Commercial and Institutional Bioheat in Canada

Insights from the Canadian Bioheat Database 2023

Visit the Dashboard @ torchlightbioresources.com/canadian-bioheat-database

TorchLight

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Canadian Bioheat Database

- Established in 2014, funded by CanmetENERGY until 2023 (CFS working on next update)
- Commercial and institutional bioheat systems 50 kW – 5 MW (now no upper limit)
  - Commercial
  - Institutional
  - Multiunit Residential
  - Small Industrial
  - Agriculture (Farm, Greenhouse)
- Online searches, phone calls, emails, regular contributors
- Interactive dashboard created in 2023

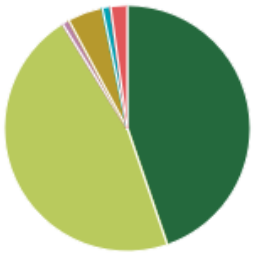
Interactive Bioheat Dashboard

Canadian Bioheat Database Overview

646	481	266,167	349,371
Systems	Installed Capacity (MWth)	Estimated Biomass Demand (bdt/y)	Estimated Avoided CO2 Emissions (t/y)

Bioheat Systems by Province and Territory
Click a Province or Territory to filter dashboard

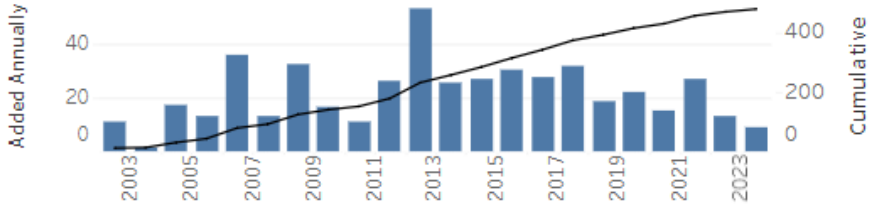
Fuel Type
Click a slice to filter dashboard



- Wood Chips
- Wood Pellets
- Briquettes
- Firewood
- Herbaceaous
- Hogfuel

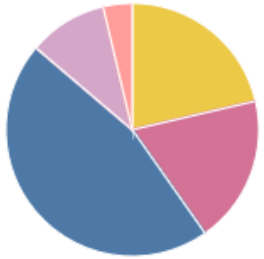
Go to Fuel Dashboard

Bioheat System Capacity (MWth)
Click a year to filter dashboard



Go to Growth Dashboard

Sector Type
Click a slice to filter dashboard



- Agricultural
- Commercial
- Institutional
- Light Industrial
- Multi Unit Residential

