Global Pellet Consumption 2011

Total: 14.4 mn tonnes

- USA, 12%
- Russia, 2%
- SE Asia, 1%
- Canada, 1%
- EU 27, 84%

Europe: 12.0 mn tonnes

Source: Argus & Lammers et. al.
Canada’s shipments in 2011

- 1.2 million tonnes
- UK – 51% (power)
- Netherlands – 24% (power)
- Belgium – 16% (power)
- Denmark – 2% (power)
- Italy – 6% (heat)
- Sweden 2% (power)
- Mostly long-term bilateral contracts, FOB and CIF

Wood Pellet Association of Canada
Canadian Pellet Shipping Routes

ASIA - 8,000 km

EUROPE - 5,000 km

EUROPE - 16,000 km
Canadian annual pellet production capacity (millions of tonnes)

- All of Canada 2.9 38 plants
- Western Canada 2.0
  - British Columbia 1.8 12 plants
  - Alberta 0.2 3 plants
## Canadian Pellet Producer Evolution

<table>
<thead>
<tr>
<th>Factor</th>
<th>10 Years Ago</th>
<th>Today</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ownership</td>
<td>Small entrepreneur</td>
<td>Large corporate</td>
</tr>
<tr>
<td>Plant scale</td>
<td>Small</td>
<td>Large</td>
</tr>
<tr>
<td>Fibre supply</td>
<td>Not secure</td>
<td>Secure</td>
</tr>
<tr>
<td>Marketing</td>
<td>Produce then sell</td>
<td>Sell then produce</td>
</tr>
<tr>
<td>Management</td>
<td>Unsophisticated</td>
<td>Professional</td>
</tr>
</tbody>
</table>
Western Canada Pellet Cost Distribution

- Fibre: 33%
- Processing: 35%
- Transportation: 32%
Wood Pellet Fibre Sources

Sawmill residues

Logging residues
Former Uses

Sawmill residues

Logging residues
Fibre for Industry Growth

• From sustainably managed forests
  • Salvaging harvest residuals
    (low grade logs, tops, branches)
  • Logs unsuitable for lumber
• Costs will increase
BC – fibre available for biomass industry growth

50 Mn cubic meters = 20 Mn ODT
### Supply cost from clearcut harvest (100 km)

<table>
<thead>
<tr>
<th>Costs ($/odt)</th>
<th>Harvest Residues</th>
<th>Incidental trees or small-timber stands</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harvesting</td>
<td>0</td>
<td>23</td>
</tr>
<tr>
<td>Skidding</td>
<td>0</td>
<td>18</td>
</tr>
<tr>
<td>Processing</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Comminution</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>Transport</td>
<td>27</td>
<td>27</td>
</tr>
<tr>
<td>Fixed costs</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>55</strong></td>
<td><strong>98</strong></td>
</tr>
</tbody>
</table>
Pellet Market Growth Predictions

**EU 27**
- 2011 – 11.4 Mn T
- 2020 – 40 Mn T

**Korea**
- 2011 – negligible
- 2020 – 5 Mn T

**Japan**
- 2011 – negligible
- 2020 – unknown
South Korean Market Impressions

- Biomass growth projections slow
- Fluidized bed boilers – will use chips, PKS, EFB
- Cost more important than quality and sustainability
- Unwilling to compete with European pricing
- Tender requirements make trade with Canada difficult
- So far no significant transactions
Japanese Market Impressions

- New feed-in tariff effective July 1, 2012
- Applies to wind, solar, hydro, geothermal, biomass
- Renewable energy to increase from 6,500 MW to 30,000 MW
- Waiting to see reaction of utilities
- Fluidized bed boilers: history of using chips rather than pellets
Procurement Methods

- Europe – predominantly long term bilateral contracts. Permits long term planning and investment.
- Korea – Gencos require open tendering.
  - Assumes plants have unsold capacity. Not true for Canadians
  - Makes financing new capacity difficult
Europe is still using 1.3 billion tons of coal annually
Only 5 of 27 member states are co-firing
A 15% replacement of coal would mean over 200 million tons of wood pellets annually
Economies are continuing to grow, thus energy demand is also increasing
Korea and Japan are interesting, but markets will take time to develop
The future for pellets is bright
For more information

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