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ELECTRICITY MARKET REVIEW

ISET POLICY INSTITUTE
ENERGY AND ENVIRONMENT POLICY RESEARCH CENTER

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INFORMATION

·In April 2022 there was an increase in total electricity generation by 36% on a yearly basis, and an increase by 4% on a monthly basis.
·Consumption increased by 10% on yearly basis and decreased by 14% on a monthly basis.
·Consumption exceeded generation by 39 mln. kWh – 3% of total generation for April.
·There was a 73% decrease in imports annually.
·The main import partner country was Russia.
·The cost of imports from Russia went up 18.48 tetri per kWh, with a sharp increase both on a monthly (2.5 times) and on an annual (40 times) basis. This jump is linked to abnormally low prices in April 2021 and March 2022.
·As a result, the weighted average price of imports in GEL increased by 218% on a yearly basis and increased by 129% on a monthly basis.
·The main export partner was Turkey, although the level of exports was extremely small.
·The weighted average electricity export price was 10.18 tetri per kWh.
·For the fourth successive month, The HHI index for the Georgian electricity generation market remained below the threshold of a concentrated market. In April 2022, it reached the level of 1,468. It was higher compared to the level in April 2021 and lower than the level in March 2022 (706 and 1,499, respectively).
·The HHI for the Georgian electricity consumption market remained below the threshold of a highly concentrated market. September 2020 (index value of 2,522) was the last month during which the index value was above the level of a highly concentrated market. Since then, the trend of the index was mostly downward, reaching level of 1,777 in April 2022.

ABBREVIATION USED

Mln – million
kWh – kilowatt-hour
HPP – Hydro Power Plant
WPP – Wind Power Plant
TPP – Thermal Power Plant
HHI - Hirschmann-Herfindahl Index
Telmico - Tbilisi Electricity Supply Company
Ep Georgia - Ep Georgia Supply

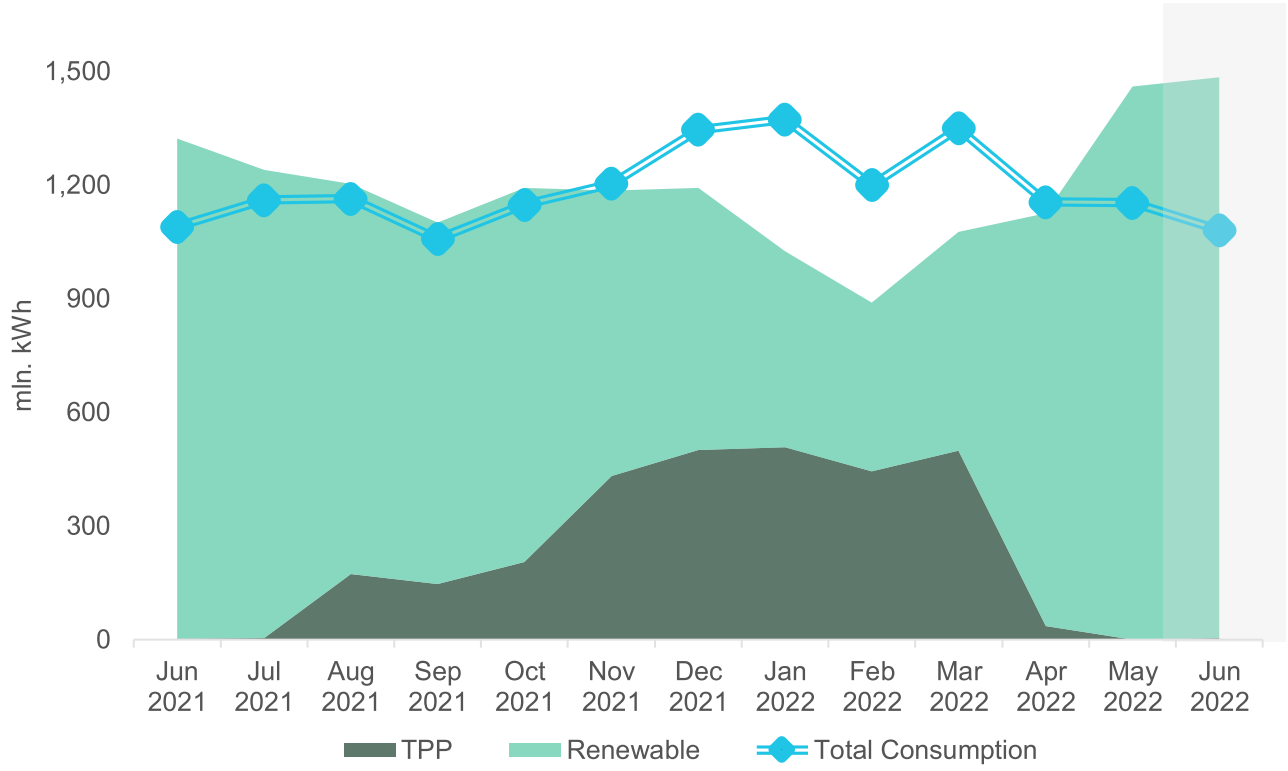
Generation – Consumption – Trade

In June 2022, Georgian power plants generated 1,485 mln. kWh of electricity (Figure 1). This represents a 12% increase in the total generation compared to the previous year (in June 2021, the total generation was 1,323 mln. kWh). The increase in the generation on a yearly basis comes from a rise of 12% in hydro power generation, and 81% in thermal power generation, respectively, more than offsetting a 23% decline in wind power generation.

On a monthly basis, the generation increased by approximately 2% (in May 2022, the total generation was 1,461 mln. kWh) (Figure 1). The monthly increase in the total generation, is induced by a 2% increase in hydro power generation, while there was a 28% decrease in wind power generation. There was no thermal power generation in May 2022.

The consumption of electricity on the local market was 1,082 mln. kWh (-1% compared to June 2021, and -6% compared to May 2022) (Figure 1). In June 2022, power generation exceeded consumption by 403 mln. kWh which was 27% of the total generation (in June 2021, the difference between the total generation and the consumption resulted in a surplus of 233 mln. kWh, around 18% of the total generation for the month).

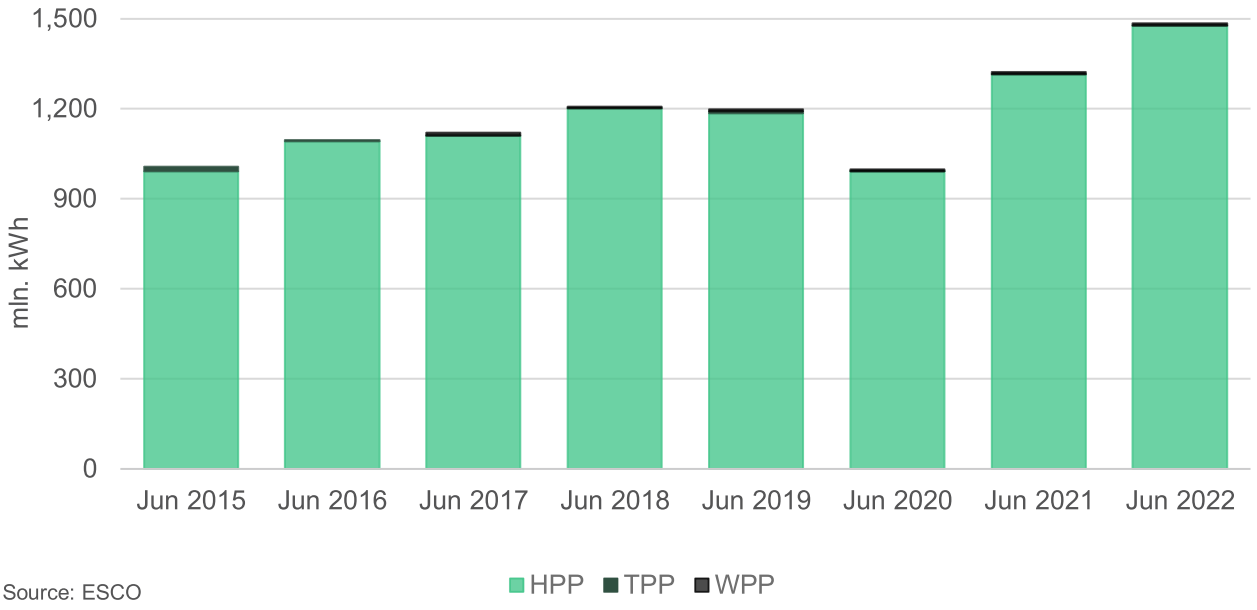
Figure 1 - **Electricity Consumption and Generation**



