



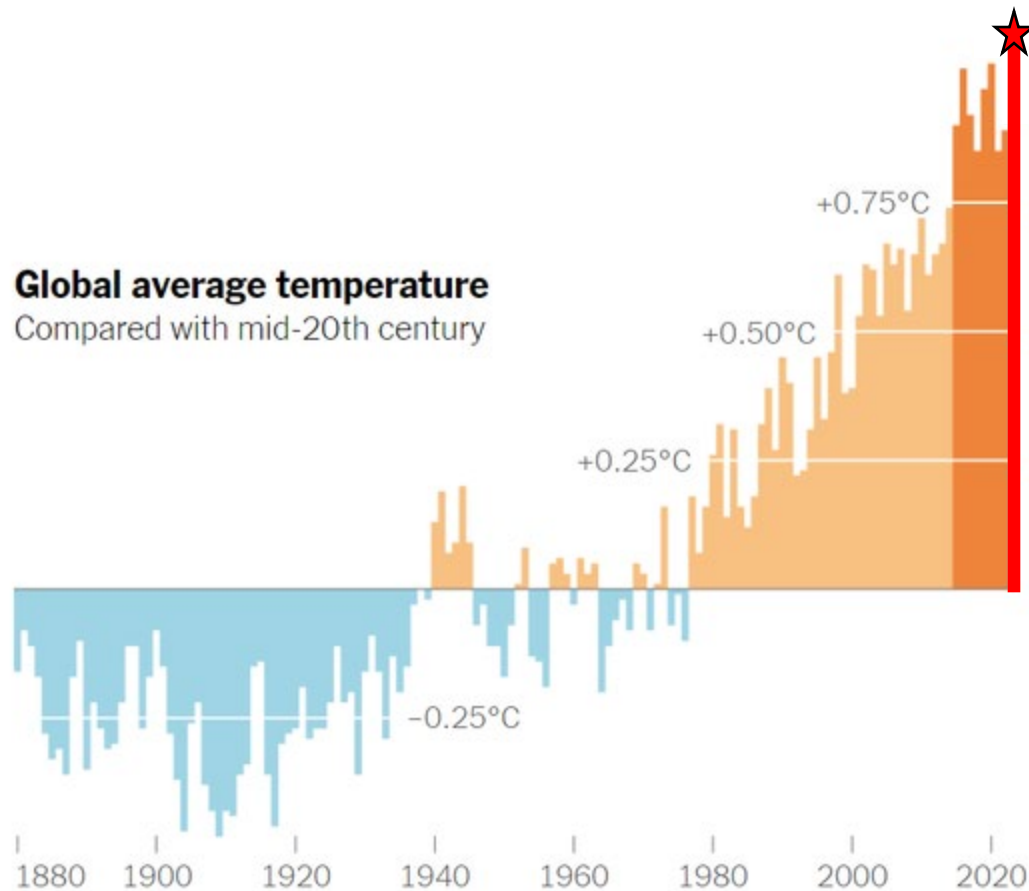
Net Zero at Home

Deep Retrofit Case Study

February 21, 2024



The Problem



Source: NASA Goddard Institute for Space Studies

- **2023 was the hottest year on record - shattering the previous records**
- Past 9 years (2015-2023) were the hottest on record
- Record sea temperatures cause sea levels to rise
- Record Antarctic ice melt
- Extreme weather is causing extreme draught, fires, storms, flooding, death and devastation

WE NEED TO STOP BURNING FOSSIL FUELS!!!

Solution: **SAVE MONEY** when you stop burning fossil fuels at home



- 1) The equipment is available
 - Heat Pumps
 - Heat Pump (Hybrid) Hot Water Tank
 - Solar

2) The government and the city of Toronto will help you pay for it

3) YOU WILL SAVE \$\$\$!!!

Electrify, Electrify, Electrify!!



Our house

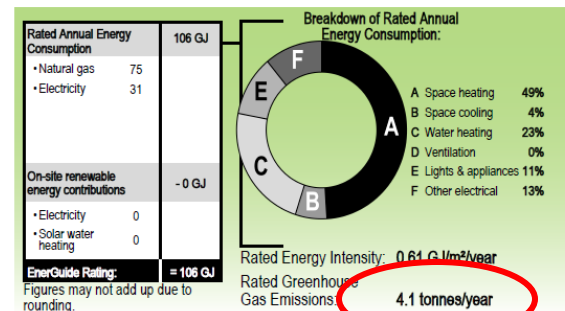
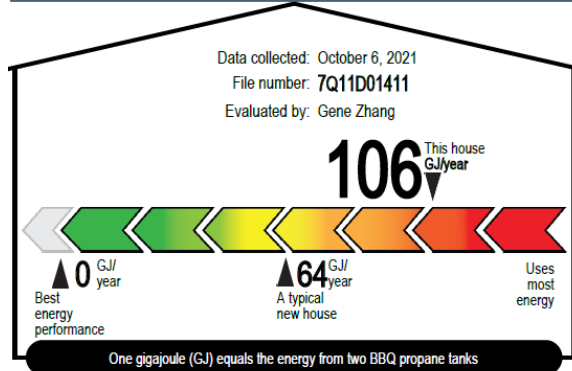


