Oregon
Tina Kotek, Governor

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Meeting Summary

ODOE Oregon Energy Strategy Advisory Group Meeting #6; January 16, 2025

Attendees

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

Oregon Department of Energy staff: Stacey Heuberger, Alan Zelenka, Anne Thrall-Nash, Edith Bayer, Hugh Arceneaux, Jessica Reichers, Joni Slinger, Josh Price, Lauren Rosenstein, Mary Kopriva, Michael Freels, Rob Del Mar.

Consultant team: Ben Duncan (Kearns & West), María Verano (Kearns & West), Gillian Garber-Yonts

Number of members of the public in attendance: 7

Welcome and Agenda Review

Ben Duncan (Kearns & West) opened the meeting and presented on WebEx functionality. Ben asked that attendees stay on mute and use the raise hand function to participate. Edith Bayer, Oregon Department of Energy (ODOE), introduced herself and shared the following meeting objectives:

- Provide accountability at the close of Phase 1 by describing final decisions taken on the modeling and complementary analysis;
- Provide an overview of five representative households chosen for household energy wallet analysis and how public input informed this framing;
- Provide an overview of how ODOE will report on feedback received throughout Phase 1 and how that feedback was addressed; and
- Preview and discuss process and Advisory Group meetings and role for Phase 2.

Edith encouraged participants to ask questions throughout the meeting. Edith explained that an in-person hybrid presentation of modeling results is planned for January 31, 2025.

Ben reviewed the meeting agenda, reiterating that the primary focus of this meeting is to outline ODOE's final modeling decisions and provide a stable foundation for Phase 2 policy discussions. Ben also shared the group agreements and requested that participants engage candidly but constructively. Additionally, Ben also requested that the chat function be used for questions but not dialogue.

Ben and the Advisory Group members shared introductions.

November Meeting Summary Approval

Ben reiterated the process for formally approving meeting summaries, noting that the process will be a standing agenda item at future Advisory Group meetings. Participants were invited to share any requested edits to the November Meeting Summary. Jeff Hammarlund confirmed that his name, as stated, is the name that ODOE should use moving forward.

Update on Scenarios and Phase 1 Feedback

Edith provided an overview of the modeling structure, explaining the relationship between the Reference Scenario, a hypothesized least-cost pathway to Oregon's policy objectives, relates to Alternative Scenarios. She stated that stakeholder feedback and publicly available data informed Reference Scenario assumptions. The purpose of the Strategy engagement is to inform and develop feasible policy actions to achieve Oregon's energy objectives. Edith explained that the Alternative Scenarios are used to vary Reference Scenario assumptions, and, by comparison, to highlight the impact and directionality of those changes. These scenarios function as "what if?" questions that can produce "If…then…" findings; that is, the findings from comparing Alternative Scenario results to the Reference Scenario results should indicate what kind of cost and energy portfolio changes would result from a hypothetical "what if" scenario.

ODOE will report back on January 31 with modeling results. Edith clarified these scenarios are not forecasts and do not constitute the Energy Strategy itself; rather they serve to generate recommendations for the Energy Strategy.

Changes to the Reference Scenario

Transmission:

Edith stated that ODOE initially proposed including several transmission lines as inputs to the model but explained that the model can also build transmission lines independently. Some initially proposed lines were removed from the model because they were intrazonal whereas the model only presents transmission lines between zones. Edith explained that Oregon was split into Eastern and Western zones to reflect commenter feedback on the Cascade Mountain Range acting as a barrier to transmission development. ODOE also removed a PacifiCorp (PAC) Gateway South line, as the modeling can independently select it if needed, and it is projected for completion by 2036. Edith stated that ODOE is monitoring remaining projects but determined that the Strategy would gain the most insight by allowing the model to select lines as an output. Boardway-to-Hemingway (B2H) is an exception because of its relatively advanced development. Edith says that the model will show us a contrast between what it selects and what is being planned, and that ODOE chose to prioritize this learning. Edith also clarified that the model can build reconductoring and new greenfield lines.

Question: how does the model think about market trades and hurdle rates? Requests that ODOE flag these issues as they come up through the Strategy's development.

Response: The model optimizes output across the West, and so does not capture market friction. ODOE is happy to discuss this separately; additionally, the February 12 call with CETI will be a venue to discuss this item.

