



Uzbekistan: Talimarjan Power Project (formerly CASAREM-Talimarjan Energy Development Project)

Project Name	Talimarjan Power Project (formerly CASAREM-Talimarjan Energy Development Project)												
Project Number	43151-023												
Country	Uzbekistan												
Project Status	Active												
Project Type / Modality of Assistance	Loan												
Source of Funding / Amount	<table border="1"><tr><td colspan="2">Loan 2629-UZB: Talimarjan Power Project (formerly CASAREM-Talimarjan Energy Development Project)</td></tr><tr><td>Ordinary capital resources</td><td>US\$ 340.00 million</td></tr><tr><td colspan="2">Loan 2630-UZB: Talimarjan Power Project (formerly CASAREM-Talimarjan Energy Development Project)</td></tr><tr><td>concessional ordinary capital resources lending / Asian Development Fund</td><td>US\$ 10.00 million</td></tr><tr><td colspan="2">Loan 8244-UZB: Talimarjan Power Project (formerly CASAREM-Talimarjan Energy Development Project)</td></tr><tr><td>Japan Bank for International Cooperation</td><td>US\$ 300.00 million</td></tr></table>	Loan 2629-UZB: Talimarjan Power Project (formerly CASAREM-Talimarjan Energy Development Project)		Ordinary capital resources	US\$ 340.00 million	Loan 2630-UZB: Talimarjan Power Project (formerly CASAREM-Talimarjan Energy Development Project)		concessional ordinary capital resources lending / Asian Development Fund	US\$ 10.00 million	Loan 8244-UZB: Talimarjan Power Project (formerly CASAREM-Talimarjan Energy Development Project)		Japan Bank for International Cooperation	US\$ 300.00 million
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Strategic Agendas	Environmentally sustainable growth Inclusive economic growth Regional integration												
Drivers of Change	Partnerships												
Sector / Subsector	Energy - Energy efficiency and conservation												
Gender Equity and Mainstreaming	Some gender elements												
Description	The project involves a new power plant to improve energy security and facilitate regional energy trade. It also aims to increase energy efficiency and save energy through clean power generation. Supporting investments will increase regional connectivity, and improve power sector performance and management, and customer service.												

Project Rationale and Linkage
to Country/Regional Strategy

Uzbekistan's economy grew at an annual average rate of 7% during 2004-2006 and 9% in 2007-2008. Despite the global financial and economic crisis, growth prospects for 2010 and beyond are expected to be within a range of 8%-9%. The country has taken a gradual rather than rapid shock approach to reform, and the response to the crisis was swift, balanced, and successful.

Uzbekistan has the most industrialized and energy intensive economy in Central Asia. For each dollar of gross domestic product, Uzbekistan uses 60% more energy than Azerbaijan and Kazakhstan, and four times more than the world average; this stems from (i) aging and dilapidated energy infrastructure, (ii) a low technological base, (iii) lack of investment, and (iv) inefficiency.

Energy efficiency is now a top strategic priority for Uzbekistan, as well as for the Asian Development Bank (ADB), and represents the best means (in terms of reducing cost and carbon intensity) to achieve energy security. It reduces the currently high levels of energy intensity, and increases energy productivity. The social and economic benefits are also high. Consumers spend less, power generation and dispatch costs fall and the financial return to the utilities increase. Increased revenues underpin more investment, better maintenance, and improved service quality.

The government has in place policy and legal frameworks to reduce energy intensity levels and cut losses, and has plans for significant clean technology investments and institutional reforms. In the short to medium term (2009-2014), power generation capacity will need to increase considerably to match electricity demand growth of 3.1% - 5.4% a year. The construction of new and more efficient combined cycle gas turbine (CCGT) plants fit the strategy. Other actions include expanding renewable energy, energy efficiency programs, the replacement or rehabilitation of old and obsolete thermal power plants, and energy trade.

Investment in CCGT technology leads to high energy savings and environmental benefits. It is the cleanest fossil fuel-based method of power generation available, and CCGT power plants burning natural gas produce significantly less carbon emissions than do coal- and oil-fired thermal power plants.

Uzbekistan is rich in hydrocarbon resources. Another strategic priority is the processing (or value-added production) of these resources for both domestic and foreign markets. This strategy requires substantial investment and investors, with transactions most likely structured around a range of public and private initiatives, several of which are under consideration.