A Typical Toronto Home

- Built in 1910
- 2 story, semi-detached, central Toronto
- 1400 square feet
- Partially renovated in 2014
- Poor-Average Insulation
- Relatively poor airflow, especially in upper floors
- Central, forced air heating/cooling



Before...not great, \$370/month



Equipment

Central forced air furnace

\$2,130

Natural gas fired Hot Water Heater

\$560

Central Air Conditioner

\$630

Other Energy Cost

\$1,080

TOTAL - Energy cost

\$4,400

The energy consumption indicated on your utility bills may be higher or lower than your

1) Cost of installation divided by 15 years (expected life span of equipment)

The Deep Retrofit



Heat Pump & Hybrid Hot Tank

- May 2022 Install
- Ductless mini-split system
- 2 Compressors (outdoor), 5 air handlers (indoors)
- **300% more efficient than furnace** at heating
- **25-30% more efficient than A/C** at cooling



Windows

- October 2022 Install
- Significant improvement in airflow
- Improved sealing, lower heat loss



Solar

- May 2023 Install
- 31 Panels, 13.8kWh system, Annual production 16,100kWh (90% of consumption w/ EV)
- Net Metering agreement with Toronto Hydro

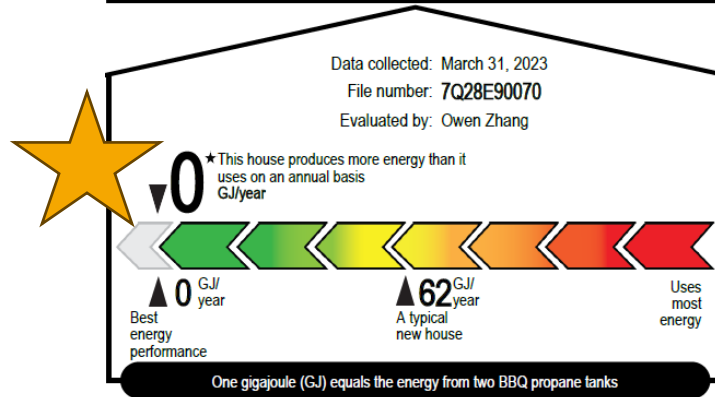


Induction Stove

- June 2023 Install
- TURNED OFF NATURAL GAS CONNECTION
- Zero emission house



After = 0 Emissions!!!



Rated Annual Energy Consumption		53 GJ
• Electricity	53	
• Natural gas	0	

On-site renewable energy contributions		- 53 GJ
• Electricity	63	
• Solar water heating	0	

Breakdown of Rated Annual Energy Consumption:	
A Space heating	39%
B Space cooling	6%
C Water heating	7%
D Ventilation	0%
E Lights & appliances	22%
F Other electrical	26%

Rated Energy Intensity: 0.31 GJ/m²/year
Rated Greenhouse Gas Emissions: 0.0 tonnes/year

ENERGUIDE Rating: = 0 GJ
Figures may not add up due to rounding.

