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Portugal Biofuels Standing Report

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Approved By:
Robert Hanson, Agricultural Attaché

Prepared By:
Diogo Machado Mendes, Agricultural Specialist

Report Highlights:

There is no production of bioethanol for transport fuel in Portugal. Biodiesel production is steady at approximately 350,000 MT under a quota system. The Portuguese biodiesel industry is favorable to the use of soybean oil and to further soybean imports. Portugal is advocating for a method to determine energy and emission credits for co-products that does not discriminate against soybeans.

General Information:

Disclaimer

The following report is a Voluntary GAIN report on the biofuels industry and market in Portugal. This report complements the EU-27 Annual Biofuels Report. The data below is shared to help characterize the Portuguese industry and market – none of the figures are official USDA data.

Executive Summary:

There is no production of bioethanol for transport fuel in Portugal. Portugal has established mandates for liquid biofuels as a whole and will later introduce quotas for biodiesel only. The Portuguese biodiesel industry is favorable to the use of soybean oil and to further soybean imports. Portugal advocates for adopting a method to determine energy and emission credits for co-products that does not discriminate against soybeans.

The publishing of implementing order 41/2011 on January 19 that sets the maximum limit for sale of biodiesel by biodiesel producers to the entities mandated to blend biofuels in road transport gasoil brought stability to the market until 2014. However the sector is also suffering the effects of a lower demand for diesel as the economic crisis and adjustment process unfolds in the country. In the months to September 2011 consumption of diesel for transport fell by 5% which coupled with the end of sales of biodiesel mixtures B10, B15 and B20, bring our estimate for 2011 biodiesel production to decrease to 351,000 tons.

Portugal transposed the Renewable Energy Directive (RED) into national legislation in December 2010. However the sustainability criteria set by RED are not being enforced as the designated control entity in the country - the Sustainability Criteria Coordination Entity (ECCS) - is not officially constituted yet.

1. Bioethanol

There is no production of bioethanol for transport fuel in Portugal. Portugal established mandates for liquid biofuels as a whole and will later introduce quotas for biodiesel only. The only private company created with the aim of producing bioethanol has now decided to abandon its project and dissolve. Given the country's soil and climatic conditions, the production of crops for bioethanol could be an efficient way of using the irrigation capacity of Alqueva, the largest artificial lake in Europe.

As long as Portugal does not produce bioethanol, blenders from other Member States (MS) can continue to export gasoline with incorporated bioethanol that counts to meet other MS's targets on biofuels. The Portuguese law protects national produced feedstock and when national production eventually starts blenders will incorporate Portuguese produced bioethanol that counts for Portuguese biofuel targets.

2. Biodiesel

a. Production, supply and demand

Sales of biodiesel incorporated in gasoil diesel rose to 372,000 tons in 2010 as the share of biodiesel in road transport diesel is now 7% v/v (with a tolerance that allows the minimum to be 6.75% v/v), the maximum limit recommended by the Fuel Quality Directive EN 590 (FQD).

However in the months to September 2011 consumption of diesel for transport fell by 5% in line with the economic recession the country is going through. The effect of this, coupled with the end of sales of biodiesel mixtures B10, B15 and B20 (respectively, gasoil with 10%, 15%, and 20% incorporation of biodiesel) for economic reasons, brings our estimate for 2011 biodiesel production to decrease to 351,000 tons (Table 1).

Table 1. Portugal Biodiesel Production, Supply and Demand

Biodiesel, Portugal	2010	2011	2012
	Market Year Begin: Jan 2010	Market Year Begin: Jan 2011	Market Year Begin: Jan 2012
	Post Estimate	Post Projection	Post Projection
Beginning Stocks	0	0	0
Production	354	351	350
Intra EU27 imports	18	0	0
Extra EU27 imports	0	0	0
TOTAL SUPPLY	372	351	350
Intra EU27 exports	0	0	0
Extra EU27 exports	0	0	0
Consumption	372	351	350
TOTAL Use	372	351	350
Ending Stocks	0	0	0
TOTAL DISTRIBUTION	372	351	350
Balance	0	0	0
1000 MT			

Source: FAS-Madrid estimates and GTA

Maximum production capacity is estimated by the industry at 626,000 tons/year in the existing seven biodiesel plants. However until 2011 only five of these had started production due to market conditions and the lack of government support. In 2011 the sixth producer started production bringing operating capacity to slightly above 576,000 tons/year (Table 2).

