



*Prepared by
Legislative Policy and
Research Office*

Joint Task Force on Resilient Efficient Buildings

December 13, 2022

TASK FORCE MEMBERSHIP

Legislative Members

Senator Kate Lieber, Co-Chair
Representative Pam Marsh, Co-Chair
Senator Lynn Findley
Representative Mark Owens

Non-Legislative Members:

Neil Baungard, The Environmental Center
Andrew Beyer, EC Company
Alex Boetzel, Green Hammer
Don Bohn, County Manager, Clatsop
Anjeanette Brown, Build/Shift Collective
Ashley Buchanan, Fortis Construction
Meredith Connolly, Climate Solutions
Ernesto Fonseca, Hacienda CDC
Christopher Forney, AIA Oregon
Elliott Gall, Portland State University
Mike Goodrich, Legend Homes
Jay Hansen, CJ Hansen Co
Kim Heiting, NW Natural
David Heslam, Earth Advantage
Bob Jenks, Oregon Citizens' Utility Board
Scott Linfesty, Building official, Washington County
Jeff McGillivray, UA Local 290
Tricia Mooney, Hermiston School District
Jairaj Singh, Unite Oregon
Eli Spevak, Orange Splot LLC
Matt Tidwell, Portland General Electric
Lucy Vinis, Mayor, Eugene
Robert Westerman, Oregon State Association of Electrical Workers

About This Report

This report was prepared by staff at the Oregon Legislative Policy and Research Office (LPRO):

Erin Pischke, Legislative
Analyst
Legislative Policy and
Research Office
Erin.Pischke@oregonlegislature.gov
503-986-1533

Beth Reiley, Legislative
Analyst
Legislative Policy and
Research Office
Beth.Reiley@oregonlegislature.gov
503-986-1755

Laura Wolton, Research
Analyst
Legislative Policy and
Research Office
Laura.Wolton@oregonlegislature.gov
503-986-1532

LPRO provides centralized, professional, and nonpartisan research, issue analysis, and committee management services for the Legislative Assembly. The Legislative Policy and Research Office does not provide legal advice. This document contains general information that is current as of the date of publication. Subsequent action by the legislative, executive, or judicial branches may affect accuracy.

DRAFT

Chair Letter forthcoming

DRAFT

TABLE OF CONTENTS

TASK FORCE MEMBERSHIP	ii
EXECUTIVE SUMMARY	1
TASK FORCE CHARGE AND BACKGROUND	3
TASK FORCE PROCESS	3
Building Foundational Understanding	3
Discovering and Sharing Policy Ideas	4
Understanding and Prioritizing Policies	4
Modeling, Analyzing, and Measuring Support	6
Final Survey.....	7
Integrated Scenarios.....	8
POLICY OUTCOMES	8
Promote, Incentivize, and/or Subsidize Energy Efficiency and Heating/Cooling . 9	
Levels of alignment with promote, incentivize, and/or subsidize energy efficiency and heating/cooling.....	9
Potential IRA funding opportunities to promote, incentivize, and/or subsidize energy efficiency and heating/cooling.....	11
Promote, Incentivize, and/or Subsidize Heat Pumps	11
Levels of alignment with promoting, incentivizing, and/or subsidizing heat pumps. 11	
Potential IRA funding opportunities for promoting, incentivizing, and/or subsidizing heat pumps.....	13
Decarbonize Institutional/Public Buildings	13
Levels of alignment with decarbonizing institutional/public buildings.....	13
Promote, Incentivize, and/or Subsidize Air Purification Systems	15
Levels of alignment with promoting, incentivizing, and/or subsidizing air purification systems	15
Assess and Disclose Material-Related Emissions	16
Levels of alignment assessing and disclosing material-related emissions.....	17
Potential IRA funding opportunities for assessing and disclosing material-related emissions.....	18
Modify Energy Trust of Oregon’s Mission	18
Levels of Alignment with modifying Energy Trust of Oregon’s mission.....	18
Building Performance Standards	19

Levels of alignment with building performance standards 20

Potential IRA funding opportunities for building performance standards 21

Align Energy Efficiency Programs with State's Climate Goals (Executive Order 20-04) 21

Levels of alignment with aligning energy efficiency programs with State's climate goals (EO 20-04) 21

Enact Energy-Efficient Building Codes 22

Levels of alignment with enacting energy-efficient building codes..... 22

Potential IRA funding opportunities for enacting energy-efficient building codes.... 24

APPENDIX A: FINAL PREFERENCES SURVEY COMMENTS 1

DRAFT

EXECUTIVE SUMMARY

Task Force Mandate

In 2022, the Oregon Legislative Assembly enacted [Senate Bill 1518](#) which established the Resilient Efficient Buildings Task Force (Task Force). Senate Bill 1518 directed the Task Force to identify and evaluate policies related to building codes and building decarbonization for new and existing buildings that would enable the state to meet the greenhouse gas emissions reduction goals (ORS 468A.205) while maximizing additional benefits. The legislation also directed the Task Force to consider, in developing recommendations, costs, savings, and benefits of policies that relate to residential, commercial, and industrial buildings. Senate Bill 1518 directed the Task Force to make policy recommendations for legislation to the interim committees of the Legislative Assembly related to the environment before the 2023 Regular Session.

Membership

The members of the Task Force were appointed by the President of the Senate and the Speaker of the House on March 18, 2022. The 27 members include two senators, two representatives, and 23 members representing the geographic diversity of the state and providing the benefit of specific experience in areas of focus of the Task Force.

Process

The Task Force's scope of work was organized into four process sections: 1) building foundational understanding; 2) discovering and sharing policy ideas; 3) understanding and prioritizing policies; and 4) modeling, analyzing, and measuring support. The Task Force met virtually 16 times between April 2022 and December 2022.

Outcomes

Task Force members were surveyed about their levels of alignment with the following general policy directions (listed from highest to lowest levels of support):

- promote, incentivize, and/or subsidize energy efficiency and heating/cooling efficiency increases (25 support, 2 do not support);
- promote, incentivize, and/or subsidize heat pumps (24 support, 2 do not support);
- decarbonize institutional/public buildings (23 support, 4 do not support);
- promote, incentivize, and/or subsidize air purification systems (23 support, 4 do not support);
- assess and disclose material-related emissions (21 support, 6 do not support);
- modify Energy Trust of Oregon's mission (21 support, 6 do not support);
- building performance standards (19 support, 8 do not support);
- align energy efficiency programs with state's climate goals (19 support, 8 do not support); and
- enact energy-efficient building codes (18 support, 9 do not support).

For Task Force members who supported the policy direction in general, the survey included more specific questions gauging their support for each policy's modeled scenarios. Each policy scenario included different levels of implementation stringency (e.g., lower and higher ambition). This resulted in varying levels of support for modeled policy scenarios.

Access to Full Report

The full report and all background documents can be found online at [insert OLIS link here].

DRAFT

TASK FORCE CHARGE AND BACKGROUND

In 2022, the Oregon Legislative Assembly enacted [Senate Bill 1518](#) which established the Resilient Efficient Buildings Task Force (Task Force). Senate Bill 1518 directed the Task Force to identify and evaluate policies related to building codes and building decarbonization for new and existing buildings that would enable the state to meet the greenhouse gas emissions reduction goals while maximizing additional benefits. The legislation also directed the Task Force to consider, in developing recommendations, costs, savings, and benefits of policies that relate to residential, commercial, and industrial buildings. The Act directed the Legislative Policy and Research Office (LPRO) to provide staff support and authorized the Task Force to contract with an entity to provide additional expertise. Senate Bill 1518 directed the Task Force to make policy recommendations for legislation to the interim committees of the Legislative Assembly related to the environment before the 2023 Regular Session.

On March 18, 2022, the Senate President and Speaker of the House jointly appointed 27 individuals from a wide range of backgrounds to serve on the Task Force. The Task Force met virtually 16 times between April 2022 and December 2022 in order to accomplish the goal of recommending legislation prior to the 2023 legislative session.

After sending out a request for proposals on July 13, 2022 (which closed on August 9, 2022), LPRO contracted with the Sustainability Solutions Group (SSG) to evaluate policies by modeling different policy scenarios, providing policy analysis, and synthesizing modeling outcomes for the Task Force.

TASK FORCE PROCESS

The Task Force's scope of work was organized into four process sections: 1) building foundational understanding; 2) discovering and sharing policy ideas; 3) understanding and prioritizing policies; and 4) modeling, analyzing, and measuring support. The Task force received public comments on various issues related to the scope of the Task Force's work throughout the process.

Building Foundational Understanding

The first three Task Force meetings were focused on developing a shared foundational understanding of related existing Oregon programs. The Task Force heard presentations on existing policies, programs, and topics that were relevant to the Task Force's charge, including:

- the residential and commercial building codes;
- the Climate Protection Program;
- embodied carbon of building materials;
- Oregon Global Warming Commission's Greenhouse Gas Reduction Plan (Roadmap to 2035);

- product efficiency standards;
- efficiency and renewable energy incentive programs;
- health co-benefits of building efficient resilient buildings;
- Energy Trust of Oregon’s energy efficiency programs; and
- energy efficiency programs available through Bonneville Power Administration and consumer-owned utilities.

During the course of the Task Force’s work, Congress enacted the Inflation Reduction Act of 2022 (IRA). The IRA was signed into law on August 16, 2022. A portion of the IRA funds energy and climate programs using tax measures and grants. The Oregon Department of Energy provided guidance to the Task Force on how these funds could potentially align with the policies being discussed by the Task Force depending on the parameters of the policies and the development of relevant portions of the IRA.¹

Discovering and Sharing Policy Ideas

The Task Force spent the next three meetings exploring other programs for possible consideration. This was accomplished by having presentations from the Rocky Mountain Institute and New Buildings Institute on policy ideas from other states² as well as suggestions submitted by Task Force members through an online brainstorming tool called Jamboard and during Task Force meetings which resulted in over 100 individual policy suggestions. Grouping similar programs together left the Task Force members with 25 policy categories to explore. Those 25 policy categories addressed both new and existing residential (including single and multi-family residences), commercial, and institutional/public building sectors. The Co-Chairs opted not to include strategies to address industrial sectors because of the absence of industrial emissions expertise represented on the Task Force and the compressed time frame.

Understanding and Prioritizing Policies

Over the course of the next four meetings, Task Force members discussed each of the 25 identified policy categories. LPRO staff provided a compilation of the Task Force’s policy suggestions, supplemented with background information, to members in two memos grouped by whether the policies were most applicable to [existing buildings](#) or [new construction](#).

¹ Jennifer Senner and Blake Shelide, Oregon Department of Energy, Joint Task Force on Joint Task Force on Resilient Efficient Buildings presentation, (October 11, 2022) <<https://olis.oregonlegislature.gov/liz/202111/Downloads/CommitteeMeetingDocument/257253>> (last visited November, 16, 2022)

² Edie Taylor, New Buildings Institute/Rocky Mountain Institute, Joint Task Force on Resilient Efficient Buildings - Group Presentation no. 2, (May 31, 2022), <<https://olis.oregonlegislature.gov/liz/202111/Downloads/CommitteeMeetingDocument/255583>> (last visited June 30, 2022).

Once the discussions had been completed, Task Force members engaged in two surveys to provide feedback to assist the Co-Chairs in allocating the Task Force's remaining time and modeling resources. LPRO staff designed the surveys, at the request of the Co-Chairs, to prioritize Task Force member interest in gathering more information on policy directions relating to existing and new buildings. Task Force members were asked to indicate the policies that they were the least and most interested in³ further discussion, modeling, and analysis.

All members (27) participated in the [first survey](#) that was focused on existing buildings. When over half of the Task Force members (14) [indicated an interest](#) in further discussion, modeling, and analysis of certain policy concepts, the Task Force Co-Chairs referred the concepts to the next phase of the process. These policy concepts were:

- building performance standards;
- promote, incentivize, and/or subsidize energy efficiency and heating/cooling efficiency increases; and
- align energy efficiency programs with the state's climate goals.

Eight of the policies that received between 7 and 13 indications of interest were then included in the second survey.

Twenty-six Task Force members participated in the [second survey](#) which focused primarily on new buildings. The Co-Chairs forwarded on the following six policy concepts to be analyzed because half of the participating members (13) [indicated an interest](#):

- decarbonize institutional/public buildings;
- promote, incentivize, and/or subsidize heat pumps;
- modify Energy Trust of Oregon's mission;
- promote, incentivize, and/or subsidize air purification systems;
- assess and disclose material-related emissions; and
- enact energy-efficient building codes.

