

 Early Warning System

ADB-58416-001

Hybrid Power Energy Enhancement Project

This project is still under review by the EWS. Project information and/or project analysis may be incomplete.



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Quick Facts

Countries	Tajikistan
Financial Institutions	Asian Development Bank (ADB)
Status	Proposed
Bank Risk Rating	U
Investment Type(s)	Grant
Investment Amount (USD)	\$ 10.00 million



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Project Description

DESCRIPTION

Integrating FPV with the existing hydropower infrastructure will diversify the energy mix, providing a clean, reliable and consistent power supply throughout the year. This hybrid system will help mitigate the risks associated with seasonal hydropower fluctuations. It will provide reliable green electricity to meet growing demand at an affordable cost, reducing load shedding during winter months when hydropower alone cannot meet electricity demand.

By utilizing the reservoir surface, the project minimizes land use and preserves natural habitats, significantly reducing the carbon footprint and promoting environmental sustainability. Moreover, installation of floating solar panels could help conserve water resources by reducing evaporation from the reservoir, ensuring better water availability for hydropower generation and irrigation uses, thus enhancing overall water resource management and food security. FPVs benefit from the cooling effect of water, which enhances solar panel efficiency. This results in higher energy yields compared to land-based systems.

The electricity produced by the plant during the summer months will be exported to neighboring Central Asian countries through the already existing transmission facilities contributing to mitigation efforts in the region.

This project will be the first of its kind in the country, serving as a pioneering model for future initiatives to harness the potential of floating solar power in the country.

Integrating floating solar photovoltaic (FPV) systems with the existing hydropower infrastructure will diversify Tajikistan's energy mix, providing a clean, reliable, and consistent power supply throughout the year. This hybrid system will help mitigate the risks associated with seasonal hydropower fluctuations, ensuring a stable energy supply even during the winter months when river water flow decreases. By providing reliable green electricity to meet growing demand at an affordable cost, the project will reduce load shedding during periods of high demand.

The project will include comprehensive training and capacity-building programs for local engineers and technicians, ensuring the successful implementation and maintenance of the FPV system.

PROJECT RATIONALE AND LINKAGE TO COUNTRY/REGIONAL STRATEGY

The current power generation capacity of Tajikistan is insufficient to meet the increasing internal and external demand driven by population growth, accelerated urbanization, and overall economic expansion. Tajikistan's heavy reliance on hydropower, which accounts for over 90% of the country's electricity generation, makes it energy-insecure and vulnerable to climate change. This dependence on hydropower results in significant seasonal variations in energy availability, particularly during the winter months when river water flow decreases, leading to energy shortages. Consequently, a substantial portion of residents and businesses are left without access to reliable energy during this critical period.

IMPACT

Energy security and efficient use of energy enhanced



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Investment Description

- Asian Development Bank (ADB)



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Contact Information

ACCESS TO INFORMATION

You can submit an information request for project information at: <https://www.adb.org/forms/request-information-form>

ADB has a two-stage appeals process for requesters who believe that ADB has denied their request for information in violation of its Access to Information Policy. You can learn more about filing an appeal at: <https://www.adb.org/site/disclosure/appeals>

ACCOUNTABILITY MECHANISM OF ADB

The Accountability Mechanism is an independent complaint mechanism and fact-finding body for people who believe they are likely to be, or have been, adversely affected by an Asian Development Bank-financed project. If you submit a complaint to the Accountability Mechanism, they may investigate to assess whether the Asian Development Bank is following its own policies and procedures for preventing harm to people or the environment. You can learn more about the Accountability Mechanism and how to file a complaint at: <http://www.adb.org/site/accountability-mechanism/main>.



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Other Related Projects

- ADB-58416-002 Floating Solar Energy Development in Tajikistan