Source: Electricity System Commercial Operator (ESCO)

In June 2022, hydro power plants were the leading source of generation. In June 2022, hydro power (HPP) generation amounted to 1,475 mln. kWh (99.4% of total), wind power (WPP) generation was 6 mln. kWh (0.4% of the total generation), while thermal power (TPP) generation amounted to 3 mln. kWh (0.2% of the total generation) (Figure 2).

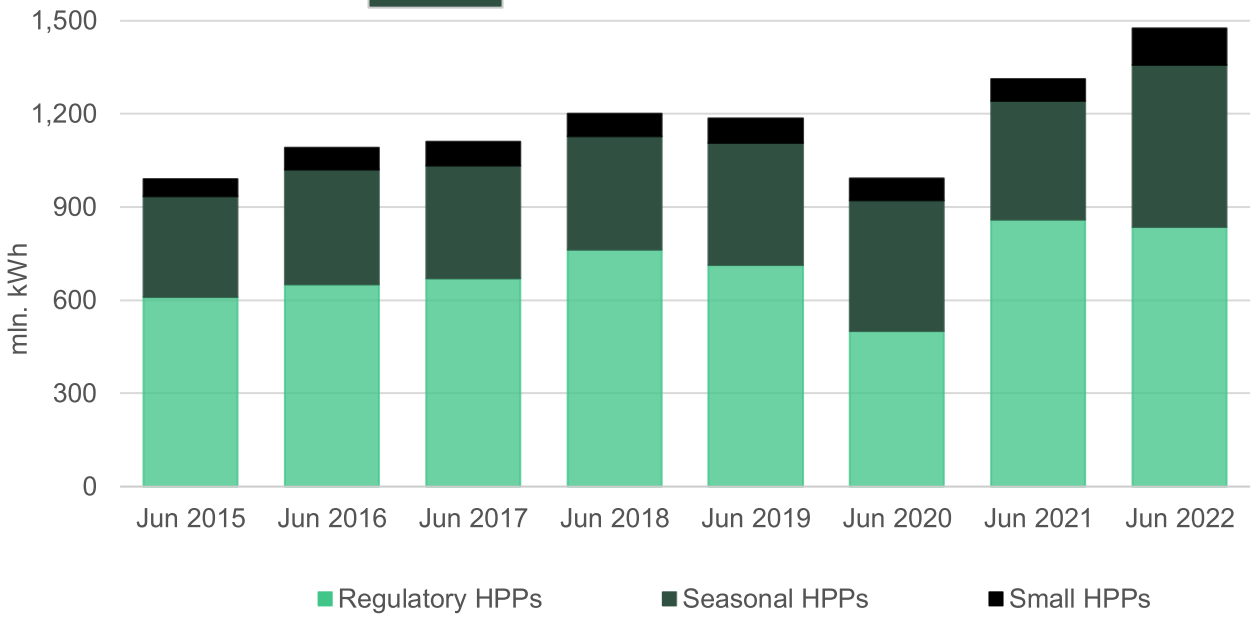
Figure 2 - **Electricity Generation by Sources**



Source: ESCO

Among hydropower generators, large (regulatory) HPPs produced 57% (835 mln. kWh) of electricity, while seasonal and small HPPs produced 35% (522 mln. kWh) and 8% (118 mln. kWh), respectively (Figure 3).

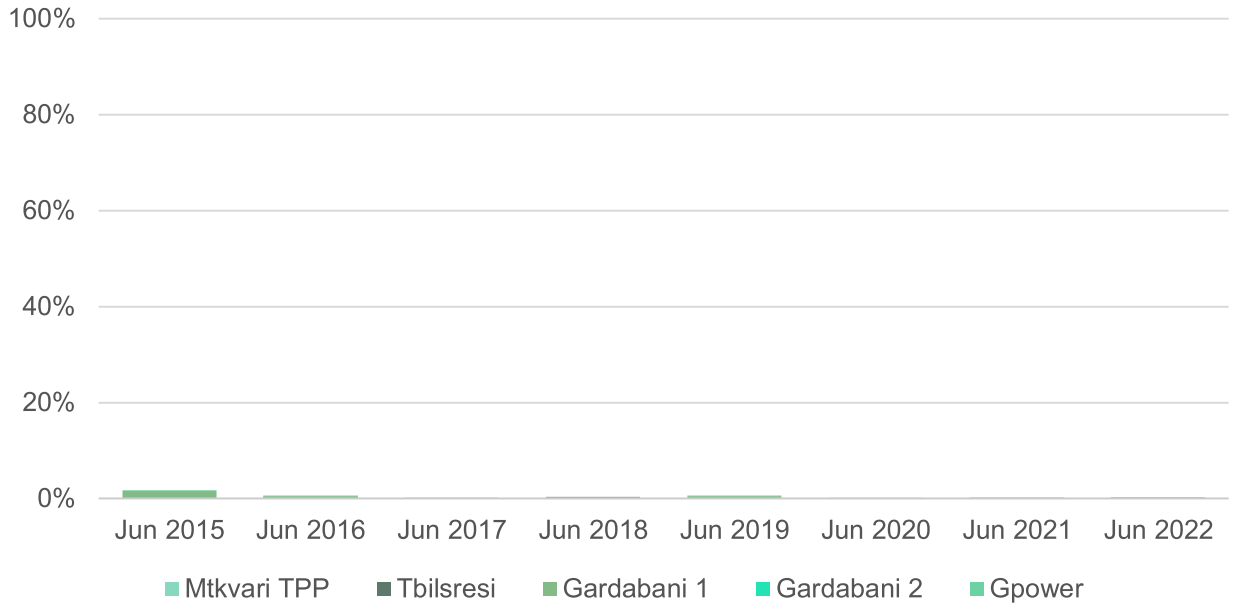
Figure 3 - **HPP Generation by Type**



Source: ESCO

As for the thermal power generation, 100% of the power came from Tbilsresi, and the generation was 0.2% of the total (TPP) (Figure 4).

