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TECHNICAL POTENTIAL FOR USING BIOMASS AS A FUEL IN COGENERATION PLANTS IN SERBIA

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Abstract

The need for ensuring safety of energy supply, as well as the tendency to reduce greenhouse gas emissions has led to greater use of energy efficient technologies and renewable energy sources. Cogeneration (combined production of heat and electricity) is one of high-efficiency technologies, because the losses of primary energy are less than losses from the separate generation of heat and power. Consequently, in 27 EU member-states 70% of the district heating is based on cogeneration plants. Using one of the renewable energy sources as a fuel in cogeneration plants can provide additional advantage because these technologies can provide a double carbon reduction benefit. Biomass is suitable for using in cogeneration technologies that are based on steam turbine, gas turbine, combined cycle, internal combustion engine, Stirling engine and Organic Rankine Cycle. Biomass is one of the most important renewable energy sources in Serbia. Various estimations suggest that Serbia has potential in 1,000 ktoe of wood biomass and more than 1,400 ktoe is the agricultural biomass. Serbia has significant potential for the use of biomass, primarily in small cogeneration plant that can ensure energy supply for wood processing industry, farms, or parts of municipalities.
The level of utilization of biomass in cogeneration plants in the EU, the potential of biomass utilization in small cogeneration plants in Serbia, as well as commercially available cogeneration technologies will be presented in this paper.

Key words: Biomass, cogeneration, electricity production, feed-in tariff, heat production

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