

# Energy Service Companies in Yukon



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# Talk will Focus on:

1. Yukon Wood Products Association
  1. What we do and who we are
2. Why Biomass?
3. Energy Service Companies in Yukon
4. Carbon Neutrality and Sustainability

# Who is the Forest Industry in Yukon

Not these guys



We are these guys  
We are in the Energy Business





# Why Biomass?

Need to look back to see ahead





# Yukon Has a Rich History in Biomass



Wood Saw Steam T... 1912











# The Alaska Highway changed Everything



# Shift from Biomass to Fossil Fuels







An initiative of the  
Energy Committee of the  
Yukon Chamber of Commerce



YUKON SPENDS  
**\$200,000,000**

A YEAR ON FUELS  
FROM OUTSIDE

# Yukon Territory receives a transfer payment to support the population.

- \$1.2 Billion received from Ottawa annually
- Every 6 years a complete transfer is leaked out of Yukon economy. 2/3 to USA oil refineries

# Biomass Strategy

Yukon Adopted it February 2016

- \$60,000,000.00 spent on fuel and electricity for heat
- 75% or \$50,000,000.00 on imported fossil fuels for heat
- The **forest industry** in Yukon is a **biomass energy industry**



# Wood Energy Costs Less



Fuel/energy source	Units per GJ	Efficiency	Price	Cost/GJ
Wood	0.053 cords/GJ About 7 ft <sup>3</sup>	60% wood stove 80%chip boiler	\$275/cord \$150.00/tonne	\$24.51
Electricity	277.8 kWh/GJ	100%	\$0.15/kWh No subsidy closer to \$0.20/kWh	\$41.67
Fuel Oil	26.2 litres/GJ About 7 gallons	80%	\$1.10/litre	\$35.99



# Yukon's Energy Service Companies

Capacity and Business Models

# Energy Service Models

- Customer owns and operates the system
  - Straight up fuel purchase contract
  - Raven Recycling and Yukon Gardens
- Teslin Tlingit Council Development Corp owns and operates district heat systems
- Heat sales model
  - Customer purchases heat and leaves fueling and operations to a Heat Sales company

# Heat Sales Model Yukon Biomass Inc.

**YUKON BIOMASS**

**WE SELL HEAT**

**Switching to heat derived from Biomass means:**

- No oil spill liability
- Not subject to any 'Carbon Tax'
- Using a renewable energy resource
- You would be supporting local employment.
- Circulating your fuel money back into the Yukon economy
- Not burning fossil fuels that are causing global warming
- Lower fuel costs compared to fuel oil, propane or electricity.
- Burning beetle kill wood, (i.e. dead trees which are a huge fire hazard).

**Getting heat from Yukon Biomass Inc. means:**

- No need to feed the boilers
- No need to reorder fuel
- No need to clean the ash out
- Very low annual maintenance charges
- No need to worry about fuel quality or condition
- Simple meter reading for heat energy supplied.
- We service them to get the most out of the fuel we supply.
- Boiler emissions that are similar to your old oil or propane boilers.
- Charges are based on a meter reading rather than per cord or weight of fuel.
- With a separate plant room, there is no need to upgrade your building or equipment room
- By leaving your existing equipment intact and serviced it can act as a backup heating system
- We use the most efficient boilers with two stage burners that delivers heat at over 90% efficiency





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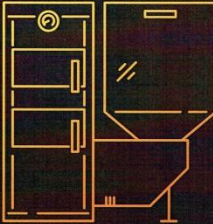
**We have:**

- the Yukon's biggest Logging outfit to ensure your fuel is available.
- the Yukon's biggest locally based biomass installer and servicing team.

We supply boilers in units of 75 and 100 kW (250,000 and 340,000 BTUs) so that YBI can ramp up or down heat supply more closely to demand, thus saving you money.


For larger heat requirements boilers can be installed in series or YBI can locate larger units specific to the particular situation





**Three options to purchase your heat energy and biomass boilers:**

1. You buy the equipment and we install it, operate it and just charge you for the heat supplied.
2. We finance your equipment, install and operate it and then you buy it back over a period of time.
3. You simply pay for the heat and we include in the tariff the cost of the boiler.



**LET YUKON BIOMASS  
HEAT YOUR BUILDING  
Switch Now !**

**Introductory Offer:  
First load of fuel FREE.**



# YBI Owners

- Professional Structural Engineer 35 +years international practice
- Hydronic heat and biomass specialist with 25+years in the business reaching back to Germany
- Registered Professional Forester 40 + years in forest industry
- Yukon's largest logger 25+years in the business

# Chain of custody from Stump to Heat in the Building

- YBI undertakes a design build project and installs all of the equipment
  - Designed for 80% of highest demand days, existing system picks up the difference for less than 10% of the year
  - Includes long term purchase agreement for 10+ years
  - Price of energy is based upon a price/kWh of heat consumed

# Chain of custody cont'd,

- YBI manages the delivery of fuel by purchasing wood chips from the logger who delivers at a contract price/tonne
  - Wood chips must meet size specifications and moisture content
    - Penalties may be applied to purchase price for substandard wood chips



## Chain of custody cont'd,

- YBI installs, owns and operates the boilers including fuel purchase, maintenance, and replacement
- The Customer simply pays for a metered kWh of energy consumed by the building
  - Never touches the boiler systems

# Timber Harvesting and Biomass Manufacture





# Bear Creek Logging Inc

## 3 Product Lines Cordwood, Chips, Wood Pellets and Residual Lumber







**Employs Seven Staff. Truckers and Machine Operators**



# 3860 Bandit Beast





# Chip inventory now in place







# Mechanical Trades

- ACS Mechanical....Whitehorse
- HVACtech Systems.....Whitehorse
- Fink Mechanical.....Enderby BC
- Ventek Energy .....Kamloops BC

# ACS Mechanical. Hargassner system





# Fink Machine Inc and Yukon Gardens

**200 km energy diet**



**100 km food diet**



# Manufactures firewood and distribution







# Renewable and GHG Neutral





# Biomass is Renewable and Carbon Neutral





# Axe cut stump under second growth spruce





# Look Back to Look Forward

- Biomass use has been around in Yukon for a **long time**
- **Demand** for wood/biomass **is growing**
- **\$50,000,000.00** heating market that can shift to the 100km or 60 mile energy diet
- **Community based Economic Development**
  - Active communities doing forest stewardship

# Back and Forward continued

- Future is for **more heat** and **some electricity** from wood
- **Carbon capture cycle** already happened in our second growth logged forests along the Yukon River
- We will **reduce fossil fuel** dependence and contribute to reduce carbon emissions

# Thank you for listening

