NORTHWEST TERRITORIES
LEGISLATIVE ASSEMBLY
TERRITOIRES DU NORD-OUEST
ASSEMBLÉE LÉGISLATIVE

MEETING EDE 18-19-20

STANDING COMMITTEE ON ECONOMIC DEVELOPMENT AND ENVIRONMENT

~

THURSDAY, JUNE 4, 2020
COMMITTEE ROOM A / CAUCUS ROOM
YELLOWKNIFE, NT
10:30 AM

AGENDA

1. Prayer

2. Review and Adoption of Agenda

3. Declarations of Conflict of Interest

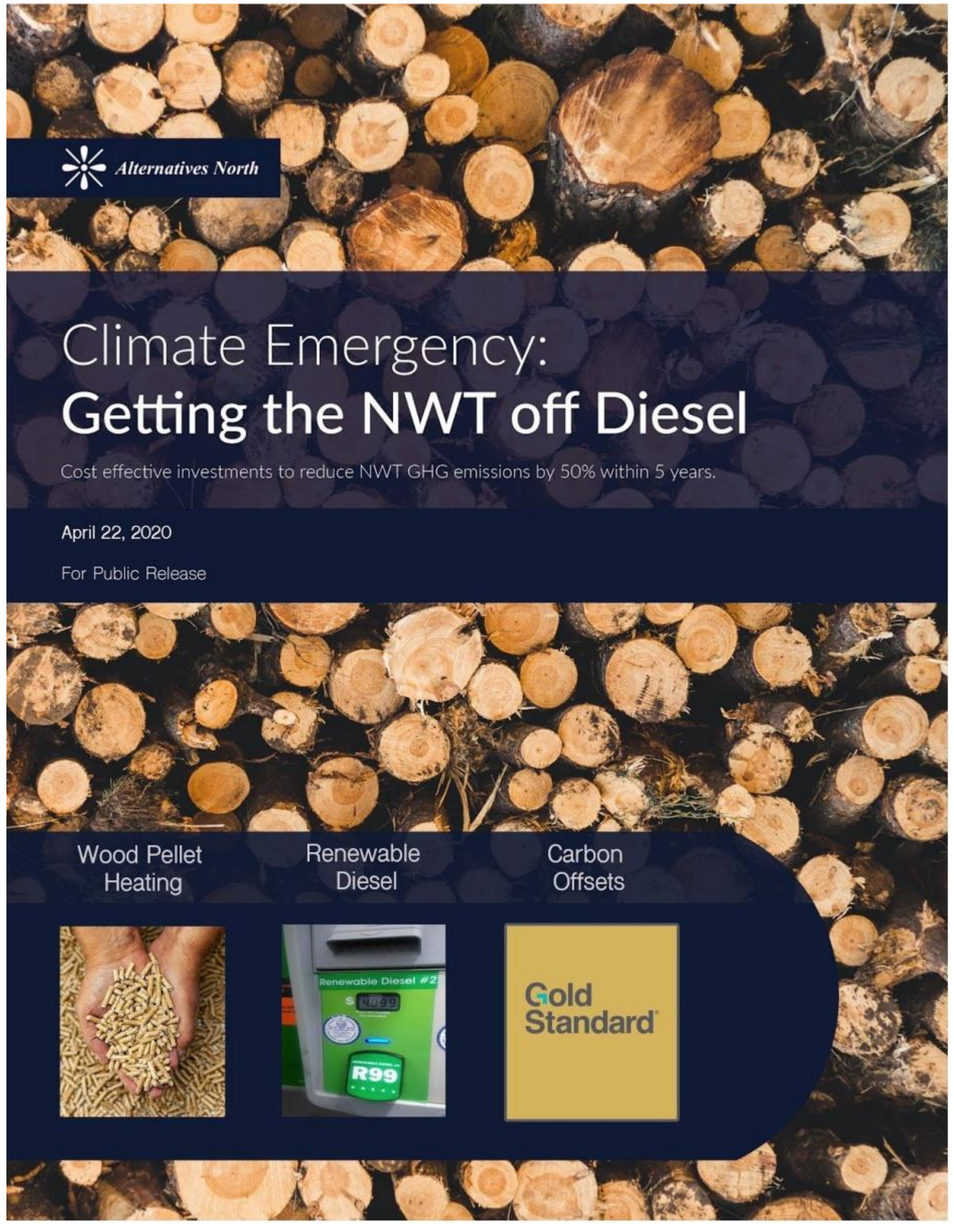
4. Public Matters
   a) Briefing from Alternatives North regarding "Climate Emergency – Getting the NWT Off Diesel" Report.

