

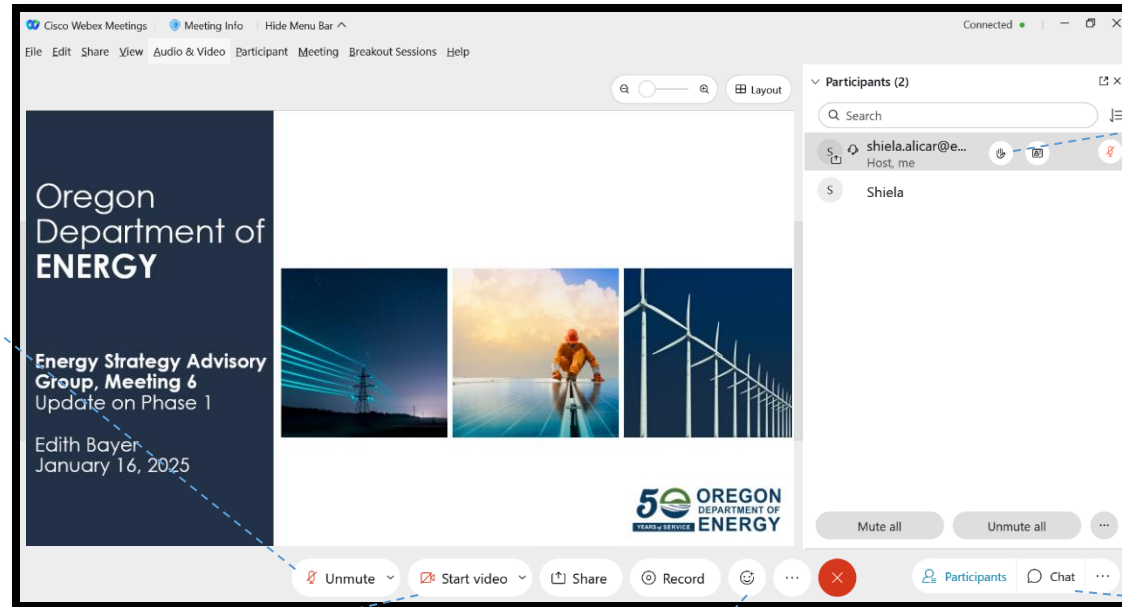
# Oregon Department of **ENERGY**

**Energy Strategy Advisory  
Group, Meeting 6**  
Update on Phase 1

Edith Bayer  
January 16, 2025



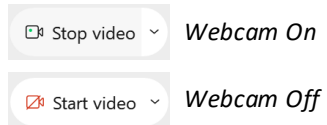
# USING WEBEX



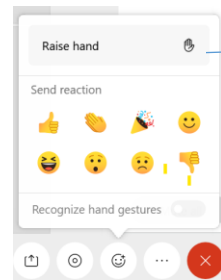
## Audio Options



## Video Options



## Reactions



Click to Raise your hand.

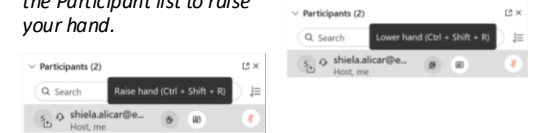


Click on Lower hand when you are done.

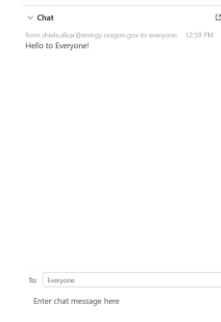
## Second Raise Hand Option

You can also click on the hand next to your name in the Participant list to raise your hand.

Click on Lower hand when you are done.

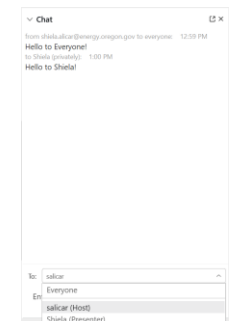


## Chat



You can chat to Everyone in the meeting.

You can send a private message to the Host or Presenter (or all Panelists when there is a Panel).



# MEETING OBJECTIVES

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The main objective of this meeting will be to provide accountability at the close of Phase 1 by describing final decisions taken on the modeling and complementary analysis, and creating space for discussion.

