Considering Purchasing a Heat Pump?

Experience the Benefits of a Heat Pump

April 12th, 2022

The Community Energy Coach supports communities, local governments, and industry stakeholders in the promotion of CleanBC rebate programs and education of heat pumps.

BRITISH COLUMBIA | cleanBC BETTER HOMES

Land Acknowledgement

We like to acknowledge with respect the Coast and Straits Salish and WSÁNEĆ peoples on whose traditional, unceded territory we are presenting today, and the Lekwungen, Songhees, Esquimalt, and WSÁNEĆ whose historical relationships with the land continue to this day.

Township of Langley Updates

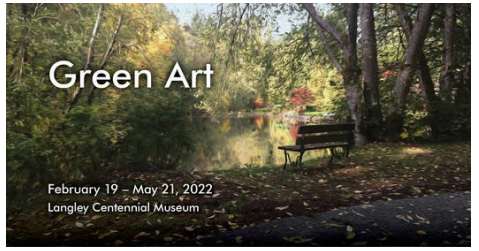
April 12 CleanBC Heat Pump Webinar

- Sustainability Grant Pilot Program
  - Applications open April 1 to May 15
  - Take a look at the eligibility requirements
  - Visit tol.ca/sgpp
- Clean Up Langley Day
  - Saturday, April 23 from 9:00 am to 2:00 pm
  - To host a clean-up, register by April 14
  - Learn more at tol.ca/cleanup
- 60th Annual Langley Walk
  - Walk 5k or 10k
  - Sunday, May 1 at 12:30pm at McLeod Athletic Park
  - Register online at tol.ca/langleywalk
- Green Art Exhibit at the museum
  - On until May 21









Township of Langley
Est. 1873

AGENDA

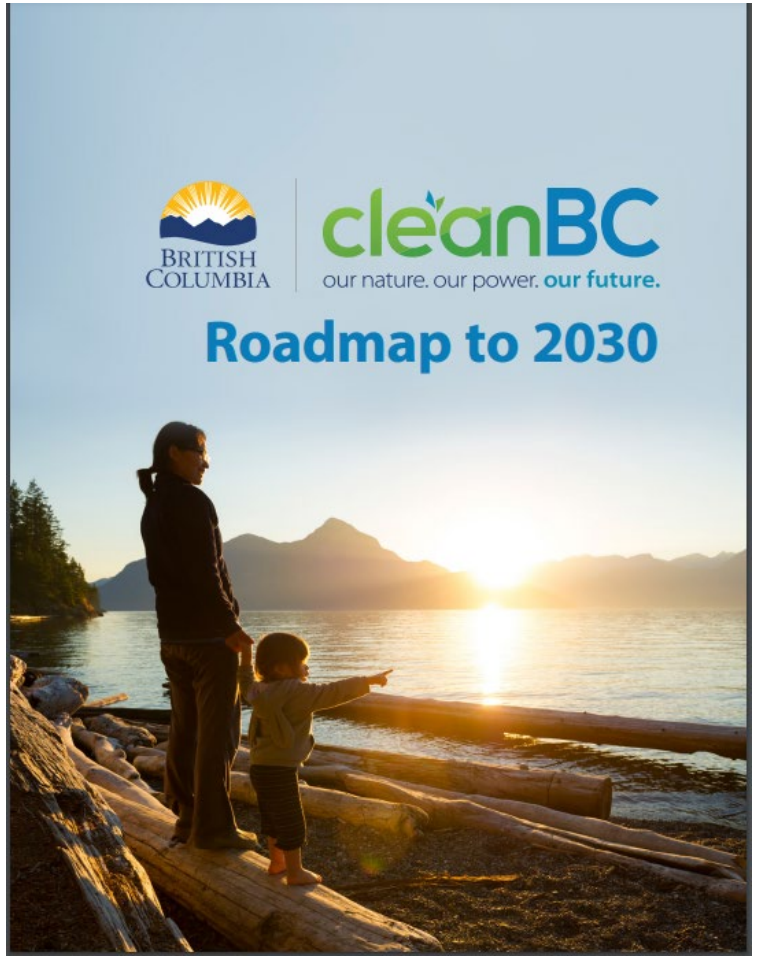
1. Why a Heat Pump
2. What is a Heat Pump
3. Heat Pump Types
4. Heat Pump Myths
5. Know before you Buy
6. Finding a Heat Pump Contractor
7. Available Rebates
8. Low-Interest Financing Program
9. Heat Pump Group Purchase Rebate (GPR)
10. CleanBC Income Qualified Program
11. Canada Greener Homes Program (CGHG)
12. CleanBC Energy Coach Service
13. Q&A



HEAT PUMPS: WHY?



CleanBC – Roadmap to 2030



Decarbonization of buildings

Low carbon technologies – heat pumps

Drastically reducing GHG emissions by 2030 in order to contribute to meeting net zero emissions target by 2050.

https://www2.gov.bc.ca/assets/gov/environment/climate-change/action/cleanbc/cleanbc_roadmap_2030.pdf

Emissions Reductions



Buildings in BC represent ~11% of province's total emissions

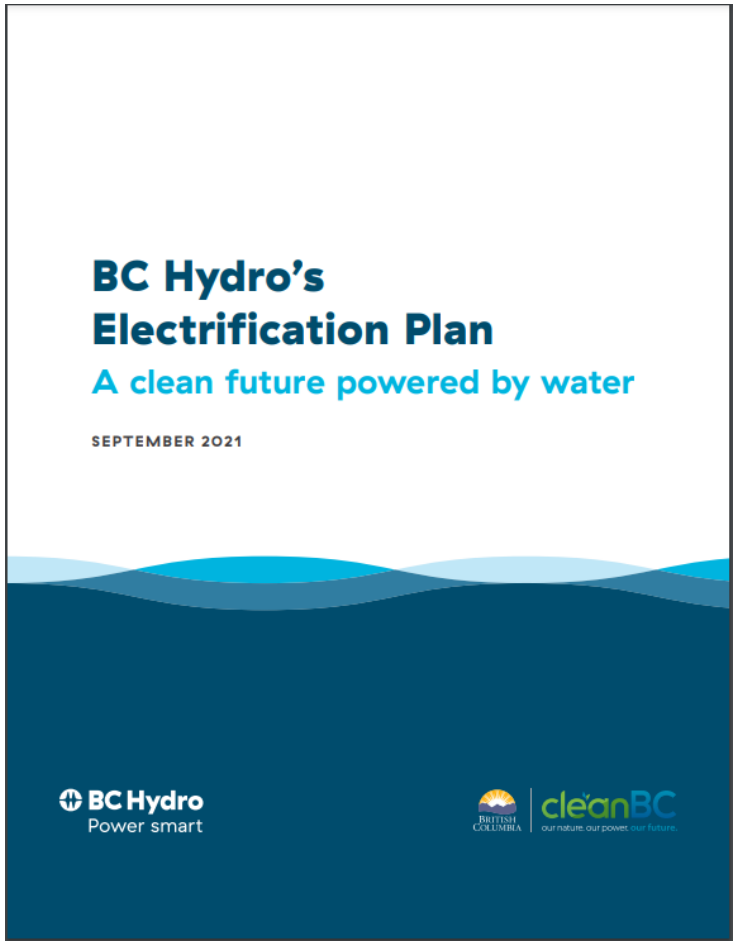
54% of homes heated by fossil fuels



Shift towards heat pumps

https://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/corporate/electrification/Electrification-Plan.pdf

Future of our homes – Electric BC Hydro's Plan



Raise awareness of heat pumps

Make heat pumps more affordable through rebates

$6,000 heat pump rebate (CleanBC and BC Hydro)

GHG target: reduce 200,000 tonnes in the next 5 years

https://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/corporate/electrification/Electrification-Plan.pdf

Future of our Homes - Electric



Shift towards electrification in homes

Heat pumps are 300% energy efficient



HEAT PUMP BENEFITS

- Increased efficiency
- 2 for 1 heating and cooling
- Long-lasting

(In comparison, electric baseboards are 100% efficient)

Benefits of a Heat Pump?

