



Sector-Specific Policies

- 1. What policies should Congress adopt to decarbonize the following sectors consistent with meeting or exceeding net-zero emissions by mid-century? Where possible, please provide analytical support that demonstrates that the recommended policies achieve the goal.**

1.a. Transportation

As at the national level, Oregon's transportation sector is the largest source of greenhouse gas emissions in the state. While per vehicle fuel consumption and GHG emissions have declined thanks to improved fuel efficiency and the adoption of alternative fuels, GHG emissions are still rising in Oregon – mainly due to population growth and increasing vehicle miles travelled (VMT).¹ Efforts to reduce emissions must encompass all three legs of the transportation stool: cleaner vehicles, cleaner fuels, and reduced driving.

The U.S. should be leading the world in advanced transportation through expanded fuel diversity, support for the electrification of public transit programs, and acceleration of commercial fleet adoption. The federal government could assist the transition to a clean energy future by investing in transportation industries that are currently heavily fossil fuel-dependent.

Expand and continue federal incentives for the adoption of electric vehicles (EVs) and alternative fuels. Dedicated funding for transportation electrification policies and programs are necessary to encourage, expand, and complete EV infrastructure networks and advance alternative fueling options. There is an urgent need to make alternative options, like new or used low- and zero-emissions vehicles and other clean fuels, accessible for all consumers. Extending federal tax incentives and credits that support EV adoption is important to transition and scale the passenger vehicle market and expand access for lower-income consumers.

A significant barrier for drivers considering EVs is the absence of a reliable network of charging facilities that would increase the range of electric-powered vehicles, so it should be a federal priority to support local, regional, and nationwide charging infrastructure and refueling options through federal tax incentives. Federal funding is also important to advance next-generation technology and the supply chain through research, development, and deployment.

Significantly increase funding to expand public transit service in rural and urban areas. Increased funding for improved and expanded public transportation service is necessary to

¹ 2018. Oregon Department of Energy. *Biennial Energy Report*, Chapter 4. <https://energyinfo.oregon.gov/ber>

reduce transportation sector emissions. Public transportation helps reduce transportation emissions of all kinds, including GHG emissions, by providing an efficient travel alternative to replace multiple individual passenger vehicles. Increasing the use of public transportation is one of the central strategies in Oregon’s statewide strategy to reduce GHG emissions.² Compared with private vehicles, public transportation produces 95 percent less carbon monoxide, 90 percent fewer volatile organic compounds (VOCs), and about half as much nitrogen oxide per passenger mile—meaning fewer emissions and less impact on community health. Federal funding could help communities invest in low- or zero-emission public transit vehicles to further reduce transportation GHG emissions. While some low- or zero-emission vehicles, such as electric buses, may cost more at the outset, they can save money over time through increased efficiency, fewer maintenance needs, and emissions reductions benefits. These transit technology advances increase the efficiency of travel, reduce GHG emissions, and help reduce community exposure to particulate emissions and other pollutants that harm public health. Congestion on roadways can slow buses down, however, making public transportation less reliable (in addition to increasing emissions from stop and go movements in petroleum-fueled buses). Efforts to mitigate service impacts from congestion, for example by installing bus priority lanes or other features, help reduce emissions and increase reliability and ridership for public transportation.

Significantly increase federal funding for bicycle and pedestrian programs and facilities.

Dedicated funding to expand and complete pedestrian and bicycle networks is an efficient and effective method to provide zero emissions transportation options. Walking and biking are zero-emission modes that play an important role in reducing fuel consumption, air and noise pollution, and carbon emissions. Increasing walking and biking for transportation is a key strategy in helping Oregon achieve its greenhouse gas (GHG) reduction goals. According to the U.S. Environmental Protection Agency, for every mile pedaled or walked instead of driven, nearly one pound of carbon dioxide is saved.³ The role walking and biking can play in reducing emissions is further emphasized in research which shows that motor vehicle trips contribute to disproportionately high levels of per-mile emissions, and if short trips shift from driving to walking or biking, the amount of air pollutants can be reduced. These reductions could be significant; recent research shows that 48 percent of trips in metro areas are less than a 15-minute bike ride.⁴ A 2015 study from the Institute for Transportation and Development Policy⁵ found that if 14 percent of travel in cities is transitioned to bike or e-bike in 2050, carbon emissions from urban transportation could be 11 percent lower.

² 2018. Oregon Department of Transportation. *Oregon Public Transportation Plan*, Volume 1.

https://www.oregon.gov/ODOT/Planning/Documents/OPTP_V1_FINAL_Feb2019.pdf

³ 2019. Environmental Protection Agency. *Estimating On-Road Greenhouse Gas Emissions*.

<https://www.epa.gov/state-and-local-transportation/estimating-road-greenhouse-gas-emissions>

⁴ 2019. INRIX press release, accessed November 2019. <http://inrix.com/press-releases/micromobility-study-us-2019/>

⁵ 2015. ITDP. *A Global High Shift Cycling Scenario*. <https://www.itdp.org/2015/11/12/a-global-high-shift-cycling-scenario/>

Replace federal gas tax with a vehicle miles travelled (VMT) fee. Congress should fund and support implementation of pay-by-the-mile or Road User Charge (RUC) programs – a concept currently being developed at the state level, including in Oregon. RUC programs are an effective tool to replace the federal fuels tax in the gas we pay for at the pump. The benefits of a RUC system include collecting adequate revenues from highly fuel-efficient vehicles (including electric vehicles) and implementing pricing based on actual costs imposed on the system. Participants under these programs pay for the miles they drive, creating a fair and sustainable way to fund roadway maintenance, preservation, and improvements. This funding source is sustainable since it is based on VMT and not a gas tax – positioning transportation providers and the public for a future beyond fossil fuels.

Reverse the rollback of the CAFE Standards. One of the biggest U.S. GHG reduction gains in the last decade resulted from the U.S. EPA’s Corporate Average Fuel Economy (CAFE) vehicle standards for cars and light trucks.⁶ Oregon and other states are planning for these emission reductions and have joined the EPA California waiver, which allows for more stringent future fuel-efficiency standards and greater GHG reductions. Agreements with vehicle manufacturers are only possible at a federal level, or per the California waiver. The reversal on fuel efficiency standards (August 2018 SAFE Vehicle Rule), coupled with withdrawing the California waiver,⁷ will make it harder to reduce GHGs in the transportation sector. This will be compounded by the fact that the average U.S. vehicle age is over 10 years, and therefore vehicles purchased today are likely to remain on roads for a long time. Vehicle fuel efficiency also directly tackles the source of the transportation emissions, and there is no substitute action that localities can exercise that has comparable effect. A recent analysis from the Rhodium Group⁸ found that rolling back national fuel economy standards and revoking California’s waiver could reduce the share of ZEVs sold in 2035 by up to eight percentage points nationwide, which could mean up to 14 million fewer ZEVs on the road by that year. The rollbacks could also boost GHGs by more than a gigaton from 2020 to 2035.

Support planning and associated tools for Performance Based Planning. Making efficient progress on GHG reduction requires planning that sets plausible and agreed to targets for states and local communities. This process evolves from a vision, to system plans and project details, with each stage revisited in response to monitored progress and changing conditions. Many of these factors are outside state agency control- or the control of any one entity. This is what FHWA calls Performance Based Planning,⁹ and Oregon supports funding for planning and associated tools for this process. For example, the Oregon Department of Transportation has found that people need one process and tool to answer many questions, so the agency uses the

⁶ 2018. Rhodium Group. *Taking Stock*. (June 28, 2018) <https://rhg.com/research/taking-stock-2018/>

⁷ 2019. National Highway Traffic Safety Administration. *The Safer Affordable Fuel-Efficient ‘SAFE’ Vehicles Rule*. <https://www.nhtsa.gov/corporate-average-fuel-economy/safe>

⁸ 2019. Rhodium Group. *Come and Take It: Revoking the California Waiver*. <https://rhg.com/research/come-and-take-it-revoking-the-california-waiver/>

⁹ <https://www.transit.dot.gov/regulations-and-guidance/transportation-planning/performance-based-planning-and-programming>

STORM framework (Strategic-Tactical-Operational-Reporting-Monitoring) to highlight the various process and tool roles that support GHG analysis and monitoring. A reference to the STORM diagram can be found in agency's GHG Tools Overview Report.¹⁰ Support for these planning tools will advance the practice for modeling, tracking, and reporting GHG reduction from transportation sources.

Support the development and maintenance of analysis methods, tools, datasets, and guidance to support these GHG conversations, including: broad strategic planning tools (e.g., VisionEval tools and default inputs on vehicles and fuel pathways), more robust system-planning tools used in planning prioritization (e.g., EU's Handbook of Emission Factors for Road Transport (HBEFA)), including tools that capture ITS/Operational polices at a system-level (e.g., FreeVal), project-level tools on construction and materials GHGs (e.g., ICE tool), and monitoring datasets and research on policy effectiveness (e.g., FTA Transit vehicle mix reporting, DMV vehicle mix, heavy truck MPG, ITS before/after studies).

Consider a federal Low Carbon Fuels Standard based on the programs adopted by states like Oregon and California. Oregon implements a Clean Fuels Program that requires a reduction in lifecycle emissions across all of Oregon's transportation fuels. Oregon's Clean Fuels Program is a proven market-based, performance-based, fuel-neutral, and technology-neutral policy that incentivizes the use of lower carbon biofuels and the transformation to alternatives such as electricity, natural gas, propane, and hydrogen, especially when made from renewable resources and wastes. A federal Low Carbon Fuel Standard should be considered based on the success of the California and Oregon programs.

