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Reducing Oregon’s Greenhouse Gas Emissions: Prioritizing Hydropower and Energy Equity for All Oregonians

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INTRODUCTION

Oregon created some of the most ambitious carbon-neutral goals of any state in the country.¹ However, Oregon failed to achieve meaningful results in curbing greenhouse gas emissions.² In 2007, the Oregon legislature passed House Bill 3543 (H.B. 3543), which set greenhouse gas emissions reduction targets at 10% below 1990 levels by 2020 and 75% below 1990 levels by 2050.³ Nevertheless, Oregon's greenhouse gas emissions increased for the past decade.⁴

In 2019, Governor Kate Brown addressed Oregon's failed climate change policy and issued Executive Order 20-04, which created a carbon cap program that targeted emissions from fossil fuels used in most of Oregon's nonelectricity sectors, including transportation, residential, commercial, and industrial.⁵ Additionally, in 2021, the Oregon state legislature passed the Clean Energy Targets Act, which targeted energy sources used in the electricity sector.⁶ Executive Order 20-04 promised a 50% reduction in carbon emissions from transportation fuels by 2035 and a 90% reduction by 2050.⁷ The Clean Energy Targets Act promised that 100% of electricity production

¹ See *U.S. State Greenhouse Gas Emissions Targets*, CTR. FOR CLIMATE & ENERGY SOLS. (Aug. 2022), <https://www.c2es.org/document/greenhouse-gas-emissions-targets/> [<https://perma.cc/Y53Y-4VBJ>].

² Greenhouse gas emissions initially decreased after their peak in 2000 but have been on the rise since 2014. See OR. GLOB. WARMING COMM'N, BIENNIAL REPORT TO THE OREGON LEGISLATURE 11 (2020) [hereinafter OREGON WARMING REPORT] (a comprehensive governmental review of Oregon's environmental policy since 2007), <https://static1.squarespace.com/static/59c554e0f09ca40655ea6eb0/t/5fe137fac70e3835b6e8f58e/1608595458463/2020-OGWC-Biennial-Report-Legislature.pdf> [<https://perma.cc/Q2MW-Y2ZA>].

³ H.R. 3543, 74th Leg., Reg. Sess. (Or. 2007).

⁴ See OREGON WARMING REPORT, *supra* note 2.

⁵ Governor Brown's Executive Order 20-04 generally did not target electricity production. See OR. DEPT. OF ENERGY, OREGON'S ELECTRICITY RESOURCE MIX DASHBOARD FREQUENTLY ASKED QUESTIONS 3–4 (2022) (Executive Order 20-04 created the Climate Protection Program (CPP)), <https://www.oregon.gov/energy/energy-oregon/Documents/2022-06-13-ERM-Visual-FAQ.pdf> [<https://perma.cc/B9DF-H8H3>].

⁶ Contrary to Executive Order 20-04, the Clean Energy Targets Act of 2021 had the legislative authority to legally target sources of energy for electricity production. See H.R. 2021, 81st Leg., Reg. Sess. (Or. 2021).

⁷ Executive Order 20-04 primarily targeted carbon emissions from the transportation sector, with the goal to reduce transportation emissions by 90% by the year 2050. See OR. DEPT. OF ENV'T QUALITY, CLIMATE PROTECTION PROGRAM: PROGRAM BRIEF 3 (2021) (a summary of CPP's rules), <https://www.oregon.gov/deq/ghgp/Documents/CPP-Overview.pdf> [<https://perma.cc/2N5R-HCF5>].

would come from carbon-free sources by 2040.⁸ However, neither Governor Kate Brown nor the state legislature created a viable plan to achieve these goals.⁹ The Oregon Global Warming Commission declared in the 2020 Biennial Report to the Oregon legislature that Oregon “will miss the 2035 and the 2050 goals set forth in Governor Brown’s Executive Order 20-04 by 23 and 54 million metric tons [of carbon dioxide equivalent (CO₂e)] respectively.”¹⁰ This Comment’s thesis states that Oregon’s policies on climate change will continue to have two effects. First, the policies will likely not reduce greenhouse gas emissions, ruling the policies ineffective. Second, the policies will increase energy costs with inequitable effects on communities of color, rural communities, and the unhoused population of Oregon.

Part I of this Comment discusses anthropogenic climate change, the politics of climate change, and the effects of climate change in Oregon. Part II of this Comment examines how Oregon’s political leaders have addressed the state’s energy production sources. Part III of this Comment generally examines carbon cap policies and reviews the efficacy of Oregon’s attempts at specific carbon cap policies. Part IV of this Comment assesses the equity of Oregon’s carbon neutrality goals on low- and middle-income families. Lastly, this Comment’s Conclusion recommends that Oregon’s leaders fully utilize the state’s abundant hydropower capabilities and pass a carbon tax with a dividend to offset higher energy prices for Oregon’s most economically vulnerable populations.

I

ANTHROPOGENIC CLIMATE CHANGE

The majority of Americans agree that climate change is real and anthropogenic (caused by human activity).¹¹ However, this consensus

⁸ The Clean Energy Act of 2021 primarily affected the electricity production sector with the intent of converting all sources of electricity production to 100% carbon-free sources by 2040. *See* Or. H.R. 2021.

⁹ The Clean Energy Act of 2021 is riddled with contradictions to Oregon’s general climate policy and has little likelihood of being successful without modification. *See* Ted Sickinger, *Oregon Has an Uphill Battle to Achieving 2040 Climate Goals*, GOVERNING (July 21, 2021), <https://www.governing.com/next/oregon-has-an-uphill-battle-to-achieving-2040-climate-goals> [<https://perma.cc/5VLF-GLTD>].

¹⁰ Executive Order 20-04 is almost entirely useless at reducing carbon emissions. *See* OREGON WARMING REPORT, *supra* note 2, at 1 (fig.1 illustrates these projections).

¹¹ *See* Alec Tyson & Brian Kennedy, *Two-Thirds of Americans Think Government Should Do More on Climate*, PEW RSCH. CTR. (June 23, 2020), <https://www.pewresearch>

is a recent sea change in public opinion. Before the 1990s, most Americans had never heard the phrases “climate change” or “global warming.”¹² Additionally, as soon as the public became familiar with climate change science, the fossil fuel industry launched a campaign to discredit it.¹³ This campaign successfully turned many in the public toward climate change denialism, creating lasting headwinds against passing climate change legislation for decades. While climate change denialism is prevalent in Oregon, Oregonians are ever increasingly faced with the effects of climate change.

A. Mankind's Greatest Threat

The idea of global warming first made headlines in 1988 when National Aeronautics and Space Administration (NASA) scientist Dr. James E. Hansen testified before the United States Senate that the human race was causing a “greenhouse effect” by releasing carbon dioxide into the atmosphere, measurably heating the climate.¹⁴ While that testimony may have been novel then, the scientific community soon agreed.¹⁵ The science and technology magazine *American Scientist* stated that a “2005 analysis by Naomi Oreskes of refereed journal articles published between 1993 and 2003 identified 928 articles about climate change, not one of which took exception to the consensus that human release of greenhouse gases is causing climate change.”¹⁶ Anthropogenic climate change is one of the most agreed-upon topics in the scientific community, where nearly 100% of all peer-

.org/science/2020/06/23/two-thirds-of-americans-think-government-should-do-more-on-climate/ [https://perma.cc/QM4A-83HX].

¹² See Erik Conway, *What's in a Name? Global Warming vs. Climate Change*, NAT'L AERONAUTICS AND SPACE ADMIN. (Dec. 5, 2008), https://www.nasa.gov/topics/earth/features/climate_by_any_other_name.html [https://perma.cc/YZ53-U56R].

¹³ The campaign to discredit climate change science was very effective. See Diego Rojas, *The Climate Denial Machine: How the Fossil Fuel Industry Blocks Climate Action*, CLIMATE REALITY PROJECT (Sept. 5, 2019), <https://www.climateactproject.org/blog/climate-denial-machine-how-fossil-fuel-industry-blocks-climate-action> [https://perma.cc/DP8H-GETT]. However, the fossil fuel industry has flipped on its approach to climate change science and now largely supports it, seeing it as an investment vehicle. See James Murray, *How the Six Major Oil Companies Have Invested in Renewable Energy Projects*, NS ENERGY (Jan. 16, 2020), <https://www.nsenergybusiness.com/features/oil-companies-renewable-energy/> [https://perma.cc/ERR6-3ZZE].

¹⁴ Philip Shabecoff, *Global Warming Has Begun, Expert Tells Senate*, N.Y. TIMES, June 24, 1988, at 2.

¹⁵ See Dimitri Zenghelis, *Science Fact, Climate Fiction—Clarifying the Debate*, AM. SCIENTIST (2010), <https://www.americanscientist.org/article/science-fact-climate-fiction--clarifying-the-debate> [https://perma.cc/D4W4-VTYU].

¹⁶ *Id.*

reviewed studies on climate change concur that humans are the primary cause of global warming.¹⁷ Additionally, all United States government agencies that review anthropogenic climate change agree that humans are the primary cause of global warming, including the National Oceanic and Atmospheric Administration (NOAA), NASA, National Science Foundation, National Research Council, and Environmental Protection Agency.¹⁸

The scientific community concludes that anthropogenic climate change is the single greatest threat to the human race.¹⁹ As Earth's temperature continues to rise, global warming will continue to cause a cascade of climate change effects, including the severity of hurricanes²⁰ and wildfires,²¹ sea levels resulting in coastal flooding,²² and increased air and water pollution.²³ Sea levels along the United States coastline have already begun to rise, as NOAA projects that they will rise another two feet this century.²⁴ This will result in significant flooding along the coastal populations of New York,

¹⁷ See Mark Lynas et al., *Greater than 99% Consensus on Human Caused Climate Change in the Peer-Reviewed Scientific Literature*, 16 ENV'T RSCH. LETTERS 4 (2021), <https://iopscience.iop.org/article/10.1088/1748-9326/ac2966> [<https://perma.cc/2MZK-2E7R>].

¹⁸ See David Herring, *Isn't There a Lot of Disagreement Among Climate Scientists About Global Warming?*, NAT'L OCEANIC & ATMOSPHERIC ADMIN. (Feb. 3, 2020), <https://www.climate.gov/news-features/climate-qa/isnt-there-lot-disagreement-among-climate-scientists-about-global-warming> [<https://perma.cc/C3YB-V5M2>].

¹⁹ For a very in-depth report that frames this assertion well and with specific data, see generally INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, *GLOBAL WARMING OF 1.5°C* (2019) (illustrating the multitude of threats that climate change poses against the human race), <https://www.ipcc.ch/sr15/> [<https://perma.cc/F8RF-KE2H>].

