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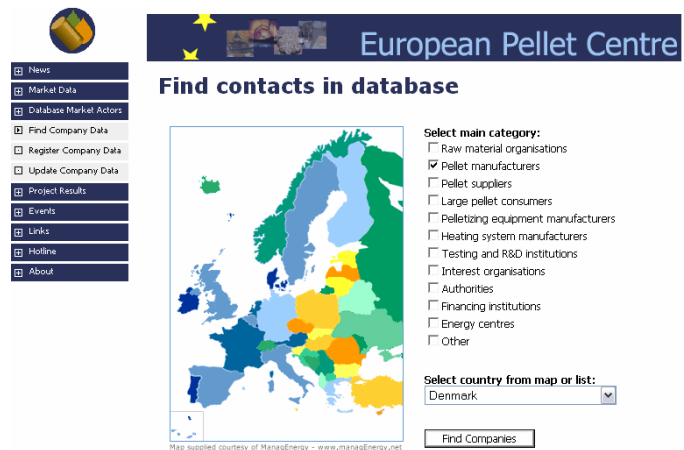
The aim of the project "Pellets@las" is to provide technical and market information for pellet market actors across Europe. The following newsletter describes some of the progress and results of the project so far.

Fist of all we are pleased to welcome you to our first pellets@las newsletter. Every six months this electronic newsletter will be distributed informing the pellet actors and stakeholders about the project progress and about the situation on the pellet markets in the EU 27. In total six newsletters will be provided. All actors interested in receiving this newsletter have to register online on the project website ([www.pelletsatlas.info](http://www.pelletsatlas.info))

**Background to Pellets@las**

Pellets@las is the successor to the previous project - Pellets for Europe which ran from June 2003 to April 2006. Pellets@las has inherited the website and database from this project and will update and improve it. It contains information on all pellet actors, studies on pellets markets, statistics and best practices. Pellets for Europe aimed to provide technical and market information for pellet market actors and to promote pellet technologies across Europe. The main aim for this European project was to support the development of the European pellet market. Another aim was to contribute to an increased use of high quality fuel pellets for energy purposes in Europe in order to secure energy supplies and decrease greenhouse gase emissions. Additional targets were to stimulate new markets in Southern Europe where the pellet market is still in its infancy and to take advantage the wood and agricultural residues not already utilised there.

Pellets for Europe found a lot of its success based around conferences and workshops. For example, the European Pellet Conference, held in Wels, Austria both in 2004 and 2005, where it attracted over 600 visitors from the whole Europe each year. Conclusions made where that continued research and support was needed for the pellet market in Europe.



Screenshot of the database on the website

**Introduction to Pellets@las**

Pellets from biomass resources have the potential for a major contribution to several European energy policy tasks, such as security of supply and CO<sub>2</sub> mitigation. The markets for fuel pellets are currently booming in Europe due to increasing fossil fuel prices, environmental concerns and obligations. However, pellet markets across Europe are characterised by heterogeneous development stages. In parallel, inconsistencies occur regarding the available pellet qualities. Still, the main barrier for market expansions is the lack of information which affects all market actors.

## Objectives

The general aim of PELLETS@LAS (IEE Project) is to develop and promote transparency on the European fuel pellets market.

This is done to facilitate pellet trade and to remove market barriers which are mainly information gaps but also local supply bottlenecks, production surpluses and uncertainties in quality assurance management. Moreover it will contribute to the implementation of future European legislation which is currently hindered by lack of market confidence and attitudes rather than costs.

The provision of detailed pellet market data, such as current prices, available quantities and qualities to all pellet actors in Europe will contribute largely to overcome market barriers. The permanent availability of such information within a real-time European Pellets Atlas will lower trade obstacles, support market participation and finally increase the energetic utilisation of pellets. Furthermore, guidelines and road-maps can be produced as decision making tools for creating an up-to-date and reliable information source which can be elaborated timely and efficiently. Furthermore, pre-feasibility studies on the implementation of MBP (mixed biomass pellet) projects shall promote this embryonic market.

Close co-operation will be established with current or previous IEE projects, such as ELVA, EUBIONET II, PROPELLETS, Energy 4 Cohesion, Pellets for Europe and the internet biofuel trading platform BioXchange. Going beyond these other actions PELLETS@LAS will cover the whole European market and focus on all types of fuel pellets.

## Description of the work

The core of the proposed action is a data and information collection in all EU 27+2 (plus, Norway, Switzerland) countries from wood and MBP producers, traders and consumers. For the data collection a consistent methodology is elaborated. The data is up-dated quarterly and will comprise current regional prices, available qualities and quantities, the locations of stakeholders as well as an investigation on

logistic systems. Moreover, pellet imports from outside the EU are assessed. During the course of the data collection an easy to update and rapid monitoring system will be established in order to ensure permanent data recording, even after termination of the proposed action. In order to support the utilisation of MBP, pre-feasibility studies on MBP production, logistics and combustion will be elaborated in four European countries (Poland, Slovak Republic, Greece and Germany). The resulting data will mainly be disseminated via the internet platform of the European Pellet Centre containing graphic interfaces and thus functioning as a Pellets Atlas. Further dissemination tools will include regular newsletters, a final seminar and brochure, several telephone hotlines, conferences and press releases.

