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# AUSTRIAN BOILER TECHNOLOGY HEATS CANADIAN BUILDINGS

CASE STUDIES OF SUCCESSFUL BIOMASS HEAT PROJECTS

*Werner Emhofer, Export sales manager*



## Fröling – who are we?

- Largest boiler manufacturer in Austria
- One of the largest biomass boiler manufacturers worldwide
- Over 60 years of tradition in wood heating
- More than 1000 employees
- Present in more than 35 countries worldwide

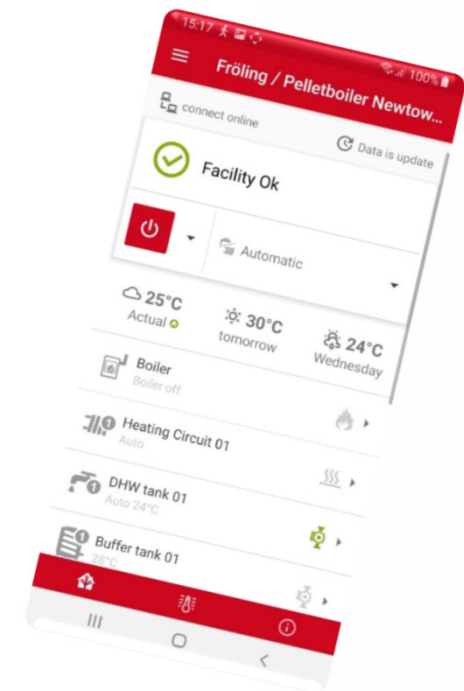
# Why biomass as a fuel?

- Renewable *(like wind, sun)*
- Transportable, stockable *(like fossil fuel)*
- Turn on/off *(like fossil fuel)*
- Can be grown on purpose *(unique!)*

## *The idea of a biomass boiler...*

- High performance
- High convenience – ease of use
- Automatic heating
- Replacement of fossil heating / Renewable alternative

*In Austria heating with wood had always been a tradition  
Technology has been developed and transferred into modern life*



# Fröling – product range

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**Log wood**  
20 - 50 kW



**Pellets only**  
15 - 100 kW



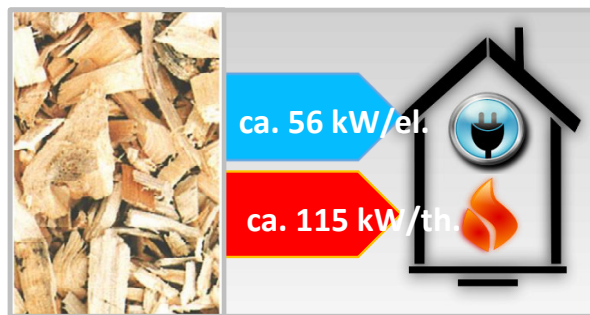
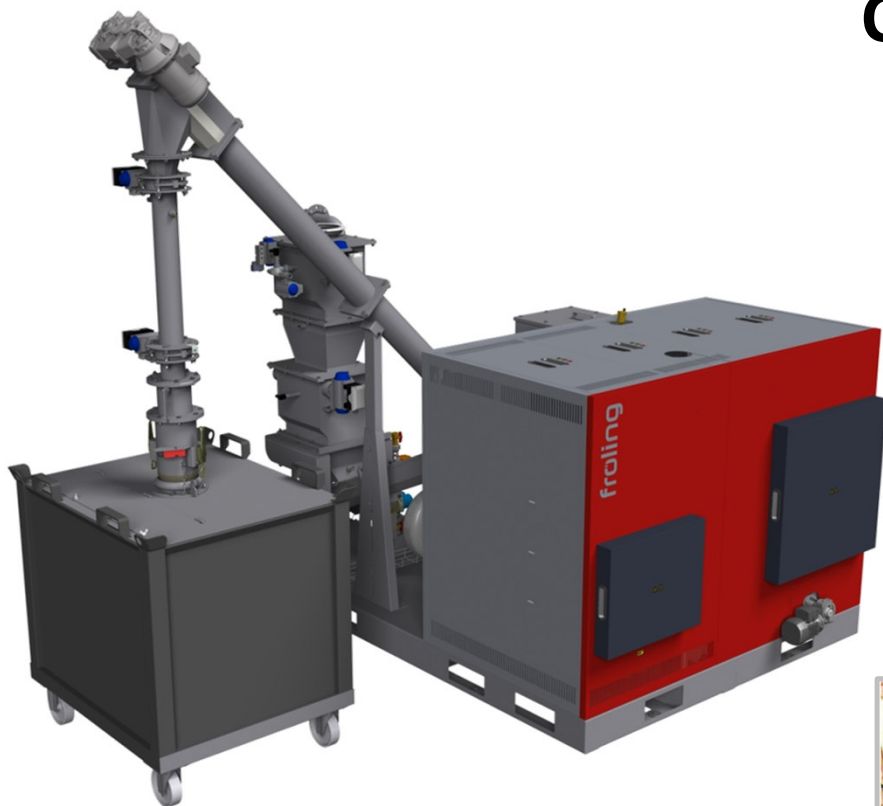
**Wood chip (pellets)**  
150 - 500kW



