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ELECTRICITY MARKET REVIEW



ISSET POLICY INSTITUTE

ENERGY AND ENVIRONMENT POLICY RESEARCH CENTER

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INFORMATION

- In August 2022 there was an increase in the total electricity generation by 16% on a yearly basis, and by approximately 7% on a monthly basis.
- Consumption increased by 4% on yearly basis and increased by 5% compared to the previous month.
- Generation exceeded consumption by 195 mln. kWh which was 14% of the total generation in August 2022.
- There was no import in August.
- Exports increased substantially compared to almost nonexistence exports in the previous year
- The only export partner was Turkey.
- The price of exports reached 6.50 ₾, or 18.03 tetri per kWh.
- The HHI index for the Georgian electricity generation market increased above the threshold of highly concentrated market. In August 2022, it reached the level of 4,656.
- The HHI for the Georgian electricity consumption market remained below the threshold of a highly concentrated market. In August 2022, it reached the level of 2,140.

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

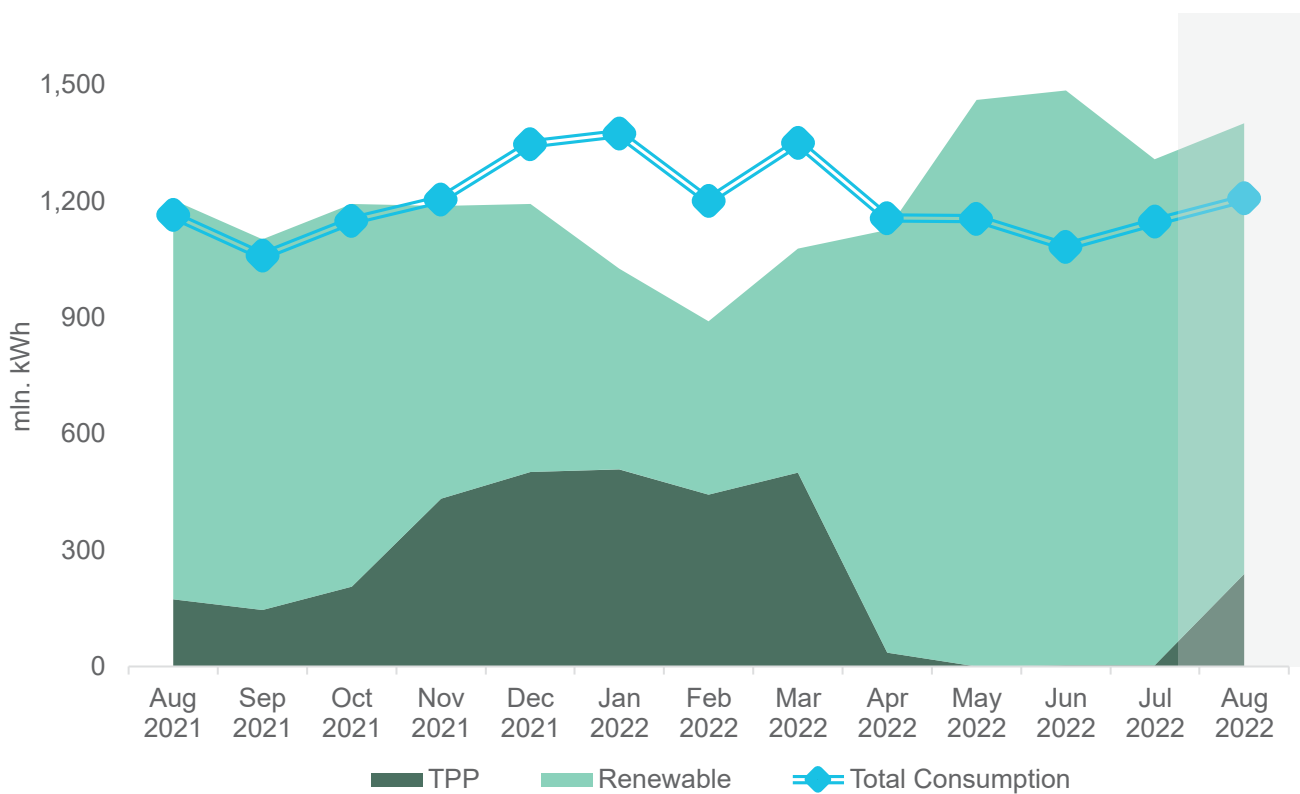
Generation – Consumption – Trade

In August 2022, Georgian power plants generated 1,401 mln. kWh of electricity (Figure 1). This represents a 16% increase in the total generation compared to the previous year (in August 2021, the total generation was 1,203 mln. kWh). The increase in the generation on a yearly basis comes from a rise of 13% in hydro power generation, 38% in thermal power generation, and 71% in wind power generation, respectively.

On a monthly basis, the generation increased by approximately 7% (in July 2022, the total generation was 1,308 mln. kWh) (Figure 1). The monthly increase in the total generation, is induced by a significant increase in thermal power generation (it increased 83 times) and 19% increase in wind power generation, more than offsetting 11% reduction in hydro power generation.

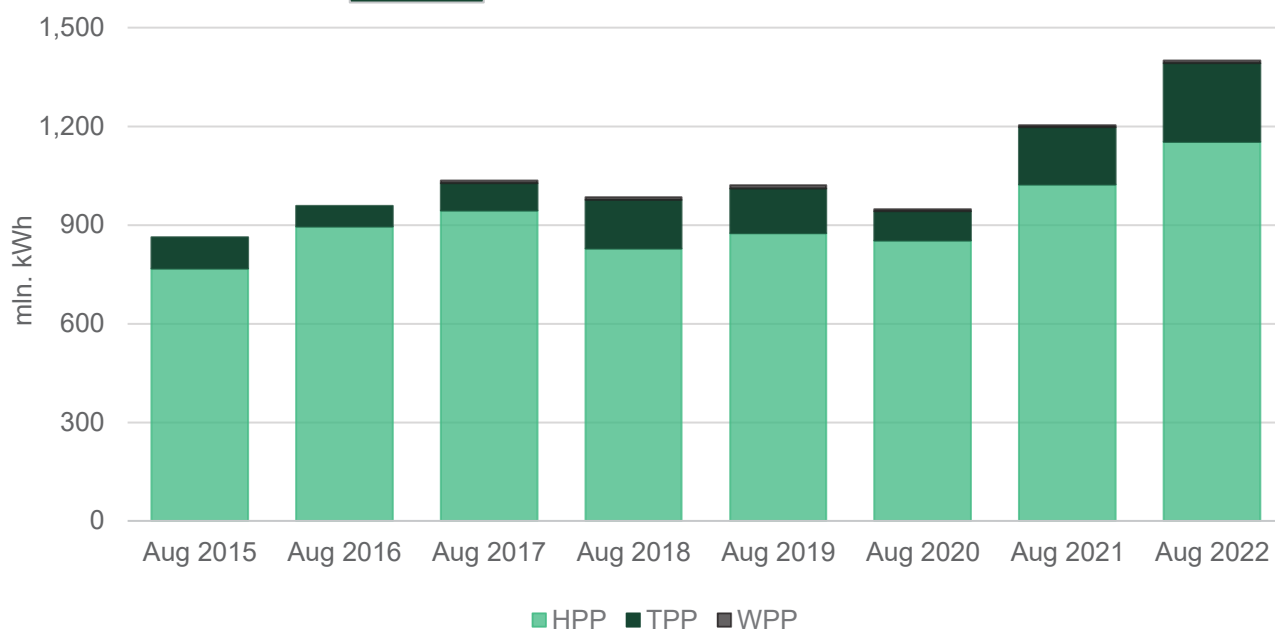
The consumption of electricity on the local market was 1,206 mln. kWh (+4% compared to August 2021, and +5% compared to July 2022) (Figure 1). In August 2022, power generation exceeded consumption by 195 mln. kWh which was 14% of the total generation and 16% of the total consumption (in August 2021, the difference between the total generation and the consumption resulted in a surplus of 39 mln. kWh, around 3% of the total generation and 3% of the total consumption for the month).

