

Bioenergy in Serbia

OVERVIEW

Situated at the crossroads between Central and Southern Europe, Serbia covers a total of 88,361 km² (including Kosovo). The Pannonian Plain covers the northern third of the country, while the central part of the country is hilly and the south is mountainous. Rich in water resources, Serbia is crossed by the Danube, Sava and Tisza rivers that represent an untapped potential in terms of logistics and connectivity. With 29.1% of its territory covered by forest, Serbia is a middle-forested country. The total forest area in Serbia is 2,252,000 ha (53% are state-owned), which makes approx. 29% of the territory (compared to EU average of 35%). On the other hand, it is extremely rich in biodiversity (6,4% of the territory is encompassed in 377 protected areas; these shall be increased to 12% by 2021). Serbia is one of few European countries with very high-risk exposure to natural hazards.



Agriculture represents a key sector for the country's economy, with approx. 5 mln ha agricultural land. Agricultural production is predominantly present in the Pannonian plain in the north of the country (cereals, crops) as well as in the hilly central region (fruits, vegetables). Food industry is consequently very relevant (also for export). On these grounds, attempts to develop biorefineries have been made in the past decade, but none of them seems to be currently operational.

The energy sector is one of the largest and most important sectors to the country's economy. Serbia is a net exporter of electricity and importer of gas and oil, notwithstanding the domestic reserves. The abundance of domestic coal (5th largest lignite reserves in the world with 5,5 bln tonnes) and its regional relevance make the transition to renewables not a priority (also due to the related high social costs). Owing to the conflicts that marked the history of the country in the past decades, the overall domestic production fell by approximately 30% since 1990, while TPES reduced by 16% and TFEC by ¼ in the same period. Alike many countries of the region, hydropower plays a role in the energy mix, yet about ¾ of electricity is produced in obsolete TPPs. Several projects to foster small HPP and wind farms have been launched in recent years, but with limited success. The overall share of renewables is therefore at approx. 21%, while the 2014 NREAP sets a target of 27%.

BIOFUELS POLICY, REGULATIONS, MARKET DEVELOPMENT

Serbia – along with 5 other Western Balkans countries – was identified as a potential candidate for EU membership in 2003. While formal application was filed in 2009, the status of Candidate Country has been granted in 2012 Negotiations started in 2014 and are still ongoing, with alternate fortune.

Since 2006, Serbia is also a Contracting Party of the Energy Community, thus committing to the establishment of a single European energy market, and binding itself to aligning to EU *acquis communautaire* in energy related matters, including renewable energy targets as well as relevant competition and state aid regulations.

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| Serbia | |
| Population | 7 mln |
| GDP (per capita) | \$8.200 |
| TFEC | 9 Mtoe |
| TFEC in Transport | 2.1 Mtoe |
| Final Energy Consumption in Transport Share | 23% |
| Biofuels share in Transport Fuels | n/a |

In this framework, Serbia committed to a mandatory 27% target of RES in gross final energy consumption in 2020. In June 2013, the National Renewable Energy Action Plan (NREAP) has been adopted, envisaging also a significant increase RES-T, reaching 10% (from 0% in 2009). Notwithstanding the obligation to provide the transport sector with approximately 245 ktoe from RES, investments in this sector are lagging behind due to market and regulatory uncertainties. The 10% target appears unmatchable in the given timeframes: installed biodiesel capacities are currently not exploited.

From the regulatory point of view, no significant improvements have been made in recent years, after a very prolific period in the middle of the past decade. This basically coincides with a more general downcast in the domestic “green” debate. It shall be noted that more efforts have been invested in energy efficacy (residential use absorbs as much as 1/3 of TFEC, not taking into account the phenomenon of illegal logging for heating purposes, which according to some sources might be substantial). Efforts have been made also to valorise biomass for district heating and/or heating of public institutions, as well as for the promotion of agro-pellets (abundant production of wood pellets is generally exported). However, the overall economic situation is probably the biggest obstacle for the deployment of effective measures in support of RES and bioenergy (GDP per capita is slightly above \$8000).

ADVANCED BIOFUELS DEMO AND R&D PROJECTS

Notwithstanding the relevant potentials in terms of feedstock availability, technical competences and specific measures for attracting foreign investments biofuels deployment and supply are still extremely limited in Serbia. This owes to different factors spanning from domestic market weakness (low purchasing power and willingness to pay a green premium), to lack of political will to opt for solutions that would entail high social costs. This is also reflected in the lack of incentives for biofuels.

At present, four plants with a total annual capacity of 0.07 Mtoe exist in the country, yet none is currently producing biodiesel. According to the estimations provided in the NREAP, domestic production should have fulfilled approx. 40% of the needs in 2020 (100.000 t/y biodiesel and 17.000 t/y bioethanol). Current installed capacities are slightly lower, yet it is probable that without targeted stimulation the share of imports might be even higher than the envisaged 60%.

LINKS

- Ministry of Energy
<http://www.mre.gov.rs/>
- Standing Conference of Towns and Municipalities of Serbia-SCTM
<http://www.skgo.org/>
- Serbian Biomass Association
<http://www.serbio.rs/en/>
- Faculty of Technology, University of Niš
<http://www.tf.ni.ac.rs/>
- Faculty of Technology, University of Novi Sad
<http://www.tf.uns.ac.rs/>
- Innovation Centre, Faculty of Mechanical Engineering, University of Belgrade
<http://www.inovacionicentar.rs/>
- MK Group d.o.o
<http://www.mkgroup.rs/eng>
- Faculty of Technical Sciences, Novi Sad
www.ftn.ns.ac.rs