USDA United States Department of Agriculture
Foreign Agricultural Service

GAIN Global Agricultural Information Network

Voluntary Report – Voluntary - Public Distribution **Date:** March 16,2020

Report Number: PO2020-0001

Report Name: Portugal Biofuels Policy and Market

Country: Portugal

Post: Madrid

Report Category: Biofuels

Prepared By: Marta Guerrero

Approved By: Jennifer Clever

Report Highlights:

In 2020, RED II provisions, not yet transposed to Portuguese Law, will increase marketing opportunities for virgin-oil based biofuels. Additionally, the 2030 cap on advanced biofuels produced from waste fats and oils, will force Portuguese biofuel producers to find alternatives to the extensive use of Used Cooking Oils, unless exceptions are granted at the national level. Hence, the duty phase-out on U.S. bioethanol is not anticipated to result in a surge of U.S. bioethanol exports to this market. According to the National Plan for Climate and Energy, over the next decade, electricity along with advanced biofuels and hydrogen will play a prominent role in Portugal's renewable energy transport.

Disclaimer: This report presents the situation and outlook for biofuels in Portugal. This report presents the views of the authors and does not reflect the official views of the U.S. Department of Agriculture (USDA). The data are not official USDA data. Official government statistics on biofuels are not available in many instances. Portugal, as a member of the European Union (EU), conforms to EU directives and regulations on biofuels. It is therefore recommended that this report be read in conjunction with the EU-28 consolidated Biofuels report 2019.

Table of Contents:

Executive Summary

The consumption mandate is the sole driver of the Portuguese biofuel market. Since 2015, the Portuguese biofuel market adapted to mandates exceeding volumetric blending limits by maximizing the use of double-counted raw materials in biodiesel consumed, diversifying complying mandates through increasing the use Hydrogenated Vegetable Oils (HVO) or by using Bio Etyl-Tertio-Butyl-Ether (Bio-ETBE).

While RED II is yet to be transposed into Portuguese law, some of its provisions will significantly affect its biofuels market. For instance, in 2020, the production of virgin oils-based Fatty Acid Methyl Ester (FAME) is anticipated to grow in response to RED II incentive to set the baseline for the 2020 - 2030 period.

The anticipated recovery of virgin-oil based biodiesel production in 2020 combined with the European Commission approval of the U.S. Soy Sustainability Assurance Protocol for biofuels (SSAP-RED) could improve domestic crushers' margins and further solidify importers' preferences for U.S. soybeans.

Additionally, the 1.7 percent cap on of advanced biofuels produced out of waste fats and oils by 2030, will force parties to explore other feedstock options, unless exceptions are granted at the national level for Used Cooking Oil (UCO).

Hydrogenated Vegetable Oils could still contribute to meet mandates. However, since Portugal's production is palm oil based, it will face the limits imposed to this type of feedstock. Palm oil producers may certify their feedstock as low-risk ILUC to keep their presence in the EU market beyond 2023, whether as manufactured within the EU using imported feedstock or as imported biofuel.

Although there is Bio-ETBE production capacity in Portugal, the retroactive elimination of the bioethanol consumption target since 2016 discouraged domestic production. The majority of the Bio-ETBE consumed in Portugal is imported, Post assumes that most of the Bio-ETBE imports occur in the shape of finished gasoline. In May 2019, the EU repealed the antidumping duties imposed on U.S. bioethanol imposed in 2013. However, this is not anticipated to result in a surge of U.S. bioethanol exports to the country, due to sustainability requirements and competition from EU suppliers.

According to the National Plan for Climate and Energy (PNEC) for 2020-2030, electricity will play a larger role in transport replacing biofuels in meeting the 14 percent RED II 2030 goal of renewable energy use in transport. The PNEC also provides opportunities for advanced biofuels and hydrogen to contribute in meeting renewable energy targets in transportation.

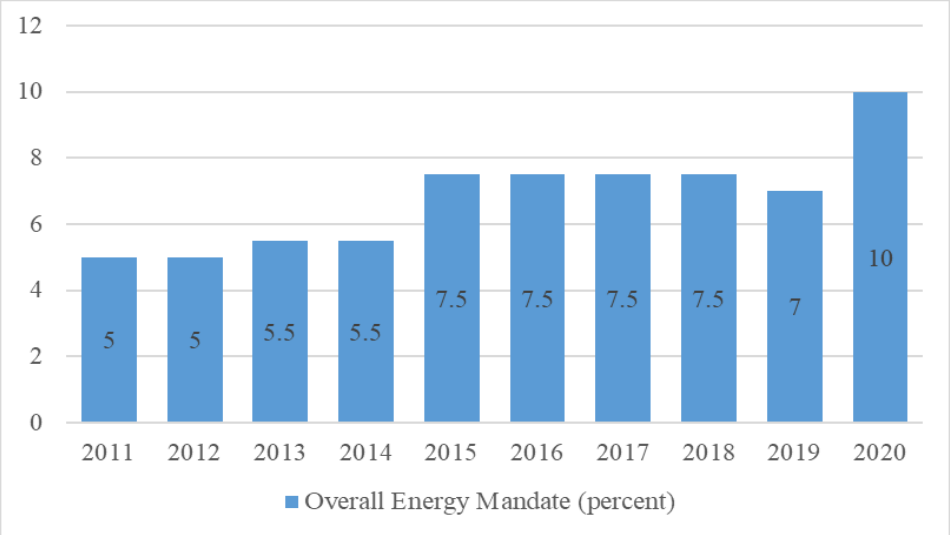
Regulatory Framework affecting Portugal

Since 2015, the only incentive in place for biofuel consumption is the energy-based consumption **mandate**. **Sustainability** has been fully enforced in Portugal since January 1, 2015, and **double counting** has been in place since 2012. Despite the production **quota** phase out in 2017, mandatory **pre-registration** still allows for certain protection against competition from abroad in the Portuguese market. Portugal transposed the Renewable Energy Directive 2009/28/EC (RED I) and has fully enforced it since January **2015**. The Indirect land use change (ILUC) Directive was transposed into Portuguese law in December 2017. RED II is yet to be transposed into Portuguese Law. For details on Portuguese competent authorities overseeing biofuels see **Annex I**. Small Dedicated Producers (SDPs) have special conditions. For additional details consult **Annex II**.

Biofuel Targets

RED I established a 10 percent renewable energy target for total transport energy use by **2020**. In Portugal, targets are not biofuel specific but instead there is an overall biofuel energy-based consumption mandate. **Graph 1** shows the mandate evolution. **2019** was the first time the Portuguese Budget Law set the total biofuel consumption target below the previous year's requirements.

Graph 1. Portugal Biofuel Mandate Targets*



Source: FAS Madrid based on Decree-Law 117/2010. Articles 11 and 28 as amended by Decree-Law 6/2012 and Decree-Law 69/2016 and Law 42/2016 and Portugal's budget law for 2018 and 2019.
**TdB granted to SDP and managed by DGEG do not count against the blending limits but do count against consumption mandates.*
In 2015, a 2.5 percent bioethanol target was set in place.

For more information about biofuels mandates and how these are structured in other EU Member States (MS), please see GAIN report GM19025.

