# Wondering about your energy options for water heating?

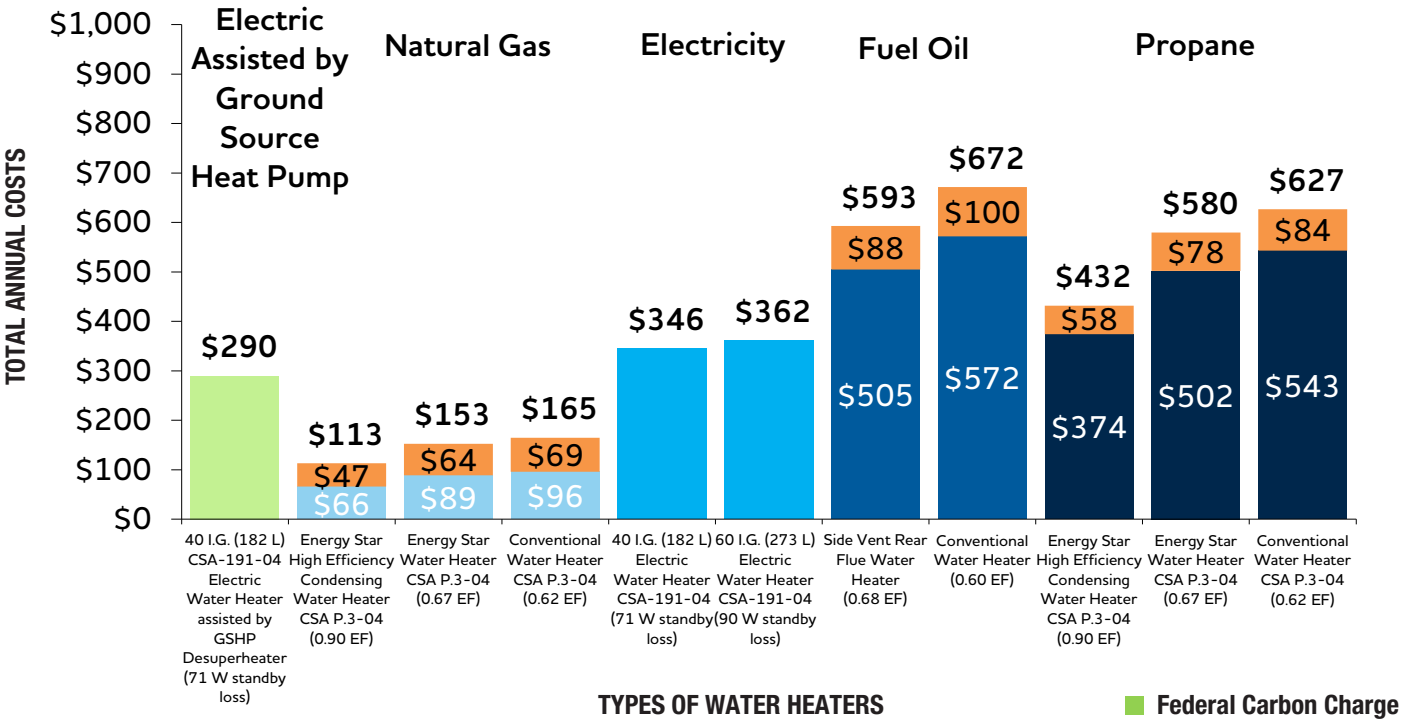
1

**The chart below shows an example of water heating costs based on an average single family residence, at rates in effect May 1, 2024.**

1. Consult the charts to identify the costs of your current water heating system.
2. Review the annual energy costs of other systems to see how your costs compare.
3. Consult the accompanying notes on pages 2 and 3 for guidance if you are thinking of switching water heating systems or building a new home.
4. Visit **hydro.mb.ca/water** and use the online calculator to get a customized estimate for your specific home's annual and total lifetime water heating costs based on different water heating systems and energy sources.

## Annual Water Heating Costs

**(Based on average annual hot water usage of 2.4 people per household)**




## Energy rates

as of May 1, 2024

Natural gas: **$0.21370**/cubic metre

Electricity: **$0.09587**/kilowatt-hour

Fuel oil: **$1.230**/litre

Propane: **$0.799**/litre

Federal carbon charge: **$80**/per tonne of greenhouse gas produced

Water heating annual costs shown in the chart above are based on "point-in-time" prices as noted.

The annual water heating costs presented in the chart exclude the cost of converting to a different heating system, which may be significant.