- Adjustments made to the Reference and Alternative scenarios, and how feedback and the modeling process informed decisions.
- Overview of five representative households chosen for household energy wallet analysis and how public input informed this framing.
- Overview of how ODOE will report on feedback received throughout Phase 1 and how that feedback was addressed.
- Preview and discuss process and Advisory Group meetings and role for Phase 2.

# AGENDA

Time	Topic
9:00 - 9:15 am	Welcome, Agenda, Introductions
9:15 – 9:30 am	Approval of Summary of Last Meeting
9:30 – 10:30 am	Update on Scenarios and Phase 1 Feedback
10:30 – 10:40 am	Break
10:40 – 11:30 am	Update on Complementary Analysis
11:30 – 12:00 pm	Phase 2 Schedule and Next Steps

# GROUP AGREEMENTS

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- Honor the agenda or modify by agreement.
- Listen carefully; seek to learn and understand each other's perspective.
- Encourage respectful, candid, and constructive conversation.
- Keep an open mind.
- Ask questions to clarify and understand why.
- Be open, transparent, inclusive, and accountable.
- Respect differing opinions.
- Seek to resolve differences and find common ground.
- Be conscious of speaking time; step back to allow space for others to contribute.
- Limit chat conversations.

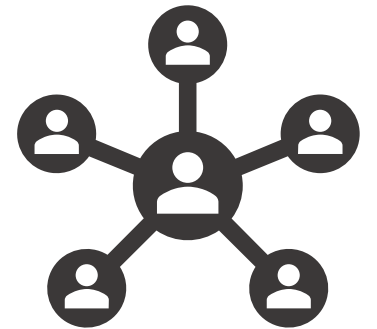


# ADVISORY GROUP MEMBER INTRODUCTIONS

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Please introduce yourself  
(name, affiliation)



# APPROVAL OF LAST MEETING SUMMARY

Tina Kotek, Governor



## Oregon

### MEETING SUMMARY

550 Capitol St. N  
Salem, OR 9730  
Phone: 503-378-404  
Toll Free: 1-800-221-803  
FAX: 503-373-780  
[www.oregon.gov/energ](http://www.oregon.gov/energ)

**ODOE Oregon Energy Strategy Advisory Group Meeting #5; November 20, 2024**

#### Attendees

**Present Advisory Group members:** Alma Pinto, Aaron Orlowski, Andrea Caudill, Andrew Mulkey, Bryan Adams, Cathy Ehli, Charity Fain, Christine Golightly, Cory Scott, Elaine Prause, Emily Griffith, Fred Heutte, Ivy Quach, Jeff Hammarlund, Jennifer Bies, Jennifer Hill-Hart, Jennifer Joly, Joshua Basofin, Lauren Poor, Laura Tabor, Matt Tidwell, Patrick Ford Mills, Rakesh Aneja, Rebecca Smith, Shannon Souza, Timothy L. McMahan, and Tucker Billman

**Oregon Department of Energy staff:** Abby Reeser, Alan Zelenka, Anne Thrall-Nash, Edith Bayer, Hugh Arceneaux, Jessica Reichers, Joni Slinger, Josh Price, Lauren Rosenstein, Mary Kopriva, Michael Freels, and Ruchi Sadhir

**Consultant team:** Ben Duncan (Kearns & West), María Verano (Kearns & West), Eileen Quigley (CETI), Ruby Moore-Bloom (CETI), Jeremy Hargreaves (Evolved Energy), Angela Long (Rockcross)

**Number of members of the public in attendance: 5**

#### Welcome and Agenda Review

Ben Duncan, Kearns & West, opened the meeting. Ben spoke to operating WebEx and the chat and reaction functions. Edith Bayer, Oregon Department of Energy (ODOE), introduced herself and the goals of the meeting; to:

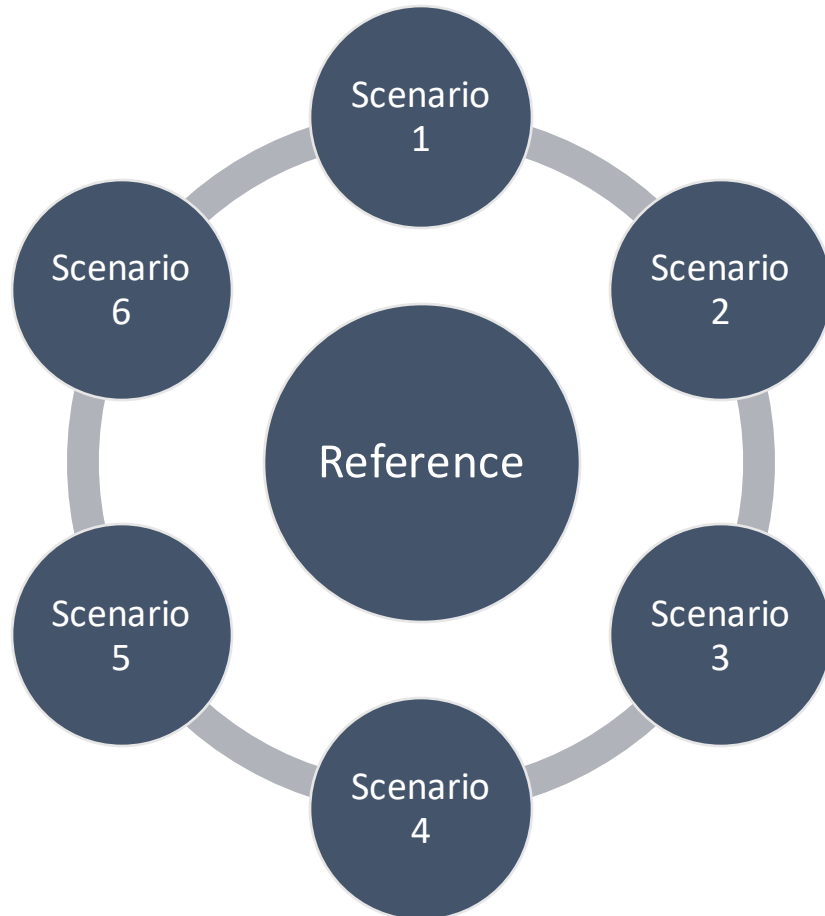
- Present and collect feedback on framing for energy wallet, air quality modeling, and geospatial

# UPDATE ON SCENARIOS AND PHASE 1 FEEDBACK



# SUMMARY OF MODELING APPROACH

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**Reference:** Combination of a set of “aggressive but achievable” assumptions demonstrating alignment with state energy goals to 2050 & seeking least cost pathway

**Scenarios 1-6:** Test alternative pathways to uncover differences and trade-offs with reference pathway

*(What if we rely more or less on in-state resources? What if heat pump or electric vehicle adoption is slower than expected? etc.)*

# Changes to Reference Scenario

- Transmission assumptions
- Land use
- Carbon capture and storage

# TRANSMISSION ASSUMPTIONS

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## Previous approach assumed the following expansions are built:

- New lines- PAC's Gateway South online by 2025; PAC's Gateway Central and Gateway West online by 2030; IPC's Boardman to Hemingway (B2H) project online in 2030; PAC's Gateway project online in 2035; Snow Goose to Longhorn (Boardman) online in 2035
- Reconductoring/Rebuilding Existing Lines - BPA's Big Eddy to Chemawa project and PGE's Round Butte to Bethel project, both expanding East to West transfer capacity from 230 kV to 500 kV and both online in 2035

## Change:

- Only B2H is assumed online in 2030; Other interzonal lines are options for 2035 but not hardwired in

## Reasons for change to interzonal lines:

- We wanted to see what the model would suggest building when taking an economy-wide, state-wide, and regional perspective, rather than a utility-specific perspective, and how this compares to planned lines

# LAND USE

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## Previous approach:

- Restricted use of legally protected (Level 1) and administratively protected (Level 2) areas in Oregon for energy development using The Nature Conservancy's Power of Place West study as a framework to select land use screens.

## Change:

- Added high conservation value (Level 3) areas to the framework.

