

PROJECT INFORMATION DOCUMENT (PID)

APPRAISAL STAGE

Report No.: PIDA4299

Project Name	Transmission Grid Strengthening Project (P147348)
Region	EUROPE AND CENTRAL ASIA
Country	Georgia
Sector(s)	General energy sector (100%)
Theme(s)	Export development and competitiveness (100%)
Lending Instrument	Investment Project Financing
Project ID	P147348
Borrower(s)	Ministry of Finance
Implementing Agency	Ministry of Energy, Georgian State Electrosystem
Environmental Category	A-Full Assessment
Date PID Prepared/Updated	01-Apr-2014
Date PID Approved/Disclosed	02-Apr-2014
Estimated Date of Appraisal Completion	25-Mar-2014
Estimated Date of Board Approval	13-May-2014
Decision	

I. Project Context

Country Context

Georgia, a country of 4.5 million people, has a per capita gross domestic product (GDP) of US\$ 3,500 and an extreme poverty rate of 3.7 percent. The country has a total area of 69,700 square kilometers. It is located south of the Caucasus mountain range, with Russia to the north, Armenia and Turkey to the south, and Azerbaijan to the east. Georgia is a fairly mountainous country with elevations ranging from zero to 5,000 meters above sea level. Key natural resources include hydropower, forests, manganese, iron ore and copper. Poverty and extreme poverty, measured using absolute poverty lines linked to the national relative poverty and extreme poverty lines, are high in Georgia. In 2012, 14.8 percent and percent of the population lived in poverty and extreme poverty respectively. The manufacturing sector -- notably mineral products, food processing and beverages -- and the trade sector, accounting for 27 percent and 21 percent of GDP, respectively, have been responsible for most of the economic growth in recent years. Also the Government of Georgia has been highly successful in promoting tourism, increasing the sector's revenues by 56 percent in 2012. Investments to expand and improve electricity and transport infrastructure are key elements in the expansion of this sector.

The global economic crisis and conflict dampened rapid economic growth that began 2003, but recent government stimulus programs have restored economic momentum. Georgia's economy

grew at about 6 percent 2004-2013, fueled by a wide range of reforms and strong inflows of foreign direct investment. However, the 2008 conflict with Russia and the global financial crisis led to a sharp economic downturn, with GDP contraction of 3.8 percent in 2009. The Government of Georgia responded to the crisis by launching a fiscal stimulus package and public investment programs emphasizing infrastructure development. This stimulus led to substantial economic recovery, with economic growth at more than 5 percent during 2010-2013. However, the recovery remains largely driven by expanded public investment. Foreign direct investment is recovering but in 2013 it was still only at about a third of what it was during the high point of economic growth in 2007 (about US\$600 million).

In 2013, economic growth slowed due to perceived policy uncertainty, but recent strong policy initiatives have greatly enhanced growth prospects for 2014. Following parliamentary elections in late 2012, the new government's attempts to trim public investment spending, coupled with a weakening of consumer and investor confidence, exacerbated the slowdown, resulting in economic growth of only 3.2 percent in 2013. To stimulate growth, the Government formulated a new economic policy, Socioeconomic Development Strategy 2020. In addition to the Georgian Energy Development Fund, established in 2010 to develop small and medium size renewable energy generation, the Government has launched the Partnership Fund, designed to develop large-scale strategic infrastructure projects, such as hydropower stations at Khudoni, Nenskra, Namakhvani, and Oni. In parallel, a privately-financed, co-investment fund was established to finance large infrastructure projects alongside public funds. Based on these developments, updated projections of the World Bank and the International Monetary Fund forecast economic growth of five percent for 2014.