Figure 1 - Electricity Consumption and Generation



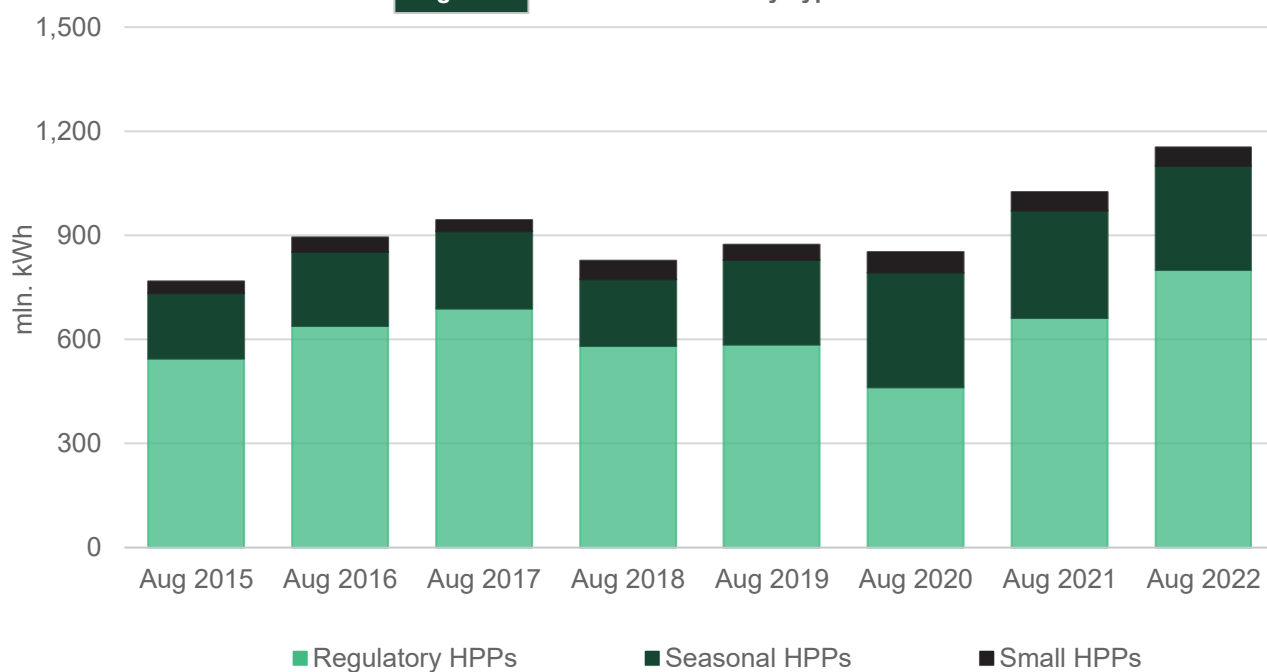
Source: Electricity System Commercial Operator (ESCO)

In August 2022, hydro power plants were the leading source of generation. In August 2022, hydro power (HPP) generation amounted to 1,153 mln. kWh (82% of total), thermal power (TPP) generation was 238 mln. kWh (17% of the total generation), while wind power (WPP) generation amounted to 9 mln. kWh (1% of the total generation) (Figure 2).

Figure 2 - Electricity Generation by Sources

Source: ESCO

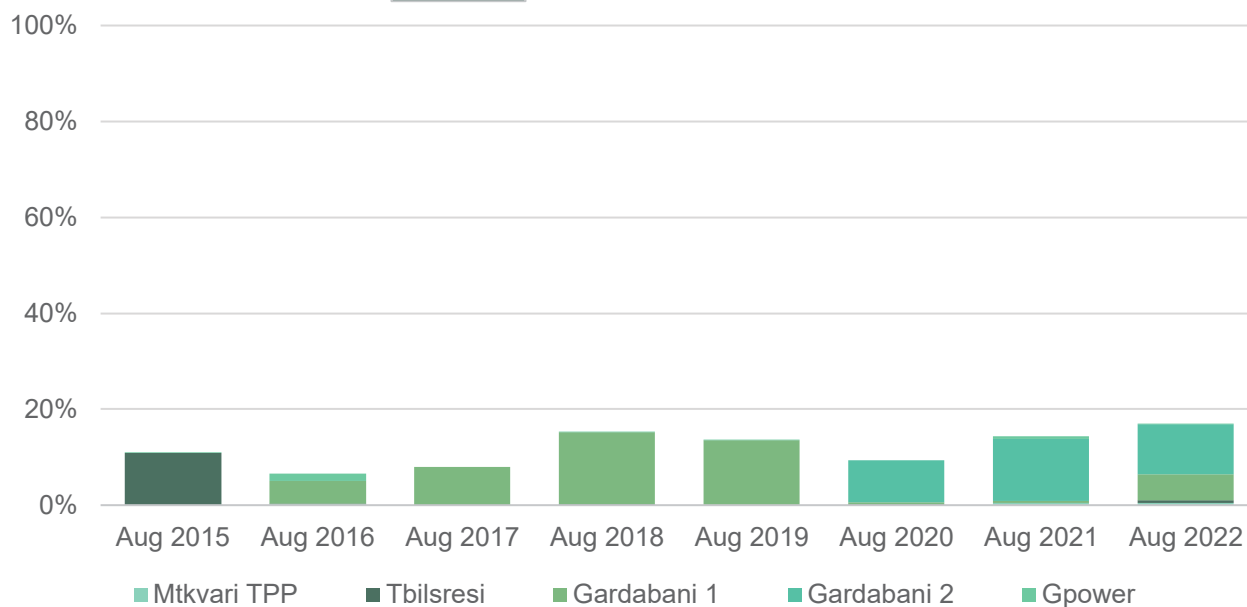
Among hydropower generators, large (regulatory) HPPs produced 69% (800 mln. kWh) of electricity, while seasonal and small HPPs produced 26% (299 mln. kWh) and 5% (54 mln. kWh), respectively (Figure 3).