The most energy efficient heating and cooling system currently available

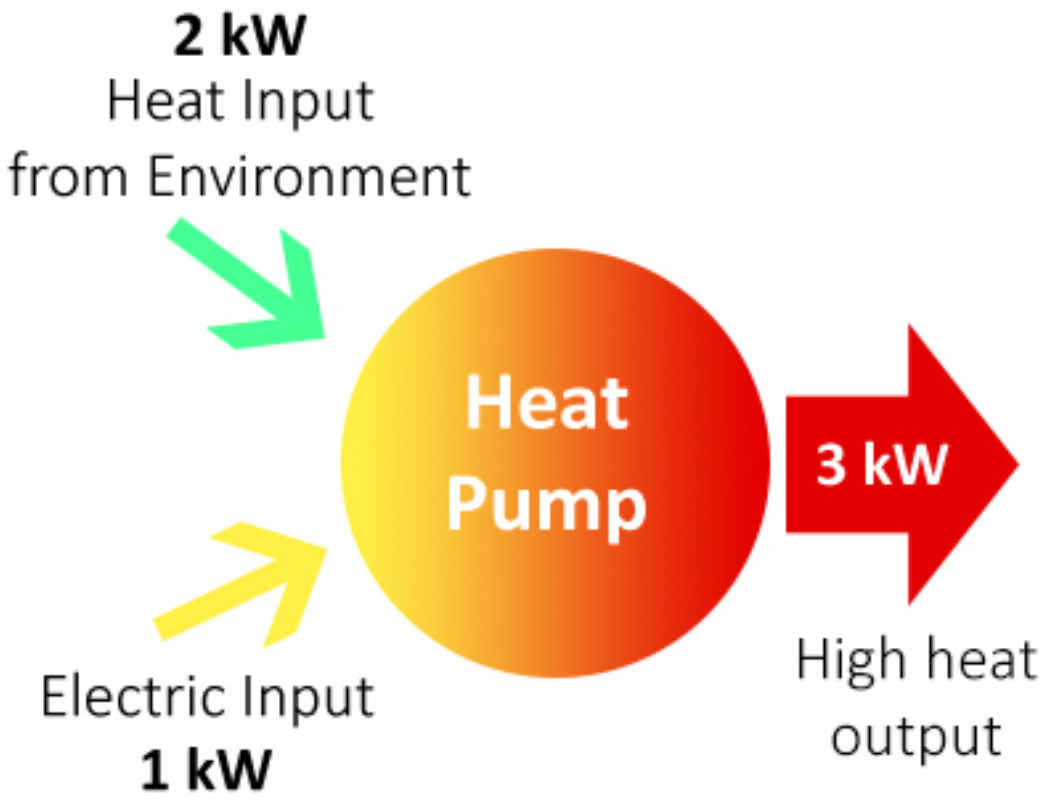
Year-round comfort

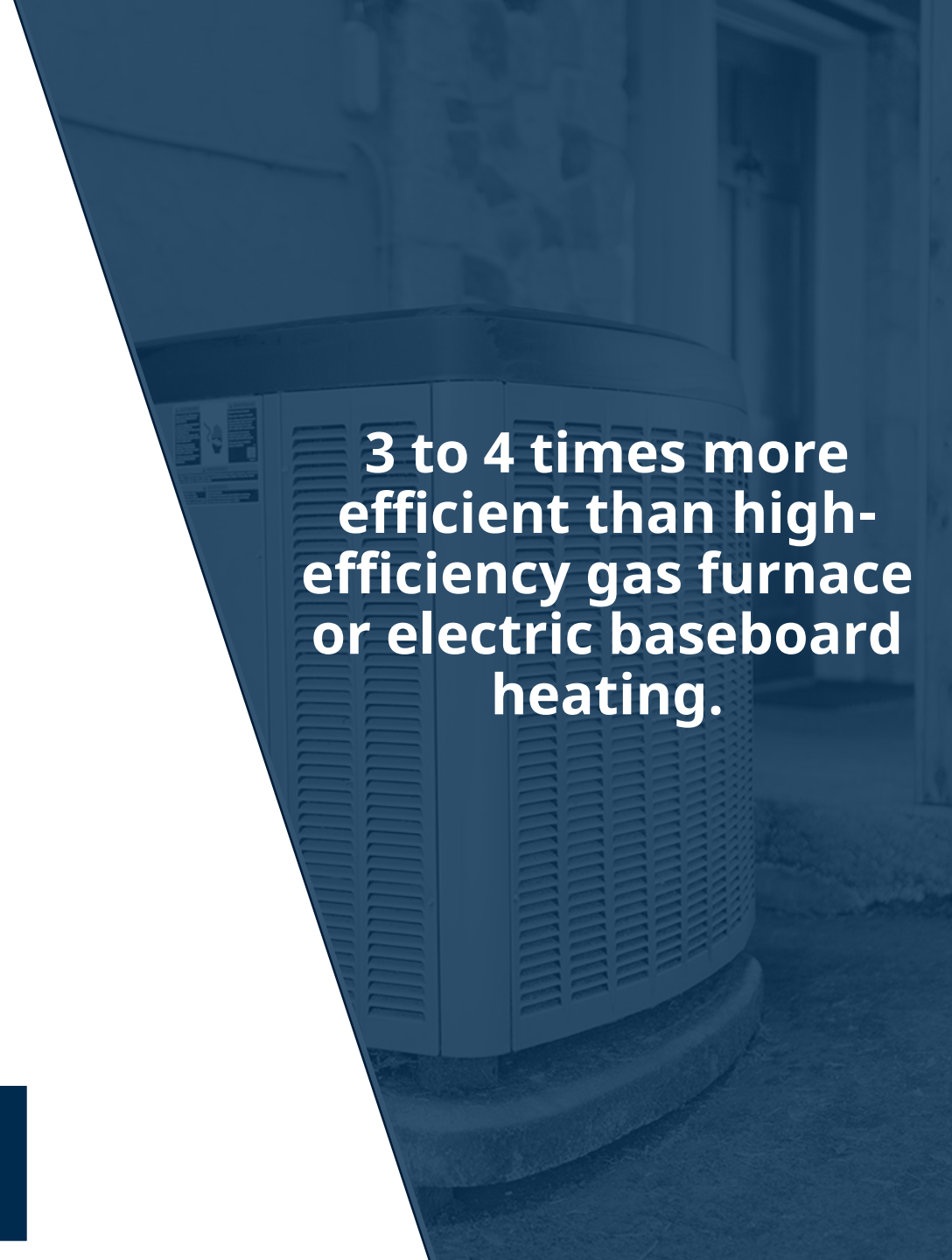
A climate-friendly home

Healthier home

You pay no carbon tax on your energy bill







3 to 4 times more efficient than high-efficiency gas furnace or electric baseboard heating.

MAXIMUM EFFICIENCY

The most energy efficient heating and cooling system currently available



Jens, Realtor/Farmer, Saanich

COST-EFFECTIVE HEATING

The most energy efficient heating and cooling system currently available

The most cost-effective electric heating option.



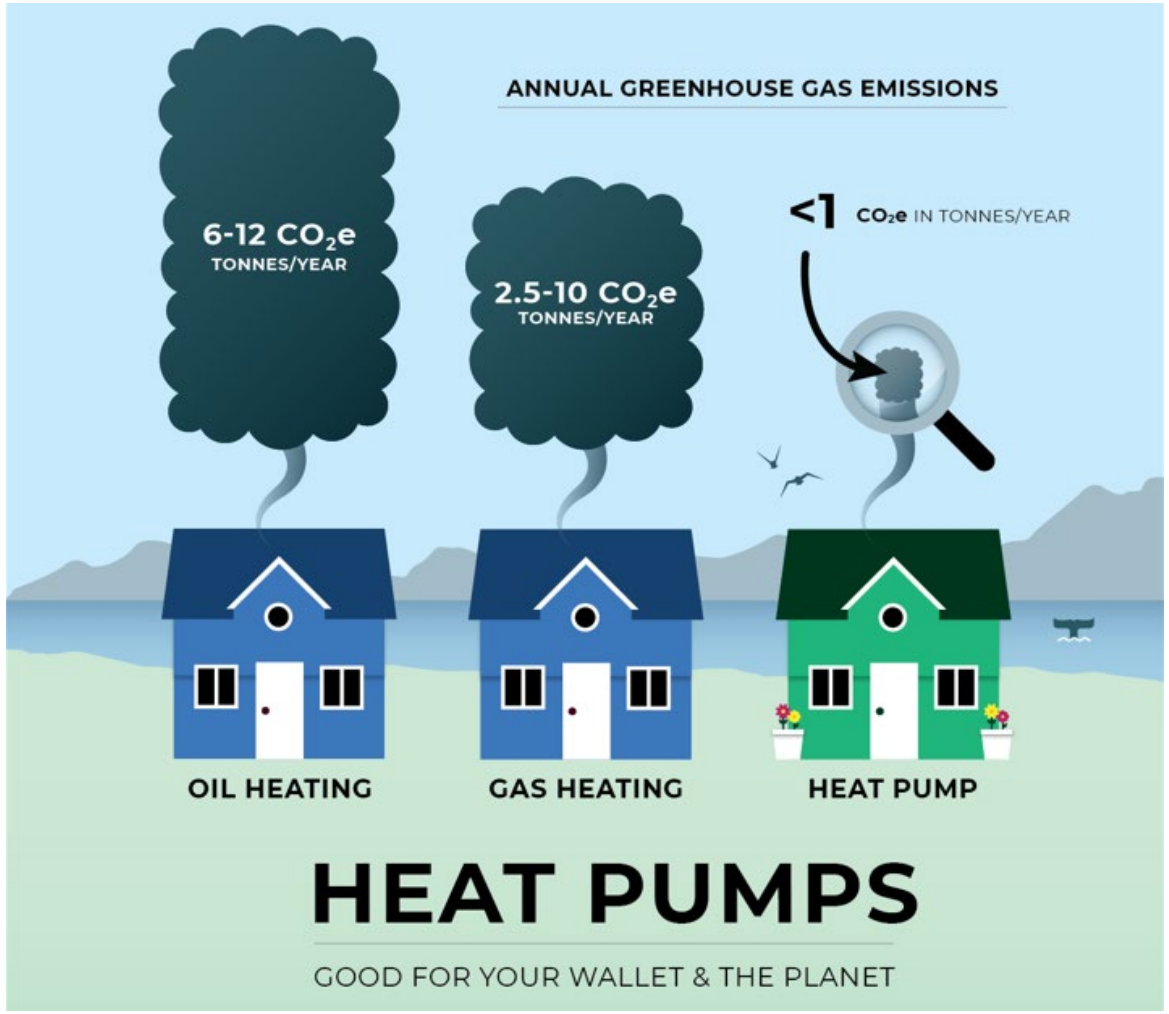
COOLING AND DEHUMIDIFICATION

Year-round comfort

Two systems in one!

Provides cooling on hot summer days!

Find a cool and comfortable home during a heat dome!



CRD (January, 2022).

CLIMATE-FRIENDLY

A climate-friendly home

The most climate-friendly heating and cooling system available in B.C.



Provides air filtration and humidity control!

Helps rid your home of indoor pollutants, dust, pollen, and other allergens.

BETTER INDOOR AIR QUALITY

Healthier home



ZONAL HEATING OPTIONS

Ductless Heat Pump Systems

Efficient heating of rooms you are using.

Different heating controls for different areas of a home or separate systems for rental or inlaw suite.

Meets the comfort needs of different members of the household.



Don, Saanich

EASE OF USE

Enjoy a low maintenance home, efficient air conditioning, and affordable energy bills.



Ted and Carol, Saanich

MODERN – THE HEATING SYSTEM OF THE FUTURE

Like electric vehicles, efficient heat pumps are the heating systems of the future

(that are available today)

HEAT PUMPS:
HOW DO THEY WORK?



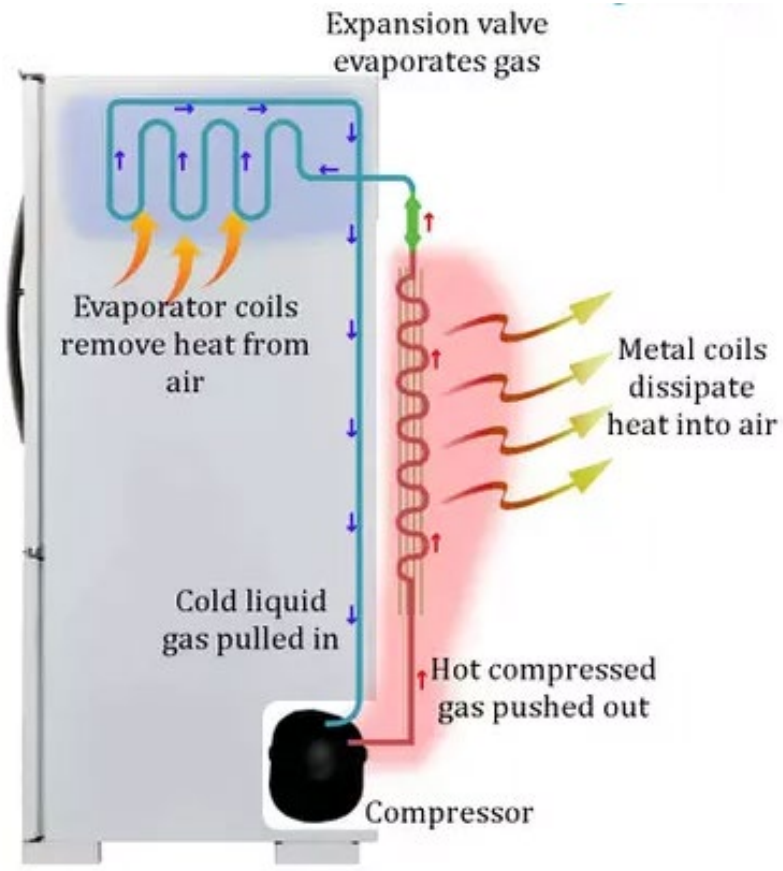
Did you know that you have a heat pump at home?



