

Oregon Department of **ENERGY**

Oregon State Energy Strategy Policy Listening Session

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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

AGENDA

5:00 p.m.	Intro	
5:10 p.m.	Energy Strategy Work to Date	
5:25 p.m.	Energy Strategy Model Overview	
5:35 p.m.	Model Key Findings with Q&A	
6:15 p.m.	Consumer Energy Costs Key Findings with Q&A	
7:00 p.m.	Wrap Up and Next Steps	

OREGON STATE ENERGY STRATEGY

82nd OREGON LEGISLATIVE ASSEMBLY--2023 Regular Session

House Bill 3630 (2023) Section 2

“The State Department of Energy shall develop a comprehensive state energy strategy that identifies optimized pathways to achieving the state’s energy policy objectives.”

Enrolled House Bill 3630

Sponsored by Representatives RAYFIELD, PHAM K, Senator GOLDEN, Representative MARSH;
Representatives ANDERSEN, BOWMAN, DEXTER, FAHEY, GAMBA, GRAYBER, HOLVEY,
HUDSON, KROFF, MCCLAIN, NATHANSON, NERON, NOSSE, PHAM H, REYNOLDS, SOSA,
Senators LIEBER, PATTERSON, SOLLMAN

CHAPTER

AN ACT

Relating to energy; and declaring an emergency.

Be It Enacted by the People of the State of Oregon:

PROGRAM TO ASSIST ENVIRONMENTAL JUSTICE COMMUNITIES

SECTION 1. The State Department of Energy shall establish a program to provide assistance related to energy projects and activities to environmental justice communities, as defined in ORS 469A.400. At a minimum, the program must provide environmental justice communities with information regarding:

- (1) Funding resources.
- (2) Technical assistance.
- (3) Other support that may be available.

STATE ENERGY STRATEGY

SECTION 2. (1) The State Department of Energy shall develop a comprehensive state energy strategy that identifies optimized pathways to achieving the state’s energy policy objectives.

- (2) The state energy strategy must be informed, at a minimum, by the following:
 - (a) Stakeholder perspectives;
 - (b) State laws, policies and targets regarding energy and greenhouse gas emissions;
 - (c) Existing energy and integrated resource plans;
 - (d) Energy-related studies and data analysis; and
 - (e) State energy policy objectives.

(3) In identifying optimized pathways to achieving the state’s energy policy objectives, the state energy strategy must take into account, at a minimum, the following factors:

- (a) State energy demand and trends;
- (b) Energy resources and technology choices in consideration of costs, energy efficiency, feasibility and availability;
- (c) Economic and employment impacts;
- (d) Energy burden and affordability;

SCOPE OF THE ENERGY STRATEGY

Must be informed by:

- Stakeholder perspectives
- State laws, policies, targets re: energy and GHG emissions
- Existing energy plans and IRPs
- Energy-related studies and data analysis
- State energy policy objectives

Take into account (at a minimum):

