

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

Pellet market country report CZECH REPUBLIC



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September 2009

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This report is available at the pellets@las website at www.pelletsatlas.info

The pellets@las project is supported by the European Commission under the EIE programme (EIE/06/020/SI2.448557). The sole responsibility for the content of this report lies with the authors. It does not necessarily reflect the opinion of the European Communities. The European Commission is not responsible for any use that may be made of the information contained therein.

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1. Introduction

The Czech Republic has a population of 10.3 million and an area of 78,000 km². The country is situated in Central Europe, landlocked by neighboring countries of Poland (north), Germany (west), Austria (south), and Slovakia (east). It has a mild climate with 4 seasons, and a heating period usually lasting longer than 200 days.

The agricultural area of the Czech Republic is 4.3 million hectares in total, of which 3.1 million hectares are arable land. Forest areas cover almost 2.7 million hectares, but only 52 % of the total area belongs to the state.

Use of biomass for energy showed an unprecedented growth in recent years in the Czech Republic both on a small-scale level (individually by households) but also in larger installations (heat and/or power plants in industry and district heating systems).

The reasons are on the one hand relatively low prices of biomass fuels/energy and on the other state/public supports provided in the form of direct subsidies for partial financing of investment costs.

In the residential sector the use of unprocessed fuel wood clearly dominates, especially in the countryside where people can obtain it just after wood-cutting. Although its procurement and handling require more manual work, its price is on average very attractive. However, the usable energy content may be even lower than in coal. The present consumption of fuel wood therefore by far outpaces other kinds of fuels from biomass, and amounts to 0.5 - 1 million tons per year (based on wet biomass), which is equivalent to as much as 10 PJ of energy.

As energy prices are rising, the residential sector is increasingly interested in bio-fuels, such as wood briquettes and pellets, being seen as an economical and environmental alternative to e.g. natural gas. Gas heating market penetration increased steeply during the 1990s thanks to generous state subsidies aiming at the replacement of highly polluting burning of coal in individual heat sources.

As regards wood chips, due to their bulkiness, they are not offered on the retail market as a tradable commodity bio-fuel for individual heating, but they are produced and traded on a business-to-business level to be (co-)fired in larger installations, where higher transport costs and complicated manipulation can be effectively reduced by savings from the scale of production.

The market demand for briquettes and pellets in the country is practically fully satisfied by local manufacturers.

2. History of market development

Wood pellet production has been developed in the Czech Republic since the middle of the 1990's.

According to the research done by the Czech Ministry of Industry and Trade, there were nearly 60 manufactures of briquettes and pellets in the Czech Republic in 2004. Altogether, they produced about 125,000 tons of briquettes and over 12,000 tons of pellets. However, the large majority of these products (about two thirds of the produced briquettes and three fourths of the pellets) was actually exported, especially to Austria and Germany.

Currently 12 companies are producing pellets as their primary activity, with a total production of 27,000 tons per year.

Pellets are also produced by few other companies, for which the pellets production represents only marginal interest and which usually use residues from their wood or agricultural production. Production volumes of these companies are negligible.

3. Pellet production

Pellet production potential in the Czech Republic is very high, but due to various reasons, e.g. a lack of raw material during winter, problems with machinery maintenance etc., production levels remain low.

The installed production capacity is about 78,000 tons per year, but the actual production is only 27,000 tons, 24,000 tons going to export (especially to Austria and Germany). Only 3,000 tons remain for domestic consumption.

Most of the pellets are produced from spruce or pine saw-dust. Only a few manufacturers produce agropellets and their production is actually insignificant but we can notice an increasing trend towards this kind of production.

The country's biggest briquettes and pellets producer is BIOMAC with an annual production of as much as 80,000 tons of briquettes and 10,000 tons of pellets. Among other major producers of briquettes and/or pellets the companies IROMEZ, ENVITERM, PELLETIA, HOLZTHERM, and EKOVER are active in the Czech Republic.