CONSIDERING BUYING A HEAT PUMP

Your Refrigerator Is…

An insulated box with a type of heat pump in it



Heat is removed from inside a refrigerator and the temperature inside the refrigerator drops.

The coils on the back of the refrigerator give off the heat that is removed from the refrigerator.

How Do Heat Pumps Work?

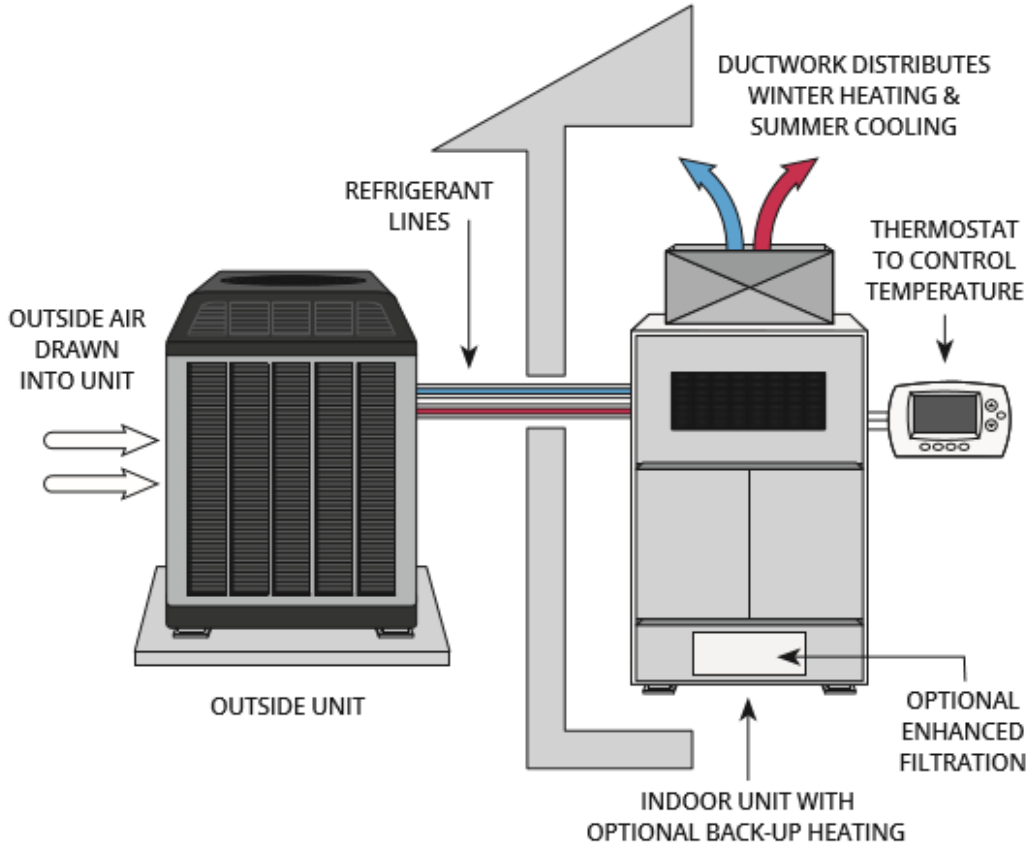


https://www.bchydro.com/powersmart/residential/building-and-renovating/considering-heat-pump-info-tips.html

HEAT PUMPS: THE TYPES



Central Ducted Heat Pump



- Uses **ductwork connected to vents** in your home to circulate warmed or cooled air.
- Provides whole home heating and cooling.



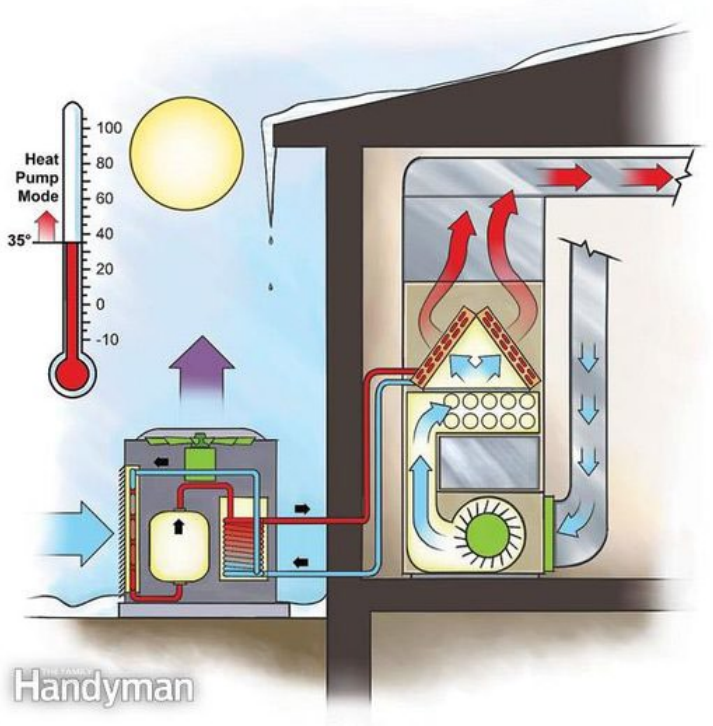
Cold Climate Heat Pumps



- Work efficiently in conditions **down to -25 degrees Celsius**
- Maintaining an efficiency of over 200% at -18 degrees Celsius
- Talk to your contractor if a cold climate heat pump is right for your home
- Ducted or ductless options

Dual Fuel Ducted Heat Pump

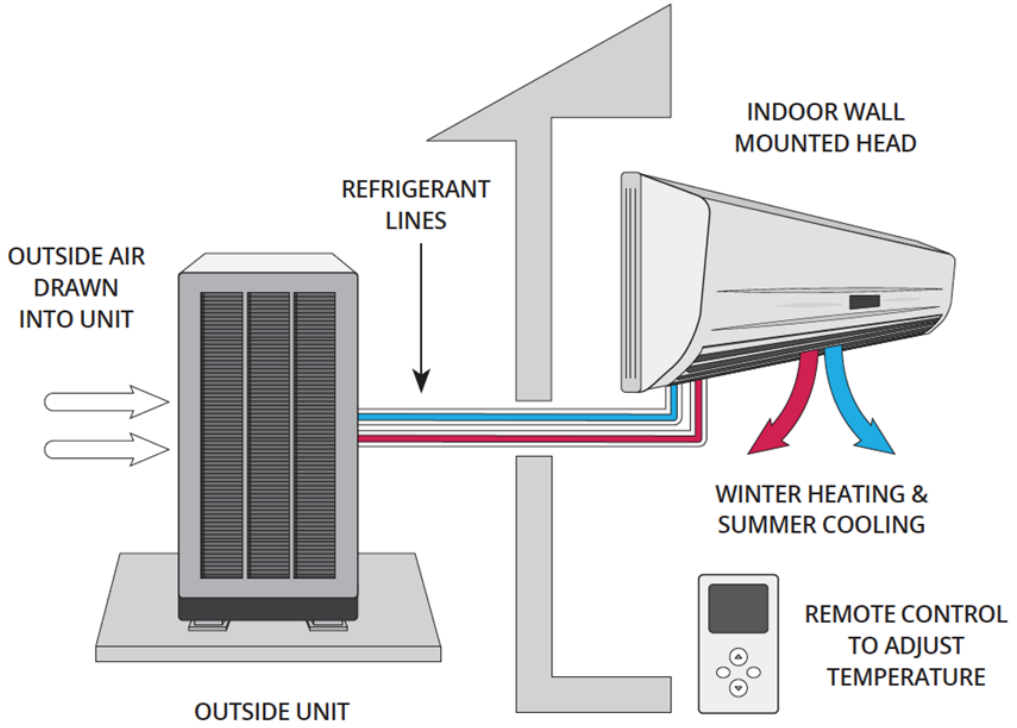
- Central ducted heat pump with an integrated **natural gas**, or **propane** furnace.
- Provides a **backup heat** source for colder temperatures determined by the **outdoor switch over set point**.
- Heat pump acts as the primary heating system of the home, determined by a **heat load calculation** provided by the installation contractor.
- Requires purchasing/replacing two heating systems & paying two annual maintenance fees.



Ductless Mini-Split Heat Pump

- Provides heating and cooling via **indoor heads**, without the use of ducts.
- Provides **zonal heating and cooling**.



