



Development and promotion of a transparent European Pellets Market
Creation of a European real-time Pellets Atlas

Pellet market country report BELGIUM



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1. Summary

The wood pellet market in Belgium is characterized by a large demand for industrial pellets for (co-)firing in power production, a young pellet production industry with limited production and a fast developing market for residential pellet heating.

The total pellet consumption in Belgium in 2008 is estimated at 920,000 tons of which around 800,000 tons were industrial pellets consumed for power production. The Green Certificate Scheme in Belgium contributed to stimulating the demand for solid biofuels, including pellets, for electricity generation by (co)combustion, Electrabel (GDF Suez) being the major consumer of industrial wood pellets in Belgium. This sector largely relies on pellet imports from Germany, Eastern Europe and North America and is expected to be growing significantly in the next years.

It is estimated that around 325,000 tons of pellets were produced by at least 10 producers in 2008. Four of them are DINplus certified (October 2009) and it is expected that a good share of the domestic production in Belgium is targeting the domestic heating market. Since stoves are the main pellet appliance, the majority of pellets are probably traded in bags. Some of the larger pellet plants produce exclusively for the power sector. Large exports are not reported.

The consumption of high quality pellets in the heating market can be roughly estimated at 120,000 tons in 2008, meaning that more than 11 kg of pellets were consumed per capita. This is comparable to the situation in Germany. However, in contrast to Germany, stoves are the main pellet appliance in Belgium.

The pellet market in Belgium is characterized by the following features:

- The political system in Belgium features a division in 3 regions: Wallonia in the South, Flanders in the North and the Brussels region. The regions are to some extent responsible for political decisions concerning environmental, forestry and energy issues. This, and differing geographical conditions (e.g. forest area) leads to different frameworks for pellet market development in the regions.
- Data availability and the organisation of the pellet industry are not well developed in Belgium. There is no national association serving as industry platform for Belgium. In Wallonia, this role is partly played by ValBiom.
- The Green Certificate Scheme in Belgium contributed to stimulating the demand for solid biofuels, including pellets, for electricity generation in (co)combustion in Belgium which is largely satisfied by pellet imports.
- In addition to the industrial sector, there is also a significant residential pellet heating market. This is in contrast to other industrial pellet markets (NL, UK).
- Belgium has a considerable potential for domestic pellet production (in contrast to NL, DK) and pellets are produced in significant and growing amounts.

2. Introduction

The Kingdom of Belgium covers an area of 30,528 km² in northwest Europe and has a population of about 10.7 million.

Belgium's two largest regions are the Dutch-speaking region of Flanders in the north, with 59% of the population being also the economic centre of the country, and the French-speaking southern region of Wallonia, inhabited by 31%. The third region is the Brussels-Capital Region, officially bilingual, is a mostly French-speaking enclave within the Flemish Region and has 10% of the population. The regions are to some extent independent regarding decisions on e.g. environmental, forestry and agricultural and energy issues.

Belgium has a comparably high energy consumption per capita and also the economy is comparably energy intensive. The primary energy supply is mainly based on imported oil, gas and solid fuels while the domestic energy production is based on nuclear power which covers a large part of the electricity demand.¹ Data on the heat sector is hard to come by but gas certainly plays an important role in domestic heating.

Following the EU RES Directive, Belgium aims at reaching a 13 % share of renewable energy in gross final energy consumption in 2020, starting from 2.2 % in 2005 as the baseline. Biomass will play a major role in reaching this target, both in the power and heat sectors.

The availability of domestic forest resources is limited in Belgium. The country has one of the smallest forested areas per inhabitant in Europe. Most of the forests are found in Wallonia (the Ardennes) where 30 % of the area is covered with forests while only 12 % of the area in Flanders is covered with forests.² For that reason, Belgium does not produce enough wood for its significant domestic wood processing industry, and raw materials are imported to meet the demand. However, the by-products of this industry increase the potential for domestic wood pellet production in Belgium.

3. History of pellet market development

The pellet market in Belgium is quite young. Until 2004, pellet use for residential heating was insignificant and the first pellet producer started in 2005. Also the use of industrial pellets by Electrabel / GDF Suez has started around this time.

