IDFI

Institute for Development
of Freedom of Information

ENERGY SECTOR OVERVIEW

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Introduction

Institute for Development Freedom of Information (IDFI) has prepared an overview of current developments and challenges in the energy sector of Georgia up to and including November 2020.

The energy sector is a strategically important sector for the economy, having a significant socio-economic impact on society. As energy independence is important for the country's sustainable development, IDFI will analyze future trends in the sector and publish findings periodically.

Considering its hydro resources, Georgia has significant untapped potential in the energy sector. Electricity generation is increasing annually, although not enough to balance demand. Therefore, the country is a net importer of electricity. Currently, negative outlook of population on the construction of HPPs creates pressure on the inflow of investments, decreases energy independence of the country, and remains an important challenge for the sector's players.

Electricity consumption is highly correlated with economic growth. It is important to evaluate the impact of the COVID-19 pandemic on electricity consumption dynamics and future outlook of the consumption in the post-pandemic period.

Population and business, eligible consumers and the region of Abkhazia are classified as large consumers of electricity. Rapid increase in tourism in the last years led to a higher demand for electricity from population and business. As eligible consumers are export-oriented, foreign trade dynamics affect electricity consumption. Electricity consumption in Abkhazia displays double digit growth, and the per capita consumption in the region is three times higher when compared to the rest of the country.

Electricity imports exceed exports. Georgia has been a net importer of electricity for a period of several years, which is an additional source of the foreign currency outflow. The increase in imports decreases Georgia's energy independence and constitutes an important challenge. Arguments supporting increasing imports, which could be cheaper than development of new renewable projects, do not consider the value of the energy independence for the country.

Key Findings: Energy Sector Decreases

- **Electricity generation was down by 5.8% YoY in the first 11 months of 2020.** Generation from TPPs is broadly unchanged (-2% YoY) but generation from renewable sources was down considerably (-7% YoY), over the same period.
- **The COVID-19 pandemic sharply reduced electricity consumption** (-11.2% YoY) in the first 11 months of 2020. This is largely explained by decreased economic activity and the absence of tourism. Electricity consumption was down by -5.7% YoY in the same period, contrasted with the growing electricity consumption in Abkhazia (+24% YoY).
- **Consumption in Abkhazia reached 88% of Enguri HPP generation in the first 11 months of 2020.** Electricity consumption in Abkhazeti displayed high growth (+24% YoY) and reached its all-time high (2.2 TWh) in the same period. Decreased generation from Enguri HPP also contributed to the increased share of Abkhazia in the first 11 months of 2020
- **Electricity imports from Russia were record high for the four-year period in the first 11 months of 2020,** nearly half of the total imports. This was partially to balance the increasing consumption needs of Abkhazia.
- **Electricity net imports were worth USD 38 mln in first 10 months of 2020.** Slightly less when compared to the previous year (USD -3 mln). High electricity deficit is the source of foreign currency outflow from the country. It is expected that country will need USD 60 mln to balance the deficit by year's end.
- **FDI in the energy sector decreased four times during the first 9 months of 2020**, compared to the same period in 2019**.** The COVID-19 pandemic played an important role in the reduced FDI, although it should be mentioned that currently there is a lack of sufficient incentives that would promote investment in renewable energy, which could attract FDI in the energy sector and reduce Georgia's dependence on imported electricity.
- **Increasing wholesale prices on electricity is a good signal to private producers.** Wholesale electricity prices were up 23% on average in the first10 months of 2020. This was partially due to exchange rate depreciation and decreased generation from cheap sources of electricity
- **Rehabilitation of the Enguri HPP is expected to create an additional deficit of 0.6 TWh in 2021.** On the other hand, generation is expected to grow in the following years (2021-2025). Consumption is expected to grow 5.1% annually, compared to the 4.8% growth of the generation in the same period (with the low base in 2020). Electricity deficit is expected to grow 7.5% (CAGR) in this five-year period and reach 1.9 TWh in 2025.

Generation: Share of renewable energy decreased to 77%

Electricity generation was down by 5.8% YoY during the initial 11 months of 2020. The decrease in generation started at the beginning of the year and peaked in June (-17% YoY), starting to recover thereafter. It displayed positive growth in Sep-Oct months, +6.6% and 6.3% YoY, respectively. November 2020, however, once again saw a decrease to -6% YoY.

TPPs generation was down by -2% YoY in the initial 11 months of 2020 but generation from renewable sources decreased by -8% YoY in the same period. This was mostly driven by the shortage of water resources, decreased local demand, and lower export capabilities.

