



Project Information Document (PID)

Concept Stage | Date Prepared/Updated: 16-May-2023 | Report No: PIDC35815



BASIC INFORMATION

A. Basic Project Data

Country Georgia	Project ID P179950	Parent Project ID (if any)	Project Name Enhancing Energy Security through Power Interconnection and Renewable Energy Program (P179950)
Region EUROPE AND CENTRAL ASIA	Estimated Appraisal Date Oct 16, 2023	Estimated Board Date Jan 30, 2024	Practice Area (Lead) Energy & Extractives
Financing Instrument Investment Project Financing	Borrower(s) Georgia	Implementing Agency Georgian State Electrosystem	

Proposed Development Objective(s)

Enhance the implementation readiness of the Black Sea Submarine Cable Project.

PROJECT FINANCING DATA (US\$, Millions)

SUMMARY

Total Project Cost	25.00
Total Financing	25.00
of which IBRD/IDA	25.00
Financing Gap	0.00

DETAILS

World Bank Group Financing

International Bank for Reconstruction and Development (IBRD)	25.00
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Environmental and Social Risk Classification
Substantial

Concept Review Decision
Track II-The review did authorize the preparation to continue



B. Introduction and Context

1. **The Black Sea Submarine Cable Project represents one of the most strategic and ambitious initiatives for energy and digital connectivity in the South Caucasus and Southeast Europe.** The proposed power interconnection would connect countries across the Black Sea, supporting renewable energy (RE) development in the South Caucasus, contributing to energy decarbonization in Southeast Europe, enhancing energy security, and improving the electricity supply reliability in the countries involved. At the same time, the proposed concurrent digital interconnection (expected to be built and operated on a fully commercial basis) would reduce internet connection costs in the region, while improving the bandwidth and building redundancy for international digital connectivity across the Black Sea. The Government of Georgia has been leading the coordination at the technical and political level with other potential participants in the Project, both in the South Caucasus and in Southeast Europe, with support of the World Bank. Over the past year, the European Commission (EC), at the highest levels, has also taken a keen interest in the Project.

2. **The proposed Enhancing Energy Security through Power Interconnection and Renewable Energy (ESPIRE) Multiphase Programmatic Approach (MPA) Program would support the preparation, structuring, financing, and implementation of the Black Sea Submarine Cable Project.** Systematic, multi-year support will be needed to manage the high level of technical and geopolitical complexity of the proposed interconnection. The MPA Program would consist of three phases supporting sequential and partially overlapping activities in the preparation and eventual implementation of the Project: Phase 1 would support preparatory studies, technical assistance, and capacity building, including on the establishment of adequate institutional mechanisms for intergovernmental coordination and decision-making; Phase 2 would support investments in domestic on-land transmission grid strengthening to link the submarine cable with the backbone high-voltage power transmission infrastructure; and Phase 3 would support, together with other prospective financiers, the eventual construction of the submarine cable itself following agreement amongst project stakeholders.

Country Context

3. **Georgia has an established record of reforms that have contributed to economic success.** With an average economic growth rate of 5.2 percent in per capita terms during 2010-2019, Georgia was the second-fastest growing economy in the Europe and Central Asia (ECA) region and among the fastest globally. As a result, GDP per capita (at constant 2015 US\$) increased from US\$3,048 in 2010 to US\$4,553 in 2019, the year in which Georgia moved to upper-middle income status, and US\$4,608 in 2021.

4. **The economy has recovered strongly from COVID-19 and has shown resilience against the impacts of Russia's invasion of Ukraine.** As the pandemic hit, Georgia, reliant on tourism, experienced one of the largest GDP drops in ECA (6.8 percent contraction in 2020). In 2021, the economy rebounded strongly (10.4 percent growth), driven by the recovery of consumptions and exports, and GDP surpassed its 2019 level. Like other economies in the South Caucasus and Central Asia, Georgia has benefited from large inflows of money transfers and people in the aftermath of Russia's invasion of Ukraine and the subsequent sanctions on Russia, with growth averaging 10.1 percent in 2022.