²⁰ Nam-Young Kang & James B. Elsner, *Trade-Off Between Intensity and Frequency of Global Tropical Cyclones*, 5 NATURE CLIMATE CHANGE 661, 661–63 (2015), <https://www.nature.com/articles/nclimate2646> [<https://perma.cc/YP63-FXHW>].

²¹ The number of wildfires has not markedly increased, rather the severity of wildfires has dramatically increased. See Andrew Moore, *Climate Change Is Making Wildfires Worse – Here's How*, N.C. STATE UNIV. (Aug. 29, 2022), <https://cnr.ncsu.edu/news/2022/08/climate-change-wildfires-explained/> [<https://perma.cc/ZS6Q-EVGV>].

²² See *Climate Change Indicators: Coastal Flooding*, U.S. ENV'T PROT. AGENCY (Apr. 2021), <https://www.epa.gov/climate-indicators/climate-change-indicators-coastal-flooding> [<https://perma.cc/W9U5-XB5E>].

²³ See U.S. GLOB. CHANGE RSCH. PROGRAM, *THE IMPACTS OF CLIMATE CHANGE ON HUMAN HEALTH* 70, 158 (2016), <https://health2016.globalchange.gov/> [<https://perma.cc/SYA8-AS6Z>].

²⁴ See NAT'L OCEANIC AND ATMOSPHERIC ADMIN., *GLOBAL AND REGIONAL SEA LEVEL RISE SCENARIOS FOR THE UNITED STATES* xiii (2022), https://tidesandcurrents.noaa.gov/publications/techrpt83_Global_and_Regional_SLR_Scenarios_for_the_US_final.pdf [<https://perma.cc/43SU-REYV>].

Florida, California, Washington, Texas, Louisiana, and Oregon, to name a few states.²⁵ In response, NOAA has created a digital tool to see which population centers will be underwater in the next few decades (<https://coast.noaa.gov/slr/>).²⁶ However, these projections underestimate how quickly coastal areas can flood; global warming exacerbates unforeseen weather events, both natural and manmade.²⁷ On September 12, 2022, over one-third of the nation of Pakistan was underwater²⁸ due largely to the flooding from monsoon rains made more severe by global warming.²⁹ Scientists estimate that 83 million humans will be killed by climate change by 2100.³⁰

B. Climate Change Denialism

According to recent polling data, 57% of Americans believe climate change is anthropogenic.³¹ However, this is a recent shift in public opinion. In 2008, polls suggested that most Americans did not believe in anthropogenic climate change.³² Despite the general population's progress toward evidence-based thinking, the data shows that the American public is still far behind the scientific community. For

²⁵ Many more states than the few mentioned here will be flooded as climate change progresses. See *Sea Level Rise Viewer*, NAT'L OCEANIC AND ATMOSPHERIC ADMIN., <https://coast.noaa.gov/slr/> (last visited Dec. 22, 2022) [<https://perma.cc/9JAY-8RBQ>].

²⁶ *Id.*

²⁷ There are many factors with climate change, which could mean that its worst effects will occur far sooner than scientific consensus has been predicting. See Naomi Oreskes et al., *Scientists Have Been Underestimating the Pace of Climate Change*, SCI. AM.: OBSERVATIONS (Aug. 19, 2019), <https://blogs.scientificamerican.com/observations/scientists-have-been-underestimating-the-pace-of-climate-change/> [<https://perma.cc/7WFL-MBQ7>].

²⁸ As an example of the assertion in note 27 (the scientific community was not predicting that Pakistan would be severely flooded by the year 2022). See Hadia A. Sheerazi, *The Flood Seen from Space: Pakistan's Apocalyptic Crisis*, COLUMBIA CLIMATE SCH. (Sept. 12, 2022), <https://news.climate.columbia.edu/2022/09/12/the-flood-seen-from-space-pakistans-apocalyptic-crisis/> [<https://perma.cc/8G75-RBM5>].

²⁹ For more evidence supporting the assertion in note 27, see Chelsea Harvey, *Climate Change Likely Worsened Pakistan's Devastating Floods*, SCI. AM. (Sept. 16, 2022), <https://www.scientificamerican.com/article/climate-change-likely-worsened-pakistans-devastating-floods/> [<https://perma.cc/X2JC-FD5A>].

³⁰ See R. Daniel Bressler, *The Mortality Cost of Carbon*, NATURE COMM'NS 5 (2021), <https://news.gallup.com/poll/117772/awareness-opinions-global-warming-vary-worldwide.aspx> [<https://perma.cc/VZ3Z-BDPV>].

³¹ See Jennifer Marlon et al., *Yale Climate Opinion Maps 2021*, YALE PROGRAM ON CLIMATE CHANGE COMM'N (Feb. 23, 2022), <https://climatecommunication.yale.edu/visualizations-data/ycom-us/> [<https://perma.cc/Z88L-L58N>].

³² See Brett Pelham, *Awareness, Opinions About Global Warming Vary Worldwide*, GALLUP (2009), <https://news.gallup.com/poll/117772/Awareness-Opinions-Global-Warming-Vary-Worldwide.aspx> [<https://perma.cc/9E64-GYC2>].

decades, nearly 100% of climate change scientists have stated that climate change is anthropogenic.³³ But, there is a disparity between the scientific community and those in the general public who deny climate change. Climate change denialism is largely attributed to right-wing populism, which has a general distrust of scientific knowledge and higher education.³⁴ For example, demographic groups that deny anthropogenic climate change also deny the necessity of COVID-19 vaccinations.³⁵ Climate change denialism originated from a decades-long specious campaign by the fossil fuel industry, using conservative think tanks and lobbying efforts to discredit climate change science.³⁶ Ironically, the same fossil fuel companies that once endeavored to discredit climate change science now heavily invest in green technology.³⁷ Additionally, the chief executive officers of the nation's largest fossil fuel companies now publicly acknowledge that climate change is real and anthropogenic.³⁸ However, the ripple effects of the fossil fuel industry's decades-long campaign to discredit climate change science still affect the thinking of a large portion of the American public and their elected representatives.

C. Climate Change in Oregon

Oregonians believe in the realities of climate change at a rate higher than the average American. According to recent polling data, 97% of

³³ See Lynas et al., *supra* note 17, at 2.

³⁴ Right-wing populism generally distrusts most science, not just climate change science. The denial of climate change science is also strongly associated with anti-elitist attitudes and opposition to immigration. However, the more formal education an individual receives, the less likely they are to believe in climate change denialism. See Olve Krange et al., "Don't Confuse Me with Facts"—How Right Wing Populism Affects Trust in Agencies Advocating Anthropogenic Climate Change as a Reality, *NATURE HUMANS. AND SOC. SCIS. COMMUN.* 5. (2021), <https://www.nature.com/articles/s41599-021-00930-7> [<https://perma.cc/XNN7-CJJT>].

³⁵ See *id.* at 2.

³⁶ See Peter J. Jacques, *The Organization of Denial: Conservative Think Tanks and Environmental Skepticism*, 17 *ENV'T POL'Y* 349, 357 (May 20, 2008), <https://www.tandfonline.com/doi/full/10.1080/09644010802055576> [<https://perma.cc/539Y-YV5V>].

³⁷ The fossil fuel industry is now in the forefront of climate change innovation, investing billions of dollars a year into green energy technology, which has become a very profitable industry that projects hypergrowth in the coming decades. See Murray, *supra* note 13, and accompanying text.

³⁸ See *At Historic Hearing, Fossil Fuel Executives Admit Climate Crisis Is an "Urgent" Threat*, HOUSE COMM. ON OVERSIGHT & REFORM (Oct. 28, 2021), <https://oversight.house.gov/news/press-releases/at-historic-hearing-fossil-fuel-executives-admit-climate-crisis-is-an-urgent> [<https://perma.cc/AFA7-CUW>].

Oregon Democrats and 64% of Oregon Republicans believe climate change is a problem.³⁹ Oregon Democratic and Republican voters are much closer on this issue compared with the rest of the country, where only 53% of Republicans believe that global warming is real.⁴⁰ In a state nicknamed “The Beaver State,” where the most popular personalized vehicle license plate is the Smokey Bear plate,⁴¹ it should not be surprising that Oregon voters are relatively aligned on the issues of climate change and conservation.⁴²

Oregonians are consistently witnessing several effects of climate change. Such effects include wildfire smoke prevalent for months every year,⁴³ a statewide infestation of bark beetles that has killed millions of trees,⁴⁴ and record heat and drought that has severely affected Oregon’s agriculture industry.⁴⁵ Nevertheless, Oregonians still heavily contribute to carbon pollution, primarily through vehicle and electricity emissions.

³⁹ See Kate Williams, *Oregonians from Both Parties Agree Climate Change Is a Problem but Say Wrong Measures Being Taken to Address It*, OREGONIAN (Sept. 29, 2020), <https://www.oregonlive.com/environment/2020/09/oregonians-from-both-parties-agree-climate-change-is-a-problem-but-say-wrong-measures-being-taken-to-address-it.html> [<https://perma.cc/Z2GA-PKHZ>].

⁴⁰ See Matto Mildemberger et al., *The Spatial Distribution of Republican and Democratic Climate Opinions at State and Local Levels*, 145 CLIMATE CHANGE 539, 543 (2017), <https://link.springer.com/article/10.1007/s10584-017-2103-0> [<https://perma.cc/X8D5-XCWP>].

⁴¹ See Amanda Arden, *Pay for a Special Oregon License Plate? Here’s Where the Money Is Going*, KOIN (Nov. 16, 2021, 7:09 AM), <https://www.koin.com/news/special-reports/pay-for-a-special-oregon-license-plate-heres-where-the-money-is-going/> [<https://perma.cc/Q23A-CJNM>].

⁴² See Allynn McInerney, *Poll Shows Bipartisan Support in Oregon’s Fifth Congressional District*, NATURE CONSERVANCY (Nov. 1, 2021), <https://www.nature.org/en-us/newsroom/or-bipartisan-poll-support/> [<https://perma.cc/X4AL-UF6P>].

⁴³ See Lauren Dake, *Oregonians Are United in Concerns About Wildfires, Poll Finds*, OPB (July 4, 2022, 5:00 AM), <https://www.opb.org/article/2022/07/04/poll-oregonians-united-in-concerns-about-wildfires/> [<https://perma.cc/6LN9-V4NN>].

