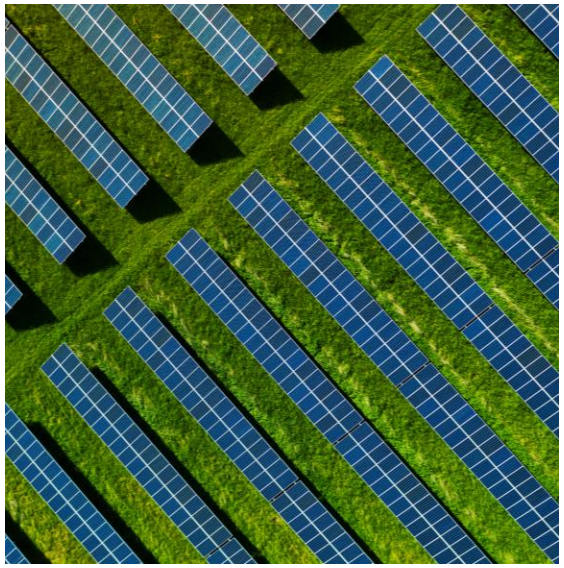
Oregon Department of **ENERGY**

Oregon Energy Strategy Advisory Group Meeting 8

March 20, 2025



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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

USING WEBEX

Audio Options

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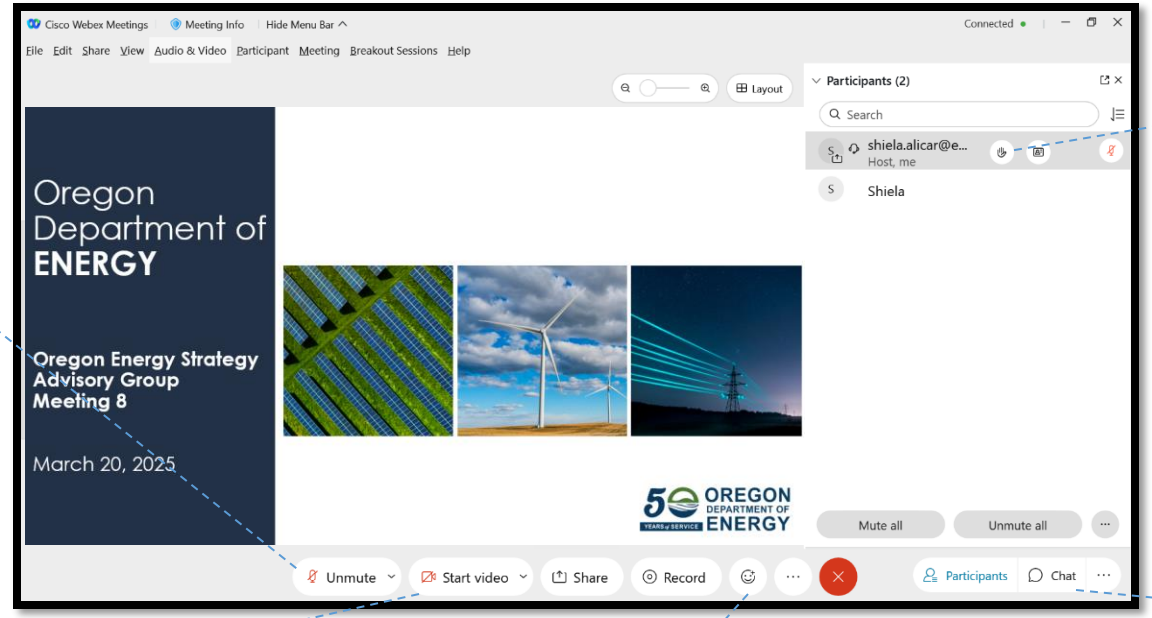
Unmute — *Microphone Off*



Second Raise Hand Option

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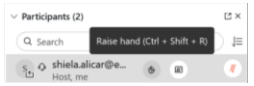

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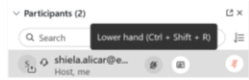
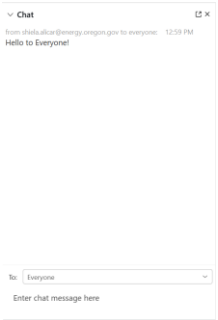
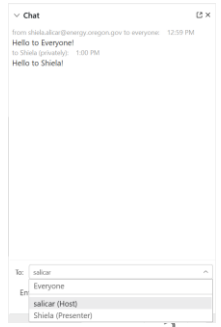


Chat



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).



