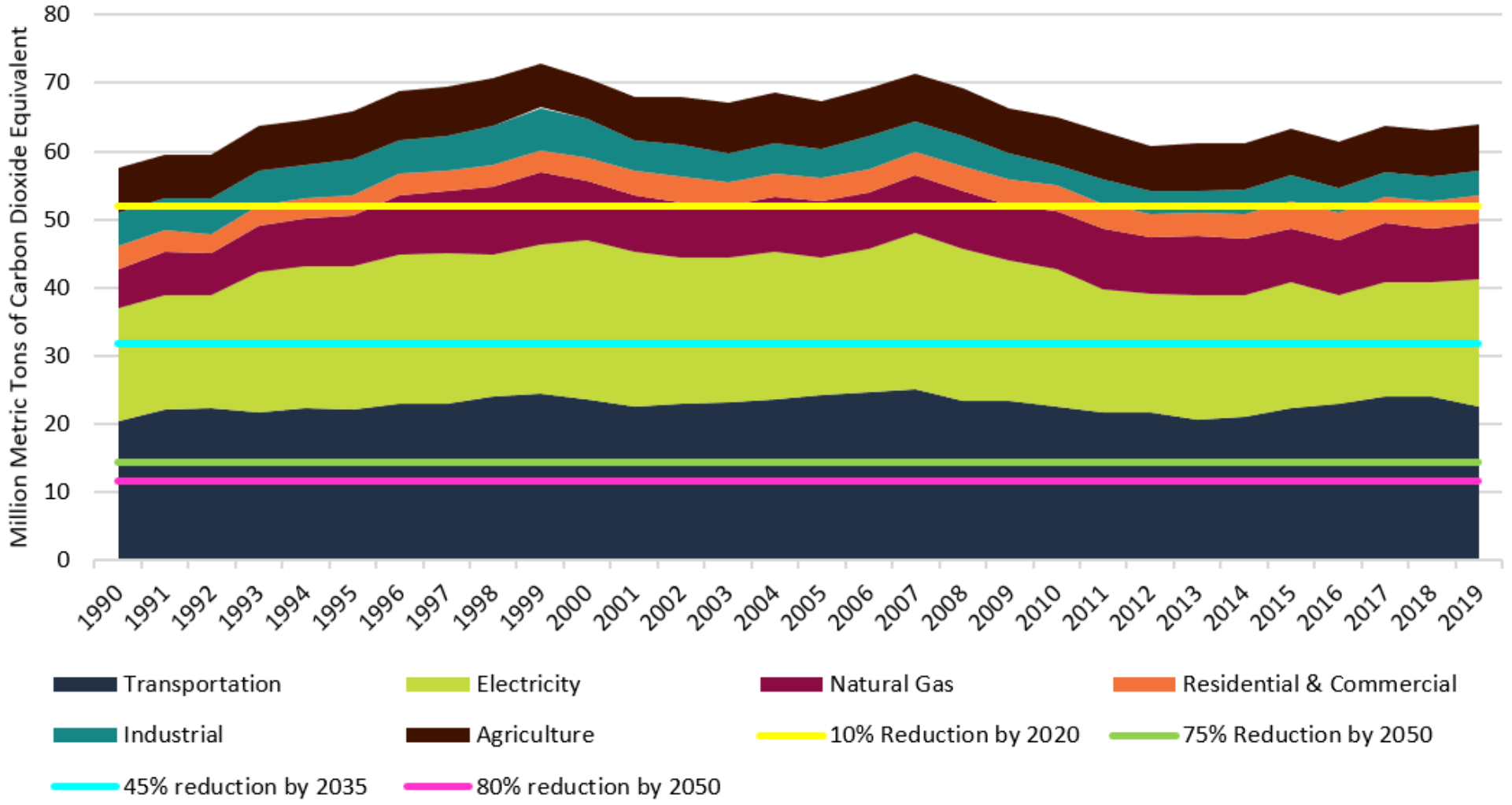
The Oregon Department of Energy helps Oregonians make informed decisions and maintain a resilient and affordable energy system. We advance solutions to shape an equitable clean energy transition, protect the environment and public health, and responsibly balance energy needs and impacts for current and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

