



Project Data Sheet

Project 54448-001

Project Name Energy Storage and Green Hydrogen Sector Development Program
Project Number 54448-001
Country / Economy Georgia
Project Status Proposed
Project Type / Modality of Assistance Loan

Loan: Energy Storage and Green Hydrogen Sector Development Program

Source of Funding / Amount
Ordinary capital resources US\$ 30.00 million
Ordinary capital resources US\$ 45.00 million

Operational Priorities
OP2: Accelerating progress in gender equality
OP3: Tackling climate change, building climate and disaster resilience, and enhancing environmental sustainability
OP6: Strengthening governance and institutional capacity

Sector / Subsector **Energy** / Electricity transmission and distribution - Energy sector development and institutional reform

Gender Some gender elements

Description
The proposed sector development program (SDP), through investment and policy support, will strengthen electricity grid security, improve the regulatory framework, and pave the way for greater private sector participation in the development of energy storage and renewable energy including wind, solar, and green hydrogen. The program supports the government's goals of reforming the energy sector, enhancing cross-border electricity trading, and improving the efficiency of the transmission network, as reflected in Asian Development Bank's (ADB) country partnership strategy for Georgia, 2019-2023. The program is aligned with the following operational priorities of ADB's Strategy 2030: accelerating progress in gender equality (priority 2); strengthening governance and institutional capacity (priority 6); and tackling climate change (priority 3) by fostering green economic growth and encouraging a shift to a low greenhouse gas (GHG) emission development path.

Georgia's V-shaped recovery. Georgia's sound policy response to the coronavirus disease (COVID-19) crisis generated a robust economic recovery in 2021. Gross domestic product (GDP) rebounded sharply from a contraction of 6.8% in 2020 to 10.4% growth in 2021. Initial concerns about potential spillovers from the Russian invasion of Ukraine have not materialized and did not alter the economic outlook for 2022. Instead, economic performance is expected to remain robust on account of an increased influx of migrants from the Russian Federation and strong growth in remittances and exports. Improved external inflows are expected to narrow the current account deficit to 8.2% of GDP in 2022, compared with 9.8% in 2021. Economic output is projected to grow by 6% in 2022, signaling economic resilience and prudent macroeconomic management.

Sound macroeconomic management and positive outlook. Countercyclical fiscal expenditure to mitigate the impact of the COVID-19 pandemic in 2020 resulted in a breach of fiscal rule for the fiscal deficit and public debt. In compliance with the Economic Liberty Act (2011), the authorities adopted a credible fiscal adjustment plan to ensure compliance with the fiscal rule by 2023. The public debt to GDP ratio was rapidly brought below the 60% threshold, and is expected to reach 45.3% in 2022. The fiscal deficit declined from 9.3% of GDP in 2020 to 6.1% in 2021 but remained above the 3% threshold and is projected at 3.6% for 2022. The authorities plan to reduce the deficit to 3.6% of GDP in 2022 and below 3% in 2023, in compliance with the fiscal rule. Georgia's macroeconomic outlook is stable and is expected to sustain robust and inclusive economic growth, underpinned by strong institutions, credible fiscal and monetary policies, sustainable debt levels, and proven commitment to structural reforms (footnote 5).

Energy sector background. The government began structural reform of the energy sector in 1996 when it unbundled the existing utility into separate generation, transmission, and distribution companies. In 2012, the government passed market and regulatory reforms to harmonize electricity market legislation with that of Türkiye and southeast European countries. In June 2014, Georgia signed an association agreement with the European Union (EU), undertaking an obligation to become a member of the European Energy Community (EEC) through ongoing reforms and legal approximation with the EU's third energy package. These initiatives transformed the energy sector from a state monopoly to a liberalized market; most energy sector entities operate as private companies, and the government established Georgian National Energy and Water Supply Regulatory Commission (GNERC) as an independent regulator, and introduced the long-term concessions and guaranteed power purchase agreements for private investments in hydropower plants (HPPs). In 2015, Parliament approved the core act, "Main Directions of the State Policy in the Energy Sector of Georgia," and subsequently approved the Energy Strategy of Georgia (2020-2030) in compliance with the directions provided in the core act. In April 2017, Parliament ratified the accession agreement to the EEC and the country's subsequent membership in the EEC. The membership framework requires that the government, in compliance with the EU's third energy package, align its energy market with the EU's best practices. During 2019-2021, Parliament adopted multiple legislations, including (i) the Law on Energy and Water Supply (2019), (ii) Electricity Market concept design (2020), (iii) the Energy Efficiency Law (2020), (iv) the National Energy Efficiency Action Plan, (v) the Energy Efficiency Labelling Law (2019), and (vi) the Law on Promoting the Production and Use of Energy from Renewable Sources (2019). In 2021, under an ADB-funded program, Georgian State Electrosystem (GSE) undertook substantial corporate governance reforms and successfully terminated its insolvency proceedings. The electricity market is being piloted on large customers and was projected to be fully opened to all participants by September 2022.

Energy security. Georgia's energy mix is dominated by hydropower (75%), and due to seasonal variations in water availability, relies heavily on imports from neighboring countries (Russia and Azerbaijan) to meet demand-supply gap. Georgia's power consumption peaks in the winter, when hydropower generation is lowest resulting in 40% of the supply coming from imported electricity and domestic thermal generation using imported natural gas. Most HPPs are run-of-the river and have surplus power in the summer; because of strong public opposition, there is limited opportunity for developing large hydro-pumped storage projects. Power supply security is at high risk without balanced regional trade and investment in large pumped storage, HPPs, and variable renewable energy (VRE) sources. Electricity consumption is increasing at 7% per year, with an estimated winter deficit peak of 20%. In 2021-2022, imports were at a record high, with an alarming dependence on supply from Russia.