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

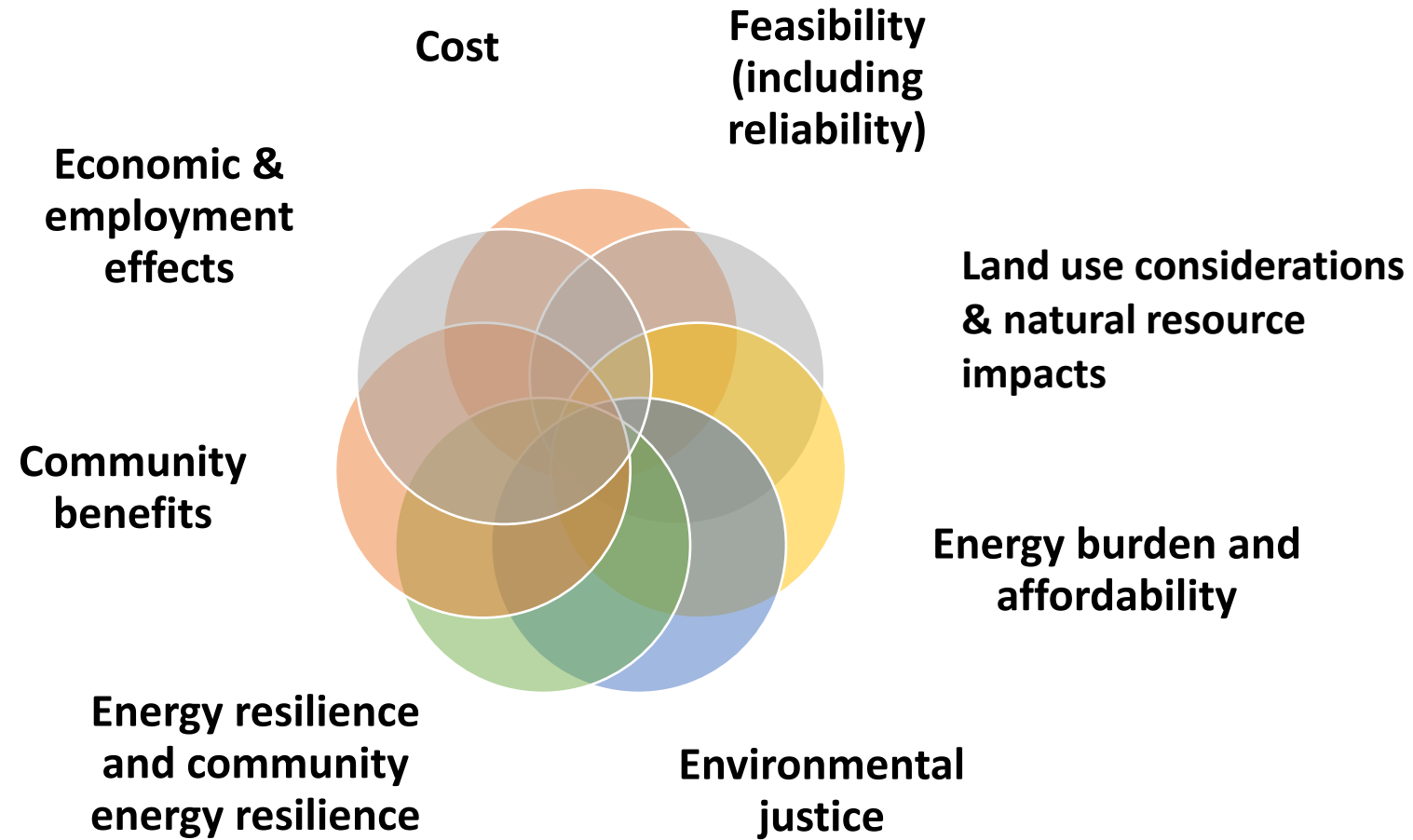
Engagement:

- State agencies, Tribes, stakeholders w/ diverse range of:
- Interests, perspectives, expertise, education
- Socioeconomic backgrounds
- Communities
- Geographic areas of the state

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

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

KEY CONSIDERATIONS



PERSPECTIVES

Tribal Consultation

- Government-to-Government, ensuring Tribal perspectives inform Energy Strategy
- Members of the 9 Federally Recognized Indian Tribes in Oregon
- Ongoing

Advisory Group

- Advise ODOE throughout the process and help inform decisions
- Representatives of diverse perspectives and lived experiences across OR
- Meets 1x a month

Working Groups

- Focused on informing policy recommendations
- Subject matter experts able to engage in identification of gaps and needs
- Meet over ~ 3 months in early 2025

Interagency Steering Group

- State Agency Coordination
- ODOE, DLCD, ODOT, PUC, DEQ, Business OR, Governor's office; other agencies
- Meets 1x a month