Figure 3 - HPP Generation by Type

Source: ESCO

As for the thermal power generation, Gardabani 1 TPP generated 76 mln. kWh electricity (32% of TPP generation and 5% of total power generation), Gardabani 2 TPP generated 146 mln. kWh (61% of TPP generation and 10% of total power generation) the remaining 7% of TPP generation were produced by Mtkvari TPP, Tbilisres TPP and Gpower TPP (Figure 4).

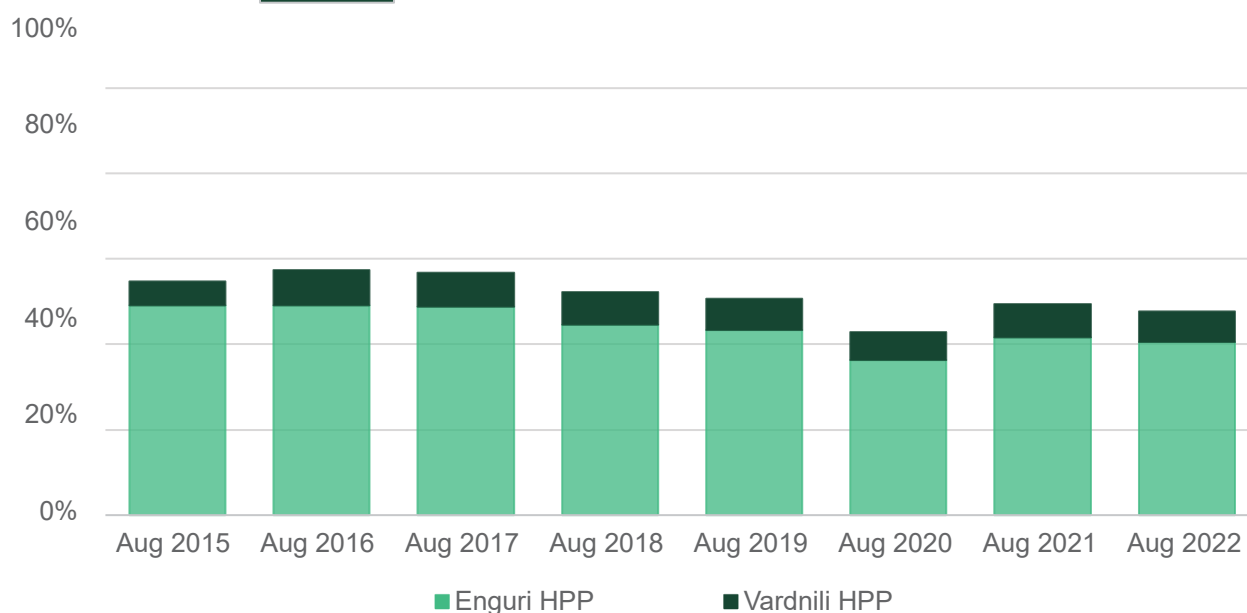
Figure 4 - Share of Large TPPs in Total Generation



Source: ESCO

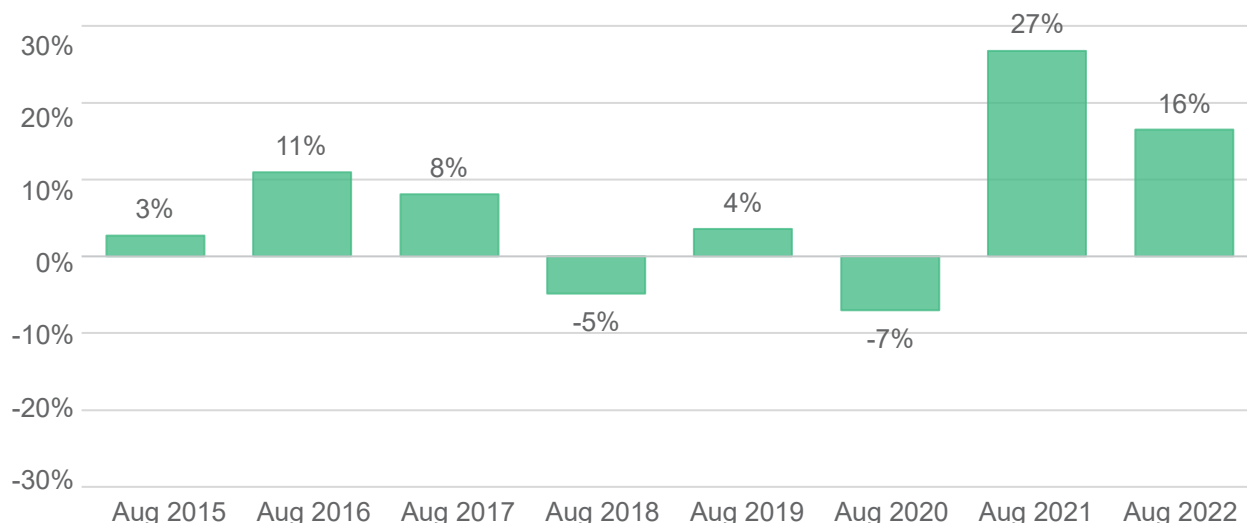
As for HPP generation, Vardnili HPP generated 101 mln. kWh (13% of generation for regulatory HPPs and 7% of total generation). Enguri HPP generated 568 mln. kWh, which represents 71% of generation of regulatory HPPs and 41% of total generation (Figure 5).

