Oregon Department of **ENERGY**

Oregon Energy Strategy Policy Working Group
Environmental Justice and Equity
Breakout Session #2

Lauren Rosenstein and Mary Kopriva
April 14, 2025

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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

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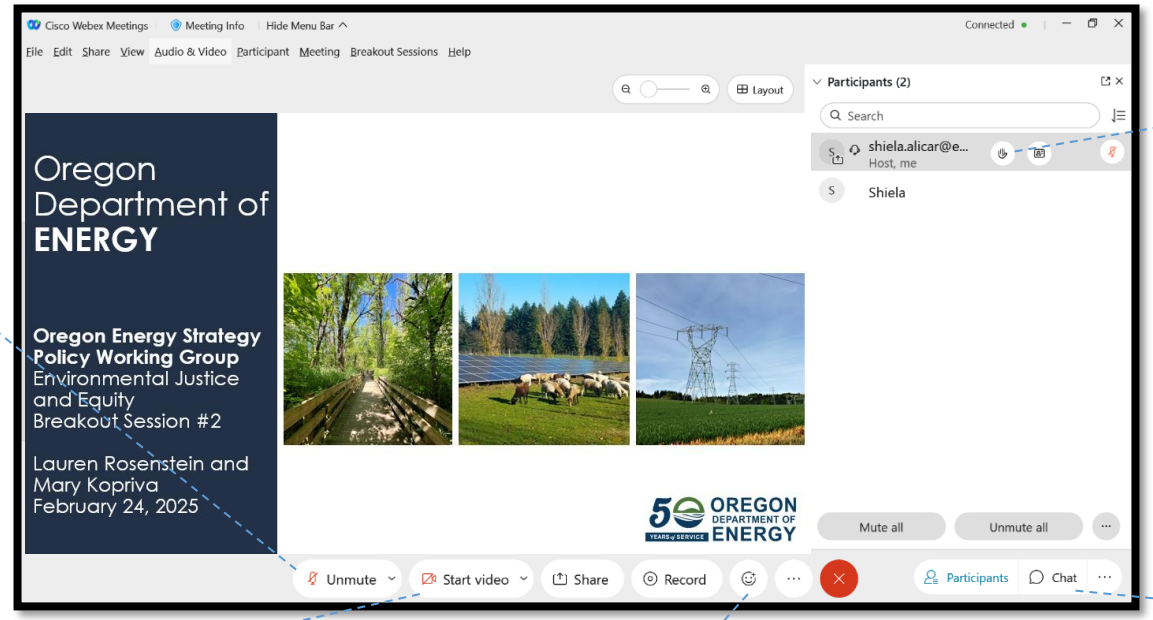

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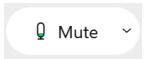

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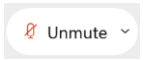

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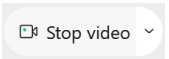

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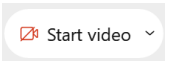

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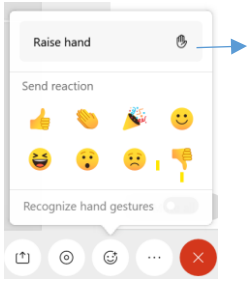
Reactions

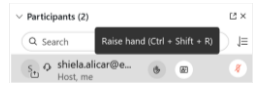


Click to Raise your hand.

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.



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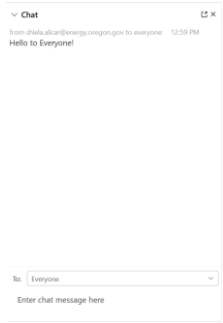
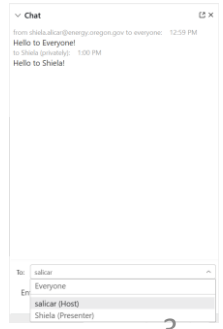
Chat