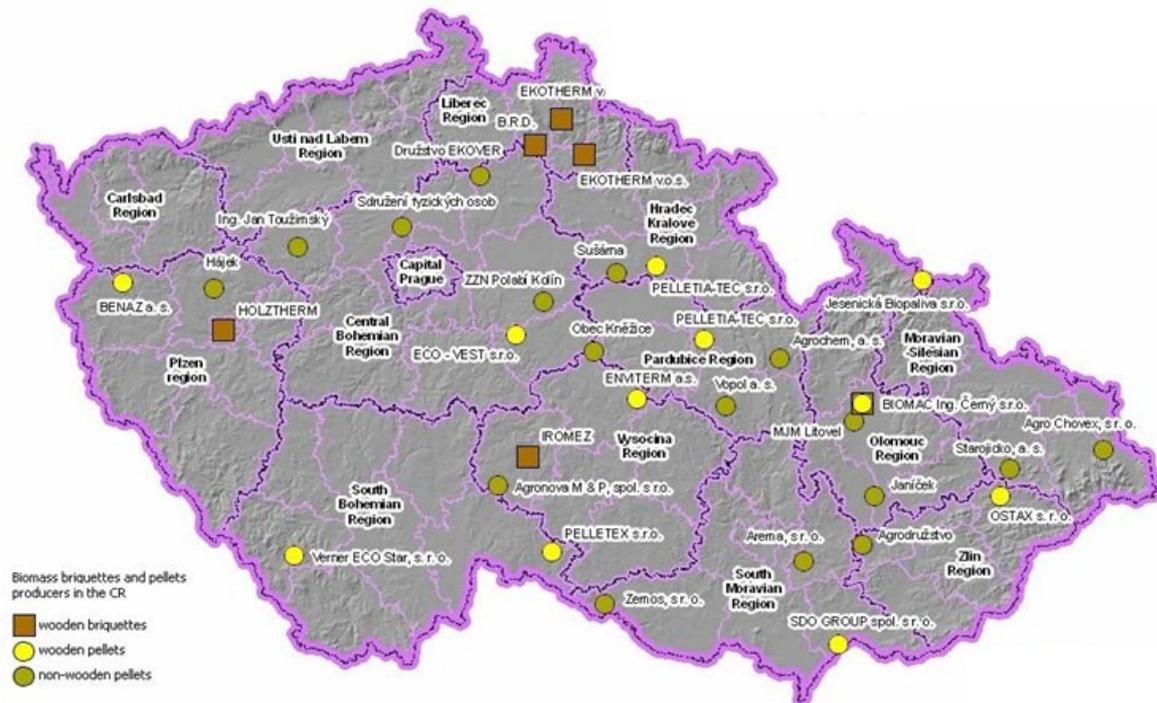


Figure 1: Location of major producers of briquettes and pellets in the Czech Republic (Source: ACCESS D13- Maps and databases on the biomass potential)

The quality of pellets produced in the Czech Republic is very high, some manufacturers possess the quality certificates Önorm M 7135 or DINplus. Most manufacturers possess test certificates issued by an independent Institution for Fuels Research and Utilization.

Table 1: Production of wood pellets 2008 based on the size of the pellets plants.

Size of pellets plants	Production capacity 2008 [tons/year]	Number of pellets plants 2008
small-scale (< 30,000 tons/year)	78,000	10
medium-scale (30,000 – 70,000 tons/year)	0	0
large-scale (> 70,000 tons/year)	0	(2)

The Czech wood pellet industry is characterized by small-scale production with production capacities below 30,000 tons. However, they are also characterised by the highest utilisation rates.

There are also two large-scale producers with production capacities of more than 80,000 tons. However, one of them focuses mainly on briquettes production, and the other one has not started full production yet.

4. Pellet trade and logistics

Pellets are packed in small bags (15 kg or 25 kg), or into big bags (from 600 to 1000 kg). Distribution by blower lorries is currently used only rarely. Wood pellet prices vary between € 140 to 200 per ton (*December 2008*).

Approximately 10 % of the pellets produced in the Czech Republic is used domestically; 90% is exported abroad.

5. Pellet consumption

Use of biomass for energy showed an unprecedented growth in recent years in the Czech Republic both on a small-scale level (individually by households) but also in larger installations (heat and/or power plants in industry and district heating systems).

Still, only 45,000 tons of briquettes and 3,000 tons of pellets are consumed within the Czech market, with about 40,000 tons of briquettes and most of the produced pellets consumed by households for individual heating.

The main reason why most of the production is exported to foreign markets is the lower purchasing power of Czech customers. The domestic market prices, at which people are willing to buy these fuels, hardly cover production costs, especially when waste wood is used as a raw material. Due to a high demand for waste wood, its price increases constantly. Therefore, there is a trend to produce pellets from other, non-wooden biomass materials, which are less expensive, such as agricultural by-products, bio-wastes, and most recently grain due to high yields in the last years, for which there is no use.