5. In Camera Matters:
   a) Review of Correspondence from:
      i. Minister of Environment and Natural Resources – 05-26-20
      ii. Minister of Infrastructure – 05-27-20
      iii. Minister of Environment and Natural Resources - 05-28-20
      iv. Minister of Infrastructure – 06-02-20
   b) Committee Initiatives

6. New Business
   a)
   b)
   c)

7. Date and Time of Next Meeting: Thursday, June 4, 2020, 10:30 AM

8. Adjournment

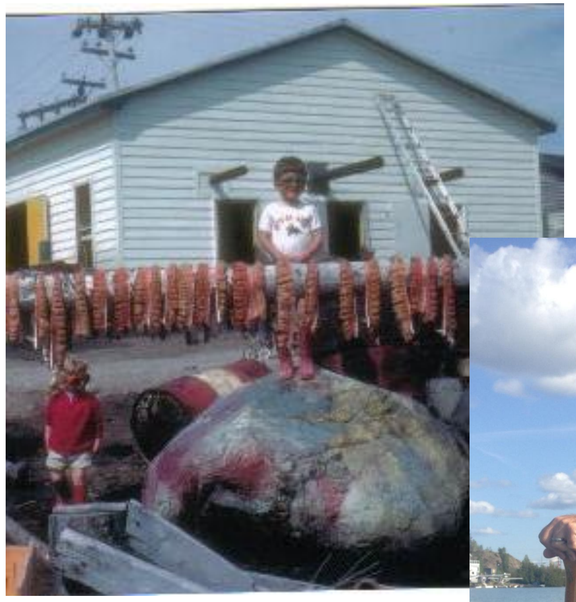


Climate Emergency: Getting the NWT off Diesel

Surprisingly rapid and cost effective ways of reducing NWT GHG emissions by 50%

Climate Emergency Getting the NWT Off Diesel
April 2020

Alternatives North



Andrew Robinson in Makkovik, Labrador and Yellowknife

Lachlan MacLean on the Tibbitt to Contwoyto Ice Road

Formerly Chief Mechanical Engineer at Dominion Diamond's Ekati Mine and Executive Director of the Arctic Energy Alliance, Lachlan MacLean and Andrew Robinson are renewable energy consultants, based in Yellowknife, NWT.

Combined, they have 25 years of experience in asset management and analysis of renewable energy solutions for the communities and mines of Canada's Northwest Territories.

Presentation Outline

1. EMERGENCY RESPONSE TO CLIMATE CHANGE – RAPID & EFFECTIVE
2. WHERE DO MOST NWT GREENHOUSE GAS EMISSIONS COME FROM?
3. COMPARE OPTIONS – WHICH ONES ARE RAPID & EFFECTIVE?
4. THREE SURPRISINGLY AFFORDABLE WAYS TO REDUCE EMISSIONS BY 50%
5. RECOMMENDATIONS

emergencies

respond rapidly and effectively

Image ABCNews

Alternatives North

Climate emergency!