The following policy concepts were discussed and explored by the Task Force, but as a result of lower [interest](#) from the surveys when compared to other policy options, ultimately did not advance to the modelling stage of the process, and no measurement of support was taken:

- modify agency operations and code development process;
- create public climate or environmental justice hubs;
- further enhance the efficiency of appliances and equipment;
- focus on refrigerants with low global warming potentials;
- study and expand grid system/sources;
- limit allowable total carbon of buildings;

³ The first survey requested Task Force members select three policies of least interest and five policies of most interest for gathering additional information. The second survey requested Task Force members select a maximum of five policies of least interest and seven policies of most interest for gathering additional information.

- modify Building Codes Division advisory boards;
- evaluate hybrid natural gas and electric energy system;
- benchmarking and disclosure;
- enact residential or expand commercial PACE financing;
- establish workforce development requirements;
- use a points-based residential code;
- maintain the status quo;
- permit local adoption of the Oregon Reach Code;
- advanced metering infrastructure; and
- building electrification study.

A portion of Task Force members expressed a preference that the Co-Chairs would have used an alternative scoring system that reflected the combination of the votes for both the least and most interested rather than advancing policies on through the process that received a majority of support. Additionally, the first survey required Task Force members to select a fixed number of responses, which was undesirable for members who wanted to provide fewer or more responses. Considering this feedback, subsequent surveys were structured to allow members to select fewer than the requested number of policy concepts.

Modeling, Analyzing, and Measuring Support

The Task Force worked with modelers over the course of six meetings to gain a greater understanding of the modeling approach being used, providing policy-specific details necessary to model policy options, analyzing modeling outcomes, and measuring Task Force support.

SSG used the Energy Systems Simulator (ESS)⁴ to evaluate the policies. The same model was utilized by the Oregon Global Warming Commission and the Oregon Department of Energy as they developed the RoadMap to 2035.

In total, nine policy concepts were identified as priorities by Task Force members for SSG to model or further analyze. SSG asked that the Task Force provide further policy details for the six that were modellable:

- promote, incentivize, and/or subsidize energy efficiency and heating/cooling efficiency increases;
- promote, incentivize, and/or subsidize heat pumps;
- decarbonize institutional/public buildings;

⁴ ESS applies a physical economy approach to provide coherent scenarios that explore the long-term impacts of ongoing energy transitions. ESS traces the flows and transformations of energy from sources through energy currencies (e.g., natural gas, electricity, hydrogen), to end uses (e.g., space heating), to energy costs, and greenhouse gas (GHG) emissions.

- assess and disclose material-related emissions;
- building performance standards; and
- enact energy-efficient building codes.

SSG provided a list of policy options that could be set in their model to simulate how a policy would apply to the existing building stock and/or new construction. These policy details included minimum building square footage, building type (e.g., residential, commercial, public), and whether the buildings were not yet constructed or existing. Additionally, the ESS model required intensity of greenhouse gas abatement goals and thermal energy reduction goals. To provide policy details that could be utilized by the modelers, a survey was designed by SSG and implemented by LPRO. This [third survey](#) provided a range of lower- to higher-ambition options for each policy direction including an option to bypass questions by using default parameters, which SSG designed using existing policies suggested by Task Force discussions and by using previously modeled policies. The chosen parameters for each policy will be discussed in more detail in the following subsections on policy directions.

SSG provided analysis only (without modeling) on the remaining three policy directions:

- promote, incentivize, and/or subsidize air purification systems;
- modify Energy Trust of Oregon’s mission; and
- align energy efficiency programs with state’s climate goals.

A portion of Task Force members expressed difficulties with navigating the third survey system, felt the given timelines were too short, and would have preferred a method of providing written feedback rather than choosing policy details for policy directions that they did not necessarily support in the first place.

Final Survey

Task Force members received modeled and analyzed results, in the form of a scorecard, for each policy scenario. At the request of Task Force Co-Chairs, LPRO staff designed a [final survey](#) to measure Task Force members’ preferences regarding policy directions. For each of the nine policies modeled or analyzed by SSG, survey questions asked Task Force members whether they aligned with the policy direction in general (e.g., building performance standards). If Task Force members supported this direction in general, survey questions then asked them to rate their alignment with the modeled or analyzed policy scenarios as well as what aspects (e.g., building size, building type, timeline of goal) of those policy scenarios modeled by SSG were most important to consider for the policy direction. The survey asked all members why they were or were not in alignment with each policy direction (see [Appendix A](#)). Lastly, the survey asked all members which of the scorecard indicators provided by SSG (e.g., lifecycle abatement costs, energy efficiency, public health) were the most important when making decisions about resilient buildings policy directions. There were “other” options provided in the form of comment boxes in case Task Force members used different indicators when making decisions.

Integrated Scenarios

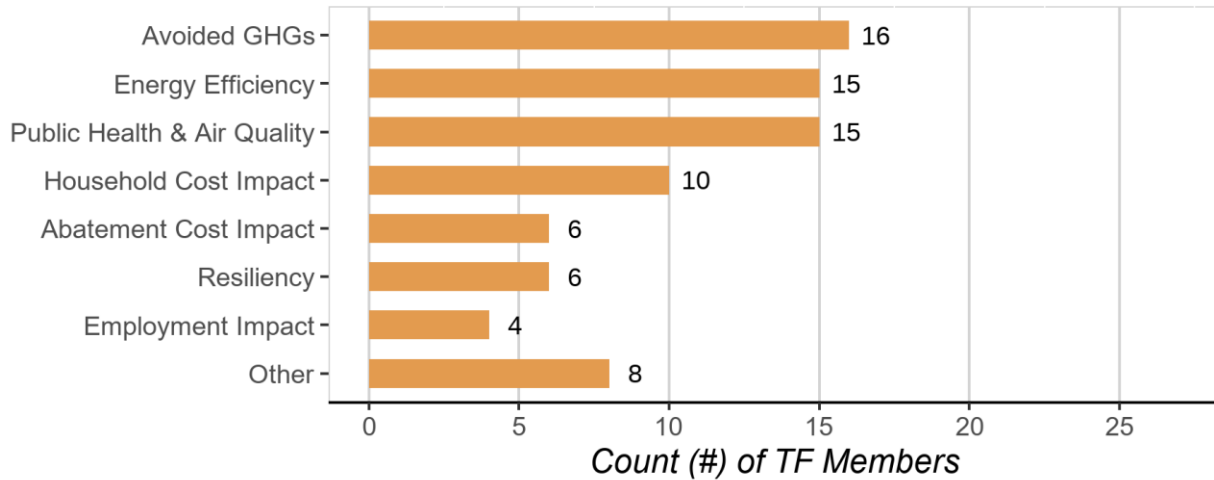
In addition to the individual policy scorecards, SSG provided an [analysis](#) of the impact of adopting multiple policies. These “integrated scenarios” showed how the policies could relate to each other to increase different policy objectives such as: greenhouse gas emissions, avoided energy consumption, resiliency, household energy costs, average annual capital costs, net cost/savings, employment, and avoided climate damage.

POLICY OUTCOMES

The final survey was designed to measure Task Force members’ preferences regarding policy directions. In addition to sharing their alignment with policy directions in general (provided in the following subsections), all members were asked which of the scorecard indicators provided by SSG⁵ were the most important when making decisions about resilient buildings policy directions. Task Force members considered avoided greenhouse gas emissions, energy efficiency, and public health and air quality to be the most important factors when making decisions about resilient buildings policy directions (Figure 1). Household cost impacts, abatement cost impacts, resiliency, and economic impacts of employment were also considerations. Some Task Force members also provided some write-in answers about their considerations (“Other” in Figure 1) such as whether a policy concept includes a broad range of fuel sources (3 members), impact on affordability to own or rent shelter, incentivizing the market to create adoption, the cost vs. benefit (in costs and avoided emissions), whether a set standard or goal is attainable, and stabilization of current building codes processes.

⁵ Scorecard indicator choices as presented on the survey were: avoided greenhouse gas emissions, lifecycle abatement cost – economic impact, energy efficiency, resiliency (retrofits that increase resiliency), public health and air quality, household expenditures (impacts on household costs), employment – economic impact (annual person years of employment created), and social cost of carbon. Three “Other (please specify with a short phrase)” text boxes and “None of the above” were also provided.

Figure 1: Most Important Considerations for Task Force Members



Source: Legislative Policy and Research Office

Note: Members were able to select up to three categories or specify a different indicator ("other").

The following sections include policy background contained in the existing and new building memos, levels of alignment from the final Task Force survey, and potential IRA funding opportunities.

Promote, Incentivize, and/or Subsidize Energy Efficiency and Heating/Cooling

Space heating, space cooling, and water heating are some of the largest energy expenses in a building. Energy-efficient installations for existing buildings may include weatherization and energy efficiency upgrades and retrofits. There is a wide range of strategies, in addition to a selection of home heating and cooling systems, that address space heating and cooling including programmable thermostats, air sealing, equipment maintenance, minimizing duct losses, installation of energy-efficient windows and doors, daylighting, shading, and ventilation.

Levels of alignment with promote, incentivize, and/or subsidize energy efficiency and heating/cooling

Levels of alignment with this policy direction in general, as measured by a final survey of Task Force members, show 25 members support this policy direction in general and 2 do not support this policy in general. Comments explaining reasons for support or nonsupport of this policy direction were provided by Task Force members (see [Appendix A Table A1](#)).

Using the [Task Force’s selections of policy details](#), SSG analyzed four model scenarios. The details for these scenarios as well as associated levels of support are shown in Table 1.

Table 1: Survey Outcomes for Modeled Scenarios of Promote, Incentivize, and/or Subsidize Energy Efficiency and Heating/Cooling

	Alignment with policy direction in general			
	Do support in general			Do not support in general
Count of Task Force members	25			2
	Policy scenarios			
	Lower ambition		Higher ambition	
Scenario reference number	2a	2b	2c	2d
Emissions abatement goal	50% of buildings are retrofitted by 2050, thermal energy requirements reduced by 15%		100% of buildings are retrofitted by 2035, thermal energy requirements reduced by 50%	
Building type	Existing residential, commercial (depending on size), and multi-family buildings			
Commercial building size that scenario will apply to	Buildings ≥ 50,000 ft ²	Buildings ≥ 30,000 ft ²	Buildings ≥ 50,000 ft ²	Buildings ≥ 30,000 ft ²
	Alignment with modeled policy scenarios (Count of Task Force members)*			
Love it	0	0	1	1
Like it, but have some reservations	6	6	16	16
Don’t like it, but I’m willing to stand aside	3	2	2	2
Cannot support this policy scenario	14	15	5	5

Source: Legislative Policy and Research Office

Note: *Not all members answered each question. Columns may not add up to 27.

Members who support this policy direction in general (25 members) were also asked about which policy aspects are the most important to consider for this policy direction. Fifteen (15) members answered that the intensity of the thermal energy reductions was most important, followed by the intensity of the retrofit goal (2 members). Some Task Force members (8 members) suggested that “something else” was more important to

consider, including the potential for immediate impacts, the type of buildings that are included, the cost of the program relative to the benefit in savings and reductions of greenhouse gas emissions, jobs, inclusion of all fuel types, funding availability to do deep retrofits tailored to the needs of the building itself, and other, unspecified, aspects (2 members).

Potential IRA funding opportunities to promote, incentivize, and/or subsidize energy efficiency and heating/cooling

Depending on the parameters of the program and the development of relevant portions of the IRA, the following IRA components could be utilized:

- Home Energy Performance-Based, Whole-House Rebates (HOMES);
- High-Efficiency Electric Home Rebate Program (HEEHRA);
- State-based Home Energy Efficiency Contractor Training Grants;
- Building Energy Codes (Assistance for Latest and Zero Building Energy Code Adoption);
- EPA Greenhouse Gas Reduction Fund;
- Extension, Increase, and Modification of Nonbusiness Energy Property Credit;
- Residential Clean Energy Credit;
- Energy Efficient Commercial Buildings Deduction; and
- Extension, Increase, and Modifications of New Energy Efficient Home Credit.⁶

Promote, Incentivize, and/or Subsidize Heat Pumps

Like refrigeration, heat pumps use electricity to transfer heat, cool, or warm a space depending on the season. Types of heat pumps include air-to-air, water source, and geothermal. Because they transfer heat rather than generate heat, heat pumps are generally more efficient than conventional heating systems. Although most heat pumps have resistance heaters as backup for extreme cold, hybrid heat pump systems may be combined with a gas furnace.

Levels of alignment with promoting, incentivizing, and/or subsidizing heat pumps

Levels of alignment with this policy direction in general, as measured by a final survey of Task Force members, show 24 members support this policy direction in general and 3 members do not support this policy in general. Comments explaining reasons for support or nonsupport of this policy direction were provided by Task Force members (see [Appendix A Table A2](#)).

⁶ Jennifer Senner and Blake Shelide, Oregon Department of Energy to Joint Task Force on Joint Task Force on Resilient Efficient Buildings, November 14, 2022, <<https://olis.oregonlegislature.gov/liz/202111/Downloads/CommitteeMeetingDocument/257427>> (last visited November, 21, 2022)

Using the [Task Force’s selections of policy details](#), SSG analyzed two model scenarios. The details for these scenarios, as well as associated levels of support, are shown in Table 2.