Video Options

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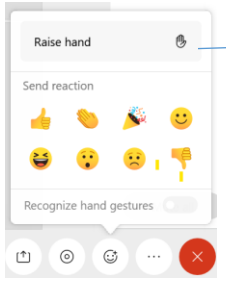
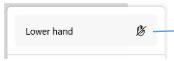
Start video — *Webcam Off*

Reactions



Click to Raise your hand.



Click on Lower hand when you are done.

GROUP AGREEMENTS

- 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.

Meeting Objectives

- Present overview of key challenges/barriers emerging from Working Group meetings
- Answer questions and collect reactions and feedback on key barriers
- Describe purpose of next meeting and focus of engagement between now and then

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AGENDA

9:30 – 9:45	Welcome, Agenda, Introductions, Approval of summary of last meeting
9:45 – 10:30	Overview of key challenges/barriers emerging from Policy Working Group meetings
10:30 – 10:50	Discussion
10:50 – 11:00	Updates and next steps

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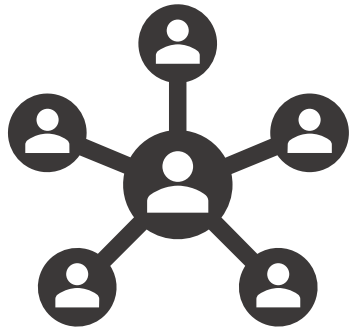
ADVISORY GROUP MEMBER INTRODUCTIONS

Please introduce yourself
(name, affiliation)



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FEBRUARY 20: MEETING NOTES/SUMMARY

Meeting Summary

ODOE Oregon Energy Strategy Advisory Group Meeting #7; February 20, 2025

Attendees

Present Advisory Group members: Jason Heuser [joining as alternate for Aaron Orlowski], Andrea Kreiner, Charity Fain, Christine Golightly, Cory Scott, Elaine Prause, Fred Heutte, Ivy Quach, Jeff Hammarlund, Jennifer Bies, Joshua Basofin, Lauren Link [joining as alternate for Laura Tabor], Mary Moerlins, Patrick Ford Mills, Rakesh Aneja, Shannon Souza, Scott Simms, Timothy L. McMahan, Tucke Billman, Erin Childs

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

Consultant team: Ben Duncan (Kearns & West), María Verano (Kearns & West), Gillian Garber-Yonts, Ruby Moore-Bloom (CETI), Jeremy Hargreaves (Evolved Energy Research)

Number of members of the public in attendance: 5

Welcome and Agenda Review

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

- Present modeling results with a focus on strategic takeaways for the policy discussions.
- Provide an opportunity to ask Jeremy Hargreaves, the lead modeler, questions.
- Understand the process for developing policy recommendations.
- Hear key issues and questions from Advisory Group members relating to policy discussions.
- Review focus of upcoming meetings.

Edith encouraged participants to ask questions throughout the meeting.