5. **Nonetheless, economic performance could be impacted by inflation and high global uncertainty.** Persistent inflation coupled with the tightening of global financial conditions could impact the Georgian lari (the national currency), potentially affecting macro-financial stability due to the high levels of dollarization. Money transfer inflows could also be reversed. The authorities' ongoing fiscal consolidation efforts and prudent monetary management, supported by a recently approved International Monetary Fund (IMF) program, are risk-mitigating factors, although state-owned enterprises (SOEs) remain a source of potential vulnerability. Despite robust growth, poverty reduction has decelerated in recent years, and the creation of good jobs has been limited.



6. **Georgia is also exposed to climate change and needs to step up adaptation and mitigation efforts.** Climate change is projected to increase temperatures by the end of the century, and water availability will diminish. While on average a reduction in precipitation is expected for Georgia, some areas may experience flooding due to increased intensity of rainfall, especially on the coast, in low-lying areas in the center of the country, and in key river basins. Projected temperature increases and changes in precipitation patterns will affect Georgia's agrarian, forestry, and water sectors, potentially hindering economic growth and having a disproportionate impact on the poor and vulnerable, highlighting the need for adaptation policies.¹ On the climate change mitigation side, Georgia's updated Nationally Determined Contribution (NDC), as well as Georgia's 2030 Climate Change Strategy and the 2021-2023 Action Plan,² set ambitious greenhouse gas (GHG) emissions reduction targets and commitments, and achieving this will require strong monitoring systems and mobilization of significant resources. Meeting the baseline NDC target (a 35 percent reduction from the 1990 level by 2030) will require decoupling emissions from economic growth, including by reducing emissions in transportation and industry and fostering RE generation.

Sectoral and Institutional Context

Georgia's Power Sector Context

7. **Georgia has a hydro-dominated power system but is increasingly reliant on imports and has set ambitious targets for more diversified RE development to improve energy security and accelerate the energy transition.** At the end of 2022, Georgia's installed capacity was 4,586 MW. Hydropower accounted for 74 percent of the total (3,376 MW), followed by gas-fired thermal capacity (1,189 MW, 26 percent) and wind power (21 MW, <1 percent). In addition, Georgia imports electricity via interconnections with four neighbors: Russia (capacity of 1,010 MW), Armenia (230 MW), Azerbaijan (250 MW), and Türkiye (850 MW), for a total interconnection capacity of 2,340 MW. In recent years (2020-2022), about 70 percent of electricity generation has come from HPPs, while gas-fired power plants accounted for about 20 percent and imports for 10 percent. Hydro provides nearly 100 percent of power during the peak hydro season (in the summer), while during the winter, thermal generation and imports make up for the lower hydropower output. Going forward, the Government has set a target of developing 1,500 MW of hydro, wind, and solar over the coming 5 years, developing several reservoir hydropower plants, and increasing the share of RE in final energy consumption from 21 percent in 2020 to 27.5 percent by 2030. Electricity demand has been growing strongly due to robust rates of economic growth, but demand growth has been at least partially met by increasing imports. Overall, the annual growth of end-user power demand has been sustained over the past decade (about 4 percent p.a. on average), despite the impact of the COVID-19 pandemic.

8. **The Georgian State Electrosystem (GSE), the state-owned transmission system operator, owns, operates, and maintains the country's high-voltage power transmission network.** GSE operates 110, 220, and 500 kV overhead power transmission lines (OHLs) as well as interconnections with neighboring countries. In addition, GSE is responsible for domestic electricity dispatch services. In recent years, the company has been able to improve its financial situation and zero its cash deficits, also as a result of the support and technical assistance received as part of the World Bank-financed Energy Supply Reliability and Financial Recovery Project (ESRFRP, P169117). Technical reliability is also improving, in part thanks to World Bank-financed transmission system investments under the Transmission Grid Strengthening Project (P147348) and the ESRFRP. In addition, sustained investments in maintenance and operational improvements of the network have allowed GSE to reduce transmission losses from 16 percent in the early 2000s to 1.5 percent.

9. **The Georgian power sector has undergone significant reforms over the last two decades, with positive outcomes in terms of supply reliability and sector companies' performance.** Extensive regulatory and market reforms,

¹ World Bank. 2020. *Georgia: Towards Green and Resilient Growth*. World Bank, Washington, DC.

