Biomass Combustion in Canada - Notes from Each Side of the Podium

IEA Bioenergy –Roundtable Discussion

October 5, 2023

David Dubois, Manager of Business Development

Fink Machine Inc

FINK MACHINE INC.

State of the Art Bio Energy Heating Systems
Revolutionary Wood Heating Technology
Highly Economical for Commercial, Industrial Buildings

Split Personality

Fink Machine – Manager of Business Development

- Canada's largest supplier of commercial biomass boilers
- Work with a variety of levels of government

Village of Cache Creek – Elected Councillor

- 2014-2018, 2022-current
- 900+ people

General Drivers for Biomass

- Economic
  - Lower Energy Costs
  - Waste Reduction (and cost of disposal)
- Environmental/Sustainable
  - Lower GHG's
  - Air Quality
  - Waste Utilization
- Other
  - Economic Development
  - Energy Security

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Key Community Drivers for Bioenergy

- Cost Savings
- Economic Development
- Lower GHG Emissions
- Waste Reduction/Resource Utilization
- Wildfire Mitigation

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Urban vs Rural

Urban

- Environmental
- Large Scale MW+
- Natural Gas
- Little Cost Sensitivity

Rural

- Economic
- Smaller Scale <MW
- No Natural Gas
- Very Cost Sensitive

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Why Local Governments Care

- Local governments impact between 50-60% of GHG's in BC
- Energy cost and availability can have significant impact on local economies
- Most directly impacted by impacts of climate change

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Roles of Rural Local Government in Biomass Combustion

- Early Adopters
- Gatekeepers
  - Emissions
  - Location
  - Heavily influenced by NGO's
  - Lack of knowledge

Bylaw No. 8266, 2010 [Consolidated Version] Page 4

2.2 Requirements for Installation of Wood Burning Appliances

2.2.1 No person shall install a wood burning appliance **in or about any building unless the appliance meets the particulate emission requirements of the** Canadian standard **or the** US standard**.**

2.2.2 No person shall install a hydronic heater **on any property within the City of Prince George.**

2.2.3 In addition to the requirement of this Bylaw, the owner or occupant of a building **shall obtain a building permit before installing any** wood burning appliance, **or** masonry heater **in any** building**.**

CITY OF PRINCE GEORGE

SHAPING A NORTHERN DESTINY

Consolidated for Convenience
Updated: December 19, 2017

CLEAN AIR BYLAW
NO. 8266, 2010

Wood Burning Appliance - means a fireplace, fireplace insert, wood stove, heater, burner, boiler, furnace, **pellet stove** or similar device, other than a **masonry heater,** installed in or about any building**,** in which wood is burned and discharges combustion products to the air.

Hydronic Heaters – also known as outdoor wood heaters or outdoor wood boilers, are appliances that may be located inside or outside a **building**, that burns fuel such as wood, pellets, corn, hay or other biofuels to heat and circulate a fluid through piping to provide heat and/or hot water to a **building**.



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GNWT Current Biomass Program

- Currently 40 systems in 12 communities from 50-1250 kW, 4 more underway in 2022/23 and integrating biomass into new capital projects.
- $300 in missed savings for every tonne of Pellets NOT consumed.
- Larger projects
  - **Stanton Hospital Yellowknife** – 2 x 1250 kW Vitoflex 300UF pellet boilers produces 7,000 MWh of heat every year and offsets 1,500 tonnes of GHG
  - **Inuvik Hospital** – 1250 kW Vitoflex 300UF pellet boiler consumes 1,110 tonnes of pellets displaces 22,000 GJ of natural gas and offsets 1,020 tonnes of GHG. Cost was 1.5M with annual savings of $90k
  - **Sissons Court Public Housing** – 300 kW Vitoflex 300RF pellet boiler in prefabricated boiler plant with integrated pellet storage bin and propane back- boilers heating 53 rental units in 8 buildings with 293 tonnes of CO2e reduction