We are not responding rapidly or effectively

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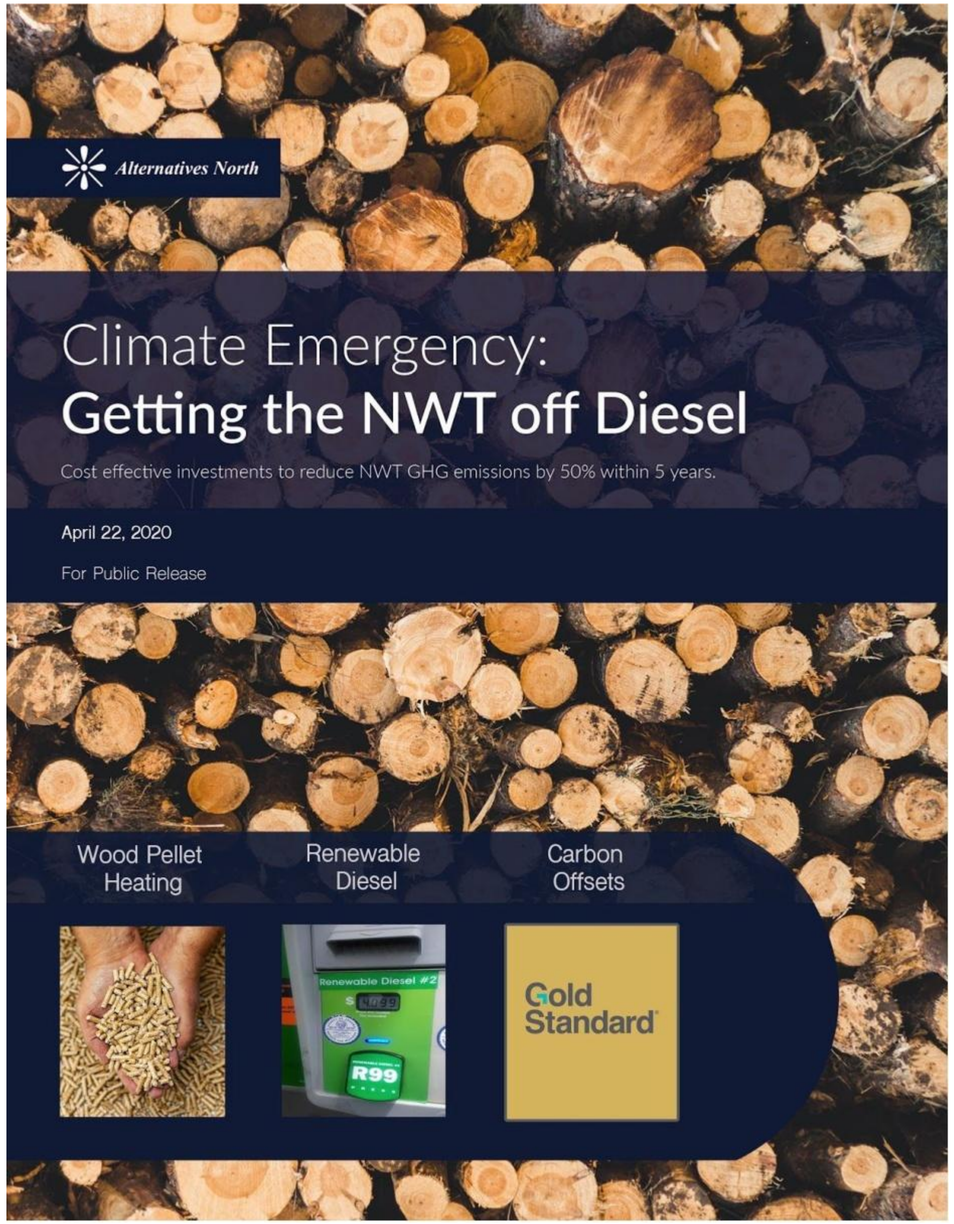

How much would it cost to reduce NWT emissions by 50%?

How long would it take?

