# Kyrgyzstan

**Kyrgyzstan statistics**

**Population:**
6,200,000
**Installed hydropower capacity:**
3,091 MW (2017)
**Hydropower generation:**
13,456 GWh (2017)

Rising in the Tien Shien mountains at the border with China, the Naryn river flows through Kyrgyzstan feeding the huge Toktogul reservoir to the West and a series of downstream hydropower plants.

The country has a great number of large and medium sized rivers offering significant hydropower potential, estimated at 140-170 TWh, of which only 10 per cent has been exploited. The energy mix is highly dependent on hydropower, which produced 93 per of total electricity generated in 2017, and output is sensitive to seasonal and annual weather variations. At the end of the year, the water volume at Toktogul sat at almost 18.75 billion cubic metres, which was higher than 2016 by 12% and enabled power exports to neighbouring countries.

While there have been no major additions to hydropower capacity since 2010, residential electricity demand has risen by almost 60 per cent between 2007 and 2016. Five out of Kyrgyzstan's seven main hydropower plants are over 30 years old, and power supply reliability and quality of service is at risk. Investments in the sector are needed to keep pace with a growing economy. This is particularly the case in winter when generation becomes constrained and demand rises, putting pressure on the grid system. The winter supply gap is expected to increase to 883 GWh in 2030 unless investments in capacity and network reinforcement materialise.

In service since 1975, the complete rehabilitation of the Toktogul plant is a priority given it generates around 50 per cent of the country's power and also provides multi-year storage capacity and regulation services to the regional grid. The programme of works will upgrade equipment and plant capacity at the 1,200 MW Toktogul hydropower plant to 1,440 MW, and also support modernisation of all five main dams along the Naryn cascade (800 MW Kurpsai, 450 MW Tashkumyr, 240 MW Shamaldy-Sai, and 180 MW Uch Kurgan). The next phase will be carried out between October and December 2018, and wider international assistance is also planned to improve governance and operational management.

Near-term objectives for new capacity include construction of the remaining two 120 MW units at Kambarata-2. Long-standing plans to develop the 1,860 MW Kambarata-1 HPP and the Verkhne-Naryn HPP cascade (over 200 MW), offering an additional 5 TWh of generation, had been repeatedly stalled due to lack of funds. However, in late 2017 the Uzbekistan and Kyrgyzstan governments came to an agreement to cooperate in the construction of Kambarata.

Other proposed developments include the Kazarman and Suusamyr- Kokomeren hydropower plant cascades which together would add over 2,465 MW. Recent small hydropower projects have also been implemented, including Tehrmertinsky (3.0 MW) commissioned in 2017 in the Keminsky district.

Construction of the 405 km Datka- Kemin 500 KV transmission line and renovations to power supply systems around the capital, Bishkek, will help to mitigate network losses.

The government has undertaken steps toward reforming the power sector over the last three years, including the establishment of an Independent Regulator, a National Energy Holding Company, and a State Committee on Industry, Energy and Subsoil Use, as well as a new settlement and revenue mechanism. Nonetheless, Kyrgyzstan's electricity tariffs are still heavily subsidised and this makes cost recovery a major challenge for power producers. While measures implemented under the 2014-2017 Medium-Term Tariff Policy (MTTP) have made some improvements, renewed efforts will be needed to realise investments in hydropower according to a recent World Bank report.

Opportunities include the planned 2018-2021 MTTP and building on good progress already made in attracting external financing. Calls for broader policy actions include strengthening institutional governance, enforcing regulations, and outreach programs for vulnerable energy consumers.

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