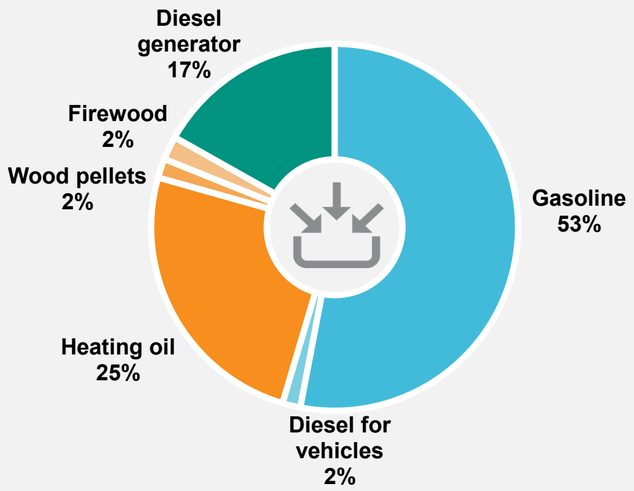
ENERGY PROFILE

Where we get energy and how we use it

FORT MCPHERSON 2018

Population: 672

Energy Sources – 1 Year



Diesel generator produces electricity and heat

31% electricity
63% waste heat
3% recovered heat

Energy cost

Total: $11,100,000

Cost per person: $16,400

48% gasoline
1% diesel for vehicles
26% diesel generator
20% heating oil
2% wood pellets
1% firewood

Renewable energy

4% of total energy
2% of total from wood pellets
2% of total from firewood
0.01% of total from solar PV

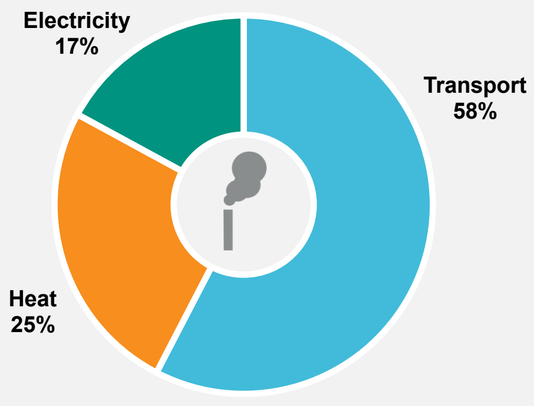
Unless otherwise noted, numbers reflect energy sources purchased or sourced in the community, and do not include industry or commercial transport. Percentages may not add to 100% due to rounding.

Greenhouse Gas (GHG) Emissions – 1 Year

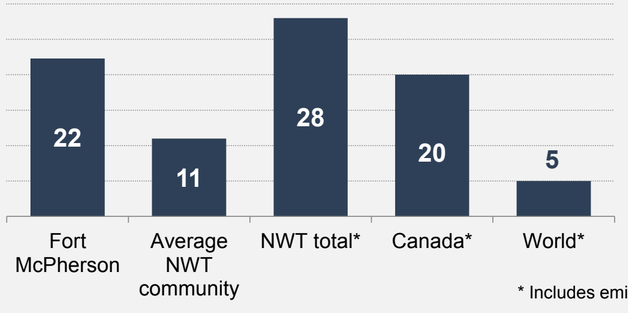
Community total GHG emissions per year

15,000 tonnes

22 tonnes/person

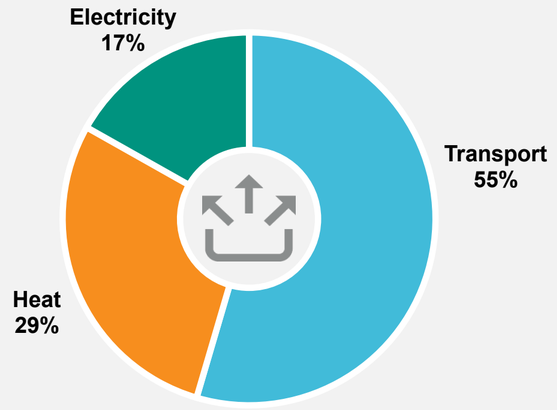


Average tonnes of GHGs per person per year



* Includes emissions from industry and commercial transport.