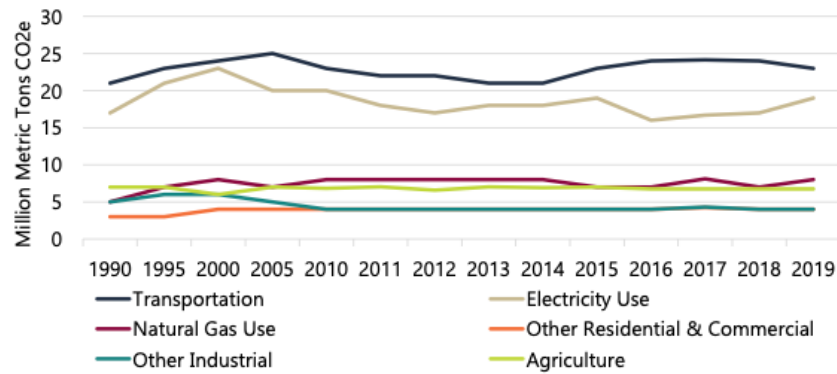
⁴⁴ See KGW Staff, *Trees Killed by Bark Beetles Helping Fuel Wildfires*, KGW (July 21, 2021, 3:28 PM), <https://www.kgw.com/article/news/local/wildfire/trees-killed-by-beetles-helping-fuel-wildfires/283-d27a4a13-f8b3-4ebb-8fe8-2ce9ab90cd14#:~:text=Bark%20beetles%20have%20killed%20millions,to%20burn%20through%20dead%20wood.&text=PORTLAND%2C%20Ore.,massive%20wildfire%20in%20Southern%20Oregon> [<https://perma.cc/TG77-4LCY>].

⁴⁵ See Amanda Waldroupe, *Hotter, Drier, and Less Predictable*, OR. HUMANS. (Dec. 15, 2021), <https://www.oregonhumanities.org/rll/magazine/beyond-fallwinter-2021/hotter-drier-and-less-predictable/> [<https://perma.cc/M2X5-CSGV>].

1. Oregonians' Contributions to Climate Change

As of 2019, Oregonians emit 64 million metric tons of CO₂e annually.⁴⁶ Oregon's level of CO₂e emissions is slightly below the national average in the United States.⁴⁷ However, that is a relatively poor statistic, considering the United States is the second most carbon-polluting nation in the world.⁴⁸ Compared with other nations, the State of Oregon produces more CO₂e than the individual output of over ninety-four countries.⁴⁹ Oregon's emissions primarily come from six sectors: transportation, electricity use, natural gas, residential and commercial, industrial, and agricultural.⁵⁰ (See Figure 1.) But the vast majority of all CO₂e emissions in Oregon come from just two sectors: transportation and electricity use⁵¹ (the latter being the focus of this Comment). These two sectors produce nearly 70% of Oregon's total CO₂e.⁵²

Figure 1. Oregon's CO₂e Emissions By Sector⁵³



⁴⁶ OREGON WARMING REPORT, *supra* note 2, at 12.

⁴⁷ See generally U.S. ENERGY INFO. ADMIN., ENERGY-RELATED CARBON DIOXIDE EMISSIONS BY STATE, 2005-2016 (Feb. 27, 2019), <https://www.eia.gov/environment/emissions/state/analysis/> [<https://perma.cc/DR88-ZPG6>].

⁴⁸ See *CO₂ Emissions by Country*, WORLDOMETER, <https://www.worldometers.info/co2-emissions/co2-emissions-by-country/> (last visited Dec. 22, 2022) [<https://perma.cc/2GKX-V68M>].

⁴⁹ See *Each Country's Share of CO₂ Emissions*, UNION OF CONCERNED SCIENTISTS (July 16, 2008), <https://www.ucsusa.org/resources/each-countrys-share-co2-emissions> [<https://perma.cc/68QM-GGXW>].

⁵⁰ OREGON WARMING REPORT, *supra* note 2, at 12.

⁵¹ *Id.* at 12 fig.3.

⁵² See *id.*

⁵³ *Id.* at 12 fig.5.

Oregon has made great strides in addressing carbon emissions from the transportation sector by adopting electric vehicles and building charging stations across the state.⁵⁴ Oregon is ranked fourth in the nation for the highest number of electric vehicles per capita.⁵⁵ The state accomplished this, in part, through its generous direct cash rebate of up to \$7,500 for an electric vehicle purchase (the highest electric vehicle rebate in the nation).⁵⁶ Additionally, in December 2022, Oregon banned the sale of fossil-fuel-powered vehicles starting in 2035.⁵⁷ But, Oregon's power grid cannot support an all-electric transportation sector.⁵⁸ Even if Oregon established a sufficient power grid infrastructure, the reduction in emissions, made by switching to an all-electric transportation sector, would be offset by nearly half of Oregon's electricity production that comes from fossil fuels.⁵⁹ Therefore, while the state is working quickly to reduce emissions from the transportation sector, it is not doing enough to reduce emissions from electricity production.

2. *How Climate Change Has Affected Oregon*

Oregonians face several climate change effects, including wildfires, drought, and bark beetles. These effects have affected the economy and well-being of the population. The 2020 wildfire season destroyed 4,000

⁵⁴ See generally *TransAtlas*, U.S. DEPT. OF ENERGY (2022) (stating that Oregon's electric vehicle adoption per capita is higher than most of the country), https://afdc.energy.gov/transatlas/#/?view=per_capita [<https://perma.cc/2EUH-VPRQ>].

⁵⁵ See *id.*

⁵⁶ In 2021, Oregon increased its electric vehicle cash rebate. The rebate changed from \$2,500 for all Oregonians, plus another \$2,500 for low- and middle-incomes, to \$2,500 for all Oregonians, plus \$5,000 for low- and middle-incomes. See Chantel Wakefield, *Electric Car Rebates and Incentives: What to Know by State*, KELLEY BLUE BOOK (Sept. 1, 2023, 12:00 PM), <https://www.kbb.com/car-advice/electric-vehicle-rebates-by-state/> [<https://perma.cc/VX4Y-RE3B>].

⁵⁷ Oregon committed to phasing out combustion-engine vehicles and investing \$100 million in electric vehicle charging stations. See *Advanced Clean Cars II*, STATE OF OR. DEPT. OF ENV'T QUALITY (Dec. 19, 2022), <https://www.oregon.gov/deq/rulemaking/pages/cleancarsii.aspx#:~:text=Adopted%20rule&text=It%20will%20require%20auto%20manufacturers,have%20the%20cleanest%20emissions%20possible> [<https://perma.cc/9347-EQXU>].

⁵⁸ See OR. DEP'T. OF ENERGY, BIENNIAL ZERO EMISSION VEHICLE REPORT 125 (2021), <https://www.oregon.gov/energy/Data-and-Reports/Documents/2021-Biennial-Zero-Emission-Vehicle-Report.pdf> [<https://perma.cc/MWX4-3TD9>].

⁵⁹ Half of Oregon's electricity production comes from burning coal and natural gas. See *Electricity Mix in Oregon*, OR. DEP'T OF ENERGY (2022), <https://www.oregon.gov/energy/energy-oregon/pages/electricity-mix-in-oregon.aspx> [<https://perma.cc/LA39-QH2H>].

homes, killed nine people,⁶⁰ and cost over \$354 million in firefighting costs.⁶¹ Two primary manmade causes are responsible for Oregon's extreme wildfires. First, forest fire prevention efforts combined with a lack of prescriptive or controlled burns have created an unnatural buildup of forest fire fuels.⁶² Second, CO₂e emissions have increased the state's temperature by 2.5°F,⁶³ which has subsequently decreased snowpacks by up to 30%,⁶⁴ causing severe drought and forest dryness.⁶⁵ According to Professor Larry O'Neill of the College of Earth, Ocean, and Atmospheric Sciences at Oregon State University, "As the climate warms, the atmosphere will have a larger capacity to pull moisture from soils and forest vegetation . . . which will increase the severity of droughts and dryness of potential fire fuels."⁶⁶ The combination of an unnaturally dry forest and an unnatural buildup of forest fire fuels has created the worst forest fires in Oregon's history.⁶⁷

Drought and heat caused by climate change are also affecting Oregon's agricultural industry. Agriculture is vital to Oregon's economy, contributing fifty billion dollars a year and employing 13.5%

⁶⁰ The 2020 wildfire season was the most severe and destructive season in Oregon's known history. See Alex Hasenstab, *Lessons Learned from 2020 Helped Oregon Avoid Another Fire Disaster*, OPB (Sept. 12, 2022, 6:17 PM), <https://www.opb.org/article/2022/09/12/oregon-wildfire-management-prevention-emergency-management/> [https://perma.cc/5W2T-NNFP].

⁶¹ OREGON WARMING REPORT, *supra* note 2, at 8.

⁶² See Matt Cooper, *UO Experts: Wildfires Across Oregon Herald One Possible Future*, UNIV. OF OR. (Sept. 11, 2020, 5:00 AM), <https://around.uoregon.edu/content/uo-experts-wildfires-across-oregon-herald-one-possible-future> [https://perma.cc/69XZ-BVFZ].

⁶³ See NAT'L OCEANIC & ATMOSPHERIC ADMIN. NAT'L CTRS. FOR ENV'T INFO., STATE CLIMATE SUMMARIES (2022), <https://statesummaries.ncics.org/chapter/or/#:~:text=Temperatures%20in%20Oregon%20have%20risen,below%20average%20during%20recent%20years> [https://perma.cc/GBE9-62EN].

⁶⁴ Record high temperatures in Oregon have reduced snowpack levels, which are needed to adequately hydrate forests. Thus, forests in Oregon are dryer than ever and more prone to severe wildfires. See Philip W. Mote et al., *Dramatic Declines in Snowpack in the Western U.S.*, NPJ CLIMATE AND ATMOSPHERIC SCI. (Mar. 2, 2018), <https://www.nature.com/articles/s41612-018-0012-1> [https://perma.cc/6J5G-DX8M].

⁶⁵ See Michelle Klampe, *Unprecedented Combination of Weather and Drought Conditions Fueled Oregon's September Wildfires*, OR. STATE UNIV. (Apr. 26, 2021), <https://today.oregonstate.edu/news/unprecedented-combination-weather-and-drought-conditions-fueled-oregon%E2%80%99s-september-wildfires> [https://perma.cc/8HQC-Z27R].

⁶⁶ *Id.*

⁶⁷ See David Mann, *Bootleg Fire Now Third-Largest Wildfire in Oregon History*, KGW (July 23, 2021, 8:59 AM), <https://www.kgw.com/article/news/local/wildfire/lightning-caused-bootleg-fire/283-50ce8ff5-5d60-4933-9416-30b197ce725e> [https://perma.cc/LJ74-36ZM].

of the state's workforce.⁶⁸ Due to climate change, most farms across Oregon face severe heat annually.⁶⁹ These recent and consistent heatwaves have resulted in prolonged drought and changing growing seasons.⁷⁰ In 2020, wildfire smoke destroyed up to 85% of vineyard grape crops.⁷¹ Additionally, vineyards in Oregon are switching from growing Pinot Noir grapes, which have thrived in Oregon's cooler climate since 1961, to grape varieties more resilient to hotter conditions.⁷² In 2021, record heat caused some Oregon berry farmers to lose up to 50% of their crop.⁷³ The consistent trend toward hotter conditions, created by climate change, is forcing many Oregon farmers to turn to more heat-resilient crops, like olives. Moreover, other farmers are turning to alternative farming methods, like dry farming, that can survive severe heat.⁷⁴ Higher temperatures affect not only vegetation but also cows. Higher temperatures cause cows to eat less, grow slowly, and produce less milk.⁷⁵ This is a grave concern, as dairy is the fourth largest commodity produced in Oregon. As of 2022, dairy farms are in twenty-one of the thirty-six counties.⁷⁶

Climate change has also created a bark beetle infestation that has killed millions of trees;⁷⁷ fields of dead, gray trees⁷⁸ mark the Oregon

⁶⁸ OR. DEP'T OF AGRIC., EXECUTIVE ORDER 20-04 CLIMATE REPORT 3 (June 1, 2020), <https://www.oregon.gov/oda/shared/Documents/Publications/Administration/ODAE0-20-04Report.pdf> [<https://perma.cc/5NDP-VUQH>].