Land Use:

Edith explained that ODOE originally proposed using Power of Place (PoP) – West land use screens at Levels 1 and 2, with an alternative to analyze the impact of using Level 3 screens. Ultimately these constraints did not significantly impact early modeling indicators; consistent with WG feedback and consultant advice. ODOE decided to adopt the Level 3 screen in the Reference Scenario and repurposed the related Alternative Scenario.

Carbon Capture and Storage:

Edith explained that ODOE originally proposed excluding Carbon Capture and Storage (CCS) from the modeling. However, based on feedback and engagement with sister agencies, ODOE decided to allow CCS as a compliance mechanism, clarifying however that natural climate solutions are not permitted as a compliance or crediting mechanism because policies in this area are not yet robustly developed.

Question: Was the decision to exclude nature-based solutions based on a lack of evidence for these solutions or a lack of protocol in accounting for these practices? Are natural working lands emissions excluded from the modeling?

Response: The latter. Natural working lands emissions often are not included in emissions accounting and are not reflected in the modeling.

Question: Is there any mechanism for stakeholders to provide input on these new modeling assumptions?

Response: The comment portal is open both during specific times identified by ODOE for input on proposed decisions but also remains open throughout the Energy Strategy development process for public input. The new modeling assumptions were developed under a tight modeling timeline in collaboration with the CETI-OES Team and through a review of public comments from Phase 1. Results are final. ODOE welcomes clarifying questions on the modeling and new assumptions in advance of the next Advisory Group (AG) meeting.

Question: Are CCS from industrial processes and natural sequestration the only two categories considered here? What practices fall under these categories?

Response: Yes; ODOE recommends referring to Oregon Climate Action on Public Lands for more information.

Changes to Alternative Scenarios

Edith presented ODOE's six Alternative Scenarios,[1] focusing on the last three which have changed since October.

[1] The six Alternative Scenarios are: Slower Energy Efficiency and Building Electrification; Slower Transportation Electrification; Limited Demand Response; Limited Utility-Scale Electricity Generation in Oregon; High Distributed Energy Resources + Limited Transmission; and Alternative Flexible Resources.

Limited Utility-Scale Generation in Oregon

ODOE modified this Alternative based on the revised application of land use-screens. This Alternative now explores the impacts of constructing 50% less utility-scale generation in Oregon than in the Reference Scenario.

High DERs + Limited TX

Edith explained that this Alternative incorporates a larger quantity of rooftop photovoltaic (PV) potential and pairs this generation with batteries and with vehicle-to-grid. Edith provided details on the specific inputs and assumptions included in this Alternative.[2]

Question: What does "want to build" mean in the context of Utility Scale Generation? Does the model just build generation to meet projected demand?

> *Response: The phrase "want to build" reflects the generation that the model selects to build based on its projections of energy demand, considerations of reliability and policy constraints, and solving for a least-cost pathway. Notably, this analysis is not Public Utility Commission (PUC)-approved Integrated Resource Plan (IRP) or utility-specific; it is an Oregon-wide, economy-wide solution, and therefore reflects different decisions than those provided in utilities' modeling analyses. The modeling's projected demand is based on robust data collected from publicly available, vetted sources and stakeholder feedback received throughout Phase 1.*

Question: What is the finding in the model for utility-scale generation? How is it quantified, acres or gigawatts (GW)? What was the basis for the 50 percent limitation? Was it arbitrary, or were there discrete targets that informed the use of this limitation figure?

> *Response: ODOE will provide generation findings in acres and megawatts (MWs); however, the siting of generation resources will only be provided at the zone level rather than in specific projected siting locations. The 50 percent limitation is applied on a per-technology basis and was used to provide directional findings regarding the impact of reduced generation development.*

Question: What does cost-effective mean? Did ODOE coordinate with the Bonneville Power Administration (BPA) and consider projected funding streams for transmission development? Is ODOE considering initiatives in other states, like the Transmission Authority in New Mexico, as a means to facilitate transmission development? Addressing budget impacts will be important in presenting the Energy Strategy Report.

> *Response: ODOE is reviewing other states' policies and transmission authority initiatives and agrees that these should be subjects of discussion in Phase 2 and the Report. Regarding the budget question, the modeling will not produce an overall budget or explore costs against a business-as-usual scenario. Instead, the modeling will show a cost comparison between alternatives that satisfy Oregon's energy objectives. As the term is used to when discussing energy pathways modeling, cost-effective does not encompass every cost and benefit of policy value; instead, the modeling provides for a least economic-cost combination of resources to*

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[2] Assumptions for this Alternative include: 7GW of rooftop solar; 2.1 GW (1.3 GWh) of behind-the-meter storage capacity providing flex services; transmission limited to reconductoring, limiting imports; and 2/3 vehicle-to-grid technology for residential EVs in 2050.

provide energy for Oregon's needs. It does not fully account for benefits such as health and indoor air quality. These benefits and other factors not captured by the energy pathways modeling will be explored in the complementary analyses and discussed in Phase 2.