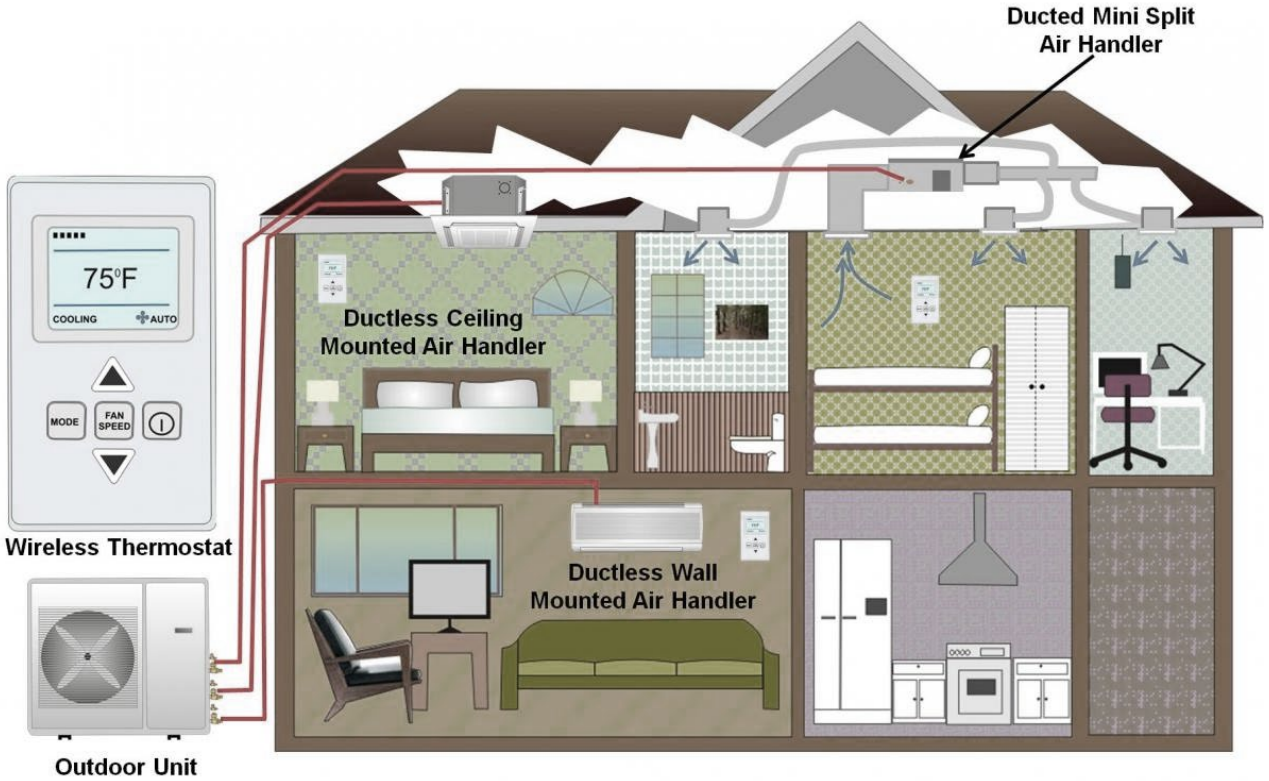


Ducted Mini-Split Heat Pump?

Other common names include:

- Mini-split
- Multi-split
- Split system
- Ducted mini-split*





*Some ducted mini-split systems may be classified as a central heat pump, check Qualifying Product List.

https://basc.pnnl.gov/sites/default/files/HVAC%20132minisplit-5_DS2014.jpg

Ducted Systems Vs. Ductless Heat Pumps

Factor	Central Ducted Heat Pump	Ductless Mini-Split Heat Pump
Air Conditioning?	✓	✓
Zonal Heating?		✓
Ductwork Required?	✓	
Air Filtration & De-Humidification	✓	✓
Ideal Installation in Homes:	✓ Existing ductwork ✓ Central heating ✓ More effective air filtration	✓ Zonal heating ✓ Open concept layout ✓ No ducting or older inefficient ducting ✓ Electric baseboards, wood stoves, gas fireplace ✓ Removing ductwork in basement ✓ Lower cost system for part of home (common area, basement suite, addition)

HEAT PUMPS: THE MYTHS



Myth #1 – Heat Pumps are Expensive To Purchase

Heating System Comparison	High-Efficiency Gas Furnace	Central Ducted Heat Pump
Equipment and Installation Cost	Range: $6,000 to $18,000 Average: $7,000	Range: $12,000 - $27,000 Average: $18,000
Rebates Available	Up to $1,000	Up To $11,000
Cost After Rebates	**Average: $6,000**	**Average: $7,000**
Air Conditioning	No	Yes
After Upgrade Greenhouse Gas Emissions Emitted Per Year	3 to 6 Tonnes	Under 1 Tonne

Myth #2 – Heat Pumps are Noisy

- Modern heat pumps are around 50-60 decibels (dB)
- Newer ultra quiet models with lower ratings
- Many household appliances are louder than the average heat pump
- City of Vancouver has a Heat Pumps & Noise FAQ here.



Heat Pump (50-60 dB)



Dryer (60-70dB)



Toilet Flushing (75+ dB)

Quiet: Where to Locate the Outdoor Unit

Locate Away from Property Line

- Avoid the side yard
- Favour the front or rear yard

Keep Away of high travel and weather-exposed areas

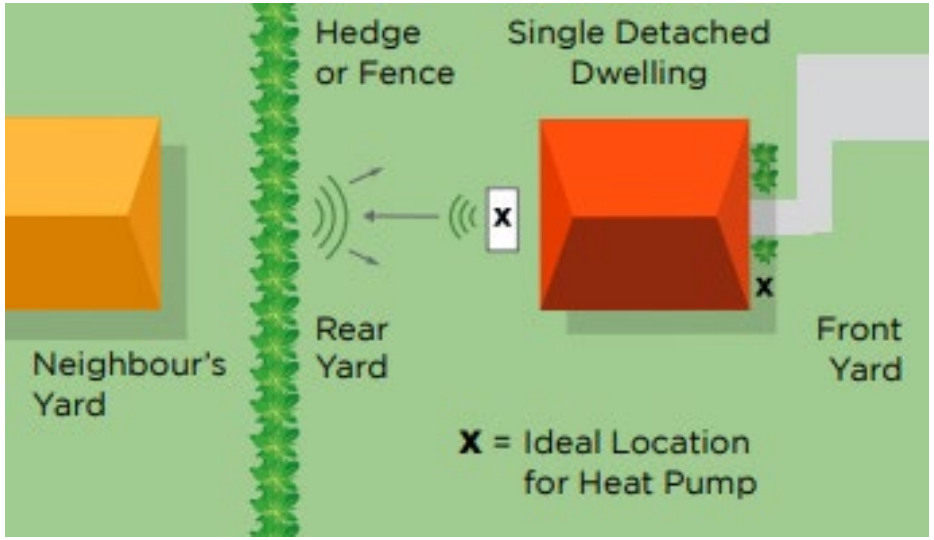
- The unit should not be under a drip line

If you can see it, you can usually hear it

- Use existing barriers like fences, landscaping, or decks
- Keep the unit away from neighbouring windows
- Ensure sufficient air flow clearance
- Consider acoustic barriers

Mount the unit on the ground

- Mount on a solid base such as a concrete pad
- Installed with rubber pads or dampeners to minimize vibration



https://vancouver.ca/files/cov/heat-pump-noise-guide.pdf

Myth #3 – Heat Pumps Need a lot of Maintenance



Every heating system requires regular maintenance

Schedule maintenance every 1 to 2 years with your installer

https://www.powersmart.ca/tip/heat-pump-mythbusters

Myth # 4
Heat Pumps are Expensive to Operate

Homes with heat pumps can have comparable to lower operating costs to natural gas homes

- ✓ **Changes to your Hydro Bill:** If you are switching from fossil fuel heating you will see an increase in your electricity consumption, which will be offset by a decrease in your fossil fuel consumption.
- ✓ **Purchase Highest Efficiency Heat Pump:** The more efficient the heat pump you purchase the lower your energy consumption and energy bills. In many locations in BC, it may make sense to purchase a cold climate heat pump.
- ✓ **Quality Installation:** A heat pump that is sized for the home and well installed will work more efficiently and cost effectively.
- ✓ **Other Home Upgrades:** By making your home more energy efficient (insulation, windows, air sealing) your home will have lower energy bills.



MAXIMUM EFFICIENCY AND COMPARABLE COSTS

A high efficiency heat pump

That has been well-installed

In an energy efficient home

Maintenance Considerations

Regularly:

- Check the manufacturer's manual
- Clean or replace the indoor filters of dust and pollen
- Check the batteries in the remote control and replace if necessary

Seasonally:

- Clear the outdoor unit of any debris, leaves, snow, and dirt

Annually:

- Schedule a servicing appointment with your installer

Heat Pump Operation Tip #1

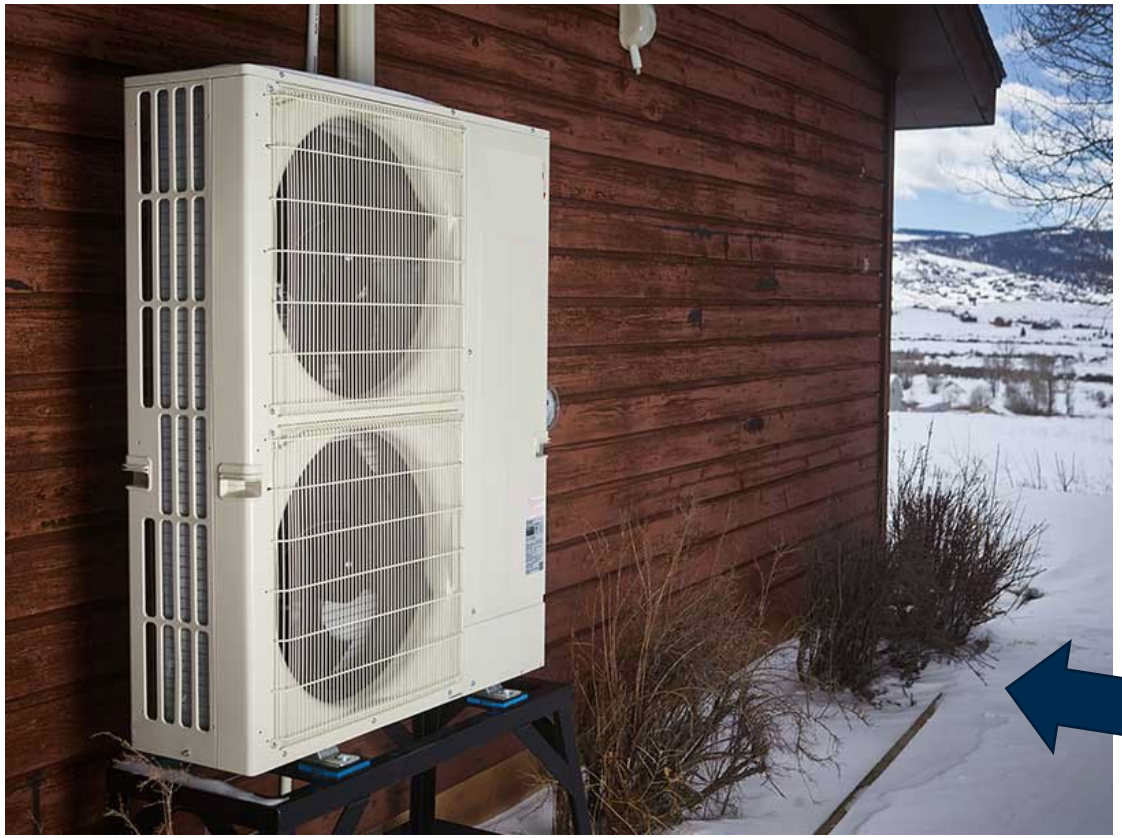
Set It & Forget It:

In <u>really cold weather</u>, best practice is to **set your thermostat to your preferred comfort temperature and then let it be.**

A heat pump is designed to maintain a steady temperature and work gradually and efficiently.