Climate Emergency Getting the NWT Off Diesel
April 2020

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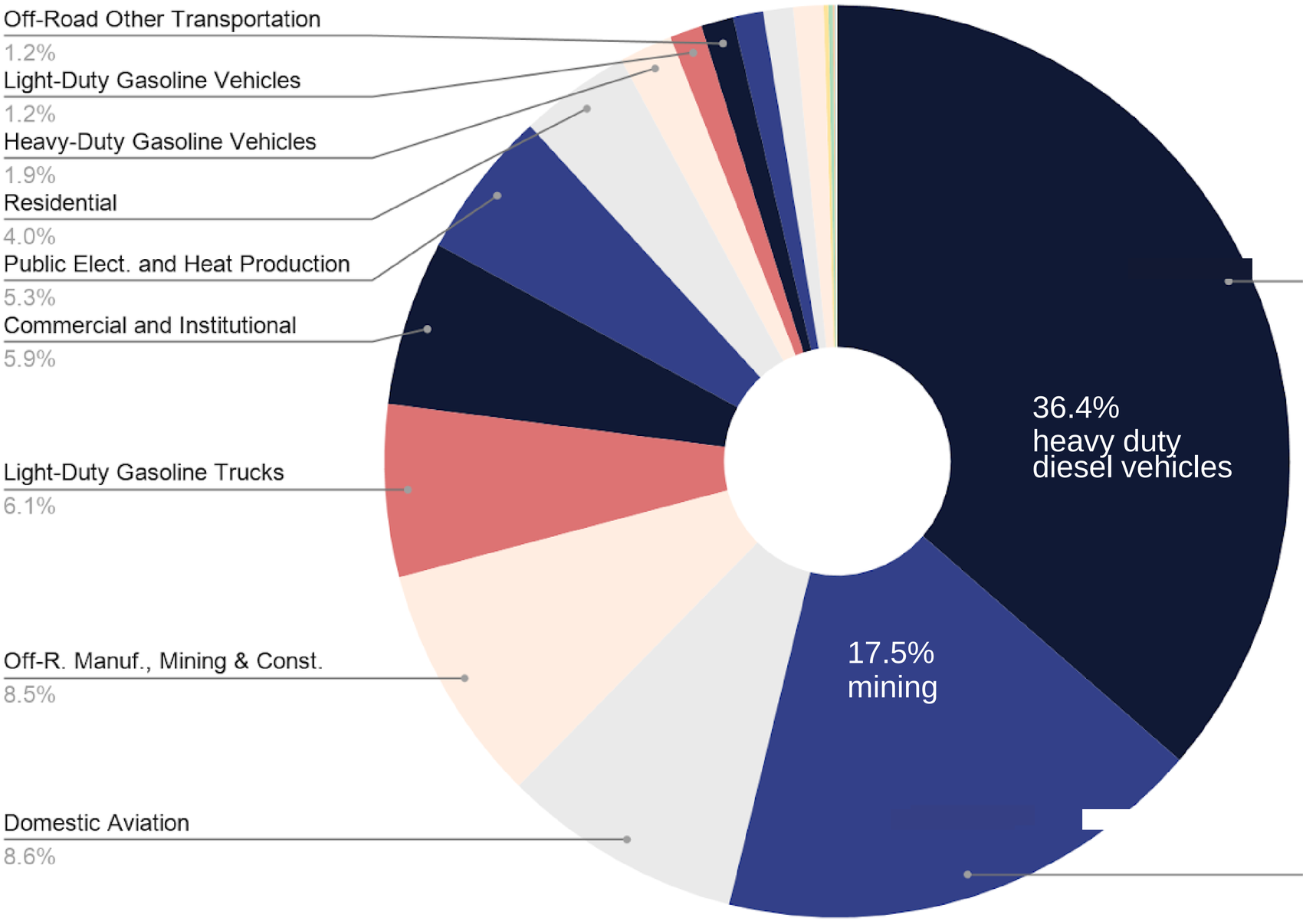
NWT 2017

