

Repurposing pulverized coal power plants with wood pellets

- Wood pellets are grindable
- Dry ~ 6% mc
- Handle easily
- Energy density -18 GJ/tonne
- Make use of existing equipment with some modifications
- Provide energy on demand
- Lower GHG including NO_x, SO_x, heavy metals
- Conversion cost – about \$700/kw

Canada will phase out coal power in these provinces by 2030

- Currently consuming 35 million tonnes of coal per year
- AB – 55% coal
- SK – 44% coal
- NB – 13% coal
- NS – 60% coal
- Stranded assets



None of these provinces are willing to use Canadian wood pellets.

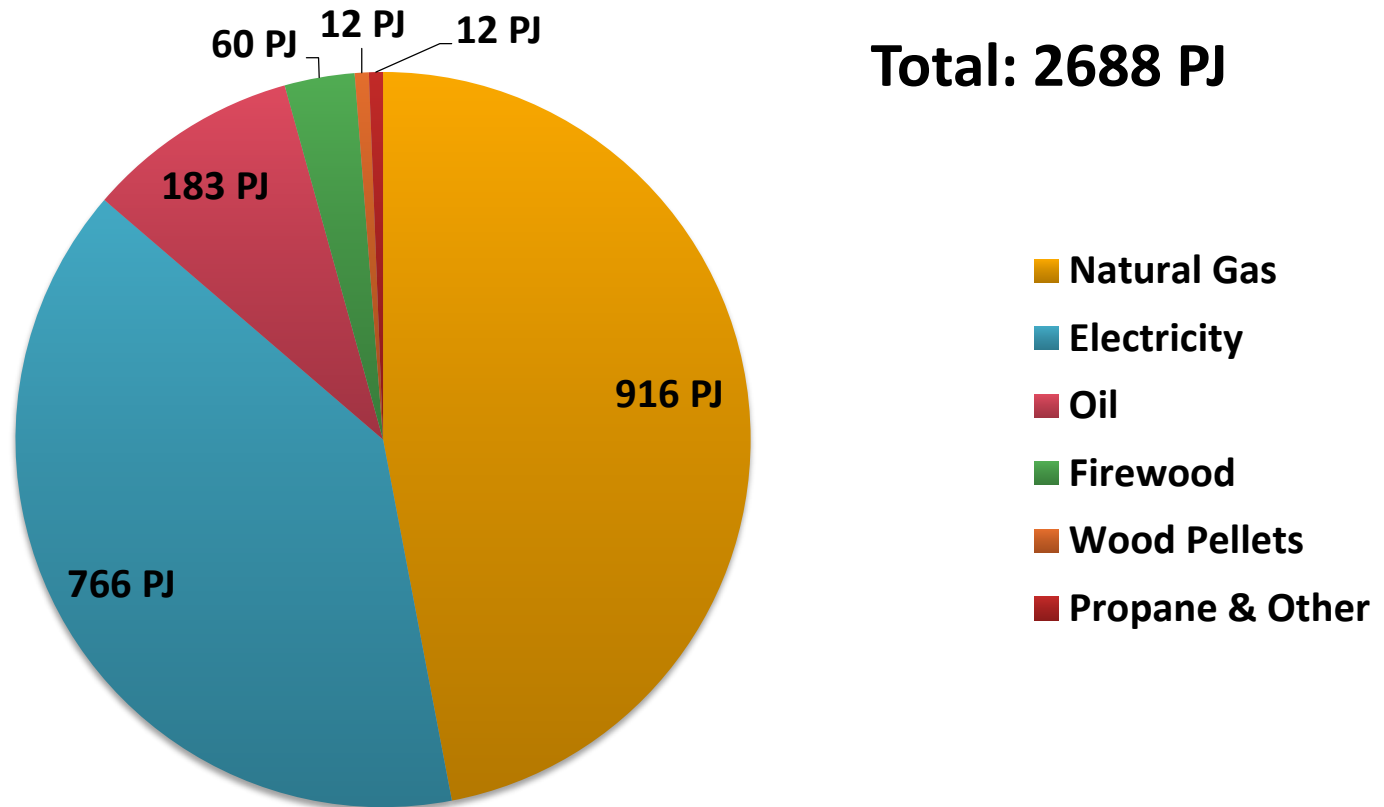
OPG's 240 MW Atikokan Ontario Plant



**Ontario Power Generation's Atikokan Power Plant:
Full firing on industrial wood pellets
converted from coal, now firing on 100% wood pellets**