Question: Regarding the cited National Renewable Energy Laboratory (NREL) technical potential assessment, can ODOE describe factors that went into NREL's assessment and whether those included price factors?

Response: ODOE will provide further specifics on the NREL study. ODOE relies on NREL data as an objective and unbiased source.

Question: Can the model select for transmission across the Cascades?

Response: Modeling results will only show inter-zonal lines, which includes transmission lines between Eastern and Western Oregon. If a line is not built-in as an input, the model may select to build it. Within zones, a proxy cost is used to model transmission and distribution costs.

Comment: It is hard for AG members to engage with the scenarios when the results of the References have not been seen yet. The AG will have lots of questions about how the Alternatives test the Reference Scenario once results become available.

Response: ODOE encourages members to attend the modeling results presentation at OMSI on 1.31.24. The purpose of this 1.15.25 AG meeting is for ODOE to report back on modeling decisions made and provide as much information on the modeling as is currently available.

Alternative Flexible Resources

Edith explained that this was originally an accelerated hydrogen scenario. Based on comments received and discussions with CETI, ODOE determined that expediting hydrogen development in the modeling poses questions about feasibility. ODOE explored other options with CETI, such as delaying hydrogen availability and delaying clean fuels generally. These options did not look to provide robust learnings. ODOE and CETI found from early modeling indicators that new plants burning clean fuels served an important reliability function, with the model favoring plants that would burn clean fuels, such as biogas and hydrogen. These plants operate at low capacity factors but are useful for reliability, running primarily during extreme conditions.

The new Alternative asks what if these clean gas plants cannot be built? The new alternative removes new clean combustion turbines to assess the impact on resource mix and system costs to meet reliability needs.

Comment: A member expressed appreciation for the discussion and interest in additional information regarding biogas and hydrogen supply and delivery assumptions. Additionally, the member emphasized ensuring that the model accounts for substantial takeoff needs of alternative fuel turbines. The member also noted that hydrogen turbines are often used as a proxy resource for long duration energy storage assets with dispatch capabilities over 100 hours. They added that there is growing consensus that decarbonization will require long-term balancing resources. The AG member expressed interest in exploring what resources could meet this need under the Alternative and concern that the Alternative would remove a valuable decarbonization tool.

Response: The purpose of this Alternative is to see what resources may replace hydrogen in providing for reliability in electricity generation and what cost impacts might result from replacing hydrogen in this scenario. Hydrogen would be available for other end uses. Additionally, the model selects for under-25-MW hydrogen plants to comply with House Bill (HB) 2021. ODOE encourages AG members to raise the question of hydrogen supply constraints as a research policy recommendation. ODOE also emphasizes that the economy-wide nature of the present modeling effort may produce less expensive methods to secure reliability for a deeply decarbonized electricity sector than other studies.

Comment: Does the model build for electrolytic hydrogen or other sources?

Response: The model builds for either exclusively biogas or exclusively clean hydrogen, with these two resources competing on a cost basis. The model can select other hydrogen production technologies but predominantly uses electrolytically produced hydrogen.

Question: Are the biogas and hydrogen plants under discussion HB 2021 compliant? What is the source of the cited 25MW threshold, and would the emissions of a hydrogen plant make it non-compliant with HB 2021?

Comment: HB 2021, Section 28 is not restricted to Investor-Owned Utilities (IOUs).

Response: HB 2021, Section 28 was included in the modeling for the entire state of Oregon. It restricts the Energy Facility Siting Council from taking certain actions regarding electricity facilities that produce emissions. Consistent with ORS 469.300(11), EFSC reviews energy facilities that are 25 MW or larger. The model only allows clean gas plants that are smaller than 25 MW in size. It is not certain that these facilities could ultimately be sited in Oregon but based on ODOE's review, it is a possibility that needed to be allowed in the modeling. No new fossil gas plants were allowed to be sited in Oregon in the modeling.

Question: The model will look for cost-effective options; where do resilience, diversity, and climate disaster resilience fit in?

