April 16, 2024

Dear Mayor Graham and Members of the Ashland City Council,

The undersigned organizations are writing to voice our support for the City of Ashland to transition buildings away from fossil fuels and pursue electrification in order to protect public health and reach the City's climate action plan goals. Specifically we urge Ashland to pass a package of policies including a nitrogen oxides (NO_x) emissions standard on appliances in new homes, a pollution fee on the construction of new homes with gas hook ups, a prohibition on new fossil fuel infrastructure in the City's right of way, and a resolution to transition existing homes and new commercial and industrial construction away from fossil fuels in the future.

(1) All-electric buildings provide robust benefits for communities and the climate

To address the accelerating climate crisis, protect public health, and bolster community resilience, we must address pollution from homes and buildings. Methane gas (aka "natural" gas) and its accompanying pipeline infrastructure release harmful climate and air pollution, while posing major safety hazards – especially during climate-fueled disasters. On the other hand, clean-powered electric buildings are safe, cost-effective, reliable, and available *today*. Utilizing proven clean energy technologies will avoid locking in reliance on fossil fuels and the need for costly retrofits down the line.

We are grateful that the City of Ashland has already adopted strong climate goals to reduce fossil fuel consumption by 50% by 2030 through its Climate and Energy Action Plan (CEAP).[1] It has been 7 years since the CEAP was passed - now is the time for Ashland to move forward bold action to be accountable to these climate goals.

Passing policies to ensure that new buildings in the city are constructed all electric will help Ashland reach these climate action commitments and take full advantage of the increasingly renewable electricity available on the grid in Oregon. Homes and buildings are the second largest source of emissions in the City and make up 27% of Ashland's greenhouse gas emissions.[2] Homes and buildings are also one of the fastest growing sources of emissions across the state, and the country.

Buildings are used for an average of fifty years after construction. When newly-constructed buildings are dependent on inefficient and polluting fossil fuels (and their accompanying pipeline infrastructure), the amount of air pollution and greenhouse gasses released over the building's lifespan is staggering. Further, all-electric construction saves money, especially by avoiding the cost of installing gas pipes to connect new gas appliances to the existing gas infrastructure and system, which often adds thousands of dollars to a newly-constructed home.[3]

Specifically, according to an analysis from RMI, all-electric homes constructed cost $1,600 less to build than a similar mixed-fuel home, and heat pumps will on average reduce emissions by 84% compared with a gas furnace, while heat pump hot water heaters will reduce emissions by 82% compared to a gas water heater.[4]

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[1] City of Ashland, *Climate and Energy Action Plan*, https://www.ashland.or.us/files/Ashland_GHG_Inventory_Report.pdf (2017)
[2] City of Ashland, *Greenhouse Gas Inventory,* https://www.ashland.or.us/files/Ashland_GHG_Inventory_Report.pdf (2016)
[3] Billimoria, Henchen, Guccione, and Louis-Prescott. *The Economics of Electrifying Buildings: How Electric Space and Water Heating Supports Decarbonization of Residential Buildings* (RMI, 2018), http://www.rmi.org/insights/reports/economics-electrifying-buildings/. See also Lacey Tan, Mohammad Hassan Fathollahzadeh, and Edie Taylor, *The Economics of Electrifying Buildings: Residential New Construction*, (RMI, 2022), https://rmi.org/insight/the-economics-of-electrifying-buildings-residential-new-construction/.
[4] RMI, "All-Electric Buildings: Key to Achieving Oregon's Climate Goals." 2023.

Policies to transition off of methane gas and to all-electric homes also provide significant resiliency advantages in a warming climate. First, energy efficient heat pumps provide both heating and cooling, the latter of which is increasingly essential in Ashland's warming climate with increasingly frequent and severe summer heatwaves.[5] Second, all-electric buildings avoid the known seismic and explosion risks associated with gas infrastructure. These risks are only intensified by gas industry plans to blend hydrogen into pipeline networks, in exchange for a virtually negligible emissions reduction benefit.[6]

Finally, transitioning existing buildings to be highly-efficient and all-electric can also help Ashland residents reduce their energy bills and burdens. As governments around the world transition off of fossil fuels, the cost of methane gas is fluctuating rapidly. Particularly in Oregon, the gas system decarbonization mandated by the State's Climate Protection Program is likely to dramatically increase gas rates for customers, as RNG, hydrogen, and other lower-emissions technologies are all much more expensive to produce than fossil-based methane gas.[7] Long term planning for electrification could provide a pathway for the City to support this transition so that everyone in Ashland has access to healthy and affordable homes and buildings.

