

PROJECT CONCEPT

Project background

Project name	Project "Rehabilitation of Energy Sector. Phase 2" Component "Rehabilitation of Toktogul HPP: Replacement of second and fourth generator units with replacement/repair of auxiliary systems and powerhouse equipment".
Sector	Power engineering
Type of project	Medium-term investment project
Project host states	Kyrgyz Republic
Location and place of registration of investment project	Kyrgyz Republic, Jalal-Abad region, Toktogul district.
Project Summary	<p>Toktogul HPP is one of the hydroelectric power plants of the cascade of Toktogul HPPs and the largest operating hydropower plant in the country. The installed capacity of the power plant is 1200 MW (4 units of 300 MW each). Put into operation in 1975. The water storage capacity of the reservoir is 19.5 billion m³. The height of the dam is 215 meters. The long-time average annual power production is 4400 million kWh.</p> <p>The project is nominally divided into 3 phases.</p> <p>Currently, as part of the Energy Sector Rehabilitation Project, the ADB is financing the first phase of the Toktogul HPP rehabilitation works, which requires the replacement of the electromechanical equipment, including generator circuit breakers, excitation and control systems, 500 kV cable lines, etc.</p> <p>The second phase of the rehabilitation process envisages replacement of the second and fourth generator units with replacement/repair of auxiliary systems and powerhouse equipment.</p> <p>The third phase makes provision for replacement of the first and third units of the power plant.</p>
Purpose of Project	Rehabilitation of the HPP by replacing worn down and obsolete equipment.
Project deliverables	<p>Increased reliability of the HPP operation, and power supply to the country and to the entire Central Asian region.</p> <p>Reduction of operating and maintenance costs.</p>
Readiness of project	<p>The financing agreement for the first phase of the Energy Sector Rehabilitation Project between the Ministry of Finance of the Kyrgyz Republic and the ADB was signed on 12 September 2012, ratified by the Parliament of the Kyrgyz Republic and entered into force on 7 December 2012. The budget size of the Project was US\$ 62 million. of which US\$ 55 million would be provided by the ADB, and US\$ 7 million should be co-financing by the Kyrgyz Republic.</p> <p>In February 2013, in preparation for the implementation of the Project, the ADB funded the development of the feasibility study for the first phase of the Toktogul HPP rehabilitation for US\$ 40 million, and detailed cost estimates were provided for the second (US\$ 120 million) and third (US\$ 100 million) phases.</p> <p>Currently, with funding committed by the ADB, the first phase of the rehabilitation of the Toktogul HPP is underway. At the same time, ADB approved and is financing the preparation of a feasibility study for the second phase of the rehabilitation of the Toktogul HPP (<i>ADB Letter dated 28 August 2013, approving Technical Assistance funds for the preparation of the second phase of the project</i>). The ADB recruits the German engineering company Fichtner to carry out this work. The feasibility study is tentatively expected to be ready in the fourth quarter of this year.</p> <p>According to the preliminary estimates carried out by the ADB, the budget for the second phase of the project will be US\$ 190 million, of which US\$ 105 million will be allocated by</p>

