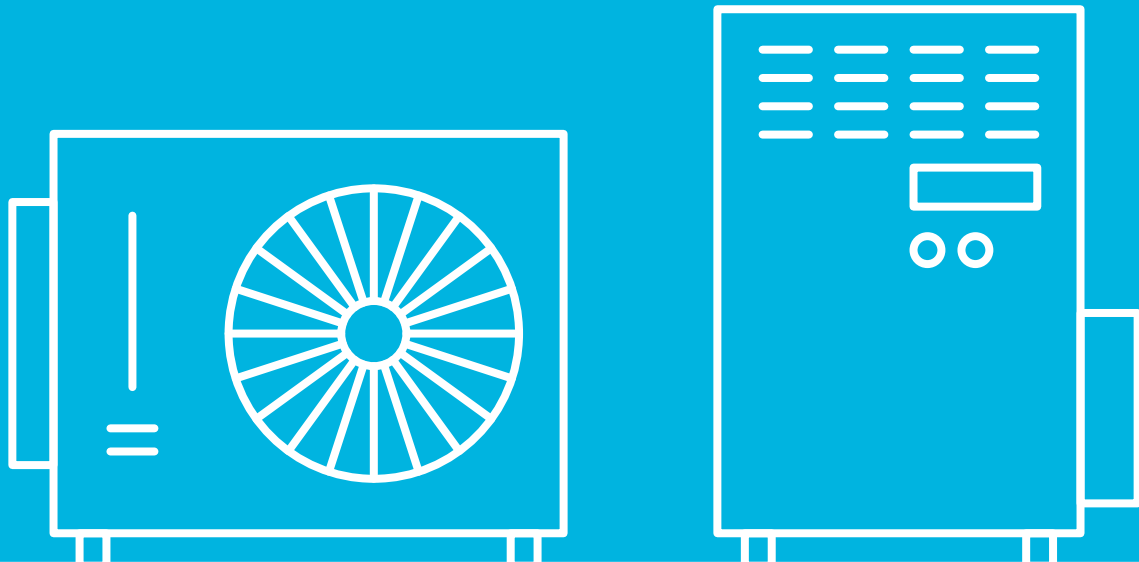


Cold comfort:

The link between home heating and climate change



Quiet carbon contributor: Why it is time to rethink how British Columbians heat their homes

As the weather gets colder, British Columbians are powering up their furnaces, unaware that home heating is a big contributor to personal household greenhouse gas emissions—about 11 per cent of B.C.’s greenhouse gas emissions—or about 6.9 million tonnes are from buildings and homes.¹ While many British Columbians are aware of the steps they can take to help combat climate change, many do not realize that their fossil fuel-based home heating and appliances such as gas stoves can silently contribute to greenhouse gas emissions.

Highlights

- A new BC Hydro survey² finds over one-third of British Columbians mistakenly think natural gas is the most environmentally friendly way to heat a home, unaware that gas furnaces and appliances such as gas stoves contribute to climate change.
- At the same time, the majority of British Columbians believe driving their fossil-fuelled car is a much larger contributor of greenhouse emissions than home heating.
 - However, heating a typical single-family home entirely with natural gas each year can emit about two tonnes of carbon dioxide—that’s about the same carbon footprint as driving a fossil-fuelled car for 8,000 kilometres.³
- While many British Columbians heat their homes with electricity, more than 50 per cent are using natural gas—and this number jumps even higher when looking at detached homes—two-thirds use natural gas.
- Natural gas appliances are also popular fixtures in B.C. kitchens— a quarter of BC Hydro customer households have at least one natural gas cooking appliance, such as a stove.⁴
- With natural gas home heating on the rise in recent years, its popularity may be bolstered by the perception that it is clean.
- Electricity, on the other hand, is a much cleaner option in B.C. where 98 per cent of the electricity BC Hydro generates comes from clean or renewable resources that are mostly powered by water.
- While 10 per cent of British Columbians are using electric heat pumps to heat their homes—many do not know what they are—they provide the most environmentally friendly option for those looking to make the switch from natural gas, not to mention they provide the added benefit of cooling in the summer months.

Solutions

Replacing a gas furnace with a heat pump to cool in the summer and heat in the winter, will reduce a typical home’s greenhouse gas emissions by up to two tonnes per year. BC Hydro customers can receive a \$3,000 rebate top-up if switching from heating a home with natural gas, oil or propane. When combined with the provincial CleanBC rebate and federal rebates customers could save up to \$11,000. Some local governments also have additional rebates for their residents. Benefits of switching to a heat pump include:

- Decreased emissions: Installing an electric heat pump in place of a gas furnace can significantly reduce home heating emissions.
- Two for one heating and cooling: A single unit that heats in the winter and cools in the summer, no need for a furnace or air conditioner.
- No-fuss/low maintenance: Heat pumps require less maintenance than combustion heating systems, with an average lifespan of 15 years.