See page 3 if you are thinking of changing your water heating system.

Depending on your supplier, propane and fuel oil prices can fluctuate on a daily basis.

Manitoba Hydro
energy for life

# Annual cost estimates

2

The water heating costs shown in the chart are based on Manitoba Hydro's average electric and natural gas water heating household of 2.4 people consuming about 140 litres per day. Your water heating costs may differ due to varying shower, bathing, clothing and dish washing usage patterns related to your lifestyle. If you think your hot water usage is higher or lower than this average, please factor up or down the operating costs of the various water heaters shown in the chart. The costs shown are relative, illustrative and for general comparison purposes only.

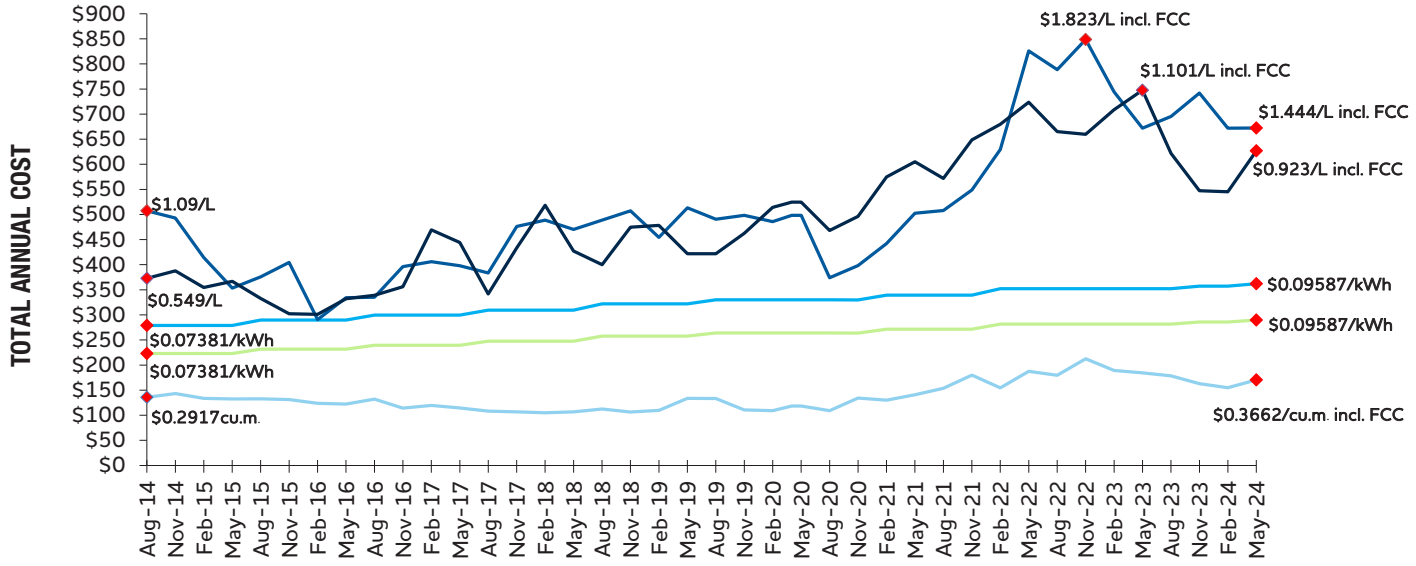
The chart on the first page presents annual costs as if all energy rates remained fixed for the coming year at the rates in effect on May 1, 2024.

Your actual annual energy costs will vary. Natural gas rates change four times per year, electricity rates typically change on an annual basis and depending on your supplier, propane and oil rates can change daily. With Manitoba Hydro's Quarterly Rate Service, the price you pay is the same price we pay for natural gas in the marketplace.

The gas commodity rate changes every 3 months and is currently $0.0918 per cubic metre. If you buy Gas Commodity on a Fixed Rate Service contract from Manitoba Hydro or an independent gas marketer you will continue to pay Manitoba Hydro for Basic and Delivery charges. The figure of $0.21370 per cubic metre of natural gas that we've used in the charts is known as a "re-bundled" effective rate. It includes charges for Gas Commodity and Delivery on Manitoba Hydro's Quarterly Rate Service.

The chart below shows a 10 year annual operating cost history trend of various energy sources and water heating systems. The chart also shows the minimum and maximum energy prices for a given point in time by energy source over the 10 year period. The energy prices shown are provided as reference points to show the relationship between the energy price at a given point in time and the annual operating costs of a specific heating system.