Assist the transition to a clean energy future by investing in transportation industries that are currently heavily fossil fuel-dependent. Electrifying shipping port infrastructure, fishing fleets, and forestry industries could help reduce emissions in these industries.

Support renewable natural gas (RNG) development for transportation fuels. Renewable natural gas is one of the few ways to decarbonize the natural gas supply by adding lower carbon-intensive fuels to the overall fuel supply mix. RNG is a biogas that has been processed to be interchangeable with conventional natural gas for the purpose of meeting pipeline quality standards or transportation-grade requirements. For example, wastewater treatment plant and dairy farm projects can capture and clean digester gas.¹¹ The federal Renewable Identification Numbers (RINs), plus either Oregon Clean Fuels Program credits or California Low Carbon Fuel Standard credits, can make RNG less expensive than buying fossil-fuel produced natural gas for fleets (which lowers the fleets' GHG emissions). Congress should maintain RINs and consider other incentives to support RNG projects that lower GHG emissions.

¹⁰ <https://www.oregon.gov/ODOT/Planning/Pages/GHG-Toolkit.aspx> and report at https://www.oregon.gov/ODOT/Planning/Documents/GHG_Tools_Overview.pdf

¹¹ For more information on RNG in Oregon, see the Oregon Department of Energy's *2018 Biogas and Renewable Natural Gas Inventory*: <https://www.oregon.gov/energy/Data-and-Reports/Documents/2018-RNG-Inventory-Report.pdf>

Thermal gasification of commercial timber harvest residuals and agricultural residuals is not yet economically viable, but with sufficient development incentives, significant markets could be opened for waste wood from federal forest fire management and forest health actions. This newly opened market could, in turn, help fund the fire and health management activities in federal and state forests that are underfunded now, and help accelerate measures to reduce wildfire on forest lands.

- **Support existing funding mechanisms to support RNG development.** Support programs like: USDA’s Rural Energy for America Program Renewable Energy Systems & Energy Efficiency Improvement Guaranteed Loans & Grants (applicable to digester development); USDOE’s Bioenergy Technologies Office (which will fund two 2019 research efforts in Oregon, one to optimize small digester conversion of carbon and cost reduction measures, and one to support academic research in production of bioenergy from urban and suburban waste streams); and HR 4137 - Renewable Electricity Tax Credit Equalization Act (a newly-introduced measure in Congress that would modify IRS tax code to extend tax credits to investments in energy properties and for electricity produced from certain renewable resources such as biogas-to-electricity projects).
- **Encourage funding of RNG through rates.** In 2019, the Oregon legislature passed SB 98, which allows Oregon’s natural gas utilities to acquire and sell RNG to their retail customers, and allows them to recover costs of RNG infrastructure through utility rates. Oregon is the first state to allow rate-basing of project costs for the conversion of biogas to RNG and its subsequent injection into interstate pipelines or in other forms of transportation to get it to existing markets.
- **Potential federal funding ideas.** The basic structure of any RNG/Biogas project includes: 1) transporting the raw materials to the processing plant, e.g., through a pipeline; 2) an anaerobic digester to break down the raw materials or a thermal gasification facility; 3) gas clean-up equipment; and 4) a fuel station or compression station and pipeline injection equipment. Dairy projects can be arranged in a hub and spoke configuration, with the pipelines (the spokes) bringing low pressure biogas from digesters located on farms to a central cleaning and compression facility located near an interstate natural gas pipeline (the hub), into which the RNG can be injected. A similar arrangement has a cluster of dairies pump a manure slurry to a central digester, and the digester plant pumps back the residual liquid digestate for the dairies to apply on their feed crops. Current federal programs support the digester development, but not the gas clean-up, compression facilities, nor the pipeline connection/injection point. To realize the important benefits created by RNG projects (reduced greenhouse gases, improved air quality, energy security and independence, and resilience) these projects need economic incentives.
 - RNG/Biogas projects tend to be capital-intensive, so increased access to capital can help make many projects economically viable. This can be accomplished through various funding mechanisms, such as loan guarantees, zero or low interest loans, grants, or tax credits.

- A different funding approach would be to provide price support or production incentives (dollars per kilowatt hour) for the direct conversion of biogas to electricity. Due to current low electricity market prices in Oregon, production of electricity using RNG/Biogas is not cost competitive, but a production incentive explicitly for RNG/Biogas-to-electricity facilities, similar to the wind incentive, can make them economically viable projects. For example, California has a program called the BioMAT program that provides an incentive for electricity produced from either biogas (from anaerobic digestion) or syngas (from thermal gasification).

Many of the strategies that are working in Oregon and that are highlighted in Section 1.a. Transportation are well-suited to urban areas, where people can use multiple transportation modes to get to school, work, and activities. These areas are also more conducive to higher adoption rates of electric vehicles; however, as electric vehicle ranges increase, there is likely to be more adoption in rural areas. Oregon is continuing efforts to decarbonize the transportation sector in a way that keeps transportation costs affordable in rural parts of the state.

1.b. Electric Power

i. If you recommend a Clean Energy Standard, how should it be designed?

Oregon has made significant progress in reducing the carbon content of the electricity we consume. Legislation promoting renewable electricity, as well as the region's abundant hydropower resources, has helped Oregon be a leading state for renewable energy. Many factors have driven the increase in renewable electricity generation in Oregon, including state and federal policies, customer demand, and sharply declining costs of technologies. Specific policy drivers include required procurement, voluntary procurement, and financial incentives.¹²

Develop a national Renewable Portfolio Standard (RPS). The Oregon legislature established its Renewable Portfolio Standard in 2007 and updated it in 2016 through the Oregon Clean Electricity and Coal Transition Act. Also known as "Coal to Clean," this bill increased the RPS from 25 percent by 2025 to 50 percent by 2040. The target applies to the large investor-owned utilities; consumer-owned utilities compliance is capped at 25 percent by 2025. The same legislation eliminates imported coal-based electricity from Oregonians' electricity rates by 2035.¹³

Implement market-based carbon policies or clean energy standards. As explained more fully in response to question 4, Oregon's preferred approach is an economy-wide cap-and-trade policy that covers GHG emissions from electric power generation, transportation, and industrial sources. Oregon was supportive of the Clean Power Plan that would have created national

¹² For more information on how these drivers have increased renewable electricity in Oregon, see the Oregon Department of Energy's 2018 *Biennial Energy Report*, Chapter 3. <https://energyinfo.oregon.gov/ber>

¹³ For more information on how Oregon's RPS works, the Oregon Department of Energy's 2018 *Biennial Energy Report*, Chapter 3. <https://energyinfo.oregon.gov/ber>

emission performance rates and a flexible market-based program to achieve lower emissions. Oregon would also be supportive of other national market-based carbon pricing programs or clean energy standards in the electric power sector, with a focus on low- or non-emitting resources, including energy efficiency, storage, demand response, and other smart grid technologies. In establishing carbon policies or clean energy standards, the federal government needs to be mindful of the impacts such programs can have on the energy burden faced by low-income households and communities. Measures should be implemented, either by directing a share of any program revenues or the creation of subsidies, to mitigate any increases in low-income household utility bills.

Establish national electricity planning preferences that mirror the language used in the Northwest Power Act: In Oregon, electricity planning and electric energy efficiency acquisition is guided by the Pacific Northwest Electric Power Planning and Conservation Act (also known as the Northwest Power Act, which was passed by Congress in 1980), and by the Northwest Power and Conservation Council. The Act directed the Council to give first priority in resource acquisition to cost-effective energy efficiency, followed by cost-effective renewable resources. It also introduced Integrated Resource Planning (IRP).¹⁴ Efficiency continues to contribute significant capacity savings – the ability to reduce peak loads. Energy efficiency has provided almost 6,900 average megawatts of savings since 1978 in the Pacific Northwest. That is equivalent to the annual energy consumption of around 5.5 million homes.¹⁵ By building that much energy efficiency rather than building new power plants that burn fossil fuels, the region has avoided emissions totaling more than 21.9 million metric tons of carbon dioxide.¹⁵

Provide funding for community transition support. The transition to a cleaner electricity sector will have effects on many communities that have historically been part of the conventional, fossil fuel-fired electricity generating process. As the nation transitions away from generating the majority of its electricity from these conventional technologies, many communities will require additional support to help their local economies transition as well. Developing and/or expanding programs for initiating comprehensive community transition planning, job retraining, and incentivizing economic redevelopment are three ways that the federal government can help communities identify a path forward toward a brighter future.¹⁶

Facilitate the transition to a 21st century smart grid. One key to helping the U.S. electricity sector meet the challenges of climate change will be facilitating greater reliance on demand-side management techniques and technologies to make the sector more efficient and

¹⁴ For more information, see the Oregon Department of Energy's 2018 *Biennial Energy Report*, Chapter 6. <https://energyinfo.oregon.gov/ber>.

¹⁵ 2019. Northwest Power and Conservation Council. *2018 Energy Efficiency Improvements Keep Region On Track Toward Regional Power Plan Goals*. <https://www.nwccouncil.org/news/2018-energy-efficiency-improvements-keep-region-track-toward-regional-power-plan-goals>

¹⁶ For more information, see the Oregon Department of Energy's 2018 *Biennial Energy Report*, Chapter 7 (<https://energyinfo.oregon.gov/ber>) and the Oregon Public Utility Commission's 2018 Legislative Report on SB 978, *Actively Adapting to the Changing Electricity Sector*. <https://www.oregon.gov/puc/utilities/Documents/SB978LegislativeReport-2018.pdf>

responsive to the needs of both energy consumers and providers. As part of this process, the federal government has the potential to fill a number of important roles, including providing targeted research and development funding, piloting programs to test advanced technologies, and setting performance standards and communication protocols to aid market acceptance of new demand-side products and opportunities.