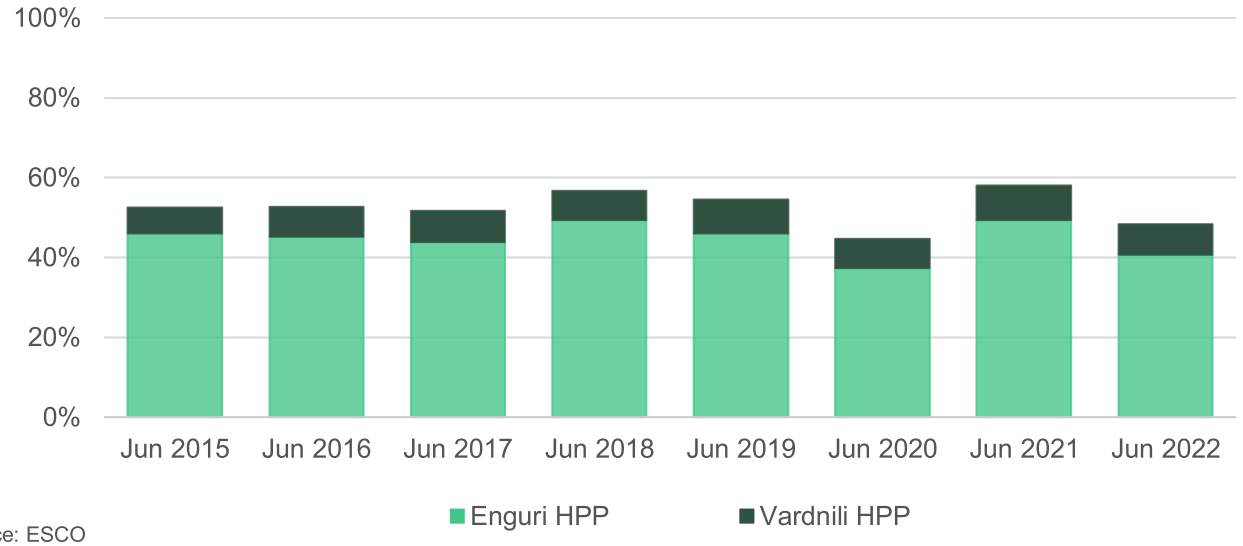
Figure 4 - Share of Large TPPs in Total Generation



Source: ESCO

As for HPP generation, Vardnili HPP generated 113 mln. kWh (14% of generation for regulatory HPPs and 8% of total generation). Enguri HPP generated 605 mln. kWh, which represents 72% of generation of regulatory HPPs and 41% of total generation (Figure 5).

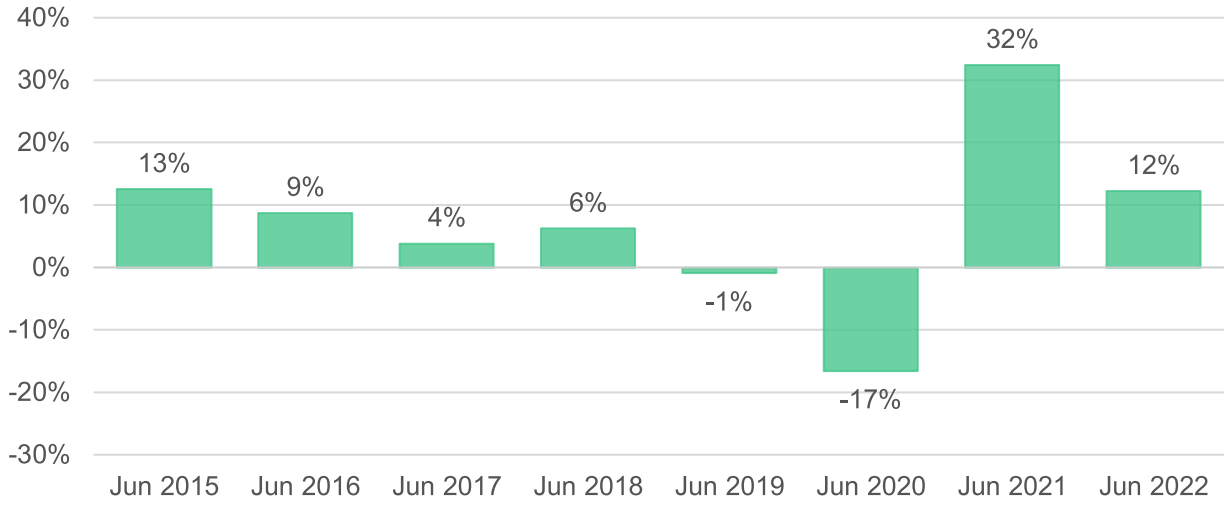
Figure 5 - Share of Enguri and Vardnili in Total Generation



Source: ESCO

Overall, the total generation increased by 12% compared to June 2021 (Figure 6).

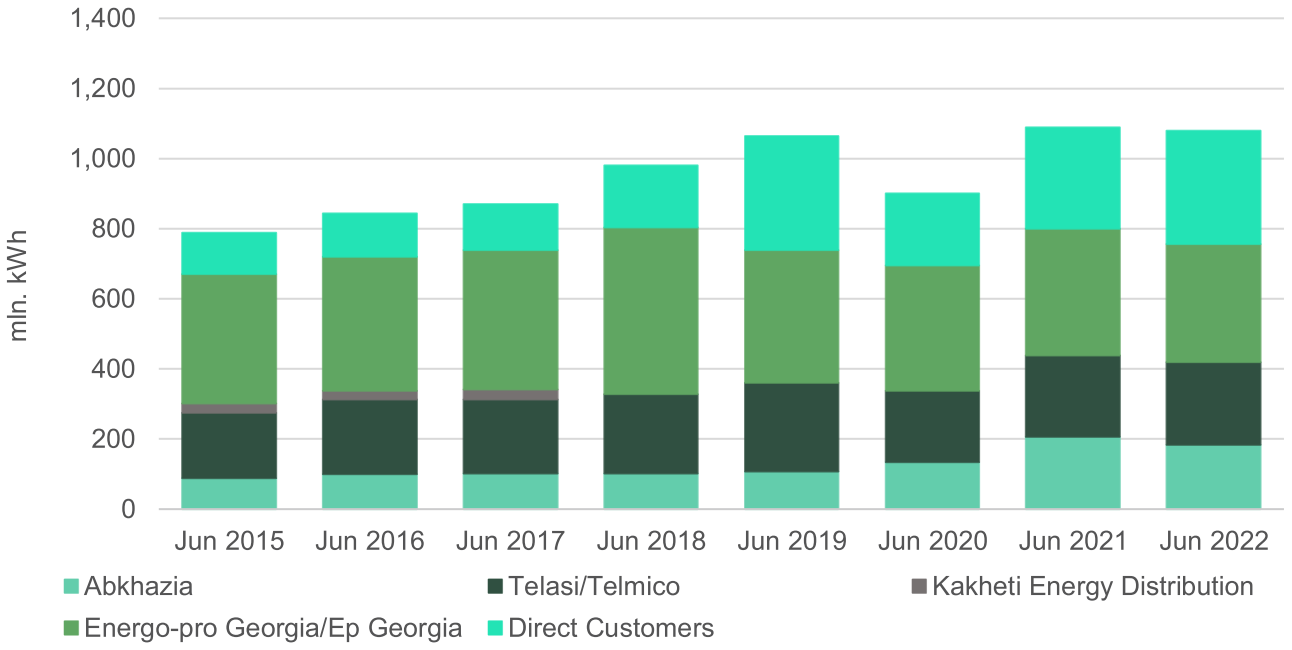
Figure 6 - Growth of Generation (%, y/y)



Source: ESCO

Total electricity demand came from: Energo-Pro Georgia/Ep Georgia[1] (31% - 336 mln. kWh), Abkhazia (17% - 184 mln. kWh), Telasi/Telmico[2] (22% - 236 mln. kWh), and direct customers (30% - 324 mln. kWh) (Figure 7). Annual demand from Telasi and direct customers increased by 2%, and 12%[3], respectively, while the demand from Abkhazia, and Energo-Pro Georgia fell by 11%, and 7%, respectively. Overall, there was an annual decrease of 1% in the total electricity consumption in June 2022, compared to June 2021 (Figure 8).