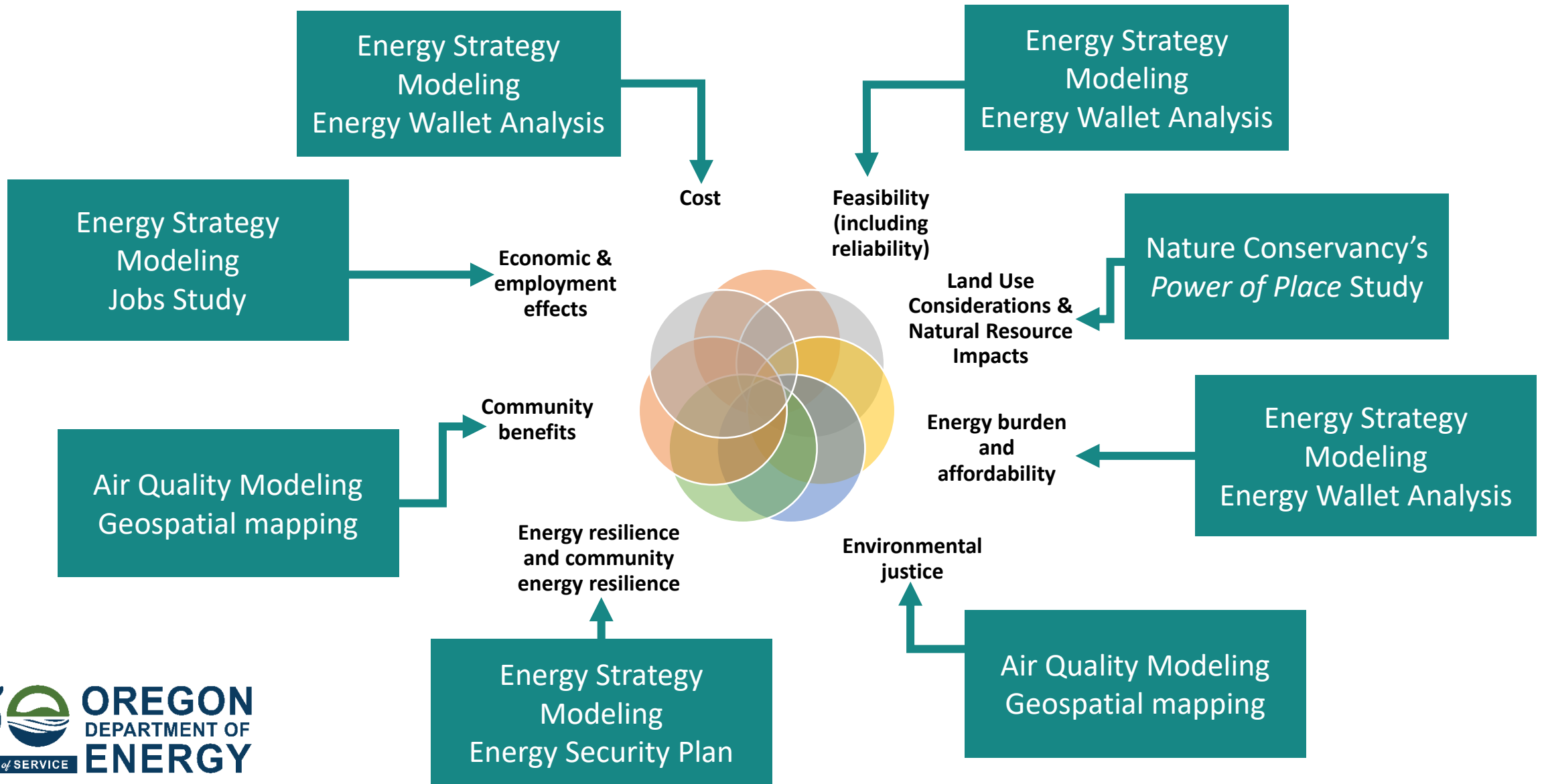
Listening and Information Sessions

- Public forums, where anyone can and is encouraged to join
- Collecting broad views from across the state

DATA AND EXPERTISE

Environmental Justice and Equity	<ul style="list-style-type: none">• 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 Distributed Energy Resources	<ul style="list-style-type: none">• Residential and commercial• Customer-side of the meter
Developing Clean Electricity Generation and Transmission	<ul style="list-style-type: none">• Electricity generation and storage in front of the meter• Transmission• Development needs and barriers/competing priorities
Low-carbon fuels	<ul style="list-style-type: none">• 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	<ul style="list-style-type: none">• Light-, medium- and heavy-duty zero emission vehicles (battery electric and hydrogen fuel cell)• Charging and fueling infrastructure• Grid integration• Vehicle miles traveled reduction

ANALYSIS

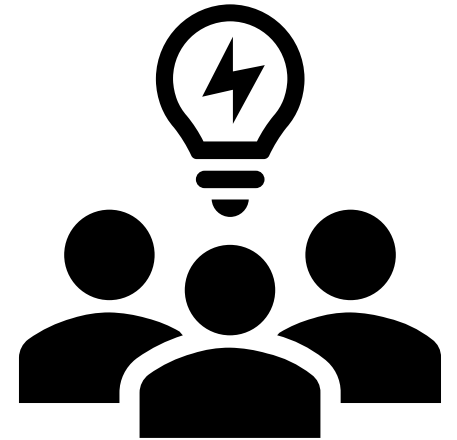


TECHNICAL EXPERTISE

Clean Energy Transition Institute



EVOLVED
ENERGY
RESEARCH



Developing the Energy Strategy Economic Model

MODELING THE ENERGY SYSTEM

- Economywide model comprising electricity, transportation fuels, and direct use fuels sectors.
- Creates a least-cost portfolio of energy resources to achieve objectives and goals.
- Generates scenarios (pathways) based on different assumptions
- Produces insights into the interactions between sectors and tradeoffs of different pathways.



USING THE ENERGY STRATEGY MODELING

DOES

- Create an understanding of tradeoffs between different pathways to inform recommendations to meet Oregon's energy policy objectives.
- Integrate detailed electricity sector modeling and fuels supply for an economywide perspective.
- Take into account grid reliability needs.
- Provide a foundation for complementary analysis: effect on household budgets, air quality and health, jobs, and priority areas relating to equity and environmental justice.