Response: The model only addresses reliability at a high level, but the model outputs can support discussions about resilience. For example, high-DER scenario can be understood as having resilience benefits, qualitatively. These topics will be discussed in Phase 2 policy discussions.

Question: What is the rough size of the customer-base of utilities served by IOUs and regulated by HB 2021?

Response: HB 2021 sets clean energy targets for PacifiCorp, Portland General Electric and the state's electricity service suppliers. In 2023, those entities sold roughly 62.1% of all megawatt hour sales in Oregon, according to the 2023 Utility Statistics Book published by the Oregon Public Utility Commission and available here: https://www.oregon.gov/puc/forms/Forms%20and%20Reports/2023-Oregon-Utility-Statistics-Book.pdf.

Comment: The Strategy should consider natural gas plants that are biogas or hydrogen-ready. The AG member stated that California is a great example of a place that has built a state contingency resource of such plants. California provides a practical example to examine, both for intent and lessons in practice. These plants could also alleviate transmission needs.

Response: This will be an important topic for discussion in Phase 2, particularly regarding specific geographic resilience needs.

Modeling sensitivities

Edith explained that ODOE had planned to implement a sensitivity to restrict East-West transmission across the Cascades but that this analysis was producing limited information and value. So, ODOE added a scenario to explore data center load growth by halving data center construction. ODOE retained the additional sensitivity that examines a statewide per capita light duty vehicle miles traveled (VMT) figure consistent with present VMT.

Question: Were these changes to assumptions and sensitivity selections raised for stakeholder feedback? Were interim modeling results shared with stakeholders?

Response: No; modeling efforts and responses to interim results and modeling indicators were done on a compressed timeline between ODOE and the CETI-OES Team. ODOE relied on stakeholder feedback provided through Phase 1 to prioritize approaches and make decisions when early modeling indicators showed that the sensitivities and Alternatives discussed in this meeting did not present meaningful results.

Question: Is reconductoring an input to the model or something being selected by the model?

Response: The latter. The modeling selects for reconductoring when doing so is economical and consistent with Oregon policies and reliability needs.

Phase 1 Materials

Edith stated that January 31 will be the end of Phase 1, and ODOE will prepare materials to close out the discussion. Edith described a forthcoming comment response document; a final modeling assumptions and sources document; and a CETI Technical Approach document. Edith stated that these will be three discrete files which will be published on the website.

Edith also stated that ODOE will ensure that the final report reflects, in response to August comments, areas of agreement and recommendations as well as areas of disagreement.

Update on Complementary Analysis

Edith stated that the complementary analysis begins with the results of the modeling, which are used as inputs to the complementary analysis. Edith explained that the Energy Wallet analysis will help assess the financial impacts of the modeled scenarios on Oregon households and that the Air Quality analysis will rely on the Environmental Protection Agency's Co-Benefit Risk Assessment (COBRA) model. Edith also stated that ODOE will conduct a jobs analysis on a slightly longer timeline to evaluate what the modeled Scenarios mean for jobs in Oregon.

Energy Wallet

Edith summarized feedback received on the Energy Wallet; especially that a Consumer-Owned Utility (COU) and IOU distinction be captured, that Tribes be represented, and that recommendations be provided for a Willamette Valley single-family home, for rural and harsh climate households, and for new multi-family housing. ODOE also received feedback indicating that households facing high energy burdens should be considered. A commenter also recommended that the CETI-OES Team conduct an ANOVA analysis to help in selecting customer groups, which they subsequently conducted.

Edith presented slides highlighting customer groups considered for the Energy Wallet analysis. She explained that the data on these representative households were collected from Northwest Energy Efficiency Alliance (NEEA) Oregon data, except for manufactured homes, which, because of NEEA's small sample size for Oregon, ODOE chose to expand to include Northwest-wide data. Edith presented the five selected customer groups: Homeowner; Rural home; High priority area home; Manufactured home; and Low-income renter multifamily. Edith further explained that VMT figures were collected from the Center for Neighborhood Technology Housing and Transportation Affordability Index. Edith explained that ODOE compared rural homes and harsh-climate households and found that they were largely similar. As a result, ODOE elected only to use rural homes to ensure that the selected customer groups reflected the broadest possible range of Oregonians. Edith also reflected that in a previous AG meeting, ODOE heard interest in examining costs associated with different heating fuels. However, the representative customers of the five selected groups all rely on either electric or natural gas heating.