## Expected results

The core of PELLETS@LAS is **data and information collection** in all EU 27+2 (plus Switzerland, Norway) countries from wood and mixed biomass pellet producers, traders and consumers.

- **A web-based information platform** on important fuel pellet market data, such as: produced and available quantities and qualities and regularly up-dated regional sales prices.
- Recording and evaluation of the **acceptance and implementation of CEN quality standards**.
- **A database on logistic management** from which a transportation chain model will be derived.
- **Four pre-feasibility studies** for mixed biomass pellet (MBP) utilisation in Poland, Slovakia, Greece and Germany.
- **A handbook in five European languages** (English, French, Italian, Polish, Danish) on the general use of pellets.
- **Six workshops** (in the UK, France, The Netherlands, Poland, Greece and Hungary) in order to promote the energetic utilisation of pellets.



## Participants

The participants to the project are listed below:

### FORCE Technology, Denmark



FORCE Technology is a private institution approved by the Danish Ministry of Business and Industry as a technological service institute and is affiliated with the Danish Academy of Technical Sciences. FORCE Technology employees more than 1000 people, and has branches in Sweden, Norway, USA, Canada, the Netherlands, Brazil and Russia.

### WIP Renewable Energies, Germany



WIP plans, develops, realises and monitors projects in the field of renewable energy technologies since 1980. One of the focal activities addresses the energetic use of biomass and the promotion of related policies. WIP provides expert technical and non-technical service to private, industrial and public sector clients at national and international level. WIP applies an integrated approach to bridge the gap between project idea and realisation.

### Holzforchung Austria



Holzforchung Austria (HFA) is a business-orientated, independent research institute for applied sciences accredited for testing and quality assurance of wood products and solid biofuels. Furthermore HFA is the biggest research institute for wood in Austria. In the field of wood pellets the bio energy department is involved in several research projects, operates in standardization- and grade labelling tests of pellets and briquettes according to ÖNORM M 7135 and DINplus of pellets and briquettes.

### Utrecht University, The Netherlands



### Universiteit Utrecht

The biomass cluster of the Copernicus Institute (Utrecht University) focuses a.o. on:

- i) performance of conversion technologies,
- ii) biomass potentials and modeling land-use patterns and changes,
- iii) studying non-technical barriers, development of policy, biomass sustainability & certification and international biotrade.

### EUBIA, Belgium



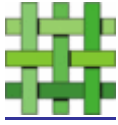
The European Biomass Industry Association is an international non profit association in Brussels. It groups together market forces, technology providers, and knowledge centres, all of them active in the field of biomass to support the European biomass industries at all levels, promoting the use of biomass as an energy source, developing innovative bioenergy concepts and fostering international co-operation within the bioenergy field.

### Energidalen i Sollefteå AB, Sweden



Energidalen i Sollefteå AB is a leading competence centre in renewable energy. The activities are mainly focused on development of innovative products and services in the bioenergy sector, and participation in international development projects.” And in the headline, just write, “Energidalen, Sweden

### ETA-Renewable Energies, Italy



ETA promotes the utilisation of biomass for energy purposes, carrying out feasibility studies, technical analysis and economic optimisation of the bioenergy chain. ETA promotes industrial cooperation in the bioenergy field and the identification of financial resources through a vast network of international “expertise” of which is part.

### SVEBIO, Sweden



The Swedish Bioenergy Association (Svebio) founded in 1980, is well-established, non-profit, and has around 400 members, most of them companies. Svebio works to providing the bioenergy business with good conditions and development possibilities in an environmentally and economically optimal way.

### National Energy Foundation, UK



The National Energy Foundation (NEF) is an independent educational charity based in Milton Keynes, UK. Our main aim is to mobilise individuals and businesses to reduce their CO<sub>2</sub> emissions through energy efficiency and the use of sustainable energy solutions. For more information see [www.nef.org.uk](http://www.nef.org.uk)

### Agricultural University of Athens, Greece



Agricultural University of Athens is an institution devoted to education and research with considerable experience in renewable energy technologies and in particular on biomass production and handling, biomass fuels production and utilisation of biomass fuels for energy production.

### ProPellets Austria



Austria

ProPellets Austria is an industry association and was founded in spring of 2005. All key actors of the Austrian pellet industry, pellet producers, pellet traders, producers of pellet stoves and boilers and other related businesses are members of proPellets. The activities of proPellets focus around marketing, lobbying and public relations. Improved market information for and communication between the members are other key tasks.

### LETEK, Estonia

South-Estonian Centre of Renewable Energy (LETEK) was founded in 2003. It has initiated and implemented a number of investment projects into the district heating industry. The Centre has prepared feasibility studies, reconstruction projects and development plans for energy sector of local municipalities and elaborated of a training programme for energy specialists and development agents of local municipalities in cooperation with the European Centre for Renewable Energy Güssing.