1,200 kt GHG emissions



Alternatives North

25%

to communities

image Cameron Wilkinson

75%

to mines & other

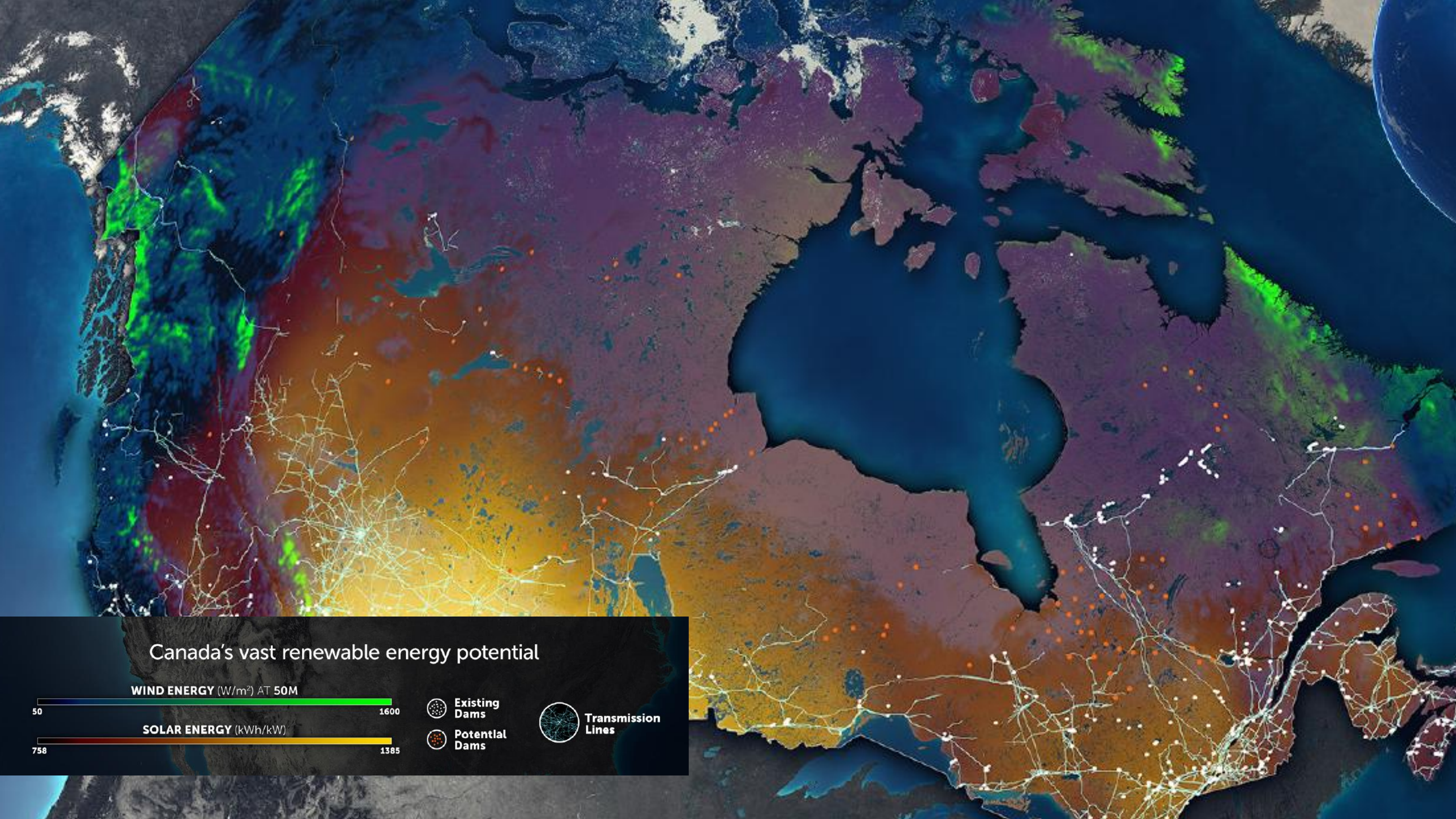
image Canadian Press

2 hr 25 min
200 km

B
Yellowknife

A
Chan Lake Rest Area

NWT uses 7,200 double “B-train” diesel tanker trucks
50% reduction = 3,600 trucks


Canada's vast renewable energy potential
WIND ENERGY (W/m²) AT 50M
50
1600
SOLAR ENERGY (kWh/kW)
758
1385
Existing Dams
Potential Dams
Transmission Lines

Eight “Pathways” to replacing diesel

Cost to build and operate for 20 years?

Buying Carbon Offsets

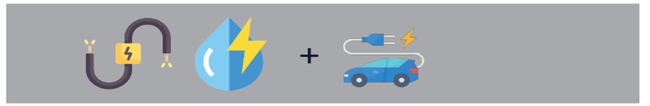
Renewable Diesel

Waste heat from generators

Community wood pellet boilers

Wood pellet heat and power at mines

Transmission line under Great Slave Lake



Transmission line under Great Slave Lake + Taltson Hydro Expansion

Solar PV and Wind power in communities

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Summary of Pathways

The following table summarizes all technical, economic, and social factors of the examined pathways.

Option	Potential Impact (kt)	Technical Viability	Capital Cost	20 year Investment/ Income	NWT Human Health	NWT Employment	NWT Self-Sufficiency	Average Annual $/t over 20 years
Carbon Offsets	● 600+	●[1]	-	● -$300M	-	●[3]	●[3]	● -$25/t
Renewable Diesel	● 600+	●[2]	-	● -$1,394M	-	●[3]	●[3]	● -$116/t
Biomass District Heating	● 64	●	$126M	● $79M	-	●	-	● $62/t
Diesel Co-Generation	● 4	●	$16.3M	● $7.8M	●	●	●	● $98/t
15MW Biomass CHP	● 73+	●	$135M	● -$589M	-	●	-	● -$403/t
Transmission line – existing Taltson across Lake to future North Slave Mines	● 89	●	$900M	● -$1,226M	●	●	-	● -$689/t
Taltson Hydro expansion, Transmission across lake and on to Ekati, Future Mines and Fort Providence	● 227	●	$2,120M	● -$2,782M	●	●	-	● -$613/t
As above w/ Electric Vehicles	● 244	●	$2,223M	● -$2,779M	●	-	-	● -$569/t
10 Community Solar PV projects w. Batteries or variable speed generators	● 2.1	●	$33M	● -$24.4M	●	●	●	● -$580/t
4 community Wind Power projects	● 6	●	$35.5M	● -$17.8M	●	●	●	● -$147/t
Diavik 9.2 MW Wind Power	● 12	●	$33M	● $67M	●	●	●	● $280/t

1 existing large-scale market
2 proven in cold climate outside NWT
3 indirectly

Legend
- ● The project is in the public interest as it creates revenues compared to status quo.
- ● The project represents the first two lowest cost options (initial, or annual) to cumulatively achieve 50% GHG reduction (600kt).
- ● The project does not represent the lowest cost option.