Figure 5 - Share of Enguri and Vardnili in Total Generation



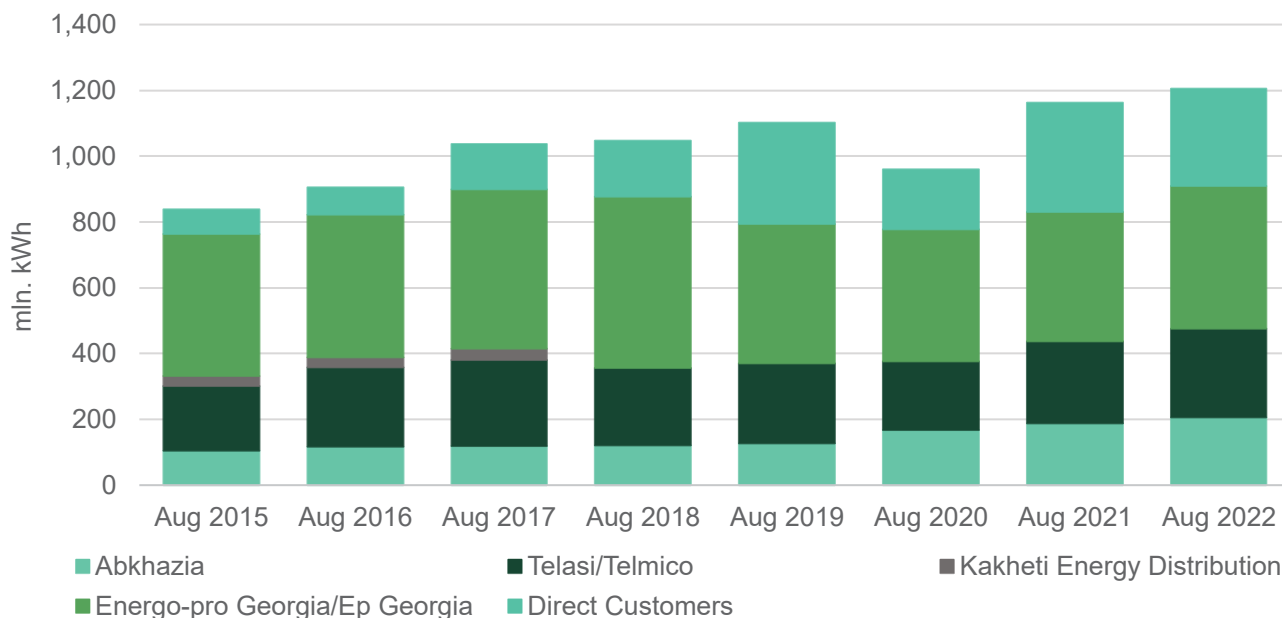
Source: ESCO

Overall, the total generation increased by 16% compared to August 2021 (Figure 6).

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

Source: ESCO

Total electricity demand came from: Energo-Pro Georgia/Ep Georgia¹ (36% - 433 mln. kWh), Abkhazia (17% - 206 mln. kWh), Telasi/Telmico² (22% - 270 mln. kWh), and direct customers (25% - 296 mln. kWh) (Figure 7). Annual demand from Energo-Pro Georgia, Telasi and Abkhazia increased by 11%, 8%, and 10%³, respectively, while the demand from direct customers fell by 11%. Overall, there was an annual increase of 4% in the total electricity consumption in August 2022, compared to August 2021 (Figure 8).

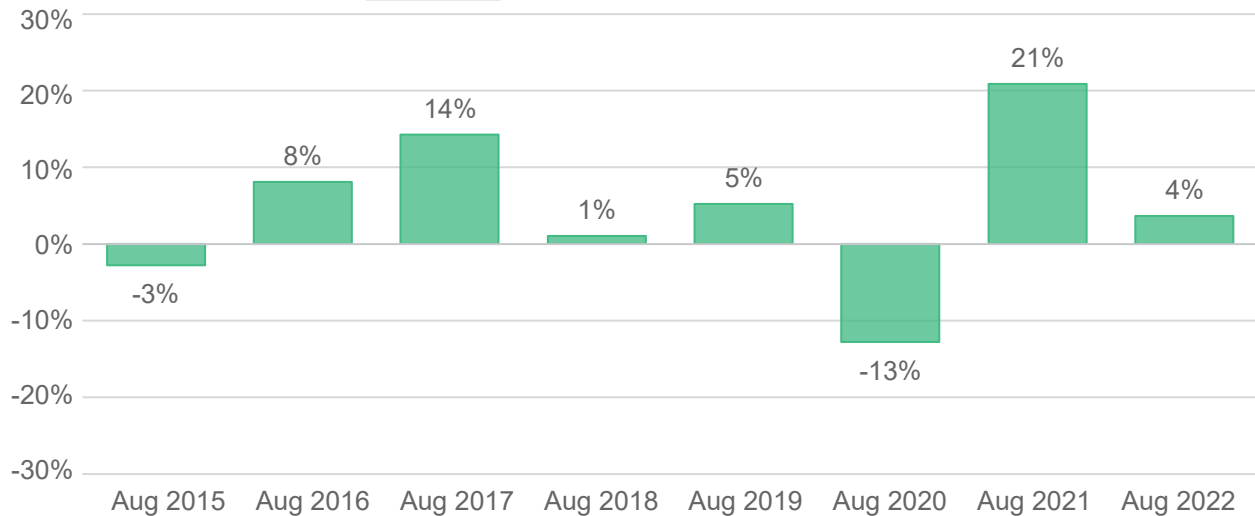
Figure 7 - Electricity Consumption by Type of Customer

Source: ESCO

¹ Energo-Pro Georgia acquired Kakheta Energy Distribution in September 2017.

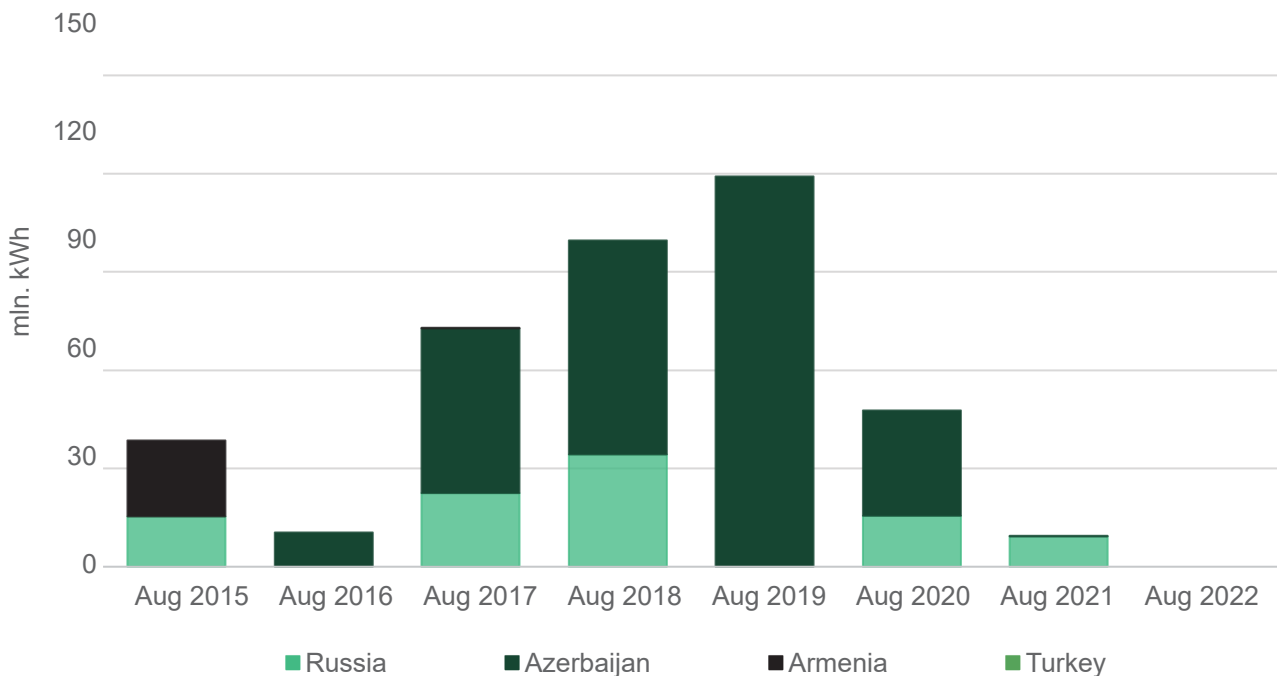
² Since 1st of July 2021, after adoption of a new electricity market model concept, operations of distribution and final supply have been disentangled, thus three different groups of players appeared on the market, Distribution Licensees - responsible for distribution activities and covering losses in 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.