### GEONARDO, Hungary



GEONARDO Ltd. was established in 1999 as an environmental research and technology company focusing on business consultancy and EC project development. Over the years, Geonardo Ltd. has successfully competed in almost all EU Community Programmes and funding categories so the company could lay down the principles of how to combine grant-financing, bank-loan and self-financing instruments in respect of successful management of R&D projects.

**Baltic Energy Conservation Agency, Poland**

BAPE's activities are aimed at the implementation of EU Directives on energy conservation and dissemination of state-of-the-art, ecologically friendly technologies in the energy sector. The agency's activities include consultancy and expertise services as well as educational and training services in the area of rationalization of energy use and of renewable energy sources utilization.

**ADEME, France**

ADEME



The national Agency of Environment and Energy savings (ADEME) is a public body. It participates in the implementation of public policies in the domains of environment, energy and sustainable development. With about 900 employees, ADEME is organized around 3 head offices, 22 regional delegations and 4 offices in overseas areas. The agency offers expertise, advice to SMEs, local communities and households and helps them to finance projects.

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**Market data**

This section contains some of the preliminary data already collected for the project. More comprehensive research will be done in order to provide an incentive to return a completed questionnaire – discussed earlier and below in more detail. From the questionnaire a report will be made and results will be put online in an easy to use map and database interface.

**- Austria**

The proportion of renewable energies (without hydropower) at the Austrian energy consumption is 12%. The proportion of hydropower is another 10%, so that in total the renewable energy consumption beside crude oil, natural gas and coal already is 22%. The first wood pellet market started in the mid 1990s and in 2007 there were 24 producers with capacities from 5000 to 100,000 tonnes. The domestic consumption exceeded 400,000 in 2006 and there is a planned capacity expansion to 1,000,000 tonnes. The contribution of pellets to the national energy

consumption (1,400 PJ/y) is 6.5 PJ. There has been a booming market in CO<sub>2</sub> neutral heating fuel and burners. Around 90% of all pellets in Austria are certified and follow the ÖNORM M7135 standard which lays down minimum

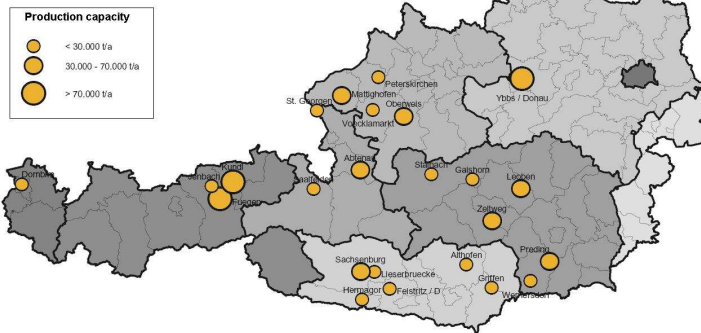
qualities in the realm of, for example, the pellets dimension, water content  $\leq 10\%$ , gross density  $\Rightarrow 1.12\text{g/cm}^3$ , ash content  $\leq 0.5\%$ . This high standard was a prerequisite for failure-free heating systems and the market development. The ÖNORM M7135 pellets are almost uniquely used for small scale heating systems in single family homes.

From 1997, there were 425 pellet heating systems installed, sales increased to 8,874 heating systems in 2005, a 40% increase from 2003. In 2005 the units reached a nominal heating load of 170,991 kW. Another area of particular importance is pellet price. In the

time period Jan 2006 to May 2007 the price ranged from a low of 17.78 € cents/kg (Jan 06) to 26.69 € cents/kg (Nov 06). This represents

a 50% increase from January 2006 to November 2006, which is quite substantial and an important consideration for pellet users.

Wood pellets production in Austria

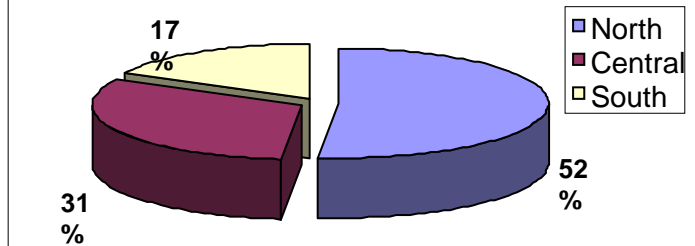


**- Italy**

Italy has in the last few years changed from being a limited producer and user, with fairly dispersed activity in the North, Central and Southern parts of the country to a more mature market but concentrating more in the North. Here this region contains 52% of national pellet production which, correspondingly, has the highest potential. The national market has increased by 30% in the 2006/2007 period with a production level high of 350,000 tonnes/year from 58 producers. The start-up of new producers in the centre and south has grown in line with the market demand for pellet products. Italy is currently importing 70,000 tonnes of pellets a year and estimates suggest it will rise to 100,000 tonnes in the next few years. The market future production would indicate a volume of 400,000 tonnes/year soon. The highest producing regions are Lomardia, Emilia Romagna, Veneto from the north along with Umbria and Toscana from the central region. As a result of the demand, the costs per tonne climbed to 260 € and even 350 € in some regions (Jan 2007).