**fröling** 

# Combined heat and power – wood gasifier

## CHP 50



**froling** 

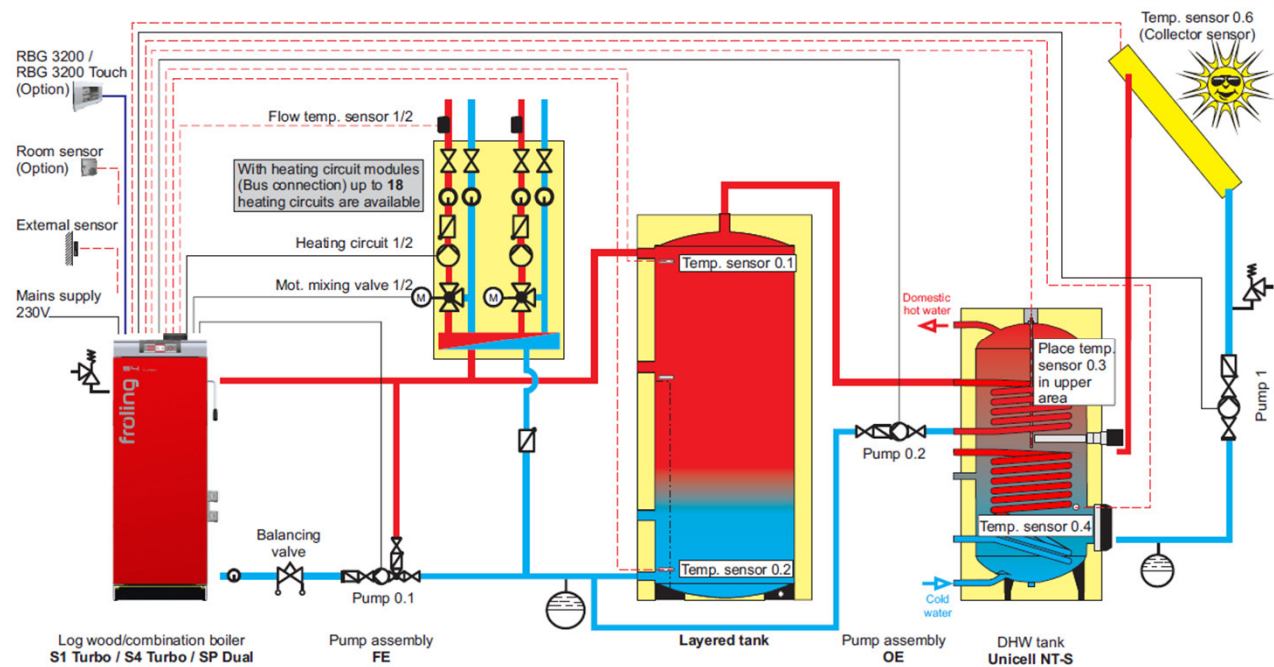


# City of Toronto

- The City of Toronto has an S3 50 kW boiler system.
- It's a small boiler, but it's a big step to get the City of Toronto burning biomass!
- operated by the Parks department
- Thinnings and cut aways
- The boiler system heats two large buildings at the Parks/Maintenance yard.
- The net annual ***GHG emission reduction is ~30tCO<sub>2</sub>.***