² Strategic documents are available at the website of the Ministry of Environmental Protection and Agriculture of Georgia: <https://mepa.gov.ge/En/Files/ViewFile/35777>.



focused on deregulation and privatization, have helped improve service quality in the power sector and the financial viability of sector entities. As a result of the reforms, the power sector has gone from near complete operational and financial collapse in the early 2000s to reliable electricity supply with sector companies in adequate financial standing. In 2017, by becoming a Contracting Party to the Energy Community Treaty, Georgia committed to implementing key European Union (EU) energy legislation to align with the *acquis communautaire* on which it has made substantial progress. Some progress has also been achieved in the implementation of the energy *acquis* despite several setbacks. For example, Georgia has not yet fully unbundled its electricity and gas transmission system operators, and while there has been progress in the development of a competitive organized electricity market, the process for the establishment of a wholesale natural gas market needs to be accelerated.

10. **In 2020, the government adopted the concept of a new wholesale electricity market.** In May 2022, the Georgian Energy Exchange (GENEX) was granted a license from the Georgian National Energy Regulatory Commission (GNERC) to operate the day-ahead and intraday markets while GSE was licensed to operate the balancing and ancillary services markets. After several rounds of consultations and some accompanying delays, the launch of a new wholesale electricity market is now planned for July 2023.

11. **In conjunction with the wholesale electricity market launch, the government adopted a new auction-based RE support scheme in December 2022 to address a five-year slowdown in the country's RE development pipeline.** The government support will take the form of variable feed-in premiums (also called "contracts-for-difference"), paid by a new fund (to be established under ESCO, the Electricity Market Operator) to the project operators on top of the revenues the projects can generate in the competitive wholesale market. In February 2023, the government launched the first auction for 300 MW of RE, which will be followed by two further auctions in the next two years. The immediate target is to develop 1,500 MW of medium and small hydro, wind, and solar over a period of 5 years (in addition to existing RE projects for about 1,400 MW at different development stages and likely to materialize) to help close the supply-demand gap in the power sector and reduce the import dependency (about 10 percent of total electricity consumption in recent years).

Power Sector Context in the Countries Involved in the Black Sea Submarine Cable Project

12. **The countries involved in the proposed Project have significantly different electricity generation sources, with the power sectors of South Caucasus countries being dominated by hydro and natural gas, while the countries of Southeast Europe rely heavily on coal and nuclear.** As mentioned above, hydropower is the dominant source of Georgia's power generation (almost 80 percent of total generation on average over 2020-2022), while Azerbaijan produces almost all electricity from natural gas and Armenia has a more balanced mix (40 percent natural gas, 35 percent nuclear, 23 percent hydro, and 2 percent other sources). On the other hand, coal accounts for a significant share of power generation in South European countries (33 percent in Bulgaria, 17 percent in Romania, and 9 percent in Hungary), together with nuclear (more than 40 percent in Bulgaria and Hungary, 20 percent in Romania). Hungary also has a significant share of power generation from natural gas (27 percent), while RE also accounts for a large share of Romania's electricity generation (45 percent, with hydro alone accounting for 28 percent).

13. **Countries in the South Caucasus have ambitious plans for the development (and possibly export) of RE generation, while countries in Southeast Europe have committed to phasing out coal generation and along with other EU Member States are making efforts to decarbonize their power sector.** In addition to the RE development projects mentioned above, Georgia is planning on building three large HPP projects (Khudoni, Namakhvani, and Nenskra) with a total planned capacity of more than 1,400 MW. In its *Energy Sector Development Strategy to 2040*, the government of Armenia has set the target to achieve 1,000 MW of utility-scale solar PV capacity by 2030 and 400 MW of wind capacity by 2040. The government of Azerbaijan intends to tap into the country's huge offshore wind potential, estimated at 35 GW in shallow waters and 122 GW in deep waters. In a conservative scenario, Azerbaijan could install 1.5 GW of offshore wind capacity by 2040, while in a high case scenario, this value could rise to 7 GW by 2040. If these ambitious plans were to be realized, South Caucasus countries would have an excess of renewable generation (beyond their domestic needs)



that they could export to the EU through the Black Sea Submarine Cable were it to be built. At the same time, countries in Southeast Europe have committed to phasing out coal generation, working towards net-zero emissions by 2050 in line with the rest of the EU. The planned coal phase-out dates for Hungary, Romania, and Bulgaria are 2025, 2030, and 2038 respectively.