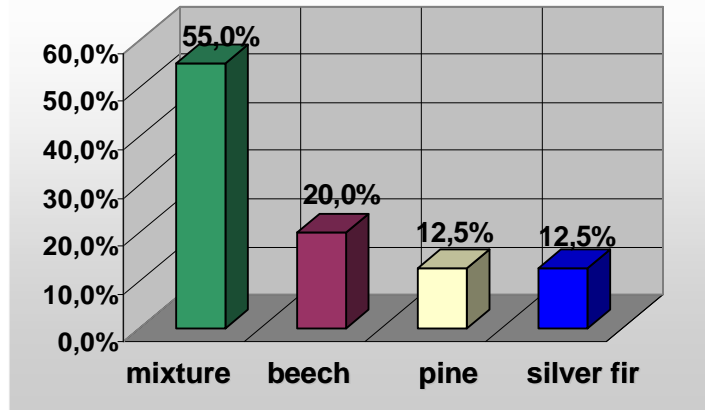
The raw material for the pellets production is 66% sawdust, 19% wood shavings, 11% Chips residues and 5% cross residues. There are different types of purchasers of pellets in Italy. Only 22% are private, 59% are retailers, 18% distribution chains and 2% big users.

Distribution of Pellet Producers for the year 2007



The standards in Italy are ÖNORM M 7135, DINplus, CEN/TS 14961 and the new standard especially for Italy is PelletGold, which is

Species used for pellet production

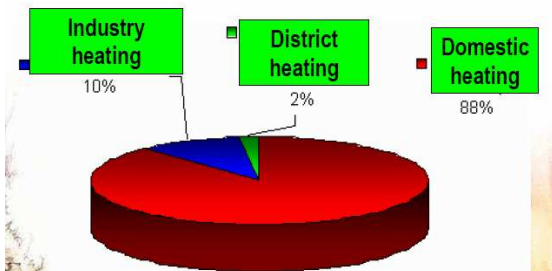


**France**

In the French market 2% of the wood fuelled heating systems in France are district heating systems, 10% is from the industrial sector but 88% are domestic heating systems (figure 1).

The domestic sector uses 8m tonnes of wood, the industrial sector uses 0.6m tonnes and the tertiary sector uses 0.3m tonnes, what is summarised about 9m tonnes. The pellet production is about 90,000 tonnes. The main use is in the residential sector, where there are 3,000 to 5,000 boilers and about 200,000 stoves. In rural areas some are supplied by cereals.

In communities there are less than 100 heating systems which are more than 100 kW. Very few French producers apply a standard as DINplus or ÖNORM and there is not yet an impact of the CEN TC 335 standard.



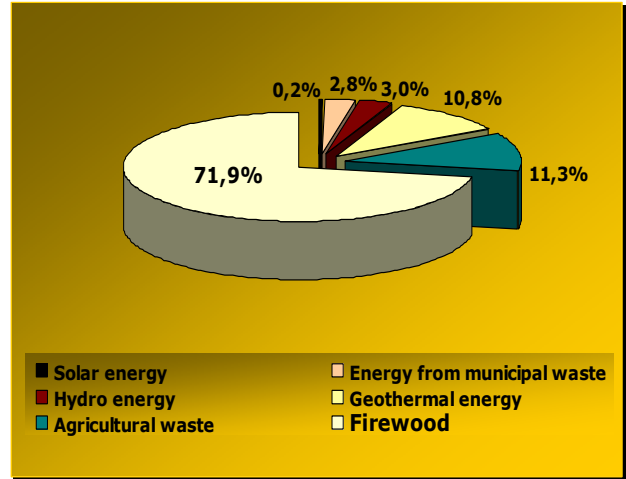
Distribution of wood fuelled heating systems in France

**Hungary**

In Hungary 3.6% of the primary energy and 2.1% electricity was derived from renewables in 2004. Hungary's goal for the future is that it would like to achieve about 6-7% of the primary energy and 3.6% of the electricity deriving from renewables in 2010. As you can see in figure 2 there is about 80-85% biomass proportion of the renewables of which 72% is firewood (2004).

For the pellets market there is no production or market data recorded officially nor are there national standards or guidelines established yet. The current pellet standards are used on a voluntary basis e.g. DIN 51731, DINplus; ÖNORM M 7135 (Austrian standard). There already is a survey about pellets via the internet. An online questionnaire is send to several pellet producers in Hungary's centre, where the producers are concentrated. It comprises the quality and quantity of produced

or traded pellets, the imported raw materials, the distribution channels, the package size and the opinions about the current pellet market of the country. In addition it covers issues about start-up costs, the market barriers and the access to raw materials.