## Example Water Heating 10 year Cost History




**Natural Gas** Conventional Water Heater (0.62 EF)

**Electric** Water Heater 60 I.G. (273 L) (90W standby loss)

**Fuel Oil** Conventional Water Heater (0.60 EF)

**Propane** Conventional Water Heater (EF = 0.62)

**Electric Water Heater assisted by Geothermal Desuperheater**

Manitoba Hydro
energy for life

## Key points if you are thinking of changing heating systems

**Is it economically feasible?**

The cost of switching to another water heating system may be economically feasible only if your current system is at or near the end of its useful life, or if you are building a new home. Be sure to obtain quotations from at least three reputable heating contractors before you make your decision.

**Size of existing electrical service**

Your electrical system may need to be upgraded if you want it to carry an electrical water heating load.

Depending on the capacity of the electrical appliances and equipment currently installed, and the size of your home, the Manitoba Electrical Code will allow a maximum of 8 to 10 kilowatts of electric heating on a standard 100-amp service. An electrician should perform an electrical code load calculation to advise whether your existing service is adequate to serve the water heating equipment required for your home. If you don't have space in your existing electrical panel for the new circuit breaker you will require an electrician to install an electrical sub panel.

**Flue gas venting**

When gas is burned, flue gases are produced which primarily contain carbon dioxide and water vapour which are not harmful to people. However, flue gases can also contain trace amounts of carbon monoxide and other gases that can present a health hazard. If you replace your old conventional or mid-efficiency gas furnace with a high efficiency model you will usually need to install a chimney liner inside your existing chimney in order comply with the natural gas installation code. If the cost of a liner is too high, if you are unable to install a liner or if your tank is very old (could fail soon) then a power-vented gas water heater or an electric water heater may be better options to consider. Consult with a licensed and reputable contractor about water heating options for your home. To ensure you are getting best value when looking at a new water heater, consider the total lifetime cost, which is the cost to buy, install and operate the water heater over its useful life.

## Calculate your payback

Determining how many years it will take for a new water heating system to pay for itself may help you reach a decision.

**Determine the potential savings**

Subtract the annual water heating cost of the new water heating system you are considering from the annual water heating cost of your current system (check the charts).

The difference is approximately what you can expect to save each year, at current energy rates.

**Determine the costs of the new system**

Determine how much it will cost to buy and install the new system, along with any other adjustments required. Get quotations from three reputable contractors.

Factor in the cost of financing, if necessary.

**Determine the payback**

Divide the estimated cost of switching your system, by the estimated annual savings.

The result is the number of years it will take for the new heating system to pay for itself.

# Explanation of technical information in the charts 4

## ENERGY RATES — in effect May 1, 2024

| | Effective rate | Heating value | Carbon charge |
|---|---|---|---|
| Natural gas | $0.21370/cubic metre | 36,600 Btu/cubic metre | $0.1525/cubic metre |
| Electricity | $0.09587/kilowatt-hour | 3,413 Btu/kilowatt-hour | |
| Fuel oil | $1.230/litre | 36,500 Btu/litre | Fuel oil $0.2139/litre |
| Propane | $0.799/litre | 24,200 Btu/litre | Propane $0.1238/litre |

- Water heating usage is based on Manitoba Hydro's average electric and natural gas water heating household of 2.4 people consuming about 140 litres per day that are heated up an average temperature rise of 50°C.
- The federal carbon charge was introduced April 1, 2019 and is applied to natural gas, fuel oil and propane consumption since these commodities produce greenhouse gases. The carbon charge is shown as a separate cost at the top of each fossil fuel bar in the chart. This charge currently puts a price of $65 on each tonne of greenhouse gas created by burning fossil fuels. The federal government plans to increase the carbon charge by $15 per tonne each year until it reaches $170 per tonne in 2030.

  Heating with natural gas is expected to remain a lower cost option than heating with electricity, even after the federal carbon charge reaches $170 per tonne in 2030.
- The Electric water heating assisted by ground source heat pump (geothermal) desuperheater option is based on Manitoba Hydro's field monitoring of nine homes with geothermal heating and desuperheaters where 80 per cent of the average water heating load was provided by the electric heating elements of the water tank and 20 per cent by the desuperheater.
- Energy Factor (EF) is an overall efficiency rating of the water heater. The higher the EF, the more efficient the model.
- PST and GST are not included in the example costs.