Table 2: Survey Outcomes for Modeled Scenarios of Promote, Incentivize, and/or Subsidize Heat Pumps

	Alignment with policy direction in general	
	Do support in general	Do not support in general
Count of Task Force members	24	3
	Policy scenarios	
	Lower ambition	Higher ambition
Linked scenario reference number	4a	4b
Emissions abatement goal	80% of covered buildings have a heat pump installed by 2040	100% of buildings that are covered have a heat pump installed by 2035
Building type	New and existing residential and commercial buildings	
	Alignment with modeled policy scenarios (Count of Task Force members)*	
Love it	1	15
Like it, but have some reservations	18	0
Don’t like it, but I’m willing to stand aside	3	2
Cannot support this policy scenario	1	4

Source: Legislative Policy and Research Office

Note: *Not all members answered each question. Columns may not add up to 27.

Members who support this policy direction in general (24 members) were also asked about which policy aspects are the most important to consider for this policy direction. Thirteen (13) members answered that the percentage of the installation goal was most important, followed by that hybrid and electric systems are offered (4 members), and then the timeframe to accomplish the goal (3 members). One Task Force member suggested that the cost vs. the benefit (in costs and avoided emissions) was the most important aspect to consider.

Potential IRA funding opportunities for promoting, incentivizing, and/or subsidizing heat pumps

Depending on the parameters of the program and the development of relevant portions of the Inflation Reduction Act (IRA), the following IRA components could be utilized:

- Home Energy Performance-Based, Whole-House Rebates (HOMES);
- High-Efficiency Electric Home Rebate Program (HEEHRA);
- State-based Home Energy Efficiency Contractor Training Grants;
- Building Energy Codes (Assistance for Latest and Zero Building Energy Code Adoption);
- EPA Greenhouse Gas Reduction Fund;
- Extension, Increase, and Modification of Nonbusiness Energy Property Credit;
- Residential Clean Energy Credit;
- Energy Efficient Commercial Buildings Deduction; and
- Extension, Increase, and Modifications of New Energy Efficient Home Credit.⁷

Decarbonize Institutional/Public Buildings

Institutional and public buildings can be decarbonized through retrofits and operational strategies. According to the U.S. Department of Energy's Office of Energy Efficiency & Renewable Energy, "state and local governments can lead-by-example by promoting energy efficiency programs and policies for public facilities, equipment, and government operations through energy data management and evaluation, energy efficiency building standards for public buildings, enacting retrofit programs for existing public buildings, procuring energy-efficient appliances and equipment (including vehicles), and establishing energy efficiency operations and maintenance procedures."⁸

Levels of alignment with decarbonizing institutional/public buildings

Levels of alignment with this policy direction in general, as measured by a final survey of Task Force members, show 23 members support this policy direction in general and 4 members do not support this policy in general. Comments explaining reasons for support or nonsupport of this policy direction were provided by Task Force members (see [Appendix A Table A3](#)).

Using the [Task Force's selections of policy details](#), SSG analyzed two model scenarios. The details for these scenarios as well as associated levels of support are shown in Table 3.

⁷ Jennifer Senner and Blake Shelide, Oregon Department of Energy to Joint Task Force on Joint Task Force on Resilient Efficient Buildings, November 14, 2022, <https://olis.oregonlegislature.gov/liz/202111/Downloads/CommitteeMeetingDocument/257427> (last visited November, 21, 2022)

⁸ Office of Energy Efficiency & Renewable Energy, Energy Efficiency Policies and Programs – State and Local Solutions Center, <https://www.energy.gov/eere/slsc/energy-efficiency-policies-and-programs> (last visited August 11, 2022).

Table 3: Survey Outcomes for Modeled Scenarios of Decarbonize Institutional/Public Buildings

	Alignment with policy direction in general	
	Do support in general	Do not support in general
Count of Task Force members	23	4
	Policy scenarios	
	Lower ambition	Higher ambition
Scenario reference number	<u>3a</u>	<u>3b</u>
Emissions abatement goal	New buildings after 2035 are carbon neutral	New buildings after 2023 are carbon neutral
Retrofits	50% of buildings are retrofitted by 2045; thermal energy requirements reduced by 15%; plug load reduced by 15%	100% of buildings are retrofitted by 2035; thermal energy requirements reduced by 50%; plug load reduced by 50%
	Alignment with modeled policy scenarios (Count of Task Force members)*	
Love it	2	0
Like it, but have some reservations	2	14
Don't like it, but I'm willing to stand aside	15	2
Cannot support this policy scenario	3	6

Source: Legislative Policy and Research Office

Note: *Not all members answered each question. Columns may not add up to 27.

Members who support this policy direction in general (23 members) were also asked about which policy aspects are the most important to consider for this policy direction. Five (5) members answered that the percentage of retrofitted buildings was most important, followed by the intensity of thermal energy reductions (3 members), and the intensity of the carbon neutral goal (2 members) are the most important to consider for this policy direction. A number of Task Force members (10 members) suggested that “something else” was most important to consider, including both the thermal energy and plug load reductions (4 members), flexibility (when and how energy can be reduced) of

thermal and plug loads, energy efficiency, effectiveness of greenhouse gas reductions, the cost vs. benefit (in costs and avoided emissions), leading by example, and other, unspecified, aspects.

Promote, Incentivize, and/or Subsidize Air Purification Systems

Exposure to poor indoor air quality is linked to negative health impacts that predominantly impact vulnerable groups such as children, young adults, and older adults. Additionally, research has shown disparate impacts on various communities:

- People of color are exposed to more particulate pollution on average, increasing the risk of cumulative health impacts including lung and heart disease.⁹
- Low socio-economic status households generally live with poorer indoor air quality.¹⁰
- Households with higher socio-economic status have been found to have higher radon concentrations.¹¹ Radon has been identified as the second leading cause of lung cancer.¹²

Several strategies—including source control, improved ventilation, and air cleaners—may improve indoor air quality.

Levels of alignment with promoting, incentivizing, and/or subsidizing air purification systems

Levels of alignment with this policy direction in general were measured by a final survey of Task Force members. Results show 23 members like this policy direction in general (15 “love it” and 8 “like it, but have some reservations”) and 4 members do not like this policy in general (2 “don’t support this policy direction” and 2 members “don’t like it, but will stand aside”) (Table 4). Comments explaining reasons for support or nonsupport of this policy direction were provided by Task Force members (see [Appendix A Table A4](#)).

⁹ U.S. Environmental Protection Agency, *Study Finds Exposure to Air Pollution Higher for People of Color Regardless of Region or Income*, <<https://www.epa.gov/sciencematters/study-finds-exposure-air-pollution-higher-people-color-regardless-region-or-income>> (last viewed July 6, 2022).

¹⁰ Lauren Ferguson, et al., *Exposure to Indoor Air Pollution Across Socio-Economic Groups in High-Income Countries*, 143 *EI* 1 (1-18), available at <<https://doi.org/10.1016/j.envint.2020.105748>> (last viewed July 6, 2022).

¹¹ *Id.*, at 4.

¹² Pawel D. & Puskin J., *The U.S. Environmental Protection Agency’s Assessment of Risks from Indoor Radon*, 87 *HP* 68 (68–74), available at <<https://pubmed.ncbi.nlm.nih.gov/15194924/>> (last visited July 6, 2022).

Table 4: Survey Outcomes for Analyzed Policy Concept of Promote, Incentivize, and/or Subsidize Air Purification Systems

<u>Target</u>			
<ul style="list-style-type: none"> Promote, incentivize, and/or subsidize air purification systems. Use only an approved product list of effective air cleaners. Prioritize efficiency upgrades and clean air systems in Oregon schools. Further prioritize schools that serve diverse or disadvantaged communities. 			
Alignment rating of policy direction in general			
Love it	Like it, but have some reservations	Don't like it, but I'm willing to stand aside	I don't support this policy direction in general
15	8	2	2

Source: Legislative Policy and Research Office

Assess and Disclose Material-Related Emissions

The production of building-sector materials is a significant source of greenhouse gases.¹³ There are two categories of efficiency that are concerned with material production: material efficiency and energy efficiency. Material efficiency and energy efficiency strategies may be combined but may also conflict (e.g., reuse may reduce the supply available for recycling).

- Material efficiency strategies aim to yield materials with less production and processing. These strategies generally include material reduction or reuse of a material as well as extending the life of or improving the design of a product. Effective reuse, particularly in construction, is considered an effective emissions abatement strategy but may be challenging due to product recertification requirements, an undeveloped supply chain, or design costs.¹⁴
- Energy efficiency of materials production may be found through altering production processes such as redesign of a supply chain or process chain. Recycling, also considered to be a strategy for energy efficiency, is an alternative that involves breaking down a material so it can be used as a feedstock in conventional production processes. Challenges in recycling include ease of deconstruction, logistics of collection and sorting, availability of supply, and product purity.¹⁵

Material efficiency and energy efficiency strategies may be combined but may also conflict (e.g., reuse may reduce the supply available for recycling).

¹³ Organization for Economic Cooperation and Development, *Low and Zero Emissions in the Steel and Cement Industries*, (2019), available at <https://www.oecd.org/greengrowth/GGSD2019_IssuePaper_CementSteel.pdf> (last visited August 18, 2022).

¹⁴ Julian M. Allwood, et al., *Material Efficiency: A White Paper 55 RC&R (362-381)*, available at <https://web.mit.edu/ebm/www/Publications/MEWP_Res_Cons_Recycl_2011.pdf> (last visited August 18, 2022).

¹⁵ *Id.*

Levels of alignment assessing and disclosing material-related emissions

Levels of alignment with this policy direction in general, as measured by a final survey of Task Force members, show 21 members support this policy direction in general and 6 members do not support this policy in general. Comments explaining reasons for support or nonsupport of this policy direction were provided by Task Force members (see [Appendix A Table A5](#)).

Using the [Task Force’s selections of policy details](#), SSG analyzed three model scenarios. The details for these scenarios as well as associated levels of support are shown in Table 5.

Table 5: Survey Outcomes for Modeled Scenarios of Assess and Disclose Material-Related Emissions

	Alignment with policy direction in general		
	Do support in general		Do not support in general
Count of Task Force members	21		6
	Policy scenarios		
Scenario reference number	5a	5b	5c
Emissions abatement goal	Reduce embodied carbon from construction by 20% by 2030, compared to 2015	Reduce embodied carbon from construction by 60% by 2030, compared to 2015	Reduce embodied carbon from construction by 100% by 2050, compared to 2015
Building type	New residential and commercial construction		
	Alignment with modeled policy scenarios (Count of Task Force members)*		
Love it	3	13	0
Like it, but have some reservations	15	2	13
Don’t like it, but I’m willing to stand aside	2	3	3
Cannot support this policy scenario	0	3	5

Members who support this policy direction in general (21 members) were also asked about which policy aspects are the most important to consider for this policy direction. Seventeen (17) members answered the timeframe to accomplish the goal was the most important aspect, followed by the percentage of the reduction (3 members). One Task Force member suggested that the cost vs. the benefit (in costs and avoided emissions) was most important to consider.

Potential IRA funding opportunities for assessing and disclosing material-related emissions

Depending on the parameters of the program and the development of relevant portions of the Inflation Reduction Act (IRA), the following IRA components could be utilized:

- Building Energy Codes (Assistance for Latest and Zero Building Energy Code Adoption) and
- EPA Greenhouse Gas Reduction Fund.¹⁶

Modify Energy Trust of Oregon's Mission

The Energy Trust of Oregon's (ETO) mission is to help utility partners and their customers acquire cost-effective energy efficiency and install small-scale renewable energy projects.¹⁷ ETO's funding is largely derived from Oregon utility customers of Portland General Electric, Pacific Power, NW Natural, Cascade Natural Gas, and Avista. The Oregon Public Utility Commission (PUC) annually sets funding levels for cost-effective energy efficiency through the standard PUC rate-making process. Funding for the installation of renewable energy and distribution system-connected technologies is a set percentage of the state's public purpose charge. ORS Chapter 757 (2021) is the primary chapter that governs the funds Energy Trust can invest on behalf of investor-owned utility customers.¹⁸ Policy suggestions were focused on including greenhouse gas emission reductions and equity as key ETO performance metrics, providing access to ETO programs statewide, and removing barriers to customer choices in ETO programs.

