

Biomass Initiatives

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Presentation Overview

- Housing NWT Current Biomass Initiatives
- Housing NWT Energy Management Strategy
- Sisson's Court Biomass District Plant
 - Project Overview
 - Design Rationale
 - Current Operation
- HNWT Biomass – Looking forward



Ndilq Srs. Complex – Containerized Plant

HNWT – Biomass Initiatives

- Current Pellet Boiler installations in Ndilo, Detah, Ft. Resolution, Ft. Simpson, Ft. Providence and Yellowknife
- Biomass Heat Purchase agreements in Behchoko and Aklavik.
- Initiatives guided by an Energy Management Strategy



Containerized plant layout – Stanley Isaiah Seniors Home Ft. Simpson

HNWT – Energy Management Strategy

- In 2023, HNWT developed a 2030 Energy Management Strategy:
Objective #4 – increase the share of renewable energy for space heating to 40% by 2030
- HNWT Energy Management Blueprint 2023-2026 (3 year action Plan)



Sissons Court - Site Overview

- District heating system to supply 45 existing row housing units and a newer 8-plex. (53 Total)
- Row housing has individual fuel-oil fired furnaces.
- 8-plex has fuel-oil boiler plant.

Sissons Court – Site Plan



45 ROW HOUSING UNITS

8-PLEX

HEATING PLANT

Sissons Ct

Sissons Ct

Sissons Ct

Sissons Ct

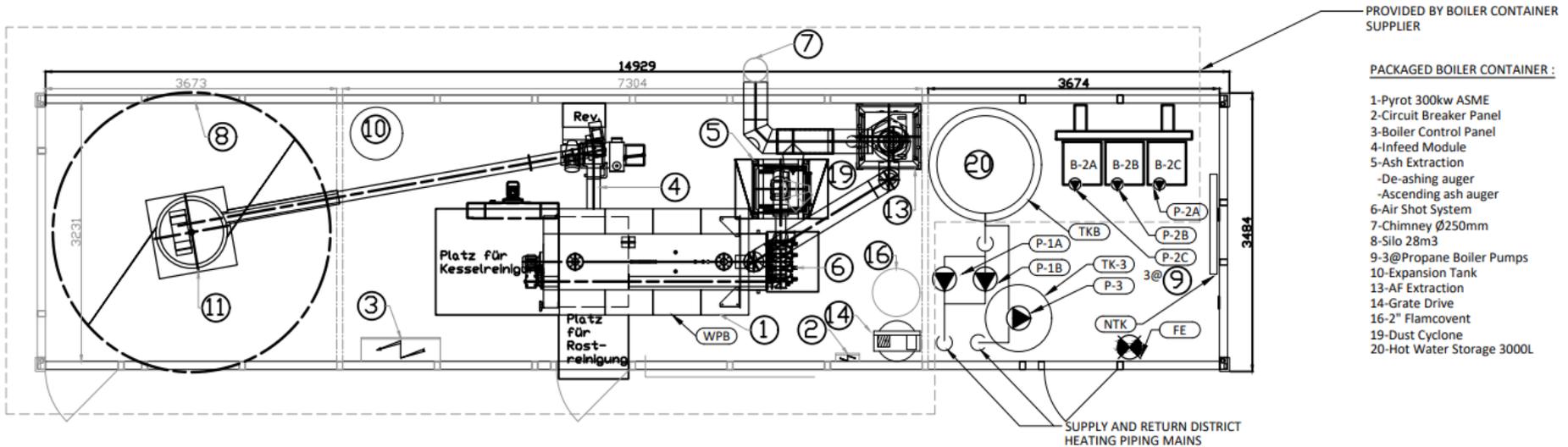
Sissons Court – Design Rationale

- Containerized heating plant – primary Wood Pellet Boiler, propane back-up
- Pellet storage internal to container – pneumatic fill from local supplier – 2 weeks
- Plant sizing? Based on existing installed capacity, calculated fuel use or heat loss calculation



Containerized plant – Sissons Court District Heat

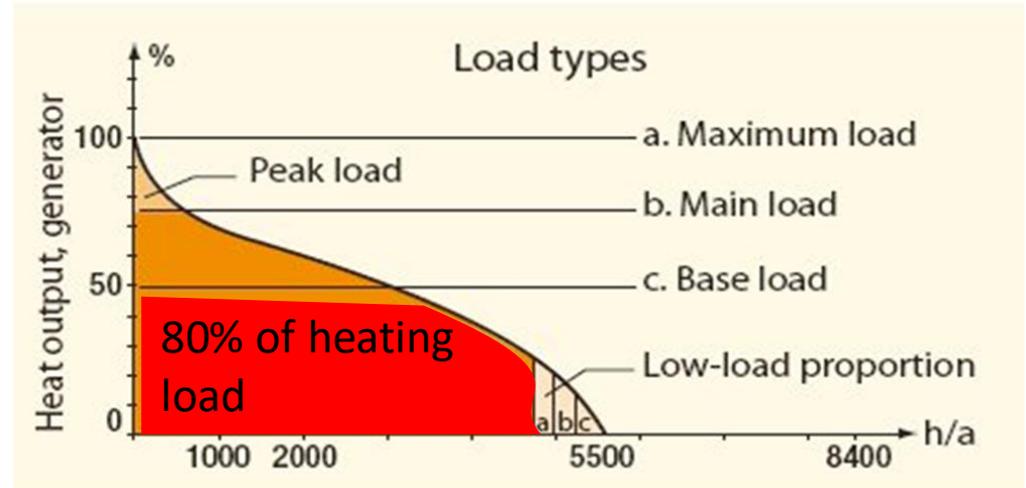
Sissons Court – Design Rationale



- Peak heating load of 536kW for all combined loads
- 300kW Viessmann KOB Pellet boiler
- 3X 112kW Viessmann Propane Boilers