Digital Connectivity in the South Caucasus

14. **International digital connectivity between the South Caucasus and Europe is currently served by a single submarine cable system across the Black Sea that is nearly 14 years old.** All three South Caucasus countries obtain redundant access to the global internet through terrestrial connectivity routes via Türkiye, as well as through Russia, which receives the lowest share of the three routes and is currently impacted by the war in Ukraine. In addition to connectivity to Russia, the region is also connected to the Middle East with operators in Azerbaijan and Armenia providing international connectivity to countries in the South Caucasus region. The signing of the Convention on the Legal Status of the Caspian Sea by the littoral states of the Caspian Sea in August 2018 has given renewed impetus to the possibility of developing Trans-Caspian submarine fiber-optic cables, two of which are currently planned between Azerbaijan and – to Kazakhstan and Azerbaijan and Turkmenistan.

15. **The South Caucasus region could greatly benefit from improved international digital connectivity, especially to improve its cyber-resilience through redundancy.** The existing submarine cable system, as the only provider of direct access to Europe, serves as a single point of failure for international connectivity to the region. While terrestrial alternatives exist, these are indirect and based on bilateral commercial agreements between specific operators, rather than a dedicated international connectivity provider. The need for redundant direct access to global internet resources has been highlighted as a key priority by Georgia as well as the other South Caucasus countries.

16. **In addition to the need for redundancy, opportunities in the international connectivity market for the South Caucasus countries are significantly larger than currently explored.** Demand for international connectivity in the South Caucasus is growing fast and is projected to increase from about 10 terabytes per second (Tbps) today to almost 50 Tbps in 2028. Meeting this demand will require building additional international connectivity infrastructure. Additionally, the region can serve as a significant transit location for inter-regional traffic between Europe and Asia (and the Middle East), particularly once the Trans-Caspian submarine infrastructure is developed – expected by 2025.

17. **Improved international connectivity can also boost outcomes in domestic digital connectivity markets.** Being the most upstream segment of the broadband value chain, increased international connectivity can positively impact market outcomes in terms of quality of service and prices. Lastly, global experience has demonstrated that countries can build on improved connectivity to establish data infrastructure, attract investments, and stimulate digital services markets. South Caucasus countries stand to benefit from this, with the potential to specialize in the development of their respective technology and digital services sectors.

Black Sea Submarine Cable Project

18. **The proposed Black Sea Submarine Cable Project aims to build an electricity and digital fiber-optic interconnection between the South Caucasus and the EU, with landing points in Georgia and Romania.** The Project would include a high-voltage direct current (HVDC) line with an envisaged capacity of up to 1,500 MW³ along with a fiber-optic cable stretching for an estimated 1,195 km, of which about 1,100km would be via a submarine cable at a depth of up to 2,200m. The project would cross the Exclusive Economic Zones (EEZ) of Georgia, Türkiye, Bulgaria, and Romania. The project would be one of the longest and deepest submarine cables in the world. Currently, the longest interconnection

³ Base case capacity. The feasibility of options for increased capacity are being studied.



submarine is 720 km linking the UK and Norway, while the deepest one reaches 1.6 km and links Sardinia with mainland Italy. Several equally or even longer and deeper projects are underway.

19. **In late 2019, GSE approached the World Bank with the idea of creating an electricity interconnection between Georgia and Romania, an ambitious infrastructure project.** At the same time, parallel discussions were ongoing on the need to develop further broadband capacity for Georgia and the region. The World Bank recommended a study on a combined solution since power cables typically include fiber-optic capacity for their own data transmission operations, and so with minimal changes, the same connection can be used to also transmit telecom data at a relatively small incremental cost. In February 2021, a pre-feasibility study was carried out for the power and digital interconnection, which found positive economic benefits under a base case scenario.