Figure 7 - Electricity Consumption by Type of Customer



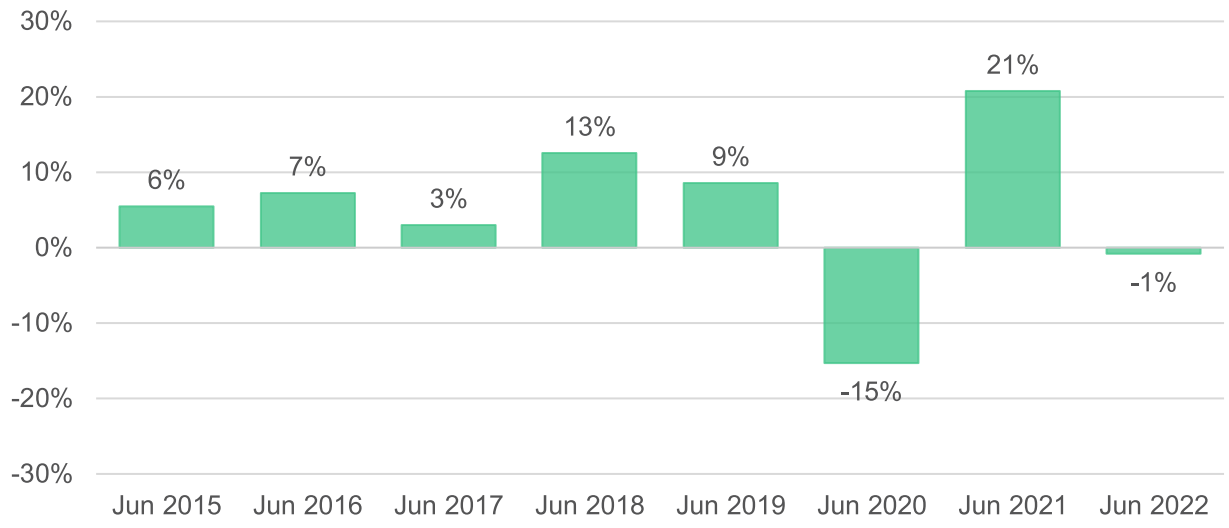
Source: ESCO

[1] Energo-Pro Georgia acquired Kakheti Energy Distribution in September 2017.

[2] Since 1st of July 2021, after adoption of a new electricity market model concept, operations of distribution and final supply have been disentangled, thus three different groups of players appeared on the market, Distribution Licensees - responsible for distribution activities and covering losses in the distribution network - Universal Service Suppliers - responsible for providing electricity to residential sector and small enterprises and Public Service Organizations – responsible for providing electricity to medium and large enterprises upon the written agreement. Currently, Energo-pro Georgia and Telasi continue their distribution activities, while EP Georgia Supply and Tbilisi Electricity Supply Company (Telmico) have been separated from them and play the role of both Universal Service Suppliers and Public Service Organizations.

[3] The rise in demand from the direct customers is caused by the fact that according to a new regulation (adopted in April 2020 and enforced in July 2021), companies that consume more than 0.4 mln. kWh per month should buy electricity directly.

Figure 8 - Electricity Consumption Growth (%, y/y)

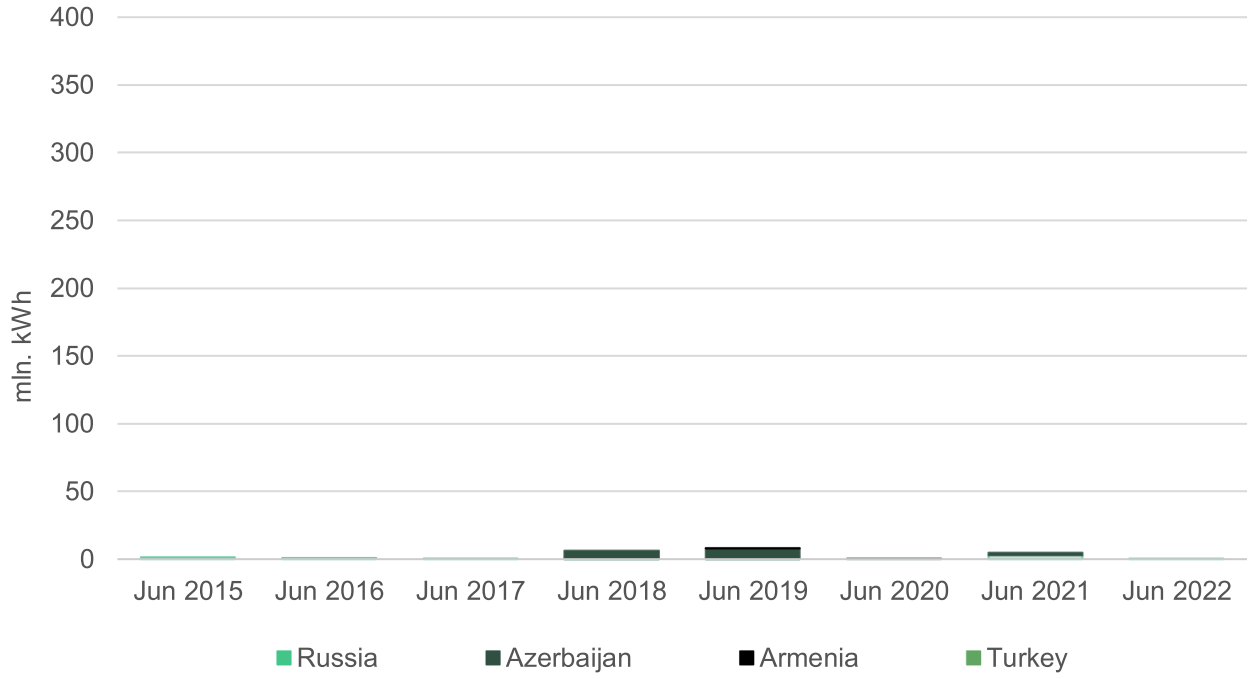


Source: ESCO

In June 2022, Georgia imported 1 mln. kWh of electricity (compared to 5 mln. kWh in June 2021). All of imports came from Russia (Figure 9). In June 2022, Georgia exported 351 mln. kWh of electricity, 84% of which went to Turkey, and 16% went to Armenia (there was 195 mln. kWh export in June 2021) (Figure 10). There was only an insignificant export to Russia and Azerbaijan. There was 71 mln. kWh transit from Azerbaijan to Turkey, and 21 mln. kWh transit from Russia to Turkey (there was 35 mln. kWh transit from Azerbaijan to Turkey in June 2021).

