

**Energy Efficiency Advisory Council**  
**Virtual Meeting June 17, 2020, 12:30pm-4:00pm**

**SUBMISSION AND REQUEST FOR INFORMATION BY EDWARD WOLL, JR.**

The undersigned, Edward Woll, submits these comments in support of providing rebates and HEAT Loans in the MassSave program for the conversion from gas-fired furnaces and air condition and hot water heaters to heat pumps and geothermal systems. This submission also supports the related issue of continuing extensions of the deadline for MassSave enhanced incentives for no cost insulation and air sealing in the gas disaster impacted towns of Andover, North Andover, and Lawrence. Extensions will assist in weatherizing dwellings that will in turn improve the cost effectiveness and efficiency of heat pump equipment that may be installed.<sup>1</sup>

These issues were raised by the undersigned on behalf of the Gas Leaks Allies at the February 12, 2020 EEAC meeting. The undersigned then submitted to the House Committee on Ways and Means a request to adopt Sections 16 to 26 of Senate bill [S.2500, An Act setting next-generation climate policy](#) that was referred to it on February 10 to redress this anomaly in coverage of the MassSave program. A copy of that submission accompanies this submission.

After the February 12, 2020 meeting the following three italicized questions numbered 1, 2 and 3 were asked of the EEAC and the general responses below in blue were provided. Those responses lacked the detail needed to understand the rationale provided. The undersigned requests that answers to the additional follow-up questions numbered 1a., 1b., 2a., 2b., 3a., 3b., and 3c. below be provided.

1. *Why are gas heating and cooling systems not being replaced by heat pump technology?*

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<sup>1</sup> The undersigned submitted to Energy Efficiency Advisory Council at the February 12, 2020, in person Meeting COMMENTS BY EDWARD WOLL, JR. OF THE GAS LEAKS ALLIES” regarding 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.

*Response:* The main reason customers do not replace natural gas heating systems with heat pumps is because the cost per unit of heat produced is currently less for natural gas compared to electric heat pumps. For example, natural gas furnaces are generally less expensive to operate than heat pumps in Massachusetts (i.e., using a heat pump generally increases utility bills). Past research has found that customers who use natural gas for heating may add heat pumps, but they tend to use them for cooling rather than heating. The PAs do not encourage switching from natural gas to heat pump technologies for heating use because this is not currently cost-effective.

Follow-up questions:

- 1a. Please explain at what level of electricity cost and cost of gas is a heat pump more expensive and less expensive than a furnace for delivery of comparable levels of heating and cooling? Please also provide examples using actual recent data. And please provide the source of the data.
- 1b. What are the elements of cost used in determining that “switching from natural gas to heat pump technologies for heating use because this is not currently cost-effective”? Please also provide example using actual recent data. And please provide the source of the data.
2. *Would the transition from gas heating and cooling systems to heat pumps be more robust if the MassSave incentives and no interest HEAT loans applied to those heat pump customers?*

*Response:* Residential customers currently have do [sic] the ability to access incentives and HEAT Loan to install heat pumps. The transition is more difficult as the cost per unit of energy for natural gas is less as compared to electricity crrently [sic] and hence the recurring annual operational cost of electric heat pumps is more as compared to natural gas heating systems.

Follow-up question:

- 2a. It appears that there is currently no financial support under MassSave for conversion from a natural gas furnace or air conditioner or water heater to a heat pump to perform those functions. Is that correct, and if not, where does it say that such financial support is provided?
- 2b. What are the reasons, with the underlying rationale and data, for the lack of such financial support for such conversions? If the rationale advanced is because the cost of heat pumps is more than natural gas under recently prevailing electricity prices, please clarify if that is just for heating, just for cooling, for both heating and cooling or just for hot water? Would you please be specific and detailed in your response to these two questions?
3. *Would the transition from gas to heat pumps result in a reduction of Green House Gas production?*

*Response:* Switching from natural gas fuel for heating to a heat pump will not necessarily reduce greenhouse gas emissions; it depends on several factors including the efficiency of the gas heating system replaced, the efficiency of the heat pump, the efficiency of power plants used to generate electricity to run the heat pump, the power generation mix, and

transmission/distribution losses from the source of power generation to the site where the electricity is used.

Follow-up questions:

3a. Per unit of heat delivered by an operating heat pump produce less, more or the same Green House gas emissions than the same unit of heat delivered by a gas furnace? Please explain the circumstances when that is not so and when it is so.

3b. Per amount of cooling delivered by an operating heat pump, does the heat pump produce less, more or the same volume of green House gas emissions than is produced by the same amount of cooling delivered by a gas furnace? Please explain the circumstances when that is not so and when it is so.

3c. Would you supply the analysis and underlying data for the conclusion that “[Switching from natural gas fuel heating to a heat pump will not necessarily reduce greenhouse gas emissions](#)”?

**Conclusion.** Thank you for this opportunity to submit these comments and questions, 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. We are all working to move the Commonwealth to the safe, healthy, economically stable, and fossil free future for ourselves, our children, and our grandchildren, to meet Global Warming Solutions Act mandates and to address climate change. We ask the EEAC and MassSave help attain these goals by applying the MassSave rebate and HEAT Loan program to the conversion of gas appliances to heat pumps and geothermal systems.

Respectfully submitted,



Edward Woll  
79 Dana Street  
Cambridge, MA 02138  
617-395-0208  
508-330-4500 cell  
[ewoll@comcast.net](mailto:ewoll@comcast.net)