

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

## Pellet market country report SLOVAKIA



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## 1. Introduction

The Slovak Republic is situated in Central Europe. It borders with Poland, Ukraine, Hungary, Austria and the Czech Republic. The country's area is 49,036 km<sup>2</sup>. Slovakia belongs to a mild climatic zone. The climate is determined by a great variety of climatic conditions resulting from changing latitude and elevation differences. Slovakia's agricultural land area is 2,434,749 ha, of which 1,430,594 ha (58.76 %) is arable land. Forest land covers 2,004,927 ha.

Almost 90 % of the primary energy sources in Slovakia are purchased outside the EU. The only important domestic energy source is brown coal, because the own crude oil and natural gas production is inconsiderable. For this reason, the importance of renewable energy sources is still growing.

In long term view (by the year 2030) it is assumed, that the energy demand will be covered by higher utilization of nuclear energy, natural gas and renewable energy sources.

Coal is still a basic fuel resource. Almost one third of the total primary energy consumption is based on coal. Coal is predominantly used for producing electricity and heat for district heating. Gas consumption is continually growing. Today, more than 90 % of the population has access to the gas distribution network. The vast majority of the electricity generated in Slovakia is produced in nuclear power plants (55 %), slightly more than 30 % was generated in steam industrial power plants.

Biomass accounts for less than 3 % of the total energy consumption, but wood biomass is an important source of energy for rural areas. The use of logwood as the secondary or even primary source of heat is increasing.

Bioenergy in the municipal district heating sector is also developing strongly. Approximately 55 MW of biomass boiler capacity have been installed for district heating systems in the years 2005 and 2006. According to estimates, less than 45 % of the current forest biomass potential in Slovakia is utilised for energy purposes.

A trend towards wood biomass utilisation, especially pellet utilisation, in Slovakia was initiated by the implementation of the BIOMASA wood energy contracting project, in which 44 boiler rooms in schools and other public buildings were converted from fossil fuels to wood pellets.

Bioenergy use in the agricultural sector in Slovakia is not yet developed, as there are only about 2 or 3 examples of facilities using straw for heating their own premises. Organizations in the forest sector use bio-heat only for the heating of their own premises (23 tons of forest dendromass and 14 boiler rooms in 2003) and still act as the main firewood and wood chip suppliers.

In respect to biomass fuels such as wood chips, pellets and briquettes, the present total wood chips production equals about 190,000 tons. Wood chips, due to their bulkiness are not intended for individual heating of households, but mainly for bigger plants. Production of pellets and briquettes is also increasing. A relatively large number of companies show interest in the industry of pellet or briquettes production.

The amount of produced solid biofuels and their final price depends on technology reliability, quality and amount of processed raw material. The potential might be much higher, but due to various reasons (e.g. lack of raw material during winter and operational problems of many producers) the production cannot be higher yet.

High prices of feed material and its shortage are going to be a big problem. An initial price increase was caused by the development of chipboard production, and then also by the development of the pellets industry and the resulting shortage of raw material. The planned increase of combined combustion of biomass and coal in power generation might also have an impact on raw material availability and price.

The increasing demand for wood waste logically causes increasing prices. Therefore, the orientation towards new raw material sources is necessary for the future.

## 2. History of market development

Slovakia is considered to have ideal natural conditions for developing biomass energy. It surely provides large amounts of biomass. Almost half of Slovakia is forested with a huge amount of biomass. But environmental awareness in Slovakia is still low and many people consider biomass as a fuel used by nature enthusiasts and environmentalists.

Expansion of the market started in 2006, when sale prices of pellets, exported mainly to Italy and Austria, were very high. By the year 2006 only enthusiasts were interested in pellet production, but since the expansion period the pellet production is run by businessmen, who expected continuously high pellet prices. But in 2007, pellet prices fell significantly and in second part of the year several pellet production units were temporarily or perpetually closed. The pellet production industry began to recover gradually in 2008 thanks to good pellet export opportunities, e.g. to Polish power plants. During all this period the most stable pellets producer in Slovakia was BIOMASA, first of all thanks to supplying own boiler-rooms with 5,000 tons of pellets per year and as the only one using its own complete logistic system.

## 3. Pellet production

The energy potential of biomass is high in Slovakia and theoretically it can cover 15 % of the annual energy consumption, which is 800 PJ.

Despite this huge potential, only 117,000 tons of pellets are produced annually in Slovakia, and hardly 15 % of this amount is consumed domestically. Due to the high raw material potential pellet production potentials can be estimated at 1 million tons per year. The same amount of pellets can be expected for pellet production from agricultural residues.

