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PELLETtime

Pellet markets in Finland and Europe - An overview



European pellet markets

Wood pellets have become an important fuel in heat production during the last decade. Pellets are globally significant in the bioenergy sector since they are one of the first wood based fuels which are profitable to transport even over long distances. The energy density of pellet is higher and it is easier to handle compared to wood chips or firewood. The user friendliness of pellets has been a clear marketing advantage.

Especially in Central Europe pellets are considered an important biofuel. As a result subsidies to compensate the higher investment costs compared to a e.g. oil heating system are available. These subsidies are generally available for both the small scale systems in e.g. single family houses and for the larger scales, e.g. small district heating systems.

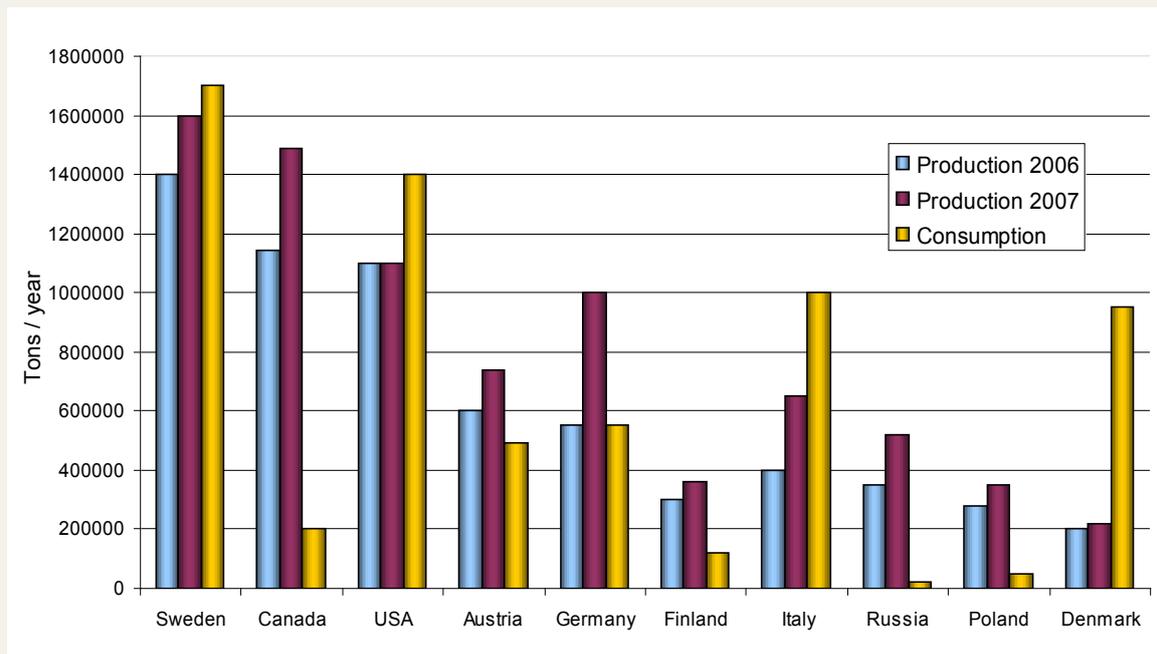


Figure 1. The pellet production and consumption of the leading pellet countries in 2006-2007.

The world's ten largest pellet producing countries together produced approximately 8,5 million tons of pellets in 2007 (Figure 1). However, it is notable that the largest pellet users are not necessarily the largest pellet producers. The high energy content of pellets and the growing demand in Europe have increased the imports of pellets across the Atlantic. For example, in 2007, Canada exported roughly half of its production to European markets, a total of 765 000 tons. Furthermore, pellet trading within Europe is also increasing steadily. The largest flows of pellets are from Germany, Finland, Austria, Poland and Russian towards Italy, Sweden and Denmark.

From an European perspective Russia is also a significant player on the pellet market. Currently, the by-product market of the sawmilling industry in Russia is underdeveloped, and as a result plenty of low cost raw material in the form of sawdust is available. As a result, about 20 pellet plants have already been established and many new plants are currently under planning in North-West Russia. Moreover, the Russian sawmilling capacity is growing and pellet plants are built in connection with the new sawmills. Consequently pellet production is expected to increase considerably over the next decade. The situation is similar in Southern Germany and Austria where the

sawmilling capacity has been increased substantially since nowadays pellet plants are commonly built in conjunction with new sawmills.