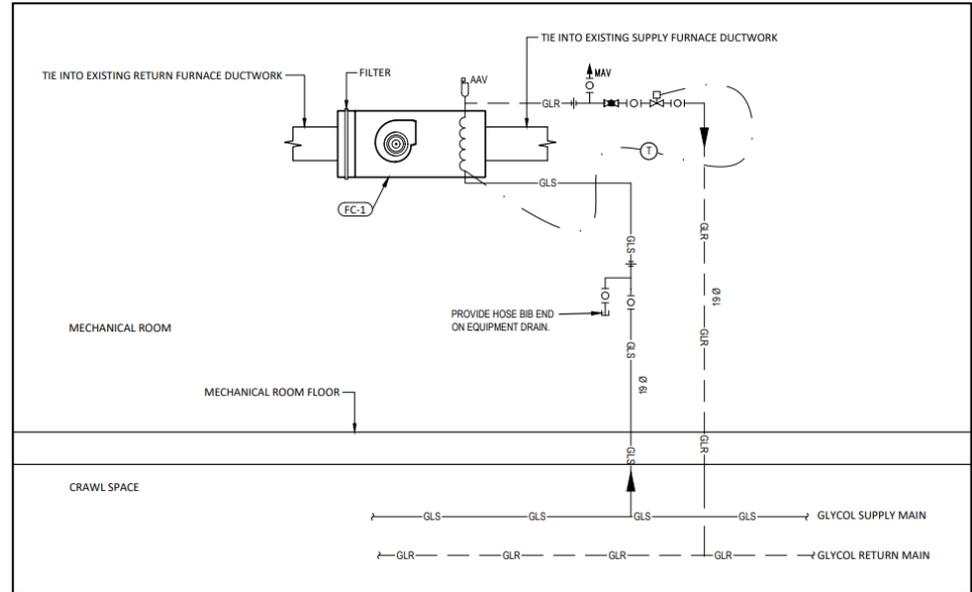
Sissons Court – Boiler Sizing

- Pellet Boiler sized at 50% (shown as c. Base Load) to capture 80% of the overall heating load.



Sissons Court – Construction

- Work within the 45 Row Housing Units:
 - Removal of oil-fired furnace, outdoor storage tank, piping chimneys
 - Addition of new hydronic fan-coil and heating pump in each suite
 - Provision of outside air to meet code requirements
- Piping Routing: continuous loop, minimize trenching (through bedrock), heat piping to follow water sewer



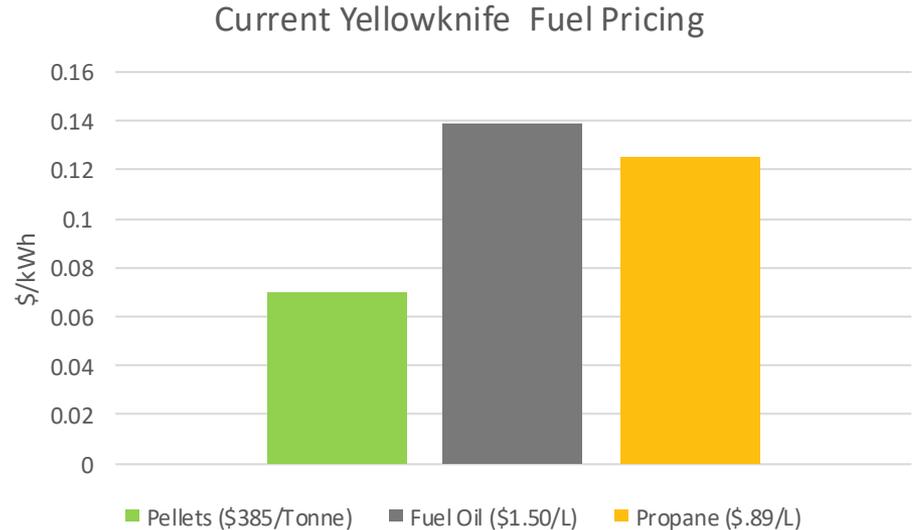
Sissons Court – Project Completion

- Taylor & Co as the general contractor completed work in May 2022
- Project Cost \$2.8M
- J&R Mechanical now provides service and pellet delivery.



Sissons Court – 2022-25 Consumption

- Operational since May 2022:
- Offsets approximately **102,000 Litres of Fuel oil** and **266 Tonnes of GHG** annually.
- Savings amount to average **\$110,000 annually** for Wood Pellets



Sissons Court – 2022-25 Consumption

Year (March-Feb)	Pellet Consumption (Tonnes)	Offset (Litres of Fuel Equivalent)	CO2 offset (Tonnes)	YK Fuel Price (\$/L)	YK Pellet Price (\$/T)	Annual Savings
2022/23	233	118,638	311	\$ 1.20	284	\$ 76,161
2023/24	230	117,298	307	\$ 1.80	284	\$ 145,680
2024/25	177	89,989	236	\$ 1.80	325	\$ 104,513
2025-current	158	80,500	211	\$ 1.61	375	\$ 70,289
average		101,607	266		Total	\$ 396,642



Haj

Qujannamiik

Mahsi

Masi

Merci

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Máhsi

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Mársi

kinanāskomitin

Thank you



Questions?