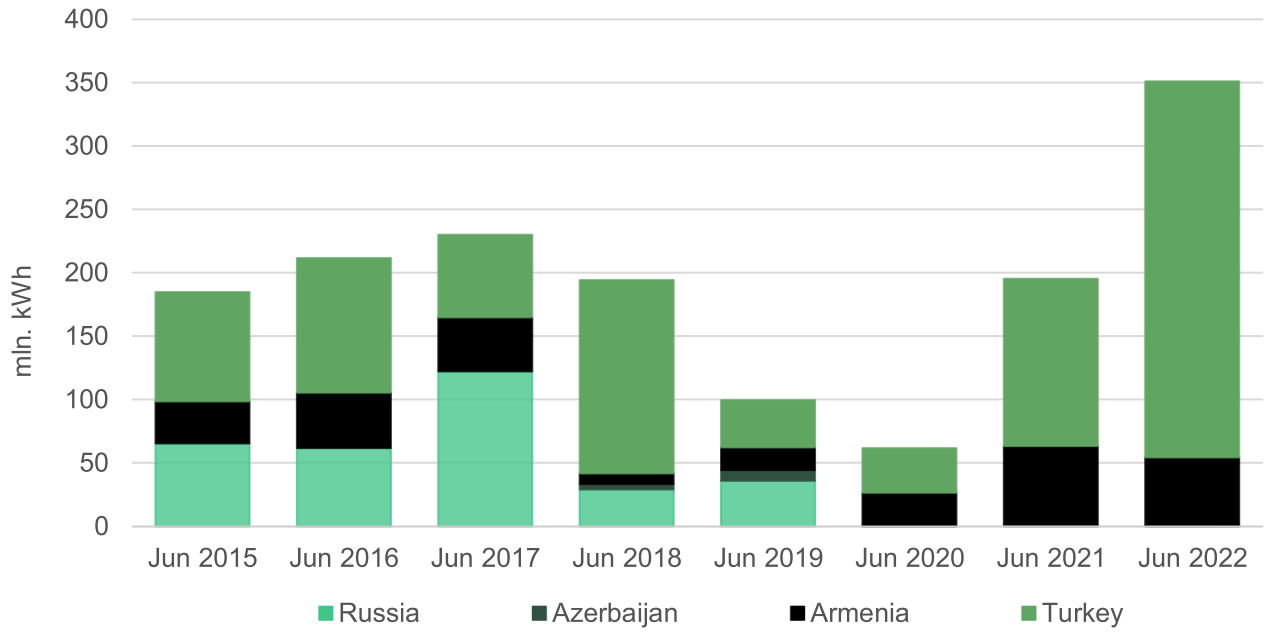
Compared to June 2021, imports decreased by 87%, while exports increased by 80%.

Figure 9 - Imports by Year



Source: ESCO

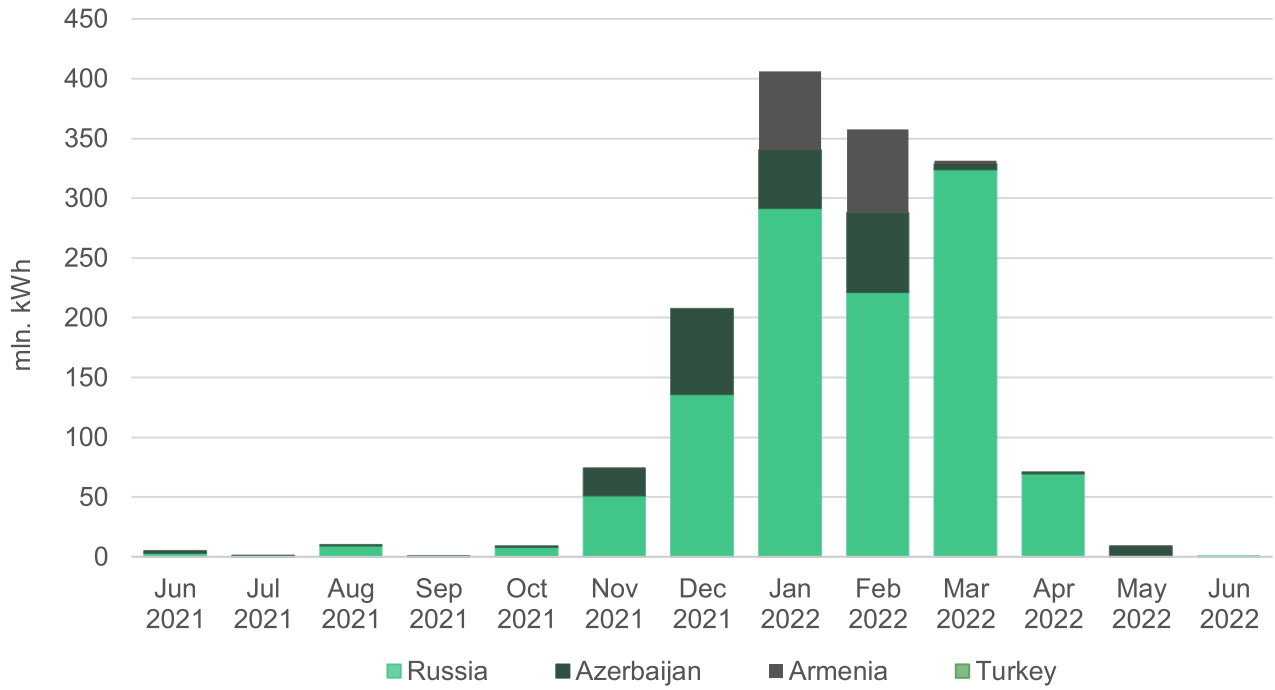
Figure 10 - **Exports by Year**



Source: ESCO

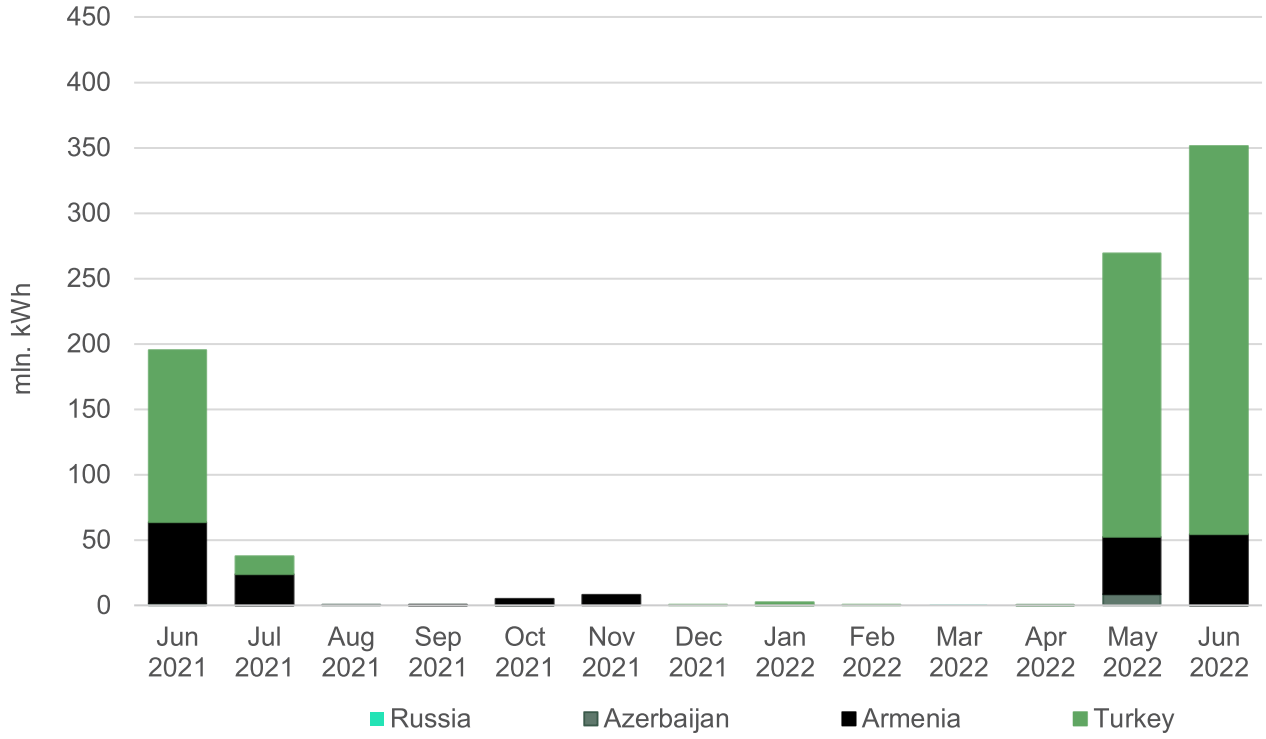
In June 2022, electricity imports decreased by 94% compared to May 2022 (Figure 11). Electricity exports increased by 30%, compared to May 2022 (Figure 12). June 2022 was the second straight month with generation-consumption surplus.