Table 2. Portuguese Biodiesel Production Capacity

Capacity	Number Plants	Total Capacity (1000 MT/year)
Operating Capacity	6	576
Proposed	1	50

Source: Industry

Based on previous year deliveries and their installed capacity, biodiesel producers were attributed 395,000 tons of quota for the reserve of biofuel emission entitlements (TdB) in 2011 (see Section3). According to Article 28 of Decreto-Lei 117/2010 this quota is allocated to each producer by order of the Directorate General for Energy and Geology and is the sum of:

- Q1 = 50% * sales to consumption in the previous year
- Q2 = quantity allocated proportionally to the installed capacity (capped at 120,000 t/year) of each producer that applies to this quota

b. Maximum Biodiesel Price and Potential Feedstock Use

The maximum price of biodiesel (See section 4) is the maximum price of sale by the biofuel producers to the entities obliged to incorporate biodiesel in road transport diesel when accompanied by the respective biodiesel title (TdB), at 1 TdB for each biodiesel TOE, in accordance with article 28 of Decree-Law 117 2010. This price is currently set by a formula published in the Implementing Order 41-2011 of 19 January:

Maximum Biodiesel Price (€/m3) = oil mix index + freight index + methanol index + variable production costs + other production costs

Table 3. Components of the Maximum Biodiesel Price

	Winter	**Intermediate**	**Summer**
	Jan, Feb, Nov, Dec	Mar, Oct	Apr, May, Jun, Jul, Aug, Sep
oil mix index	0.30 * *S* + 0.70 * *C*	0.70 * *S* + 0.10 * *P* * €/USD + 0.20 * C	0.75 * *S* + 0.25 * *P* * €/USD
freight index	26	0.90 * 26 + 0.10 * *Fp* * €/USD	0.75 * 26 + 0.25 * *Fp* * €/USD
methanol index	11 % * *Me*		
variable costs of production	10		
other production costs	70		

Where:
S = (quotation published by Reuters - SOIL - NLD - GUM - P1, in €/t)* 0.91
P = (quotation published by Reuters - PALM - OLEIN - P1, in USD/t)* 0.91
C = (quotation published by Reuters - RPEO - NLEURO - P1, in €/t)* 0.91
Fp = (quotation published by Reuters - FIX - MYRDM5 - 10, in USD/t)* 0.91
Me = (quotation published by Reuters - MTH - CIFNWE - 10, in €/t)* 0.792
€/USD = exchange rate €/USD published by the European Central Bank

The oil mix index suggests the following percentages for feedstock use:

- Winter months: 30% soybean oil; 70% rapeseed oil
- Intermediate months: 70% soybean oil; 20% rapeseed oil; 10% palm oil
- Summer months: 75% soybean oil; 25% palm oil

If we assume a constant production of biodiesel throughout the year then using the oil mix index percentages would give us the annual feedstock use percentages:

- Soybean oil: 59%
- Rapeseed oil: 27%
- Palm oil: 14%

Taking into account the current consumption of diesel for transport use, the current biodiesel blending target of 6.75% v/v (in place until 2014), and a 59% use of soybean oil as feedstock, we estimate the potential market for soybeans to crush into biodiesel in Portugal to be around 1.1 million metric tons/year.

It should be noted however that current market conditions point to a lower use of soybean oil and a higher use of rapeseed oil as the cost of procuring soybeans and rapeseed has narrowed in recent times.

Until 2010 feedstocks used were soybeans and rapeseed as legislation favored crops that could be produced in the country. From 2010 imports of palm oil have started to occur to be processed in the spring and summer. At the time of writing some of the processors were also using sunflower oil due to price relativities accruing from a high production year in Europe.

3. Renewable Diesel

Some blenders have pilot projects in Hydrogenated Vegetable Oils (HVO) that are not restricted by the FQD, but commercial production of this hydrocarbon is only expected in 2015. In May 2010 Portuguese blender Galp has announced a partnership with Brazilian Petrobras to produce renewable diesel from palm oil feedstock from Brazil. Total proposed production is around 320,000 m^3 per year in two plants. Due to historical links Portuguese companies are in close contact with vegetable oil producing companies in Brazil and African countries.

4. Policy

a. National indicative targets

The national indicative targets for the placing on the market of biofuels and other renewable fuels for transport purposes are defined by the Government. Decree-Law No 49/2009 of 26 February 2009 laid down that road diesel should have a FAME content of 6% by volume for 2009 and 10% for 2010. However because of the limits set in the Fuel Quality Directive EN 590 (FQD) this value is currently set at 7% by volume.

