Georgia Power Sector: Maximizing Finance for Development

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About ESMAP

The Energy Sector Management Assistance Program (ESMAP) is a global knowledge and technical assistance program administered by the World Bank. It provides analytical and advisory services to low- and middle-income countries to increase their know-how and institutional capacity to achieve environmentally sustainable energy solutions for poverty reduction and economic growth. ESMAP is funded by Australia, Austria, Canada, Denmark, the European Commission, Finland, France, Germany, Iceland, Italy, Japan, Lithuania, Luxembourg, the Netherlands, Norway, the Rockefeller Foundation, Sweden, Switzerland, and the United Kingdom, as well as the World bank.

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ESMAP
Energy Sector Management Assistance Program

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Acronyms

ADB	Asian Development Bank
BASC	Balancing and Ancillary Services Cost
CAPEX	Capital Expenditures
CADS	Cash Available for Debt Service
CCGT	Combined Cycle Gas Turbine
CfD	Contract for Differences
DFI	Development Finance Institutions
FCCL	Fiscal Costs and Contingent Liabilities
EBIT	Earnings before Interest and Taxes
EBITDA	Earnings before Interest, Taxes, Depreciation, and Amortization
EBRD	European Bank for Reconstruction and Development
EIB	European Investment Bank
ESCO	Electricity Sector Commercial Operator
ESG	Environmental, Social, and Governance
FX	Foreign Exchange
GDP	Gross Domestic Product
GDR	Global Depository Receipts
GEL	Georgian lari
GENEX	Georgian Energy Exchange
GNERC	Georgian National Energy and Water Regulatory Commission
GOGC	Georgian Oil and Gas Corporation
GSE	Georgian State Electrosystem
GWh	Gigawatt-hour
HPP	Hydropower Plant
IFRS	International Financial Reporting Standards
IMF	International Monetary Fund
KfW	Kreditanstalt Für Wiederaufbau
kV	Kilovolt
LCP	Least-Cost Plan
LLC	Limited Liability Company
LSE	London Stock Exchange
MOESD	Ministry of Economy and Sustainable Development
MOF	Ministry of Finance
MW	Megawatt
O&M	Operating and Maintenance
OPEX	Operating Expenditures
PPA	Power Purchase Agreement
PP&E	Property, Plant and Equipment
PPP	Public-Private Partnerships
PV	Photovoltaic
RAB	Regulated Asset Base

TA	Technical Assistance
TOC	Terms of Contract
TPP	Thermal Power Plant
TSO	Transmission System Operator
TWh	Terawatt-hour
USP	Unsolicited Proposals
VfM	Value-for-Money
VOLL	Value of Lost Load
WACC	Weighted Average Cost of Capital
WBG	World Bank Group
YTM	Yield to Maturity

Executive Summary

1. **Over the past two decades, the leveraging of private-sector expertise and commercial capital has helped turn around Georgia's power sector from near-complete operational and financial collapse to a sector that provides secure, affordable, and reliable electricity services to Georgian customers.** Over the period of 2001-2020, a total of US$1.2 billion of private capital was mobilized by attractive investment conditions to construct around 1,000 MW of privately-owned power generation capacity, substantially improving the security of electricity supply in Georgia. Further, the state-owned Georgian Oil and Gas Corporation (GOGC) constructed 230 MW Gardabani combined cycle gas turbine (CCGT), financed by a US$250 million Eurobond issue in 2012, and the private distribution companies invested around US$500 million in upgrade, rehabilitation, and modernization of the power distribution network over the same time period. Budget financing of infrastructure was limited to transmission investments and investments in the upgrading of state-owned hydropower plants.

2. **However, the Government may not be able to sustain the current model of financing of electricity sector investments given the expected public debt and fiscal impacts.** In 2022-2040, Georgia is estimated to require about US$8.5 billion of new investments in electricity generation, as well as another US$1.5 billion in transmission investments including regional interconnections. Investments in electricity generation were historically facilitated through power purchase agreements (PPAs) signed with private developers, backed by sovereign guarantees. While most PPAs in the past only included guaranteed offtake obligations for around 20 percent of supply in the peak electricity demand season (November-March), some of the planned new PPAs include 100-percent off-take obligations. In view of the required investments going forward, this modality of securing generation investments through sovereign-backed PPAs would not be sustainable in view of the contingent liabilities it would create for the Government. Moreover, the approach would not be consistent with the existing framework of the electricity sector market. Therefore, new mechanisms need to be developed to allow Georgia to construct the required generation capacity without significantly impacting the public balance sheet.

3. In the transmission sector, historically, investments were financed with concessional sovereign-guaranteed public borrowing. Going forward, the Government wants to ensure that substantial share of new investments is financed by the Georgian State Electrosystem (GSE) with limited or no direct public borrowing by the Ministry of Finance (MOF) given that GSE is on the right path towards long-term financial viability with its financial rehabilitation/bankruptcy protection regime removed as of end-2020.

4. **This Study develops recommendations for optimizing available financing for electricity generation and transmission investments while limiting the impacts on public finance needs and fiscal risks.** To this end, the Study presents: (i) a summary of the historical and required investment needs in the power generation and transmission segments; (ii) a review of the constraints to mobilizing private and commercial financing with limited impact on fiscal risks; and (iii) the development of a reform roadmap to enable sustainable financing of investments in electricity generation and transmission. The main findings are summarized below.

5. **Fiscal risks from privately-owned generation investments could be substantially reduced through better strategic planning, competitive procurement, a shift away from long-term PPAs, and more streamlined implementation of the PPP framework.** Despite significant progress made by the Government in constructing new generation capacity in 2008-2019, the framework used

by the Government for attracting private investments in generation requires revisions to achieve the lowest possible tariffs from new projects, reduce the fiscal risks for the Government, and align those with the new electricity market structure. The financing of new generation investments with reliance on commercial sources will require the Government to introduce improvements to the framework used for the development of new generation investments:

a. **Better strategic planning.** GSE is finalizing the first full-fledged generation expansion plan[1], which contains various generation expansion scenarios that form the basis for long-term sector planning. The Government should build on these planning exercise and adopt a process of regularly updating the least-cost generation expansion plan. The generation expansion plan, which should be publicly disclosed, will form the basis of all government decisions related to energy security and resource adequacy as well as procurement methods adopted for new projects in the power sector.

b. **Move away from unsolicited proposals (USPs) to competitive procurement.** The prevalence of USPs is linked to the lack of national development or sector planning mentioned above, which led private developers to fill the planning void. Going forward, the Government should build on the least-cost generation expansion plan and then procure the capacity competitively or require the distribution companies to procure the required capacity.

c. **Reduce reliance on long-term PPAs to secure adequate generation capacity.** In competitive market environment that Georgia is transitioning to, consistent with the Third Energy Package of the Energy Community, centrally procured long-term PPAs cannot be accommodated consistent with the principles of competition and absence of market distortions. Therefore, going forward, Georgia will need to explore alternative mechanisms of ensuring resource adequacy. For conventional resources, we recommend placing resource adequacy requirements on retail suppliers, and providing them with freedom to choose the most appropriate contractual arrangement that works for them. For new renewable development, contracts-for-differences would be the preferred mechanism as they can be closely integrated with the market and eventually phased out once the market is operational and the spot prices are reliable.

d. **More streamlined implementation of the PPP framework.** The Government should start by undertaking a stock-taking of existing PPPs and energy sector PPAs, and evaluate the potential role of PPPs within post-COVID-19 economic recovery and infrastructure prioritization. Based on the outcome of the stock-take, the Government should prioritize selected projects, preferable small-scale new renewable energy projects, that are fiscally sustainable, commercially viable, affordable to end-users, and suitable to be procured as PPPs. These should be used to streamline the competitive PPP procurement process, refine regulations as needed, develop experience, increase capacity, raise awareness, and build a track record of delivering competitively procured PPPs.

6. **In the transmission segment, to enable GSE to attract commercial financing at affordable terms, we recommend implementing the following priority measures:**

a. **Reduction of GSE's leverage.** The feedback from potential commercial lenders suggests that GSE's leverage is of concern, especially considering that the Company has a regulated

[1] As of 2022, GSE has finalized the Generation Adequacy Assessment (2022-2035) and published it on the GSE's website: https://www.gse.com.ge/sw/static/file/Generation_adequacy_2022-2035.pdf.

revenue stream and no track-record of borrowing commercially. Therefore, in order to improve the terms of the potential commercial debt of GSE, it is advisable to reduce the Debt-to-Equity ratio (leverage) of GSE to not more than 3.5. As of 2020, the leverage was negative 13 due to negative equity of GSE stemming from accumulated losses. In fact, there also the Government Decree No. 922 (2020) requiring the GSE leverage not to exceed 3.0 by the end of 2022. Currently, the Government is exploring the option of converting portion of outstanding debt of GSE to MOF into GSE's equity. This would enable the Company to start accessing the capital market and raise commercial financing in a sustainable manner to be able to service the debt using its tariff-based revenues.

b. **Establishment of a mechanism to mitigate the foreign exchange (FX) risk of GSE.** The current tariff methodology does not protect GSE from FX risks. This is essential given that all outstanding debt of GSE is in EUR and US$ and the revenues are in Georgian lari (GEL). The current GSE tariff methodology adopted by the Georgian National Energy and Water Supply Regulatory Commission (GNERC) assumes that depreciation or appreciation of GEL is reflected in the inflation and therefore captured by Weighted Average Cost of Capital (WACC) through adjustments to the risk-free interest rate, set by the National Bank of Georgia. However, the experience demonstrates that it is not and, as a result, GSE has experienced losses due to depreciation of GEL, which were not recovered through the tariff. In order for GSE to be able to attract investment at the scale required and at affordable terms, the issue of FX risk mitigation will need to be addressed. There are two options.

   Option No. 1: Proxy hedging. This would entail hedging the FX risk of GSE by using a basket of currencies that have high correlation to GEL and hedging this basket against US$. This can be implemented by constructing a portfolio of cross-currency swaps that receive cash-flows in US$ in order to offset existing liability and pay cash-flows in the basket of currencies. The basket is built based on a dynamic algorithm to determine the combination of currencies that best mimics the behaviour of the local currency. As opposed to direct hedges, proxy hedges are not perfect hedging options. This means that while utilizing proxy hedge the Company is not fully hedged and retains certain risk. The cost of such hedging could be included in the GSE's tariff as fixed operating cost. GSE would be responsible for hiring advisors to design and implement this hedging mechanism.

   Option No. 2: Revision of tariff methodology. This approach would entail annual adjustment of the tariff by Georgian National Energy and Water Supply Regulatory Commission (GNERC) to reflect the additional costs (or revenues) that GSE incurs (earns) due to fluctuation of GEL exchange rate. Technically, this could be done by specifying a threshold level of annual appreciation or depreciation of the GEL (e.g. 10 percent), that would trigger such adjustments.

c. **Decision on long-term financing strategy**. Based on the analysis, GSE should make its final decision on optimal financing strategy, which should cover both existing capital expenditure programs for which the sovereign-guaranteed financing has already been secured and the Government wants GSE to refinance, and new capital expenditures. GSE should in parallel complete the ongoing selection of the transaction advisor for its first capital market transaction and continue the activities aimed at securing the credit rating from international reputable rating agencies.

d. **Further improvements to corporate governance framework**. GSE has made significant progress in improving its corporate governance since 2020. Further improvement can be made as GSE prepares to access capital markets. The priority improvements include the following. The details are described in the report.

- The Government should make final decision on separation of the ownership function from the policy function of GSE. Currently, Ministry of Economy and Sustainable Development (MOESD) is discharging the ownership function on behalf of the state. However, it is also the electricity sector policy maker.
- The General Director and key executives should be selected with consideration of their diverse background and experience, as well as the skills and expertise that are most appropriate for the Company's current and anticipated needs.
- The Nomination Committee and the Remuneration Committee should design respective performance review and appraisal procedures for the management.
- The Audit Committee should develop procedures relating to the disclosure of information on non-audit fees.
- The Company should adopt compliance, anti-bribery and anti-corruption as well as whistle-blower protection policies and conduct regular training sessions for employees in this respect; and
- Within the Proposed Framework the Supervisory Board should adopt a policy on related party transactions, a confidentiality policy, a diversity (equality) policy and a risk management policy.

7. **The study further proposed different ways to launch GSE's commercial financing activities with a main objective to shift to financing without sovereign guarantees.** Different financing sources were explored after an extensive market sounding and consultation. Based on GSE's financing needs and market conditions, four scenarios for GSE to raise commercial financing were proposed. Those include the following:

a. **Scenario 1: Local bond issuance**. While this option mitigates FX risks for GSE and can be secured without sovereign guarantee, it is limited by the depth and risk appetite of the local capital market. The market sounding indicated the possibility for GSE to issue about GEL 180 million in 2022 to major domestic banks who purchased most corporate and treasury bonds in previous transactions. However, it would be difficult for domestic banks to take more GSE exposure in the short to medium term. This option, while can be viewed as a first step to build GSE's track record in the domestic bond market, cannot be carried out without continued reliance on IFIs/DFIs' financing.

b. **Scenario 2: US$ Eurobond issuance**. Based on the market sounding carried out in Q3/Q4 of 2021, there was a strong demand from yield seeking emerging market bond investors should GSE issue $200m Eurobond (subject to certain financial and governance improvement highlighted in this Study). GSE's access to the Eurobond market would diversify its financing sources and expand its investor base at affordable price. Furthermore, this option has the potential to reduce government contingent liability. The drawback of this option is the high FX risks and negative carry issue. The latter can only be partially mitigated by reducing the size of issuance, however, the transaction will not be cost-efficient if the issuance size drops below certain level mainly due to high transaction costs of Eurobond issuance. Lastly the success of Eurobond issuance is very

much dependent upon market conditions. GSE might not always have access to relatively abundant and cheap capital.

c. **Scenario 3**: **Direct financing in form of commercial loans**. Similar to Scenario 2, this scenario anticipates discontinuation of existing financing sources (DFI loans) and suggests financing capex through attracting direct financing from financial institutions in the amount of up to US$240 million.

d. **Scenario 4: GEL Eurobond**. Built on the conditions highlighted in Scenario 1, Scenario 4 proposes to use offshore GEL bond market as an alternative to meet the financing needs, while the government is building the domestic capital market capacity. Under this scenario, a combination of GEL 600 million Eurobond and GEL 150 million domestic bond is considered in 2022 and 2023 respectively. This scenario offers a short-term solution to reduce GSE's FX exposure and to lower the sovereign guaranteed amount. As a trade-off, GSE will have to manage negative carry (paying interest on the undisbursed loan amount). In addition, the offshore GEL market is not tested with an issuance of similar size. GSE will have to take the risks of uncertain market appetite, pricing and conditions.

8. The advantages and disadvantages of each scenario is summarized in the table XX below. The table captures the analysis based on the market snapshot taken in Q3/Q4 2021. GSE will have to carefully analyse before finalizing its approach to long-term financing strategy.

9. **The optimal approach would be to start with the Scenario 1 with GEL issuance in 2022, to introduce GSE to capital markets, to be followed by other financing solutions proposed under different scenarios, depending on the policy goals and evaluation of trade-offs between these objectives.** This overall approach should strike a balance to achieve the following goals: (a) gradual approach to building track-record of borrowing from capital markets with debut transaction relatively modest and focused on local capital market; and (b) allowing to test the investor appetite and use the time to implement some of the key above activities to address the pending issues and improve readiness of GSE.

Table 1: Pros and Cons of Financing Scenarios

	Scenario	Volume	Interest / Coupon	Negative Carry	Execution risks	Government direct and contingent liability	FX risks
Scenario 1	Onshore bond (GEL 180 million in 2022)	Low	High	Limited	Low	Low	Low
Scenario 3	US$ Eurobond (US$200 million in 2022)	Sufficient	Medium	High	High	Low	High
Scenario 3	Commercial bank loans (US$240 million in 2022)	Medium	Medium	No	Medium	Low	High
Scenario 4	GEL 600 million Eurobond and GEL 150 domestic bond	Medium	High	High	High	Low	Medium

Source: World Bank team based on inputs from Galt & Taggart.

1 Introduction

1.1 Objective of the Study

1. The objectives of this study are to (a) identify the obstacles to optimizing available financing for power generation and transmission investments while limiting the impacts on the public finances, and (b) propose recommendations to overcoming those obstacles. The Report is based on the review of the transmission network expansion plans of GSE, review of the corporate governance framework of GSE, analysis of electricity sector regulatory framework, PPP legislation and regulations as well as financial projections of GSE. This report builds on the findings and results of those analytical activities.

1.2 Focus of the Study

2. **Summary of the historical and required investment needs in the power generation and transmission segments.**

a. Summary of the existing power sector generation investment plans. This will draw upon the recently completed least-cost generation planning (LCP) activity conducted by the World Bank. It estimated the size of the required investments in electricity generation to meet projected electricity demand. This would also discussion of the investments planned by the Government in addition to LCP.

b. Summary of the key lessons learned from investments into power distribution and their applicability to private/commercial investments in generation and transmission. This will be limited to the available data.

c. Review of the existing transmission investment plans to determine whether those are economically justified given the needs for (i) strengthening the domestic network, and (ii) reliably integrating the new generation capacity.

3. **Mobilization of commercial financing with limited impact on public debt**. This included evaluation of the following key areas essential for sustainable leveraging of commercial financing:

a. An assessment of whether the macro-fiscal situation constrains the availability of public financing for the power sector. This would focus on the following principal tasks.

b. Evaluating investment planning, financial standing, institutional and governance constraints to expanding commercial financing in the power sector. This would include but is not limited to the evaluation of the following key areas essential for sustainable leveraging of commercial financing. This would cover both constraints to leveraging commercial financing by GSE and private investments in both generation and transmission (by private investors).

c. Assessment of the availability of commercial financing from the local and international banking sector and capital markets for power sector investments. This would include evaluation of the following key areas essential for sustainable leveraging of commercial financing.

d. Determining whether the lack of enabling environment for public-private partnerships (PPPs) presents a binding constraint to expanding commercial financing in the power sector.

4. **Development of a financing roadmap for investments into power generation and transmission**. This included:

a. Identification of the key measures that will need to be taken to enhance the prospects for commercial finance in each segment, and evaluation of the impact of those measures on increased commercial financing flow.

b. Identification of specific investment projects or segments of the power sector that will be publicly financed and implemented with support from the World Bank Group (WBG), and the sequence and timeframe for those investments.

2 How have Electricity Sector Investments Been Financed Historically?

2.1 Historical Approach and Challenges Related to Financing of Generation Investments

5. **Historically, the Government used unsolicited bids to select developers for generation projects**. This approach allowed the Government to secure the much-needed investments from various international developers in ensuring adequate electricity supply. Those projects were financed by several international sponsors which also raised commercial debt required to construct those projects. The commercial debt was primarily provided by private arms of IFIs with sovereign guarantees provided by the Government. However, this approach has also significantly increased the contingent liabilities of the Government.

2.1.1 Lack of Prioritization of New Generation Investments

6. **Until now, the Government did not have a formal document with planned new electricity generation projects**. The Government was using the approach of disclosing the list of all potential HPPs that may be constructed on MOESD website with some basic prefeasibility study and, occasionally, feasibility study reports. The key justification was that this approach enabled potential developers/investors to select the projects they preferred to develop. This approach is suboptimal for the following reasons: (a) it may involve projects that are not cost-efficient, i.e. there are lower cost alternatives available, and therefore would result in higher electricity tariffs; and (b) it may not allow for sufficient reserve margin required for reliable electricity supply.

7. **While Georgia's Energy Strategy rightly targets electricity generation diversification (by developing other renewable sources such as wind and solar) as well as increased trade with neighboring countries to address potential risks to resource adequacy due to poor hydrology, more effort could be made to assess the overall adequacy of the electricity system to supply current and projected demand levels for electricity**[2]. Such analysis should be based on appropriate central reference scenarios of projected demand and supply including an economic assessment of the likelihood of retirement, mothballing, new-build of generation assets and measures to reach energy efficiency and electricity interconnection targets and appropriate sensitivities on extreme weather events, hydrological conditions, wholesale prices and carbon price developments. It should appropriately take account real network development and contribution of all resources including existing and future possibilities for generation, energy storage, sectoral integration, demand response, and import and export and their contribution to flexible system operation.

8. **Prior to the generation plan that GSE has now voluntarily undertaken, Georgia relied primarily on regulated procurement of large generation assets through direct contracts as the backbone of their resource mix**, with smaller privately developed generators that are paid for balance energy to fill in the gaps. Enguri HPP, Vartsikhe HPP and Gardbani TPP are the largest generators in Georgia, accounting for over 50 percent of generation in 2018. There are three more

[2] GSE has carried out a seasonal adequacy study which takes into account retirement of outdated generation, building new generation assets, effects of energy efficiency measures, and hydrological conditions. The study is published on the GSE's website: https://www.gse.com.ge/sw/static/file/sezonuri-adekvaturobis-shefaseba-2.06.22.pdf. However, the study does not take into consideration economic aspects and carbon pricing.

TPPs and six more HPPs that are regulated by the state, 13 additional small (less than 13[3] MW) deregulated power plants licenses, and 61 small HPPs that operate without license. 80.3 percent of total electricity in 2018 was through direct contracts, whereas the remaining 19.7 percent was balance electricity.[4]

9. **The reserve margin is the quantity of capacity resources necessary for the system to meet some pre-established reliability criteria.** In the US, the 1-in-10 standard (which typically implies no more than one outage event every ten years) is generally translated into a reserve margin whereby planners determine how much capacity above the peak load forecast is needed to ensure that no more than one loss of load event occurs every ten years. This generally translates to a reserve margin of 15-18 percent. While the 1-in-10 standard is common practice in the US, Georgia must take its own view on its desired level of reliability as this can have significant implications on the cost of resource adequacy. A more stringent standard (e.g. 1-in-15) will require a larger reserve margin and hence greater resource investment while a less stringent standard (e.g. 1-in-5) would result in lower resource requirements and costs.

10. **These standards are generally established based on the value of lost load (VOLL) which is the estimated cost of a power outage.** Generally speaking, the more the output of the commercial and industrial sectors relies on the availability of electricity, then the greater the impact of losing electricity will be on production and the higher the VOLL for the country will be. Hence, for a country like Georgia that is growing quickly and has ambitions of integrating with the European Community, we would recommend they adopt the 1-in-10 standard with the expectation that their VOLL is consistent with the rest of the developed world. After determining the appropriate reliability criteria, the planning authority must determine what contingency events may lead to loss of load and then define the set of resources necessary to avoid such events, which may include generation, demand response, energy efficiency, energy storage, and imports from other markets.

11. **Heavy reliance on a few large generators is problematic for resource adequacy because reserve margins are established based on loss-of-load probabilities during contingency events and these contingency events are generally modeled as the loss of the largest generator (an N-1 event) or two largest generators (an N-1-1 event).** The reserve margin is the quantity of capacity resources necessary for the system to meet some pre-established reliability criteria. In countries like the US, the 1-in-10 standard (which typically implies no more than one outage event every ten years) is generally translated into a reserve margin whereby planners determine how much capacity above the peak load forecast is needed to ensure that no more than one loss of load event occurs every ten years. This generally translates to a reserve margin of 15-18 percent. While the 1-in-10 standard is quite common, Georgia must take its own view on its desired level of reliability as this can have significant implications on the cost of resource adequacy. A more stringent standard (e.g. 1-in-15) will require a larger reserve margin and hence greater resource investment while a less stringent standard (e.g. 1-in-5) would result in lower resource requirements and costs.

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[3] As of 2022, 15 MW are considered as small HPPs.

[4] GNERC Annual Report 2018, page 24.

that is growing quickly and has ambitions of integrating with the European Community, we would recommend they adopt the 1-in-10 standard with the expectation that their VOLL is consistent with the rest of the developed world. After determining the appropriate reliability criteria, the planning authority must determine what contingency events may lead to loss of load and then define the set of resources necessary to avoid such events, which may include generation, demand response, energy efficiency, energy storage, and imports from other markets.

13. **GSE stated that they are planning for generation based on an N-1 event which is modeled as the loss of Enguri.** The Enguri HPP is the largest generator in Georgia and has 5 turbines with a nominal capacity of 260 MW each, resulting in a total capacity of 1,300 MW. As noted by GSE, peak load in Georgia is about 2,383 MW and they have about 4560 MW of installed generation. GSE indicated that they can still be sufficient if Enguri goes down, but this does not appear to be the case during peak conditions, and the loss of Enguri is not unprecedented as it was shut down for two weeks in 2017.[5] Additionally, GSE stated they can rely on getting up to 5 percent of supply from neighbors, but that they are not effectively integrated with those systems, and therefore imports are not taken into account for purposes of generation planning.

14. **The reliance on Enguri presents resource adequacy challenges[6].** With its output larger than Georgia's reserve margin and there being a lack of confidence in imports from other countries, Georgia needs to develop more capacity resources on its system to ensure reliability during N-1 conditions. The reserve margin is also a product of poor hydrology years, probability of Enguri going down during peak events and reliability of the rest of the fleet of resources will be to spin up, but assuming the risk of losing Enguri is appreciable, then it seems prudent to have a reserve margin that exceeds its capacity, which for Georgia is almost 55 percent (1,300 MW (Enguri)/2383 MW (peak)). While in the short term, we recommend that Georgia ensure that imports are a viable source of supply and that Enguri is diligently maintained during off-peak months to ensure its output during peak periods, but in the longer term we recommend a more robust approach to resource adequacy that incentivizes the development of new resources domestically to reduce reliance on Enguri and to enhance energy security.

2.1.2 PPP Pipeline Challenges

15. **PPPs could be considered as one potential option for the Government to supplement public and concessional resources, and address infrastructure development needs**. Leveraging private finance would increase available financing resources for infrastructure investment in Georgia. Over the long-term, access to private finance may also help to decrease Georgia's reliance on concessional financing in case of any future reduction in its availability. Against the backdrop of Georgia's PPP experience to date, the analysis below summarizes key shortcomings to the use of PPPs in Georgia based both on respective lessons learned as well as current obstacles. Following the summary of issues in this section, each matter will be explored in more detail in subsequent sections.

16. **Pipeline development bottlenecks.** The Government lacks detailed national development or sector planning to prioritize investments, ensure efficient use of public and private financing sources, and to identify potential PPP projects in a coherent and systematized manner. To try to

[5] GNERC Annual Report 2018, page 18.

[6] The use of Enguri during the peak presents a challenge because it is located in Abkhazia (occupied region), its operation is outside of the central government control.

overcome this issue, in 2016 the Government adopted Resolution #191 on Approving the Roadmap for Managing Investment Projects (the "Public Investment Management (PIM) Guidelines") and in 2018 adopted a decree on a "List of Objects of Significant Importance". The PIM Guidelines reference PPPs in the project appraisal stage, and the PPP Law was drafted to align with the PIM Guidelines. However, in practice the PIM Guidelines are yet to be implemented. As a result, there is no structured process for a flow of filtered/prioritized electricity projects into the PPP pipeline. MOESD proposes projects for inclusion into PPP pipeline based on direct negotiations and unsolicited bids from various developers.

17. **Moreover, MOESD does not always carry out proper preparatory process to reduce the risks of the Project for potential developers and thus try to achieve the best possible tariff.** Specifically, feasibility studies or detailed technical assessments of potential projects are not carried out. This results in limited data and information available for the developers to base their decisions on and therefore may not result in the lowest possible tariff. In fact, given that the Government has not so far done competitive procurement for any energy PPP projects, there is no reference or comparison point.

18. **Prevalence of unsolicited proposals.** The majority of Georgia's PPP experience has come through USPs, initiated via MoUs signed between the Government and prospective project developers. Despite the enactment of the PPP Law, this has remained common practice in the energy sector (where USPs are still permitted). As a result, the country's current PPP pipeline is still dominated by USPs. The prevalence of USPs is linked to the lack of national development or sector planning mentioned above, which led private developers to fill the project void. This practice was also encouraged by the Government as a means to support its energy independence and security goals. Nonetheless, both USPs under development, and those under implementation, have lacked prioritization and have been developed in the absence of a least cost energy generation plan.

19. **PPP moratorium.** Georgia's ability to expand its PPP pipeline has been restricted by agreements included within the IMF Extended Arrangement under the Extended Fund Facility. To ensure the fiscal sustainability of its PPP program, the Government committed to "refrain(s) from initiating any PPPs, including PPAs, until [the] PPP framework is fully operational. The framework will be operational once the Value-for-Money (VfM) methodology is approved following the recommendations of IMF TA and incorporated in the PPP Value-for-Money guidelines[7]". In effect, this placed a temporary moratorium on all PPP projects in Georgia, apart from an exception related to energy generation PPAs. This reduced the incentive for line ministries to identify PPP projects since these could not be immediately implemented. Based on the finalization of the PPP Guidelines and VfM methodology in May 2020, the moratorium has now been removed and this potentially provides an opportunity for the Government to explore additional PPP opportunities.

20. **Capacity issues.** Georgia ranked towards the bottom of ECA countries in the World Bank's 2018 Procuring Infrastructure Public-Private Partnerships report,[8] which analyzed Georgia's PPP capacity prior to the enactment of the PPP Law. It received consistently low scores across the report's major metrics, related to PPP project preparation, PPP procurement, and PPP contract management (it did not receive a score on USPs). Despite the subsequent enactment of the PPP Law, capacity issues remain, and strong political commitment is required to ensure the law's

[7] IMF, Fifth Review of the Extended Arrangement under the Extended Fund Facility for Georgia, December 2019: https://www.imf.org/en/Publications/CR/Issues/2019/12/18/Republic-of-Georgia-Fifth-Review-Under-the-Extended-Arrangement-Requests-for-Waivers-of-48888.

[8] http://pubdocs.worldbank.org/en/256451522692645967/PIP3-2018.pdf

effective implementation. The PPP Agency is yet to be fully operationalized and is unable to fulfill its complete mandate. In addition, there continues to be a lack of capacity across line ministries, in the absence of detailed national development or sector planning processes, to identify, develop, and procure potential PPP opportunities, and a general lack of commitment and buy-in to PPPs. This lack of buy-in stems from limited capacity and limited incentive to pursue PPPs due to the availability of IFI financing and the above-mentioned PPP moratorium.

21. **Fiscal Commitments and Contingent Liabilities (FCCL) and exchange rate risks.** The Government's public debt ceiling of 60 percent of GDP[9] may be exhausted due to the fiscal stimulus associated with COVID-19 recovery efforts (the public debt is projected to be 62.8 percent of GDP[10] in 2020 and is likely to rise) providing no room to absorb further FCCL from PPPs to its balance sheet (particularly during the construction of a PPP asset). The Government will also need to take into account the increased fiscal costs and exchange rate risk due to the GEL depreciation, which could increase the cost of remuneration for US$-denominated PPPs and/or PPAs.

2.2 Historical Approach and Challenges Related to Financing of Transmission Investments

2.2.1 GSE Corporate Details

22. Founded in 2002, GSE is the Georgian Transmission System Operator and the Electricity Dispatch and Transmission Licensee (see Appendix A for details). The Company also holds the Electricity Market Operating License for the Balancing and ancillary services market segment issued by GNERC.

23. The Company owns two subsidiaries:

- **Karcal Enegry JSC** - a subsidiary with a 100 percent ownership stake, with limited activities.
- **Georgian Energy Exchange** - a subsidiary with 50 percent ownership stake, responsible for the operation of day-ahead and intraday electricity market. Electricity System Commercial Operator (ESCO), a state-owned Company, owns another 50 percent.

24. GSE transmits electricity from hydro, thermal and wind power plants to power distribution companies (JSC Telasi and JSC Energo-Pro Georgia) and direct customers (large companies). There used to be three transmission licensees in Georgia up until the end of 2020. In 2021, one of the licensees Energotrans merged with GSE, another licensee Sakrusenergo signed lease agreement of all transmission assets from Sakrusenergo to GSE. As a result of these transactions, GSE became the sole transmission system operator in Georgia from July 1, 2021. GSE already got the new license from GNERC. The transmission infrastructure consists of 3,550[11] km transmission lines and 93 substations. GSE neither generates electricity nor supplies electricity to end-users. It only provides electricity transmission from generation facilities to distribution companies and direct customers (large corporates). Distribution companies, in their turn, provide electricity to final customers, households and legal entities.

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[9] Organic Law of Georgia on Economic Freedom, 2011: https://matsne.gov.ge/ka/document/view/1405264?publication=2.

[10] IMF, Sixth Review of the Extended Arrangement under the Extended Fund Facility for Georgia, May 5, 2020: https://www.imf.org/en/Publications/CR/Issues/2020/05/05/Georgia-Sixth-Review-Under-the-Extended-Arrangement-and-Requests-for-a-Waiver-of-49394

[11] https://www.gse.com.ge/chven-shesakheb/ras-vsaqmianobt/elegtrogadamcemi-qselis-floba

25. GSE's mission is to develop, maintain, and operate a safe, reliable, economically viable, efficient and accessible electricity transmission system for all customers. The Company's strategic objectives include improved network reliability, readiness ensured for facilitating regional electricity trading, maintained financial stability, introduced information technologies, increased organization effectiveness and transformed culture of commercial orientation and knowledge.

2.2.2 GSE Corporate Governance

26. **Good corporate governance is empirically proven to increase companies' access to finance and to allow them to receive higher market valuations**. It is further associated with better performance since improved governance processes lead to quality decision making and ensure companies' long-term well-being. For investors, investments in well-governed companies carry reduced risks. High standards of governance, especially in terms of transparency and disclosure, are directly linked to successful capital markets offerings and are considered as one of the key elements for a listed Company's development. Effective corporate governance systems are associated with higher degrees of investor confidence as well as lower capital costs. Corporate governance shortcomings, especially in internal audit, internal controls, risk management and compliance functions, can be major roadblocks for a company's ability to access capital market and additional sources of finance. This has been also demonstrated by the recent episodes of support provided by the World Bank to improve the corporate governance of some SOEs in Europe Central Asia and other regions.

Box 1: Corporate Governance Reform of Ukrenergo (Ukraine): World Bank Second Power Transmission Project

As part of the broader objective of the World Bank energy sector lending operation in Ukraine, focused on improvement of the reliability of power transmission system and supporting implementation of the Wholesale Electricity Market in Ukraine, the project also supports an ongoing transformation of SE Ukrenergo (power transmission SOE). In particular, the Project provides support in establishing good corporate governance practices at the entity-level, including through revision of the corporate charter documents, by-laws, proper corporate reporting under the International Financial Reporting Standards (IFRS) and just-in-time advice.

Ukraine: Naftogaz Corporate Governance Reform to Support the Gas Sector Transformation[12]

Naftogaz of Ukraine is the largest national oil and gas company of Ukraine, wholly-owned by the Government of Ukraine. Naftogaz is responsible for field exploration, development, production, exploration drilling, and storage of oil and gas, processing and distribution of oil products, natural gas and liquefied gas to consumers, and until recent un-bundling - for gas transition via the territory of Ukraine to the EU. Given the importance of Naftogaz to the Ukrainian economy, its improved governance and performance have far-reaching effects for all sectors of the economy, including competitiveness and energy security, and impacting the day-to-day lives of citizens.

In March 2015, the World Bank and the Energy Community Secretariat agreed upon an Action Plan for the reform of the gas sector in Ukraine, which the Government approved. The plan

[12] Sources: OECD (2021) Review of the Corporate Governance of State-Owned Enterprises Ukraine; OECD (OECD (2019), State-Owned Enterprise Reform in the Hydrocarbons Sector in Ukraine; World Bank (2021) Fiscal Policy for Growth and Equity Public Finance Review.

called the reform of corporate governance one of the most crucial decisions to be taken. In 2016, the Gas Sector Reform Action Plan, including the Company's corporate governance reform, also became part of Ukraine's commitments under loan agreements with the EBRD. External stakeholders stated that this plan is a necessary step for Ukraine's integration into the EU. Successful corporate governance reform was named an essential guarantee of the security of gas supply in Ukraine and Europe.

As a result of the reforms implemented by the company, the Government, and significant international support from IFI's and bi-laterals, Naftogaz became the first SOE in Ukraine to introduce good corporate governance practices, in line with the OECD Guidelines on Corporate Governance of SOEs. The key components of corporate governance reform included:

- Appointing full and effective governance bodies,
- Introducing clear division of powers,
- Implementing the functioning internal control system,
- Elimination of political influence.

Many of these reforms have been successfully implemented during 2015-2020, including Naftogaz board appointment that comprises of majority independent members, merit based selection and appointment of the CEO, full transparency in financial statements preparation and publication, and timely audits. These reforms have not been done in isolation – they were part of the large reform package ranging from un-bundling the gas sector, reforming tariff structure and introducing a mechanism of compensation for public service obligations implemented by Naftogaz.

The gas sector reform implemented in Ukraine clearly shows that a sequenced combination of independent tariff setting for public services, strengthening of corporate governance and targeted social assistance can help to reduce fiscal risks and increase public net worth. Before the reform, the fiscal cost of Naftogaz's inefficiencies exceeded 5 percent of GDP; after the reform, targeted social assistance and clearly defined costs of the PSO obligation added up to around 2 percent of GDP, while Naftogaz's debt and public debt are declining.

Source: World Bank.

27. Key aspects of good corporate governance include the implementation of compliance measures, the timely and accurate disclosure of information, and integrity and accountability within management. All these elements are designed to give investors greater assurance through better governance and encourage them to confidently invest more with lower rates of return.

28. In this section we analyze the Company's corporate governance structure and put forward our recommendations for its further improvement. Based on our discussions with the Company, we understand that the Proposed Framework will be fully implemented by the time the Company enters the capital markets.

Management Structure and Effective Division of Functions

29. In Georgia, there is no corporate governance code or other guidance applicable to companies, except for commercial banks licensed by the National Bank of Georgia. Therefore, there are no formal requirements on the creation or composition of Supervisory Board committees (with exception of the audit committee), just as there are no formal requirements relating to the qualifications of company board members. However, despite the lack of mandatory statutory provisions, the company established its first Supervisory Board and adopted the

Corporate Governance Code. The Supervisory Board has five members, all of which are independent in accordance with the criteria and requirements established under the Corporate Governance Code. The Company will further create five (5) Supervisory Board committees, as described above, and the General Director will report directly to the Supervisory Board and its committees.