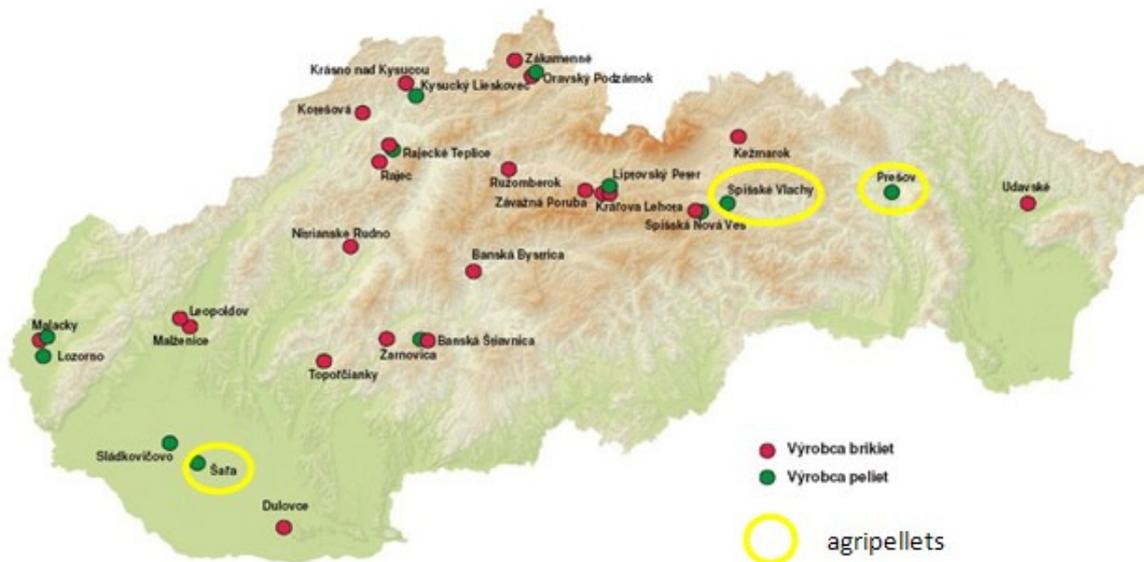
According to pellets@las surveys 14 producers operate on the market today.

According to the survey of BIOMASA there are also other producers, which are or were active in this industry, but the production of pellets or briquettes is only of marginal interest compared to their main activities.

**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)	142,000	14
medium-scale (30,000 – 70,000 tons/year)	0	0
large-scale (> 70,000 tons/year)	0	0

All pellet production plants in Slovakia are relatively small. Therefore, production costs are high. The pellets which are exported to power plants are sold for € 100 per ton, which means that the pellets are sold under the production cost and it can be said that the pellets are sold only for maintenance of the production process and supply and customer relationships.



**Figure 1: Locations of briquette and pellet producers in Slovakia (Source: ACCESS D13- Maps and databases on the biomass potential)**

## 4. Pellet trade and logistics

There are several distribution channels for pellets.

Pellets for biomass boiler rooms operated by BIOMASA are distributed by blower lorries. These boiler rooms are located in BIOMASA member municipalities, which are mostly smaller villages in mountainous regions, often with difficult access for transport in winter. Distribution plans are updated according to real consumption, depending on outside temperature and real boiler consumption.

Pellets for sales on the domestic market and for the export are packed in big bags of 1,000 or 1,200 kg and sacks of 15 kg. In some cases, they are marketed in Slovakia also in bulk and transported by own tank truck or in containers.

Pellets are exported mainly to Italy, Poland and Austria.

A lot of energy wood (fire wood, chips), mainly from east and south Slovakia is exported to the large power plant in Kazincbarcike, Hungary, only 30 km from Slovak borders for prices 20 – 30 % higher than within the Slovak market.

## 5. Pellet consumption

In Slovakia pellets are used mainly in small and middle boiler-rooms in localities where gas connection is unavailable. Medium scale users are usually schools, municipal offices, companies, hotels, bigger residential units, with a demand of 10-1,000 tons per year. This market share is growing most rapidly.

The market of large scale users does not exist yet.

Prices in November 2008:

Bulk pellets: € 125 – 130 per ton

15 kg bags: € 150 – 160 per ton

## 6. Mixed biomass pellets

The situation on the market for mixed biomass pellets is changing very quickly and it is extremely difficult to provide a complete list of producers and their capacities.

The overall situation of the agropellet is still unclear. However, as the country has a poor domestic energy resource base, and abundant biomass resources available, it is obvious that the situation will change in the near future. Presently the MBP production capacity amounts to 142,000 tons per year in Slovakia.

A substantial part of the production will be intended for export in the future too, as domestic consumption is still negligible and there are no strategic plans for developing the domestic demand.

## 7. Legal framework & Policy

The goals for higher biomass utilization in the Slovak Republic derived from Directive 2001/77/ES and they are embodied in several conceptual documents.

One of these documents, „The strategy for higher utilization of RES in SR“, defines the medium term goal (by the year 2010) on the production of 1,240 GWh of electricity from RES. The strategy goal (by the year 2015) is the production of 2,300 GWh of electricity from RES, matching 7 % of total electricity consumption. The target for electricity production from biomass was set at 410 GWh in 2010 and 650 GWh in 2015.

Biomass (as well as other RES) utilization is not individually addressed in Slovak legislation. Since 2004 several acts for the energy field have been accepted – Act No. 656/2001 on energetics, Act No. 657/2004 on heat energetics, Act No. 276/2001 on regulation in power industries and Government decree No. 124/2005.

In 2005 a feed-in-tariff system for electricity from renewable energy was introduced by Decree of the Energy Regulatory Office. The minimum prices differ for individual energy sources and year of installation.

### Subsidies

A programme for higher utilisation of biomass and solar energy in households is in place. It reimburses 25 % of the investment costs for boilers and provides a total budget of € 670,000. It has contributed to a noticeable increase in the number of wood and pellet boiler installations.

## 8. Projections on future developments

It can be expected that 2 or 3 additional big pellet production plants will be built for pellet production from wood wastes in the near future. Furthermore, 4 or 5 big production plants for pellet production from agricultural residues can be expected.

## 9. Conclusions

### Major barriers for market growth:

- lack of information and awareness of the end users (costs, benefits, technologies, constrains of biomass heating),
- lack of complex and reliable information and practical experiences,
- high investment costs,
- lack of trained professionals to promote and support biomass energy activities, and to ensure reliable operation of the new installations;
- ambiguous and inflexible national RES policy,
- lack of cross-sectoral strategy and policy and absences of stable long term financing mechanisms to support RES.

## 10. Bibliography

1. Information received from BIOMASA
2. [www.pellets-wood.com](http://www.pellets-wood.com)