Biofuel Targets Compliance

Portugal manages biofuel targets and sustainability compliance through a Biofuel Entitlement System. The National Laboratory for Energy and Geology (LNEG) supervises sustainability compliance, while the National Entity for Fuels Market (ENSE) verifies blend target fulfillment. Biofuel Entitlements (TdB) are issued as appropriate to the different obligated companies. One TdB is equal to a one-ton oil equivalent (Toe) marketed. According to Implementing Regulation 301/2011, fines of 2,000 euros are imposed per TdB that the obliged party fails to meet. According to ENSE, every year, overall consumption targets are met in an aggregated manner and considering double counting. A summary of TdB issued is available in **Table 1.**

Table 1. Summary of TdB issued

TdB issued	2012	2013	2014	2015	2016	2017	2018	2019
TdB-D & G	281,552	262,379	285,113	315,867	281,027	272,234	269,506	261,621
TdB-DC	7,224	9,386	15,979	45,229	114,704	155,331	161,350	159,591
Total	288,776	271,765	301,092	361,096	395,731	427,565	430,856	421,212
TdB-DC Share (Percent)	**3**	**3**	**5**	**13**	**29**	**36**	**37**	**38**

Source: ENMC and LNEG.

On December 21 2018, Renewable Energy Directive, RED II (Directive 2018/2001) was published as part of the Clean Energy for All Europeans package. This set a 32 percent EU binding renewable energy target across all energy sectors by 2030, with an upward revision clause to be revisited in 2023. The 2030 target for renewable energy use in each Member State transport sector was set at 14 percent. In addition to liquid biofuels, biogas and renewable electricity will also be counted towards this target. However, it should be noted that this 14 percent target for renewable energy in transport "will" be met using multipliers. Hence, actual performance (without the use of multipliers) will fall short of 14 percent in most MS if double counting is widely used, which is expected to be the case.

Feedstock Related Provisions

Double counting: Double counting in Portugal has been in place since 2012. According to Decree-Law 117/2010, biofuels produced out of residues, non-food cellulosic and lingo-cellulosic raw materials count double against the established consumption mandates. Annex III in Implementing Order 8/2012 defines the list of eligible raw materials[1] as follows:

- Animal Fats Categories I and II[2]
- Animal manure
- Olive pomace (after pomace oil extraction)
- Non-alcoholic grape pulp
- Glycerin (non-refined)
- Cereal straw
- Rice straw
- Nut shells
- Fruits and vegetables products unfit for consumption
- Carob pulp
- Fleshy fruit pulp
- Deproteinized whey (from the dairy industry)
- Brewing and destiling dregs (from the beer production industry)
- Used Cooking Oils (UCO)
- Soapstocks
- Olein
- Free Fatty Acids (FFA)
- Starch sludge
- Sewage sludge

High-risk ILUC biofuels: RED II caps the use of high-risk indirect land use change (ILUC) biofuels at 2019 consumption levels thru 2023, then phases out use by 2030. In May 2019, the EU published in the Official Journal Delegated Act 2019/807 the determination of high risk ILUC biofuels according to which palm oil would fall under this category.

Cap on food-based biofuels: Directive 1513/2015, also known as the ILUC directive, amends RED I and Fuel Quality Directive (FQD), and was transposed into Portuguese national law through Decree-Law 152-C/2017. The ILUC directive establishes a 7 percent cap (energy basis) on crop-based biofuels, this limits the consumption of first generation or conventional biofuels to the wider 10 percent target for biofuels in MS transportation fuel in place today. Additionally, RED II limits the consumption of crop-based biofuels for the next decade 2020-2030 at the consumption level registered in each Member State in 2020, with an additional 1 percentage point from 2020 levels up to the overall cap of 7 percent.

"Advanced" non-food-based biofuels targets: The ILUC Directive set a 0.5 percent non-mandatory national target for advanced biofuels in 2020. RED II sets a climbing target of 0.2 percent in 2022, 1 percent by 2025, and 3.5 percent by 2030 for advanced, non-food biofuels. According to RED II, advanced biofuels will be double counted towards both the 3.5 percent target and towards the 14 percent target. All EU legislated targets are calculated on an energy basis and are not volumetric. At the same time, RED II limits the consumption of advanced biofuels made from waste fats and oils to 1.7 percent

---

[2] *Regulation 1774/2002 lays down health rules concerning animal by-products not intended for human consumption and defines three categories of Animal By-Products. Since 2016, Category III is excluded from double counting as it can be used for feed purposes.*

(energy basis) by 2030 (Annex IX, Part B in RED II: UCOs and some categories of Animal Fats). However, MS can modify this limit if justified by considering the availability of feedstocks.

Looking ahead, the PNEC foresees an increased role of advanced biofuels along with electricity and hydrogen to meet renewable energy targets in transportation.

Biodiesel Quota

Between **2010** and **2014**, Portugal allocated to each biodiesel plant a maximum production quota that, in total, exceeded the country's total market. Hence, the Portuguese biodiesel market enjoyed full protection from imports.

Between **2015-2016,** TdBs were issued only to Portuguese biofuel producers recognized as "Fiscal Warehouses for Transformation" (EFT), which worked as a *de facto* country quota.

Since **2017** until present, following a challenge by the European Commission, the quota system was phased out, and since then, only "mandatory pre-registration[3]" was required. Consequently, the Portuguese market became more open to competition with other EU suppliers, namely The Netherlands, but the mandatory pre-registration condition still offers some degree of protection against third country exports. For more information, see **Trade** Section.

Sustainability

For sustainability certification purposes, Portuguese large and medium size biodiesel producers opted for EC approved company schemes[4] as they rely heavily on imported raw materials, which fall would out of the scope of a National Scheme. Currently, only SDPs are subject to Portugal's National Scheme, which is managed by the Directorate General for Energy and Geology (DGEG). The European Commission's recognition of the United Soybean Export Council Soybean Sustainability Assurance Scheme (USSEC SSAP-RED) in January 29, 2018, as compatible with EU Sustainability Standards opened import opportunities for a few U.S. soybean vessels under SSAP-RED. U.S. industry' efforts are now focused on documenting the reduction achieved through U.S. soy production to meet the 50 percent threshold in 2020.

For additional information on USSEC SSAP RED approval see GAIN Report: EU Recognizes U.S. Soybean Industry Sustainability Scheme.

[3] *For an updated list of registered producers for 2019 see this link.*

[4] *There are currently 17 certification schemes recognized by the EU.*

FQD: Technical fuel specifications in place

EU Fuel Quality Directive 2009/30 (FQD) enabled fuel operators to market non-labelled biofuel blends (B7 diesel and E10 gasoline). This piece of regulation was transposed into national regulation by Decree-Law 142/2010, which increased the biodiesel content allowed from 5 to 7 percent and the bioethanol content permitted from 5 to 10 percent in terms of volume. HVO has no blend limit and is fully substitutable if the EU fuel specifications are met. Blends with volumetric biodiesel content over 7 percent, or volumetric bioethanol content over 10 percent, or volumetric bioethanol content over 5 percent, and over 2.7 of oxygen content in terms of mass, must be labeled indicating the biofuel content.

Related Provisions for Greenhouse Gas Emissions

To qualify for RED I and FQD targets, biofuels must achieve minimum greenhouse gas (GHG) savings over fossil fuels. According to ILUC Directive, GHG emission saving from the use of biofuels must be:

Type of facility	Plant operation start date	Transport biofuels
Old installations	Before January 2017[5]	35 percent until December 31st, 2017 and 50 percent since January 1st, 2018
New installations	After January 2017	60 percent

FQD established that all fuel suppliers must meet a 6 percent reduction, compared to the base year of 2010, in GHG emissions by 2020 across all fuel categories supplied to the market. The EC does not plan to extend this reduction target beyond 2020.