The proportion of the renewables in Hungary in 2004

**Slovenia**

In Slovenia the goals stated by the National Energy Plan (2004) are:

- Increase the share of RES in primary energy demand to 12% by 2010
- Increase the share of RES in heat production to 33.6% by 2010
- Increase the share of biomass in gross domestic consumption to 6%

In order to meet the targets it is required to increase the utilisation of biomass to 3.1 PJ by installing 1,500 wood boilers in households and additionally 50 larger biomass boilers in industry or the public sector and last but not least there will be 3-5 biomass district heating installations.

In Slovenia there is a high potential of biomass resources. Wood is most important as fuel for space heating, particularly in the residential sector.

The above mentioned questionnaire was sent to two producers in Slovenia, too. Although some language barriers occurred some answers had been given. For example the traded products are wood briquettes and wood pellets produced with the quality of DINplus. They produce 40,000 tonnes per year wood pellets and another 30,000 tonnes of wood briquettes. There are direct channels to customers and to retailers. The used package

size is 15 kg (small bag) and 1,200 kg (Big bag).

**United Kingdom**

There are only a handful of pellet manufacturers and another perhaps 20 suppliers in all, which sell both UK produced and imported pellets. The market is very fluid with the result that there is a lot of interest to get into production, but suppliers come and go.

Several systems are already installed e.g. co-firing in coal fired power stations, boilers for schools, church halls etc. and stoves for offices and domestic properties.

Pellets are imported into UK through the eastern ports from Germany, Sweden, Finland, Denmark, former Soviet states, Russia and France. Many enquiries from potential exporters show increasing interests to come into this market. However, the quantities of the production and trading are unknown.

The British Pellet Club (PCB), which merged with a larger renewable energy association in May 06 did some co-operation between members on common issues. Unfortunately there is not any data about pellet statistics in UK and therefore no central index exists. A few suppliers list prices on their websites. The information you get on these sites is that pellets cost from around £80 (118€) per tonne delivered (bulk) to over £200 (294€) plus taxes and delivery for smaller quantities. There is no quality standard in UK, but a voluntary code was developed. At the moment people are waiting for a deployment of the EU wide CEN standard CEN/TC EN 335. UK producers put specifications or part specifications on their websites without reference to any particular standard.

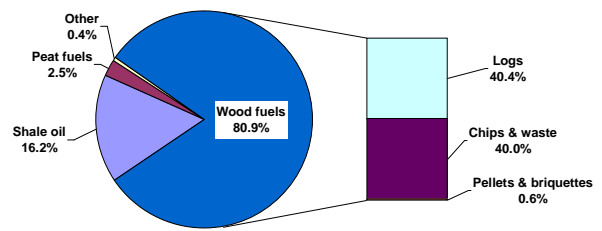
The British government implemented a low carbon building programme with a grant programme running since April 06. As a result of this 12 pellet stoves and 77 biomass boilers in England, 1 pellet stove and 16 wood boilers in Wales and 2 stoves and 1 wood boiler in Scotland have been installed.

**Estonia**

The main primary energy source in Estonia is oil shale, but she also mentioned that more than 50% of the territory (2,267,400 ha) is

covered with forest (growing stock – 451,468,000 m<sup>3</sup>). Nonetheless the share of fossil fuels in total primary energy consumption exceeds 90%. The biomass fuels are the major source of renewable energy.

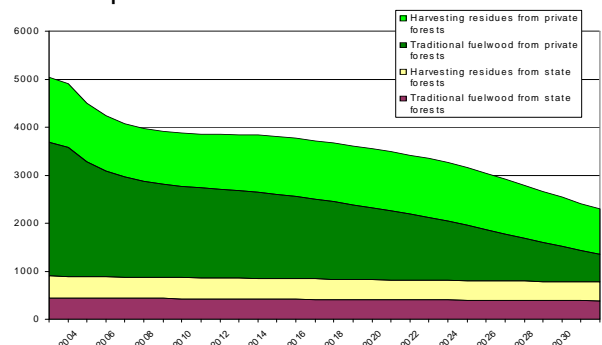
In the figure below one can see, that pellets and briquettes only have got a small part (0.6%) of the wood fuels whereas logs and chips have nearly the same proportion with 40% each. Another interesting fact is the different meaning what renewables are, because in some countries, also in Estonia, peat fuels count among renewables as well.



The proportion of fuels in Estonia

As in other countries, too, very little information is available about the consumer. There are 1,700 legal entities, which produce and sell heat. Additionally there are more than 900 boilers using biomass as the main fuel. The total production amount of pellets and briquettes exceeds 200,000 tonnes, where about 80% is exported. The production of peat briquettes, which exceeds 120,000 tonnes and 84% of the production is exported, mainly to Sweden.