Despite economic recovery, Georgia has high rate of unemployment and one of the highest poverty rates in the Europe and Central Asia Region (ECA) region. Strong economic growth during 2006-2007, resulting primarily from enterprise restructuring in the public sector, did not generate significant employment. The poverty rate actually rose, from 18 percent in 2006 to 20 percent in 2007, with the lower 40 percent of the income scale growing at only 0.7 percent per year compared to 2 percent for the overall population. Following the decline in GDP growth, the relative poverty rate increased to 21 percent in 2010. However, the post-crisis stimulus package helped reduce the poverty rate to 17.7 percent in 2011. Between 2010 and 2012, the depth and intensity of poverty declined, respectively, with the poverty gap narrowing from 6.8 to 4.3 and the squared poverty gap diminishing from 3.2 to 1.8. Nevertheless, unemployment remains high, at 15 percent (2012), with urban unemployment considerably higher, at 26 percent. Income inequality has also remained high with the Gini coefficient close to 0.40. The Government views increased spending on infrastructure development as a key factor for stimulating private investment and creating jobs.

There is significant international evidence supporting the critical role of infrastructure in promoting growth through productivity increases. The two principal drivers of investment for sustained high economic growth and job creation are (a) international competitiveness for export-led growth and (b) urbanization, which facilitates productive economic activity. These two drivers of investment and economic growth, in turn, depend crucially on efficient infrastructure. Public investment in infrastructure (including power) has been identified as having economically and statistically significant impact on long run growth.

Affordable, reliable, and clean energy is essential for Georgia's private sector to compete and grow and contribute to the job creation necessary for boosting shared prosperity. While the number of

firms reporting that electricity as a problem had declined in 2012 relative to 2008 , three priorities remain: ensuring that clean electricity supply grows fast enough to meet the demands of a growing economy and domestic private sector; supporting enhanced electricity infrastructure in the Adjara region, which has been especially vulnerable to blackouts/supply uncertainty, and is a critical logistics hub not just for the country but for the South Caucasus in general; and facilitating regional trade in the medium to longer term, given Georgia's high potential hydropower exports, through investment in adequate transmission capacity.

Sectoral and institutional Context

Over the past decade, the Government has made remarkable strides towards improving power sector performance. Government policies to enforce financial discipline combined with public investment for repair of dilapidated infrastructure have transformed a power sector on the verge of collapse to one that provides reliable electricity at reasonable cost. Collections for billed electricity have improved dramatically, from a low of 20 percent to the current level of nearly 100 percent. The enforcement of collection slowed the growth of consumption from three percent in 2005 to zero in 2006, followed by a two-percent contraction in 2007. Investments in power generation facilities increased electricity generation by seven percent during the same period. The overall contraction of consumption and increase in generation capacity has minimized power shortfalls, with imported electricity sufficient to fill the supply gap, at least temporarily.

Although Georgia has no overall shortage of supply, the country is highly dependent on imported power to meet seasonal demand, raising concerns over security of supply. Georgia's power generation is a 10 TWh system, of which 82 percent comes from hydropower. The country's power consumption peaks in the winter, when hydropower generation is at its lowest point. In the winter, Georgia must rely substantially, on imported electricity or domestic thermal power generation using imported natural gas. In the winter, power from both sources amounts to about 49 percent of electricity supply in the winter, compared to zero percent in the summer. By increasing the share of hydropower plants with seasonal storage capability, Georgia will be able to lessen its seasonal dependence on imported sources of energy, enhancing security of supply and saving foreign exchange.

As Georgia's economy grows, without major investments in domestic seasonal generation, the security of power supply will diminish even further. During the past five years, power demand grew in line with the economy, at an average annual rate of about 3.9 percent. Over the next 10 years, power demand is expected to increase at an average annual rate of three to five percent. Georgia relies on the export of surplus power during the summer to offset the cost of imported electricity during the winter. As power demand grows, the power surplus in summer will shrink, reducing the amount of power available for the offset. Therefore economic growth, without investments to increase domestic power generation, will undermine the security of power supply.

Even with a major increase in power generation capacity, weak parts of the transmission grid will impede security of supply. Georgia's strong 500 kV loop and modern grid-control systems allow the system to meet a peak load at 1800 MW with no system-wide outages. However, there are parts of the grid which have weak connection with the main loop. The northern branch of transmission grid is insufficient to transmit power from the new Dariali hydropower station along with the northwestern part near Enguri to connect prospective hydropower stations in that area. The southwestern tail of the grid , which supplies power to Ajara region, also cannot reliably transmit

electricity from the Adjaristsqali hydropower due to a weak connection with the main loop.