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Policy Working Group Updates

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COVERAGE OF EACH WORKING GROUP

Environmental Justice and Equity	• Role in providing EJ and equity perspectives in the other working groups • Evaluate analysis and develop recommendations related to EJ and equity
Building Efficiency, Electrification, and DERs	• 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	• Best application of low carbon fuels used 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 • Grid integration • Vehicle miles traveled reduction

STEP BY STEP PROCESS

Meeting 2 | Meeting 3 | Meeting 4

Pathway	Issue Statement / Barriers	Strategy To Overcome Barriers	Policy Action
Declining Fuel Demand			
Low Carbon Fuel Development			
On Demand Resources for the Electricity System			
Strategic Adoption of Low Carbon Fuels			

BUILDING ELECTRIFICATION,EFFICIENCY, AND DERS: KEY TAKEAWAYS FROM MODELING

Four Key Takeaways

- Building electrification, energy efficiency, and demand response are significant drivers of cost savings for Oregon's future energy systems. Delayed energy efficiency and building electrification causes significantly higher costs in the model.
- Building electrification results in system-wide reductions in energy demand. Aggressive adoption of heat pumps can cut total energy use for commercial and residential space heating in half by 2050.
- Increasing rooftop solar in western Oregon has higher costs but reduces the need for grid-scale solar in eastern Oregon. Each GW of rooftop solar in western Oregon displaces about 0.55 GW of eastside solar and about 2500 acres of land.
- Demand response programs reduce the amount of new electricity capacity and transmission needed while providing financial benefits to Oregon utility customers.

BUILDING ELECTRIFICATION, EFFICIENCY, AND DERS DISCUSSION HIGHLIGHTS

Residential and Small Commercial

- Upfront cost continues to be a significant barrier to adoption of measures.
- Consumer education is needed to convey the benefits of efficiency and electrification upgrades.
- Whole home weatherization is needed for health and safety concerns, but also very costly.
- Heat pump system performance does not always meet customer expectations.
- Low-income and rental housing markets are challenging. Programs struggle to serve low-income. Landlords may not see benefit of upgrades.

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BUILDING ELECTRIFICATION, EFFICIENCY, AND DERS DISCUSSION HIGHLIGHTS

Large Commercial and Industrial

- Some large commercial and industrial loads currently have no feasible alternative to fossil fuels.
- Comprehensive strategies that integrate efficiency, electrification, and adoption of DERS may help business and industry partners to prioritize these measures.

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BUILDING ELECTRIFICATION, EFFICIENCY, AND DERS DISCUSSION HIGHLIGHTS

Distributed Energy Resources

- Upfront cost continues to be a significant barrier to adoption of measures.
- Utility interconnection and net metering policies can be a barrier.
- There are benefits that are not yet quantitatively valued by incentive programs or utilities.
- Technology improvements are needed to enable maximum values to be realized.

BUILDING ELECTRIFICATION, EFFICIENCY, AND DERS DISCUSSION HIGHLIGHTS

Demand Response

- Many Oregon utilities have not yet implemented demand response programs.
- There is a lack of customer understanding and buy-in.
- Technology improvements are needed to enable maximum values to be realized.

BUILDING ELECTRIFICATION, EFFICIENCY, AND DERS DISCUSSION HIGHLIGHTS

March 5 Policy Working Group meeting focused on barriers. Some of the themes we heard:

- Upfront cost continues to be a significant barrier to adoption of measures.
- Consumer education is needed to convey the benefits of efficiency and electrification upgrades.
- There is a lack of skilled workforce in many rural parts of the state. In some cases, HVAC contractors are not promoting heat pump installations. In the longer term, maintenance and professional service may become an issue.
- Low-income and rental housing markets are especially challenging. Incentive programs struggle to serve low-income. Landlords may not see value of upgrades.
- Installing distributed energy resources, such as rooftop solar, has many barriers including dishonest sales practices and utility interconnection policies.
- Some large commercial and industrial loads have no viable alternative to fossil fuels.

TRANSPORTATION - KEY TAKEAWAYS FROM MODELING

Four Key Takeaways

- **Vehicle electrification**: Transportation electrification reduces system-wide energy demand and the cost of decarbonization, and the pace matters.
- **Grid integration**: Transportation electrification will significantly increase electricity demand, but EVs can provide a net benefit to the grid if managed flexibly.
- **VMT Reduction**: Reducing vehicle miles traveled has a large impact on overall energy demand and the costs for maintaining and upgrading the electric grid.
- **Low-carbon fuels**: Low-carbon fuels play a strategic role in decarbonizing transportation across all scenarios, but that role increases as the pace of transportation electrification slows.