Increased energy production in Uzbekistan directly benefits several countries in the region. Afghanistan already gets most of its electricity from Uzbekistan. Other beneficiaries are Tajikistan and the Kyrgyz Republic, both of which are rich in hydro resources but prone to winter shortages. The Uzbek power transmission system also facilitates transfer of power supplies between these two countries and Turkmenistan. Uzbekistan is a natural gas exporter, including to the People's Republic of China. In the medium term, Uzbekistan will also pursue power exports to new energy-deficit markets such as Pakistan.

Uzbekistan is an active participant in the Central Asia Regional Economic Cooperation Program (CAREC), which includes Afghanistan, Azerbaijan, People's Republic of China, Kazakhstan, Kyrgyz Republic, Mongolia, and Tajikistan. In 2008, the CAREC countries agreed on a long-term strategy for developing the region's energy sector, which focuses on energy security and trade. In October 2009, the countries agreed on a framework action plan to expand the regional power network as a means to increase trade in power. ADB and other multilateral institutions participating in CAREC are cofinancing studies, capacity development, and investments. It was under this framework that Uzbekistan started exporting power to Afghanistan (up to 150 megawatts [MW]) in early 2009; these exports will soon rise to 300 MW.

Power generation. In 2008, Uzbekistan generated 50,254 gigawatt-hours (GWh) of electric power, imported 925 GWh from its neighbors, and exported about 630 GWh. The total installed capacity for power generation is 12,400 MW, but less than 10,000 MW are available. Thermal power plants (TPPs) represent 86% and hydropower plants 14% of the capacity. Natural gas is used for 94% of thermal power generation. All TPPs run on steam cycle technology with an efficiency rate of 31%, compared to 57% under advanced CCGT technology. Total losses (net generation output less invoiced energy) are 20% of generated energy. The heavy reliance on and inefficient use of fossil fuels in power generation creates negative environmental impacts, while CCGT power plants reduce greenhouse gas emissions.

Most assets are 40-50 years old, and require replacement and/or rehabilitation. Since 1991, only two power generation capacity expansion projects have been completed. By 2015, the government wants to replace 570 MW of inefficient (25% efficiency), outdated generation capacity and install three CCGT power plants totaling 1,600 MW. Construction of two such projects in Tashkent and Navoi began in 2009. The third project is the one proposed here.

Power transmission. The transmission system consists of 1,850 kilometers (km) of 500 kilovolt (kV) lines, 6,200 km of 220 kV lines, and 15,300 km of 110 kV lines. The high voltage system is connected to Kazakhstan, Kyrgyz Republic, Tajikistan, and Turkmenistan. It also has a 220 kV connection with Afghanistan. The transmission system is ageing and needs upgrading. Transmission bottlenecks are becoming a serious obstacle to the delivery of power to domestic and regional customers.

The southern region of Uzbekistan receives electricity from the northern region, where 70% of power generation is located. However, over 90% of gas production is located in the south. This means gas is transported to the north for conversion to electricity, which is then sent back to customers in the south. In 2009, the electricity peak demand in the southern region surpassed 2,000 MW, but the north-south transmission capacity is limited to about 1,600 MW, resulting in shortages during peak hours. This energy flow problem is compounded by growing industrialization in the south. The CCGT power plants to be constructed in Talimarjan and Navoi are located in the south, close to gas production fields. These investments will reduce gas and power transmission losses. They will also free up transmission capacity to supply neighboring countries.

The state joint stock company, Uzbekenergo, the sole power sector utility in the country, is a vertically integrated and publicly owned monopoly. It owns and operates 10 TPPs (including three cogeneration plants), and 28 hydropower plants. It owns and operates the power transmission network. It also distributes power to all categories of customers from its 14 regional distribution centers, which have 256 distribution units. A restructuring of Uzbekenergo is planned. The key objective is to commercialize its utility operations and introduce competition in various business lines.

To realize the power system modernization and rehabilitation program, Uzbekenergo will continue to seek investment from international lenders and the private sector. To secure finance, it plans to (i) modernize its accounting system with a financial management information system, (ii) improve financial transparency in line with international auditing standards and reporting practices, and (iii) review the internal financial management structure by establishing internal auditing.

Uzbekenergo wants to transform its management and operations to become a model power utility company in the region. This requires new skills, new business practices, and new technology. The management of Uzbekenergo is committed to change.

Impact Improved energy security

Project Outcome

Description of Outcome	Increased energy-efficient power generation capacity
Progress Toward Outcome	Loan review mission fielded in November 2016. Both CCGTs passed performance tests.