Question and Comment: Why were manufactured homes selected, despite having a small sample size in Oregon, but not COUs? COU customer energy wallets should reflect lower starting costs and be included in the analysis and Energy Strategy Report.

Comment: The Energy Strategy Report should be mindful in handling IOU and COU systems in Oregon to address important distinctions such as grant programs targeted for IOUs or COUs specifically.

> *Response: The Energy Wallet analysis focuses on household characteristics such as heating type, housing type, fuel costs, and other input parameters. COU customers exhibit a broader array of household characteristics that are difficult to reflect with a single representative customer. Additionally, the manufactured home sample from NEEA was small, but this does not imply that they represent an insignificant portion of Oregon customers; manufactured homes are about 8% of Oregon's homes. ODOE will explore differentiating COU and IOU customer impacts by providing different starting point costs in the Energy Wallet analysis, but this approach will have to further examine whether such an approach is feasible with ODOE's technical consultants.*
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> *ODOE will continue to explore ways to reflect COU- and IOU-specific distinctions in the complementary analysis, policy discussions, and the Energy Strategy Report.*

Air Quality Modeling

Edith explained that ODOE received no additional feedback on the proposed means of organizing Oregon regions for air quality modeling. She reiterated that air quality modeling results will be released after the energy pathways modeling results become available.

Geospatial Mapping

Edith stated that public comments helped prioritize layers for mapping. ODOE is postponing the final selection of geospatial mapping pending publication of modeling results. Edith also stated that an interactive map proposal, suggested by an AG member in November, falls outside the scope of the

Energy Strategy work, however ODOE will explore this idea as part of another agency project. Edith presented the currently selected map indicators on a slide.[3]

Phase 2 and Next Steps

Edith presented the schedule of meetings for the next several months, stating that meeting invitations have been sent.

Question: Is ODOE open to suggestions for new PWG members? Is there a deadline for these suggestions?

> *Response: ODOE welcomes new member suggestions. The process for selecting members is largely the same as was used in Phase 1. PWG member recommendations are requested by January 24. There is also overlap in membership between PWGs and Phase 1 focus-area working groups.*

Question: Is the Phase 2 schedule set in stone? It may be useful to add more meetings. Additionally, ODOE should solicit input during the first PWG meetings on the agendas and structure of meetings in order to maximize efficiency.

> *Response: In response to commenter feedback from Phase 1, ODOE has expanded the Phase 2 policy discussion engagement timeline ranges from February through April. This was done in an effort to provide time for stakeholder engagement to align policy discussions throughout Phase 2. ODOE is also planning for AG meetings to reflect on PWG discussions. ODOE welcomes input from AG members as to how ODOE can better support and facilitate stakeholder engagement in this time. HB 3630 includes a statutory deadline of November 1 for the Energy Strategy report and ODOE plans to publish draft recommendations in June, to allow stakeholders sufficient time to provide written comment and feedback.*

Comment: It would be useful for AG members to have informed substitutes in the AG process, because of timing constraints they may face during Phase 2.

> *Response: ODOE acknowledges that AG members may need to substitute personnel and requests that, when they do so, substitutes are briefed on Energy Strategy materials.*

Next steps

Edith reminded AG members of the upcoming January 31 modeling presentation at OMSI, the first Policy Working Group (PWG) meeting on February 12, and a listening session on February 27I, where ODOE will plan to provide more information on the complementary analyses. PWG meetings will be held from February 19 to April 14. In June, ODOE will release draft recommendations for comment, and ODOE will release information on the jobs study later in the year. Edith thanked the attendees for their

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[3] These include bivariate indicator maps: Average energy burden & Percentage of manufactured homes; Fine particulate matter (PM 2.5) & Percentage of adult asthma prevalence; Projected wildfire risk & Percentage of individuals employed in agriculture, forestry, fishing, hunting, and mining; Percentage of households prioritized for IRA incentive households (0-80% AMI) & percentage of homeowners; Average energy burden & the percent of individuals with a non-institutionalized disability; DOT transportation barriers & Percent of individuals at or below 150% of the federal poverty line and Percent of individuals without a HS diploma; and univariate indicator maps: Percent of individuals receiving Medicare; Percent of individuals who speak English "less than very well" ; Percent of Black individuals ; Percent of Hispanic Individuals; Percent of Native individuals; Percent of Asian individuals; Categorical map of rural communities; Categorical map of coastal communities.

participation and reiterated that the comment portal remains open. Ben expressed his appreciation for Advisory Group members and adjourned the meeting.