⁶⁹ See Waldroupe, *supra* note 45.

⁷⁰ See *id.*

⁷¹ Climate change in Oregon has affected grape crops in several ways, including creating a hotter climate no longer conducive to cooler climate grapes, like Pinot Noir; a drought that has dried out soil used to grow grapes; and wildfires that create smoke, which damages grapes. See *id.*

⁷² See Joseph Shaughnessy, *Oregon Grape Varieties: How Climate Change Is Pushing Pinot to the Past*, SOMM TV (Mar. 2, 2022), <https://mag.sommtv.com/2022/03/oregon-grape-varieties/> [<https://perma.cc/9CRT-C38F>].

⁷³ See Waldroupe, *supra* note 45.

⁷⁴ Dry farming can be used as a solution to drought but requires that fewer crops be planted to save water. See *id.*

⁷⁵ U.S. ENV'T PROT. AGENCY, WHAT CLIMATE CHANGE MEANS FOR OREGON (2016), <https://19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climate-change-or.pdf> [<https://perma.cc/2NKP-U3KQ>].

⁷⁶ OR. DAIRY & NUTRITION COUNCIL, OREGON DAIRY INDUSTRY FACTS AND FIGURES, https://odncouncildotorg.files.wordpress.com/2016/09/oregon-dairy-industry-fact-sheet_08_17.pdf (last visited Dec. 23, 2022) [<https://perma.cc/SXM2-AT7C>].

⁷⁷ See Christopher J. Fettig, *Bark Beetle and Fire Interactions in Western Coniferous Forests: Research Findings*, 79 FIRE MGMT. TODAY 14, 15 (2021), https://www.fs.usda.gov/psw/publications/fettig/psw_2021_fettig006.pdf [<https://perma.cc/N84J-F6ZK>].

⁷⁸ It is easy to find fields of dead, gray trees, killed by bark beetles, most anywhere in Oregon and is a common sight for those who live in the state. See Matthew Brown,

landscape.⁷⁹ Sap is one of nature's best defenses against bark beetles.⁸⁰ When beetles burrow into the bark, trees release sap, which is rich with chemicals that are toxic to bark beetles.⁸¹ The chronic drought in Oregon has prevented trees from producing appropriate levels of sap, resulting in a bark beetle infestation across the state.⁸² As of 2021, the single greatest natural killer of trees in Oregon is bark beetles.⁸³ Additionally, the trees that bark beetles kill make for prime wildfire fuel.⁸⁴

II

OREGON ADDRESSES CLIMATE CHANGE

In 2007, Oregon began to address its CO₂e levels through a patchwork of legislation that had little effect on curbing CO₂e emissions.⁸⁵ The legislature kicked off the state's climate change policy through two bills in 2007, which created Oregon's Renewable Portfolio Standard (RPS) and Oregon's greenhouse gas emissions reduction targets. In 2016, the legislature passed a third bill addressing carbon emissions by beefing up the RPS and addressing the state's coal use in electricity generation. These three bills, from the 2007 and 2016 legislative sessions, primarily addressed the state's use of dirty energy sources in electricity production. These three bills, however, largely prevented the state from using hydropower, the state's most abundant source of clean energy, and subsequently did little to reduce carbon output. Instead of addressing this failure by amending the bills to increase hydropower production, Democrats in the legislature tried to

Whitebark Pine in Oregon and Across the West Is Threatened, ASSOC. PRESS (Dec. 14, 2022), <https://apnews.com/article/wildfires-science-trees-bears-us-fish-and-wildlife-service-592a0fcf8025bd3fb48eac406716f181> [<https://perma.cc/GQE4-BPJJ>].

⁷⁹ *Id.*

⁸⁰ KGW Staff, *supra* note 44.

⁸¹ Cheryl Katz, *Small Pests, Big Problems: The Global Spread of Bark Beetles*, YALE SCH. OF THE ENV'T (Sept. 21, 2017), <https://e360.yale.edu/features/small-pests-big-problems-the-global-spread-of-bark-beetles#:~:text=Not%20only%20are%20the%20insects,forest%20experts%20have%20seen%20before> [<https://perma.cc/JR7Z-LLH3>].

⁸² See KGW Staff, *supra* note 44.

⁸³ See Glenn Ahrens, *Western Oregon Forest Health Update, July 2021*, OR. STATE UNIV. (2021), <https://extension.oregonstate.edu/forests/health-management/western-oregon-forest-health-update-july-2021> [<https://perma.cc/STQ4-UF38>].

⁸⁴ Barbara Bentz & Kier Klepzig, *Bark Beetles and Climate Change in the United States*, U.S. DEP'T OF AGRIC. (2014), <https://www.fs.usda.gov/ccrc/topics/bark-beetles-and-climate-change-united-states> [<https://perma.cc/65QD-HH78>].

⁸⁵ See OREGON WARMING REPORT, *supra* note 2, at 11–12.

pass sweeping cap-and-trade bills in 2019 and 2020. In response, Republicans walked out of these legislative sessions and killed the cap-and-trade bills. Republicans believed that the cap-and-trade proposals attempted to solve CO₂e levels by using draconian measures, which would heavily burden low- and middle-income families across the state, over more equitable and effective alternatives. Subsequently, in 2020, Governor Kate Brown created a carbon cap program by Executive Order, which primarily affected carbon emissions from transportation but did little to affect emissions from electricity production.⁸⁶ Additionally, the Oregon legislature passed the Clean Energy Targets Act in 2021, which set a 100% clean energy goal for electricity production by 2040. The 2021 Clean Energy Targets Act, however, did not repeal nor amend the 2007 and 2016 bills that limit the use of the state's only abundant source of clean energy, hydropower. Therefore, the state is unable to meet its 100% clean energy target by 2040.

A. Oregon Bipartisan Climate Bills

As previously mentioned, the Oregon legislature passed three bipartisan climate change bills that significantly affected two areas of climate change policy: greenhouse gas emissions and energy production. In 2007, the Oregon legislature passed two of these bills, the Oregon Renewable Energy Act⁸⁷ and H.B. 3543.⁸⁸ The Oregon Renewable Energy Act created the RPS,⁸⁹ and H.B. 3543 created the greenhouse gas emissions reduction targets.⁹⁰ In 2016, the Oregon legislature passed the third bill, the Clean Energy and Coal Transition Act, which expanded the RPS targets and ended coal imports for energy production.⁹¹

The RPS set a requirement that a percentage of the state's energy production come from "renewable" energy sources.⁹² In 2007, only 2%

⁸⁶ See OFF. OF THE GOVERNOR STATE OF OR., EXECUTIVE ORDER. NO. 20-04 (March 10, 2020), <https://www.oregon.gov/bcd/Documents/eo-energy-20-04.pdf> [<https://perma.cc/3NDW-TMAV>].

⁸⁷ S. 838, 74th Leg., Reg. Sess. (Or. 2007).

⁸⁸ H.R. 3543, 74th Leg., Reg. Sess. (Or. 2007).

⁸⁹ See Or. S. 838.

⁹⁰ See H.R. 2021, 81st Leg., Reg. Sess. (Or. 2021).

⁹¹ See generally S. 1547, 78th Leg., Reg. Sess. (Or. 2016).

⁹² *Renewable Portfolio Standard*, OR. DEP'T OF ENERGY, <https://www.oregon.gov/energy/energy-oregon/pages/renewable-portfolio-standard.aspx#:~:text=%E2%80%8B%E2%80%8BOregon%27s%20Renewable%20Portfolio,must%20come%20from%20renewable%20resources> (last visited Dec. 23, 2022) [<https://perma.cc/V452-PENA>].

of Oregon's energy production came from renewable resources,⁹³ which Oregon Revised Statute section 469A.025 defines as wind, solar, biomass, geothermal power, and "low-impact" hydropower.⁹⁴ While hydropower production is a carbon-free energy source, nearly all Oregon's hydropower is not considered low-impact under the RPS.⁹⁵ The RPS target created by the Oregon Renewable Energy Act set the goal that 25% of Oregon's energy production must come from renewables by 2025.⁹⁶ Passing the Oregon Renewable Energy Act and setting Oregon's RPS was a bipartisan effort in the Oregon Legislative Assembly.⁹⁷

The 2007 Oregon legislature also passed H.B. 3543, which set greenhouse gas emissions reduction targets of 10% below 1990 levels by 2020 and 75% below 1990 levels by 2050.⁹⁸ Further, the bill created the Oregon Global Warming Commission, which investigates greenhouse gas emissions and reports its findings and suggestions to the Oregon legislature every two years.⁹⁹ Similar to the Oregon Renewable Energy Act, Passing H.B. 3543 and setting Oregon's greenhouse gas emissions reduction goal was a bipartisan effort. However, as ambitious as the bill was, it set greenhouse gas emissions targets without compliance or enforcement measures for achieving these targets.¹⁰⁰

In 2016, the Oregon legislature passed the third bipartisan climate change bill, the Clean Electricity and Coal Transition Act, Senate Bill 1547, which enhanced the RPS targets and addressed coal resources for electricity production.¹⁰¹ Specifically, the bill set requirements for utilities to phase out coal-fired resources from their electricity production mix by 2030, and the bill doubled the RPS targets to 50% by 2040.¹⁰² Additionally, the bill sought to limit the import of out-of-

⁹³ *Id.*

⁹⁴ Renewable Energy Sources, O.R.S. § 469A.025 (2021), https://oregon.public.law/statutes/ors_469a.025 [<https://perma.cc/VG5F-WHVZ>].

⁹⁵ OR. DEP'T OF ENERGY, 2018 BIENNIAL ENERGY REPORT CH. 3 at 6–7 (2018), <https://energyinfo.oregon.gov/2018-ber> [<https://perma.cc/CUX5-8MCS>].

⁹⁶ See S. 838, 74th Leg., Reg. Sess. (Or. 2007).