6. Mixed biomass pellets

The company ECOVER (a co-operative farm located in the Central Bohemian Region) is the holder of the patent for the production of bio-fuel, in the form of pellets made from non-wooden agricultural by-products.

Due to low production costs, this bio-fuel became very attractive and the company now awarded the production license to as much as ten other legal entities around the country. Altogether, several thousand tons of this bio-fuel are estimated to be produced currently by these manufacturers.

7. Legal framework & Policy

In order to support electricity production from renewables, the Act No. 180/2005 Coll. was introduced in 2006.

The purpose of this Act is to support the use of renewable sources of energy, i.e. wind energy, solar energy, geothermal energy, water energy, soil energy, air energy, biomass energy, landfill gas energy, sewage gas energy and biogas energy. The purpose of the Act is also to constantly increase the share of RES in the consumption of primary energy sources and the economical use of natural resources. The target is to increase the share of renewable electricity to 8 % of the gross electricity consumption by 2010.

A detailed specification of what is considered as biomass is included in a secondary legislation to the above act, namely the Decree of the Ministry of the Environment No. 482/2005 Coll., where in total 24 categories of biomass are distinguished and (for awarding a certain level of support to E-RES produced from them) further differentiated according to their suitability for different energy production processes (anaerobic digestion, “pure” combustion, co-firing).

However, this is not the only biomass definition in Czech legislation and for example in the national transposition of the EU Directive on EU ETS (via Act No. 695/2004 Coll.) is another one, which is used for the purpose of reporting on CO₂ emissions (to apply zero emission factor onto the eventual biomass share in fuel mix used by a certain installation).

The state energy policy of the Czech Republic from 2004 states the Article on “Promotion of electricity and heat produced from renewable energy sources”. It is an objective with a very high priority focusing on renewable energy sources. The state will promote the utilisation of all energy sources, that can be reproduced in the long-term and the use of which will contribute to the reinforcement of state independence from foreign energy sources and to environmental protection. All types of renewable sources will be supported – sources using solar, wind and water energy, geothermal energy and biomass for producing electricity and heat. The utilisation of secondary energy sources and alternative fuels in transport will also be promoted.

8. Projections on future developments

It is expected that the market will experience an annual growth of more than 12 %.

However, as the investment costs are high, both for the settlement of production plants and for individual users interested in biomass boilers, stable mechanisms of financial support are recommended.

Growing prices of conventional fuels will soon result in increased interest in biomass utilization.

9. Conclusions

Major barriers to further development of biomass use for energy, especially in the residential sector, have been identified by the key stakeholders in the field of biomass and solar energy (representatives of relevant state institutions, producers, designers, and suppliers).

The current support scheme of the State Environmental Fund, via which the State provides subsidies for the systems for environmentally friendly heating and the preparation of hot water in the residential and public sectors, is not sufficient and satisfactory. There is no legal guarantee for an applicant who asks for a subsidy to obtain this. Subsidies are provided after the realization of the new installation, 12 months from the end of the realization at the latest. In addition, subsidies are provided on a “first come, first serve” basis. According to the unknown number of incoming applications in a given year, subsidies are provided only until the budget assigned to this fund lasts.

Furthermore, it is not possible to claim a subsidy for projects, for where local fossil heat sources are completely replaced by biomass fuels. The eventual support is in that case limited to a pellet/briquette manufacturing unit, which would secure supplies for them and not for the procurement of individual heat sources. Allegedly, this is not possible due to the fact that the Fund rules exclude the possibility, that a project proponent who applies for the support is different from the final beneficiary, which would be the local citizens.

Small-scale usage of pellets for heating is mainly triggered by financial reasons. Other aspects such as environmental effects or a comfort of heating are less important. Prices for pellet boilers are approx. five to seven times higher than the average monthly salary.

There are no operating subsidies for environment friendly heat sources, i.e. no tax relieves for biofuels or any other kind of subsidies for their purchase.

There is the lack of special technical information in the media. Publications available on the foreign market are only occasionally translated into Czech and if so, these publications are too expensive to be bought by Czech scientists, engineers and developers.

Public awareness and knowledge of environment friendly heat sources is very low and especially education in schools should emphasize the advantages of these heat sources.

Another obstacle for expanding the pellets market is the fluctuation of the prices for pellets, missing distribution channels and system of deliveries for small customers.

Therefore, the first necessary step towards an increase of pellets usage within the Czech Republic is changing the environmental thinking of citizens, with the support of effective legal actions, as well as financial feasibility of this heating system.

10. Bibliography

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