## Reasoning:

- Early runs of the model found that applying Level 1 and 2 screens had minimal impact on siting. Adding Level 3 had a relatively low impact, still providing significant area for development. Based on concerns voiced in the Working Groups around land use, we chose to adopt this more conservative approach in the Reference Case to serve as the basis for policy discussions.

# CARBON CAPTURE AND STORAGE

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## Previous Approach:

- Carbon Capture and Storage was not allowed as a compliance mechanism to meet emissions targets

## Change:

- CCS is allowed as a compliance mechanism
- Natural Climate Solutions are not a compliance mechanism

## Reason for change:

- Several public comments requested inclusion of CCS
- ODOE consulted with DEQ and the PUC, confirming that Oregon's GHG Reporting rules include reporting protocols for carbon capture and storage, and therefore programs relying on GHG emissions reporting data (e.g. CPP, HB2021) could account for these avoided emissions

# Changes to Alternative Scenarios

- Limited Utility-Scale Generation
- High DERs + Limited Transmission
- No New Gas Plants

# FINAL ALTERNATIVE SCENARIOS

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1. Slower Energy Efficiency and Building Electrification
2. Slower Transportation Electrification
3. Limited Demand Response
4. Limited Utility-Scale Electricity Generation in Oregon
5. High Distributed Energy Resources + Limited Transmission
6. No New Gas Plants

# LIMITED UTILITY-SCALE GENERATION IN OR

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- Originally, we proposed to apply Power of Place Level 2 land use restrictions to the Reference Scenario and to apply Level 3 to this scenario.
  - L1: Areas with existing legal restrictions
  - L2: Administratively protected areas
  - L3: High conservation value areas
- This was expected to answer the question: what if we cannot develop as much transmission and large-scale generation? What fills in the gap?
- However, Level 2 turned out not to be very restrictive. Allowed for significant development.
- Response:
  - Applied L3 across all scenarios, including the Reference
  - Re-purposed this scenario to address a narrower question



# LIMITED UTILITY-SCALE GENERATION IN OR

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“What happens if we only build half of the generation that the model wants to build in Oregon?”

- Response to finding that significant in-state build is cost-effective, reducing need for transmission
- The large in-state build, combined with the role of reconductoring, meant that just restricting greenfield transmission did not constrain the system as much as anticipated
- We wanted to consider possible effects of barriers to construction at the pace and scale of the Reference

# HIGH DERs + LIMITED TRANSMISSION

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- We re-framed constrained utility-scale development to learn more about what happens if we limit in-state build. This seems to lead to a reach for more out-of-state resources.
- This left a key area unexplored: what happens if we develop more distributed generation in Oregon, particularly rooftop solar and distributed batteries?

# HIGH DERs + LIMITED TRANSMISSION

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“What happens if we build out 50% of the potential for rooftop PV, 40% of that PV is paired with batteries, and half of those batteries provide flexibility services?”

- 7GW of rooftop solar
- 2.1 GW (1.3 GWh) of behind-the-meter storage capacity providing flex services
- Potential based on NREL estimates
- Transmission is limited to reconductoring, limiting imports
- 2/3 vehicle-to-grid for residential EVs in 2050

# NO NEW GAS PLANTS

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- Originally, we proposed a “high hydrogen” scenario to explore the role of hydrogen if it was available sooner.
- Based on comments received and discussions with our consultants, there was a risk that accelerating hydrogen availability to 2030 might be overly ambitious and may not be the most instructive scenario.
- We explored other options, none of which yielded significant enough changes to learn something meaningful for policy discussions.
- However, we discovered an interesting finding: the model will build many small clean gas plants (burning H<sub>2</sub> and/or biogas) in Oregon that run at very low-capacity factors as a reliability resource.
- We decided to dig into this finding.

# NO NEW GAS PLANTS

“What happens if clean gas plants that play a reliability role don’t get built?”