Go to Sector Dashboard

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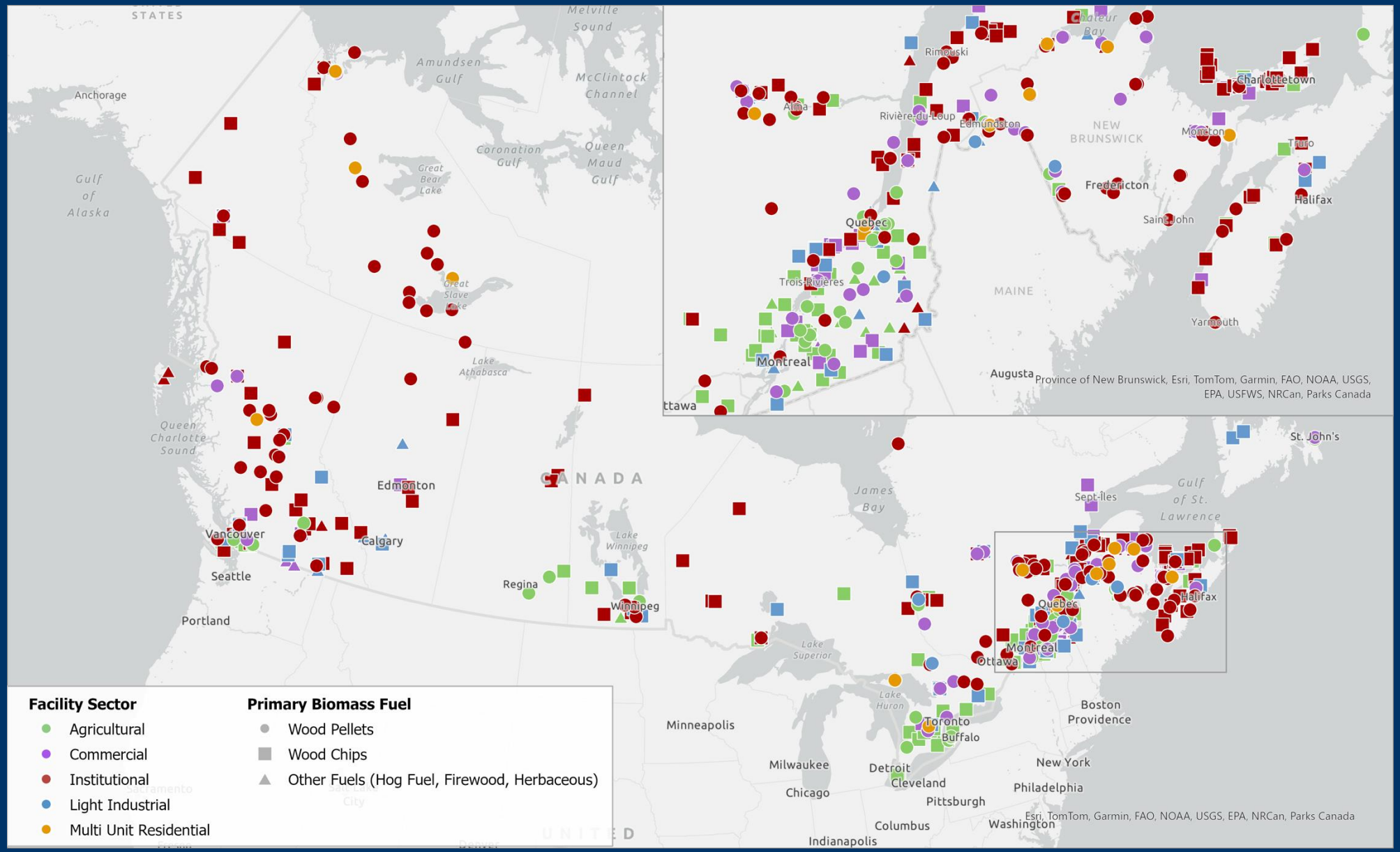