DOES NOT

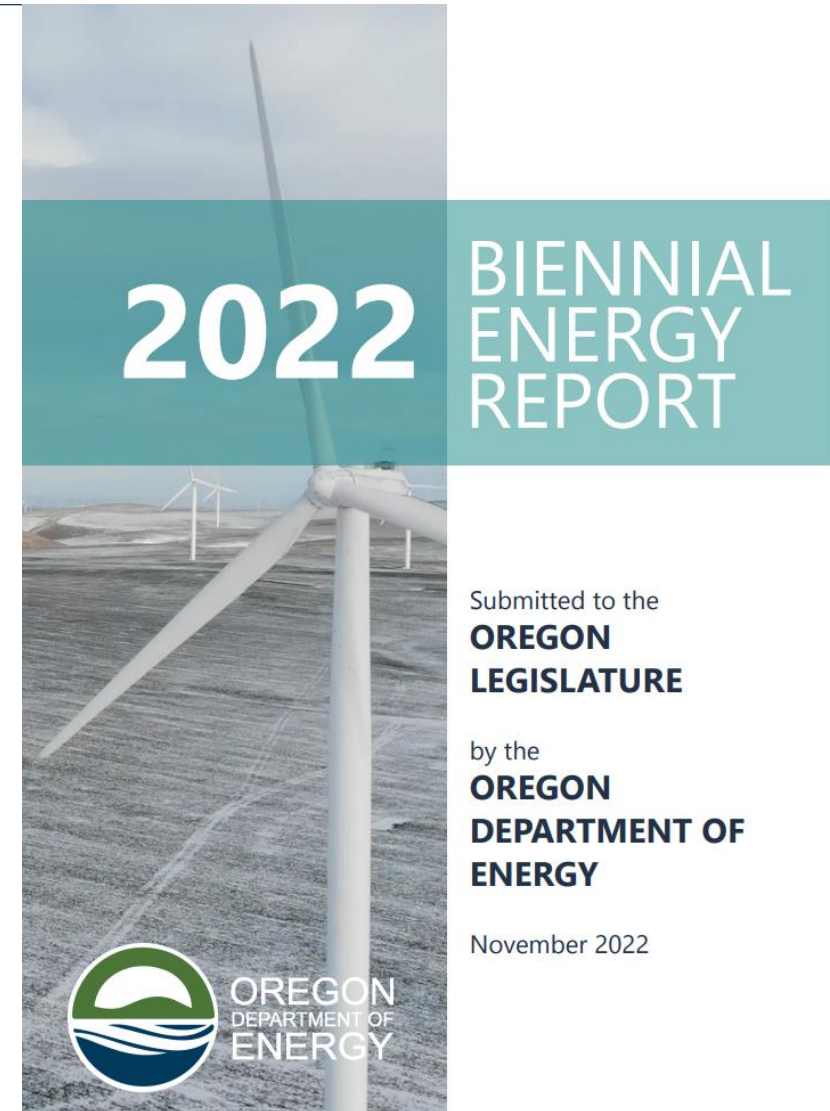
- Forecast the future; it informs near-term decision-making in the face of uncertainty about meeting our energy policy objectives.
- Serve the same purpose as utility modeling.
- Serve as a transmission planning model or rate design exercise.
- Focus on any single utility service territory.
- Provide location-specific outputs for resources or transmission lines.