- Existing fossil gas plants are mostly phased out, with a few providing a balancing role and operating outside of HB2021 customer base
- New combustion turbines that would otherwise be constructed to run on clean gas (biogas or H2) are not built
- Meant to help uncover the value of these low- capacity factor resources for reliability purposes
- Helps understand how we ensure reliability in a high distributed renewables system, particularly in cases of low hydro, low renewables output, extreme weather
- Important to explore the different options to get a sense of the role of technologies, cost, and to inform a robust policy discussion

# FINAL SENSITIVITIES

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- No change in VMT
  - Reference
  - High Distributed Energy Resources + Limited Transmission
- 50% lower data center growth
  - Reference
- Note: 50% lower data center growth replaces constraint on transmission between the Oregon East and Oregon West zones (across the Cascades)

BREAK

# PHASE 1 MATERIALS

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- **Comment Response Document:** Summarizes all comments received in public meetings (Working Groups, Advisory Group, Listening Sessions) and in writing, and provides responses.
- **Final Scenarios, Assumptions, and Sources:** Provides description of final scenarios, records changes to scenarios undertaken, and documents key sources that informed scenario assumptions.
- **Technical Approach:** Overview of the technical approach to the modeling, prepared by the Clean Energy Transitions Institute team.

<https://www.oregon.gov/energy/Data-and-Reports/Pages/Oregon-Energy-Strategy-Phase1-Archive.aspx>



# UPDATE ON COMPLEMENTARY ANALYSIS

# UNDERSTANDING AND BUILDING ON THE ENERGY PATHWAYS MODELING RESULTS

## Energy Modeling Results

Model calculates energy needed to power Oregon's economy, and least-cost way to provide that energy under clean electricity and emissions goals.

### Energy Wallet

Energy spending and energy burden for different customer types, impact of timing of investing in electrification

### Air Quality Modeling

Model calculates how changes in air quality affect health outcomes and economic benefits

### Employment Effects

Evaluation of the effects of the pathways analysis on direct, indirect, and induced energy sector employment

## Geospatial Mapping

Maps explore community-level energy inequities and relationship to socioeconomic disparities – to help interpret energy modeling results, energy wallet analysis, air quality modeling, and employment effects

# ENERGY WALLET FEEDBACK

## Representation

- Some commenters ask to differentiate between utility types
- While others asked to develop new customer groups, including:
  - Tribes, Willamette Valley Single Family, Rural and Harsh Climates, and New Multifamily Housing

## Energy Burden

- There was a clear call to ensure different customer groups, particularly low-income households, rural areas, and marginalized communities, are well represented in the analysis to prevent them from being overlooked in policy recommendations.

