

**Energy Efficiency Advisory Council
February Meeting
February 12, 2020, 12:30pm-4:00pm
100 Cambridge Street, 2nd Floor, Rooms B + C
Boston, MA 02108**

COMMENTS BY EDWARD WOLL, JR. OF THE GAS LEAKS ALLIES

The Gas Leaks Allies submit these comments in support of providing rebates and HEAT Loans in the MassSave program to the conversion from gas-fired furnaces and hot water heaters to heat pumps and geothermal systems.

I attended on Monday night a public meeting in Andover, Massachusetts convened by the Department of Public Utilities in DPU 19-140 and DPU 19-141, proceedings initiated to investigate the responsibility of Columbia Gas for the tragic events in the Merrimack Valley on September 12, 2018. The testimony of victims made it clear that Columbia Gas obstructed their justifiable desire to install a source of heating other than gas. MassSave's exclusion from eligibility for rebates the replacement of gas furnaces and hot water heaters by clean sources of thermal heat such as heat pumps enables that obstruction.

We also support the Merrimack Valley Interfaith Team's request for the extension of the deadline for MassSave enhanced incentives in the gas disaster impacted towns of Andover, North Andover and Lawrence for one year. These incentives provide no cost insulation and air sealing to all gas customers in these three towns.

Statement of Interest. The Gas Leaks Allies are a collaboration of more than 25 organizations and researchers focused in the short term on reducing methane emissions from the natural gas distribution system in Massachusetts, and in the long term on developing a path for the Commonwealth to transition to fossil-free sources of energy in our homes and businesses for

heating, cooling and cooking. These are necessary steps to achieve the drastic reduction of greenhouse gas emissions in the face of the impending climate crisis.

It takes the small steps that we advocate for today. And it also takes bigger steps such as our work with the Legislature to enact An Act for Utility Transition to Using Renewable Energy ([H.2849, S.1940](#)), (the FUTURE Act), a bill forged not only in response to the Merrimack Valley disaster to improve gas distribution safety standards but also to change the regulatory structure to permit gas companies to transition to a business model that authorizes utility-scale infrastructure to distribute and sell to ratepayers geothermal renewal energy rather than explosive gas.

While our members represent a variety of organizations, participants in our work are volunteers. More information about our work can be found at [Gas Leaks Allies](#).

Our request to expand eligibility for rebates and HEAT Loans. Investor owned gas companies participate in the MassSave program, the cost of which is reflected in rates paid by customers. MassSave does not allow for [rebates](#)¹ and [HEAT Loans](#) for heat pump and geothermal systems that replace natural gas fired heating systems. Such rebates are provided only for conversion of electric systems to heat pumps. The MassSave rebate system should include replacement of gas fired appliances with heat pumps and geothermal systems.

Rebates not provided for replacement of gas appliances. The MassSave program administered by an investor owned gas company does not provide the rebate of up to \$600 for replacing a gas fueled hot water heater or a gas fueled heating or cooling system with a heat pump; yet such a rebate is provided for replacing an electric hot water heater and or an electric heating and cooling system with a heat pump system or even a gas system. A rebate

¹ “The \$600 rebate for a 55 gallon or less hot water heat pump is only available to replace an electric hot water heater, not a gas fired, hot water heater. There is no financial incentive to replace a gas hot water heater.”

of \$600 per unit, which is \$1,200 for both a furnace and hot water heater, is a significant amount for a homeowner. Its availability would encourage these conversions from gas.

HEAT Loans not offered for the replacement of gas appliances. The HEAT Loan program under Mass Save does not provide a no-interest loan (HEAT Loan) for replacing a gas fueled hot water heater or a gas fueled heating or cooling system with a heat pump or geothermal system. Yet a no-interest loan is provided for replacing (i) an electricity supplied hot water and heating and cooling system with a gas system or a heat pump system and (ii) a gas fired hot water and heating and cooling system with a more efficient gas system. As a result, those who heat with gas and want to convert to safer, more efficient and cleaner heat pump technology cannot benefit from a no-interest HEAT Loan.

We seek simply to have the MassSave program include rebates and HEAT Loans for replacing gas fueled hot water or gas fueled heating or cooling systems with non-emitting, clean and renewable thermal energy heat pump and geothermal systems.

The MassSave policy of exclusion is unwarranted. There are several reasons why this discriminatory policy should be reversed so that conversion to heat pumps from gas is treated at least as generously as conversion from electricity to gas.