The decrease in generation was accompanied by a lower share of renewable sources in the country's total generation. The share of renewable sources was down to 77% in the initial 11 months of 2020, lower by -1p.p. compared to the same period in 2019. The share of renewables is expected to decrease to 76% by the year's end.

Share of Enguri HPP in total generation is decreasing and amounted to 25% of the total in the initial 11 months of 2020, which is 4% and 9% lower compared to the 2019 and 2018 years, respectively. Total generation of regulated HPPs was 3.8 TWh in this period, 18% lower compared to the same period in 2019.

Generation from seasonal HPPs displays high growth on the back of the Shuakhevi HPP and reached 3.4 TWh in the first 11 months of 2020. This indicator was higher by +8% compared to 2019.

The number of small-capacity HPPs increased, although overall generation was lower. Generation of 75 small-capacity HPPs (including four new HPPs) was down to 0.6TWh (-3.3% YoY) in the initial 11 months of 2020. However, it is expected to increase in the next year, owing to the new HPPs that will become operational in the next year and the full utilization of the HPPs that started operations in the current period.

Fig 1: Electricity generation (TWh) by different sources

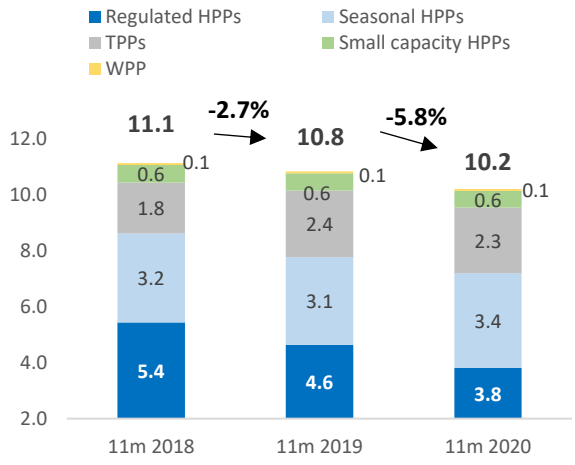
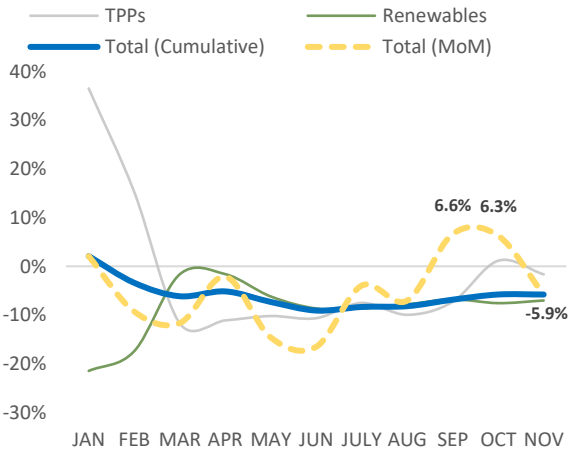


Fig 2: Change in electricity generation YoY (%, Cumulative, monthly) in 2020



Source: ESCO, IDFI

Consumption: COVID-19 led to sharply reduced electricity consumption

Electricity consumption was down -11.2%[1] YoY in the initial 11-month period in 2020. Consumption by industrial producers decreased sharply to 2.2 TWh (-27% YoY) in the same period. The decline in the consumption by households and businesses was more moderate, to 6.5 TWh (-4.2% YoY). This lower consumption was mainly due to decreased economic activity, a large drop in cryptoindustry, and reduced tourism, which was close to zero after the pandemic.

Electricity consumption in Abkhazia reached an all-time high of 2.2 TWh in first 11 months of 2020. Consumption in the region displayed high growth (+24% YoY) and reached 88% of Enguri HPP generation in the same period. Decreased generation from Enguri HPP also contributed to the increased share of Abkhazia.

Per capita electricity consumption in Abkhazia is three times higher when compared to the rest of Georgia. Abkhazia, on average, consumed 8,155[2] kWh per capita during 2020. Annual per capita consumption in the rest of Georgia was nearly 2,542 kWh in the same period. Higher per capita consumption in Abkhazia could be explained by "cheap" electricity and cryptomining.