Myth #5 – Heat Pumps Don't Work in Cold Weather



- Operates in temperatures as low as **-25 degrees Celsius**.
- **Higher HSPF** (performance in the heating season)
- Examples all around North America

-13 degrees Fahrenheit winters in Colorado is -25 Celsius!

https://www.coloradocountrylife.coop/innovations-in-heat-pumps/

Heat Pumps in the North Eastern United States

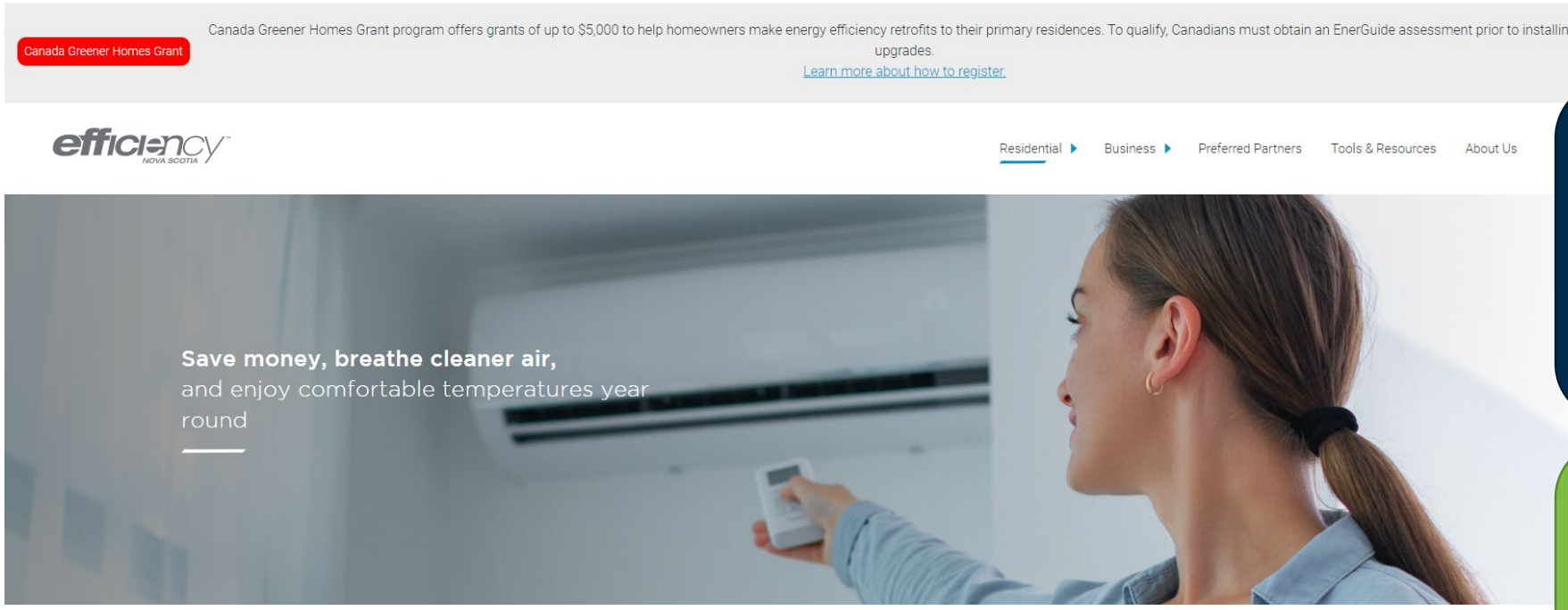


New England Heat Pumps!

Winters average -8 degrees Celsius.

https://www.energy.gov/sites/default/files/2015/09/f26/ba-case-study-inverter-driven-heat-pumps-cold.pdf

Heat Pumps in Nova Scotia



https://www.efficiencyns.ca/residential/products-rebates/heating-cooling/heat-pumps/

Rebates in Nova Scotia!

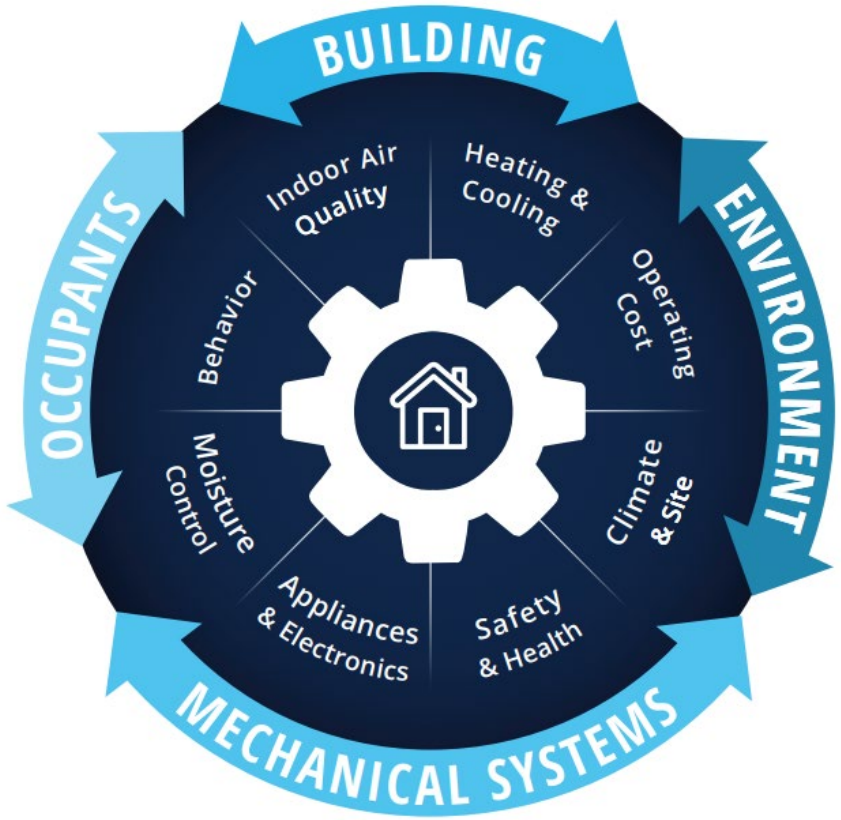
Cold winters can be -18 degrees Celsius!