Figure 11 - **Imports by Month**



Source: ESCO

Figure 12 **- Exports by Month**

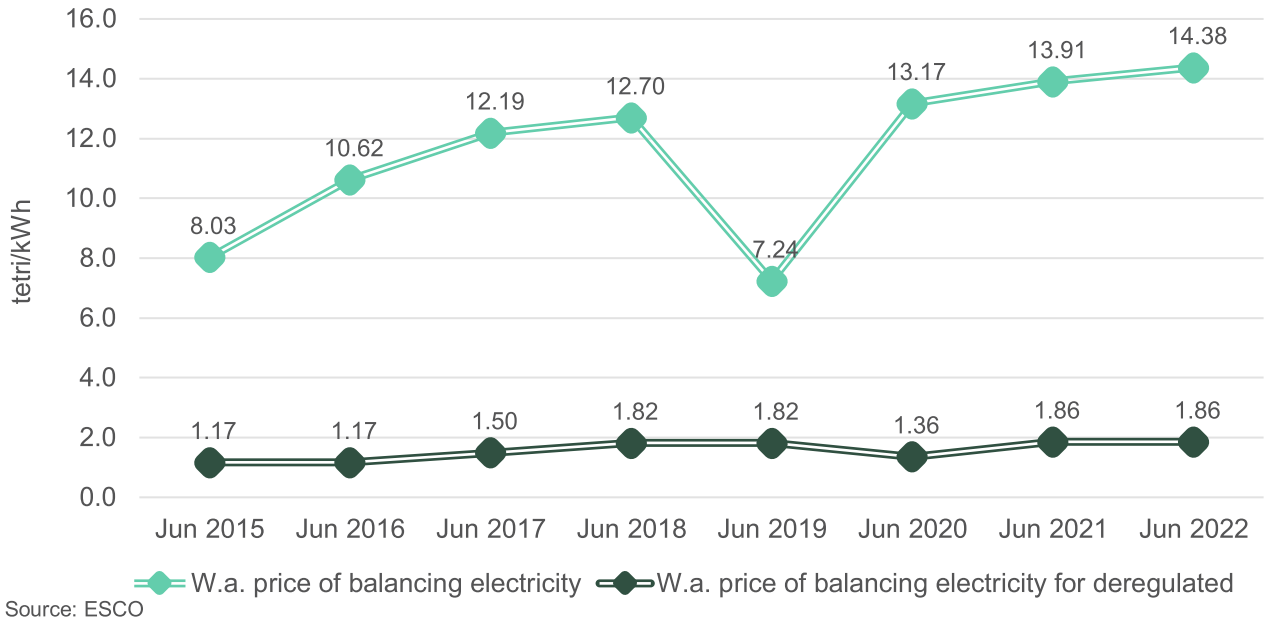


Source: ESCO

1. Market Operations

In June 2022, the weighted average price of balancing electricity was 14.38 tetri/kWh, which corresponds to an annual increase of 3% compared to June 2021. As for the weighted average price for deregulated (small) HPPs, it was 1.86 tetri/kWh, the same as in June 2021 (Figure 13).

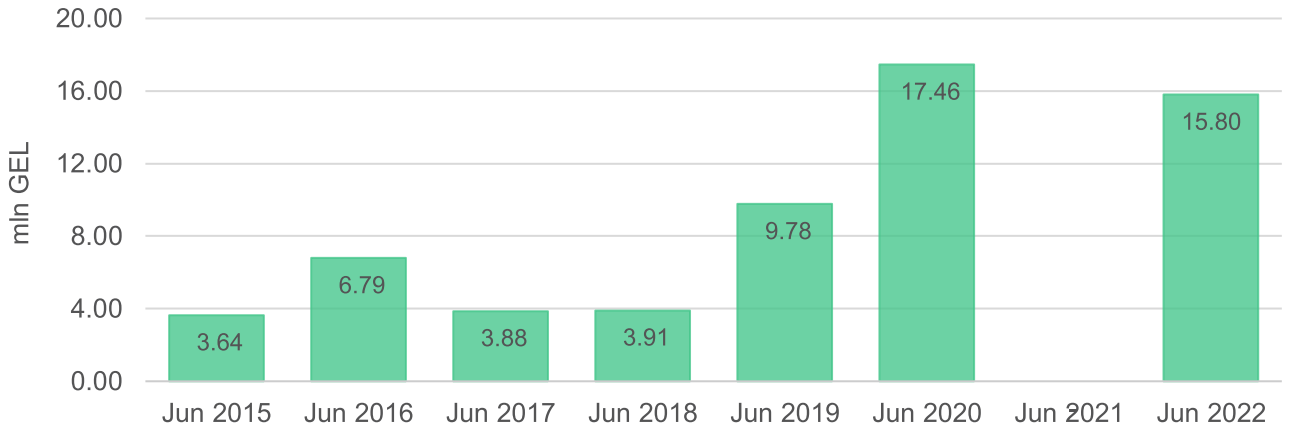
Figure 13 - **Balancing Electricity Prices Weighted Average and Weighted Average Price for Deregulated HPPs**



Source: ESCO

Guaranteed capacity payments in June 2022 were roughly 15.80 mln. GEL, which represents an 10% decrease compared to June 2020. The data about June 2021 are not available (Figure 14).

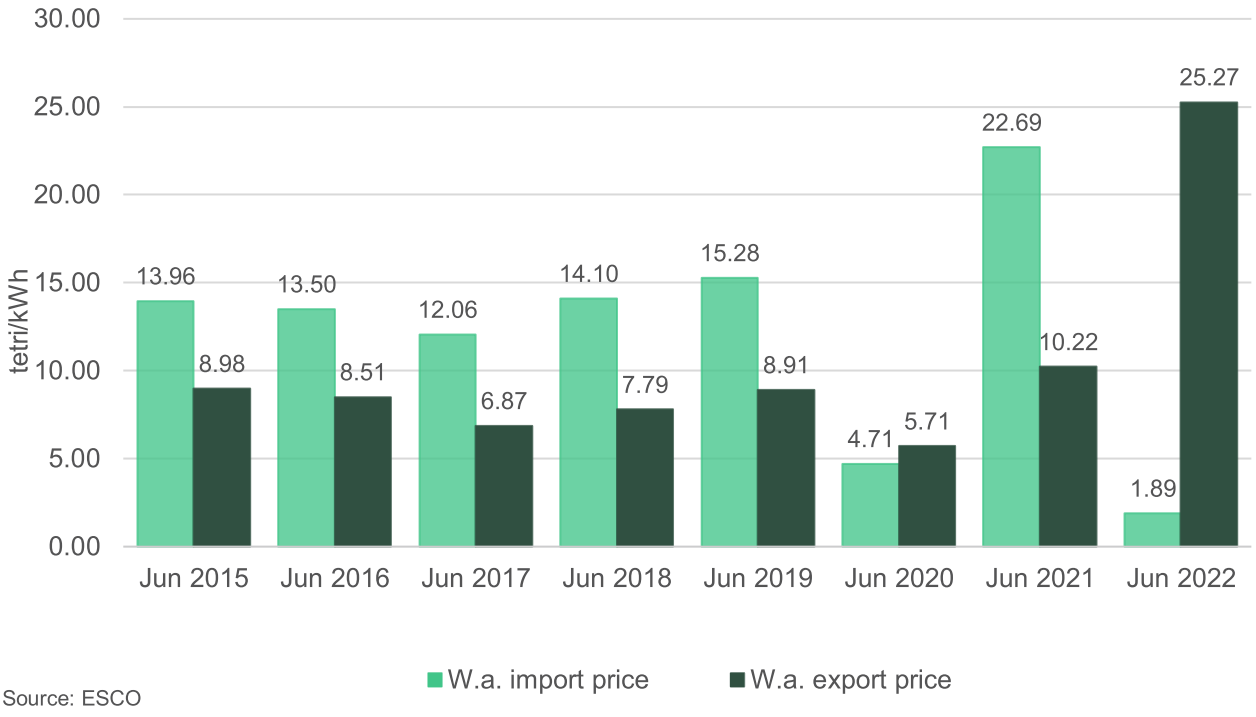
Figure 14 - **Cost of Guaranteed Capacity**