30. Moreover, the company created multiple committees, such as the Audit Committee, the Nomination Committee and the Remuneration Committee, will contribute significantly to the overall quality of oversight exercised by the Supervisory Board.

31. Thus, the governing, decision-making and oversight functions within the company will be significantly improved. The Supervisory Board will be well equipped to build sustainable long-term value for the Company and to assess and manage risks. On the other hand, the General Director and the key executives will develop and implement the Company's strategy under the Supervisory Board's oversight.

Appointment and Dismissal of Directors

32. Best practice dictates that the appointment and dismissal processes be entrusted to supervisory boards, rather than shareholders. The nomination process may also be delegated to an advisory body or expert panel. In the selection process, board professionalism is essential – education and experience, financial, business, legal and corporate governance skills should carry more weight than other factors such as political affiliations. The New Charter assigns this authority to the Supervisory Board. This transfer of authority should allow the Supervisory Board to insulate the General Director and the Company's key management from outside pressure. Moreover, the Supervisory Board will have the power to set the management's executive remuneration at a level that is in the Company's long-term interests. This is one of the principal tasks of the Remuneration Committee under its terms of reference. In addition, the Nomination Committee will have the capacity to build an engaged and diverse board that is most appropriate for the Company's needs and the successful implementation of its strategy. The Nomination Committee should also participate in planning for board succession.

33. The main concern in the proposed framework in this respect relates to the General Meeting's ability to overrule the Supervisory Board's appointment or dismissal of the General Director. If the General Meeting retains this ability, the state will be able to exercise greater control over the company's daily activities. We believe the Supervisory Board (including its Nomination Committee and the Remuneration Committee) should have full authority to select and oversee the General Director and key management and to set their remuneration in line with corporate governance principles.

Selection and Appointment of the Supervisory Board

34. GSE created its first supervisory board. The Supervisory Board will be an important internal mechanism to address management structure, responsibility, and independence issues. Under the Charter and the Law on Entrepreneurs, the General Meeting is entitled to create a supervisory board. The Law on Entrepreneurs does not establish any criteria for the appointment or dismissal of members of either the supervisory board or the board of directors. The state is permitted to appoint a public official to the supervisory board provided the official has no conflict of interest with respect to the relevant enterprise. As we understand it, the first members of the Supervisory Board have been selected through a competitive process that considered different professional and qualification characteristics that would appear to meet the needs of the Company. New

requirements under the Corporate Governance Code will improve the diversity of the Company's management as at least 30 percent of the members of the Supervisory Board shall be women.

35. The selection and appointment process of the Supervisory Board members is a key issue in GSE's corporate governance structure. As already envisaged under the New Charter and the Corporate Governance Code, it is imperative that the Nomination Committee and the Remuneration Committee are constituted and oversee the appointment and discharge of key management members. The committees should further design respective performance review and appraisal procedures.

36. In summary, the proposed framework is certainly better suited in our view for the company's needs and objectives and will significantly improve the Company's organization, internal control and other corporate mechanisms.

Transparency and Accountability

37. Transparency and accountability of state-owned enterprises are crucial and constitute one of the major components of good corporate governance. Environmental, social and governance (ESG) issues are further regarded by investors as one of the business risks that can be reduced by better ESG practices. It is our view that the level of Company's disclosure and transparency as well as the ESG practice require certain enhancements, while the accountability within the Company in terms of internal and external audit controls needs to be reformed.

38. Currently, the following documents are published on the GSE's official website: (1) annual reports by the Company's management (with the latest edition relating to 2019 and the first and second quarters of 2020), which, includes, amongst others, information on Company's major achievements, investments and strategic planning as well as environmental protection and social safeguards; (2) audited consolidated financial statements (published every year since 2005); and (3) the current ten-year network development plan. In addition, the company displays information on its key management, including their background and qualifications. However, the company does not disclose their remuneration or results of their activities.

39. In line with best international practice, it is advisable that the company proactively discloses additional information on its official website, which may include, without limitation, its remuneration policy, transactions between related parties, risk factors, governance structure and policies, information on decisions and acts by governing bodies as well as their activities. The annual reports that are being published already cover the organizational and operational information relating to the company. However, we believe relevant disclosures may be organized in a more structured way allowing easier access and wider transparency. Accurate and transparent disclosure of information is one of the key duties of the company management. Accordingly, these issues may be addressed in the Directors' Regulations or other related documents that will be approved by the Board of Directors of the company under the proposed framework.

ESG Practices

40. In recent years investors have been increasingly targeting sustainable investment opportunities. We recommend that the Company focus on its environmental, social and governance performance and how to communicate this information with stakeholders clearly, accurately and in a more structured way. The company should determine which ESG issues are relevant to its business and demonstrate its responsiveness to those sustainability issues, including the economic and social impact of company's infrastructure projects, environmental

compliance, workforce health and safety, and diversity. Investors should receive a strong message that the environmental and social impacts of the company's products and services are being duly addressed by the company in a responsible manner.

41. Our review of information available on the Company's website has shown that certain aspects of ESG issues are already being addressed by the Company, such as reporting on the environmental impact of GSE's activities, declarations of the Company's environmental and social policy, and information on the Company's plans to address climate change concerns. Nevertheless, we have not been able to identify a comprehensive, regular practice that the Company has adopted to identify, manage and communicate material sustainability risks and opportunities. We believe the Company should consider what additional resources it may need to apply to this task. The Company may consider developing internal expertise relating to ESG issues or may decide to work with outside consultants.

42. Once the Company has settled on its strategy to address sustainability issues, it should publicly share and report relevant information and data. The means by which the Company will report on ESG issues could include periodic reports, disclosures on its website as well as annual reports to the shareholder.

Accountability and Audit

43. Integrity and clarity of financial reporting and other disclosures is one of the key issues for good corporate governance. GSE is required to report its financial statements in accordance with the International Financial Reporting Standards in line with the requirements of the ARA Law. Notably, the members of the Company's Board of Directors and the Supervisory Board are jointly and severally liable for accurate and timely preparation and submission of financial statements and related disclosures. Even prior to existence of this requirement, the Company has issued financial statements, compliant IFRS, and audited by an independent external auditor.

44. Currently, the Company has an Internal Audit Department and an Internal Control Department. They are tasked with various risk management and internal control functions. However, both departments are subordinated to the General Director. There are no clear and transparent criteria for the selection or dismissal of department members and the underlying terms of reference do not explicitly envisage independence and conflict of interest requirements. In addition, they are not afforded sufficient independence and autonomy.

45. Hence, the Internal Audit Department and the Internal Control Department do not perform true audit and internal control functions. In contrast, the Audit Committee, which will be a Supervisory Board committee established under the Proposed Framework, will directly report to the Supervisory Board and will have a majority of independent members. The composition of the Audit Committee exclusively from Supervisory Board members ensures that members of the committee are bound by fiduciary duties and respective accountability measures. Representation of independent members on the Supervisory Board and especially the Audit Committee is recommended. We also believe it is essential that members of the Audit Committee have a thorough understanding of the Company's business.

46. Moreover, the Corporate Governance Code precludes former directors or shareholders of audit companies from serving on the Audit Committee, which is regarded as good practice. With respect to external auditors, it is important to note that according to the Corporate Governance Code, the Audit Committee will (i) develop policies and procedures relating to non-audit services performed by external auditors and (ii) such policies will mandate rotation requirements for external auditors as well as their audit partners. In addition, it is advisable that the Company

discloses information on non-audit fees, such as advisory or consulting fees separately from audit fees paid to the external auditors.

47. Thus, the Company should maintain and further enhance its disclosure and transparency as well as its internal control and risk management functions and procedures. The Audit Committee should be fully empowered to effectively perform the risk management and internal control functions and to oversee the Company's relationship with external auditors.

Compliance, Anti-Corruption, and Integrity Policies

48. As far as we are aware, the Company does not have specific compliance and anti-corruption policies or units. Best corporate governance practice suggests empowering the Supervisory Board to appoint and dismiss compliance officers or compliance office heads that will have direct reporting line to the Supervisory Board instead of the General Director. In the Proposed Framework, the oversight of the compliance function may be delegated to the Audit Committee that should ensure oversight of business integrity functions and policies within the Company.

49. Moreover, the Company is advised to create formal anti-bribery and anti-corruption policies and ensure that all staff receive appropriate (and verified) training. As noted, the Anti-Corruption Laws do not directly apply to the Company and its key executives or personnel. Hence, the Company is not required by law to have a code of ethics or whistle-blower protection mechanisms or mechanisms designed to prevent conflicts of interests and corruption. The creation and enforcement of a coordinated policy to prevent and eliminate corruption or other misconduct is important. Moreover, it is essential that the value and importance of the Company's compliance culture is communicated from the top down. Executives and the management team can play an active role in reinforcing the Company's compliance strategies and engaging personnel. By adopting a "top-down" approach the Company will be able to demonstrate that compliance applies equally to the senior management as well as more junior staff members and, therefore, create a strong culture of compliance throughout the organization.

Improvement Recommendations

50. Based on above findings we believe the corporate governance framework may be further revised and enhanced and, in this respect, we have the following recommendations for the Company:

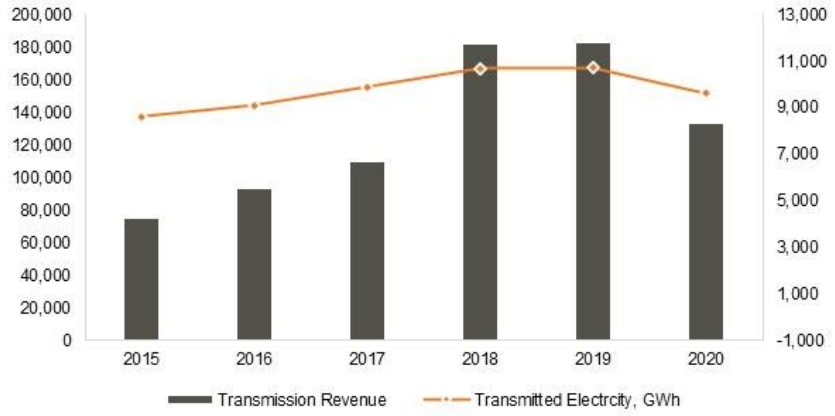
- The Supervisory Board should maintain control over approval of Company's key strategies and oversight over Company's key areas.
- The Supervisory Board should have full authority and discretion to select, appoint and dismiss the General Director and to set executive remuneration (in certain cases, the General Meeting may establish its recommendations on upper limits of remuneration).
- The General Director and key executives should be selected with consideration of their diverse background and experience, as well as the skills and expertise that are most appropriate for the Company's current and anticipated needs.
- The Supervisory Board committees should be constituted and perform tasks in accordance with their respective TOCs, which should be reviewed annually to recommend any changes needed.
- The Nomination Committee and the Remuneration Committee should design respective performance review and appraisal procedures for the management.

- The Company is advised to proactively disclose information on the activities and remuneration of its management bodies.
- The Directors' Regulations should establish and maintain periodic disclosure mechanisms for greater transparency.
- The Company is advised to develop a comprehensive sustainability strategy and to communicate its efforts with stakeholders in a more structured way.
- The Audit Committee should develop procedures relating to the disclosure of information on non-audit fees.
- The Company should adopt compliance, anti-bribery and anti-corruption as well as whistle-blower protection policies and conduct regular training sessions for employees in this respect.
- Within the Proposed Framework the Supervisory Board should adopt a policy on related party transactions, a confidentiality policy, a diversity (equality) policy and a risk management policy; and
- The Supervisory Board should maintain and further enhance the Ethics Code.

2.2.3 GSE Historical Financial Performance

51. The company's revenues constitute from two major lines, transmission and dispatching of electricity which accounted for 95 percent of the total revenues in 2020. The rest is generated from electricity exports, transit and other revenues. The company's revenue from transmission of electricity has grown by CAGR 12.4 percent over 2015-2020 period and amounted to GEL 133,489 thousand.

Figure 2.1: GSE's Revenues and Transmitted Electricity



Source: GSE data.

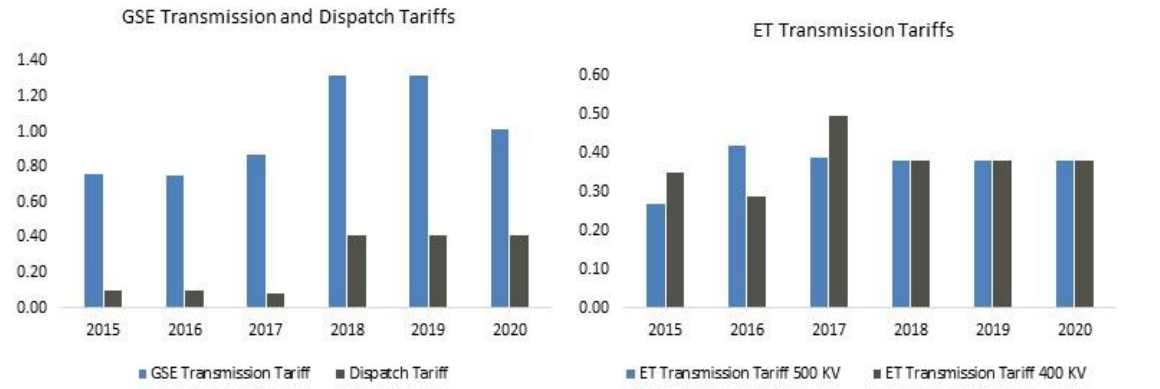
52. **Over 2015-2017, the Company's transmission revenues increased gradually, in line with the increase of transmission volumes**. There was a major spike in revenue in 2018. The figure increased by 66 percent compared to prior year. The increase was partly attributable to 8 percent increase in transmitted electricity from 9,874 GWh to 10,674 GWh, as well as 52 percent increase (from 0.87 to 1.323 tetri) of GSE transmission tariff for 2018-2019 tariff setting period. The details of tariff methodology are presented in Appendix C.

53. **Revenue from transmission of electricity increased by only 0.4 percent due to largely unchanged transmission volumes and similar tariff as in 2018**. Following COVID-19 outbreak, there was a countrywide lockdown during March-May and November-December months in Georgia. The restrictions in the country included curfew after 9 pm, lock-down of businesses such as shopping malls, non-food related shops, restaurants and cafes, cinemas and theatres, etc.

Limited business activity naturally caused a significant decrease of electricity consumption, which saw Company's transmission volume decrease by 10 percent to 9,605 GWh. Due to the fact that the Company did not fulfil its investment plan included in tariff calculation for 2018-2020 period, the tariff was decreased by 23 percent to 1,013 tetri for 2020. The combination of tariff and volume decrease has contributed in a 27 percent decrease of Company's transmission revenues for 2020.

54. **Revenues from dispatching electricity remained fairly stable over 2015-2017 period, increasing by 10 percent to GEL 10,776 thousand**. The figure increased by 204 percent to GEL 32,756 thousand in 2018. Reason behind the spike was 402 percent increase of dispatch tariff – from 0.082 to 0.41 tetri. The new tariff came into effect in starting May 2018, as a result weighted average tariff for 2018, calculated as Revenue from dispatching of electricity divided by dispatched volume, stood at 0.307 tetri. Dispatch revenues further increased by 35 percent since 2019 tariff stood at 0.41 all year long, while 2018 tariff effectively stood at prior mentioned 0.307.

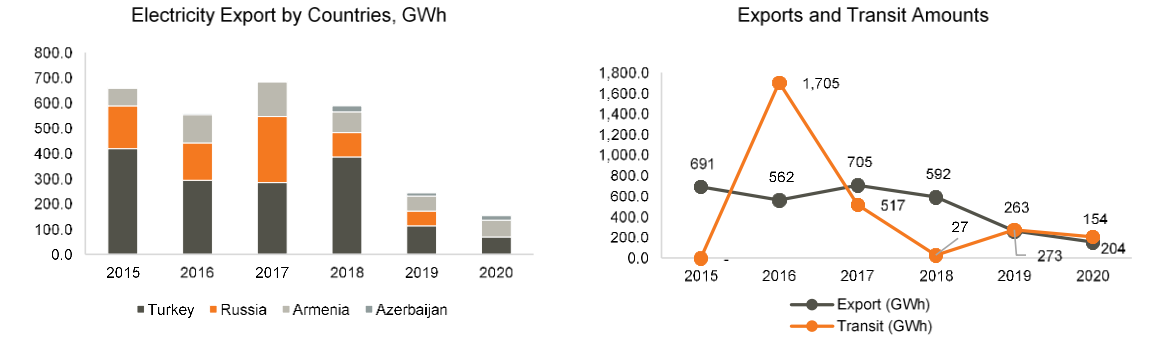
Figure 2.2: GSE Transmission, Dispatch, and Electricity Transit Tariffs



Source: GSE data.

55. **Revenue from transit has been on a steady decline since 2016 - total decline amounted to 86 percent in 2020**. The reason behind this has been 88 percent decline of transited electricity – from 1,705 GWh to 204 GWh in 2020. The story has been largely the same with revenue from exporting electricity, 70 percent decrease in revenues has been caused by 77 percent decrease of exported electricity in 2015-20 period – from 660 GWh to 154 GWh. As seen from the chart below, the share of the primary export country – Turkey – has decreased sharply over the years. Turkey has invested heavily in electricity production, which drove down prices and consequently, the demand for imported electricity.

Figure 2.3: Electricity Exports and Transits



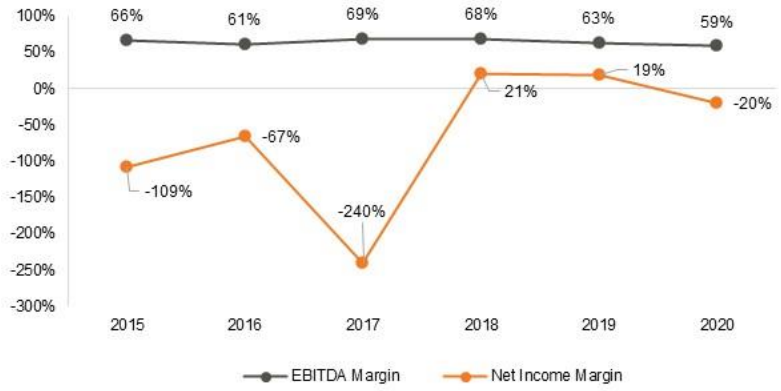
Source: GSE data.

56. **The Company has been operating quite efficiently with operating costs growing largely due to the need to purchase the electricity losses from the market**. The Company's operating expenses have grown by 188 percent over 2015-2020 period. These expenses remained fairly stable in 2015-2017, with growth of only 33 percent for the period. On 4 May 2018, MOESD issued an order, according to which the Group is obliged to reimburse the cost of lost electricity during transmission process ESCO. This has caused 83 percent increase of Other Operating Expenses in 2018 and further 20 percent increase in 2019.

57. **The Company achieved positive results at EBITDA level for the historical period of 2015-2020**. EBITDA margin fluctuated between 61 percent and 69 percent over 2015-19. Due to revenue decrease of 23 percent caused by COVID-19 related lockdown and limited business activity, which could not be matched with operating cost decrease (OPEX decreased by only 6 percent y-o-y), EBITDA margin fell to 59 percent in 2020.

58. **The Company incurred net losses for 2015-2017 due to significant net finance costs**. Specifically, net finance costs were in the range of 78-128 percent of total revenue. The 2017 results were further stressed by GEL 250,117 thousand impairment loss. Strong revenue growth ensured positive results over 2018 and 2019. Despite suffering impairment losses of GEL 42,705 and 5,039 thousand, respectively, as well as net finance costs of GEL 18,960 and 52,946 thousand, the company still managed to achieve net profit for 2018-2019. Due to shrinkage of EBITDA margin and GEL 244,825 thousand in net finance costs, the Company achieved net loss for 2020. Impairment reversal of GEL 167,995 thousand was not enough to offset these effects. Net loss for the year amounted to GEL 36,089 thousand.

Figure 2.4: GSE Revenue and Profitability 2015-2020 (GEL '000)



Source: GSE audited annual financial statements.

59. **The Company's total assets grew by 21 percent from GEL 1,144,497 to GEL 1,386,630 thousand over 2015-2020**. Primary contributing factors in the growth have been the 16 percent increase in Company's property and equipment. The balance of cash and cash equivalents grew by 428 percent over the period, from GEL 15,081 thousand to GEL 79,685 thousand. Additionally, the Company's intangible assets have grown from GEL 1,189 to GEL 18,107 (1,422 percent increase) and inventories from GEL 7,347 to GEL 20,492 (growth of 179 percent) over 2015-2020 period.

60. **The Company's total equity has shrunk from GEL 153,021 in 2015 to GEL (81,618) thousand in 2020**. This significant reduction in equity is fully attributable to growth in accumulated deficit

of 77 percent over the same period. The accumulated deficit increased from GEL (427,929) to GEL (828,276) thousand in 2017, which stemmed from consecutive annual losses over 2015-2017. Net profit for 2018 and 2019 was enough to slightly reduce This deficit to GEL (672,247) thousand in 2019. Net loss for 2020 again caused an increase to GEL (758,431) thousand in 2020. The decrease of total equity was partially offset by owner contributions to share Capital, both in the form of cash and property and equipment, which saw share capital increase by 15 percent, from GEL 574,422 to GEL 662,583 thousand.

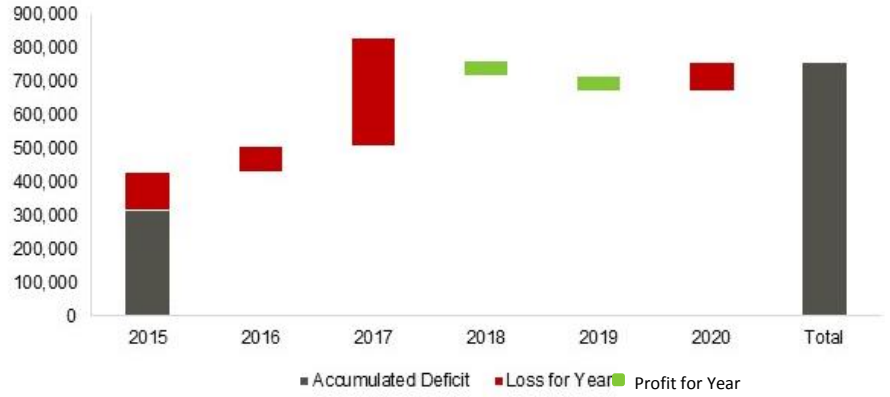
61. **Total liabilities have grown by 48 percent over 2015-2020 period, from GEL 991,476 to GEL 1,468,249 thousand**. The main driver of growth has been 57 percent increase of long-term portion of loans and borrowings from GEL 670,100 to GEL 1,049,949 thousand in 2020 as well as increase in short-term portion of loans and borrowings of 73 percent - from GEL 99,666 to GEL 172,842 thousand over the same period. The increase in loans and borrowings is attributable to the drawdown of new debt facilities and utilizing existing loans as well as changes in the foreign exchange rate, as all of the Company's debt financing is denominated in EUR and US$.

62. Growth in total liabilities has been slightly offset by a decrease of long-term portion of restructured liabilities from GEL 59,455 thousand in 2015 to nil in 2020, as well as decrease in the short-term portion from GEL 7,000 thousand to nil in 2020.

63. **Due to the specificity of its business, the Company has major construction in Progress (CIP) balances and frequently makes significant additions to property and equipment category**. These are mostly comprised of high voltage transmission lines and electrical substations under construction as well as spare parts and stand-by equipment. The Company generates additional revenue from connecting major consumers to its network and has constructions linked with these services. Upon finalization of construction and commencement of exploitation, these assets are transferred from CIP to respective asset categories.

64. The Company has significant balance of accumulated deficit, which amounted to GEL 758,431 thousand at the end of 2020. Accumulated losses have grown by 77 percent over 2015-2020 period, which has been attributable to heavy losses suffered in 2015-2017. Company's financial performance stabilized since 2018. Net profits for 2018 and 2019 was positive and slightly reduced the accumulated deficit, while net losses for 2020 further increased it. For more information regarding the operating results, please refer to Statement of Profit and Loss section.

Figure 2.5: GSE's Accumulated Deficit



Source: World Bank based on inputs from external consultant.

65. **GSE's current liabilities are driven by debt service costs of long-term sovereign-guaranteed loans taken to finance capital expenditure program.** Current portion of loans and borrowings represent interest bearing liabilities with remaining maturity of less than 1 year. This item has grown from GEL 99,666 to GEL 172,842 (73 percent increase) over 2015-2020 period. On average this line item has represented 21 percent of total assets, in 2020 this figure stood at 13 percent.

66. **GSE has about US$300 million equivalent of long-term sovereign-guaranteed debt for various investment projects**. Loans and borrowings represent interest bearing liabilities obtained for the purpose of construction or rehabilitation of the Company's network. Most of these long-term liabilities have been obtained by the MOF and on-lent to the Company. Historically on average 96 percent of long-term loans and borrowings have been unsecured, with the remaining portion being secured. This same figure stood at 99 percent in 2020. At the end of 2020 land plots with power transmission lines and related technical equipment with the carrying amount of GEL57,904 thousand (2019: GEL 48,090 thousand) ware pledged as a security against loans and borrowings from and restructured liabilities to MOF.

67. The Company's loans are fully denominated in foreign currency. Since GEL has had a depreciating trend over the past years, the Company has incurred heavy Foreign Exchange losses connected with these loans. In total the Company has suffered FX losses in the amount of GEL 423,231 thousand over 2016-2020 period. FX losses for each of 2016-2020 years is given in the table below.

68. **Restructured liabilities represent the amounts originated before 2006, the repayments of which have been deferred due to the financial difficulties of the Group**. Due to company's inability to repay loans from MOF, tax liabilities and accrued interest, it has been under rehabilitation/bankruptcy protection regime following a court ruling in 2008. The repayment of these liabilities has been deferred until 2011 and thereafter amounts were planned to be repaid by instalments until 2023. The Company was unable to borrow statutorily in commercial terms during the rehabilitation regime.

69. At the end of 2015, 67 percent of restructured liabilities were payables to the state budget, 29 percent were trade payables and the remaining 4 percent were loans and accrued interest. The state budget was set to have the highest priority of payment according to the court ruling. That's why payables to the state budget were repaid faster have decreased by 70 percent over 2015-2019 period, from GEL 65,192 to GEL 19,207 thousand.

70. Due to gradual repayment net restructured liabilities decreased by 31 percent over 2015-2019 period. GSE sought to exit rehabilitation regime early due to having sufficient liquidity to repay these liabilities fully. The court finalized a list of creditors and the Company extinguished its restructured liabilities in full in 2020 and the Company made the payments against restructured liabilities, which resulted in removal of Financial Rehabilitation/Bankruptcy Protection Regime for the company in early 2021.

71. **The Company's net cash from operating activities has been positive throughout 2015-2020 period**. Despite achieving a sizeable Losses before income tax for 2015-2017, significant adjustments for net finance costs for the same period, as well as Impairment adjustment in 2017 have ensured positive net cash flows from operations. Positive profit before tax for 2018-2019 period, adjusted for net finance costs and impairment losses resulted in significant increase of operating cash flows. 2018 net cash from operations increased by 43 percent compared to prior year. 18 percent decrease followed in 2019, but the result was still significantly higher than that

of 2015-2017 period. Due to negative profit before tax in 2020, as well as sizeable adjustment for reversal of impairment losses, net cash from operations decreased by 44 percent.

72. **Due to significant capex program, the Company consistently had negative cash flow from investing activity over 2015-2020**. Interest received on bank accounts increased by 433 percent over this period, mostly due to re-negotiated higher interest rate with the banks and significant accumulation of cash balances over the years. The Company made sizeable capital expenditures on PP&E, but these expenses had decreasing pattern. Cash paid for acquisition of PP&E and IA decreased by 33 percent over 2015-2020 period, from GEL 129,888 thousand to GEL 48,895 thousand.

2.2.4 Existing Model of Transmission Investment Financing

73. **Since its establishment in 2002, GSE has been financing electricity transmission network investments through reliance on the sovereign-guaranteed loans**. This approach to financing is as follows – the ultimate shareholder of GSE, the MOF, borrows loans from the DFIs (e.g. KfW, EIB, World Bank, EBRD, and ADB) and on-lends it to GSE. The terms of the MOF-to-GSE loans are the same as the DFI-to-MOF loans. Each loan is a facility tied to a specific project. Interest rates on majority of these loans are well below market interest rates. These loans also include long grace periods on principal. Principal payments on some of these loans commences 5 or sometimes even 10 years after the disbursement. Currently, the outstanding balance of debts under various projects financing by development partners is more than US$300 million equivalent.

Table 2.1: GSE's Current Debt Financing Details

Loan Ref.	Lender	Full Credit size (000 GEL)	CCY	Nominal Interest rate	Year of Maturity	Carrying Value – Audited 2020	
						CCY '000	GEL '000
1	MOF - ADB	43,528	USD	1%-1.5%	2044	31,007	146,327
2	MOF - KFW	8,313	EUR	1%-1.5%	2035	4,298	17,292
3	MOF - KFW	10,000	EUR	1%-1.5%	2025	2,951	11,871
4	MOF - KFW	6,391	EUR	4.00%	2021	0.17	0.69
5	MOF - KFW	125,000	EUR	0.25-0.05%	2032	1,345	5,413
6	MOF - EBRD	25,205	EUR	Euribor+ 1%	2028	15,536	62,504
7	MOF - KFW	22,150	EUR	2.20%	2025	11,660	46,912
8	MOF - KFW	12,850	EUR	2.20%	2028	8,226	33,097
9	MOF - WB	59,000	USD	Variable Interest Rate	2039	49,931	163,603
10	MOF - WB	62,000	EUR	Variable Interest Rate	2044	5,397	21,716
Kfw - ET 1	MOF - KFW	20,000	EUR	KfW reference rate +4%	2022	21,859	87,946
Kfw - ET 2	MOF - KFW	55,000	EUR	KfW reference rate +4%	2027	58,321	234,642
EBRD - ET	MOF - EBRD	56,114	EUR	Euribor + 1%	2027	30,907	124,350
EIB - ET	MOF - EIB	79,806	EUR	Euribor + 0.75%	2033	62,727	252,370
MoF - ET	MOF - MOF	16,586	EUR	-	2020	3,653	14,699
Total Carrying Amount:							**1,222,742**

Source: GSE audited financial statements.

74. It should also be noted that as per market analysis, none of these loans carry refinancing penalties or commissions of any sorts. According to the current debt structure, the Company's weighted average interest expense is 1.2 percent. Considering available market financing terms presented above, it is practically impossible to attract market financing which would be competitive to GSE's existing financing terms (long term, low interest rate and favourable payment schedules).

75. **The entirely public financing model may not be optimal given GSE's large commitment to capital investment to further increase the security and reliability of electricity supply in the**

country. Based on base-case investment scenario from TYNDP 2018-2027, GSE will need to invest around US$550 million in 2021-2030. Financing those investments through sovereign guaranteed loans would put further pressure on the public debt of the country, which is currently at about 45 percent of GDP. Substantial amount of the financing required for those investments has already been secured from development partners, however, the Government wants to reduce the volume of public debt. Moreover, the estimated investment needs do not include US$2.5 billion high-priority Georgia-Romania Power and Digital Interconnection Project, which is expected to be built in 2025-2030. Georgia's share of the capital costs is expected to amount to around US$1 billion. This Project was not included in this analysis because it has not yet formally included in GSE's TYENDP.

76. The Government made a decision to gradually transition GSE away from reliance on the Government's external public debt for financing of its network investments. Thus, GSE would need to explore alternative mechanisms for financing those investments, which may include a combination of direct commercial borrowing by GSE to refinance existing debt and finance the new investments. As a first-time borrower in the commercial finance market, GSE will build up its in-house capacity and carry out market debut with significant preparatory work, including but not limited to the actions mentioned above.

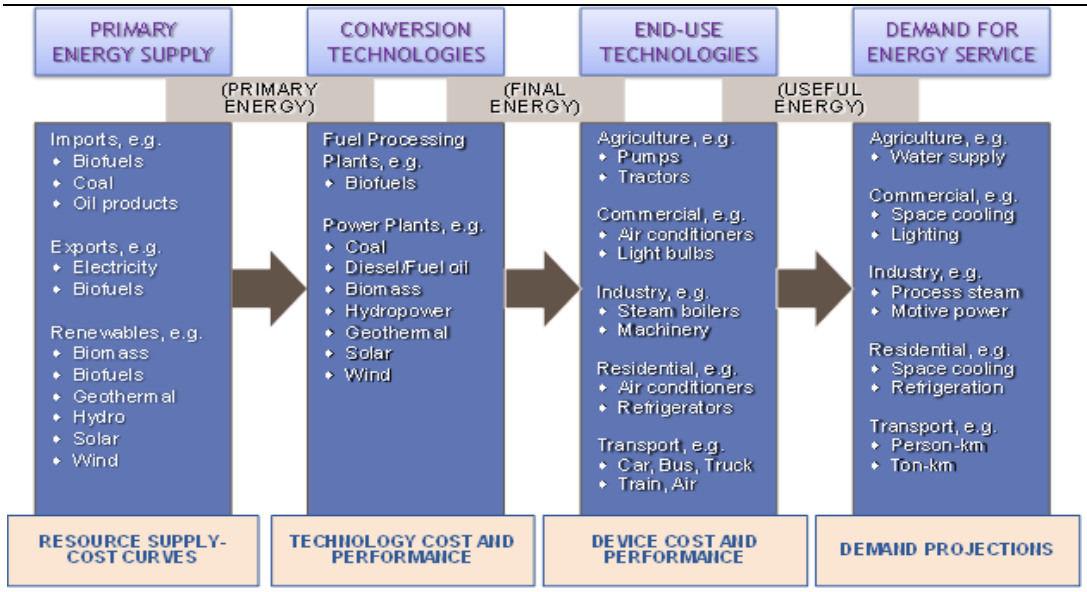
3 Financing of New Generation Investments

3.1 Need for New Generation Investments

77. **In 2022-2040, Georgia is estimated to require about US$8.5 billion of new investments in electricity generation**. The estimation was done considering the electricity generation expansion scenario that the MOESD considers as the most optimal considering economic, technical, climate, and energy security criteria. This is an estimate by the World Bank team based on the specific supply expansion scenario (Base Case Scenario) comprised of various HPPs, solar PV and wind projects, and imports. Those were estimated based on the historical prices for HPPs in Georgia, site-specific feasibility studies, and estimated capital costs for wind and solar PV. The Base Case Scenario includes construction of 3,750 MW of HPPs, 1,650 MW of wind capacity, and 505 MW of solar PV capacity.

78. **The estimation of the Base Case Scenario was based on projected 3 percent annual electricity demand growth in 2022-2040**. The demand forecast was based on the output of TIMES model, which calculated demand based on sector-specific growth projections. These sectors include agriculture, transport, residential, industry, and commercial. Energy demand from each of these sectors is calculated using different drivers such as GDP and per capita GDP growth, energy intensity of production, population growth, etc. MOESD provided hourly load projections. The figure below displays the components of the TIMES model. The output of the model is an hourly demand forecast for each day between 2021 and 2030. Demand for each hour to ensure that there will be enough capacity to meet projected electricity demand. Moreover, the hourly modelling was conducted to ensure that generation profiles of intermittent generators – wind and solar PV projects – are captured properly when optimizing the need for new capacity and simulating the dispatch under all three scenarios analyzed. The data were then extrapolated to obtain hourly data up to 2040.

Figure 3.1: Components of the TIMES Model

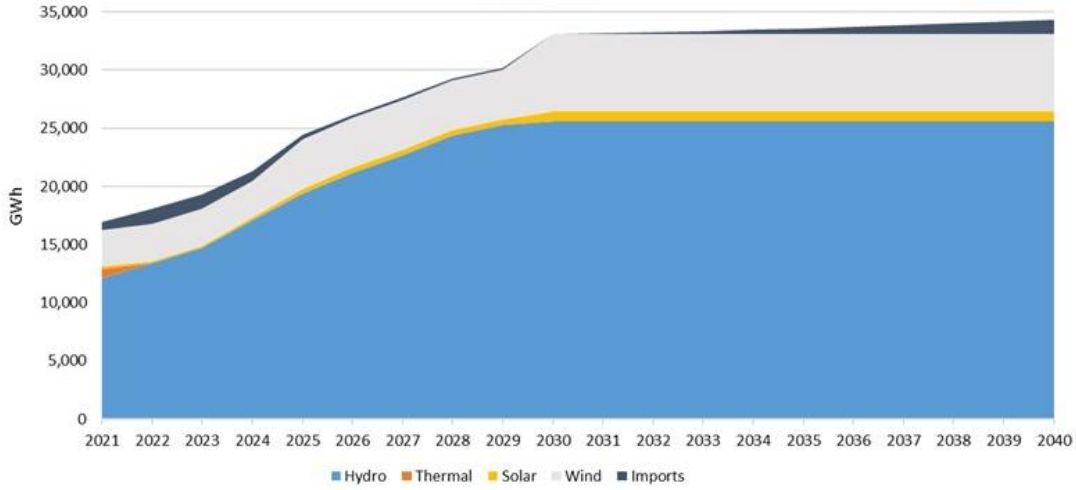


Source: Deutsche Gesellschaft fur International Zusammenarbeit (GIZ) GmbH, TIMES-Georgia Model User Manual.

79. **Domestic demand is expected to grow by an average of 3 percent per year during 2021-2040.** The figure below shows domestic demand growing at an average of 3 percent per year. The exports were capped at 1,000 MW considering that Georgia cannot easily export large amounts of excess energy because it is not integrated with large power markets.

80. Under the Base Case Scenario, most generation comes from hydropower, followed by wind generation. There will be no thermal generation after 2022, and as a result, no emissions from power generation after this year. The share of imports is less than 8 percent. Considering the lowest share of thermal generation and imports, the Base Case Scenario would also ensure the highest level of energy security.