HEAT PUMPS: KNOW BEFORE YOU BUY

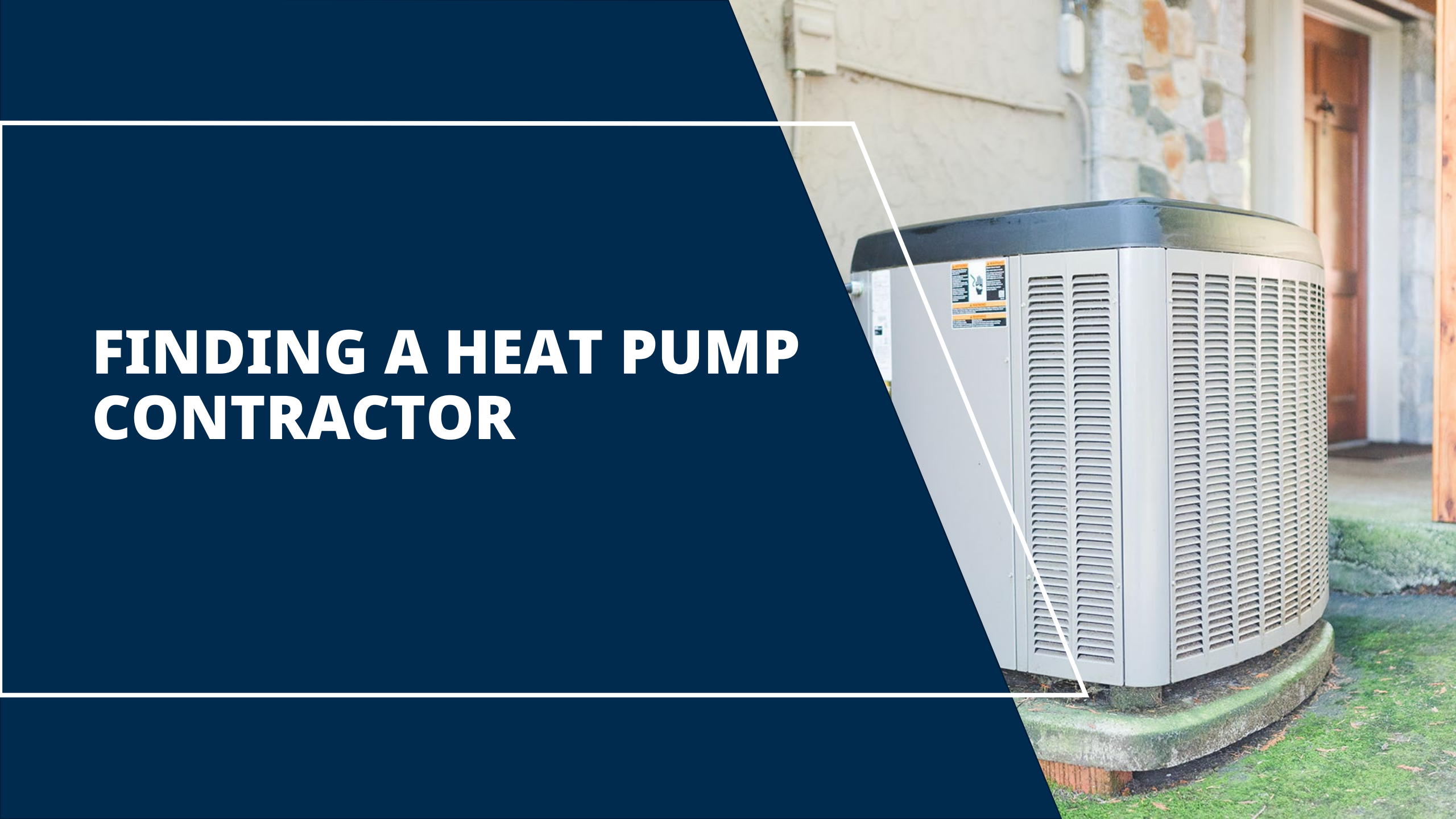


Buyer Best Practices

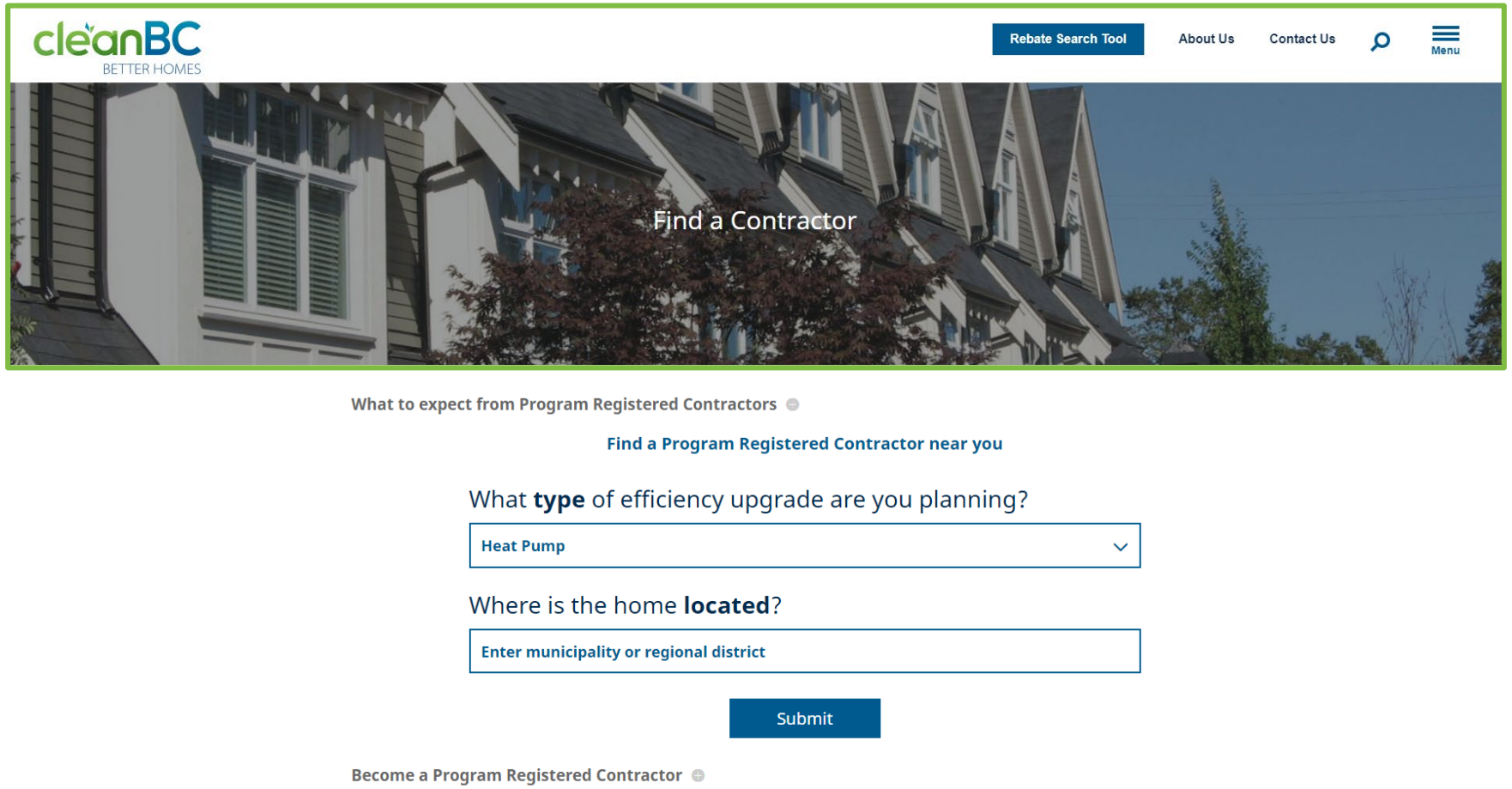
- ✓ Buy through a **qualified installer**, avoid buying wholesale or online.
- ✓ Obtain **multiple quotes** from different installers.
- ✓ **House as a System** - Address air leakage and insulation issues before purchasing your system to ensure high performance, comfort and affordability.
- ✓ Select a heat pump that is **properly sized for your home**, designed for your climate, and includes a supplementary heating system if necessary.
- ✓ Consider starting with an **EnerGuide Home Evaluation (and access extra federal rebates)**



FINDING A HEAT PUMP CONTRACTOR



Finding a Heat Pump Contractor

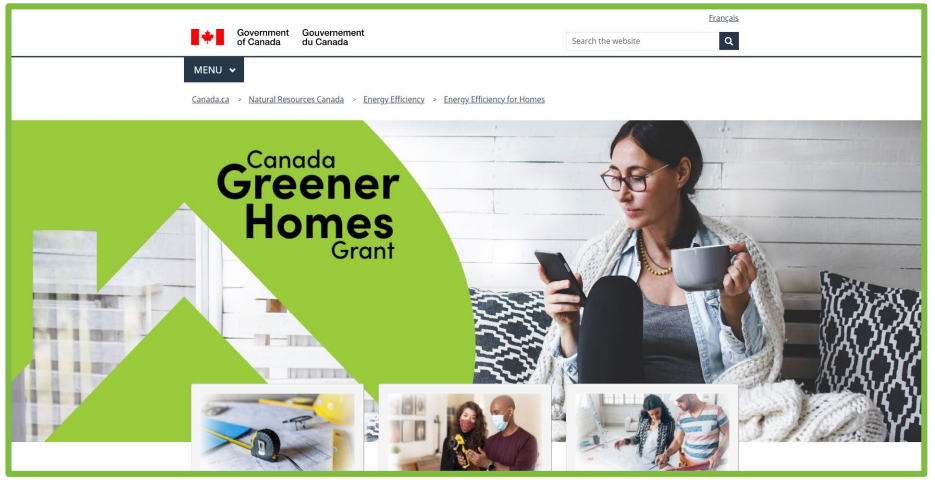


AVAILABLE REBATES



Two Stackable Programs





Provincial – CleanBC Better Homes and Home Renovation Rebate Program (CBC)

+ Municipal Top Ups

Federal – Canada Greener Homes Grant (CGHG)

All rebates/grants are stackable up to 100% of the upgrade cost (excluding tax)

Heat Pump Provincial Rebates and Federal Grants – Overview

Upgrade	Canada Greener Homes Grant	CleanBC Electric to Heat Pump Rebates	Estimated Total (Electric to Heat Pump)	CleanBC Fuel Switch Rebates	Estimated Total (Fossil Fuel to Heat Pump)
Ductless Mini-Split Heat Pump Single Head	$0	$1,000	**$1,000**	$6,000	**$6,000**
Ductless Multi-Split Heat Pump	Up to $5,000	$1,000	**Up to $6,000**	$6,000	**Up to $11,000**
Central Ducted Heat Pump	Up to $5,000	$2,000	**Up to $7,000**	$6,000	**Up to $11,000**
Dual Fuel Heat Pump	Up to $5,000	-	**Up to $5,000**	$3,000	**Up to $8,000**
Air-to-water Heat Pump	$0	-	**$0**	$3,000	**$3,000**


Have questions? Using a screen reader or other assistive technologies? Call an Energy Coach at 1-844-881-9790
cleanBC
BETTER HOMES
Rebate Search Tool
About Us
Contact Us
Menu
Better Homes helps British Columbians find rebates that save energy and lower greenhouse gas emissions.
Find rebates for renovating a home
Find rebates for building a home
Not sure where to start? Follow our step-by-step guide
BRITISH COLUMBIA
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our nature. our power. our future.
Canada
BC Hydro
Power smart
FORTIS BC
Energy at work
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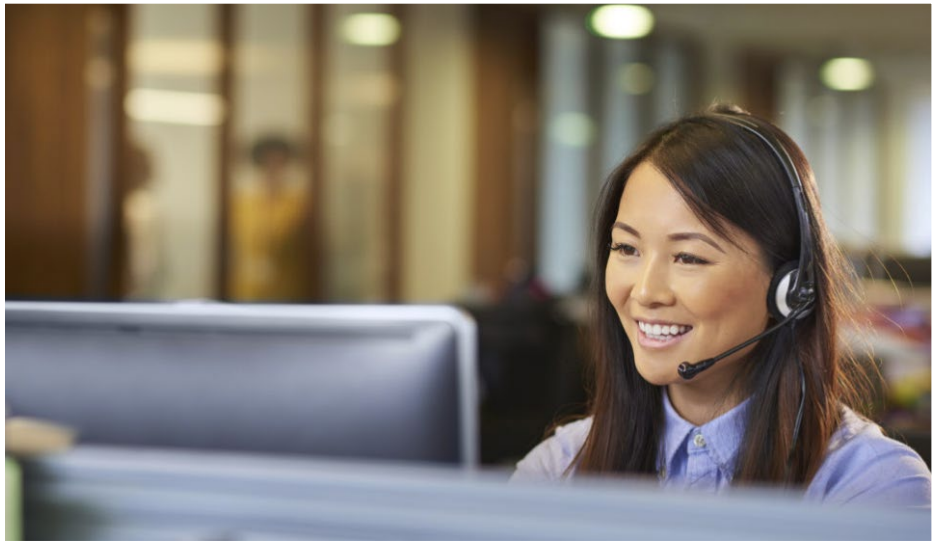
CleanBC – Energy Coaching