Energy Use – 1 Year



Energy use in homes

13% of total energy use
46% of total electricity
46% of total heating oil
100% of total firewood

Energy use in other buildings

Store, school, church, office, arena, library, etc.

16% of total energy use
54% of total electricity
54% of total heating oil
100% of total wood pellets
100% of total waste heat recovery

Transport (local – no air transport)

Cars, trucks, boats, ATVs, skidoos, etc.

55% of total energy use

Fuel purchased in the community.

Waste energy

From electricity production and heating

16% of total energy use

ARCTIC ENERGY ALLIANCE
Revised: September 2020

ENERGY PROFILE
FORT MCPHERSON 2018

EXTRA INFO

What's a megajoule (MJ)?

A joule is a unit of energy. A megajoule is 1 million joules.

Some examples:

- 1 BBQ propane tank = 500 MJ
- 1 kWh = 3.6 MJ
- 1 L of heating oil = 38.4 MJ
- 1 L of propane = 26.6 MJ
- 1 tonne of wood pellets = 19,200 MJ
- 1 cord of wood = 18,700 MJ

What's waste energy?

When fuels are burned, some of their energy is released as heat that can't be used. The amount of energy that an appliance or device can use is called its efficiency. For example:

Diesel generators can usually only convert 25–35% of the diesel's energy to electricity, while 65–75% is released as heat.

Furnaces, boilers, wood stoves and other heating applicances can use anywhere from 70% to more than 95% of the heat they produce. The rest is released up the chimney.

Energy sources

Gasoline
- 53% of total energy
- Cost: $5,360,000
- Amount: 3,410,000 Litres
- GHGs: 8,390 tonnes
- Energy: 115,000,000 MJ

Heating oil
- 25% of total energy
- Cost: $2,170,000
- Amount: 1,400,000 Litres
- GHGs: 3,770 tonnes
- Energy: 53,800,000 MJ

Diesel generator
- 17% of total energy
- Cost: $2,900,000
- Amount: 951,000 Litres
- GHGs: 2,560 tonnes
- Energy: 36,500,000 MJ

Diesel for vehicles
- 2% of total energy
- Cost: $143,000
- Amount: 89,600 Litres
- GHGs: 241 tonnes
- Energy: 3,440,000 MJ

Wood pellets
- 2% of total energy
- Cost: $195,000
- Amount: 236 tonnes
- GHGs: 8 tonnes
- Energy: 4,530,000 MJ

Firewood
- 2% of total energy
- Cost: $98,000
- Amount: 196 Cords
- GHGs: 7 tonnes
- Energy: 3,670,000 MJ

Solar PV
- 0.01% of total energy
- Cost: $0
- Amount: 4,100 kWh
- GHGs: 0 tonnes
- Energy: 14,800 MJ

Waste heat recovery
- 0% of total energy
- Cost: $176,000
- Amount: n/a
- GHGs: 0 tonnes
- Energy: 1,160,000 MJ

Community GHG emissions

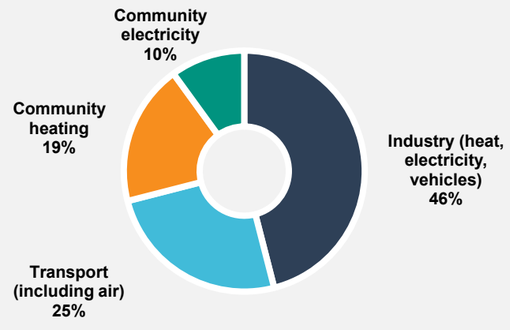
- Homes: 11%
- Other buildings: 14%
- Transport: 58%
- Diesel generator: 17%

Total community energy use

- **217,000,000 MJ**
- 320,000 MJ/person

Total NWT energy use (2017)

Total: 20 billion MJ/year



The AEA has tried to ensure our data is as accurate as possible, but there could be mistakes. If something seems incorrect, please contact us to let us know.

References

Energy source and use data: Private suppliers and utilities, and the Government of the Northwest Territories Bureau of Statistics and Department of Infrastructure.

GHG emissions data: https://www.cer-rec.gc.ca/nrg/ntgrtd/mrkt/nrgsstmprfls/nt-eng.html
https://ourworldindata.org/grapher/co-emissions-per-capita?tab=chart&country=AUS+CAN+USA+OWID_WRL