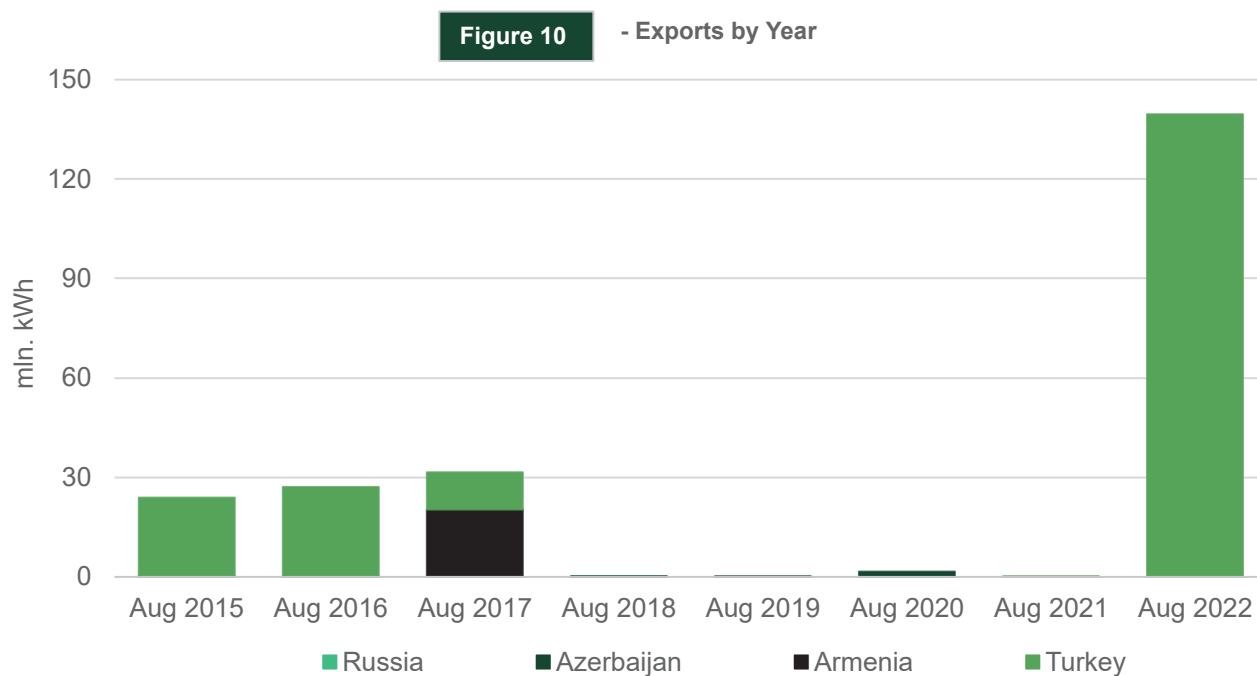
Figure 8 - Electricity Consumption Growth (% , y/y)

Source: ESCO

In August 2022, there was no import of electricity (compared to 9 mln. kWh in August 2021) (Figure 9). In August 2022, Georgia exported 140 mln. kWh of electricity, 100% of which went to Turkey (there was almost no export in August 2021) (Figure 10). There was 354 mln. kWh transit from Azerbaijan to Turkey (while in August 2021, there was 71 mln. kWh transit from Russia to Turkey, 61 mln. kWh transit from Russia to Armenia and 55 mln. kWh transit from Azerbaijan to Turkey).

Figure 9 - Imports by Year

Source: ESCO



In August 2022, electricity exports increased by 22%, compared to July 2022 (Figure 12). August 2022 was the fourth straight month with generation-consumption surplus.

