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ELECTRICITY MARKET REVIEW

ISET POLICY INSTITUTE
ENERGY AND ENVIRONMENT POLICY RESEARCH CENTER

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INFORMATION

- In May 2022 there was an increase in the total electricity generation by 20% on a yearly basis, and an increase by approximately 30% on a monthly basis.
- Consumption increased by 9% on yearly basis and remained almost the same as in the previous month.
- Generation exceeded consumption by 307 mln. kWh which was 21% of the total generation in May 2022.
- There was a 119% increase in imports annually.
- The main import partner country was Azerbaijan.
- The weighted average price of imports in GEL increased by 3% on a yearly basis and increased by 4% on a monthly basis.
- There was a 105% increase in exports annually.
- The main export partner was Turkey.
- The weighted average price of exports in GEL increased by 148% on a yearly basis and increased by 175% on a monthly basis.
- For the sixth successive month, the HHI index for the Georgian electricity generation market remained below the threshold of highly concentrated market. In May 2022, it reached the level of 2,181.
- The HHI for the Georgian electricity consumption market remained below the threshold of a highly concentrated market. In May 2022, it reached the level of 1,767.

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

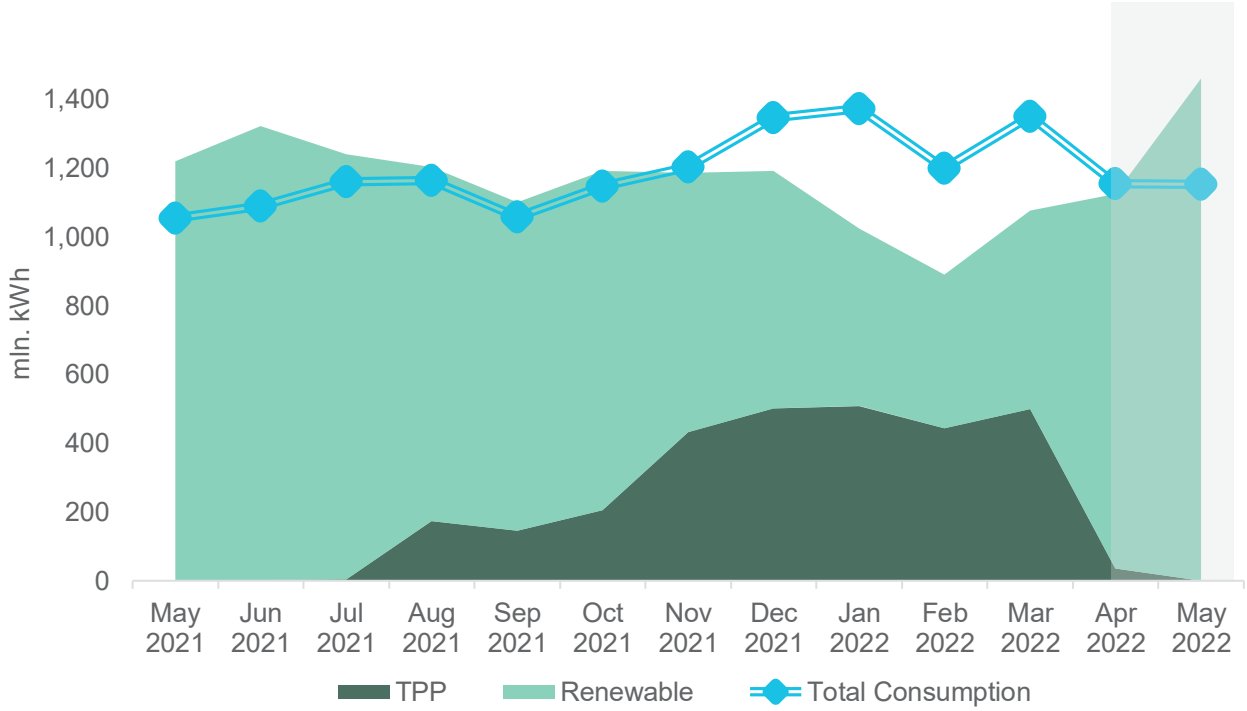
Generation – Consumption – Trade

In May 2022, Georgian power plants generated 1,461 mln. kWh of electricity (Figure 1). This represents a 20% increase in the total generation compared to the previous year (in May 2021, the total generation was 1,221 mln. kWh). The increase in the generation on a yearly basis comes from a rise of 20% in hydro power generation, respectively, more than offsetting a 9% decline in wind power generation. It is noteworthy that thermal power generation reduced to 0.

On a monthly basis, the generation increased by approximately 30% (in April 2022, the total generation was 1,125 mln. kWh) (Figure 1). The monthly increase in the total generation, is induced by a 34% increase in hydro power generation, and a 27% increase in wind power generation.

The consumption of electricity on the local market was 1,154 mln. kWh (+9% compared to May 2021, and almost identical to the consumption in April 2022) (Figure 1). In May 2022, power generation exceeded consumption by 307 mln. kWh which was 21% of the total generation (in May 2021, the difference between the total generation and the consumption resulted in a surplus of 166 mln. kWh, around 14% of the total generation for the month).

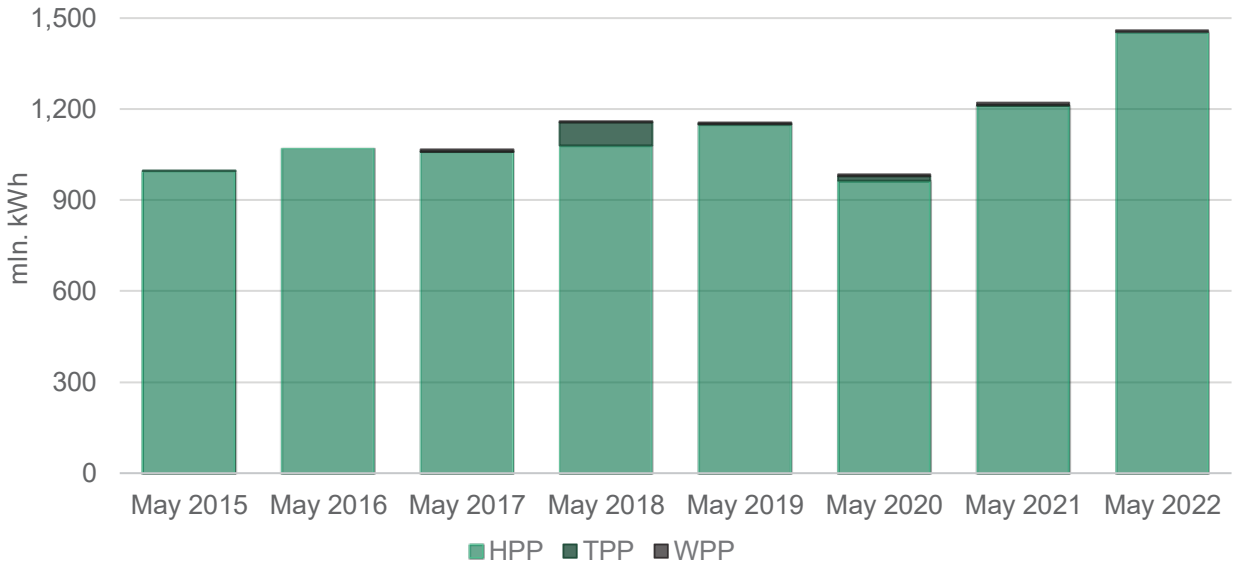
Figure 1 - **Electricity Consumption and Generation**



Source: Electricity System Commercial Operator (ESCO)

In May 2022, hydro power plants were the leading source of generation. In May 2022, hydro power (HPP) generation amounted to 1,453 mln. kWh (99% of total), and wind power (WPP) generation was 8 mln. kWh (1% of the total generation). There was no generation from thermal power plants (TPP) (Figure 2).