Encourage performance-based regulation of the electricity sector. As states across the country begin processes to implement performance-based regulation of electric utilities, the federal government has an opportunity to actively work with states to pilot programs and investigations of the potential costs and benefits derived from different types of performance-based regulations. The federal government can also amplify its efforts in this area by focusing on being a clearinghouse for best practices and technical assistance to states as this policy development process advances.

ii. How can Congress expedite the permitting and siting of high-voltage interstate transmission lines to carry renewable energy to load centers?

Provide funding to facilitate responsible transmission development. Because each state has different permitting and siting laws and requirements for project developers of interstate transmission lines, states need to be better resourced to coordinate the timelines and information needs for all the different state and local approvals.

1.c. Industry

The industrial sector accounts for about 20 percent of Oregon's total GHG emissions, primarily from direct use of electricity and natural gas.¹⁷ Key decarbonization strategies for the industrial sector include increasing efficiencies to reduce overall energy use and switching to low-carbon energy sources where possible.

In 1999, the Oregon Legislature passed an electric industry restructuring law, SB 1149, with the intent of establishing a funding source for residential, commercial, and industrial electric energy efficiency, renewable energy, and market transformation programs. A three percent public purpose charge is charged to the investor-owned electric utilities' customers. The funding is directed to a third-party independent contractor, Energy Trust of Oregon (ETO), to implement programs to acquire energy efficiency and renewable energy programs. ETO has numerous programs directed at energy efficiency in industry. The Oregon Department of Energy administers a program that allows 75 large industrial customers (over 1 MW) to self-direct their public purpose charge funds into on-site energy efficiency projects. In the 2015 -2017

¹⁷ 2018. Oregon Department of Environmental Quality. *Oregon Greenhouse Gas Sector-Based Inventory Data*. <https://www.oregon.gov/deq/aq/programs/Pages/GHG-Inventory.aspx>

biennium, 14 projects saved 6.1 million kilowatt hours, saving industrial customers \$336,000 per year.¹⁸

Consider costs, availability, viability, and life cycle impacts when considering substitutions and retrofits to decarbonizing existing industrial processes. Oregon is supportive of key industrial decarbonization strategies including: energy efficiency, low- or non-emitting alternative fuels including hydrogen, and carbon capture and storage technologies for process emissions. Industrial processes such as conventional steel blast furnaces and cement kilns require large amounts of thermal energy at high temperatures, with few low-carbon options that can provide the needed heat, flux, and consistency. However, decarbonizing industrial heat should be considered for meeting economy-wide deep decarbonization goals. Spurring innovation and enacting policies to stimulate market adoption are both measures that have been proven to aid in emissions reductions, and therefore could be applied when considering options for industrial process emissions reductions.

Create an Industry Competitiveness Fund. With the goal of helping industries retain and enhance their competitiveness, Congress could create or leverage existing programs to house an Industry Competitiveness Fund that assists businesses with their transition to a low-carbon economy through funding for programs designed to: 1) develop emissions trading systems expertise of businesses as needed, 2) support deployment of emissions reducing technologies, and 3) improve access to innovation to address challenges faced by high emissions industries. The objectives of these programs would be that the United States is home to: carbon market savvy businesses (both regulated and potential opt-in), businesses with the lowest GHG emissions in their sector, and businesses that are competitive and ultimately prosperous in a climate-constrained economy.

Modernize / Deploy Existing Technologies: Uncovering Solutions for Regulated Entities. A Climate Action Business Competitiveness Fund should include funding to support regulated entities to reduce emissions in cases where the market, both natural and via any emission trading systems (ETS), fails to provide an economically viable transition solution. The objective would be to provide low-interest loans or grants to businesses to access and deploy the best available technology to reduce emissions to the lowest possible levels. To ensure the most efficient use of public dollars, such additional funding would come after technical assistance support to ensure that companies are aware of the opportunities to effectively leverage ETS mechanisms to access low-cost capital for improvements, as it may be the case that upgrades could be self-funded. This is not unlike the Strategic Energy Management program run by Energy Trust of Oregon, or Bonneville Power Administration's Industrial Energy Efficiency program.

Modernize / Deploy Existing Technologies: Uncovering Solutions for Other Affected Businesses. Similarly, businesses experiencing input price increases as a result of carbon pricing

¹⁸ For more information, see: <https://www.oregon.gov/energy/energy-oregon/Pages/Large-Electric-Consumer-Public-Purpose-Program.aspx>

should be incentivized to transition to the best available technologies to reduce the costs associated with those inputs. Unless these businesses are willing and able to opt-in to an existing ETS, they have few options for financing upgrades to best available technologies.

Modernize / Deploy Existing Technologies: Largescale Deployment. Current financing programs in Oregon were created by the legislature to support small business needs and are currently not adequately capitalized to address high-capital, large-scale emissions reduction projects. Additional federal funding could leverage local programs and provide additional capitalization for businesses.

Improve Access to Innovation: Accelerate the Development and Deployment of Innovative Solutions. There are many high emitting industries in the U.S. for which there are not currently commercially available emissions reducing solutions, (e.g. cement, semi-conductor manufacturing, and long-haul trucking). Such industry challenges present opportunities to leverage and spur innovation, acting as a pull on U.S.-based research and design and emerging companies, as well as an opportunity to attract new young companies to the U.S. Companies capable of addressing these challenges have large global markets into which they could be selling their products. Our ability to support their presence in the U.S. through targeted investments in innovation would help reduce the costs and vulnerability felt by existing companies, while spurring and diversifying our economy. Federal funding or carbon pricing-related revenues should be directed to programs that incentivize and facilitate early adoption opportunities between existing companies and emerging companies, and in research and design efforts bringing compelling emissions reduction potential.

1.d. Buildings

According to the U.S. Energy Information Administration, buildings use 40 percent of the nation's energy and 70 percent of our electricity. Buildings also contribute over one-third of U.S. greenhouse gas emissions, which is more than any other sector other than transportation. Reducing energy use in buildings should be an essential part of any decarbonization policy.

In Oregon, the residential and commercial sectors, when including electricity and natural gas use, comprised 34 and 32 percent of Oregon's GHG emissions in 2015 and 2016, respectively. When electricity and natural gas use are accounted for separately, residential and commercial GHG emissions drop to seven percent and stem primarily from petroleum combustion (e.g., fuel oil for heating) and emissions from waste and wastewater originating from these sectors. This indicates a substantial potential for residential and commercial buildings and systems to reduce energy use and switch to low carbon energy sources in order to reduce GHG emission.¹⁹

As discussed above in Section 1.c. Industry, in Oregon a three percent public purpose charge is charged to the investor-owned electric utilities' customers, most of which is administered by the Energy Trust of Oregon. In addition to industrial programs, ETO has numerous programs

¹⁹ Oregon Department of Energy, 2018 Biennial Energy Report, Chapter 2

directed at energy efficiency in buildings. Like large industrial customers, schools are able to self-direct their public purpose charge on efficiency projects, and the Oregon Department of Energy approves reimbursement of school district PPC funds for allowable expenditures including energy efficiency measures. For the 2015-2017 biennium the program the program conducted 72 audits across 15 school districts, installed 125 energy efficiency measures that saved 2.8 million kWhs of electricity and nearly 250,000 therms of natural gas per year. This saves the schools over \$487,000 per year.

Encourage thermal decarbonization in buildings. Primary solutions to achieving thermal decarbonization in buildings include: improving building efficiency, electrification of heating and cooling in buildings, and use of renewable fuels.

- **Efficiency.** Many efficiency improvements are currently achievable at low cost. In the near-term, efficiency may be the only viable option for reducing GHGs from thermal uses while new technologies and strategies are developed for longer-term decarbonization. Efficiency measures, including high efficiency gas equipment, can enable transitions that ultimately lead to decarbonization.
- **Electrification.** To achieve thermal decarbonization, sales of highly efficient electric heat pumps and hot water heaters will need to replace gas-fired equipment sales by the 2030s so that little to no gas-fired equipment is still in operation in residential and commercial buildings in the future (e.g., by 2050).
- **Renewable fuels.** Renewable natural gas (RNG), and other gaseous fuels like renewable hydrogen, have lower GHG-intensity than traditional natural gas and may provide some opportunity for decarbonization. One strategy is to use excess renewable electricity (generated by solar, wind, hydro, or other zero carbon technologies) to split water with an electrolyzer and store the resulting hydrogen in the national natural gas grid for later use in transportation, or to be used in fuel cells to produce electricity. RNG and hydrogen can provide low-carbon transition alternatives where buildings and fuel distribution systems are locked into current gas combustion technologies.

Funding and federal incentives are needed to support state housing agency efforts to increase energy efficiency, reduce emissions in affordable housing and throughout the residential sector, and leverage multiple funding streams to make scalable programs.

Any consideration of policies for reducing energy use in buildings must encompass affordable multifamily housing, both new and existing. One in six American households reside in multifamily buildings. While new multifamily buildings are being constructed across the country, most residents still live in older buildings that are not energy efficient, and studies show that multifamily buildings are underserved by existing energy efficiency programs.

Low-income multifamily buildings should be a focus of carbon reduction policy to avoid increasing the percent of low-income household income spent on energy bills, known as energy burden. Low-income housing is defined as housing occupied by a household with income less than or equal to 80 percent of the area median income. Per this definition, 41 percent of

Oregon households (~634,000 households) are considered low-income. In comparison, extremely low-income households (less than or equal to 30 percent of the area median income per HUD's definition) account for more than 14 percent of Oregon households (~222,000 households).