20. **The Government of Georgia subsequently requested the World Bank to finance a full-fledged feasibility study of the Project, which was launched in 2022 under an ongoing World Bank-financed project with GSE and is expected to be completed by the end of 2023.** The feasibility study is financed through the ongoing Electricity Supply Reliability and Financial Recovery Project (P169117) and is being carried out by a consortium led by the consulting company, CESI. The scope includes the preparation of: (i) power system studies and estimation of optimal interconnection capacity; (ii) technical design and project definition; (iii) economic and financial analysis; (iv) commercial framework and operational business model; (v) financing strategy and options; and (vi) implementation plan, procurement strategy, and preparation of bidding documents.

21. **As expected for large, multi-country regional energy projects, in addition to the overarching feasibility study, a few highly specialized assessments will need to be carried out as part of the feasibility study process, most notably in this case, geophysical and geotechnical investigations of the Black Sea seabed.** These studies are expected to be completed by the end of 2024, while project sponsors will likely be carrying out negotiations on project agreements. Therefore, a final investment decision is not expected before early 2025 at the earliest.

22. **The Government of Georgia is coordinating at the technical and political level with other potential participants in the Project, both in the South Caucasus and in Southeast Europe.** A first inter-governmental meeting was held in May 2022, with delegations from Georgia, Azerbaijan, Romania, and the World Bank (as an observer). Since then, there have been numerous technical meetings on data sharing, project assumptions, and design options to be studied, with the active participation of the World Bank. Since the outbreak of Russia's invasion of Ukraine, the EU has taken a keen interest in the Project and on December 17, 2022, an international agreement⁴ was signed between the governments of Georgia, Azerbaijan, Romania, and Hungary with the President of the EC also attending as an observer. Two formal meetings have since been held in Baku and Tbilisi. The agreement identified the submarine cable as one of the priority initiatives for cooperation between the countries. At the same time, the proposed Project was included in the ENTSO-E Ten-Year Network Development Plan. The EU has included the Project as part of its Global Gateway strategy, an initiative designed to invest in infrastructure projects and establish economic partnerships around the world.

23. **World Bank support for proceeding with the next phases of project evaluation and preparation is based on the findings from the pre-feasibility study, which suggest a profile of net exports from the South Caucasus and a relatively clean generation mix and economic benefits for participating countries.** The pre-feasibility study noted above showed positive net economic benefits for participating countries and the Project as a whole. The main driver of the economic benefits from the submarine power cable operations is the large wholesale electricity price differential between Southeast Europe and the South Caucasus (which has only increased since the pre-feasibility study was prepared).

24. **The methodology for allocating the capacity of the proposed power interconnection would affect the benefit distribution of the project but has not been defined yet; it will have to be discussed and agreed upon among the**

⁴ "Agreement on strategic partnership in the field of green energy development and transmission between the Governments of the Republic of Azerbaijan, Georgia, Romania, and Hungary".



participating countries. Given that the proposed interconnection is not internal to the EU, capacity auctions could be organized by the relevant ENTSO-E TSO, namely the Romanian Transelectrica. In parallel, some of the capacity could be allocated for the long term separately from the auctions. Various options exist for capacity allocation, so the exact rules and capacity allocation mechanism will have to be prepared and agreed upon by the participating countries.

Relationship to CPF

25. **The proposed ESPIRE Program ('the Program') is consistent with the Georgia Country Partnership Framework (CPF) for FY19-22 (extended to FY23).** The proposed Program is well aligned with Focus Area 1 (Enhance Inclusive Growth and Competitiveness). In particular, the Program would support the achievement of Objective 1.2 (Improved Connectivity and Integration) under this Focus Area, by enhancing GSE's and Georgia's technical readiness for the potential implementation of the Black Sea Submarine Cable Project, which would improve the reliability of supply to domestic users as well as increase power trade.

26. **The Performance and Learning Review (PLR) of the CPF carried out in April 2022 highlighted that Focus Area 1 remains relevant and that important progress has been made toward the achievement of its development objectives.** Significant progress has been made under Objective 1.2, thanks to developments in the implementation of the ongoing Transmission Grid Strengthening Project (TGSP, P147348) and the Energy Supply Reliability and Financial Recovery Project (ESRFRP, P169117) that are financing transmission grid strengthening investments.