Levels of Alignment with modifying Energy Trust of Oregon's mission

Levels of alignment with this policy direction in general were measured by a final survey of Task Force members. Results show 21 members like this policy direction in general

¹⁶ Jennifer Senner and Blake Shelide, Oregon Department of Energy to Joint Task Force on Joint Task Force on Resilient Efficient Buildings, November 14, 2022, <<https://olis.oregonlegislature.gov/liz/202111/Downloads/CommitteeMeetingDocument/257427>> (last visited November, 21, 2022)

¹⁷ Hannah Cruz, Senior Stakeholder Relations and Policy Manager, Energy Trust of Oregon presentation to the task force on May 3, 2022.

¹⁸ Email from Hannah Cruz, Senior Stakeholder Relations and Policy Manager, Energy Trust of Oregon, to Beth Reiley, Legislative Policy and Research Office (July 7, 2022, 4:43 PM) (on file with Legislative Policy and Research Office).

(15 “love it” and 6 “like it, but have some reservations”) and 6 members do not like this policy in general (5 members “don’t support this policy direction” and 1 member “doesn’t like it but will stand aside”) (Table 6). Comments explaining reasons for support or nonsupport of this policy direction were provided by Task Force members (see [Appendix A Table A6](#)).

Table 6: Survey Outcomes for Analyzed Policy Concept of Modify Energy Trust of Oregon’s Mission

<u>Target</u>			
<ul style="list-style-type: none"> • Change Energy Trust of Oregon’s (ETO) mission to lead with greenhouse gas (GHG) emissions reductions and equity instead of leading with fuel-neutral energy efficiency. • Direct the PUC to consider GHG reduction in Energy Trust/utility conservation programs. • Remove barriers to customer choice through ETO funds and other programs that provide efficiency incentives to replace bulk fuels with a more efficient electric system (rather than a forced switch). • ETO programs should be made available statewide. 			
Alignment rating of policy direction in general			
Love it	Like it, but have some reservations	Don't like it, but I'm willing to stand aside	I don't support this policy direction in general
15	6	1	5

Source: Legislative Policy and Research Office

Building Performance Standards

A building performance standard (BPS) establishes specific performance levels that buildings must achieve. BPS policies can be designed to target improvements in a variety of building aspects—including energy use, water use, and emissions. The Environmental Protection Agency (EPA) lays out key policy considerations for designing a BPS:¹⁹

- align and establish goals;
- determine covered properties;
- consider compliance approaches;
- provide support to building owners; and
- establish reporting requirements.

¹⁹ Environmental Protection Agency, Building Performance Standards: Overview for State and Local Decision Makers, (2021), available at https://www.epa.gov/sites/default/files/2021-02/documents/benchmarking_building_performance_standards_section2.pdf (last visited June 30, 2022).

Although targeting existing construction, BPS programs can influence new construction design because the new structures would eventually be subject to increasingly stringent standards.

Levels of alignment with building performance standards

Levels of alignment with this policy direction in general, as measured by a final survey of Task Force members, show 19 members support this policy direction in general and 8 members do not support this policy in general. Comments explaining reasons for support or nonsupport of this policy direction were provided by Task Force members (see [Appendix A Table A7](#)).

Using the [Task Force’s selections of policy details](#), SSG analyzed four model scenarios. The details for these scenarios as well as associated levels of support are shown in Table 7.

Table 7: Survey Outcomes for Modeled Scenarios of Building Performance Standards

	Alignment with policy direction in general			
	Do support in general			Do not support in general
Count of Task Force members	19			8
	Policy scenarios			
	Lower ambition		Higher ambition	
Scenario reference number	1a	1b	1c	1d
Emissions abatement goal	Direct emissions need to reach 5% below 2025 levels by 2030		Direct emissions reduced by 40% of 2025 by 2030	
Building type	Existing residential, commercial (depending on size), and multi-family buildings			
Commercial building size that scenario will apply to	All building sizes	Buildings ≥ 35,000 ft ²	All building sizes	Buildings ≥ 35,000 ft ²
	Alignment with modeled policy scenarios (Count of Task Force members)*			
Love it	1	1	14	15
Like it, but have some reservations	2	2	1	2
Don't like it, but I'm willing to stand aside	1	1	2	0

Cannot support this policy scenario	13	13	1	1	
--	----	----	---	---	--

Source: Legislative Policy and Research Office

Note: *Not all members answered each question. Columns may not add up to 27.

Members who support this policy direction in general (19 members) were provided with a follow up survey question that asked about which policy aspects are the most important to consider for this policy direction. Fifteen (15) members answered that the intensity of the reduction goal was most important, followed by the size of the building the policy is applied to (1 member). Two (2) Task Force members suggested that “something else” was more important to consider, including promoting incentives rather than mandates and net implementation benefit.

Potential IRA funding opportunities for building performance standards

Depending on the parameters of the program and the development of relevant portions of the IRA, the following IRA components could be utilized:

- Building Energy Codes (Assistance for Latest and Zero Building Energy Code Adoption),
- EPA Greenhouse Gas Reduction Fund, and
- Energy Efficient Commercial Buildings Deduction.²⁰

Align Energy Efficiency Programs with State's Climate Goals (Executive Order 20-04)

In 2020, Governor Brown issued [Executive Order 20-04](#) (EO 20-04) which directed state agencies to take certain actions to reduce and regulate GHG emissions. The policy proposal discussed would be to enact the energy use targets in EO 20-04 in statute. The Executive Order “establishes science-based GHG emissions reduction goals and calls for the State of Oregon to reduce its GHG emissions (1) at least 45 percent below 1990 emissions levels by 2035; and (2) at least 80 percent below 1990 emissions levels by 2050.” In addition, the Executive Order directs state agencies to take certain actions.

Levels of alignment with aligning energy efficiency programs with State's climate goals (EO 20-04)

Levels of alignment with this policy direction in general were measured by a final survey of Task Force members. Results show 19 members like this policy direction in general (15 “love it” and 4 “like it, but have some reservations”) and 8 members do not like this policy in general (6 “don’t support this policy direction” and 2 “don’t like it, but will stand

²⁰ Jennifer Senner and Blake Shelide, Oregon Department of Energy to Joint Task Force on Joint Task Force on Resilient Efficient Buildings, November 14, 2022, <<https://olis.oregonlegislature.gov/liz/202111/Downloads/CommitteeMeetingDocument/257427>> (last visited November, 21, 2022)

aside”) (Table 8). Comments explaining reasons for support or nonsupport of this policy direction were provided by Task Force members (see [Appendix A Table A8](#)).

Table 8: Analyzed Policy Concept of Align Energy Efficiency Programs with State’s Climate Goals

<u>Target</u>			
<ul style="list-style-type: none"> • Ensure energy efficiency programs align with other policies such as House Bill 2021 and the Climate Protection Program • Ensure demand response programs delivery and enable GHG emissions reductions 			
Alignment rating of policy direction in general			
Love it	Like it, but have some reservations	Don't like it, but I'm willing to stand aside	I don't support this policy direction in general
15	4	2	6

Source: Legislative Policy and Research Office

Enact Energy-Efficient Building Codes

Building energy codes can require new construction and major renovations in existing buildings to meet minimum energy efficiency requirements, which reduces energy consumption while saving costs for occupants and owners.

Levels of alignment with enacting energy-efficient building codes

Levels of alignment with this policy direction in general, as measured by a final survey of Task Force members, show 18 members support this policy direction in general and 9 do not support this policy in general. Comments explaining reasons for support or nonsupport of this policy direction were provided by Task Force members (see [Appendix A Table A9](#)).

Using the [Task Force’s selections of policy details](#), SSG analyzed four model scenarios. The details for these scenarios as well as associated levels of support are shown in Table 9.

Table 9: Survey Outcomes for Modeled Scenarios of Energy-Efficient Building Codes

		Alignment with policy direction in general			
		Do support in general			Do not support in general
Count of Task Force members		18			9
		Policy scenarios			
		Lower ambition		Higher ambition	
Linked scenario reference number		<u>6a</u>	<u>6b</u>	<u>6c</u>	<u>6d</u>
Existing buildings	Emissions abatement goal	50% of buildings are retrofitted by 2050, thermal energy requirements reduced 15%		100% of buildings are retrofitted by 2035, thermal energy requirements reduced 50%	
	Commercial building size that scenario will apply to	Buildings ≥ 50,000 ft ²	Buildings ≥ 30,000 ft ²	Buildings ≥ 50,000 ft ²	Buildings ≥ 30,000 ft ²
New buildings	Emissions abatement goal	40% reduction in new building energy consumption from the 2006 Oregon codes by 2050		80% reduction in new building energy consumption from the 2006 Oregon codes by 2035	
	Commercial building size that scenario will apply to	Buildings ≥ 50,000 ft ²	All buildings	Buildings ≥ 50,000 ft ²	All buildings
Building type		Existing and new residential and commercial buildings			
		Alignment with modeled policy scenarios (Count of Task Force members) *			
Love it		0	2	3	2
Like it, but have some reservations		3	1	12	12
Don't like it, but I'm willing to stand aside		0	0	0	1
Cannot support this policy scenario		15	15	3	3

Source: Legislative Policy and Research Office

Note: *Not all members answered each question. Columns may not add up to 27.

Members who support this policy direction in general (18 members) were also asked about which policy aspects are the most important to consider for this policy direction. Three (3) members answered the intensity of the reduction goal as the most important aspect to consider for this policy direction, followed by the intensity of thermal energy reductions (1 member). Thirteen (13) members suggested that “something else” was more important to consider, including reducing energy consumption of new buildings (6 members), focus on new construction only (2 members), cost vs. benefit of avoided emissions, and other, unspecified, aspects (5 members) are the most important to consider for this policy direction.

Potential IRA funding opportunities for enacting energy-efficient building codes

Depending on the parameters of the program and the development of relevant portions of the Inflation Reduction Act (IRA), the following IRA components could be utilized:

- Building Energy Codes (Assistance for Latest and Zero Building Energy Code Adoption) and
- EPA Greenhouse Gas Reduction Fund.²¹

²¹Jennifer Senner and Blake Shelide, Oregon Department of Energy to Joint Task Force on Joint Task Force on Resilient Efficient Buildings, November 14, 2022, <<https://olis.oregonlegislature.gov/liz/202111/Downloads/CommitteeMeetingDocument/257427>> (last visited November, 21, 2022)

APPENDIX A: FINAL PREFERENCES SURVEY COMMENTS

The following tables were provided by members of the Resilient Efficient Buildings Task Force (Task Force) on the [final preferences survey](#). These comments are included here in their original form and have not been edited or analyzed by LPRO staff.

Table A1: Comments about Promote, Incentivize, and or Subsidize Energy Efficiency and Heating/Cooling

Why I do not support policy direction/ What would need to change to support this policy direction	Why I do support policy direction
<p><i>“There is no context for these choices and what we are trying to achieve with each one - given the emission reductions for the electric and gas system already required by 2050, and the lucrative incentives that will already be paid for by Oregonians in their rates and taxes. These choices are total arbitrary with no substance behind them - and no analysis to justify what they will yield. How do we evaluate the choices when the Task Force doesn't even have a specific goal in mind?”</i></p> <p><i>“The cost per tons of emissions is too steep. There is little return for the investment.”</i></p>	<p><i>“What is most important to me is the GHG emissions reduction benefits, social cost of carbon benefits, and increased health and resiliency outcomes.”</i></p> <p><i>“Thermal energy reductions are a means toward the end of GHG emissions reduction, better health for residents, and improved resiliency outcomes. So I support thermal energy reductions, but do so because that tracks with additional core benefits.”</i></p> <p><i>“Public policy and resources to support incentives and other financial considerations”</i></p> <p><i>“What’s ultimately most important to me is the GHG emissions reduction benefits, social cost of carbon benefits, and increased health and resiliency outcomes.”</i></p> <p><i>“I have issues w/ the accuracy of the modeling number. Also I feel we should focus on incentive programs, there's plenty of Federal money available, rather than mandates that cost more to the end user.”</i></p> <p><i>“Cost-effective, deep energy retrofits in as many buildings as possible as soon as possible should be the goal.”</i></p> <p><i>“I support the policy of a retrofit fund to offset the costs as long as sufficient funding is available.”</i></p>

**Comments about Promote, Incentivize, and or
Subsidize Energy Efficiency and Heating/Cooling (cont.)**

Why I do not support policy direction/ What would need to change to support this policy direction	Why I do support policy direction
	<p><i>“This policy is more effective at the higher range of adoption (2c, 2d) but not as effective in GHG reduction as the lower end of other policies (4a, 5a), so I might prioritize those others first. I would want to explore more about the resiliency, owner cost reduction and health benefits of this policy to refine, as those benefits may be significant.”</i></p> <p><i>“Options 2A and 2B are not ambitious. This task force was told to come up with ambitious policy ideas in the face of the multiple crisis that this state faces. 2C and 2D are better options, but I would prefer the building size affected be lower to generate more GHG savings and bring the benefits of increased health and resiliency to more people. These type of upgrades will be incentivized through IRA tax credits and rebates, but the state should supply further incentives that align with those from the IRA.”</i></p> <p><i>“I support the Incentivize/ Subsidize aspect 100% but I can not get on board with setting any specific # or % of completed retrofits from a policy pov.”</i></p> <p><i>“The analysis shows that the biggest impact factor for GHG reductions is the intensity of the thermal energy reductions. My priority with this policy is the outcomes of maximizing GHG emissions reduction benefits, social cost of carbon benefits, and increased health and resiliency outcomes for Oregonians. I don't want to see a continuation of energy efficiency programs without a climate lens that can actually expand fossil fuel appliances in the name of energy efficiency.”</i></p>