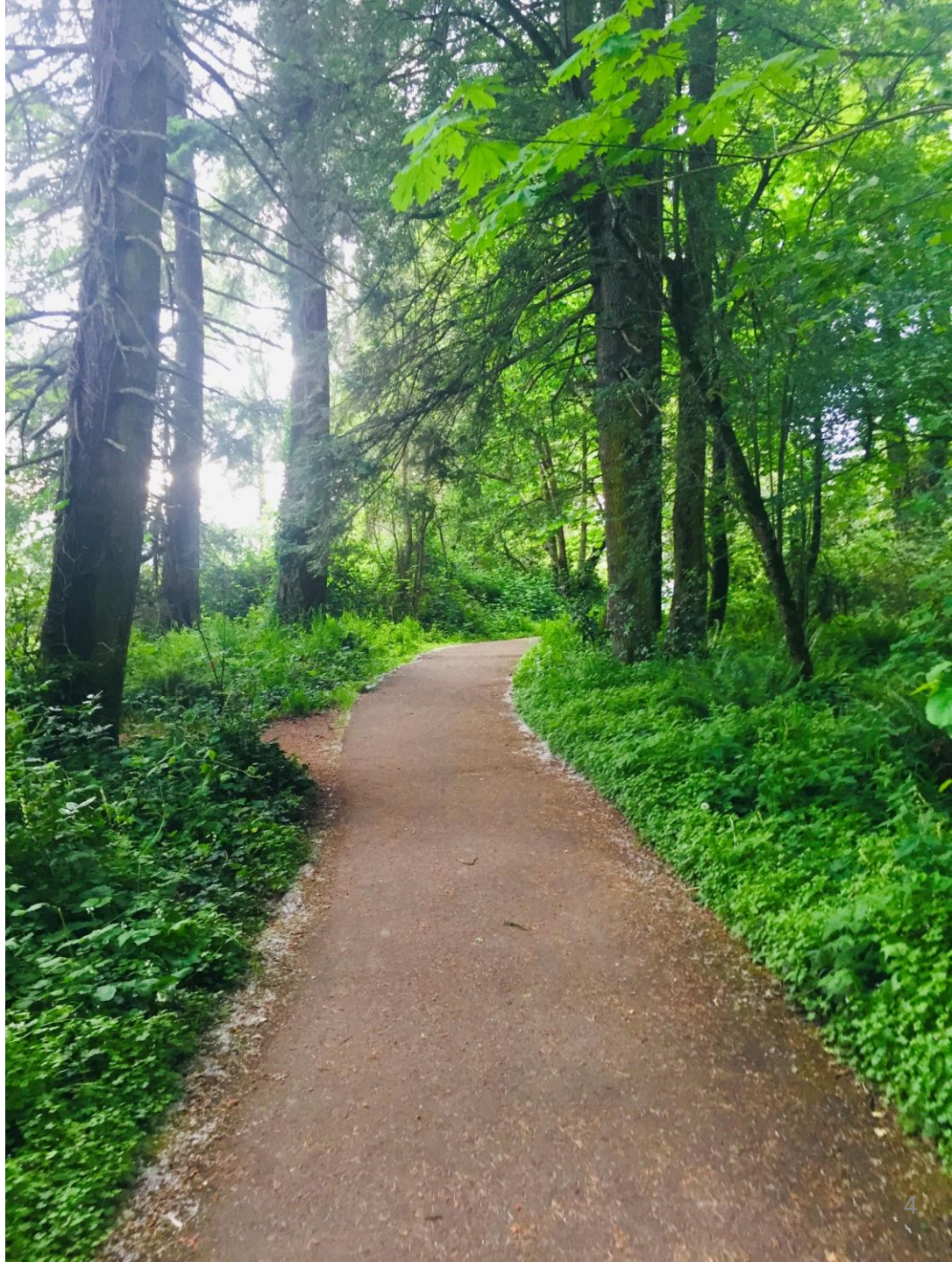
You can chat to Everyone in the meeting.

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



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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MEETING OBJECTIVES

- Connect research and strategies to address the barriers identified in the February 24 meeting

- Debrief what we heard last meeting, some key takeaways/barriers from other working groups, and begin to identify strategies to address those barriers

- Decide if the group would like to provide high-level guidance/best practices on developing future energy policy

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AGENDA

9:00 a.m.	Welcome and agenda	Lauren Rosenstein Strategic Engagement Analyst
9:05 a.m.	Introductions in the chat: Name, pronouns (if you're comfortable), organization, what are you feeling curious about today?	Lauren Rosenstein Strategic Engagement Analyst
9:10 a.m.	Connecting research and strategies	Mary Kopriva Economist
9:50 a.m.	Discussion: Key takeaways and identifying future areas of focus	Lauren Rosenstein Strategic Engagement Analyst
10:50 a.m.	Upcoming meetings and next steps	Lauren Rosenstein Strategic Engagement Analyst

WORKING GROUP MEMBERS

ORGANIZATION	NAME
Beyond Toxics	Zachary Mulholland
BlueGreen Alliance	Ranfis Villatoro
Breach Collective	Nick Caleb
Coalition of Communities of Color	Nikita Daryanani
Community Energy Project	Greer Klepacki
Community Energy Project	Siraat Younas
Confederated Tribes of Warm Springs	Edison Elizeh
Citizens' Utility Board	Sarah Wochele
EnerCity Collaborative	James Metoyer
Euvalcree	Noah Scott
Klamath and Lake Community Action Services	Christina Zamora
Northwest Native Chamber	Amber Faist

ORGANIZATION	NAME
Northwest Energy Coalition	Alma Pinto
Northwest Energy Coalition	Alessandra de la Torre
Office of Sustainability, Multnomah County	Silvia Tanner
Oregon Public Health Institute	Masha Cole-Tagaeva
Oregon Rural Action	Kaleb Lay
Rogue Climate	Jess Grady-Benson
Rural Organizing Project	Hannah Harrod
Self Enhancement Inc	John Maddalena
Spark Northwest	John Seng
Tribal Consultant	Mark Healy
Verde	Anahi Segovia Rodriguez
Wy'East	Robert Wallace

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 and be brave; step into the conversation and share your perspective.
- Limit side conversations; discuss topics together.

INTRODUCTIONS

In the chat please share:

- Your name
- Your affiliation
- Your pronouns, if you are comfortable sharing them
- What are you feeling curious about today (maybe it's something you've processed from the last meeting)?

STEP BY STEP PROCESS

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			

Connecting Research and Strategies

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OREGON ENERGY STRATEGY: ENERGY PATHWAYS MODELING

The Oregon Energy Strategy uses two models to determine potential pathways for meeting our future energy needs.

- The EnergyPATHWAYs model
  - Inputs: information on things like population and economic growth
  - Outputs: anticipated future energy demand
- The RIO model
  - Inputs: information on forecasted future costs for different types of energy resources
  - Subject to: several constraints such as land availability, reliability, and Oregon's energy policies.
  - Outputs: least cost mixes of energy resources that can meet that demand

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LIMITATIONS OF THE ENERGY PATHWAYS MODELING

The model **does not** provide information about who pays the estimated costs.

- We can determine who pays by enacting policies that shift cost burdens from one party to another.
- We may adopt policies that encourage certain pathways, even if they are more costly, if it appears those costs are likely to be borne more equitably.

Affordability

- Who has benefited from clean energy incentives?
- What factors contribute to disparities in uptake of incentives?
- What types of incentives may result in fewer disparities?

