Energy storage industry yerevan

Energy storage industry yerevan

????2019,·(Andrea Wiktorin):",?

IEA (2023), Armenia energy profile, IEA, Paris https://, Licence: CC BY 4.0

Armenia has no proven reserves of natural gas or oil, and hard coal deposits are a modest 154Mt, with resources of 163Mt and further potential of 317Mt. It has six known coalfields and some shale oil deposits, but the economic viability of mining these deposits has not been determined. There is currently no coal or shale oil production in the country.

Given its more than 400 mostly small, steep mountain rivers of at least 10km in length, Armenia"s small hydropower potential is significant. Although small hydro has been the focus of considerable development in recent years, the government is also assessing the potential for other forms of renewable energy.

Armenia"s energy security has greatly improved since the gas and power supply crisis in the early to mid-1990s. During the crisis, energy sector management was dysfunctional, losses were extremely high, and the collection rate was below 50%. This resulted in acute supply shortages, with households receiving only a few hours of power per day. Since then, increased natural gas heating, investment in new generation capacity and the network, and improved operational management have restored consistent and uninterrupted supplies of electricity and gas.

Electricity and gas demand are expected to continue growing as living standards rise and poverty is reduced. Significant investment will be needed to meet these rising energy needs, as large portions of the electricity and gas networks date to the Soviet era, and infrastructure modernisation is needed to maintain and improve supply reliability. In its Energy Security Concept, the government estimates approximately 1000MW will be retired by 2026, so new investments will be required to satisfy growing demand if the country does not want to become even more reliant on imports. The proposed new 1000-MW nuclear plant accounts for planned new capacity, but financing has not been secured.

The sustainability and reduced import dependency offered by renewable energy makes its increased contribution (66% by 2036) a priority, with additional capacities of 191MW of hydro (small and large), 500MW of wind and 950MW of solar PV required to meet this target. According to the government, small hydro capacity was 380MW in 2020, and 50MW was planned or under construction.

In electricity, regional integration and supply diversity are advancing, with a 400-kV double-circuit high-voltage interconnection with Iran under construction as well as a high-voltage interconnection with Georgia with back-to-back high-voltage directcurrent connection. These interconnections will strengthen regional integration, expand the market and improve supply reliability, and could serve as additional sources

of electricity during shortages.

Energy system reliability in Armenia is now considered adequate, as investments in electricity and gas infrastructure, increased residential access to gas and operational improvements since the mid-1990s have led to significant declines in outages and losses.

Network losses in both the gas and electricity sectors are in line with international standards. In the gas sector in 2021, transmission losses were 2.68% and distribution system losses 1.18%; losses are kept relatively low by modern metering devices and a supervisory control and data acquisition system.

Closed joint-stock company (CJSC) Electric Networks of Armenia (ENA) has been installing automated metering and data acquisition systems in the 110/35-kV portions of the network since 2003 to improve operations and monitoring, and in 2021 electricity transmission losses amounted to 1.43% while distribution losses were 6.03%.

There have also been significant developments in the use of natural gas vehicles (NGVs); in fact, Armenia is one of the leading countries in transport sector natural gas use. The benefits of NGVs are both economic and environmental, owing to their low GHG emissions. At the beginning of 2022, more than 80% of vehicles in Armenia were running on natural gas and the country had 358gas-charging stations.