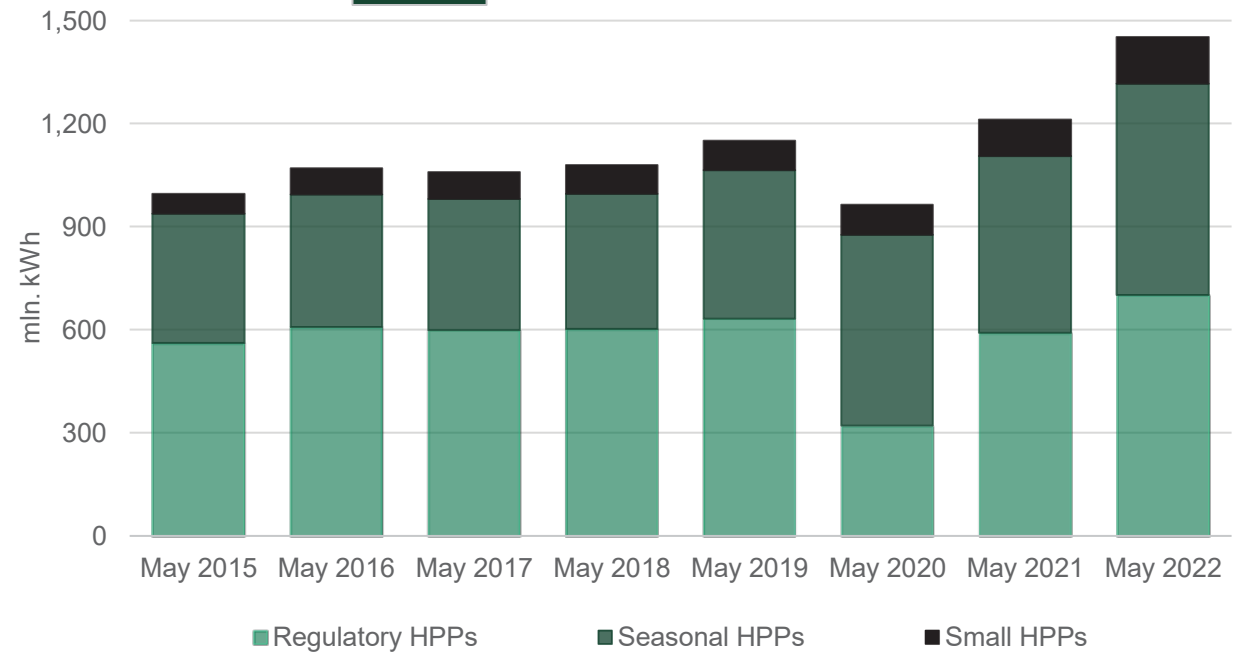
Figure 2 - **Electricity Generation by Sources**



Source: ESCO

Among hydropower generators, large (regulatory) HPPs produced 48% (700 mln. kWh) of electricity, while seasonal and small HPPs produced 42% (615 mln. kWh) and 10% (137 mln. kWh), respectively (Figure 3).

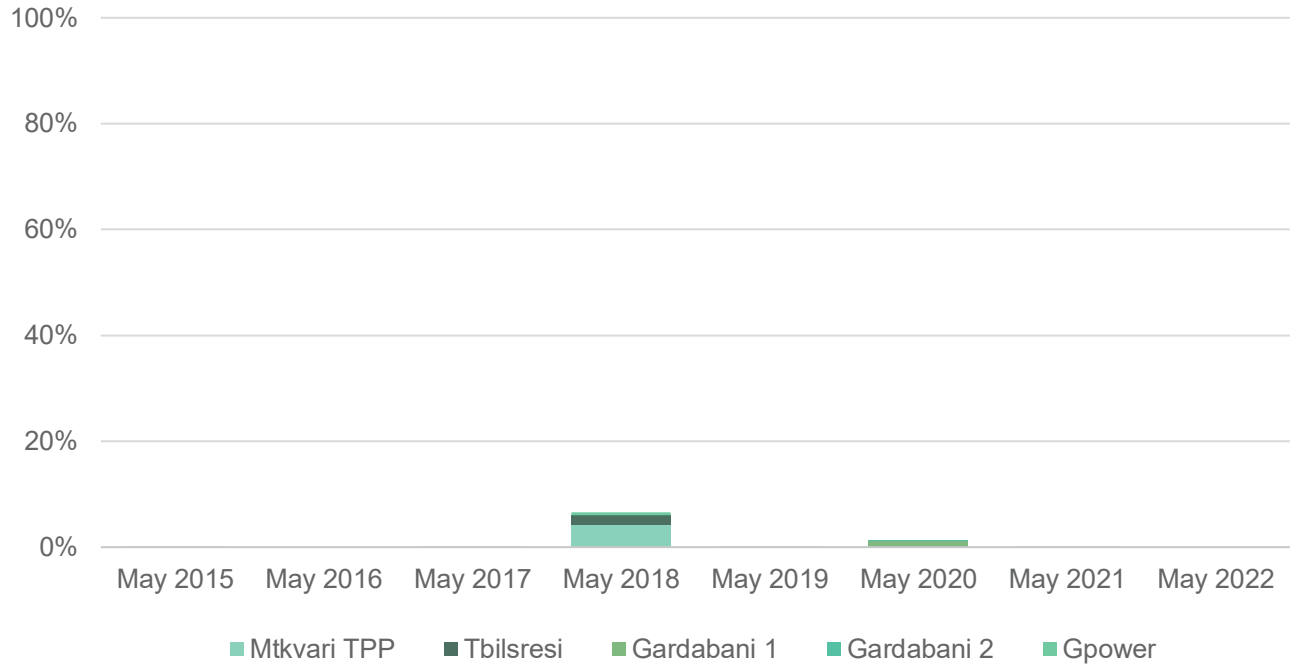
Figure 3 - **HPP Generation by Type**



Source: ESCO

As already mentioned, there was no generation of thermal power plants (TPP) (Figure 4).

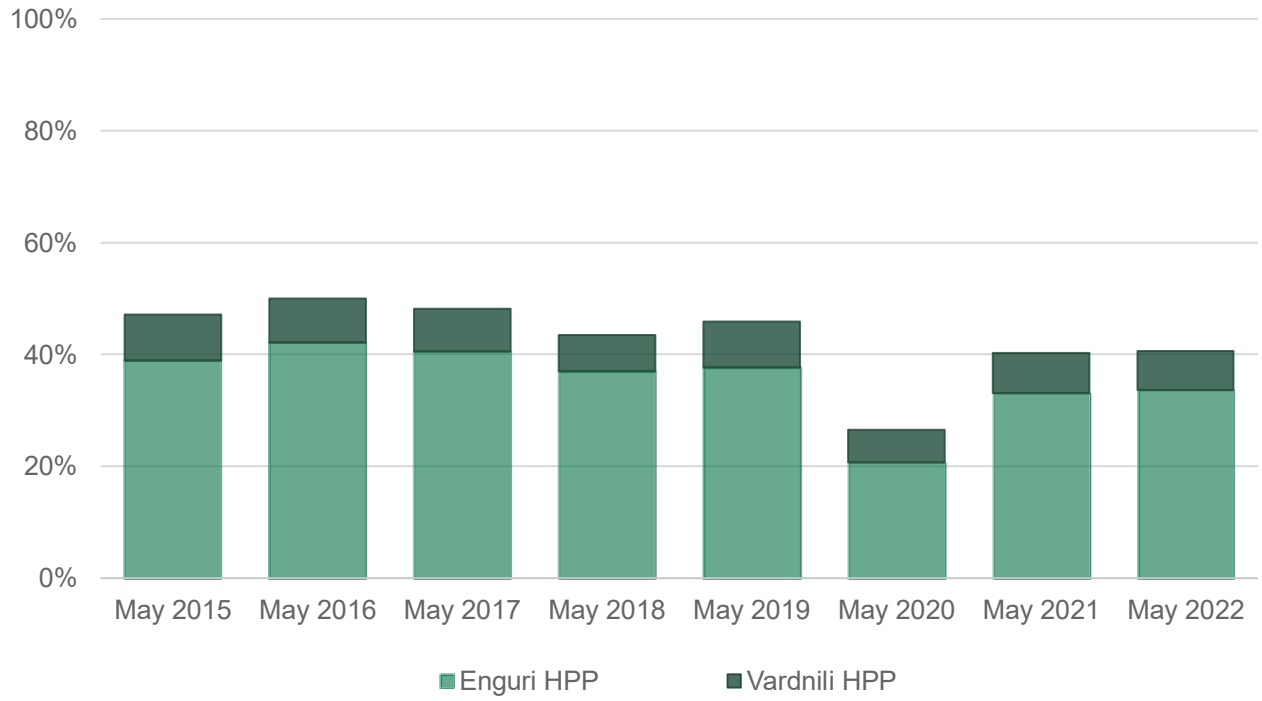
Figure 4 - Share of Large TPPs in Total Generation