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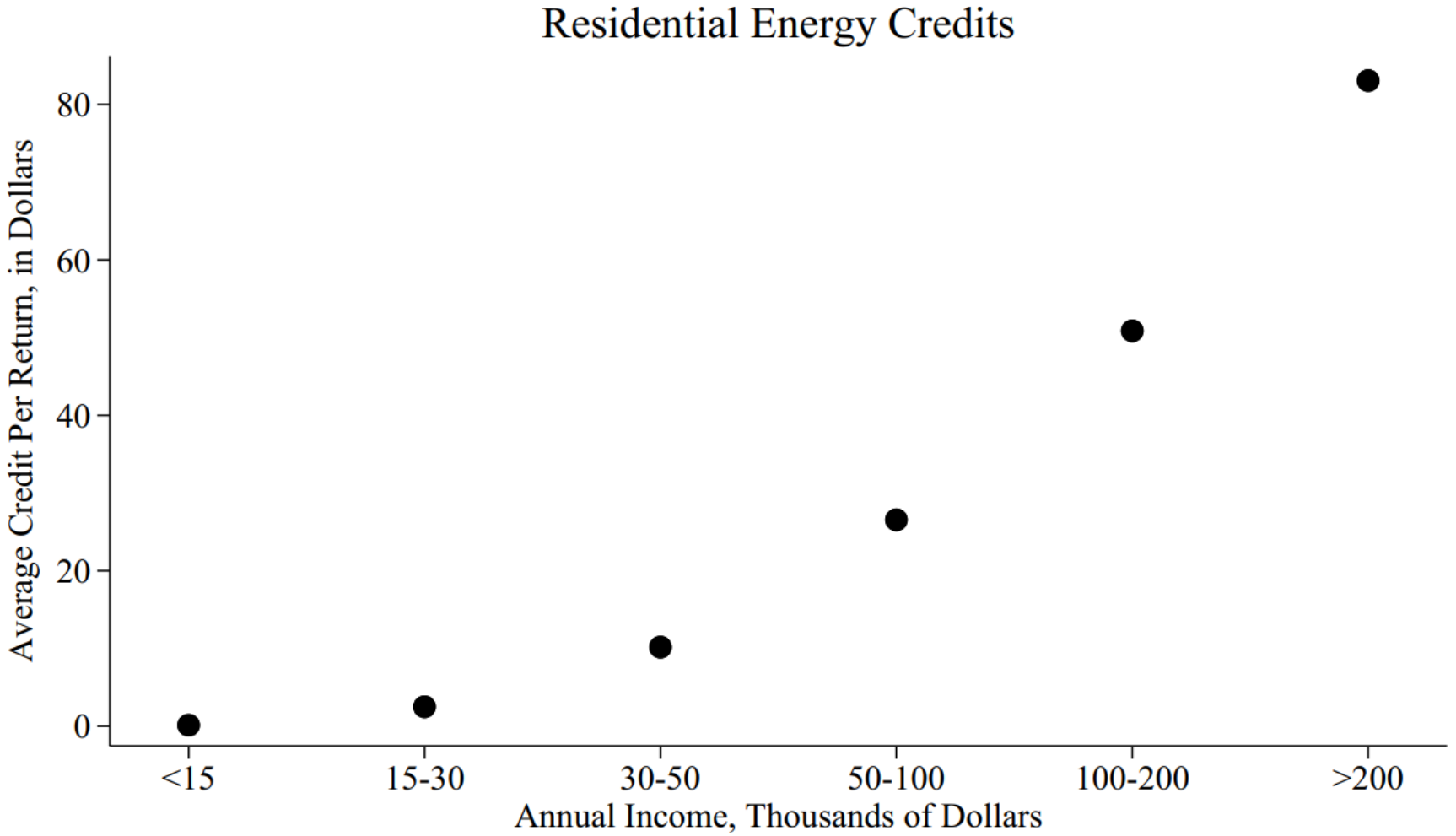
The Distributional Effects of U.S. Tax Credits for Heat Pumps, Solar Panels, and Electric Vehicles