(2) Methane gas in buildings harms public health and the climate

The use of methane gas in buildings is one of the top growing sources of greenhouse gas emissions in the state,[8] and is also putting residents at increased risk to their health and safety

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[5] Lacey Tan & Mohammad Hassan Fathollahzadeh, *Why Heat Pumps Are the Answer to Heat Waves* (RMI, Aug. 12, 2021), https://rmi.org/why-heat-pumps-are-the-answer-to-heat-waves/.

[6] Jan Rosenow, *Is heating homes with hydrogen all but a pipe dream? An evidence review,* 6(1) ScienceDirect P2225 (2022), https://www.cell.com/joule/fulltext/S2542-4351(22)00416-0. See also Accufacts Inc., *Report: Safety of Hydrogen Transportation by Gas Pipelines* (Nov. 28, 2022) (Finding, *inter alia*, that hydrogen-methane blending is effectively unsafe in existing gas distribution networks at *any* blending level, due to the high explosion and leakage risks associated with hydrogen's particular chemical properties. The report also found that a 20% blend of hydrogen with methane results in only a 7% reduction in gas combustion emissions, and even fewer reductions if leakage is factored in.); Tom DiChristopher, *Hydrogen blending in gas pipelines faces limits due to leakage: US DOE lab* (Oct. 27, 2023), https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/natural-gas/102723-hydrogen-blending-in-gas-pipelines-faces-limits-due-to-leakage-us-doe-lab ("In Argonne's modeling, blending 30% hydrogen by volume into gas pipelines yielded a relatively modest 6% decrease in lifecycle greenhouse gas emissions. A major factor in Argonne's estimate was its finding that hydrogen blending at that level can double leakage from transmission lines.").

[7] See, e.g., Laura Feinstein and Eric de Place, *The Four Fatal Flaws of Renewable Natural Gas* (Sightline Institue, Mar. 29, 2021), https://www.sightline.org/2021/03/09/the-four-fatal-flaws-of-renewable-natural-gas ("RNG is very expensive relative to other energy sources. Today, a million BTUs (MMBTU) of natural gas costs $3.67. According to a 2019 study prepared for the American Gas Foundation, about 44 percent of prospective RNG projects can be developed at a cost of $7 to $20 per MMBTU, with a median cost of approximately $18. The remaining 56 percent of potential projects exceed $20 per MMBTU.").

[8] *Oregon Greenhouse Gas Sector-Based Inventory Data*, Oregon Department of Environmental Quality https://www.oregon.gov/deq/ghgp/pages/ghg-inventory.aspx

due to the high levels of air pollution that it generates.[9] The fossil fuel industry has long funded a multi-million dollar PR campaign to market fracked methane gas as a solution to the climate crisis. However, recent studies have shown that when methane leaks are factored into the analysis, gas' climate impact is equivalent to – or even worse than – coal.[10] This is because methane (CH_4) is a greenhouse gas approximately 87 times more potent than carbon dioxide over a 20-year period. We are in a climate emergency, with increasingly deleterious impacts being experienced both in Ashland and the wider region, and continued use of methane gas in new construction only serves to heighten these risks.

