Energy storage systems tbilisi

Energy storage systems tbilisi

Hydro resources are one of Georgia"s most important natural riches. Approximately 300 rivers are significant for energy production, with total annual potential capacity of 15000MW and production potential of 50TWh. According to GNERC, however, only 22.5% (3380.2MW) are used for hydropower.

Georgia"s wind energy potential is estimated at 4TWh (1500MW). The average wind speed fluctuates from 2.5metres per second (m/s) to 9 m/s. The most favourable places for wind farms are being identified over the entire country.

Meanwhile, solar energy potential is high, with annual solar days ranging from 250 to 280 and amounting to 1900-2200 hours. Solar irradiance in Georgia varies between 1250kWh/m2 and 1800kWh/m2 annually, and total solar energy potential is estimated at 108MW. Household solar water heating systems have been installed in rural areas, where solar energy warms water to 40-50?C.

Georgia"s geothermal water stock is estimated at 200-250mcm annually. Temperatures range from 30?C to 110?C, and the total debit is 160000m3 per day. More than the 80% of geothermal deposits are in western Georgia and the Zugdidi-Tsaishi geothermal field, as well as in Abkhazia. The relatively low temperature of Georgia"s geothermal waters does not, however, allow for electricity generation.

Economically viable reserves of crude oil were estimated at 5Mt in 2012 with resources of 50Mt, and natural gas reserves at 8bcm with 102bcm of resources. Hard coal reserves were 201Mt in the same year, with 700Mt of brown coal resources, and in 2022, 16 bcm of natural gas deposits were discovered near Tbilisi. The government and the private sector continue exploration work, expecting more deposits to be found.

Reliability in both the natural gas and electricity systems is improving. According to the MoESD, there have been no major outages in recent years, owing to rehabilitation and refurbishment of gas and electricity networks. Outages and losses are reported to GNERC as part of licensing obligations and are measured by the standard System Average Interruption Duration Index (SAIDI) and the System Average Interruption Frequency Index (SAIFI).

Electricity transmission network losses are around 2% and outages are rare. The collection rate is nearly 100% and estimated commercial losses are minimal. Technical losses in the gas sector are around 0.5% in the transmission network, and loss detection is performed during regular field visits and using the Global System for Mobile Communications (GSM). Equipment for loss detection includes some advanced leak detection technologies and leakage metering equipment.

The Law on the State of Emergency (2005) defines and regulates emergency response, but Georgia has no declared strategy for emergency stockholding or fuel switching mechanisms for energy supply disruptions.

Energy storage systems tbilisi

The government estimates that Georgia"s minimum strategic reserve for gas should be 120mcm and is considering various storage options. Gas from the country"s proposed underground storage facility would be used to compensate for recurring winter deficits, which are expected to reach 200mcm by 2030.

Emergency oil product reserves are also being considered, to be built up by obligating oil product supply companies to hold stocks of oil products in addition to their normal operating requirements. Possible arrangements and compensation schemes are under discussion.

Despite the general trend towards hydropower development, Georgia has no formal strategy for switching away from fossil fuels. In fact, a new gas-fired thermal power plant has been constructed and another 272 MW of capacity is under way to replace old, inefficient thermal units and increase the efficiency of gas-based generation.

Georgia has gas pipeline connections with Armenia, Azerbaijan, Russia and T?rkiye, and oil connections with Azerbaijan and T?rkiye as well as a Black Sea oil terminal in Supsa. It imports natural gas from Azerbaijan and Russia, and transits gas from Russia to Armenia and from Azerbaijan to T?rkiye and further to Europe. Georgia"s oil product imports come from Azerbaijan, Russia and Turkmenistan, and it transits crude oil from Azerbaijan and Kazakhstan to T?rkiye.