

SECTOR OVERVIEW

A. Background

1. A reliable and adequate supply of electricity is essential for Uzbekistan's economic growth and development. Uzbekistan has considerable primary energy resources with rich coal, oil, and gas reserves. However, the low domestic price of natural gas relative to international prices has discouraged energy efficiency improvements, making Uzbekistan one of the most energy- and carbon-intensive economies in the world. In 2019, the country generated about 63,600 gigawatt-hours of electricity, of which 56,500 gigawatt-hours (88.8%) were generated from fossil fuels; the rest was generated from hydropower. Natural gas is the primary fuel, accounting for 93.5% of total thermal generation. Major consumers of energy include residential groups (40% of total energy consumption) and industry groups (24%).

B. Sector Structure and Sector Challenges

2. **Sector structure.** The energy sector in Uzbekistan is owned and managed exclusively by the government. Until 2019, Joint Stock Company Uzbekenergo, a vertically integrated and publicly owned monopoly, owned and operated (i) all thermal power plants, including three cogeneration plants; (ii) the power transmission grid; and (iii) the power distribution networks.¹ The Ministry of Finance sets the electricity tariff. While the monopoly structure played a crucial role early in the development of the power market, limitations and inefficiencies of this structure increasingly resulted in (i) inadequate investment in power generation capacity to meet fast-growing demand, (ii) underserved demand and energy losses, and (iii) a non-cost-recovery tariff and high subsidies. In response to this, the government initiated comprehensive power sector reforms in March 2019 to solve long-standing difficulties, with the objective of introducing competition and private sector investments (para. 9).

3. **Unreliable power supply.** Demand for power in Uzbekistan has been increasing from 2012 to 2019 in line with high economic development, but aging power infrastructure and insufficient investment have increasingly widened the demand and supply gap and have resulted in supply reliability issues. The total installed capacity for power generation in the country is about 14.0 gigawatts (GW) but the available capacity is estimated at less than 12.5 GW. Most power generation assets are 40–50 years old, operating beyond their useful life, and require replacement and/or rehabilitation. Uzbekistan has more than 230,000 kilometers of transmission and distribution lines with an average age of more than 30 years, exceeding their economic life. As a result, utilities are incurring additional operation and maintenance expenses to source spare parts that are no longer easily available and to cope with frequent outages of equipment.

4. **Prevailing energy inefficiencies.** Aging power systems cause high losses (more than 18%), with transmission losses at 4% and distribution losses at 14%, which is three times higher than Organization for Economic Co-operation and Development countries. Most power generation assets are outdated and run on old steam turbine technology plants with a weighted average efficiency of 33%, well below the 53%–56% efficiency of modern combined-cycle gas turbines. These reported losses may be understated because of the limited ability of Uzbekenergo to accurately collect information. Despite significant investments in the rehabilitation and construction

¹ In 2017, hydropower plants under Uzbekenergo were spun off to create a state-owned hydropower company, Joint Stock Company Uzbekhydroenergo.

of new lines, the power systems require substantial additional investments to meet growing demand and reduce losses.

5. **Heavy reliance on fossil fuels.** During 1995–2018, electricity consumption in Uzbekistan increased gradually, at a compounded annual growth rate of 1.4%. Currently, about 86% of electricity is supplied from natural gas, the dominant fuel of the country. If the expected power demand growth continues to be fueled by burning fossil fuels, notably natural gas, it would lead to a larger increase in natural gas consumption and greenhouse gas emissions. As 90% of the country's carbon dioxide emissions come from the energy sector, the country would then fall far behind in terms of achieving environmental sustainability and mitigating climate change. Resource diversification is thus an urgent and pressing need. The government aims to diversify its generation mix by exploiting its renewable resources, such as solar and wind.² This will reduce the country's heavy reliance on natural gas and increase otherwise foregone gas export revenues, improve supply reliability, and contribute to the country's Nationally Determined Contributions.³

6. **Sector sustainability.** Uzbekistan's power sector has struggled to fund new investments because of its poor financial performance. Power sector investments have historically been publicly funded, but increasingly burdening the public budget will be unfeasible and may not be sustainable. The continued tariff increases of more than 10% above the inflation rate have enhanced the sector's financial performance and reduced the need for direct subsidies. However, foreign exchange liberalization and depreciation of the local currency in September 2017 raised the cost-recovery level tariff, and the current electricity tariff of \$0.03 per kilowatt-hour is inadequate to recover operation and maintenance costs.