OREGON GREENHOUSE GAS EMISSIONS OVER TIME



HB 3630: COMPREHENSIVE STATE ENERGY STRATEGY

Directs ODOE to develop a state energy strategy identifying pathways to achieve Oregon's energy policy objectives

- Must be informed by stakeholder perspectives
- Must draw from existing resource plans, energy-related studies, and analyses

State energy strategy must account for a variety of factors, such as:

- Costs, efficiencies, feasibility, and availability of energy resources and technologies
- Economic and employment impacts
- Energy burden, affordability, environmental justice, and community impacts and benefits
- Land use and natural resource impacts and considerations
- Energy resilience, security, and market implications

ENERGY POLICY OBJECTIVES

Electricity (IOUs*)

- HB 2021
- 100% clean by 2040

*HB 2021 applies to the large IOUs, PacifiCorp and Portland General Electric Company, as well as to electricity service suppliers.

Natural gas, liquid fuels, propane

- Climate Protection Program
- 90% GHG reduction by 2050

Economy-wide

- EO 20-04
- 80% GHG reduction by 2050

Policies driving and shaping compliance pathways:
Clean Fuels Program, Advanced Clean Cars II, Advanced Clean Trucks, Building Codes, Appliance Standards, and many more….

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ENERGY STRATEGY MUST TAKE INTO ACCOUNT, AT A MINIMUM:

- State Energy demand and trends
- Energy resources and tech choices considering costs, energy efficiency, feasibility & availability
- Existing & potential incentives to support energy efficiency
- Energy generation, transmission, distribution infrastructure
- Emerging tech & investment opportunities
- Environmental justice
- Community benefits
- Land use considerations
- Energy burden & affordability
- Econ and employment impacts
- Energy security and impacts of broader markets
- Energy resilience
- Community Energy resilience

Reflects the best available info, data analyses and time horizons necessary to achieving the state's energy policy objectives

Periodically update the Energy Strategy to reflect current information, data analysis and state energy policy objectives

CONSULTATIVE STRUCTURES

Tribal Consultation	• Government-to-Government, ensuring Tribal perspectives inform Energy Strategy • Members of the 9 Federally Recognized Indian Tribes in Oregon • Ongoing
Advisory Group	• Advise ODOE throughout the process and help inform decisions • Representatives of diverse perspectives and lived experience across OR • Meets 1x a month
Working Groups	• Focused on informing policy recommendations • Subject matter experts able to engage in identification of gaps and needs • Meet over ~ 3 months in early 2025
Interagency Steering Group	• State Agency Coordination • ODOE, DLCD, ODOT, PUC, DEQ, DSL, Business OR, Governor's office; other agencies • Meets 1x a month
Listening Sessions	• Collecting broad views from across the state • Anyone can and is encouraged to join

PHASES OF THE OREGON ENERGY STRATEGY

PHASE

1.

Technical Analysis: Summary of the potential pathways to achieve Oregon's policy objectives