**Comments about Promote, Incentivize, and or
Subsidize Energy Efficiency and Heating/Cooling (cont.)**

<p>Why I do not support policy direction/ What would need to change to support this policy direction</p>	<p>Why I do support policy direction</p>
	<p><i>“Thermal energy targets are a major driver of overall building GHG emissions and should be targeted for substantial reduction”</i></p> <p><i>“The reduction of thermal energy will result in the highest reduction of GHG in combination with secondary benefits for occupants' health and resilience, making the reduction in thermal energy the most important goal.”</i></p> <p><i>“Reducing the thermal load of a building is key, and should be done to also minimize indoor air contaminants, health impacts, and ensuring that incentives/subsidies are targeted to low income and moderate income properties. Additionally, some considerations should be included related to renter protections for improved properties that serve renters.”</i></p> <p><i>“I would support a targeted policy to help us retrofit more homes with improved heating and cooling, the more modest target shows there could be net savings for a smaller program, and I would like to see such a program target lower income households and renters. Ideally such a program could leverage federal dollars. To accomplish a program like this we would need navigation programs and outreach to targeted groups.”</i></p> <p><i>“I fully support promotion, incentives, and subsidies for energy efficiencies and Heating/Cooling units. I do not support a mandated fuel switching that takes choices away from Oregonians to choose the most economical way to subsist. Wealthier Oregonians may choose the most climate friendly options, the rest of us make those choices as a matter of necessity.”</i></p>

**Comments about Promote, Incentivize, and or
Subsidize Energy Efficiency and Heating/Cooling (cont.)**

Why I do not support policy direction/ What would need to change to support this policy direction	Why I do support policy direction
	<p><i>"My support of this policy is very conditional. I find it very difficult to tease out the residential from the commercial impacts of the policy from the modeling. The details of implementation are very important but missing at this level, that makes it difficult to be sure exactly what I am being asked to support. For example, none of the policy scenarios above would conceivably include residential construction given the square footages modeled. Nonetheless, I believe that retrofitting our existing housing stock provides enormous opportunities in energy savings, GHG reductions, resiliency, health and support of impacted communities. And, that it offers an opportunity if implemented correctly to do so very quickly and in a very straightforward manner. It is a concept I very much favor but its value and effectiveness is going to be all about the details."</i></p> <p><i>"I think this goal, and the associated reduction in thermal load benefits all of the concerns brought up during task force meetings. Reducing thermal load reduced peak demand and makes our transition to renewables even easier.</i></p> <p><i>In terms of the specific proposals that were modeled, I am skeptical of retrofit goals ever reaching 100% adoption. Knowing that there are diminishing marginal returns to an already challenging retrofit market. However, 100% goals (or close to) can be effective in new construction environments through code because it is adopted all at once."</i></p> <p><i>"I believe this is the most important policy we can implement, including ways to share the cost."</i></p>

Table A2: Comments about Promote, Incentivize, and/or Subsidize Heat Pumps

<p>Why I do not support policy direction/ What would need to change to support this policy direction</p>	<p>Why I do support policy direction</p>
<p><i>“We should support energy / emissions savings - we should not predetermine the winner. Let’s incentivize the target goal and let the community find a solution. Heat pumps could be one of several menu choices.”</i></p> <p><i>“No emissions or cost benefit analysis for Oregon with actual utility data has been done to support this recommendation. No analysis has been done to justify the current level of ratepayer and taxpayer subsidies already in play for electric heat pumps - much less to add to the incentive pot by triple “taxing” Oregonians for additional HP incentives. What would be analysis the Task Force will show to justify this?”</i></p> <p><i>“I do support the incentives & subsidize, but I do not support the mandate. The way the questions are worded if you chose “I support”, I feel are skewed for a particular outcome. I think I could support some of these but we would need to get way more specific.”</i></p>	<p><i>“This has the largest impact of all of our goals and is an easy win for Oregon. We have four big macro conditions that help this goal rise in importance.</i></p> <ol style="list-style-type: none"> <i>1. Our electric grid is getting cleaner, and the cost of renewables is dropping faster than forecasted. This increases the carbon impact of any heat pump project</i> <i>2. This technology is mature, available to implement today, and is already proven to be affordable.</i> <i>3. One of the local Oregon climate change impacts we are experiencing is hotter heatwaves and an increased demand for AC. This is an easy time for someone to electrify their heating at the same time</i> <i>4. IRA funding makes the transition more affordable”</i> <p><i>“With the level of federal support, now is the time to go big on heat pumps.”</i></p> <p><i>“We should get heat pumps installed fast, while federal subsidies are strong - both for the climate, to reduce customer utility bills, and to reduce strains on the grid caused by old & inefficient resistance electric heaters.”</i></p> <p><i>“We need to make sure hybrids are part of the solutions in order to support the 80%”</i></p> <p><i>Not only do heat pumps provide cooling and, therefore, can save lives, but they are also a critical and effective strategy to replace significantly less efficient electric resistance and gas heating.</i></p> <p><i>Heat pumps save Oregonians money on their utility bill, and this policy can ensure access to upcoming federal incentives.”</i></p>

Comments about Promote, Incentivize, and/or Subsidize Heat Pumps (cont.)

<p>Why I do not support policy direction/ What would need to change to support this policy direction</p>	<p>Why I do support policy direction</p>
	<p><i>"Noting that I would expect this policy to include heat pump hot water heaters in addition to heat pumps, I am very excited about this policy for its ability to reduce greenhouse gas emissions and energy waste, as well as save people money while providing life-saving cooling in more homes and apartments as temperatures rise and wildfire smoke worsens. Leveraging the huge amount of new IRA funding that is specifically available for electrifying home appliances, we should be turbocharging the uptake of energy efficient electric heat pumps to as many households across Oregon as possible. They should be available to all Oregonians regardless of the type of underlying appliance. Oregonians need affordable access to heat pumps and heat pump hot water heaters to replace their less-efficient electric resistance heating as well as fossil gas furnaces, and provide affordable, efficient cooling at the same time.</i></p> <p><i>A policy to help deploy these can help create jobs, ensure we take advantage of federal incentives that are available to make these electric appliances more affordable, and can help streamline all of the existing programs we have at the state right now to help Oregonians reduce energy waste and save money. One important piece is figuring out the smartest ways to align the many buckets of federal and state money available or on the horizon for heat pumps and hot water heaters to maximize the dollars efficiently and direct them to the segments of Oregon that they will not otherwise reach. Example: low- and moderate-income Oregonians in COU territory cannot access Energy Trust of Oregon rebates for heat pumps and heat pump hot water heaters - can new federal funding or other existing state funding be directed there specifically to ensure no one is left out of this beneficial upgrade."</i></p>

Comments about Promote, Incentivize, and/or Subsidize Heat Pumps (cont.)

<p>Why I do not support policy direction/ What would need to change to support this policy direction</p>	<p>Why I do support policy direction</p>
	<p><i>“This policy (4a, 4b) is the most technology-specific (heat-pumps for hot water and heating and cooling) the most effective in GHG reduction and the most readily deployable for the market with the increasing manufacturing and mainstreaming of these equipment types. Nationally supply chain and manufacturing could become a concern for cost and availability, which can also be an opportunity for jobs and US manufacturing. This is a must-do!”</i></p> <p><i>“This policy is necessary to help rapidly deploy life-saving, energy efficient electric heat pumps to as many households across Oregon as possible. They can replace less-efficient electric resistance heating as well as methane gas furnaces and provide cooling at the same time. Plus, they can help people save money on their energy bills over time. A policy to help deploy these can help create jobs, ensure we take advantage of federal incentives that are available, and can help streamline all of the existing programs we have at the state right now to help Oregonians reduce energy waste and save money.”</i></p> <p><i>“This is the silver bullet that rarely comes along. Electric Heat Pumps should be incentivized, not methane gas systems (that only perpetuates the issue we are trying to solve). Heat pumps also provide cooling in the summer and when fitted with appropriate filtration, can support people to shelter in place during smoke emergencies. There are state programs being stood up, a good amount of federal funds and tax incentives for the next 5-10 years. And this could also be an industry to promote with economic development incentives for manufacturing heat pumps.”</i></p>

Comments about Promote, Incentivize, and/or Subsidize Heat Pumps (cont.)

<p>Why I do not support policy direction/ What would need to change to support this policy direction</p>	<p>Why I do support policy direction</p>
	<p><i>"This is a no brainer, we need to transition to most efficient technology to meet our goals and that, at least for now are heat pumps."</i></p> <p><i>"There's a real policy opportunity to replace and prevent electric resistance heating with heat pumps and I fully support the state doing more to achieve that end. 100 percent targets are usually not attainable, but I support the spirit."</i></p> <p><i>"Pace of change and the cost of implementation are important considerations for this policy. 100% mandates in a decade for new and existing buildings is totally unrealistic."</i></p> <p><i>"Maximizing the installations of high-efficiency heat pumps is one of the most important things we can do. These units greatly reduce energy use and GHGs compared to any other heat source. The newer models operate at full capacity in heat-pump-mode to below-zero temperatures. They also supply cooling, which is one of our most important resiliency challenges with the advent record-breaking extreme heat events in 2021 and 2022."</i></p> <p><i>"A policy to help deploy installation goals can help create jobs, ensure we take advantage of federal incentives that are available, and can help streamline all of the existing programs we have at the state right now to help Oregonians reduce energy waste and save money."</i></p> <p><i>"It just is not feasible to require 100% retrofit from a Design, Occupancy, Location, Climatic Conditions & Owner Economics"</i></p> <p><i>"Huge return for investment."</i></p>

Comments about Promote, Incentivize, and/or Subsidize Heat Pumps (cont.)

<p>Why I do not support policy direction/ What would need to change to support this policy direction</p>	<p>Why I do support policy direction</p>
	<p><i>“I fully support promotion, incentives, and subsidies for Heat Pumps for our existing buildings. I do not support mandated fuel switching to do so. I still am concerned about changing policy on new buildings when currently on track to meet EO 17-20 & 20-04. We are on track due to our current processes and need to ensure that they continue the path they are on.”</i></p> <p><i>“Heat pumps appear to be one of the few areas of potential consensus, depending on implementation details of course... There is so much potential for improvements in energy efficiency, GHG reduction, resiliency and support of impacted communities, particularly in retrofitting existing inventory. In the interests of getting such related programs up and running quickly to serve those goals I do not see the point of banning hybrid systems from the start. Should it become obvious over time that the hybrids are not useful to the program then they could go by the wayside at a future date without delaying roll-out of the positive aspects of such a policy.”</i></p> <p><i>“Both policies scenarios have significant GHG reduction benefits, and both have a net implementation benefit when weighing up-front costs vs. monetary savings, avoided emissions, and the associated social benefits. I would like to see a policy be targeted to help lower income households, renters, and small businesses first. Federal incentives for heat pumps can benefit a program like this, but, whatever the structure, to be successful we would need navigation programs and outreach to targeted groups.”</i></p>

Comments about Promote, Incentivize, and/or Subsidize Heat Pumps (cont.)	
Why I do not support policy direction/ What would need to change to support this policy direction	Why I do support policy direction
	<i>"Climate is rapidly changing in the NW, and heat pumps offer a dual benefit of efficient heating AND cooling."</i>

Table A3: Comments about Decarbonize Institutional/Public Buildings

Why I do not support policy direction/ What would need to change to support this policy direction	Why I do support policy direction
<p><i>"What is meant by this? If you mean eliminate all fossil fuels this is not possible - as the electric system in Oregon relies heavily on coal and natural gas for generation."</i></p> <p><i>"Not covered in bill"</i></p> <p><i>"My expertise is in residential with very little understanding of the construction of institutional and public buildings. However, the initial LPRO policy memo outlines a number of existing policies and regulations in place to forward the decarbonization of institutional/public buildings. It remains unclear to me how this policy direction would make a significant difference from the direction SEED, GET and EO17-20 have already outlined."</i></p> <p><i>"I think we need to look at the Executive order again, take an unbiased look at where we are at & take these projections into our modeling."</i></p>	<p><i>"It is important to lead by example. By nature this policy is limited because it is only referencing a small % of Oregon's building stock. However it has an outsized impact. We have seen this impact by gov purchasing requirements providing more availability and familiarity with new materials because the projects have a large geographic spread."</i></p> <p><i>"While GHG reduction IS the greatest goal, this strategy will not have the greatest impact but I would support this policy because it leads by example. Also, public buildings tend to be older and don't usually have good maintenance budgets, so focusing on thermal performance would provide the most benefit to the public by reducing operating costs, improve occupant health and comfort (improve public employee satisfaction in workplace) and improve resiliency by taking less energy to heat and cool in the event of disruptions."</i></p> <p><i>"This policy will show that the state government is willing to lead by example and builds on the efforts that came through EO 17-20 and EO 20-04, which largely created policy plans. It's also one of the most clear resiliency building opportunities where local government-owned buildings could provide resilient spaces in case of emergency."</i></p>

Comments about Decarbonize Institutional/Public Buildings (cont.)