# City of Toronto – example of hydraulic schematic



# City of Moncton, NB (Fröling T4-150)

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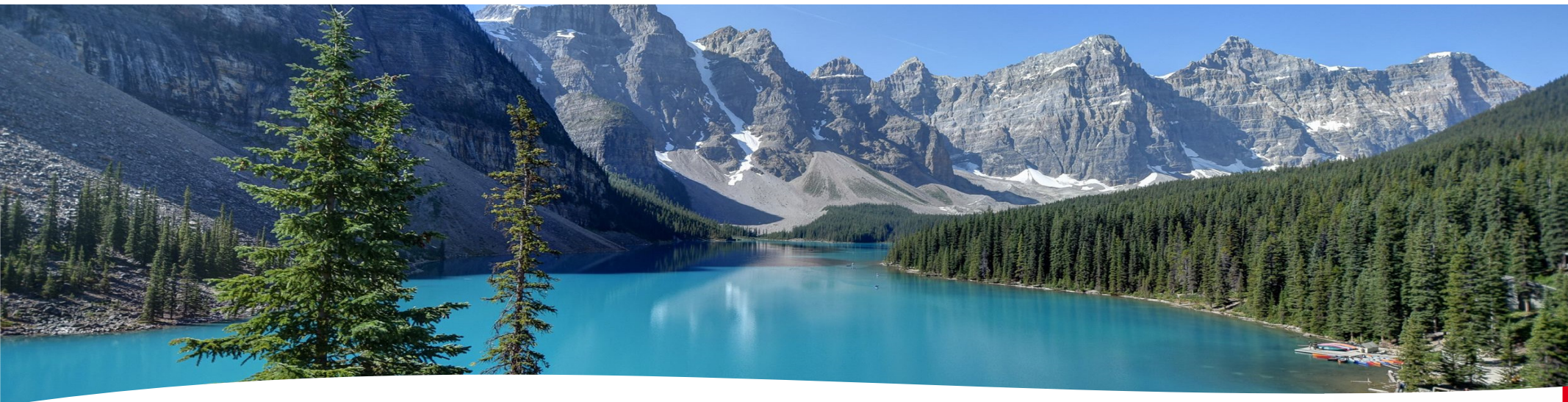




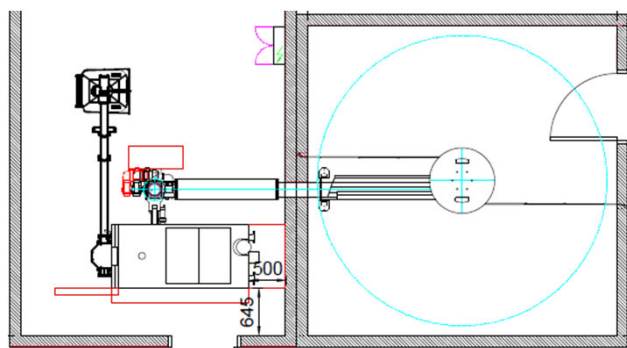
## City of Moncton, NB (Fröling T4-150)

- 150kw wood chip installation from 2019
- boiler system is operated under a heat contract with the City of Moncton
- DBM installed, maintains and ensures fuel is delivered
- Fuel supplied by ACFOR
- Heating local area
- Net annual **GHG emission reduction 160 tCO<sub>2</sub>**





## City of Banff (Fröling T4-150)



- Located within Banff Nation Park
- Municipal District energy system heating *municipal offices, waste transfer and new bus terminal*
- 150kW T4 150 with 400kW gas boiler
- T4 150 is designed to burn ground wood from shipping pallets.
- Froling H3200 controls the heat distribution pumps to the DE system and the auxiliary electric boiler.
- Net annual ***GHG emission reduction 161 tCO<sub>2</sub>***



# Town of Banff set to reach — corporate climate change target

"Stabilizing the climate will require strong, rapid, and sustained reductions in greenhouse gas emissions, and reaching net zero CO2 emissions."

Sep 28, 2021 8:30 AM By: [Cathy Ellis](#)





## (BNA) First Nation

- T4 150kW wood chip boiler
- The BNA sawmill chips their waste mill slabs into fuel for the boiler
- The mill was previously un-heated