Fig 3: Electricity consumption growth (%, YoY) in 2020

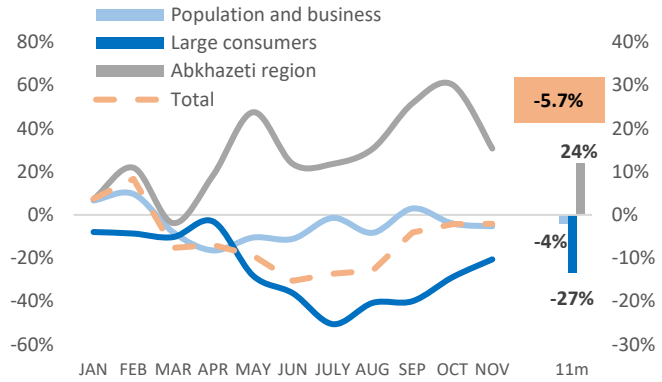
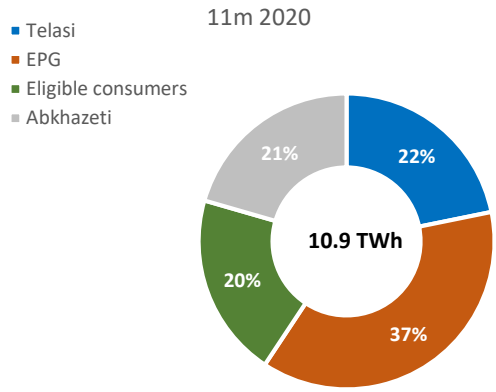


Fig 4: Electricity consumption (TWh) by different groups



Source: ESCO, IDFI

Electricity Trade: Import increases from Russia, while Turkey is still the leading export market

Electricity deficit decreased to 1.1 TWh (-4.7% YoY) in the initial 11-month period in 2020. This was due to the reduction of imports by 10% YoY, to 1.3 TWh, in the same period. Exports also

[1] -5.7% considering consumption of Abkhazeti
[2] It is assumed 300,000 citizens in Abkhazeti

declined to 0.2 TWh (-37% YoY) in first 11 months of 2020, but the impact on the deficit was small due to the small base effect in the same period in 2019.

Imports from Russia reached a record high for the last four years (37%) in the initial 11-month period of 2020. This was mainly due to growing electricity consumption in Abkhazia. Turkey still remains the leading export market (45% of total exports), although export volumes saw a significant decline.

Fig 5: Electricity imports (TWh)

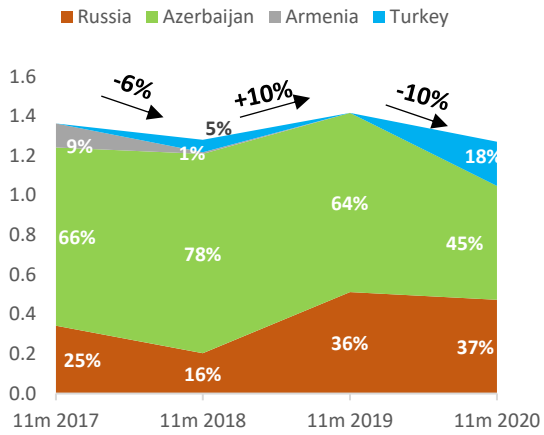
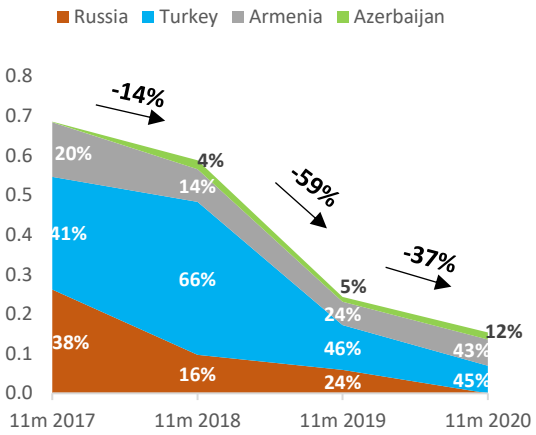


Fig 6: Electricity exports (TWh)



Source: ESCO, IDFI

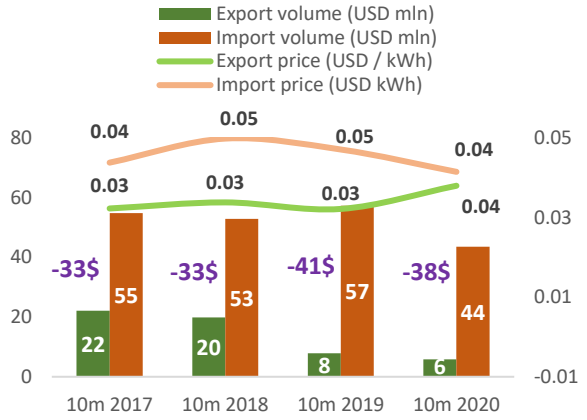
Electricity wholesale prices: Up by 32% YoY in Apr-Aug 2020

