

Biofuels in Bulgaria

OVERVIEW

Bulgaria is located in the Eastern section of the Balkan Peninsula. Bulgaria has served as a member of NATO and as a member state within the EU since January 2007. Even after the transition process to a free democracy and market economy took place over 30 years ago, the country is still suffering from chronic political instability, as well as an overall underdeveloped economy. Bulgaria has the lowest GDP per capita out of all Member States within the EU (Table 1). The energy sector in Bulgaria is one of the most important sectors in the country, crucial for the country's political and economic stability. The government therefore regulates the market in consideration of electric power for private use. Despite the fact that the price of electricity in Bulgaria is the lowest in the EU (due to the low level of income), the general public is overall very sensitive to rising prices. On the other hand, the country's coal mining industry is currently contributing to the creation of thousands of jobs in specific regions. The total production of primary energy in Bulgaria in 2017 was about 11.7 M toe, which covers around 60% of the country's total energy consumption (18.9 M toe) while the remaining 40% is derived from importations¹.

It should be mentioned, however, that Bulgaria's energy dependence in consideration of imports is lower than that of the average Member States within the EU. The major element of the primary energy mix actually relies on local fuels and brown coal (48.6%) followed by nuclear energy (33.7%), which is also technically considered a local source. The renewable sources (including biofuels) developed to the third biggest energy source with 11.6%, where the remaining approx. 1% consist of oil, natural gas and none renewable wastes². In Bulgaria, the transportation sector accounts for approx. 34% of the final energy consumption, whereas the share of biofuels is estimated to be around 3.7%.

Bulgaria has very limited sources of oil and natural gas, and the extractable amounts are not consistent with the level that is currently in demand. The largest oil refinery positioned in the Balkan Peninsula exists in Burgas, the south-eastern region of Bulgaria. The refinery is owned and operated by Lukoil, and mainly utilises imported oil. Lukoil is the main supplier of fuels supporting the domestic market for the Republic of Bulgaria. In 2018, Lukoil imported and processed around 6 M tons of crude oil, from which approx. 2 M tons of fuels were sold on the domestic market, while more than 3 M tons were exported.

¹ EUROSTAT 2019: <https://ec.europa.eu/eurostat/statistics-explained/pdfscache/1216.pdf>

² Ministry of Energy, 2019: Bulletin on the state and development of the energy sector in the Republic of Bulgaria <https://www.me.government.bg/files/useruploads/files/buletinenergy2018-04.06.2019-finish.pdf>

Country information	
Bulgaria	
Population	7,364,540 ³
GDP (per capita)	7,980 € ⁴
Final Energy Consumption (Mtoe)	9.7
Final Energy Consumption in Transport (Mtoe)	n/a
Final Energy Consumption in Transport Share	34%
Biofuels share in Transport Fuels	3.7%
Fuel-Mix	Diesel, Petrol, Methane, Liquefied Natural Gas