The timber industry consists of timber cutting and related (forest) services, sawmills, manufactures of ply wood, wood panels and boards and pulp, paper and paperboard manufactures. 6 companies produce wood pellets, together with an amount of 200,000 tonnes. Additionally 20 companies produce wood briquettes with an amount of 12,200 tonnes. The long term prospect of Estonia (figure below), shows the decreasing amount of harvesting residues and traditional fuel wood in private forests.





installations for renewable energy are 9 wind farms, 6 solar collector installations, 1 gas extraction installation. The prices for biomass are as follows:

*Wood:*

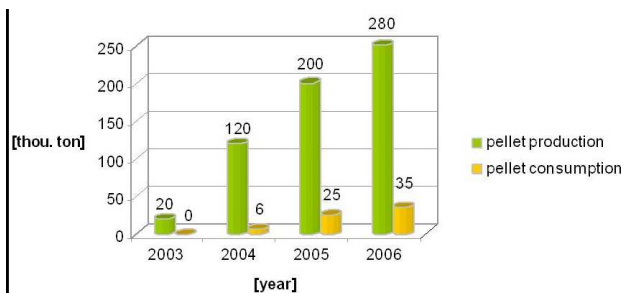
Log wood	65 Euro/m <sup>3</sup>
Wood chips	40 Euro/ m <sup>3</sup>
Sawdust	25 Euro/ m <sup>3</sup>
Briquettes	100 Euro/t
Pellets	150 Euro/t

*Straw:*

Ballots	40 Euro/t
Briquettes	70 Euro/t
Pellets	95 Euro/t

The figure below shows the enormous increase of the pellet production as well as the consumption in Poland in the last 5 years. The production is much higher, than the consumption. At last (in 2006) the production increased to 280,000 tonnes per year and the consumption up to 35,000 tonnes.

The current pellet price for households is about 150 €/t, the total installed capacity is about 55 MW. There are 2,500 small (10-25 kW) boiler installed and 40 medium boilers (50-250 kW). 25 pellet manufactures produce pellets in Poland. In terms of energy (heating) costs, pellets had been cheaper than e.g. gas or oil but more expensive than e.g. coal.



The development of the pellet production and consumption in Poland from 2003 to 2006

**Germany**

Generally the German market is an emerging market with a large growing potential in the domestic and the public sector. There are no large scale combustion plants as in Scandinavia, mostly due to reduced public funding and low wood chip prices (Ø 95 € per absolutely dry tonne). District heating systems are mainly installed in small networks such as family houses or terrace houses. For the pellets trade there are imports mainly from Austria, Czech Republic and Slovakia. The

exports mainly go to Austria and Northern Italy. The distribution often is done directly by the producers, but also by traders, DIY stores and an increasing number of biomass trading centres. Home delivery is done by pellet fuel tank trucks or sale in bags of 10, 15, 20, 25 kg (also on pallets) or in big bags (500-1000 kg).

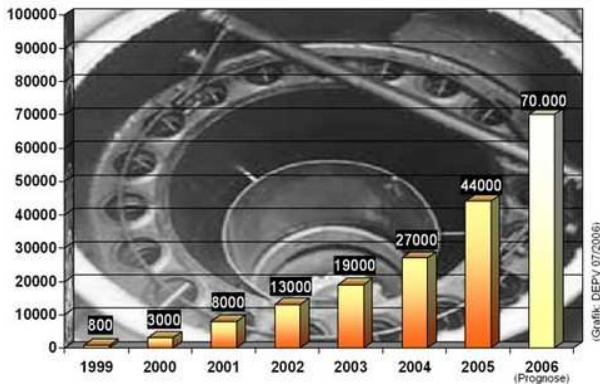
There is cooperation between producers and traders by medium-term regional distribution contracts. There is also cooperation between boiler producers and installers by knowledge transfer, training and contracts and by small producers and trademark owners by sales contracts and quality agreements. Producers compete with traders. The occurring problems are partly solved by regional distribution contracts. There also is competition between the different boiler producers as well as between the several storage and feeding solution producers. As a result of this there is a restricted willingness of pellet actors to provide data expected.

From the PELLETS FOR EUROPE project there is data about the pellet situation in Germany available. The production capacity is more than 1,000,000 tonnes per year, but the real production and consumption is not available yet. There are 70,000 boiler installations (0.2% of all households, 3.7% of new boiler installations). About 30 pellet manufactures produce pellets. The last year (2006) there was a large increase in pellet prices for domestic use: 40% within one year from 185 to 260 €/t. But now it decreased again. It is expected to be at 230 €/t in February again.

As one can see in the figure below the German pellet market is a fast growing market.

The fuel pellet standard DIN 51731 as well as the ÖNORM M 7135 and DINplus is used and very widespread whereas CEN/TS 14961 and CEN/TS 15234 is hardly used. Additional internal quality assurance systems are installed, e.g. by coding of individual pellets in plant specific x-shapes.

There are no quality standards for mixed biomass pellets available yet, so there are bilateral quality agreements necessary.