Borenstein & Davis 2025

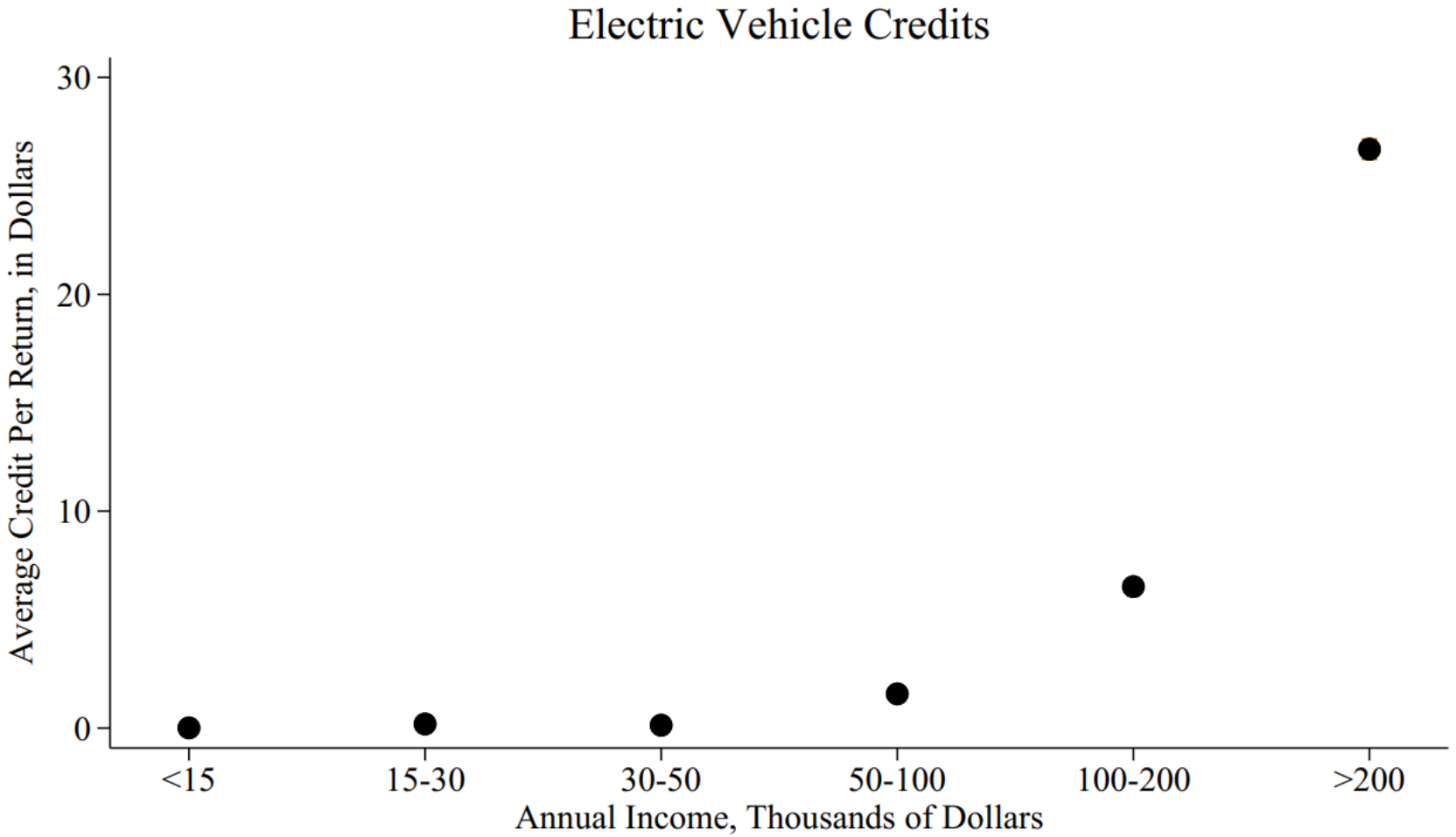
- Uses tax return data from 2006 to 2021 to examine **the distribution of tax credits** received by household income.
- Determine that households in the **lowest three income quintiles received 10%** of all credits while household in the **highest income quintile received 60%.**
- Similar findings from other studies (Crandall-Hollick and Sherlock, 2014; Neveu and Sherlock, 2016; Borenstein and Davis, 2016; Coyne and Globus-Harris, forthcoming).

Average Credit Per Return by Adjusted Gross Income



From The Distributional Effects of U.S. Tax Credits for Heat Pumps, Solar Panels, and Electric Vehicles by Borenstein & Davis, 2025

Average Credit Per Return by Adjusted Gross Income



From The Distributional Effects of US Tax Credits for Heat Pumps, Solar Panels, and Electric Vehicles by Borenstein & Davis, 2025

Explanations for the Findings:

- “Part of the explanation for the regressivity is that all of these clean energy tax credits are nonrefundable. About 40% of U.S. households pay no federal income tax, so millions of mostly low- and middle-income filers are simply ineligible for these credits.”
- “Another part of the explanation is that renters and landlords are ineligible for the tax credits aimed at heat pumps and other energy-efficient investments. In the United States over one-third of homes are rented, so this is a significant omission.”

From The Distributional Effects of US Tax Credits for Heat Pumps, Solar Panels, and Electric Vehicles by Borenstein & Davis, 2025

ADDITIONAL INCENTIVE FINDINGS

- It can be difficult to **target subsidies** to those who would not have purchased EVs otherwise, but when subsidies are not well targeted, they can be expensive. (Borenstein & Davis 2025; Xing, Li, and Leard 2021)
- Incentives that provide **upfront funding rather than financial benefits over time**, may result in more equitable incentive uptake if households with different levels of wealth differentially value money today versus money in the future. (Bollinger, Gillingham, and Kirkpatrick 2025)
- EV subsidies in California targeting low- and middle-income households showed that the **subsidies were passed on to customers** at rates that were "indistinguishable from 100 percent." (Muehlegger & Rapson 2022)

- What non-monetary factors are related to adoption of more efficient technologies?
- How do these non-monetary factors contribute to disparities in uptake of different technologies?