Source: ESCO

As for HPP generation, Vardnili HPP generated 103 mln. kWh (15% of generation for regulatory HPPs and 7% of total generation). Enguri HPP generated 491 mln. kWh, which represents 70% of generation of regulatory HPPs and 34% of total generation (Figure 5).

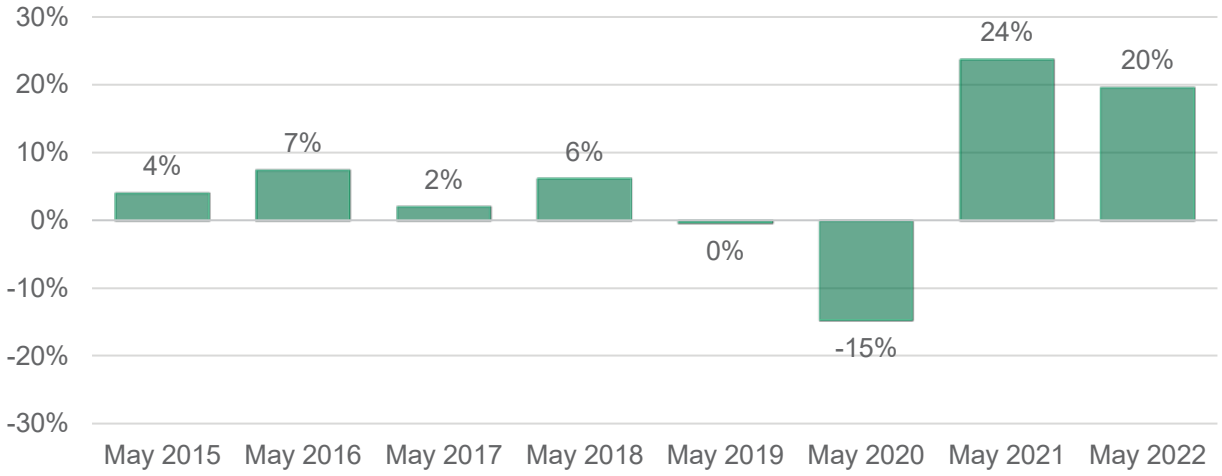
Figure 5 - Share of Enguri and Vardnili in Total Generation



Source: ESCO

Overall, the total generation increased by 20% compared to May 2021 (Figure 6).

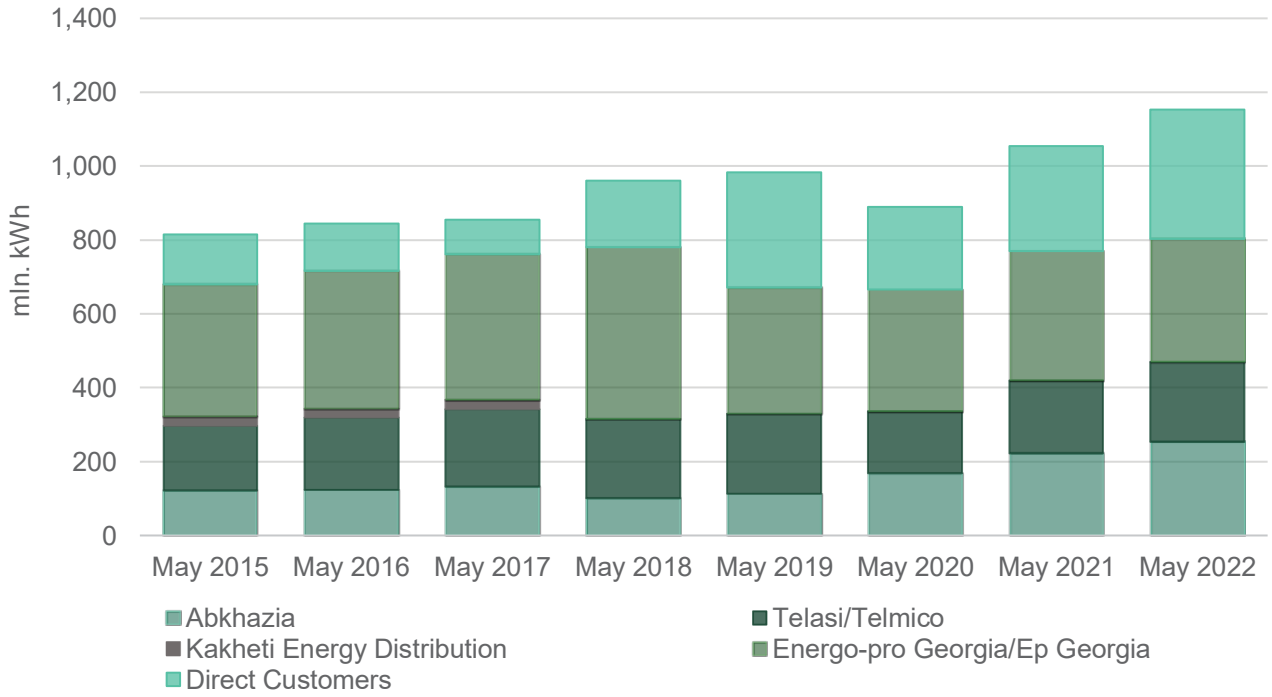
Figure 6 - Growth of Generation (%, y/y)



Source: ESCO

Total electricity demand came from: Energo-Pro Georgia/Ep Georgia[1] (29% - 332 mln. kWh), Abkhazia (22% - 253 mln. kWh), Telasi/Telmico[2] (19% - 217 mln. kWh), and direct customers (30% - 350 mln. kWh) (Figure 7). Annual demand from Abkhazia, Telasi and direct customers increased by 14%, 10%, and 24%[3], respectively, while the demand from Energo-Pro Georgia fell by 5%. Overall, there was an annual growth of 9% in the total electricity consumption in May 2022, compared to May 2021 (Figure 8).