Energy efficiency in buildings – using less energy to perform the same task – reduces a household's energy bills. Energy efficiency results in reduced greenhouse gas emissions and increased health outcomes. It can also result in persistent reduced energy use and provide non-energy benefits to the household, such as improved health, comfort, and safety. It also increases the resilience of a household to fluctuations in utility costs. Additionally, energy efficiency can reduce habitability issues in the unit (such as cold or warmth) and enhances long-term housing stability.

Encourage Net Zero Energy (NZE) Approach. In order to deliver on the benefits of NZE, these key issues should be addressed by Congress for affordable housing:

- **Scale financing and technology solutions** to enable NZE to be more rapidly developed and accessible in both existing and new building markets.
- **Halt the loss of affordable housing** that continues to accelerate in urban centers, and the implications for social equity in people's access to high-quality, healthy housing.
- **Encourage communities to adopt an NZE approach.**

Decarbonize multi-family buildings. Congress should fund energy efficiency programs such as:

- **Create a fuel-blind Multifamily Energy Program for affordable housing development.** In Oregon today, public purpose charges from electric utilities fund multifamily energy efficiency programs. As a result, the programs are only able to serve multifamily projects that are electrically heated within those utility service territories, and fuel-switching measures have not been incentivized. These restrictions create programs that are not able to serve the entire multifamily building. Creating a fuel-blind funding source would allow the programs to support more properties serving low-income people.
- **Create a manufactured home replacement program.** Many of the manufactured homes receiving weatherization upgrades were built before 1980 and typically use 70 percent more energy per square foot than a site-built home. These pre-1980 manufactured homes are past their useful life and energy efficiency work in these units is ineffective and expensive. New replacement manufactured homes are above-code and energy efficient. Program dollars should be allocated to replace older manufactured homes. For manufactured homes, the NEEM 2.0 standard, also known as ENERGY STAR with NEEM+ certification, was identified as the most cost-effective opportunity for new construction. The NEEM program has found cost-effective ways to achieve large savings by requiring more efficient envelopes and high-performance systems in these homes. The potential annual savings for a manufactured home replacement program in Oregon is 1.4 million kilowatt hours; \$0.2 million, or \$6.7 million over the life of a home; and GHG emissions

reduction of 537 metric tons of carbon dioxide equivalent. The estimated annual program cost would be about \$1.9 million.²⁰

- **Design national smart thermostat programs.** Smart thermostats allow a homeowner to program a heating and cooling schedule and maximize the use of setbacks, resulting in more reliable savings. Installation of smart thermostats should be the largest natural gas savings potential measure in multifamily affordable housing in Oregon when installed in residential units currently heated by standard, non-modulating natural gas furnaces, and the second largest electric savings measure when installed in units currently heated by electric resistance forced air furnaces and standard, non-inverter heat pumps. The potential annual savings for a smart thermostat installation program in Oregon is 3 million therms and 98 million kilowatt hours; \$14.7 million, or \$161 million over the life of the thermostats; and GHG emissions reduction of 52,600 metric tons of carbon dioxide equivalent. The estimated annual program cost is \$82 million.²⁰
- **Design a national water heating program.** The most cost-effective energy opportunity found for multifamily units is electric water heating savings. The cost saving measures identified include retrofitting existing electric resistance water heaters with efficient heat pump water heaters and adding low flow water controls. Heat pump water heaters use electricity to move heat from one place to another instead of generating heat directly. Therefore, they can be two to three times more energy efficient than conventional electric resistance water heaters. The potential annual savings for a water heater improvement program in Oregon is 204 million kilowatt hours; \$23 million, or \$311 million over the life of the water heaters; and GHG emission reduction of 76,000 metric tons of carbon dioxide equivalent. The estimated annual program cost is \$146 million.²⁰
- **Design a new construction program for more multifamily buildings in rural areas.** Oregon Housing & Community Services determined there is a need for more affordable housing in Southeastern Oregon, a rural section of the state. One of the priorities of the 2018 Oregon's Statewide Housing Plan is to "unlock opportunities for housing development" in rural communities. A new construction program for multifamily buildings could help ensure that the housing developments in these rural communities are energy efficient and leverage cost-effective existing standards.
- **Create flexible federal funding streams for appliance and equipment replacement** that allow lower GHG-emitting technologies to be installed even if they use a different fuel type.
- **Focus on improved building envelopes, inverter heat pumps for space heating and cooling, heat pump water heaters, and smart controls** that can cost-effectively deliver

²⁰ 2019. Oregon Department of Energy, Oregon Public Utility Commission, Oregon Housing and Community Services, *Ten-Year Plan: Reducing the Energy Burden in Oregon Affordable Housing*.

<https://oregon.gov/energy/Get-Involved/Documents/2018-BEEWG-Ten-Year-Plan-Energy-Burden.pdf>

single-family homes that are 40 percent more efficient than current codes. It can also deliver single-family homes that are future code ready or convertible to Net Zero Energy with the addition of renewables.

Adopt the next generation of building energy codes.

- Oregon recently adopted the 2019 Oregon Zero Energy Ready Commercial Code (OZERCC) which is based on the 2016 ANSI/ASHRAE/IES Standard 90.1, with some Oregon specific modifications: <https://www.oregon.gov/bcd/codes-stand/Documents/19ozerc.pdf>.
- Technical experts also created a document to assist in the transition from the previous code, based on the 2012 International Energy Conservation Code, to the new code: <https://www.oregon.gov/bcd/codes-stand/code-adoption/Documents/19energy-ashrae90.1-guide.pdf>
- Earlier this year, Oregon adopted Section R327: Wildfire hazard mitigation as an amendment to the Oregon Residential Specialty Code (ORSC). These amendments provide additional wildfire hazard mitigation provisions that are available for local adoption: <https://www.oregon.gov/bcd/codes-stand/Documents/17orsc-wildfire-mitigation-insert-pages.pdf>

Support the adoption of Home Energy Scoring. Home Energy Score systems help homeowners and homebuyers better understand a home's energy use and how improvements can make a difference in energy savings. The Oregon Department of Energy worked with the U.S. Department of Energy and a local stakeholder panel to develop a standard home energy scoring system to illustrate a home's energy efficiency and energy use. Oregon's largest city, Portland, was the first Oregon community to adopt a mandatory home energy score program in 2018, producing scores on more than 8,700 homes in the first year of the program.²¹

Congress could encourage states and local governments to adopt the Home Energy Score, potentially with funding to help jurisdictions and in-market implementers enact Home Energy Scoring programs.

The value of a single standard for home efficiency is the equivalent to an Energy Guide for homes. A Federal standard platform for home scoring could create a nationwide basis for valuation, creating a path for appraisers and the real-estate community to inform lenders of the added value of energy efficiency homes. For lenders, making private or public funds available to landlords and homeowners for needed efficiency upgrades would be supported by a nationwide scoring system.

2. What policies should Congress adopt to ensure that the United States is a leader in innovative manufacturing of clean technologies; creating new,

²¹ For more information, see: <https://www.oregon.gov/energy/save-energy/Pages/HEPS.aspx>

family-sustaining jobs in these sectors; and supporting workers during the decarbonization transition?

Adopt provisions similar to Oregon’s Clean Energy Jobs Bill. During the 2019 session, the Oregon legislature considered House Bill 2020, known as the Clean Energy Jobs Bill, to establish an Oregon Climate Action Program. One of the main purposes of the bill was to provide assistance to households, businesses, and workers affected by climate change by developing policies that would help Oregon achieve our greenhouse gas reduction goals. The bill offers a range of examples that Congress could consider for ensuring support for workers during the decarbonization transition:

- Direct auction proceeds from a cap and trade program for the explicit use of a just transition program.
- Prioritize transportation projects and climate action investments that promote low carbon economic development opportunities and the creation of jobs that sustain living wages.
- Ensure funds from auction proceeds from a cap and trade program are available for the purpose of supporting economic diversification, job creation, job training, and other employment services, with some commission or agency oversight.
- Establish rules for agencies to use in administering auction proceeds from a cap and trade program for construction projects that specify labor, workforce, and contracting procedures and that establish wage, benefit, and labor relations standards.
- Encourage innovative and efficient manufacturing technology to support continued operations inside the state and into the future. Congress could consider emissions efficiency benchmarks based on best available technology for energy-intensive, trade-exposed businesses. Cap and trade program proceeds funded by manufacturers purchasing emissions allowances at auction could then be used to assist those manufacturers in transitioning to the use of the best available technology.

3. What policies should Congress adopt to ensure that environmental justice is integral to any plan to decarbonize these sectors?

Adopt provisions similar to Oregon’s Clean Energy Jobs Bill. A key focus of HB 2020 was ensuring affected communities, (i.e., those at risk of being disproportionately affected by climate change) were explicitly included in considerations of a just transition. Congress could consider policy design similar to HB 2020 that directs the appropriate agencies and research organizations to identify affected communities based on a methodology that takes into consideration geographic, socioeconomic, historic disadvantage, public health, and environmental hazard criteria:

- Prioritize projects that benefit affected communities and members of Indian tribes.
- Allocate funds and prioritize investments of proceeds so affected communities can benefit from the efforts to reduce GHG emissions. Investments could also provide opportunities for businesses that are owned by members of affected communities or Native American tribes.
- Allocate household bill assistance and weatherization funds to assist residential homes that heat using propane, fuel oil, or other fossil fuels with priority assistance to low-income households or affected communities.
- Develop a transportation assistance fund or dividend, with a set-aside for transportation investments in rural and affected communities based on tracking and analysis of transportation burden.
- Establish rules for agencies to use in administering auction proceeds funds for construction projects that specify labor, workforce, and contracting procedures and that establish measurable, enforceable goals for the training and hiring of members of affected communities.

