Electricity distribution czech republic

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Coal is the most used source for electricity production in Czechia. In 2023, both lignite and hard coal accounted for a combined 40.21 percent of total electricity generation. Followed by nuclear power with 39.91 percent.

*Solar includes both solar thermal and solar photovoltaic generation. Bioenergy includes generation from combustible renewables and may include waste generation (renewable and non-renewable).

?EPS is the transmission system operator (TSO) for electricity supply in the Czech Republic, and the distribution network is mostly operated by three privately owned operators. In the case of major disruptions, the TSO control centre can declare a state of emergency in the electricity system. Depending on the severity of the disruption, the TSO may implement the Consumption Restriction Schedule to restrict electricity supply to certain categories of customers.

In 2019, the government updated the National Action Plan for Smart Grids to create conditions for higher penetration of decentralised sources of electricity and to increase the security of electricity supply. However, important measures such as shortening the trading period for the imbalance settlement from 1 hour to 15 minutes will not be implemented before 2025.

The Czech electricity system in 2020 consisted of a nationwide transmission system (very-high-voltage lines), 17 cross-border connections to neighbouring countries, and a distribution system (very-high, high- and low-voltage lines and cables) operated mainly by 3 distribution system operators (DSOs). ?EPS, the Czech electricity TSO, has a key role in maintaining and developing electricity interconnections and domestic transmission networks.

As of February 2020, the national transmission network comprised of 5 769 km lines, 44 substations and 79 transformers. The Czech 400 kV, 220 kV and 110 kV transmission network ensures electricity transmission throughout the country and supplies electricity to distribution systems, which further distribute it to final customers. Being connected to the systems of all neighbouring countries through cross-border lines, the Czech transmission system cooperates synchronously with the electricity system of continental Europe.

?EPS operates the Czech transmission system, holding the exclusive TSO license granted by the Energy Regulatory Office (ERO). Its sole shareholder is the Czech government, which delegates the authority to exercise its shareholder rights to the Ministry of Industry and Trade (MIT). ?EPS"s core mission is to provide

electricity transmission in the required volumes with high reliability, and to balance the supply of electricity with demand on a real-time basis. It has responsibility for maintenance and upgrading of transmission infrastructures, and cooperates with other European TSOs.

The TSO prepares and implements systemic measures to strengthen the transmission capability of existing lines and to build new lines, and has prepared the Ten-Year Transmission System Development Plan of the Czech Republic 2019-2028 in accordance with the Energy Act. According to the Plan, a predetermined number of transformers which are at the end of their lifetime should be replaced annually with new ones with higher output, and ?EPS is currently planning to phase out the old 220kV network and replace it with a 400 kV system.

The Czech electricity distribution network consists of 91 448 km of very-high-voltage lines and 151 737 km of low-voltage lines, serving the residential, commercial, and small and medium-sized industrial sectors.

The level of the Czech transmission system interconnectivity is regularly monitored and evaluated by ?EPS, both at the national and European levels. The European Union has set a target for 2030 for member countries to have 15% interconnection capacity compared to the installed generation capacity, which the Czech Republic has already achieved. The Czech Republic aims to maintain import and export capacity relative to the maximum load of at least 30% and 35% respectively.