Canadian Wood Pellet Heating Opportunities

Canadian Wood Pellet Heating Conference
February 19, 2015 | Montréal

Gordon Murray, Executive Director
Wood Pellet Global Production

Millions of Tonnes

Sources: Hawkins Wright, REN 21
Global Pellet Exports – 2014
Selected Countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Exports (Mg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>4,005</td>
</tr>
<tr>
<td>Canada</td>
<td>1,638</td>
</tr>
<tr>
<td>Portugal</td>
<td>758</td>
</tr>
<tr>
<td>Estonia</td>
<td>640</td>
</tr>
<tr>
<td>Lithuania</td>
<td>300</td>
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<tr>
<td>China</td>
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<tr>
<td>Czech Republic</td>
<td>148</td>
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<tr>
<td>France</td>
<td>124</td>
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<tr>
<td>Thailand</td>
<td>111</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>92</td>
</tr>
</tbody>
</table>

Feb 15/2015
Not yet reported
• Russia
• Austria
• Latvia
• Austria
• Germany

Source: Global Trade Atlas
Canadian Pellet Production – millions of tonnes

Source: WPAC Estimates
Canadian Wood Pellet Exports - 2014

<table>
<thead>
<tr>
<th>Country</th>
<th>Thousands of Tonnes</th>
</tr>
</thead>
<tbody>
<tr>
<td>United Kingdom</td>
<td>983</td>
</tr>
<tr>
<td>United States</td>
<td>219</td>
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<tr>
<td>Italy</td>
<td>205</td>
</tr>
<tr>
<td>South Korea</td>
<td>150</td>
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<td>Japan</td>
<td>62</td>
</tr>
<tr>
<td>Denmark</td>
<td>17</td>
</tr>
</tbody>
</table>

Note: S Korea reports Cdn imports of 344 thousand tonnes

Source: Global Trade Atlas / Statistics Canada
Canada/USA Trade Balance – Tonnes

Source: Global Trade Atlas
Canadian Pellet Market for Stoves

- Total stove installations: 52,000
- Assume 4 tonnes per stove annually
- Equals 208,000 tonnes for pellet stoves
- Plus 6,000 new stoves annually
- Equals annual growth of 24,000 tonnes or one pelletizer
- Plus boilers?
Canadian Regional Energy Use

Source: Stats Canada

Wood Pellet Association of Canada
Where Should We Focus?

- BC, Prairies, and Ontario are dominated by cheap natural gas
- Quebec: 75% of homes served by cheap electricity but has large population and energy consumption
- Atlantic provinces: no gas, high electricity and oil costs
- Territories: low population and energy consumption but high fossil fuel costs
Annual Domestic/Commercial/Institutional Energy Use - Petajoules

Source: Stats Canada
Annual Energy Use by Fuel Type

Source: Stats Canada
What is the potential?

- Today pellets make up 0.3% of all domestic heating fuels.
- What if we could grow ten fold to 3.0 % market share?
- Represents annual domestic pellet market of 1,760,000 tonnes – retail value exceeding $600 million
- Represents sales of 405,000 stoves with value exceeding $1.2 billion
Analysis of Atlantic Provinces

Pellet Plants
NB – 5
NS – 3
NL – 3
Atlantic Provinces: Principal Energy Source for Heating

- Electricity: 42%
- Heating Oil: 34%
- Heating Oil: 13%
- Other (including propane): 5%
- Natural Gas: 5%
- Wood Pellets: 1%
- Firewood: 13%

Wood Pellet Association of Canada
NS Fuel Cost Comparison

Heating Cost - $/Mn BTU

- Electricity: $42.26
- Natural Gas: $22.67
- Oil: $36.11
- Propane: $49.69
- Wood Pellets: $28.13

Source: Nova Scotia Department of Energy
The Atlantic natural gas network does not reach rural areas

Natural gas only reaches major population centres
80% of Atlantic crude oil is imported from Saudi Arabia, Nigeria, & Angola

1.3 billion litres per year of heating oil used, 1.0 billion litres from imported crude = 8.4 million barrels

Assuming $50 per barrel, this means that $420 million is leaving the Atlantic economy to support foreign imports
Coal Means Lost Jobs Too

- Atlantic coal is imported from US and Columbia
- 65 PJ of electricity used for Atlantic heat and hot water annually, half produced from coal = 33 PJ
- 33 PJ of electricity requires 3.7 million tonnes of thermal coal in a plant operating at 35% efficiency
- Assuming $75 per tonne of coal this means that $278 million is lost to the Atlantic economy
Atlantic Wood Pellet Opportunity

- Atlantic annual heat and hot water energy = 156 PJ
- Increase pellet use from <1% to 5% = 8 PJ
- 8 PJ would require 588,000 tonnes of wood pellets at 80% efficiency
- Jobs and income for Atlantic Canada
Wood pellet shortage frustrates pellet stove owners

Sudden cold weather and increased popularity in pellet stoves playing a role in the shortage


Mike O'Donnell, President of Marwood Ltd. says the wood pellet industry is still recovering from last year's cold winter. (CBC)

With extremely cold weather hitting most of the province, many New Brunswickers who rely on pellet stoves to heat their homes are finding it harder to find the wood pellets they need for fuel.

Many retail stores in the area are having a hard time keeping the wood pellets in stock.
Wood Pellets' Swift Rise Tests Supply Chain

By SAM EVANS-BROWN

Credit D-Kuru/Wikimedia Commons

The number of homes in New Hampshire using wood for heat has more than doubled over the last decade, from 3.8 percent in 2005 to 8.6 percent in 2013.
Lack of pellets causing concern for pellet stove owners
Thank you!

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