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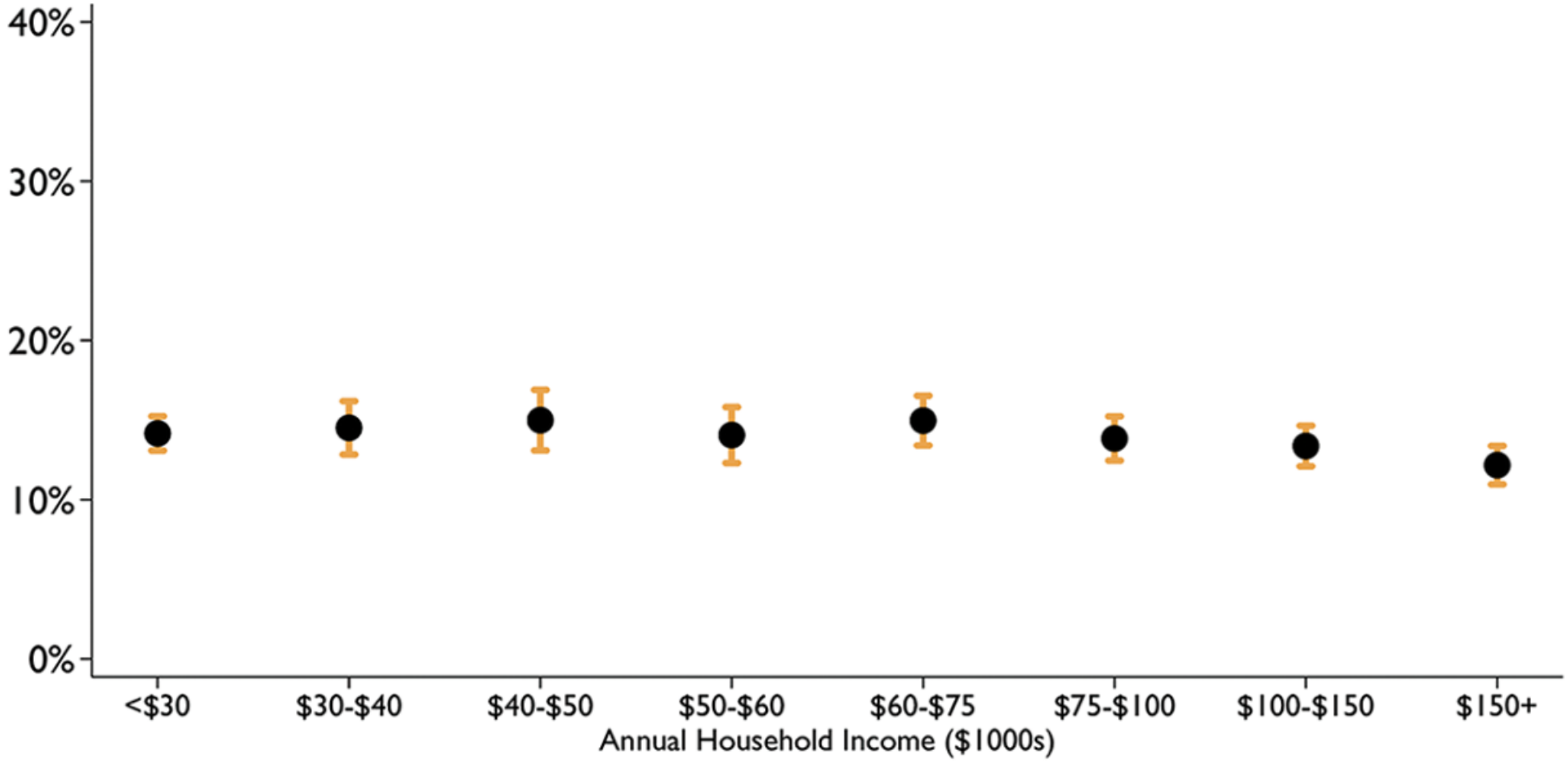
The Economic Determinants of Heat Pump Adoption

Davis 2024

- Uses data from the Energy Information Administration's 2020 Residential Energy Consumption Survey to examine correlations between **state characteristics rates of heat pump adoption**.
- Nationally, the RECS data shows **adoption of heat pumps to be relatively equally distributed across income groups**, different from other technologies like EVs and solar panels.
- Davis finds that heat pump **adoption is strongly correlated with geography, climate, and electricity prices** rather than income.
- Similar findings from other studies (Anderson & Kirkpatrick 2024).

Heat Pump Adoption by Household Income



From The Economic Determinants of Heat Pump Adoption by Davis, 2024

ADDITIONAL ACCESS/ATTRIBUTE RESEARCH

- Non-monetary factors (such as **charging infrastructure, product quality and/or cultural acceptance**) may have more impact on EV demand than subsidies, especially for meeting high market share. (Archsmith, Muehlegger, & Rapson 2021)
- Renters have lower uptake of energy efficient appliances (Davis 2011) and **disparities in homeownership rates** likely contribute to disparities in energy efficiency incentive uptake by race and ethnicity. (Jacobsen 2024)
- **Supply side factors** may contribute to the unequal adoption of solar PV systems with low-income and Black households receiving fewer bids, and Black households being quoted higher prices (Doresy & Wolfson 2024).

Education, Resources, & Tools

- What forms of education, resources, and tools can effectively change consumer behavior?

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Advances in Evaluating Energy Efficiency Policies and Programs

Gillingham, Keyes, and Palmer 2018

- **Reviews the literature on energy efficiency** policies and programs with a focus on estimates of effectiveness and cost-effectiveness in recent experimental, or quasi-experimental, peer-reviewed research studies.
- Suggest that there may be an energy efficiency gap due to **market failures** (Gillingham et al. 2009, Gillingham & Palmer 2014), **including information problems** (Palmer et al. 2014), or **behavioral failures** (Gerarden et al. 2017).

The Short-Run and Long-Run Effects of Behavioral Interventions: Experimental Evidence from Energy Conservation

Allcott & Rogers 2014

- Send **social comparison-based home energy reports** to households to determine how information about neighbors' energy use impacts a household's own energy use.
- Find that information about one's usage relative to other customers **can reduce energy use.**
- Find that **effects are persistent** though they do decay some over time and may be less cost-effective with additional reports. (Similar findings from Allcott 2011)

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Short-Run Average Treatment Effects