In 2006 and 2007, the number of pellet appliances installed doubled and pellet production capacities were increased significantly in 2007 and 2008. In 2005, around 700,000 tons of pellets could be burned by Electrabel in the Rodenhuize and in the Les Awirs power plants. Since then, the total (co)combustion capacities in Belgium have slightly increased. Further increase was announced by Electrabel.

¹ European Commission, Belgium – Energy Mix Fact Sheet, 2007.

² Van Acker & De Boever, The Belgian Beech Forestry-Wood industry chain, Ghent University, COST E44 Wood Processing Strategy, Göttingen, Germany, 2004.

4. Political support

Industrial pellet use

In order to increase the share of renewable electricity in Belgium, a green certificate and quota system was installed. It obliges electricity suppliers to provide a certain, annually increasing share of renewable electricity and to present the requested amount of certificates according to their sales in a considered period. The electricity suppliers can buy the certificates from green electricity producers or, if they are also producers, generate their own certificates with their own facilities. Penalties are foreseen if the supplier cannot present the requested number of certificates.

Certificates are issued to (certified) producers of green energy by the regulative authorities in charge. The producers can sell their certificates to the energy supplier on the market. At the same time, the producers can sell their certificates at a guaranteed price to the grid operator or directly to the region.

Since the regions are responsible for energy policy, different systems are used in each region. Only the systems in the two main regions are described. For further information on the different quota systems and sustainability certification see sources ⁽³⁾ and ⁽⁴⁾.

In Flanders, one certificate is granted for each NET MWh of green electricity. Net green electricity means that the fossil energy used to operate the power plant and to produce and transport the biofuel is subtracted. The obligatory quota in 2008 was 4.5 %. In 2009 it is 5.25 % and it will be 6 % in 2010. The penalty for each missing certificate was set at € 125 and the guaranteed price for each certificate at € 80. This system is suitable to support co-firing of wood pellets in coal power plants.

In Wallonia, one certificate is granted for every 456 kg of CO₂ emission avoided. To calculate the amount of emissions avoided, the amount of green electricity produced is multiplied by a specific CO₂ saving rate. This saving rate is calculated by comparing the green plant/boiler to a reference plant/boiler. The system is based upon a list of reference fossil CO₂ emissions of the whole supply chain of fossil and renewable fuels published by the Walloon regulatory body CWaPE.⁵ As example calculations show, this system strongly supports cogeneration, but not co-firing of e.g. pellets in coal power plants. Co-firing pellets is only feasible when very high biomass shares are reached. It is preferable when the power plant fires 100 % biomass as it is done in Les Awirs.

Sustainability certification of the biomass fuels used is necessary in order to obtain certificates in Belgium. An audit must demonstrate the sustainability of biomass sourcing and describe the energy balance of the whole supply chain. For each producer delivering e.g. pellets to Belgian power plants the global supply chain is analyzed by local inspectors and approved by SGS Belgium. More than 30 pellet

³ Ryckmans Y. (Laborelec) & Natacha A. (SGS), Novel certification procedure for the sustainable import of wood pellets to power plants in Belgium.

⁴ Van Stappen F. (CRA-W) et al., Green certificates mechanisms in Belgium: a useful instrument to mitigate GHG emissions.

⁵ CWaPE, Le regime des Certificats Verts dans le cadre de l'ouverture du Marché de l'Electricité en Wallonie, Commission Wallonne pour l'Énergie, 2003.

suppliers have been inspected so far and the data suggests that fossil emissions of the supply chains are below the generic values used in Wallonia. It is currently discussed whether the Walloon system should use this specific data instead of generic values as it is already done in Flanders.

Residential pellet use

Wood heating (and other RES-H technologies) are supported by tax reduction at the federal level. Private households can reduce their income tax by 40 % of the investment (max. € 3,440 in 2009). A similar system exists for companies.

Direct investment subsidies are granted in Wallonia only. Since 2008, stoves are not supported any more, automatic pellet boilers are supported with up to € 3500 depending on the power of the boiler system. The appliances subsidized and the installers must meet certain criteria.