Canadian annual heat energy use by fuel type

Residential and Commercial Heat and Hot Water



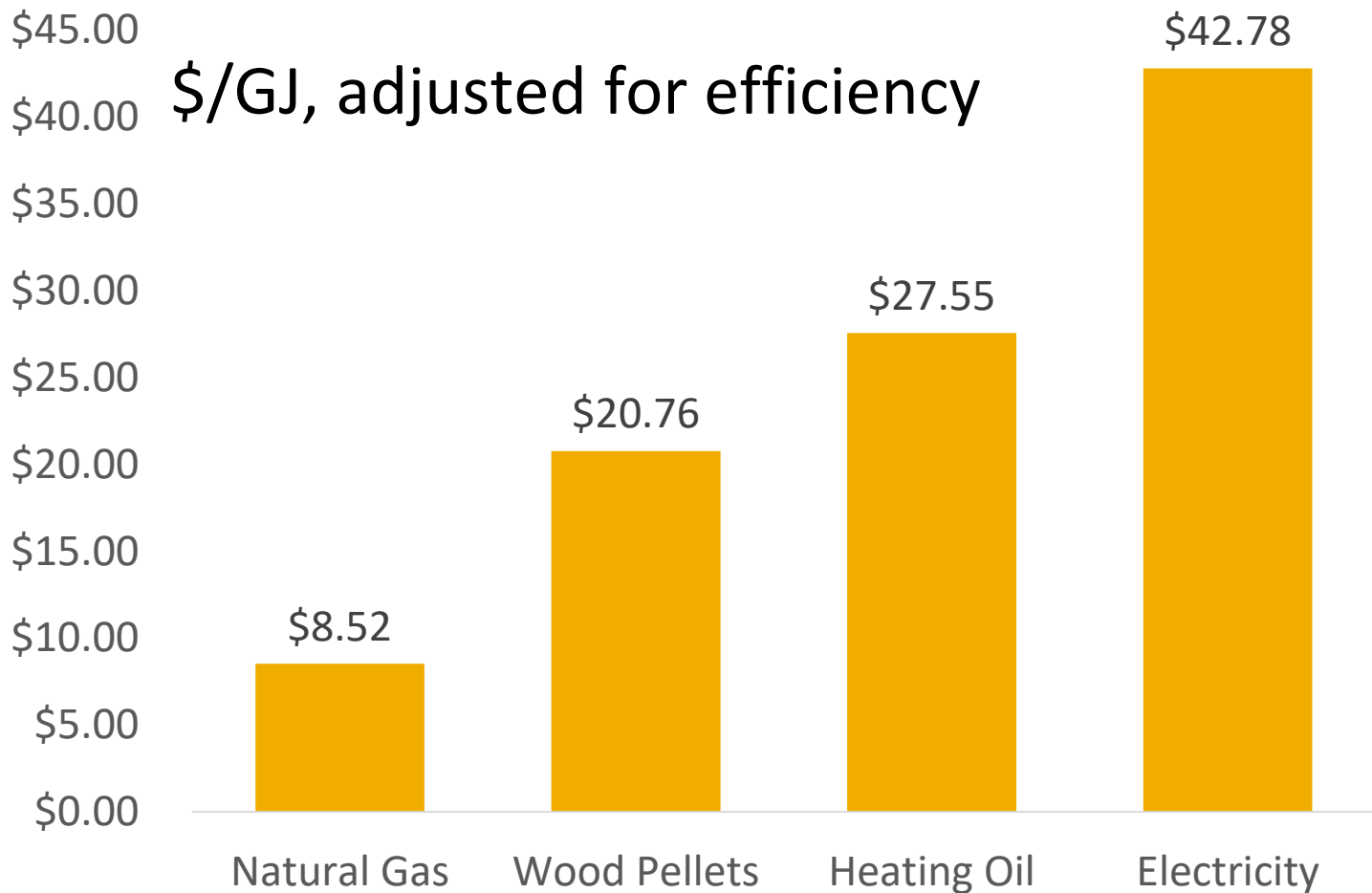
Ontario heat energy costs

- Heating oil – 86 cents per litre, 85% efficiency
- Natural gas – 27 cents per cubic metre, 85% efficiency
- Wood pellets - \$300 per ton, 85% efficiency
- Electricity – 15.4 cents per kWh, 100% efficiency

Source: Enbridge website



Ontario domestic fuel costs



Sources: Enbridge, National Energy Board, WPAC research

Magnitude of the opportunity

- Canadian annual non-gas commercial and residential heat and hot water energy consumption is 1,033,000,000 gigajoules
- 1,033,000,000 gigajoules is equivalent to 71 million tons of wood pellets.
- Canada currently produces about 3 million tons of wood pellets



Boiler standards: a significant barrier

- The world's best biomass boilers are manufactured in Europe.
- European boilers have an impressive safety record.
- No small scale biomass boilers are made in Canada.
- European boiler standards are not allowed in Canada, thus inhibiting Canadian pellet market growth.

NRCAN's Expanding Market Opportunities Program is Vital

- Conferences and trade missions
- Sustainability certification – SBP
- Quality certification – ENplus and CANplus
- Pro-biomass campaigns
- Trade barriers
- Shipping and logistics
- Standards – quality & testing
- Phytosanitary
- Black pellets

Conclusions

- Canada's pellet industry is growing thanks to demand from Europe and Asia
- Repurposing PC power plants for co-firing or dedicated firing with wood pellets is proven and widely used in many countries. Canada should adopt this more widely.
- There is a huge opportunity to increase the use of wood pellets for domestic heating in Canada, especially if we could solve the boiler standards issue

Thank you

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