- Community wood pellet boilers &

Waste heat from generators

Waste heat from generators

Community wood pellet boilers

- Invest $140M up front
- Earn $80M over 20 years
- reduce heating bills by 20%

400 x 

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Gold Standard

Certified Carbon Offsets

- buying carbon offsets
  - $ 15M per year (lowest cost option)

reduction potential

3600+ x 

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image Andrew Robinson

renewable diesel

- renewable diesel

Replacing diesel & heating oil with renewable diesel, a type of diesel made from plant oil and animal fat

- $65 M per year to get down to same price as regular diesel (2nd lowest cost option)

↳ $1.60/L

reduction potential

3600+ x 

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✖Transmission line under Great Slave Lake

transmission line
& expansion +EV

- ✖ estimated cost of $2.8 billion over 20 years;
- ✖ 24x more expensive than carbon offsets;
- ✖ 6x more expensive than renewable diesel;
- ✖ Even if construction costs 100% paid for, maintenance costs could make power more expensive than diesel generated power;
- Taltson Hydro could power electric vehicles and heat more buildings in South Slave region?

reduction potential

1,600? x


Colville Lake, Northwest Territories

- solar
- wind
- wood pellet power at mines

- Solar PV needs expensive batteries to get through the winter;
- Wind is viable on arctic coast & at mines on the tundra, but does not save enough diesel overall. Not enough wind in rest of NWT;
- Wood pellet power is cheaper than Taltson hydro but 4x more expensive than renewable diesel

Solar PV and Wind power in communities

Wood pellet heat and power at mines

Recommendations to the GNWT

1. REVISE GNWT 2030 ENERGY STRATEGY
2. PURCHASE CARBON OFFSETS ($15M/YR)
3. INVEST IN BIOMASS AND CO-GENERATION DISTRICT HEATING SYSTEMS IN NWT COMMUNITIES ($145M INVESTMENT EARNS $80M IN PROFITS OVER 20 YEARS)
4. IMMEDIATE RENEWABLE DIESEL TRANSITION ($65M/YR)
5. COMMISSION STUDY TO GET TO CARBON NEUTRALITY WITHIN 15 YEARS

Presentation Review

1. EMERGENCY RESPONSE TO CLIMATE CHANGE – RAPID & EFFECTIVE
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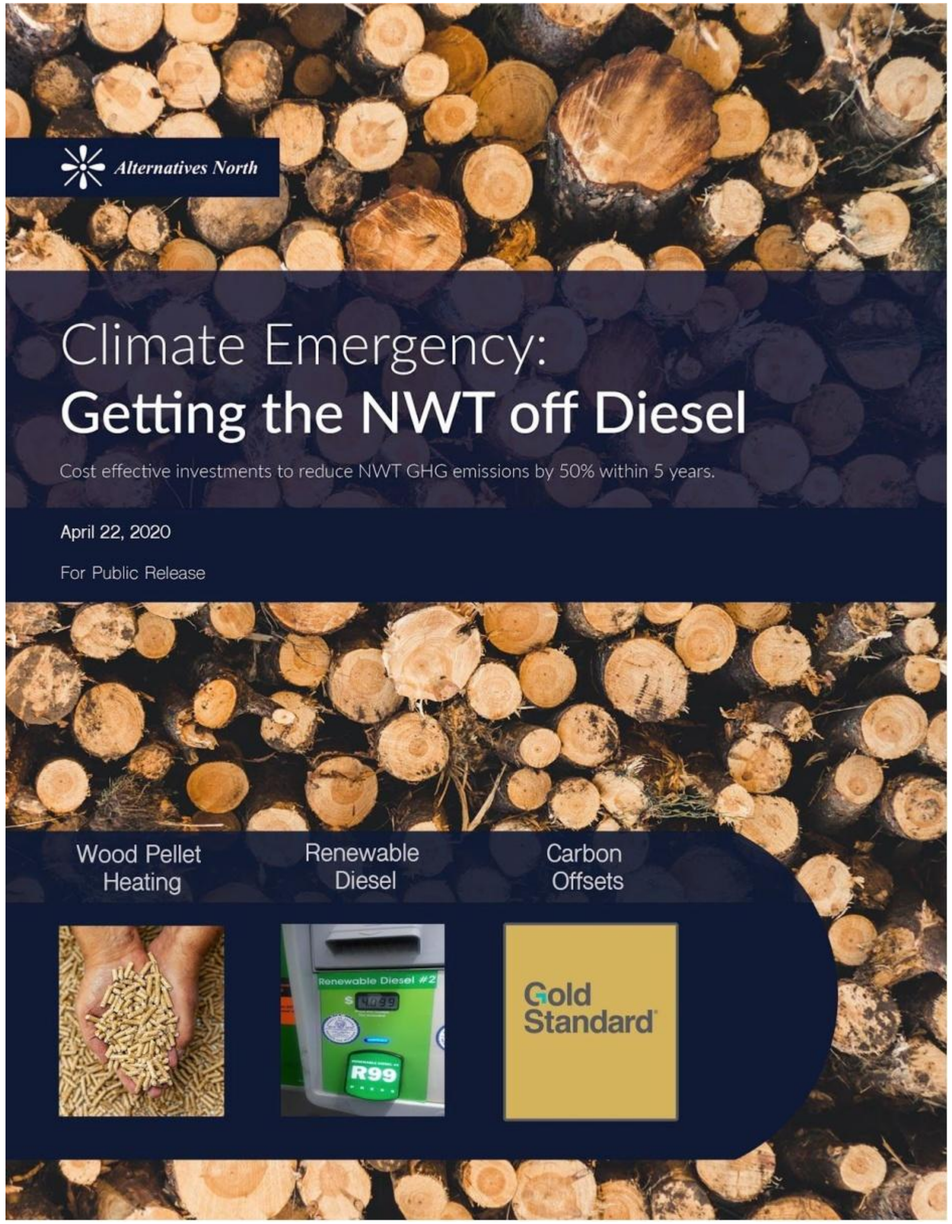