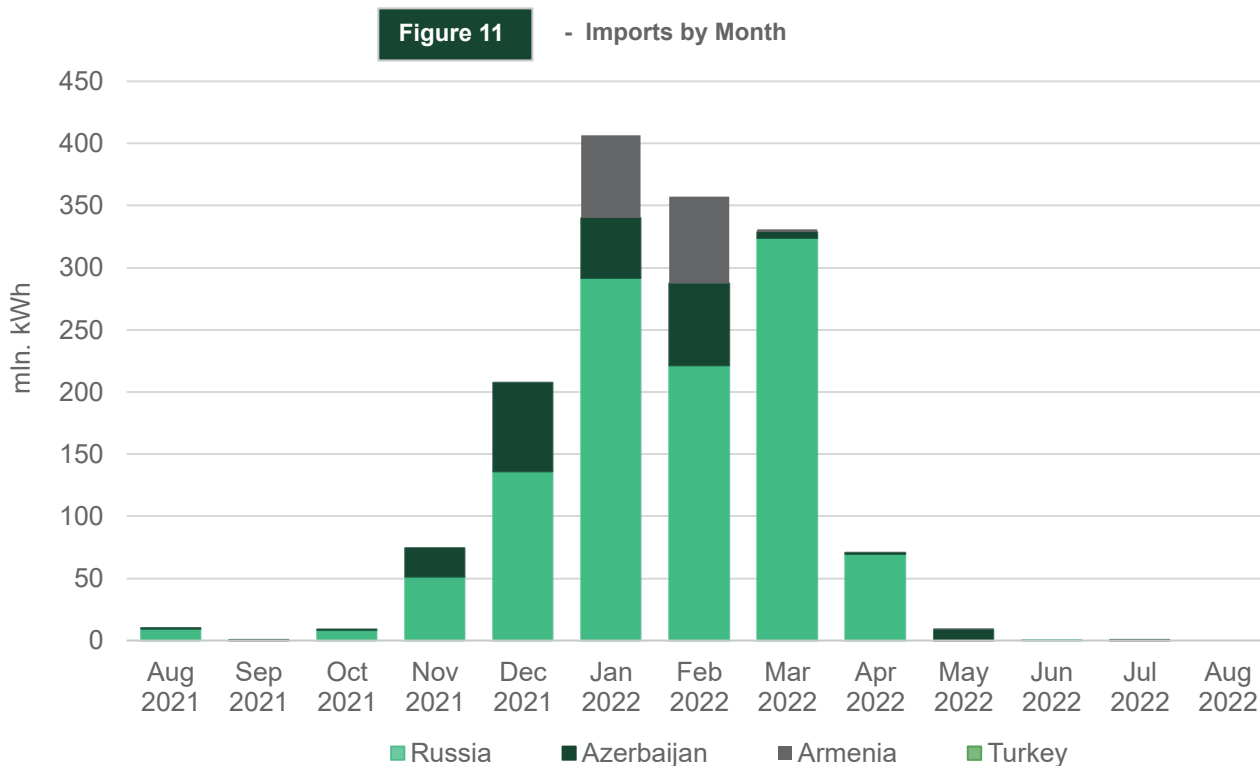
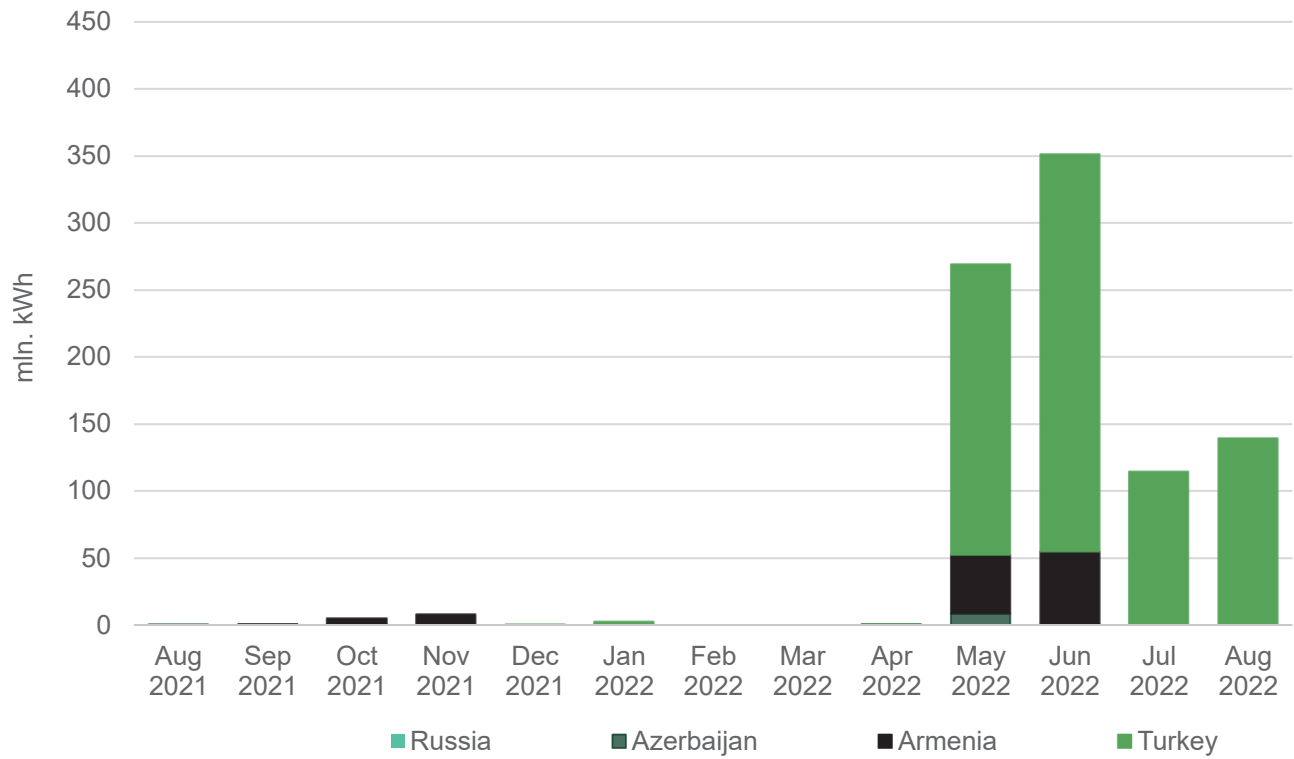


Figure 12 - Exports by Month

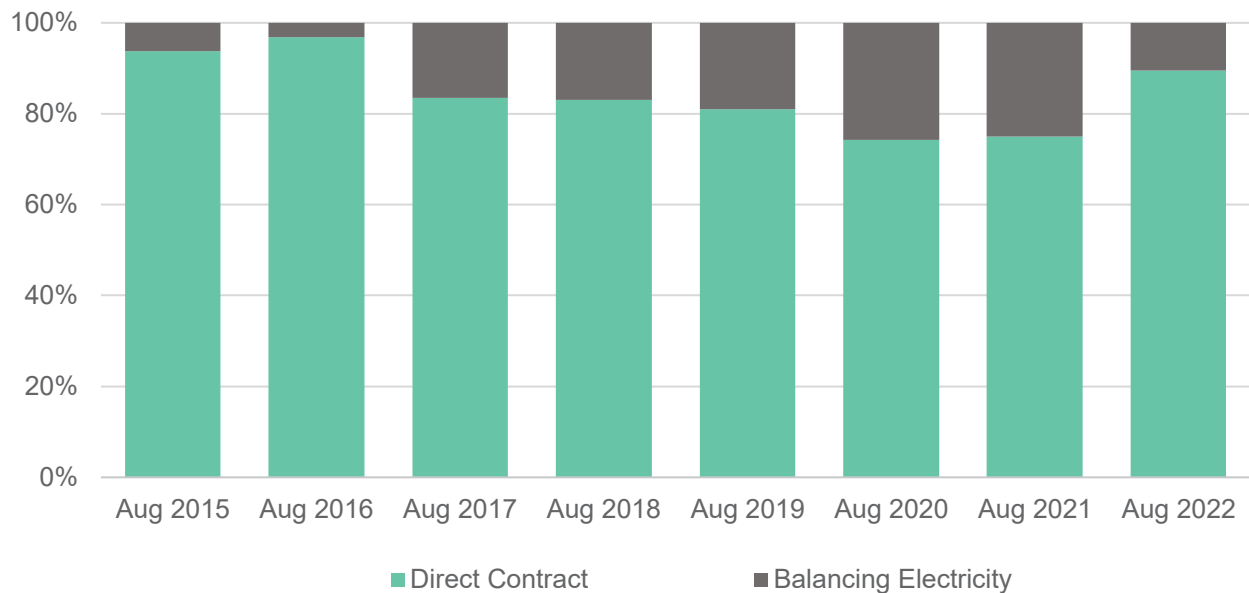


Source: ESCO

1. Market Operations

In August 2022, 90% of the electricity sold on/from the local market was sold through direct contracts. The remaining 10% was sold as balancing electricity (Figure 13).