BUILDING THE ENERGY STRATEGY MODEL

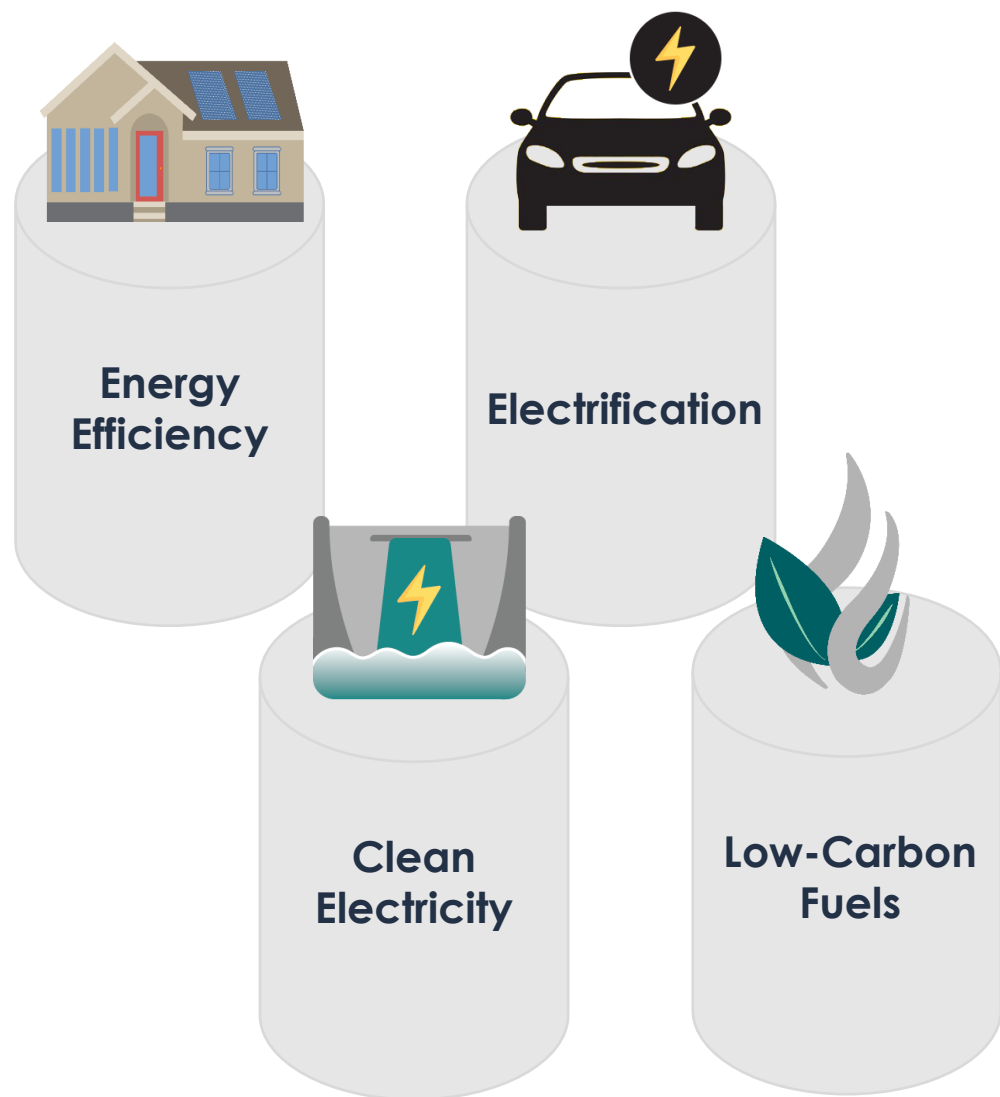
Literature review of technical studies

Summary of the Range of Scope of the Studies Reviewed in the BER

Geographic Areas	Regional: Pacific Northwest, United States States: Oregon, Washington, Montana, California Service Areas: NW Natural, Portland General Electric, Eugene Water & Electric Board, Seattle City Light, SoCalGas, Los Angeles Department of Water and Power
Areas of Focus	Sectors: Electrification effects on electric system, evaluation of effects on gas infrastructure, heating loads Broader: Electricity system, economy-wide
Policy Targets	Targets: Carbon neutrality, net-zero emissions, 100% clean electricity, 100% electrification of buildings and transportation, economy-wide decarbonization, 80 to 100% reduction in greenhouse gas emissions from 1990 levels
Dates	Dates: Load growth through 2024, achieving GHG targets by 2045-2050, carbon neutrality by 2045-2050, 100% clean electricity by 2035



TESTING THE FOUR KEY PILLARS



Hypothesis

The least cost pathway to achieve Oregon's energy goals is to maximize energy efficiency, achieve the state's clean electricity targets, and supplement the hardest-to-electrify end uses with low-carbon fuels.

THE MODELING IS A TOOL

Modeling results are directional and help us make informed choices

- Each scenario provides insights, but does not forecast the future
- Serves as a foundation for energy policy discussions
- Highlights relative pros and cons of different pathways
- Informs near-term decisions
- Political, technological, and economic uncertainties must also be considered









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A photograph of a red barn with a grey shingled roof. A section of the roof has been replaced with solar panels. The barn is surrounded by trees with autumn foliage in shades of yellow, orange, and brown. In the background, there are tall evergreen trees under a clear blue sky.




Model Key Findings

BUILDING ELECTRIFICATION, EFFICIENCY, AND DISTRIBUTED ENERGY RESOURCES: KEY TAKEAWAYS FROM MODELING

Four Key Takeaways

-  Energy efficiency
-  Building electrification
-  Distributed Energy Resources
-  Demand response

QUESTIONS FOR YOU

-  What interests you or is exciting to you about what you just heard?
-  In your experience, what are the challenges or barriers that you see in some of these areas?
-  Are there things we didn't talk about that came to mind with these key takeaways?