Self-Serve Online Resources

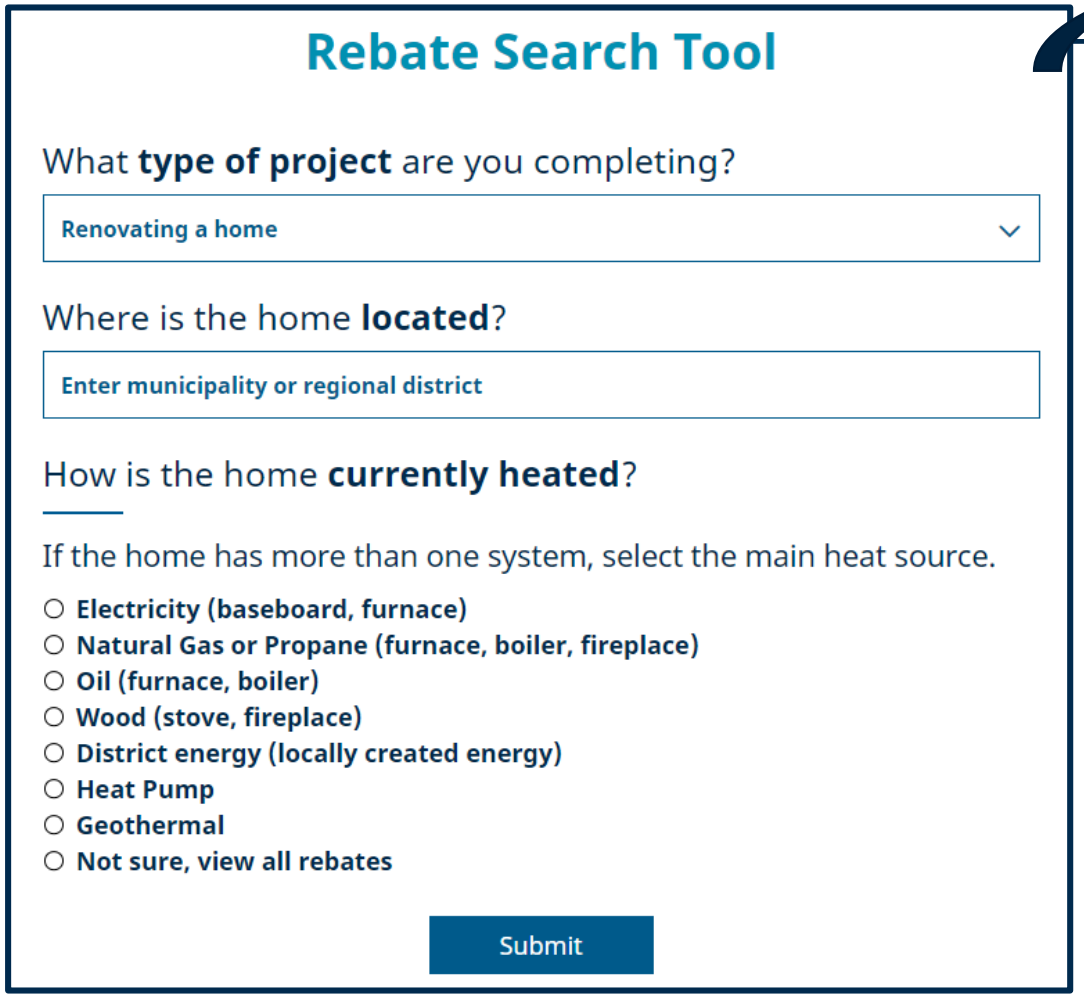
- Incentives, rebates, contractor and financing search tool
- Resources to learn about energy efficiency products and services
- Frequently asked questions

Free Energy Coaching Support

- www.betterhomesbc.ca
- 1-844-881-9790
- ask@betterhomesbc.ca



CleanBC Rebate Search Tool





Provincial Heat Pump Rebates – Eligibility Criteria

- Eligible homes (Single family, side-by-side rowhome or duplex, mobile home on permanent foundation)
- Rebate values dependant on participant's **primary space heating system prior to the heat pump installation**
- Must serve as the **primary space heating system** for the home;
- **Maximum one** (1) **primary space heating system** rebate per home;
- **Rebates cannot exceed the cost** of the invoice and paid cost of the upgrade;
- Must be found on CleanBC **Heat Pump Qualifying Product List**.

Heat Pump Rebates:
BC Hydro Electrically heated homes

- Electrically heated homes in BC Hydro's Service Area must meet a **minimum electricity consumption** to be eligible.
  - Check eligibility by entering your BC Hydro account number and home's square footage at bchydro.com/hero/eligibility

Heat Pump Type	Rebate Amount
Ductless **Mini Split** Heat Pump (Single Head) HSPF ≥ 10.00, SEER ≥ 16.00, Variable Speed Required	$1000
Ductless **Multi-Split** Air Source Heat Pump (Two or more Heads) HSPF ≥ 9.30, SEER ≥ 16.00, Variable Speed Required	$1000
Tier 2 Central Ducted Heat Pump HSPF ≥ 9.30, SEER ≥ 16.00, Variable Speed Required	$2000

*Replacing or adding to an existing heat pump is not eligible for provincial rebates

Heat Pump Rebates:
Fossil fuel heated homes

For converting from oil, natural gas, or propane to a heat pump

Heat Pump Type	Rebate Amount (BC Hydro Territory)
Ductless **Mini Split** Heat Pump (Single Head) HSPF ≥ 10.00, SEER ≥ 16.00, Variable Speed Required	$6000
Ductless **Multi-Split** Air Source Heat Pump (Two or more Heads) HSPF ≥ 9.30, SEER ≥ 16.00, Variable Speed Required	$6000
Tier 2 Central Ducted Heat Pump HSPF ≥ 9.30, SEER ≥ 16.00, Variable Speed Required	$6000

Heat Pump Rebates:
Fossil fuel heated homes… Continued

For converting from oil, natural gas, or propane to a heat pump

Heat Pump Type	Rebate Amount
Dual Fuel Ducted Heat Pump HSPF ≥ 9.30, SEER ≥ 16.00 (no variable speed required)	$3000
Air-to-Water Heat Pump	$3000
Combined Space & Hot Water Heat Pump	Up $4000 + $300
Electric Service Upgrade Upgrade electrical service to 100, 200, 400 amp service	$500

Heat Pump Low-Interest Financing Program

- Interest Rates of **0%** over 60 months (5 years)
- Loans of **$1,000** to **$40,000** available
- Access CleanBC financing **OR** the CleanBC heat pump rebate, **but not both**.
- Upgrades **must** be installed by a **Finance Registered Contractor**.
- Homes must be switching from fossil fuel (oil, gas, propane) to a heat pump
- Same heat pump requirements as the provincial heat pump rebates

Group Purchase Rebate

The GPR rewards groups of homeowners working together **to switch from natural gas, oil or propane heating to an air source heat pump.**

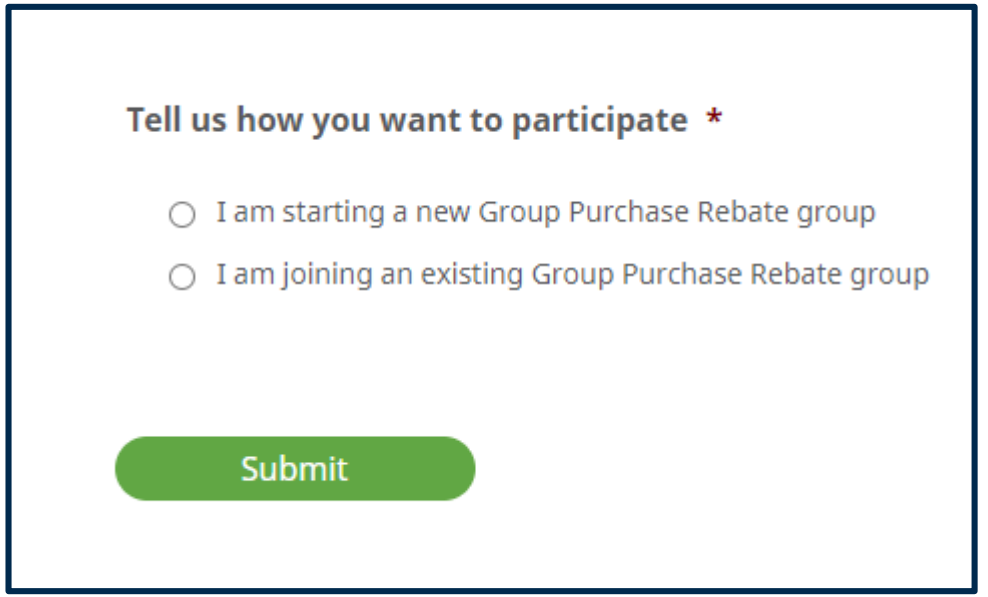
Group Purchase Rebate: Up to $500 more in rebates.

+ up to a **$6,000 Heat Pump Rebate from CleanBC**
+ the **$500 Electrical Service Upgrade Rebate**
+ applicable **municipal top-ups**
+ the **Canada Greener Homes Grant: Up to $5,000**



GPR Rebate Amount is Based on Group Size

Size of Group	Each Participant Receives
2-4 Homes	$200
5-9 Homes	$275
10-14 Homes	$350
15-19 Homes	$425
20-30 Homes	$500



1) Start a group – register and start a new group.

2) Join an existing group – receive a GPR **Code** from another participant.

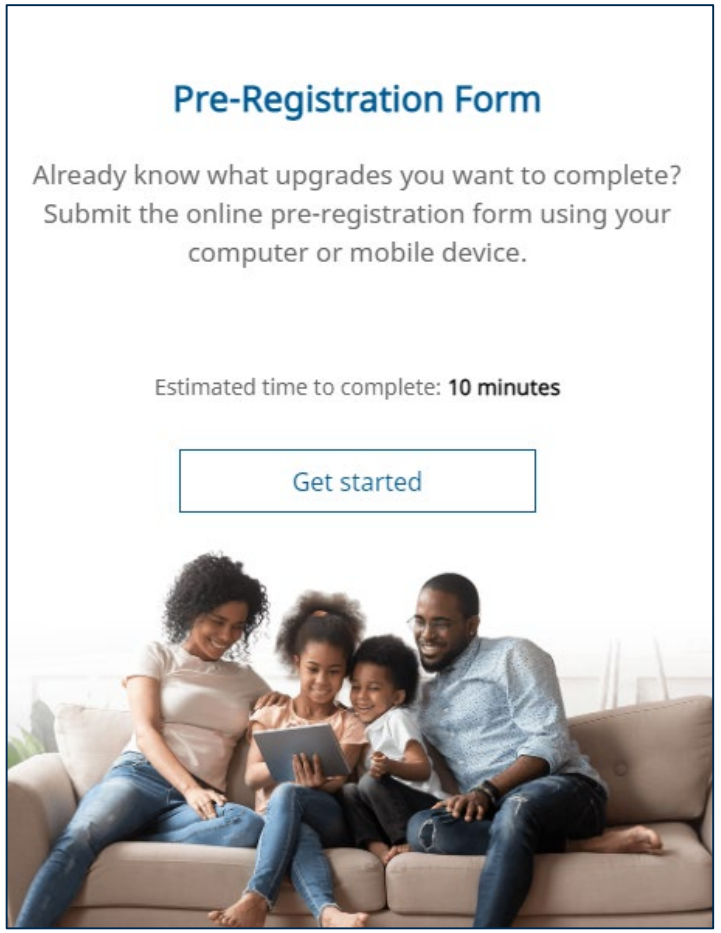
CleanBC Income Qualified Program

Number of people living in your home (including adults and children)	Combined pre-tax annual income of all adults in your home (excluding dependents):	
	Income Level 1	Income Level 2
1	$42,593	$55,903
2	$53,026	$69,596
3	$65,189	$85,560
4	$79,147	$103,880
5	$89,768	$117,820
6	$101,242	$132,880
7 or more	$112,718	$147,943