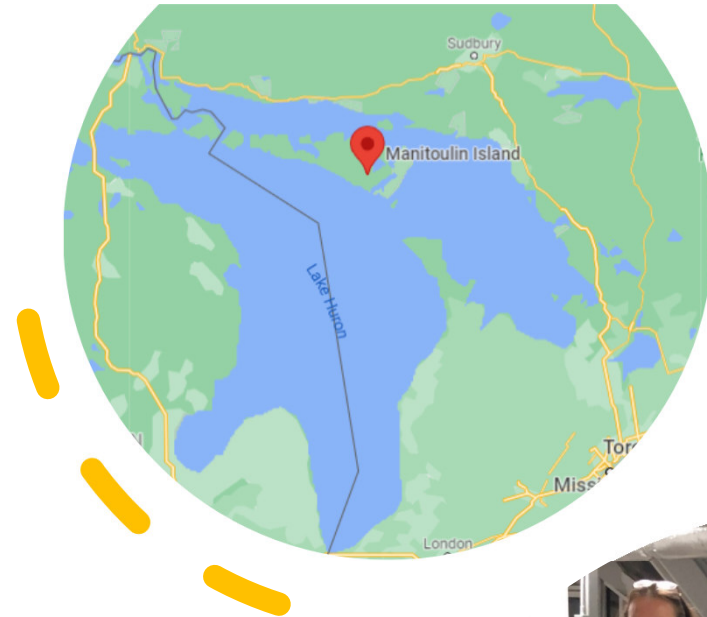




# Wiwemikong Unceded Territory, P4 25

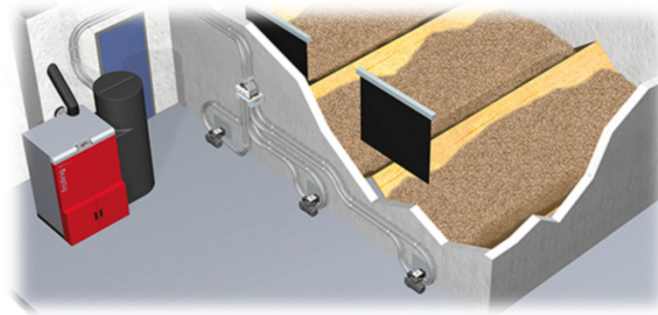
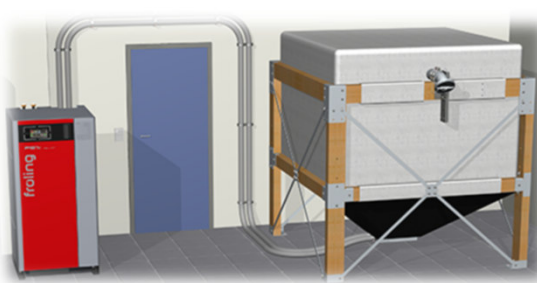
*Wiwemkoong's vision to build a sustainable community and address our objective to reduce our ecological footprint...*

- First nation community switching from diesel to pellets
- Wiwemikong is a First Nation community located on Manitoulin Island in Ontario. They have been working at a community level to switch from heating oil to wood pellets.



# Wiwemikong Unceded Territory, P4 25

- 140 tonne wood pellet storage hub with a pneumatic delivery truck (Tropper body)
- Currently *Wiwemikong has converted 1.4MW of oil heat* to wood pellets. Froling boilers account for 85% of this transition
- Net annual ***GHG emission reduction is ~890 tCO<sub>2</sub>***



## OPG BioEnergy Learning and Research Centre

### (2) 500 kW Boilers , Fuel Handling, and Heating Systems

- Primarily used to produce hot water that will be used for heating purposes
- Fully automated with advanced control systems
- Equipped with continuous emissions monitoring system



### 150 kW Biomass Boiler

- Dedicated for applied learning and research projects
- Integrated with campus heating and control systems for real-time exposure

### Emission Testing Capabilities

- Stack sampling ports for emission testing of particulates and gaseous compounds

### Data Management & Control System

- Access to the boiler's advanced data management system with increased capacity for installed instrumentation & control systems in real and virtual time for research, modeling and training purposes



[www.confederation.on.ca/appliedresearch/bioenergy](http://www.confederation.on.ca/appliedresearch/bioenergy)



Ontario Power Generation BioEnergy Learning and Research Centre



# Confederation College 2 x TM500

- 2 x TM500 with hydraulic feed system
- First installation of this size in Canada
- Bioenergy Learning and Research Centre

# Success factors

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- ***Proven technology***

- ⇒ Proven technology from a leading country
  - Highest efficiencies
  - Lowest emissions
  - Modern building and energy efficiency standard
- ⇒ From a leading player in the industry
  - Largest manufacturer of biomass boilers
  - Hundreds of thousands of boilers in the field

- ***Adapted for Canada***

- ⇒ Certified to local standards
- ⇒ Adapted to the local needs
- ⇒ Together with local partners & experts





# Reaching our goals together

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- **Using local resources**

- ⇒ *Biomass is usually sourced very locally*
- ⇒ *Value added remains in region*
- ⇒ *Unrelated to global commodity prices*

- **Recycling biomass resources**

- ⇒ *Forest residues*
- ⇒ *Timber industry*

- **Achieving CO2 reduction goals**

- ⇒ *Heat is a big proportion of energy*
- ⇒ *Benefits much easier to achieve than for electricity or other sectors*

# Fröling contact

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