<p>Why I do not support policy direction/ What would need to change to support this policy direction</p>	<p>Why I do support policy direction</p>
	<p><i>“There is a long history of public buildings leading the way to demonstrate feasibility of achieving new goals - this makes sense as a way for our state and local governments to demonstrate leadership and improve resilience of the physical assets that are important to the continued function of our communities.”</i></p> <p><i>Public policy needs to consider construction and retrofit implications on all governments, but specifically rural. Rural governments will require financial consideration to move projects and upgrades forward.”</i></p> <p><i>“It is important that the State of Oregon walks the talk on climate goals by leading by example. This policy would do that and provide other benefits to both public employees and the public who uses those buildings, even if it doesn’t have the highest GHG emissions reductions of all the policies we’re considering. Requiring high roads labor standards for the work on public buildings using public dollars would be appreciated and aligned with Oregon’s values too. This policy could also be paired with goals to create resilient community hubs/public spaces for local communities to gather in the case of emergencies. A closer consideration of a program focusing on HVAC upgrades for schools could be a more focused first step on making progress for public buildings in general and meet a time-sensitive need in communities across the state.”</i></p> <p><i>“If these are state building it does not affect my organization however, I do not think funding made available should be 100% used on state buildings.”</i></p>

Comments about Decarbonize Institutional/Public Buildings (cont.)	
Why I do not support policy direction/ What would need to change to support this policy direction	Why I do support policy direction
	<p><i>“Mandates for public building performance need to be coupled with incentives and financial support, much like the private sector requires. Too often, we create policy that provides incentives in the private sector, but leaves the public sector searching for funding to meet the public's desire for leadership. The state can lead this by providing a fund to support all levels of government.”</i></p> <p><i>“It is important that our government lead by example, and this policy would demonstrate that even if it doesn't have the highest GHG emissions reductions of all the policies. It could also be paired with goals to create resilient public spaces for local communities to gather in the case of emergencies.”</i></p> <p><i>I support retrofitting existing building to improve energy consumption, but I think the goals can be unrealistically high. New buildings carbon neutral by 2035 isn't truly not possible. For one thing the term is too broad. Are we talking after construction, during construction or from the time you break ground thru the structure's life. Looking to reduce the carbon footprint yes, but truly carbon neutral can't happen.”</i></p> <p><i>“Both policies have relatively modest impacts to carbon reduction compared to the other policies under consideration. There is a value to having the state model action on decarbonizing buildings, so I could support 3a because it achieves the reductions but balances those reductions with a balance in costs, and with a net implementation benefit between costs and savings.”</i></p>

Comments about Decarbonize Institutional/Public Buildings (cont.)

<p>Why I do not support policy direction/ What would need to change to support this policy direction</p>	<p>Why I do support policy direction</p>
	<p><i>“Government should lead by example, show that it can be done, and provide a natural training ground for subs who will bring that experience with them to private sector jobs”</i></p> <p><i>“Funding is the key point that I have little confidence in.”</i></p> <p><i>“Decarbonizing public buildings sets an important example and is hugely important as a signal to the public that public institutions stand behind the effort and lead the way. Furthermore, decarbonized public buildings have the opportunity to serve as resilient shelters for the community.”</i></p> <p><i>“Concerned about changing policy on new buildings when currently on track to meet EO 17-20 & 20-04. We are on track due to our current processes and need to ensure that they continue the path they are on. Fully support the retrofitting of existing institutional and public buildings.”</i></p> <p><i>“At this point 100% of buildings with 50% plug load reduction isn't realistic. Carbon neutral by 2023 is totally unrealistic and extremely expensive.”</i></p> <p><i>“3b's date of 2023 isn't realistic but it need not be as far out as 2035. 100% anything is unrealistic. 90 percent or something similar is more realistic and attainable. Very difficult to know if 50% plug load is even feasible.”</i></p>

Table A4: Comments about Promote, Incentivize, and/or Subsidize Air Purification Systems

Love It	Like it, but have some reservations	Don't like it, but I'm willing to stand aside	I don't support this policy direction in general
<p><i>"We want more resilient, healthy buildings for Oregonians. Improving air purification can have multiple benefits for communities, including public health and climate resilience benefits by purifying air during wildfire season. This policy should include performance criteria and focus specifically on particle filtration for which there is robust data to demonstrate health benefits."</i></p> <p><i>"This direction gets my support because it has been terrible to see folks suffering due to bad air quality due to the rapid decline in our weather system."</i></p> <p><i>"If we are to continue to suffer wildfires and the smoke generated then this is a necessity for Oregon."</i></p>	<p><i>"I would need more details"</i></p> <p><i>"Not sure where to funding will come from"</i></p> <p><i>"With wildfires becoming increasingly common, and with concerns being raised about indoor air quality from multiple sources, air purification seems like a benefit for Oregonians. However, I have some concerns around how this would be funded, and what standards could be in place to ensure that Oregonians are seeing a benefit from the purification systems that are incentivized/subsidized."</i></p> <p><i>"Provided the proper amount of funding is in place."</i></p> <p><i>"Where does all the money come from?"</i></p>	<p><i>"This is another one of those 'details' concepts. It appears to be only focused at plug-in air cleaners in schools? I appreciate the potential additional resiliency and health benefits for occupants that appropriately managed Indoor Air Quality offers. However, this policy offers no indication of what systems would be on the approved list and does not speak to other potentially far more effective approaches to improved IAQ in schools and other buildings."</i></p>	<p><i>" Air purification as a stand-alone effort doesn't make much sense because it can be integrated with upgrading HVAC systems."</i></p> <p><i>"This is good, but falls outside the scope"</i></p>

Comments about Promote, Incentivize, and/or Subsidize Air Purification Systems (cont.)

Love It	Like it, but have some reservations	Don't like it, but I'm willing to stand aside	I don't support this policy direction in general
<p><i>“Improving air purification can have multiple benefits for communities, including public health and climate resilience benefits by purifying air during wildfire season. This policy should include performance criteria and focus specifically on particle filtration for which there is robust data to demonstrate health benefits.”</i></p> <p><i>“We have all experienced the impact of wildfire smoke on our quality of life and health. Promoting and subsidizing filtration is crucial to protect the health of Oregonians, particularly that of disproportionately impacted communities. Subsidize needs to emphasize these communities.”</i></p> <p><i>“Oregon communities need to have robust smoke emergency programs that build resilience. This item can be linked with the heat pump program as well as new construction standards. Included in these programs is performance standards and methods that are linked with good research and studies that showcase particulate reduction indoors.”</i></p> <p><i>“Fires are becoming an annual event. We need to provide the right technologies to make or indoor air quality as healthy as needed.”</i></p> <p><i>“Air quality inside buildings has major health impacts. The causes of poor air quality vary; high humidity and mold, particulates and fumes from cooking, highway exhaust and more than ever wildfire smoke. Promoting and incentivizing the use of portable and HVAC-integrated air filtration will improve health outcomes for Oregonians.”</i></p>			

Comments about Promote, Incentivize, and/or Subsidize Air Purification Systems (cont.)

Love It	Like it, but have some reservations	Don't like it, but I'm willing to stand aside	I don't support this policy direction in general
<p><i>“Air cleaning systems offer the potential for literal life-saving interventions, particularly during increasingly frequent wildfire events and for under-represented communities that experience excess exposure to air pollution in general. Air cleaning interventions need not be expensive, and can (but do not need be) part of a more comprehensive weatherization/energy audit of a building. Efforts should focus on resourcing state and local agencies with programs to educate and disseminate air cleaners, tools for building DIY air cleaners, and workforce training to encourage HVAC/energy auditors with the knowledge to make sound recommendations to consumers. Efforts should focus and specify the use of particle filtration, for which their is robust test methods, demonstration of effectiveness in a wide variety of buildings, and documentation of health benefit.”</i></p> <p><i>“With increasing wildfires, Oregonians increasingly rely on HVAC systems not just for heating/cooling, but also for indoor air quality & public health.”</i></p> <p><i>“Improving air purification can have multiple benefits for communities, including public health and climate resilience benefits by purifying air during wildfire season. This policy should include performance criteria and focus specifically on particle filtration for which there is robust data to demonstrate health benefits.”</i></p>			

Comments about Promote, Incentivize, and/or Subsidize Air Purification Systems (cont.)

Love It	Like it, but have some reservations	Don't like it, but I'm willing to stand aside	I don't support this policy direction in general
<p><i>“Centralized fresh air delivery systems bring fresh air into buildings when outside conditions are not suitable for open windows. These systems are healthier for occupants, create opportunities for energy efficiency (GHG reduction) and provide resiliency. However, these systems are not currently standard for multi-family residential buildings, and therefore present an “additional” cost to developers at the expense of occupants. For public health and safety, these systems are standard for commercial buildings and should be prioritized / required for multi-family residential, to benefit the most vulnerable populations living in small apartments.”</i></p>			

Table A5: Comments about Assess and Disclose Material-Related Emissions

<p>Why I do not support policy direction/ What would need to change to support this policy direction</p>	<p>Why I do support policy direction</p>
<p><i>“This opens up all sorts of supply chain issues, hand ties business both existing and development, drives investment out of Oregon, is just a bad idea. giving some credit to developers/business/builders to do so is another possibility but that is not how this is written. Let the Market Drive this or Incentivise the Market somehow to create value around this.”</i></p> <p><i>“Once again residential and commercial/industrial are lumped in together in the policy concept and the modeling. It may be possible that commercial/industrial supply chains could absorb the time and expense of managing this process but residential is absolutely not in a position to do that. The supply chain is still barely hanging on and we continue to be thousands of housing units behind our needs. This would throw another wrench in the cogs of our ability to house more Oregonians. Perhaps a study of the opportunities presented by addressing material-related emissions would have value but on the backs of those working through pandemic and supply chain chaos to produce housing is inappropriate.”</i></p> <p><i>“In concept this is a good idea, but again, as a Task Force we have set no overall goal or target for emission reductions so these percentages are arbitrary. We can't assess targets for a siloed idea if we don't know overall what we are trying to accomplish. We also can't assess these concepts with no understanding of the costs vs. the emissions benefits.”</i></p> <p><i>“I would need more specifics on this, I don't feel I have enough information at this time to make an informed decision.”</i></p>	<p><i>“Totally, if we do not set deadlines and keep aspirations only, we will never meet our goals. We need a solid timeframe.”</i></p> <p><i>“This policy (5a, 5b, 5c) provides the deepest GHG emissions reductions of all the policies. It can also be rapidly deployed with building industry manufacturers as well as contractors, architects and engineers already familiar with some of the easiest to achieve material embodied carbon strategies. The public does not have much awareness about material embodied carbon, so this policy would help alert the public to the reduction opportunity. I would support 5b most, because it has a shorter timeframe which is feasible and plays to the strength of this policy.”</i></p> <p><i>“There is clearly a very large impact to GHG emissions to be gained from reducing the embodied carbon of building materials. There is also a high cost. I would like to see us push the industry to move towards lower carbon building materials, and to help drive down the costs of lower carbon materials like we have with solar panels and other green technology. I am more inclined to support this policy, and more aggressive targets if we can help get those costs down.”</i></p> <p><i>“The right answer is likely somewhere between 5a and 5b. Tracking and incentivizing this goal makes sense. Reducing permit fees or SDCs could also be an incentive for reducing embodied carbon in new construction.”</i></p> <p><i>“The aim here should be to put out something attainable and ambitious. 20 percent by 2030 seems close whereas 60 percent is ambitious but perhaps not attainable in that timeframe.”</i></p>

Comments about Assess and Disclose Material-Related Emissions (cont.)