Develop supportive housing policies for multifamily and low-income residents.

Decarbonization policies for housing should expressly include multifamily housing for low-income residents to ensure the affordable housing stock does not get left behind. Multifamily buildings are particularly underserved through existing energy efficiency programs, which are sometimes harder to implement in multifamily housing than single-family housing. Statistics show that lower-income families – and especially very low-income families – are more likely to live in rental multifamily residences than moderate- or higher-income families. Utility costs are the highest variable operating expense and low-income families often struggle to find homes that have both affordable rent and energy costs. Often the renter pays the utility bills directly and the building owner only pays for the common area energy expenditures. This split incentive creates a barrier to upgrading energy measures within buildings. Congress should therefore consider the following:

- Prioritize affordable housing units in all building programs to ensure they are upgraded along with the rest of the housing stock.
- Provide dollars and expertise to states and nonprofit agencies to help increase understanding of the current low-income housing market, including market demographics and market size, and understanding of the opportunities and barriers for reducing energy burden to households.
- Provide resources and best practices to low-income housing stakeholders to support their ability to reduce the energy burden on the low-income population in Oregon.
- Create tools, including new resources and best practices, that address known barriers to reducing energy burden in low-income populations.

- Make recommendations for new programs, or updates to current programs, that would have a large impact on reducing the energy burden on low-income households.
- Direct program dollars to developing and retrofitting residential buildings that serve low-income populations, and to specially designed programs for the rural populations.
- Make racial equity a priority in efforts to decarbonize affordable housing when making public or private investments.

Cross-Cutting Policies

4. Carbon Pricing:

4.a. What role should carbon pricing play in any national climate action plan to meet or exceed net zero by mid-century, while also minimizing impacts to low- and moderate-income families, creating family-sustaining jobs, and advancing environmental justice? Where possible, please provide analytical support to show that the recommended policies achieve these goals.

4.b. How could sector-specific policies, outlined in questions 1-3, complement a carbon pricing program?

During the 2019 session, the Oregon legislature considered House Bill 2020, known as the Clean Energy Jobs Bill, to establish a carbon pricing mechanism and an Oregon Climate Action Program. One of the main purposes of the bill was to provide assistance to households, businesses, and workers affected by climate change or climate change policies. Our responses to questions 2 and 3 above are particularly relevant to this question.

The revenue generated by most carbon pricing policies, including those being considered in Oregon, can be reinvested in a number of ways that are in the public interest. Carbon pricing revenues can be divvied up to invest in sector-specific GHG mitigation and climate adaptation policies and programs; in researching and bringing to market advanced, GHG emission reducing technologies; and in helping communities adapt to a new, low-carbon emitting economy. The policies can be developed to minimize the effect of carbon pricing on low- and moderate-income families through tax reductions or rebates.

- A Clean Fuels Program in the transportation sector allows a market to develop a carbon price for fuels that encourages the use of low carbon fuels.
- Renewable Portfolio Standards and clean energy standards encourage the use of clean technologies to support a carbon pricing program.
- Low- or zero-emission vehicle targets, incentives, and educational campaigns can encourage transition in the transportation sector. Transportation energy demand shifted to electricity or other alternative fuels would result in decreased emissions if

those fuels are coupled with clean energy targets. For example, a cleaner electricity sector can leverage emission reductions when used as a fuel for transportation.

- Energy efficiency remains the cheapest resource option to meet future energy demands, and by implementing or increasing energy efficiency in buildings and commercial and industrial operations, future GHG emissions are lowered. Properly designed energy efficiency programs can limit or eliminate the effects on low- and moderate-income families while creating family-wage jobs.
- Conduct the necessary analytical work on emissions prices to assess the effect on the economy, households, and vulnerable people. Social concerns and competitiveness concerns need to be addressed in parallel.
- Proactively communicate the opportunities and benefits of carbon pricing across regions and sectors.

5. Innovation:

5.a. Where should Congress focus an innovation agenda for climate solutions? Please identify specific areas for federal investment and, where possible, recommend the scale of investment needed to achieve results in research, development, demonstration, and deployment.

Invest in moving new renewable technologies toward commercial potential to expand the portfolio of energy sources. For example, Oregon has research sites on marine energy, which encompasses both wave power and tidal power. While marine energy projects are not yet in commercial operation in Oregon, they have the potential to support the state's existing power resources. Marine energy projects can provide more constant power output than wind or solar resources. Wave energy output is strongest during the winter months, which coincides with peak electricity demands in Oregon and complements other carbon-free resources. According to the Electric Power Research Institute, the total annual technical potential from Oregon's wave energy resource is 143 billion kWh per year, or enough to power more than 13 million homes. Currently, the high costs of these technologies, combined with limited transmission access in coastal Oregon, are the primary barriers to the cost-effective development of wave energy. The U.S. Department of Energy's Water Power Technologies Office has supported research and development of marine energy in Oregon and around the country.²²

5.b. How can Congress incentivize more public-private partnerships and encourage more private investment in clean energy innovation?

²² For more information, see Oregon Department of Energy's 2018 *Biennial Energy Report*, Chapter 1. <https://energyinfo.oregon.gov/ber>

Continue and substantially expand funding support for ARPA-e. ARPA-e provides critical technology de-risking support that facilitates private investment in clean energy innovation.

Continue and substantially expand funding support for national labs to develop and update technology roadmaps to inform innovation investment and funding priorities.

Encourage market transformation. Congress can fund incentive programs to advance energy efficiency technology and help create market acceptance of existing technologies. Congress should consider:

- **Programs that provide incentives to builders to install new energy efficient technology in existing and new single-family and multifamily buildings.** Home builders are reluctant to install new products that have not been established in the marketplace. They are concerned about the additional cost, the amount of time for installation, the reaction from homeowners, and the reliability of the product. Programs that work with builders to identify and install new products and provide a bridge between manufacturers and builders, can dramatically increase market acceptance of new products and technologies.
- **Programs that provide incentives to manufacturers or distributors to bring new products to the marketplace.** Incentivizing new products and technologies will allow manufacturers to sell cutting-edge products at prices usually reserved for mature product lines. The Northwest Energy Efficiency Alliance is a collaboration of 140 utility and energy efficiency organizations serving 13 million customers. Since 1997, the region has cost-effectively delivered over 1,400 average megawatts of energy efficiency through market transformation, encouraging emerging technologies, and enhancing codes and standards.²³
- **Programs that provide incentives directly to consumers for purchasing a product.** This market intervention has been successful at shifting consumer preference to more energy efficient product lines.
- **Programs that build up and support the knowledge and technical resilience²⁴ of lending institutions.**
- **Programs that consolidate funding with tools, training, and integration of these aspects in support of the market.**
- **Programs that reward states and communities that aggregate demand for Net Zero Energy (NZE) and put forward a guaranteed volume of sales and performance level so**

²³ <https://neea.org/about-neea>

²⁴ “Technical resilience” is the existence and the establishment of well-designed and well-defined processes/standards/technology that support the effective and tested procedures and arrangements that enable lenders to respond to, plan for, continue through, and come out of any incident that may severely disrupt their ability to provide services to customers and stakeholders. It particularly enables response to increased demand that may require nimbleness in responsiveness.

that lenders can trust revenue streams and occupants can get an assurance of affordability.

- **Programs by HUD that allow states to aggregate affordable housing projects** and present them to an organized network of designers, engineers, manufacturers, and contractors who would deliver predesigned, partially prefabricated NZE projects or retrofits.

Develop a low-carbon technology roadmap. Federal investment in innovation programs should aim to both meaningfully reduce greenhouse gases and enhance U.S. competitiveness and resilience as the country faces an increasingly climate-constrained economy. The U.S. has a rare opportunity to predict and prepare for a set of near- and long-term market demands associated with climate change. By thoughtfully decoupling our economy from carbon and aiming to provide innovative solutions demanded by a global low-carbon market, we can reduce economic risks while spurring and diversifying the U.S. economy through targeted investments in innovation.

To ensure the most efficient and effective use of public funds, we recommend developing a low-carbon technology roadmap to provide direction and facilitate strategic use of public funds. The National Renewable Energy Lab (NREL) produces technology roadmaps for many sectors. Having one that articulates a national low-carbon transition strategy would help focus public funds where they can have the most impact. Funding should be guided by an overarching mandate to invest in innovation and technology that facilitates fast, widespread, and continued GHG emission reductions, and that supports a transition to a low-carbon economy. The objectives should be to:

1. Quickly and continually deploy solutions with collectively large GHG emission reductions, namely those with widespread deployment potential or the deployment of very high -impact solutions. (e.g., programs for Technology Readiness Levels²⁵).
2. Cultivate Innovation & Entrepreneurship pipeline of low-carbon solutions on the roadmap (e.g., programs for TRL 1-4).
3. Support modernization of existing industries with innovative solutions through the use of R&D tax credits targeting low-carbon solutions.

With these objectives in mind, and after the creation of a technology roadmap to guide strategic investments, the Department of Energy (i.e., Office of Energy Efficiency & Renewable Energy & Energy Efficiency, Office of Science, and Advanced Research Projects Agency – Energy) and the national labs should prioritize investments, with an overarching guiding principle that programs would support startups and technologies with GHG reduction and/or adaptation solutions that address global challenges, have acute benefits to in the U.S., and enhance our

²⁵ Generally speaking, TRL levels can be broken down as follows: Research and Prototyping (TRL 1-4); Demonstration and Acceleration (TRL 5-7); and Commercialization and Growth (TRL 7-9)

competitive advantages as per the technology roadmap. They could be broken into the following categories:

- **Deploy** – a certain percentage of funds to programs supporting projects with meaningful and measurable near-term impacts (e.g., impact within 5 years).
- **Grow** – a certain percentage to funds to create programs that prioritize support for scaling companies with meaningful and measurable mid-term impacts (e.g., impact within 5-10 years).
- **Cultivate** – a certain percentage of funds to cultivate a pipeline of innovation with anticipated meaningful and measurable longer-term impacts (e.g., impact in 10 years and longer).

