

Biofuels in Hungary

Overview of Biofuels in Hungary

Hungary has an area of 93,028 square km and an exceptional share of land suitable for agricultural purposes, with about half of its territory represented by arable land; forests represent about 19%. Though landlocked, the country is crossed by the Danube and Tisza rivers that also represent a unique (yet largely underutilized) connectivity potential to both upstream countries and towards SEE and the Black Sea Region. Hungary lacks extensive domestic sources of energy and raw materials, with energy dependency at approx. 58%. The high share of gas in the energy mix (approx. 38%, yet declining rapidly in recent years) which is mainly imported from Russia. Considering the agricultural vocation of the county, biogas would represent a meaningful solution to reducing import dependency. The very limited domestic fossil fuel potential is expected to further decline in coming years. Unlike other countries in SEE, the morphology of Hungary determines the negligible role of hydro.

The decommissioning of timeworn industrial capacities along with the drastic switch to service economy (along with EE measures, indeed, and the impacts of economic crisis) brought to reducing the energy intensity of the industrial sector, which is currently below EU average. On the other hand, the energy intensity of the transport sector and of households is among the highest in Europe.

Renewables contribution to the energy mix started at very low level and is still limited, yet steadily growing over the past decade. Hungary agreed upon a 2020 target at 13% RES in final energy consumption, increasing this value to 14,65% in the NREAP. In 2013 the total share of RES reached 9.8% (2.3% above trajectory). Currently, the lions' share goes to RES-H (almost 75% of all RES), with a predominant role of biomass (90% of RES-H). RES-E accounts for another 14.7% (again with biomass feedstock contributing with 65%). According to EurObserv'ER, RES-T represents about 10.7% with 166.1 ktoe, of which 105.7 biodiesel (slight increase) and 37.5 ktoe bioethanol (negative trend).

Biofuels policy, regulations, market development

The relevant legislative framework is mostly aligned with the *acquis*, including provisions concerning sustainability criteria. Relevant Directives have been transposed in several national laws and by-laws, including: Act CXVII of 2010 on the promotion of the use of RES for transport purposes and on the reduction of greenhouse gas emissions from energy used in transport and Act XXIX of 2011 on the amendments of energy acts; Sustainability criteria have been transposed with GD343/2010; FQD has been



Country information

Hungary	
Population	9,866,470
GDP (per capita)	\$14,026.6
Final Energy Consumption (Mtoe)	14,9
Final Energy Consumption in Transport (Mtoe)	3,6
Final Energy Consumption in Transport Share	24,2%
Biofuels share in Transport Fuels	5,5%
Fuel-Mix	Oil, Gas, Biofuels

transposed with GD 53/2014 (Directive 2015/652 is due to be transposed by September 2017); Certification of origin is regulated by GD 309/2013; the Ministry of National Development issued several Decrees regulating: the calculation of GHG emissions from biofuels and bioliquids (36/2010), the quality requirements for biofuels (30/2011), the calculation of the share of RES (1/2012); Directive 2015/1513 (iLUC) has not yet been transposed; double counting is foreseen in Act CXVII, Art.2, para 4. According to the national reporting to EC pursuant Art. 22 of 2009/28/EC, no specific support measures have been yet designed for second generation biofuels, as no request in this sense have been filed by any economic operator. Currently, the only indirect support to the biofuels market comes from mandatory blending provisions.

As mentioned above, biomass represents the bulk of renewable energy production with a stable share of around 90% in total renewable energy production. Biomass is used both for electricity production and for heat generation in the residential sector. Alike other countries of the region, RES-T have been declining in recent years, with renewable electricity developing very slowly, biodiesel stagnating and bioethanol shrinking; biodiesel and bioethanol together currently represent 9,2% of all RES (and <1% of total final energy consumption). According to the EurObserv'ER report 2014, Hungary has one of the highest shares of "other biofuels" reported at 15% (pure vegetable oil, etc.), and about 11% of non-certified origin feedstock.

Advanced biofuels demonstration and R&D projects

Hungary has a solid academic tradition, with several research centres and universities investigating RES from different perspectives, including the agricultural engineering and rural development aspects.

The production of biofuels has started about a decade ago in Hungary and made significant progress if compared to other countries of the Region; however, it is predominantly focusing on first generation. Investigations are being made in 2G, yet mostly driven by the search for enhanced efficiency in conventional plants. Research in MSW and energy recovery from wastewater treatment is also performed.

Deployment of biofuels is being driven by the boost in the demand for conventional biofuels. Since 2007, **Envien group** has capacities in Komárom (Rossi Biofuel), for the production of 50.000 t/y biodiesel from rapeseed oil and UCO. Conventional ethanol facilities fed mainly with domestic corn are operated by Hungrana, **Pannonia Ethanol** and **Gyor Distilleries**. According to ePURE, ethanol installed capacities in Hungary exceed 500 Ml/y, however only a very limited part of it is blended into transport fuel.

Biofuels ministries, organisations and agencies in Hungary

Ministry of National Development
Ministry of Rural Development
Hungarian Biogas Association
Zoldnet
Association for Sustainable Biofuels
Danube Chambers of Commerce Association

Key biofuels industry and research stakeholders

Budapest University of Technology and Economics
Renewable Energy and Environmental Technology Innovation Center
Hungarian Academy of Sciences
Óbuda University Research Centre for Renewable Energy Sources
Szent István University
University of Szeged Department of Biotechnology
National Research, Development and Innovation Office
Pannon Pro Innovations
Hungarian bioethanol association