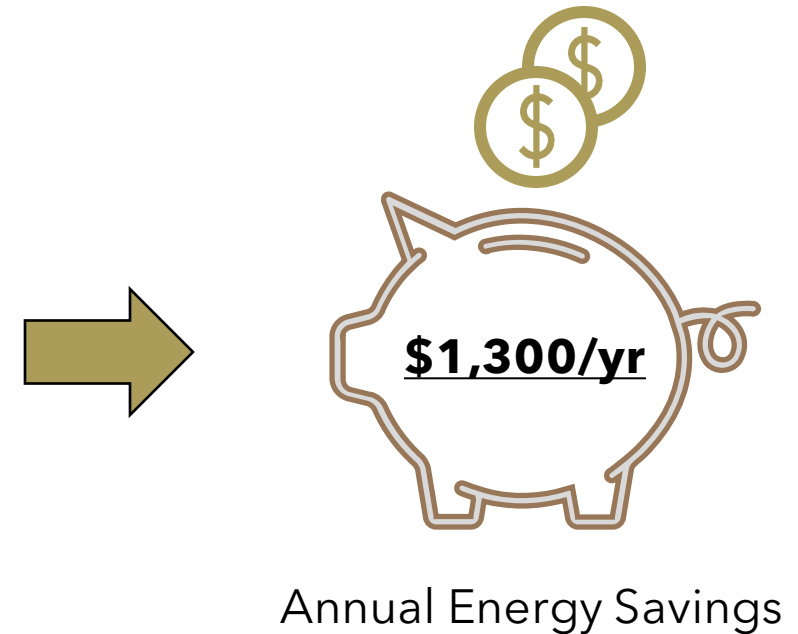
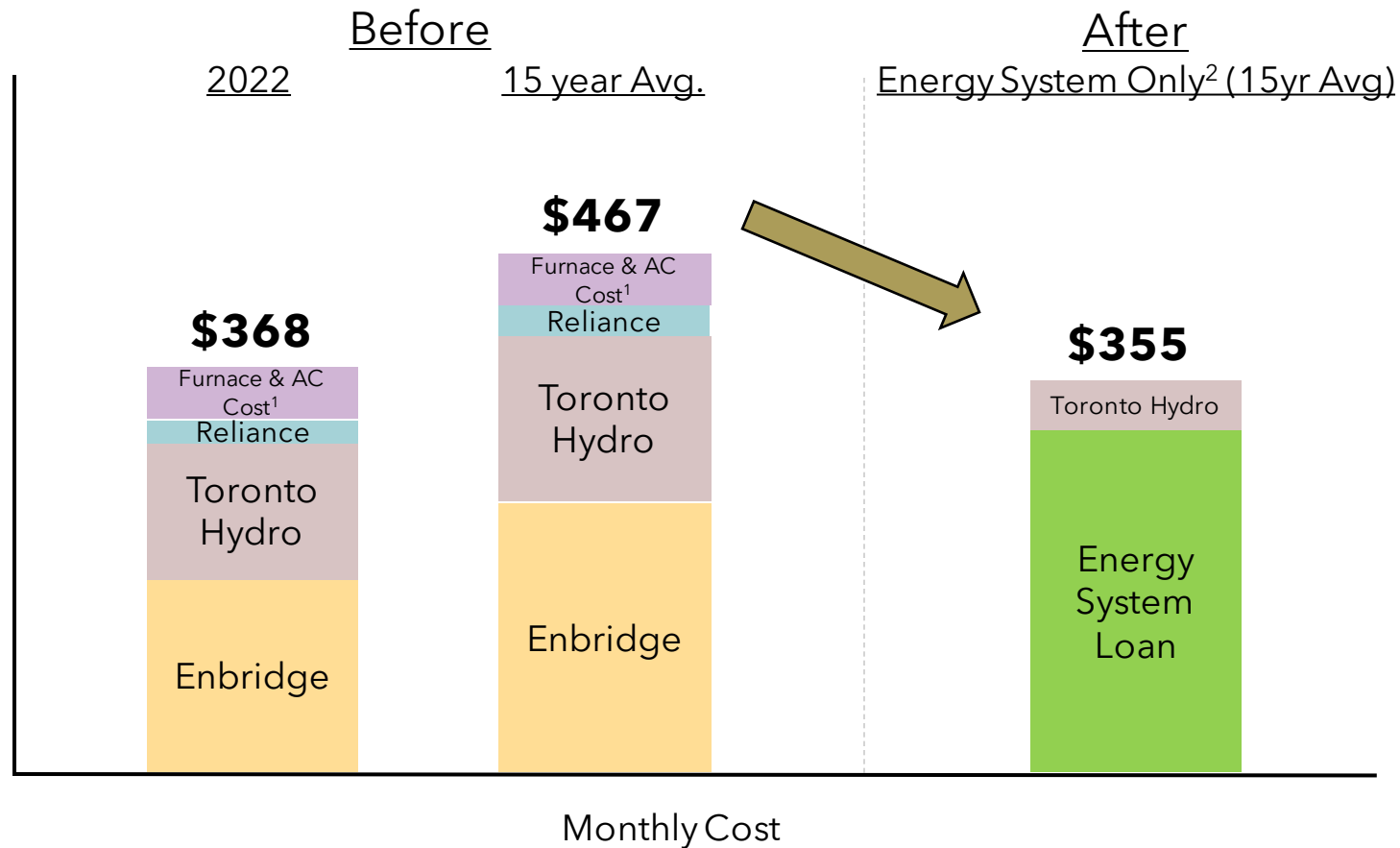
➔ No gas bill (Enbridge)

- ➔
- Minimal electricity bill (Toronto Hydro)
 - Solar produces more than we need in summer = credit
 - Credit is used in winter when less solar energy is produced

- ➔
- Increased comfort from mini-split heat pump system
 - Improved air quality

Before vs After \$\$\$

Apples to apples analysis of energy systems



1) Estimated cost of Furnace = \$5,000 and A/C = \$3,500 amortized over 15 years = \$47/month.
2) Loan Repayments based on Heat Pump, Hot Water Tank, Electrical Panel Upgrade & Solar.

Net Zero at Home

Reduce your emissions and save money!



We help our clients:

- Take control of rising energy costs
- Reduce or eliminate energy bills
- Reduce carbon footprint and reliance on fossil fuels
- Increase homeowner's comfort and improve air quality
- Increase the value of their home
- **Access grants and low interest financing**

We manage:

→ All applications of grants and financing

→ All audit, installations and other work on your behalf

