

First enerCEE report: Biomass Uptake

Introduction

The production and mobilization of biomass plays a crucial role in tackling climate change, ensuring food security, creating sustainable raw materials and diversifying energy resources. In addition, biomass has the potential to drive the transition from a fossil- to a primarily bio-based economy.

To accelerate economic growth in Central and Eastern European countries, scaling up biomass is essential. For instance, biomass is the most important heating energy source in rural and urban areas in the Western Balkan region. Deploying biomass also improves overall energy efficiency. In order to increase the share of biomass in the national energy mix, enabling legislative frameworks are needed. The biomass sector is very complex, includes a range of technologies, and fuel options.¹

Overcoming these complex and inter-connected challenges requires research and innovation to achieve transformation in lifestyle and resource use. The Europe 2020 Strategy called for a bio economy that creates smart and green growth in Europe, while the Clean Energy Package proposed a new and improved bioenergy sustainability policy for the use of biomass in heating, electricity for 2030. The first enerCEE report provides a short overview on the potential and uptake of biomass in the CEE region.

Baltic Region

Estonia has a moderate share of renewable electricity, almost 60% of which comes from biomass. The share of biofuels in the transport sector is less than 0.5%, well below the European average. Overall, the direct share of biomass for heat generation in the various sectors is around 30%. Similar to Latvia, pellet production in Estonia has increased dramatically in recent years, making Estonia the fourth largest producer in the EU.



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Since water resources have almost reached their full utilisation potential in **Latvia**, bioenergy is looking more and more attractive as a renewable energy source. The potential use of uncultivated

land for agricultural production, including biomass production, is estimated to be around 93,000 ha. Pellet production in Latvia boomed in a short period of time, which made the country the third largest pellet producer and the largest exporter in the EU.

Biomass has an important role as the primary energy source in all the three sectors of **Lithuania**: heating and cooling, electricity and transport. The national biomass strategy is crucial to plan the role and the interaction of uses between the energy end uses and interaction with other non-energy sectors. In 2017, biomass represented 19% of total consumption of electricity imports. Nearly 390 MW of renewable capacities should be installed by 2026 (reaching 1.2 GW), including 240 MW of wind and 80 MW of biomass. Due to increased competition of cheaper fuels (such as low-sulphur heavy fuel oil or gas oil and biomass) in heat production, natural gas consumption has been falling rapidly (-3.9%/year) since 2013. Lietuvos Energija started building an 88 MW biomass- and waste-fired CHP unit in Vilnius in March 2018 at a total cost of EUR 350m. It is expected to be operational in late 2019.

Balkan Region

Biomass production plays a very limited role in **North Macedonia**, which is reflected by little

interest in the development of biomass-powered power plants. Up to 2016, the Energy Regulatory

¹ Energy Community (2020): Final Report, Biomass-Based Heating in the Western Balkans – A Roadmap for Sustainable Development 2017, accessed on 08.09.2019

Commission had only issued a license for electricity generation from biomass with a total installed capacity of 2.20 MW.

Currently, hydropower is the main renewable energy technology in **Albania**. In addition to hydro potential of 12 TWh, the country has a significant potential of other renewable sources, such as 13 TWh/year of biomass power generation. Albania's total energy consumption is essentially covered by oil (54% of the total in 2017, mainly for transport) and by hydropower (30%). The share of biomass remains limited and

Central Europe

The **Czech Republic** has 38.5% share of woodland and shrubland, while 32% of the total area is designated as cropland. The energy mix of the Czech Republic is dominated by the use of fossil fuel sources, primarily coal, lignite and oil, while biomass only makes up about 10%. The biomass sector has experienced steady growth since 2000 mainly due to the increase in the demand for exports as well as the growing national demand for biomass as a heating fuel source. The Czech Republic is one of the main European agropellet producers, responsible for producing approximately 200,000 tonnes in 2016.

According to Eurostat (2015) statistics on land cover, **Bulgaria** has a high percentage of woodland and shrubland (46.6% of the total area), followed by 29.2% cropland and 18.8% grassland. 66% of the forest available for wood supply in Bulgaria is certified by FSC. As a result, biomass constitutes an important renewable energy resource for the country: biomass made up 7% of the total consumption market share by energy in the year 2017. The Ministry of Economy and Energy also estimates significant remaining potential of biomass (1.5 Mtoe) in the country. Though the Bulgarian government gradually phased-out FiT-supported renewable energy projects in 2015, some biomass plants below 30 kW are still supported.

