



THE USE OF BIOMASS IN PORTUGAL

Market Perspectives

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Introduction

Despite biomass electricity production not showing a significant increase in recent years, the need to rearrange the forest sector and the new governmental plans will provide an opportunity for growth.

Portugal has proved to be one of the European leading countries as far as the investment on the production of renewable energies is concerned. In 2015, 28% of the energy consumed was produced by renewable sources. This means the country is the eighth largest among European countries and the fifth largest among countries that share the euro and is expected to reach 31% in 2020.

In 2016, 58% of the electricity produced in Portugal was generated by renewable sources. In 2017, it slightly decreased to 47%.

Taking into account 2017 most recent data, biomass represented 5.1% of the electricity produced in Portugal, wind power represented 21.6%, hydropower represented 15%, and solar power represented 1.6%; the remaining 56.7% were still supported by fossil fuel.

The last 9 years witnessed an exponential growth of electricity generation capacity from biomass. Between 2008 and 2017, power increased from 454 MW to 735 MW, corresponding to an increase of 61,9%. In turn, the biomass production of electricity increased by 66% since 2008, ranking the Portuguese current production by 3075 GWh per year.

The target set by the National Action Plan of Energy for 2020 (“PNAER 2020”) of 769 MW of biomass electricity generation capacity by 2020 has almost been fulfilled, although, since 2010 the generation capacity has only increased by 3%.

The Portuguese Government's current policy aims to change this scenario by issuing new production licenses for biomass energy. Decree law 64/2017 establishes a special and extraordinary regime for the installation and operation of new municipally owned biomass power stations. Municipalities will be allowed to assign their management to public or private entities.

The present paper is intended to provide readers with an overview of this specific sub-sector of renewable energies that could benefit from the long-awaited political impulse regarding the reform of the forest sector.

Types of Biomass

Biomass is a complex source of renewable energy, comprising a diverse set of energy sources, both as to their source and to their physical state. Thus, “biomasses” stands as the most appropriate term to name it.

As to their physical state, biomasses are classified in solid biomass, biogas and liquid biofuels.

With regard to their origin they may be subdivided into:

- Agrarian, including various agricultural products and residues, such as so-called energy crops, vineyard waste, residues resulting from pruning and cleaning of olive groves and fruit trees, and waste from the wine and olive oil industries;
- Forestry, presenting one of the greatest potential, because forests cover about 38% of the national territory; and
- Industrial and Urban (which includes domestic effluents and municipal solid waste) with a common vocation for the production of biogas.

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Biomass cogeneration is highly efficient in comparison with the conventional energy production as production efficiency presents a 65% rate opposing a 25% rate associated with traditional production methods.

Cogeneration consists of using the residual heat, originated in the thermodynamic processes of electric power generation that would otherwise be wasted. There is simultaneous production of electric and thermal energy out of a single fuel.

Cogeneration thus ensures greater energy efficiency compared to thermoelectric plants where a large part of the energy contained in the fuel is converted into heat and lost to the environment.

However, since heat can only be used near the production center, because of the great difficulty in transporting thermal energy, cogeneration facilities are limited to relatively small units compared to conventional plants. The most widely used cogeneration systems are those of gas turbine, steam turbine and reciprocating motor. The main differences between each one regard the thermal and electrical energy needed, the installation and operating costs.

Regulatory background

Regardless of the decision to sell the electricity production to RESP, through a prior administrative procedure, the producer of electricity in a special regime enjoys the right to connect to RESP networks, in order to sell their production to third parties.

In Portugal, electricity production is liberalised and submitted to prior control through issuing of a license or prior communication requirement.

Electricity production is divided into two regimes: i) The ordinary regime, in which the production activity is not covered by a special legal framework and ii) the special regime, corresponding to the production of electricity from endogenous sources and renewable energy sources.

As to the electric energy produced through biomass itself, Decree-Law 23/2010 establishes the legal and remunerative framework applicable to electric and mechanical energy and useful heat produced in cogeneration. The cogeneration entity has, in particular, the right to: (i) consume or supply the thermal energy produced; and (ii) priority in the delivery of energy to the RESP (the electricity grid).

By choosing to sell the electricity produced to RESP, the electricity producer will be remunerated according to the regulated price. According to data from the ERSE, until July 2017, the electricity produced from biomass in mainland Portugal was sold to RESP at an average price of €119.14 per MWh.

Regardless of the remuneration regime, producers are entitled to sell RESP the energy produced by renewable energy producers for the duration of the plant's operating license.

For electricity producers to connect to RESP, a request for prior information issued by the General Directorate of Energy and Geology ("DGEG") is needed.

The request must be made between days 1 and 15 of the 1st month of each four-month period and must be accompanied by the elements included in Annex I of Decree law 312/2011, as well as the indication of the network access point and the date for connection. This request is to be answered, by DGEG, within 40 days.

A point of electricity reception with RESP request should be submitted to DGEG, after a favourable first decision on the prior information request is obtained. Within 30 days of the reception of the request, DGEG decides on whether to grant the connection point.

Production aids

Renewable energy production aid is crucial to the investment decision making, as a great deal of projects depend on the granting of state aid, considering the high costs involved in power plant infrastructures.