	the ADB, and the Kyrgyz Republic will provide US\$ 10 million. Work is underway to raise the lacking financial resources in the amount of US\$ 75 million.
Structure of Project funding	Requested funding availability limit of ACF: US\$ 75 million Loan maturity, including grace period: 20 years; Interest rate: one (1) % per annum; Currency of funding - US dollars; Grace period: 8 years; Repayment of the principal shall be carried out in accordance with the schedule, provided if/when the Project is approved.
Government support	On 27 May 2012, the Government of the Kyrgyz Republic adopted a medium-term strategy for development of the electric power industry of the Kyrgyz Republic for 2012-2017. The plan of action for the implementation of the Strategy includes the Project "Rehabilitation of Energy Sector", one of its components being the "Rehabilitation of the Toktogul HPP".
Project financial and economic performance forecasts	Based on the survey of technical and cost-related parameters, conducted by the engineering company Fichtner, as well as following updating of the lending terms, the Project Company will provide forecasts.
Environmental impact	Continuation of the construction project will not have any negative impact on the environment.
Sources for debt repayment	Power sales earnings
Presumed collateral	The loan is provided to the Government of the Kyrgyz Republic in accordance with an international agreement. The Kyrgyz Republic does not have overdue debts in terms of repayment and servicing of any foreign debt
Project Company	Open Joint Stock Company "Electric Power Plants" (OAO "Electric Power Plants").
Plans for selection of suppliers	In the course of project implementation
Plans for sale of power	Sales of electricity to domestic and foreign markets.
II Information on Project Company	
Project Company (additional information in Appendix 1)	Open Joint Stock Company "Electric Power Plants" (hereinafter the Project Company), incorporated and operating under the laws of the Kyrgyz Republic. Form of ownership - private. Re-registration of legal entity: Certificate of State Re-registration # 16312-3300-OA. Date of the State Re-registration - 17 January 2008. Registered office address: 326, Zhibek-Zholu Ave., Bishkek city Shareholding status of the Project Company: State Property Fund of the Government of the Kyrgyz Republic - 80.5%; Social Fund of the Kyrgyz Republic - 13.2%; individuals and legal entities - 6.3%.
Document certifying the authority - Executive order of the President of the Kyrgyz Republic # 181 of 06.09.2012	
Minister of Finance of the Kyrgyz Republic	<i>Signed</i> Lavrova Olga Vladimirovna

Appendix 1- Information on Project Company

Open Joint-Stock Company "Electric Power Plants" (OAO "Electric Power Plants", hereinafter - the Project Company) was established in October 2001 by way of a spin-off of AO "Kyrgyznergo" during its reorganization, and was registered as a legal entity by the Ministry of Justice of the KR on 18 October 2001 as a privately owned company.

OAO "Electric Power Plants" (EPP) carries out the following operations:

- Production and sale of electric power and heat in accordance with the licenses, obtained in accordance with the procedure defined by the legislation of the Kyrgyz Republic.
- Sale of electricity within the territory of the Kyrgyz Republic to wholesale customers and end users;
- Export of electric power outside the Kyrgyz Republic;
- Frequency regulation in the domestic and external electric power markets;
- Purchase of electricity from power producers in other countries;
- Execution of intergovernmental agreements on the use of water and energy resources;
- Ensuring reliability and safety of operation of power generation facilities in accordance with the established standards and regulations;
- Minimization of the impact on the environment during new construction, rehabilitation, operation and maintenance of facilities run by EPP.

At the same time, 93% of shares are owned by the government represented by the State Property Fund of the Kyrgyz Republic and by the Social Fund of the Kyrgyz Republic. The rest of the shares belong to some other legal entities and private individuals.

The size of the authorized capital is equal to KGS 4,428,282.9 thousand.

OAO "Electric Power Plants" has on its books 7 hydroelectric power plants and 2 thermal power plants.

The total installed capacity of the power plants is 3,746 MW, of which 80.9% is provided by the hydroelectric power plants.

The structure of OAO "Electric Power Plants" includes:

Toktogul HPP with a capacity of 1200 MW (4x300MW). The first generator unit was commissioned in 1975. In operation for 36 years.

Kurpsay HPP with a capacity of 800 MW (4x200MW). The first generator unit was commissioned in 1981. In operation for 30 years.

Uch-Kurgan HPP with a capacity of 180 MW (4x45MW). The first generator unit was commissioned in 1962. In operation for 49 years. It is the trailblazer in the Naryn cascade.

Tashkumyr HPP with a capacity of 450 MW (3x150MW). The first generator unit was commissioned in 1985. In operation for 26 years. In 2001 it reached its design capacity.

Shamaldysai HPP with a capacity of 240 MW (3x80MW). The first generator unit was commissioned in 1992. In operation for 19 years. It reached its design production capacity in August 2002.