Agriculture

6. What policies should Congress adopt to reduce carbon pollution and other greenhouse gas emissions and maximize carbon storage in agriculture?

Congress could influence reductions in greenhouse gas emissions and maximize carbon storage through numerous existing or new programs through the Farm Bill. The Farm Bill could provide financial resources and technical assistance to support:

- Planning by individual farms or local communities for projects or future practices that will reduce emissions or sequester carbon.
- Training for local service delivery providers to assist landowners in planning and designing climate sequestration/adaptation projects.
- Technical support from experts in support of state's delivery network for climate-related projects.
- Training in measurement and quantification of climate-related projects to determine emissions reductions or carbon sequestration benefits that are realized.
- Current farm bill programs that seek to sequester carbon, reduce emissions, and promote adaptation and resilience. Example USDA programs include Environmental Quality Incentives Program (EQIP), Conservation Stewardship Program (CSP), Conservation Reserve Program, Conservation Reserve Enhancement Program, and Rural Energy for America Program.
- New Farm Bill programs that incentivize practices that sequester carbon and reduce emissions.

Create a Conservation Reserve Enhancement Program (CREP) for forest landowners. Such a program would benefit family forest landowners who implement voluntary measures to protect

and enhance streamside areas in forest ecosystems, which provide critical aquatic habitat and deliver water for agricultural and domestic use.

7. What policies should Congress adopt to help farmers, ranchers, and natural resource managers adapt to the impacts of climate change?

Provide additional funding for protection and restoration of wetlands, riparian areas, floodplains, and other natural systems can treat and clean water. Protection of source-water areas helps ensure Oregonians have access to clean, safe water. Several Oregon communities already have incorporated natural treatment systems into their water treatment facilities. Having additional flexibility and access to funding through programs from the Environmental Protection Agency or other agencies to plan, design, and implement natural infrastructure projects would promote further use of these important approaches.

Help farmers, ranchers, and natural resource managers adapt to the effects of climate change through numerous existing or new programs through the Farm Bill. The Farm Bill could provide financial resources and technical assistance to support:

- Local capacity to assist with planning for changes in water availability.
- Enhanced funding for PL 566, which provides technical and financial resources for states and local entities to develop and implement plans for watershed protection, flood prevention, agricultural water management and other activities. Enhancing this funding could enable the development of water infrastructure projects, like canal piping, farm efficiency, and irrigation modernization projects. Projects can also address instream and out-of-stream water quantity needs and address water quality concerns, while providing benefits to farms, fish, and people.
- New Farm Bill programs that incentivize practices that promote sustainable, resilient natural resources.
- Conservation Innovation Grants that seek to drive innovation of natural resource practices that can improve the resilience of farms, ranches, and natural resources and accelerate win-win outcomes.
- Incentives to enroll marginal lands that are frequently affected by drought into a set-aside program. In partnership with Oregon's agricultural landowners, federal agencies and the State of Oregon have contributed significant resources toward riparian restoration through the Conservation Reserve Program (CRP), a locally driven, voluntary, incentive-based program that has been highly successful in protecting over 38,000 acres of riparian buffers in Oregon (as of 2018). Since its beginnings in 1985, CRP has helped farmers and ranchers improve water quality, prevent soil erosion, and reduce the loss of wildlife habitat on private lands. The Farm Service Agency administers the program; and the Natural Resource Conservation Service provides enrolled landowners with science-based technical advice and specifications on how to implement CRP conservation

practices. Recently tens of thousands of CRP acres in Oregon have expired, and due to CRP acreage caps, much of this acreage cannot be re-enrolled. Without a modification of the CRP, landowners interested in continuing conservation practices should have priority access to other Farm Bill programs, such as the Environmental Quality Incentives Program and the Conservation Stewardship Program, to ensure that sensitive lands are conserved and that multiple benefits to habitat and water quality are maintained into the future.

Support integrated planning. All of Oregon's lands and waters, including forest, range, agriculture, ocean, and natural areas will be affected by the changing climate. All of the uses of these resources may be limited in the future. Congress could support integrated planning to engage all levels of government and relevant stakeholders in multi-sector planning to maximize adaptive outcomes and reduce maladaptive outcomes for the greatest future value.

Support technical assistance for algal blooms. Support resources for early detection, forecasting, and rapid response to harmful algal blooms in freshwater and marine systems to protect local economies, drinking water, and air quality.

Oceans, Forestry and Public Lands

8. How should Congress update the laws governing management of federal lands, forests, and oceans to accelerate climate adaptation, reduce greenhouse gas emissions, and maximize carbon storage?

Ensure adequate funding for federal agencies. The federal entities charged with management of federal lands, forests, and oceans have all been chronically underfunded. Congress should initially acknowledge the value these natural resources provide to the overall economy of the United States and the necessity of keeping these natural resources healthy as a vital way to safeguard Americans from the worst effects of climate change. Ensuring adequate funding for Bureaus of the Department of the Interior and the National Marine Fisheries Service is a first step toward improving management of federal lands, forests, and oceans.

Acquire and protect key lands and waters. Climate change should be a key, central consideration of policy surrounding acquisition of new lands and waters. For example, acquiring lands that connect natural areas to preserve them and accommodate future species movements. Also, acquiring important lands like wetlands and estuaries that provide ecosystem services that could help ameliorate some effects of climate change. Protecting lands and waters from development impacts can allow them to retain resilience to climate change.

Maintain and strengthen existing laws. Protecting key lands and waters also means that existing regulations and protections need to be strengthened rather than weakened. For example, the Environmental Protection Agency should abandon efforts to reduce the scope of the Clean Water Act.

Adopt policies and approaches that would accelerate climate adaptation on federal lands and waters. Particularly in the western states, management of federal lands, forests, and oceans is a primary way that the federal government can influence the United States' resilience to the effects of the changing climate and changing ocean chemistry. There are numerous policy approaches that Congress could pursue to accelerate climate adaptation on federal lands and waters. Congress should consider the following:

- Require projects funded by or on federal lands and waters to incorporate consideration of climate vulnerability, emissions outcomes, and adaptive/resilient outcomes.
- Update the Organic Acts for the federal agencies charged with managing lands and waters to add goals supporting the long-term climate resilience of natural resources.
- Update NEPA to include a requirement for analyses to include projected greenhouse gas emissions resulting from projects and the ability of a project to provide for adaptive/resilient outcomes.
- Require land management agencies to prioritize connectivity of habitats through planning for corridors that are informed by likely changes in animal migration patterns from climate change.
- Require land management agencies to work with ranchers and other federal land lessees to develop and implement management practices that reduce and reverse habitat degradation and protect the resilience of grazing lands for livestock and native species, including achieving wild horse and burro herd Appropriate Management Levels.
- Increase funding for early detection and rapid response programs to detect and control invasive plants, animals, insects, and diseases.
- Fund implementation of the 2012 Forest Planning Rule.
- Expand riparian buffers where needed in forest ecosystems to improve stream flow, reduce flood damage, and provide habitat for fish and wildlife.
- Expand forest and rangeland health management actions to reduce fuel loads and increase resilience, and work cooperatively across ownerships to implement a program that reduces megafire frequency.
- Work to protect key ecosystem parts from a variety of threats (e.g. fire, insects, and diseases, etc.) while working to establish a wide range of ecosystems across the landscape.
- Incentivize removal and reduction of disruptive floodplain infrastructure. Restore connectivity in floodplains and aquatic habitats.
- Implement flexible/holistic water management that supports both consumptive and non-consumptive uses and includes the protection or acquisition of instream water where most beneficial for fish, wildlife, and/or recreation. Also integrate ground and surface water resources.

- Invest in a marine monitoring network to document oceanographic and biologic conditions that drive socio-economic vulnerabilities related to ocean acidification and hypoxia.
- Design and implement an early detection and rapid response program to protect human health and the natural resource economy during harmful algal blooms in freshwater and marine environments.

Adopt policies and approaches that would accelerate carbon sequestration on federal lands and waters. Activities on federal lands and waters, and decisions about use of federal lands and waters, can have a large impact on reducing greenhouse gas emissions and sequestering carbon. Congress should consider:

- Establishing federal policies that prioritize development of renewable energy over fossil fuel-generated energy development on federal lands.
- Create new incentive programs for the siting of new renewable energy projects in previously disturbed areas that have the least impact to fish, wildlife, habitat, agriculture, and forestry.
- Create new incentive programs for rooftop solar energy projects and local microgrids to protect current natural resource lands (habitat, forest, agriculture, etc.).
- Ensure adequate funding for inventory and monitoring of carbon sequestration and fluxes across all lands.
- Fund an analysis of carbon sequestration on non-forest federal lands (e.g., rangeland habitat under BLM management) and direct the managers to prioritize activities that seek to increase carbon sequestration. Develop and implement protocols for considering carbon sequestration and storage services of natural habitats in management decisions.
- Work with states to establish shared stewardship agreements to maximize carbon sequestration rates and long-term carbon storage.
- Provide funding for expanding carbon sequestration on non-federal lands. A program similar to the Forest Legacy program could be utilized in areas with high carbon sequestration capabilities and other holding areas.
- Increase funding for certain forest thinning and catastrophic fire prevention and remove regulatory barriers for those actions.

Promote multiple uses of infrastructure. Existing infrastructure should be used for dual purposes (e.g., jetties should collect ocean energy as well as protect our access to the ocean), allowing federal lands or waters to contribute energy to reduce our reliance on fossil fuels. Collectively determined marine spatial plans should be required as the most effective use of ocean space.

Wetlands, riparian areas, floodplains, and other natural systems can treat and clean water, and protection of source-water areas helps to ensure Oregonians have access to clean and safe water. Several Oregon communities already have incorporated natural treatment systems into their facilities. Having additional flexibility and access to funding through programs, from the Environmental Protection Agency and other agencies, to plan, design, and implement natural infrastructure projects would promote further use of these important approaches.

Establish a consistent standard and source of information related to wildfire risk and establish financial and technical assistance to build fire resilience.

Federal agencies charged with managing drinking water and hydropower systems should assess the vulnerability of this infrastructure to the impacts of climate change and provide financial resources to upgrade or move infrastructure as necessary.

Non-CO2 Greenhouse Gases

9. What policies should Congress adopt to reduce emissions of non-CO2 greenhouse gases, including methane, nitrous oxide, and fluorinated gases?

Consider policies that reduce, substitute, and restrict the use of fluorinated gases in products and equipment. Fluorinated gases and fluorinated heat transfer fluids are potent climate forcing pollutants due to their short atmospheric lives and strong warming effect that can be thousands of times that of carbon dioxide. If left unregulated, hydrofluorocarbon (HFC) emissions are projected to increase substantially and at an increasing rate over the next several decades. Restrictions could apply to new equipment, but also how HFCs are managed in existing uses. As end of life emissions account for the majority of releases of these pollutants, how they are handled, recovered, or destroyed /recycled at equipment end of life is critically important.

Consider regulations for sulfur hexafluoride (SF6) leakage from electrical equipment and from non-electricity uses. SF6 has a global warming potential that is significantly higher than that of carbon dioxide and is a commonly used insulator in electricity transmission and distribution equipment. Congress should also consider incentives that encourage, or regulations that require, the use of new technologies that use lower or zero global warming potential insulators.

Focus on reducing methane emissions. Methane is responsible for at least a quarter of global warming and is a more potent greenhouse gas when compared to carbon dioxide. Methane also helps in the formation of tropospheric ozone, which could become an increasing local air quality threat in an increasingly warming climate. The oil and gas sector, agriculture, and waste are the largest sources of human-caused methane emissions and therefore provide areas and opportunities for emissions reductions, including:

- Allocate funds to incentivize leak detection projects and consider regulations around leak detection requirements. Technologically feasible and cost-effective solutions to reduce methane in oil and gas operations exist today such as pipeline leak reduction, recovery, and use of escaped gas, and other solutions along the value chain. Recent studies have found that more in-depth leak detection through remotely-sensed surveying can find large sources of emissions.
- Encourage or incentivize the use of feed additives or supplements and improved manure management practices to reduce methane emissions from livestock.
- Recover methane gas from municipal solid waste and wastewater facilities to reduce methane emissions. This would have public health co-benefits of preventing associated emissions of VOCs and reducing potential water contamination.

Resilience and Adaptation

11. What policies should Congress adopt to help communities become more resilient in response to climate change? The Select Committee welcomes all ideas on resilience and adaptation but requests comments on three specific questions:

11.a. What adjustments to federal disaster policies should Congress consider to reduce the risks and costs of extreme weather and other effects of climate change that can no longer be avoided?

Increase federal funding for resilient transportation infrastructure. Federal funding is needed to support infrastructure vulnerability assessments and climate change adaptation planning. In addition, funding to pay for the design and construction of climate-smart transportation infrastructure needs to be a national priority. Considering extreme weather and climate change impacts through transportation planning and project design will extend the life-cycle of these assets, enhance safety and reliability during natural disasters, and reduce maintenance, repair, and reconstruction costs. New funding sources should be dedicated for the direct purpose of incorporating climate change considerations into Federal-Aid Highway Program projects pre-disaster.

Provide federal leadership and funding for climate data and standards. Federal funding should be available to update precipitation modeling in the Pacific Northwest region (specifically NOAA Atlas 14), for use in infrastructure planning and design. The federal government could also establish a consistent standard and source for climate projections and modeling for use in NEPA analyses for transportation infrastructure. Regarding standards and codes, Congress could

implement the Federal Flood Risk Management Standard that would require federally funded infrastructure be built three feet above base flood elevation.

Require Managed Retreat Plans. “Managed retreat” is a coastal management strategy that allows the shoreline to move inland, instead of attempting to hold the line with structural engineering. Usually, human development is “moved” out of harm’s way and natural areas are restored to enhance their ecosystem services. For example, flood defenses would be set back from the shoreline and flooding would be allowed in the previously defended area. Natural coastal habitat would be preserved or restored seaward of the man-made defense, providing an extra buffer against flooding. Now, in the face of increasing coastal hazard risks that will be exacerbated by climate change, there is a growing recognition that the current “hold the line” approach is a losing battle in many places.

To access federal disaster assistance for rebuilding in hazard areas, federal law could be changed to require that affected cities or counties must have adopted a managed retreat or post-disaster plan for relocating displaced residents and businesses. This helps to break the cycle of rebuilding after one disaster simply to place people and property in harm’s way again, therefore reducing human tragedy and private and public costs. As climate change increases the reach of disasters, particularly storms and wildfires, managed retreat can be used to move people and structures over time into safer locations.

Alternatively, federal incentives to encourage local adoption of managed retreat plans and policies could be established, especially through funding to support state and local managed retreat and post-disaster community-building planning.

Streamline the process of distributing mitigation funding, which currently takes too long to get money in the hands of building owners once they decide to participate in the buy-out program. This causes people to drop out of the program.

Other adjustments to consider:

- Greater funding and assistance for FEMA’s pre-disaster mitigation program for pre-disaster planning and projects.
- Explore and secure pathways to access climate adaptation, resilience, and hazard mitigation investment opportunities through the Community Reinvestment Act.²⁶
- Encourage the development of sensitivity in underwriting and managing investments that provide transparency for investors and the general public about the nature of trade-offs by and between different options and strategies. Namely trade-offs between investing in short-term resilience and long-term adaptation or simply between the conflicts that may arise between the built and natural environments should be

²⁶ 2019. Federal Reserve Bank of San Francisco. *Climate Adaptation Investment and the Community Reinvestment Act*. <https://www.frbsf.org/community-development/files/climate-adaptation-investment-and-the-community-reinvestment-act.pdf>

identified. Ensure adequate evaluation of projects to protect against maladaptive responses.²⁷

- Invest in research and monitoring of climate driven disasters in the natural resource economy such as wildfire, fishery collapse, and crop failure, and consider new approaches to providing relief and potential transition to more climate resilient economic opportunities.

11.b. How can Congress better identify and reduce climate risks for front-line communities, including ensuring that low and moderate-income populations and communities that suffer from racial discrimination can effectively grapple with climate change?

Climate change is described by the U.S. Department of Defense as a “threat multiplier.”²⁸ In other words, climate change makes existing threats worse. Communities that already face greater risks will bear a disproportionate share of climate-related burdens. These same groups often have fewer resources and opportunities to plan for, and recover from, climate impacts.

Climate vulnerability assessments point to social determinants as the primary driver. Health and demographic data can be used to identify which populations face the most risks.²⁹

Numerous vulnerability assessments across the nation³⁰ identify these to include communities of color and low-income communities in both rural and urban areas. By applying what we know about social determinants, we can improve public health and community resilience.³¹

Any methodology used to determine vulnerability must be revisited as new data becomes available. Policies need to include a mechanism to review and update methodologies based on new data. Building in the flexibility to consider new data will help to ensure that we are making science-based decisions.

Consider both quantitative and qualitative data. Quantitative tools for spatially identifying these populations can provide valuable inputs into decision-making, but are considered only part of a complete vulnerability analysis. Meaningful community engagement to ground findings with qualitative data is a necessary step in ensuring that any limitations and assumptions are modified based on local lived experiences.

²⁷ 2019. *Climate Adaptation Finance and Investment in California*. http://opr.ca.gov/docs/20181106-Keenan_Climate_Adaptation_Finance_and_Investment_in_California_2018.pdf

²⁸ 2015. U.S. Department of Defense. *National Security Implications of Climate-related Risks and a Changing Climate*. <https://archive.defense.gov/pubs/150724-congressional-report-on-national-implications-of-climatechange.pdf?source=govdelivery>

²⁹ National tools to geographically identify populations include the Environmental Protection Agency’s EnviroScreen and the Centers for Disease Control and Prevention’s Social Vulnerability Index.

³⁰ 2016. USGCRP. *The Impacts of Climate Change on human Health in the United States: A Scientific Assessment*.

Crimmins, A, J. et al. U.S. Global Change Research Program, Washington, DC. <https://health2016.globalchange.gov/>

³¹ 2017. Marmot M, Commission on Social Determinants of Health. *Achieving health equity: from root causes to fair outcomes*. The Lancet; 370(9593):1153-63.

Ensure local communities can effectively engage in priority-setting and decision-making. Best practices show that providing support to community-based organizations and for community capacity-building will lead to more locally-appropriate strategies that reflect the priorities of place.³² Community-identified needs and community-led solutions will result in greater impact and improved outcomes over time. Any scoring system developed to select projects for investment should also be informed by community organizations that represent communities known to be on the frontlines, including communities of color and low-income populations in both rural and urban areas.