The growing demand of pellets has naturally increased the pellet supply. The future development of demand and its growth on the markets is difficult to predict. Especially in Central Europe private house builders and owners are playing a key role in increasing the demand for pellets. As a re-

sult a possible slump in the construction business would have a direct effect on the growth of pellet demand in the future. On the other hand, during the last few years, also larger sized heating and CHP-plants have been established which use pellets as a primary fuel source. This development also had a large effect on the increasing demand. In this respect Sweden is leading the way, where about 60 % of all pellets used in the country are consumed in heat or CHP-plants.



Paahtopuu Oy, Korkeakoski

Pellet production has grown considerably in Finland

In Finland, pellet production has been increasing rapidly in 2006 and 2007. For example in 2007 the level of production reached 350 000 tons, which represented a growth level over 130 % compared to the year 2005. However, during the last four years, the growth in domestic consumption has been more moderate with about 20 000 tons per year. Total domestic consumption reached approximately 130 000 tons in 2007. Today, Finland is exporting about 65 % of the total pellet production with the largest shares going to Sweden and Denmark.

In the future it is expected that pellet production will continue to grow in Finland. According to estimations of the Finnish Pellet Energy Association total production could increase to one million tons by the year 2010. The North Karelia University of Applied Sciences and the Finnish Forest Research Institute (Metla) have created a database of existing and forthcoming pellet plants in Finland in 2008 (Figure 2). The capacity of forthcoming plants on average will be higher than the existing plants with an annual production capacity of around 500 000 tons. However, capacity and actual production can differ remarkably in the early stage of the production.