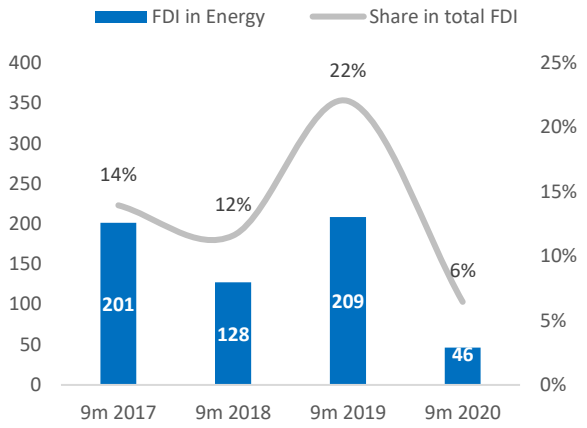
To balance the electricity deficit, the country's net imports were worth USD 38 mln in the first 11 months of 2020, somewhat of an improvement (USD -3 mln) compared to the same period in 2019. Additionally, export prices are getting closer to import prices, although export volume remains insignificant. It is expected that the country will need USD 60 mln to balance the deficit by the year's end.

FDI was close to zero in 1H 2020. Besides the issues stemming from the COVID-19 pandemic, it should be mentioned that there are no mechanisms introduced yet that would attract investment in renewable energy and support a decrease in Georgia's dependence on imports.

Fig 7: Electricity trade volumes (USD mln) and price (USD per kWh)

Fig 8: FDI in Georgia (USD mln)



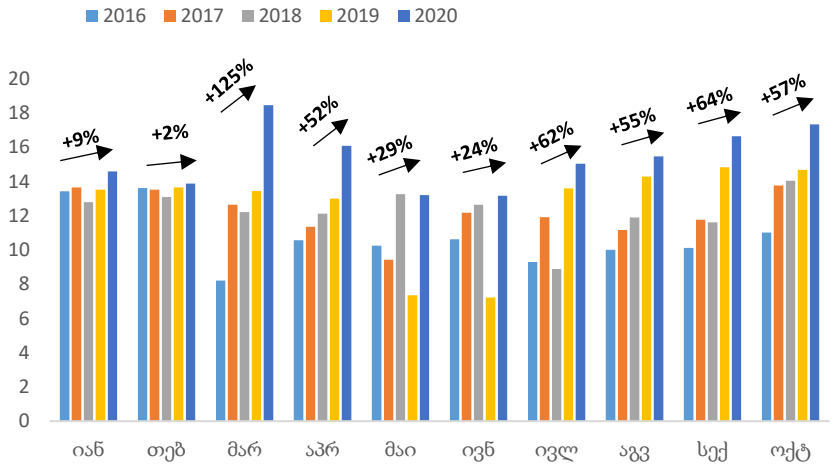


Source: Geostat, ESCO, IDFI

Average wholesale electricity prices in Apr-Aug were up by 32% YoY in 2020. Wholesale electricity prices have reached an all-time high of a five-year period, displaying double digit growth.

The decrease of generation from "cheap sources" increases electricity wholesale price. Wholesale electricity price increased +23% YoY in the first 10 months of 2020, partially driven by depreciation of exchange rates and the decrease of generation from Enguri HPP.

Fig 9: ESCO wholesale price by month (GEL tetri per kWh)



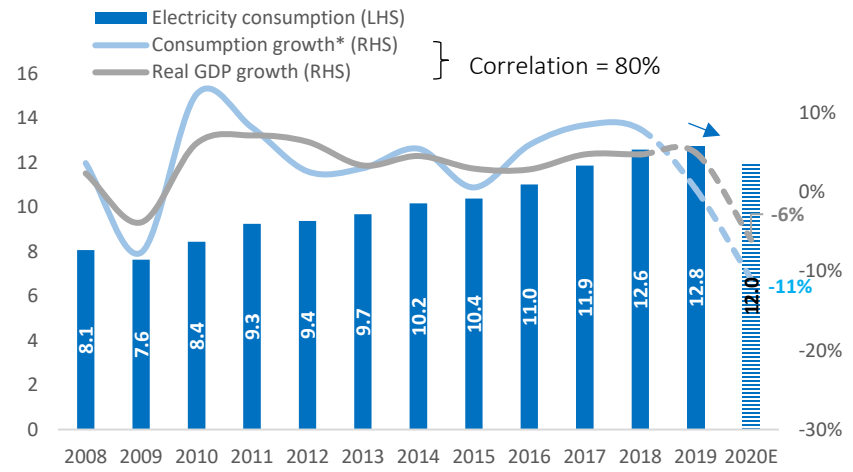
Source: ESCO, IDFI

Future Outlook: Deficit will increase

Electricity consumption is highly correlated with economic growth. Correlation between these two is nearly 80%[3] for the last 12 years. Electricity consumption in Georgia (excluding Abkhazia) is expected to decrease by 11%, with real GDP growth expected to be around -6%.