27. **The proposed ESPIRE Program would also help Georgia achieve the targets under Georgia's updated NDC.** As discussed, Georgia plans to unconditionally reduce its GHG emissions by 35 percent compared to 1990 levels by 2030. By enhancing Georgia's technical readiness for the Black Sea Submarine Cable Project, the proposed project could further accelerate private sector-led RE development in the country.

C. Proposed Development Objectives

28. The proposed Program Development Objective (PrDO) of the ESPIRE MPA Program is to **increase direct electricity interconnection and electricity exchanges as well as fiber-optic capacity between the South Caucasus and Southeast Europe.**

29. The proposed Project Development Objective (PDO) of Phase 1 of the MPA is to **improve the implementation readiness of the Black Sea Submarine Cable Project.**

Key Results (From PCN)

30. **The proposed PrDO-level results indicators of the ESPIRE MPA Program include:**

- Increased direct electricity interconnection capacity between Southeast Europe and the South Caucasus (MW)
- Increased direct electricity interchanges between the South Caucasus and Southeast Europe (GWh/year)
- Increased fiber-optic submarine cable capacity between the South Caucasus and Southeast Europe (Tbps)

31. **The proposed intermediate results indicators of the ESPIRE MPA Program include:**

- Public financing leveraged by the Program (US\$)
- Private capital mobilized by the Program (US\$)
- Private capital enabled by the Program (US\$)
- Net greenhouse gas emissions avoided by the Program (tons/year)



32. **The proposed PDO-level results indicators of Phase 1 include:**

- The Final Investment Decision for the Black Sea Submarine Cable Project has been taken
- Public financing leveraged by the Program (US\$)
- Private capital mobilized and/or enabled by the Program (US\$)

33. **The proposed intermediate results indicators of Phase 1 would include:**

- A special purpose vehicle for the implementation of the Black Sea Submarine Cable Project has been formed
- The technical, environmental, and social documentation of the Black Sea Submarine Cable Project is ready for implementation
- Inter-governmental institutions with the capacity to coordinate and facilitate the Black Sea Submarine Cable Project have been established and operationalized
- A domestic Interministerial Working Group with the capacity to facilitate decision-making within the Government of Georgia with regard to the Black Sea Submarine Cable Project has been established and operationalized

D. Concept Description

34. **Phase 1 of the proposed ESPIRE MPA Program would support the Government of Georgia in building technical and institutional capacity for the implementation of the Black Sea Submarine Cable Project.** Phase 1 would include two components: (i) geophysical and geotechnical surveys of the Black Sea seabed (US\$20 million), and (ii) legal and financial advisory and technical assistance (US\$5 million). These two components would contribute to enhancing the implementation readiness of the Black Sea Submarine Cable Project, by financing technical investigations to de-risk the Project and supporting the Government of Georgia in establishing an adequate institutional mechanism to facilitate the process of reaching agreement with potential project sponsors on the legal and financing arrangements of the Project.

Component 1 of MPA Phase 1: Geophysical and geotechnical surveys of the Black Sea seabed (US\$20 million)

35. **As part of the feasibility study process, and prior to the bidding on the construction contract of the Black Sea Submarine Cable Project, three studies of the seabed will need to be carried out:**

- **Geological investigation.** The geological investigation is part of the scope of the ongoing feasibility study (under Task 2, Technical Definition of the Project). Based on a desktop study, the consultant will recommend a wide corridor for the interconnection routing based on all applicable guidelines and laws, as well as existing knowledge of the geological and geotechnical aspects of the Black Sea.
- **Geophysical investigation.** The geophysical investigation involves scanning the seabed to further detail the identified corridor. The survey can be conducted from vessel-mounted equipment for water depths under 50-100 meters, but it requires remotely operated vehicles or other systems that can operate close to the seabed for higher depths. The survey equipment for this investigation may include: (i) a multi-beam echo sounder and a side scan sonar to acquire bathymetry and seabed data, (ii) a sub-bottom profiler to remotely sense layers of sediment and rock beneath the seabed, and (iii) magnetometers (gradiometer) to detect the presence of ferrous material such as shipwrecks, cables/pipelines and unexploded ordnance on the seabed.
- **Geotechnical investigation.** The geotechnical investigation is performed within the identified narrow corridor building on the data from the geophysical investigation. It is carried out by specialized vessels that can perform



geotechnical tests and collect seabed soil samples (roughly every 5 km, more often closer to, and in the slopes) to determine information on specific issues (e.g., risk of landslide/turbidity currents).