## Balancing Considerations

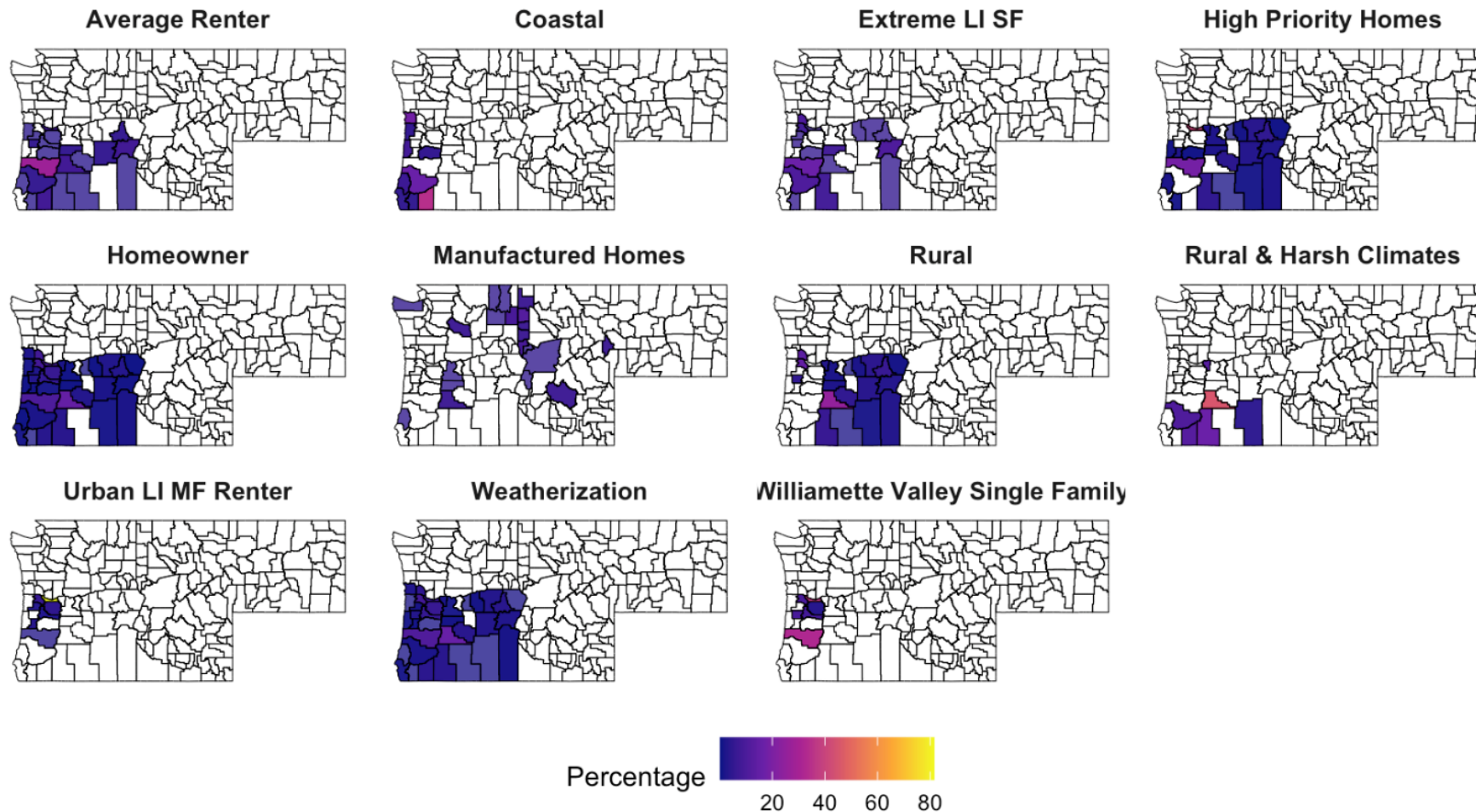
- Several comments suggested considerations to balance in choosing the five households, including: representing as many households as possible; ensuring energy burden is reflected; helping inform forward-looking housing solutions; and considering different fuel use (electricity, gas, propane, biomass, etc.).

## Electric Costs & Efficiency

- Many commenters suggested focusing on the electric costs and opportunities for energy efficiency (e.g., transitioning from gas to electric heating) for different groups, particularly those in energy-burdened households like rural, renters, multifamily and manufactured homes.

# NORTHWEST ENERGY EFFICIENCY ALLIANCE (NEEA)'S RESIDENTIAL BUILDING STOCK ASSESSMENT (RBSA)

## Percentage of sample size for each customer group from NEEA's RBSA



*Note: Maps show Oregon, Washington, Idaho, and Montana*

# CUSTOMER GROUPS

## Original list

- Homeowner
- Rural home
- Coastal home
- High priority area home
- Extreme low-income single-family
- Weatherization
- Manufactured home
- Average renter
- Low-income renter multifamily

## Added for consideration

- Home reflecting COU vs. IOU profile
- New multi-family housing
- Willamette Valley Urban Single-Family home
- Rural and harsh climate
- Tribal



## Final List

- Homeowner
- Rural home
- High priority area home
- Manufactured home
- Low-income renter multifamily

# 5 FINAL CUSTOMER GROUPS

Customer Group	Description
<b>Homeowner</b>	Owner occupied single-family detached home in Oregon.
<b>Rural Home</b>	Single-family detached home located in a rural region in Oregon.
<b>High Priority Area Homes</b>	Single-family detached home located within high priority area counties identified in Oregon's Ten-Year Plan. <sup>1</sup>
<b>Manufactured Homes</b>	Manufactured home, assumes cost of energy is 70% higher than the average cost in Oregon.
<b>Low-Income Renter (Multifamily)</b>	Low-income renter occupied multifamily home in Oregon, includes all multifamily building types.

