

Tajikistan's Winter Energy Crisis: Electricity Supply & Demand Alternatives

101745

Central Asia Energy-Water Development Program

Program Brief No. 2

Background

Tajikistan's electricity system is in a state of crisis. While the region's Syr Darya and Amu Darya rivers provide abundant hydropower electricity in the summer, approximately seventy percent of Tajiks suffer from extensive electricity shortages during the winter. The country's winter electricity shortage increased considerably in 2009, when its energy trade with neighboring countries through the Central Asian Power System (CAPS) stopped. These shortages, estimated at about twenty-five percent of winter electricity demand, impose economic losses amounting to approximately three percent of Tajikistan's gross domestic product (GDP).

The impact of Tajikistan's winter energy shortage is not just financial, but also affects Tajik citizens' health and quality of life. Lacking a consistent and sufficient electricity supply during the winter, Tajiks burn wood and coal in their homes to meet their heating needs, resulting in indoor air pollution and associated health risks.

Amidst growing demand, without prompt action to remedy the causes of Tajikistan's electricity crisis the shortages could increase to about over a third of winter electricity demand or worse by 2016.

The Tajikistan Winter Energy Study

To assist the Government of Tajikistan (GoT) in addressing its winter electricity shortage issue, the World Bank's Central Asia Energy-Water Development Program (CAEWDP), along with the Bank's Energy Sector Management Assistance Program (ESMAP), conducted a study that examined alternative investments for both managing electricity demand and expanding supply in the period up to 2020. Published in November 2012, the study identified the combination of (1) low hydropower output during winter when river flows are low and (2) high demand driven by heating needs as the cause of the winter electricity shortages. The study concluded that the GoT should institute investments and policy reforms that promote energy efficiency, thermal power, and energy imports to address Tajikistan's recurring winter energy shortages in the short term.

Study Recommendations

CAEWDP and ESMAP proposed the following recommendations to the GoT to reduce the demand in, and increase the supply of, energy in Tajikistan:

The Central Asia Energy-Water Development Program (CAEWDP) is a knowledge and technical assistance multi-donor trust fund (MDTF) administered by the World Bank. CAEWDP's mission is to build energy and water security for the countries of Central Asia – Kazakhstan, Kyrgyz Republic, Tajikistan, Turkmenistan, and Uzbekistan – through enhanced regional cooperation.

Since its inception in 2010, CAEWDP has received support from bilateral and multilateral donors including the Government of Switzerland's State Secretariat for Economic Affairs (SECO), the European Commission (EC), the United Kingdom's Department for International Development (DFID), the United States Agency for International Development (USAID), and the World Bank Group.

Measures to Reduce Demand

- Progressively increase consumer electricity prices to reflect actual supply costs to encourage efficiencies in usage, spurring private sector involvement while managing the economic impact for vulnerable households.
- Institute a comprehensive energy efficiency program to reduce energy intensity in industry, and the public and residential sectors.
- Implement energy efficiency improvement program for Talco, the largest consumer in Tajikistan consuming more than one third of energy.
- Reduce commercial and technical losses in Tajikistan's power network.

Measures to Increase Supply

- Rehabilitate existing hydropower assets, a costly but crucial measure to prevent a possible power-system collapse.
- Fast-track the implementation of a proposed thermal power plant with “fuel flexibility,” enabling it to transition from coal to gas power in the future; Consider using the waste heat from the plant to heat homes and buildings.
- Re-connect the Tajik power system to the Central Asian power system to benefit from regional power trade within CA through electricity imports in winter and electricity exports in summer.

Impact

The Tajikistan Winter Energy Study advised GoT on options to significantly reduce the energy deficit by 2020. Several options are now under implementation, including construction of a combined heat and power plant in Dushanbe, energy efficiency improvements at an aluminum smelting plant, which could account up to 40% of the electricity consumption in the country, loss reduction in the power distribution network. The study thus served as an important foundation for subsequent domestic and international investments aiming to increase Tajikistan's energy security.

Contacts

- Sunil Kumar Khosla:
CAEWDP Energy
Development Pillar Leader:
skhosla1@worldbank.org
- Abena Akuffo-Akoto:
CAEWDP Partnership
Specialist:
aakuffoakoto@worldbank.org

References

“Tajikistan's Winter Energy Crisis: Electricity Supply and Demand Alternatives” (2012):

<http://documents.worldbank.org/curated/en/2013/01/18042383/tajikistan-winter-energy-crisis-electricity-supply-demand-alternatives>