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TRANSPORTATION: KEY TAKEAWAYS FROM MODELING

Four Key Takeaways

- 🔑 Vehicle electrification
- 🔑 Grid integration
- 🔑 VMT Reduction
- 🔑 Low-carbon fuels



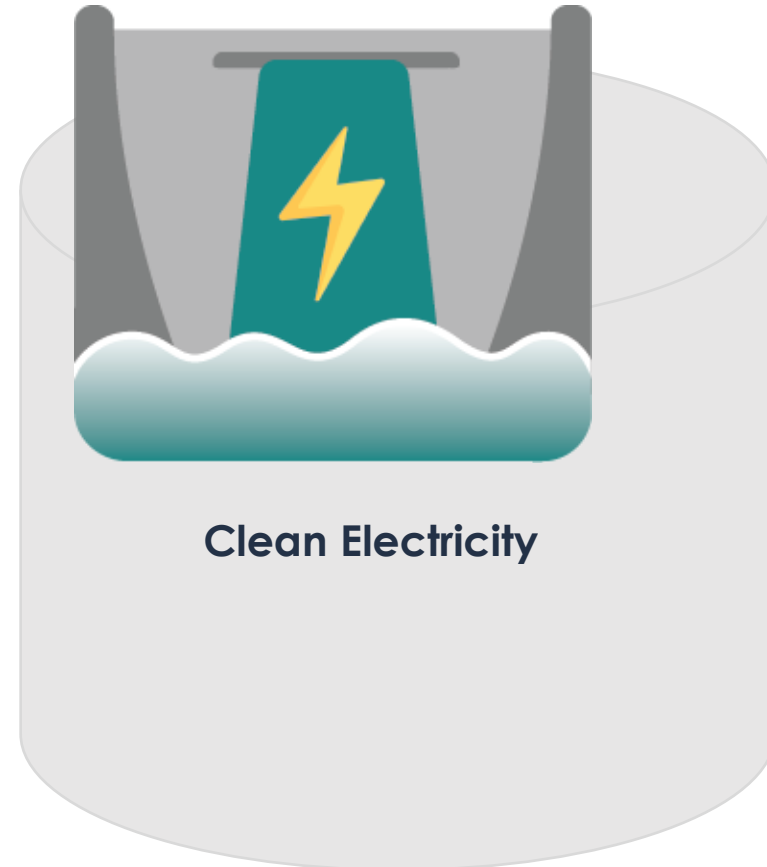
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DEVELOPING CLEAN ELECTRICITY GENERATION AND TRANSMISSION: KEY TAKEAWAYS FROM MODELING

Four Key Takeaways

- Key Load Growth
- Key Electricity Generation
- Key Transmission







QUESTIONS FOR YOU

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LOW-CARBON FUELS: KEY TAKEAWAYS FROM MODELING

Four Key Takeaways

-  Low-Carbon Fuels
-  Grid Dispatchable Capacity
-  Electrification
-  Declining Fuel Demand



QUESTIONS FOR YOU

-  What interests you or is exciting to you about what you just heard?
-  In your experience, what are the challenges or barriers that you see in some of these areas?
-  Are there things we didn't talk about that came to mind with these key takeaways?

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 programs and their incentives, ratepayer incentives may be regressive, there is a lack of analysis to understand the burdens on 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 of 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.