TRANSPORTATION ELECTRIFICATION POLICY WORKING GROUP: BARRIERS DISCUSSION

Vehicle Electrification

Barrier Category	Summary
High Costs / Lack of Funding (23)	High upfront costs coupled with lack of sufficient incentives
Consumer / Dealer Awareness (17)	EV myths persist and many are unaware of benefits
Charger Reliability / Maintenance (12)	Charging stations are unreliable and difficult to repair and maintain
Interoperability & Standards (11)	Lack of interoperability and standards leads to charger downtime and consumer confusion
Technical Assistance (11)	Large learning curve for fleets and no statewide technical assistance
Charging & Fueling Access (10)	Availability and accessibility of charging and fueling infrastructure in Oregon is limited, particularly for certain populations
MHD ZEV Technology (7)	Limited commercially available ZEVs for some MHD sectors and use cases

TRANSPORTATION ELECTRIFICATION POLICY WORKING GROUP: BARRIERS DISCUSSION

Grid Integration

Barrier Category	Summary
Load Management / DER / BESS (18)	Load management strategies and technologies are not well understood or developed
Utility Capacity / Upgrades / Interconnection (13)	Large power demand & limited grid capacity means high costs and timelines for interconnection
Lack of COU Resources and Incentives (9)	COUs have limited TE resources & expertise, and limited incentive for managed charging
Historic Planning / Investment Patterns (9)	Utilities hesitant to invest proactively without certainty of cost recovery
Utility Rates (6)	Utility rates not reflective of EV benefits and cost prohibitive for some consumers
Consumer Awareness – Load Mgmt (4)	Consumers wary of managed charging due to insufficient incentives and misconceptions

TRANSPORTATION ELECTRIFICATION POLICY WORKING GROUP: BARRIERS DISCUSSION

VMT Reduction

Barrier Category	Summary
Transit Investment (10)	Lack of sufficient and sustainable transit funding
Transportation Funding (9)	Lack of sustainable funding for road maintenance and transportation options
Transportation Options for Rural & Low-income Residents (8)	Lack of viable alternatives to cars for rural and low-income residents
Land Use / Development Patterns (8)	Development that favors cars
Cultural Perceptions (8)	Cultural preference for personal vehicle ownership and use and negative impressions around alternative transportation modes
Safety (5)	Safety concerns around alternative transportation modes
Intermodal System Completeness (4)	Gaps in the multi-modal system

DEVELOPING CLEAN ELECTRICITY GENERATION AND TRANSMISSION: KEY TAKEAWAYS FROM MODELING

Five Key Takeaways

- The model shows significant near-term load growth.
- Both in-state and out-of-state resources contribute to a least-cost supply portfolio.
- Oregon does not have sufficient physical transmission capacity to meet the modeled electricity flows.
- The model consistently builds more generating capacity.
- Decarbonizing Oregon's electricity may require more policy action.

DIRECTION WE TOOK FROM THE MODELING

The modeling results are not the Energy Strategy.

The modeling results provide a **foundation** and a **direction** for our conversations.

Direction from Modeling: Electricity is a key fuel for Oregon to meet its climate goals. There are different pathways for expanding our system, but in all scenarios the electricity sector must expand significantly.

With that direction on the "**what**," the group is discussing the "**how**."

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ODOE Set a Structure for Discussion

Meeting 2 | Meeting 3 | Meeting 4

Big Headings to Organize Our Conversation (these might change):	Issue statement	Proposed strategies to address barriers	Proposed policy actions
Facilitate responsible development of electricity infrastructure in Oregon	*What are the barriers or competing priorities?*		
Promote resilience for local communities	*What are the barriers or competing priorities?*		
Enhance the availability and efficient usage of transmission regionally	*What are the barriers or competing priorities?*		
Foster regional collaboration and efficient resource sharing	*What are the barriers or competing priorities?*		

DEVELOPING CLEAN ELECTRICITY GENERATION AND TRANSMISSION DISCUSSION HIGHLIGHTS

February 26 meeting focused on barriers. We heard about barriers in the marketplace, workforce capacity, regulatory uncertainty, and existing Oregon policies.

