

# Slovenia off the grid power systems

What are the different types of electrical networks in Slovenia?

Electrical networks are classified in terms of their voltage: low-voltage, medium-voltage and high-voltage networks. The ELES Company manages the latter, the high-voltage transmission network in Slovenia. In Slovenia, the most common shapes of pylons are "fir tree", "barrel", "the Danube", the "Y-pylon" and the "H-pylon".

How many wind turbines are there in Slovenia?

A solar power plant with a capacity of 6MW opened in 2023 at Brezice, linked to the hydro power plant. Slovenia had just 2 wind turbines in 2022. Onshore wind energy potential for Slovenia is typical of central and eastern Europe.

Does Slovenia have solar power?

Per analysis published by the World Bank which considers natural features of a location such as altitude, humidity, cloud cover, and topography, Slovenia's solar PV potential is relatively low compared to global resources, but is comparable to that of other central and eastern European countries which lie north of the Alps.

Slovenia earmarked EUR 3.5 billion for the power distribution system in the next ten years, aimed at overcoming the challenges of the energy transition. The investments are part of the 2023-2032 development plan, which recently received a green light from the country's Energy Agency.

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State-owned utility and power generator HSE is targeting 800MW of flexibility assets across Slovenia by 2035, including pumped hydro energy storage (PHES) and battery energy storage systems (BESS). HSE, or Holding Slovenske Elektrarne, aims to have 175MW of flexibility resources online by 2030 before nearly quadrupling that number by 2035.

national power system in Republic of Slovenia. National electricity grid was hourly simulated using EnergyPlan - Advanced energy system analysis computer model in circumstances where distributed power sources capacity exceeds peak system demand. The goal was to estimate the influence of 4400 MW distributed

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The results show that using an optimal combination of conventional and new power production technologies, Slovenia can reach the goal of a carbon-free power system by 2037, when a new nuclear unit could enter operation.

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o generated electricity is primarily consumed within the facility, and only excess is fed into the grid. o The maximum capacity of the PV device is limited ( $\max \leq 0.8$  times the connection power of the consumption

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NEDO is a three-year smart grid project whose principal partners are NEDO and its authorised contractor Hitachi, and the ELES company. Alongside ELES, a large number of stakeholders from Slovenia will participate in the project, which is why it can rightfully be called a national project and the only one of its kind in Europe.

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