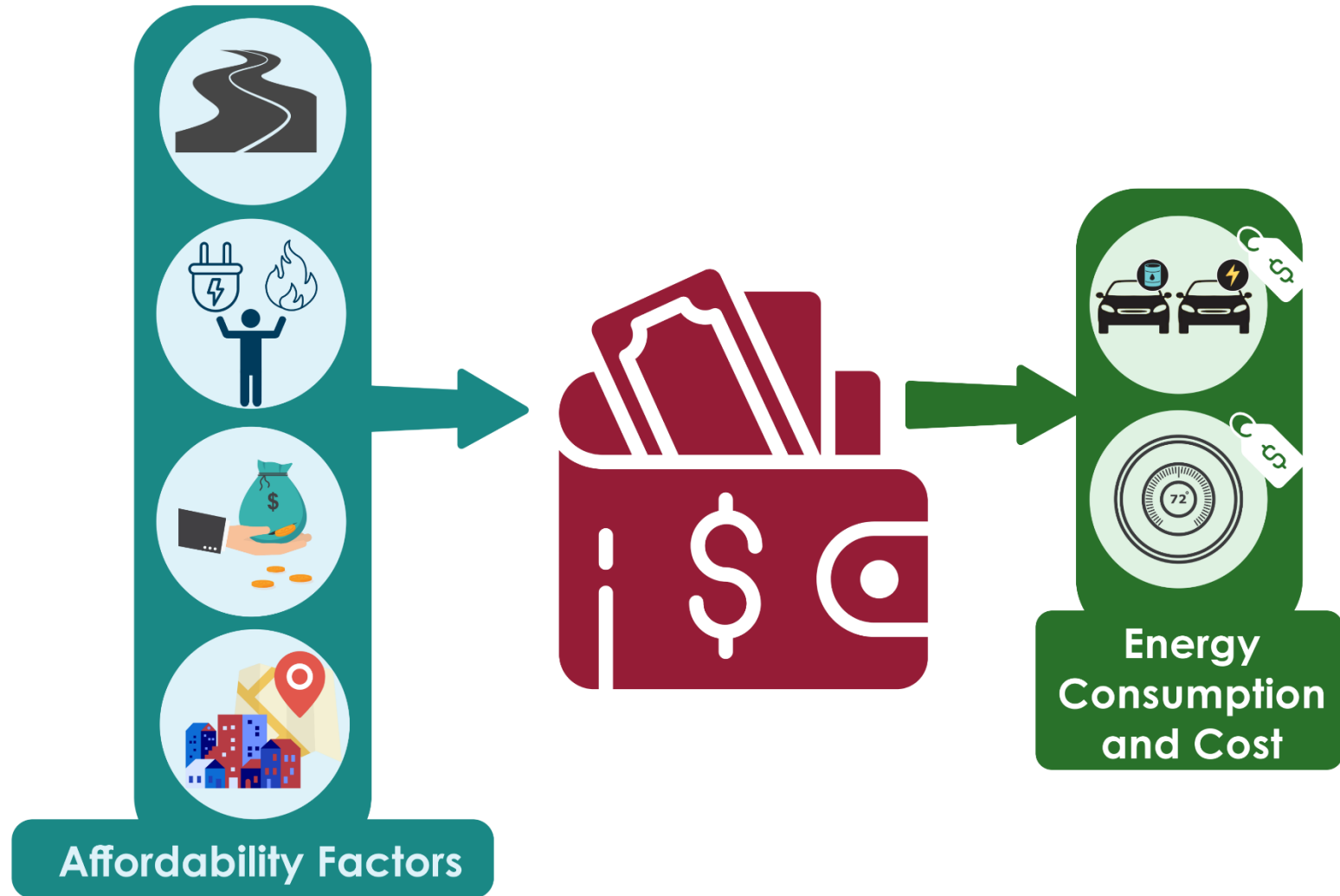


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Energy Wallet and Air Quality Effects