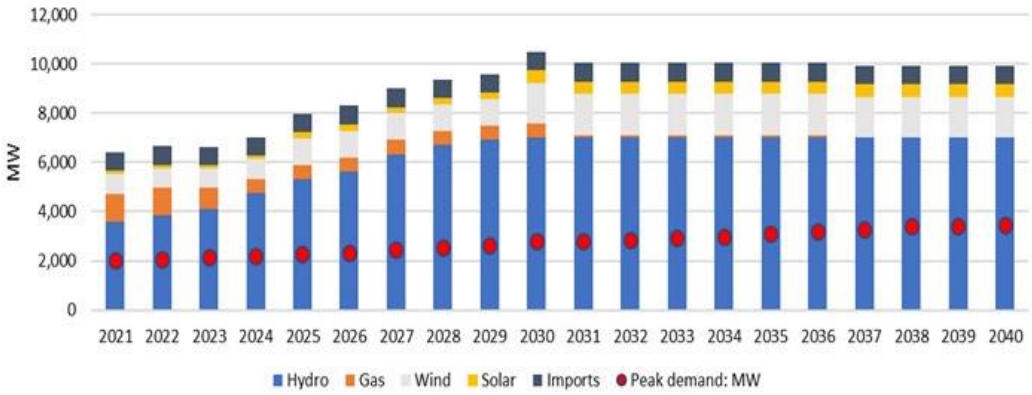
Figure 3.2: Domestic Supply



Source: World Bank estimate.

81. The figure below shows the extent to which the Base Case Scenario has enough capacity to meet peak demand and to meet demand at each hour, even after considering the variable nature of solar PV and wind generation.

Figure 3.3: Capacity to Meet Peak Demand



Source: World Bank based on inputs from external consultant.

82. Despite significant progress made by the Government in constructing new generation capacity in 2008-2019, the framework used by the Government requires revisions to achieve the lowest possible tariffs from new projects, reduce the fiscal risks for the Government, and align

those with the new electricity market structure. The financing of new generation investments with reliance on commercial sources will require the Government to introduce improvements to the framework used for the development of new generation investments. Specifically, the following changes may be warranted.

3.2 Financing of New Generation Investments Going Forward

83. Construction of new generation projects using the previous approach of reliance on long-term PPAs will not be viable in the long-term given the new electricity market structure in Georgia. In fact, even the existing long-term PPAs will need to transition into electricity market most probably through reliance on the contracts-for-differences (CfD). In competitive market environment that Georgia has been transitioning to, consistent with the Third Energy Package of the Energy Community, long-term PPAs cannot be accommodated consistent with the principles of competition and absence of market distortions. Therefore, going forward, Georgia will need to explore alternative mechanisms of ensuring resource adequacy.

3.2.1 Ensuring Resource Adequacy

84. **Ensuring resource adequacy can be accomplished in many ways**. Some system operators have a centralized capacity market that procures resources during some forward period so that they are committed to provide energy in the future, while others place resource adequacy requirements on load-serving entities and require them to demonstrate that they have adequate supply committed to serve their load plus the appropriate reserve margin. In vertically integrated utilities, ensuring resource adequacy is part of the integrated planning process. All these mechanisms, especially in the face of scarce capacity, include some sort of incentive, either through payments to generators or guarantees of cost recovery for building generation, to ensure adequate capacity is available.

85. **In Georgia, the only existing mechanism that is used to ensure resource adequacy is a capacity payment that is paid to thermal generators for them to be available during the winter months**. This availability payment depends on the month – there is a guaranteed amount that doesn't change each month, but there is also a payment that depends on demand (when demand is high the payment goes down because they are generating more, and vice versa). These payments help ensure adequate supply during winter months when hydro generation is low and help ensure long-term energy security by reducing imports from neighboring countries during these months.

Table 3.1: Guaranteed Capacity Fee for TPPs (GEL/Day)

Company	Generation Facility	2018	2019
Mtkvari Energy LLC	9th Unit of Tbilsresi	59,630	77,121
Georgian International Energy Corporation LLC	3rd Unit of Tbilsresi	18,637	20,006
Georgian International Energy Corporation LLC	4th Unit of Tbilsresi	20,357	21,811
G-Power LLC	Gas turbine power plant	44,874	47,720
Gardabani TPP LLC	Combined cycle gas turbine	385,893	383,971

86. **While payments like these may be necessary to incentivize generation development, particularly during the low-hydro winter months, in the future, resource adequacy requirements and/or incentives need to apply for the entire year and should not be based on**

the characteristics of a particular type of resource. Consideration should be given to: (i) methods for selecting the resources that receive the remuneration: (ii) method for determining the amount of payment determined (administratively set, competition; etc.); (iii) the obligations set on the plant; (iv) penalties for non-performance. The payment should not discriminate among technologies, but rather implicitly recognize that different technologies (and even different projects, for instance wind or hydro plants in different locations and thus accessing different primary resources) have different contributions to reliability. This will allow all resources capable of providing energy (or reducing demand) to be considered and ensure that resources are available to serve load for the entire year. As discussed earlier, monthly resource adequacy requirements could help ensure year-round resource adequacy at lower cost it and help ensure that resources are available when they are most needed. This is particularly important in Georgia since surplus generation is generally available in the high-hydro summer months, but the country is more reliant on gas and imports during the winter.

87. **Deciding which entities are responsible for resource adequacy is also important as this will determine how any necessary procurement of resources is conducted**. Given the relatively modest size of the Georgian power system and the reliance on a few large generators for much of the capacity, an organized capacity market seems like it would be too costly to develop and administer to warrant the benefits. Moreover, centralized capacity markets can be very contentious as different types of resources compete for inclusion and preference and any subsidies are difficult to account for. A simpler approach that we recommend for Georgia is to place monthly resource adequacy requirements on the retail suppliers. This would require the entities serving retail load to forecast their peak load on a monthly basis and then demonstrate that they have capacity contracts in place to guarantee that adequate resources will be available to serve their load. By placing these requirements on the entities that serve load, it will allow for resource adequacy obligations to be re-allocated as more retail competition emerges, and it will allow capacity to be procured competitively through auctions to help ensure it is done cost effectively. Additionally, capacity from state-owned generation can be allocated to load-serving entities based on the degree to which they are responsible for vulnerable customers and maintain a PSO.

88. **In case some of the load serving entities (and large consumers) do not have adequate creditworthiness to ensure resource adequacy a centralized procurement process and allocation of resource adequacy product could be considered**. The demands of the load serving entities should be summed-up, each load serving entity receives a parcel of the reliability product sold by each generator. This could be a feasible way of reducing risks to generators because each generator would see a portfolio of buyers, instead of a single buyer.

89. **Allowing utilities to contract for different types of capacity products based on their operational needs also helps prevent over-procurement of resources to serve peak load**. For example, if a resource like energy storage or demand response, with a four-hour duration is capable of serving the four peak-load hours during an operating day, then it is appropriate to allow such resources to provide capacity rather than procure additional thermal generation at higher costs simply because it can run for an indefinite period of time.[13]

90. **Having a clear policy on security of supply is also critical to resource adequacy as imports are a viable capacity resource and the Government will need to determine whether they will allow imports to count toward resource adequacy obligations**. Georgian government officials

[13] See, e.g. The Potential for Energy Storage to Provide Peaking Capacity in the United States, NREL 2019

indicated that there is a significant desire to be self-sufficient and not depend on imports during the winter/low-hydro months, but this will require more development of internal generation and hence the appropriate incentives will need to be in place to guarantee energy security. GEDF suggested the Government wants more investment in renewable generation to meet winter demand, but even with several new HPPs and a couple new TPPs that are already being developed, they are still going to fall short on self-sufficient energy supply during the winter.

91. **The competitive day-ahead and intraday energy markets will help attract new generation, but with the potentially significant price suppressive effects of the state-owned generation, resource adequacy requirements will be necessary to incentivize internal generation development**. Therefore, we recommend that the Government clearly articulate whether imports may be relied on by load-serving entities to meet their resource adequacy obligations, and if they are not able to use imports (which is our expectation), then the resource adequacy construct will need to make clear that the load-serving entities will be required to contract with internal resources to demonstrate resource adequacy.

92. **However, on the same token, it is important not to overcompensate resource adequacy resources with fixed contract payments as this can also have price suppressive effects in the energy markets as well**. This can be tricky when trying to incent renewables and/or thermal generation because renewables have proportionately higher fixed capital costs and lower variable marginal costs than thermal generation. Therefore, instead of looking at resource adequacy to cover fixed costs and energy markets to cover marginal costs, it may be more appropriate to look at resource adequacy payments as a way to cover the revenue requirements of the project that the seller expects not to be covered by payments related to other products it sells in the competitive market. If done in technology agnostic manner, these resource adequacy payments could not only help with adding winter capacity and ensuring energy security, but also with facilitating additions of clean energy to the resource mix.

93. **Despite the desire to incentivize new generation and the need to take a more robust approach to generation planning, it appears as if Georgia is going to need to rely on imports from neighboring countries for several more years**. However, placing resource adequacy requirements on Energo Pro and Telasi and making them demonstrate compliance with those requirements in a way that factors in state-owned generation and slowly phases out reliance on imports will help incentivize investment in new generation in Georgia. Additionally, having the load-serving entities enter into medium and long-term capacity contracts with existing and prospective resources transfers development risk to those entities from the Government and incentivizes new resource development without Government guaranteed PPAs which can hinder a market-based system. While additional details will need to be ironed out such as the types of capacity resources that can be procured, when the load-serving entities will be required to file their resource adequacy plans, and what type of contracting is appropriate, it is clear that a generation planning construct is necessary for reliability and for energy security, and implementing one such as that described here should help encourage competition and administrative efficiency.

3.2.2 Balancing Market

94. **The New Energy Law envisages balancing and ancillary services markets to complement the day-ahead and intraday energy markets**. The current market model requires TSO to forecast the volume of balancing capacity for the reliability and system stability, manage the electricity system by self-dispatching principle and activation of relevant bid based on the merit order list-results of the balancing energy tender, also TSO should conduct the registry of BRPs. The balancing

market and imbalance settlement mechanism shall create a market-based management for balancing the Georgian power system, and shall provide a mechanism for determining the price of balancing products procured, a mechanism for calculating the imbalance settlement price for whole power system, and for the establishment of a settlement mechanism for imbalances of BRPs. Additionally, it states that the TSO shall forecast and procure (using a market-based approach when feasible) balancing energy and balancing capacity from BSPs and take the required balancing actions, by dispatching frequency regulation service from procured balancing reserves and any additional balancing products from those resources that bid into the market for balancing energy. Balancing costs are currently 'socialized' but the reform implements a market-based balancing settlement mechanism and assigns financial responsibility to producers.

95. Establishing an effective balancing market for balancing products is critical to efficient and reliable operations, for ensuring that the system is able to absorb additional quantities of intermittent renewable generation (wind and hydro), and to reduce generation curtailment and hydro spilling. A well-functioning balancing markets will encourage hydropower storage development, which is valuable for grid stabilization and alleviation of seasonal supply shortages.

96. Accurate load forecasting is important to ensure that adequate supply is available to serve load, and revisiting those forecasts for the day-ahead and intraday markets will further ensure their accuracy, but in addition to forecasting and committing units to provide energy and reserves ahead of time, there also needs to be a granular approach to ancillary services such as frequency regulation and primary frequency response. This requires availability of sufficient metering equipment on the consumer side to ensure that the balancing needs are properly identified, and the costs are assigned based on the principle of cost causation. This will, in turn, provide an incentive for the suppliers (e.g. Energo Pro and Telasi) for managing their energy use to reduce balancing costs.

97. **A common problem in ancillary service market design is the assumption that one power system's ancillary services market design will work for all other markets and that once the market is implemented that it will be effective indefinitely**. This is not the case – each power system has its own operational challenges, those challenges can change over time, and those challenges are also what should be considered when defining ancillary service requirements. For example, markets with significant volatility in the load and/or generation will have greater need for fast ramping resources to provide frequency regulation; systems with significant inverter-based resources may have a greater need for inertia (or something that can mimic it) and primary frequency response in the event of sudden frequency drops; systems with high solar penetration may need a ramping product to ensure generation availability as the sun sets while load is peaking (i.e. the "duck curve" problem), and systems with proportionally larger N-1 contingencies will need more spinning reserves. Policy makers should be aware of the operational characteristics of Georgia's power system that is critical to the successful implementation of a balancing market. This will help GSE identify what balancing/ancillary services are needed, what the technical requirements of providing those services are, and what quantities of them are necessary to support the system.

98. **Ensuring that resources are properly incentivized to provide ancillary services and that there are penalties in place if they fail to meet their obligation is essential to reliable operation of the Georgian power system, and it will help ensure new generators are incentivized to right-size their hydro reservoirs or install needed automated control equipment**. However, not all ancillary services require an organized market for their procurement. Generally speaking, those services that have opportunity costs related to the resource's inability to provide energy can be

efficiently procured through the organized market (this would include spinning and non-spinning reserves, frequency regulation, and primary frequency response). These services all require generators or other supply assets (e.g. demand response or energy storage) to reserve energy output, so co-optimizing these markets with the energy market should yield the most efficient (lowest cost) outcomes. However, this does not mean that resources must participate in the energy markets to provide ancillary services. It may be economic for some resources that are particularly good at providing an individual service to only participate in that market. Models of this can be seen in the US markets where fast responding resources like energy storage are allowed to participate only in the frequency regulation market and not be co-optimized for energy and other ancillary services.

99. Additionally, while most organized markets clear reserve services and frequency regulation as part of the market, there are different approaches to compensating primary frequency response (and some variations of it such as fast frequency response, firm frequency response, enhanced frequency response, etc.), reactive power and black-start service. Since reactive power is a localized service, having an organized market for it is not particularly feasible, so such constructs do not exist, although some utilities do perform competitive procurement for reactive power equipment that is not connected to generators. Since black-start is a dedicated and location-specific service, black-start resources generally should be competitively procured to fulfill the requirements of a restoration plan.

100. **For ancillary services that are part of the organized market, the timing of their procurement is also important to consider, which can be done in a forward market, in the DAM, or in real time**. In the US, ancillary services are generally procured in the DAM and in some cases in real-time, whereas in the EU, reserves are generally procured in advance or even through annual reserve procurement processes. Buying ancillary services in advance helps ensure reserve adequacy in real-time operations, but reserve requirements will not change if procured in advance and there is a greater risk that there will be outages between the time of contracting and the operating day. Additionally, decisions about reserve allocation will generally be better the more that they can be adapted to actual conditions, so day-ahead procurement instead of weekly, monthly, or annual markets will yield more efficient results, and real-time adjustments will further enhance markets efficiency.

101. **The combination and co-optimization of energy and ancillary service procurement is also important to consider**. In some European countries, the procurement of energy and ancillary services occurs separately, and the current trajectory in Georgia seems to contemplate separate energy and balancing markets. The drawback of having separate markets is that capacity for reserves and energy are often substitutable and co-optimized markets allow for that generation capacity to be assigned to the production of energy or the provision of ancillary services, depending on the circumstances and relative needs, enabling the most valuable use of that capacity. This is not possible in separate markets where reserves are procured well in advance, running the risk that the market outcome will be ex-post inefficient. The lack of co-optimization also results in poor price formation because if energy prices are not determined simultaneously with reserve procurement, then reserve prices cannot reflect the actual opportunity cost of providing energy. Poor estimates of opportunity costs and consequently of reserves value could also be a barrier for new and smaller players entering the industry. An approach that combines features of the typical European and the US pathways could also be considered. It is possible to: (1) use competition to award longer-term contracts to entities that can be called upon to provide the ancillary service during operations, remunerating them with a fixed payment (typically small,

even more so in hydro systems); and (2) co-optimize energy and ancillary services during actual operations, letting a parcel of the remuneration for the services (the variable part) being defined by the prices that will arise for reserve provision in the short-term.

102. Therefore, as Georgia designs its balancing and energy markets, we recommend an approach that co-optimizes these markets instead of establishing separate markets. Co-optimization would also impact the institutional framework, making it necessary for the same organization to operate the balancing market as is operating the energy markets.

3.2.3 Development of Non-Hydro Renewable Energy

103. **The Government is considering incentives for integrating more non-hydro renewable energy into the Georgia electricity markets**. This will help reduce imports of electricity during winter/low-hydro months, reduce reliance on foreign natural gas currently being used for thermal generation in the winter, and create a more sustainable and secure energy future for Georgia. MOESD is considering feed-in tariffs, feed-in premiums, CfDs, and green certificates for renewables development. EBRD is developing a solar auction based on a feed-in premium structure. Further integration studies should be performed to determine the hosting capacity and potential operational requirements that may need to be addressed for significant renewable penetration. However, hydro, wind and solar have relatively complementary generation profiles and characteristics, and if the assets are adequately dispersed then their physical impacts are even more muted, so Georgia may be in an advantageous position for renewable integration.

104. **In terms of supporting new renewable development, CfDs would be the preferred mechanism as they can be closely integrated with the market and eventually phased out once the market is operational and the spot prices are reliable**. However, due to the lack of a large market and a more imminent desire to support renewable integration, we recommend some sort of guaranteed capacity payment or partial PPA for renewable energy that is comparable to those contracts that are currently provided for gas generation during the winter. These payments would help incentivize renewable development by covering a portion of their costs, but they would still be reliant on finding buyers for their energy output. This would most likely occur through the balance energy market managed by GSE, but it may also be possible to find other direct buyers or sign short term PPAs with neighboring countries. A seasonal support scheme would help ensure energy independence in the winter, but not make the renewables overly reliant on long term contracts, while still providing the option to establish CfDs for supplemental support and market integration once the markets are up and running.

4 Financing of New Transmission Investments

4.1 Need for New Transmission Investments

105. Based on base-case investment scenario from TYNDP 2018-2027, GSE will need to invest around US$550 million in 2022-2030 exclusive of the Georgia's share of US$2.5 billion for Georgia-Romania Power and Digital Interconnection Project, which estimated at about US$1 billion.[14] The key investments include:

- 500 kV Ksani-Stephantsminda OHL[15]
- 220 kV Jvari-Khorga substations and OHLs[16]
- 500 kV Stephantsmida-Mozdok OHL
- North Ring – Tskaltubo domestic network strengthening project
- Akhaltsikeh – Tortum 400 kV OHL and DC converter station
- Namakhvani – Tskaltubo OHLs
- Rehabilitation of various substations

106. The Government wants to ensure that substantial share of new investments is financed by GSE with limited or no direct public borrowing by the MOF given that the power sector is considered as capable of raising commercial financing and the scarce public resources will be channelled to other sectors. As a first step in exploring the options for raising commercial financing, GSE was compare to its peers – other transmission system operators (TSOs) - in different countries, which have been successfully raising commercial financing. The benchmarking was required to provide an insight into key regulatory, operational, and financial characteristics that are important elements for allowing companies to access capital markets.

4.1.2 Benchmarking of GSE to Other TSOs

107. **In order to perform comparison of GSE with its international peers, a comprehensive screening of various TSOs has been performed**. Based on initial high-level assessment we have sampled 14 TSOs from various European countries, which are most similar to Georgian market and have companies similar to GSE. For the purpose of further selection of the best suitable peers from the sample, top-down approach has been employed.

The screening criteria arranged by its priority is listed below:

a. ***Comparability of the economy***. Main considerations include gross domestic product, sovereign rating, as well as country population.

b. ***Comparability of sector regulation, business models, and revenue streams***. Sector regulation, business model and revenue stream types were also considered as a selection criteria. We have chosen TSOs that already have balancing market activities and system services included in their revenue stream

[14] This project has not yet been included in GSE's Network Development Plan. It will be included after completion of the feasibility study, which is underway.

[15] As of 2022 the OHL is fully competed.

[16] As of 2022 the OHL and substation are fully competed.

c. ***Ownership structure***. It was crucial for our analysis to find companies that are owned by the government of the country they reside in, since government ownership largely affects Company management, solvency and access to financing.

d. ***Comparability of scale***. Due to business specifics the scale of TSOs largely depends on the size of the country and the economy. Physical size of transmission grid and other assets largely depends on the size of the country territory, while transmission volumes depend on population and the output of the economy

108. Availability of information was also considered as one of the factors for the selection. Some countries do not have transparent reporting requirements and companies do not publish financial reports on regular basis or publish information on local language only. As a result, companies such as Moldelectrica (Moldavian TSO), OST (Albanian TSO), NOSBH (Bosnia and Herzegovina TSO) have been excluded from our shortlist due to unavailability of necessary information in English.[17]

109. **As a result of the screening, out the initial selection of 14 companies, five comparable companies were selected** to serve as benchmarks for GSE for the peer analyses purposes. The summary of abovementioned considerations is summarized in tables below.

Table 4.1: Selection of GSE Peer Group

	GSE	Transelectrica	CEPS	APG	Terna	Red Electrica	Statnett	NOSBiH
Availability of Info	✓	✓	✓	✓	✓	✓	✓	×
Country	**Georgia**	**Romania**	**Czechia**	**Austria**	**Italy**	**Spain**	**Norway**	**Bos. Herz**
Sov.Rating	S&P - BB	Fitch - BBB- S&P - BB+ Moody's - Baa3	Moody's - Aa3	Fitch - AA+ Moody's - Aa1	S&P - BBB	S&P - A	Fitch - AAA	S&P - B
Population	3.7 mn	19.4 mn.	10.6 mn.	8.9 mn.	60 mn.	47 mn.	5 mn.	3.3 mn.
GDP per capita	$4.7K	$13K	$25K	$50K	$33K	$30K	$68K	$6.7K
Sector Regulation	Cost Plus & Rev. Cap	Cost Plus & Rev. Cap	Cost Plus & Rev. Cap	Cost Plus & Rev. Cap	Cost Plus & Rev. Cap	Cost Plus & Rev. Cap	Cost Plus & Rev. Cap	Cost Plus & Rev. Cap
Business Model	TSO	TSO	TSO	TSO	TSO+Solutions	TSO+Telco	TSO	TSO
Ownership	Government	Government	Government	Government	Government	Government	Government	Government
Total Assets at 31-Dec-19 (GEL '000)	1,171,922	3,155,058	5,598,708	5,853,009	56,807,316	39,929,826	24,423,360	N/A[1]
Short-listed		✓	✓	×	×	×	×	×

	Litgrid	Moldelectrica	SEPS	Elering	REN	HOPS	OST
Availability of Info	✓	×	✓	✓	✓	✓	×
Country	**Lithuania**	**Moldova**	**Slovakia**	**Estonia**	**Portugal**	**Croatia**	**Albania**
Sov.Rating	Fitch - A S&P - A+ Moody's - A2	Fitch - B- Moody's - Caa1	Fitch - A S&P - A+ Moody's - A2	Fitch - A S&P - A Moody's - A1	Fitch - BBB S&P - BBB Moody's - Baa3	Moody's-Ba1	S&P-B Moody's-B1
Population	2.8mn.	2.7mn	5.45mn.	1.3mn.	10mn.	4mn.	2.8mn.
GDP per capita	$20K	$4.5K	$19K	$23K	$25K	$20K	$5.4K
Sector Regulation	Cost Plus & Rev. Cap	Cost Plus & Rev. Cap	Cost Plus & Rev. Cap	Cost Plus & Rev. Cap	Cost Plus & Rev. Cap	Cost Plus & Rev. Cap	Cost Plus & Rev. Cap
Business Model	TSO	TSO	TSO	TSO+Natural Gas	TSO+Natural Gas	TSO	TSO
Ownership	Government	Government	Government	Government	Government	Government	Government
Total Assets at 31-Dec-19 (GEL '000)	1,211,166	1,242,810	3,398,158	3,232,110	16,739,621	2,997,056	N/A[1]
Short-listed	✓	×	✓	×	×	✓	×

Source: Galt & Taggart.

110. **GSE has robust gross and net profit margins compared to the average for the peer group**. This is demonstrated below with the key metrics related to EBITDA margin, EBIT margin, EBT margin, and net profit margin. It is noteworthy that GSE leads its peers in terms of profitability metrics. The Company leads peer group with EBITDA margin of 60.5 percent, closest peer being Czech CEPS with 42.6 percent margin. Peer group average EBITDA margin stands at 26.5 percent.

[17] It should also be highlighted that no perfect comparable companies exist, meaning that peer analysis always includes certain level of subjectivity. No two economies are perfectly comparable, hence relative comparability should suffice, similarly, no two business models or Company business scales are perfectly comparable, which again constrains analysts to relative comparability.

Table 4.2: Summary of Key Profitability Metrics for Comparator TSOs

	Transelectrica	Litgrid	HOPS	SEPS	CEPS	Peer Avg.	GSE
Country	**Romania**	**Lithuania**	**Croatia**	**Slovakia**	**Czechia**		
Issuer Credit Rating	Ba1	N/A	N/A	N/A	A2		**N/A**
Total Revenue	1,551,038	584,641	733,847	1,456,412	1,860,295		235,010
EBITDA	**219,870**	**74,622**	**226,499**	**468,951**	**792,721**	***26.5%***	**142,137**
EBITDA Margin	*14.2%*	*12.8%*	*30.9%*	*32.2%*	*42.6%*		*60.5%*
EBIT	**33,649**	**10,198**	**80,255**	**301,485**	**483,082**	***12.3%***	**97,016**
EBIT Margin	*2.2%*	*1.7%*	*10.9%*	*20.7%*	*26.0%*		*41.3%*
EBT	**27,832**	**14,274**	**70,334**	**299,873**	**483,696**	***12.1%***	**44,070**
EBT Margin	*1.8%*	*2.4%*	*9.6%*	*20.6%*	*26.0%*		*18.8%*
Net Profit	**20,485**	**13,031**	**56,199**	**218,666**	**389,170**	***9.4%***	**44,027**
Net Profit Margin	*1.3%*	*2.2%*	*7.7%*	*15.0%*	*20.9%*		*18.8%*

Source: Galt & Taggart.

111. **Based on operational results of 2019 GSE appears to be smaller in size than its peers**. GSE has lowest total revenues in the peer group. Apart from the differences in economy sizes, one of the primary reasons for this is that GSE's European peers have broader product/service range than the Georgian company. Apart from transmission, dispatch, transit revenues and revenues from connecting new customers that are present with GSE, peers also generate revenue from balancing the market as well as system services. It should be noted that these services are currently under development for GSE and are expected to launch in the near future.

112. **GSE also leads the peer group in EBIT profitability - both adjusted and non-adjusted**. Depreciation averaged at 14 percent of total non-adjusted revenues and 25 percent of adjusted revenues in the peer group. The same metric for GSE amounted to 19 percent in 2019, which indicates the fact that Company is within the adequate range for this figure. Average EBIT margin amounted to 12.8 percent while adjusted EBIT margin amounted to 20.6 percent for the Peer group. The same metric for GSE was 41.3 percent in 2019.

113. **Due to high financing costs (33 percent of total Revenues in 2019), the Company's EBT margin falls drastically**. High finance costs are fully attributable to foreign currency denominated loans, which paired with depreciating trend of GEL resulted in abnormal foreign exchange losses. It should also be noted that peer group EBT margin averaged at 12.1 percent while the same figure amounted to 18.8 percent for GSE. The Company was behind Czechia's CEPS and Slovakia's SEPS in this metric.

114. **Net profit margin on average amounted to 9.4 percent for the peer group**, while the same figure amounted to 18.8 percent for GSE. Company did not pay any Corporate Income Tax Expenses, while peer group averaged 3 percent of total Revenue for this figure.

115. **On average, the balancing market and system services make up to 50.2 percent and 14.8 percent of peers' total revenues, respectively**. The differences in scale is more modest if we consider only transmission data. GSE stands 5th by the amount of transmitted energy, close behind 4th spot of the Croatian HOPS. GSE transmitted electricity amounted to 63 percent of peer average.

Table 4.3: Comparator TSO's 2019 Total Revenues Break-Down

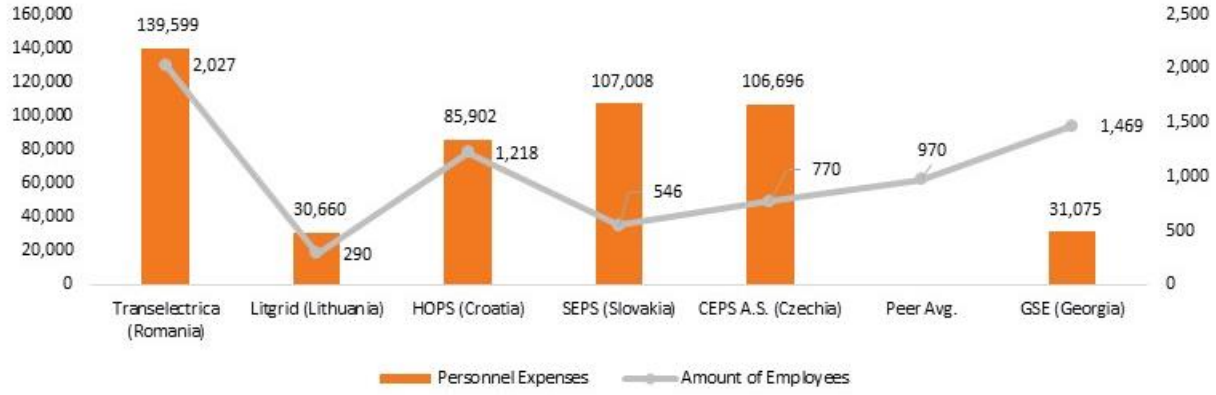
Revenue Stream	Transelectrica	Litgrid	HOPS	SEPS	PeerAvg.[1]	GSE[2]
Transmission Revenues	778,231	218,707	582,896	481,871		226,581
% of Total	*48.8%*	*37.5%*	*81.3%*	*33.1%*	50.2%	*96.4%*
Balancing Market	347,884	83,223	74,969	185,627		
% of Total	*21.8%*	*14.3%*	*10.5%*	*12.7%*	14.8%	*0.0%*
System Services	435,021	223,235	48,128	666,375		
% of Total	*27.3%*	*38.3%*	*6.7%*	*45.8%*	29.5%	*0.0%*
Other Revenues[5]	33,277	57,533	10,967	122,538		8,429
% of Total	*2.1%*	*9.9%*	*1.5%*	*8.4%*	5.5%	*3.6%*
	1,594,412	**582,698**	**716,961**	**1,456,412**		**235,010**

Source: Galt & Taggart.

116. On average expenses related to provision of various services amounted to 62.6 percent of peers' total revenue, 46.7 percent of which have been related to system services and balancing services. These services are absent from GSE's Statement of Profit and Loss.

117. **On average, GSE personnel costs are efficient**. On average this ratio amounted to 7.8 percent of peer group. It should be noted that 1-to-1 comparison of this ratio between the peer group and GSE is not justified, since peer group's total revenues include revenues from system and balancing services. If we exclude these revenues from our calculation, the resulting average figure will amount to 15.1 percent. It should also be stated that system and balancing services require certain human resources, which are included in peer group's expenses, hence prior mentioned adjustments to calculation of personnel expense to revenue ratio does not result in apples-to-apples comparison either.

Figure 4. 1: Number of Personnel and Staff Costs



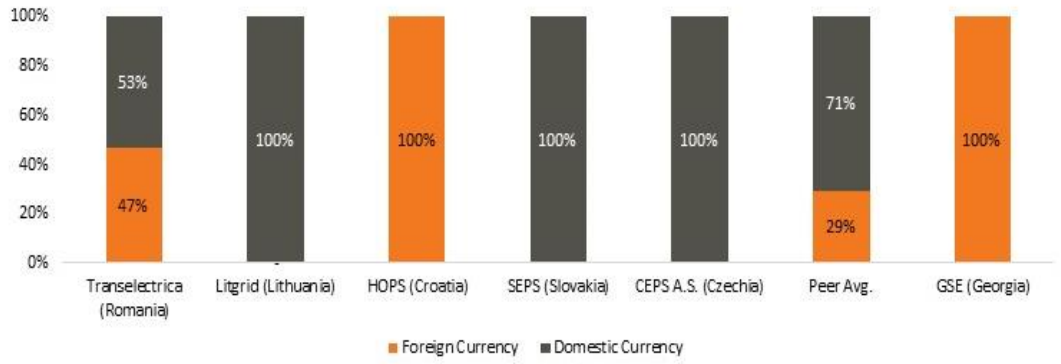
Source: Galt & Taggart.

118. **It should be noted that GSE has the largest number of staff despite having one of the smallest networks.** GSE is 2nd among the 6 companies with the number of employees, despite the fact that it is one of the smallest companies in scale. The company's average annual salary (calculated as total personnel expenses divided by the number of employees) amounted to GEL 21,000. The same figure on average amounted to GEL 116,000 for the peer group. This 5.5-fold discrepancy is in line with the difference in GDP per capita of companies' respective home

countries – peer group's average GDP per capita amounted to US$19,400, while the same figure stood at US$4,700 for Georgia.

119. **GSE's borrowings amounted to 82.9 percent of Total Assets which is highest figure in the Peer Group and above Peer Average of 10.9 percent**. Compared to GSE, peers tend to use more grants and accounts payable for financing their capital expenditures and operations. In addition to this, as GSE's borrowings are fully denominated in hard currencies (EUR and US$), GEL's dramatic depreciation against US$ and EUR for several years straight, has highly contributed to increase is outstanding balance of borrowings. Recent heavy losses in 2015-2017 has resulted in increase of accumulated losses and negative total equity for the Company.

Figure 4. 2: Currency Composition of Loans



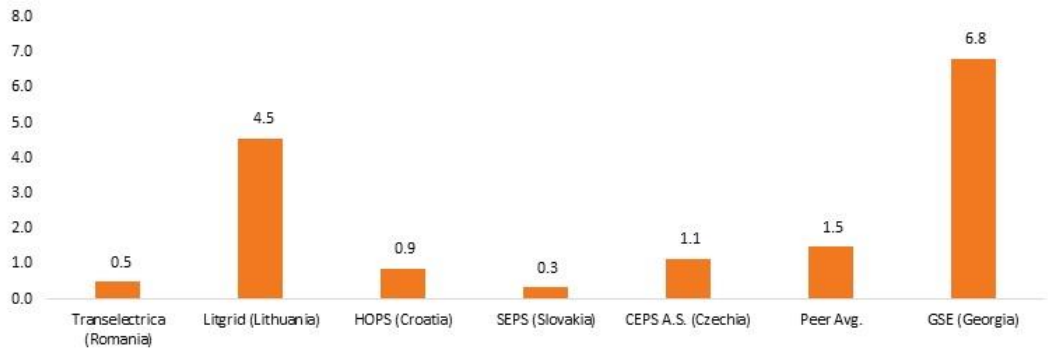
Source: Galt & Taggart.

120. **It should be noted that only GSE and Croatia's HOPS have 100 percent of Total Borrowings in foreign currency**. Lithuania's Litgrid, Czechia's CEPS and Slovakia's SEPS all have 100 percent domestic currency denomination of total Borrowings. Transelectrica's total borrowings consist of 47 percent EUR and 53 percent RON denominated liabilities. This information is particularly important, since open position in foreign currency has been the source for prior mentioned major losses for GSE for 2015-17. Due to the fact that GEL has been depreciating for several years straight, the Company has been vulnerable to currency losses.

121. As noted from the table above, Total Liabilities to Total Assets averaged at 27.4 percent for the Peer Group. GSE has the highest figure in the Peer group with 107 percent. Despite positive results at the EBITDA level, the Company has achieved Net Losses with abnormal Foreign Exchange Losses and significant Impairment Losses for 2015-17 period. These results have contributed in negative total Equity and hence High Liabilities-to-Assets ratio.

122. **As a result of the above factors, GSE has quite high Debt-to-EBITDA ratio**. Even though the company has strong profitability metrics at EBITDA level, due to negative equity the Company is heavily reliant on Debt financing which puts it ahead of the peer group in this metric. This figure amounted to 7.4 for GSE, while the Peer Group averaged at 1.5. It should also be noted that there is a lag in Debt-to-EBITDA metric for GSE. The Company balance sheet already includes debt obtained to finance capital expenses, but these expenses shall only be included into Tariff (hence into Revenue and EBITDA) after construction works have been completed. In this regard, since GSE has largest investments in the peer group, its Debt-to-EBITDA ratio is highest as well.

Figure 4.3: Debt-to-EBITDA Ratios of GSE and Peer Group



Source: Galt & Taggart.

123. **GSE is operationally quite efficient.** GSE's O&M expenses amounted to only 0.6 percent of total revenues, which was one of the smallest of the group. On average, peer group's O&M amounted to 2.8 percent of total Revenue. Over the past years GSE has invested heavily in renovation of its asset base, which has resulted in higher quality and significantly less necessity for small repairs. GSE's transmission network losses have amounted to 1.76 percent compared to the peer average of 1.84 percent.

Table 4.4: Transmission Network Losses

	Transelectrica (Romania)	HOPS (Croatia)	SEPS (Slovakia)	CEPS A.S. (Czechia)	Peer Average	GSE (Georgia)
Transmission network losses %	2.27%	2.23%	1.04%	1.81%	1.84%	1.76%

Source: World Bank team estimate.

124. **GSE's finance costs have been considerably higher than the peer group's – 32.9 percent as opposed to comparable' average of 0.7 percent**. This is attributable to both higher proportion of interest-bearing liabilities and foreign currency composition of this debt. For detailed discussion of these factors, please refer to Appendix D.

125. The company has not distributed any dividends and hence has not paid any profit tax for the year. This is attributable to presence of Estonian model of profit taxation in Georgia. This model only requires payment of profit tax in case of distribution of profit or in case of existence of certain types of payments. On average, peer group's profit tax has amounted to 2.7 percent of total revenues.

126. **Overall, GSE has sound profitability metrics on operating and EBITDA levels due to steady tariff-based revenues and relatively low-cost base**. With high revenue generation and low operating cost-base the company compares favorably to the peer group despite having one of the smallest scale of operations. The Company also has a very ambitious investment plan which is reflected in the change of its fixed asset balance. These investments are reflected in efficiency of its operations. The company's weakness is the foreign currency open position. Due to 100 percent Foreign Currency Debt financing the Company has resulted in abnormal FX Losses over the year, with GEL depreciating persistently. This together with Impairment Losses which were fully the result of inclusion of EnergoTrans' asset base into tariff with only a factor of 17 percent have resulted in accumulated losses for the Company and called for additional Debt financing.