At-Bashin HPP with a capacity of 40 MW (4x10MW). The first generator unit was commissioned in 1970. In operation for 41 years.

Kambar-Ata HPP-2 with the capacity of the first generator unit 120 MW unit. It was put into operation on 27.11.2010.

TPP of Bishkek. The rated output power is 666 MW; its heat capacity is 1443.9 Gcal/h. In operation for 50 years. It is the main supplier of hot water and steam for the capital city. Coal, natural gas, and fuel oil are used for fuel.

TPP of Osh. The rated output power is 50 MW; the heat capacity is 350.7 Gcal/h. In operation for 45 years. It produces heat and power using fuel oil and natural gas.

Its main production facilities include buildings and structures, transmission systems, machinery and equipment, vehicles, and other fixed assets.

The main production fixed assets are depreciated as follows:

- Transmission systems -77.5%;
- Vehicles - 47.0%;

- Machinery and equipment - 38.2%;
- Other fixed assets - 79.0%
- Buildings - 13,2 %;
- Structures - 16.0%.

OAO "Electric Power Plants" transmits electric power via the transportation organization OAO "National Electric Network of Kyrgyzstan" to power distribution companies and large industrial consumers by high-voltage transmission lines of 110, 220, 500 kV.

Distribution companies operate electric power networks at a voltage of 0.4-35 kV.

Heat supply to the cities of Bishkek and Osh is provided by heat pipelines of a total length of 493.2 km.

The heat supply pipelines and electric power networks of 0.4-500 kV, hydropower and thermal plants in aggregate form the energy system of the Kyrgyz Republic.

The Kyrgyz energy system has the ability to produce, transport and distribute electricity not only within the country but also to export, import and engage in organizing cross flows of electric power supply with the neighboring states, to participate in eliminating power shortages and peak loads in the energy systems of Central Asian countries.

The main risks in the operations of OAO "Electric Power Plants" are contingent on the water flow regime of the Naryn River and the filling capacity of the Toktotul reservoir, as well as on timely and adequate fuel supplies to the Bishkek and Osh TPPs.

OAO "Electric Power Plants" does its business in accordance with the national environmental protection legislation:

- Annual development, implementation and analysis of progress reports on the plan of action for the protection of the environment and rational use of natural resources aimed at mitigating and preventing the negative impact of power plants; conservation and improvement of the quality of natural environment; coordination with regional offices of the State Agency for Environmental Protection and Forestry of the Government of the Kyrgyz Republic;
- Development of: (a) Environmental Passports (EP) - a regulatory document containing a set of data expressed through a system of indicators reflecting the level of use of natural resources by the enterprise and the depth of its impact on the environment (term of validity of the EP is 5 years); (b) manuals for control of MPE (maximum permissible emission), which is scientific, technical, sanitary and hygienic regulatory document containing standards to comply with for each specific source of atmospheric pollution, provided that the emissions of pollutants produced by all the sources in the city or any other populated area, given their dispersion and transformation in the atmosphere, as well as the development prospects of these enterprises, DO NOT generate surface concentrations exceeding the established air quality standards; (c) regulatory requirements for control of MPD (maximum permissible discharge), which is the content of specific substances in waste water, permissible for disposal given the effective regime for this specific location of the water course per unit of time, in order to ensure compliance with the water quality standards within the observed range, or non-deterioration of the current water quality, if it is below the standard requirement;
- Coordination with the regional departments of the State Environmental Protection Agency;
- Obtaining in due time permits for emissions, discharges of pollutants into the atmosphere, water bodies and waste disposal in locations, which are subject to mandatory compliance with standards for maximum permissible emissions, discharges of pollutants, as well as other conditions and requirements ensuring protection of the atmospheric air and water bodies; as well as permits for water uses;
- Monitoring compliance with the requirements for emissions, discharges of pollutants and other harmful impacts on the atmospheric air, on water bodies, and the technical condition and management of wastewater treatment facilities;
- Determination of the amount of pollutants by laboratory techniques and by means of sectoral estimation methods; payments for pollution of the environment;
- Monitoring the compliant and actual emissions and discharges of pollutants into the environment;
- Inspection and verification of compliance with regulatory requirements for toxicity and smoke content of exhaust gases based on the established standards for vehicles;
- Compilation and submission in due time to the National Statistical Committee of reports on protection of the atmospheric air 2 TP - air; on the use of water 2 TP - water management; on expenses for environmental protection 4 OS.