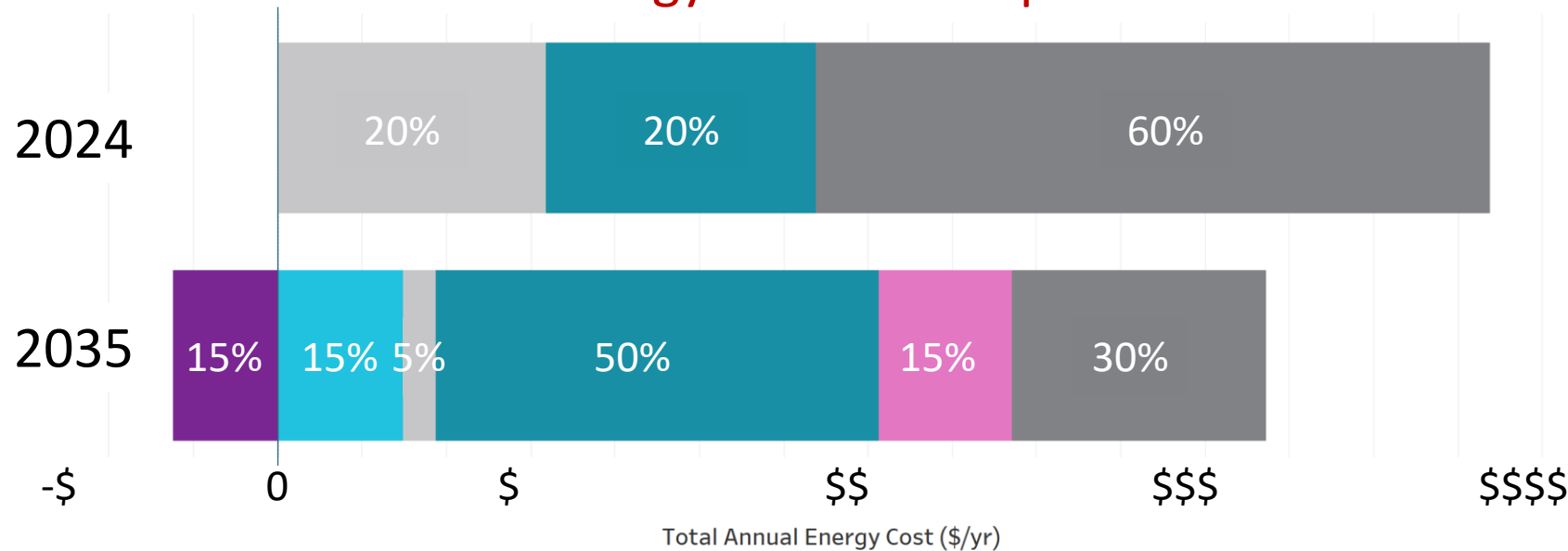
ENERGY WALLET



Energy Wallet Illustrates How Technology Adoption Affects Household Energy Costs

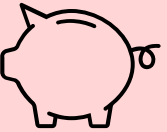
- Example household buys an EV and a heat pump in 2035. This changes their energy consumption and therefore costs. They must also pay the difference between EVs/heat pumps and conventional technologies

Energy Wallet Example

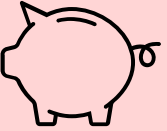


■ Vehicle Electricity (\$/yr) ■ Household Cost (Gas) ■ Household Capital Cost
■ Vehicle Capital and Installation Cost ■ Household Cost (Electricity) ■ Gasoline (\$/yr)






Total, 2024
\$\$\$\$



Total, 2035
\$\$\$



Meet the Five Sample Households

Household Characteristic	Jessica's	Stephanie's	Ruchi's	Alan's	Hugh's
					
Building Category	Single Family Detached	Single Family Detached	Single Family Detached	Single Family Manufactured	Multi-family
Region	Urban	Rural Cold Climate	High Priority Area	Rural	Urban
Ownership	Own	Own	Own	Rent	Rent, Below county AMI
Primary Heating Fuel Type	Natural gas	Natural gas	Electricity	Electricity	Electricity
Primary Heating System	Furnace	Furnace	Furnace	Furnace	Baseboard
Primary Cooling System	Central AC	None	Portable AC	Window AC	None
Water Heater Technology	Fossil Fuel Non-Condensing	Fossil Fuel Non-Condensing	Electric Resistance	Electric Resistance	Electric Resistance
Water Heater Fuel	Natural gas	Natural gas	Electricity	Electricity	Electricity
Area (sq ft)	3100	1855	1400	1520	-
Year	2012	2006	2007	1986	1977
Stove/Oven	Natural gas	Natural gas	Electric	Electric	Electric
Occupants	6	4	2	2	2
Vehicles	2 SUVs	2 SUVs	2 SUVs	2 Cars	1 Car

QUESTIONS FOR YOU



Did you see your home in any of the sample homes, partially or fully?








What would you want us to know about how your energy use and costs in your house is different than the sample households?



How can we build on the information we showed you to make sure we have enough information to develop good policy options for the Energy Strategy?

KEY TAKEAWAYS

-  All five sample households save money with vehicle electrification in most circumstances
-  All five sample households save energy from electrification of home heating, but not all sample households save money from heat pump installation, absent policy support
- 
 - Multiple factors impact how great the savings could be from electrification of home heating and transportation
 - Energy prices, cost and access to technology based on household income, technological development, production and supply chain challenges
- 
 - Policies are important to enable access to cost savings
 - Education, incentive programs, infrastructure development, access to useable technology, and workforce development
- 
 - Upfront costs must be addressed to ensure equal access to the savings from electrification
 - Intentional, explicit policies that ensure environmental justice and equitable solutions are required

QUESTIONS FOR YOU



Did anything surprise you in the energy wallet findings?



After hearing the results from the energy wallet, what might you add to what you said in earlier slides?



How can we build on the information we showed you to make sure we have enough information to develop good policy options for the Energy Strategy?

Next Steps

DEVELOPING THE ENERGY STRATEGY

INPUTS

Analysis

- Energy Strategy Modeling
- Energy Wallet
- Air Quality Modeling
- Geospatial Maps
- Jobs Study

Expertise

- Interagency Steering Group
- Tribes
- Advisory Group
- Working Groups
- Public Comments

- **You!**



OUTCOMES

State-wide Strategy

Pathways to Achieving Energy Policy Objectives

Policy Recommendations

Thank you for your time and input!

Follow the work of the Oregon Energy Strategy
www.oregon.gov/energy/Data-and-Reports/Pages/Energy-Strategy.aspx

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