



AGA KHAN DEVELOPMENT NETWORK

PamirEnergy



Reliable Energy

Year-round, 24-hour electricity provided to communities in GBAO and Afghan Badakhshan



Limited Emissions

Renewable energy has displaced the need to burn trees



Sustainable Excellence

2017 Ashden Award Winner

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PamirEnergy Transforming lives through hydropower

Following the collapse of the Soviet Union in 1991 and a five-year civil war, Tajikistan's electrical infrastructure was in need of significant investment. Among the most affected areas was the Gorno-Badakhshan Autonomous Oblast (GBAO), where economic and human development was stifled during the cold winter months as a result of a lack of electricity for heating and the consequent closure of schools, health centres and businesses.

Many of the region's 220,000 residents resorted to wood fuel for their heating and cooking needs during the winter, resulting in the decimation of 70 percent of the region's forests within a decade and a sharp increase in respiratory disorders due to smoke inhalation.

To address the situation, in 2002, the Aga Khan Fund for Economic Development (AKFED), in partnership with the Government of Tajikistan and the International Finance Corporation, formed PamirEnergy. Since then, the company has repaired the electrical infrastructure of GBAO, expanded hydroelectric capacity and transmitted surplus energy from Tajikistan to Afghanistan.

As a result of PamirEnergy's efforts, electricity coverage has expanded from 13 percent of households receiving 12 hours of electricity per day in 2002 to 96 percent of households receiving 24/7 electricity in 2016.

AKFED's Approach

Despite the dire need for electrical infrastructure in GBAO prior to PamirEnergy's founding, attracting private investment to the region was difficult, especially

following the civil war. The legacy of Soviet subsidies meant that those fortunate to have electricity paid less than one-tenth of the production cost, while measuring consumption for billing purposes was nearly impossible in view of the dated electrical metering system.

In this fragile context, AKFED took bold but calculated steps to bring partners and resources to address the issue. Under a public-private partnership agreement signed with the Government of Tajikistan in 2002, the company assumed the operational management of all power generation, transmission and distribution facilities of GBAO for a 25-year concession period.

To address cost issues, AKFED developed a pioneering subsidy scheme, making electricity affordable to residents and financially viable for PamirEnergy. The subsidies ensure an average tariff of 3.25 US cents/kWh, with innovative customer support schemes and technology to ensure affordable access for the poorest households.

Subsidies are funded generously by two grants, one by the Swiss Government (SECO) and the other by the Government of Tajikistan through financing by the International Development Association, a member of the World Bank Group.

Rehabilitation Efforts

Since taking over the electrical utility operations in GBAO, PamirEnergy has installed additional turbines and generators at Pamir I, the company's main generating plant, and retrofitted them with new equipment and



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In Bashor (Shughnan District, Afghan Badakhshan), a reliable supply of electricity from PamirEnergy's cross-border transmission line enables the medical staff at the Comprehensive Health Centre to operate more sophisticated equipment and consult specialists in Khorog through an eHealth programme. As a result, patients benefit from a more comprehensive range of quality health services.

systems. Renovations have also occurred at the company's 11 mini hydropower plants, nine of which provide power to villages and small settlements in remote areas. This has enabled an increase in the total installed capacity from 33 to 42 megawatts (MW). Additionally, hundreds of kilometres of transmission and distribution network have been upgraded, improving the overall quality of electricity supply in the region. This has reduced transmission line losses from 39 percent in 2006 to 12 percent in 2016, leaving significantly more energy available for the end-users.

PamirEnergy seeks innovative ways to provide power during the difficult winter months when power generation is restricted due to low river flows, yet electricity need is at its greatest. At Pamir I, the company has created a retention structure, which can increase the Gunt River's flow by as much as 40 percent during the winter. Additionally, the company has consistently increased the accuracy of power billing by re-calibrating old electricity meters and installing new individual meters. Over 96 percent of all power sold in GBAO is now billed through individual meters, increasing bill collection rates from 30 percent up to 100 percent. The implementation of this innovative system, in addition to mobile-phone billing and payments, and the recently established call centres, has ensured that consumer trust in Pamir Energy is well-established. A variety of schemes are now being

utilised to encourage consumers to participate in energy saving measures.

Development Impact

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The renewable energy produced by PamirEnergy's plants has displaced the need to burn trees or use high-polluting diesel generators. Due to its limited greenhouse emissions, PamirEnergy has been able to generate revenue by selling carbon credits abroad, in line with the terms of the Kyoto Protocol.

In 2008, with the support of its development partners, PamirEnergy began its cross-border programme, transmitting surplus energy from Eastern Tajikistan

to Northern Afghanistan. The national Afghan energy utility, DABS, has recognised that it is unlikely Afghanistan's energy network will ever reach these remote communities and has welcomed PamirEnergy's input. Through eight cross-border energy projects, four percent of Badakhshan Province in Afghanistan (some 35,000 people and over 200 government and commercial entities) has been electrified for the first time.

As the first public-private partnership in Tajikistan, PamirEnergy has had significant socio-economic impact on the quality of life of communities on both sides of the Panj River, where hydropower has become the most affordable and reliable source of energy.

Looking Forward

As demand continues to increase from existing customers in Afghanistan and Tajikistan, PamirEnergy has recognised that in order to avoid load shedding, which could set the region's development back several years, new generation capacity must be added. For this reason, the company has identified a new power project, Sebzor Hydropower Plant (HPP).

The Sebzor HPP is projected to have a generation capacity of 11MW, and is expected to produce 94.5 GWh annually – enough energy for nearly 622,000 people. This will enable the provision of affordable, reliable and clean electricity to an additional 468,000 Afghans in Badakhshan Province, increasing the percentage of Badakhshan's 1 million population with access to electricity from 4 percent to nearly 50 percent.



In 2016, 96 percent of households in GBAO received 24/7 electricity.

Development Partners

- International Finance Corporation
- International Development Association
- Government of Tajikistan
- Government of Switzerland
- Government of Germany
- Norwegian Ministry of Foreign Affairs
- United States Agency for International Development (USAID)

Support AKDN

Partnerships

When AKDN refines its development approach in a given area, it looks to partners to help expand the scale. A significant portion of the funding for its activities therefore comes from national governments, multilateral institutions and private sector partners. For more information, visit: akdn.org/partners

Individuals

Individuals can support the AKDN. For more information, visit: akdn.org/support

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About AKDN

Founded and guided by His Highness the Aga Khan, the **Aga Khan Development Network (AKDN)** brings together a number of development agencies, institutions, and programmes that work primarily in the poorest parts of Asia and Africa. **It works in over 30 countries for the common good of all citizens, regardless of their gender, origin or religion.** A central feature of the AKDN's approach to development is to design and implement strategies in which its different agencies participate in particular settings to help those in need achieve a level of self-reliance and improve the quality of life.