

# Estonia increased renewable energy penetration

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Last year, for the first time, Estonia produced more electricity from renewable sources than from fossil fuels. The main reason for this change is the decrease in power generation from fossil fuels.

According to Elering data, 4,903,803 megawatt-hour of electricity generated in Estonia entered the system in 2023, with 2,302,254 megawatt-hour coming from non-renewable sources and 2,606,549 megawatt-hour from renewables.

Biomass, including waste, accounted for the majority of renewable energy production, totaling 1,202,272 megawatt-hour, solar panels produced 692,863 megawatt-hour, wind generated 684,214 megawatt-hour, hydropower produced 24,577 megawatt-hour and biogas produced 2,623 megawatt-hour. Biodegradable waste, designated separately as biomass, produced 48,909 megawatt-hour of energy.

River Tomera, head of Elering's renewable energy development branch, attributed the high share of solar energy to the vast number of solar panels deployed, but he also expects an ongoing rise in wind power output.

"The installed capacity of solar plants will top 800 megawatts by the end of 2023, with no signs of slowing growth. In 2023, trials of a number of big wind farms began, and while they will technically enter the market in 2024, they are already producing wind electricity. As a result, renewable electricity output continues to rise significantly. In this upcoming summer, we are likely to witness more and more hours where renewable electricity production exceeds consumption," Tomera told ERR.

At the same time, renewable energy production has been rather stable in recent years. In 2022, the Estonian grid produced 2.623 terawatt-hours of energy, compared to 2.597 terawatt-hours in 2021. Previously, renewable energy levels were lower, at 2.230 terawatt-hour in 2020, 1.946 terawatt-hour in 2019, 1.665 terawatt-hour in 2018, and 1.412 terawatt-hour in 2016.

In 2022, biomass generated 1,513 terawatt-hours of electricity, followed by wind and solar (1,264 terawatt-hours, 668 and 596 gigawatt-hour, respectively). However, solar electricity production increased significantly in 2023, according to Elering. Last year, biomass combustion created 1,202 terawatt-hours, while solar and wind contributed 1,377 terawatt-hours (693 and 684 gigawatt-hour, respectively).

However, the amount of power generated from fossil fuels has been declining for several years in a row, with a particularly steep dip in 2019-2020, after which it rebounded slightly before falling again to a record low in 2023. Last year, Estonia produced four times less electricity from fossil fuels than in 2017.

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"The decrease in nonrenewable energy generation was primarily driven by the high cost of CO2 quotas and lower power market pricing. As a result, carbon-intensive oil shale power plants were frequently unable to reach the market due to high production costs," Mattias Kaiv, spokesperson for Eesti Energia, told ERR.

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Timo Tatar, undersecretary for energy at the Ministry of Climate Change, said as the crisis caused by Russia's full-scale invasion last year made shale electricity competitive again, Estonia's share of renewable energy was expected to decline. "However, this did not happen," he wrote on social media.

"Therefore, EU countries need to intensify their efforts to collectively comply with the new EU target for 2030, which requires increasing the share of renewable energy sources in the EU's gross final energy consumption by almost 20 pp," it said.

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