127. Due to the fact that EnergoTrans' assets have been included into the new tariff with a factor of 100 percent, it is expected that large portion of Impairment losses shall be reversed in 2020. This in addition with the Company's great ability to generate Revenue and Operating Cash Flows could contribute to GSE becoming the undisputed leader of its peer group in the coming years. A large precondition of this though, is refinancing of loans with local currency capital in order to avoid further incurring FX losses.

4.1.3 Overview of Financing Options for GSE's Investments

128. Market sounding was conducted to assess the feasibility of obtaining commercial financing by GSE. The enquiries have been primarily targeted towards assessing Company's potential to:

- Obtain equity financing
- Obtain debt financing through:
  - Direct debt financing from local commercial banks;
  - Issue GEL denominated bonds on the local capital market;
  - Issue US$ denominated Eurobonds on international markets (listing at London or Irish Stock Exchange). The discussions regarding Eurobonds have also involved the possibility of issuing GEL denominated Eurobonds.

Equity Financing

129. Capital markets in Georgia remains underdeveloped with local equity capital markets in Georgia almost non-existent. Similar to other under-developed markets, larger issuers from Georgia, particularly banks and quasi-government entities have bypassed local capital markets and accessed more liquid foreign markets directly.

130. Bank of Georgia was the first ever company tapping the international capital markets back in 2006. Bank of Georgia first offered and listed global depository receipts (GDRs) on the London Stock Exchange (LSE) in 2006 which were later transferred to premium listing under Bank of Georgia Holdings Plc in 2012. Since then, LSE has been established as the go-to market for Georgian companies and number of placement took place, namely:

- In 2014, TBC Bank, successfully listed its GDRs on LSE. Later, in 2016 TBC's shares were moved to London's premium segment, making it the second Georgian company trading on LSE's premium listing
- In 2015, Georgia Healthcare Group's, Georgia's largest healthcare services provider (then controlled by Bank of Georgia Holdings, now under Georgia Capital), IPO (43 percent of total equity) became an important milestone. However, due to limited free float and liquidity GEOCAP the parent company of GHG first announced about the Exchange Offer (exchange GHG shares for GCAP shares) in December 2019 and in August 2020 finalized the complete delisting of GHG from LSE.
- In 2018, Bank of Georgia's non-banking businesses were spun-off, creating two separate companies listed on LSE - Bank of Georgia Group Plc and Georgia Capital.

131. Currently, there are three companies present on LSE from Georgia – Bank of Georgia Group, TBC Bank Group and GEOCAP. Two of them are leading banks from Georgia with strong financial position (one of the highest Return on Equity ratios measures among peers) and long-term track record of presence on international capital markets, while GEOCAP is an investment holding

company, focusing on large scale private investment opportunities in Georgia, having strong investment base and healthy financial position.

Table 4.5: Key Eligibility Requirements of LSE Listing

Main Market (Premium Listing)	LSE AIM	GSE fulfils requirement (Y/N)
At least 75 percent of the entity's business must be supported by a revenue earning track record for the three-year period	N/A	Y
Control over the majority of the entity's assets for the three-year period.	N/A	Y
Sufficient working capital for at least 12 months from the date of the prospectus	Sufficient working capital for at least 12 months from the date of admission	Y[18]
Compliance with the listing principles and in particular the establishment and maintenance of adequate financial reporting procedures	Adequate financial reporting procedures	Y
Minimum market capitalization of £700,000		N
Premium listed companies are required to include statement in their annual reports detailing how they apply the principles and comply with the provisions of the UK Corporate Governance Code. Some of the main provisions are as follows : • Should be headed by an effective board • At least half the board (excl. Chariman) should comprise independent non-executive directors • The board should maintain a sound system of internal control and risk management • The role of CEO and Chairman should not be exercised by the same individual, the chairman should be independent on appointment. • One independent non-executive director should be appointed as senior independent director.	Appropriate corporate governance measures as agreed with the nominated adviser.	Y

Source: Consultant estimate.

132. Although the company fulfils most of the key technical listing requirements of LSE, we do not see obtaining equity financing though public capital markets to be a viable option for GSE at this stage. This notably due to GSE's current financial position: aggressive capital expenditure to be finance with loans, limited or no capacity of dividend payments and lack of track record on financial markets. Considering the above-mentioned reasons, private equity option also seems less realistic.

[18] This assessment implies that the company manages to fill the cash deficit in the coming months.

Debt Financing

133. Before approaching specific investors regarding GSE's case, the Joint Venture team has assessed local and international market financing terms based on the recent market transactions and interviews with investment banks.

Eurobonds

134. The first issuer from Georgia to tap the international debt markets was Bank of Georgia, issuing US$200 million Eurobonds back in 2007. Georgia tapped international capital markets in 2008, by issuing US$500 million sovereign Eurobonds, extending Georgia's maturity profile and establishing a new liquid benchmark for other private and quasi-sovereign borrowers. State-owned Georgian Railway and Georgian Oil and Gas Corporation were quick to follow by placing debut US$500 million and US$250 million Eurobonds in 2010 and 2012, respectively. Since then number of large Georgian corporates have joined the list of international debt issuers - Georgia Capital, TBC Bank, Silknet and Georgian Global Utilities. Despite the substantial growth in outstanding Eurobonds from Georgia, only limited number of companies are present on international debt markets.

Table 4.6: Summary of Recent Eurobonds Transactions

Issuer	Sector	Amount, US$ mn	Issue date	Maturity	Coupon	Mid-price	YTM Mid	Ratings (Moody's/Fitch/S&P)
BANK OF GEORGIA	Financial	350	Jul-16	Jul-23	6.000	106.7	2.5	BB-/-/Ba2
GEOCAP	Financial	300	Mar-18	Mar-24	6.125	102.4	5.1	-/B/B2
SILKNET	Communications	200	Feb-19	Apr-24	11.000	109.9	6.8	B/-/B1
TBC BANK	Financial	300	Jun-19	Jun-24	5.750	108.6	2.6	BB-/-/Ba2
GEORGIAN GLOBAL UTILITIES	Utilities	250	Jul-20	Jul-25	7.750	105.8	6.1	B+/B/-
Issuer	**Sector**	**Amount, US$ mn**	**Issue date**	**Maturity**	**Coupon**	**Mid price**	**YTM Mid**	**Ratings (Moody's/Fitch/S&P)**
GEORGIA SOVEREIGN	Government	500	Apr-21	Apr-26	2.750	102.2	2.3	BB/BB/Ba2
GEORGIAN RAILWAY	Industrial	500	Jun-21	Jun-28	4.000	101.3	3.8	BB-/B+/-

Source: Bloomberg, Galt & Taggart.

135. 2021 has turned out to be a quite active year for Georgian Eurobond universe.

- First, in April 2021 Government of Georgia returned to the capital markets by successfully pricing a US$500 million, 5-year Eurobond. Strong investor demand led to a 4.0x oversubscription from some of the largest asset managers globally, with orders reaching US$2.0 billion. As a result, the coupon rate on the new Eurobond was set at 2.750 percent (YTM at 2.875 percent), the cheapest financing secured from international capital markets from Georgia as well as the lowest yield and coupon achieved by any country from the region.
- Later, in June 2021, Georgian Railway successfully priced a US$500 million, 7-year Eurobond, with coupon rate at 4.0 percent (almost half of the coupon rate on 2012 Notes of 7.75 percent). Strong investor demand led to 8.4x oversubscription as orders reached US$4.2 billion. Large asset managers and fund managers were the major investors in

Georgian Railway Eurobonds along with 2 International Financial Institutions acting as anchor investors in the deal (EBRD & ADB).

136. Per Galt and Taggart's experience having participated in the two largest Eurobond placements in 2021, the following market characteristics can be outlined:

- **Strong investor demand**: The book building process outlined strong investor demand on Georgian instruments, evidenced by oversubscription on the recent deals as well as the yield tightening.
- **Volume:** Minimum Eurobond size is US$200 million, making smaller size issuances is considered as less interesting for large asset managers.
- **Maturity:** Maturities of recent corporate issuers have ranged between 5-7 years; there is no track record of Georgian Eurobonds having longer maturity since 2016.
- **Coupon:** In line with wider financial markets, yields on Georgian Eurobonds have been declining since 4Q20, which enabled Georgia sovereign and quasi-sovereign Georgian Railway to significantly lower coupon rates in their recent issuances (from 6.875 percent to 2.750 percent for Georgia Sovereign and from 7.75 percent to 4.0 percent for Georgian Railway). GR's coupon rate was set at 4.0 percent the lowest coupon rate for corporate issuers from Georgia.

Local Bond Market

137. Local bond market in Georgia remains small in size, with limited number of corporates present. Georgian local bond markets are dominated by real estate and leasing companies. Some of the frequent issuers on local bond markets are M2 Real Estate (subsidiary of London listed GEOCAP), Georgian Leasing Company (subsidiary of Bank of Georgia) and TBC Leasing (subsidiary of TBC Bank). One of the recent, debut issuer on Georgian local bond market was Kakhetian Traditional Winemaking (KTW) the largest wine and spirits producing company in Georgia, placing inaugural US$10 million, 2-year bond with 9.0 percent interest rate.

Table 4.7: Summary of Local Bonds for 2018-2021

Issuer	Sector	Amount (Millions)	Currency	Issue date	Maturity	Coupon	Ratings
FX denominated bonds							
Georgian Leasing Company	Financial	5.0	US$	Jun-18	Jun-21	6.50	B+
Lisi Lake Development	Real Estate	12.0	US$	Dec-18	Dec-21	8.00	B+
Georgia Property Management Group	Real Estate	30.0	US$	Dec-18	Dec-21	7.50	N/A
Georgian Leasing Company	Financial	10.0	US$	Aug-19	Aug-21	7.50	B+
GEORGIA REAL ESTATE	Real estate	35.0	US$	Oct-19	Oct-22	7.50	N/A
Georgian Leasing Company	Financial	10.0	US$	Aug-20	Aug-22	7.50	B+
KTW	Hospitality	10.0	US$	Dec-20	Dec-22	9.00	N/A
Georgian Leasing Company	Financial	12.0	USD	Jul-21	Jul-23	5.75	B+
Georgian Leasing Company	Financial	2.0	EUR	Jul-21	Jul-23	4.75	B+
GEL denominated bonds							
Nikora Trade	Retail	25.0	GEL	Aug-18	Aug-21	NBG Ref. Rate+4.00%	B+
Georgian Beer Company	Retail	25.0	GEL	Dec-18	Dec-23	NBG Ref. Rate+4.00%	BB-

Miso Crystal	Financial	12.5	GEL	Jan-19	Feb-21	NBG Ref. Rate+4.00%	B
Miso Swiss Capital	Financial	8.0	GEL	Mar-19	Sep-21	NBG Ref. Rate+6.25%	B-
Tegeta Motors	Retail	30.0	GEL	Apr-19	Apr-22	NBG Ref. Rate+4.25%	BB-
EVEX HOSPITALS	Healthcare	50.0	GEL	Jun-19	Jun-24	NBG Ref Rate + 3.10%	B+
Nikora	Retail	28.0	GEL	Oct-19	Oct-22	Tibr+4.00%	B+
TBC Leasing	Financial	54.0	GEL	Mar-20	Mar-23	Tibr+3.25%	N/A

Source: Galt & Taggart.

138. Based on above, following market characteristics can be outlined:

- **Volume:** Generally, the volume of issuances on local bond markets is small, the largest US$-denominated bond was issued by Georgia Real Estate with US$35 million and US$30 million for Georgia Property Management, while average size of other issuances stands at US$10 million for USD-denominated bonds. The reason behind the small size of issuances is notable due to lack of retail and institutional investors willing to invest in local market securities. The same applies to GEL denominated corporate bonds. GEL54 million has been the largest GEL denominated public corporate bond issuance on the market. In order to achieve optimal financing terms during the issuance, bond issuers are recommended to carefully assess issue size against existing appetite of the investors on the local market.
- **Coupon:** Last 3-year average coupon rates on USD-denominated bonds stands at 7.5 percent and 14 percent for local currency bonds. All of the foreign currency denominated bond coupons are fixed, while absolute number of GEL denominated issuances are floating, tied to NBG refinancing rate or TIBR (Tbilisi Interbank Interest Rate).
- **Average maturity:** Average maturity of locally issued corporate bonds has ranged between 2-3 years. For USD denominated bonds, investors clearly state their limit of investing in bond with a maximum maturity of 3 years. As for GEL denominated bonds, due to dominance of institutional investors 3-5-year maturities can also be considered.

4.2 Financing Scenarios

139. Considering the above, following scenarios of financing can be contemplated:

- **Scenario 1:** Continue using existing financing sources and attract additional GEL 180 million in 2022 from the local market to finance cash deficits for the forecasted period.
- **Scenario 2:** This scenario supports company's strategy to move towards market-based financing in a long term. Therefore, the scenario suggests discontinuation of existing financing sources (DFI loans) and suggests financing capex through international capital markets, by issuing US$200 million Eurobonds in 2022.
- **Scenario 3**: Like Scenario 2, this scenario anticipates discontinuation of existing financing sources (DFI loans) and suggests financing capex through attracting direct financing from financial institutions in the amount of up to US$240 million.
- **Scenario 4:** Similar to Scenarios 2 and 3, this scenario anticipates discontinuation of existing financing sources and suggests financing capex through issuance the combination

of GEL Eurobonds in the amount of GEL 600 million in 2023 and GEL 150 million local bonds in 2022.

140. In order to address the feasibility of these scenarios, we have analysed both local and international markets.

Local Capital Market Investors

141. On local market there are two alternatives for financing:

- Direct lending – done though commercial banks
- Corporate bond issuance - done though commercial banks (anchor investors), DFIs, insurance companies

142. In general, if everything else is held constant, commercial banks, which are usually anchor investors in GEL bond transactions, give preference to bonds rather than direct loan due to following:

- GEL bonds can be pledged at National Bank of Georgia, which can enhance yield for investors without necessarily increasing the coupon rate (compared to direct loan).
- Bond is better structured for syndication/risk sharing in case multiple banks are involved in financing.
- There is same level of credit risk for both of instruments.

143. For this reason, while exploring local debt market opportunities, we will be concentrating on corporate bonds in order to ensure best possible financing terms for GSE.

144. It should be noted, that according to Georgian legislation, investor participation information in specific bond issuances is strictly confidential. Therefore, presented analyses are based aggregated information provided by Galt and Taggart's DCM team.

145. Based on the last 6 years' historical market transaction analyses it can be concluded that the investor base for GEL denominated corporate bonds is limited to local commercial banks, DFIs and local insurance companies. State Pension Fund can also be considered as a potential investor, although it has not yet participated in any of the capital market transactions due to its short presence on the market, relatively tight investment policy and scarcity of available market securities.

146. Furthermore, in great majority of the actual transactions, there is an excessive concentration on several commercial banks and DFIs. TBC bank and Bank of Georgia usually take at least 50 percent of the issuance on their books (25 percent each, maximum repo eligible amount at NBG). Other commercial banks, such as Basis bank and Pasha Bank have participated in some of the issuances. However in large size bonds, their participation is usually very limited due to their relatively small size. Other banks, such as VTB Bank, Procredit Bank, Is bank, Tera Bank, Liberty Bank , Kartu Bank, Halyk Bank, Ziraat bank, Credo bank and Finca bank have either very limited experience of small size investments or have never participated in such transactions at all.

147. Same statement applies to insurance companies: Ardi, Aldagi, Imedi L, IC Group, TBC Insurance, PSP Insurance, Alpha, GPI, Irao, Unison. Great majority of them have little (maximum GEL 1 million) or no experience of participating in such transactions. Based on the interviews with these investors, it can be concluded, that low liquidity of local corporate bonds on the secondary market is one of the major factors for the low interest from insurance companies.

148. Statistics show that smaller commercial banks and insurance companies all together make up to 10-20 percent of the total issuance on average.

149. Apart from large local corporate banks, DFIs such as EBRD, ADB, IFC also participate and usually take up to 30-40 percent of the total issued amount in total (each usually taking up to 15-20 percent of the issuance). Complicated bureaucracy and lengthy credit approval processes make it costly for the DFIs to participate in small issuances, therefore their involvement in transactions is usually limited to minimum issuance size of GEL 25-30 million. Certain issuers are not eligible for DFI financing due to specific due diligence requirements and DFI's investment policies.

150. In GSE's case, neither of the above mentioned should be an obstacle as:

- The potential size of the issuance is well above GEL 100 million and
- GSE is currently financed by these DFIs and there should not be any eligibility or compliance issues outstanding

151. Based on the above, Bank of Georgia, TBC bank and DFIs together should take up to 80-90 percent of the total issuance. This is the reason, why the market analysis was mainly focused on working with these institutions in order to assess their potential and appetite to participate in this potential issuance.

Direct Lending

152. Besides local market financing opportunities, there are following alternatives of direct lending for financing company's cash needs:

- Direct lending – though international commercial banks
- Direct lending – though DFIs (without sovereign guarantee)

153. **International commercial banks** have very limited exposure on Georgian market. The majority of Georgian companies are financed through local commercial banks. Only very limited number of Government entities (such as Partnership Fund) has an experience of successfully obtaining direct financing from one of the international commercial banks.

154. In order to assess GSE's capacity to attract direct financing from International Commercial Banks, interviews were conducted with:

- Government entities (GOGC, Georgian Railway, Partnership fund)
- International commercial banks (JP Morgan, CITI, Societe Generale, Credit Swiss)

155. Above mentioned government entities have shared their experience with regards to the international commercial bank financing opportunities. They have mentioned that international commercial banks have expressed their interest to provide direct financing. However, due to lower risk tolerance, which translates into strict financial covenants and higher interest rates, whenever there was an opportunity, these local company's chose to issue Eurobonds.

156. Commercial banks' feedback was in line with the information gathered from the local companies - they expressed either very limited or no interest towards such financing especially without sovereign or World Bank guarantee. Even in case of limited appetite:

- Strict financial covenant package
- Short tenor (5-7 years) and
- Relatively high interest rate (6-7 percent) was requested

157. Unlike international commercial banks, DFI's have very extensive experience of direct commercial financing of the Georgian commercial sector as well as Government held entities. During our recent interviews, DFI's have expressed their appetite to directly finance GSE (without sovereign guarantee). Detailed analyses are presented in Scenario 3.

Eurobond Capital Market Investors

158. London Stock Exchange and Irish Stock Exchange are two main markets for issuers from Georgia. Over the last decade some of the largest banks and corporates have tapped international debt markets. Moreover, we saw second Georgian sovereign issuance as well as several quasi-sovereign entities. This has increased investors' knowledge of Georgian macro story - most of the leading asset managers and institutional investors know Georgian story, have team of analysts covering Georgia and Georgian corporates.

159. Increased trust from the investors was particularly evidenced after the pandemic. Unprecedented stimulus response from the central banks first lifted global equity markets and later reached Emerging Markets, including our region. Yields on regional Eurobonds started declining from second semester of 2020 including those on Georgian issuers. Yields on most of the Georgian corporate Eurobonds declined to pre-pandemic level by end-2020. The trend continued in 2021 and culminated in two large issuances from Georgia:

a. In April 2021, the Government of Georgia issued US$500 million, 5-year Eurobond. Strong investor demand led to a 4.0x over-subscription from some of the largest asset managers globally, with orders reaching US$2.0 billion. As a result, the coupon rate on the new Eurobond was set at 2.750 percent (YTM at 2.875 percent), the cheapest financing secured from international capital markets from Georgia as well as the lowest yield and coupon achieved by any country from the region.

b. In June 2021, Georgian Railway successfully priced a US$500 million, 7-year Eurobond, with coupon rate at 4.0 percent (almost half of the coupon rate on 2012 Notes of 7.75 percent). Strong investor demand led to 8.4x oversubscription as orders reached US$4.2 billion. Large asset managers and fund managers were the major investors in Georgian Railway Eurobonds along with two IFIs acting as anchor investors in the deal.

160. In both cases large and well-established asset managers, pension funds and investment banks made up the major share of investment base. Most of the investors are from US, UK and Continental Europe. Iinterest coming from Georgian investors represents a very small share of the total placement (0.5 percent for GR Eurobond and 2 percent for Georgian sovereign).

161. DFI's are usually involved in such transactions as anchor investors and take up to 15-20 percent of the total issuance. Their participation is usually very important in order to increase investor confidence, which highly contributes to the successful execution of the transaction.

162. Based on above, in order to assess GSE's opportunities on Eurobond market, feedback was sought from Citi bank and JP Morgan, two leading international investment banks. Based on their successful track record of executing Eurobond issuances in Georgia and in the wider Caucasus region, these banks are best positioned to assess the feasibility of GSE bond issuance and provide us with indicative pricing and conditions.

4.3 Optimizing GSE's Financing Structure

163. As discussed above, it would be rational from purely financial standpoint for GSE to continue financing its capital needs through existing loans from DFIs/MOF. Considering this, several scenarios of financing can be contemplated:

- **Scenario 1:** Continue using existing financing sources; finalize the planned GEL 180 million. issue in 2022 to finance cash deficits for the forecasted period.
- **Scenarios 2,3, and 4:** This scenarios support company's strategy to move towards market-based financing in the long term. This strategy also positively contributes to Government's exposure to GSE's balance sheet.

164. Therefore, the scenario will be implemented by issuing either Eurobonds or direct lending to finance existing capital expenditures from local or international markets.

165. Detailed analyses of potential feasibility of each of the scenarios is presented below.

166. It should be noted, that in order to execute any of the given Scenarios, it is paramount to follow through with the Government Decree No. 922 dated June 4, 2020. According to this decree, in case the Company does not adhere with debt-to-equity ratios of 4.5x at the end of 2021 and 3.0x starting from the end of 2022 and beyond, the Government shall convert part of the Company's loans into equity to ensure compliance. Additional credit enhancement measures could be used as well, as described further.

4.3.1 Scenario 1: Local Bond Issuance with Continued Reliance on Sovereign Borrowing

167. As outlined above, in order to finance GSE's cash deficit for the forecasted period, the Company will need to raise GEL 180 million on the local market in 2022. It would be difficult to attract this financing from international markets due to its small size. Therefore, local market financing opportunities have been discussed.

168. Local GEL denominated bonds are usually very attractive for local commercial banks, as such securities can be pledged at NBG with certain haircut at refinancing rate. In order for the securities to be eligible for such transaction, the issues should have rating of B+ rating or higher from one of the four rating agencies: Fitch, S&P, Moody's or Scope ratings.

169. For the scenario modelling purposes, which was later discussed with the investors in details, the following assumptions were made:

2022 GEL 180 million local bond will be issued with the following terms:

- Issuance: 30/06/2022
- Maturity: 5 years
- Interest rate: NBG's refinancing rate + 3 percent
- Structure: bullet
- Use of proceeds: financing capex program.

170. It should also be noted that projections were carried out for FY 2026 and FY 2027 in order to provide visibility of cash flows and profitability in the year when bonds mature. In 2027, we have included GEL 220 million bond issuance, which under our assumptions shall be used to refinance existing bonds. We should highlight the fact that 2027 would result in a cash deficit had we

included lower than GEL 220 million issue. Interest rate and tenor have been left unchanged on this issue as well (see Appendix F).

Investor Participation Expectations in Proposed Financing

DFIs

171. Several discussions were held with most active DFIs on the local market: EBRD, IFC and ADB. These banks have clearly expressed their willingness to support GSE in its development strategy. However, DFIs have pointed out that GSE's debt to EBITDA ratios for the forecasted periods is higher than required by their internal general credit policy guidelines which might limit their participation in the potential transaction.

172. In order to increase DFI's appetite to participate in the bond issuance transaction, reduction of the Company's leverage is desirable. Some of the tools suggested for credit risk improvement are summarized below:

- Subordination of the part of the existing debt in a way that Senior Debt/EBITDA is maintained below 4.5.
- Incorporate foreign exchange effect in tariff calculation (further discussed in Foreign currency risk section of the document).
- Provide standby facility from WB or Government, which would be readily available for drawdown in case of liquidity needs.
- Additionally, possibility to certify the bonds as "Green", is expected to increase the chances of successful placement of such securities.

173. Additionally, there is concern regarding following topic:

- Need for a clear "impact" story which would enhance DFIs investment case for this project and hence facilitate obtaining approval from their respective risk comities.

Commercial Banks

174. As mentioned above, discussions were held with 2 large commercial banks regarding their participation in the Company's financing. The banks have outlined significant credit risk due to high leverage profile of GSE.

175. In order to improve GSE's current credit risk profile, the possibility to utilize a guarantee scheme proposed by the World Bank was explored. This guarantee has following characteristics:

- The pricing of the instrument: 50 bps on the total loan amount
- Coverage: up to 50 percent of the total issuance
- Flexible payment schedule: It could guarantee 50 percent of each of the periodic payments or cover several periodic payments in full up to 50 percent of total issuance.

176. The proposed guarantee scheme was very interesting for both of the banks. BOG, however, continued to express its concerns in the proposed transaction due to GSE's high leverage and low levels of cash available for debt service (CADS).

177. More specifically, according to these banks, they would participate in the local bond issuance if:

- TBC Bank:

- The debt to EBITDA remained within the range of 5.5x for the forecast period
- CADS based DSCR of minimum 1.2x for the forecast period

▪ BOG:

- Debt to CADS leverage would not exceed 5.0x for the forecast period

178. Additionally, there are certain concerns regarding following topics:

▪ Uncertainty about the Company's financials beyond 2025 when bonds mature

▪ Importance of DFI participation as anchor investors

▪ Government commitment to support GSE's strategy to reach financial sustainability.

Pension Fund

179. As per our interview with Georgia State Pension Fund (Fund), it is expected that the Fund will be interested in participating in the potential bond issuance. However, it must be noted that current investment policy limits the Fund to invest in the securities, which have rating B+ or lower. In addition, the Fund's participation in specific issuance is limited to 10 percent of the total issuance. Therefore, the Fund can be considered as a potential investor of maximum 10 percent of the issuance in case GSE obtains credit rating BB- or higher.

General recommendation

180. Our market assessment showed that there is general willingness from potential investors to participate in contemplated transaction. However, neither DFI's nor commercial banks were able to provide us with definitive answers regarding their capacity/appetite to invest in proposed transaction.

181. Their final decision would be dependent on final terms of bond prospectus as well as international credit rating that the GSE will need to obtain from one of international rating agencies.

182. In order to decrease execution risk (mainly due to significant leverage) for this transaction, we would recommend GSE to use additional credit enhancement mechanisms such as subordination of part of existing loan liabilities. In our view, such tools could positively contribute to obtaining financing through capital market instruments.

183. Moreover, instruments such as "Green certification" could further enhance credit attractiveness for DFIs.

4.3.2 Scenario 2: Long-Term Market Financing Strategy through Eurobond Issuance

184. As discussed above, it would be rational from purely financial standpoint for GSE to continue financing its capital needs through existing loans from DFIs/MOF. If the Company's long-term financing strategy becomes focused on moving from DFIs/MOF financing structure to more market-based financing, then we suggest using mixture of equity conversion, and Eurobond issuance. This judgement applies to Scenario 3 if we were to discuss the mixture of equity conversion, local bonds and DFI direct debt financing.

185. We propose the following alternative scenario:

- Eurobond issuance in the amount of US$200 million, which would be used to finance planned capital expenditures for the forecasted period, only the small portion of net proceeds in the amount of GEL 28 million will be used to refinance loans outstanding.

186. In this scenario as well, we assume that debt to equity conversion takes place as per Government Decree. We propose converting debts with the same criteria as described above, in Scenario 1:

- Loans with high interest rate
- Loans with high debt service outflows in the projected period

187. It is assumed that the equity swap will be carried out in one tranche at the end of 2021 to adhere with the set limits of debt-to-equity ratios in respective years.

188. Assuming that GSE will be able to issue Eurobond in the amount of US$200 million, required equity conversion would be GEL 353 million in 2021. This is GEL 122 million higher than the conversion required in scenario 1 and is due to increased debt level at Eurobond issuance in 2022.

Eurobond:

- Size: US$200 million
- Maturity: 5 years
- Interest rate: 4 percent
- Structure: bullet
- Company rating of B+ rating or higher.
- Use of proceeds:
  - GEL 633 million – capex financing
  - GEL 28 million – Loan Refinancing (KfW ET1, KfW 8)

189. It should also be noted that projections[19] were prepared for 2026 and 2027 in order to present estimated cash flows and profitability in the year when local bonds and Eurobonds mature. Additionally, we have included US$ 250 million refinancing in 2027. Interest rate and tenor on refinancing have been left unchanged from previous issues. The results are presented in Appendix F.

190. As mentioned above, several discussions were held with Citi bank and JP Morgan. Throughout the interviews, both banks have underlined the fact that current market conditions are optimal for this type of placements, which can be illustrated by two recent transactions:

- In April 2021, the Government issued US$500 million 5-year Eurobond. Strong investor demand led to a 4.0x oversubscription from some of the largest asset managers globally, with orders reaching US$2.0 billion. As a result, the coupon rate on the new Eurobond was set at 2.750 percent (YTM at 2.875 percent), the cheapest financing secured from international capital markets from Georgia as well as the lowest yield and coupon achieved by any country from the region.

[19] For the brief overview of key assumptions for the model, please refer to Appendix F.

- Later, in June 2021, the Georgian Railway successfully priced a US$500 million, 7-year Eurobond, with coupon rate at 4 percent (almost half of the coupon rate on 2012 Notes of 7.75 percent). Strong investor demand led to 8.4x oversubscription as orders reached US$4.2 billion. Large asset managers and fund managers were the major investors in Georgian Railway Eurobonds along with two DFIs acting as anchor investors in the deal.

191. Based on their recent experiences, bank's syndicate teams were quite optimistic as to investors' potential appetite:

- Strategic importance of GSE for Georgia.
- The Company's high-risk profile due to significant leverage could be mitigated by the fact that it is 100 percent owned by the Government of Georgia. As a reference, Banks used recent success case of Georgian Railway's (100 percent owned by the Government) Eurobond placement. As in GSE's case, Georgian Railways had high debt to EBITDA ratio, in the range of 6.5x. One of the key success factors in selling these bonds was 100 percent Government shareholding and Government's declared support for the Company strategy.
- Additional preconditions for successful issuance would be participation of DFIs and Government as anchor investors.

192. Moreover, these investment banks have provided us with indicative terms for potential US$ Eurobond:

- Based on GSE financials, the Company could issue Eurobond in the range of US$200-300 million. According to general practice, minimal size of Eurobond should be US$200 million.
- Requirement for GSE to obtain credit rating of Fitch of at least BB-; S&P B+ (similar to Georgian Railway).
- Maturity and coupon range:
  - City
    - ✓ 5-year bond: coupon rate of 3.750 - 4.000 percent
    - ✓ 7-year bond: coupon rate of 4.250 - 4.500 percent
  - JP Morgan
    - ✓ 5-year bond: coupon rate of 4.00 - 4.50 percent
- Window for the Eurobond issuance would be 2022.

193. During our interviews, DFIs have expressed their interest to support GSE in moving towards commercial financing. Moreover, they seemed to be much more interested in investigating option of investing in scenario 2. Certain DFIs mentioned that Scenario 2 had stronger investment case for them. However, above mentioned high leverage issues still remain to be relevant in this case as well. The same mitigation options were discussed, when referring to high leverage risk:

- Subordination of the part of the existing debt in a way that Senior Debt/EBITDA is maintained below 4.5.
- Incorporate foreign exchange effect in tariff calculation (Armenian model).
- Provide standby facility from WB or Government, which would be readily available for drawdown in case of liquidity needs.

- Additionally, possibility to certify the bonds as "Green", is expected to increase the chances of successful placement of such securities.

194. It is well illustrated above, that refinancing existing debt facilities with Eurobonds, would increase GSE's financing cost and would not improve GSE's open FX positions.

195. On the other hand, even though Scenario 2 increases interest costs of the Company (along with transaction costs), there are certain benefits to it as well. In case GSE manages to move to market-based financing through Eurobond issuance, it would gain access to wider range of international investor base. This Eurobond transaction would enable the Company to have better access to international capital markets in case of financial needs in the future.

4.3.3 Scenario 3: Long-Term Financing Strategy through Direct Debt Financing from DFIs and/or International Commercial Banks

196. Just like in Scenario 2, in our proposed structure for this scenario we recommend obtaining additional financing from the market. This time we are considering Up to US$250 million direct loan from:

- DFIs
- International commercial banks

197. Loan proceeds would be used for refinancing of major portion of loans outstanding (GEL 316 million) and finance planned capital expenditures for the forecasted period.

198. In this scenario as well, we assume that Debt-to-Equity conversion takes place as per Government Decree. We propose converting debts with the same criteria as described above, in Scenarios 1 and 2:

- Loans with high interest rate
- Loans with high debt service outflows in the projected period

199. It is assumed that the equity swap will be carried out in two tranches in the end of 2021 and 2022 to adhere with the set limits of Debt-to-Equity ratios in respective years.

200. Assuming that GSE will be able to obtain debt financing in the amount of US$240 million, required equity conversion would be GEL 353 million at the end of 2021.

Local bond will be issued with following terms:

Loan:

- Size: US$240 million
- Maturity: 10-15 years
- Grace period on principal: 5 years
- Interest rate: 5 percent
- Structure: amortizing
- Company rating of B+ rating or higher
- Use of proceeds: capex financing

201. It should also be noted that projections were carried out for FY 2026 and 2027 in order to provide visibility of cash flows and profitability in the year when Local Bonds and Eurobonds mature. The financial projections are presented in Appendix F.

202. For direct debt financing two groups were approached:

- DFIs
- International commercial banks

DFIs

203. Discussions were held with three most active DFIs of Georgian Market:

- **IFC** expects to able to arrange the entire debt package with a combination of its own fund, funds by IFC as Implementing Entity under Managed Co-Lending Portfolio ("MCPP") Program and arrangement of Parallel Loan(s) from DFIs under IFC's Master Cooperation Agreement (MCA) arranged with more than 30 DFIs:
    - **Amount:** US$250 million
    - **Tenor**: 10-15 years, including a 5-year grace period
    - **Interest rate:** Expected to be in line with those that GSE can obtain from the international capital markets
    - **Covenants:** No indication of required financial covenants (credit risk appetite) was given
- **EBRD** is willing to support the Company to switch to commercial financing and is ready to consider financing the Company without limitations to the loan amount. Loan tenor can be considered to be in the range of 15-17 years. Loan amortization schedule will be tied to specific project cash flows.

  Although in this case, EBRD's requirements for Company's strong financial profile becomes stricter (DEBT/EBITDA <3.5, DSCR > 1.3). No precise indication of the interest rates were given, however, it was mentioned that the adequate risk premium will be added to current lending costs. Risk premium will also be subject to the credit risk rating obtained by the Company.
- **ADB**: There is not a clear story of new investors' engagement in GSE's financing, this scheme is less interesting for ABD. Therefore, no indication of potential financing details was provided. Although requirement for stricter financial covenants was mentioned in case ADB considered such financing.

International commercial banks

204. International commercial banks were identified and interviewed, which have previously expressed interest in financing Georgian entities or have successfully financed such companies through direct debt. These banks include JP Morgan, CITI, Société Générale, Credit Swiss.

205. JP Morgan, CITI and Société Générale seem to have a very low interest in such financing. JP Morgan and CITI have also stated that thy definitely cannot compete with Eurobonds:

- Smaller ticket size
- Shorter maturity
- Higher interest rate and

- Much stricter covenant package would be required.

206. Credit Swiss, who has an experience of financing on of the Georgian sovereign entities, expressed clear interest to participate in such transaction. However, their interest was subject to additional guarantees from Government of Georgia and/or World Bank. As explained by the representatives, non-guaranteed loan to GSE would be an arduous and long process that would have a very high execution risk. They pointed out that, they normally seek government recourse while structuring transactions with quasi-government entities in emerging markets.

207. Even if guarantees are provided to the lender, Credit Suisse's apatite still remained limited to US$100 million with 5-year tenor, priced at sovereign bond yield with additional spread. The team has also elaborated that they would not necessarily require a Debt-to-Equity conversion for such transaction, since they would have a direct recourse to the Government in case of default.

208. In order to propose a longer maturity on the loan, Credit Suisse has suggested to structure it with several tranches. One proposed solution was creating a dual tranche US$150 million loan. First tranche would include a combination of Government and World Bank guarantees and would have tenor of up to 12 years. Ideally international banks and IFIs could be included in this tranche as lenders. The second tranche would have a shorter tenor, of up to 5 years. It was suggested to have local banks as potential participants in this tranche. Pricing of such loan would be below the first proposal with sovereign bond yield and a smaller spread. An amortizing structure, where half of the loans would be amortized in the first half of the loan tenor, with the remaining half being fully guaranteed by the World Bank was suggested.

209. Taking into consideration Government of Georgia's intention to decrease Government loan book exposure to GSE, requested guarantees are less likely to be provided, therefore GSE would face high execution risks in this case.

In summary:

- International commercial bank financing seems like a less viable option for GSE.
- DFI financing is a good option in terms of volume, maturity, tenor, repayment and loan disbursement structure, however, it requires the Company to significantly improve its current financial position. GSE's capacity to comply with stricter financial covenants should be assessed.

4.3.4 Scenario 4: Long-Term Financing Strategy through GEL Eurobond Issuance

210. As an alternative to Scenario 2, we discuss hereunder the possibility of issuing Eurobond in local currency – GEL. The Scenario is deemed rational from purely FX risk reduction standpoint for GSE.

211. The following scenario were analysed:

- Eurobond issuance in the amount of GEL 600 million, which would be used to finance planned capital expenditures for the forecasted period.
- Local bond issuance in the amount of GEL 150 million, which would be used to finance planned capital expenditures for forecasted period.

212. In this scenario, it is assumed that Debt-to-Equity conversion takes place as per Government Decree and the selection of GSE's current debts to be converted is done according to the same criteria as described above, in Scenario 1:

- Loans with high interest rate

- Loans with high debt service outflows in the projected period

213. It is assumed that the equity swap will be carried out in one tranche at the end of 2021 to adhere with the set limits of Debt-to-Equity ratios in respective years.