We are here

Policy Discussions

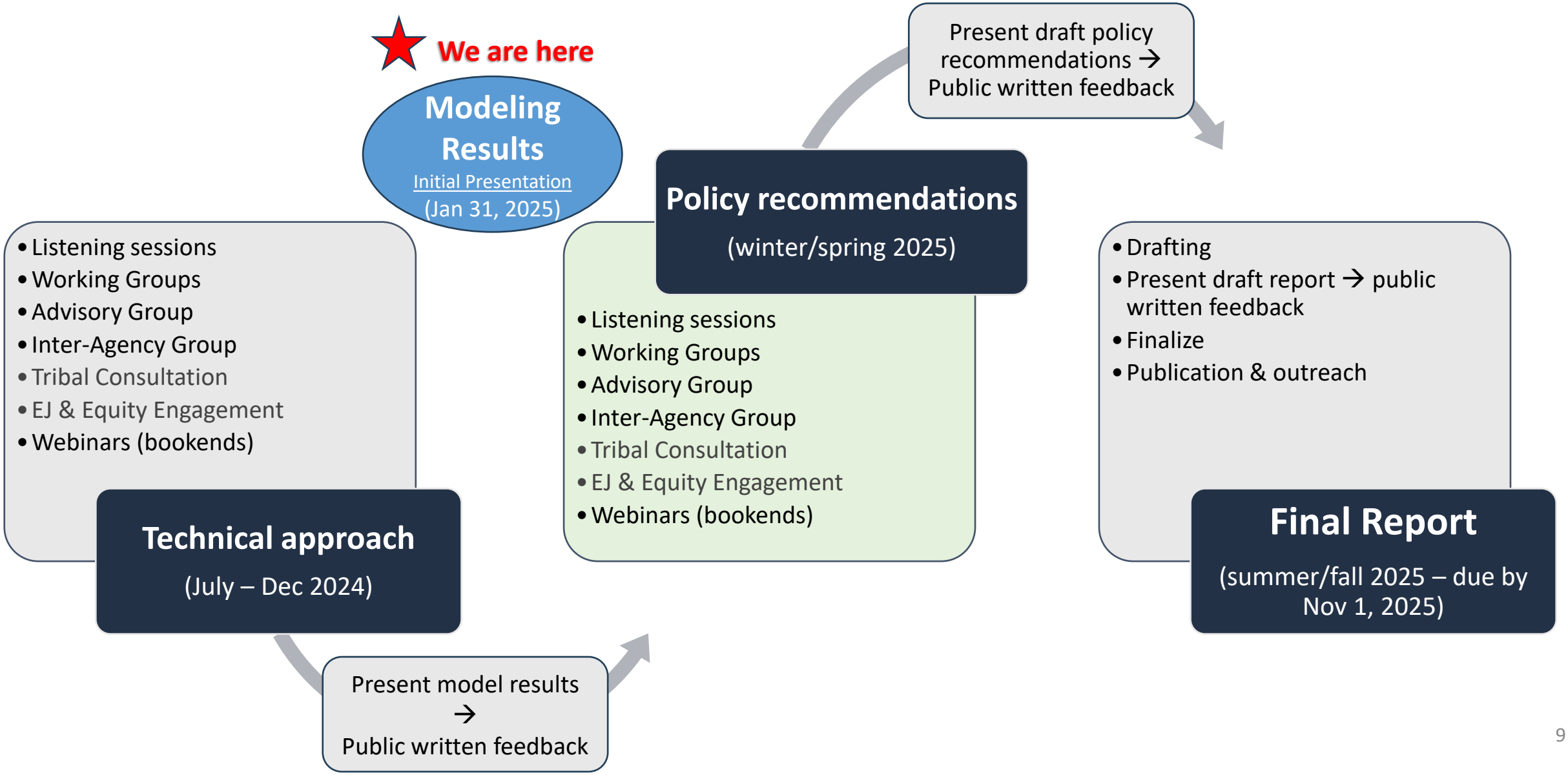
2.

Policy Discussions: Using the output in phase 1, develop recommendations on policy options

3.