Figure 7 - Electricity Consumption by Type of Customer



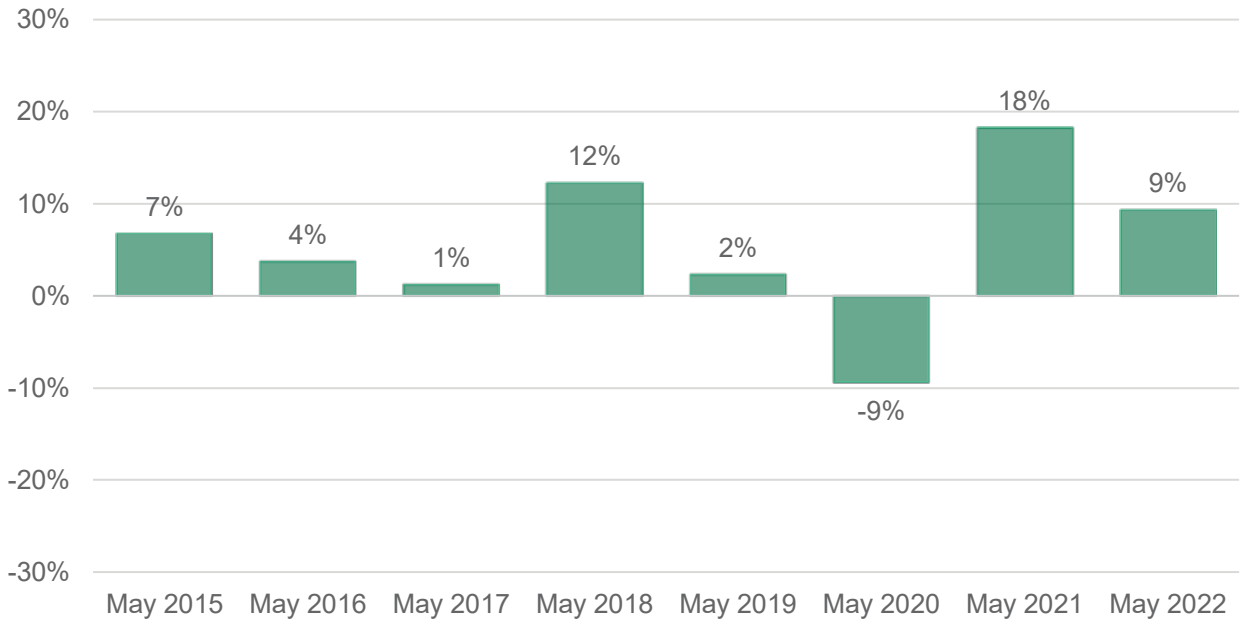
Source: ESCO

[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)

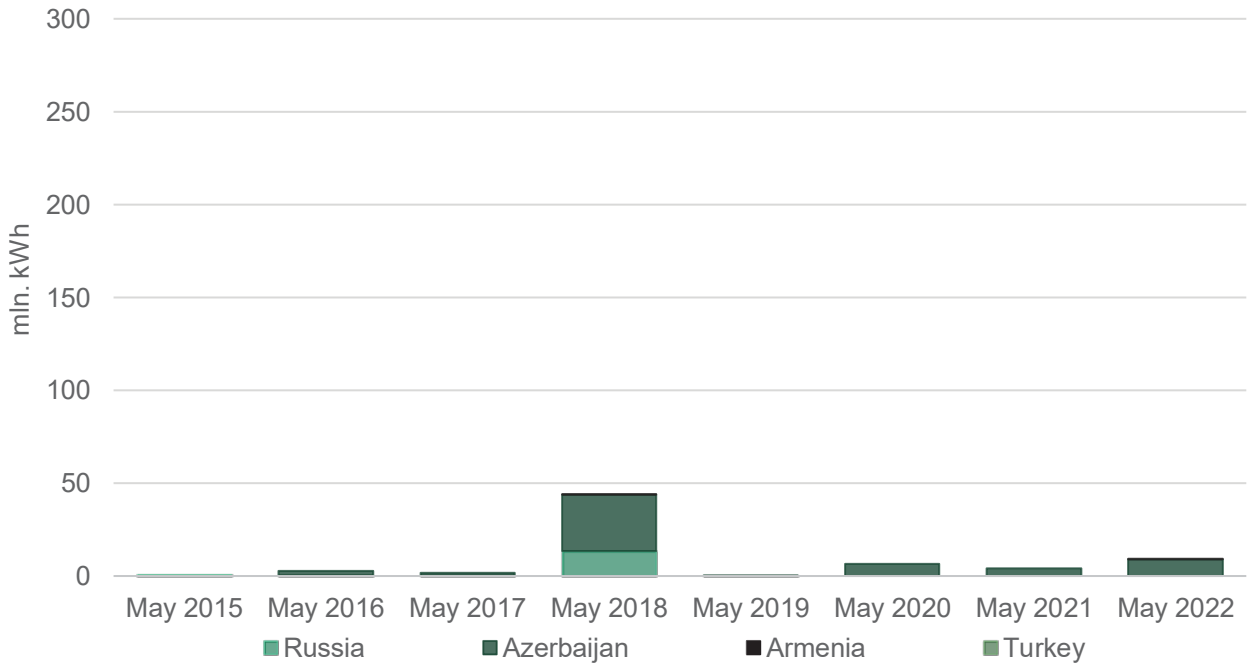


Source: ESCO

In May 2022, Georgia imported 9 mln. kWh of electricity (compared to 4 mln. kWh in May 2021). Almost all of imports came from Azerbaijan, and only an insignificant share (less than 0.1%) came from Armenia (Figure 9). In May 2022, Georgia exported 269 mln. kWh of electricity, 81% of which went to Turkey, 3% went to Azerbaijan and 16% went to Armenia (there was 131 mln. kWh export in May 2021) (Figure 10). There was no electricity transit in May 2022 as in May 202.

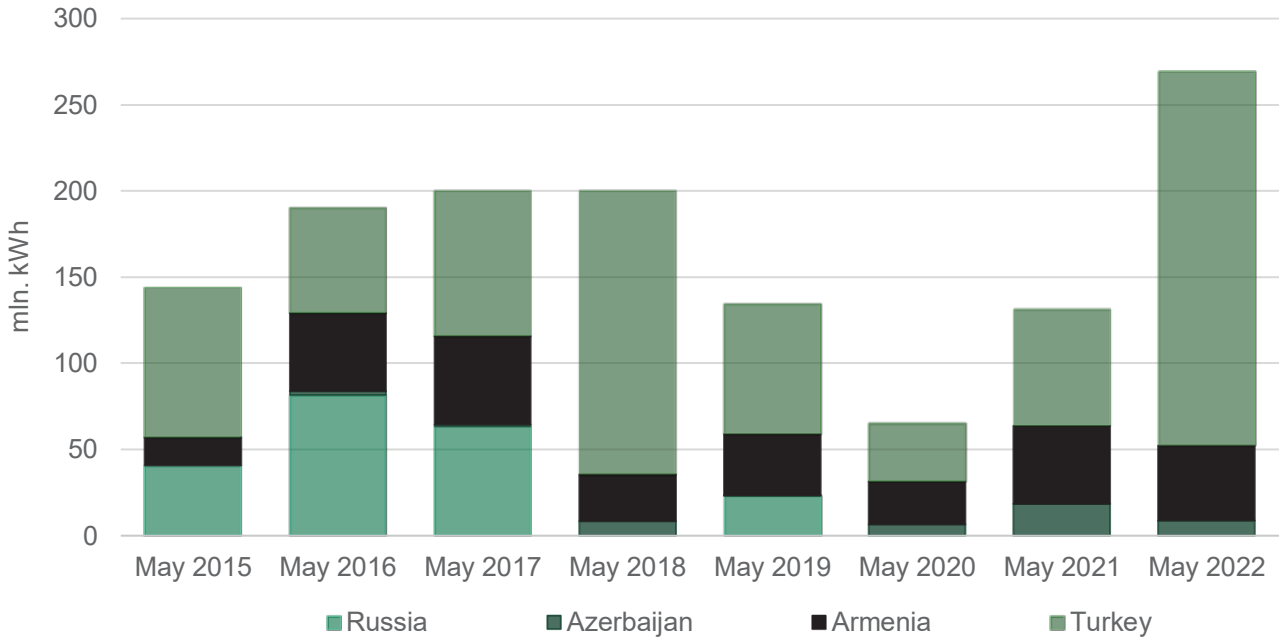
Compared to May 2021, imports increased by 119%, while exports increased by 105%.