Pellet plants in Finland in 2008

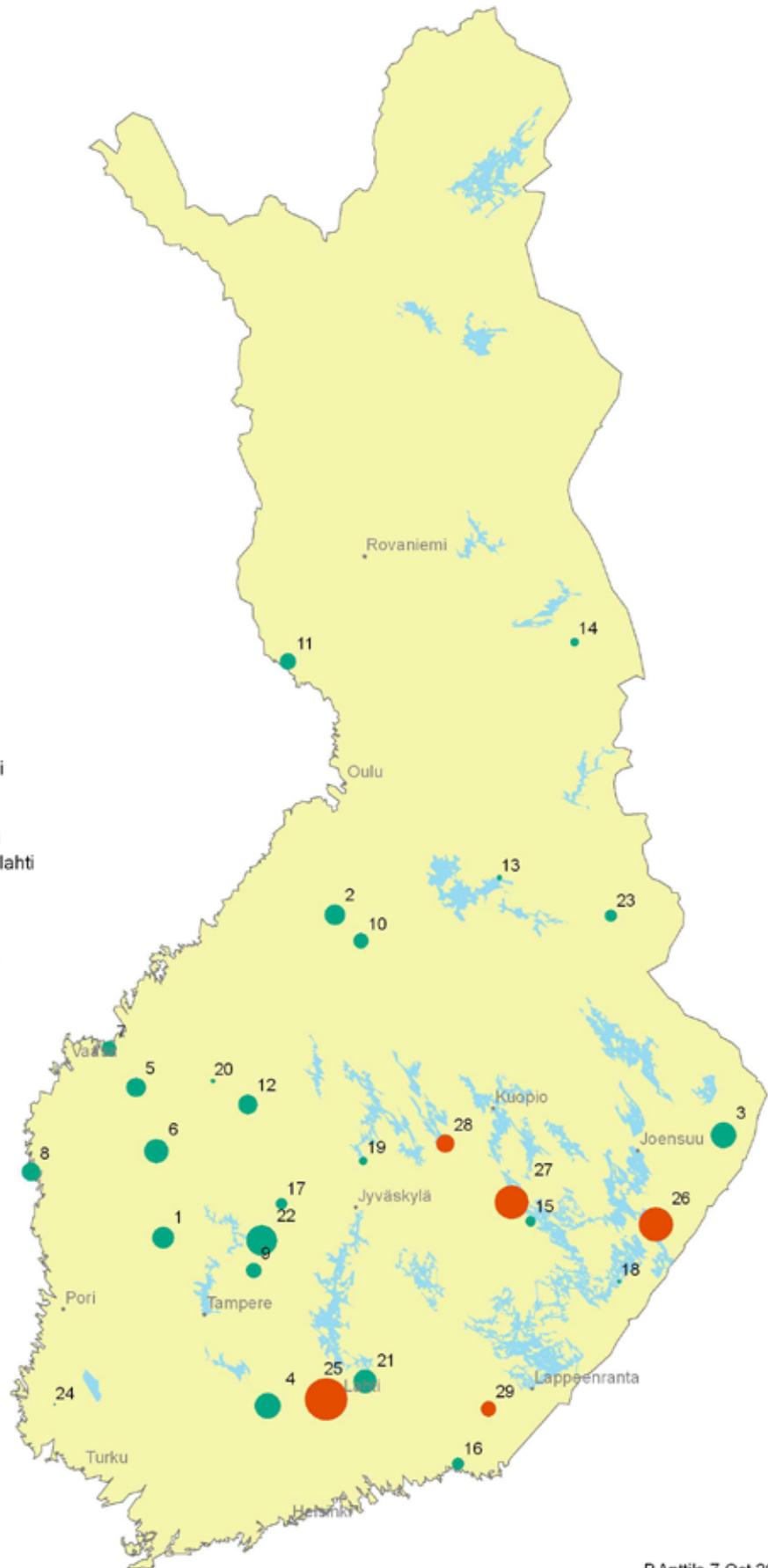
Operative Capacity, t/yr



In preparation Capacity, t/yr



Id	Name
1	Parkanon Pellet Oy, Parkano
2	Vapo Oy, Haapavesi
3	Vapo Oy, Ilomantsi
4	Vapo Oy, Turenki
5	Vapo Oy, Ylistaro
6	Vapo Oy, Haukineva
7	Vapo Oy, Vöyri
8	Vapo Oy, Kaskinen
9	Paahtopuu Oy, Korkeakoski
10	Vapo Oy, Kärsämäki
11	Lapin Ekolämpö Oy, Keminmaa
12	Länsi-Suomen Biopower Oy, Soini
13	Jannpellet Oy, Paltamo
14	Formados Oy, Kuusamo
15	Savon Bioenergia Oy, Rantasalmi
16	Haminan Puunjalostus Oy, Vehkalahti
17	Keurak Oy, Keuruu
18	Punkarjun Pelletti Ky, Punkaharju
19	Kurikka Timber Oy, Suolahti
20	Järvisseudun Pelletti Oy, Haukkala
21	Versowood Oy, Heinola
22	Vapo Oy, Vilppula
23	M-Pelletti Oy, Kuhmo
24	Lokapelletti Oy, Laitila
25	Finn Pellets Oy, Hollola
26	Stora Enso Oyj, Kitee
27	Varwood Oy, Varkaus
28	L & T Biowatti Oy, Suonenjoki
29	L & T Biowatti Oy, Luumäki



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Figure 2: Map of existing and forthcoming pellets plants in Finland in 2008.

Many factors affecting price development

The price development of pellets has been an important issue in particular for private households who have chosen a pellet heating system in favor of traditional heating systems based on e.g. oil or gas. The reason for the active ongoing discussion about the price of pellets is probably the mistaken concept that wood energy is cheap energy. However, pellets are only one fuel, though renewable and domestic, among other fuels and therefore their price development is connected to general energy prices on the market. From the pellet industries viewpoint the production must be profitable and the pellet price must cover at least the production costs. The increase in prices of raw material and other production inputs, as e.g. electricity or transportation cost are putting pressure on the pellet manufacturers and finally these costs are handed to the consumer in the form of higher pellet costs. Nevertheless, from the consumer's point of view the price of pellets must be competitive since the switch to pellet heating systems requires expensive investments in equipment that should be compensated by a lower pellet price compared to traditional fuels such as oil, gas or electricity. The price development of pellets has, to some extent, differed from the expectation of the consumers which explains the fact that the popularity of pellet heating system in new detached houses in Finland has remained marginal with only 4 % of detached house builders' choosing a pellet heating system in 2007.