Create programs and projects that support low-income populations or communities of color. Low-income households, along with communities of color and rural communities, frequently experience higher energy burdens than the average household, and are disproportionately affected by climate change. These same populations are less able than others to cope with and respond to these changes. Oregon is actively working toward reducing these inequities and enumerates actions the state can take in a 2019 report entitled *Ten Year Plan: Reducing the Energy Burden in Oregon Affordable Housing*.³³ One example of the type of program that could be replicated to help these underserved populations is Oregon Housing & Community Service's Local Innovation and Fast Track Rental Housing Program that was launched in 2017. The program's primary goal is to create many new affordable housing units for low-income Oregon families and to support historically underserved communities.

Design programs specifically for rural populations. The regions of greatest need in Oregon tend to be the rural counties.³⁴ Others have found similar trends across the country. The American Council for an Energy-Efficient Economy recently published a report, *The High Cost of Energy in Rural America: Household Energy Burdens and Opportunities for Energy Efficiency* that found the share of income that rural households spend on energy is significantly higher than their non-rural counterparts' expenditures. The GHG savings from helping rural households may be greater because rural households are more likely to use fuel oil or propane for heating. And, often, there is only limited funding available to provide energy efficiency services for these types of fuels, making it even more difficult to serve these rural households.

Combine renewable energy with energy efficiency. On-site renewable energy generation curtails energy burden by reducing the amount of energy the household must buy from the electrical grid. Like energy efficiency, renewable energy's advantages include persistent savings to the household and the societal benefit of greenhouse gas emission reduction. Depending on the technology, it also has the potential added benefit of increasing the resilience of the residence. However, it does not directly affect the household's health, comfort or safety, nor the habitability of the unit. It is also important to recognize that energy efficiency is the least

³² 2017. Urban Sustainability Directors Network (USDN). *Guide to Equitable Community-driven Climate Preparedness Planning*.

³³ <https://www.oregon.gov/energy/Get-Involved/Documents/2018-BEEWG-Ten-Year-Plan-Energy-Burden.pdf>

³⁴ 2019. Oregon Department of Energy, Oregon Public Utility Commission, Oregon Housing and Community Services, *Ten-Year Plan: Reducing the Energy Burden in Oregon Affordable Housing*.

<https://oregon.gov/energy/Get-Involved/Documents/2018-BEEWG-Ten-Year-Plan-Energy-Burden.pdf>

expensive resource.³⁵ Therefore, it should be policy to improve the energy efficiency of the residence before installing renewable energy systems.

Reduce energy burden to increase household resiliency and adaptation. One of the main advantages of energy efficiency as a mechanism to reduce energy burden is that it results in persistent savings, and therefore persistent reduction in energy burden. It increases the resilience of the household to fluctuations in energy costs. Additionally, energy efficiency can reduce habitability issues in the unit and enhance long-term housing stability.

Support the important role lending institutions play. Housing lenders will play a leading role in building resilience in the housing sector. Community development financial institutions (private financial institutions that are 100 percent dedicated to delivering responsible, affordable lending to help low-income, low-wealth, and other disadvantaged people and communities join the economic mainstream), impact investors, and providers of PRI/MRI that do not lend to the housing sector have an important role to play in enhancing the resilience of other types of critical infrastructure. Affordable housing lenders have a particularly important role to play in ensuring that new and existing properties they finance are built or upgraded to be climate-resilient. This means, for example, that critical equipment is elevated to be protected from flooding, moisture-resistant and healthy building materials are used to reduce the growth of mold after water exposure, and the property is as energy- and water-efficient as possible to be livable longer-term when utility service is down. Innovative financial products and programs that properly account for energy considerations can increase climate resilience in affordable housing efforts. New financing standards and tools will need to be in place. For example, most buildings are not equipped to remain habitable during extended power outages. Problems from heat loss, heat gain, poor ventilation, and poor sanitary conditions can arise when electricity is not available. A high-performance building envelope with proper insulation and sealing, natural ventilation, and shade trees around the building can help maintain safe living conditions and increase the buildings survivability. Reducing energy demand also allows a property to maintain critical functions longer when back-up power systems such as solar and energy storage systems are available

Provide vulnerability assessment funding. Provide funding for states, local governments, special districts, and utilities to engage with people where they are (similar to census-takers going door-to-door) to identify populations vulnerable to climate-related hazards. Those entities can then assess their vulnerabilities and develop ways to mitigate them.

Congress should consider requiring social vulnerability analyses in these planning processes and waiving or reducing any matching financial requirements for low-income people and families to participate in the FEMA mitigation grants program.

³⁵ 2018. Oregon Department of Energy. *Biennial Energy Report*, Chapter 6. <https://energyinfo.oregon.gov/ber>

Fund evacuation planning. Provide funding for evacuation planning and implementation, especially for people who are immobile or have reduced mobility (seniors, the blind, day care centers caring for infants, elementary schools, etc.).

11.c. What standards and codes should Congress consider for the built environment to ensure federally-supported buildings and infrastructure are built to withstand the current and projected effects of climate change?

Congress should encourage all states to adopt an updated building model code, such as the most current International Energy Conservation Code. Building codes represent a highly cost-effective strategy to help protect communities from the risks posed by natural and human-caused events. Model building codes set minimum requirements for building design, construction, and operation to protect public health, safety, and the natural resources. Building codes are adopted at the state and/or local level in the United States, and the code version in place can vary widely across the U.S., as can the process for adoption. Updating model codes every three years is optimal to ensure new technologies, materials, and methods can be incorporated into the next generation of buildings to help us build better, smarter buildings as cost effectively as possible.

Build critical facilities to the highest standards. Stipulate that critical facilities – those needed to remain operational during and after a hazard event – that receive federal funding must be retrofitted or developed to the best available building standards for the hazards the community faces.

Climate Information Support

12. Our understanding and response to the climate crisis has relied on U.S. climate observations, monitoring and research, including regular assessment reports such as the National Climate Assessment. What policies should Congress adopt to maintain and expand these efforts in order to support solutions to the climate crisis and provide decisionmakers – and the American people - with the information they need? Where possible, recommend the scale of investment needed to achieve results.

Fund relevant research. Encourage federal science agencies to coordinate on development of a national climate change mitigation and adaptation science agenda that identifies the highest priority research needs across sectors of the federal government. Establish funding streams to support:

- Development of protocols and methods for valuing ecosystem services.

- Funding climate adaptation pilot projects on federal lands and waters.
- Development of federal programs to coordinate and integrate monitoring of land and water metrics such as water temperature, stream flow, ground cover, percent burned, etc.
- Development of crops and irrigation water management systems that use water more efficiently.
- Reliable research on carbon sequestration and GHG emissions for the Pacific Northwest agriculture (little work has been done to characterize climate benefits from different pasture and range management practices).
- Expanding and implementing monitoring to track biological responses to ocean acidification and hypoxia, to inform natural resource decisions and management activities.
- Establishing priorities for research, monitoring, and analysis to identify types and sources of water pollutants that amplify or exacerbate ocean acidification and hypoxia, characterize their relative contributions in coastal watersheds and marine and estuarine waters, and inform development of strategies to facilitate reductions.

Fund “natural sinks” research. Increase federal investment into the research and monitoring of the role of “natural sinks,” such as forests and soils, to absorb carbon dioxide. Similarly, as natural resources decline, more federal research and monitoring is needed to ensure the preservation of remaining natural areas and/or making them more resilient.

Support ocean conditions research. Improve the regularity and frequency of ocean observations to allow states and communities to monitor, mitigate, and adapt to changing ocean conditions. There is not enough information about the ocean water quality conditions (e.g., extent, duration, and frequency) to monitor and respond to changing ocean conditions, which are crucial to the resilience of human communities depending upon ocean resources.

Create a National Climate Service. A National Climate Service (NCS) would provide climate science to decision-makers, build capacity to plan for climate fluctuations and change, and ideally also frame climate research questions to meet pressing needs. While the U.S. Climate Resilience Toolkit is a valuable clearinghouse of tools and case studies, a true service would include the human element. Regional offices would provide regionally knowledgeable experts and toolkits tailored to regional needs. To build capacity, the NCS would provide informal education on global and regional climate science and training in the most useful tools, and would also adapt its efforts (in training, tool development, etc.) to reflect feedback from users. Various structures for such a service are possible, either entirely within a single federal agency or as a federal interagency partnership that would include existing federal assets such as the NOAA Regional Integrated Science and Assessments network and the U.S. Department of the Interior Climate Adaptation Science Centers, as well as the State Climate Offices of the 50 states and some territories.

International

13. The climate crisis requires a global response. U.S. leadership is critical for successful global solutions. What policies should Congress adopt to support international action on the climate crisis?

Oregon is a member of the U.S. Climate Alliance and made the following commitments, which could also be commitments of the United States government:

- Implement policies that advance the goals of the Paris Agreement, aiming to reduce greenhouse gas emissions by at least 26-28 percent below 2005 levels by 2025.
- Track and report progress to the global community in appropriate settings, including when the world convenes to take stock of the Paris Agreement.
- Accelerate new and existing policies to reduce carbon pollution and promote clean energy deployment at the state and federal level.

Oregon is also a member of the International Alliance to Combat Ocean Acidification, which brings together governments and organizations across the globe dedicated to taking action to protect coastal communities and livelihoods from the threat of ocean acidification. The United States government should join Oregon in committing to:

- Supporting governments to take meaningful actions to address changing ocean conditions.
- Advocating for inclusion of strong ocean protection provisions in international climate agreements and other relevant frameworks.
- Creating a coalition of governments and partners to elevate the visibility and importance of ocean acidification in public discourse and policy development.

Re-join the Paris Agreement. Oregon is a relatively small state when it comes to GHG emissions but is committed to doing its part to mitigate climate change. Climate change is a global challenge and needs to be addressed at a global scale. Oregon supports international cooperation to address the climate crisis and would encourage the Federal government to reengage with other countries to make progress in meeting the challenge.