RED II introduces new GHG emission savings criteria that biofuels used in transport must comply with to be counted towards the overall 14 percent target. Minimum GHG emission saving thresholds are as follows:

Plant operation start date	Transport biofuels	Transport renewable fuels of non-biological origin
Before October 2015[6]	50 percent (as in RED I)	-
After October 2015	60 percent (as in RED I)	-
After January 2021	65 percent (vs 50 percent in RED I)	70 percent
After January 2026	65 percent (vs 50 percent in RED I)	70 percent

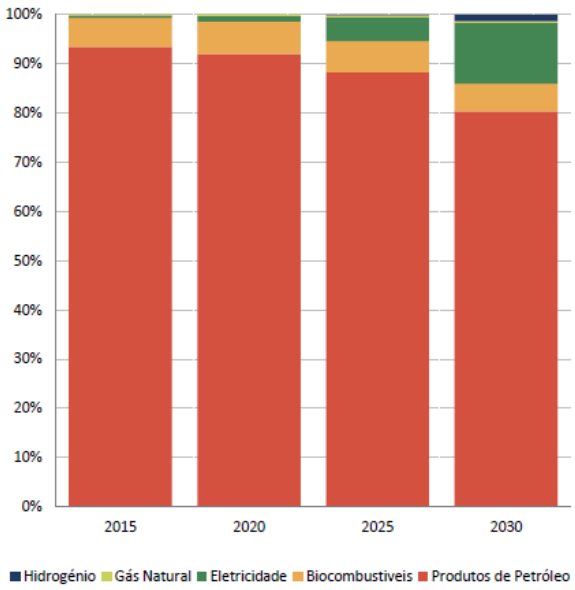
[5] *This is the case of all Portugal biodiesel plants.*

Other Policy Developments Affecting Portugal's Biofuel Sector

On January 2019, the Portuguese Ministry of Environment and Energy Transition presented the National Plan for Climate and Energy (PNEC) as the country aims to be carbon-neutral by 2050. The plan, as updated in December 2019, provides several pathways for the different sectors of the economy. In the case of transport, the PNEC aims for a 20 percent emissions reduction by 2030 through increased use of electricity along with advanced biofuels and hydrogen.

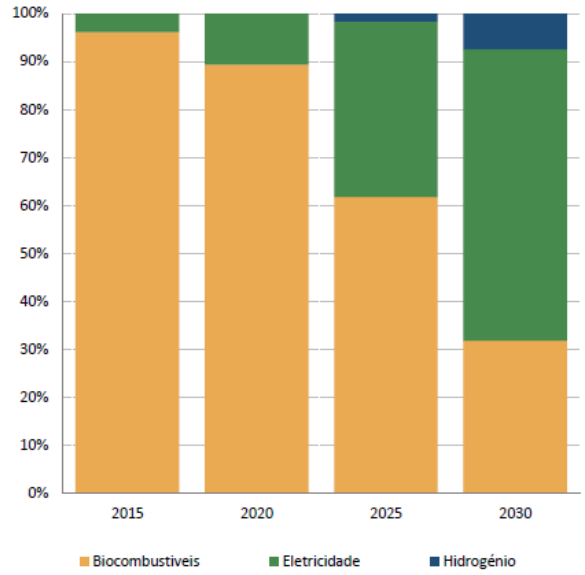
Consult **Graph 2** and **Graph 3** for energy consumption share targets.

Graph 2. Energy Consumption Share in Transport



Source: PNEC 2030. January 2019.

Graph 3. Share of Energy Sources in Renewable Transport



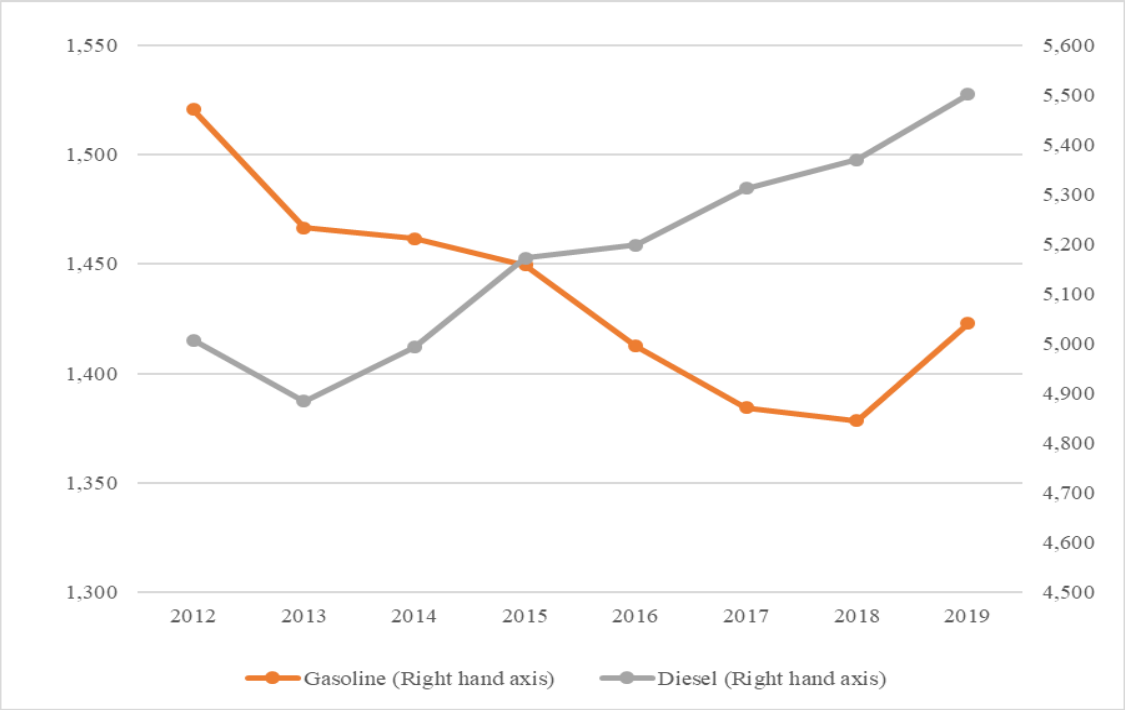
Source: PNEC 2030. January 2019.

According to what this plan sets out, the share of biofuel contribution in total transport energy would remain stable although lower. However, it will still lose a very large share in the renewable energy mix in transport in favour of electricity as we approach 2030. The ambitious and transformative plan is scheduled over a period of ten years.

Portugal's Gasoline and Road Diesel Consumption

As in most of the EU Member States, diesel is the main transport fuel in Portugal. While the EU diesel-gasoline average ratio is 2:1, in Portugal it is 4:1. This means that ethanol's potential contribution to meet the renewable energy consumption targets is much less than is the case of the EU-wide fuel market. Since 2008, road transport consumption of conventional fuels, especially gasoline, trended downward because of lower economic activity and other factors. From **2014** up to present, diesel use has risen, while gasoline consumption only started recovering in **2019** (**Graph 4**).

Graph 4. Portugal's Fossil Fuel Consumption (1,000 m^3)



Source: FAS Madrid based in DGEG data.

Biodiesel and Renewable Diesel

Installed Capacity

Biofuel production in Portugal consists mainly of fatty acid methyl ester (FAME), obtained through the transesterification[6] of vegetable oils by medium to large size producers (**Table 2**) and Small Dedicated Producers[7]. At the moment, there are **eight** medium to large-size biodiesel plants; most of them started operations between 2006 and 2009 (**Table 2**). Installed capacity has remained flat for the last six years.