Table 1: Country information

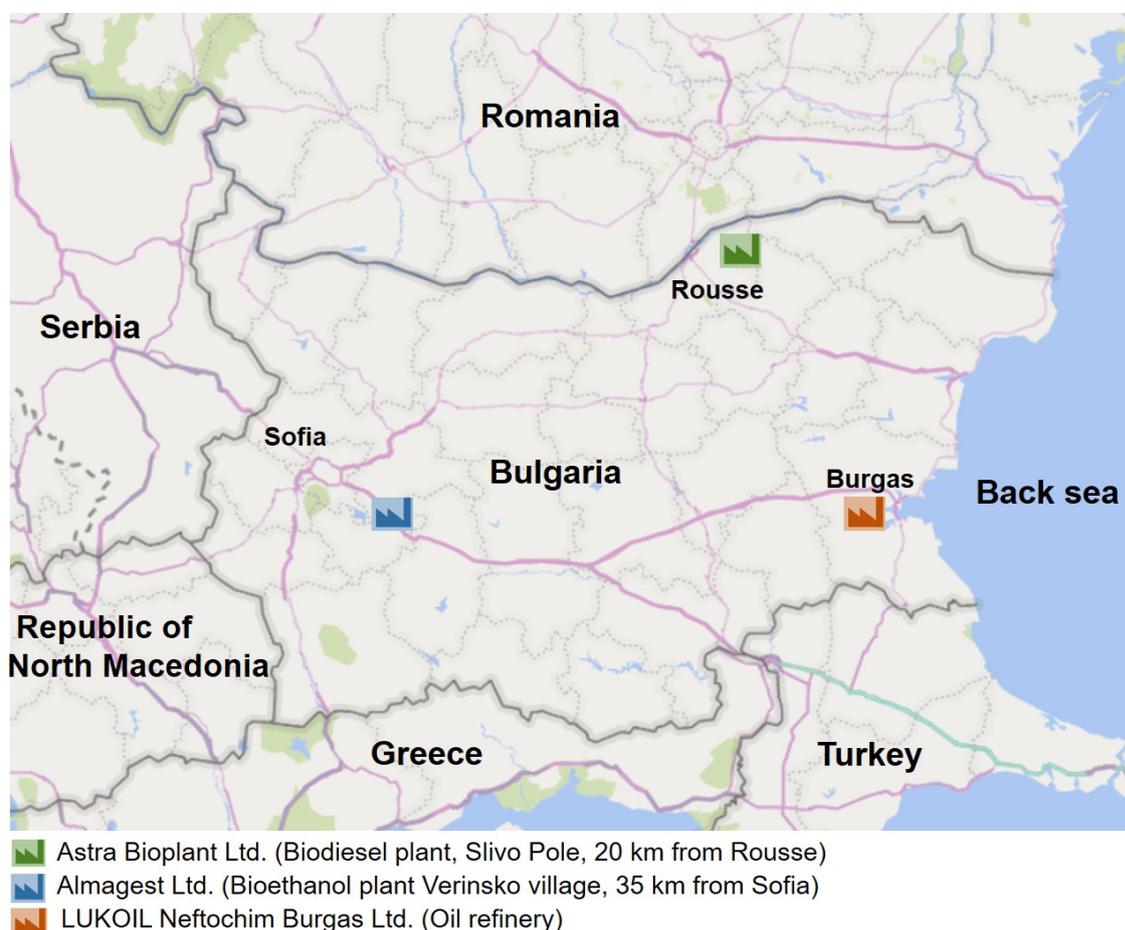


Figure 1: Map of plants in Bulgaria

³ National statistical institute, 2020. Data from Census 2011: <https://www.nsi.bg/census2011/indexen.php>

⁴ EUROSTAT 2020:
<https://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=de&pcode=tec00001&plugin=0&tableS election=1>

BIOFUELS POLICY, REGULATIONS, MARKET DEVELOPMENT

As a strong contributor within the EU, Bulgaria has already committed to the GHG reduction targets as well as the development of renewables recently implemented by the European Commission. As a first step, Bulgaria has adopted the EU Directive 2003/30/EC regarding the promotion of renewable energy and biofuels. The Bulgarian national law for the promotion of renewable energy that was adopted in 2007 regulates the share of biofuels in transportation fuels. In order to comply with the current EU legislation, the law was amended several times according to Renewable Energy Directive (2009/28/EC). The last revision of the law was made in May 2019, in order to comply with the sustainability criteria and advanced biofuels of the revised renewable energy directive 2018/2001/EU REDII. The maximum admixture of bioethanol has remained at a fixed figure since March 2019 at 9%. Since April 2019, the share of biodiesel should be on a minimum level 6%, where 1% of this amount must be second generation biodiesel produced from algae biomass, waste biomass from households and industry, agriculture and by-products.

Another instrument to promote biofuels is the “National long-term programme for promotion for the use of biofuels 2008-2020”, adopted in 2007 by the Ministry of Energy that was implemented with the support of the Sustainable Energy Development Agency (SEDA).