⁹⁷ *Oregon Legislative Information*, OR. STATE LEGISLATURE, <https://olis.oregonlegislature.gov/liz/2007R1/Measures/Overview/SB838> (last visited Dec. 23, 2022).

⁹⁸ H.R. 3543, 74th Leg., Reg. Sess. (Or. 2007).

⁹⁹ *Id.*

¹⁰⁰ See *Meeting Our Goals*, OR. GLOB. WARMING COMM'N, <https://www.keeporegoncool.org/meeting-our-goals> (last visited Dec. 23, 2022) [<https://perma.cc/GEY6-7APR>].

¹⁰¹ See S. 1547, 78th Leg., Reg. Sess. (Or. 2016).

¹⁰² See *id.*

state energy produced by coal.¹⁰³ This provision addressed that while the last coal plant in Oregon was scheduled for demolition in 2020, due to an environmental lawsuit from the Sierra Club,¹⁰⁴ utilities in Oregon continued to purchase coal-produced electricity from neighboring states.¹⁰⁵ The Clean Electricity and Coal Transition Act passed without receiving any Republican votes in the Senate. It did, however, receive four Republican votes in the House of Representatives,¹⁰⁶ including the future 2020 Republican nominee for governor, Knute Buehler, who stated, “I supported 2016 legislation to replace coal energy in Oregon with cleaner sources by 2040 because it was the right thing to do and because of assurances it would be done with minimal rate increases by utilities.”¹⁰⁷

B. Assessment of Oregon’s Bipartisan Climate Bills

The three climate change bills have not produced their desired outcomes. Oregon significantly reduced its dependence on coal by nearly 50% by 2020.¹⁰⁸ However, the state legislature accomplished this primarily by increasing the state’s dependency on natural gas by nearly 100%.¹⁰⁹ While natural gas produces half as much CO₂ as coal, it is still a heavy carbon polluter and not a renewable energy source.¹¹⁰ Ironically, the state reduced hydropower, a clean and renewable energy

¹⁰³ See *id.*

¹⁰⁴ The Oregon legislature had little to do with shutting down the coal plant in Oregon. The majority of the credit belongs to the Sierra Club. See Pat Dooris, *Oregon’s Last Coal Power Plant Shuts Down for Good*, KGW (Oct. 19, 2020), <https://www.kgw.com/article/news/local/boardman-coal-plant-closes-oregon/283-b7eee8a4-0ec7-4c8f-88ea-9d7e42b2516b> [<https://perma.cc/K8F6-Z8CS>].

¹⁰⁵ See Cassandra Profita, *Oregon’s Only Coal-Fired Power Plant Closes for Good*, OPB (Oct. 15, 2020, 5:26 PM), <https://www.opb.org/article/2020/10/16/portland-general-electric-coal-boardman-power-plant/> [<https://perma.cc/LNW3-9YD6>].

¹⁰⁶ *2016 Session Senate Bill 1547*, OREGONIAN, <https://gov.oregonlive.com/bill/2016/SB1547/> (last visited Dec. 23, 2022) [<https://perma.cc/4WLR-RSUM>].

¹⁰⁷ Knute Buehler, *Opinion, Gov. Brown’s Energy Tax Is Another Honey Pot for Special Interest: Guest Opinion*, OREGONIAN (Oct. 22, 2017, 2:30 PM), https://www.oregonlive.com/opinion/2017/10/gov_browns_energy_tax_is_anoth.html [<https://perma.cc/C7V8-NJB2>].

¹⁰⁸ See *Electricity Mix in Oregon*, *supra* note 59.

¹⁰⁹ See *id.*

¹¹⁰ The transition to natural gas is considered positive by some fossil fuel advocates, but it will not prevent climate change. Replacing coal with natural gas is simply trading one evil for a slightly lesser evil, with the same ultimate result. See Valerie Volcovici et al., *Explainer: Cleaner but Not Clean – Why Scientists Say Natural Gas Won’t Avert Climate Disaster*, REUTERS (Aug. 18, 2020, 4:12 AM), <https://reut.rs/2E1m3UY> [<https://perma.cc/3HLS-45PH>].

source, from 46% of the state's energy mix to 39%.¹¹¹ During this period, Oregon increased its reliance on wind and solar from 1% of the state's energy mix¹¹² to almost 9% by 2020.¹¹³ The net effect of these energy production transitions (when including all hydropower) is that the state increased clean energy from around 47% of the state's total energy mix to around 48% by 2020.¹¹⁴ That is a net 1% gain in clean energy sources after fourteen years of work.

Subsequently, Oregon failed to meet its greenhouse gas emissions target of a 10% reduction by 2020.¹¹⁵ Oregon not only failed to meet the reduction target but emitted 10% more greenhouse gas emissions in 2019 than 1990.¹¹⁶ This failure comes from the fact that while Oregon increased clean energy by 1%, the state's population nearly doubled from 1990 to 2019.¹¹⁷ Consequently, net carbon emissions significantly increased. (See Table 1.)

Table 1. *Oregon Emissions in Million Metric Tons of CO₂e by Energy Source: 1990-2019*¹¹⁸

Sector	1990	1995	2000	2005	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Transportation	21	23	24	25	23	22	22	21	21	23	24	24	24	23
Electricity Use	17	21	23	20	20	18	17	18	18	19	16	17	17	19
Natural Gas Use	5	7	8	7	8	8	8	8	8	7	7	8	7	8
Other Residential & Commercial	3	3	4	4	4	4	4	4	4	4	4	4	4	4
Other Industrial	5	6	6	5	4	4	4	4	4	4	4	4	4	4
Agriculture	7	7	6	7	7	7	7	7	7	7	7	7	7	7
Totals	58	67	71	68	66	63	62	62	62	64	62	64	63	64

C. Oregon Fails to Focus on Hydropower

Oregon's unsuccessful attempts to reduce greenhouse gas emissions after more than a decade of climate change policy demonstrates the

¹¹¹ See *Electricity Mix in Oregon*, *supra* note 59.

¹¹² See OR. DEP'T OF ENERGY, 2007-2009 BIENNIAL ENERGY PLAN (2008), https://library.cee1.org/system/files/library/8880/CEE_Eval_StateofOregonEnergyPlan2007_2009_1Mar2008.pdf.

¹¹³ See *Electricity Mix in Oregon*, *supra* note 59.

¹¹⁴ See *id.*

¹¹⁵ OREGON WARMING REPORT, *supra* note 2, at 1.

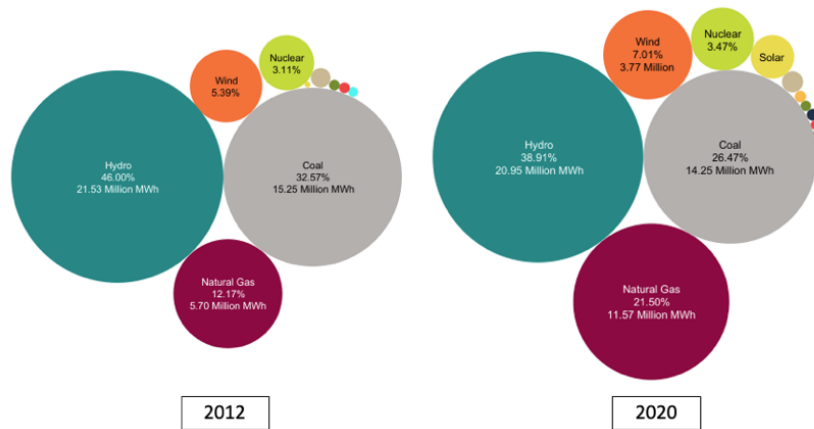
¹¹⁶ See *id.* at 12.

¹¹⁷ See *Resident Population in Oregon from 1960 to 2021*, STATISTA (Sept. 30, 2022), <https://www.statista.com/statistics/206288/resident-population-in-oregon/> [<https://perma.cc/5ZSL-46LR>].

¹¹⁸ OREGON WARMING REPORT, *supra* note 2, at 12 tbl.5.

need for new solutions. If Oregon included all hydropower in the state's RPS in 2007, Oregon would be well toward achieving 100% clean energy. Instead, the state replaced hydropower with fossil fuels. While Oregon has reduced its dependence on coal, the state continues to rapidly increase its use of natural gas, a heavy carbon polluter, and decrease its use of hydropower, a carbon-neutral energy source.¹¹⁹ (See Figure 2.)

Figure 2. *Oregon's Energy Mix*¹²⁰



Oregon has an incredible amount of unused hydropower. The Pacific Northwest holds about half of the total hydroelectricity generation capacity of the United States.¹²¹ While only 39% of Oregon's energy production comes from hydropower, this clean energy source could potentially power nearly the entire state's energy grid.¹²²

In the 1960s, before the popular belief in anthropogenic climate change, environmentalists and indigenous tribes focused on busting up electrified and nonelectrified dams.¹²³ This policy was initially in

¹¹⁹ See *Electricity Mix in Oregon*, *supra* note 59.

¹²⁰ *Id.*

¹²¹ See *Hydropower Explained: Where Hydropower Is Generated*, U.S. ENERGY INFO. ADMIN. (Mar. 16, 2022), <https://www.eia.gov/energyexplained/hydropower/where-hydropower-is-generated.php#:~:text=Hydropower%20explained%20Where%20hydropower%20is%20generated&text=Most%20hydroelectricity%20is%20produced%20at,in%20the%20western%20United%20States> [<https://perma.cc/2KCK-SXKR>].

¹²² See *Oregon Shines Light on Hydropower's Value*, PR NEWSWIRE (July 14, 2015, 2:30 AM), <https://www.prnewswire.com/news-releases/oregon-shines-light-on-hydropowers-value-300113147.html> [<https://perma.cc/Y4ZD-Z4XG>].

¹²³ Dam-removal advocates were aware that the removal of hydropower was typically replaced with a fossil fuel energy source, a fact that remains true in 2022. Hydropower is

response to the fact that salmon populations had dramatically decreased across the United States.¹²⁴ Environmentalists expressed awareness that removing hydropower plants meant replacing them with fossil fuels.¹²⁵ They successfully achieved their goal, ending all major dam building in the United States, although dramatically increasing the nation's dependence on fossil fuels.¹²⁶ Additionally, the motive behind the policy of dam removal shifted from saving salmon to a new ideological motive of tearing down monuments to imperialism.¹²⁷ While modern technology can retrofit existing dams to allow for the safe passage of salmon, dam removal activists often reject such solutions.¹²⁸ When asked about retrofitting dams to protect salmon, Barry McCovey, an environmentalist for the Yurok Tribe, stated that the goal for dam removal is about restoring nature, not building “more

one of the cheapest sources of energy, and the only equally priced power sources are fossil fuels, with coal being the cheapest. This fact has not prevented the majority of dam removal advocates from continuing to advocate for dam removal. See Nathanael Johnson, *When Environmentalists Busted Up Dams, Coal Moved In*, GRIST (Feb. 27, 2019), <https://grist.org/article/when-environmentalists-busted-up-dams-coal-moved-in/> [<https://perma.cc/9X5P-6TFK>].

