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VIA ELECTRONIC FILING

Harry Lanphear
Administrative Director
Maine Public Utilities Commission
26 Katherine Drive
Hallowell, ME 04347

**RE: Sierra Club Comments on Amendments to Portfolio Requirement Rule
(Chapter 311), Docket No. 2020-00212**

To Whom It May Concern:

The Sierra Club respectfully submits the following comments in response to the Public Utilities Commission request for public comment on amendments to the Portfolio Requirement Rule (Chapter 311) in Docket No. 2020-00212. Founded in 1892, the Sierra Club is the nation's oldest grassroots environmental organization with approximately 800,000 members in all 50 states, including nearly 6,000 members in Maine. The Sierra Club's mission involves advocating for ambitious and just climate solutions, including reductions in greenhouse gas (GHG) emissions across all sectors, a transition to 100 percent clean energy, and an increase in energy efficiency.

A reduction in building sector emissions will be critical to meeting Maine's ambitious GHG emissions reduction target of 45% below 1990 emissions levels by 2030 and 80% below 1990 emissions levels by 2050.¹ At present, the building sector (residential and commercial) accounts for 30% of the state's CO₂ emissions from fossil fuel combustion; the sector relies overwhelmingly on fossil fuels and other carbon-emitting combustible energy sources for space and water heating.² Beneficial electrification is the only realistic way to reduce emissions from the building sector, and will be increasingly successful as Maine's updated renewable portfolio standard (RPS) policy transitions the state's electricity grid from 40% to 80% renewable energy by 2030.

Any thermal RPS designed to reduce GHG emissions should primarily incentivize adoption of electric heat pumps, as heat pumps represent the most promising way to reduce fossil

¹ 38 MRSA §576-A (2019).

² Maine Department of Environmental Protection, Eighth Biennial Report on Progress toward Greenhouse Gas Reduction Goals, January 12, 2020, p. 9-11.

fuel end-use consumption in Maine’s homes and businesses. Electric heat pumps reduce carbon emissions compared to fossil fuel appliances even with today’s electric grid,³ and are cost effective to purchase and operate.⁴ The legislature recognized the importance of heat pump adoption with the passage of the Efficiency Maine Trust Act, aiming to install 100,000 new heat pumps by fiscal year 2024-25.⁵ Including heat pumps in the thermal RPS would help the state reach this target—the thermal RPS should be expanded to include heat pumps outright. Based on the current statutory text, when paired with solar panels heat pumps can and should be included as a facility that produces thermal energy using sunlight, as that is the clear function of the combined technology. To exclude heat pumps from the thermal RPS would be a missed opportunity for the state to incentivize heat pump adoption to meet its statutory target and to reduce GHG emissions.

Combustible thermal fuels such as biomass, biogas, and biofuel will not help Maine reach its climate commitments and will only prolong reliance on fossil fuel and carbon-emitting infrastructure. While incentivizing heat pump adoption will set the state on a path to meet its climate change commitments, encouraging reliance on combustible GHG-emitting fuels is counterproductive to achieving those goals. Biomass is not carbon neutral on any relevant time scale and has very high combustion emissions of carbon dioxide.⁶ Further, biomass combustion in wood boilers and furnaces is responsible for emissions of particulate matter and other harmful pollutants, contributing to a wide range of acute and chronic health problems.⁷ Biodiesel similarly cannot provide significant GHG emissions reductions over gas or conventional heating oil—depending on the production process, the feedstock, and the timeframe of the analysis, biodiesel may be responsible for even more GHGs than fossil fuels on an energy-equivalent basis.⁸ Current heating infrastructure is also unlikely to readily accommodate biodiesel blends

³ Sherri Billimoria, et al., Rocky Mountain Institute (“RMI”), *The Economics of Electrifying Buildings: How Electric Space and Water Heating Supports Decarbonization of Residential Buildings*, p. 11 (June 2018); Rocky Mountain Institute, *The Impact of Fossil Fuels in Buildings: A Fact Base*, p. 11 (Dec. 2019).

