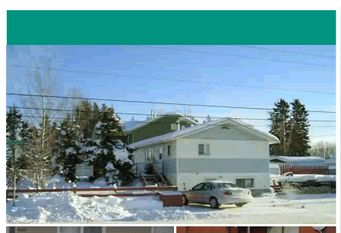
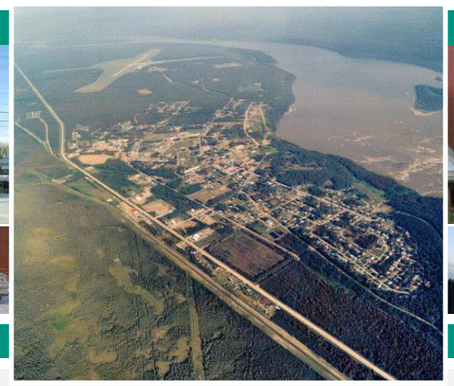
ENERGY PROFILE

Where we get energy and how we use it

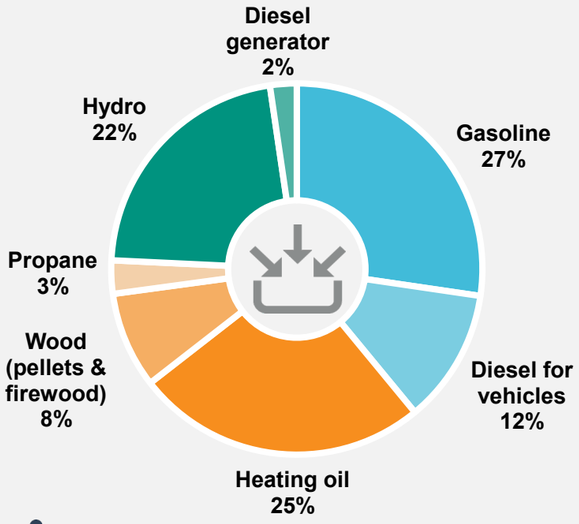
FORT SMITH 2018

Population: 2,690





Energy Sources – 1 Year



Diesel generator produces

32% electricity
68% waste heat

Energy cost

Total: $14,300,000

Cost per person: $5,300

38% hydro
1% diesel generator
28% gasoline
10% diesel for vehicles
18% heating oil
2% propane
2% wood pellets
1% firewood

Renewable energy

30% of total energy
22% of total from hydro
5% of total from wood pellets
3% of total from firewood
0.01% of total from solar PV

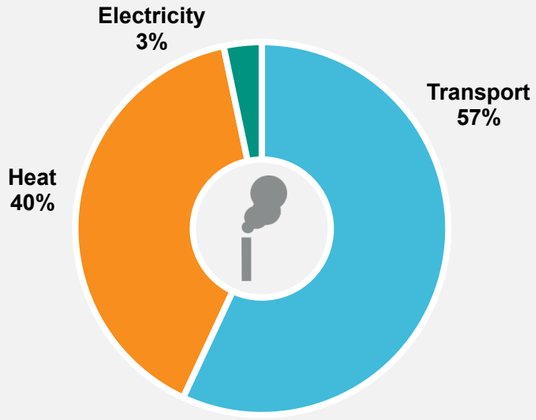
Unless otherwise noted, numbers reflect energy sources purchased or sourced in the community, and do not include industry or commercial transport. Percentages may not add to 100% due to rounding.

Greenhouse Gas (GHG) Emissions – 1 Year

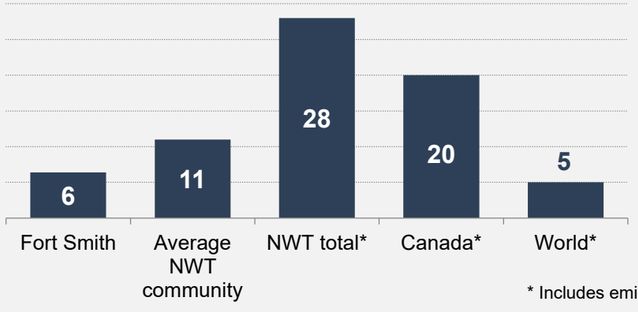
Community total GHG emissions per year

17,000 tonnes

6 tonnes/person

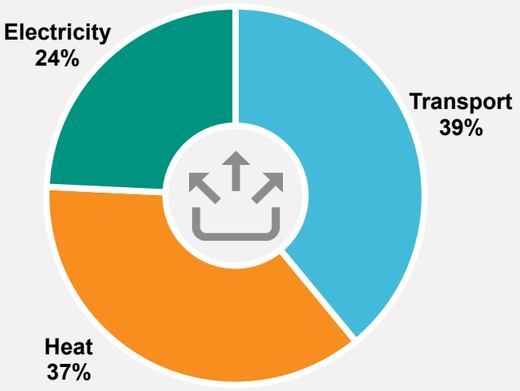


Average tonnes of GHGs



* Includes emissions from industry and commercial transport.

Energy Use – 1 Year



Energy use in homes

25% of total energy
46% of total electricity
54% of total heating oil
54% of total propane
100% of total firewood
12% of total wood pellets

Energy use in other buildings

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

26% of total energy
54% of total electricity
46% of total heating oil
46% of total propane
88% of total wood pellets

Transport (local – no air transport)

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

39% of total energy

Fuel purchased in the community.

Waste energy

From electricity production and heating

9% of total energy

ARCTIC ENERGY ALLIANCE
Revised: September 2021

ENERGY PROFILE
FORT SMITH 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
- 27% of total energy
- Cost: $3,950,000
- Amount: 2,830,000 Litres*
- GHGs: 6,950 tonnes
- Energy: 95,200,000 MJ

Heating oil
- 25% of total energy
- Cost: $2,580,000
- Amount: 2,310,000 Litres*
- GHGs: 6,210 tonnes
- Energy: 88,700,000 MJ

Hydro
- 22% of total energy
- Cost: $5,470,000
- Amount: 21,200,000 kWh
- GHGs: 0 tonnes
- Energy: 76,400,000 MJ

Diesel for vehicles
- 12% of total energy
- Cost: $1,400,000
- Amount: 1,060,000 Litres*
- GHGs: 2,860 tonnes
- Energy: 40,800,000 MJ

Wood pellets (commercial)
- 4% of total energy
- Cost: $220,000
- Amount: 802 tonnes
- GHGs: 28 tonnes
- Energy: 15,400,000 MJ

Firewood
- 3% of total energy
- Cost: $141,000
- Amount: 614 Cords
- GHGs: 21 tonnes
- Energy: 11,500,000 MJ

Propane
- 3% of total energy
- Cost: $313,000
- Amount: 380,000 Litres*
- GHGs: 585 tonnes
- Energy: 10,100,000 MJ

Diesel generator
- 2% of total energy
- Cost: $186,000
- Amount: 211,000 Litres
- GHGs: 567 tonnes
- Energy: 8,090,000 MJ

Wood pellets (residential)
- 1% of total energy
- Cost: $46,000
- Amount: 120 tonnes
- GHGs: 4 tonnes
- Energy: 2,300,000 MJ

Solar PV
- 0.01% of total energy
- Cost: $0
- Amount: 6,100 kWh
- GHGs: 0 tonnes
- Energy: 22,000 MJ

Total community energy use

- **348,500,000 MJ**
- 130,000 MJ/person

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

Total NWT energy use (2017)

Total: 20 billion MJ/year

*Estimated due to lack of data