Transmission network stability constraints. In addition to relying heavily on Russia for supply, Georgia is also dependent on Russia for system security of its transmission network. GSE's network faces about 48 hours of blackouts annually and relies on Russia's transmission system operator for primary frequency regulation. Although Georgia has large potential for wind and solar power, plans to integrate 1,300 megawatts (MW) of wind and 500 MW of solar to its system by 2030; the transmission network does not allow integration of VRE sources of more than 750 MW because of its limited ability to manage frequency fluctuations, which constrains deployment of full VRE potential in the country.

Geopolitical concerns. For both issues-i.e., network stability and meeting the seasonal demand-supply gap-Georgia is heavily dependent on Russia, which is a concern in the context of the ongoing regional geopolitical situation and is considered a serious challenge to energy security. Because of increased demand, Georgia imported more electricity from Russia in 2021-2022 than in previous years. The government is intensifying its effort to boost energy security by ensuring energy self-reliance and diversifying the energy mix to become a low-carbon economy.

Unutilized seasonal surplus electricity. During summer, when demand is low and generation is high because of peak water availability in rivers, the expectation for HPPs is to export electricity to regional players like Türkiye. However, demand in Türkiye has not been forthcoming and electricity exports have not been as envisaged. With more renewable energy projected to come online, the seasonal surplus will still need to be exported or stored even after the increased in-country demand is met. Unfortunately, no energy storage facility, planned investments, or supporting incentive policies are in place to help Georgia benefit from this surplus energy.

Policy and regulatory constraints in integrating new technologies to address energy security. The government has achieved much in reforming the energy sector; however, Georgia has yet to align its policy and regulatory frameworks to adopt new technologies such as energy storage and green hydrogen, which are emerging as the future of energy security. The frameworks must recognize energy storage as a service, battery energy storage system (BESS) as a storage device, and must allow appropriate tariffs and revenue generation structures for such investments to become commercially viable for the private sector. Similarly, green hydrogen, as a new technology, requires policies, tariff incentives, risk mitigation measures, a licensing approach, and a market structure to encourage private sector investment. Without such policies, frameworks, and market operating guidelines, private sector participation will remain constrained.

Government reform agenda. The energy policy and strategy of Georgia (footnote 8) is based on securing energy supplies, providing energy to consumers at affordable rates, transposing EU energy legislation into Georgian law in accordance with the EEC agreement, increasing the share of renewable energy, and increasing energy transit/trade, among other key measures. In 2021, the government approved the updated Nationally Determined Contribution together with the 2030 Climate Change Strategy and Action Plan (CSAP), 2021-2023. The CSAP serves as the action plan for implementing the commitments made under the Nationally Determined Contribution. The goal set for energy generation and transmission is to reduce GHG emissions by 15% by 2030. This goal is to be implemented through three key objectives: increasing the share of renewable energy, strengthening the transmission network for better integration of renewable energy, and developing relevant policy documents. The proposed program is in line with the government's energy policy directives, and is also fully aligned with the government's climate change commitments and action plan under the Paris Agreement.

ADB's previous experience, lessons, and development coordination. Lessons from the project completion report for a previous ADB-financed project and regional experience in the sector suggest that: (i) strong government ownership is critical to achieving results, and (ii) sustainability requires continuous, long-term engagement on reforms supported by investments. ADB's Independent Evaluation Department (IED), in its latest project performance evaluation report for the Regional Power Transmission Enhancement Project, recommended that ADB provide financing for new investments in HPPs, hydrogen generation, energy storage, and other renewable energy, thus contributing to power supply security. Based on lessons and recommendations of IED, the proposed SDP will support the government in deploying battery storage and developing policy and regulatory reforms essential to supporting private sector participation in renewable energy, including green hydrogen, in the energy mix. Among development partners, the program was discussed and developed in consultation with the International Monetary Fund (IMF) country team and is in line with support provided by the World Bank, EU, and other bilateral development partners to promote clean energy and energy security.

Project Rationale and Linkage to Country/Regional Strategy

Impact

- i) Financial sustainability and sector performance of energy sector improved (Georgia State Energy Policy)
- ii) GHG Emissions in the energy generation and transmission sector reduced by 15% below the reference scenario projection by 2030

Outcome

The expected outcome is energy security enhanced.

Outputs 1. Policy and regulatory framework to allow sustainable BESS deployment approved
2. Policy, strategy, and regulatory framework to encourage development of green hydrogen with private sector participation developed
3. Climate and Disaster Resilient Battery energy storage system installed

Geographical Location Nation-wide

Safeguard Categories

Environment B
Involuntary Resettlement B
Indigenous Peoples C

Summary of Environmental and Social Aspects

Environmental Aspects

Involuntary Resettlement

Indigenous Peoples

Stakeholder Communication, Participation, and Consultation

During Project Design

During Project Implementation

Responsible ADB Officer Tareen, Adnan

Responsible ADB Department Central and West Asia Department

Responsible ADB Division Energy Division, CWRD

Executing Agencies *Ministry of Economy and Sustainable Development of Georgia*

Timetable

Concept Clearance 04 Oct 2022
Fact Finding 29 Sep 2023 to 29 Sep 2023
MRM 15 Nov 2023
Approval -
Last Review Mission -
Last PDS Update 12 Oct 2022

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