<p>Why I do not support policy direction/ What would need to change to support this policy direction</p>	<p>Why I do support policy direction</p>
<p><i>"Very concerned about this driving up the cost of construction by requiring the replacement of widely used construction materials with untested or overhyped products."</i></p>	<p><i>"Time frame must be realistic."</i></p> <p><i>"It seems crucial to move quickly on opportunities to reduce GHG emissions significantly, and the policy needs to include the more stringent timeline."</i></p> <p><i>"I think time frame is also important, but percentage must be attainable."</i></p> <p><i>"Getting the market to shift sooner to take action on materials related emissions is more important than adopting a high performance goals further out. Materials emissions are the elephant in the room as we look to reduce the emissions associated with buildings over the course of the next 100 years. Scope 3 emissions matter and this is an excellent step to get us moving towards addressing these system and market wide."</i></p> <p><i>"Getting on track sooner rather than later is very important."</i></p> <p><i>"5A is too easy. As a residential builder I was accomplishing more than that over 20 years ago at no increased cost. 5B requires some action and most importantly it does so with a reasonable timeline. Action by the legislature is very important because the Building Code Division at DCBS currently states that this type of code measure is outside of their authority since it is not about life & safety or about energy efficiency. The proposer of a modest 2022 code proposal on this topic regarding embodied carbon in concrete for residential construction was told by BCD that it was not a relevant proposal. If a life-cycle GHG reduction target existed for Oregon building codes, then reductions in embodied carbon could be evaluated alongside reductions in energy use as a means to lower the climate impacts of buildings."</i></p>

Comments about Assess and Disclose Material-Related Emissions (cont.)	
Why I do not support policy direction/ What would need to change to support this policy direction	Why I do support policy direction
	<i>“Getting on track sooner rather than later is very important as we are seeing widespread construction and need for huge amounts of new housing and building in coming decade. 5c is too late a goal, even though it is more stringent.”</i>

DRAFT

Table A6: Comments about Modify Energy Trust of Oregon’s Mission

Love It	Like it, but have some reservations	Don't like it, but I'm willing to stand aside	I don't support this policy direction in general
<p><i>“The more we can change for the better giving standards and bounds concerning those standards.”</i></p> <p><i>“I am highly concerned about continuing to use energy efficiency as a proxy for GHG reduction in responding to the climate change emergency. We need to see State agencies, Utilities and Ratepayer Customers more clearly aligned on GHG reduction. Not having this alignment is a barrier to building owners, developers, architects, engineers and contractors to deliver healthier, low-carbon, and more resilient buildings at lower costs.”</i></p> <p><i>“See prior response. Different fuels have different GHG gas impacts, so there's no way a policy to decrease GHG could be fuel-neutral.”</i></p>	<p><i>“The ETO is an independent non-profit that operates in service territory of IOUs. It’s programs are established by an agreement with PUC. It is not part of state government under direction of the legislature. Any legislation needs to provide direction to PUC on how programs are designed.”</i></p> <p><i>“ETO is created to help reduce energy use. It should not pick specific winners and losers. I am in favor of energy reduction that is considerate of carbon reduction as well, but it's primary mission should not change.”</i></p> <p><i>“Depends on what the modifications are. Details are needed.”</i></p>	<p><i>“I believe an Oregon Joint Task Force on Resilient, Efficient Buildings should concentrate on legislation that covers all of Oregon. The ETO does not. I oppose legislation that will take choices away from Oregonians to decide which fuels to use in their homes. I would support incentivizing electrification but will oppose any legislation to mandate it. ETO or otherwise.”</i></p>	<p><i>“The ETO has been successful in reducing emissions through EE. What problem are we trying to solve? The role of the Task Force is to identify opportunities for Oregonians to live in and build efficient and resilient buildings. The Energy Trust of Oregon is funded by and serves only the customers of investor-owned utilities. Focusing on this program is not inclusive of all Oregonians, many of whom are served by public power providers.”</i></p> <p><i>“ETO is funded by utility ratepayers who are directly impacted by energy efficiency. And ETO has done a good job in increasing efficiency. I am confident that they can find a path in which to incorporate GHG reductions into their plans and programs over time, without additional legislative oversight.”</i></p>

Comments about Modify Energy Trust of Oregon’s Mission (cont.)			
Love It	Like it, but have some reservations	Don't like it, but I'm willing to stand aside	I don't support this policy direction in general
<p><i>“Let's let people choose the right fuel for them!”</i></p> <p><i>“ETO is a phenomenal organization that has robust accountability and transparency measures. They are efficient and have built up the trust of elected officials, program managers, customers, utilities, and network partners. This type of organizational history and impact is critical for our state climate actions to be successful. By directing the PUC to have ETO's mission updated to include ghg reductions, it will help rate payer funds be used efficiently and with high impact. Additionally, as the funding from the CPP and the IRA flows forward, ETO is much better situated to manage those funds and implement programs than a state agency such as ODOE or OHCS. This task force was set up to look broadly at what needs to happen in the building sector to reduce ghg emissions, that includes fuel source as well as building materials and other initiatives, fuel switching discussions need to be included in the work of this task force.”</i></p> <p><i>“ETO has to focus on expanding options for all Oregonians to access the most efficient and responsible technologies while focusing on health outcomes, for both our environment and people.”</i></p> <p><i>“The initial concept here was to develop a state-wide incentivization program in order to reduce redundant bureaucracy under a single umbrella. ETO has a strong track record of delivering energy/carbon saving programs in a cost -effective manner.”</i></p>			

Comments about Modify Energy Trust of Oregon's Mission (cont.)

Love It	Like it, but have some reservations	Don't like it, but I'm willing to stand aside	I don't support this policy direction in general
<p><i>"ETO is one of the best functioning and most successful institutions in Oregon for energy efficiency and some clean energy deployment like rooftop solar and storage. Their ability to help contractors and consumers navigate rebate programs easily is a huge asset. But we are not going to meet our climate goals if at the point of replacement or construction, ETO's efficiency dollars continue to subsidize new fossil fuel appliances that lock in 20+ more years of fossil fuel use.</i></p> <p><i>I strongly disagree with the misguided statements that the task force should not consider fuel switching. Oregonians aren't tied to the underlying fuel source of their appliances just because that's what they inherited when they moved into a home or apartment. They should get to choose a more efficient appliance that meets their needs including does it provide cooling, does it emit air pollution, etc. All solutions should be on the table, and customer choice is an important value that Oregon's policies should reflect. As a PGE customer with a gas furnace in my home, when that gas furnace finally reaches the end of its appliance life, and I want to replace it with a more efficient electric appliance. I pay both NW Natural and PGE bills so I'm funding ETO efficiency programs with my money twice a month and there is no solid policy reason why, as a PGE customer, I shouldn't be able to access an ETO subsidy to get the most efficient appliance on the market to replace that furnace -which would be an electric heat pump.</i></p> <p><i>ETO has already taken steps to help remove barriers to customer choice, but it is important that they do more to ensure that their programs actively help reduce GHGs and help customers choose the most efficient technology for their homes, to save money and reduce public health harms. Directing the PUC to consider GHG reduction and equity in their decisions for efficiency programs, including at the ETO, could have great benefits for ratepayers of regulated utilities."</i></p>			

Comments about Modify Energy Trust of Oregon’s Mission (cont.)

Love It	Like it, but have some reservations	Don't like it, but I'm willing to stand aside	I don't support this policy direction in general
<p><i>“Since its inception, I have thought Energy Trust should have carbon mitigation as one of its goals, not just cost effective energy savings. I strongly support guidance from the legislature that would instruct the PUC and EnergyTrust to include GHG reductions, health impacts, equitable delivery of incentives and resiliency in the design and evaluation of Energy Trust programs for buildings.”</i></p> <p><i>“ETO's mission came about during a particular time in history when energy savings were the key goal. Now it's much more about GHG reductions and their mission should be updated accordingly to reflect the new urgency of the times. ETO is terribly constrained with their no fuel switching policy and they could be unleashed as a major agent of GHG reductions in the state were they freed up policy-wise to do so.”</i></p> <p><i>“The Energy Trust can play an essential role in reducing GHG emissions. Modifying the mission will significantly impact an equitable reduction of GHG emissions and their associated benefits.</i></p> <p><i>This should include the opportunity for utility customers to switch fuels, and the Energy trust should not be limited in any way.”</i></p> <p><i>"ETO has already taken steps to help remove barriers to customer choice, but it is important that they do more to ensure that their programs actively help reduce GHGs and help customers choose the most efficient technology for their homes, to save money and reduce public health harms. Directing the PUC to consider GHG reduction and equity in their decisions for efficiency programs, including at the ETO, could have great benefits for ratepayers of regulated utilities.</i></p> <p><i>I disagree with the statement that the task force should not consider fuel switching. All solutions should be on the table, and customer choice is an important value."</i></p>			

Table A7: Comments about Building Performance Standards

<p>Why I do not support policy direction/ What would need to change to support this policy direction</p>	<p>Why I do support policy direction</p>
<p><i>“The choices seem to be designed to solicit a certain outcome that is not anchored in a clear goal we are trying to achieve? We have not established why going beyond current emission reduction targets already required by 100% clean and CPP is prudent, and any kind of cost benefit analysis to justify that policy recommendation.”</i></p> <p><i>“Cannot include fuel switching or unrealistic timeframes, need to understand economic impacts on housing costs”</i></p> <p><i>“They seem to be centered fuel switching and electrification which we will be divide on</i></p> <p><i>“I have issues w/ the accuracy of the modeling number. Also I feel we should focus on incentive programs, there's plenty of Federal money available, rather than mandates that cost more to the end user.”</i></p> <p><i>“I will oppose this policy concept.”</i></p> <p><i>“When discussed in July this concept did not include residential. There are significant differences between how commercial, public and residential performance standards could be applied and very little to no detail in the modeling of what would be measured, when and by whom. Without those details I am unable to realistically determine the impact on residential construction, our ability to create much needed housing supply or what impact the concept would have on affordability in terms of opportunities for ownership or affordable rents.”</i></p>	<p><i>“I support an ambitious Building Performance Standard in general. It is clear that this policy would result in high emissions reductions benefits and multiple co-benefits.</i></p> <p><i>I support this applying to commercial buildings as well as multi-family residential. For multi-family residential, I think it's critical that cities like Portland can still develop their own standards (for instance, the HEART standards) that serve their specific community needs. I also think it's important that a policy includes protections for renters to avoid displacement and any passing off of costs from building owners to renters.”</i></p> <p><i>“I support an ambitious Building Performance Standard in general, and that local jurisdictions should have discretion to develop their own (more rigorous) standards.</i></p> <p><i>I think the phase-in of standards should be timed so that a building owner who replaces appliances with efficient heat-pump water/air systems when existing systems come to the end of their useful life will naturally comply. This should avoid the need to replace appliances that still have useful life in them. This seems like a reliable strategy to minimize additional costs to owners, which they might try to pass through to tenants. Since most appliances last 10-20 years, it seems realistic to reduce GHG by 40%+ through natural replacement in 10 years, as proposed. An alternative strategy would just be to require water/air heaters and other appliances to be replaced with more efficient heat pump versions on replacement.”</i></p>

Comments about Building Performance Standards (cont.)

<p>Why I do not support policy direction/ What would need to change to support this policy direction</p>	<p>Why I do support policy direction</p>
<p><i>“Concerned about changing policy when currently on track to meet EO 17-20 & 20-04. We are on track due to our current processes and need to ensure that they continue the path they are on.”</i></p>	<p><i>“New York City's Local Law 97 is a good example, setting GHG emissions caps for the city's largest buildings. This is the scale of impact (GHG reduction) needed, as evidenced directionally by the SSG modeling, and the type of clear direction building owners need. This policy will also create good paying jobs and improve occupant health and resiliency. Important for the policy to consider the impacts of penalties or costs of renovations on small businesses. Incentives could be targeted to keep small or disadvantaged building owners from getting priced out of building ownership.”</i></p> <p><i>“Public policy will need to provide incentives and other types of financial considerations”</i></p> <p><i>“I support an ambitious Building Performance Standard in general. I think it’s important to ensure that we are using the right building size as the floor, which may be 35,000 sq ft or might be smaller. It is clear that this policy would result in high emissions reductions benefits and multiple co-benefits.”</i></p> <p><i>“I support this applying to commercial buildings as well as multi-family residential. For multi-family residential, I think it’s critical that cities like Portland can still develop their own standards (for instance, the HEART standards) that serve their specific community needs. I also think it’s important that a policy includes protections for renters to avoid displacement and any passing off of costs from building owners to renters in order to avoid causing additional trauma to local low-income communities.”</i></p>

Comments about Building Performance Standards (cont.)