¹²⁴ See Lindsay Vansomerem, *Tribes Are Leading the Way to Remove Dams and Restore Ecosystems*, YES! MAG. (July 14, 2021), <https://www.yesmagazine.org/environment/2021/07/14/tribes-remove-dams-restore-ecosystems> [<https://perma.cc/QDL8-N4LL>].

¹²⁵ See Johnson, *supra* note 123.

¹²⁶ See *id.*

¹²⁷ Dams can be retrofitted with a variety of options for protecting fish. These include fish ladders that allow salmon to pass over dams and “fish cannons” that also allow for the safe passage of salmon. The cost of such solutions is almost always cheaper than dam removal. However, such solutions are often rejected, in spite of their relatively low cost and ability to save salmon. See *In the Pacific North-West, Hydroelectric Dams Are Being Removed*, ECONOMIST (July 8, 2021), <https://www.economist.com/united-states/2021/07/08/in-the-pacific-north-west-hydroelectric-dams-are-being-removed> [<https://perma.cc/22BC-BWL9>]. These solutions, which allow the dam and its hydropower plant to remain operational, while also protecting salmon populations, can cost as little as one million dollars. See generally U.S. GEN. ACCNT. OFFICE, HYDROELECTRIC DAMS COSTS AND ALTERNATIVES FOR RESTORING FISHERIES IN THE ELWHA RIVER (1991), <https://www.gao.gov/assets/rced-91-104.pdf> [<https://perma.cc/3J5E-JJG4>]. These solutions are often far cheaper than completely removing a dam. For instance, the cost of the largest dam removal project in history, the Klamath River dam removal project, which was approved in 2022, will cost over \$500 million and be paid for through increased energy rates for consumers and a bond, paid for by taxpayers. See Gillian Flaccus, ‘Momentous:’ US Advances Largest Dam Demolition in History, AP (Nov. 17, 2022), <https://apnews.com/article/business-california-native-americans-dams-salmon-311ea96fda0fe1b0052ab8cef9ae36a9> [<https://perma.cc/SV2Z-5QJ6>].

¹²⁸ See Flaccus, *supra* note 127.

anthropogenic bullshit” like technology to save salmon.¹²⁹ But, not all environmentalists and tribes agree with the sentiment of Mr. McCovey. Roy Hall, chief of the Shasta Nation Tribe, called dam busting “environmental madness.”¹³⁰ Many environmentalists and tribal leaders, including Mr. Hall, believe dam removal will hurt salmon populations rather than save them, stating that global warming is the real culprit behind reducing salmon populations.¹³¹

Dam busting, which has forced utilities to switch to dirty energy production like coal and natural gas, has resulted in 11 million tons of carbon dioxide each year, the equivalent of putting 2.4 million cars on the road.¹³² More carbon output means higher temperatures for rivers.¹³³ This is especially true for salmon species found in Oregon, such as the Chinook, Coho, and Sockeye, which are at higher risk due to their freshwater habitats seeing significant increases in heat caused by higher CO₂e levels.¹³⁴ Subsequently, global warming is heating rivers and causing salmon to overheat.¹³⁵ Despite this, Governor Brown continued to advocate for dam removal at a rate many decades faster than Oregon could ever expect to build enough non-hydropower clean energy alternatives, like wind and solar, to power the entire state.

In November 2022, the Federal Energy Regulatory Commission (FERC) approved the removal of four dams along the Klamath River in Oregon.¹³⁶ The project will be the largest dam removal in American history and will be paid for by raising consumer energy rates, most of which are low- and middle-income consumers,¹³⁷ and a bond paid for by taxpayers.¹³⁸ Leaders in Oregon, including Governor Brown,

¹²⁹ See *In the Pacific North-West, Hydroelectric Dams Are Being Removed*, *supra* note 127.

¹³⁰ See *id.*

¹³¹ See *id.*

¹³² See Johnson, *supra* note 123.

¹³³ See Emily Chung, *Salmon Are Getting Cooked by Climate Change. Here's How They Could Be Saved*, CBC (July 23, 2021, 6:00 AM ET), <https://www.cbc.ca/news/science/salmon-climate-change-1.6114328> [<https://perma.cc/3EEY-2HC9>].

¹³⁴ See SUE C.H. GRANT ET AL., FISHERIES AND AQUATIC SCI., STATE OF CANADIAN PACIFIC SALMON: RESPONSES TO CHANGING CLIMATE AND HABITATS (2019), https://waves-vagues.dfo-mpo.gc.ca/library-bibliotheque/40807071.pdf?_gl=1*6ennbt*_ga*MTk3MzYwNDYxNi4xNjcxODcwMjk4*_ga_7CCSB32R7T*MTY3MTg3MDI5OC4xLjEuMTY3MTg3MDQyMS4wLjAuMA [<https://perma.cc/JH5M-4AXL>].

¹³⁵ See Chung, *supra* note 133.

¹³⁶ See *In the Pacific North-West, Hydroelectric Dams Are Being Removed*, *supra* note 127.

¹³⁷ See *id.*

¹³⁸ See Flaccus, *supra* note 127.

petitioned FERC to approve the project for decades.¹³⁹ The four dams can produce enough carbon-neutral electricity to power around 10% of the households in Oregon.¹⁴⁰ The energy company that licenses the dams, PacifiCorp, plans to replace the hydropower lost to the dam removal project by increasing electricity production from an equally inexpensive power source, either natural gas or coal.¹⁴¹ Despite studies suggesting that the dam removal will result in a large increase in greenhouse gas emissions, Governor Brown celebrated the dam removal, saying, “Beyond ecological restoration, this is also an act of restorative justice.”¹⁴² Defined simply, “restorative justice” is the concept where an offender resolves a perceived injustice through amends considered acceptable by the victim.¹⁴³ In the case of dam busting, restorative justice has little to do with environmentalism and more to do with land and water rights and is a goal directly at odds with solving climate change.¹⁴⁴ Nevertheless, the momentum of dam busting is speeding up. Across the United States, 1,951 dams have been demolished, including 57 in 2021.¹⁴⁵ Most of these demolition projects have occurred in the last twenty-five years.¹⁴⁶ In December 2022, the Eugene Water and Electric Board (EWEB) approved demolishing another Oregon dam, the Leaburg Dam, which can generate enough electricity to power 13,000 households in Eugene, Oregon.¹⁴⁷

¹³⁹ See Cheri Helt, Opinion, *Oregon Workers Need the Snake River Dams*, REGISTER-GUARD (Aug. 28, 2022, 5:01 AM), <https://www.registerguard.com/story/opinion/columns/2022/08/28/oregon-workers-need-the-snake-river-dams-kate-brown/65418491007/> [https://perma.cc/CN96-6ZK5].

¹⁴⁰ See *In the Pacific North-West, Hydroelectric Dams Are Being Removed*, *supra* note 127.

¹⁴¹ See William Yardley, *Climate Change Adds Twist to Debate Over Dams*, N.Y. TIMES (Apr. 23, 2007), <https://www.nytimes.com/2007/04/23/us/23dam.html> [https://perma.cc/9SGC-722F].

¹⁴² See *Federal Energy Regulator Gives Final Go-Ahead for Historic Klamath Dam Removal Plan*, PACIFICORP (Nov. 17, 2022), <https://www.pacificorp.com/about/newsroom/news-releases/ferc-klamath-dam-removal.html> [https://perma.cc/9ADP-C6W3].

¹⁴³ See Syed Robayet Ferdous, *Application of Restorative Justice Theory in Aboriginal Criminal Justice Process in Canada: An Analysis*, 2 BUS. ETHICS & LEADERSHIP 61 (2018), https://armgpublishing.com/wp-content/uploads/2016/12/files/bel/volume-2-issue-1/Ferdous,%20Khan,%20Dulal_BEL_1_2018.pdf [https://perma.cc/2CGZ-XTU4].

¹⁴⁴ See Yardley, *supra* note 141.

¹⁴⁵ Flaccus, *supra* note 127.

¹⁴⁶ *Id.*

¹⁴⁷ Megan Banta, *EWEB Likely to Partially Decommission Leaburg Hydropower Project, Remove Dam*, REGISTER-GUARD (Dec. 10, 2022, 6:00 AM), <https://www.registerguard.com/story/news/local/2022/12/10/eweb-leaburg-dam-canal-lake-decommission-service-electricity-mckenzie-river-water-fish/69709407007/> [https://perma.cc/7LUN-URZN].

Dam busting is one of the primary reasons Oregon missed its greenhouse gas emissions reduction targets.¹⁴⁸ As noted above, the state did not reduce greenhouse gas emissions. Instead, emissions increased by 10%. The same 2007 legislative session that set greenhouse gas emissions reduction targets also created the RPS restrictions. These restrictions mandated that hydropower plants made before 1995 were not considered “low-impact” renewable energy sources.¹⁴⁹ However, nearly every dam in Oregon was built before 1995.¹⁵⁰ Subsequently, Oregon’s energy mix remained consistently dependent on natural gas, and greenhouse gas emissions soared.

D. Clean Energy Targets vs. Renewable Portfolio Standard

In 2021, Oregon Democrats decided to shift gears in how they addressed Oregon’s energy mix and passed House Bill 2021.¹⁵¹ The bill set one of the nation’s most ambitious clean energy production targets in the nation, that 100% of Oregon’s energy mix would come from carbon-free sources by 2040.¹⁵² However, H.B. 2021 did not address the RPS restrictions that ban nearly all hydropower. Because the RPS restrictions still exist from the 2016 Clean Energy and Coal Transition Act,¹⁵³ Oregon cannot achieve the 100% clean energy target by 2040. The Oregon Public Utility Commission reported this finding to the Oregon legislature, stating that the “legislature may also want to holistically examine the interplay of the RPS requirements with recently enacted clean energy legislation [in House Bill 2021] to ensure the state can implement its energy policies”¹⁵⁴ Additionally, they stated that “HB 2021 neither replaces nor modifies the RPS requirements updated in [the 2016 Clean Energy and Coal Transition

¹⁴⁸ See generally OREGON WARMING REPORT, *supra* note 2 (showing that the removal of dams has resulted in increased fossil fuel consumption for electricity production).

¹⁴⁹ See OR. DEP’T OF ENERGY, *supra* note 95.

¹⁵⁰ See *id.*

¹⁵¹ See H.R. 2021, 81st Leg., Reg. Sess. (Or. 2021).