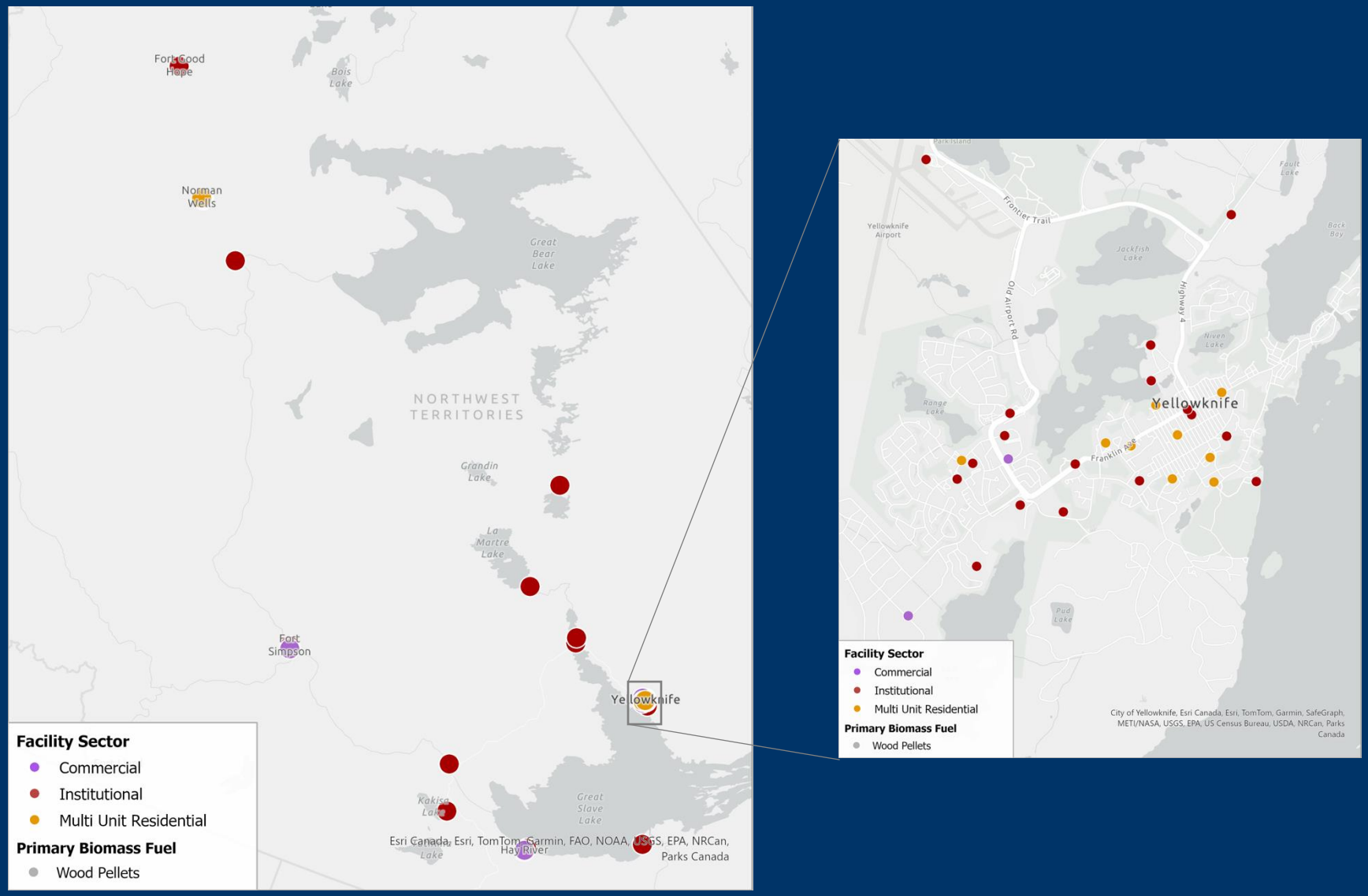
Commercial Institutional Bioheat