The situation differs in Central Europe where pellet heating systems in single family houses and smaller district heating schemes have been the major driving force for the increase in demand for pellets. In Germany this boom has led to approximately 100 000 installed pellet heating system in private hous-

es over a 7 year period. This increase in demand has naturally had a large effect on supply. This has contributed to a somewhat volatile situation in this young developing market since the supply could not always keep up with the increase in demand. This was further affected by an increased pellet demand in neighboring countries such as Austria and Italy. Moreover, long winters brought timber supply to sawmills to a standstill, which caused a strain on raw materials for pellets. This situation has caused pellet prices to increase sharply up to 260 €/ton in the winter of 2007. But with increasing supply capacity in the second half of 2007 prices have leveled again at approximately 190 €/ton in 2008. Today the pellet production capacity has increased considerably and pellet markets have more experience and price fluctuations like the ones seen in 2007 are becoming less likely.

In Finland, the price of pellets has followed the price of heavy fuel oil. In June 2008 the price of heavy fuel oil was 40 €/MWh and for wood pellets 34 €/MWh. At the same time, light fuel oil was 71 €/MWh. In the future the price will be defined by the ratio of demand and supply on a European level as well as the price of alternative energy sources, mainly light fuel oil. Domestic consumption of pellets will certainly be smaller than production for the coming years. If the planned pellet plant investments are realized they would increase the supply of pellets, the number of actors in the industry and finally competition. This should, to some extent, calm the price development of pellets in the future. The domestic price of pellets is foremost affected by the price level in the main export markets and whether Finnish pellets are competitive in these markets.



Pellets unutilized market potential

Along with climate change, the bioenergy sector and as a result also pellet production is seen as a growing line of business. The domestic pellet discussion is marked by the disappointment of consumers about promises of easy to use and cheap heating system. Depending on the used system it is true that pellet heating systems need more maintenance compared to traditional electric or oil heating systems. However, the technological development of pellet heating systems has been rapid and today systems with a very high degree of automation are available on the market. Furthermore, quality issues in pellet production have also been improved considerably. The increase in the price of pellets has encouraged new investments also by new actors. This increase in competition forces entrepreneurs to improve their efficiency, develop production engineering and to shift the focus also towards improved customer service. These are all positive developments for the entire pellet industry. It has to be kept in mind that the pellet industry is only in its infancy in Finland and competitive market structures are in under constant development.

The cheap price of pellets has often been used as a marketing tool for pellets particularly at the beginning of development. However, the increasingly important debate about climate change and its consequences as well as limited amounts of fossil fuels have become additional important arguments to use an environmental friendly and sustainable source of fuel such as pellets. Usually pellets are produced of domestic and renewable raw materials, and that fact has also been increasingly used as a marketing tool. There is a lot of potential to better utilize these positive marketing tools in the future to promote

the pellet industry as such. The message that has to be conveyed to the end user is that they are using a maintenance free heating system and at the same time contributing the reduction of CO₂ emissions to the atmosphere by replacing fossil fuels. Finally in doing so they are actually saving money and support local communities.

In Finland the use of pellet heating systems in detached houses has been much slower than anticipated particularly when compared to the development in other European countries such as Sweden, Germany or Austria. The situation in the large scale is not much different with only limited growth over the course of the last years. However, the potential to increase the use of pellets in the future is tremendous. If all the plants currently under planning are realized, Finland will become one of the largest pellet producing countries. Nonetheless, the ever increasing production of pellets cannot be solely based on the assumption of ever increasing export growth. The competitiveness of Finnish pellets is facing challenges in the future. Firstly, raw material, production and transportation costs are increasing partly due to rising fuel prices. Moreover, Russian pellet production is also growing steadily. Consequently, actions to increase the domestic use of the pellet are vital for the industry. According to Vapo, the biggest pellet producer in Finland, almost 20 TWh of energy derived from oil is used to heat buildings in Finland. Direct electric heating is used in over 500 000 detached houses. If 100 000 detached houses would change from oil (consumption 2000 l/year) to pellet heating, the consumption of pellets would increase by 400 000 tons annually.



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