ETIP Bioenergy
European Technology and Innovation Platform

# Bioenergy in Slovenia

## OVERVIEW

Slovenia is situated in Central and South-eastern Europe and borders with Italy, Austria, Hungary and Croatia. With an area of approx. 20.300 km2 and a population of 2 million, it is lying at the crossroads of main European linguistic, cultural and trade routes. Four major European geographic regions meet in Slovenia: the Alps, the Dinarides, the Pannonian Plain, and the Mediterranean. The country is the third most forested countries of Europe, with approx. 63% of the territory covered by woods, including areas of primeval forests, and is marked by significant biodiversity. It is one of the most water-rich countries of Europe, with most of the territory belonging to the Black Sea drainage basin. Agricultural land amounts to approx. ¼ of the total country's area.

Notwithstanding a slight yet constant increase in total population, Slovenia is among EU countries with most pronounced ageing, which entails shrinking of the working-age group (despite immigration). Human settlement is uneven and dispersed, with the highest densities on the Adriatic coastline and the central plains. This entails extensive use of private cars for everyday mobility and commuting: there are approx. 1.2 mln passenger cars over a total of 1,5 mln motor vehicles registered in the country (the estimated vehicle-kilometers in 2016 totaled to 21 billion, of which 86% driven by passenger cars).

Alike other countries of the region, gasification of households is limited, with predominance of electricity and solid biomass. With an overall 21.1% in 2018, Slovenia is not ranking low among EU countries in terms of share of renewables in gross energy consumption, yet it lagging behind the envisaged 25% target. Alike other countries of the region, there is significant production of electricity in HPP (with several new facilities under construction/planning), yet TPP and nuclear still dominate domestic production. Despite the abundant resources, biomass and waste account for approx. 620 ktoe in TFEC over a total of 5000 ktoe (12,4%); the transport sector absorbs a very relevant 37% (1850ktoe), while biofuels in transport consumption for only 2% (despite the 7.7% mandatory blending target).

**Country information**

| Slovenia | |
|---|---|
| Population | 2 million |
| GDP (per capita) | $26.000 |
| Final Energy Consumption (Mtoe) | 5 |
| Final Energy Consumption in Transport (tMtoe) | 1.8 |
| Share of biofuels in transport | 2% |

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# BIOFUELS POLICY, REGULATIONS, MARKET DEVELOPMENT

Notwithstanding the initial performance and the ambitions, the growth of RES in Slovenia is proceeding at a slightly slower pace. The 2020 target of 25% has not been reached yet, with the country stopping at approx. 21%. Given the relevance of hydropower, though, it is remarkable that 61% of all renewables are "bioenergy" (1/2 of which deriving from wood), while the share of biomass in total energy consumption is 10.7%. While there is an obvious predominance of using biomass for heat generation, CHP is growing and totals approx. elsewhere in the text, biogas experienced some kind of bubble that brought to a slowdown. On the other hand, several new HPP have been commissioned or are under development, which will improve the production of RES-E.

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The regulatory framework concerning biofuels and bioenergy transposes relevant EU Directives and is complete. Main policy measures to foster the uptake of RES-T and particularly biofuels support mechanism, such as an excise duty relief for pure biofuels (not the blends). The mandatory blending target for biofuels is set at 7.5% in energy content, with no sub-targets. National funding is also provided through the Eco Fund. Moreover, Slovenia developed a series of strategic documents, all aiming at supporting innovation, industrial rejuvenation and green growth, even if there is not yet a specific Bioeconomy strategy: the Rural Development Program (RDP), the Research and Innovation Strategy of Slovenia (2011 -2020), the Slovenian Industry Policy (2014-2020), the Sustainable urban strategies of municipalities, the government framework program for the transition to a green economy (www.vlada/zeleno.si), the Transition signpost towards a green economy and the Smart Specialization Strategy. Owing to the relevance of the chemical industry, much emphasis is made on the development of bio-based materials and building-blocks, with some industries actively engaging in resins and coatings.

# ADVANCED BIOFUELS DEMO AND R&D PROJECTS

Notwithstanding the interest for developing the circular economy that the Slovenian policymakers demonstrated in recent years, bioenergy and Bioeconomy did not took off yet in the country. Currently, there are no flagship or commercial scale facilities, nor concrete plans to develop some. This might be due to the limited domestic market and consequent high per capita weight of such investments, but also on more general socio-economic factors (e.g. Slovenians perceive their country as already "green"; the industrial tissue is currently more oriented on the production of components for export, while the ownership of large companies, including the agro-food sector has changed and is now in foreign hands).

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Nonetheless, Slovenia has consistent research capacities, with particular regards to forestry and the chemical industry, which shall facilitate the deployment of bio-based enterprises, including in the bioenergy sector. Slovenian partners are very active in EU-funded research projects, often bringing in high-level technical contribution.

# LINKS

- Ministry of Agriculture, Forestry and Food
  https://www.gov.si/en/state-authorities/ministries/ministry-of-agriculture-forestry-and-food/
- Ministry of Economic Development and Technology
  https://www.gov.si/en/state-authorities/ministries/ministry-of-economic-development-and-technology/
- Ministry of Infrastructure
  https://www.gov.si/en/policies/transport-and-energy/energy-industry-sector/
- Chamber of Commerce of Slovenia
  https://www.gzs.si/
- Institut Jožef Stefan
  http://www.ijs.si
- KOC – Competence Center Krog
  https://www.stajerskagz.si/projekti/koc/#top
- Technology Park Ljubljana
  https://www.tp-lj.si/sl
- The Strategic Research and Innovation Partnership – Networks for the transition into circular economy
  https://srip-circular-economy.eu/
- The National Institute of Chemistry
  https://www.ki.si/en/
- University of Maribor
  https://www.um.si/en/Pages/default.asp
- Agricultural Institute of Slovenia
  http://www.kis.si
- Circular Change, Institute for Circular Economy
  http://www.circularchange.com
- University of Ljubljana
  http://www.uni-lj.si
- Slovenian Forestry Institute
  http://www.gozdis.si
- Eco Fund
  https://ekosklad.si/english