¹⁵² *Id.*

¹⁵³ The 2007 Oregon Renewable Energy Act created the RPS restrictions. The Act mandated that Oregon’s energy mix include 25% “renewables.” The Act also did not consider nearly all hydropower production in Oregon to be renewable. The 2016 Clean Energy and Coal Transition Act increased this target from 25% to 50% and kept the restrictions on hydropower production. See S. 1547, 78th Leg., Reg. Sess. (Or. 2016).

¹⁵⁴ OR. PUB. UTIL. COMM’N, SB 1547 (2016): IMPACT OF INCREASED RENEWABLE PORTFOLIO REQUIREMENTS 7 (2021), <https://www.oregon.gov/puc/forms/Forms%20and%20Reports/2021-PUC-SB1547-Renewable-Portfolio-Standard-Report.pdf> [https://perma.cc/5KDG-M4Z5].

Act]. The administration of two separate but reinforcing regulatory programs will be challenging.”¹⁵⁵

III

CARBON CAPS:

OREGON ATTEMPTS TO LIMIT TOTAL CARBON OUTPUT

In addition to addressing electricity production, Oregon has attempted to reduce CO₂e emissions with carbon caps. Typically, carbon caps are created by making activities that result in carbon emissions more expensive through policies such as cap-and-trade and carbon taxes. Thus far, this Comment has focused on how Oregon attempted to reduce CO₂e emissions using upstream methods, like switching fossil fuel energy production to clean energy production. This Comment now turns to the downstream approach of carbon caps.

In 2019 and 2020, Democrats in the Oregon legislature attempted to pass two different cap-and-trade bills. After those bills failed, Governor Kate Brown issued Executive Order 20-04, which created carbon caps in Oregon for nearly every sector except electricity production. However, because executive orders cannot raise tax revenue, Executive Order 20-04 did not create the ability to fund a tax credit or dividend for low- and middle-income families to offset the higher energy prices created by carbon caps. Therefore, the carbon caps created by Executive Order 20-04 place an undue burden on Oregon's low- and middle-income families. Contrarily, Republicans support a solution that could solve this inequity—carbon tax with a tax credit or dividend to mitigate the energy burden placed on low- and middle-income families.

A. Cap-and-Trade

Bipartisan cooperation on climate change quickly deteriorated after 2016. As low- and middle-class voters fled the Democratic Party for the Republican Party, the Republican rhetoric on environmental policy shifted by prioritizing economic equity for low- and middle-class Americans over environmental concerns.¹⁵⁶ This ideological split

¹⁵⁵ *Id.*

¹⁵⁶ See Monica Potts, *Why Democratic Appeals to the 'Working Class' Are Unlikely to Work*, FIVETHIRTYEIGHT (July 6, 2022, 6:00 AM), <https://fivethirtyeight.com/features/why-democratic-appeals-to-the-working-class-are-unlikely-to-work/> [<https://perma.cc/9Z5Q-M47A>].

culminated in 2019, when the Democratic-run Oregon legislature attempted to pass a cap-and-trade bill, H.B. 2020, which resulted in a Senate Republican walkout that denied the Senate a quorum and killed the bill.¹⁵⁷ In 2020, the Senate created a revised version of H.B. 2020 with Senate Bill 1530, which had the additional element of some limited price protections for rural communities against energy price increases, resulting from the cap-and-trade program.¹⁵⁸ However, the House Republican minority leader, Representative Christine Drazan, did not feel that the bill adequately protected rural Oregonians and subsequently led the House Republicans in a walkout, which once again denied a quorum and killed the bill.¹⁵⁹

B. Executive Order 20-04

Oregon Democrats decided to act alone on climate change after the deterioration of bipartisanship. Just a few weeks after the walkout, Governor Kate Brown created a carbon cap policy by fiat rather than continue to attempt to gain Republican support. On March 10, 2020, Governor Brown issued Executive Order 20-04, which authorized a governor-appointed committee to create the Climate Protection Program (CPP).¹⁶⁰ The CPP implemented strict carbon output rules regarding fossil fuels to reduce emissions in many areas, including transportation, residential, commercial, and industrial, but with little impact on electricity production.¹⁶¹ These carbon output rules officially kicked in on January 1, 2022.¹⁶² Executive Order 20-04 extended the state executive's power well beyond the proposals in the failed cap-and-trade bills.¹⁶³ The sweeping action affected nineteen state agencies and commissions, directing most state governments to

¹⁵⁷ See Dirk VanderHart, *Oregon Senate President Says Cap-and-Trade Bill Is Dead Amid GOP Walkout*, NWPB (June 25, 2019), <https://www.nwpb.org/2019/06/25/oregon-senate-president-says-cap-and-trade-bill-is-dead-amid-gop-walkout/> [https://perma.cc/QM3A-ZXDK].

¹⁵⁸ See Carlie Clarcq, *Oregon Cap-and-Invest Makes a Comeback*, CLIMATE XCHANGE (Feb. 12, 2020), <https://climate-xchange.org/2020/02/12/oregon-cap-and-invest-makes-a-comeback/> [https://perma.cc/Z6TV-Z8JK].

¹⁵⁹ See Hillary Borrud, *Oregon House Republicans Stage 1st Walkout to Slow Democrats' Progress*, OREGONIAN (Feb. 19, 2020, 2:29 PM), <https://www.oregonlive.com/news/2020/02/oregon-house-republicans-plan-1st-walkout-to-slow-democrats-progress.html> [https://perma.cc/9GF9-4P85].

¹⁶⁰ See OFF. OF THE GOVERNOR STATE OF OR., *supra* note 86.

¹⁶¹ OR. DEPT. OF ENV'T QUALITY, *supra* note 7, at 3.

¹⁶² OFF. OF THE GOVERNOR STATE OF OR., *supra* note 86.

¹⁶³ See *id.*

focus on reducing carbon emissions.¹⁶⁴ However, because the action was an executive order not supported by the state legislature, the order could not raise tax revenue. Such revenue could offset the financial impact that Executive Order 20-04 had on low- and middle-class Oregonians.¹⁶⁵

C. The Carbon Cap That Republicans Supported

Assemblywoman Christine Drazan, the Republican 2022 gubernatorial nominee, may have denied a quorum for the cap-and-trade bills but she supported carbon taxes that she viewed as equitable for low- and middle-class families. In 2021, the Citizens' Climate Lobby (CCL), a politically liberal lobbyist group, approached then-Assemblywoman Drazan to support a federal carbon tax bill—the Energy Innovation and Carbon Dividend Act (House of Representatives Bill 2307).¹⁶⁶ The carbon tax policy supported by the CCL, unlike the carbon policy proposed in the Oregon Democrats' cap-and-trade bills, would dramatically reduce CO₂e emissions and distribute an approximately \$3,000 annual dividend for low- and middle-income families. In the form of a direct payment, the dividend offsets the increase in energy prices created by carbon taxes.¹⁶⁷

Assemblywoman Drazan supported this policy and cosponsored Oregon Senate Joint Memorial 5 (SJM 5) to champion HR 2307.¹⁶⁸ She testified before the Oregon Senate that she did not support Oregon's 2019 and 2020 cap-and-trade bills because they would “raise

¹⁶⁴ *See id.*

¹⁶⁵ *See* Dirk VanderHart, *Oregon Governor Promises Executive Action on Climate. It Might Look Like This*, OPB (Mar. 6, 2020, 2:22 PM), <https://www.opb.org/news/article/executive-action-oregon-governor-cap-trade-republican-walkout/> [<https://perma.cc/M5N9-Y3RZ>].

¹⁶⁶ *See* CCL Oregon Volunteers, *Oregon Senate Passed a Bipartisan Resolution in Favor of Carbon Pricing*, CITIZENS' CLIMATE LOBBY (Feb. 6, 2022), <https://citizensclimatelobby.org/blog/democracy/in-2021-oregon-senate-passed-a-bipartisan-resolution-in-favor-of-carbon-pricing/> [<https://perma.cc/4VE3-CNVH>].

¹⁶⁷ *See How It Works*, ENERGY INNOVATION AND CARBON DIVIDEND ACT, <https://energyinnovationact.org/how-it-works/> (last visited Dec. 26, 2022) [<https://perma.cc/V6P9-UYJ4>].

¹⁶⁸ *SJM 5 A 2021 Regular Session*, OR. STATE LEGISLATURE, <https://olis.oregonlegislature.gov/liz/2021R1/Measures/Overview/SJM5> (last visited Dec. 26, 2022) [<https://perma.cc/V3HC-T6UJ>].

[energy] prices, disrupt a stable economy... and harm the poor.”¹⁶⁹ Conversely, Assemblywoman Drahan stated that she supported the carbon tax policy in HR 2307 because “it is not punitive [and] it is not regressive,” and further, she stated that by providing a dividend directly to consumers, the act is “revenue neutral.”¹⁷⁰ With Assemblywoman Drahan’s support, the Oregon Senate passed SJM 5, but the Oregon House of Representatives killed the resolution.¹⁷¹

IV

ASSESSING OREGON’S CARBON CAP PROPOSALS AND POLICIES

Traditional carbon cap policies like cap-and-trade and carbon taxes can effectively combat climate change. However, these policies can also damage low- and middle-income people economically. Section IV. A. explains carbon cap policies and analyzes the *equity* of such policies through their potential economic effects on low- and middle-income people and minority populations.

A. Are Carbon Caps Fair?

Carbon caps in the form of cap-and-trade or carbon tax result in higher consumer energy prices and are, therefore, considered regressive.¹⁷² While not all carbon caps are alike, the fundamental economic principles of carbon caps have the same economic effect on consumers. Whether a carbon cap hits consumers directly (downstream) or energy producers (upstream), higher energy prices result. For instance, when energy producers face an increased tax burden, they offset it by passing on those higher costs to consumers.¹⁷³ Therefore, carbon taxes almost always result in a higher cost of living without additional mitigating policies to offset the new consumer burden.

¹⁶⁹ *Senate Committee on Energy and Environment*, OR. STATE LEGISLATURE (Feb. 25, 2021, 1:00 PM), <https://olis.oregonlegislature.gov/liz/2021R1/Committees/SEE/Overview> [<https://perma.cc/5DGJ-8N4U>].

¹⁷⁰ *Id.*

¹⁷¹ *See Oregon Gubernatorial Election 2022*, BALLOTPEDIA, https://ballotpedia.org/Oregon_gubernatorial_election_2022 (last visited Dec. 26, 2022) [<https://perma.cc/4238-YGMN>].

¹⁷² *See Carbon Border Taxes Are Defensible but Bring Great Risks*, ECONOMIST (July 15, 2021), <https://www.economist.com/leaders/2021/07/15/carbon-border-taxes-are-defensible-but-bring-great-risks> [<https://perma.cc/8XCA-3QR2>].