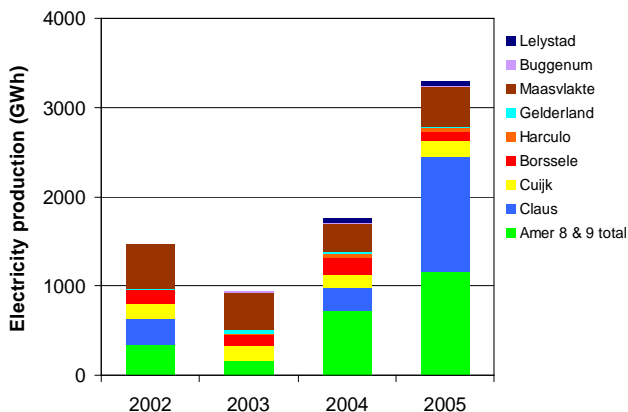


Installed pellet boilers in Germany from 1999 to 2006

### The Netherlands

In the Netherlands the residential space heating is covered to more than 90% by natural gas. Grid gas was introduced in 1960-1970's due to large domestic resources. Nonetheless some district heating systems are installed with other alternatives upcoming like micro-CHP or solar heating. That means that basically there is no significant small-scale use of wood pellets at the moment. In 2005 the import increased by a factor of 7 in two years time and this means almost 90% of all co-fired biomass (see fig. below).

In numbers: about 690,000 tonnes solids and about 380,000 tonnes liquids were imported. The main fuels hereby were wood pellets, palm oil and agri-residues. In large scale coal power solid co-firing is done; this is possible up to 30% or 40%.



Electricity production in the Netherlands from 2002 to 2005

In the Netherlands bioenergy data is available because of the annual collection of data for

IEA Bioenergy Task 40 country report. Nevertheless the data availability for pellets is poor, because there are no national statistics on pellets, so that the information has to be gathered from traders and end customers. The data on prices are very sensitive. They are given only in general terms (e.g. 140 \$/tonne) and only for the past e.g. for 2006.

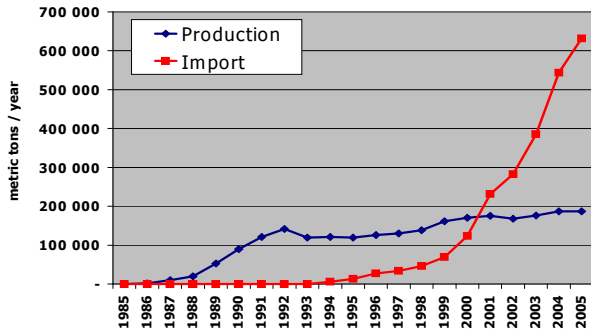
Expectations for the Netherlands up to 2010, concerning co-firing, are strongly dependant on the policy of the new government. However it could be said that further growth in imports is necessary to reach the ambitious targets of 10% renewables in electricity production in 2010 or a little different expressed 20% renewable energy in 2020. The use of palm oil for co-firing is under heavy debate in the Netherlands. The feed in tariff was lowered over the years with the exception of woody biomass (6.1 €/ct/kWh). The demand for large scale co-firing for (wood) pellets is therefore further expected to increase.

### Denmark

Primary energy consumption in Denmark shows 15% of it is made up of renewable energies and 1.7% is of pellets. In Denmark there are about 50.000 residential pellet boilers and stoves. The reason for this high number was a boom in the end of the 90ies, due to high oil prices and investment support from the government. The boom declined in 2002 due to a sudden steep increase in the prices of pellets as well as the cancellation of the investment support (Nov 2001). But the installations increased in 2005 - 2006 again, due to again increased oil prices. In addition there are about 300 pellet block heating plants. These plants are typically for official buildings. Normally gas and district heating systems are preferred. Last but not least there are about 40 pellet fired district heating plants. These are converted coal fired plants done in the 1990ies. There are no new plants, which are based only on pellets. Due to the high pellet prices, plants are rather converted to multi-fuel burners using other cheaper biomass fuels.

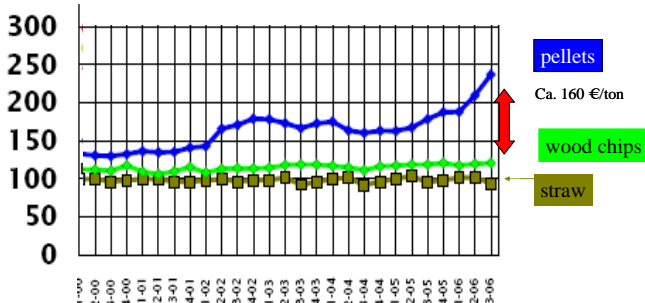
The consumption of wood pellets in one family households has reached 310,000 tonnes in 2005, the total consumption increased up to 820,000 tonnes. The figures for the production

are not easy to get. But it is thought to be approximately 200,000 tonnes per year, whereas the capacity is at about 430,000 tonnes per year. This means as you have confirmed in the figure below that there are a lot of wood pellet imports in Denmark.