Climate Emergency Getting the NWT Off Diesel
April 2020

> full report

alternativesnorth.ca

Authors

Andrew Robinson

Lachlan Maclean

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Formatting, graphic design

William Gagnon and Alternatives North volunteers

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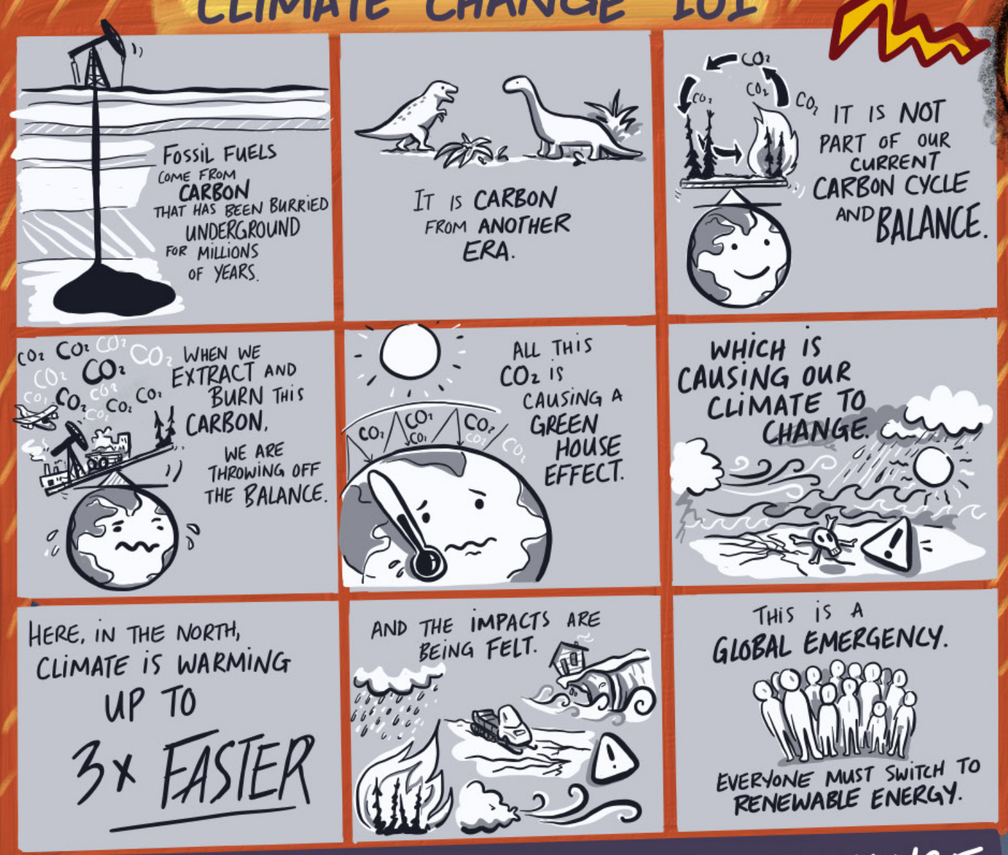
GETTING THE NWT OFF DIESEL

CLIMATE CHANGE IS AN EMERGENCY
IT MUST BE TREATED AS SUCH

CLIMATE CHANGE 101



BURNING FOSSIL FUELS CAUSES CLIMATE CHANGE

How do we GET the NWT oFF DIESEL?