Report: Will include recommendations and description of stakeholder engagement and how stakeholder perspectives informed the strategy

WHERE WE ARE IN THE PROCESS



POLICY WORKING GROUPS

Environmental Justice and Equity	• EJ and equity focused discussions • Role in providing EJ and equity perspectives in the other working groups
Building Efficiency, Electrification, & Distributed Energy Resources	• Residential and commercial • Customer-side of the meter
Developing Clean Electricity Generation and Transmission	• Electricity generation and storage in front of the meter • Transmission • Development needs and barriers/competing priorities
Low-carbon fuels	• Opportunities for low carbon fuels in buildings, industry, and transportation • Identification of barriers and potential solutions to production and distribution of fuels
Transportation electrification	• Light-, medium- and heavy-duty zero emission vehicles (battery electric and hydrogen fuel cell) • Charging and fueling infrastructure • Vehicle miles traveled reduction

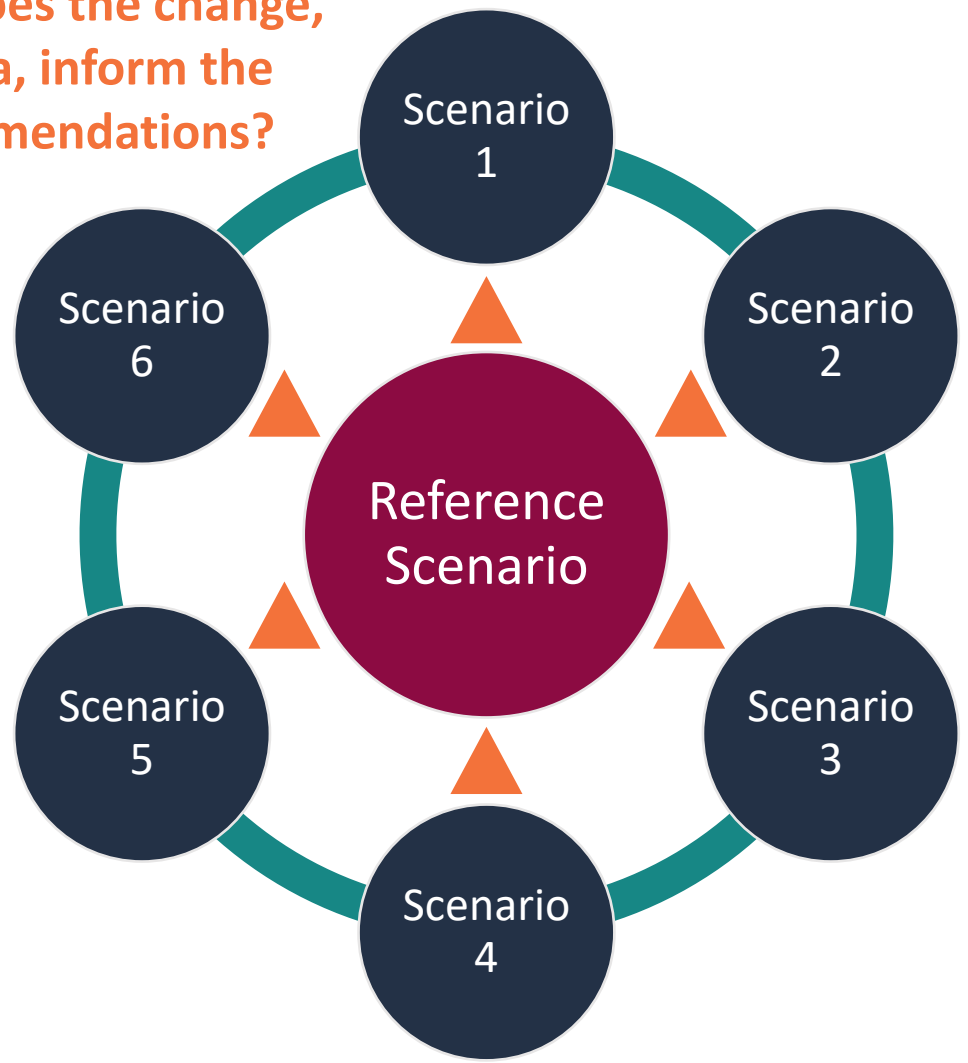
STRUCTURE OF MODELING

Reference Scenario

Alternative Scenarios

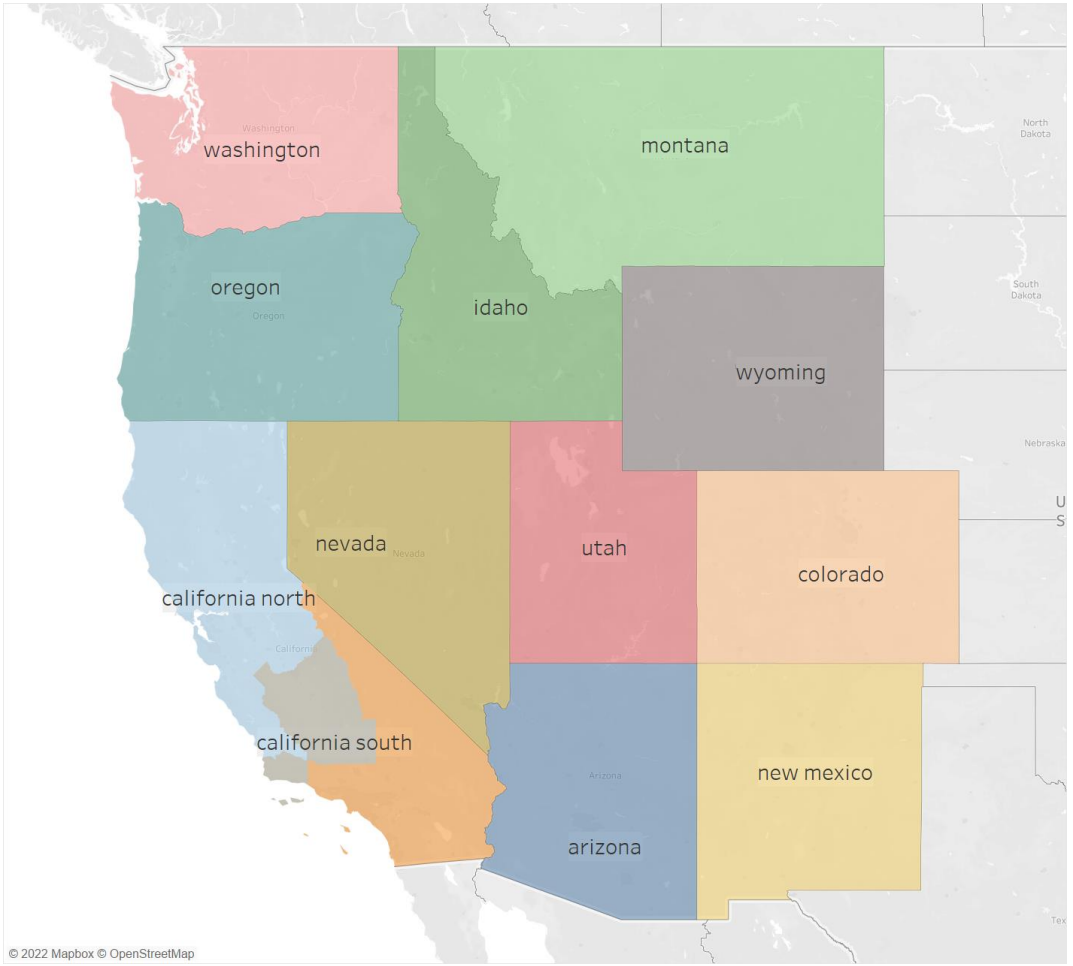
1) Slower Energy Efficiency and Building Electrification
2) Slower Transportation Electrification
3) Limited demand response
4) Limited Utility-Scale Electricity Generation
5) High DER and Limited Transmission
6) No New Gas Generation

How does the change, or Delta, inform the Recommendations?