Here are some of the themes we heard:

- Current planning efforts are too siloed (energy/water, electricity/gas, utility/utility).
- Information is too limited for finding the 'best' sites for new resources.
- Permitting is time-consuming for development, yet can be unsatisfactory for affected communities.
- Differing perspectives on role of natural gas to support grid resilience.
- Differing perspectives on challenge/opportunity of new large loads.
- To promote resilience, more education, funding, and technical assistance is needed.
- Microgrids face regulatory uncertainty around the role of the utility vs other entities.

LOW-CARBON FUELS

Four Key Takeaways

- **Low-Carbon Fuels:** Low-carbon fuels are an increasing proportion of Oregon's energy supply across all scenarios.
- **Dispatchable Capacity:** More capacity from low-carbon fuel gas plants is needed to support the growing electric grid.
- **Electrification:** Electrification is more cost-effective than adopting low-carbon fuels in many applications.
- **Declining Fuel Demand:** Fuel demand declines but fuel remains a significant component of Oregon's Energy System across all scenarios.

LOW-CARBON FUEL BARRIERS

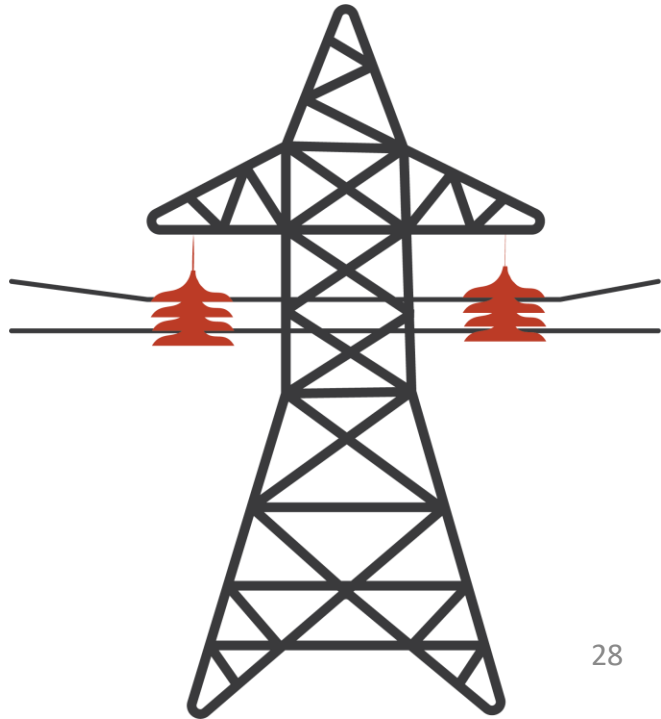
Low Carbon Fuel Development

- Supply
    - Limited fuel infrastructure and supply leads to competition with other states and end-uses
- Demand
    - Market is not driving demand for low-carbon fuels
- Feedstock
    - Many feedstocks in Oregon are not economical to develop due to long distances to existing infrastructure
- Cost/Affordability
    - Upfront costs of vehicles, equipment, new technologies, and infrastructure

LOW-CARBON FUEL BARRIERS

Dispatchable Resources to Support the Electric Grid

- Siting Facilities
    - State and local siting and permitting process
- Investments and Cost Recovery
    - Consistent access to renewable electricity
- Community and Environmental Impacts
    - Health and safety concerns of siting new gas generation and storage near communities



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LOW-CARBON FUEL BARRIERS

Electrification

- Transportation
  - Consumer awareness and understanding
- Industry and Agriculture
  - Existing infrastructure is not well placed to serve the most strategic uses
- Residential and Commercial
  - Upfront cost of retrofitting existing end uses
  - Lack of support for those who cannot afford to transition

