

## Uzbekistan energy storage market analysis

The Regional Electric Networks JSC was established in accordance with Presidential Decree No.PP-4249 of 27 March 2019 on the Strategy of Further Development and Reform of the Electric Power Industry of the Republic of Uzbekistan, its main functions being to manage the enterprises of the territorial electricity networks and to distribute and sell electricity to end users.

Regional Electric Networks encompasses 16 enterprises, including 14 within territorial (regional) power networks, which operate 0.4/6/10/35/110-kV power grids and oversee new construction and reconstruction as well as capital and routine repairs within their developments.

Through these 14 regional power network enterprises and 209 district and city power supply companies, electricity is transferred to 1623 substations with voltages of 110-35 kV, then to 79122 transformer points and through 252600 km of power transmission lines to supply domestic and legal consumers.

Thermal energy is generated by the Thermal Power Plants JSC's TPPs and boilers (more than 72% of all thermal energy is generated at boiler houses). The main fuel for co-generation plants and boiler houses is natural gas. In 2019, 126 petajoules (PJ) of heat were supplied to consumers. The population at large used more than half of the heat energy consumed, about 35% was consumed by industrial enterprises, and the remaining 14% went to public and administrative buildings.

Heat and hot water are supplied mainly by boilers owned by local and regional municipalities. Boilers account for 72% of heat energy production, and the rest is supplied by the Fergana, Mubarek, Tashkent, Navoi and Angren TPPs of the Thermal Power Plants JSC.

Some of Uzbekistan's boiler houses and heat supply networks are outdated and worn out, as this domain has never attracted foreign investment. As no technological modernisation has been carried out for years, the industry's expenditures on energy resources take up 85% of its revenues, and losses reach 35-40%. The excessive consumption of energy resources and consumer non-payment of bills leads to imbalances in accounts payable and accounts receivable.

The sector needs radical reformation, including renovation of existing capacity and improved management. For the qualitative organisation of heat supply, it is necessary to modernise the sector's enterprises, especially by adopting the widespread use of energy-saving and multipurpose technologies as has been done in European countries.

These innovations include a closed-loop heat supply system based on the principle of circulation and heat reuse. For example, switching to a closed system in Tashkent city would prevent the loss of 3 million Gcal of

heat (worth UZS300 billion), saving 320 mcm of natural gas (UZS160 billion) and 85 GW of electricity (UZS25 billion).

It is necessary to restore district heating to about 5000 homes in 12 cities and transfer them to a closed system. Thus, in the cities of Bukhara and Chirchik such networks would have to be commissioned in 2020.

To modernise and reconstruct the heating system, USD150 million in credit from the European Bank for Reconstruction and Development (EBRD) and USD780 million from the Japan International Cooperation Agency are being raised to introduce new technologies into the heating supply systems of Bukhara, Fergana, Kuvasai, Urgench and Nukus. USD55 million from the Asian Infrastructure Investment Bank will be used to modernise the Angren TPP.

Steps are being taken to create a competitive environment through the widespread introduction of market mechanisms, which requires, above all, tariff liberalisation. Measures have been identified to make investment more appealing and to attract enterprises to Tashkent city's heat supply system on the basis of PPPs.

There are almost 6 million individual houses in 119 cities and more than 11000 villages in Uzbekistan. The Ministry of Housing and Communal Services needs to ensure that all citizens (not only those living in apartment buildings) have access to electricity and heat, and must also develop a unified state policy in this area (<https://president.uz/ru/2905>).

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Web: <https://www.sumthingtasty.co.za/contact-us/>

Email: [energystorage2000@gmail.com](mailto:energystorage2000@gmail.com)

WhatsApp: 8613816583346