214. Assuming that GSE will be able to issue Eurobond in the amount of GEL 633 million, required equity conversion would be GEL 445 million in 2021. This is GEL 215 million higher than the conversion required in scenario 1 and is due to increased debt level at Eurobond issuance in 2023.

Eurobond:

- Issuance: 30/06/2023
- Size: GEL 600 million
- Maturity: 3 years
- Interest rate: 11 percent
- Structure: bullet
- Company rating of B+ rating or higher
- Use of proceeds: capex financing.

Local Bonds:

- Issuance: 30/06/2022
- Size: GEL 150 million
- Maturity: 5 years
- Interest rate: NBG's refinancing rate + 3 percent
- Structure: bullet
- Use of proceeds: capex financing.

215. It should also be noted that we performed projections for FY 2026 and 2027 to provide visibility of cash flows and profitability in the year when local bonds and Eurobonds mature. Additionally, we have included GEL 730 million refinancing in 2026 of Eurobonds and GEL 150 million for local bonds. Interest rate and tenor on refinancing have been left unchanged from previous issues. The financial projections are presented in Appendix F.

216. In addition to Eurobond issuance in US$, we have discussed the possibility of local currency Eurobond issuance with the investment banks. Suggested size would be around GEL 500-600 million. Tenor on such instrument would be maximum 3 years. Indicative coupon on the instrument would amount to GEL Yield Curve + 1.75-2.00 percent.

Limitations of GEL Eurobond:

- For a debut corporate name, execution risk for GEL issuance could be considerably higher than in case of US$ issuance, that might render the large transaction partially executable.
- Even though the current market condition and investors risk appetite for GEL securities are high, there might be significant execution risk of refinancing voluminous GEL transactions in medium to long run.

Dual Currency Eurobond as an Alternative Solution:

- To partially mitigate the abovementioned risks, the Company can issue Dual Currency Eurobonds, prioritizing issuance in GEL, simultaneously hedging the risk that if the market terms in GEL financing will turn out to be unfavorable, the Company will be eligible to issue in US$.

4.4 Pros and Cons of Financing Scenarios

217. In order to summarize pros and cons of each of the refinancing scenarios presented, the following aspects were compared – pricing; debt service reduction; maturity and refinancing risks; FX risks; direct or contingent liabilities on the government balance sheet; commercial financing capacity building for GSE.

218. Each of these criteria are discussed in detail below.

4.4.1 Pricing

219. As illustrated in the table below, in Scenario 2, GSE's total interest expense is GEL 236 million that is 18 percent higher than in Scenario 1. This is due to the following:

- The larger amount of equity swap scheduled in 2021. Scenario 2 would require GEL 350 million equity conversion while Scenario 1 conversion equals GEL 230 million that is 53 percent lower;
- Eurobonds would have relatively lower interest rate (4 percent) compared to local bonds (13 percent); and
- Scenario 2 assumes that Eurobonds will fully substitute DFI loans for funding capex for the forecasted period. Considering the bullet structure of Eurobonds, principal repayments are significantly lower as opposed to Scenario 1.

220. On the other hand, the table below also illustrates that in Scenario 3, GSE's total interest expense is GEL 254 million that is 7 percent higher than in Scenario 2. The difference is due to the fact that the interest costs for direct financing is expected to be higher (5 percent) than for US$ Eurobonds (4 percent) and it also includes 0.5 percent on undisbursed amount.

221. Under Scenario 4, interest costs are the highest among all scenarios and are estimated at GEL 530 million. The high level of interest costs is caused by the high cost of GEL Eurobonds compared to US$ Eurobonds - 11 percent vs 7 percent.

Table 4.8: Interest Expense Calculation for Each Scenario

	2021	2022	2023	2024	2025	2026	2027	Total
GEL '000	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast
Interest expense in Scenario 1								
Interest Expense on Loans and Borrowings	(77,005)	(13,484)	(10,866)	(11,303)	(11,512)	(11,193)	(12,859)	(148,222)
Interest Expense on local bonds in GEL	-	(11,700)	(23,400)	(23,400)	(23,400)	(23,400)	(25,675)	(130,975)
								(279,197)
Interest expense in Scenario 2								
Interest Expense on Loans and Borrowings	(77,005)	(8,408)	(4,882)	(4,532)	(4,087)	(3,272)	(4,357)	(106,545)

	2021	2022	2023	2024	2025	2026	2027	Total
GEL '000	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast
Interest Expense on Euro bonds in USD	-	(12,861)	(25,722)	(25,722)	(25,722)	(25,722)	(13,825)	(129,573)
								(236,118)
Interest expense in Scenario 3								
Interest Expense on Loans and Borrowings	(77,005)	(8,715)	(5,445)	(4,991)	(4,443)	(3,523)	(4,505)	(108,628)
Interest Expense on Direct Financing in USD	-	(5,733)	(15,417)	(24,130)	(29,516)	(33,535)	(36,895)	(145,225)
								(253,853)
Interest expense in Scenario 4								
Interest Expense on Loans and Borrowings	(77,005)	(7,556)	(4,400)	(4,135)	(3,741)	(3,272)	(4,357)	(104,467)
Interest Expense on local bonds in GEL	-	(9,750)	(19,500)	(19,500)	(19,500)	(19,500)	(19,500)	(107,250)
Interest Expense on Euro bonds in GEL	-	-	(33,000)	(66,000)	(66,000)	(73,150)	(80,300)	(318,450)
								(530,167)

Source: Galt & Taggart.

4.4.2 Debt Service

222. As demonstrated below, according to Scenario 1, the Company would be required to pay GEL 1,035 million of principal that is the highest amongst all other scenarios. It should be stated that this difference is not directly comparable since all other scenarios exclude new drawdowns on DFI loans (total of GEL 960,847 thousand), which exceeds the difference in debt service. It also should be noted that each of the scenario anticipates different amount of Debt-to-Equity conversion.

223. If we examine debt service coverage ratios, Scenario 2 outperforms other scenarios. This is due to the above-mentioned difference in PMTs. Under Scenario 1, the Company repays debts through annuity while in Scenario 2 majority of its liabilities have a bullet structure. In summary, under Scenario 2, debt service ratios are healthier and have higher capacity to absorb potential unfavorable currency fluctuations.

Table 4.9: Debt Service Payments under Each Scenario

	2021	2022	2023	2024	2025	2026	2027	Total
GEL '000	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast
Principal Repayments								
Scenario 1	(119,186)	(149,406)	(117,846)	(145,099)	(174,602)	(149,954)	(179,155)	(1,035,248)
Scenario 2	(119,186)	(139,031)	(58,597)	(72,770)	(71,853)	(42,465)	(69,639)	(573,541)
Scenario 3	(119,186)	(139,031)	(63,318)	(77,491)	(76,574)	(47,187)	(74,361)	(597,148)
Scenario 4	(119,186)	(125,446)	(49,733)	(63,906)	(62,989)	(33,602)	(60,775)	(515,637)
DSCR Scenario 1	0.96x	1.40x	1.40x	1.26x	1.07x	1.03x	1.02x	
DSCR Scenario 2	0.96x	3.28x	3.49x	2.08x	1.54x	1.48x	1.02x	
DSCR Scenario 3	0.96x	1.02x	1.22x	1.25x	1.32x	1.87x	1.07x	
DSCR Scenario 4	0.96x	1.07x	4.37x	2.19x	1.48x	1.18x	1.01x	

Source: Galt & Taggart.

4.4.3 Maturity vs. Execution Risk

224. Weighted average maturity on loans and bonds in Scenario 1 (at the end of 2022) equals to 14.9 years, whereas the same figure stands at 7.6 for Scenario 2. Each scenario includes certain level of execution risk. Execution risk is higher for Scenarios 2 and 4 because the Company has to raise US$200 million or GEL 600 million in Eurobonds, while in Scenario 1, it is assumed that GSE will issue total of GEL 180 million of local bonds and in case of Scenario 3, the Company will attain direct financing that will be pre-agreed with investors.

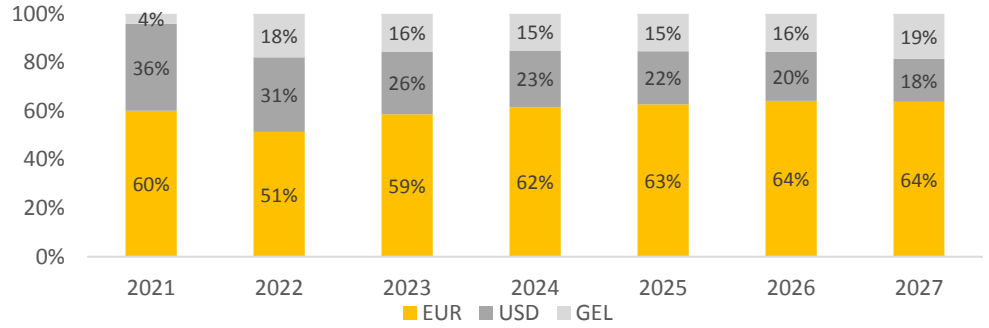
225. If we compare Scenarios 2 and 4, GEL issuance is likely to have much higher execution risk than US$ issuance considering that the Company makes its debut issuance. Even though the current market conditions and investors' risk appetite for GEL securities are high, there might be significant execution risks of refinancing large GEL transactions in medium to long-run.

226. Detailed information on the feedback received from potential investors and our tentative assessment of execution risk is provided in respective sections of scenarios.

4.4.4 FX Risks

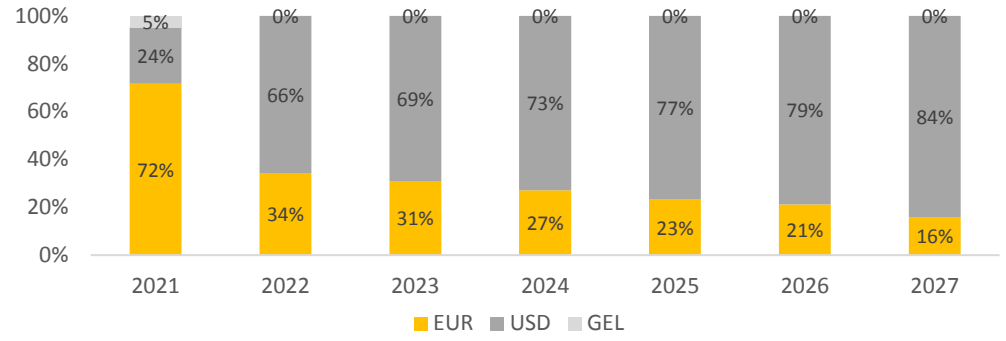
227. On average proportion of GEL denominated liabilities in the forecast period amounted to 16 percent in Scenario 1, whereas the same figure stood at 8 percent in Scenario 2. Scenario 1 has considerably less FX risk compared to the second one, however 84 percent Foreign Currency denomination of total loan-book still poses significant FX risks for the company. Proportions of currencies in the company's total loan-book for both scenarios are given below.

Figure 4.4: Loan Currency Composition: Scenario 1



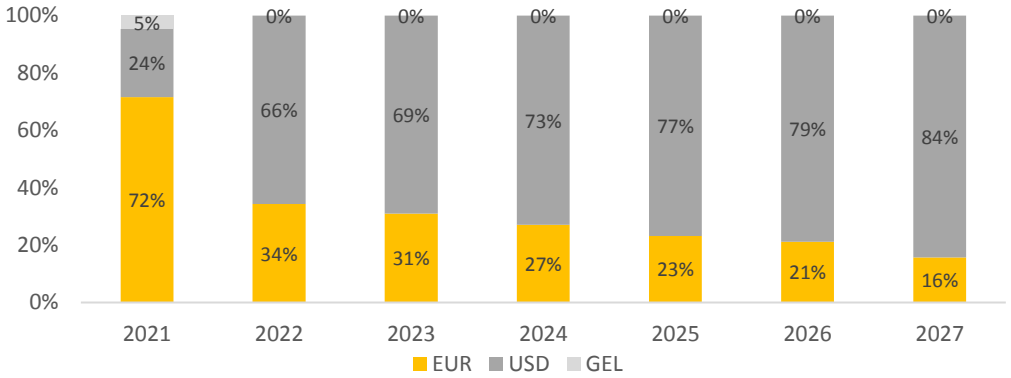
Source: Galt & Taggart.

Figure 4.5: Loan Currency Composition: Scenario 2



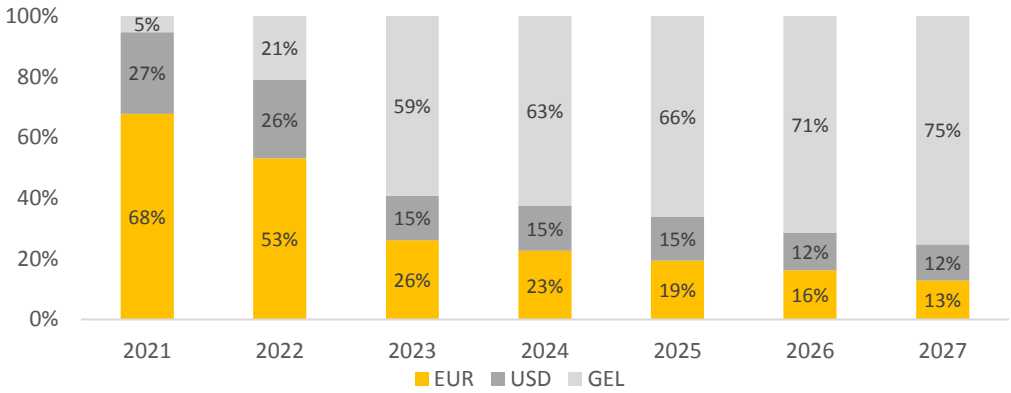
Source: Galt & Taggart.

Figure 4.6: Loan Currency Composition: Scenario 3



Source: Galt & Taggart.

Figure 4.7: Loan Currency Composition: Scenario 4



Source: Galt & Taggart.

4.4.5 Foreign Currency Risk Assessment

228. As noted at the introduction of the analysis, 75 percent of company's loans are denominated in EUR, while 25 percent are denominated in US$. Due to full foreign currency denomination of the company's loan book, and historic trend of GEL devaluation, it has incurred significant FX losses over the past years.

229. Financing structures presented in Scenarios 1, 2 and 3 above do not suggest significant risk reduction either. In Scenario 1, 84 percent of the total debt liabilities are exposed to open foreign currency risks, while in Scenarios 2 and 3 this exposure is 92 percent. Scenario 4 suggests the lowest FX exposure, representing only 25 percent of total debt liabilities. Below is presented currency sensitivity analyses for each scenario.

Figure 4.8: GEL (appreciation) / depreciation impact on cash balances during 2021-2025

Scenario 1

		Cash balance (GEL million)						
		2021	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
GEL devaluation/ (evaluation) compared to model scenario	**5%**	(4)	68	31	5	(42)	(70)	(82)
	3%	(1)	74	42	22	(19)	(42)	(50)
	0%	3	85	60	47	15	1	1
	-3%	7	95	77	72	49	45	57
	-5%	9	102	89	89	72	74	94

Scenario 2

		Cash balance (GEL million)						
		2021	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
GEL devaluation/ (evaluation) compared to model scenario	**5%**	(4)	458	220	99	15	(28)	(69)
	3%	(1)	454	225	110	33	(3)	(39)
	0%	3	448	232	128	61	33	8
	-3%	7	442	240	145	88	70	54
	-5%	9	439	245	157	106	94	86

Scenario 3

		Cash balance (GEL million)						
		2021	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
GEL devaluation/ (evaluation) compared to model scenario	**5%**	(4)	(19)	(28)	(36)	(41)	(17)	(97)
	3%	(1)	(11)	(12)	(14)	(12)	15	(58)
	0%	3	1	13	21	31	68	7
	-3%	7	13	38	56	78	124	75
	-5%	9	21	55	80	108	161	121

Scenario 4

		Cash balance (GEL million)						
		2021	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
GEL devaluation/ (evaluation) compared to model scenario	**5%**	(4)	(8)	314	138	19	43	(113)
	3%	(1)	0	330	161	50	80	(66)
	0%	3	12	354	196	96	137	5
	-3%	7	23	379	231	143	195	76
	-5%	9	31	395	255	174	233	123

Source: Galt & Taggart.

230. As presented in the tables above, Scenario 1 is more sensitive to currency fluctuations than Scenario 2. If there is 3 percent GEL depreciation against US$ and EUR, GSE will have cash deficit in amount of GEL 50 million in 2027, in case of 5 percent depreciation, company will incur cash deficits in amount of GEL 82 million in 2027.

231. In Scenario 2 GSE's tolerance against foreign currency appreciation is much higher. The company will be able to finance its operations without any difficulties in liquidity even in case of 5 percent GEL depreciation against US$ and EUR (Until 2025). Different outcomes in case of

scenario 1 and 2 is due to lower debt service cash outflows in Scenario 2, which is achieved by bullet structure of the Eurobonds, where the issuer pays only interest throughout bond lifetime.

232. Scenario 3 performs the worst among those given. Low base case cash balances in 2022 and 2027 of GEL 1 and 7 million, respectively, result in negative cash balances for the company in each of the devaluation scenarios. Also, highest negative cash balances in 2027 belong to this scenario in each of the devaluation cases.

233. Considering the fact that major portion of Company's debt structure would be in GEL, Scenario 4 suggest the strongest hedging mechanism for FX currency fluctuations. From the above table we see that Company will be able to finance its operations without any difficulties in liquidity even in case of 5 percent GEL depreciation till 2027. In case in 2027 GEL depreciates by 3 percent company will have to increase the issuance by GEL 58 million either from local or Eurobond Market, and other hand in case of 5 percent GEL depreciation the additional financing increases up to GEL 113 million net of transaction costs and interest expense.

234. In terms of DSCR sensitivity to currency fluctuations, Scenario 2 again outperforms the rest of the variants. It results in highest DSCR for each of the devaluation scenarios. Scenario 3 has proven to be weakest in this regard, with DSCR turning negative in some years (15 percent devaluation case).

Figure 4.9: GEL appreciation / (depreciation) impact on DSCR during 2021-2027

Scenario 1

		DSCR by Cash from operations before tax and interest expense						
		2021	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
GEL devaluation / (evaluation) compared to model scenario	**5%**	0.93x	1.31x	1.21x	1.04x	0.82x	0.67x	0.82x
	3%	0.94x	1.35x	1.28x	1.12x	0.92x	0.81x	0.90x
	0%	0.96x	1.40x	1.40x	1.26x	1.07x	1.03x	1.02x
	-3%	0.98x	1.46x	1.52x	1.40x	1.23x	1.26x	1.15x
	-5%	1.00x	1.50x	1.61x	1.50x	1.34x	1.41x	1.24x

Scenario 2

		DSCR by Cash from operations before tax and interest expense						
		2021	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
GEL devaluation / (evaluation) compared to model scenario	**5%**	0.93x	3.24x	3.24x	1.76x	1.10x	0.68x	0.92x
	3%	0.94x	3.26x	3.34x	1.89x	1.27x	0.99x	0.96x
	0%	0.96x	3.28x	3.49x	2.08x	1.54x	1.48x	1.02x
	-3%	0.98x	3.31x	3.65x	2.29x	1.82x	2.00x	1.08x
	-5%	1.00x	3.33x	3.77x	2.43x	2.02x	2.37x	1.13x

Scenario 3

		DSCR by Cash from operations before tax and interest expense						
		2021	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
GEL devaluation / (evaluation) compared to model scenario	**5%**	0.93x	0.92x	0.74x	0.73x	0.69x	0.88x	0.44x
	3%	0.94x	0.96x	0.92x	0.94x	0.94x	1.26x	0.68x
	0%	0.96x	1.02x	1.22x	1.25x	1.32x	1.87x	1.07x
	-3%	0.98x	1.08x	1.52x	1.59x	1.74x	2.53x	1.50x
	-5%	1.00x	1.13x	1.73x	1.82x	2.03x	2.98x	1.80x

Scenario 4

		DSCR by Cash from operations before tax and interest expense						
		2021	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
	5%	0.93x	0.97x	3.92x	1.81x	1.01x	1.06x	0.66x

		DSCR by Cash from operations before tax and interest expense						
		2021	2022	2023	2024	2025	2026	2027
GEL devaluation / (evaluation) compared to model scenario	3%	0.94x	1.01x	4.10x	1.96x	1.19x	1.11x	0.80x
	0%	0.96x	1.07x	4.37x	2.19x	1.48x	1.18x	1.01x
	-3%	0.98x	1.14x	4.65x	2.43x	1.77x	1.25x	1.22x
	-5%	1.00x	1.18x	4.84x	2.59x	1.97x	1.30x	1.36x

Figure 4.10: GEL appreciation / (depreciation) impact on Net Debt/EBITDA

Scenario 1

		Net Debt to EBITDA						
		2021	2022	2023	2024	2025	2026	2027
GEL (devaluation) / evaluation compared to model scenario	5%	6.16x	6.21x	6.74x	6.11x	5.82x	5.70x	5.43x
	3%	6.00x	6.03x	6.53x	5.90x	5.60x	5.54x	5.26x
	0%	5.77x	5.77x	6.22x	5.59x	5.27x	5.30x	5.00x
	-3%	5.53x	5.51x	5.91x	5.29x	4.94x	5.06x	4.73x
	-5%	5.38x	5.34x	5.71x	5.08x	4.73x	4.90x	4.55x

Scenario 2

		Net Debt to EBITDA						
		2021	2022	2023	2024	2025	2026	2027
GEL devaluation / (evaluation) compared to model scenario	5%	5.32x	5.43x	5.96x	5.34x	5.05x	5.03x	4.81x
	3%	5.18x	5.27x	5.76x	5.15x	4.85x	4.84x	4.59x
	0%	4.97x	5.03x	5.47x	4.87x	4.55x	4.54x	4.26x
	-3%	4.77x	4.80x	5.19x	4.58x	4.25x	4.25x	3.94x
	-5%	4.64x	4.64x	5.00x	4.40x	4.05x	4.06x	3.73x

Scenario 3

		Net Debt to EBITDA						
		2021	2022	2023	2024	2025	2026	2027
GEL devaluation / (evaluation) compared to model scenario	5%	5.32x	5.34x	5.93x	5.43x	5.19x	5.21x	5.01x
	3%	5.18x	5.18x	5.74x	5.24x	5.00x	5.03x	4.82x
	0%	4.97x	4.95x	5.46x	4.96x	4.70x	4.75x	4.50x
	-3%	4.77x	4.72x	5.18x	4.68x	4.40x	4.46x	4.17x
	-5%	4.64x	4.57x	4.99x	4.50x	4.21x	4.27x	3.96x

Scenario 4

		Net Debt to EBITDA						
		2021	2022	2023	2024	2025	2026	2027
GEL devaluation / (evaluation) compared to model scenario	5%	4.68x	4.73x	5.57x	5.33x	5.25x	5.54x	5.59x
	3%	4.56x	4.59x	5.39x	5.15x	5.05x	5.33x	5.35x
	0%	4.37x	4.37x	5.12x	4.88x	4.75x	5.03x	5.01x
	-3%	4.19x	4.17x	4.86x	4.60x	4.46x	4.73x	4.66x
	-5%	4.07x	4.03x	4.68x	4.43x	4.26x	4.53x	4.44x

235. While examining Net Debt/EBITDA levels in different currency fluctuation scenarios, it is important to note, in some cases, even in GEL appreciation scenarios leverage parameters still remain high.

5 Key Issues to be Addressed for GSE to Start Accessing the Capital Market

236. The following key issues need to be addressed before GSE can proceed to implement its first capital market transaction: (a) reduction of GSE's leverage; and (b) designing FX risk management solution.

5.1 Reduction of GSE's Leverage

237. The feedback from potential commercial lenders suggests that GSE's leverage is of concern, especially considering that the company has a regulated revenue stream and no track record of borrowing commercially. Therefore, in order to improve the terms of the potential commercial debt of GSE, it is advisable to reduce the Debt-to-Equity ratio (leverage) of GSE to not more than 3.5. As of 2020, the leverage was negative 13 due to negative equity of GSE stemming from accumulated losses. In fact, there also the Government Decree No. 922 (2020) requiring the GSE leverage not to exceed 3.0 by the end of 2022. Currently, the Government is exploring the option of converting portion of outstanding debt of GSE to MOF into GSE's equity. This would enable the company to proceed with its capital market transaction.

5.2 FX Risk Hedging Options

238. The assumption of the GNERC that WACC covers foreign exchange risks because risk free rate set by NBG covers inflation is not accurate. Inflation and exchange rate are different macroeconomic parameters (although positively correlated) and their fluctuation rates vary. Therefore, it would be advisable, if the manually-managed hedging procedures used by GSE, are enhanced by GNERC by allowing annual adjustment of the tariff to absorb exchange rate risks. Note, that due to the lack of standardized financial instruments, it is not possible to hedge FX risk of GEL on the market. Non-standardized hedging products from local banks is an expensive choice. Some other options are discussed below.

Direct Hedge

239. In order to mitigate currency risk of the company, hedging options were explored. We have enquired Georgian commercial banks regarding GEL/US$ and GEL/EUR hedging options. As noted from our discussions, availability of GEL/US$ and GEL/EUR hedging instruments is very limited, mainly Georgian commercial banks provide such instruments – with 1 year tenor. Suggested instrument is following:

- Type: call option
- Tenor: 1 year
- Strike price: 3.38 (GEL/USD Ex. Rate)
- Price: 9.28 percent of the total hedged amount

240. This implies that break even exchange rate for this instrument is 3.38 + 9.28 percent which amounts to 3.69. As of September 2, 2021, the official US$/GEL exchange rate is 3.118. Which means GEL would have to depreciate by approximately 18 percent over the next 1 year for instrument to break even (notably, the GEL against the US$ depreciated by 14.3 percent in 2020, while the country was in a severe crisis). We believe utilizing this instrument would not be efficient, especially considering the fact that company loans span over 5 and 10 years while the instrument covers only 1 year risk, beyond which the company would have to acquire a new hedge

with a new increased strike price. The same unfavourable conditions apply to GEL/EUR hedging instruments.

Proxy Hedge

241. An alternative approach to the problem would be a proxy hedging mechanism. In this regard, we have examined 'Proxy Hedging Analysis for Georgian Lari' prepared by the World Bank in February 2019.

242. Utilizing proxy hedging would mean hedging an FX risk of GEL to a hard currency, by using a basket of currencies that have high correlation to GEL.

243. This would mean, for example, (in case the company requires GEL/US$ hedge) comprising a basket of currencies that have high correlation to GEL, and hedging this basket against US$. This can be implemented by constructing a portfolio of Cross Currency Swaps that receive cash-flows in US$ (to offset existing liability) and pay cash-flows in the basket of currencies. The basket is built based on a sophisticated dynamic algorithm to determine the combination of currencies that best mimics the behaviour of the local currency.

244. As opposed to direct hedges, proxy hedges are not perfect hedging options. This means that while utilizing proxy hedge the company is not fully hedged and retains certain risk.

Table 5.1: Pros and Const of Proxy Hedge

Benefits of Proxy Hedge	Disadvantages of Proxy Hedge
Provides one solution to managing FX risk when the market for direct hedging does not exist	Exposed to tail risks: • The basket may appreciate significantly against US$, leading to negative marking-to-market on the hedging portfolio • The GEL may depreciate against the basket unexpectedly if idiosyncratic risks hit Georgia
Flexible framework to select different currency basket choices and minimize expected hedging costs	Exposed to political/reputational risks

Source: World Bank team.

245. In its analyses, the World Bank examined 3 baskets of currencies based on various strategies of grouping:

1. **Macroeconomics Focused:** select the currency of countries that have a deep macroeconomic connection with Georgia;
2. **Carry**[20] **Focused:** select liquid currencies that has a lower carry, with acceptable correlation and risk[21] versus GEL;
3. **Correlation Focused**: select liquid currencies that have a higher correlation with GEL, with acceptable risk and carry costs. The details are presented in Appendix G.

[20] Carry: 3-year Cross Currency Swap rate (vs. USD)

[21] Risk: measured by quarterly volatility of each currency (vs. GEL) over past 20 years

Inclusion of FX Hedge Costs into Tariff

246. An overview of tariff-setting methodologies for the companies, which have capital or/and operational expenses in foreign currency and revenues are only in local currency unit, was prepared. We have examined how these tariff setting methodologies take into account FX fluctuations. It must be noted that the long- and medium-term tariff setting mechanisms do not compensate (at least in due time) on the foreign exchange losses and companies do not receive agreed returns on their capital investment.

247. In addition to the general tariff setting mechanisms, their flaws and advantages, we have also considered Georgian tariff-setting approach applicable to GSE and tariff methodologies in terms of forex risk mitigation in Argentina and in Philippines (see Appendix G details).

248. The major concern is that in cost-plus and hybrid methodologies, where the main target of the tariff, which "must allow to recover all the economic costs of the service, which, according to the traditional building blocks approach, include mainly the operational expenses (opex), the depreciation of the assets required to perform the service (return of capital), and a fair and reasonable return on these assets' (return on capital)", may not be met due to the exchange rate fluctuations. Besides, tariff setting period may vary depending on the methodology and an enterprise, from one to three or five years (including WACC, which is considered as the cost of capital component which the tariff shall compensate, both for investors as well as creditors). Although tariff regimes include indexation, the timing of the change sometimes may cause liquidity crises and losses of the company which may hinder its operations.

249. Another component of financial operations of the company is debt service. In most cases the companies have debt in foreign currency and their costs go up after the devaluation of local currency.

250. Our overview considers the problems caused by the currency devaluation may effect:

1. Payment of operations costs
2. Planned capex, purchase of assets
3. Debt service

251. And, equity holders should not be compensated for losses, caused by exchange rate risk.

252. In our opinion the problems as a result of local currency depreciation exists but they may partially offset each other. In cost plus methodology, in case of steep unexpected fall of local currency, may influence all of the three above mentioned items. However, by the end of tariff setting period all of these factors will be compensated.

1. Operation costs will be reflected in real numbers and compensated in the tariff
2. Planned capital expenses also will be compensated
3. Debt services and value of the debt can change the accounting item, foreign currency translation losses and compensated.

253. However, in the short term all of these problems exist, and companies may suffer liquidity shortages. In addition, the use of historical costs as a base to determine future costs and capital expenses may not coincide (especially the latter) with next years' plans of the company and effect capex decisions of the company. This may worsen the quality of service.

254. In incentive based, or regulatory asset base approach, the problem remains with the WACC, and efficiency factor/coefficient. When the local currency devaluates the interest rate in this currency increases (both for cost of equity and cost of debt). The tariff methodology does to revise WACC and it is almost the same for all energy companies. This is not a fair approach.

255. One of the solutions, borrowing in the local currency, can also become costlier, which may not be compensated until the end of regulatory period.

256. The proposed 2 methodologies (Philippines and Argentina) are the solution to medium term (although using appropriate entries and same effect may be achieved.

Recommended Solution for FX Risk

257. Taking into account all of the above considered factors, the optimal approach would be to use the FX risk mitigation approach similar to the one in Philippines (it will introduce also the efficiency factor), with regulatory period of one year. The same recalculation period shall apply to WACC components. However, we shall choose the base foreign currency (EUR, US$, YUAN, etc.) or create a basket of currencies.

258. In order to mitigate short term loan fluctuation impact on companies (in case if GEL's steep depreciation), we suggest the government to allow them short terms bank loans (up to 1 year) and include the loan service costs in the tariff. In case, the refusal of the banks to finance certain small companies, the government may offer them short term forms of guarantee, or finance companies from state owned vehicles (Partnership Fund, GEDF, etc.).

259. As it currently stands, MOF obtains loans from IFIs and on-lends them with exactly the same terms as the original loans. The final possibility of hedging GSE from FX risk would be on-lending these loans in GEL. This way MOF would effectively assume the FX risk while GSE's loan-book would be fully denominated in local currency.

Impact on End-User Tariffs

260. As known, one of the major components of Transmission System Operator's tariff is Capital Expenses. According to Georgian Tariff Setting methodology, CAPEX is calculated as Regulated Asset Base (RAB) multiplied by Weighted Average Cost of Capital (WACC).

261. The WACC calculation formula as per Tariff Setting Methodology is as follows:

$$\text{WACC}_{\text{(pre-tax)}} = g \times r_d + \frac{(1-g) \times r_e}{(1-T)}$$

where g is weight of Total Debt in company capital structure; rd is cost of debt; re is cost of equity;

262. According to the tariff setting methodology, the weight of total debt in the formula is fixed and amounts to 60 percent. Additionally, cost of debt (rd) is fixed as well, it amounted to 12.93 percent for 2018-20 tariff setting period and 13.19 percent for 2021-25 tariff setting period. It should be noted that these rates are not in line with company's existing liabilities and the calculation formula for them is not disclosed. As such these interest rates are determined by GNERC.

263. Accordingly, the changes in financing structure of GSE described above will have no impact on the end-user tariff.

6 PPP Process and Framework Improvements

264. **The PPP framework and its implementation would require improvements so that Georgia can continue using various PPP methods in pursuing electricity sector investments.** Those are less likely to be in electricity generation but some large investments, such as the Georgia-Romania Power and Digital Interconnection Project, may require reliance on PPP modalities. Addressing the identified gaps and weaknesses requires a prioritization according to their importance and urgency to create a clear action plan. This chapter therefore aggregates and prioritizes the recommendations included within the summary of each preceding chapter. These action items are split sequentially into immediate (0-1 year), short-term (1-2 years), and medium-term (2-3 years), and action items within each time band should be implemented in parallel. Given the interdependence of many of the action items, it is recommended that the action plan is delivered as a complete package. The action items below are arranged sequentially based on the prioritized time bands referenced above.

Immediate

265. **Impact of COVID-19: Perform a stock-take of existing PPPs and energy sector PPAs, and evaluate the potential role of PPPs within post-COVID-19 economic recovery and infrastructure prioritization.** It is recommended that the Government undertakes a stock-take portfolio analysis of PPPs and PPAs to map their performance, assess financial, fiscal, and operational risks, and identify any changes to the portfolio risk profile as a result of COVID-19. This would include a review of PPP contractual provisions related to force majeure, government support, compensation and termination, and other remedies with a view to understanding potential fiscal implications of a prolonged crisis. Dependent on the outcome of the analysis, the Government may have to prioritize support to existing projects based on the importance of continuity of service and the urgency of liquidity support, and may also need to review whether to move forward with energy generation projects in advanced stages of development based on its fiscal exposure. As part of its fiscal stimulus response to COVID-19, the Government may need to adapt its investment/capital project pipeline based on changing sector priorities. For example, the Government may choose to prioritize projects that specifically respond to the challenges created by COVID-19, such as logistics/supply chain projects. It is recommended that the use of PPPs is considered as part of a broad-based infrastructure program that efficiently matches infrastructure priorities with available financing resources (public, IFI, private, etc.).

266. **PPP Pipeline: Develop an infrastructure investment plan, integrate processes within the PIM Guidelines and the PPP Law, and prepare a methodology to screen potentially PPP-suitable projects.** It is recommended that the Government develops an infrastructure investment plan consisting of its infrastructure priorities that meet national development objectives, taking into account changing sector priorities owing to COVID-19.[22] PPPs should be considered as one tool to meet this infrastructure investment plan, supplementing public and concessional finance, within an integrated PIM-PPP framework. This should include a singular, standardized, and systematized early-stage assessment to determine the preferred procurement approach for all projects. This would allow the Government to more efficiently allocate available resources to where they are most suited, and it would also create a ready filter for the development of a robust PPP pipeline. Finally, it is recommended that a methodology and screening tool are developed to support prioritization of projects that are identified as potentially PPP-suitable. This would enable the PPP

[22] As an example, the use of technology and a focus on logistics and micro mobility are emerging as front runners in the transport sector.

Agency, the MoF, and line ministries to focus their time and resources on preparing a small number of high-quality PPP projects that maximize socio-economic impact and provide the greatest VfM.

267. It is also recommended that the Government focus initially on small-scale projects, including brownfield and O&M projects[23], that are fiscally sustainable, commercially viable, affordable to end-users, and suitable to be procured as PPPs. The benefits of these projects may lie more in private sector efficiencies than in large-scale financing, particularly given the continuing availability of concessional IFI financing. In addition, small-scale projects often have a shorter gestation period that will allow the Government to develop experience, increase capacity, and build a track record of delivering competitively procured PPPs over a shorter time horizon.

268. **Legal Framework: Modify the Public Procurement Law to facilitate the procurement of non-concession PPPs, and further socialize the PPP framework within line ministries and the private sector through a communications campaign.** It is recommended that as part of the current modification of the Public Procurement Law, the Government considers additional guidance on the procurement process for non-concession PPPs in order to attune the legislation more closely to the specificities of PPP procurement. To the extent possible, the procurement process should align with the procurement process for concessions included in the PPP Law.

269. It is recommended that the PPP Agency develops a communications campaign to socialize and build awareness and understanding of the full range of PPP legislation, including the recently adopted PPP Guidelines, across line ministries and the private sector. This could include a series of workshops and other events designed to facilitate the use of PPPs.

270. **Fiscal Management and Accounting: Develop an FCCL framework to support the long-term sustainability and management of the Government's financial commitments to PPPs and clarify accounting treatment.** Currently, the MOF undertakes analysis of contingent liabilities of PPAs and is valuing PPPs according to IPSAS 32 (Georgia is in the process of adopting IPSAS and it may take a few more years to accomplish the transition and become fully compliant). Given the need to strengthen the formal tools and methodologies for assessing the fiscal risks and their impact, it is recommended that an FCCL framework for PPPs is developed by the MoF in order to deliver a comprehensive assessment and management of all PPPs on a programmatic basis, with clear criteria for the approval of all government financial commitments. The roll-out of the FCCL framework should be accompanied by significant capacity building and training for relevant agencies to ensure the effective oversight of the Government's fiscal commitments to PPPs.

271. It is further recommended that the accounting of PPPs (via IPSAS) is clarified and supplemented with additional detailed guidance on the treatment of contracts not meeting the conditions presented in IPSAS 32 on government ownership and residual interest. Finally, it is recommended that the MoF develops uniform standard methodologies for evaluating and analyzing the probability of contingent liabilities materialization.