- There is no rational basis today to conclude that gas is more efficient,² more cost effective, safer for a home or more consistent with public safety than a heat pump.

² Eversource is prepared to deploy three heat pump or geothermal projects and has included in its current rate case a request for the funds to do so. Eversource stated: "We focus on 3 opportunities, one for low income, one for residential, and one for commercial/industrial to test all different environments across the Commonwealth in 3 separate pilots." "At a high level, geothermal technologies take advantage of the relatively stable temperature of the ground to provide heating and cooling. A heat exchanger extracts heat out of the ground in winter and extracts heat out of buildings and pushes it into the ground in summer. Geothermal systems tend to be very efficient, with Coefficients of Performance of 300 to 600 percent. That means that one unit of electricity used to drive the heat pump can extract three to six times the energy from the ground. To deliver space heating and cooling, geothermal systems transfer energy

- The amount of heating or cooling energy provided by a heat pump is represented to be 1.5 to 2 times more than the electrical energy to run it.
- Every conversion of a gas fueled appliance to a heat pump decreases the use of gas and the revenue from its sale to a gas company.³
- Replacing thermal gas home heating with heat pumps shifts gas out of the home and thereby reduces peak demand for thermal gas for home heating.
- Operation of a heat pump is free of greenhouse gas and other toxic emissions.⁴
- A heat pump is far more compatible with public safety than gas.

As to those last two points, carbon dioxide and other greenhouse gases such as methane are by law pollutants. Massachusetts v. Environmental Protection Agency, 549 U.S. 497.

Therefore, it cannot be said that a gas fired appliance is safer for public health or safety than a non-emitting heat pump or geothermal system.

The combustion efficiency of most gas appliances is advertised in the 80% to 95% range, which means that at least 5% to 20% of the heat is lost. In addition, there is a greater likelihood in less efficient furnaces that the exhaust contains unburned methane⁵ and the other toxic combustion products. Moreover, the pressure relief system for gas delivery through gas meters includes a regulator to manage the difference in street pressure of about 60 psi and in-house

between a building and the earth by circulating water (or a non-freezing liquid). NSTAR Gas Company d/b/a Eversource Energy D.P.U. 19-120 Exhibit ES-PMC/MRG-1 November 8, 2019 Page 45 of 71

³ Gas companies sitting on the EEAC as non-voting members are able to influence EEAC policy and decisions in which they have a clear, and disclosed, financial interest.

⁴ “The emissions from natural gas-fired boilers and furnaces include nitrogen oxides (NOx), carbon monoxide (CO), and carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), volatile organic compounds (VOCs), trace amounts of sulfur dioxide (SO₂), and particulate matter (PM).” [EPA bulletin](#).

⁵ The lower cost furnaces are lower efficiency and the highest cost furnaces are the most efficient. See <https://www.bing.com/shop?q=combustion+efficiency+of+gas+boilers&FORM=SHOPPA&originGUID=D5A9088311AD4C7D979E712E9626BCF1>

pressure of 0.5 psi. The regulator burps methane into the air, and the aggregate amount can be substantial.⁶

Conclusion. We are working to move the Commonwealth to the safe, healthy, economically stable, and fossil free future that we aspire to for ourselves, our children, and our grandchildren, to meet the Global Warming Solutions Act mandates and to address climate change. We ask that MassSave and the EEAC take these few steps to help attain these goals by expanding its rebate and HEAT Loan program to include conversion of gas appliances to more energy efficient to heat pumps and geothermal systems.

Thank you for the opportunity to comment, and for all that you can do to ensure that the Commonwealth's energy needs will be met with non-emitting renewable thermal energy sources.

Respectfully submitted,



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⁶ “Two ways natural gas may be escaping at your meter “ [by Ingrid Lobet | November 3, 2017](#) innewsourc, <https://inewsourc.org/2017/11/03/natural-gas-leaking/> “Natural gas is leaking – sometimes deliberately – from residential gas meters up and down the state of California. “That surprise is buried in state documents, a review by *inewsourc* has found. “The leaks don’t mean you’re in danger of an explosion. But tiny amounts of natural gas escaping from gas meters not only cost you money, they can be the largest single source of leaks for a utility, as they are for [San Diego Gas & Electric](#). “Renters and owners pay for this gas because utilities are allowed to charge customers for gas that is lost or unaccounted for. The bill for all that lost gas, from meters and otherwise, is about \$20 million a year in California.”