[3] We exclude consumption of Abkhazia when calculating electricity consumption for Georgia in terms of correlation.

Fig 10: Electricity consumption (TWh), Consumption growth and Real GDP growth (%)

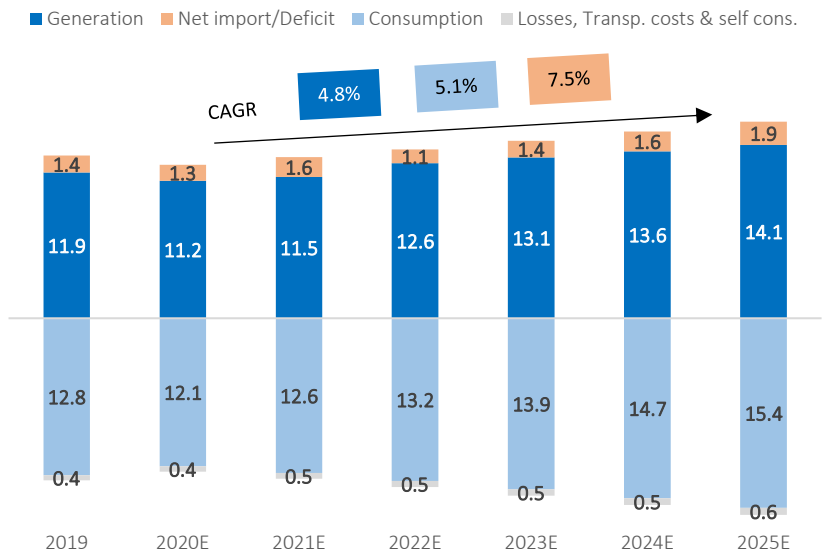


Source: ESCO, IDFI

Electricity consumption in Georgia is expected to recover in 2022 to the 2019 level. Consumption is expected to grow by 5.1% CAGR in 2021-2025 years and generation is expected to grow by 4.8% annually in the same period. Therefore, electricity deficit could reach 1.9 TWh in 2025.

Considering PPs generation during the 4m period (Feb-May), the rehabilitation of the Enguri HPP is expected to create an additional deficit of 0.6 TWh in 2021. This will be partially compensated by generation from Shuakhevi HPP and increased generation from existing PPs to 2019 level (their generation dropped in 2020 due to the lower demand). Total generation is expected to reach 11.5 TWh and electricity deficit is estimated at 1.6 TWh. However, increased generation from TPPs could reduce the deficit.

Fig 11: Electricity balance (TWh)



Source: IDFI

Recommendations

- **The Government should create mechanisms for attracting investments.**
  Currently, after the abolition of PPAs, there are mechanisms that could guarantee investors minimum tariff and would promote investment in renewable energy. A feed-in tariff mechanism could serve this role, especially considering exchange rate risks.
- **Market deregulation will support energy independence of the country.**
  Increasing imports from neighboring countries decreases energy independence. Market deregulation will support investments. In case of price increases, socially vulnerable consumers should be subsidized directly.
- **Promote energy efficiency and awareness about the benefits of renewable energy and the country's energy independence**
  Increasing awareness about renewable energy will promote the adoption of technology and "smoothen" the high cost of technology by incorporating indirect benefits.
- **Promote renewable energy for households and micro enterprises by introducing tax incentives and energy efficient (subsidized) loans**
  GNERC introduced mechanisms that support integration of micro power plants in the grid, but considering the high cost of the technology, the government should introduce tax incentives (VAT exclusion for renewable energy technology) or energy efficient loans that could promote the development of renewable technology.
- **Develop a long-term strategy for the sector that will focus on increasing energy efficiency in the country and promote renewable energy**
  Currently, there is no long-term strategy that would define strategically important projects for the country and support their development. It is vital for the government to reconsider the hydropower plant projects that are currently on pause and support their implementation. Additionally, investors should be offered alternative projects incorporating solar and wind power.

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