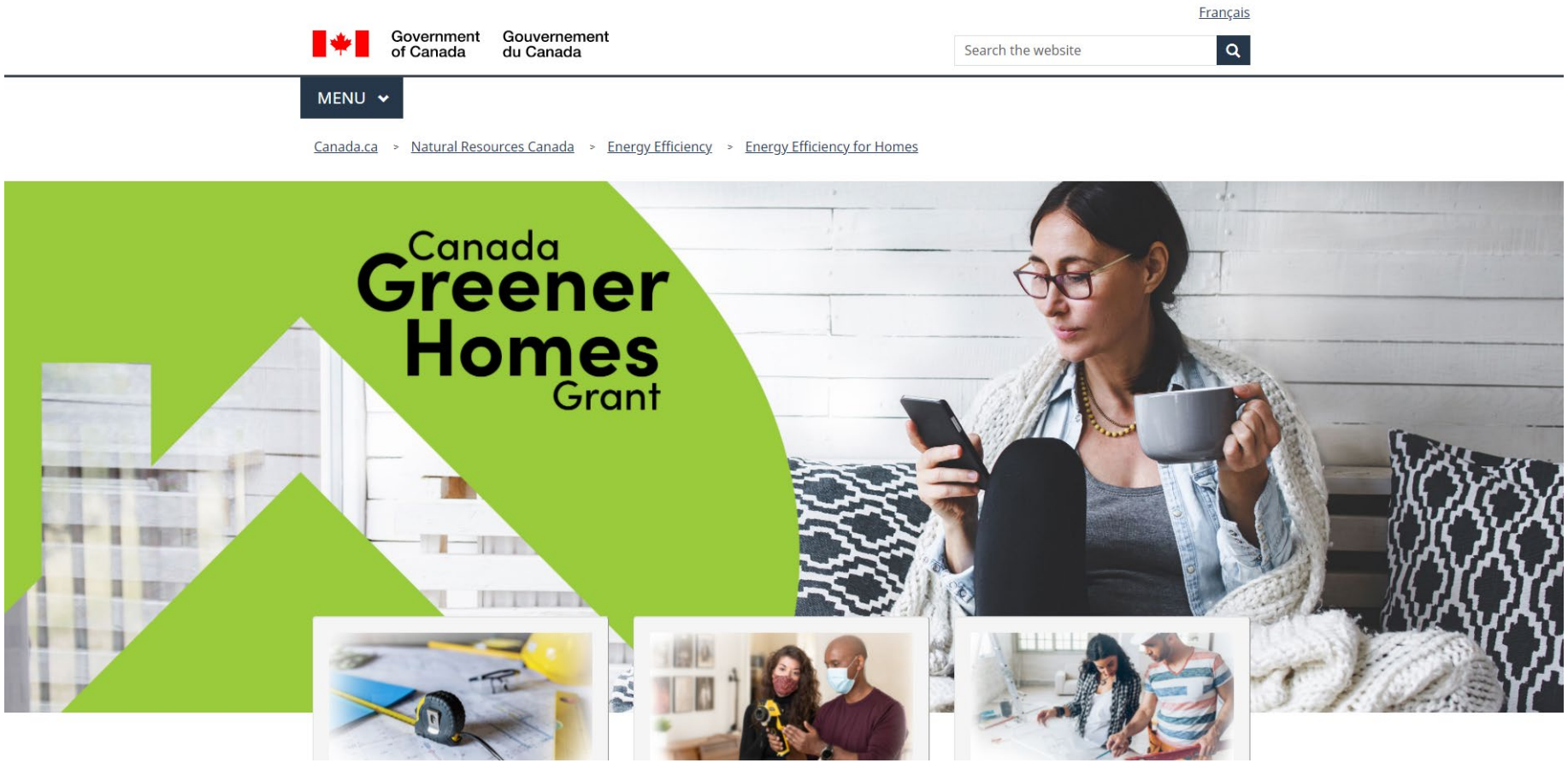
- Enhanced rebates that **cover 60-95%** of your home upgrade costs
- Support in multiple languages
- Meet **income qualifications** (see table)

CleanBC Income Qualified Program

- **Heat pump rebates up to $9,500**
  - Up to $9,500 when switching from fossil fuel
  - Up to $5,000 when switching from electric baseboards/furnace, or wood
- Work with an Income Qualified **Program Registered Contractor**
  - Contractor will submit rebate and **deduct the rebate** from the final cost of the upgrade



Canada Greener Homes Program



Canada Greener Homes Grant (CGHG)

- Up to $5,000 towards upgrades plus up to $600 towards EnerGuide Evaluations
- **Heat Pump grants** range between **$2,500 and $5,000**
- Homeowners **must register** in the Homeowner Portal and have **both a Pre- and Post-Retrofit EnerGuide Home Evaluation**
- Home must be homeowner's primary residence
- **Grants can stack** with the CleanBC rebates, up to 100% of the total cost

CGHG Heat Pump Eligibility

- Grants between $2,500 and $5,000
- HSPF $\geq$ **10.00**
- Ductless **Single-head heat pumps are not eligible**
- System must distribute heat to the entire home with a minimum of one outlet/head per floor



Air Source Heat Pumps and Cold Climate Air Source Heat Pumps (Select a New Product)

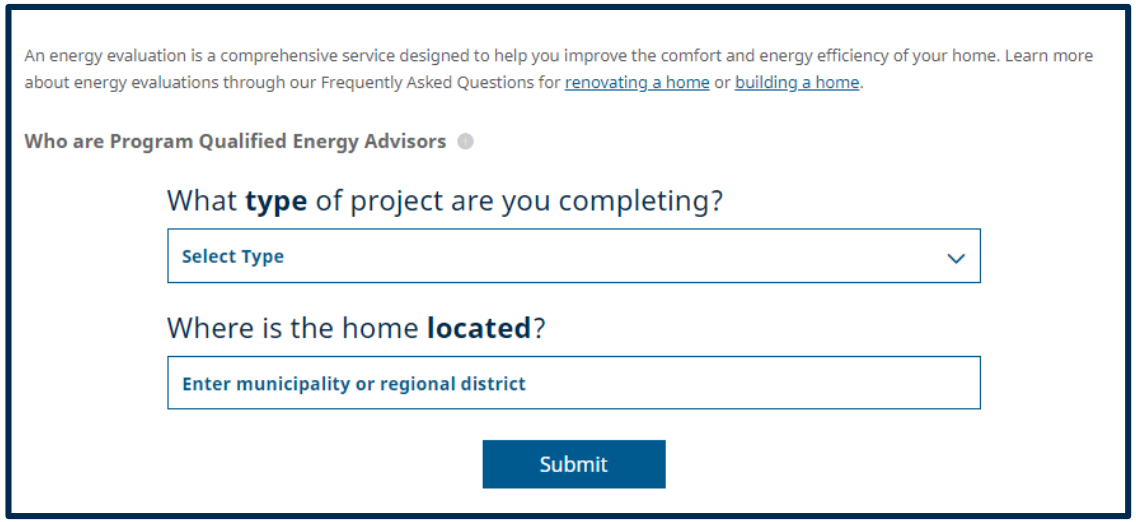
Eligible air source heat pump (ASHP) and cold climate air source heat pump (ccASHP) models for the Canada Greener Homes Grant – excluding residents of Quebec and Nova Scotia

In order to be eligible to receive a grant for this product, the Renovation Upgrade Report that homeowners receive must recommend a heat pump (Air Source Heat Pump, Cold Climate Air Source Heat Pump, or Ground Source Heat Pump) as a way to improve the energy efficiency of their home.

https://oee.nrcan.gc.ca/pml-lmp/index.cfm?language_langue=en&action=app.search-recherche&appliance=ASHP1_GH

Both Programs?

- **Start** with an **EnerGuide Home Evaluation**
  - Requirement for Canada Greener Homes
  - Optional for CleanBC
- **Register** with the federal program
- **Call the Energy Coach Service**



Find energy advisors at **betterhomesbc.ca/ea**

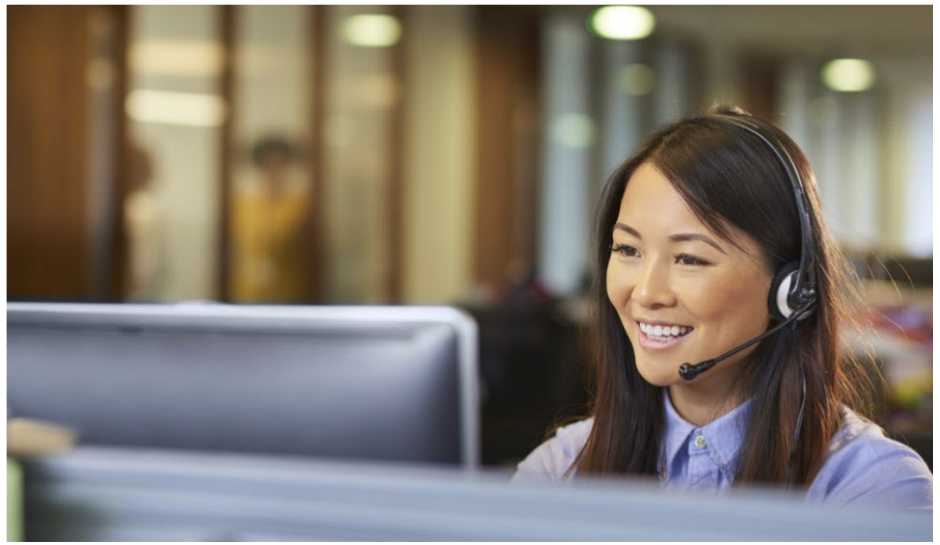
Where to Get Started

- Be sure to **review all requirements** for both programs. Eligibility may differ.
- All **CleanBC rebates** have a **6 month deadline** to apply from the evaluation date, or invoice date.
  - Best practice is to apply as you go.
- All **Canada Greener Homes Grants** are **applied** for **after** the **Post-Upgrade EnerGuide evaluation** is completed.
  - After the applicable upgrades are installed.

Questions, Contacts

- CleanBC Energy Coach Service
  - Free coaching support, rebate and contractor search tools
  - **1-844-881-9790**
  - ask@betterhomesbc.ca
  - www.Betterhomesbc.ca

- Canada Greener Homes
  - 1-833-674-8282
  - Nrcan.canadagreenerhomesgrant-subventionmaisonsvertes.nrcan@Canada.ca



THANK YOU!

For more information visit betterhomesbc.ca