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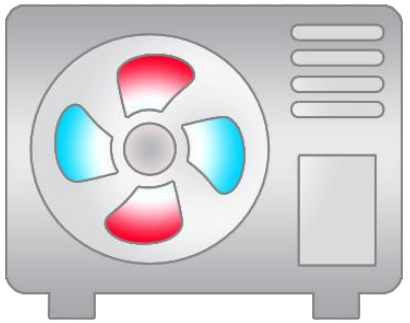
LOW-CARBON FUEL BARRIERS

Demand Declines

- Consumer Behavior
    - Awareness and confidence in electric vehicles, heat pumps, or new electric technology
- Cost/Affordability
    - Electric utility consumer rate increases
- Infrastructure
    - Regulatory framework and business model of fossil fuel suppliers
- Supply
    - Price volatility of low-carbon fuel programs and markets



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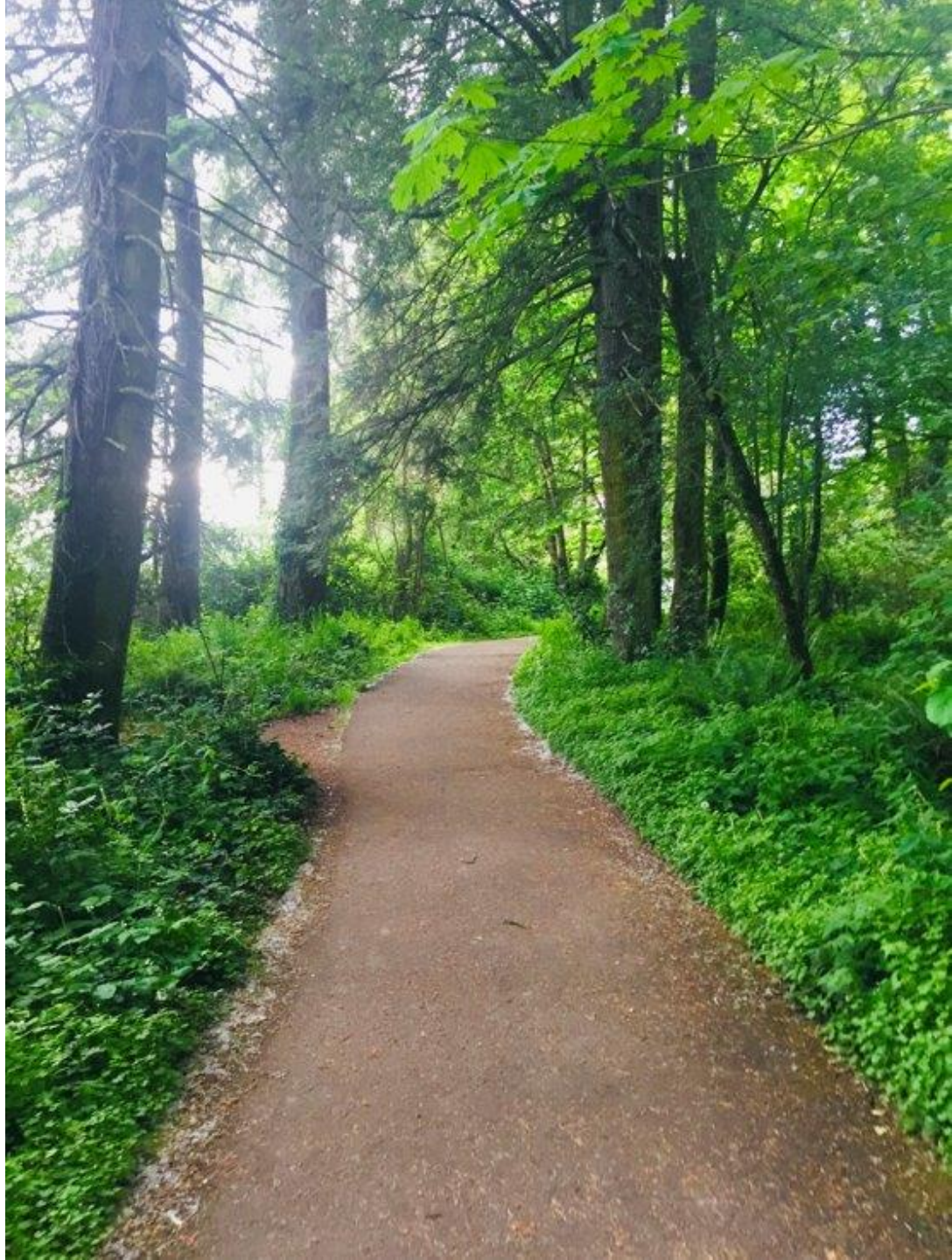
Environmental Justice and Equity Working Group Purpose