Georgia has large, untapped hydropower resources but the most of the capacity being developed is not sufficient to reduce seasonal import dependency. The country's economically viable hydropower potential is about 40 TWh. Of this potential, Georgia has harnessed about 8 TWh, with about 2 TWh of new hydropower scheduled to come on stream by 2017. However, most of hydropower sites being developed are run-or-river operations, with limited or no seasonal storage capacity. Georgia has actively sought private investment for the development of hydropower stations with seasonal storage capacity, amounting to about 1800-2000 MW with anticipated electricity generation of 6.4-7.9 TWh. However, progress in developing this capacity has been slow. The preparation for the construction of the Adjaristsqali hydropower station has started but the construction of Khudoni station, the largest planned hydropower facility, remains on hold due to outstanding environmental and social issues, and persisting resistance from civil society groups. The feasibility studies for the development of Namakhvani and Nenskra stations are completed, but the lack of a financier has stalled development.

The eventual development of hydropower resources will expand opportunities for power trade that existing platforms for electricity exchange are insufficient to support. The development of about 8 TWh of hydropower, designed to meet peak demand in the winter, will result in a power surplus of about 6 TWh during the summer. However, the current power-exchange system cannot support power trade of this magnitude. In particular, the system lacks the necessary hardware and software to accommodate increased domestic generation, as explained in the Section IV, Appraisal Summary. It also is can not ensure the hourly metering and balancing necessary for the new generators to export summer surplus to Turkey.

Planned hydropower development is not yet been optimized for increasing overall economic benefits and minimizing adverse environmental and social impacts. Georgia has been developing hydropower sites on a case-by-case basis, focusing on benefits and costs of each site, rather than an optimal development framework. Technical, environmental and social assessments of each site have taken place in isolation.

II. Proposed Development Objectives

The project development objective is to provide reliable power transmission services to new power generation development in southwestern part of the grid, upgrade electricity exchange systems, and provide economically efficient, environmentally and socially sustainable electricity sector planning.

III. Project Description

Component Name

Component 1. Transmission System Strengthening

Comments (optional)

This component will finance a high voltage transmission line from Akhaltsikhe substation to Batumi substation and the preparation of the number of studies including; new transmission-system expansion plan, prospective transmission line feasibility studies, and the preparation of basic designs for the prospective transmission.

Component Name

Component 2. Wholesale Power Exchange Platform

Comments (optional)

This component will finance hardware and software for the wholesale power exchange systems.

Component Name

Component 3. Electricity Sector Strategic Environmental and Social Assessment

Comments (optional)

This component will finance preparation of the Strategic Environmental and Social Assessment report.

Component Name

Component 4. Project Implementation Support

Comments (optional)

This component will finance Project Implementation Unit for effective project management.

IV. Financing (in USD Million)

Total Project Cost:	62.00	Total Bank Financing:	60.00
Financing Gap:	0.00		
For Loans/Credits/Others			Amount
Borrower			2.00
International Bank for Reconstruction and Development			60.00
Total			62.00

V. Implementation

The Project will be implemented by Georgian State Electrosystem (GSE), which is fully state owned Joint Stock Company which owns and operates high voltage transmission network of Georgia. GSE has successfully managed three projects that have received Bank financing and projects with financing from other development partners, including ADB and USAID. The existing International Project's Unit of the GSE will act as a project implementation unit (PIU) for the Project.

VI. Safeguard Policies (including public consultation)

Safeguard Policies Triggered by the Project	Yes	No
Environmental Assessment OP/BP 4.01	x	
Natural Habitats OP/BP 4.04	x	
Forests OP/BP 4.36	x	
Pest Management OP 4.09		x
Physical Cultural Resources OP/BP 4.11	x	
Indigenous Peoples OP/BP 4.10		x
Involuntary Resettlement OP/BP 4.12	x	
Safety of Dams OP/BP 4.37	x	
Projects on International Waterways OP/BP 7.50		x
Projects in Disputed Areas OP/BP 7.60		x

Comments (optional)

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