THE NWT is NOT LIKE THE REST OF CANADA

BIO-FUELS ARE THE BEST WAY TO GET 100% RENEWABLE ENERGY IN THE NWT

TRANSMISSION LINES UNDER GREAT SLAVE LAKE & TALTSON EXPANSION

$2 to 3 Billion

- ✗ Revenue may not cover line maintenance.
- ✗ May use all funding and leave none for other initiatives.

POTENTIAL?? ??? REDUCTION 1,600x

IF several new big mines open in the next 20 years.

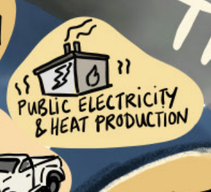
THE GNWT ENERGY PLAN is SLOW + $$$$ + NOT EFFECTIVE

THINK ABOUT OTHER CRISES, AN EMERGENCY RESPONSE IS:

- EFFECTIVE
- ACTION
- NOW

ALARM

FOSSIL FUELS BURNED IN THE NWT



75% INDUSTRY/ MINES — 25% COMMUNITIES

MUST BE PART OF THE SOLUTION.

2017:
450 MILLION LITRES
EQUIVALENT TO
7,200+ "Double B" TANKER TRUCKS

WE CAN REDUCE BY 50%, STARTING THIS YEAR!

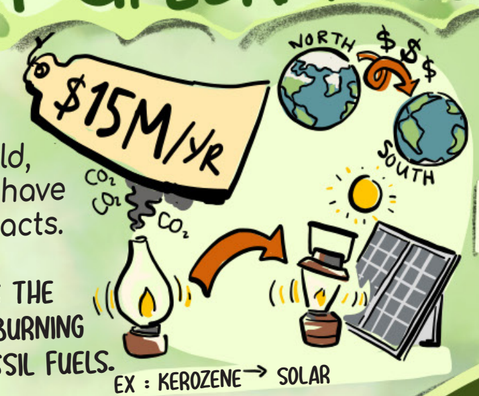
2025
225 MILLION LITRES
EQUIVALENT TO
3,600x "Double B" TANKER TRUCKS

SURPRISINGLY AFFORDABLE ACTIONS TO HALVE NWT GREEN HOUSE GAS EMISSIONS!

GOLD STANDARD CARBON OFFSETS

In other parts of the world, our money can quickly have tangible impacts.

THIS REDUCES THE TOTAL GLOBAL BURNING OF FOSSIL FUELS.



REDUCTION: 3,600x

Implementation Timeline

IMMEDIATE + MOST COST EFFECTIVE

RENEWABLE DIESEL

Renewable diesel is made from plant oils and animal fat.
It can be sustainably sourced in Canada.

$65M/yr (TO SUBSIDIZE PRICE DIFFERENCE WITH REGULAR DIESEL)

REDUCTION: 3,600x

IT WILL WORK IN ALL MACHINERY THAT CURRENTLY USES FOSSIL DIESEL.

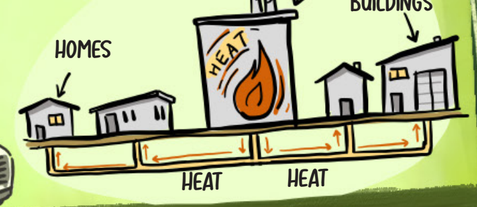
NO CAPITAL COST

DISTRICT HEATING SYSTEMS

Construct biomass and co-generation systems in NWT communities.
These will be operated by the GNWT who can also sell the recovered heat.

$140M (TO BUILD SYSTEM)

- ✓ REDUCE HEATING BILLS BY 20%
- ✓ MAKE A PROFIT ($80M OVER 20 YEARS)
- ✓ LOCAL CONSTRUCTION JOBS IN COMMUNITIES



REDUCTION: 400x

LOCAL INVESTMENT

WE CAN REDUCE BY 50% ... AND THEN MORE!

FULL REPORT AVAILABLE AT : WWW.ALTERNATIVESNORTH.CA

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