<p>Why I do not support policy direction/ What would need to change to support this policy direction</p>	<p>Why I do support policy direction</p>
	<p><i>“Building Performance Standards have been adopted across the country. They are one of the policies that hold the most promise in reducing the carbon emissions of buildings because the performance of the buildings are measured year after year and owners are held accountable. Getting the minimum size right is important. As a point of reference, other jurisdictions have used anywhere from 20,000 to 50,000 square feet as the minimum. Some initiate a policy at 50,000 sf and then lower the size of time. It’s also very important that cities like Portland can still develop their own local standards (for instance, the HEART standards that have been in development with stakeholder groups for the past two years) that serve their specific community needs. It’s also very important to include multifamily housing in this policy, but safe guards must be put in place that create protections for low-to-moderate income renters to avoid displacement and any passing off of costs from building owners to these renters.”</i></p> <p><i>“I support an ambitious Building Performance Standard. The intensity and building size warrant further consideration. It is clear from the modeling that this policy would result in high emissions reductions benefits, multiple co-benefits and could provide flexibility in how the standard is met by building owners/operators.”</i></p> <p><i>“Building Performance standards are in important way to ensure targets are being met. There is additional work needed to determine how the standard might apply across building size (i.e. why 35K sq ft. specifically - there is debate on that), but in general I support the use of performance standards to achieve decarbonization of the buildings sector.”</i></p>

Comments about Building Performance Standards (cont.)	
Why I do not support policy direction/ What would need to change to support this policy direction	Why I do support policy direction
	<p><i>"Building performance standards (BPS) need to be applied to both commercial and residential buildings, and the right minimum size of projects included needs to be carefully selected. It should be confirmed if 35,000 sf or lower square footage is appropriate to include.</i></p> <p><i>In addition, no preemption should prevent local jurisdictions from developing their own more stringent BPS."</i></p> <p><i>"I strongly support an ambitious Building Performance Standard as a policy to drive down greenhouse gas emissions from large buildings in the built environment and maximize co-benefits. In tailoring the policy to Oregon, I think it's important to ensure that we are using the right building size as the floor, which may be 35,000 sq ft or might be smaller.</i></p> <p><i>I support this BPS policy applying to commercial buildings as well as multi-family residential. If this BPS applies to multi-family residential buildings, I think it's critical that cities like Portland can still develop their own standards that serve their specific community needs (for instance, the HEART standards developed with the Build/Shift coalition). In the multi-family residential buildings sector, I also think it's important that a policy includes protections for renters to avoid displacement and any passing off of costs from building owners to renters."</i></p> <p><i>"I could support the aggressive goal, the modest goal, or something in between. Whatever goal we set, it appears that the savings (both in reduced dollar costs to run buildings, and in avoided emissions and associated social costs) exceed the capitol costs to improve the buildings."</i></p>

Comments about Building Performance Standards (cont.)

Why I do not support policy direction/ What would need to change to support this policy direction	Why I do support policy direction
	<p><i>"As I brought up during the meeting, I am open to adjusting the SF requirement to find the optimal level that balances the admin burden while covering as many cumulative SF of building space.</i></p> <p><i>I am supportive of this for Commercial and Multifamily buildings and as always want to make sure policies are built to have the benefits extend to building renters/tenants not just owner occupied buildings"</i></p> <p><i>"This will reduce heating and cooling costs for building residents while improving comfort"</i></p> <p><i>"The standard should include commercial and multifamily buildings as well. Additionally, having some consideration of the impact on rental properties whereby renters are protected (as much as feasible) from adverse impacts (e.g. being priced out of renovated units...especially if public funds are used to pay for energy efficiency improvements)."</i></p>

Table A8: Comments about Align Energy Efficiency Programs with State's Climate Goals (EO 20-04)

Love It	Like it, but have some reservations	Don't like it, but I'm willing to stand aside	I don't support this policy direction in general
<p><i>“OHCS should be added to the agencies that were included in EO 20-04. In addition to the energy efficiency goals outlined in EO 20-04 there should be GHG reduction goals added.”</i></p> <p><i>“This is especially important for ETO, so it can start designing incentive programs and sharing best practices for reducing GHG, even in situations where this involves fuel-switching.”</i></p> <p><i>“Integration of state agency goals, targets, regulations, and incentive programs is key to having robust and coordinated climate action in Oregon. Additionally, the targets in EO20-04 need to be based in law, not just an EO. As more programs are developed to implement the EO, the legislature will need to continue to fund those programs to meet the law.”</i></p>	<p><i>“I'm good w/ it, as long as the energy efficiency programs are incentives for developers, builders, owners or end users.”</i></p> <p><i>“To the extent that goals are aspirational rather than practical I don't align with this concept. Without clear understanding of financial implications goals often get set that make no sense or have unplanned or ill-considered implications. The whole purpose of this effort is to align practical steps with improving/reducing our energy use and carbon footprint. So let's not put the cart in front of the horse.”</i></p>	<p><i>“I believe an Oregon Joint Task Force on Resilient, Efficient Buildings should concentrate on legislation that covers all of Oregon. The ETO does not. I oppose legislation that will take choices away from Oregonians to decide which fuels to use in their homes. I would support incentivizing electrification but will oppose any legislation to mandate it. ETO or otherwise.”</i></p>	<p><i>“I would assert that they already are.”</i></p> <p><i>“Unrealistic and we should not be governed by executive orders.”</i></p> <p><i>“It is unclear what "energy efficiency programs" include. The LPRO policy concept memo indicates the policy intention would be to legislate the executive orders and to legislate the targets that the executive order has already caused to be included in code. That is unnecessary given the compliance progress already underway with those targets.”</i></p> <p><i>“Unrealistic and we should not be governing by executive orders.”</i></p> <p><i>“The state's energy efficiency goals are already aligned with climate goals to reduce emissions.”</i></p>

Comments about Align Energy Efficiency Programs with State's Climate Goals (EO 20-04) (cont.)

Love It	...have reservations	Don't like it...	I don't support this...
<p><i>"This only makes sense. Policy without alignment won't get us anywhere."</i></p> <p><i>"There are efficiency programs at multiple agencies (OHCS, OPUC/ETO, ODOE, BCD). It is very important that these agencies have the direction and feel empowered to consider how well these programs help the state to achieve its climate goals. This could provide clarity to agencies and could help them communicate with each other to make sure their programs are all supporting at same goal."</i></p> <p><i>"State agency programs must be directed to align with EO 20-04. The policy will also allow better coordination of these programs towards the goal of EO 20-04."</i></p> <p><i>"Every organization or agency concerned with energy efficiency needs to be provided clarity of direction that EE is a GHG reduction tool and should be assessed, plan and programmed accordingly to reduce GHGs as effectively and as quickly as possible."</i></p> <p><i>"It is very important that local agencies have the direction and feel empowered to consider how well these programs help the state to achieve its climate goals."</i></p> <p><i>"EO 20-04 needs to be enacted through legislation to give clearer direction and alignment between agencies and the State's GHG reduction targets. I am still concerned about using energy efficiency as a proxy for GHG reduction and would like to see energy efficiency programs have explicit mandates for GHG reduction."</i></p> <p><i>"The CPP and the 100% Clean Electricity law create a cost for emissions. Energy efficiency programs should recognize this."</i></p>			

Comments about Align Energy Efficiency Programs with State's Climate Goals (EO 20-04) (cont.)

Love It	...have reservations	Don't like it...	I don't support this...
<p><i>“Energy efficiency programs are housed at multiple agencies (OHCS, OPUC/ETO, ODOE, BCD) and this directive should apply to all of them. Right now, some efficiency programs without a climate mission or directive to meet GHG goals actually hinder us reaching our state climate goals over the longer term so this policy should remedy that. It is very important that these agencies have the clear direction and feel empowered to closely consider how well these programs help the state to achieve its climate goals (for example, EO 20-04), particularly if those agencies tend to look at costs or other metrics instead in program development. Equitable deployment of energy efficiency programs is also important to ensure they help address environmental justice and alleviate energy burden and air pollution at the same time as reducing climate pollution and energy waste. This could provide clarity to agencies and could help them communicate with each other to make sure their programs are all supporting at same goal.”</i></p>			

Table A9: Comments about Enact Energy-Efficient Building Codes

<p>Why I do not support policy direction/ What would need to change to support this policy direction</p>	<p>Why I do support policy direction</p>
	<p><i>" This is the least cost time to make improvements. 30+% of new construction is already building above code, let's use code to support our climate goals."</i></p> <p><i>"We have a current path to improve new building code requirements that is carefully planned and able to be implemented. Just because we want to get to net zero quickly doesn't make it realistic, cost efficient or good policy. Reducing plug load by 50% doesn't make sense and saves very little energy or carbon emission. How do you monitor that? Reduce the number of plugs? Submeter all plugs? Turn off all computers and refrigerators? Bad idea."</i></p> <p><i>"This policy potentially misses the point of how we best use building codes for mitigating the public health and safety risks of climate change caused by excessive GHG emissions. We have been using energy efficiency as a proxy for GHG reduction and need to shift building codes to focus more squarely on the problem of GHG reduction. Energy efficiency can still be an important benefit, but building codes need to adopt a clear goal/mandate for GHG reduction."</i></p> <p><i>"The first cost of implementation should be equitable relative to reduction in GHG emissions. There is only one scenario that has reasonable first cost with a significant enough savings on emissions."</i></p> <p><i>"Simply, 6d is what we need, to cover all new construction and make our buildings as efficient as possible."</i></p> <p><i>"Reducing energy usage which will lower heating and cooling bills."</i></p>

Comments about Enact Energy-Efficient Building Codes (cont.)

Why I do not support /What would need to change	Why I do support policy direction
	<p><i>"More modest targets for revising our building codes will still have an impact on GHG reductions, but without the high upfront costs of the more aggressive targets. If there was federal support or funding that could alleviate those costs, I might be more inclined to support the more aggressive building codes or goals somewhere in between the low and high goals that were modelled. If new building codes are pursued, I'd want to see partnership with trades and building industry on how to educate and adapt to the new standards."</i></p> <p><i>"Measurement is key. This policy should target energy use reduction and GHG reduction of new buildings. That will provide greater flexibility to achieve the goals and recognize the decarbonization of power sources. I can't support 6a and 6b because the goals for new construction don't even meet the goals in the current executive order 20-04. 6c would be an increase in reductions but wouldn't cover all new construction as EO 20-04 does. 6d does cover all new construction, which is what we need, and it calls for a deeper level of savings than EO 20-04."</i></p> <p><i>"I can't support 6a and 6b because the goals for new construction don't even meet the goals in the current executive order 20-04. 6c would be an increase in reductions but wouldn't cover all new construction as EO 20-04 does. 6d does cover all new construction, which is what we need, and it calls for a deeper level of savings than EO 20-04. It might be that some building types are easier to achieve than others and could be prioritized."</i></p>

Comments about Enact Energy-Efficient Building Codes (cont.)

Why I do not support /What would need to change	Why I do support policy direction
	<p><i>“Cannot support 6a and 6b because the building code goals for new construction don’t even meet the goals in the current executive order 20-04 - they would weaken Oregon's current trajectory.</i></p> <p><i>6c would be an increase in reductions but my reservation is that it wouldn’t cover all new construction as EO 20-04 does.</i></p> <p><i>6d does cover all new construction, which is what we need, and it calls for a deeper level of savings than EO 20-04. It might be that some building types are easier to achieve than others and could be prioritized.</i></p> <p><i>In general, ensuring that the targets of EO 20-04 are put into statute would at least help keep our building codes on track. But I'd like to see in policy ways to ensure a proportional amount of energy efficiency increases happen each code cycle so we avoid backloading much of the efficiency measures needed until the last code cycle before the 2030 target. We will be constructing quite a bit between now and then, and the sooner we are building smarter from the start and locking in more energy conservation, the better. I would also like to a holistic modernization of the building codes to include adding climate considerations/how the codes help meet the state's GHG targets (not just energy efficiency) and diversifying BCD's boards to ensure more perspectives reflecting Oregon's diversity are adequately represented in these processes going forward.”</i></p> <p><i>“6a and 6b don't meet executive order 20-04. 6d results in deeper emissions reductions”</i></p>

Comments about Enact Energy-Efficient Building Codes (cont.)

Why I do not support /What would need to change	Why I do support policy direction
	<p><i>“6a and 6b are less than what is required now in EO20-04, 6c is an increase-but doesn't cover all new construction like EO 20-04 does. 6d is the only one that reduces more carbon than what is currently included in the EO. Not sure why existing buildings are included in this, as codes doesn't do anything for them (unless there is major renovation and in that case the new buildings code would apply).”</i></p> <p><i>“6a and 6b don't go nearly far enough. 6c is the right direction, but should also cover new construction. 6d is better, but there should be latitude in the policy to prioritize building types where there'd be the greatest impact”</i></p> <p><i>“I cannot support 6a and 6b because the goals for new construction don't meet the goals in the current executive order 20-04. 6c would be an increase in reductions but would not cover all new construction as EO 20-04 does. 6d does cover all new construction, which is what we need, and it calls for a deeper level of savings than EO 20-04. It might be that some building types are easier to achieve than others and could be prioritized.”</i></p> <p><i>“6d does cover all new construction, which is what we need, and it calls for a deeper level of savings than EO 20-04. It might be that some building types are easier to achieve than others and could be prioritized.”</i></p>