5. Pellet production

At least 10 pellet producers are active in Belgium. In addition, there might be some small scale producers not registered. Pellet production activity is concentrated in Wallonia. Only one medium scale producer (Wonterspan) is known in Flanders. The small and medium scale producers in Wallonia (Granubois, Recybois/Badger, Pellets Mandi and Delhez Bois) mainly produce for the residential heating sector and market their pellets under their own trademarks. They are also usually DINplus certified. Recybois for example delivers their Badger pellets via a retailer network all over Belgium, Luxembourg and neighboring parts of France. The two large scale producers in Wallonia (IBV and ERDA) are said to deliver mainly to industrial markets.⁶ However, ERDA recently obtained DINplus certification as well and it can be expected that they try to target residential markets now.

In total, the pellet production capacity in Belgium amounts to at least 450,000 tons. Considering additional small scale producers, the capacity might even be around 500,000 tons. The actual production in 2008 is estimated at 325,000 tons but uncertainties have to be considered.

Pellet production has a good potential for further growth in Belgium and several additional projects are planned. It seems to be logical to use local sources for the supply of the heating sector and to import industrial pellets. There are, however, plans to increase the share of domestically produced pellets in power production.

⁶ Guisson R. (VITO) & Marchal D. (CRA-W), IEA Bioenergy - Task 40 – Sustainable international bioenergy trade securing supply and demand – Country report Belgium, 2009.

6. Residential pellet heating

Recent data on the installation of residential pellet heating appliances in Belgium is currently not available. In 2005, VITO studied the potential of pellet heating in Flanders⁷ and forecasted a total number of 3,400 pellet boilers and 7,500 pellet stoves installed in 2008. In Wallonia, ValBiom monitors the pellet heating market and states that in 2007, around 9,000 pellet stoves and 1,000 pellet boilers were in use in Wallonia. Strong growth rates were found as compared to 2006 and the number of installed almost doubled in 2007. It can be assumed that the market also grew significantly in 2008.

In summary it can be said that pellet stoves are the dominant pellet appliance in Belgium. Therefore, pellet trade in bags will also be the dominant way of pellet marketing. The residential pellet heating market is stronger in Wallonia than in Flanders, with Wallonia supporting this market with an additional investment subsidy. In Belgium, this sector has great potential. The wood processing industry provides large amounts of raw materials for pellet production, political support is in place, and already today, domestic pellet production and distribution networks are well established.

7. Industrial pellet use

As described above, the Green Certificate Systems in Belgium led to a massive use of pellets for industrial power (and heat) production, Electrabel (GDF Suez) being the main consumer of industrial pellets. In 2005, Electrabel retrofitted two old coal power plants for firing pellets instead of coal. The power plant in Rodenhuzen (near Gent) generates electricity from coal and wood pellets (25 %). In Les Awirs (near Liège) 100 % pellets are fired. The demand for industrial pellets for these plants and other smaller consumers is estimated at 800,000 tons in 2008. Electrabel states that they alone will use 1 million tons in 2009 and this amount shall be increased to 3 million tons by 2014.⁸ The major part of these pellets is imported. Germany is an important source of pellets, but also pellets from e.g. Canada are shipped to the harbor of Antwerp and then transported by rivers to the plant sites.

A general trend towards the establishment of whole supply chains by the large pellet consumers can be observed. Electrabel (as well as Dutch Essent Trading) signed a three year contract with Plantation Energy Australia (PEA) who will supply pellets worth \$ 48 million. Australia becomes a major supplier of wood pellets to industrial pellet markets in Belgium and the Netherlands. The establishment of long-term delivery contracts or utilities building the whole supply chain will be the way to increase supply security for the utilities.

⁷ Devriendt N. et al, MOGELIJKHEDEN EN POTENTIEEL VAN PELLETS IN VLAANDEREN, VITO, 2005.

⁸ Willemse, R., Electrabel, 8. Industrieforum Pellets, Stuttgart, 2008.

8. Outlook

Both the industrial and the residential pellet markets have good perspectives for further growth in Belgium.

The industrial pellet market is stimulated reliably by the Green Certificate System. In contrast, the feed-in-tariffs in the Netherlands did not promote further growth in this sector after 2006. Belgium will be one of the most important markets for industrial pellets produced worldwide.

Similar to Denmark and Sweden, Belgium develops a significant pellet heating market in addition to the industrial consumption. Financial support mechanisms help to increase the viability of residential pellet heating systems.

One important step towards further development would be the organization of the industry in an association or another platform on a national level. Such a platform would have the opportunity to increase the visibility of the industry and to increase the transparency in the market by collecting and providing market data, also on a national level.