Source: ESCO

The weighted average electricity import price in June 2022 decreased by 91% in USD, on an annual basis, and decreased by approximately 92% in GEL (from 7.18 ¢, or 22.69 tetri per kWh in June 2021 to 0.64 ¢, or 1.89 tetri per kWh in June 2022 - Figure 15). The weighted average electricity import price decreased by 90% in USD and by 90% in GEL monthly (prices were 6.50 ¢, or 19.30 tetri per kWh in May 2022). The weighted average electricity export price in June 2022 increased by 164% in USD, on an annual basis, and increased by approximately 147% in GEL (from 3.23 ¢, or 10.22 tetri per kWh in June 2021 to 8.55 ¢, or 25.27 tetri per kWh in June 2022 - Figure 15). The weighted average export price decreased by 10% USD and decreased by 10% in GEL on a monthly basis (prices were 9.47 ¢, or 28.13 tetri per kWh in May 2022).

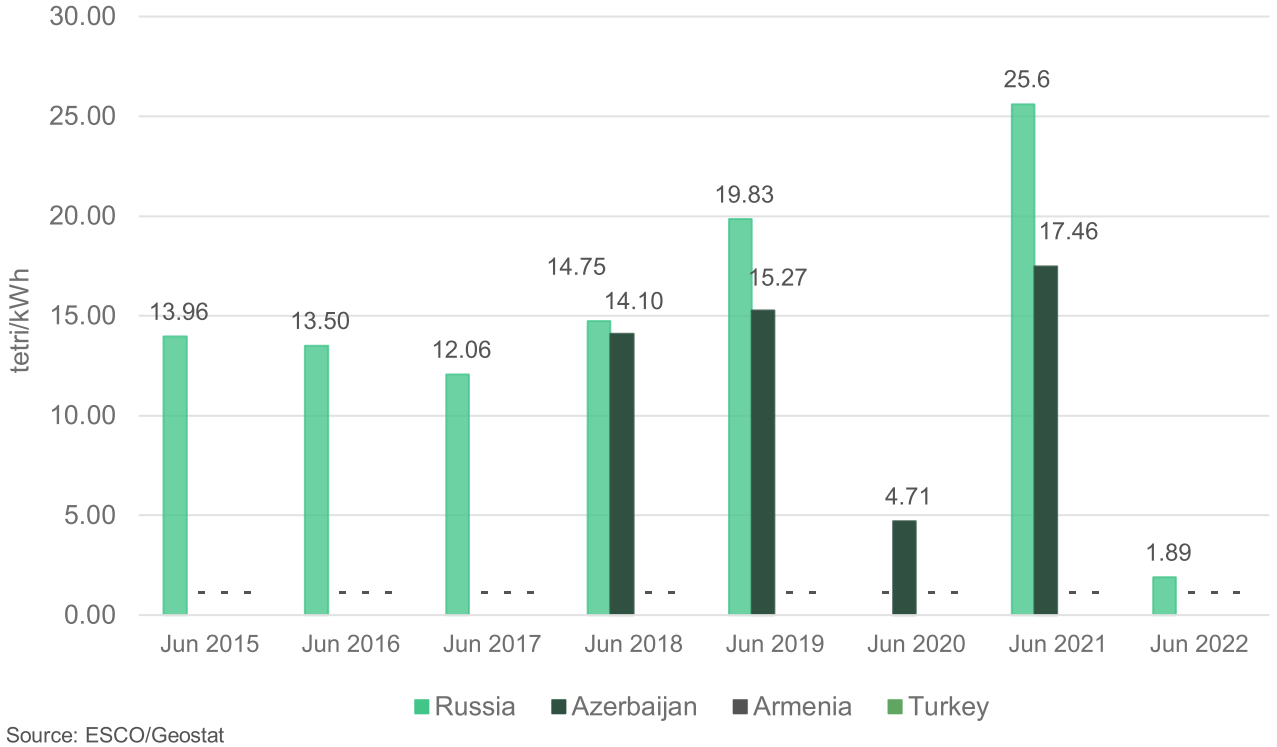
Figure 15 - Prices Import/Export



Source: ESCO

In June 2022, the electricity import price from Russia stood at 0.64 ¢ or 1.89 tetri. (Figure 16).

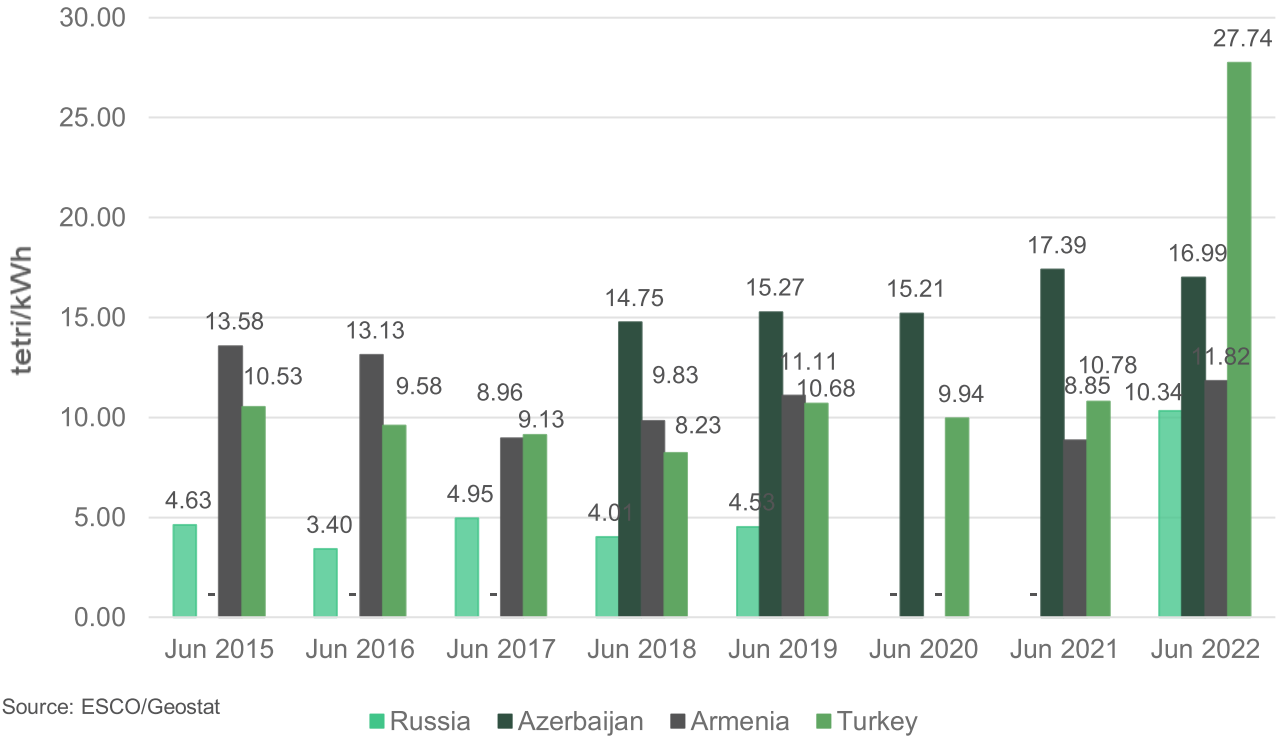
Figure 16 - Import Prices by Countries



Source: ESCO/Geostat

In June 2022, the electricity export price to Azerbaijan and Turkey, stood at 5.75 ¢ or 16.99 tetri, 9.39 ¢ or 27.74 tetri, respectively, as for Russia and Armenia - 3.50 ¢ or 10.34 tetri, and 4.00 ¢ or 11.82 tetri, respectively (Figure 17).