¹⁷³ *See id.*

1. Cap-and-Trade

Generally, cap-and-trade functions as a cap on greenhouse gas emissions with the ability for emitters to trade emission allowances, with supply and demand setting the price for these traded allowances. Similar to the cap-and-trade bills proposed in 2019 and 2020, Governor Brown's Executive Order—establishing the CPP—created a cap on the number of tons of carbon that auto fuel suppliers, factories, and natural gas companies could emit. But modeling done by the Oregon Department of Environmental Quality shows that the CPP will result in an immediate short-term loss of middle-class jobs across the state, with up to 2,600 jobs lost by 2025, and will permanently create higher energy prices and a higher housing burden for all Oregonians.¹⁷⁴

2. Carbon Tax

A carbon tax is similar to cap-and-trade in that it creates a punitive measure against carbon emitters by charging them a dollar amount for every ton of carbon emissions they produce. As the mechanism that prices carbon is the only variation between carbon tax and cap-and-trade policies, the result for the low- and middle-class is the same: higher consumer energy costs and short-term job loss.

This was illustrated in 2020 when the City of Portland was one of the first cities in the United States to propose a carbon tax. The tax proposal created immediate political instability when it was disclosed that all nonprofit hospitals would be hit by carbon fees, resulting in higher costs for medical patients.¹⁷⁵ The city responded by lowering the tax by 80% and exempting all nonprofits. However, the city did not adequately address the fact that the tax would still create an increased housing burden on low- and middle-income families.

¹⁷⁴ See OR. DEP'T OF ENV'T QUALITY, MODELING STUDY ON PROGRAM OPTIONS TO REDUCE GREENHOUSE GAS EMISSIONS SUMMARY REPORT (2021), <https://www.oregon.gov/deq/Regulations/rulemaking/RuleDocuments/GHGCR2021MSsummary.pdf> [https://perma.cc/G3NV-RRZ7].

¹⁷⁵ See Shane Dixon Kavanaugh, *Portland Sustainability Officials Propose Tax on Large Carbon Emitters, First of Its Kind by a U.S. City*, OREGONIAN (Nov. 20, 2020, 1:29 PM), <https://www.oregonlive.com/politics/2020/11/portland-sustainability-officials-propose-tax-on-large-carbon-emitters-first-of-its-kind-by-a-us-city.html> [https://perma.cc/UVH3-N7NY].

B. *The Result of Carbon Caps on Oregonians*

Whether framed in terms of cap-and-trade or carbon taxes, carbon caps can disproportionately hurt low- and middle-income people.¹⁷⁶ But, as opposed to the cap-and-trade policy, carbon taxes can be modified to raise tax revenue redistributed as a tax refund or dividend to low- and middle-income families to offset higher energy prices.¹⁷⁷ Structuring a carbon tax this way allows it to be revenue neutral.¹⁷⁸ Nevertheless, since an executive order created the CPP, it cannot raise tax revenue. Comment IV, § 25 of the Oregon Constitution states that only the Oregon state legislature can raise tax revenue.¹⁷⁹ Therefore, Executive Order No. 20-04 resembles the cap-and-trade policy.

According to the five-member citizen panel appointed by Governor Kate Brown, the Oregon Environmental Quality Commission—which wrote the CPP—admits that the CPP could increase fossil fuel costs by as much as 75% for many Oregonians.¹⁸⁰ Of the 1,658,091 households in Oregon,¹⁸¹ 209,000 are low-income and need financial assistance.¹⁸² Of those, only 56,000 households receive federal financial assistance.¹⁸³ This leaves 153,000 households at risk of becoming homeless.¹⁸⁴ These at-risk households already pay more than 50% of their income toward their housing burden.¹⁸⁵ As of 2022, Oregon is experiencing a homeless crisis, with over 14,000 Oregonians living unsheltered.¹⁸⁶ Once 153,000 at-risk Oregon households face energy

¹⁷⁶ See CORBETT A. GRAINGER & CHARLES D. KOLSTAD, NAT'L BUREAU OF ECON. RSCH., WHO PAYS A PRICE ON CARBON? (2009), https://www.nber.org/system/files/working_papers/w15239/w15239.pdf [<https://perma.cc/KG4P-PUNG>].

¹⁷⁷ See Shi-Ling Hsu, *Carbon Taxes and Economic Inequality*, 15 HARV. L. & POL'Y REV. 551, 565–66 (2021), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3760667 [<https://perma.cc/325Q-BSG2>].

¹⁷⁸ See *id.*

¹⁷⁹ OR. CONST. art. IV, § 25.

¹⁸⁰ See OR. DEP'T OF ENV'T QUALITY, OREGON ENVIRONMENTAL QUALITY COMMISSION SPECIAL MEETING (Dec. 16, 2021), https://www.oregon.gov/deq/EQCdocs/121621_ItemA.pdf [<https://perma.cc/4QYQ-YLL2>].

¹⁸¹ *QuickFacts Oregon*, U.S. CENSUS BUREAU, <https://www.census.gov/quickfacts/OR> (last visited Dec. 26, 2022) [<https://perma.cc/B4C2-BJCT>].

¹⁸² JOHN TAPOGNA & MADELINE BARON, OR. CMTY. FOUND., HOMELESSNESS IN OREGON 34 (2019), <https://oregoncf.org/Templates/media/files/reports/OregonHomelessness.pdf> [<https://perma.cc/93KY-B22G>].

¹⁸³ *Id.*

¹⁸⁴ *Id.*

¹⁸⁵ *Id.*

¹⁸⁶ Lauren Dake, *Federal Data Confirms Oregon Spike in Homelessness*, OPB (Dec. 24, 2022, 5:00 AM), <https://www.opb.org/article/2022/12/24/federal-data-confirms-spike-oregon-homelessness/> [<https://perma.cc/39LW-Z56X>].

costs ballooning up to 75%, Oregon's homeless crisis could dramatically increase. As poverty rates in Oregon are as much as double for minorities,¹⁸⁷ increased energy prices would most severely hit communities of color. In Oregon, one in four Black, Pacific Islander, American Indian, and Latin American Oregonians are below the federal poverty level.¹⁸⁸

The CPP also severely affects Oregon's rural communities. Nearly 675,000 Oregonians live in rural areas.¹⁸⁹ These communities live under severe economic conditions, with the average rural per capita income nearly 17% lower than the average urban income.¹⁹⁰ This rural-urban economic disparity is even worse when comparing entirely metro counties to entirely rural counties. For instance, the average annual household income in Clackamas County (Portland metro area) is \$62,000, whereas the average annual income for Wheeler County (central rural Oregon) is \$33,000.¹⁹¹ In addition to this financial disparity, rural households face higher energy burdens for other reasons, including poor-quality infrastructure and housing, higher reliance on fossil fuels for heating and cooking,¹⁹² and longer driving distances.¹⁹³ In the hardest hit rural county in Oregon, Malheur County, 49% of all households already face a severe energy burden.¹⁹⁴ In addition to creating an increased energy burden, the CPP could also create statewide job losses of up to 120,000, primarily low- and middle-

¹⁸⁷ See Audrey Mechling, *A Portrait of Poverty in Oregon*, OR. CTR. FOR PUB. POL'Y 3 (Aug. 7, 2020), <https://www.ocpp.org/2020/08/07/poverty-oregon> [<https://perma.cc/74RM-FSEY>].

¹⁸⁸ See *id.*

¹⁸⁹ See *Oregon*, RURAL HEALTH INFO. HUB, <https://www.ruralhealthinfo.org/states/oregon> (last visited Dec. 24, 2022) [<https://perma.cc/5W9B-T3A9>].

¹⁹⁰ See *id.*

¹⁹¹ Steven Hawley, *Uneven Load: How Rural Communities Shoulder the Energy Burden of Cities*, COLUMBIA INSIGHT (Feb. 10, 2022), <https://columbiainsight.org/how-rural-communities-shoulder-the-environmental-burden-of-cities/> [<https://perma.cc/HQB4-N55A>].

¹⁹² See LAUREN ROSS ET AL., AM. COUNCIL FOR AN ENERGY-EFFICIENT ECON., THE HIGH COST OF ENERGY IN RURAL AMERICA 3, 9 (2018), <https://www.aceee.org/sites/default/files/publications/researchreports/u1806.pdf> [<https://perma.cc/2W6J-6L6A>].

¹⁹³ See Ted Sickinger, *Cap and Trade: What Could Oregon's Carbon Policy Cost You?*, OREGONIAN (June 19, 2019), <https://www.oregonlive.com/politics/2019/06/cap-and-trade-what-could-oregons-carbon-policy-cost-you.html> [<https://perma.cc/6RLE-ZW93>].

¹⁹⁴ See *New Data Shines a Light on Oregon's Energy Burden*, OR. ENERGY FUND (Mar. 26, 2019), <https://www.oregonenergyfund.org/oregon-energy-burden-study/> [<https://perma.cc/6UE8-JM9X>].

income jobs.¹⁹⁵ This massive job loss would result in a net loss of income of up to \$6.4 billion.¹⁹⁶ The vast majority of these job losses are projected to occur in Oregon's rural communities.¹⁹⁷ Therefore, while the CPP will raise fossil fuel prices for all Oregonians, this carbon policy disproportionately and inequitably targets people of color and rural communities.

CONCLUSION

To fully reduce greenhouse gas emissions in Oregon equitably, the state's leadership must accomplish two objectives. First, Oregon must fully utilize its most abundant carbon-free energy source: hydropower. Second, Oregon must pass a revenue-neutral carbon tax with a dividend that fully subsidizes higher energy prices for low- and middle-income families.

Therefore, Oregon needs to rewrite the RPS to include all carbon-free energy. This will allow Oregon to incorporate all hydropower into the state's energy mix and meet its 100% clean energy target by 2040. Next, for Oregon to address carbon emissions fully and equitably without increasing the state's unhoused population, the state has to pass a revenue-neutral carbon tax with a dividend paid directly to consumers that guarantees Oregon's most vulnerable populations will not face a higher housing burden from increased energy prices. Switching from fossil fuel energy production to hydropower and passing a carbon tax with a dividend would ensure that Oregon accomplishes its greenhouse gas emissions reduction and 100% clean energy targets while protecting Oregon's most vulnerable populations.

¹⁹⁵ See Cassandra Profita, *State Approves New, 'More Aggressive' Climate Protection Program*, OPB (Dec. 16, 2021, 3:24 PM), <https://www.opb.org/article/2021/12/16/state-approves-new-more-aggressive-climate-protection-program/> [<https://perma.cc/EZ92-M3CQ>].

¹⁹⁶ ENERGY STRATEGIES, LLC & RECON INSIGHTS, LLC, *MACROECONOMIC IMPACT ANALYSIS 31* (Oct. 25, 2021), https://www.oregon.gov/deq/EQCdocs/121621_AttachmentF_MacroReport.pdf [<https://perma.cc/2JE6-DSNX>].

¹⁹⁷ *Id.*