Transitioning our buildings to highly-efficient electric appliances has the co-benefit of dramatically reducing air pollution generated by gas appliances. This is because all-electric cooking appliances do not produce a number of pollutants – foremost nitrogen oxides (NO_x) and benzene (C_6H_6) – that are specifically associated with gas appliances.[11] Recent studies have shown that gas use in the home produces NO_x levels that create an increased risk of asthma and other respiratory illnesses in the home,[12] and may produce benzene in levels that are equivalent to second-hand smoke exposure.[13] Proper ventilation, while important, is not an adequate solution to these pollutants; studies indicate that range hoods do not adequately remove nitrogen

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[9] See Liam McCabe, *Should You Ditch Your Gas Stove?* (The New York Time, Jan. 12, 2023), https://www.nytimes.com/wirecutter/blog/dont-need-ditch-your-gas-stove-yet/. See also Drew R. Michanowicz et al., *Home is Where the Pipeline Ends: Characterization of Volatile Organic Compounds Present in Natural Gas at the Point of the Residential End User* 56(14) Environmental Science and Technology 10258 (2022), https://pubs.acs.org/doi/10.1021/acs.est.1c08298; Harvard T. H. Chan School of Public Health, *Natural Gas Used in Homes Contains Hazardous Air Pollutants* (June 28, 2022), https://www.hsph.harvard.edu/c-change/news/natural-gas-used-in-homes/.

[10] Hiroko Tabuchi, *Leaks Can Make Natural Gas as Bad for the Climate as Coal, a Study Says,* New York Times (July 13, 2023) https://www.nytimes.com/2023/07/13/climate/natural-gas-leaks-coal-climate-change.html#:~:text=It%20takes%20as%20little%20as,stations%20or%20homes%20and%20kitchens.

[11] See Liam McCabe, *Should You Ditch Your Gas Stove?* (The New York Time, Jan. 12, 2023), https://www.nytimes.com/wirecutter/blog/dont-need-ditch-your-gas-stove-yet/. See also Drew R. Michanowicz et al., *Home is Where the Pipeline Ends: Characterization of Volatile Organic Compounds Present in Natural Gas at the Point of the Residential End User* 56(14) Environmental Science and Technology 10258 (2022), https://pubs.acs.org/doi/10.1021/acs.est.1c08298; Harvard T. H. Chan School of Public Health, *Natural Gas Used in Homes Contains Hazardous Air Pollutants* (June 28, 2022), https://www.hsph.harvard.edu/c-change/news/natural-gas-used-in-homes/.

[12] See, e.g., United States Environmental Protection Agency, *Nitrogen Dioxide's Impact on Indoor Air Quality*, https://www.epa.gov/indoor-air-quality-iaq/nitrogen-dioxides-impact-indoor-air-quality ("Average level in homes without combustion appliances is about half that of outdoors. In homes with gas stoves, kerosene heaters or un-vented gas space heaters, indoor levels often exceed outdoor levels."); Kathleen Belanger et al., *Household levels of nitrogen dioxide and pediatric asthma severity*, 24(2) Epidemiology 320 (2013), 320 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3686297/ ("Adverse respiratory effects in children with asthma are associated with exposures to nitrogen dioxide (NO_2). Levels indoors can be much higher than outdoors. Primary indoor sources of NO_2 are gas stoves, which are used for cooking by one-third of US households.").

[13] Yannai S. Kashtan et al., *Gas and Propane Combustion from Stoves Emits Benzene and Increases Indoor Air Pollution*, Environmental Science and Technology (2023), https://doi.org/10.1021/acs.est.2c09289.

oxides from the air,[14] and benzene leaks from gas appliances even when not in use.[15] Furthermore, none of the decarbonization technologies proposed by Avista – renewable natural gas (RNG),[16] hydrogen blending,[17] and synthetic methane[18] – address the specific air quality issues concerned with gas appliances.

(3) Ashland can lead the way – with widespread support from other cities and communities state- and nationwide

Ashland has the opportunity to join with over 100 cities, counties and states across the country that have begun the process to transition from gas to a more renewable and equitable future, and to help lead our state toward a necessary clean energy transition. To advance its Climate and Energy Action Plan goals, the City of Ashland will need to stop the expansion of gas infrastructure and begin a managed transition off of fossil fuel altogether. For these reasons, we urge you to pass the Climate and Clean Air Policy Package, which would include:

- A low NOx appliance standard for all appliances in new homes which transitions to zero NOx over time;
- A pollution fee for connecting new homes to gas hookups based on the EPA's social cost of greenhouse gas rate of $190 per metric ton for the equivalent of 20 years of gas-associated emissions that would fund energy efficiency and electrification upgrades for low-income households;
- A prohibition on new gas infrastructure in the City's right of way (to take effect in December 2025); and
- A resolution to transition off of fossil fuels in existing buildings and new commercial and industrial construction in the future.