Figure 17 - Export Prices by Countries

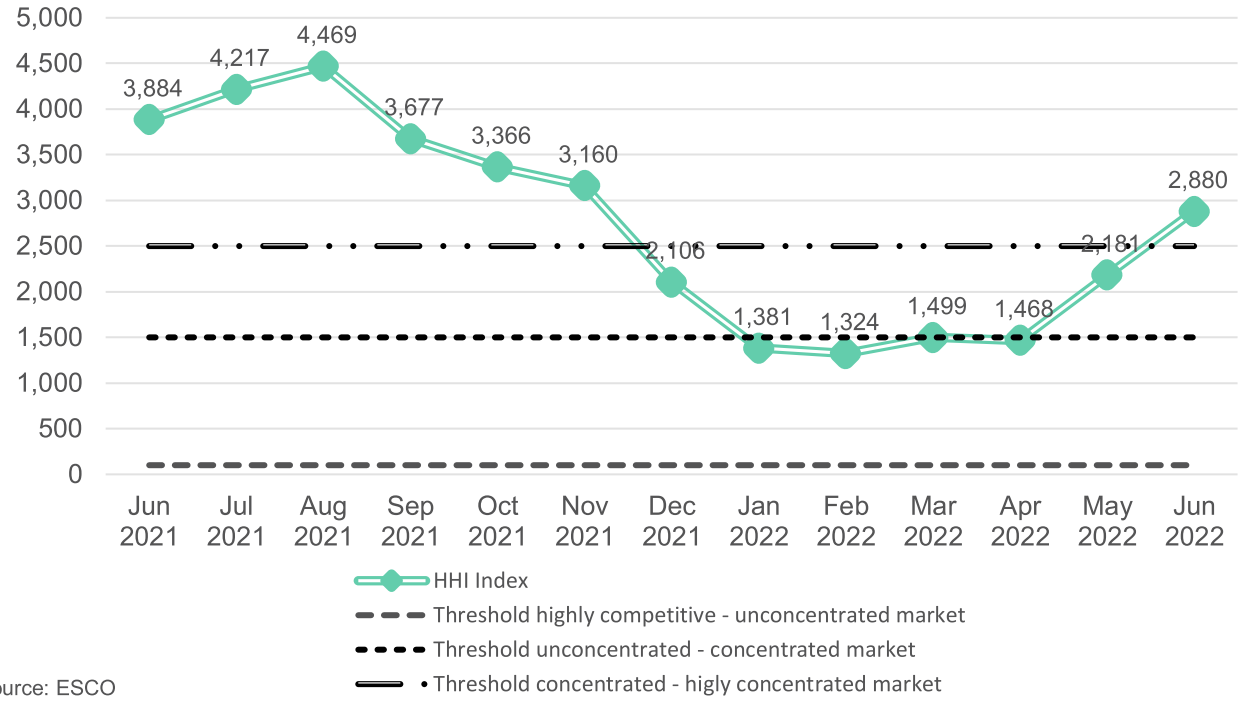


Source: ESCO/Geostat

2. Market Concentration

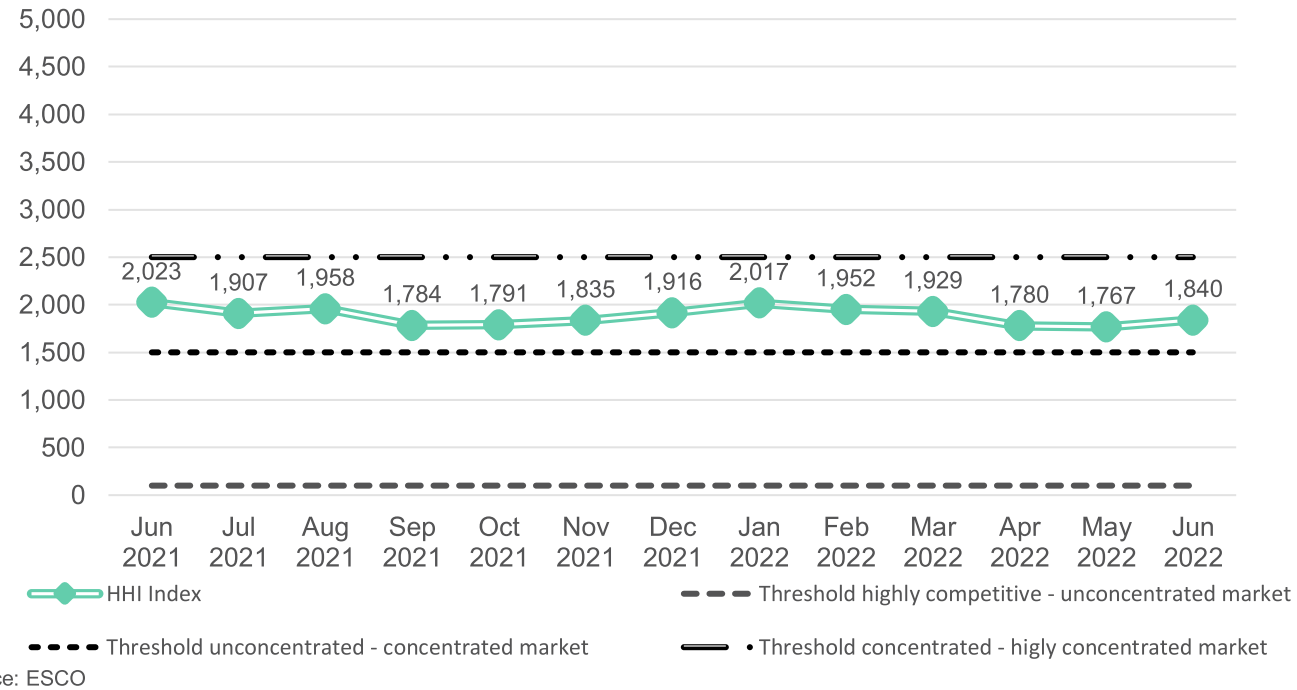
In conclusion, we utilize the Hirschman-Herfindahl (HHI) market concentration index to evaluate how competitive the generation and consumption segments of the market have been over the year. In June 2022, the Georgian electricity generation market index increased above the threshold of highly concentrated market with an HHI value of 2,880 (Figure 18). This is lower than the level in June 2021 (with an HHI value of 3,884), but higher than the level in May 2022 (the HHI was 2,181). As for the consumption segment, in June 2022, the HHI consumption index remained below the threshold for a highly concentrated market, with an HHI value of 1,840 (below the level in June 2021 – 2,023 and below the level in May 2022 – 1,767). In fact, September 2020 was the last month when the index value was above the level of highly concentrated market, which indicates that the market is becoming increasingly competitive, with many new direct customers emerging. Since then, an overall annually decreasing trend in the market concentration of consumption segment was observable (Figure 19).

Figure 18 - **Hirschman-Herfindahl Index for Power Generation**



Source: ESCO

Figure 19 - **Hirschman-Herfindahl Index for Power Consumption**



Source: ESCO