Production and import of wood pellets in Denmark in the years 1985 to 2005

They are imported with 70% mainly from the Baltic States. The other states are Canada, Poland, Sweden, Finland and more and more Russia and Germany. The quality standard is defined by statoil, which has about 40% of the market. In the following figure 12 you can see the price difference between pellets and other fuels as wood chips and straw. With 160 € per tonne there has been developed a large gap.

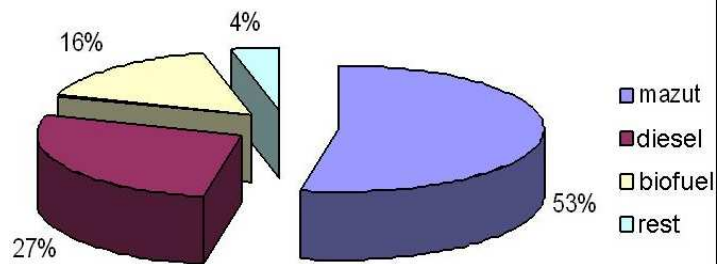


The price differences in Denmark between wood pellets, wood chips and straw

For the consumption in residential buildings (installations increased with ~15% in 2006 compared to 2005) there is a theoretical potential of more than 1,000,000 tonnes per year, because of the conversion from oil heating systems. The consumption in district heating systems will have changes compared to the years 2005, 2006, because of the change to other cheaper solid biofuels in the future. The distribution in bags is increasing in comparison to bulk delivery, because of storage problems and combination with gas boilers. Ordering over the internet is another increasing trend.

**Greece**

As an example for the use of renewables, in the Magnessia prefecture where there are 22.2 ha of greenhouses, where 81% are heated through the winter season. With a proportion of 80% most of these greenhouses are less than 0.5 ha. In figure 13 one can see, that the proportion of biofuels is 16%.



The fuel distribution in Magnessia greenhouses (mazut: kind of fossil heavy fuel oil)

These 16% biofuels consists with a proportion of 88% mainly of olive cores. The rest of the 12% are almond seed vessels. The price of olive cores is 0.06 €/kg. They have got a heating value of 14,225 kJ/kg. The price of almond seed vessels is 0.05 €/kg (heating value: 10,460 kJ/kg).

In Greece there are three types of farmers, which use biofuels. The first type uses it because he is environmentally conscious. The second type is pure economic oriented and uses it only when the price is less than heavy oil and the third type uses it because of EU subsidies.

The heating systems with biomass that were recorded had been composed with the following parts: biomass storage, a silo for the supply of the boiler, the boiler itself and a heat distribution system [floor heating system of low temperature (45-50°C)]. Below is an example of the greenhouses using such a heating system.

### Activity so far:

Over the last 6 months the methodology for data collection has been carefully developed. The bulk of the data retrieval is based around a questionnaire which can be sent out to pellet producers, traders and large retailers. It will be a detailed questionnaire which will form the core data collection for the project. In October 2007 the first survey will begin and in January 2008 the first questionnaire will be sent out to stakeholders and every 6 months after that. Before the first questionnaire, there will be a pellet market and actors report for 2006/2007 on the EU 27+2 (plus Switzerland and Norway) and this report will be offered to those who complete the questionnaire 2 months before it is released to the public.

### Activity – Next 6 Months

- July to September 2007: Collection of data for the new database
- October 2007: Completion of the first questionnaire based survey which will contribute to the database
- December 2007: The Copenhagen meeting to discuss first results and make improvements to the method of data collection
- January 2008: First survey to be sent out which will ask for the bulk of desired data for the database which will aim to look at, amongst other things logistics and MBP (Mixed biomass pellets)

### Events

#### **1st Conference of the European Biomass Co-firing Network (NETBIOCOF) 2nd – 4th July 2007, Budapest, Hungary**

The purpose of the conference is bringing together scientists, engineers and members of public institutions to present the current state-of-the-art on biomass co-firing and to discuss future trends and directions in order to promote awareness of this technology as a sustainable energy supply, which could decrease the dependency on fossil fuels and guarantee a decentralised source of energy in Europe. For additional details, please visit: [www.netbiocof.net/conference.html](http://www.netbiocof.net/conference.html)

#### **BIOENERGY 2007: 3<sup>rd</sup> International Bioenergy Conference and Exhibition 3<sup>rd</sup> to 6<sup>th</sup> of September 2007 in Jyväskylä, Finland**

The conference offers information about modern biomass-based power, heating and CHP plants and technologies from farm scale up to the world's biggest construction. For more information please visit : [www.finbioenergy.fi/bioenergy2007](http://www.finbioenergy.fi/bioenergy2007)

#### **European Pellets Forum**

**5<sup>th</sup> of March 2008**

**During the World Sustainable Energy Days 2008**

**5<sup>th</sup> to 7<sup>th</sup> of March 2008 in Wels, Austria**

The conference offers information about Pellets markets around the globe - technology trends - strategies and programmes. For more information please visit:

<http://www.esv.or.at/esv/index.php?id=1659&L=1>

### Weblinks

Pellets@las website: [www.pelletcentre.info](http://www.pelletcentre.info)