One of the key instruments for granting State aid is the General Block Exemption Scheme (as last amended by Commission Regulation (EU) 651/2011 of 16 June 2016 ("GBER").

GBER has established different categories of aid, to be granted by the States without prior reporting obligations to the European Commission, since they are in accordance with articles 107 and 108 of the Treaty of the European Union. Member States are only expected to inform the Commission after the aid has been granted by means of a simple information form.

As far as renewable energies are concerned, a number of aids cover a percentage of eligible costs over 50%, namely in the area of development and research.

The Member State is expected to publish information on aid granted on a website.

In this context, the National Energy Strategy, with a 2020 horizon, considers renewable energies a national priority. PNAER, also set national targets within the European Union, and devised specific targets for the biomass sector, such as promoting the use of biomass and increasing existing biomass availability.

To benefit from this incentive, the plants must fulfill certain requirements such as the organisation of data logging systems to monitor the typology of biomass consumed at the plant. Accordingly, Decree-Law 5/2011 of 10 January, introduced an economic incentive to power plants that produce energy through forest biomass, by awarding the energy produced a higher remuneration.

More recently, as part of the forest reform expected to be implemented by the Government, a special and extraordinary regime for the installation and operation of new biomass plants with a maximum limit of 15 MW managed by the municipalities, with possible assignment to private management.

The plants will benefit from supporting measures envisaging the sale of electricity, which will be defined through an ordinance, taking into account a price reduction for a specified period for the amortization of the power plant, which shall not be inferior to the duration of the supporting measures awarded.

The market players

As far as the the biomass market is concerned, 50% of the generated electricity is produced by the three larger producers, conveying the idea that forest biomass is a secondary activity of the paper industry.

Europac Group. The Europac Group is a Spanish company developing its activity in all sectors of paper and packaging industry, as well as waste management and forestry as a source of raw material. It is present in Spain, France and Portugal. The company started operations in Portugal in 2000.

The company has an installed capacity of 153 MW and owns, in Portugal, three waste management centers, 700 hectares of forest exploitation and five facilities for the production of cardboard and boxes.

Europac has the country's largest biomass power generation plant, with an installed capacity of 103.7 MW.

The Europac Group's business model follows the principle of the integration of its various business lines.

The Navigator Company. The Navigator Company (formerly the Portucel Soporcel Group) is a Portuguese company engaged in the manufacture and marketing of paper. It's mainly owned by Semapa – Sociedade de Investimento e Gestão, SGPS, SA, providing its services in several European countries, USA and South Africa.

The company is the leading private sector forestry operator in Portugal, managing 120 thousand hectares of forest on an efficient and responsible basis. The company seeks to respect and accommodate environmental, social and economic interests at stake in its decisions on forest management.

It is the largest national producer of electricity derived from biomass, owning five plants with a total installed capacity of 209 MW.

Altri. Altri is a Portuguese company active in the European market of the paper pulp sector, holding the eucalyptus pulp companies Celbi, Celtejo and Caima. It also holds 50% of EDP Bioelectrica's share capital, managing, in Portugal, around 84 thousand hectares of forest.

The company is the second largest producer of electricity from biomass with nine plants and an installed capacity of over 180 MW, managing, in partnership with EDP Bioelectrica four forest biomass power plants with an installed capacity of over 60 MW.

Perspectives

Biomass is currently viewed as one of the pillars of the future on the renewable energy market. In 2017, eight production licenses have been issued. A special regime has been created for the installation and operation of power plants by the municipalities.

Currently, eight new forest biomass power stations are expected to be built and installed in the municipalities of (i) Vila Velha de Rodão, (ii) Mangualde, (iii) Figueira da Foz, (iv) Famalicão, (v) Fundão, (vi) Viseu and (vii) Porto de Mós. The new plants will have an estimated investment of 350 million euros and will increase the electricity production capacity by 167 MW, corresponding to a 28% increase in the installed capacity regarding the values of 2017.

The largest investment announced came from Altri in partnership with EDP Bioelectrica with investments of 40 million euros in Celbi located on Figueira da Foz. The second largest investment will be the construction of the Viseu and Fundão plants with a total cost of 105 million euros by the Marguerite Fund, a pan-European investment fund for a renewable energy and transport investments.

With a special and extraordinary regime for the installation and operation of new biomass recovery plants, which is expected to be regulated soon, a total power of 60 MW will be added.

The installation and operation of new plants will be carried out by the municipalities. The choice of municipalities will be made by ordinance taking into account the proximity to critical fire zones, the existence of reception capacity in RESP, the proximity to other power stations or the possibility of deployment in areas that favor the use of the energy.

DGEG will be in charge of the plants licensing procedure, carrying out surveys within a maximum of 30 days. Control and inspection of supply is ensured by the Institute for Nature Conservation and Forestry.

The designated municipalities shall request DGEG the issuance of their respective point of reception to RESP, observing a maximum limit of 15 MW per plant.

The possibility of transfer of the new power stations operation awarded to municipalities onto other public or private bodies is an opportunity for the market and operators in the forestry sector.



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