Figure 9 - Imports by Year



Source: ESCO

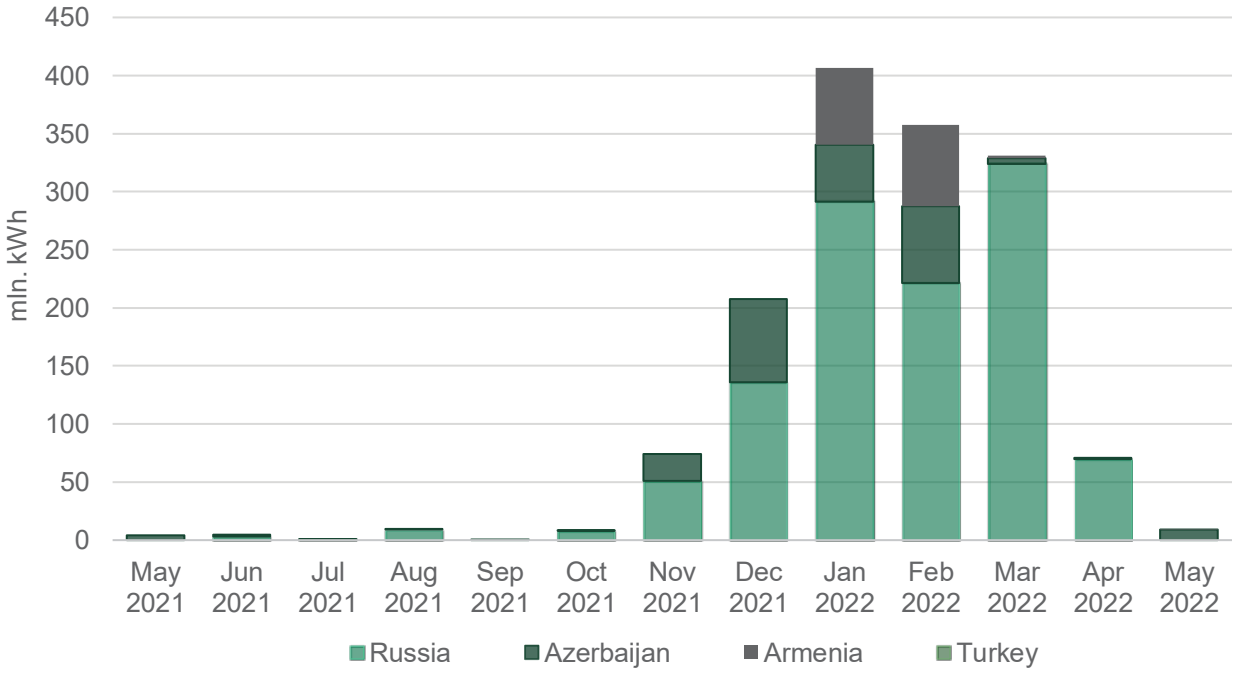
Figure 10 - Exports by Year



Source: ESCO

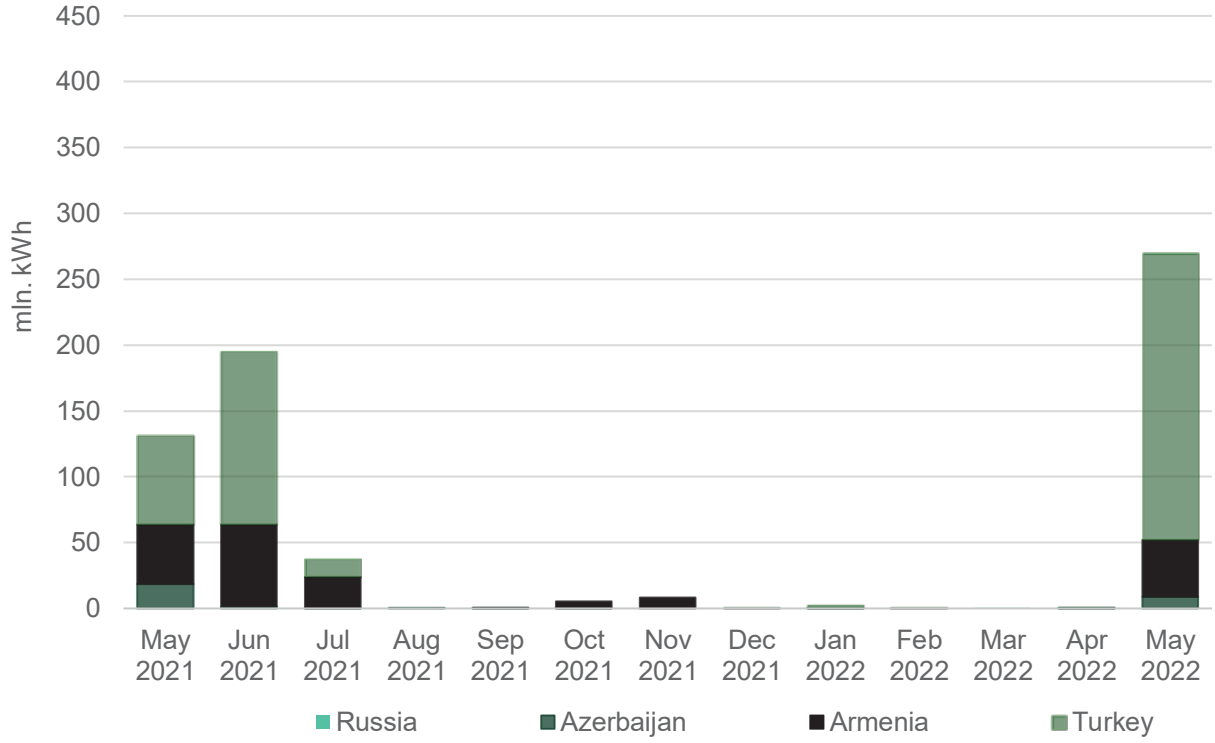
In May 2022, electricity imports decreased by 87% compared to April 2022 (Figure 11) Electricity exports increased 1,705 times (the low base effect), compared to April 2022 (Figure 12). After six consecutive months of generation-consumption deficit, there was a surplus in May 2022.

Figure 11 - Imports by Month



Source: ESCO

Figure 12 **- Exports by Month**

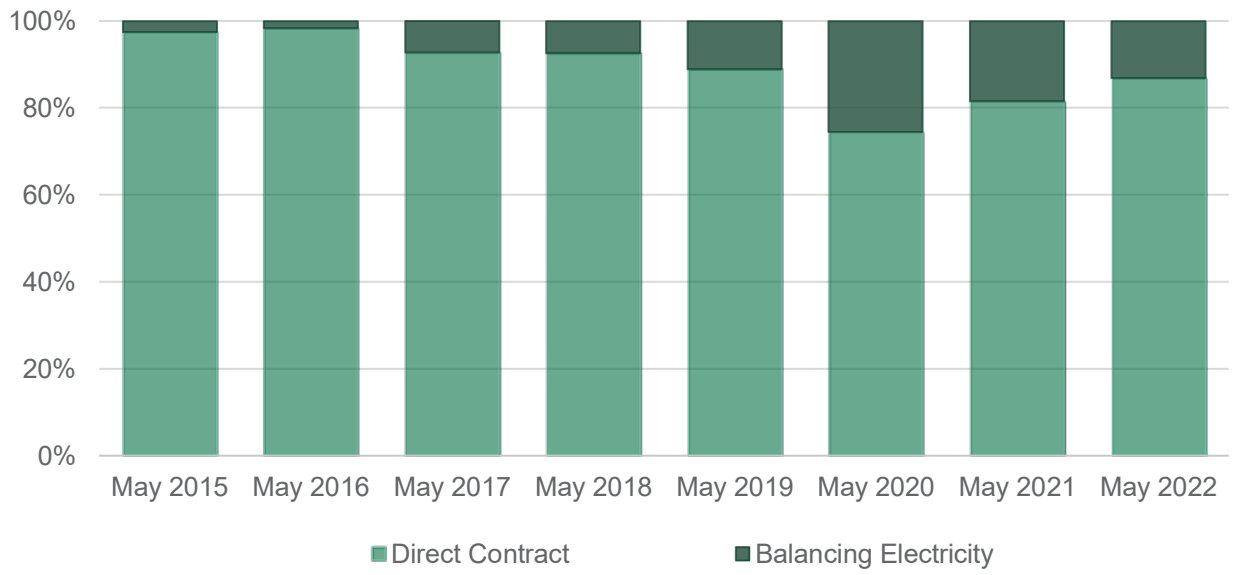


Source: ESCO

1. Market Operations

In May 2022, 87% of the electricity sold on/from the local market was sold through direct contracts. The remaining 13% was sold as balancing electricity (Figure 13).