The new mechanism in place that applies from 2011 until 2020 has, according to the General Directorate for Energy and Geology (DGEG), been based on the following general principles:

- Companies introducing fuels for consumption must submit documents relating to the incorporation of biofuels in quantities corresponding to a specific percentage, which will increase during the period.
- Biofuel must be certified in terms of sustainability criteria.
- The previous tax assistance (reduction of tax on petroleum products - ISP) is removed.
- The support given to the production of biofuels produced using wastes, residues, non-food cellulosic material, and ligno-cellulosic material, the introduction of which for consumption continues to be the subject of tax exemption.
- The inclusion of biomethane into the natural gas network continues to be considered. This biogas is expected to be acquired by transport companies and counted under Directive 2009/28/EC for the purposes of complying with the target of incorporating renewable fuels in the transport sector.

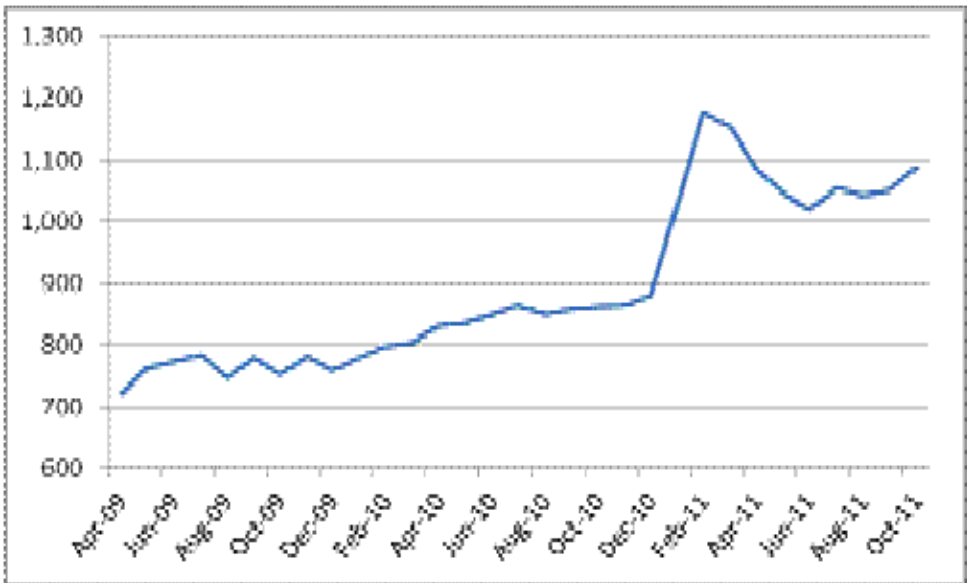
Article 11 of Decree-Law 117/2010 defines targets for mandatory incorporation. Blenders are mandated to contribute to the fulfillment of blending targets in the following percentages of biofuels, in energy content, relative to the quantities of fuel that they supply to the market:

a. 2011 and 2012 – 5%;
b. 2013 and 2014 – 5.5%;
c. 2015 and 2016 – 7.5%;
d. 2017 and 2018 – 9%;
e. 2019 and 2020 – 10%.

Blenders are mandated to attest the blending defined above and the incorporation, for the years 2015 to 2020, of 2.5%, in energy content, of biofuels that replace gasoline relative to the quantities of gasoline supplied. As for biodiesel the fuel specification EN14214 obliges the blending of 6.75vol% in diesel until the end of 2014. The price of biodiesel is capped by a

formula based on diesel price (Diagram 1). However, if the production price of biodiesel is higher than this selling price the law allows the obligated parties to default on this obligation level.

Diagram 1. Maximum price of biodiesel in Portugal (Euro/m3)



Source: Portuguese Directorate General for Energy and Geology (DGEG)

In order to verify the fulfillment of the blending targets a system of biofuel emission entitlements (TdB) is created, with an added value being given to biofuels produced from residues and waste or raw materials from ligno-cellulosic origin, as those produced from endogenous matters, in a way as to privilege the national added value and in agreement with National Energy Strategy 2020. The coordinating entity is the National Laboratory of Engineering and Geology (LNEG). Based on previous year deliveries and their installed capacity, biodiesel producers were attributed 364,637 tons of quota for the reserve of the emission of TdB in 2011.

b. Transposition of the Renewable Energy Directive (RED) to the national law

Since 31 December 2010 the Renewable Energy Directive (RED) is considered to be fully transposed to Portuguese legislation. The relevant documents are:

- Decreto-Lei 117/2010 of 25 October that addresses the sustainability criteria for biofuels, in particular it transposes to national legislation articles 17, 18, and 19, and annexes III and V of the Directive 2009/28/EC.
- Decreto-Lei 141/2010 of 31 December, which addresses the remainder of Directive 2009/28/EC.

c. **Subsidies and incentives**

To promote the use of biofuels, Portugal has implemented a system of both tax incentives and production quotas. The bigger producers of biodiesel have benefited until the end of 2010 of an exemption of the tax on petroleum products (ISP) amounting to 280 Euro/1000 liters, regulated by the Implementing order 1391-A/2006 for the year 2007 and the Implementing order 1554-A/2007 for the years 2008 to 2010. This subsidy is now over for bigger producers and only applies to Small Dedicated Producers (SDPs). Companies applying for this should fulfill the following conditions:

- Maximum annual production of 3,000 tons of biofuels or other renewable fuels.
- Utilization of residues or resource to projects of technological development of less pollutant products, using innovative processes, or in the demonstration phase.
- Use all their production in dully identified captive consumers or fleets.

d. **Enforcement of sustainability criteria and its impact on imports**

The sustainability criteria set by the Renewable Energy Directive (RED) should be enforced by the Sustainability Criteria Coordination Entity (ECCS) for Biofuels in Portugal. However the ECCS is not working yet as the implementing that officially creates it was not yet signed by the Government. Until that moment the ECCS is not functioning and no enforcement of the sustainability criteria is being made.

The Portuguese biodiesel industry is favorable to the use of soybean oil and to further soybean imports. Portugal is advocating for the adoption of a method to determine energy and emission credits for co-products that does not discriminate against soybeans.

Annex A – Summary of EU legislation on Biofuels

Biomass Action Plan The EU strategy for biofuels that aims to increase development and use of biofuels – COM (2006) 34 final, is inserted in the Biomass Action Plan adopted in December 7, 2005. This strategy is a means to reduce EU's dependency on imports of oil and natural gas and sets the following objectives: • To continue promoting biofuels in the EU and in developing countries. • To prepare the large scale utilization of biofuels and to improve its profitability by optimizing the cultivation of energy rich raw materials, promoting research in 2nd generation biofuels, and supporting the increase in market share by reinforcing demonstration projects and eliminating non-technical barriers. • To investigate the possibilities of producing raw-materials and biofuels in developing countries and to define the role the EU might exert in supporting the sustainable production of biofuels. With a set of about 30 measures, structured around 7 axis of action, destined to increase demand, reinforce supply, suppress technical barriers, and develop research, it is intended to achieve the goals set by Directive 2003/30/EC of May 8.
Directive 2003/30/EC This directive aims at promoting the utilization of biofuels or other renewable fuels in road transport in the Member States (MS), setting indicative goals relative to the blending of biofuels in the total volume of oil based fuels (gasoline and gasoil) traded in the EU: • 2% substitution, in energy terms, of all gasoil and gasoline utilized in transports until 31 December 2005. • 5.75% substitution, in energy terms, of all gasoil and gasoline utilized in transports until 31 December 2010.
Directive 2009/28/EC With the publication of Directive 2009/28/EC of the European Parliament and Council in 23 April 2009 regarding the promotion of the use of energy from renewable sources, a new mandatory goal is set for all MS of 10% use, in energy terms, of renewable energy in the transport sector. This goal can be achieved from the whole of renewable sources like biofuels, renewable electricity, or hydrogen produced from renewable energy. However, biofuels are a solution that can be implemented in the short run because they can be used in vehicles that are already in circulation, what makes tem the obvious choice for the fulfilling of this communitarian goal for the transport sector. Thus, an increase in the use of biofuels in the EU can be expected. As a way of assuring the sustainable growth in the use of biofuels this new directive also defines a set of mandatory sustainability criteria for biofuels, aimed at: • The reduction in greenhouse gas emissions. • The production of biofuels without negative impacts on biodiversity and land use. The sustainability criteria apply to bioliquids in general.