272. **PPP Capacity: Prepare a staffing and business plan to build the capacity and credibility of the PPP Agency and identify or recruit core PPP staff within the MoF.** It is recommended that the PPP Agency prepares a staffing and business plan to guide the recruitment of sufficient staff to enable fulfillment of its mandate under the PPP Law. It is likely that implementation of this plan will require a small number of highly qualified staff, rather than a large bureaucratic structure.

[23] As an example, the Government could look at the potential for performance-based O&M contracts in the roads sector, including along the East-West and North-South highways.

The staffing and business plan may be used by the Government to request technical assistance support from donors to fund PPP Agency activities and/or second or fund resident advisors to sit within the PPP Agency and supplement capacity. In addition, it is recommended that the MoF dedicates three-four core staff solely focused on delivering the MoF's functions under the PPP Law.

Short-Term

273. **PPP Pipeline: Prepare specific guidance on municipal-level projects within the PPP Guidelines or as standalone Municipal PPP Guidelines to facilitate the development of municipal-level PPP projects.** It is recommended that specific guidance on municipal-level PPPs is prepared by the PPP Agency, in coordination with the MoF, to encourage municipalities to consider PPP projects. This guidance should specifically focus on the use of the simplified process for the preparation and procurement of small projects included in the PPP Law. The guidance material should also include information on national-level approval processes and timelines for municipal-level PPP projects.

274. **PPP Capacity: Develop standardized documents, tools, and templates to support the preparation and implementation of high-quality projects.** It is recommended that further standardized documents, tools, and templates, in addition to those provided in the PPP Guidelines, are prepared by the PPP Agency, in coordination with the MoF, to support the development of a robust PPP pipeline. These materials will promote adoption of international best practices in project preparation and encourage a focus on achieving VfM in PPP deals. This will be of particular benefit to line ministries, who have responsibility for the identification and implementation of projects. The dissemination of these standardized documents, tools, and templates should include a comprehensive capacity building program for line ministry officials to support their use. This standardized documentation could include:

- Needs analysis, project identification and planning
- Economic cost benefit analysis
- Financial feasibility assessment
- Procurement and contract management
- Disclosure policy for PPP contracts
- Performance management and audit

Medium-Term

275. **PPP Pipeline: Establish a Project Development Fund to support funding of robust project preparation.** It is recommended that a PDF is established to provide a consistent, sustainable source of funding for the robust preparation of PPP projects. The fund could be centrally managed by the PPP Agency and used to hire transaction advisors and other consultants required to prepare and procure PPP projects. The availability of funding may encourage line ministries to pursue PPP projects and will ensure that comprehensive due diligence is undertaken for prioritized projects. It is recommended that the Government liaises with donors to raise funding for the PDF.

276. **PPP Financing: Unlock the sources of private finance and increase participation of institutional investors in delivering the country's infrastructure agenda.** Unlocking sources of private finance in Georgia will require long-term commitment from the Government that are broader than just PPP-related actions. This will include finalization of the Investment Fund Law,

and the further development of local capital markets capacity to analyze and develop long-term debt instruments, risk-hedging instruments, and the secondary market for refinancing. The local currency financing from local banks would help avoid foreign exchange risk. Commercial banks may have the appetite to increase their investment in PPP projects if the projects reaching the market are commercially viable, offer optimal risk distribution, and have government and/or IFI backing (guarantee or credit enhancement).

277. It is recommended that the wide range of existing barriers limiting the opportunities for institutional and private equity investors (lack of investable projects, strict regulatory rules on the tenor, asset class restrictions, as well as internal corporate governance and current management challenges within the entity (the Partnership Fund) etc.) are addressed through regulatory reform and development of a bankable pipeline, and if needed, a strategy for restructuring (the Partnership Fund). The Government should look to develop these institutions as long-term investment partners to meet infrastructure financing needs and prepare a long-term investment strategy to support this process.

278. **PPP Capacity: Increase awareness of the PPP program through the creation of a PPP Forum and encourage civil service training centers and universities to develop PPP-specific curricula.** It is recommended to create a PPP Forum to facilitate the exchange of ideas, solicit private sector feedback and build consensus, awareness, and capacity of all stakeholders relevant to the PPP program. The PPP Forum could be organized in coordination and conjunction with Enterprise in Georgia and the Investors Council, and bring together the public sector, the private sector, NGOs, civil society, and other relevant stakeholders to discuss any issues related to the PPP program. In addition, to develop a long-term understanding of PPPs, the PPP Agency should partner with civil service training centers within the MOF and the Ministry of Justice and universities to develop PPP-specific curricula content.

7 Key Next Steps

279. On electricity generation side, we recommend the Government to consider the following key next steps that are essential building blocks for raising commercial financing without major public debt and fiscal implications.

a. **Finalize and publish the generation expansion plan with clear set of technologies and projects selected to meet the forecast electricity demand.** GSE should finalize the first full-fledged generation expansion plan, which would also underpin the Government's new Energy Sector Strategy under development. The generation expansion plan, which should be publicly disclosed, will form the basis of all government decisions related to energy security and resource adequacy as well as procurement methods adopted for new projects in the power sector.

b. **Make a decision on new mechanisms for development of generation capacity.** Review and finalize the decision on alternative mechanisms of ensuring resource adequacy. For conventional projects, we recommend placing resource adequacy requirements on retail suppliers, and providing them with freedom to choose the most appropriate contractual arrangement that works for them. For new renewable projects, the Government may consider adopting the CfD structure.

c. **Start using competitive selection process to identify and develop new electricity generation projects.** The prevalence of USPs is linked to the lack of national development or sector planning mentioned above, which led private developers to fill the planning void. Going forward, the Government should build on the least-cost generation expansion plan and then procure the capacity competitively or require the distribution companies to procure the required capacity.

280. On electricity transmission side, we recommend the Government and other relevant entities (GNERC) to consider the following key next steps that are essential building blocks for raising commercial financing without major public debt and fiscal implications**:**

a. **Reduction of GSE's leverage.** Conversion of the portion of outstanding GSE debt to MOF into equity to reduce the Company's leverage. This is required to ensure successful first capital market transaction, which GSE is preparing for. This is consistent with the Government Decree No. 922 (2020) requiring the GSE leverage not to exceed 3.0 by the end of 2022.

b. **Establishment of a mechanism to mitigate the foreign exchange (FX) risk of GSE.** The current tariff methodology does not protect GSE from FX risks. This is essential given that all outstanding debt of GSE is in EUR and US$ and the revenues are in Georgian lari (GEL). The current GSE tariff methodology adopted by the Georgian National Energy and Water Supply Regulatory Commission (GNERC) assumes that depreciation or appreciation of GEL is reflected in the inflation and therefore captured by Weighted Average Cost of Capital (WACC) through adjustments to the risk-free interest rate, set by the National Bank of Georgia. However, the experience demonstrates that it is not and, as a result, GSE has experienced losses due to depreciation of GEL, which were not recovered through the tariff. In order for GSE to be able to attract investment at the scale required and at affordable terms, the issue of FX risk mitigation will need to be addressed. There are two options.

Option No. 1: Proxy hedging. This would entail hedging the FX risk of GSE by using a basket of currencies that have high correlation to GEL and hedging this basket against US$. This can be implemented by constructing a portfolio of cross-currency swaps that receive cash-flows in US$ in order to offset existing liability and pay cash-flows in the basket of currencies. The basket is built based on a dynamic algorithm to determine the combination of currencies that best mimics the behaviour of the local currency. As opposed to direct hedges, proxy hedges are not perfect hedging options. This means that while utilizing proxy hedge the Company is not fully hedged and retains certain risk. The cost of such hedging could be included in the GSE's tariff as fixed operating cost. GSE would be responsible for hiring advisors to design and implement this hedging mechanism.

Option No. 2: Revision of tariff methodology. This approach would entail annual adjustment of the tariff by Georgian National Energy and Water Supply Regulatory Commission (GNERC) to reflect the additional costs (or revenues) that GSE incurs (earns) due to fluctuation of GEL exchange rate. Technically, this could be done by specifying a threshold level of annual appreciation or depreciation of the GEL (e.g. 10 percent), that would trigger such adjustments.

c. **Finalizing the decision on long-term financing strategy**. GSE should make a final decision on the long-term financing strategy considering its TYNDP as well as the preference of MOF to reduce reliance on sovereign-guaranteed borrowing. We recommend that GSE makes the decision based on the four capital market access alternatives/scenarios that were analysed taking into account the pros and cons of each scenario. Once the decision is made, GSE should resume the work of the advisor helping to acquire credit rating for GSE and the transaction advisor to be helping with implementation and closure of the transaction.

d. **Separation of the ownership function from the policy function of GSE**. As a matter of priority, among other corporate governance improvements, the Government should make a final decision on separation of the ownership function from the policy function of GSE. Currently, Ministry of Economy and Sustainable Development (MOESD) is discharging the ownership function on behalf of the state. However, it is also the electricity sector policy maker.

Appendix A. Electricity Sector Overview

Electricity Demand

1. **Electricity demand in Georgia has been growing due to robust rates of economic growth**. Electricity consumption increased at a CAGR of 3.4 percent over 2007-2020 to 12.1TWh. Electricity consumption was down by 4.9 percent y/y in 2020, caused by the reduced economic activity due to the COVID-19 pandemic. Excluding the pandemic year, the growth of electricity consumption was 4.2 percent CAGR over 2007-2019. The growth of electricity consumption has significantly accelerated over 2016-2018 and averaged at 6.7 percent, almost twice the CAGR 3.6 percent growth of 2007-2015, driven by non-residential consumers and increased crypto-mining farms.

2. **Electricity consumption in Georgia is seasonal and depends highly on weather and the length of the day**. The months with the highest electricity consumption are December and January when the temperature is the lowest and the nights are the longest. The lowest consumption of electricity is either in May-June or September-October, as in these months air temperature requires neither heating nor air-conditioning. With an increased number of commercial consumers and usage of air conditioning in the summer months, July-August became the second peak of the year, limiting the export in these months.

Figure A.1: Electricity Consumption (TWh)

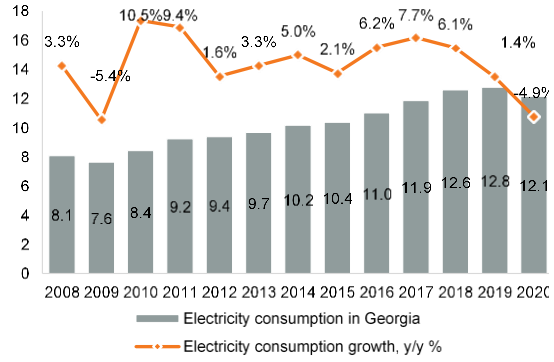
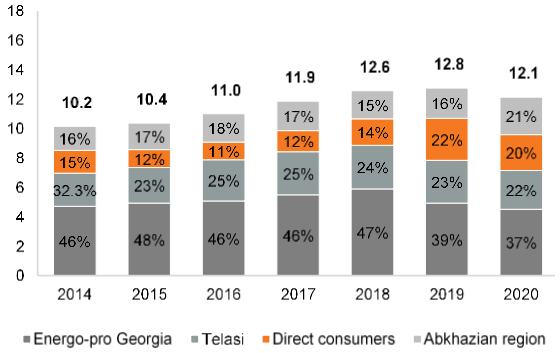


Figure A.2: Electricity Consumption by Groups (TWh)



Source: ESCO; Galt & Taggart.

3. **The largest group of consumers are distribution licensees, Telasi and Energo-pro Georgia with a total share of 60 percent (over 2019-2020)**. Telasi and Energo-pro Georgia supply electricity to end-users including the residential sector and legal entities, including small and medium-sized businesses. The residential sector consumes 1/3 of distribution licensees' consumption and 20 percent of the overall country's consumption.

4. **Besides distribution licensees, electricity is consumed also by direct consumers**. This is the group of large companies, whose total consumption reached 2.4 TWh in 2020, 21-percent of total domestic consumption. The share of direct consumer's consumption in the overall demand of the country is increasing due to legislative changes and gradual deregulation of the market. In line with the second wave of market deregulation, which started in May 2018, all companies with average monthly consumption over 5GWh were mandatorily registered as direct consumers. As a result, the number of direct consumers increased from 2 to total 17 companies. Moreover, their share in overall domestic consumption increased from 12.0 percent in 2018 to 20.0 percent in 2020.

5. **Abkhazian region's electricity consumption is calculated separately**. Abkhazian region's electricity consumption increased on average by 7.3 percent over 2015-2020 and in 2020 its consumption increased by 23.9 percent y/y. As a result of this growth, the share of Abkhazian region's electricity consumption increased to 21.0 percent.

Electricity Supply

6. **Georgia has a hydro-dominated power system**. Georgia's installed capacity was 4,500 MW in 2020, up from 3,300 MW in 2008. Currently, Georgia has 95 hydro (3,300 MW) and six thermal power plants (1,200 MW) and one wind (21 MW) power plant.

7. **On average, over 2014-20, 71 percent of electricity demand in Georgia was satisfied by hydro generation, 19 percent by thermal generation, 0.6 percent by wind power plant production and the remaining 9.4 percent came from electricity imports from neighboring countries (the latter has an increasing trend)**. Thermal power plants work on natural gas imported mainly from Azerbaijan. Electricity generation growth falls slightly behind the growth of consumption, increasing the import dependence of the country. Over 2014-2020, the growth of local generation (including thermal generation) reached 1.2 percent CAGR, while consumption growth over the same period reached 3.0 percent CAGR (excluding pandemic year the growth was 4.9 percent CAGR over 2014-2019).

Figure A.3: Electricity Generation and Imports (TWh)

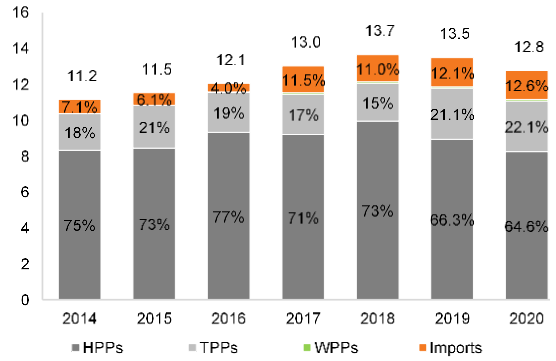
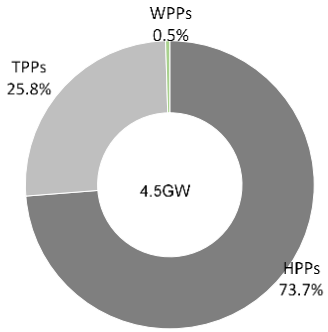


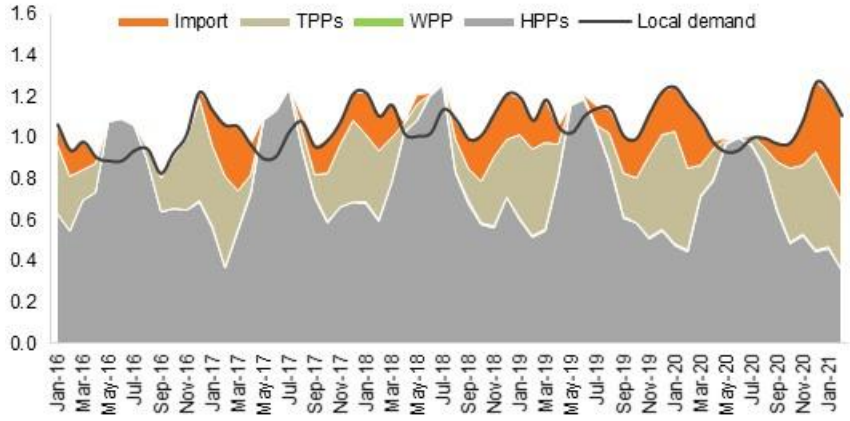
Figure A.4: Generation Capacity Mix



Source: ESCO, Galt & Taggart.

8. **The opposite seasonality of electricity consumption and hydro generation is leading to an exportable surplus during summer and a growing deficit during winter**. Due to increased use of air-conditioning, electricity consumption is becoming less seasonal, limiting the exportable months to only May and June (as in 2019 and 2020) and creating the need for import during the rest of the year. On average, 40 percent of hydro generation occurs in the summer months between May and August, especially generation from the run-of-river HPPs.

Figure A.5: Seasonality of generation and consumption over 2016-2020 (TWh)



Source: ESCO.

9. **Georgia remained a net importer of electricity, with a trade deficit of US$58.7 million in 2020**. Electricity generation growth falls behind the growth of consumption. In 2020, Georgia imported 1.6 TWh electricity and exported mere 0.2TWh, resulting in a net import of 1.4 TWh (+5.3 percent y/y). Despite the growth of net import in volume terms, the trade value decreased by 16.8 percent y/y to US$ 58.7 million in 2020 from US$70.4 million in 2019. The decrease is explained by the comparatively low cost of electricity imports via Salkhino line for the Abkhazian region (22.8 percent of total imports), decreasing the total cost of imports by 17.6 percent y/y to US$64.5 million in 2020. On the other hand, revenue from exports also decreased by 25.4 percent y/y to US$5.8 million, in line with the reduction of electricity exports (-36.8 percent y/y).

10. **Enhanced interconnection capacity gives Georgia the possibility to choose the import provider among all 4 neighboring countries based on commercial terms**. Historically, electricity was mainly imported from Russia and Azerbaijan. Armenia and Turkey used to be emergency import providers before 2020 when imports from Turkey were made on commercial terms at significantly cheaper prices (USc 4.3/kWh) than from competitor countries. Notably, after commissioning of a new 500kV interconnection line with Azerbaijan, electricity imports from Russia were gradually replaced by imports from Azerbaijan, reducing Russia's share from 95 percent in 2013 to 13.7 percent in 2018. Russia became an important provider again since 4Q19, competing with Azerbaijan with prices and supplying electricity for the Abkhazian region.

11. **Electricity imports reached 1.6 TWh in 2020, satisfying 12.6 percent of total demand**. Despite the drop in electricity consumption, the import of electricity remained flat (-0.1 percent y/y) as hydro generation was down by 7.7 percent y/y in 2020 due to bad hydrological conditions. Import increased by 39.6 percent y/y in 1Q20, before the start of the pandemic and decreased by 20.8 percent y/y in the April-December period. Additionally, c. 1/5 of electricity imports was for the Abkhazian region. This import was made as Enguri's generation was not enough to satisfy the increased demand of Abkhazian region in 1Q20. The rise of demand in Abkhasia is the result of low end-user tariffs (lower than production costs), increase of data mining facilities (incentivized by lower prices), and abysmally low collection ratio (less than 20 percent of consumed electricity). This is depleting Enguri reserves for the consumption for the remaining part of the country, and as long as, Abkhasian region does not pay to Enguri HPP for the consumed electricity, the consumption rise in the future may slightly worsen financial condition of Enguri HPP. However, we estimate that the mentioned factor will not affect financial flows of GSE.

12. In 2020, 45.1 percent of imported electricity came from Azerbaijan, 35.4 percent from Russia and 19.5 percent from Turkey. Over half of electricity imported from Russia was for the Abkhazian region. Average import price varies from USc4.7 to 5.2/KWh, depending on import source.

Figure A.6: Electricity Exports and Imports (TWh)

Source: ESCO, Galt & Taggart.

13. The most attractive export markets for the Georgian electricity sector are Turkey and Armenia, due to geographic proximity, expected demand for imported electricity and estimated market prices. Turkey was promoted as the main export market since 2008, due to high market prices. A significant group of investors started the development of hydro projects in Georgia targeting at Turkish market and requested take-or-pay export guarantees. After prices fell in Turkey to equal Georgian prices, the Turkish market has lost its appeal, especially considering the transmission fees payable at the Georgian border.

14. Electricity exports were down by 36.8 percent y/y to 153.8GWh in 2020. The main reason behind this reduction was low hydro generation due to bad hydrological conditions impacting export allowed volume. In 2020, 45.2 percent of exported electricity was directed to Turkey, 43.2 percent to Armenia and 11.7 percent to Azerbaijan. Exports to Azerbaijan had no commercial motives and were probably leftovers from the technical flows needed for keeping Georgia in synchronous parallel operation with Azerbaijan. Different companies export electricity to different countries.

15. **The Georgian power sector has undergone significant reforms over the last two decades with positive outcomes**. Extensive regulatory and market reforms, focused on deregulation and privatization, have helped improve service quality in the power sector and the financial viability of sector entities. Key reforms included: (a) unbundling of the sector into separate generation, transmission, distribution companies (currently, two large companies), and an electricity market operator called the Electricity System Commercial Operator (ESCO); (b) establishment of the independent energy sector regulator, the Georgian National Energy Regulatory Commission (GNERC); and (c) privatization of several generation, and three power distribution companies. Most of the sector entities are now privately-owned, with the exception of Enguri and Vardnili HPPs, the transmission and dispatch company Georgian State Electrosystem (GSE), and ESCO.

Electricity Sector Reforms

16. **Georgia's electricity sector reforms have resulted in impressive results**. This section describes the recent history of the electricity sector in Georgia, providing a contextual framework for the current issues facing the sector.

17. The collapse of the Soviet Union contributed to the Georgian power sector's decline into poor physical and financial condition. By 1994, most areas in Georgia received electricity service for only 2-4 hours a day because of dilapidated and damaged infrastructure and the unavailability of fuel. In the early 1990s all of the Georgian state power sector institutions were insolvent, due to poor collections from customers, corruption, and tariffs below the cost of supply. In 1995, Sakenergo, the vertically-integrated utility was collecting, on average, only 4 percent of electricity it billed. Tariffs, which were typically below-cost before independence were kept low for political reasons and to ease the burden of macroeconomic reforms. Total quasi-fiscal debt attributable to the sector was equal to roughly 5-6 percent of Georgia's GDP. Operating arrears for gas and power imports stood at roughly US$1.1 billion. Georgia has significantly improved electricity supply reliability and the financial position of the sector companies since early 2000s with two phases of sector reforms focused on structural reforms, privatization, and establishment of sound regulatory framework.

18. **The first phase of reforms, from 1996 to 2004, established a legal framework for deregulation with laws on energy, electricity, restructuring and privatization**. These reforms established the Georgia National Energy Regulatory Commission (GNERC) as the independent power sector regulator. They also implemented the wholesale electricity market. Generation, transmission and distribution functions were unbundled and some generation assets and distribution companies were privatized.

19. **The second phase of reforms began in 2006 when the Government published a new energy strategy**. The new strategy had the following objectives: (i) the privatization of the electricity and gas sector in order to improve its economic viability and performance, (ii) the reduction of bureaucratic hurdles to private sector participation in the energy sector, (iii) providing private companies access to the transmission and distribution network, and encouraging consumer choice in energy suppliers, and (iv) increasing energy trade with other countries.

20. **Georgia's reform efforts have resulted in increased power sector reliability and lower losses**. All consumers have been enjoying 24-hour electricity supply since early 2000s. Georgia's electricity exports grew from 2006 to 2011, as Georgia has taken advantage of its abundant low-cost hydropower resources and proximity to growing electricity markets in neighboring Turkey and Russia.

21. **Reforms have improved the financial performance of electricity sector companies**. Collections have increased from 20-40 percent in 1999 to more than 75 percent as of 2007 and transmission system losses decreased from 16 percent in 2002 to 1.9 percent in 2011. The Government now seeks to shift the focus of its reforms from improving the reliability and financial performance of its power sector to ensuring energy security and using the power sector as a driver of economic development in the country.

22. **The Government is actively supporting private development of its hydropower resources by streamlining the licensing process and encouraging electricity exports to lucrative foreign market**s. Rehabilitation of existing hydropower projects continues, as does the rehabilitation and further development of the transmission system. In 2000-2016, Georgia significantly

strengthened its domestic electricity transmission network as well as constructed new transmission interconnections with its neighbors.

23. **The third phase of reforms started in 2016 to introduce elements of market competition in electricity sector**. Active reform of energy sector started when Georgia became member of the Energy Community. Georgia has signed a protocol concerning the accession of Georgia to the treaty establishing the Energy Community of EU and its neighbors in October 2016, ratified by the Parliament of Georgia in spring 2017. With this agreement, Georgia undertook an obligation to synchronize Georgian legislation with EU standards in the energy sector and to do so in short period of time. As Georgia is not directly connected to Energy Community member countries, it is exempt from several directives. However, major changes apply to the market structure in the electricity and natural gas sectors, energy efficiency and environmental law. Energy Community regulations will bring a more competitive and transparent market model to Georgia.

24. **The first step in the reform process was adoption of new laws by the Parliament of Georgia, framing general principles of the market organization.** Later some decrees of the Government and GNERC followed specifying the details of the market organization and transition period. Some uncertainties still remain to be cleared by by-laws, we expect the total framework to be ready by mid-2021. The reforms effect large range of sectors, including electricity and natural gas sectors, renewable energy, energy efficiency, construction, environmental legislations, etc. In this report we will concentrate on the changes applicable for energy sector and effecting the environment of GSE.

25. **The Law on Energy and Water Supply was adopted by the Parliament of Georgia in December 2019.** The Law on Energy defines general principles of market organization, main participants and role sharing. According to the Law on Energy, market reform envisages reform of both wholesale and retail markets. New players will emerge in both markets, with the aim of intensifying competition and weakening industry regulation.

26. **The Electricity Market Design Concept design adopted by the Georgian Government in April, 2020, clarified the organizational details regarding the wholesale market of electricity and set deadlines for implementation of different markets**. Based on the document, both day-ahead market and balancing and ancillary services market should start operation from July 2021, while intraday market should start operation a year later. Based on latest announcements from MOESD and the Georgian Energy Exchange (GENEX), the start of day-ahead market and balancing markets will be postponed to September 2022 instead of July 2021, as originally planned.

27. **GNERC approved detailed rules for wholesale market, including day-ahead market, intraday market and balancing and ancillary services market in August 2020.** The rules define trading, price setting, clearing and settlement details. GNERC approved the rules for retail market of electricity in August, 2020 defining roles and cooperation details between retail market participants.

28. **Based on already approved documents, July 1, 2021 is an important date, as several changes on the market becomes effective from this date**. Based on the recent announcement of the MOESD, the activation of the day-ahead and the balancing and ancillary services market will be postponed to September 2022, but other changes concerning the appearance of new market participants are still in force.

Electricity Sector Institutional Structure

29. The key public institutions in the electricity sector include the following:

- **The Ministry of Economy and Sustainable Development (MOESD)** is responsible for developing and implementing energy policy and the approval of annual energy balances. The Ministry also participates in the approval of strategic projects and is responsible for environmental safety.
- **The Georgian National Energy and Water Supply Regulatory Commission (GNERC)** is responsible for licensing in the energy sector and setting and regulating tariffs for generation, transmission, dispatch and distribution. GNERC also monitors service quality and resolves disputes.
- **The Electricity System Commercial Operator (ESCO)** is responsible for balancing the market and ensuring grid stability. ESCO imports and exports to meet systemic and emergency needs.
- **The Georgian State Electrosystem (GSE)** is the only dispatch licensee in Georgia. GSE supervises the power system to ensure uninterrupted and reliable supply. GSE also operates part of the high-voltage transmission grid and interconnection.
- **The Georgian Energy Development Fund (GEDF)** supports energy projects in Georgia and the region through early project investment.

30. Key private entities include the following:

- **Energo-Pro Georgia** owns about 576 MW of generating capacity and distributes electricity to about 70 percent of Georgia's territory, serving over 860,000 customers. It is a subsidiary of the Czech-based Energo-Pro.
- **Telasi** owns about 523 MW of generating capacity and distributes electricity to the capital city of Tbilisi. Inter RAO and Georgia Best Energy Group own 75 percent and 25 percent of the company respectively, which serves about 490,000 customers.

Electricity Market Structure

Retail Market of Electricity

31. **The retail market for electricity is on a trajectory for a complete transformation to become fully competitive and separated**. Construction of new power plants will reduce its concentration and reliance of few large power plants and improve the competition. Currently, Telasi and Energo-pro Georgia supply electricity to all retail consumers including residential sector, small and medium business and even to some medium sized industrial users, which do not qualify for direct consumer criteria. They have two roles on the market – distribution of electricity to retail consumers and trade (supply) of electricity (buying on wholesale market and reselling to retail market). Distribution of electricity by its nature is a natural monopoly, while power trade can be a competitive activity. Currently both activities of Telasi and Energo-pro Georgia are regulated with the regulated tariff set by GNERC. According to EU legislation, only natural monopolies should be under GNERC's regulation and there should be several power suppliers on the market using the distribution grid of the natural monopolist. On an ideally competitive market this means that two neighbour in the same building, can have a different power suppliers, with different tariff and terms, while both suppliers will be using the same distribution grid and paying the same fee for the service of power distribution and delivery. For Georgian reality this means that Telasi and Energo-pro Georgia will become only distribution licensees and no longer have exclusive supply responsibility. The electricity supply function will be open for new entrants.

32. **At initial stages, GNERC will assign universal supply obligation to certain geographical areas and will set the electricity tariffs for such suppliers.** This step is required in the initial stage of the reform, before emergence of several power suppliers and development of competition on the retail market, in order to avoid price increase from incumbents and to reduce the reform's initial effect on consumers. After emergence of commercial power suppliers on the retail market, universal suppliers' area of consumers will be gradually reduced. Eventually, the universal supplier will supply electricity to a specific group of vulnerable consumers which will be defined and supported by the Government. Potentially, certain category of residential sector and small business will continue paying universal supplier's tariff supported by the Government. Moreover, universal suppliers will enter into contracts for difference with wholesale public service obligation provider (WPSOs functions are explained below), securing universal suppliers' market risks so that their price for vulnerable consumers does not increase.

33. **Under the new market model an entity called last resort supplier will be selected by the Government to safeguard supplier risk for retail consumers**. Last resort supplier will supply electricity to retail consumers in case of bankruptcy or failure of commercial power supplier at pre-established tariff. The tariff as well as the rules applicable to last resort suppliers are established by GNERC.

34. **The reform of retail market will continue after 2021 as well.** According to the Electricity Market Concept consumers with average monthly consumption of 0.4 million kWh and connected to 35-110kV distribution grid will mandatorily be registered as direct consumers and no longer be participants of the retail market. From July 2022 all companies connected to 35-110 kV grid and companies connected to 6-10 kV grid and consuming over 1 million kWh energy per month will join the number of direct consumers and become participants of the wholesale market. Final stage of market deregulation will take place in 2026 when retail sector end-users will be only residential sector and small businesses.

Wholesale Market of Electricity

35. **The wholesale electricity market in Georgia foresees significant reforms**. Besides an increased number of direct consumers in the wholesale market (as described above), the trading principles will also change in the wholesale market and new markets will be introduced. The main game-changer will be the reduction of the settlement period from one month to one hour and the introduction of an imbalance responsibility.

36. **The wholesale market will have the following structure: (a) day-ahead market; (b) intraday market; (c) market for bilateral agreements; and (d) balancing and ancillary services market**. Day-ahead trading (DAM) and ancillary services market will be introduced, together with the imbalance settlement mechanism. Intra-day market will be added a year later. Both day-ahead and intra-day markets will be organized by GENEX and managed by NordPool developed platform. Trading via bilateral agreements will still be allowed, but unlike today's market, the counterparties will have imbalance liabilities. The reform will bring more transparent and market-driven price setting principles - prices on the day-ahead market will be defined by supply-demand curve intersections for each hour of a day, as it is done in the EU.

37. Currently, as there is no functional market, the electricity is traded by either bilateral agreement or ESCO purchases electricity for balancing purposes and from unregulated HPPs (less than 20 MW) and summertime produced electricity by HPPs having PPAs.

38. The new market structure will cover substantial part of power trading and ancillary services, including bilateral agreements.

39. ***Day-ahead market (DAM)*** is an organized auction held a day before actual delivery. Market participants bid on the desired volume and price of electricity they want to sell or buy. The bids and offers form supply-demand curves based on the EUPHEMIA algorithm and a unified market price at the supply-demand intersection is formed for each hour of the delivery day. This price-setting algorithm maximizes the welfare of market participants and encourages market participants to make marginal cost bids. DAM auctions will close every day at a predetermined time and define the price for every 24 hours of the next day.

40. ***Intraday market (IDM)*** is a market where bids and offers are continuously placed and matched on an organized platform. The settlement and payment between the parties are handled by the market operator to ensure the counterparty risk. IDM has no deadlines and electricity can be traded 1 hour prior to the actual generation/ consumption. According to the Electricity Market Concept, IDM will start functioning from July 2022. However, the date can be rescheduled to December due to delays in the market formation process.

41. GENEX plans to be market operator of the bilateral agreements market as well, which will be similar to current market but take more organized form. Buyers and seller will trade standardized contracts on the trading administered by GENEX. Unlike the exchange, buyers and seller will be counterparties of the bilateral trade, as GENEX will not be a central counterparty of the trade.

42. ***GSE will be the operator of the balancing and ancillary services market***. The market will help GSE for optimal system management. These products will create the reserve capacity for emergency situations and imbalance settlement, helping GSE to do optimal (cheapest, effective, timely) balancing of the system in any situation. The purchaser on the market is GSE and sellers are power producers. To access this market, the power plant must meet the predetermined requirements and must be inspected by GSE. The requirements mainly relate to the technical characteristics of the plant, such as power increase time and amplitude, flexibility, etc. Ancillary services may be in form of capacity or energy, respectively contracted in advance or purchased when needed. GSE evaluates the need for reserve capacities and determines the list of balancing and ancillary services products, its purchase sequence and requirements for the market participants. The details of this market and its products are explained in a separate chapter.

43. ***Imbalance settlement mechanism***. When a market participant fails to meet its contractual obligations at a particular hour, it bears responsibility for the resulting imbalance and has to pay the appropriate fee. The fee calculation rule is defined in the market rules and GSE will do the calculation and invoicing. Imbalance settlement is done on a monthly basis for cumulative imbalances for each hour of the previous month. The imbalance settlement mechanism will be activated as soon as DAM and balancing and ancillary services markets start functioning.

44. ***ESCO will serve as Wholesale Public Service Obligation provider (WPSO) on upcoming market***. WPSO will deal with all special groups in Georgia and be their counterparty. In particular, WPSO will remain the off taker of electricity generated by power plants with power purchase agreements (PPAs) with the Government, WPSO will pay any feed-in premiums to power plant owners, WPSO will have contract-for-difference agreements with regulated power plants (expected market prices are much higher that regulated prices of these power plants, therefore ESCO will likely gain profit from these CFDs), WPSO will be responsible to buy electricity for Abkhazian region (currently supplied by Enguri) and to sell energy to universal service providers (supplying electricity to vulnerable groups of retail users) at fixed price. ESCO's upcoming portfolio gives the possibility to balance all the expenses and revenues. If cash flow of ESCO is not enough to cover all the expenses, regulation envisages that either GNERC increases the fees of ESCO, or the Government gives ESCO direct funds to cover these expenses.

Appendix B. GSE Corporate Overview

1. The following summarizes the key milestones since establishment of the company:

- In 2003, within the framework of the "Electricity Market Support Project" GSE's management rights are transferred to International Company ESBI INTERNATIONAL under the 5-year performance-based management contract. The project was completed in 2007, with Georgian directorate taking over the management of the company.
- In 2004, due to the continuous substantial operating losses and sustained severe liquidity problems, the management announced insolvency and applied for rehabilitation. Company was granted rehabilitation for a period of 18 months.
- In 2006, the Company presented a financial rehabilitation plan. The Court approved the plan, terminating bankruptcy proceedings and granting the Company a period of 15 years to achieve rehabilitation.
- In 2006 Electricity Market(Capacity) Rules come into effect, which enables GSE to conclude direct agreements with qualified companies, which positively contributed to the Company's financial condition.
- In 2008 a new revised rehabilitation plan for GSE enters into effect, based on which the accounts payable to creditors are postponed for 15 years (under the condition of payment in increments).
- In 2009, Complex rehabilitation Program for high voltage substations and transmission line of GSE enters into effect.
- In 2011, GSE becomes a joint stock company, and state-owned Partnership Fund (100 percent owned by the Government of Georgia) becomes its 100 percent shareholder.
- In 2013 Black Sea Transmission Network Project is completed. Georgian and Turkish energy systems become interconnected with a new 400kV transmission line.
- In 2013, Construction of high voltage double-circuit 220 kV transmission line Senaki 1,2 is completed.
- In 2015, A Ten-Year Network Development Plan (2015-2025) is elaborated and approved in 2016, Construction of Marneuli-500, Jvari-500, Khorga-220 substations is completed.
- In 2020, LEPL National Agency of State Property becomes the owner of 100 percent of the shares of GSE.
- In 2020, GSE is awarded the license to operate the electricity market for the balancing and ancillary services market segment.
- In 2020, Rehabilitation regime of GSE is successfully completed. The company fully repaid the financial obligations of the creditors under the rehabilitation plan.
- In 2021, the merger of GSE and its subsidiary – Energotrans Ltd takes place.
- In May 2021, GSE gets new license from regulator as electricity transmission system operator, license N 008, effective after July 1, 2021. As a result of this license, GSE will become single transmission system operator in the country.

2. To date, GSE provides overall coordination of the country's electricity system and balancing of electricity supply and demand. The company also regulates the exchange of electricity with neighboring countries and is actively cooperating with network operators in neighboring countries.

3. As the company is the only dispatch licensee in the country, it is responsible for balancing power supply and demand, and is also responsible for reliable power supply in real time. To perform repairs, the company implements the scheduled outages of system-wide transmission lines and substations, and temporarily restricts the power supply, if necessary. The company develops relay protection schemes and analyses accidents in the network.

4. To use energy resources optimally, the National Dispatch Centre located at GSE headquarters coordinates the activities of electricity market participants. It also manages the transmission network in standard and emergency situations.