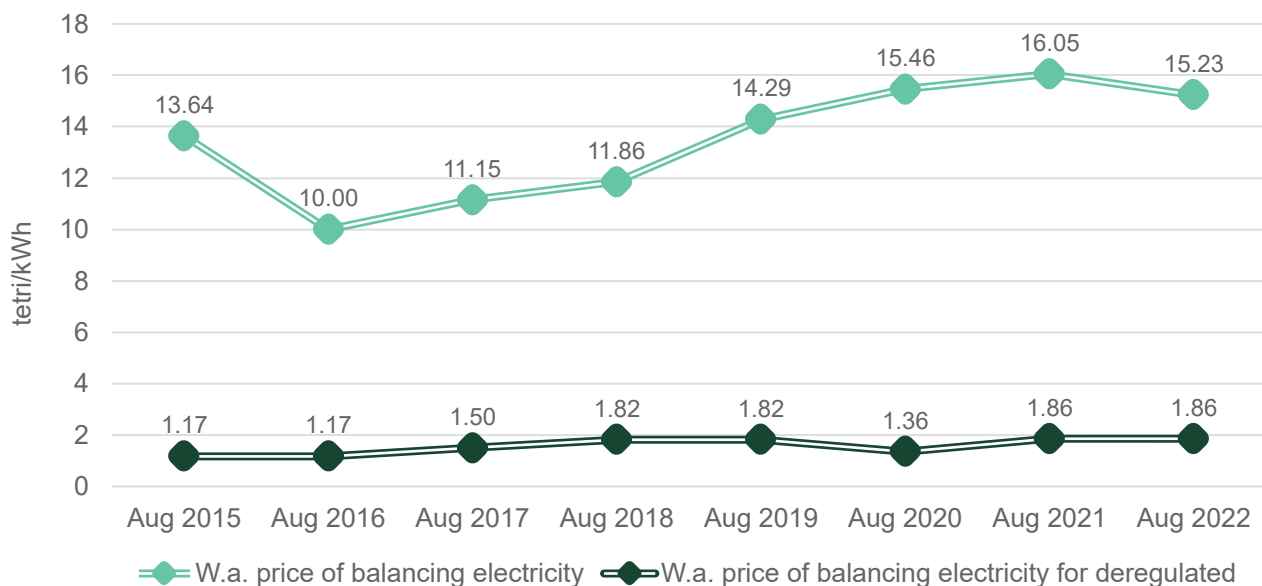
Figure 13 - Electricity Purchased / Sold Shares of Direct Contracts and Balancing Electricity



Source: ESCO

In August 2022, the weighted average price of balancing electricity was 15.23 tetri/kWh, which corresponds to an annual decrease of 5% compared to August 2021. As for the weighted average price for deregulated (small) HPPs, it was 1.9 tetri/kWh, the same as in August 2021 (Figure 14).

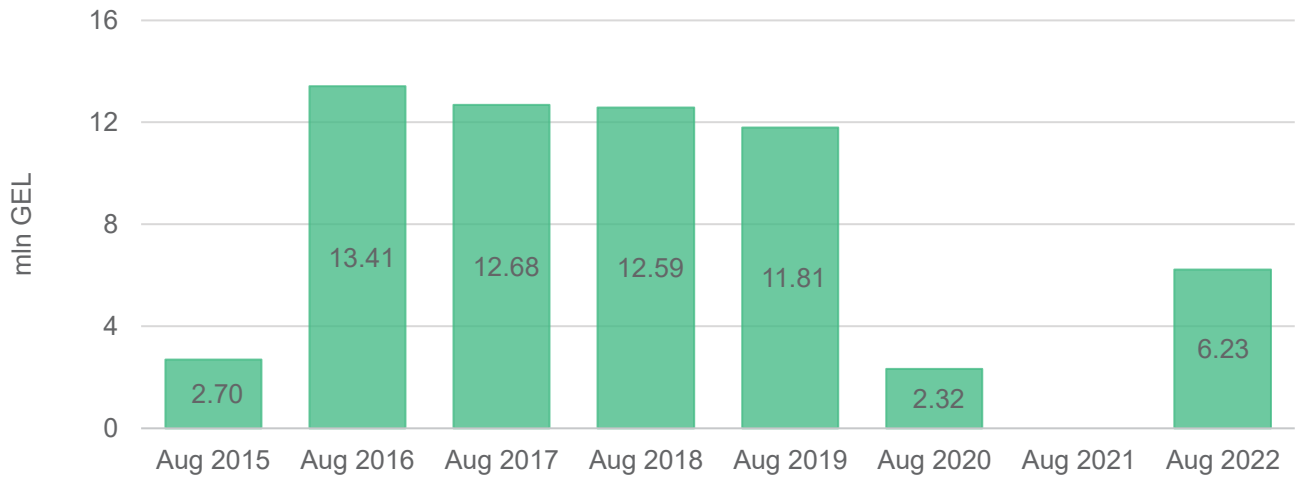
Figure 14 - Balancing Electricity Prices Weighted Average and Weighted Average Price for Deregulated HPPs



Source: ESCO

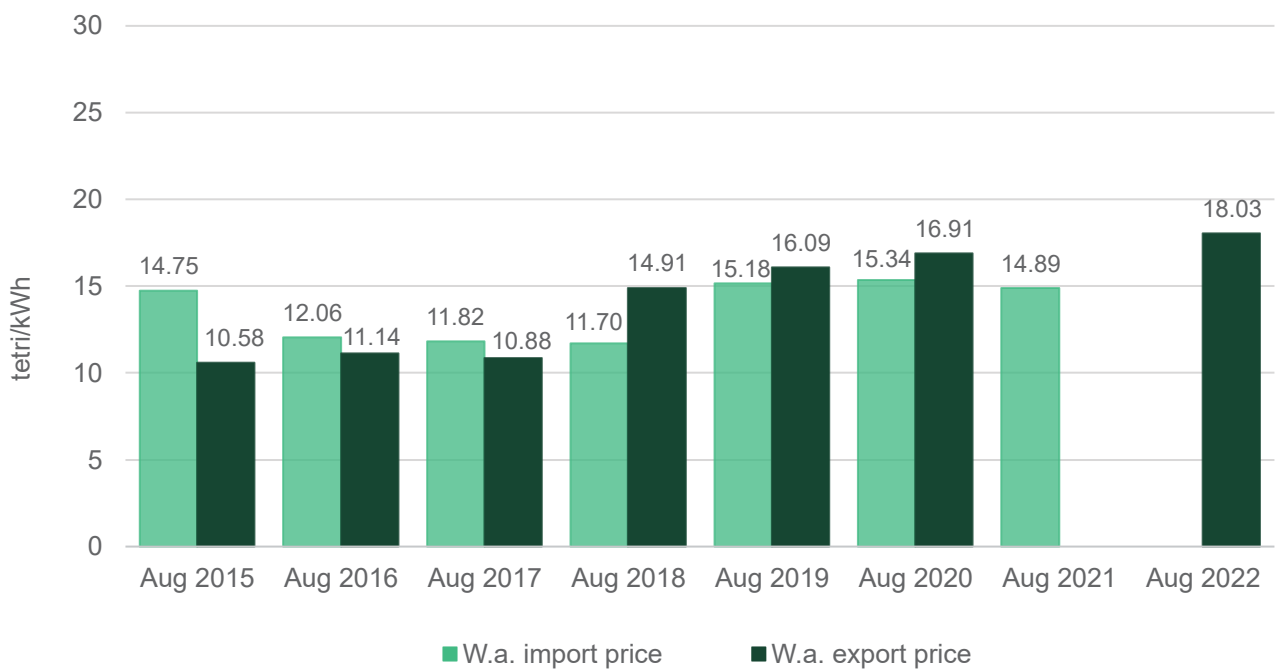
Guaranteed capacity payments in August 2022 were roughly 6.23 mln. GEL, which represents an 168% increase compared to August 2020. The data about August 2021 are not available (Figure 15).

