

Bioenergy in Croatia

OVERVIEW

Croatia met its RES target, with an ambitious 36,4% that is among the highest in Europe. Most of this success owes to the large hydro capacities installed in the country (25 HPPs). Biomass contributes to the efforts (2 CHP plants), but there are wide margins for improvement (according to IRENA bioenergy contributed with about 15% to TPES in 2017; in residential energy demand the indicator triplicates). On the other hand, the progress in the transport sector seems to be less rapid: notwithstanding declared interest in the deployment of advanced biofuels technologies and the steep upswing of blending targets, the actual penetration of biofuels seems yet to come, with emphasis shifting towards electro-mobility.



Unlike most EU countries, Croatia accounts for a large share of predominantly rural territory (approx. 63%). Lowlands and fertile plains constitute approx. 55% of the territory, yet mainly in the northern/north-eastern part of the country, characterized by continental climate. Dry Mediterranean climate characterizes coastal areas and the islands, where Karst topography is predominant. Forests represent approx. 40% of the territory. The GVA of agriculture and forestry is above EU average, yet with low productivity.

Official data show that approx. 60% of the population live in rural areas, yet the media report a constantly growing share of informal migrations, both domestic (urbanization) and abroad, mostly due to economic reasons. This implies a rather high pace of ageing in the rural areas, with consequent productivity losses. Owing to its geomorphological characteristic, Croatia is one of the richest countries in Europe in terms of biodiversity. However, the geographical variety and the large portions of secluded territory as well as radical seasonal fluctuations in the population (19.7 million tourists in 2018) represent additional challenges to the energy system, particularly on the coastline (1200 islands and islets, of which only 47 are permanently inhabited).

Similarly to other countries of the region that have high capacities in hydro (which is predominant in electricity production) and extensive forestry resources combined with low density, the second main RES is represented by biomass, which however is mostly used for heating purposes at household level and for the production of pellets (export).

Domestic production of biofuels is apparently lagging behind, with much announced projects in advanced biofuels that have yet to be kicked off, and declining production of biodiesel, linked probably to lack of incentives.

BIOFUELS POLICY, REGULATIONS, MARKET DEVELOPMENT

Renewables in transport are fostered through mandatory blending targets. Authorities demonstrated their commitment by steeply increasing mandatory blending targets, reaching a substantial 8.81% in energy content for 2020 and 6% GHG emissions reduction. Currently, however, it is unclear whether these are implemented. Apparently, and notwithstanding several projects that have been announced in recent years, the blending shall rely on imports.

The regulatory framework is rather complete and shall not be considered as a hindering factor. EU Directives are transposed in several national laws and the country has a full set of strategies, including the NREAP and a National strategy for the promotion of biofuels 2011-2020 (all documents are available on the website of the Croatian Energy Market Operator HROTE: www.hrote.hr/zakoni)

| | |
|------------------|-----------|
| Croatia | |
| Population | 4 million |
| GDP (per capita) | \$14k |
| TFC | 7296 ktoe |
| Transport in TFC | 2176 ktoe |
| Biofuels in TFC | 1144 ktoe |

According to news reports, the three domestic biodiesel production sites are halted, or working at limited extent. According to EAFO, both production and consumption of biofuels have shrunk to almost zero after a promising start in the beginning of the 2010's. On the other hand, following the global trend, much focus is made on electro-mobility, which however seems to be hindered by financial constraints that limit market penetration (only 0.6 of newly registered vehicles are BEV/PHEV). LPG accounts for approx. 4% of the fleet.

occasional delays and inconsistencies.

ADVANCED BIOFUELS DEMONSTRATIVE AND R&D PROJECTS

Quite some research focused on biomass potentials of the Country, mainly in forestry, but also in agriculture and unused land. This owes to the emphasis made on RES-T as well as on the demand for biomass from elsewhere in the EU. Currently, there are no commercial-scale bio-refineries in Croatia.

Deployment of biofuels has been initially driven by the boost in the demand for conventional biofuels. Incentives being discontinued, the sector is currently stagnating. Envien group has capacities in Vukovar (Biodizel Vukovar d.o.o.), for the production of 35.000 t/y biodiesel from rapeseed oil, but it is unclear whether this site is still operational. The construction of a plant in the port of Ploce with an annual production capacity of 100,000 t of biodiesel from UCO and non-edible animal fat has been discontinued.

The national oil company INA, together with Faculty of Agriculture, University of Zagreb, are participating in a BBI JU funded project, GRACE "GRowing Advanced industrial Crops on marginal lands for bioRefineries" of which the main goal is to produce sustainable products from miscanthus.



LINKS

- Republic of Croatia-ARD
<http://www.arr.hr/>
- Institute Ruđer Bošković-IRB
<http://www.irb.hr/>
- Institut Hrvoje Pozar-EIHP
<http://www.eihp.hr/>
- Hrast Ltd. regional development agency
<http://www.ar-hrast.hr/default.aspx>