[7] *For more information on Small Dedicated Producers special status see **Annex II**.*

The structure of the biodiesel sector Portugal is very homogeneous, average production capacity by plant is just over 100,000 m^3.

Table 2. Portugal's Biodiesel Plants

Company	Location	Capacity (1,000 m^3)	Feedstock**	Start of operation
Iberol*	Alhandra	136	SB, RS, PO, UCO & AF[8]	2006
Torrejana*	Riachos	124	SB, RS, PO, UCO & AF[5]	2006
Biovegetal*	Porto	136	SB, RS, PO, UCO & AF[5]	2007
Prio*	Aveiro	114	SB, RS, PO, UCO & AF[5]	2007
Sovena*	Palença do Baixo	108	SB, RS, PO, UCO & AF[5]	2008
Valourodiesel	Torres Vedras	57	SB, RS, PO, UCO & AF[5]	2011
Bioportdiesel	Baltar	36	SB, RS, PO, UCO & AF[5]	2011
Enerfuel – GALP	Sines	31	AF & UCO	2013
TOTAL	-	**742**	-	-

Source: FAS Madrid based on industry sources

*APPB members.

**Feedstock codes: PO: Palm Oil
SB: Soybean Oil UCO: Used Cooking
RS: Rapeseed Oil Oils
AF: Animal Fats

Advanced Biofuels

The Portuguese advanced biofuels production capacity is concentrated in HVO co-processing, started in **2017** by the petrol company GALP at their Sines facilities. The annual capacity of this plant is 50 million litres and virtually all the HVO is produced out of palm oil.

Given its robust paper industry and the fact that the country has 3.3 million hectares of forest land, covering 35 percent of the country's territory offers future opportunities for lingo-cellulosic or tall oil-based biofuels. Likewise, given Portugal's ample tree crop area, opportunities exist in the use of pruning waste as a raw material for liquid biofuels production.

Production

Portugal is among the EU's ten largest biodiesel producers. However, virgin oil-based biodiesel production in Portugal is in decline since **2016** due to the extensive role played for mandate compliance of double counting biofuel. Nevertheless, in **2019** increase in production of virgin-oil as well as double-counting feedstocks biodiesel was registered.

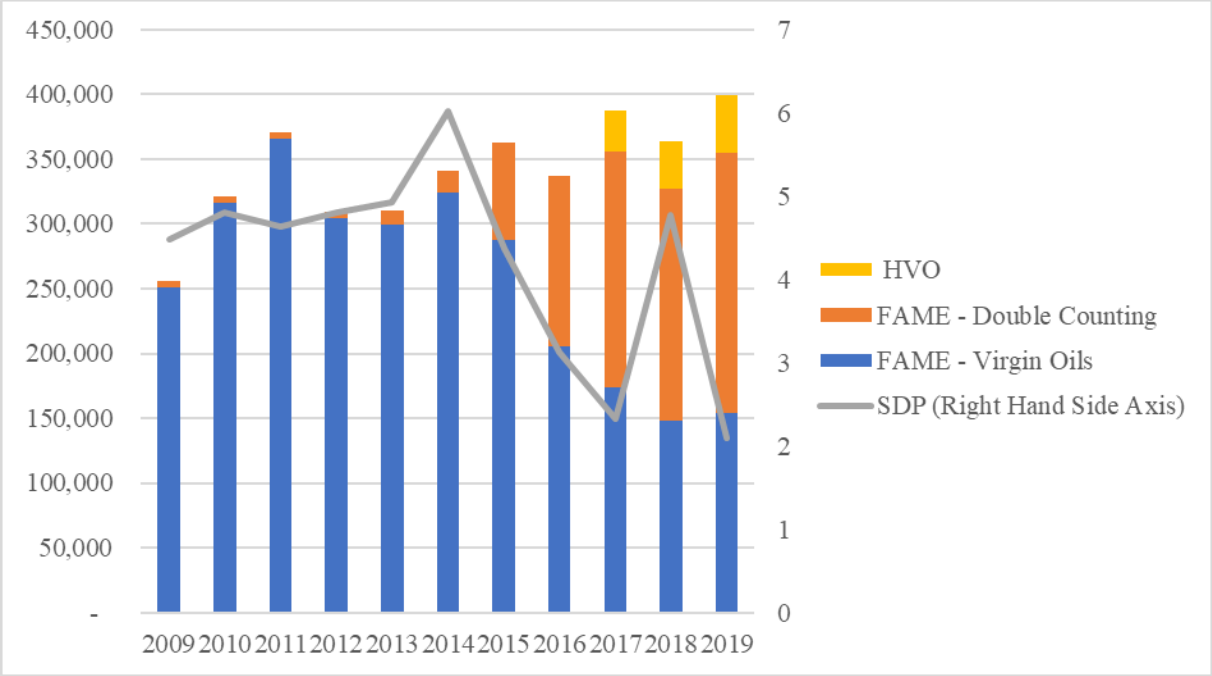
[8] *These plants have a limited capacity to process animal fats.*

Virgin-oil biodiesel production in Portugal is expected to continue expanding in **2020**. RED II limits the consumption of crop-based biofuels for the next decade 2020-2030 at the consumption level registered in each Member State in 2020. Hence, industry operators will want to set a high baseline for crop-based biofuel consumption to maintain maximum flexibility in the biodiesel feedstock mix until 2030.

Small Dedicated Producers (SDP) manufacture biodiesel out of Used Cooking Oils (UCO) or Animal Fats. Increased competition in the procurement of raw materials (UCOs) between 2015 – 2017, resulted in a decline in production and in the number of Small Dedicated Producers. (See **Graph 5**). DGEG data for 2018 shows a recovery in SDP's output which was discontinued in **2019**.

Since HVO production in Portugal is managed by just one company, statistical data are only provided in an aggregated manner along biodiesel data. Data in **Graph 5** below for HVO consumption are based on post estimates. HVO in Portugal started in **2017**. For 2019 post assumes full use of installed capacity.

Graph 5. Biodiesel and Renewable Diesel Production in Portugal (m^3)

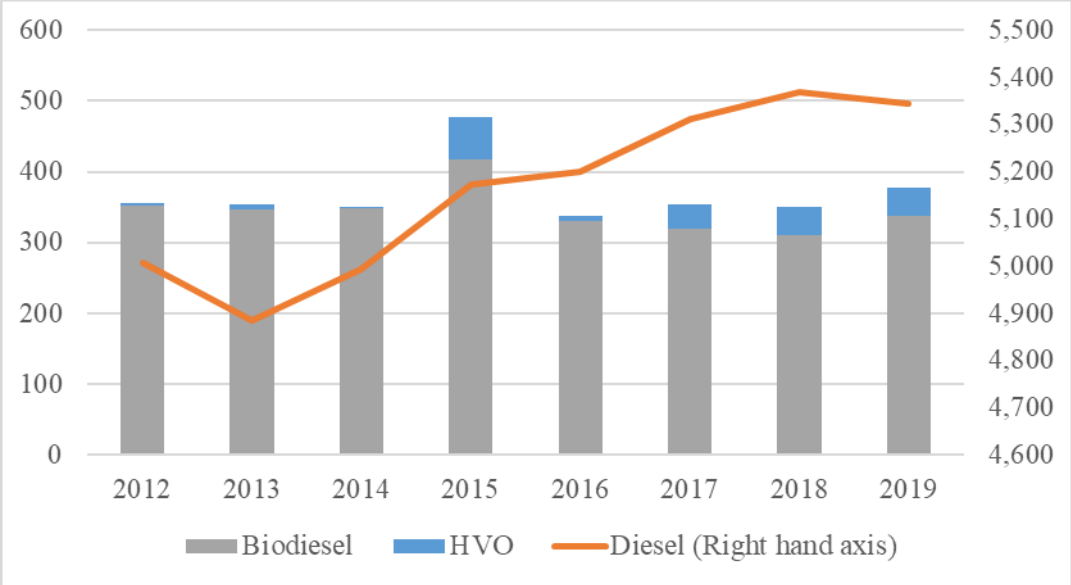


Source: FAS Madrid based in DGEG data.