Model Geography

- Western United States with California represented as 2 zones and the rest of the US as a single zone
- Contextualizes the decisions made in Oregon operating as part of a larger energy system
  - Competition for fuels including biomass, renewables, and hydrogen derived from renewables
  - Balances the electricity system over a large and diverse region – assumes single balancing authority
  - Captures transmission line and pipeline flow and build constraints
  - Resource, load, and temporal diversity contribute to economy and region-wide least cost strategy to reach net zero
- Modeling 2 zones in Oregon to represent East-West Tx constraints



REFERENCE CASE POLICY AND SUPPLY-SIDE ASSUMPTIONS

Assumption Type	Reference Scenario Assumptions
GHG Targets (economy-wide)	EO 20-04: 80% GHG reduction below 1990 levels by 2050
GHG Targets (electricity)	HB 2021: 100% clean electricity by 2040 for PacifiCorp, PGE, electricity service suppliers
GHG Targets (fuels)	Climate Protection Program: 90% reduction in GHG emissions from direct use fuels (natural gas, liquid fuels, and propane) by 2050
Electricity Generation Technologies	Established resource technologies only (hydropower, solar, on/offshore wind, biomass, gas, renewable natural gas, etc.) No siting of new natural gas or nuclear power plants in OR
Generation and Interconnection Siting Restrictions	Administratively and legally protected land is not available for new energy development
Inflation Reduction Act (IRA) Incentives	Supply-side incentives included for hydrogen production, renewable electricity generation, battery storage, carbon capture, clean fuels, out-of-state nuclear
Transmission Availability	The Nature Conservancy Power of Place West (inter-zonal) BPA (for Oregon East-West zones) No new inter-zonal transmission is built until 2035
Fuels	Optimize capital investments & operations across all elements of clean fuel supply chains; model accounts for national competition for fuels

REFERENCE CASE DEMAND-SIDE ASSUMPTIONS

Assumption Type	Reference Scenario Assumptions
Data Center Load Growth	Northwest Power and Conservation Council Pacific Northwest Power Supply Adequacy Assessment for 2029 base case, with load differentiated across modeling zones
Buildings: Residential Electrification	Space heating/cooling: Electric heat pump sales 95% of overall sales by 2040 Water heating: Electric heat pump sales rising to 95% of overall sales by 2045
Buildings: Commercial Electrification	Space heating/cooling: Small buildings follow residential; large buildings electric heat pump sales 75% of overall sales by 2045 Water heating: Small buildings follow residential; large buildings achieve 25% of all new large commercial HVAC are heat pumps by 2030 and 90% by 2045
Transp.: Light-Duty	100% battery electric vehicle sales by 2035
Transp.: Transit and School Buses	100% zero emission vehicle sales by 2036; Transit: 75% BEV / 25% hydrogen
Transp.: Medium & Heavy Duty	100% zero emission vehicle sales by 2040; Long Haul: 75% BEV / 25% hydrogen
Industry	1% average annual improvement in process efficiency across all industrial sectors
Distributed Energy Resources (DER) Scheduled Additions	Northwest Power and Conservation Council March 2024 rooftop solar projections