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[14] Lara M Paulin et al., *Home interventions are effective at decreasing indoor nitrogen dioxide concentrations*, 24(4) Indoor Air 416 (2014), https://pubmed.ncbi.nlm.nih.gov/24329966 (finding that "NO_2 concentrations in the kitchen and bedroom did not significantly change following ventilation hood installation," but that NO_2 concentrations resulting from gas stoves could be reduced by using an air purifier with HEPA carbon filters).

[15] Eric D. Lebel et al., *Composition, Emissions, and Air Quality Impacts of Hazardous Air Pollutants in Unburned Natural Gas from Residential Stoves in California*, 56(22) Environmental Science and Technology 15828 (2022)

[16] RNG is methane gas produced from waste sources. For one critique (among many) of gas utilities' plans for RNG development, see Laura Feinstein & Eric de Place, *The Four Fatal Flaws of Renewable Natural Gas* (Sightline Institute, Mar. 9, 2021), https://www.sightline.org/2021/03/09/the-four-fatal-flaws-of-renewable-natural-gas/.

[17] Gas utilities, including Avista, propose to add hydrogen gas produced by electrolysis (using electricity to split water into oxygen and hydrogen) from renewable electricity into their gas distribution system in blends of up to 20% hydrogen (with the remaining 80% being methane). For a critique of this technology, see Physicians for Social Responsibility, *Hydrogen pipe dreams* (June 22, 2022), https://psr.org/resources/hydrogen-pipe-dreams-why-burning-hydrogen-in-buildings-is-bad-for-climate-and-health/hydrogen-pipe-dreams/.

[18] Synthetic methane or methanated hydrogen, in the renewables context, is the process of producing methane gas from hydrogen and "waste" carbon dioxide. For a critique of the feasibility of synthetic methane procurement, see Green Energy Institute at Lewis & Clark Law School et al., *Opening Comments* (PUC Docket No. LC 79, Dec. 30, 2022), 22-34, https://apps.puc.state.or.us/edockets/edocs.asp?FileType=HAC&FileName=lc79hac14421.pdf&DocketID=23476&numSequence=47.

The undersigned organizations believe the passage of these policies will help to ensure that the buildings in the community reflect our collective dedication to climate action and desire to invest in our clean energy future.

Thank you for your leadership and your consideration.

Signed,

Jess Grady-Benson, Organizing Director, Rogue Climate

Alan Journet, Co-facilitator, Southern Oregon Climate Action Now (SOCAN)

Amber Ferguson, Executive Director, Rogue Food Unites

Jordan Bruyn, Co-Executive Director, Rogue Action Center

Ana Molina, Advocacy and Systems Director, Oregon Just Transition Alliance

Tim Miller, Director, Oregon Business for Climate

Dylan Plummer, Senior Field Organizing Strategist, Sierra Club

Lindsey Scholten, Executive Director, Oregon League of Conservation Voters

Jack Hanson, Executive Director, Run on Climate

Siraat Younas, Climate Justice Associate, Community Energy Project

Samantha Hernandez, Healthy Climate Program Director, Oregon Physicians for Social Responsibility

Brian Stewart, Co-Founder, Electrify Now

Diane Hodiak, Executive Director, 350Deschutes

Patricia Hine, President, 350 Eugene

Bethany Cotton, Conservation Director, Cascadia Wildlands

Anne Pernick, Senior Advisor, SAFE Cities at Stand.earth

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Matt Bokar, Project Manager, Carleton Hart Architects

Ryan Shanahan, Zero Energy Retrofits Manager, Birdsmouth Design-Build

Karen Harrington, Legislative Committee Chair, Climate Reality Project, Portland

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Lauren Goldberg, Executive Director, Columbia Riverkeeper

Lisa Arkin, Executive Director, Beyond Toxics

Aya Cockram, Coalition Coordinator, Fossil Free Eugene

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Michael Dotson, KS Wild

Elizabeth Adkisson, The Sustainability Collective

Jamie Gatewood, Fair Housing Council of Oregon