1 CleanBC/BC Hydro Electrification Plan

2 Online survey conducted by Majid Khoury of 800 British Columbians from 5 to August 10, margin of error +/-3.46%.

3 Greenhouse gas calculator

4 BC Hydro Residential End Use Survey 2020

The heat is on

Climate change—caused by an increase in greenhouse gases from human activity—is becoming an increasing threat in British Columbia. In order to protect communities and the ecosystems that make the province so unique, lifestyle and behavioural changes are vital. When it comes to lifestyle changes, most British Columbians are aware that one of the best ways they can reduce their personal carbon footprint is switching their gas-powered car to an electric vehicle. However, many do not realize how they heat their homes can be a big contributor to greenhouse gas emissions.

A recent survey finds over one-third of British Columbians mistakenly think natural gas is the most environmentally friendly way to heat a home, unaware that gas furnaces contribute to climate change.

This report will explore how fossil fuel-based home heating is silently a contributor of greenhouse gas emissions in B.C., and how British Columbians can take steps to change their home heating habits.

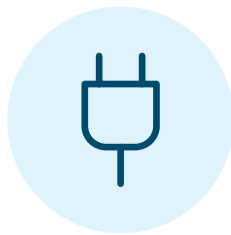
Gas heating on the rise

Most homes still run on multiple fuels. While electricity is used to power the lights, appliances and electronics, it is not used for everything inside British Columbians homes. In fact, natural gas is used to heat more than half of British Columbians homes—and in single family dwelling it accounts for two-thirds. What is more, the number of natural gas users has been increasing since 2017. Over the past few years, natural gas heating in B.C. homes has gone up 4 per cent, while electric heating as a primary source has gone down by 3 per cent during the same time period.⁵

MAIN HOME HEATING SOURCES IN B.C.



52% heat primarily with natural gas



41% heat primarily with electricity

Almost every region in B.C. uses natural gas as its dominant heating source. In the Lower Mainland, it is used in nearly 60 per cent of all home types, and in the Southern Interior and the North it accounts for nearly two-thirds. Vancouver Island is the one area where electrically heated homes are dominant, but that can be attributed to the fact that natural gas heating was not traditionally available to most of its residents.

The same can be said for dwelling types. Most detached homes are heated using natural gas—66 per cent use natural gas as their primary heating source, while just 26 per cent use primarily electric heating. Townhomes come in second with 51 per cent heating primarily with natural gas, and 48 per cent heating with electricity. Apartments and condos are an exception to natural gas supremacy, with 29 per cent using primarily natural gas to heat, and 69 per cent using electricity.

In addition to space heating, residential water heating is dominated by natural gas. In fact, a total of 40 per cent of BC Hydro customers rely on natural gas for their main water heating fuel, compared to 33 per cent that primarily use electric water heating.

Household appliances are also an often ignored source of greenhouse gas emissions, with misinformation sometimes driving purchasing decisions. For example, a quarter of BC Hydro customer households have at least one natural gas cooking appliance, such as a stove. This jumps to 32 per cent for detached homes. Looking specifically at stoves, 16 per cent of BC Hydro customer households have a natural gas range in their kitchen that includes a gas cook top with gas oven.

⁵ BC Hydro Residential End Use Survey (REUS) 2020

MAIN HOME HEATING SOURCE BY DWELLING TYPE



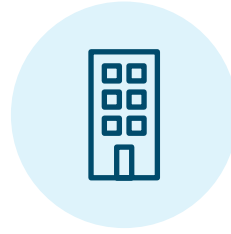
Detached homes

66% natural gas
26% electricity



Townhomes

51% natural gas
48% electricity



Condos

29% natural gas
69% electricity

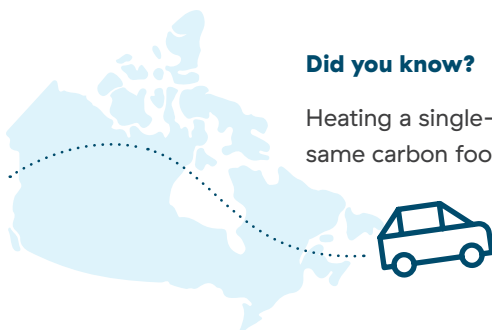
BC Hydro's Electrification Plan

BC Hydro has developed an Electrification Plan to help the Province meet its climate goals. Electrification refers to switching from fossil fuels like gasoline, diesel and natural gas to clean electricity. The Electrification Plan will encourage and incentivize residents and business to switch from fossil fuels to clean electricity while encouraging economic development and is expected to result in an additional 3,100 gigawatt hours of load and greenhouse gas emission reductions of 930,000 tonnes per year by the end of fiscal 2026. This is the equivalent of taking about 200,000 cars off the road. To get there, BC Hydro's \$260 million Electrification Plan focuses on attracting new customers and encouraging existing customers to make the switch from using fossil fuels to clean electricity in three key areas: buildings, transportation and industry.