Implementation Progress

Description of Project Outputs	Energy-efficient generating plants installed Uzbekenergo corporate management and performance improved Community service center is operational
Status of Implementation Progress (Outputs, Activities, and Issues)	Ongoing. Plan to be implemented throughout the Project. Some activities have been completed. Achievable but with delay. Service center to partially open 2017. Achievable with delay - commissioning scheduled by Q2 2017. Original target year (2015) revised, due to delays in procuring the EPC contract, which was signed March 2013, registering contract amendments, transporting equipment, and steel structure works. Loan 2629 extended. Target achievable but with delay. Capacity development program commenced in 2015, through Uzbekenergo's own resources. Target achievable but with delay. Financial mgt capacity development program commenced in 2015, through Uzbekenergo's own resources.
Geographical Location	Talimarjan in Kashkadarya Province

Safeguard Categories

Environment	A
Involuntary Resettlement	C
Indigenous Peoples	C

Summary of Environmental and Social Aspects

Environmental Aspects	An environmental impact assessment has been prepared and was disclosed on 15 December 2009. Two rounds of public consultations were held prior to project appraisal. The environmental sensitivity of the project site and its surroundings is low. The town of Nuristan (home to employees of the Talimarjan TPP) is the only community close to the plant; the nearest other settlements are over 5 km away. Large parts of the surrounding area have been developed for irrigated agriculture; undeveloped areas consist of Karshi steppe, which is made up of semi-desert scrublands. The project's key environmental issues are air quality and emissions, noise impacts on the Nuristan settlement, and water management. The project will contribute to the process of closing older inefficient plants, which will reduce the amount of carbon dioxide (CO ₂) produced from power generation. CCGTs fueled by natural gas produce significantly lower amounts of CO ₂ and nitrogen oxide (NO _x) than do oil- or coal-fired plants, and negligible amounts of sulfur dioxide (SO ₂). They typically have 35% lower fuel consumption than conventional TPPs and require less water. Dispersion modeling has been done to assess the possible impacts of NO _x . ADB has agreed with the State Committee for Nature Protection on the acceptable discharge limits for CCGTs. Water is taken from the KMC in summer and a single pass cooling process is used. Water is then discharged back into the canal. The thermal plume is cooled to within 5_C of the intake temperature within 500 meters. A closed system is used in winter whereby water is sprayed into lagoons for cooling before being returned to the plant. The method for cooling the new plant will be designed during the engineering stage. There is sufficient water supply in the canal to meet the additional demand without impacting downstream water users.
Involuntary Resettlement	No involuntary resettlement and land acquisition required.
Indigenous Peoples	No indigenous peoples identified.

Stakeholder Communication, Participation, and Consultation

During Project Design	<p>The project is a national power generation project, and the population is not involved in its planning and development. However, consultations with key stakeholders (such as community leaders and power plant workers) at both central and local government levels were conducted in four different locales or "mahallas" of the Kashkadarya province which geographically represent the entire Kashkadarya. The mahallas were consulted regarding their needs during preparation of the detailed design of the CCC, and for training on topics such as vocational training, handicrafts, sewing, food processing, energy usage, health and hygiene, family planning, and information on microcredits. Half of the respondents were housewives and working women to get their views on household consumption. Focus group discussions (FGDs) and in-depth interviews were held as follows:</p> <ol style="list-style-type: none"> 1. Nuristan settlement community of the Talimarjan Thermal Power Plant - 1 FGD with 8 female household users; and 3 interviews with mahalla leader, local polyclinic, and power energy supply agency's debt collector 2. Muborek rayon for rural and agricultural settings in western part of the province - 1 FGD with 6 female household; and 6 interviews with local businesses, mahalla leaders, medical facility, energy supply agency's representatives 3. Kamashi for rural and agricultural settings in eastern part of the province - 1 FGD with 6 female household users; and 4 interviews with local businesses, medical facility, and mahalla leader 4. Karshi city for issues in urban and business communities - 1 FGD with 4 women from mahallas in different parts of the city; 1 FGD with 4 women of mahalla selected for the study; 1 FGD with 4 mahalla leaders from different parts of the city, and 4 interviews with local businesses, power supply agency's debt collector, and local school. 5. Talimarjan Thermal Power Plant for gender and social issues - 1 FGD with 3 females, 1 FGD with 3 male workers, and 3 interviews with administration of the plant, and Medical Post attendant. <p>The following CSOs were also consulted:</p> <ol style="list-style-type: none"> 1. Business Women Association of Kashkadariya Oblast 2. Women's Committee of Kashkadariya Oblast (region) and Nuristan village of the same Oblast 3. Makhalla (community based organization) of Karakalpakstan and Kashkadariya Oblast 4. Business Women Association - Karakalpakstan
During Project Implementation	<p>Continuous C&P activities are included in the overall social and/or gender activities (see community and gender action plan), and are being implemented and managed by special staff (focal points) assigned by the gender specialist at the project management unit. The focal points are assisting the gender specialist in implementing the community and gender action plan.</p>