No changes in the production and technological processes of electricity and heat generation have been reported recently.

The main suppliers of coal and fuel oil to the TPP in Bishkek and fuel oil the Osh TPP are coal mining and fuel oil production enterprises of the Republic of Kazakhstan and the Kyrgyz Republic, respectively, which supply coal and fuel oil, based on the outcome of regular competitive selection bidding procedures.

The principal gas suppliers for the Bishkek and Osh TPPs are located in the Republic of Kazakhstan and, as expected, in 2014 the Russian Federation will join in. Gas supplies are carried out on the basis of government-guaranteed agreements.

The key suppliers of power generation and thermal-and-mechanical equipment are Russian equipment manufacturers.

Dependence on the above suppliers is minor; there are alternatives to consider.

Changes are observed in the terms and conditions of government procurement contracts.

Operations and Financial Analysis

The key financial performance indicators of the Project Company are given in Table 1.

Table 1. Financial Performance of OAO "Electric Power Plants"

Data on OAO "Electric Power Plants" (in KGS ,000)	31 Dec. 10	31 Dec. 11	31 Dec. 12	30 June 13
REPORT ON FINANCIAL POSITION (BALANCE)				
<i>Fixed assets</i>	15,040,342.0	15,708,265.7	15,751,649.2	16,077,344.1
<i>Long-term investments</i>	726,846.5	576,354 (6)	400,762.6	233,401.7
<i>ТМЗ</i>	2,138,873.3	1,903,454.1	2,430,193.3	1 869 305.7
<i>Trade and other receivables</i>	2,331,862.2	2,247,951.3	1,583,477.7	628,443.0
Total assets	19,808,810.8	21,379,357.6	21,265,631.4	21,233,893.0
<i>Debentures</i>	9,181,831.3	9,043,996.7	9,103,032.5	9,598,529.3
<i>Deferred income</i>	4,049,277.7	4,010,412.8	3,968,514.6	3,947,988.5
<i>Accounts payable</i>	1,123,798.6	645,677.6	957,763.7	473,506.5
<i>Accrued liabilities</i>	635,071.8	330,828.3	963,470.7	888,663.9
Total liabilities	15,054,180.2	14,390,294.7	15,264,714.1	15,195,618.9
Equity attributable to owners	4,754,630.6	6,989,062.9	6,000,917.3	6,038,274.1
Total equity and liabilities	19,808,810.8	21,379,357.6	21,265,631.4	21,233,893.0
STATEMENT OF COMPREHENSIVE INCOME				
Profit (loss) from operating activities	1,897,493.3	2,437,263.3	69,444.20	339,181.7
Profit (loss) from non-operating activities	794,397.4	80,026.7	32,355.8	298,921.2
Profit (loss) before income tax	2,691,890.7	2,517,290.0	393,000.0	40,260.5
Net comprehensive income	2,635,296.6	2,249,432.3	366,872.6	37,356.8
CASH FLOW STATEMENT				
Net cash flows from operating activities	859,806.6	1,858,859.2	340,171.1	227,070.4
Net cash flows from investment activities	459,022.4	647,913.3	342,940.8	383,690.2
Net cash flows from financial activities	1,345,203.1	858,330.2	413,928.8	109,714.3
Net change in cash position	26,374.1	352,615.7	416,698.5	46,905.5

The structure and performance on income and expenses of Project Company in 2010-2012 are given in Table 2.