Consumption

Consumption mandates together with fuel pool demand define the size of the Portuguese biofuels market. Biodiesel is by far the most important biofuel consumed in Portugal and represents nearly 80 percent of the Portuguese transport biofuels market on a straight volume basis. Despite the larger and growing diesel pool and increasing mandates, the volume of biodiesel consumed has lowered slightly since **2015** as the larger role of double counting biofuels reduced physical demand. The use of HVO and Bio-ETBE/Bioethanol for mandate compliance also contributed to the decline. (See **Graph 6** and **Graph 11**).

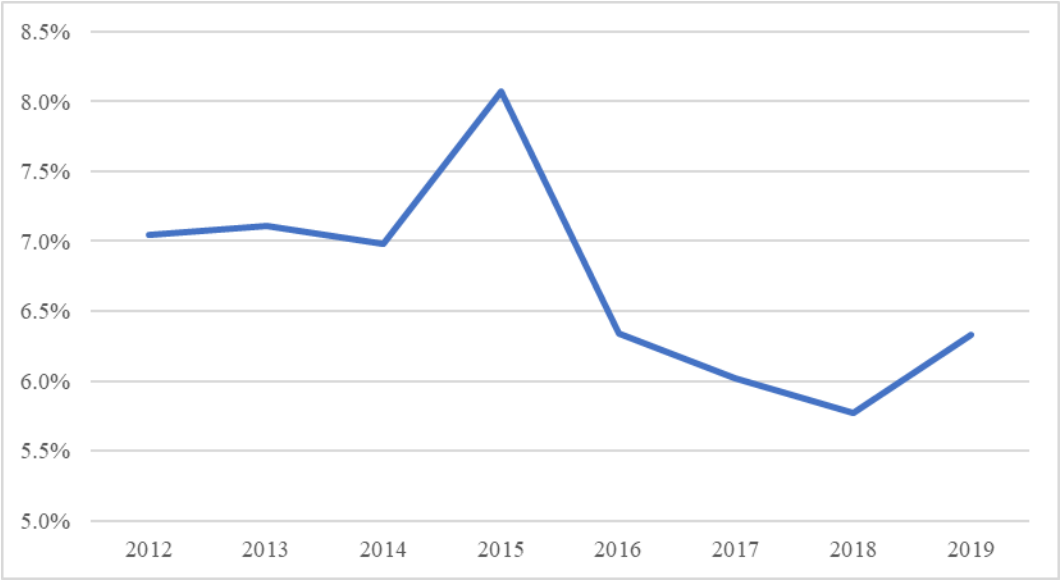
Graph 6. Portugal's Diesel, Biodiesel and HVO Consumption (1,000 m^3)



Source: FAS Madrid estimates based on DGEG data and industry sources.

Between **2016** and **2018** the tendency towards meeting mandates with lower volumes of biodiesel continued. In **2019,** the biodiesel blending rate increased (**Graph 7**), despite the reduction (See **Regulatory Framework - Biofuel Targets** Section).

Graph 7. Biodiesel Blending Rate (Percentage)



Source: FAS Madrid estimates based on DGEG data.

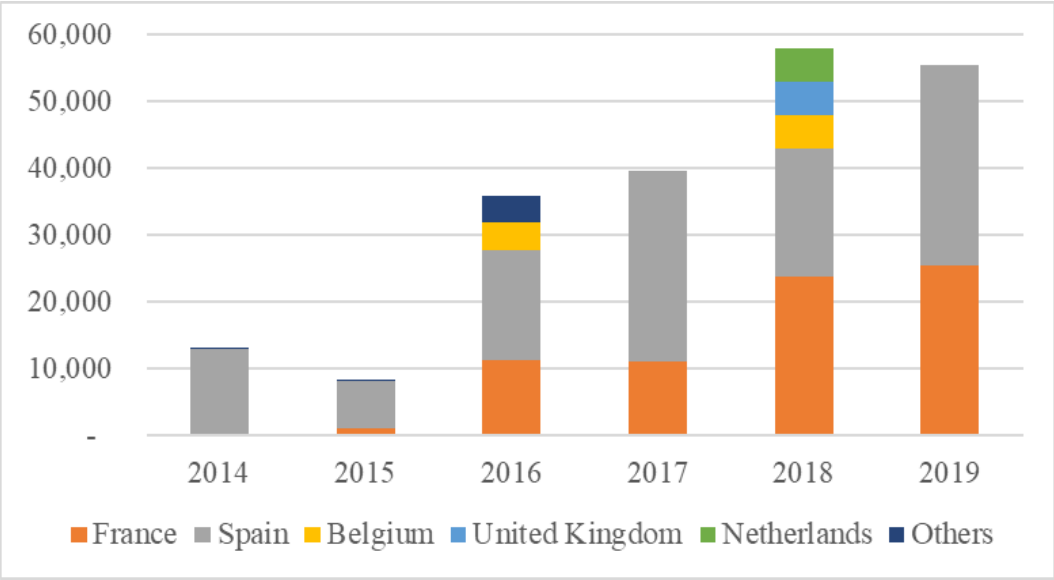
Trade

Since **2017**, with the Portuguese market more open to competition from other EU suppliers (See **Regulatory Framework - Biodiesel Quota** Section), imports from other EU Member States, led by the Netherlands in particular, nearly doubled. In addition to the country's biofuels installed capacity, according to LNEG data, there are 14 registered biofuels importers, however it is reported that only four of them are regularly active.

High Most Favoured Nation (MFA) duties applied to ethanol, Antidumping (AD) duties on U.S ethanol, and Antidumping and Countervailing (AD/CV) duties on United States, Argentine and Indonesian biodiesel have been in place for years and generally, but not always, kept biofuel imports from non-EU countries in check. Since August 2017, mandatory prior registration of biodiesel producers or traders for target-compliance has kept Argentine and Indonesian biodiesel out of the Portuguese market.

Spain and France are the main biodiesel export markets destinations for Portuguese biofuel production. Trade data available for **2016** and **2017** show a significant increase in FAME exports, which further increased in **2018**. Stiffer in-country competition is considered as the trigger for exports growth (**Graph 8**).

Graph 8. Portugal B100 Exports (m^3)



Source: Trade Data Monitor, LLC and FAS Madrid estimates based on HS Code 38260010.

HVO imports are also rather limited, most of the in-country HVO consumption is originated in the domestic production facility in Sines.

Feedstocks

Portugal's biodiesel sector is heavily reliant on imported raw materials. Domestic oilseed production, essentially limited to olive oil and sunflower oil, which is used almost exclusively in the food market. Other than this, the in-country supply for biodiesel production comes is limited to Animal Fats and UCOs.