5. The company has the overhead electric network and substations as assets concerning electricity transmission. Overhead electric network sizes and lengths are the following:

- 500 kV – 268 km
- 400 kV – 32 km
- 220 kV -1,644 km
- 110 kV - 925 km
- 35kV - 565 km

6. As for the substations:

- 500 kV – 5 substations – 4,647 MVA
- 500/400/220 – 1 substation – 1,346 MVA
- 220 kV – 18 substations – 5,252 MVA
- 110 kV – 27 substations – 504 MVA
- 35 kV – 42 substations – 189 MVA

7. GSE's activities are regulated by Georgian Legislation, specifically by the Georgian Law on Energy and water supply, Market Rules, Grid Code and other relevant normative acts issued based on the abovementioned legislation by the Regulatory Authority and Georgian Government.

8. GSE obtained Electricity Market Operating License for the Balancing and ancillary services market segment in December 2020, issued by the Georgian Regulatory Authority (Georgian National Energy and Water Supply Regulatory Commission). The balancing and ancillary market will start operating at its full capacity from January 2022. The market will be run by GSE using a special web-platform and software. Currently, GSE trains market participants and tests the web-platform with respective software. GSE will buy different products of ancillary services from prequalified market participants using this platform. GSE has already qualified market participants for ancillary services market according to predefined prequalification criteria. The price of ancillary services will depend on the offer made by market participants. It is impossible to predict the pricing strategies of market participants, therefore it is hard to decide what will be the total cost of ancillary services for GSE. The activation of ancillary services is GSE's prerogative, their decision is based on system's needs, technical capabilities of power plants, their Geographic location and the bid made by market participants on balancing and ancillary services market. The reimbursement of expenses GSE will have to pay for all the contracted capacity and energy traded on the balancing and ancillary services market will be done through GSE's tariff. This activity of GSE (trade with ancillary services) will have zero profit margin, according to the tariff methodology approved by GNERC on May 13, 2021.

Appendix C. GSE Tariff Methodology

1. Tariff for transmission system operator (TSO) is calculated by GNERC based on transparent tariff methodology. Based on GNERC's latest document on regulated tariffs - Decree N 8 dated May 13, 2021, the tariff of TSO is calculated for 5-year period. The current tariff period is 2021-25.

2. Tariff of TSO is calculated by division of Regulatory Cost Base of tariff period with the total electricity consumption (which pays TSO tariff). The TSO tariff is paid by all wholesale consumers, including distribution licensee, direct consumers and exporters, excluding Abkhazian region.

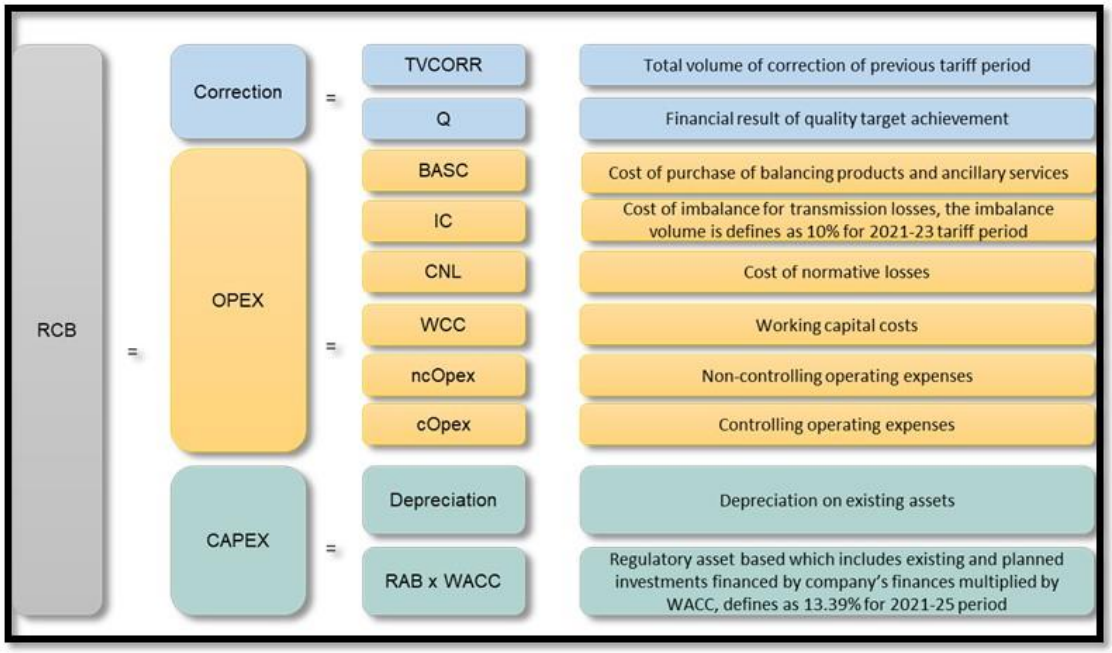
3. Regulatory Cost Base (RCB) of TSO is a combination of capital expenses, operational expenses and correction component from previous tariff period. All of these expenses also include several components, e.g. Capital Expenses include return on regulated assets and depreciation, operating expenses include controllable and uncontrollable operating expenses, cost of working capital, cost of normative losses, cost of imbalance and cost of purchase for ancillary services and balancing energy. The correction component comprises financial result of the quality target achievement, as well as the total volume of corrections associated to difference between actual expenses and expenses considered in previous tariff period. Notably, not all tariff components (e.g. controlling operating expenses) are subject to correction in next tariff periods.

4. The full formula of RCB with detailed explanation of each component is provided below:

Formula: Regulatory Cost Base for capital intensive companies, like TSO

RCB t+i = CAPEXt+i + cOPEXt+i + ncOPEXt+i + CNLt+i +ICt+i +BASCt+i + WCCt+i + TVCORRt+i +/- Qt+i

Figure C.1: GSE Tariff Components



Capital expenses (CAPEX)

5. CAPEX has two components: depreciation and return on regulatory asset base (RAB). The depreciation and amortization rates and principles are set by GNERC for each asset category. Regulatory Asset Base includes assets which were on the Company's balance sheet at the moment of tariff calculation as well as the assets to be commissioned in the future during the tariff period. Importantly, GNERC does not include working process assets into the RAB. The investment plan of the regulated Company is agreed with GNERC separately, according to different decrees of GNERC.

6. The return on RAB is calculated based on weighted average cost of capital (WACC). The WACC components are defined by GNERC for each tariff period, without any consideration of Company's actual figures. For tariff period 2021-25 WACC used is 15.39 percent for regulated companies. For 2018-20 tariff period WACC used in tariff calculation was 16.4 percent, while for years 2014-17 the WACC was 13.54 percent. Debt-to-equity ratio was fixed at 60/40 for 2014-25 tariff periods and cost of debt and cost of equity were main variables. In case of cost of equity, primary variable over different tariff periods was risk-free rate, market risk premium and country risk premiums.

Table C.1: WACC History over Different Tariff periods and its Components

Name of tariff component	Abbreviation	2021-25	2018-20	2014-17
Share of Debt	g	60%	60%	
Cost of debt	Rd	13.19%	12.93%	
Cost of short-term debt	rsd	12.13%	11.01%	
Risk free rate	Rrf	10.24%	12.22%	
Default risk	ds	3.53%	4.16%	
Country risk	cr	4.41%	5.12%	
Beta	beta	0.86	0.84	
Market Risk Premium	mp	5.55%	6.17%	
Cost of equity	R(equity)	15.89%	18.36%	
Tax rate	T	15%	15%	
Weighted average cost of capital	**WACC**	**15.39%**	**16.40%**	**13.54%**

Source: GNERC, Matsne: Note: over 2014-17 WACC formula was slightly different, much easier, without detailed components for cost of equity.

Operating expenses (OPEX)

7. There are two types of operating expenses - controllable (cOPEX) and uncontrollable (ncOPEX). ncOPEX includes expenses that are not under the control of the Company, such as taxes (property, land) and utility costs. While cOPEX includes salaries, office expenses, and other expenses which are under control of the regulated Company. The Commission forecasts ncOPEX based on future plans of the Company, while cOPEX is calculated based on special formula and procedure. Difference between actual and planned ncOPEX is subject to correction in the next tariff period, while the Commission does not monitor actual figures of cOPEX during the tariff period.

8. GNERC calculates controllable operating expenses (cOPEX) in the following way: the previous year of the Tariff Calculation Year is taken as the base year (the base year for 2021-25 was 2019). This year's operating expenses are audited and the results of audit are considered as baseline for future operating expenses. For each year of tariff period, the baseline OPEX is increased by inflation and decreased by the efficiency factor. Efficiency factor for the 2021-25 tariff period was assumed to be 1.5 percent, while inflation was assumed at 3 percent for 2022-25 period, at 2.5 percent for 2021 and at 5.48 percent for 2020 (the inflation is capped at 5.0 percent only for

salaries). The difference between actual and planned cOPEX is not considered in correction part of the next tariff period. cOPEX is corrected only to the extent which is caused by the difference between the actual and planned inflation rates. This gives incentive to regulated power plants to reduce the cOPEX and increase profitability.

9. Controllable OPEX might also include some expenses which were not relevant in baseline year, but based on available information will become relevant in the future. These expenses are called special OPEX (spOPEX). In case of difference between planned and actual spOPEX the commission will include this difference in correction component, as in case of ncOPEX.

Other components of RCB

10. Cost of working Capital (WCC). Working capital cost is the volume of working capital multiplied by the short-term loan interest rate, which for the 2021-25 tariff period is defined at 12.13 percent by GNERC. The formula for calculating volume of working capital follows general IFRS rules. The only exception is that GNERC sets permissible terms for repayment of receivables and payables.

11. Cost of normative losses (CNL) is the volume of expense needed to purchase the normative losses during the tariff period. Transmission loss is the difference between the electricity received in the transmission grid and electricity delivered to consumers. There is predetermined (normative) share of the loss in overall received energy. Based on GNERC's decree N 34 (dated December 12, 2017), normative loss for GSE for the 2021-25 tariff period is set at 1.76 percent. GSE purchases this transmission losses on the market. Currently ESCO is the supplier of GSE, charging by the price of balancing electricity. As the day-ahead and intraday markets become operational GSE will procure transmission losses on these markets and take responsibility on imbalances of the transmission losses. The cost of normative loss is not subject to correction in next tariff period based on difference between planned and actual volumes of the transmission losses. The difference, caused by the price of normative loss, not by the volume of it, is incorporated into the correction component of next tariff period.

12. The Imbalance Cost (IC) is separate components of the RCB. The imbalances of transmission losses, to be purchased by TSO on the future markets will be calculated based on the historic data. Before that, in first years of market reform, tariff methodology will consider imbalance of transmission losses at 10 percent and assume cost of imbalance at some reasonable rate. This component is not yet incorporated into the tariff of GSE, therefore when TSO tariff is recalculated, this component should be added to the RCB. At initial stages of reform the imbalance cost will be fully subject to correction in the next tariff period. Whereas for the second tariff period, correction will only take place in case of price deviation. Reduction of the volume of imbalances will be incentivized by not correcting this component in future tariff periods.

13. Balancing and Ancillary Services Cost (BASC) is the expenses which TSO will have in order to purchase ancillary services and balancing products on the market. The potential calculation of this component is explained in detail in the financial analysis report. The BASC will be subject to correction for the next tariff periods.

Correction

14. Tariff of regulated activities is adjusted by the correction component from the previous tariff period. The correction might happen due to difference between the planned and actual figures of some RCB components and for the variation of transmitted electricity volume. Therefore, tariffs are subject of correction for the following tariff components:

- Volume of electricity transmitted
- Capital expenses CAPEX
- Uncontrollable operating expenses - ncOPEX
- Certain part of controllable operating expenses - spOPEX
- Cost of normative losses, only with the difference caused by the purchase price.
- Cost of imbalance
- Balancing and Ancillary Services Cost (BASC)

15. Correction component is generally added to the RCB during calculation of the tariff for the next regulated period. Tariff correction can also take place within the tariff period, if one of the following criteria are met:

- If the correction volume caused by volume of transmitted electricity, price of normative loss, purchase of balancing energy and ancillary services cumulatively exceed 7 percent of predetermined RCB, the regulated Company has the right to request tariff revision within the tariff period. GNERC has an obligation to review the application and if necessary make adjustments to already approved tariff;
- 10 percent difference between the actual investments of the regulated Company and planned average, can be a trigger for a tariff revision.

16. Based on this tariff methodology, it would be noteworthy to underline three following points:

- ***Tariff is set for five years***. Due to the instability of macroeconomic parameters, namely exchange rate (foreign components have significant effect on Capex and Costs), the correction of tariff may become necessary in shorter time span than 5 years, to ensure the same rate of return on the capital of the Company, as indicted in the methodology. Besides, 5- year tariff horizon may potentially be problematic for ancillary and balancing services since there is no cost history and regulatory tariff may end up being way too high or way to low compared to actual expenses.
- ***The assumption of the GNERC that WACC covers foreign exchange risks because risk free rate set by NBG covers inflation is not accurate***. Inflation and exchange rate are different macroeconomic parameters (although positively correlated) and their fluctuation rates vary. Therefore, it would be advisable, if in addition to manually managed hedging procedures used by GSE, are enhanced by GNERC by allowing annual adjustment of the tariff to absorb exchange rate risks. (Note, that due to the lack of standardized financial instruments, it is not possible to hedge FX risk of GEL on the market. Non-standardized hedging products from local banks is an expensive choice).
- ***Tariff methodology calculates annual capital expenses based on the normative depreciation of assets***. However, booked depreciation rate does not coincide with actual capital expenses. This should be also taken into account.

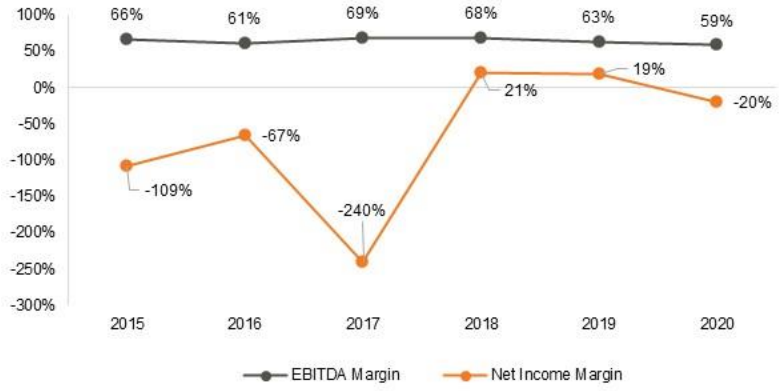
Appendix D. Historical Financials of GSE

Table D.1: GSE's Other Operating Expenses

'000 GEL	2015	2016	2017	2018	2019	2020
Lost Electricity Cost	-	-	-	22,157	29,561	36,990
Fines on non-repayment of loans	-	-	664	4,961	8,337	1,790
Taxes other than on income	7,807	8,364	8,680	6,509	5,675	6,691
Security Expenses	1,619	1,989	-	2,704	2,894	3,140
Audit and Consultation Expenses	835	1,129	2,243	7,002	2,308	1,742
Transportation Costs	1,014	1,044	1,407	1,753	1,858	1,464
Business trip expenses	1,234	1,274	1,762	1,579	1,776	1,200
Insurance Expenses	849	966	606	1,196	1,654	1,889
Maintenance and repair expenses	1,013	1,378	1,205	750	1,304	604
Penalties	(72)	85	2,278	1,424	769	643
Other	7,853	15,176	10,653	3,843	8,272	5,856
Total	**22,152**	**31,404**	**29,498**	**53,878**	**64,408**	**62,009**

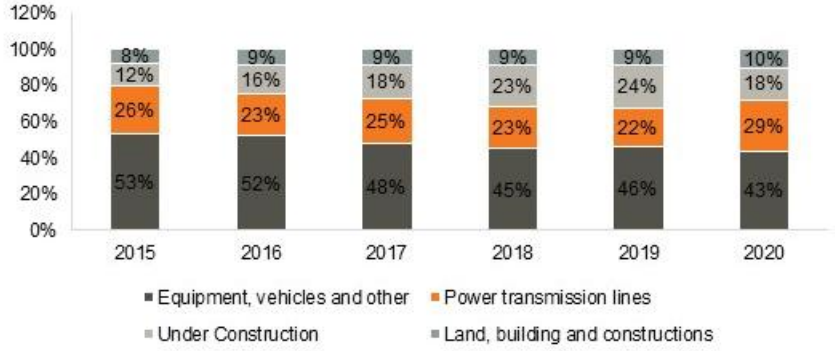
Source: GSE audited annual financial statements.

Figure D.1: GSE Revenue and Profitability 2015-2020 (GEL '000)



Source: GSE audited annual financial statements.

Figure D.2: GSE PP&E by Categories



Source: World Bank based on inputs from external consultant.

1. **The Company suffered heavy impairment losses in 2017-2019 period which ultimately hindered increase of NBV of property and equipment**. Investments in EnergoTrans' equipment that was built to facilitate electricity transit to Turkey through Georgia was included in Tariff by the factor of only 17 percent. Resulting low tariff, in conjunction with lower-than-expected demand for Electricity Transit to Turkey resulted in EnergoTrans falling short of budgeted cash-flows for these activities. This prompted impairment test for the Cash Generating Unit (CGU). It was found that carrying amount of the CGU of GEL 535,480 thousand was higher than its recoverable amount of GEL 285,363 thousand and respective impairment loss of GEL 250,117 thousand was allocated to the CGU on pro-rata basis. Impairment losses amounted to GEL 42,705 in 2018 and GEL 5,038 thousand in 2019, caused by similar reasons as described previously. Inclusion of Energotrans' assets into new tariff by factor of 100 percent prompted change in budgeted cash-flows for electricity transit. This resulted in reversal of prior Impairment Losses in the amount of GEL 167,994 thousand in 2020.

2. **The long-term trade and other receivables are fully connected with VAT receivables connected to The Black Sea Transmission Network (BSTN) Project** which was aimed at creating 700 MW capacity interconnection between the 500 KV network of Georgia and 400 KV network of Turkey. The project was supported by international donor organizations including: EC NIF, EBRD, EIB, KfW. It started in 2009 and was finalized in 2013. Major construction works resulted in a significant VAT receivable, which has been used against VAT taxes payable. The receivable amounted to GEL 24,078 thousand in 2015 and has been used fully since.

3. **The company inventories have increased by 179 percent over 2015-2020 period and amounted GEL 20,492 thousand**. These assets mostly represent spare parts acquired for repair and maintenance of company property and equipment as well as fuel. Construction contracts for the company fixed assets frequently include clauses for provision of spare parts connected with scheduled repair and maintenance for the upcoming period. The expansion of company's PP&E has resulted in increase of inventories for the past several periods.

4. **In 2015-2020, the company's shareholder injected substantial capital into the company through purchase of newly issued shares.** These injections were aimed at supporting the company with several projects, notably – Akhaltsikhe–Batumi; Jvari-Khorga; Ksani-Stepantsminda. Common shares were paid off with either cash or through injection of assets. Cash injections were aimed at partial co-financing of assets and repayment of taxes.

5. The unregistered capital comprises contributions of assets made by shareholders which are in the ownership of the company but have not been registered in the company's charter, as well as any difference between the registered amount of share capital and the fair value of the assets contributed by the shareholders. The unregistered capital amounted to GEL 11,259 thousand in 2016, which was 80 percent increase from 2015. There have been no changes in unregistered capital in 2016-2019 period.

6. **GSE's current liabilities are driven by debt service costs of long-term sovereign-guaranteed loans taken to finance capital expenditure program.** Current portion of loans and borrowings represent interest bearing liabilities with remaining maturity of less than 1 year. This item has grown from GEL 99,666 to GEL 172,842 (73 percent increase) over 2015-2020 period. On average this line item has represented 21 percent of total assets, in 2020 this figure stood at 13 percent.

Table D.2: Current Liabilities of GSE

Current Liabilities	2015	2016	2017	2018	2019	2020
Current portion of Unsecured Loans from financial Institutions	79,861	130,199	399,918	515,168	61,434	172,841
Current portion of Secured loans from financial Institutions	8,845	9,570	9,488	2,327	12,150	1
Current portion of Secured loan from related party	10,960	11,101	34,875	30,640	-	-
	99,666	**150,870**	**444,281**	**548,135**	**73,584**	**172,842**

Source: World Bank based on inputs from external consultant.

7. Over 2015-20 period, on average 89 percent of these liabilities has been current portion of unsecured loans from financial institutions. Current portion of secured loan from related party (MOF) has averaged at 6 percent of this line item, while current portion of secured loans from financial institutions – 5 percent.

8. In 2017 and 2018 the company was in breach of IBRD covenant according to which the ratio of company's current assets with current liabilities should not fall below 1. This has caused reclassification of loans and borrowings to current portion in the amount of GEL 125,367 thousand in 2018. (2017: GEL316,009 thousand).

9. Due to cash shortages EnergoTrans was late on payment of KfW and EBRD loan, these loans were not restructured either. This triggered the event of default which caused reclassification of GEL385,287 thousand to current liabilities in 2018. (2017: GEL 276,166 thousand).

10. These events have been the reason behind sharp increase of current liabilities in 2017 and 2018. These liabilities have since been restructured with the respective financial institutions, which caused their reclassification to non-current assets.

Table D.3: GSE's Outstanding Long-term Debts

000' GEL	2016	2017	2018	2019	2020
Opening balance of Loans and Borrowings	**769,766**	**941,597**	**1,054,283**	**993,244**	**1,002,442**
Proceeds from borrowings	145,160	81,056	32,381	14,856	27,603
Repayment of borrowings on loans borrowed before 2020	(48,537)	(53,290)	(52,628)	(31,439)	(50,031)
Interest expense	19925	21280	20,940	19,373	22,955
Capitalized borrowing cost	2,361	3,331	5,521	6,813	7,366
Interest paid	(16,190)	(17,900)	(21,246)	(30,296)	(12,108)
Modification of gain on loan	-	-	-	(21,574)	(1,263)
The effect of changes in foreign exchange (gain)/loss (balancing)	*69,112*	*78,209*	*(1,383)*	*51,465*	*225,828*
Difference arising due to 2020 Audit Reclassifications[24]	-	-	*(44,624)*	-	-
Closing balance of Loans & Borrowings:	**941,597**	**1,054,283**	**993,244**	**1,002,442**	**1,222,791**

Source: World Bank based on inputs from external consultant.

Table D.4: GSE's Restructured Liabilities

000 GEL	2015	2016	2017	2018	2019
Payables to State Budget	65,192	58,622	48,995	35,029	19,207
Trade Payables	27,885	28,593	28,765	28,936	7,093
Loans and Interest Accrued	4,196	3,983	3,586	2,572	7,289
	97,273	**91,198**	**81,346**	**66,537**	**53,589**
Amortized Cost Adjustment	(30,818)	(24,781)	(18,471)	(12,663)	(7,838)
Balance at 31 December	**66,455**	**66,417**	**62,875**	**53,874**	**45,751**
Current Liabilities	7,000	10,000	15,000	40,648	19,594
Non-current Liabilities	59,455	56,417	47,875	18,343	26,157
Balance at 31 December	**66,455**	**66,417**	**62,875**	**59,031**	**45,751**

Source: World Bank based on inputs from external consultant.

11. All of Company's loans and borrowings are denominated in foreign currency, with 75 percent being in EUR and the remaining 25 percent in US$.

Table D.5: GSE's Loans

000 GEL	Currency	Interest Rate	Year of Maturity	Carrying Value 2020	Carrying Value 2019
Unsecured Loans from Financial Institutions:					
MOFG-KfW	EUR	KfW Ref.Rate+4%	2028	322,589	243,598
MOFG-KfW	EUR	2.20%	2025	80,009	73,937
MOFG-EIB	EUR	Euribor+0.75%	2033	252,370	203,514
MOFG-EBRD	EUR	Euribor+1%	2025-2028	186,854	162,850

[24] 2020 Year End audit has performed several reclassifications that has affected opening balances of 2019 Borrowings. This has caused a discrepancy between closing balance as per 2018 Audited Financial Statement and 2019 Opening Balance as presented in 2020 Audited Financial Statement.

000 GEL	Currency	Interest Rate	Year of Maturity	Carrying Value 2020	Carrying Value 2019
MOFG-KfW	EUR	1%-1.5%	2025-2037	29,162	26,071
MOFG-ADB	USD	1%-1.5%	2044	146,327	124,929
MOFG-IBRD	USD	World Bank Lending Treasury Rates	2038	163,603	139,711
MOFG-IBRD	EUR	Variable Int.Rate	2044	21,716	497
MOFG-KfW (New)	EUR	0.25%-0.05%	2032	5,413	4,318
MOFG-KfW	EUR	Variable Interest Rate with a fixed interest option - EURIBOR+0.35%	2034	49	-
Secured Loans from Financial Institutions:					
MOFG-IDA	USD	World Bank Lending Treasury Rates	2022	-	2,095
Secured Loans from Related Party:					
MOFG	EUR	7.50%	2029	14,699	20,922
				1,222,791	**1,002,442**

Source: GSE's audited financial statements.

Table D.6: Statement of Profit and Loss

000'GEL	2015	2016	2017	2018	2019	2020[25]
Revenue	104,341	120,159	133,370	227,050	235,010	181,865
Other income	10,071	9,453	14,030	9,767	7,647	14,656
Wages and salaries	(23,023)	(24,461)	(26,051)	(27,565)	(31,075)	(27,979)
Other operating expenses	(22,152)	(31,581)	(29,498)	(53,878)	(64,406)	(62,009)
EBITDA[26]	**69,237**	**73,570**	**91,851**	**155,374**	**147,176**	**106,533**
Provision Expense	-	-	-	-	-	(8,080)
Impairment of property and equipment	-	-	(250,117)	(42,705)	(5,039)	167,995
Depreciation and amortization	(50,350)	(51,801)	(56,010)	(46,924)	(45,121)	(47,362)
Results from operating activities	**18,887**	**21,769**	**(214,276)**	**65,745**	**97,016**	**219,086**
Finance income	2,639	3,214	2,744	7,779	24,489	15,689
Finance costs	(136,695)	(96,756)	(108,792)	(26,739)	(77,435)	(260,514)
Net finance costs	**(134,056)**	**(93,542)**	**(106,048)**	**(18,960)**	**(52,946)**	**(244,825)**

[25] The included consolidated financial statements for 2020 are based on preliminary audit figures that could be subject to change in signed audit report.

[26] We have adjusted EBITDA metric to exclude Impairment Losses/Reversal of Impairment and Provision Expenses. We believe adjusted EBITDA better represents results from operations and serve a better proxy for Cash Generating Ability through Operations, due to the fact that prior mentioned items have non-recurring, inconsistent nature and represent non-cash items.

000'GEL	2015	2016	2017	2018	2019	2020[25]
Profit before income tax	**(115,169)**	**(71,773)**	**(320,324)**	**46,785**	**47,070**	**(25,739)**
Income tax expense	1,117	(8,250)	-	-	-	(10,350)
Profit for the year	**(114,052)**	**(80,023)**	**(320,324)**	**46,785**	**44,070**	**(36,089)**

Source: GSE's audited financial statements.

Table D.7: Statement of Financial Position

000' GEL	2015	2016	2017	2018	2019	2020[27]
ASSETS						
Non-current assets						
Property Plant and Equipment	1,012,080	1,170,354	1,002,179	980,437	1,004,554	1,177,359
Intangible assets	1,189	1,489	2,243	5,922	10,680	18,107
Prepayments for non-current	39,261	20,590	9,895	20,787	6,244	25,842
Deferred tax assets	9,872	-	-	-	-	-
Trade and other receivables	24,078	14,796	7,458	6,140	1,143	-
Investments	-	-	-	-	4,874	4,877
Total non-current assets	**1,086,480**	**1,207,229**	**1,021,775**	**1,013,286**	**1,027,295**	**1,226,185**
Current assets						
Inventories	7,347	6,988	6,629	12,944	14,678	20,492
Trade and other receivables	35,227	31,818	20,373	27,961	29,514	29,334
Prepayments to suppliers	362	1,035	4,303	30,466	36,072	30,934
Cash and cash equivalents	15,081	25,275	47,295	71,016	101,157	79,685
Total current assets	**58,017**	**65,116**	**78,600**	**142,387**	**181,421**	**160,445**
Total assets	**1,144,497**	**1,272,345**	**1,100,375**	**1,155,673**	**1,208,916**	**1,386,630**
EQUITY AND LIABILITIES						
Equity						
Share capital	574,422	599,984	639,052	642,677	645,065	662,583
Unregistered capital	6,259	11,259	11,259	11,259	11,259	2,098
Foreign currency translation	269	555	515	473	430	478
Addition paid in capital	-	-	-	-	11,680	11,680
Accumulated deficit	(427,929)	(507,952)	(828,276)	(716,317)	(672,247)	(758,431)
Total equity	**153,021**	**103,846**	**(177,450)**	**(61,908)**	**(3,813)**	**(81,619)**
Non-current liabilities						
Deferred tax liabilities	1,622	-	-	-	-	-
Loans and borrowings	670,100	790,727	610,002	445,108	928,858	1,049,949
Restructured liabilities	59,455	56,417	47,875	40,648	19,594	-
Grants related to assets	104,296	108,533	107,797	107,179	102,736	97,250
Other tax liabilities	1,646	1,618	-	-	-	-
Provisions	-	-	-	-	-	8,080
Total non-current liabilities	**837,119**	**957,295**	**765,674**	**592,935**	**1,051,188**	**1,155,279**
Current liabilities						
Loans and borrowings	99,666	150,870	444,281	548,136	73,584	172,842

[27] The included consolidated financial statements for 2020 are based on preliminary audit figures that could be subject to change in signed audit report.

000' GEL	2015	2016	2017	2018	2019	2020[27]
Trade and other payables	43,395	46,038	47,939	54,760	58,963	135,698
Restructured liabilities	7,000	10,000	15,000	18,383	26,157	-
Grants related to assets	4,296	4,296	4,931	3,366	2,835	4,430
Total current liabilities	**154,357**	**211,204**	**512,151**	**624,645**	**161,539**	**312,970**
Total liabilities	**991,476**	**1,168,499**	**1,277,825**	**1,217,580**	**1,212,727**	**1,468,249**
Total equity and liabilities	**1,144,497**	**1,272,345**	**1,100,375**	**1,155,672**	**1,208,914**	**1,386,630**

Source: GSE's audited financial statements.

Table D.8: Statement of Cash Flows

000'GEL	2015	2016	2017	2018	2019	2020[28]
Cash flows from operating activities						
Profit before income tax	(115,169)	(71,773)	(320,324)	46,785	44,070	(25,739)
Adjustments for:						
Depreciation and amortization	50,350	51,801	56,010	46,924	45,121	47,149
Impairment loss on property and equipment	-	-	250,117	42,705	5,038	(167,995)
Loss from disposal and write-off of property and equipment	750	6,044	10,281	7,441	4,751	3,128
Provision for Abnormal Costs	-	-	-	-	-	8,080
Net finance costs	134,056	93,542	106,048	18,960	52,946	244,826
Other Income from Write-off of restructured liabilities	-	-	-	-	-	(8,442)
Income from amortization of grants	(4,638)	(4,377)	(4,979)	(4,970)	(4,988)	(4,681)
	65,349	**75,237**	**97,153**	**157,845**	**146,938**	**96,326**
Changes in:						
Inventories	307	359	359	(6,315)	(1,056)	(5,741)
Trade and other receivables	1,541	14,969	16,679	(6,176)	3,014	1,814
Grants related to assets	29,281	8,614	4,878	2,788		-
Prepayments to suppliers	8,515	(673)	(3,268)	(456)	(5,793)	(8,080)
Other tax liabilities	(93)	(30)	-	-	-	-
Trade and other payables	(4,677)	(6,041)	(1,147)	12,330	457	(8,254)
Restricted cash	108	-				-
Cash flows from op. before int. paid	**100,331**	**92,435**	**114,654**	**160,016**	**143,560**	**76,063**
Interest paid	(16,765)	(16,190)	(17,900)	(21,246)	(30,296)	(12,108)
Net cash from operating activities	**83,566**	**76,245**	**96,754**	**138,770**	**113,264**	**63,957**
Cash flows from investing activities						
Interest received	2,639	3,214	2,744	6,636	14,595	14,425
Proceeds from sale of property and equipment	-	-	-	-	-	-

[28] The included consolidated financial statements for 2020 are based on preliminary audit figures that could be subject to change in signed audit report. Any changes between preliminary audit and signed audit figures shall be integrated into Deliverable 3 of the project.

000'GEL	2015	2016	2017	2018	2019	2020[28]
Acquisition of property and equipment and intangible assets	(129,888)	(160,368)	(133,873)	(88,458)	(64,367)	(48,895)
Net cash used in investing activities	**(127,249)**	**(157,154)**	**(131,129)**	**(81,822)**	**(49,772)**	**(34,470)**
Cash flows from financing activities						
Proceeds from borrowings	71,662	145,160	81,056	32,381	14,856	27,603
Repayment of restructured liabilities	(5,761)	(7,000)	(10,387)	(15,000)	(17,000)	(30,625)
Repayment of borrowings	(40,512)	(48,537)	(53,290)	(52,628)	(31,439)	(50,031)
Proceeds from Grants	-	-	-	-	17	144
Proceeds from issue of share capital	4,000	-	38,540	1,900	-	
Net cash used financing activities	**29,389**	**89,623**	**55,919**	**(33,347)**	**(33,566)**	**(52,909)**
Net increase in cash and cash eq.	**(14,294)**	**8,714**	**21,544**	**23,601**	**29,926**	**(23,422)**
Cash and cash equivalents at 1 January	31,127	15,081	25,275	47,295	71,016	101,157
Effect of exchange rate fluctuations on cash and cash equivalents	(1,752)	1,480	476	120	215	1,950
Cash and cash eq. at 31 December	**15,081**	**25,275**	**47,295**	**71,016**	**101,157**	**79,685**

Source: GSE's audited financial statements.

Appendix E. Benchmarking of GSE to Other TSOs

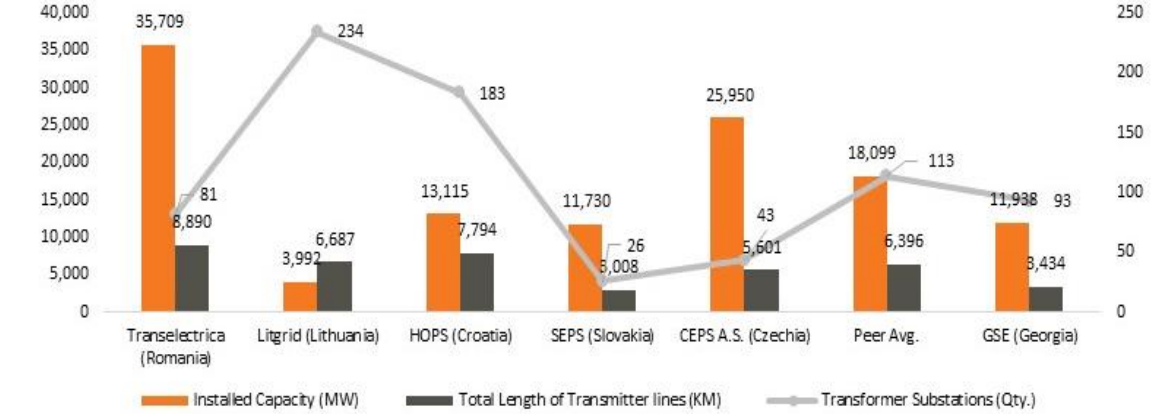
1. Electricity transmission business is PP&E intensive. Total PP&E and IA averaged at 84.5 percent of total assets for the peer group. GSE sits close to this figure with 84.0 percent.

Table E.1: Assets of Comparator TSOs in 2019, GEL '000

'000 GEL	Transelectrica	Litgrid	HOPS	SEPS	CEPS A.S.	Peer Avg.	GSE
PP&E & IA	2,324,445	1,050,906	2,701,367	2,760,321	5,087,454		1,015,234
PP&E as a % of Total Assets	*73.7%*	*86.8%*	*90.1%*	*81.2%*	*90.9%*	*84.5%*	*84.0%*
Trade Receivables	474,116	53,804	106,906	136,917	115,489		29,514
TR as a % of Total Assets	*15.0%*	*4.4%*	*3.6%*	*4.0%*	*2.1%*	*5.8%*	*2.4%*
Total Assets	**3,155,058**	**1,211,166**	**2,997,056**	**3,398,158**	**5,598,708**		**1,208,916**

Source: Galt & Taggart.

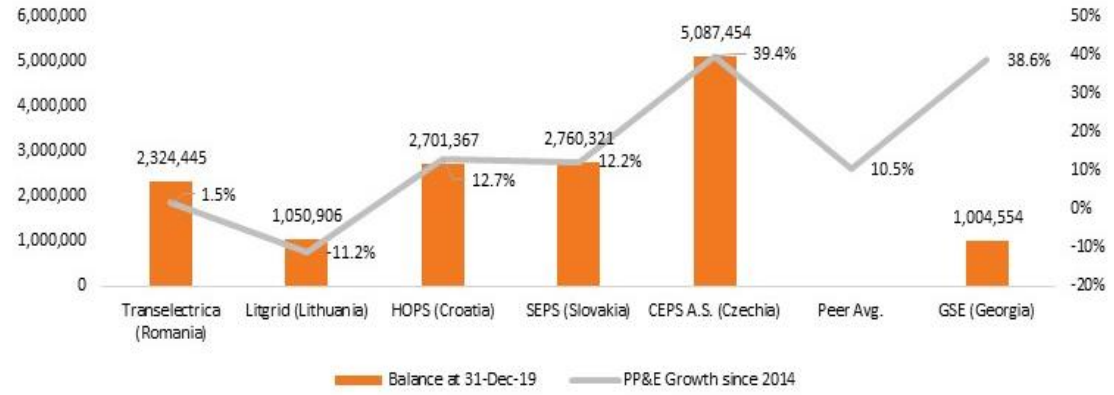
Figure E.1: Transmission Assets of Comparator TSOs



Source: Galt & Taggart.

2. The difference in scale can easily be explained by the total area of countries in which the peer companies reside, as well as the size of the economy. These factors affect the length of transmission lines, while size of the economy and especially industrial sector affects total consumption, thus installed capacity of transformer substations. As noted from the chart above, only Lithuania's Litgrid has lower installed capacity of 3,992 MW as compared to GSE's 11,938 MW. While in terms of the total length of transmission lines, only SEPS lags behind GSE with 3,008 km as opposed to 3,434 km.