To elevate the concerns, barriers, solutions, and areas of interest within the field of environmental justice and equity to support the development of policy recommendations for the Oregon Energy Strategy.



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ENVIRONMENTAL JUSTICE AND EQUITY WORKING GROUP BARRIER IDENTIFICATION

Four Key Takeaways

- There should be more set asides for Tribes, there is a lack of infrastructure in environmental justice communities, **incentive programs** often run out of limited funds before people in environmental justice communities can access programs.
- High upfront costs make it **unaffordable** for many low-income communities to access many programs and their incentives, ratepayer incentives may be regressive, there is a lack of analysis to understand the burdens to low-income communities.
- There is a presence of misinformation that needs to be addressed, lack of **community education** and resources regarding certain technologies, lack of understanding incentives and benefits, lack of resources in multiple languages (and accessible language).
- Lack of culturally specific workforce training (training in general), limited **workforce opportunities**, gaps in workforce geographically.

DISCUSSION

Do you have any clarifying questions?

Would you like to elaborate on any particular challenge/barrier to provide a deeper perspective?

Is there anything you are hearing on these topics that you would like to share?

STEP BY STEP PROCESS

Meeting 2 | Meeting 3 | Meeting 4

Pathway	Issue Statement / Barriers	Strategy To Overcome Barriers	Policy Action
Declining Fuel Demand			
Low Carbon Fuel Development			
On Demand Resources for the Electricity System			
Strategic Adoption of Low Carbon Fuels			

UPCOMING MEETINGS

Feb 12

Working Group Policy Plenary
(All Working Groups)

February 20

Feb 12 – Mar 5

- EJ and Equity
- Transportation Electrification
- Low Carbon Fuels
- Developing Clean Electricity Generation and Tx
- Building Efficiency, Electrification, and DER

Mar 14 – Apr 14

- Building Efficiency, Electrification, and DERS
- Low Carbon Fuels
- Developing Clean Electricity Generation and Tx
- Presentation of Complementary Analysis
- EJ and Equity
- Transportation Electrification

today

April 23

April 30, 9am-12pm

- EJ and Equity 9-11
- Transportation Electrification

April 30, 2pm-5pm

- Low Carbon Fuels
- Developing Clean Electricity Generation and Tx

May 7

- Building Efficiency, Electrification, and DERS

May 15

May 21

Final Working Group Policy Plenary
(All Working Groups)

June 18

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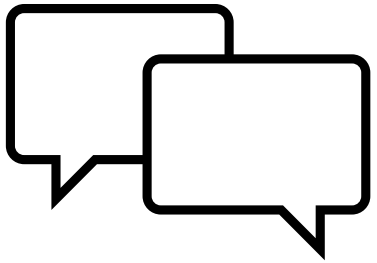
OPPORTUNITIES FOR PUBLIC COMMENT



Provide written public comment

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

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Thank You!
https://www.oregon.gov/energy/Data-and-Reports/Pages/Energy-Strategy.aspx