Source: Portuguese Directorate General for Energy and Geology (DGEG)

Annex B – Summary of Portuguese legislation on Biofuels

Decree-Law 62/2006 of March 21 Transposes into the internal juridical order the Directive 2003/30/EC and creates mechanisms for the promotion and placement on the market of minimum quotas for biofuels, in substitution of fossil fuels, with the objective of contributing to the security of supply and complying with the national commitments on climate change. It regulates production and trade in biofuels and establishes favorable conditions to the small dedicated producers.
Decree-Law 66/2006 of March 22 Establishes the creation of a fiscal incentive (reduction/exemption of the tax on petroleum products – (ISP))
Implementing order 1391-A/2006 of December 12 Sets the conditions for the first phase of the attribution of exemption quotas in the period until December 31, 2007.
Implementing order 3-A/2007 of January 2 Sets the value of the ISP exemption for biofuels until December 31, 2007, and in the case of small dedicated producers it extends this deadline to December 31, 2010.
Implementing order 1554-A/2007 of December 7 Regulates the process of attribution of ISP exemption to the economic operators that introduce biofuels for consumption in the period 2008 to 2010.
Resolution of the Council of Ministers n. 21/2008 Approves the strategy for the achieving of the national objectives of biofuel incorporation in fossil fuels.
Decree-Law 89/2008 of May 30 Sets the norms relative to the technical specifications applied to fuels, establishing rules for the quality control of road transport fuels and the conditions for the sale of blends of biofuels with gasoline and gasoil in concentrations higher than 5% in volume terms.
Order 22061/2008 Defines the template to be mandatorily displayed on the equipment of fuel stations that supply biofuel and fossil fuels blends where the biofuel content is higher than 5% in volume terms.
Decree-Law 206/2008 of October 23 Changes the decree-law 62/2006 of March 21
Implementing order 13/2009 of January 13 Establishes, for an additional period of one year, the value of exemption for biofuel substituting gasoil.
Implementing order 134/2009 of February 2 Establishes the value of exemption for biofuel substituting gasoil.
Decree-Law 49/2009 of February 26 Sets the quotas for mandatory blending of biofuels in road transport gasoil and establishes the procedures to be applied in its monitoring and control. This diploma defines the following mandatory quotas for the incorporation of biofuels in road transport gasoil to be sold or consumed: 6%, in volume, for 2009. 10%, in volume, for 2010.

Annex B **– Summary of Portuguese legislation on Biofuels (cont.)**

Implementing order 353-E/2009 of April 3 Sets the maximum limits for price and volume of sales of biofuels, after which the blenders exempted from the blending mandates.
Implementing order 69/2010 of February 4 Modifies Implementing order 353-E/2009. Changes the B formula for the calculation of the maximum sale price of biodiesel.
Implementing order 543/2010 of July 21 Updates the calculation of the maximum sale price of biodiesel whose incorporation is mandatory under Decree-Law 49/2009 of February 26, practiced by producers to entities that sell road transport gasoil.
Decree-Law 117/2010 of October 25 Partially transposes to the internal juridical order the articles 17 to 19 and the annexes III and V of the Directive 2009/28/EC of the Council and the European Parliament of April 23 and the number 6 of article 1 and annex IV of the Directive 2009/30/EC of the European Parliament and Council of April 23. Establishes the sustainability criteria for the production and use of biofuels and bioliquids and defines the limits of mandatory blending of biofuels for the years 2011 to 2020. This decree-law also establishes the mechanism of support for biofuels to be in place until 2020. Therefore this diploma establishes mandatory goals for the blending of biofuels in fuels for the transport sector, in energy terms: 2011 and 2012 – 5% 2013 and 2014 – 5.5% 2015 and 2016 – 7.5% 2017 and 2018 – 9% 2019 and 2020 – 10% This diploma defines also the mandatory incorporation of 2.5%, in energy terms, of biofuels that substitute for gasoline, regarding the quantity of gasoline placed on the market in the years 2015 to 2020. The fulfillment of these obligations is attested by the presentation of the Biofuel Titles (TdB). On the other hand paragraph 1 of article 28 sets a specific target in place until the end of 2014 for the blending of a minimum of 6.75% (in volume) of biodiesel in the gasoil used in this sector (specifications in norm EN 14214).
Decree-Law 142/2010 of December 31 Partially transposes to the internal juridical order the Directive 2009/30/EC of the European Parliament and Council of April 23. Proceeds to the first amendment to the Decree-Law 89/2009 of May 30, changing the technical specification norms for the composition of gasoline and road transport gasoil.
Implementing order 41/2011 of January 19 Sets the maximum limit for sale of biodiesel by biodiesel producers to the entities mandated to blend biofuels in road transport gasoil, when accompanied by the respective Biofuel Titles (TdB) at the equivalence rate of 1 TdB per each biodiesel ton oil equivalent (toe) established by

article 28 of Decree-Law 117/2010 of October 25.

Source: Portuguese Directorate General for Energy and Geology (DGEG)