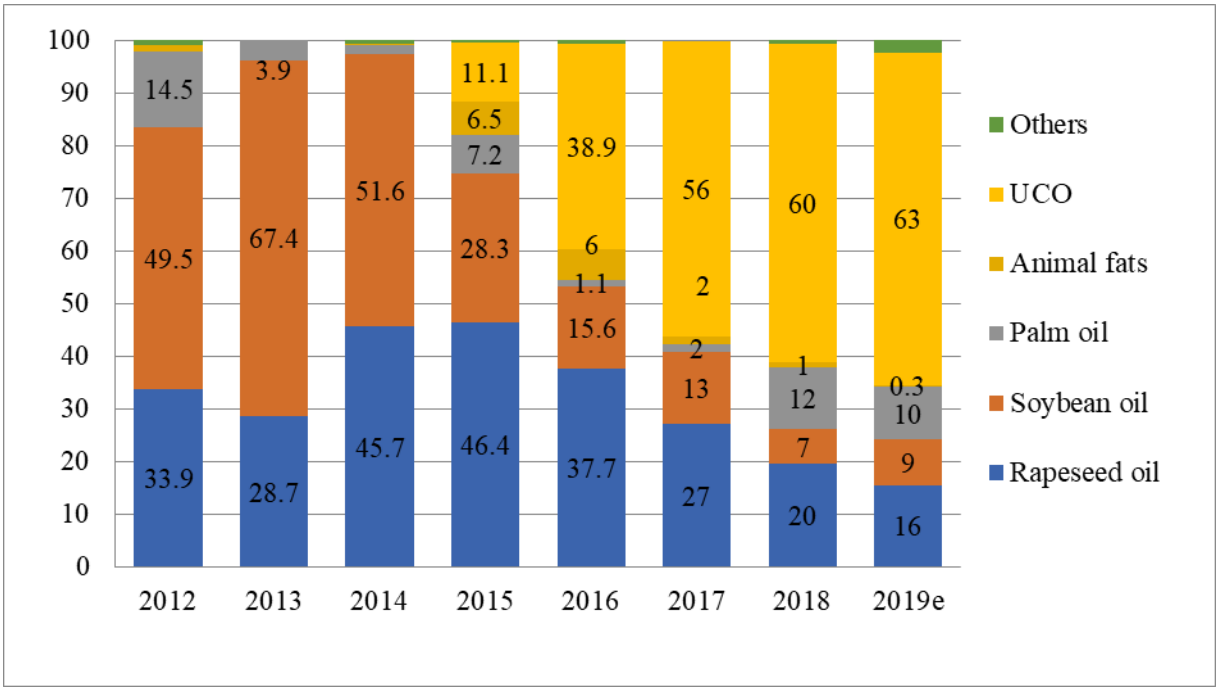
Graph 9 shows how feedstock used for biodiesel (and HVO since 2017[9]) combined production evolved in Portugal. In **2012,** while the market was dominated by soybean oil, sustainability implementation as of **2014** resulted in a higher share of rapeseed use, which given its higher content in oil can better absorb certification costs[10]. Beginning in **2015,** double counting raw materials (namely UCOs) started playing a significant role in feedstock procurement. Until present, UCOs have continuously expanded it share in

[9] *Since HVO production in Portugal is managed by just one company in Portugal, statistical data are only provided in an aggregated manner along biodiesel data.*

[10] *The additional cost of sustainable soybeans is difficult to transfer to the domestically produced meal as it competes with imported meals. So, most of the additional cost needs to be transferred to the oil portion, which in the case of soybeans, roughly only represents 18 percent of the total, compared to the nearly 42 percent of oil content in the case of rapeseeds.*

the Portugal's biodiesel mix. In **2019** UCOs and soybean oil increased share at the expenses of rapeseed oil and palm oil.

Graph 9. Portugal's Biodiesel and Renewable Diesel Feedstock, 2012 - 2019 (Percent)



Source: FAS Madrid based on LNEG data.

UCOs overview: Until 2015, the Portuguese UCO market was very fragmented with the procurement of Animal Fats and UCOs only accessible to SDPs. Since **2015**, when the increased consumption mandate exceeded volumetric blending limits[11], double counting biodiesel started playing a major role in mandate compliance. Medium to large size biodiesel plants opted then to import their UCOs from third countries, which has further increased Portugal's reliance on imported raw materials and increased competition in UCOs procurement at the national level. Because of this stiff competition in raw materials purchases, SDPs have seen their production reduced (See **Graph 5**).

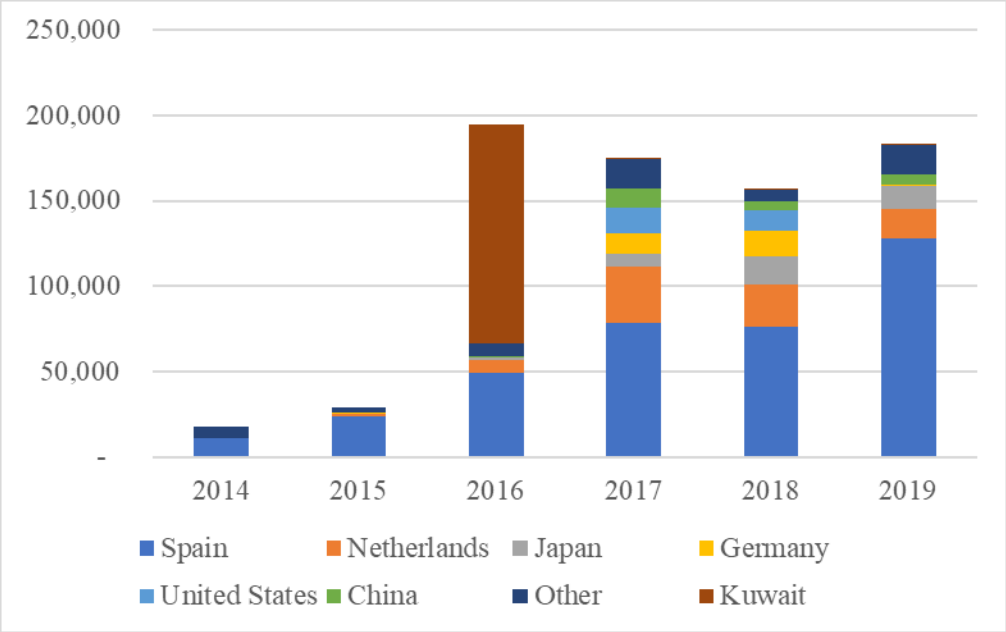
Looking ahead, the 1.7 percent cap in terms of energy introduced for the consumption of advanced biofuels out of waste fats and oils in 2030 (See **Regulatory Framework -Feedstock Related Provisions** Section) may lower the importance of UCOs in the Portuguese biodiesel mix, if no exceptions is granted at the national level.

Although nearly 75 percent of Portugal's UCO imports originated from other EU countries, since **2017** the United States, Japan, and China are among the main non- EU suppliers. In 2018, most of the UCOs

[11] *Additionally, in 2015 the minimum volumetric requirement for compliance (6.75 percent) established by the Decree-Law 117/2010, phased out.*

used in biodiesel consumed in Portugal originated from Spain, most likely as a result of transhipment traffic (**Graph 10**).

Graph 10. Portugal's Imports of UCO by Origin (MT)[12]



Source: FAS Madrid based on Trade Data Monitor, LLC data on CY basis.

Palm oil: RED II sets 2019 usage level of High ILUC biofuels as the consumption limit until 2023 before phasing-out. This provision sends a signal to maximize High ILUC biofuels use in 2019 use in order to keep options open for 2023 when the cap becomes effective. This has translated so far in a surge of palm oil imports in **2019** (see **Table 4**) and in an extensive use of the country's HVO installed capacity.

