



November 15th, 2024

Gabriel Weekes

Senior Policy Advisor
Ministry of Energy and Electrification
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Dear Mr. Weekes,

**Re: Energy Efficiency Programming to Promote Beneficial Electrification
ERO Number: 019-9373**

We are writing on behalf of Environmental Defence and the Ontario Clean Air Alliance to provide joint comments on the proposal to include beneficial electrification programming in the next electricity energy efficiency framework. This is an excellent proposal as it will reduce energy bills, reduce carbon emissions, and put Ontario in a better position to address the ongoing energy transition in the most cost-effective way.

Beneficial electrification is directly aligned with this government's goal of maintaining energy affordability and reducing energy bills. This is particularly the case for heat pumps. Many studies have shown that heat pumps can save consumers thousands of dollars in reduced energy bills.¹ Heat pumps are so efficient because they *move* heat instead of *converting* gas or electricity into heat. Standard gas and electric heating cannot surpass 100% efficiency, whereas heat pumps can be multiple times more efficient – they can use 1 kW of electricity to move 3 kW of heat (or more) indoors. They can do this even in cold temperatures because, counterintuitively, there is still a great deal of heat energy that can be extracted from very cold air.²

Heat pumps are a very cost-effective way to reduce Ontario's carbon emissions because they produce both bill reductions and carbon emissions reductions. The combustion of methane gas contributes approximately one third of Ontario's carbon emissions. Heat pumps can slash those emissions by eliminating the methane currently used to heat buildings. Heat pumps drastically

¹ Evidence of the Energy Futures Group in OEB File # EB-2022-0200, p. 23 ([link](#)); Dr. Heather McDiarmid, An Analysis of the Financial and Climate Benefits of Electrifying Ontario's Gas-Heated Homes by Installing Air-Source Heat Pumps, August 2, 2022, p. 11 ([link](#)); Corporate Knights, GREEN house effect: Calculate the savings from electrifying your home, June 20, 2023 ([link](#)); Ontario Ministry of Energy, Discussion Paper, August 2023, pp. 10-11 ([link](#)); OEB Decision and Order in EB-2022-0200, December 21, 2023, p. 41 ([link](#)).

² National Resources Canada, *Heating and Cooling With a Heat Pump*, ([link](#)) ("It may be surprising to know that even when outdoor temperatures are cold, a good deal of energy is still available that can be extracted and delivered to the building. For example, the heat content of air at -18°C equates to 85% of the heat contained at 21°C. This allows the heat pump to provide a good deal of heating, even during colder weather.")

reduce carbon emissions from heating and will completely eliminate those emissions once Ontario is able to fully decarbonize its electricity supply.

Heat pumps are even more cost effective vis-à-vis gas heating when you compare them to other methods of eliminating carbon emissions in buildings, such as renewable natural gas. Analysis by the Energy Futures Group found that heat pumps save customers even more when one compares the cost of heating via a furnace burning decarbonized gas (i.e. renewable natural gas) and a heat pump consuming carbon-free electricity.³ This is true even after accounting for electricity cost increases arising from decarbonizing electricity generation and from expanding the electricity system to address electrification.⁴

Heat pumps are also the most cost-effective way to decarbonise heating when studied at a societal level accounting for all impacts, including the need to build out additional generation capacity and invest in electricity grids. The Canadian Climate Institute retained energy and cost optimization modeling experts to assess the most cost-effective pathways for decarbonising heating in buildings. They found that the most cost-effective way to decarbonize Ontario's buildings would involve a 96% decline in gas consumption over the next 26 years.⁵

The proposed change would be consistent with the findings and recommendations of Ontario's Electrification and Energy Transition Panel. The Panel found that "[E]merging evidence shows that it is unlikely the natural gas system can be fully decarbonized and continue to deliver cost-effective building heat."⁶ The Panel also recommended provincial mechanisms to support switching to heat pumps from gas, finding that "[t]he provincial government should explore mechanisms to support broad adoption of fuel switching, decarbonization and supportive technologies such as electric vehicles, storage and heat pumps to support its clean energy economy objectives, foster change at the needed pace and scale, and to ensure that all customers can benefit effectively from the energy transition."⁷

Providing incentives for beneficial electrification is obviously in the interests of energy consumers and the province as a whole. Thank you for considering these comments. Please contact us if you have any questions regarding the above.

Jack Gibbons
Chair
Ontario Clean Air Alliance

Keith Brooks
Programs Director
Environmental Defence

³ Evidence of the Energy Futures Group in OEB File # EB-2022-0200, p. 24-26 ([link](#))

⁴ *Ibid.*

⁵ Canadian Climate Institute, Heat Exchange, Net Zero and the Future of Building Heat, June 2024, Figure C, p. 17 ([link](#)).

⁶ Ontario's Clean Energy Opportunity: Report of the Electrification and Energy Transition Panel, Part 8 ([link](#))

⁷ Ontario's Clean Energy Opportunity: Report of the Electrification and Energy Transition Panel, Part 10, Recommendation 27 ([link](#))