According to **Romania's** National Energy Strategy 2016 – 2030, the country is focusing on diversifying its energy mix by increasing the share of renewables. The share of renewables increased steadily between 2000 and 2017 with the biomass share growing from 8% to 11%. Additionally, Transelectrica's 2018-2027 grid development plan estimates that Romania's renewable capacity of biomass could increase by

continues to decline (currently 10%, down from 14% in 2000).

Montenegro's fourth largest energy supply source is biomass and biomass waste. Available sources of biomass in Montenegro are wood biomass, biomass from agriculture, agricultural crops (energy crops), agricultural by-products (plant and animal residues), biofuels and biomass from waste. Biomass (wood) is frequently used for room heating in rural areas, especially in the northern part of Montenegro.

300 – 500 MW by 2027. Furthermore, the Romanian pellet industry has grown rapidly due to the strong demand from neighbouring countries, like Austria, but faced a temporary slowdown in 2015.

The latest Energy Strategy for **Slovakia** was accepted in November 2014. This strategy paper defines the key objectives and priorities of the energy sector by 2035 and provides an outlook until 2050. The objectives are to reduce the country's energy dependency, to increase the stability of energy supply, as well as to promote the development of renewable energy sources and energy saving measures. Biomass accounts for the greatest share of electricity generated from renewable sources, followed by biogas, solar and hydropower. 4% of the installed electric capacity in the Slovak Republic in 2017 could be attributed to biomass.

Alongside water energy, biomass represents the most important renewable energy source in **Slovenia**. It accounts for 10% of total energy consumption and 12% in the final energy consumption. Increased biomass use in modern individual, communal and industrial heating appliances for heating, process heat and generating electricity is important for Slovenia to improve the reliability and competitiveness of its energy supply, to reduce greenhouse gas emissions and to protect the environment. As a primary energy, biomass also has an important part to play in transport.



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With its the significant biomass potential, **Hungary** intends to promote the use of by-products and residues both for biogas and for incineration applications, while enforcing the criteria of sustainability, environmental protection and conservation. Under the Energy Strategy by 2030, total primary energy savings are expected to reach 189 PJ (4.5 Mtoe). Of that target, only 3% is foreseen to be replaced through the use of biomass in various sectors. Biomass and renewables account for about 11% of the power mix (2017). The share of biomass on the rise and almost quadrupled since 2000 (11% in 2017).

In **Poland**, the biomass sector has strong development potential, even though the country does not have a strong agricultural sector, due to its soil quality. Although agriculture and forestry sectors produce biomass, they are often treated as waste and not properly utilized. Once this potential is released, profitability of biomass energy production in Poland could be significantly improved. Eurostat data from 2016 shows that the Polish output of 11.3 percent of energy from renewable sources corresponds to 9 million tonnes of oil equivalent, of which 6.41 million tonnes of oil equivalent (71.2 %) comes from biomass. Recently, Poland increased wood pellet production and export, either by switching from agro-pellet production units to wood pellets or by building new capacity. This trend is expected to continue in 2017 with the conversion from 5 straw pellet plants to wood pellets plants.

Ukraine is blessed with great natural resources. A share of about 25% of the world's most fertile

Summary

As can be seen in the short country analyses above, biomass uptake and development in the various enerCEE countries is quite varied. Countries with a long-established tradition of biomass use are now turning towards other energy sources, while some countries are only now switching their attention to

black soils indicates an outstanding agricultural potential. However, the country's forestry sector is characterised by growing forest cover, especially in the north-west of the country, and ever-growing stocks. Despite the high economic importance and development potential of the biomass producing sectors and the high dependence on energy imports, the markets for the energetic use of biomass in Ukraine remain poorly developed. Biomass production in Ukraine is not specifically regulated, but is subject to several laws. Electricity generation from biomass in Ukraine is supported by a substantial feed-in tariff although the overall share compared to other renewable sources is very low and is at around 1.2% for 2016. Several technological regulations for the production of pellets are in force in Ukraine.



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Turkey

In line with its energy strategy, the Republic of **Turkey** has prioritized energy security through the decrease of energy imports. According to the Electricity Market and Security of Supply Strategy, Turkey aims to produce 30% of its electricity from renewable energy sources by 2023. The Turkish government has been actively promoting the growth of domestic energy sources and aims to add at least 1 GW of biomass until 2023 as part of this strategy. Biomass currently makes up only 2% of the total consumption market share by energy in 2018.

biomass. In light of these developments, however, countries must focus on achieving a balance between sustainability and the uptake of biomass resources for energy.