## Inputs to Energy Wallet:

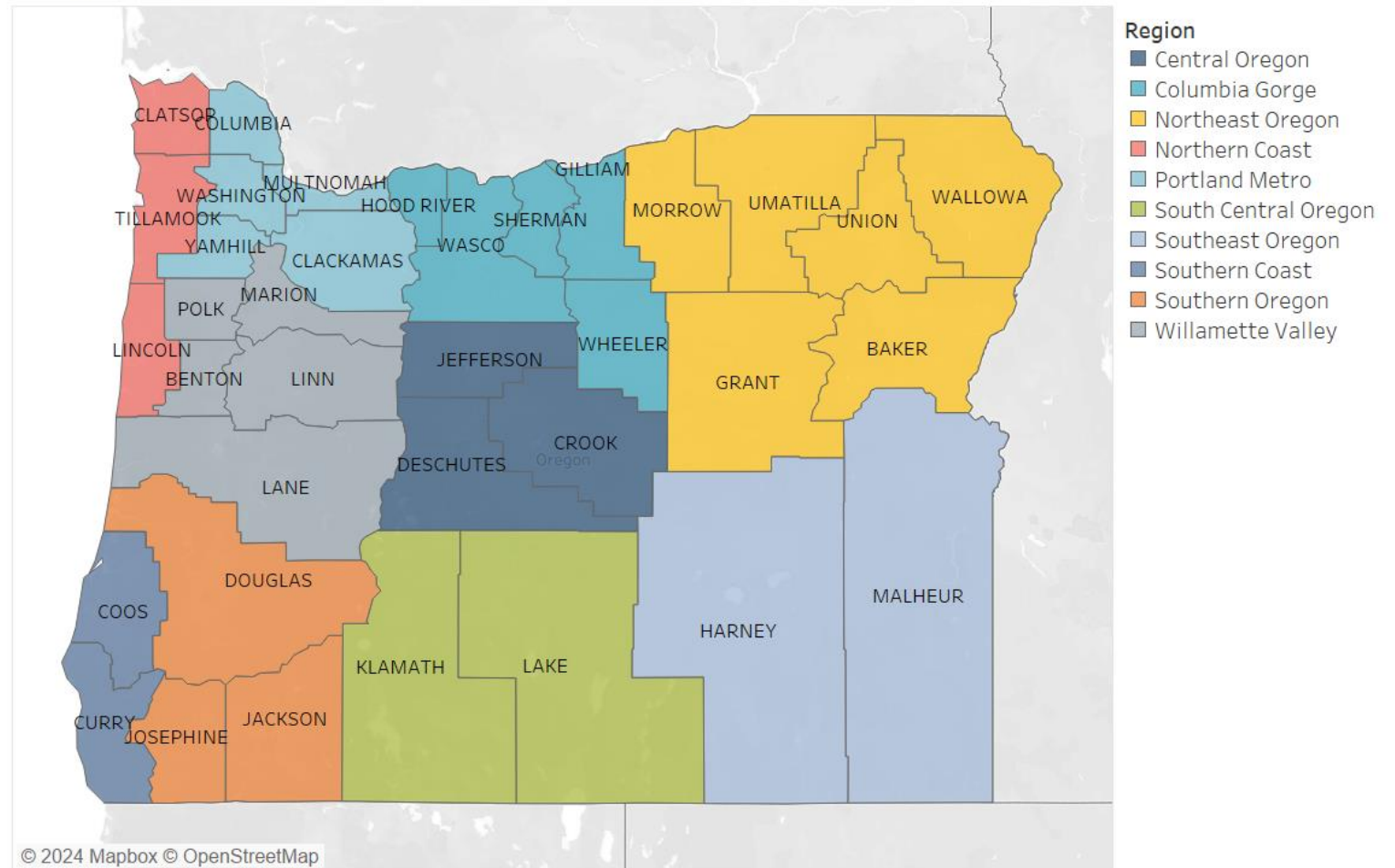
- Household consumption of all fuels (heating, plug loads, transportation) and associated costs
  - From NEEA and additional data sources
  - Includes average vehicle miles traveled per household
- Percentage change in cost of delivering energy over time
  - Output from Energy Modeling

1. [Ten-Year Plan: Reducing the Energy Burden in Oregon Affordable Housing](#) (ODOE, OPUC, OHCS)—High-priority area index (1-4) includes: % of energy burdened households, % of low-income households, % of units built prior to 1990, and % of people of color. For this analysis, high priority area county = index of 3 or 4.