Clean misconceptions

Many British Columbians are unaware that home heating can have an impact on their personal carbon footprint—11 per cent of B.C.'s greenhouse gas emissions—or about 6.9 million tonnes are from buildings and homes. However, most do not even consider heating a top contributor to greenhouse gas emissions, with 70 per cent listing transportation as the top contributor in B.C. While emissions from transportation and industry are significant, home heating is an area where the average British Columbian can personally take control and make a difference for the climate.

Making the switch from fossil fuels at home is one of the biggest steps British Columbians can take to reduce their carbon footprint. For example, heating a typical single-family home entirely with natural gas each year can emit about two tonnes of carbon dioxide, which is about the same carbon footprint as driving a fossil-fuelled car for 8,000 kilometres.



Did you know?

Heating a single-family home entirely with natural gas for a year is the same carbon footprint as driving a fossil-fuelled car across the country.

Electricity on the other hand is a much cleaner option in B.C., as BC Hydro generates 98 per cent of its electricity from clean or renewable resources that are mostly powered by water.

Rank	Region	% clean
1	BC Hydro	98
2	Washington	85
3	Idaho	78
4	Oregon	69
5	Montana	45
6	California	39
7	Arizona	39
8	Nevada	24
9	Colorado	21
10	New Mexico	17
11	Wyoming	11
12	Alberta	10
13	Utah	9

Did you know?

BC Hydro’s 98 per cent clean status means it holds the number one spot in western North America according to the Clean Energy Report Card rankings for delivering the cleanest electricity, followed by Washington State at 85% and Idaho in third at 78% clean.

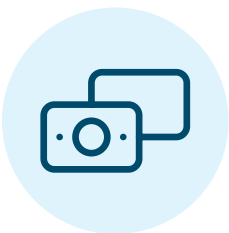
However, even though it is not the ‘greenest’ option, the popularity of natural gas is bolstered by the perception that it is clean—over one-third of British Columbians list natural gas as the most environmentally friendly way to heat a home. This number is even higher in Northern B.C., where almost half said natural gas is good for the environment. While burning natural gas for energy results in fewer emissions than burning coal or petroleum products to produce an equal amount of energy, natural gas production still produces GHG emissions.

Electrification of home heating

Despite heat pumps offering many benefits, almost a quarter of British Columbians do not even know what they are. This is likely why only about 10 per cent of British Columbian households are using electric heat pumps as a primary or secondary way to heat their homes.

Installing an electric heat pump in place of a gas furnace will significantly reduce home heating emissions. Unlike furnaces and boilers that burn fuel to produce heat, heat pumps use electricity to send heat where it is needed or remove it, much like a refrigerator. There is also the added benefit of cooling with a heat pump. Heat pumps extract heat from outside sources, and during warm periods, heat pumps can reverse the process, acting like an AC unit. Overall, the lifespan of a heat pump can be longer than combustion systems, with a lifespan of about 15 years and requiring less maintenance than their counterparts.

TOP HEAT PUMP HOLDBACKS



Cost 31%



Not owning their home 27%



Not knowing what it is and the benefits 23%

The number one thing holding British Columbians back from using a heat pump is the initial cost. Otherwise, 60 per cent indicate they are interested in heat pumps if they provide savings and have the benefit of heating and cooling. Another 60 per cent would be interested in installing one if it significantly reduced their GHG emissions.

BC Hydro customers can receive a \$3,000 rebate top-up if switching from heating a home with natural gas, oil or propane. When combined with the provincial CleanBC rebate and federal rebates customers could save up to \$11,000. Some local governments also have additional rebates for their residents.

Changing the way homes and buildings are heated is a vital part of the Province's CleanBC climate plan. The plan puts B.C. on a path to reduce climate pollution, build a low-carbon economy, and make life more affordable. BC Hydro is supporting CleanBC through its Electrification Plan which focuses on attracting new customers and encouraging existing customers to make the switch from using fossil fuels to clean electricity in three key areas: buildings, transportation and industry. For more information visit bchydro.com/electrificationplan.