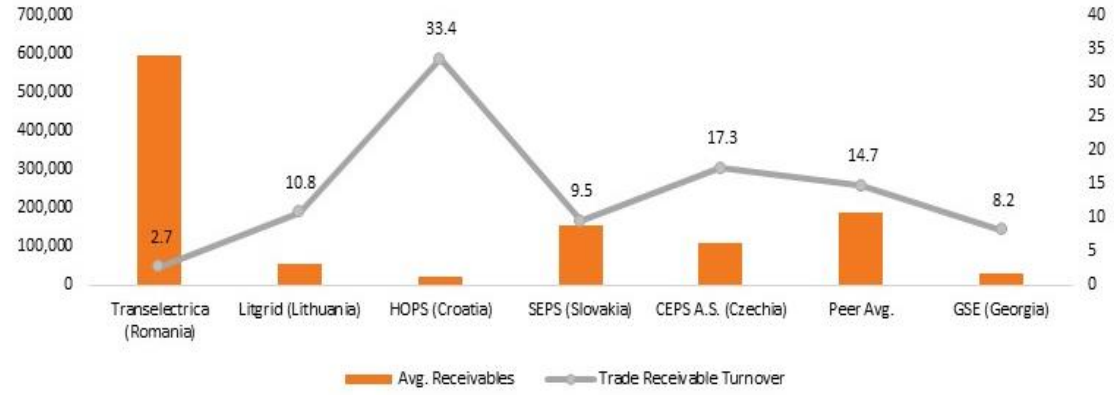
Figure E.2: Figure 1: PP&E Balance and Growth



Source: Galt & Taggart.

3. As seen from the figure above, on average peer group's PP&E has grown by 10.5%[29] since 2014. Compared to this figure, GSE's PP&E balance has increased by 38.6%[30]. Over the past few years GSE has performed significant renovation and broadening to its property and equipment, which has resulted in the abovementioned growth. The necessity for the prior mentioned investments has stemmed from economic growth of Georgia, which has spurred growth in consumption of electricity.

Figure E.3: Receivables Collection



Source: Galt & Taggart.

4. The Company trade receivables amounted to 2.4 percent of total assets in 2019 which is well below the average metric for the peer group of 5.8 percent. In Absolute terms, the Company has the smallest Trade Receivables and 2nd smallest Average Trade Receivables. This again indicates at the scale difference between businesses, which is natural due to size discrepancies between the countries mentioned above.

[29] HOPS' PP&E Growth has been excluded from calculation of average. The reason behind this was the fact that due to unavailability of information, 3 year growth has been obtained, instead of 5 year growth.

[30] Since Peer Group has not experienced material impairment losses for the period, we have excluded GSE's impairment from calculation of growth, for more meaningful comparison. The actual growth figure including impairment losses has amounted to 6.9 percent for the period.

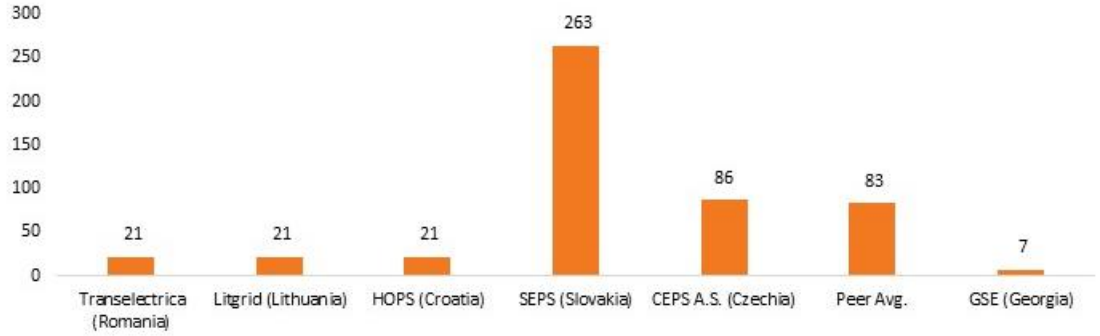
5. In terms of Trade Receivable Turnover, the Company has 2nd lowest figure of 8.2 in the peer group (Romania's Transelectrica has 2.6). The Peer Average for this metric amounted to 14.7.

Table E.2: Liabilities and Equity

000 GEL	Transelectrica	Litgrid	HOPS	SEPS	CEPSA.S.	Peer Avg.	GSE
Country	**Romania**	**Lithuania**	**Croatia**	**Slovakia**	**Czechia**		**Georgia**
Borrowings	119,747	302,104	181,764	151,819	861,505		1,002,442
Borrowings as a % of Total Liabilities	*12.6%*	*52.1%*	*24.0%*	*11.6%*	*56.1%*	*31.3%*	*82.7%*
Total Liabilities	**950,686**	**579,722**	**758,472**	**1,307,062**	**1,534,772**		**1,212,727**
Borrowings as a % of Total Assets	*3.8%*	*24.9%*	*6.1%*	*4.5%*	*15.4%*		*82.9%*
Total Liabilities to Total Assets	*30.1%*	*47.9%*	*25.3%*	*38.5%*	*27.4%*		*100.3%*
Total Equity	**2,204,373**	**631,440**	**2,238,584**	**2,091,095**	**4,063,937**		**(3,813)**

Source: Galt & Taggart.

Figure E.4: Interest Coverage of GSE and Peer Group

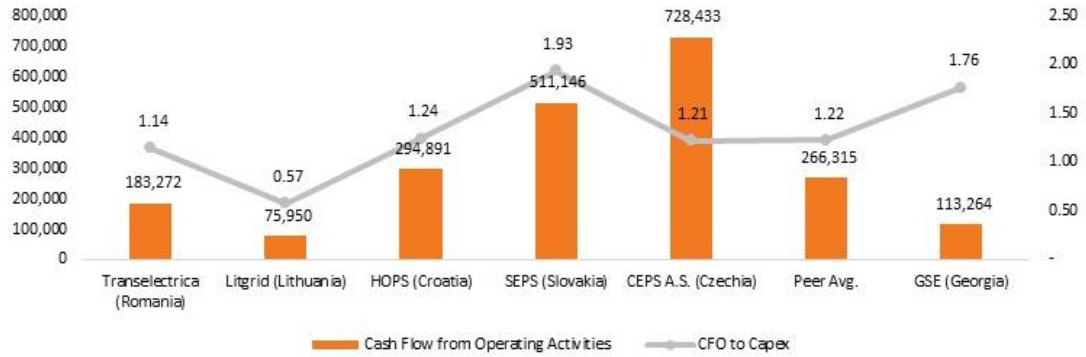


Source: Galt & Taggart.

6. The Peer Group is ahead on Interest Coverage metric as well, which again mainly stems from lower reliance on debt by comparable companies. It should be mentioned though that GSE is well positioned to repay its interest-bearing liabilities with a coverage metric of 7x.

7. GSE's ability to generate positive Cash Flows from Operating Activities has improved greatly since imposition of new tariffs in 2018. The Company's operating cash flows have amounted 1.76x CAPEX which shows great ability to service upcoming cash outflows year-to-year. GSE is well above the Peer average in this metric and sits behind only Slovakia's SEPS.

Figure E.5: GSE and Peer Group Operating Cash Flows



Source: Galt & Taggart.

Appendix F. GSE Cash Flows under Different Financing Structures

Table F.1: Scenario 1: Cash Flow Forecast for 2021-2027

		After Conversion						
	2020	2021	2022	2023	2024	2025	2026	2027
GEL '000	Actual	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast
Cash Flow:								
Net Operating CF	76,063	148,837	154,482	170,556	198,029	213,078	209,253	223,737
CAPEX	(48,895)	(110,811)	(164,096)	(312,605)	(222,206)	(189,368)	(170,373)	(201,499)
Repayment of dividend (Gross)	-	(44,200)	-	-	-	-		
Increase in Capital	-	7,000	-	-	-	-		
Bridge Overdraft:								
Overdraft proceeds		36,000	-	-	-	-	-	-
Overdraft refinancing		-	(36,000)	-	-	-	-	-
Interest paid on overdraft		(429)	(1,287)	-	-	-	-	-
Local Bonds:								
Bond proceeds	-	-	180,000	-	-	-	-	220,000
Bond Refinancing		-	-	-	-	-	-	(180,000)
Interest paid on Bonds	-	-	(11,700)	(23,400)	(23,400)	(23,400)	(23,400)	(26,000)
DFI Loans:								
Proceeds from borrowings	-	74,244	118,875	264,683	184,006	148,276	129,258	160,359
Principal Repayments on borrowings	-	(119,186)	(149,406)	(117,846)	(145,099)	(174,602)	(149,954)	(179,155)
Loan Refinancing	-	-	-	-	-	-	-	
Interest paid on borrowings	-	(77,005)	(13,484)	(10,866)	(11,303)	(11,512)	(11,193)	(12,859)
Interest received on cash deposit	-	8,686	4,497	4,525	7,381	5,177	2,693	437
Closing Cash	**79,685**	**2,820**	**84,701**	**59,748**	**47,156**	**14,806**	**1,090**	**1,436**

Table F.2: Scenario 1: P&L Forecast for 2021-2027

			After Conversion						
	2019	2020	2021	2022	2023	2024	2025	2026	2027
GEL '000	Actual	Actual	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast
EBIT:	**97,016**	**207,309**	**117,004**	**97,769**	**110,281**	**137,013**	**148,226**	**146,145**	**160,412**
EBIT margin	*39.98%*	*105.49%*	*42.48%*	*17.80%*	*18.92%*	*21.80%*	*22.44%*	*21.54%*	*22.41%*
Net finance income/(cost):	**(52,593)**	**(244,826)**	**21,511**	**(22,025)**	**(29,765)**	**(27,319)**	**(29,578)**	**(31,932)**	**(36,968)**
Interest income on bank balances	14,595	14,425	8,686	4,497	4,525	7,381	5,177	2,693	437
Unwinding of discount on restructured liabilities	(4,825)	(7,838)	-	-	-	-	-	-	-
Interest Expense on Loans and Borrowings	(19,152)	(22,955)	(28,049)	(13,438)	(10,890)	(11,300)	(11,355)	(11,225)	(11,712)
Interest Expense on local bonds	-	-	-	(11,796)	(23,400)	(23,400)	(23,400)	(23,400)	(25,694)
Interest Expense on bridge overdraft			(429)	(1,287)	-	-	-	-	-
Net foreign exchange gain/(loss):	(53,459)	(229,719)	41,303	-	-	-	-	-	-
Modification gain	10,248	1,261	-	-	-	-	-	-	-
Profit before income tax	**44,423**	**(37,517)**	**138,516**	**75,744**	**80,516**	**109,694**	**118,648**	**114,213**	**123,445**
Profit from associate	-	-	-	167	169	171	173	176	178
Income tax benefit/(expense)	-	(10,350)	-	-	-	-	-	-	
Profit for the year	**44,423**	**(47,867)**	**138,516**	**75,911**	**80,685**	**109,865**	**118,821**	**114,389**	**123,623**
Net profit margin	*18.31%*	*-24.36%*	*50.29%*	*13.82%*	*13.84%*	*17.48%*	*17.99%*	*16.86%*	*17.27%*

Table F.3: Scenario 1: Key Ratios

		After Refinancing						
Period:	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
All figures in GEL '000	Actual	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast
Key Metrics:								
EBITDA	106,532	154,456	159,814	175,937	204,798	218,500	215,985	231,694
EBIT	117,004	117,004	97,769	110,281	137,013	148,226	146,145	160,412
Total Loan balance	1,222,437	893,373	1,006,893	1,153,754	1,192,659	1,166,177	1,145,513	1,160,588
Equity	(93,044)	282,688	358,598	439,283	549,148	667,969	782,357	905,980
Key Financial Ratios:								
Debt to Equity	N/A	3.16x	2.81x	2.63x	2.17x	1.75x	1.46x	1.28x
Net Debt to EBITDA	10.73x	5.77x	5.77x	6.22x	5.59x	5.27x	5.30x	5.00x
Debt to EBITDA	11.47x	5.78x	6.30x	6.56x	5.82x	5.34x	5.30x	5.01x
Period CADS	57,637	109,689	294,593	128,015	166,598	177,409	174,870	405,554
Cumulative CADS	57,637	189,374	297,413	212,715	226,347	224,565	189,677	406,644
Debt to CADS	21.21x	4.72x	3.39x	5.42x	5.27x	5.19x	6.04x	2.85x
DSCR	0.93x	0.96x	1.40x	1.40x	1.26x	1.07x	1.03x	1.02x

Table F.4: Scenario 2: Cash Flow Forecast for 2021-2027

		After Conversion						
	2020	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
GEL '000	Actual	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast
Cash Flow:								
Net Operating CF	76,063	148,837	154,482	170,556	198,029	213,078	209,253	223,737
CAPEX	(48,895)	(110,811)	(164,096)	(312,605)	(222,206)	(189,368)	(170,373)	(201,499)
Repayment of dividend (Gross)	-	(44,200)	-	-	-	-		
Increase in Capital	-	7,000	-	-	-	-		
Bridge Overdraft:								
Overdraft proceeds		36,000	-	-	-	-	-	-
Overdraft refinancing		-	(36,000)	-	-	-	-	-
Interest paid on overdraft		(429)	(1,287)	-	-	-	-	-
Local Bonds:								
Bond proceeds		-	-	-	-	-	-	-
Bond Refinancing		-	-	-	-	-	-	-
Interest paid on Bonds		-	-	-	-	-	-	-
DFI Loans:								
Proceeds from borrowings		74,244	44,611	-	-	-	-	-
Principal Repayments on borrowings		(119,186)	(139,031)	(58,597)	(72,770)	(71,853)	(42,465)	(69,639)
Loan Refinancing		-	(27,901)	-	-	-	-	-
Interest paid on borrowings		(77,005)	(8,408)	(4,882)	(4,532)	(4,087)	(3,272)	(4,357)
Eurobonds:								
Proceeds from Eurobonds		-	633,397	-	-	-	-	680,902
Refinancing of Eurobonds		-	-	-	-	-	-	(643,043)
Interest paid on Eurobonds		-	(12,861)	(25,722)	(25,722)	(25,722)	(25,722)	(13,825)
Interest received on cash deposit	-	8,686	2,867	15,576	23,009	11,172	5,361	2,686
Closing Cash	**79,685**	**2,820**	**448,290**	**232,295**	**127,782**	**60,680**	**33,141**	**7,781**

Table F.5: Scenario 2: P&L Forecast for 2021-2027

			After Refinancing						
	2019	2020	2021	2022	2023	2024	2025	2026	2027
	Actual	Actual	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast
EBIT:	**97,016**	**207,309**	**117,004**	**97,448**	**109,960**	**136,692**	**147,904**	**145,824**	**160,091**
EBIT margin	*39.98%*	*105.49%*	*42.48%*	*17.74%*	*18.86%*	*21.75%*	*22.39%*	*21.49%*	*22.36%*
Net finance income/(cost):	**(52,593)**	**(244,826)**	**21,511**	**(24,191)**	**(16,888)**	**(9,104)**	**(20,388)**	**(25,556)**	**(29,464)**
Interest income on bank balances	14,595	14,425	8,686	2,867	15,576	23,009	11,172	5,361	2,686
Unwinding of discount on restructured liabilities	(4,825)	(7,838)	-	(1,216)	(1,929)	(1,934)	(1,929)	(1,929)	(2,015)
Interest Expense on Loans and Borrowings	(19,152)	(22,955)	(28,049)	(8,347)	(4,814)	(4,457)	(3,909)	(3,267)	(3,198)
Interest Expense on Local Bonds	-	-	-	-	-	-	-	-	-
Interest Expense on Eurobonds	-	-	-	(16,208)	(25,722)	(25,722)	(25,722)	(25,722)	(26,937)
Interest expense on bridge overdraft			(429)	(1,287)	-	-	-	-	-
Net foreign exchange gain/(loss):	(53,237)	(229,719)	41,303	-	-	-	-	-	-
Modification gain	9,673	1,261	-	-	-	-	-	-	-
Profit before income tax	**44,423**	**(37,517)**	**138,516**	**73,256**	**93,071**	**127,588**	**127,517**	**120,267**	**130,627**
Profit from associate	-	-	-	167	169	171	173	176	178
Income tax benefit/(expense)	-	(10,350)	-	-	-	-	-	-	-
Profit for the year	**44,423**	**(47,867)**	**138,516**	**73,423**	**93,240**	**127,759**	**127,690**	**120,443**	**130,805**
Net profit margin	*18.31%*	*-24.36%*	*50.29%*	*13.37%*	*15.99%*	*20.33%*	*19.33%*	*17.75%*	*18.27%*

Table F.6: Scenario 2: Key Ratios

		After Refinancing						
Period:	2020	2021	2022	2023	2024	2025	2026	2027
All figures in GEL '000	Actual	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast
Key Metrics:								
EBITDA	106,532	154,456	159,492	175,615	204,477	218,179	215,664	231,372
EBIT	117,004	117,004	97,448	109,960	136,692	147,904	145,824	160,091
Total Loan balance	1,222,437	770,938	1,250,516	1,193,780	1,122,870	1,052,768	1,012,226	994,413
Equity	(93,044)	405,122	478,545	571,785	699,544	827,234	947,677	1,078,481
Key Financial Ratios:								
Debt to Equity	N/A	1.90x	2.61x	2.09x	1.61x	1.27x	1.07x	0.92x
Net Debt to EBITDA	10.73x	4.97x	5.03x	5.47x	4.87x	4.55x	4.54x	4.26x
Debt to EBITDA	11.47x	4.99x	7.84x	6.80x	5.49x	4.83x	4.69x	4.30x
Period CADS	57,637	109,689	645,503	-136,990	-17,730	28,811	45,291	710,775
Cumulative CADS	57,637	189,374	648,323	311,300	214,565	156,593	105,971	743,917
Debt to CADS	21.21x	4.07x	1.93x	3.83x	5.23x	6.72x	9.55x	1.34x
DSCR	0.93x	0.96x	3.28x	3.49x	2.08x	1.54x	1.48x	1.02x

Table F.7: Scenario 3: Cash Flow Forecast for 2021-2027

		After Conversion						
	2020	2021	2022	2023	2024	2025	2026	2027
GEL '000	Actual	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast
Cash Flow:								
Net Operating CF	76,063	148,837	154,482	170,556	198,029	213,078	209,253	223,737
CAPEX	(48,895)	(110,811)	(164,096)	(312,605)	(222,206)	(189,368)	(170,373)	(201,499)
Repayment of dividend (Gross)	-	(44,200)	-	-	-	-	-	-
Increase in Capital	-	7,000	-	-	-	-	-	-
Bridge Overdraft:								
Overdraft proceeds	-	36,000	-	-	-	-	-	-
Overdraft refinancing	-	-	(36,000)	-	-	-	-	-
Interest paid on overdraft	-	(429)	(1,287)	-	-	-	-	-
Local Bonds:								
Bond proceeds	-	-	-	-	-	-	-	-
Bond Refinancing	-	-	-	-	-	-	-	-
Interest paid on Bonds	-	-	-	-	-	-	-	-
DFI Loans:								
Proceeds from borrowings	-	74,244	44,611	-	-	-	-	-
Principal Repayments on borrowings	-	(119,186)	(139,031)	(63,318)	(77,491)	(76,574)	(47,187)	(74,361)
Loan Refinancing	-	-	-	-	-	-	-	-
Interest paid on borrowings	-	(77,005)	(8,715)	(5,445)	(4,991)	(4,443)	(3,523)	(4,505)
Direct Financing:								
Direct Financing proceeds	-	-	151,115	237,926	138,254	96,456	80,380	67,519
Repayment of Direct Financing	-	-	-	-	-	-	-	(38,583)
Interest paid on Direct Financing	-	-	(5,733)	(15,417)	(24,130)	(29,516)	(33,535)	(36,895)
Interest received on cash deposit	-	8,686	2,867	34	379	1,145	1,754	3,358
Closing Cash	**79,685**	**2,820**	**1,033**	**12,764**	**20,607**	**31,386**	**68,156**	**6,930**

Table F.8: Scenario 3: P&L Forecast for 2021-2027

			After Refinancing						
	2019	2020	2021	2022	2023	2024	2025	2026	2027
	Actual	Actual	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast
EBIT:	**97,016**	**207,309**	**117,004**	**97,769**	**110,281**	**137,013**	**148,226**	**146,145**	**160,412**
EBIT margin	*39.98%*	*105.49%*	*42.48%*	*17.80%*	*18.92%*	*21.80%*	*22.44%*	*21.54%*	*22.41%*
Net finance income/(cost):	**(52,593)**	**(244,826)**	**21,511**	**(13,791)**	**(26,708)**	**(32,124)**	**(35,046)**	**(37,308)**	**(38,569)**
Interest income on bank balances	14,595	14,425	8,686	2,867	34	379	1,145	1,754	3,358
Unwinding of discount on restructured liabilities	(4,825)	(7,838)	-	-	-	-	-	-	-
Interest Expense on Loans and Borrowings	(19,152)	(22,955)	(28,049)	(8,654)	(5,377)	(4,916)	(4,264)	(3,518)	(3,345)
Interest Expense on Local Bonds	-	-	-	-	-	-	-	-	-
Interest Expense on Direct Financing	-	-	-	(6,716)	(21,365)	(27,587)	(31,927)	(35,544)	(38,583)
Interest Expense on bridge overdraft			(429)	(1,287)	-	-	-	-	-
Net foreign exchange gain/(loss):	(53,237)	(229,719)	41,303	-	-	-	-	-	-
Modification gain	9,673	1,261	-	-	-	-	-	-	-
Profit before income tax	**44,423**	**(37,517)**	**138,516**	**83,978**	**83,573**	**104,889**	**113,180**	**108,837**	**121,843**
Profit from associate	-	-	-	167	169	171	173	176	178
Income tax benefit/(expense)	-	(10,350)	-	-	-	-	-	-	

			After Refinancing						
	2019	2020	2021	2022	2023	2024	2025	2026	2027
Profit for the year	**44,423**	**(47,867)**	**138,516**	**84,145**	**83,742**	**105,060**	**113,353**	**109,013**	**122,021**
Net profit margin	*18.31%*	*-24.36%*	*50.29%*	*15.32%*	*14.37%*	*16.72%*	*17.16%*	*16.07%*	*17.04%*

Table F.9: Scenario 3: Key Ratios

		After Conversion						
Period:	2020	2021	2022	2023	2024	2025	2026	2027
All figures in GEL '000	Actual	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast
Key Metrics:								
EBITDA	106,532	154,456	159,814	175,937	204,798	218,500	215,985	231,694
EBIT	117,004	117,004	97,769	110,281	137,013	148,226	146,145	160,412
Total Loan balance	1,222,437	770,938	792,556	973,043	1,037,188	1,059,303	1,094,501	1,049,606
Equity	(93,044)	405,122	489,268	573,010	678,069	791,423	900,435	1,022,456
Key Financial Ratios:								
Debt to Equity	N/A	1.90x	1.62x	1.70x	1.53x	1.34x	1.22x	1.03x
Net Debt to EBITDA	10.73x	4.99x	4.96x	5.53x	5.06x	4.85x	5.07x	4.53x
Debt to EBITDA	11.47x	4.99x	4.96x	5.53x	5.06x	4.85x	5.07x	4.53x
Period CADS	57,637	109,689	191,444	101,257	120,846	125,589	125,993	97,714
Cumulative CADS	57,637	189,374	194,264	102,290	133,610	146,196	157,379	165,870
Debt to CADS	21.21x	4.07x	4.08x	9.51x	7.76x	7.25x	6.95x	6.33x
DSCR	0.93x	0.96x	1.02x	1.22x	1.25x	1.32x	1.87x	1.07x

Table F.10: Scenario 4: Cash Flow Forecast for 2021-2027

		After Conversion						
	2020	2021	2022	2023	2024	2025	2026	2027
GEL '000	Actual	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast
Cash Flow:								
Net Operating CF	76,063	148,837	154,482	170,253	197,708	212,756	208,932	223,416
CAPEX	(48,895)	(110,811)	(164,096)	(312,605)	(222,206)	(189,368)	(170,373)	(201,499)
Repayment of dividend (Gross)	-	(44,200)	-	-	-	-	-	-
Increase in Capital	-	7,000	-	-	-	-	-	-
Bridge Overdraft:								
Overdraft proceeds		36,000	-	-	-	-	-	-
Overdraft refinancing		-	(36,000)	-	-	-	-	-
Interest paid on overdraft		(429)	(1,287)	-	-	-	-	-
Local Bonds:								
Bond proceeds		-	150,000	-	-	-	-	150,000
Bond Refinancing		-	-	-	-	-	-	(150,000)
Interest paid on Bonds		-	(9,750)	(19,500)	(19,500)	(19,500)	(19,500)	(19,500)
DFI Loans:								
Proceeds from borrowings		74,244	44,044	-	-	-	-	-
Principal Repayments on borrowings		(119,186)	(125,446)	(49,733)	(63,906)	(62,989)	(33,602)	(60,775)
Loan Refinancing		-	-	-	-	-	-	-
Interest paid on borrowings		(77,005)	(7,556)	(4,400)	(4,135)	(3,741)	(3,272)	(4,357)
Eurobonds:								
Proceeds from Eurobonds		-	-	591,000	-	-	719,050	-
Refinancing of Eurobonds		-	-	-	-	-	(600,000)	-
Interest paid on Eurobonds		-	-	(33,000)	(66,000)	(66,000)	(73,150)	(80,300)

		After Conversion						
	2020	2021	2022	2023	2024	2025	2026	2027
Interest received on cash deposit	-	8,686	4,497	547	19,671	28,882	13,259	10,414
Closing Cash	**79,685**	**2,820**	**11,708**	**354,270**	**195,901**	**95,942**	**137,286**	**4,685**

Table F.11: Scenario 4: P&L Forecast for 2021-2027

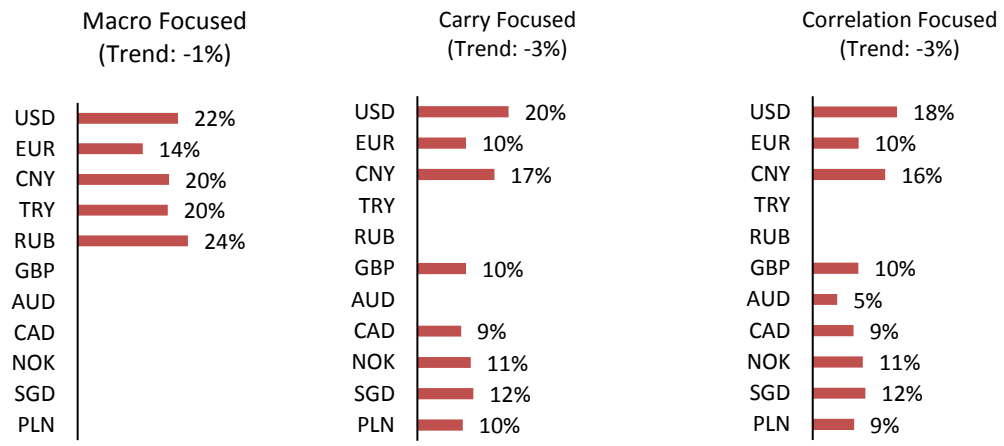
			After Refinancing						
	2019	2020	2021	2022	2023	2024	2025	2026	2027
	Actual	Actual	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast
EBIT:	**97,016**	**207,309**	**117,004**	**97,769**	**109,960**	**136,692**	**147,904**	**145,824**	**160,091**
EBIT margin	*39.98%*	*105.49%*	*42.48%*	*17.80%*	*18.86%*	*21.75%*	*22.39%*	*21.49%*	*22.36%*
Net finance income/(cost):	**(52,593)**	**(244,826)**	**21,511**	**(14,050)**	**(58,079)**	**(72,905)**	**(63,189)**	**(86,036)**	**(96,233)**
Interest income on bank balances	14,595	14,425	8,686	4,497	547	19,671	28,882	13,259	10,414
Unwinding of discount on restructured liabilities	(4,825)	(7,838)	-	-	(1,512)	(3,008)	(3,000)	(3,319)	(3,650)
Interest Expense on Loans and Borrowings	(19,152)	(22,955)	(28,049)	(7,429)	(4,342)	(4,067)	(3,571)	(3,267)	(3,198)
Interest Expense on Local Bonds	-	-	-	(9,830)	(19,500)	(19,500)	(19,500)	(19,500)	(19,500)
Interest Expense on Eurobonds	-	-	-	-	(33,271)	(66,000)	(66,000)	(73,209)	(80,300)
Interest expense on bridge overdraft			(429)	(1,287)	-	-	-	-	-
Net foreign exchange gain/(loss):	(53,237)	(229,719)	41,303	-	-	-	-	-	-
Modification gain	9,673	1,261	-	-	-	-	-	-	-
Profit before income tax	**44,423**	**(37,517)**	**138,516**	**83,719**	**51,880**	**63,787**	**84,716**	**59,788**	**63,857**
Profit from associate	-	-	-	167	169	171	173	176	178
Income tax benefit/(expense)	-	(10,350)	-	-	-	-	-	-	-
Profit for the year	**44,423**	**(47,867)**	**138,516**	**83,886**	**52,049**	**63,958**	**84,889**	**59,964**	**64,035**
Net profit margin	*18.31%*	*-24.36%*	*50.29%*	*15.28%*	*8.93%*	*10.18%*	*12.85%*	*8.84%*	*8.94%*

Table F.12: Scenario 4: Key Ratios

		After Conversion						
Period:	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
All figures in GEL '000	Actual	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast
Key Metrics:								
EBITDA	106,532	154,456	159,814	175,615	204,477	218,179	215,664	231,372
EBIT	117,004	117,004	97,769	109,960	136,692	147,904	145,824	160,091
Total Loan balance	1,222,437	678,307	710,859	1,253,853	1,192,887	1,132,728	1,221,549	1,163,264
Equity	(93,044)	497,753	581,639	633,688	697,646	782,535	842,499	906,534
Key Financial Ratios:								
Debt to Equity	N/A	1.36x	1.22x	1.98x	1.71x	1.45x	1.45x	1.28x
Net Debt to EBITDA	10.73x	4.39x	4.45x	7.14x	5.83x	5.19x	5.66x	5.03x
Debt to EBITDA	11.47x	4.39x	4.45x	7.14x	5.83x	5.19x	5.66x	5.03x
Period CADS	57,637	109,689	189,762	454,010	-17,730	28,811	764,341	179,873
Cumulative CADS	57,637	189,374	192,582	465,718	336,540	224,712	860,282	317,160
Debt to CADS	21.21x	3.58x	3.69x	2.69x	3.54x	5.04x	1.42x	3.67x
DSCR	0.93x	0.96x	1.07x	4.37x	2.19x	1.48x	1.18x	1.01x

Appendix G. Experience with FX Risk Management in Some Countries

Figure G.1: Portfolio Compositions



Source: World Bank team estimate.

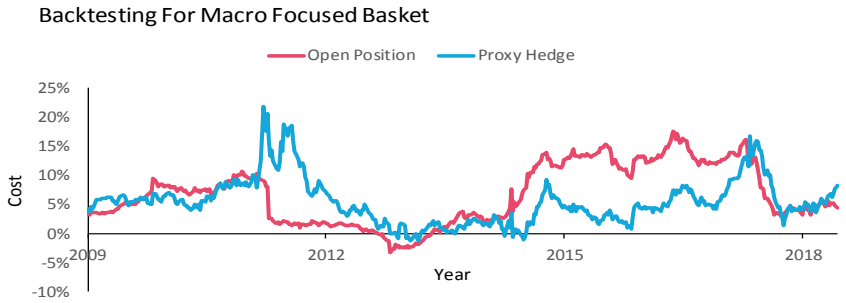
1. These three strategies have been back-tested for historical periods since 2006 in order identify utility of these proxy hedges. The cost of each strategy has been calculated in order to evaluate their performance.

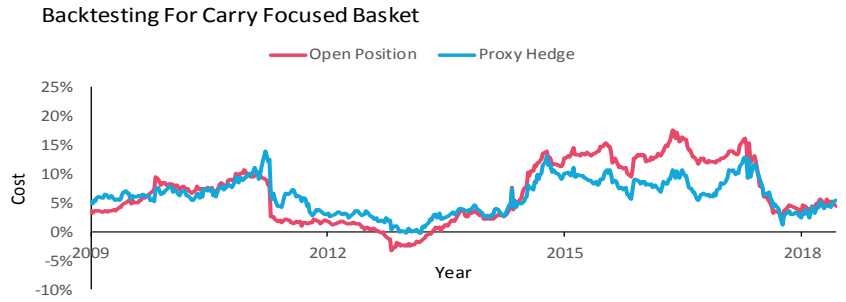
Table G. 1: Portfolio Compositions

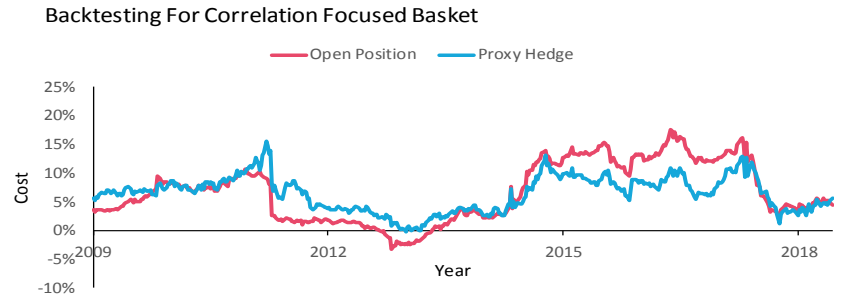
Strategy	Average	Standard Deviation
Open Position	6.7%	5.1%
Macro Focused Hedge	5.4%	3.9%
Carry Focused Hedge	6.1%	3.0%
Correlation Focused Hedge	6.4%	3.1%

2. The performance of these strategies against Open Position is given below.

Figure G.2: Portfolio Compositions







3. The charts above demonstrate that there have been historical periods where it was better not to utilize Proxy hedge. In our opinion, although proxy hedge could provide benefits against an open position, we believe it is imperative that the management understands the risks of such strategy prior to implementing it.

4. From the above options, the Carry Focuses and Correlation Focused options can be considered, although the following tail risks may realize during the implementation of proxy hedging: (i) the dollar has strengthened globally in recent years and there is a high probability of a weakening of the dollar in the medium to long term; (ii) There is a probability of political instability in Georgia, as well as the imposition of various targeted restrictions by Russia to have a negative impact on economic environment in Georgia (for example, in 2019, Russia banned direct flights to Georgia, which created negative expectations on tourism revenues and the GEL has significantly depreciated. In addition, the Russian government has also discussed banning the exports of some products from Georgia, however, it was not executed).

Box G.1: Philippines Experience
In Philippines, the tariff setting approach sets 10% threshold for the change in the local exchange rate versus USD. The change above or below 10% triggers change in the rate of return of the company. Here, also, as a buffer is inserted an efficiency factor, which adds additional incentive for the effective cost management. The approach gives weight to inflation and the exchange rate depending the cost allocation. In case of Philippines, we need to take into account the following into consideration: • "Such mechanism would take into account the direct impact of changes in foreign exchange on the capital costs in foreign currency, but it required the determination of the weights of such costs in the total costs, and therefore a reasonably accurate identification on basis of a robust accounting system; • Technically, the DeltaUSERt component should also include an adjustment for US inflation and it does not; • The bandwidth feature is an interesting feature as it restricts the reallocation of risk to consumers to large fluctuations; • The mechanism does not address the issue of the immediate impact of sudden substantial devaluation as the indexes are calculated on basis of the last 2 years' exchange rate values (smoothing then any calculation); in addition, the periodicity of adjustments is annual which can induce a considerable gap of revenues between adjustments if a devaluation takes place just after an annual review". We would add also that in different companies cost allocation may be different or may change within regulatory year, and allocated weights may not hedge accurately the costs of the company. Considering the above, we believe that the most important is the timing of the tariff change.

Box G.2: Argentina Experience

The Argentinian approach envisages 6 months adjustment period including inflation and exchange rate, giving them weights as in the case of Philippines. It does not contain efficiency factor.

Comments:

- "The periodicity of adjustments is shorter than the previous case but could still be too long in a context of high/creeping inflation and devaluation as in Argentina (3 months might be more appropriated);
- The use of different indexes for capital costs and operational costs is motivated by the fact that wholesale goods price indexes tend to reflect faster and better the impact of inflation and devaluation (on explanation being that they are less visible politically and therefore less subject to manipulation; they also are not subject to sectoral agreements like salaries); however, this type of mechanism still require a proper determination of the weights and therefore, a reasonably accurate identification on basis of a robust accounting system".

We don't think the first comment is a good solution. It will require accounting and financial calculations to be assessed and recalculated almost permanent and, as three months is not sometimes enough period for the costs to be fully reflected in accounting books, it may cause constant disagreements between a company and the regulator (taking into account that the reports shall be audited).

Box G.3: Kenya Experience
There are also several other approaches (mainly in African countries with unstable local currency) to mitigate exchange rate risk for utilities. They encourage companies to take debt and plan expenses in local currency. But this approach does not always yields targeted results, as either banks are reluctant to lend large amounts or cost are extremely high. Besides, the part of goods and services required for the operation of utilities may be produced only abroad and is sold in EURO or USD. Kenya has adopted a controversial model which allows the utility to transfer exchange rate related increases in costs directly to consumers through tariff increases on monthly bases. This contributes to cost-reflectiveness of the tariff and to financial sustainability of the utility. However, it also leads to erratic tariff increases that must be absorbed by households and companies. Tariff surcharges to cover exchange rate losses have peaked at 11-12% in single months in times of crisis. It is unfortunate that the requirement to absorb losses is typically greatest at a time that the currency is at its weakest and accordingly that government and consumers are probably experiencing stressful economic times. It is also ironic that higher tariffs and increased government expenditure have an inflationary impact and therefore contribute to further currency weakness and losses, fueling a cycle of permanent instability of the system.