Photos courtesy of David Hatto, GNWT

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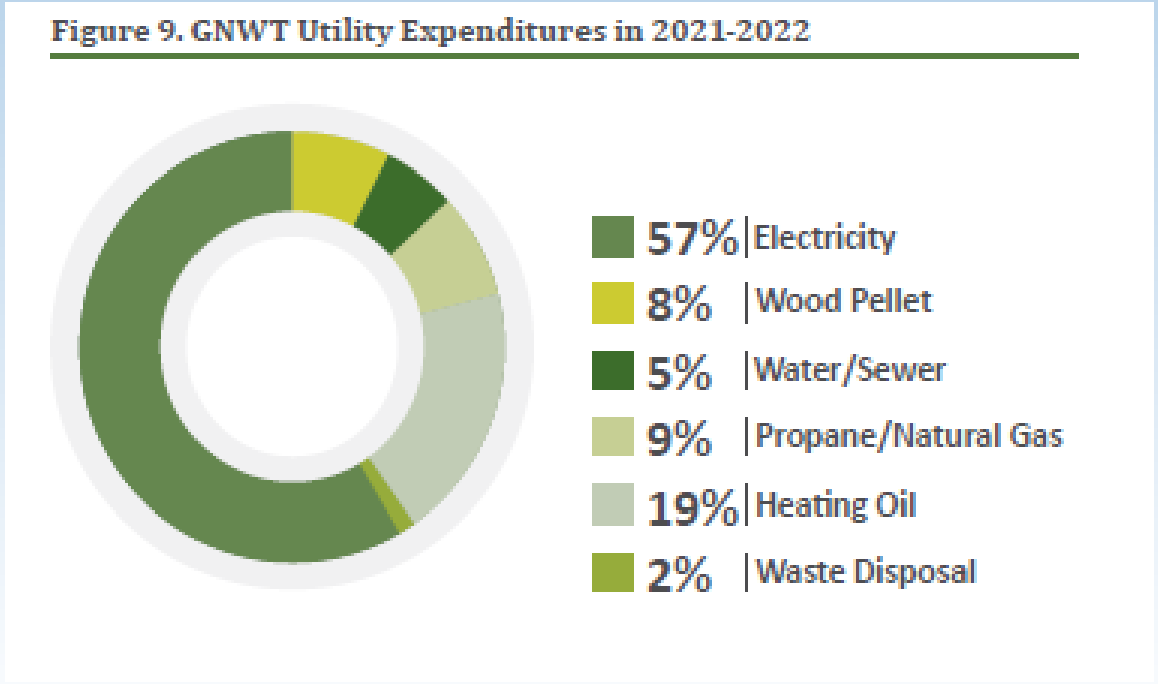
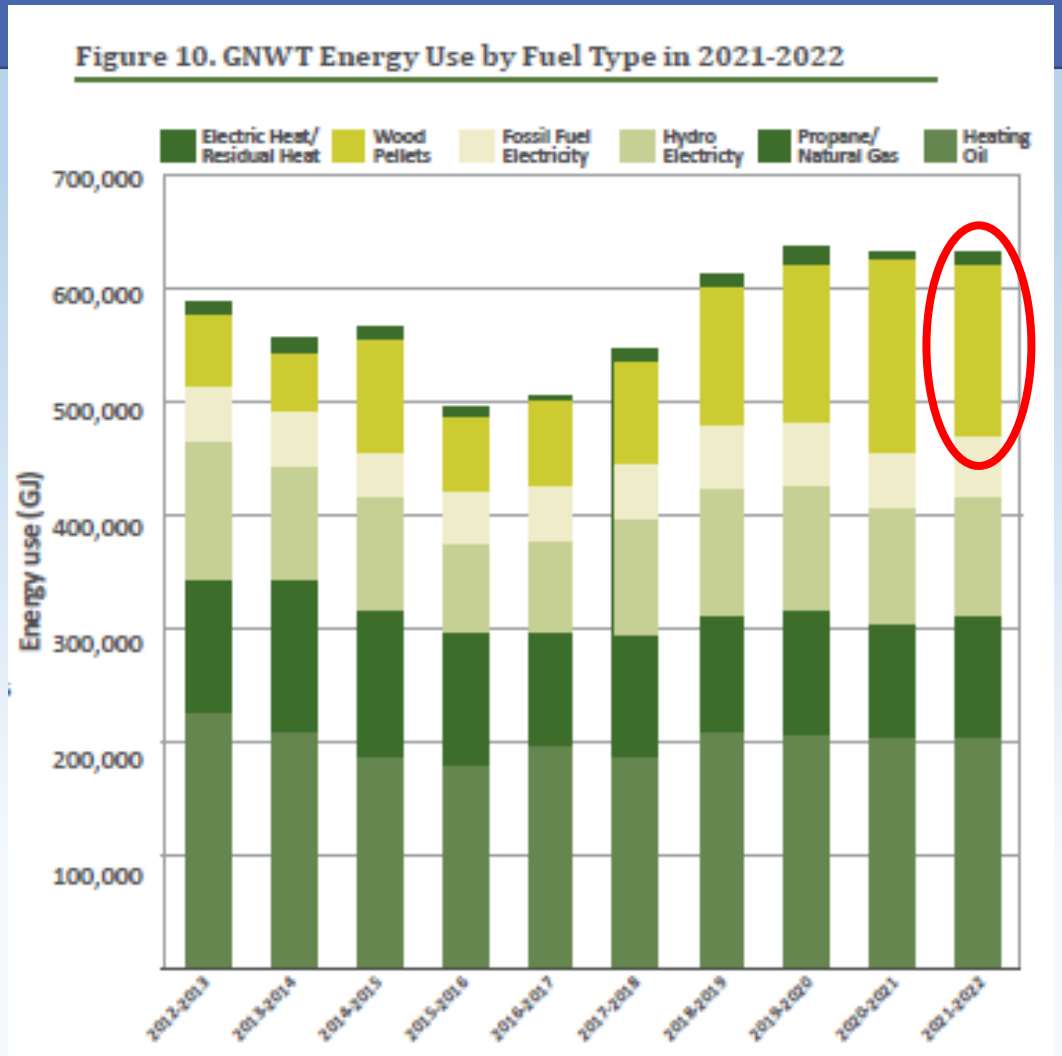
GNWT Building Use and Emissions

Graphs taken from 2021-2022 Northwest Territories Energy Initiatives Report





Total GNWT Expenditures on GNWT Facilities = $36,000,000
Pellets are 8% of cost but about 20% of the fuel usage

Questions?