Heat pumps can and should be the new AC | August 23rd 2023

Heat pump installation done by Phyxter Home Services. Image by Phyxter.ai / Flickr (CC BY 2.0)

Canada is known for its cold winters, but thanks to climate change, extreme heat is increasingly becoming a matter of life and death.

To cope, many Canadians turn to central air conditioners to cool their homes. A new report by multiple climate policy research groups says this is a missed opportunity to switch to heat pumps, which are more energy-efficient and can both heat and cool our homes.

Every week, 7,000 households install a central air conditioner when they could have put in a heat pump, according to a new report from the Canadian Climate Institute, Building Decarbonization Alliance, Efficiency Canada and the Greenhouse Institute.

“We could be saving money, people could have more comfortable homes and we could be cutting (greenhouse gas) emissions all at the same time if we were installing heat pumps instead of central air conditioners in Canada,” Alexander Gard-Murray, the report’s lead author, told *Canada’s National Observer* in a phone interview.

If the entire supply of new central air conditioners was replaced with heat pumps starting in 2025, it would mean cumulative energy bill savings of $10.4 billion across Canada by 2035. When the estimated $3.7-billion cost of buying and installing the heat pumps is added, the total value of energy bill savings is $6.7 billion.

The authors calculate in the year 2030, affected households would save an average of $349.

“It's a no-regrets policy,” said Gard-Murray. Despite regional differences in climate and the energy mix, this is either going to “help substantially” with your energy bills “or you're going to come out basically equal,” he added.

Heat pumps will save you big money

Between 2018 and 2022, ducted heat pump sales increased by 18 per cent, the authors write. However, 10 times more central air conditioners than heat pumps were purchased in 2022.

“This isn't a choice people get to make very often and it's usually a choice people have to make really quickly,” said Gard-Murray, director of the Greenhouse Institute. Central air conditioners tend to fail under stress at the “worst time,” like during a heat wave, for example. This forces people to make a quick decision based on what is in stock and what their contractor recommends, he said.

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“If you put in a central air conditioner, then it's gonna last for 10, 15, maybe 20 years. It's not likely going to make financial sense for you to get a heat pump for another 10 to 15 years,” said Gard-Murray.

Low familiarity is another challenge to the widespread adoption of heat pumps: the system doesn’t exactly sound like something that can also cool your house, the report noted.

A not-yet-released Abacus Data poll found 49 per cent of 2,000 Canadian adults surveyed either haven't heard of heat pumps or aren't sure what they do. The survey, commissioned by Stand.earth, was conducted between June 22 and 27.

Last winter, Gard-Murray says his landlord’s furnace failed and before he could suggest a heat pump to them, they put a deposit down for a new furnace. Within 24 hours, the deposit was already down, he said.

“That's how narrow the window is,” said Gard-Murray. “Even if you have a heat pump evangelist living downstairs, you can miss the chance.”

The report explores what a market transformation to replace central AC with heat pumps would look like, assuming people will purchase the most basic heat pumps on the market and not receive any grants or funding from federal or provincial programs to cover the cost. Even using these conservative assumptions, “we still see these big benefits,” said Gard-Murray. The cumulative climate benefits from 2025 to 2035 came out to 19.6 million tonnes of carbon dioxide or an equivalent amount of greenhouse gases. That is equivalent to nearly 4,600,000 homes’ energy use for one year, according to Natural Resources Canada’s greenhouse gas calculator.

“If people buy even better models, specialized cold climate models, and they use government incentives to do so, we'll probably expect the benefits to be even bigger than what we projected,” said Gard-Murray. If governments continue to offer rebates, it is likely people will opt for higher-performance models, the report noted.

Natural Resources Canada has a $250-million program to help low- to middle-income households now heating their homes with oil make the switch to electric

heat pumps. Eligible homeowners can receive up to $5,000 to purchase and install a new, cold-climate heat pump.

That grant can also be combined with the federal government's existing greener homes grants of up to $5,000 to homeowners who complete energy-efficient home retrofits and another $600 towards the cost of a home energy assessment, which is required to receive the funding.

There are also interest-free loans of up to $40,000 for major home retrofits being offered by the federal government, which can help homeowners not only switch heating and cooling systems, but also make their home more airtight and energy efficient with new windows, insulation and more.

'Spooked by the heat dome'

For Vancouver, B.C., resident Terre Satterfield, provincial and municipal rebates were key to her decision to get a heat pump in June 2022.

"At the time, I was a little spooked by the heat dome that had occurred in the year before — I have an elderly father," Satterfield told *Canada's National Observer* in a phone interview. The 2021 heat dome killed 619 people between June 25 and July 1, according to the BC Coroners Service. The following year, a review panel's findings revealed almost all the deaths occurred indoors and 67 per cent were people aged 70 or older.

Satterfield looked at modifying the existing natural gas system to add air conditioning versus installing a heat pump and found "it was cheaper to change out the whole system with the rebate than it was to add cooling to the gas furnace."

Thanks to the rebates, going the heat pump route was at least $2,000 cheaper than sticking with gas, she said. She was able to access CleanBC's rebate as well as one offered by the City of Vancouver.

Had rebates not been available, Satterfield said she would have waited for the furnace to die and still might have ended up with a gas-dependent cooling system. "I didn't get the federal (rebate) because I didn't know that I had to do an energy audit beforehand," she added.

Her advice to people considering heat pumps: hire a contractor who knows what type of proof is required for the different rebates being offered. A knowledgeable contractor can help you navigate the sometimes confusing rebate systems and ensure you have any photo proof or documentation needed to access grants.

“My total costs of heating have gone down,” said Satterfield, estimating that, overall, her gas bill is about $75 less per month and her electricity bill is about $50 more.

The most straightforward way to transform the market so heat pumps become the new central AC would be a national mandate that all central air conditioners sold in Canada also have heating capabilities, the report says. This approach would also help renters who can’t choose to undertake energy-efficient retrofits — their landlords would have to make the switch, which would help renters by lowering utility bills, Gard-Murray added.

Vancouver has a policy that effectively requires all new central air conditioners in detached one- or two-family homes be heat pumps. The federal government could also consider creating incentives for manufacturers and distributors to sell more heat pumps, in addition to using building codes and equipment requirements to accelerate the shift.