Business Opportunities

Consulting Services	<p>All consultants will be recruited according to ADB's Guidelines on the Use of Consultants (2013, as amended from time to time).</p> <p>The project implementation consultant was recruited through the Quality- and Cost-based Selection (QCBS) method. The auditor for FY 2011-2012 was recruited through the Consultants' Qualifications Selection method. An auditor will again be recruited for FY 2015. An individual consultant was engaged for the EA's needs assessment for capacity development. Consultants will be engaged to implement the capacity development program via QCBS by 2015.</p>
Procurement	<p>All procurement of goods and works will be undertaken in accordance with ADB's Procurement Guidelines (2013, as amended from time to time).</p> <p>A turnkey engineering, procurement and construction (EPC) contractor was engaged for the CCGT Power Plant, following the international competitive bidding procedure (ICB) using the two-stage bidding method. Equipment under the capacity development program will be procured using ICB for contracts valued at \$500,000 and above, and Shopping for contracts valued at \$100,000 or less.</p>

Responsible Staff

Responsible ADB Officer	Musaev, Shokhimardon
Responsible ADB Department	Central and West Asia Department
Responsible ADB Division	Energy Division, CWRD
Executing Agencies	<p><i>Uzbekenergo-Talimarjan</i> <i>Mr. I. Basidov</i> <i>grp_tal_tes@mail.ru</i> <i>Uzbekenergo, 6 Khorezmaskaya St., Tashkent, 100000, Uzbekistan</i></p>

Timetable

Concept Clearance	07 Dec 2009
Fact Finding	20 Nov 2009 to 04 Dec 2009
MRM	12 Jan 2010
Approval	20 Apr 2010
Last Review Mission	-

PDS Creation Date 22 Jan 2010

Last PDS Update 30 Mar 2017

Loan 2629-UZB

Milestones					
Approval	Signing Date	Effectivity Date	Closing		
			Original	Revised	Actual
20 Apr 2010	01 May 2010	23 Jul 2010	31 Dec 2015	31 Dec 2017	-

Financing Plan			Loan Utilization			
	Total (Amount in US\$ million)		Date	ADB	Others	Net Percentage
Project Cost	970.00		Cumulative Contract Awards			
ADB	340.00		20 Apr 2010	307.29	0.00	90%
Counterpart	630.00		Cumulative Disbursements			
Cofinancing	0.00		20 Apr 2010	275.17	0.00	81%

Loan 2630-UZB

Milestones					
Approval	Signing Date	Effectivity Date	Closing		
			Original	Revised	Actual
20 Apr 2010	01 May 2010	23 Jul 2010	31 Dec 2015	30 Sep 2018	-

Financing Plan			Loan Utilization			
	Total (Amount in US\$ million)		Date	ADB	Others	Net Percentage
Project Cost	10.00		Cumulative Contract Awards			
ADB	10.00		20 Apr 2010	3.06	0.00	34%
Counterpart	0.00		Cumulative Disbursements			
Cofinancing	0.00		20 Apr 2010	1.73	0.00	19%

Loan 8244-UZB

Milestones					
Approval	Signing Date	Effectivity Date	Closing		
			Original	Revised	Actual
21 Dec 2009	01 May 2010	30 Jul 2010	30 Jul 2019	-	-

Financing Plan			Loan Utilization			
	Total (Amount in US\$ million)		Date	ADB	Others	Net Percentage
Project Cost	300.00		Cumulative Contract Awards			
ADB	0.00		21 Dec 2009	0.00	268.06	111%
Counterpart	0.00		Cumulative Disbursements			
Cofinancing	300.00		21 Dec 2009	0.00	241.10	100%

Project Page <https://www.adb.org/projects/43151-023/main>

Request for Information <http://www.adb.org/forms/request-information-form?subject=43151-023>

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