There was a boom of the biofuels sector in Bulgaria during the period between 2003-2012, whereas around ten biodiesel plants and six bioethanol plants were built based on feedstocks from renewable crops (rapeseed, sunflower, wheat and maize)⁵. However, despite the fixed quota for mixing of biofuels, and due to the difficult market situation, higher prices of biofuels compared to fossil fuels and the lack of financial support (subsidies), currently very few of these plants are still existing and mainly producing biodiesel and ethanol for export in other countries. Some of the biofuel plants, which are still under operation, can be summarised as follows: Biodiesel plant in Slivo Pole, 20 km eastwards from Ruse, managed by ASTRA BIOPLANT Ltd. with an annual capacity of 60,000 t of biodiesel, this accounts for 60% of the demand for biodiesel in Bulgaria. This company is also able to produce biodiesel from second-generation feedstocks, mainly from kitchen oil and remnants from the production of acid oil; however, the feedstock is mainly imported from Asia and neighboring countries (Romania and Greece). In Bulgaria, there is currently no plant for the production of advanced fuels being implemented⁶.

The bioethanol plant operated by Almagest for production of ethanol from grains is located 35 km south-west of Sofia near the town of Ihtiman. The plant has an annual capacity of 30 M litre of ethanol, which can be used for biofuel and for the production of products in the food and cosmetic industry.

⁵ https://www.capital.bg/biznes/kompanii/2012/05/27/1834656_trudnoto_vuzkrusvane_na_biogorivata/

⁶ <https://agri.bg/novini/proizvoditel-na-biodizel-maslodaynite-kulturi-tryabva-da-se-zashityat-sega>

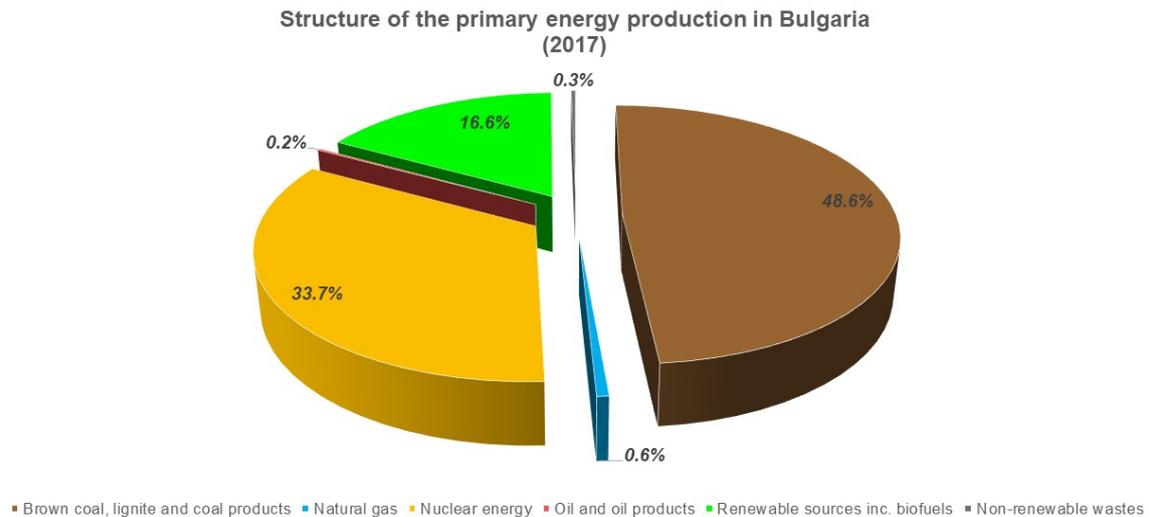


Figure 2: Structure of the primary energy production in Bulgaria

BIOFUELS MINISTRIES, ORGANISATIONS AND AGENCIES IN BULGARIA

- Ministry of Energy
<https://www.me.government.bg/en>
- Energy and Water Regulatory Commission
<http://www.dker.bg>
- Sustainable Energy Development Agency (SEDA)
<https://seea.government.bg/en/>

KEY BIOFUELS INDUSTRY AND RESEARCH STAKEHOLDERS

- Bulgarian Energy Holding EAD
<https://www.bgenh.com/en>
- National Association of Biofuels in Bulgaria
<http://www.biofuels-bg.org/>
- ALMAGEST AD, Verinsko village, Ichtiman municipality, Bulgaria
Website: <http://www.almagest-bg.eu/en/>
- Astra Bioplant (biodiesel plant) 23 Bulgaria Str. Slivo pole
Website: <http://www.astrabioplant.bg/en/home.html>