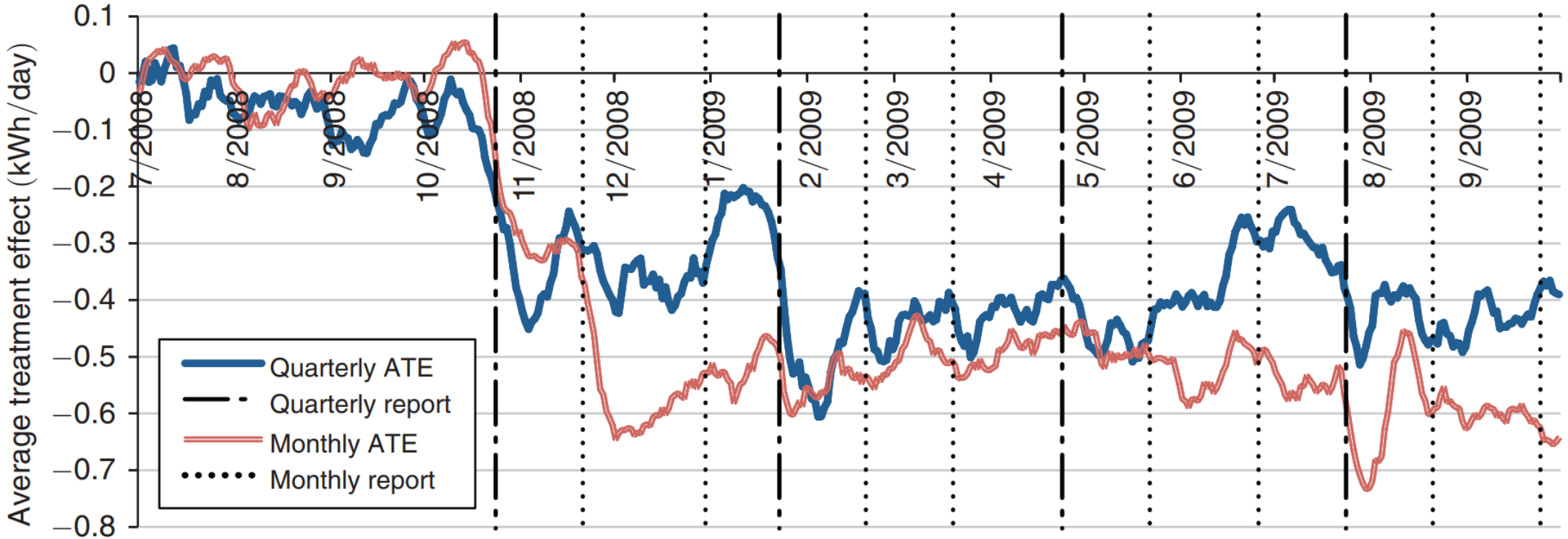
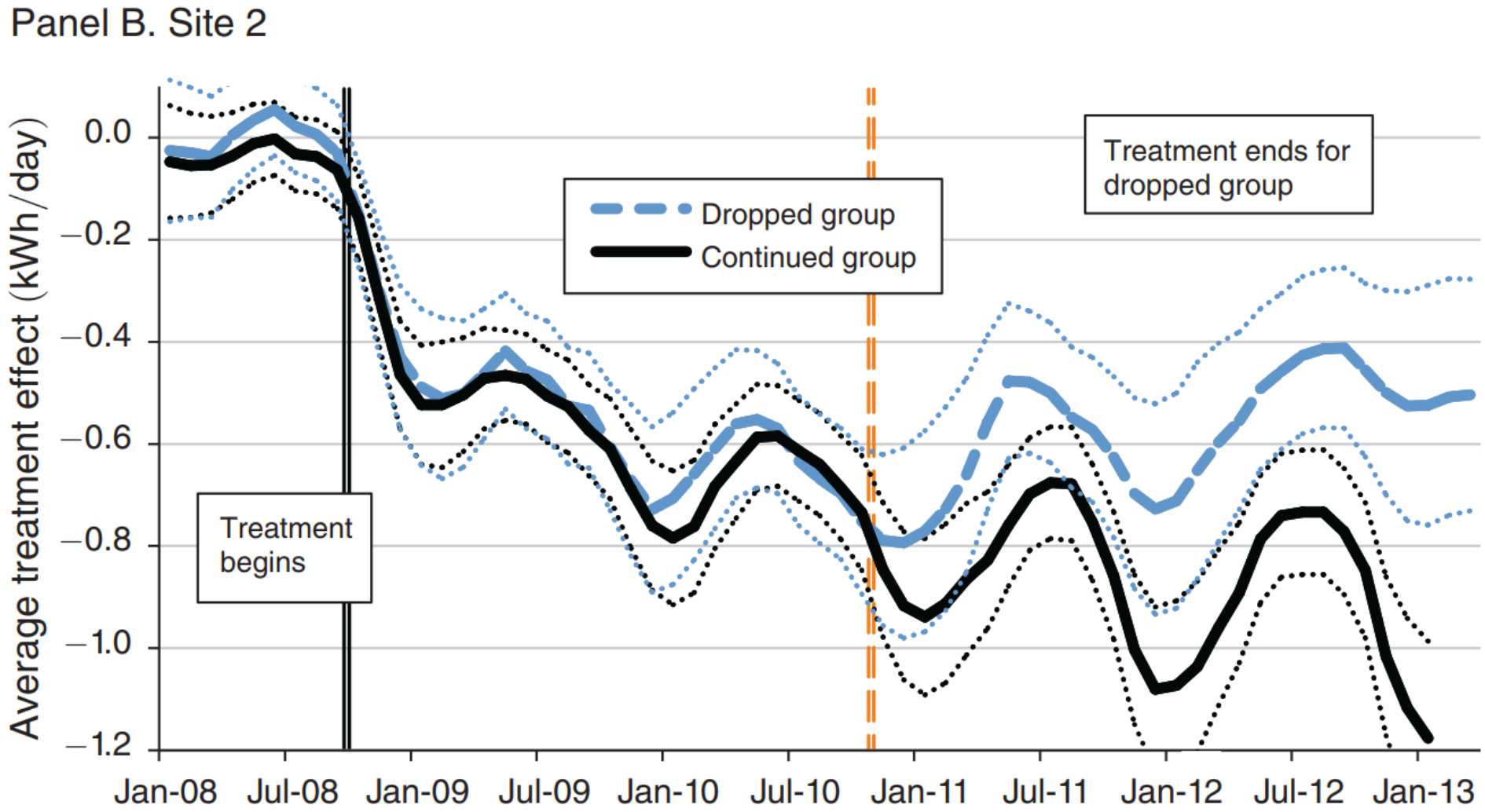


FIGURE 2. HIGH-FREQUENCY TREATMENT EFFECTS

From The Short-Run and Long-Run Effects of Behavioral Interventions: Experimental Evidence from Energy Conservation by Allcott & Rogers 2014

Long-Run Average Treatment Effects



From The Short-Run and Long-Run Effects of Behavioral Interventions: Experimental Evidence from Energy Conservation by Allcott & Rogers 2014

Explanations for the Findings:

- “The fact that the cycles have relatively high frequency implies that the initial reports primarily affect utilization behaviors, such as adjusting thermostats, turning off lights, and unplugging unused electronics.”
- “The fact that the treatment effects decay more slowly after two years than between the initial reports means that consumers have formed some type of new ‘capital stock.’”