36. **This component would finance the geophysical and geotechnical investigations of the Black Sea seabed, as well as provide capacity building to support the Government of Georgia in designing, procuring, and executing them.** The purpose of these two studies is to optimize the routing of the cable, based on the higher-level findings of the geological study. Because there is limited information on the bathymetric and geotechnical conditions in the Black Sea in the direction of the planned interconnection, the seabed geophysical and geotechnical investigations should be carried out prior to bidding. The preliminary cost estimates for the geophysical and geotechnical investigations are in the order of US\$20 million. A detailed and reliable cost estimate for the seabed studies can only be made after the geological desktop study is completed. Besides financing the investigations, this component will support the Government of Georgia by providing capacity building for the definition of the technical design of the studies, their procurement process, and their implementation.

37. **The key source of residual risk associated with the geophysical and geotechnical investigations is the fact that the seabed slopes on each side of the planned route are very steep, descending from approximately 100 to 2,200 meters in a very short distance.** Furthermore, the slopes are characterized by canyons that are prone to slides, mass waste processes, and turbidity currents that may be hazardous to installed cables. The seabed conditions are expected to be significantly easier for cable routing and installation across the “flat” deep area, which has seen a steady sediment accumulation for millions of years. The desktop geological study will confirm if these risks are indeed significant and if additional data is needed for a final answer on the technical feasibility of the project.

Component 2 of MPA Phase 1: Legal and financial advisory and technical assistance (US\$5 million)

38. **This component would finance legal and financial advisory and capacity building to the Government of Georgia, including preparatory technical studies, environmental and social instruments, and support for stakeholder engagement and communication (especially with regard to intergovernmental coordination and decision-making).** In particular:

- The **legal and commercial advisory** would focus on strengthening the Government of Georgia’s capacity to prepare the legal and commercial aspects of: (i) the Black Sea Submarine Cable Project transaction, and (ii) RE and wholesale market development, including alignment with ENTSO-E requirements. In particular, the Black Sea Submarine Cable Project will require extensive legal and commercial advisory at the latest from early 2024 onwards, ideally earlier. Procurement of the advisory assignments would start no later than the third quarter of the calendar year 2023.
- The **preparatory technical studies** would include technical work and related capacity building to support the technical and financial preparation of the OHL to connect the Black Sea submarine cable to the domestic high-voltage grid. These studies are needed since the scope of the ongoing feasibility study includes a high-level study of the on-land OHL but no detailed routing and design.
- The **environmental and social instruments** for the submarine cable and the on-land OHL will include the instruments not prepared prior to submission to the World Bank’s Board of Directors, especially the Resettlement Policy Framework, site-specific Resettlement Action Plans, as well as the Environmental and Social Impact Assessment of the on-land OHL and the submarine cable. This activity will also provide capacity building for the development of the environmental and social instruments.
- The **stakeholder engagement and communication support** would provide capacity building to help the Government of Georgia coordinate discussions with the other countries involved in the Black Sea Submarine Cable Project. As mentioned above, the Government of Georgia has been coordinating technical and high-



level discussions with counterparts from the other countries involved in the Project. However, given the high level of complexity of the Project, renewed efforts to engage with the governments of neighboring countries and other key Project stakeholders (e.g., the European Union, technical consultants, and private sector companies) will be needed. In particular, the Steering Committee and the technical Working Group agreed upon by Georgia, Romania, Azerbaijan, and Hungary in the agreement signed at the end of 2022 will need to be established and operationalized. In addition, Georgia should put in place an Interministerial Working Group to coordinate and facilitate decision-making within the government of Georgia.

Legal Operational Policies	Triggered?
Projects on International Waterways OP 7.50	Yes
Projects in Disputed Areas OP 7.60	No

Summary of Screening of Environmental and Social Risks and Impacts

39. **All Environmental and Social Standards (ESSs), other than ESS7 on Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities and ESS9 on Financial Intermediaries, are considered relevant.** OP 7.60 on Projects in Disputed Areas is not triggered, but OP 7.50 on Projects on International Waterways is triggered.