Table 2. Data on incomes and expenditures of OAO "Electric Power Plants"

Data on OAO "Electric Power Plants" (in KGS ,000)	31.12.2010	31.12.2011	31.12.2012
Sales proceeds	6,518,058.7	7,874,269.9	6,090,962.0
Electricity	5,760,730.1	7,212,891.1	5,470,397.7
Heat	543,154.7	458,922.3	443,541.8
Make-up water	214,173.9	202,456.5	177,022.4
Cost of production	4,494,635.4	5,582,275.2	6,134,181.9
Electricity	2,400,555.3	3 110 234.6	3,497,412.6
Heat	1,868,909.9	2,224,872.4	2,402,464.5
Make-up water	225,170.2	247,168.2	234,304.8
Gross profit	2,023,423.29	2,291,994.70	-43,219.90

Cash flow broken down by financiers of the Project Company is shown in Table 3.

Table 3. Cash flow shown by creditors of EPP in 2010-2013

Loans	Used	Repaid	Used	Repaid	Used	Repaid	Used	Repaid
	2010		2011		2012		01/09/2013	
Foreign loans n/r of MF, including:	47,153	170,601	151,940	214,281	79,118	216,691	124,149	128,172
International Development Association-1		155,820		88,738				
International Development Association-2		7,843		28,460		57,871		28,263
International Development Association-3	15,533		24,396		9,852	61,403		30,232
International Development Association-4	31,620		127,545		27,099			11,337
IDA (Emergency Aid)					42,168	236	88,267	729
Restructured		6,220		97,083	0	97,181		57,497
Asian Development Bank (ADB)		717					35,882	114
Budget loans, n/r of MF	1,230,000	70,855	0	589,154	0	164,480	0	129,131
Total before SFED of MF	1,277,153	241,456	151,940	803,435	79,118	381,171	124,149	257,303
Loan from OAO "RSK Bank"	0	0	29,071	3,186	67,605	15,967	80,055	29,342
Loan from EDB	0	0	0	0	0	0	389,022	403,393
TOTAL	1,277,153	241,456	181,011	806,011	146,723	397,138	593,225	690,038

The total receivables and payables of the Project Company are given in Table 4.

Table 4. Accounts receivable and payable of OAO "Electric Power Plants" as of 01.08.2012

<i>Indicators</i>	2013		Changes Jan./ July	
	1 January	1 August	KGS million	% growth
Accounts receivable, total:	2,209.3	1,884.2	-325.1	-14.72%
Accounts receivable w/out long-term	1,804.2	786.7	-1,017.5	-56.40%
Distribution companies, total:	876.3	46.3	-830.0	-94.72%
Large industrial consumers, incl.	260.8	183.0	-77.8	-29.83%
Consumers of heat	133.1	73.1	-60.0	-45.08%
VAT, deductible	33.0	0.0	-33.0	100.00%
Other receivables	329.5	279.9	-49.6	-15.05%
Long-term receivables	405.1	1,097.6	692.5	170.95%
Export of electricity to foreign markets	171.5	204.4	32.9	19.18%
Accounts payable, total:	10,054.6	10,940.8	886.2	8.81%
Payables w/out long-term loans and net of VAT deductibles	1,217.4	1,108.5	-108.9	-8.95%
Tax payments to the budget	-1,001.0	-870.7	130.3	-13.02%
Customs duties	34.1	0.0	-34.1	-100.00%
Social security	57.2	25.2	-32.0	-55.94%
Dividends (for 2011)	630.4	616.8	-13.6	-2.16%
Loans	9,154.2	10,393.4	1,239.2	13.54%
Services	422.9	171.7	-251.2	-59.40%
Other payables	441.9	421.2	-20.7	-4.68%
Fuel	314.9	183.2	-131.7	-41.82%

Appendix 2 – Project Implementation Schematic

General plan of Project implementation is given below:

