The Global wood pellet market

Johan Granath
Ekman & Co

Williamsburg, Virginia USA
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Ekman is one of the world’s leading sales and marketing organizations, focusing on the global forest industry.
Ekman at a glance

- Pulp
- Paper & Packaging
- Recovered Materials
- Bioenergy

- Incorporated in 1802
- Represented in 100 + countries
- 277 employees, 40 locations
- + 4 800 000 tons/year
"We are specialized in the sales and marketing of forest products. We have broad experience in creating solutions for related financial and logistical matters."
Bioenergy – at a glance

- Employees in Sweden, Denmark, Latvia and Italy
- Trading bioenergy products since 2008
- A leading biomass trader in Europe
- Exclusive agents for the wood pellet plants of VLK in Vyborg, Russia, and Scotia Atlantic Biomass in Halifax, Canada
- Delivering to the residential markets in Scandinavia, Germany and Italy
EU Imports of wood pellets from non EU countries during 2014 totaled about 5 million tons.

Sales by origin:
- USA: 59%
- Canada: 19%
- Russia: 12%
- Ukraine: 3.00%
- Balkans: 2.00%
- rest of world: 1.00%
- Belarus: 2.00%
- other europe: 2.00%
World wood pellet production share in 2014 [in mill tons]

Source: IEA Bioenergy Task 40
World wood pellet demand in 2013 - power versus heating [in million tonnes]  Sources: Hawkins Wright, EPC Survey

*2/3 of the global pellet consumption of CHP is attributed to heating & 1/3 is attributed to power.
Main European wood pellet producer countries in 2013 compared with 2012 [in thousand tonnes]  

Source: EPC
EU wood pellet imports by country, 2014 versus 2013
(Source: Hawkins Wright)
Top ten wood pellet consuming countries, by end-use in 2013 [in million tonnes]  
Sources: Hawkins Wright, EPC Survey

*2/3 of the global pellet consumption of CHP is attributed to heating & 1/3 is attributed to power.
Main EU-28 wood pellet consumers for heating in 2014 [in million tonnes]

Source: EPC
Five year forecast of EU heating pellet demand by country

(Source: Hawkins Wright)

<table>
<thead>
<tr>
<th>Year</th>
<th>Italy</th>
<th>Germany</th>
<th>France</th>
<th>Austria</th>
<th>Denmark</th>
<th>Sweden</th>
<th>United Kingdom</th>
<th>Other EU28</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>1.40</td>
<td>1.10</td>
<td>0.31</td>
<td>0.58</td>
<td>0.57</td>
<td>0.60</td>
<td>0.00</td>
<td>0.24</td>
</tr>
<tr>
<td>2010</td>
<td>1.65</td>
<td>1.20</td>
<td>0.39</td>
<td>0.66</td>
<td>0.62</td>
<td>0.63</td>
<td>0.00</td>
<td>0.41</td>
</tr>
<tr>
<td>2011</td>
<td>1.85</td>
<td>1.40</td>
<td>0.50</td>
<td>0.71</td>
<td>0.57</td>
<td>0.57</td>
<td>0.04</td>
<td>0.51</td>
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<tr>
<td>2012</td>
<td>2.20</td>
<td>1.70</td>
<td>0.60</td>
<td>0.79</td>
<td>0.54</td>
<td>0.56</td>
<td>0.07</td>
<td>1.12</td>
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<tr>
<td>2013</td>
<td>2.50</td>
<td>2.00</td>
<td>0.89</td>
<td>0.88</td>
<td>0.57</td>
<td>0.57</td>
<td>0.15</td>
<td>1.41</td>
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<td>2014</td>
<td>2.65</td>
<td>1.80</td>
<td>0.95</td>
<td>0.81</td>
<td>0.53</td>
<td>0.53</td>
<td>0.20</td>
<td>1.58</td>
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<tr>
<td>2015</td>
<td>2.92</td>
<td>2.10</td>
<td>1.10</td>
<td>0.93</td>
<td>0.54</td>
<td>0.54</td>
<td>0.28</td>
<td>1.71</td>
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<tr>
<td>2016</td>
<td>3.21</td>
<td>2.27</td>
<td>1.32</td>
<td>1.02</td>
<td>0.55</td>
<td>0.54</td>
<td>0.34</td>
<td>1.86</td>
</tr>
<tr>
<td>2017</td>
<td>3.53</td>
<td>2.45</td>
<td>1.58</td>
<td>1.12</td>
<td>0.56</td>
<td>0.55</td>
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<td>2018</td>
<td>3.88</td>
<td>2.65</td>
<td>1.90</td>
<td>1.23</td>
<td>0.57</td>
<td>0.55</td>
<td>0.54</td>
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<tr>
<td>2019</td>
<td>4.27</td>
<td>2.86</td>
<td>2.28</td>
<td>1.36</td>
<td>0.58</td>
<td>0.56</td>
<td>0.67</td>
<td>2.42</td>
</tr>
</tbody>
</table>

Source: Hawkins Wright research

CAGR = 13%

CAGR = 11%
Japanese energy policy update

- At end of February the Ministry of Economy, Trade and Industry (METI) released its new energy strategy
  - Acknowledges severe concerns regarding energy security due to high level of dependence on imported fossil fuels
  - Reconfirms aim to reduce the role of nuclear and increase renewables, coal, natural gas and energy efficiency programmes
  - Securing sufficient and stable electricity supply is of paramount importance; a complete overhaul of energy supply & demand is needed
- In March ‘14 METI confirmed new Feed in Tariff levels
  - tariffs for solar PV were reduced but biomass remain the same:

<table>
<thead>
<tr>
<th></th>
<th>Forest residues (JPY/kWh)</th>
<th>Other woody biomass (inc. imported pellets)</th>
<th>Wastes (exc. wood waste)</th>
<th>Recycled wood</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 year tariff</td>
<td>33.6</td>
<td>25.2</td>
<td>17.85</td>
<td>13.65</td>
</tr>
<tr>
<td>(EUR/kWh)</td>
<td>0.24</td>
<td>0.18</td>
<td>0.13</td>
<td>0.10</td>
</tr>
</tbody>
</table>

Source: Hawkins Wright, ‘The Outlook for Wood Pellets’, April 2014
Japanese wood pellet market

- The vast majority of FiT projects use local biomass
- Therefore wood pellet imports to Japan are still modest
  - trade data shows imports of ~96kt (in 2014)
- Total demand in 2014 is believed to have been around 185,000t
  - 85kt in heating sector; 100kt in the industrial sector
- Imported wood pellets will play a bigger role in future


Source: Trade Statistics of Japan, Ministry of Finance and Tradeviews
Korea imported about 1.9 million tons of wood pellets in 2014
(Source: Hawkins Wright)

• Total wood pellet demand in Korea in 2014 was 2Mt, this is an increase of +375% since 2013 (when demand was ~0.5Mt).
• A small volume of heating pellets – less than 100kt in 2014 - are produced locally in Korea and sold into the heating market.
• The main supplier to the country was Vietnam (at 743kt), followed by Canada (344kt), China (289kt), Malaysia (168kt) and Thailand (111kt).
• Exports from Vietnam to Korea increased more than four-fold, from 157kt in 2013 to 743kt in 2014, accounting for 40% of total Korean imports.
• The rapid rise of pellet demand in Korea, and the relative immaturity of the market, has led to inevitable lessons being learnt. The open tender system used by the Korean genco’s to procure imported pellets has arguably placed too much emphasis on price, at the expense of quality.
Imports to Korea by country of origin 2014 compared to 2013

Source: Korean customs data
The Global wood pellet market
Conclusions

• The European wood pellet market is still the world’s largest market this is unlikely to change
• Europe is still the world’s largest wood pellet producer with 48% of global production, but North America may overtake Europe in time
• Contrary to expectations production volumes in nearly all European countries are showing healthy increases
• Consumption in both the power and heat markets are showing good growth
• Asian producers have shown just how quickly new supply routes can develop, once the market demand is there.
• Despite the increased demand we expect prices will remain relatively stable
ONE OF THE WORLD’S LEADING SALES AND MARKETING ORGANIZATIONS FOCUSING ON THE GLOBAL FOREST INDUSTRY.