40. **The environmental risk of Phase 1 of the Program is rated substantial.** Physical activities under Phase 1 of the Program would be confined to the seabed investigations, and the associated environmental risks are expected to be moderate. However, conclusions of studies undertaken under this Phase and site-specific E&S instruments prepared for the construction of OHL will shape E&S due diligence to be applied in Phases 2 and 3. Therefore, the environmental risk of Phase 1 is considered substantial.

41. **Construction of the Anaklia-Jvari OHL in Phase 2 of the Program will carry multiple environmental risks.** Part of the works may have to be undertaken on steep slopes with natural forest ecosystems and little if any access roads. Vegetation clearance for creating the right-of-way, earthworks, erection of towers, and stringing of OHL will be highly challenging in the difficult terrain and will carry risks of excessive damage of the vegetative cover, disturbance of wildlife, triggering erosion and polluting the environment with waste dumped down the slopes as well as risks to the health and safety of workers. Poor organization of work sites, lack of planning for the disposal of excess material and waste from vegetation clearing, delayed action, and an ad-hoc approach to site reinstatement have been experienced during the implementation of the ongoing TGSP. The risk of encountering similar issues is present in the ESPIRE Program as well. However, GSE has learned from that experience and has improved its capacity for risk management since then. At the stage of detailed design, resilient decisions are to be made in the selection of exact locations for towers as their placement will define the extent of permanent impacts on the aesthetical and touristic value of the impact area. The construction of the OHL in the territory of Romania to connect the landing point with the grid is not part of the ESPIRE Program at present. However, the scoping and assessment of the environmental and social risks of the construction and operation of this infrastructure will be undertaken during ESPIRE Program preparation and Phase 1 of its implementation.

42. **The seabed studies to be undertaken under the ongoing Energy Supply Reliability and Financial Recovery Project will provide the technical information required for an exhaustive understanding of the environmental dimensions of laying the undersea cable in Phase 3 of the Program.** It is known upfront that the construction of the undersea cable will mostly imply its dropping to the bottom with moderate physical intervention to the seabed landscape. Impacts are expected to be greater in shallow waters, closer to the landing point, where the cable will have to be buried or otherwise



protected from exposure to mechanical damage. As for the operation phase impact on aquatic life, it will be studied as part of the ESIA along with construction phase impacts. However, it is scientifically established that there is no life in the Black Sea below 150-200 meters due to the absence of oxygen and high concentration of hydro-sulfur. This suggests that the impacts on the organic receptors will be confined to shallow areas of the sea closer to the landing points. Overall, the environmental impacts of the undersea cable are believed to be more modest than those of the OHL, to be confirmed through the seabed studies and ESIA.

43. **The social risk is classified as moderate.** The seabed studies and siting of the landing site will have very limited social impacts relating to labor and working conditions on board the vessel and the potential for disrupting fisheries-based livelihoods. The construction and operation of the OHL will mainly have risks related to minor permanent and temporary land acquisition or easement restrictions affecting livelihoods; labor and working conditions risks during construction; community health and safety risks during construction and operation; sexual exploitation and abuse/sexual harassment (SEA/SH) risks during construction; and risks relating to inadequate stakeholder engagement and grievance management. Similar to the social risks for the seabed studies, the laying down of the cable will have very limited social impacts mainly relating to labor and working conditions and the potential for disrupting fisheries-based livelihoods. The social impacts are expected to be mostly temporary and predictable and can be managed with adequate management plans, and human and financial resources.

44. **To understand and manage the risks and impacts of the Program activities, the following will be prepared before appraisal:** (i) Scoping Study for a detailed understanding of the risks, expected impacts, and measures to address them and terms of reference for the Environmental and Social Impact Assessment (ESIA) of the Georgia and Romania OHLs and the submarine cable; (ii) draft Labor Management Procedures; (iii) draft Stakeholder Engagement Plan, including Grievance Redress Mechanism; and (iv) draft Environmental and Social Commitment Plan – all to be disclosed and consulted with stakeholders. A Resettlement Policy Framework, site-specific Resettlement Action Plan/s, and ESIA for the OHLs and the submarine cable will be developed during implementation when the exact scope and scale of impact become clear.

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