7. **Limited private sector participation.** Private sector participation has been very limited because of financial strains in the power sector, lack of commercial discipline, and a deficient legal and institutional framework for private participation. A new public–private partnership (PPP) law was approved in 2019 to expand private sector participation in public sector infrastructure projects, and multiple PPP projects in the power sector are underway based on this.

C. Government's Sector Strategy

8. Energy security, affordability, and efficiency are key priorities of the government's energy strategy. The government has adopted policy and legal frameworks with clear goals to reduce energy intensity and losses, and to step up sector investments and institutional transformation. In February 2019, the Ministry of Energy was established as part of an effort to restructure the power sector, with the aim to (i) unify energy policy, with the goals of ensuring energy security and meeting the growing need for energy; (ii) delineate the segmented regulatory functions and improve the legal and institutional framework to formulate market-oriented policies to attract private sector investment; (iii) improve sector performance by commercializing utility operations; and (iv) reduce energy intensity and carbon emissions through rationalized use of energy.

9. In March 2019, the government embarked on a comprehensive sector reform program to promote a competitive environment and attract private investment. Reforms included unbundling the monopolist utility, Uzbekenergo, into Joint Stock Company Thermal Power Plants (generation), Joint Stock Company National Electric Grid of Uzbekistan (transmission), and Joint Stock

² Government of Uzbekistan. 2020. [Concept Note for Ensuring Electricity Supply in Uzbekistan in 2020–2030](#). Tashkent. Uzbekistan's new energy policy emphasizes the deployment of renewable energy with a target of adding 5 GW of solar and 3 GW of wind capacity by 2030.

³ Uzbekistan aims to reduce the carbon intensity of the economy by 10% by 2030 (compared to 2010).

Company Regional Electrical Power Networks (distribution companies). The vertical unbundling will help improve operational efficiencies. In addition, selected thermal power plants are under consideration for privatization, and renewable energy-generation projects (such as solar and wind) will be offered only to private sector investors under the PPP arrangement.

D. Asian Development Bank Sector Experience and Assistance Program

10. The Asian Development Bank (ADB) is the largest financing partner in Uzbekistan's energy sector, with direct investment of more than \$1.6 billion since 2010, covering the sector's entire value chain. Other development partners active in the energy sector include Agence Française de Développement, the Asian Infrastructure Investment Bank, the Islamic Development Bank, the Japan International Cooperation Agency, and the World Bank. In 2018, the European Bank for Reconstruction and Development recommenced operations in Uzbekistan. To maximize development impact and harmonize support for the government's sector strategy, the development partners hold coordination meetings regularly and, whenever possible, explore cofinancing opportunities.

11. **Sector investment program aligned with government strategy.** ADB assistance to Uzbekistan's power sector addresses challenges in the whole value chain, with a focus on improved energy efficiency and supply reliability. Investment programs to modernize power generation assets have improved supply reliability and energy efficiency. ADB also extends support for the development of renewable energy resources. Since 2019, ADB has been advising the government to develop 1 GW solar power plants using the PPP modality.

12. **Support for sector reform for improved sustainability.** In parallel with the investment components, ADB, together with other development partners, is supporting incremental sector reform and the corporatization of electricity utilities through capacity enhancement in (i) overall corporate performance, (ii) financial management and governance, and (iii) information system management. ADB provides comprehensive support for the power sector in key complementary areas—reforms, urgent investments at scale in critical infrastructure, and capacity building of institutions and agencies—which together are crucial for the success of any reform actions.