# COUNTY CLUSTERS FOR AIR QUALITY MODELING

- No recommended changes to the county clusters regions proposed in 11/06 EJ/Equity Approach Write up
- Final Approach: 10 Oregon regions for Air Quality modeling

Proposed Regions for Air Quality Modeling



# FEEDBACK RECEIVED – GEOSPATIAL MAPPING

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- General support for proposed approach
- Specific indicators to prioritize:
  - Race, ethnicity, language, income, poverty, and education levels to provide equity lens
  - Add “Percent of Individuals Receiving Medicaid Benefits” and “Percent of Individuals Receiving Social Security Disability Income”
  - Indicator to help analyze wildfire-related air quality impacts
- Postpone selection of mapping variables until people have had a chance to comment on modeling, Energy Wallet, and Air Quality outputs
  - Will move forward with proposed 15 maps and remain flexible for creating more
- Produce an interactive map to help with future work
  - Not in scope for this project, but may be possible in the future



# GEOSPATIAL MAPPING FINAL APPROACH

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## Bivariate indicator maps:

1. Average energy burden & Percentage of manufactured homes
2. Fine particulate matter (PM 2.5) & Percentage of adult asthma prevalence
3. Projected wildfire risk & Percentage of individuals employed in agriculture, forestry, fishing, hunting, and mining
4. Percentage of households prioritized for IRA incentive households (0-80% AMI) & percentage of homeowners
5. Average energy burden & the percent of individuals with a non-institutionalized disability
6. DOT transportation barriers & Percent of individuals at or below 150% of the federal poverty line

## Univariate indicator maps:

7. Percent of individuals without a HS diploma
8. Percent of individuals receiving Medicare
9. Percent of individuals who speak English “less than very well”
10. Percent of Black individuals
11. Percent of Hispanic Individuals
12. Percent of Native individuals
13. Percent of Asian individuals
14. Categorical map of rural communities
15. Categorical map of coastal communities

# PHASE 2 SCHEDULE & NEXT STEPS

# ADVISORY GROUP MEETING SCHEDULE

<b>MONTH</b>	<b>TIME</b>	<b>TOPIC</b>
February 20	9:30 am – 12:30 pm**	Modeling results
March 20	9:30 am – 12:30 pm**	Policy
April 23	9:00 am – 12:00 pm	Policy
May 15	9:00 am – 12:00 pm	Summary of meetings
June 18	9:00 am – 12:00 pm	Discuss final recommendations
July 24	9:00 am – 12:00 pm	Jobs and economics results
August 21	9:00 am – 12:00 pm	Draft report
September 18	9:00 am – 12:00 pm	Final Advisory Group meeting

# NEXT STEPS

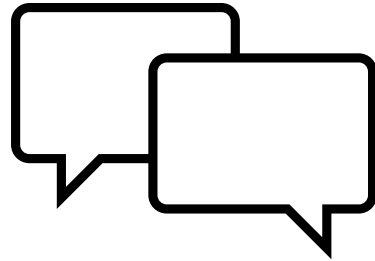
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- **January 31:** Info session, presentation of modeling results in person (with call-in option and recording). At OMSI.
- **February 12:** First Policy Working Group meeting (all working groups together)
- **February 18:** Info session: complementary analysis (energy wallet, air quality, geospatial mapping insights)
- **Feb 19 – April 14\*:** Policy Working Group meetings
- **April 30:** Final Policy Working Group meeting (all working groups together)
- **June (approx.):** Info session: public draft policy recommendation release for comment

**\*Note:** there will be no Policy Working Group meetings between March 21 – April 9 to account for expected peak activity around Legislative Session.

# OPPORTUNITIES FOR PUBLIC COMMENT

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Provide written public comment

<https://odoe.powerappsportals.us/en-US/energy-strategy/>



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DEPARTMENT OF  
**ENERGY**

**Thank You!**

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