⁴ The up-front costs for heat pumps, which are capable of both heating and cooling, are lower than for the combination of furnaces and air conditioners. RMI, *The Impact of Fossil Fuels in Buildings*, at 63; RMI, *The Economics of Electrifying Buildings*, at 20. In Rocky Mountains Institute’s (RMI) study of new construction and retrofitting with heat pumps in Providence, Rhode Island, the organization found that heat pumps were the most cost-effective option in new construction as compared to all fossil fuels, and in retrofits were more cost effective than propane and heating oil, and commensurate with natural gas if a new air-conditioning system was also needed. RMI, *The Impact of Fossil Fuels in Buildings*, at 65; RMI, *The Economics of Electrifying Buildings*, at 34. A 2018 study by Synapse Energy Economics found that in the Northeast, operation of heat pumps was more cost effective for consumers than propane, oil, and electric resistance heating. Danielle Goldberg et al., *Switch on the Savings: A Heat Pump Cost-Effectiveness Study*, Synapse Energy Economics, Inc., p. 21 (June 27, 2018).

⁵ 35-A MRSA §10119. Heating Fuels Efficiency and Weatherization Fund (2019).

⁶ Partnership for Policy Integrity, *Why Forest-Derived Biomass is Not Carbon Neutral in the Relevant Timeframe for New York’s Climate Goals*, submitted with joint comments by Sierra Club, et al., to the New York State Department of Conservation re: proposed revisions to 6 NYCRR Part 251, CO 2 Performance Standards for Major Electric Generating Facilities, July 29, 2018.

⁷ Partnership for Policy Integrity, *Massachusetts tops New England in air pollution from wood burning*, (August 1, 2017), <http://www.pfpi.net/massachusetts-tops-northeast-in-air-pollution-from-wood-burning>.

⁸ US EPA, *Economics of Biofuels*, <https://www.epa.gov/environmental-economics/economics-biofuels> (accessed on January 6, 2020). (“Depending on the feedstock and production process and time horizon of the analysis, biofuels can emit even more GHGs than some fossil fuels on an energy-equivalent basis.”) *See also*, International Council on Clean Transportation, *Biodiesel carbon intensity, sustainability and effects on vehicles and emissions* (January 2012). (“In actuality most biodiesel pathways result in higher net emissions than the combustion of conventional diesel fuel.”)

above 20 percent, further reducing the potential for biofuel to deliver substantial emissions reduction.⁹ Likewise, biogas is not a viable solution to reduce emissions; switching from burning one hydrocarbon to burning another is not a long-term solution to the climate problem. Moreover, other states that have explored biogas as a possible solution, such as California, have concluded that there is insufficient affordable biogas available to serve as a substitute to meet energy demand.¹⁰ The draft California Energy Commission report found that even in a scenario incorporating optimistic biogas cost assumptions, reliance on biogas to decarbonize gas supply would impose steep costs on all sectors of the economy that use gas.¹¹

Finally, Maine's thermal RPS should not offset electricity providers' responsibility to achieve 100% renewable electricity. The state's existing RPS obligations on electric providers are an effective driver of renewable energy development and are essential to ensuring GHG reductions in the electric sector. The efficacy of any additional thermal RPS depends on the existing obligations to ensure that the electricity used to heat buildings is generated from non-GHG emitting sources. Responsibility for meeting a thermal RPS would more appropriately fall on heating fuel providers than electricity providers. Cross-subsidization of non-electric technologies, particularly carbon-emitting technologies, by electric ratepayers is inappropriate—electric ratepayers should not bear the cost of incentivizing transition to non-electric heating fuels. An increase in costs for electric ratepayers would perversely make cleaner electricity less cost-competitive with dirtier non-electric alternatives and would be counterproductive to achieving Maine's GHG emissions reduction goals.

Respectfully submitted,

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⁹ US DOE, Alternative Fuels Data Center: Biodiesel Codes, Standards, and Safety, https://afdc.energy.gov/fuels/biodiesel_codes.html. Indeed, the American Society for Testing and Materials D396 heating oil specification limits biodiesel blends to 20 percent in most situations. American Society for Testing and Materials, Standard Specification for Fuel Oils D396.

¹⁰ California Energy Commission, Energy Research and Development Division, Natural Gas Distribution in California's Low-Carbon Future, Draft, October 2019, p. 28 (Finding that "there is insufficient low-cost, sustainable [renewable natural gas] supply to decarbonize the pipeline fully without electrification.").

¹¹ *Id.*, at 5 ("Scenarios that rely on high blends of [renewable natural gas] to decarbonize gas supply impose steep costs on all sectors of the economy that use gas, even in a scenario that incorporates optimistic [renewable natural gas] cost assumptions.").