Canadian Bioenergy Situation and Opportunities in Canada’s Wood Pellet Sector

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Gordon Murray, Executive Director
Outline

- Canada’s leading bioenergy products
- Biomass CHP
- Forest sustainability
- Wood pellet industry – plants, fibre & markets
- Potential impact of Canada’s climate change framework
- Coal conversion opportunities
- Heating opportunities
- Welcoming foreign investment
Leading Bioenergy Products

- **Ethanol** – 1.6 bn litres per year. Net importer. Made from corn and wheat. National mandate – 5%.
- **Biodiesel** – 350 mn litres per year – most exported to USA, then re-imported as blended diesel. Canola, animal fats, recycled cooking oils. Mandate - 2%.
- **Wood pellets** – 2.7 million TPY, 90% exported.
Biomass Combined Heat and Power

- Electric – 3,200 MW
- Heat – 12,900 MW
- Mostly in the pulp and paper sector


Canada’s Forests

- 400 million ha, 92% publicly owned
- Canada is recognized as a global leader in sustainable forest management, meeting the environmental, social and economic needs of current and future generations.
- Canada is a leader in third party certified forests – more than any other country.
Wood Pellet Association of Canada

- 44 pellet plants in Canada
- 4 million tonnes annual capacity
- 1 million tonnes new capacity 2015-16

Canadian Wood Pellet Plants

**CANADIAN BIOMASS**

- Current Producers
- Under Construction
- Proposed Plants
- Ports

Port Information:
2. Vancouver – www.portmetrovan.com
The Pellet Sector within Canada’s Forest Industry

- Annual log harvest: 130 million tonnes
- Fibre used for pellets: 5 million tonnes (4%)
- Annual forest products revenue: $60 bn
- Annual revenue from pellets: $0.3 bn (0.5%)
Wood Pellet Fibre Sources

Sawmill residues

Logging residues
Grinding Harvest Residuals in the Forest
Canadian Export Destinations – Thousands of Tonnes

- 2016 export forecast: 2.4 million tonnes
- 2015 exports: 1.6 million tonnes
North American Pellet Shipping Routes

- Vancouver to Seoul: 9,100 km
- Vancouver to Hull: 16,600 km
- Brunswick to Seoul: 18,445 km
- Halifax to Hull: 5,000 km
- Brunswick to Hull: 7,100 km
Canada’s Climate Change Plan (1)

- “Pan-Canadian Framework on Clean Growth and Climate Change"
- Agreed to in 2016 by federal government, provinces and territories
- 2030 target: 30% GHG reduction from 2005 level
- Pricing carbon pollution - $10 per tonne in 2018 rising to $50 per tonne in 2022
Canada’s Climate Change Plan (2)

- Increase renewable and non-emitting electricity (currently 80%, ranked 4th in world)
- Phase out coal power by 2030 (35 million tonnes of coal per year)
- Eliminate diesel power generation in remote communities
OPG’s Atikokan Power Plant

Converted from coal, now firing on 100% wood pellets
Canadian Annual Heat Energy Use by Fuel Type

Residential and Commercial Heat and Hot Water

Total: 2688 PJ

- Natural Gas: 916 PJ
- Electricity: 766 PJ
- Oil: 183 PJ
- Firewood: 60 PJ
- Wood Pellets: 12 PJ
- Propane & Other: 12 PJ

Source: Stats Canada
Ontario Energy Costs 2016

- 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
### Ontario Domestic Fuel Costs - 2016

$/GJ, adjusted for efficiency

- **Natural Gas**: $8,52
- **Wood Pellets**: $20,76
- **Heating Oil**: $27,55
- **Electricity**: $42,78

**Sources:** Enbridge, National Energy Board, WPAC research

Wood Pellet Association of Canada
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 2.7 million tons of wood pellets.
Canada Welcomes Foreign Investment!

- Best business environment in G20. *(Source: Forbes, Bloomberg)*
- Led G7’s economic growth for past decade. *(Source: OECD)*
- CETA means unparalleled market access – combined GDP €35 trillion. *(Source: World Bank)*
- Most highly educated workforce among OECD members. *(Source: OECD)*
- Lowest business tax costs in G7 and 46 percent lower than those in the United States. *(Source: KPMG)*
- Canada’s banking system is one of the soundest in the world. *(Source: World Economic Forum)*
- Canada has best overall living conditions in the G7. *(Source: OECD)*

**INVEST IN / INVESTIR AU CANADA**
Thank you!

For more information:
Contact Gordon Murray
gord@pellet.org
(250) 837-8821