Regional Bioheat Development

- Variation across provinces, regions in
  - Number of systems
  - Fuel type/format
  - Sector
- Regionally clustered development driven by:
  - Provincial policies, procurement programs (QC, PEI, NB, NS)
  - Lack of affordable heating alternatives (no natural gas)
  - Available fuel and established supply chains
  - Federal support (rural and remote communities, agriculture)
  - Regional technology suppliers, champions

Northwest Territories



- GNWT replaced oil/diesel with **wood pellet** heat in government buildings – reduce emissions, save money
- Wood pellet supply chains (AB supply) established
- Private sector buildings switching with supply, knowledge established
- Local contractors now supply and install biomass heating systems
- **Confidence in supply!**

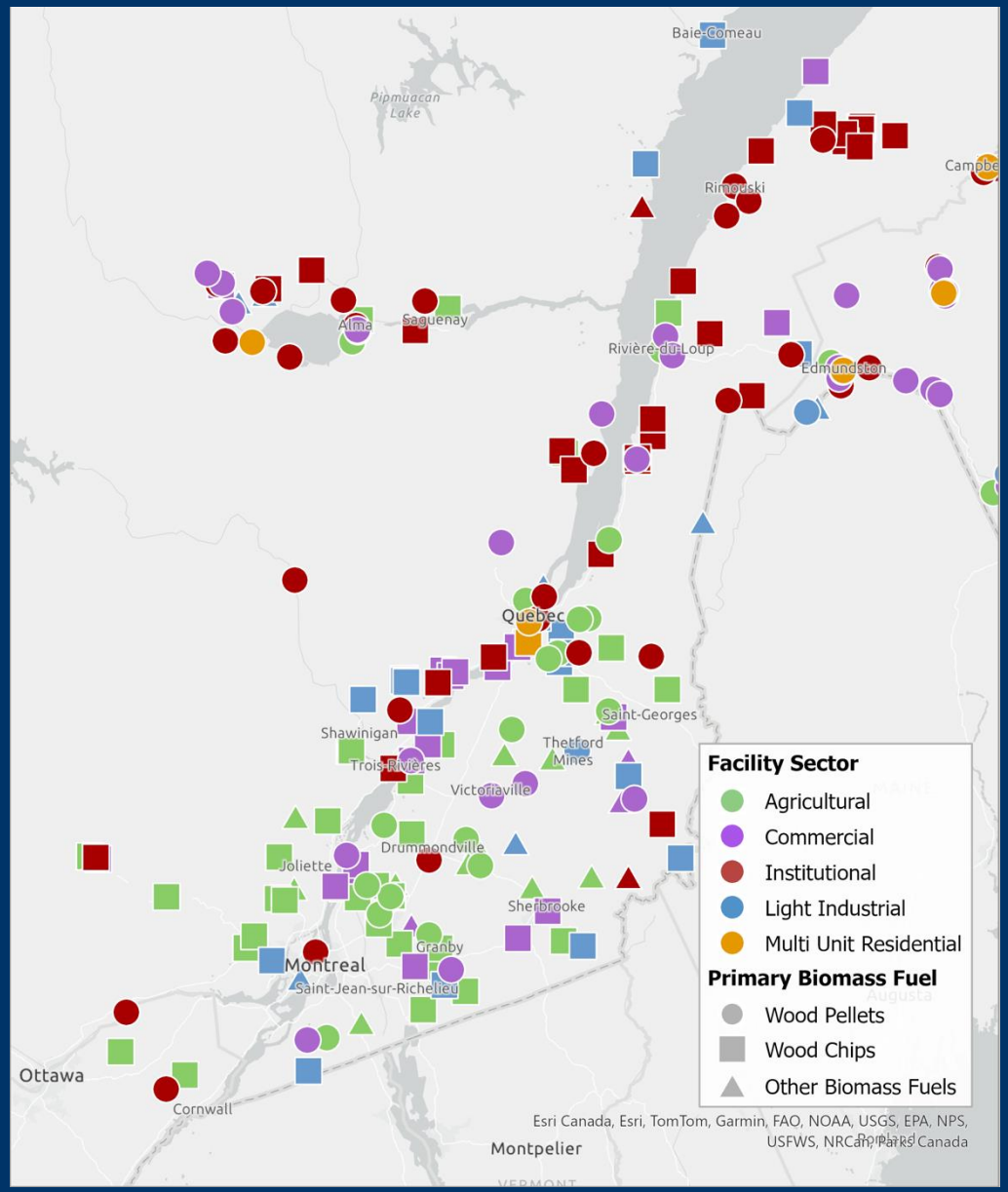
NWT Pellet Delivery Infrastructure

Photo from Energy North website

Photo from J&R Mechanical website

Photo from J&R Mechanical website

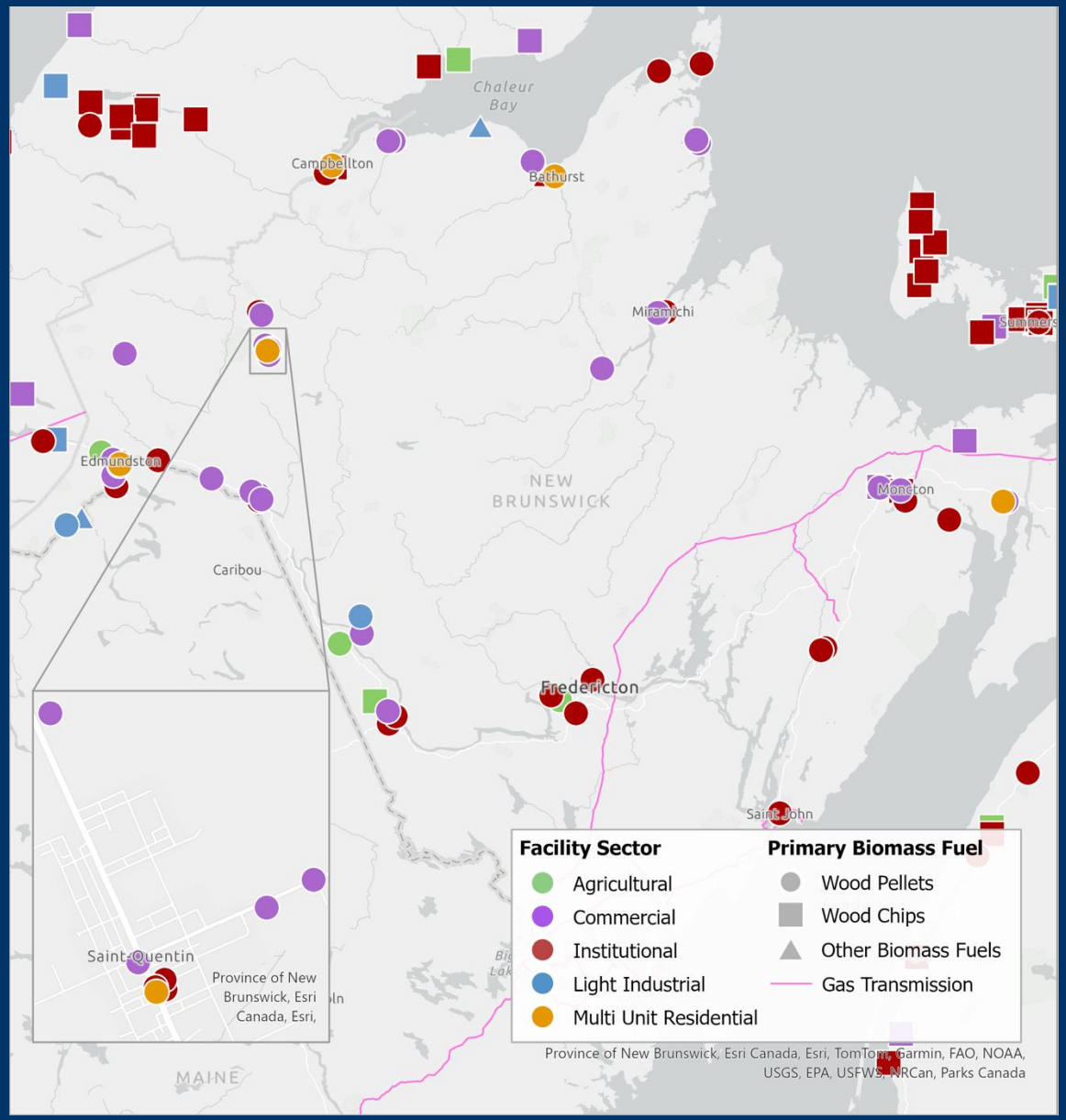
Southeastern Quebec



- Mix of fuel types, sectors, boiler manufacturers.
- Lots of private - agricultural (poultry barns, greenhouses), commercial, small industrial.
- Capital support from Government of Quebec (Residual Forest Biomass Program, others).
- Wood chips supplied by **forestry cooperatives**.