ADDITIONAL INFORMATION RESEARCH

- **Installers learning as they gain more experience** can reduce costs for Solar PV installations (Bollinger & Gillingham 2019)
- **Energy efficiency appliance labeling** can increase the likelihood of consumers choosing more energy efficient appliances but information on lifetime cost savings is likely more effective than information on an energy rating scale (e.g. Blasch, Filippini, & Kumar 2019, Allcott & Taubinsky 2015).
- Providing information about an **EV charger's real-time status** could increase EV uptake particularly if paired with increased charger uptime and greater consumer belief in charger reliability (Asensio et al. 2025)

Review what we heard last meeting

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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** run out of money more quickly than people in environmental justice communities can access it or there is not enough
- The initial cost to access many incentives is still **unaffordable** for low-income communities, 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

ENVIRONMENTAL JUSTICE AND EQUITY

Big Headings to Organize Our Conversation (these might change):	**Issue statement** (Preliminary Draft Synthesis – These have been written broadly to include barriers across working groups. You may find they need to be more specific to create strategies and policy recommendations)	**Proposed strategies to address barriers**	**Proposed policy actions**
ACCESS	*There is limited infrastructure in Tribal, coastal, and rural communities that contributes to the slower rate of technology adoption and the lack of energy reliability.*		
AFFORDABILITY	*While incentives and tax credits may offer assistance to moderate-income households, they may not provide enough financial assistance to relieve the burden to low-income and energy-burdened households.*		
WORKFORCE	*There is a need for holistic workforce training that incorporates cultural humility and technology-specific education so that implementers and contractors are confident and knowledgeable when serving the community to be able to speak to benefits including health and affordability.*		
EDUCATION/RESOURCES/ TOOLS	*End-users and those in the workforce need better resources to understand energy technologies, programs, and how they are beneficial or burdensome so they can participate in the process of program development, rulemaking, and consumer education.*		

What are we hearing in the other working groups?

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QUICK MIRO HOW-TO: NAVIGATING

If you use a mouse:

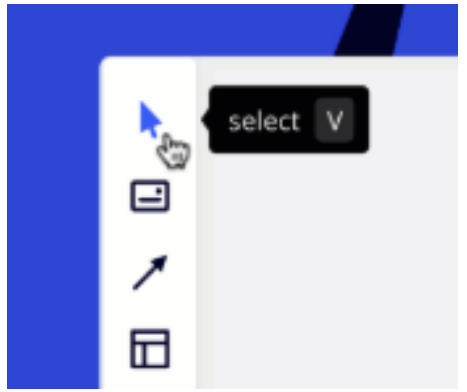
- To move around the board, press the right mouse button and drag
- To zoom, scroll the mouse wheel
- To create the selection field, switch to select tool, click and drag the canvas

If you use the trackpad:

- Slide two fingers to move around the board
- Pinch to zoom
- To select objects, switch to select tool, press and drag the canvas

If you use the touchscreen:

- Drag the canvas to move around
- Pinch to zoom
- Long press and drag to select objects



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Meeting 2: 4/14/25: STRATEGIES

Using Miro

Frame 2

Frame 3

Frame 4

Frame 5

LOW-CARBON FUELS

Big Headings to Organize Our Conversation (these might change):	**Draft Issue Statement**
ACCESS	*Rural and coastal regions have limited public transportation or other VMT reduction strategies, as well as limited access to renewable diesel or other low carbon fuels which may extend fossil fuel dependence and delay adoption of low carbon fuels.*
AFFORDABILITY	*Decarbonization will increase the consumer cost of fossil fuels. Those who can afford to, will electrify or transition to another fuel option and the consumer base for fossil fuels will shrink. Communities unable to transition will bear a greater cost burden for fossil fuel delivery.*
WORKFORCE	*New technologies and fuels present the opportunity of potential economic growth but also the challenge of training and supporting a new workforce. Consumer behavior in how we use fuels and the equipment they power may also have to change which may lead to inequities in areas without close proximity to service and support.*
EDUCATION/RESOURCES/TOOLS	*Oregon consumers and businesses have limited awareness and understanding of the opportunity of low carbon fuels or electrification of current fossil fuel applications.*
SITING & ENVIRONMENTAL CONCERNS	*Increased policy and economic pressure for energy system expansion to decarbonize and meet growing demand will impact Oregon communities. Leading to siting of new gas and liquid fuel infrastructure as well as development of pilot projects of new technologies near environmental justice communities without adequate consultation and community benefits, continuing a legacy of disproportionate harm*