Table 4. Palm Oil Imports (1,000 MT)

Type of Oil	2011	2012	2013	2014	2015	2016	2017	2018	2019e
Palm Oil	75	75	67	48	58	37	43	48	55

Source: Trade Data Monitor, LLC and FAS Madrid estimates on CY basis.

Virgin Oils Overview: Despite its limited in-country oilseed production, Portugal boasts of a robust crushing industry. Oilseed crushing capacity in Portugal consists in four processing plants managed by three companies and concentrated in Lisbon's most influential port area.

- The Sovena-Bunge partnership manages two crushing facilities located in Palença do Baixo, one of them devoted exclusively to soybean crushing and the other one that can switch between rapeseed and sunflower, depending on price conditions.
- Iberol's plant in Alhandra can also switch between the two main oilseeds (soybeans and rapeseed).
- The Oleocom plant operated by Reagro resumed soybean crushing in **2016**.

[12] *UCO trade data based on HS Code 15180095 (Inedible mixtures or preparations `yellow grease` of animal or of animal and vegetable fats and oils and their fractions). Hence it does not only include UCO, but also other products.*

Crushers tend to use installed capacity at a high level in order to ensure assets optimization. While the volume crushed can vary depending on the crushing margins, on average, Portugal crushes about 950,000 MT of soybeans and about 300,000 MT of sunflower and rapeseed respectively (See **Table 5**).

Table 5. Portugal's Crushing Capacity (1,000 MT/year)[13]

Oilseed	Crushing Capacity
Soybeans	950
Rapeseed	300
Sunflower	300
Total	1,550

Source: Industry sources.

Soybeans are highly appreciated for those crushers who specialize in supplying the feed market. In the absence of biodiesel demand, the locally extracted soybean oil is exported to third markets at a discount. Conversely, crushers specialised in the oil market prefer to use **rapeseeds** given its higher share of oil compared to soybeans when suppling biodiesel producers or due to food manufacturers preference for rapeseed over soybean oil when it comes to food use. **Sunflower** is crushed entirely for food purposes and the meal is considered a by-product intended for the feed market. Meanwhile, use of sunflower oil in the biodiesel mix is negligible.

RED II limits the consumption of crop-based biofuels for the next decade 2020-2030 at the consumption level registered in each Member State in 2020, with an additional 1 percentage point from 2020 levels up to the overall cap of 7 percent. The production of virgin oils-based Fatty Acid Methyl Ester (FAME) in 2020 in response to this RED II provision.

European Commission recognition of the U.S. Soy Sustainability Assurance Protocol for biofuels (SSAP-RED) in January 2019 allowed the EU to import a few U.S. soybean vessels under SSAP-RED. U.S. industry' efforts to document the reduction of GHG through U.S. soy production to meet the 50 percent threshold in 2020[14] could increase the use of soybean oil in the biodiesel pool.

[13] *The fact that some plants are multi-seed may distort total numbers.*

[14] *The default GHG emission saving for soybeans only accounts for 31 percent.*

Bioethanol

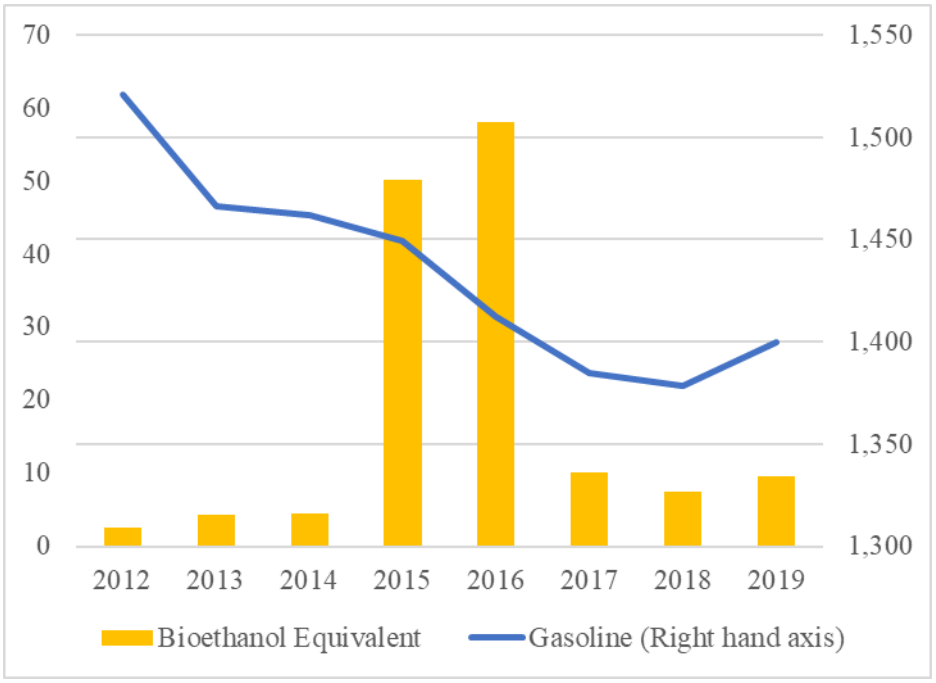
Installed Capacity and Production

Since **2015** there is Bio-ETBE production capacity in Portugal (Sines). However, the retroactive elimination of the bioethanol consumption target since **2016** discouraged domestic production.

Consumption

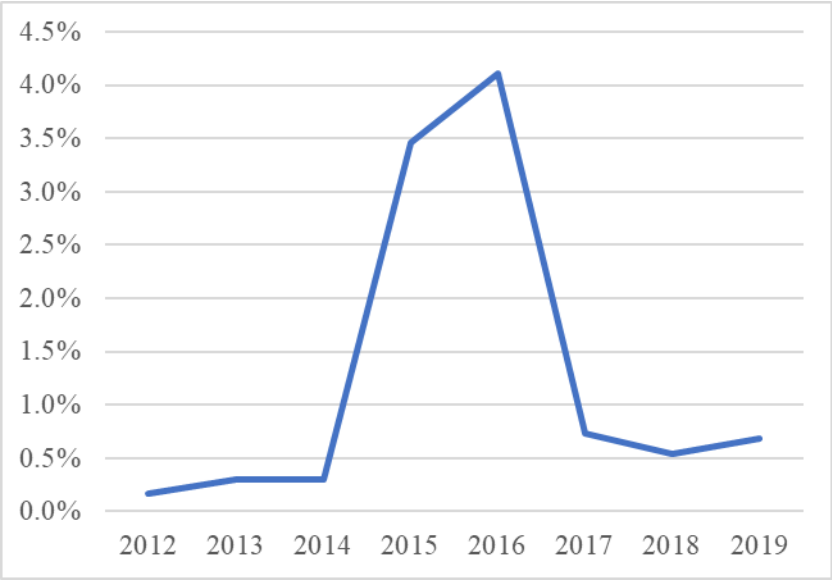
In Portugal, direct blending of bioethanol takes place in refineries. Direct blending coexists with the presence of Bio-ETBE in the gasoline pool. Since 2017, given the absence of a bioethanol specific quota, consumption of renewable fuel blended in gasoline remained limited. That said, statistical data available shows how bioethanol consumption has marginally increased after plunging in 2017. (**Graph 11** and **Graph 12**).

Graph 11. Portugal's Gasoline and Bioethanol Equivalent Consumption (1,000 m^3)



Source: FAS Madrid based on TdB-G issued and DGEG data.