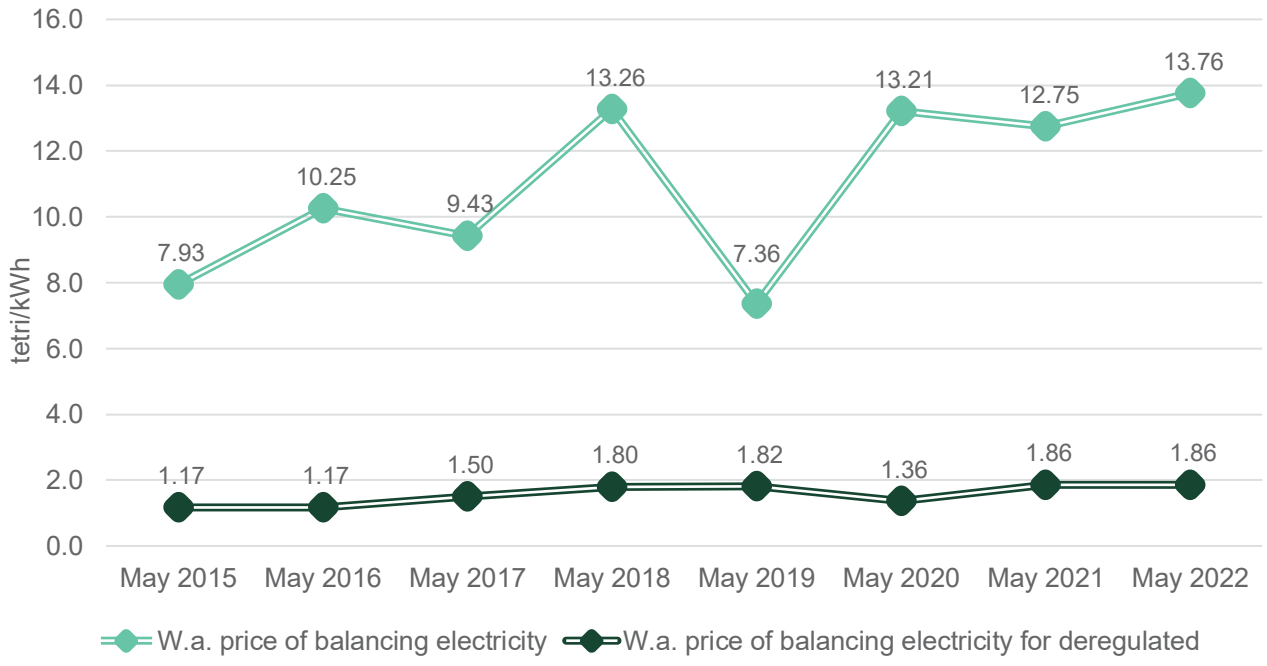
Figure 13 - Electricity Purchased / Sold Shares of Direct Contracts and Balancing Electricity



Source: ESCO

In May 2022, the weighted average price of balancing electricity was 13.76 tetri/kWh, which corresponds to an annual increase of 8% compared to May 2021. As for the weighted average price for deregulated (small) HPPs, it was 1.86 tetri/kWh, the same as in May 2021 (Figure 14).

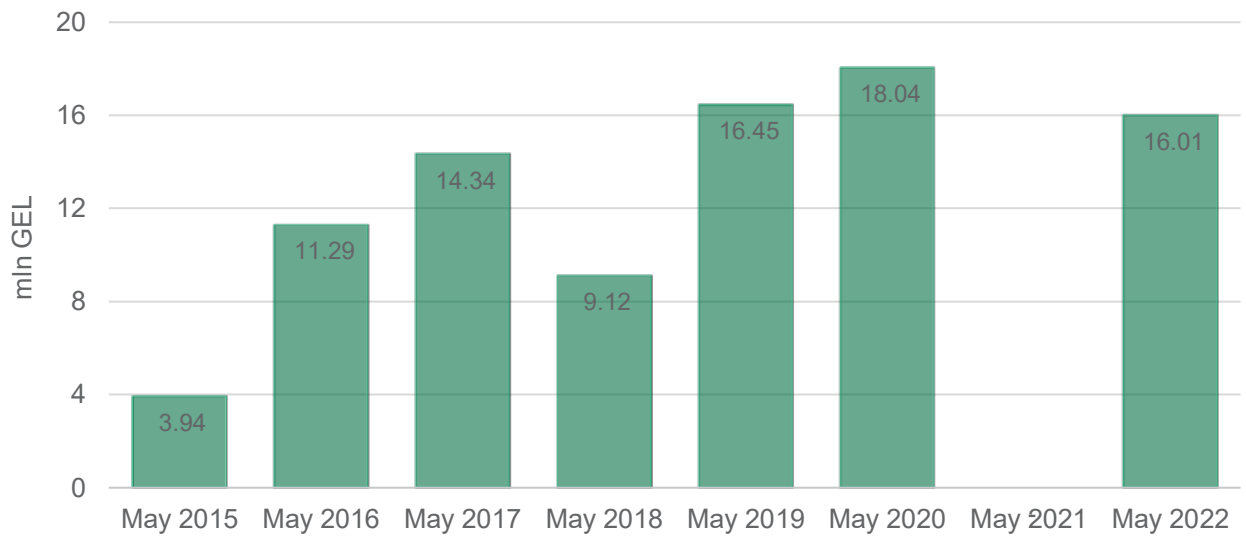
Figure 14 - Balancing Electricity Prices Weighted Average and Weighted Average Price for Deregulated HPPs



Source: ESCO

Guaranteed capacity payments in May 2022 were roughly 16.01 mln. GEL, which represents an 11% decrease compared to May 2020. The data about May 2021 is not available (Figure 15).

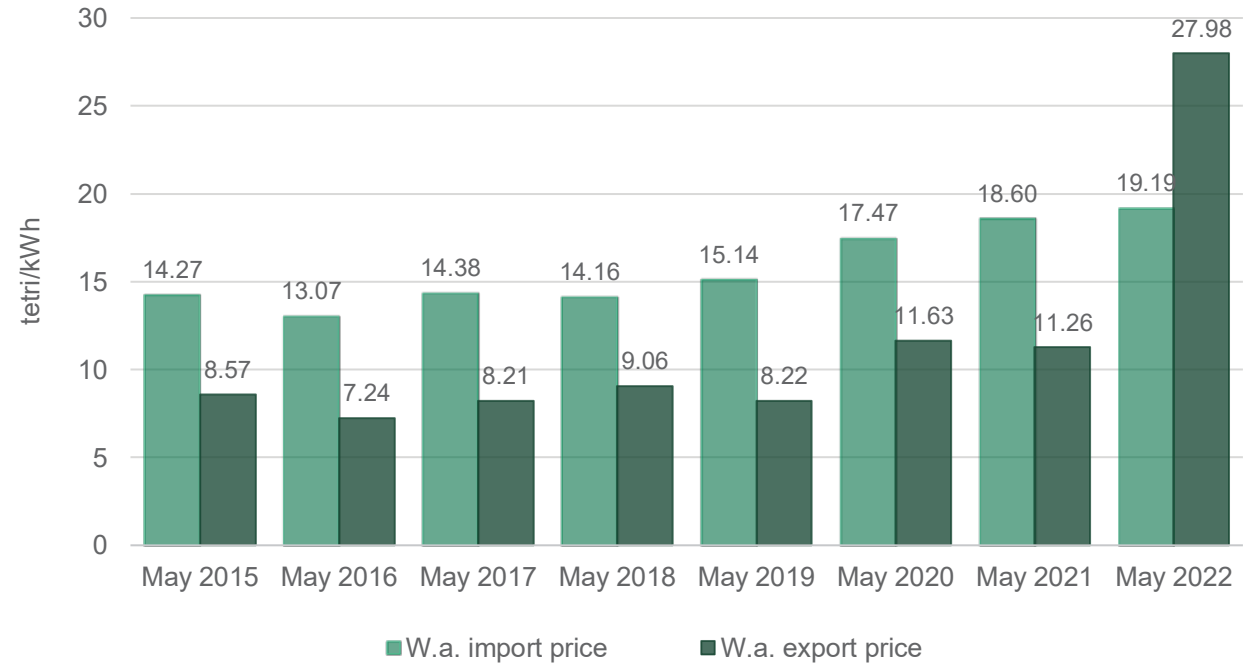
Figure 15 - Cost of Guaranteed Capacity



Source: ESCO

The weighted average electricity import price in May 2022 increased by 18% in USD, on an annual basis, and increased by approximately 3% in GEL (from 5.50 ¢, or 18.60 tetri per kWh in May 2021 to 6.50 ¢, or 19.19 tetri per kWh in May 2022 - Figure 16). The weighted average electricity import price increased by 7% in USD and by 4% in GEL monthly (prices were 6.05 ¢, or 18.52 tetri per kWh in April 2022). The weighted average electricity export price in May 2022 increased by 184% in USD, on an annual basis, and increased by approximately 148% in GEL (from 3.33 ¢, or 11.26 tetri per kWh in May 2021 to 9.47 ¢, or 27.98 tetri per kWh in May 2022 - Figure 16). The weighted average export price increased by 184% USD and increased by 175% in GEL on a monthly basis (prices were 3.33 ¢, or 10.18 tetri per kWh in April 2022).

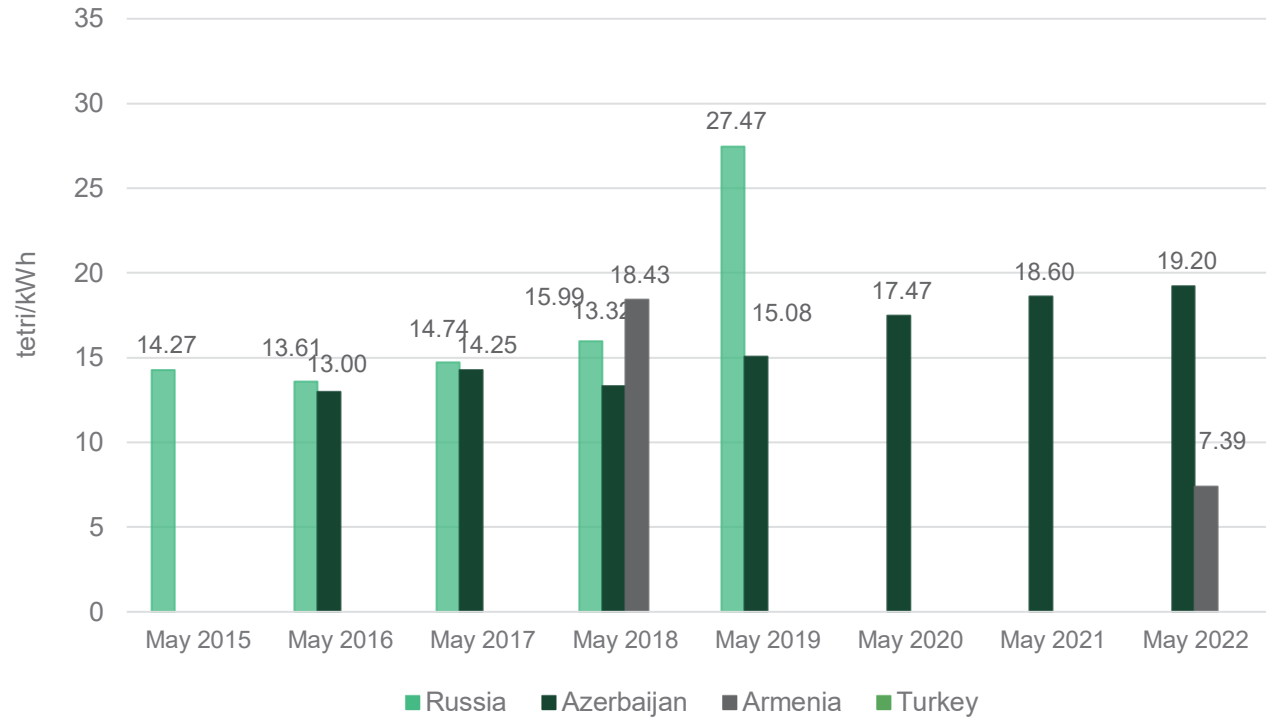
Figure 16 - Prices Import/Export



Source: ESCO

In May 2022, the electricity import price from Azerbaijan and Armenia stood at 6.50 ¢ or 19.20 tetri, and 2.50 ¢ or 7.39 tetri per kWh, respectively. (Figure 17).

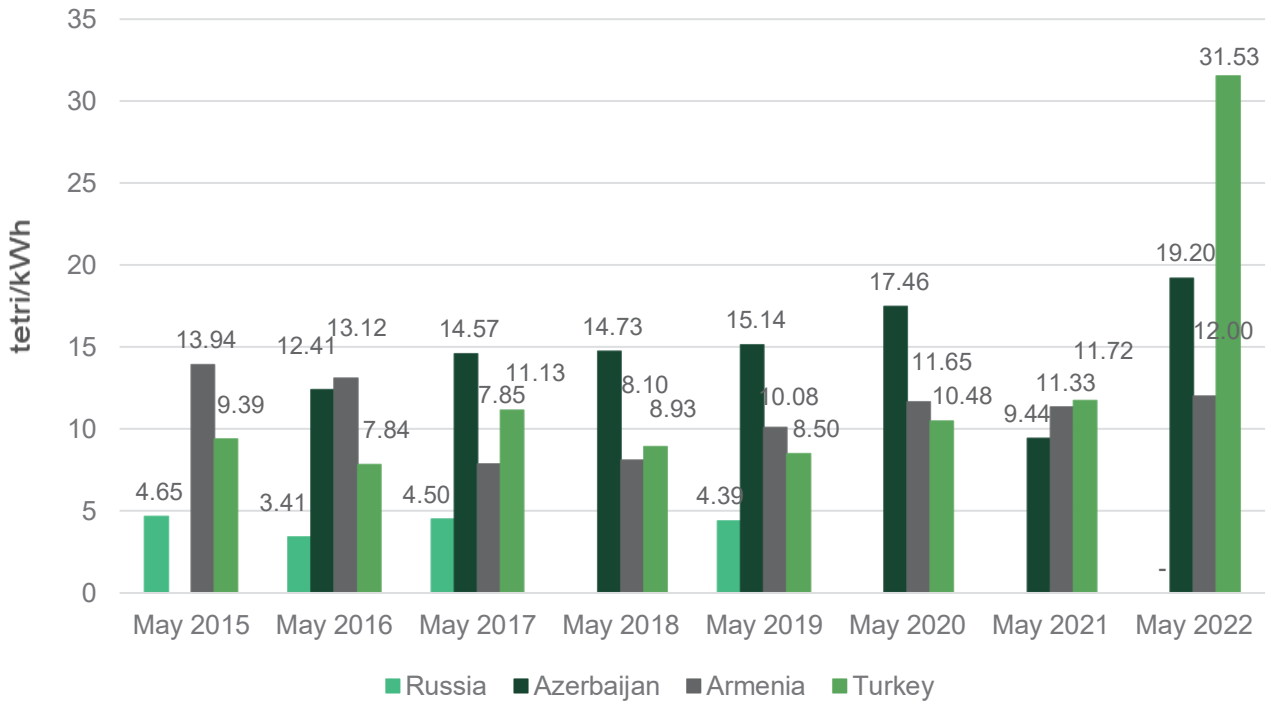
Figure 17 - Import Prices by Countries



Source: ESCO/Geostat

In May 2022, the electricity export price to Azerbaijan, Armenia, and Turkey stood at 6.50 ¢ or 19.20 tetri, 4.06 ¢ or 12.00 tetri, and 10.67 ¢ or 31.53 tetri, respectively (Figure 18).

Figure 18 - Export Prices by Countries

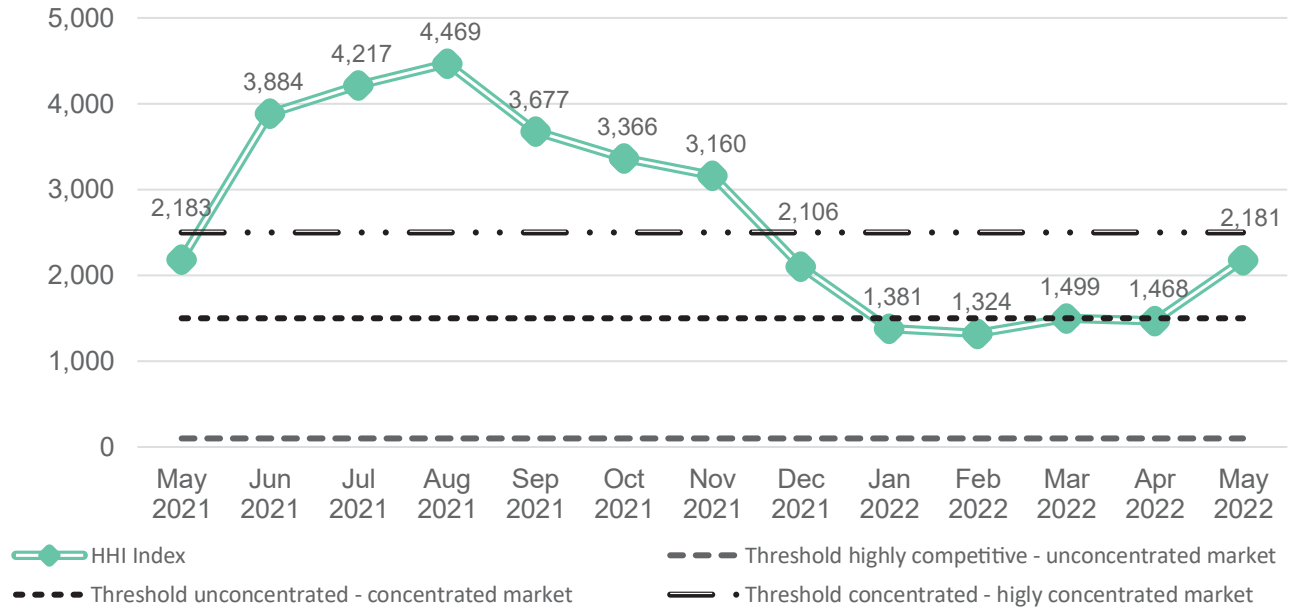


Source: ESCO/Geostat

2. Market Concentration

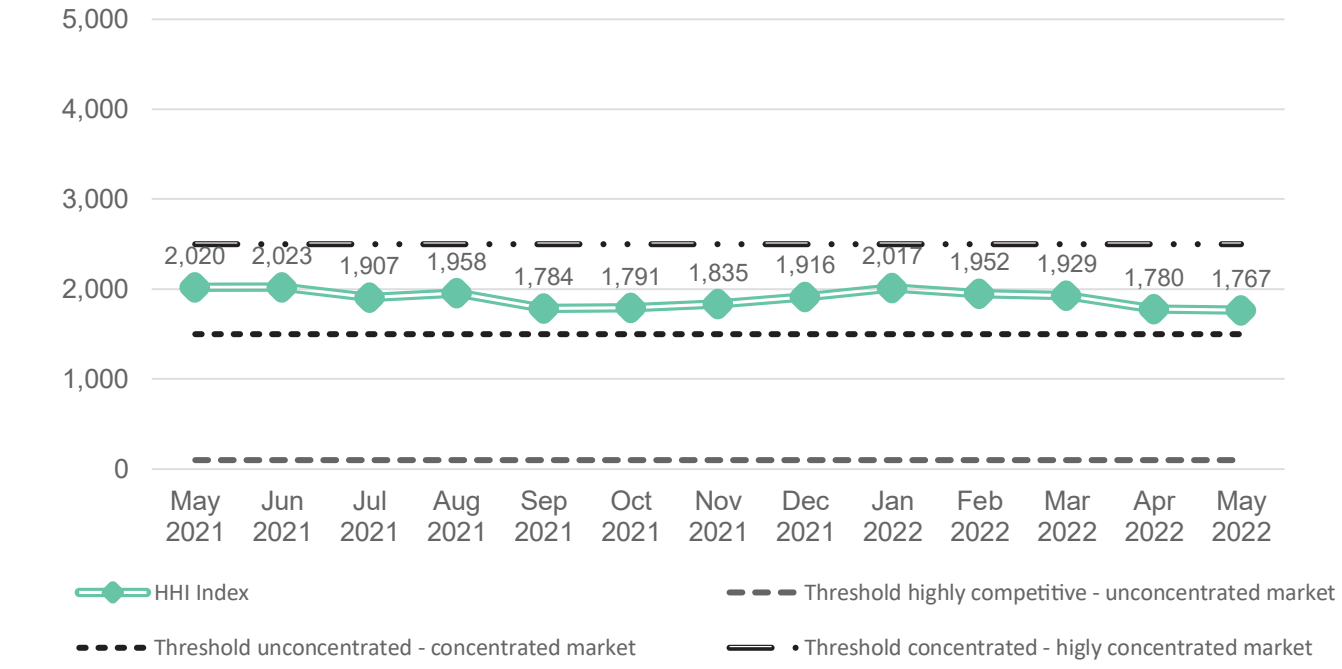
In conclusion, we utilize the Hirschman-Herfindahl (HHI) market concentration index to evaluate how competitive the generation and consumption segments of the market have been over the year. In May 2022, the Georgian electricity generation market index increased above the threshold of unconcentrated market and became concentrated with an HHI value of 2,181 (Figure 19). This is lower than the level in May 2021 (with an HHI value of 2,183), but higher than the level in April 2022 (the HHI was 1,468). As for the consumption segment, in May 2022, the HHI consumption index remained below the threshold for a highly concentrated market, with an HHI value of 1,767 (below the level in May 2021 – 2,020 and below the level in April 2022 – 1,780). 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 decreasing trend (monthly, as well as year over year) in the market concentration of consumption segment was observable (Figure 20).

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



Source: ESCO

Figure 20 - **Hirschman-Herfindahl Index for Power Consumption**



Source: ESCO