TRANSPORTATION ELECTRIFICATION

Big Headings to Organize Our Conversation (these might change):	**Draft Issue Statement**
ACCESS	*Sufficient and sustainable road maintenance and transportation options (incl. transit) funding is lacking, and alternative transportation modes are not prioritized with existing funding.*
AFFORDABILITY	*Utility rates are not reflective of EV benefits and are cost prohibitive for some consumers, and utility cost recovery is uncertain making proactive investment a risk.*
WORKFORCE	*Small business and commercial vehicle electrification is challenging across sectors as there is a gap in skilled workforce to repair and maintain vehicles and charging/refueling infrastructure, especially in Tribal communities, coastal, and rural areas.*
EDUCATION/RESOURCES/TOOLS	*EV myths persist and many consumers and dealers are unaware of the totality of benefits. Additionally, there is no statewide technical assistance.*

BUILDING ELECTRIFICATION, EFFICIENCY, & DERs

Big Headings to Start the Conversation	**Draft Issue Statement**
Building efficiency and electrification in residential and small commercial.	*Energy efficiency and electrification measures are **too expensive** for many Oregon households to prioritize over other spending and their benefits are **not well understood**. This may be especially true in **lower income households and in rental properties**.*
Efficiency and electrification in large commercial and industrial.	*Electrification **may not be feasible** for some commercial and industrial loads. Comprehensive strategies may help business and industry leaders to prioritize energy measures.*
Maximize benefits from distributed energy resources	*Distributed energy resources are not **affordable**, and state policies do not value their full range of potential benefits.*
Facilitate greater use of demand response	*Demand response is **not well understood**, and Oregon utility customers are reluctant to buy into programs. Many Oregon utilities have **not yet implemented** demand response programs.*

DEVELOPING CLEAN ELECTRICITY GENERATION & TRANSMISSION

Big Headings to Organize Our Conversation (these might change):	**Draft Issue Statement**
Facilitate responsible development of electricity infrastructure in Oregon	***Limited information**, delays during the siting and permitting processes, and decentralized, utility-specific energy planning and procurement efforts hinder efficient development in Oregon that equitably considers and accounts for all those affected.*
Promote resilience for local communities	*Utility obligations to customers systemwide may not align with meeting local resilience needs, including both energy resilience and community energy resilience. There **is inadequate funding, support and regulatory certainty** for local governments and communities to fully meet these needs.*
Enhance the availability and efficient usage of transmission regionally	*Decentralized regional planning complicates proactive planning, and inconsistencies across different jurisdictional **processes impede efficient development** that equitably considers and accounts for all those affected.*
Foster regional collaboration and efficient resource sharing	*Oregon is part of a regional grid that lacks a formal, centralized structure to promote regional collaboration. This reality is a **barrier to achieving efficiency benefits** from more centralized regional planning and operations.*

FRAMING ENVIRONMENTAL JUSTICE & EQUITY

TABLE 1. SEVEN-STEP PROCESS FOR BUILDING EQUITY INTO CLEAN ENERGY POLICIES[22]

Equitable Policy Design	Highlights and Priorities
1. Ensure equitable access to economic benefits and opportunity by empowering communities.	Support participatory processes, direct funding, removal of barriers to autonomy and independence and greater access to processes and decisions.
2. Ensure universal and equitable access to affordable remote service options.	Efforts must be expanded to develop affordable, quality broadband, including in rural and under-resourced areas.
3. Center program design on reduction of energy cost burdens.	Reduce home energy and transportation costs for highly impacted populations by focusing on cost burden as a metric in planning.
4. Incorporate health disparity metrics into energy planning.	Improve health and safety, safeguard against health and safety risks and improve access to the physical, service and social conditions linked to health and well-being by operationalizing a health disparity metric in energy planning.[23]
5. Increase resilience and energy sovereignty for Tribes and energy independence for vulnerable communities.	Support the efforts of communities especially prone to instability from climate change and other natural disasters, such as communities located in the Cascadia Subduction Zone and wildfire prone areas and communities impacted by fossil fuels.[24]
6. Address procedural inequities in program design and prioritize equitable development.	Perhaps the most significant combined equity-and-energy gains can be made through planning. The state has an opportunity to help guide clean and equitable development of programs and funding that support development.
7. Address nexus issues of affordable housing, livable communities and displacement in energy policy.	Work with housing policy experts to address unhoused and displaced communities through energy policy design, especially focusing on cost burdens.

Washington Department of Commerce developed “Key Actions” including “Communities” and addressed it in the report as “Build an Equitable, Inclusive, Resilient Clean Energy Economy.”

ENVIRONMENTAL JUSTICE & EQUITY MEETINGS

Environmental Justice and Equity Working Group

- April 30, 2025 | 9 a.m. - 12 p.m.
- May 21, 2025 | 9 a.m. - 12 p.m.

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OTHER WORKING GROUP MEETINGS

- Transportation Electrification
  - April 30 | 9 a.m. – 12 p.m.
- Low Carbon Fuels
  - April 30 | 2 p.m. – 5 p.m.
- Developing Clean Electricity Generation and Transmission
  - April 30 | 2 p.m. – 5 p.m.
- Building Efficiency, Electrification, and DERs
  - May 7 | 1 p.m. – 4 p.m.

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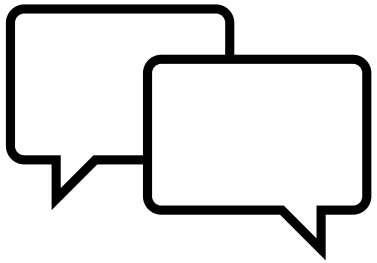
OPPORTUNITIES FOR PUBLIC COMMENT



Provide written public comment

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

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Thank You!

www.oregon.gov/energy/Data-and-Reports/Pages/Energy-Strategy.aspx

Research Bibliography

Allcott, H. (2011). Social norms and energy conservation. Journal of public Economics, 95(9-10), 1082-1095.

Allcott, H., & Rogers, T. (2014). The short-run and long-run effects of behavioral interventions: Experimental evidence from energy conservation. American Economic Review, 104(10), 3003-3037.

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