Graph 12. Bioethanol Equivalent Blending Rate (Percentage)



Source: FAS Madrid estimates based on TdB-G issued and DGEG data.

Uptick in gasoline use since 2019 (**See Portugal's Gasoline and Road Diesel Consumption** Section) along with biofuel mandates exceeding biodiesel blending limits open opportunities for further growth in the consumption of bioethanol/Bio-ETBE through imports. This may be particularly true for 2020 in order to fulfil the 10 percent target.

Trade

Most of the in-country consumption of Bio-ETBE in **2015** and **2016,** and virtually all Bio-ETBE consumed in **2017** and **2018**, was imported. Statistical data for Portugal's Bio-ETBE imports shows very small volumes. It is Post's assumption that most of the Bio-ETBE imports occur in the shape of finished gasoline. In May 2019, the EU repealed the antidumping duties imposed on U.S. bioethanol imposed in 2013. However, this is not anticipated to result in a surge of U.S. bioethanol exports to the country, due to sustainability requirements and competition from EU suppliers.

Feedstocks

According to LNEG data, virtually all bioethanol/Bio-ETBE consumed in Portugal is produced out of corn.

Future Perspectives

While RED II is yet to be transposed into Portuguese law, some of its provisions will significantly affect its biofuels market. In 2020, the production of virgin oils-based Fatty Acid Methyl Ester (FAME) is anticipated to grow in response to RED II incentive to set the baseline for the 2020 - 2030 period.

While in the past, Portugal's obligated parties opted for an extensive use of double-counting biodiesel, the RED II 1.7 percent cap on advanced biofuels produced with UCO and some categories of animal fats waste fats and oils by 2030, will force the biodiesel industry to find feedstock alternatives, unless exceptions to the EU are granted at the national level.

HVO can still contribute to meet mandates as it counts against the goal for renewable energy use but has no volumetric blending limit under fuel quality standards. However, since Portugal's production is palm oil based, it will face the limits imposed to this type of feedstock. Palm oil producers may certify their feedstock as low-risk ILUC to keep their presence in the EU market beyond 2023, whether as manufactured within the EU using imported feedstock or as imported biofuel.

According to the National Plan for Climate and Energy (PNEC) for 2020-2030, electricity will play a larger role in transport replacing biofuels in meeting the 14 percent RED II 2030 goal of renewable energy use in transport. The PNEC also provides opportunities for advanced biofuels and hydrogen to contribute in meeting renewable energy targets in transportation.

Annex I. Relevant Portuguese Competent authorities in biofuels

- Directorate General for Energy and Geology (DGEG)
- National Entity for the Fuels Market (ENSE)
- LNEG (National Laboratory for Energy and Geology).

Annex II. Small Dedicated Producers Special Status

Portugal has a few **Small Dedicated Producers** (SDPs) who are granted special conditions described in Decree Law 62/2006 as amended by Decree Law 206/2008. SDPs must have an annual biofuels production of less than 3,000 MT. All of their production must be used in dully identified captive consumers or fleets. SDPs must use of residues, obtain less pollutant products, use innovative processes or processes in the demonstration phase. SDPs report to DGEG, which oversees their supervision. SDPs can opt for sustainability assurance through private schemes or through a simplified system managed by the Directorate General for Energy Geology (DGEG). TdB granted to SDPs are managed by DGEG in accordance to Article 19 of Decree-Law 117/2010. These TdB are auctioned before February every year. Interested parties can bid on TdB which, according to industry sources and have a market value of over 350 Euros. SDPs are eligible for double counting. At present, according to Implementing Order 320-E/2011 of December 30, since 2011 only SDPs are eligible for the Hydrocarbons tax exemption, which currently amounts to 0.486 Euros per litre for biodiesel.

Annex III. Abbreviations, Definitions, Energy content and Conversion rates and HS Codes

Abbreviations and Definitions

AF: Animal Fats
APPB: Portuguese Association of Biofuel Producers

Biodiesel: Fatty acid methyl ester produced from lipid feedstocks (vegetable oils, animal fats, recycled cooking oils).

Bio-ETBE: (Bio Etyl-Tertio-Butyl-Ether): Gasoline additive produced out of bioethanol,containing 47 percent ethanol by volume. (Decree-Law 89/2008)

BXX: Blend of mineral diesel and biodiesel with the number indicating the percentage of biodiesel in the blend, e.g. B5 equals 5 percent biodiesel and 95 percent conventional diesel by volume

CAP: Common Agricultural Policy
CY: Marketing Year
DGEG: Directorate General for Energy and Geology
EBB: European Biodiesel Board
ECS: Portuguese Sustainability Criteria Coordination Entity
EC: European Commission
EFT: Fiscal Warehouses for Transformation
ERSE: Energy Services Regulatory Agency
EU: European Union
FAME: Fatty-acid mono-alkyl esters
FQD: Fuel Quality Directive
GHG: Green House Gases
GOP: Government of Portugal
Ha: Hectares
HS: Harmonized System of Tariff Codes

HVO (Hydrogenated Vegetable Oil): A type of "renewable diesel," HVO is produced from oils and fats using hydrogen to remove oxygen from the triglyceride. It is a drop-in fuel meaning that it has complete substitutability with fossil fuel

ILUC: Indirect Land Use Change
INE: Portuguese National Institute for Statistics
ISP: Hydrocarbons Tax
LNEG: National Laboratory for Energy and Geology.
M/L Producers: Medium Large Producers
MS: Member State
MT: Metric Tonnes
MY: Marketing Year
Q: Quarter of the Year (Q1, Q2, Q3, Q4)
S: Semester of the Year (S1, S2)
N/A: Not Available
RED: Renewable Energy Directive
SDP: Small Dedicated Producers
SSAP: soybean Sustainability Assurance Protocol
TdB-D/ TdB-G: Biofuel Titles (Diesel and Gasoline respectively)
TdB-DC: Double Counting Titles
TMT: Thousand Metric Tones

UCO: Used Cooking Oil
USD: US Dollar
USSEC: United States Soybean Export Council
VAT: Value Added Tax
Virgin Oils: First use oils extracted from oilseeds
WTO: World Trade Organization

Energy Content and Conversion Rates

1 Toe = 41.87 GJ

Biodiesel = 37.50 MJ/kg
1 MT Diesel = 1,195 Liters = 1.02 Toe
1 MT Biodiesel = 1,136 Liters = 0.90 Toe
1 MT HVO = 1,282 Liters = 1,051 Toe

Bioethanol = 26.90 MJ/kg
1 MT Gasoline = 1,342 Liters = 1.03 Toe
1 MT Ethanol = 1,267 Liters = 0.64 Toe
1 MT of BioETBE = 1,333 Liters =0.86 Toe

(HS) Harmonized Codes

Biodiesel: HS codes 3826 00 10, 3826 00 90 and 2710 20 11 (since 2012).
ETBE: HS code 29091910.
UCO: HS Code 15180095, inedible mixtures or preparations `yellow grease` of animal or of animal and vegetable fats and oils and their fractions.
Soybean Oil: HS Code 1507
Rapeseed Oil: HS Code 1514
Palm Oil: HS Code 1511

Related Reports

Report Title	Date Released
EU-28 Biofuels Annual Report 2019	08/09/2019
Biofuels Mandates in the EU by Member State -2019	06/27/2019
EU Recognizes U.S. Soybean Industry Sustainability Scheme	02/13/2019
Portugal Biofuel Market Outlook	07/03/2017

Attachments:

No Attachments.