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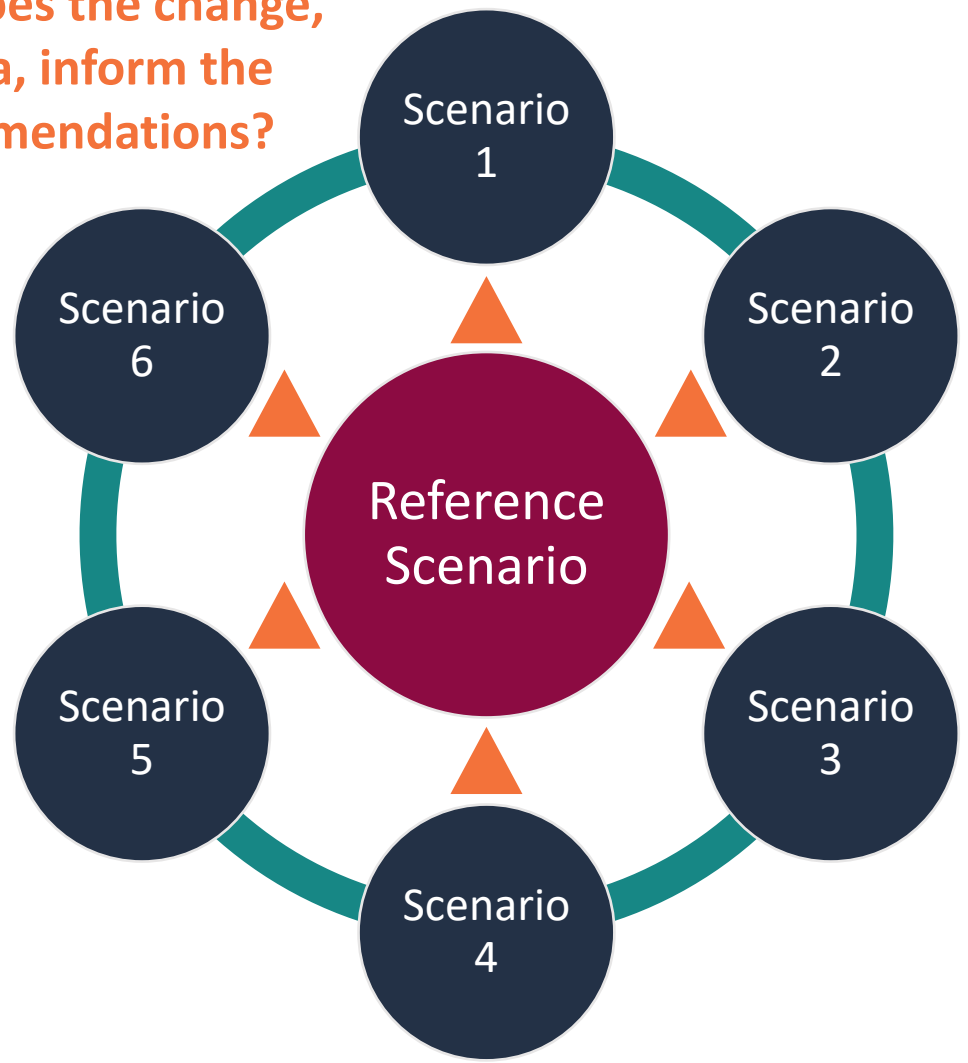

WHAT-IF QUESTIONS – EMERGING TOPICS

- What if we max out energy efficiency? What do we get?
- What if we achieve less energy efficiency?
- What if we have more aggressive electrification?
- What if we rely more on alternative fuels?

More/less energy efficiency and electrification in buildings

- What if we build more non-EV transportation alternatives?
- What if we test urban planning and behavior on transportation and buildings energy demand?

What if we constrain vehicle miles traveled?

- What if transmission doesn't get built or takes longer than expected?
- What if we rely on more local resources? What would this mean for jobs?

Constrained transmission

- Concern over limiting natural gas in homes
- How much/quickly can industry electrify?
- What if we electrify more slowly?

Enhanced alternative fuels

- What if we can't electrify transportation as quickly?
- What if barriers prevent heavy-duty vehicles from electrifying?

Constrained transportation electrification

- Concern over data centers, electrification, growing cooling loads.

What if load growth is much faster or greater than expected?

- Do we want to understand the implications of a more ambitious decarbonization trajectory?

More ambitious decarbonization scenario

- What if more or less offshore wind is built?
- What if we model more grid-enhancing technologies?

Others

UPCOMING OPPORTUNITIES

Public Info Session: Launch of Modeling Results

Date: Friday, Jan. 31, 2025

When: 10 a.m. – 12 p.m.

Location: Oregon Museum of Science and Industry or WebEx Webinar

State of Oregon: DATA & REPORTS - Oregon Energy Strategy Engagement Opportunities

Policy Working Groups– February- April

- Discussion of modeling results and potential policy solutions
- To learn more, please visit:
- State of Oregon: DATA & REPORTS - Energy Strategy Working Groups

Thank You

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