Map of forestry co-operatives from FQCF website

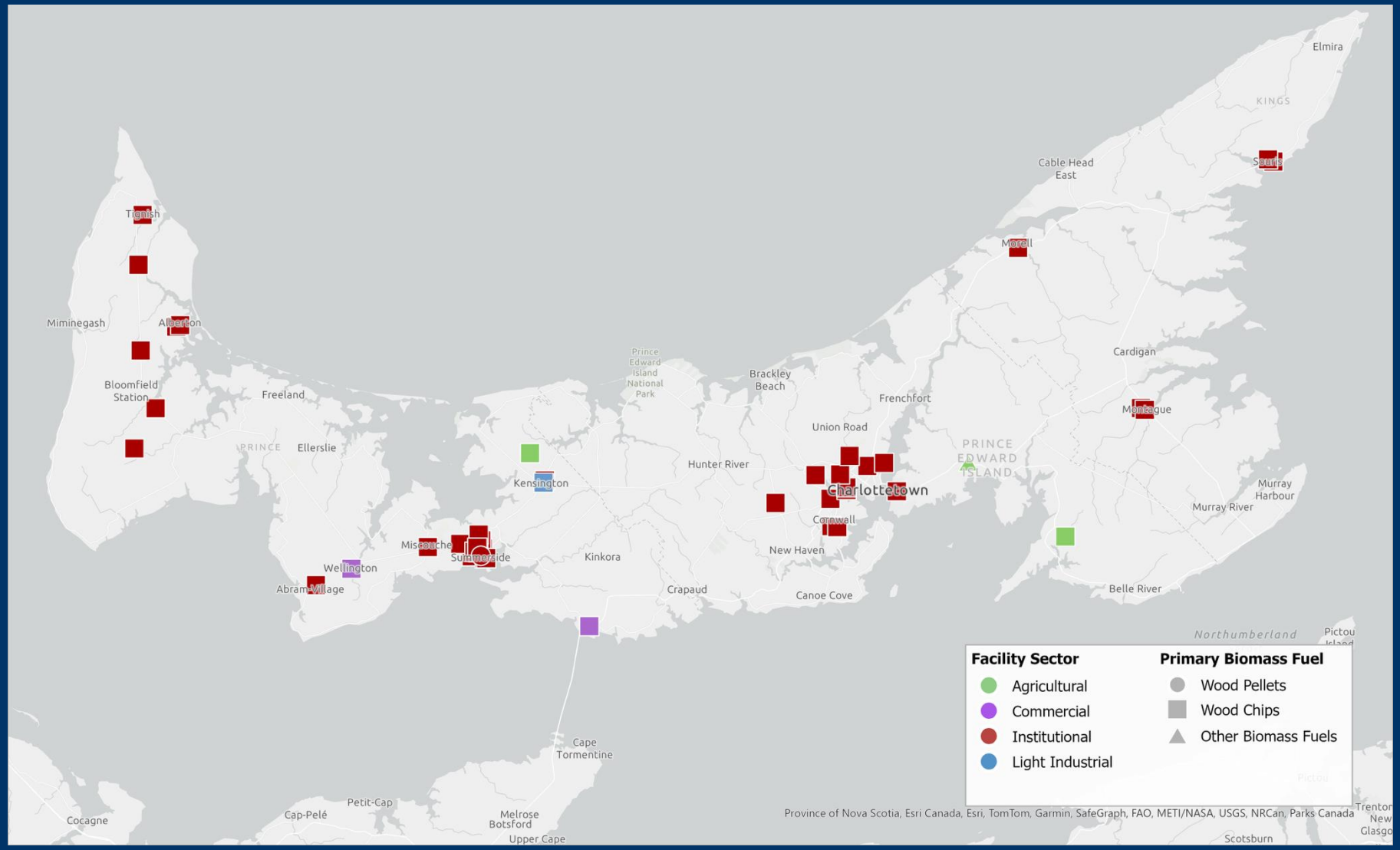
New Brunswick



- Almost exclusively wood pellets, produced in NB
- First systems in provincial buildings (e.g., hospitals, schools).
- Supply chain established, commercial followed, capital grants generally limited.
- No natural gas outside cities, high-cost heat.

Photo from BSB website

Prince Edward Island



- Wood chips from sawmills, forest management
- Chips prioritized b/c no pellet production in PEI
- Provincial Procurement - most large schools, hospitals other provincial buildings use bioheat
- No natural gas
- Province adopted regulations that allow installation of EU certified boilers

Ingredients for Successful Bioheat Installations

- Work with experienced company / supplier, reputable manufacturer
- Sustainable, reliable supply of biomass
    - Choice of pellets or chips often driven by priorities of supplier
    - E.g., woodland owners prioritize chips
- Bioheat system designed for locally available biomass
- Champion to push project forward, apply for grants, etc.
- Access to capital grants, incentives, etc.
- Community acceptance / engagement
- Desire to do something different – e.g. lower energy costs, improve energy security, boost local economy, create jobs, reduce wildfire risk, … …