Figure 15

- Cost of Guaranteed Capacity

Source: ESCO

The electricity export price in August 2022 reached 6.50 ₾, or 18.03 tetri per kWh (Figure 16).

Figure 16 - Prices Import/Export

Source: ESCO

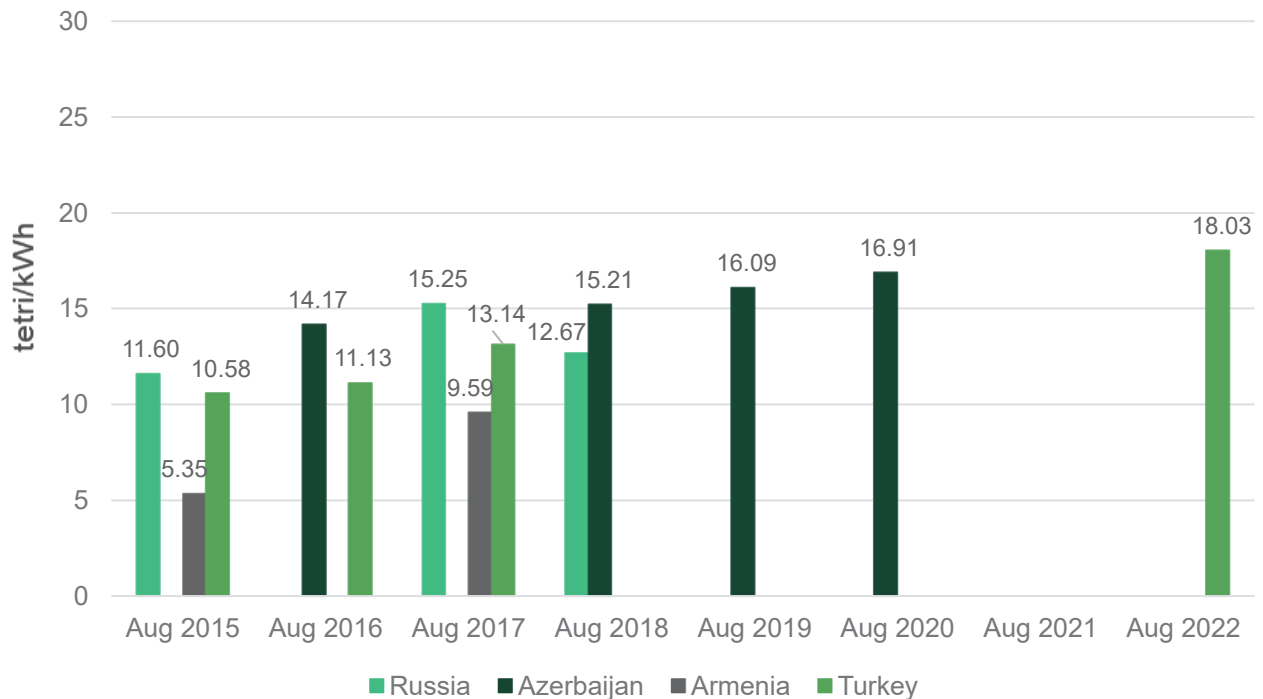
In August 2022, there were no imports at all, so the price cannot be estimated. (Figure 17).

Figure 17 - Import Prices by Countries



In August 2022, the electricity export price to Turkey stood at 6.50 ¢ or 18.03 tetri (Figure 18).

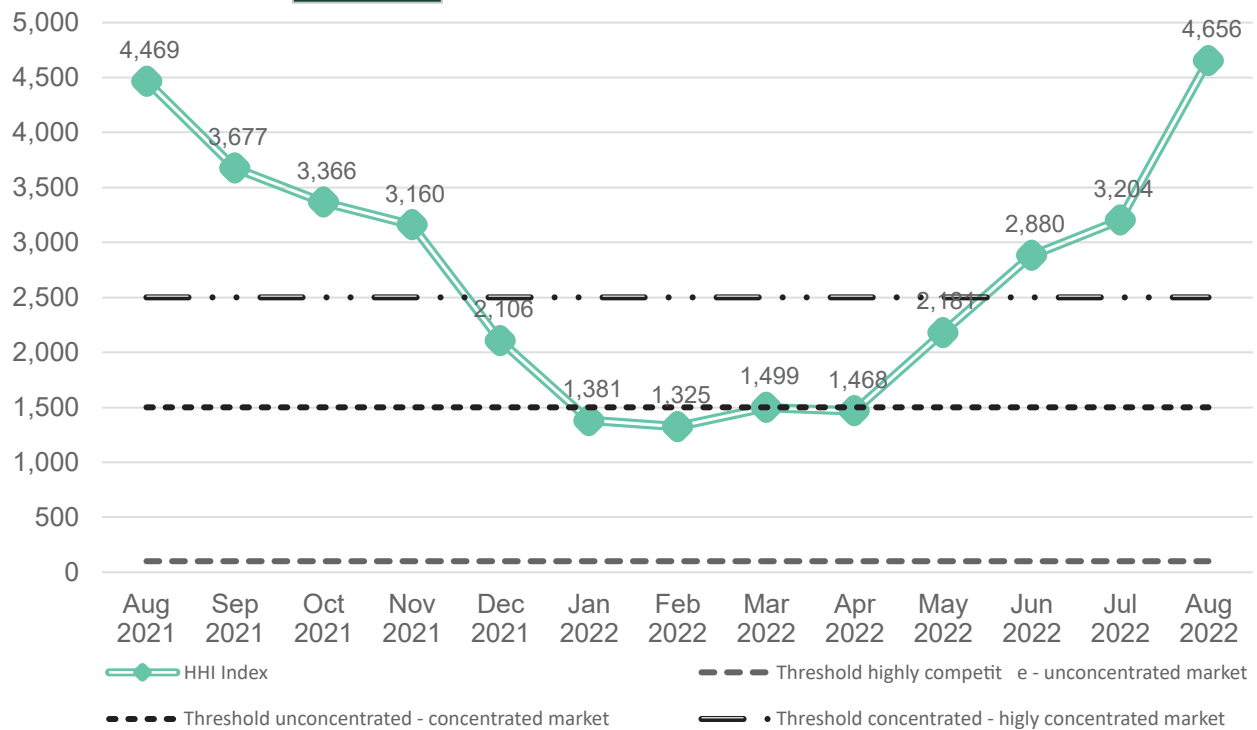
Figure 18 - Export Prices by Countries



2. Market Concentration

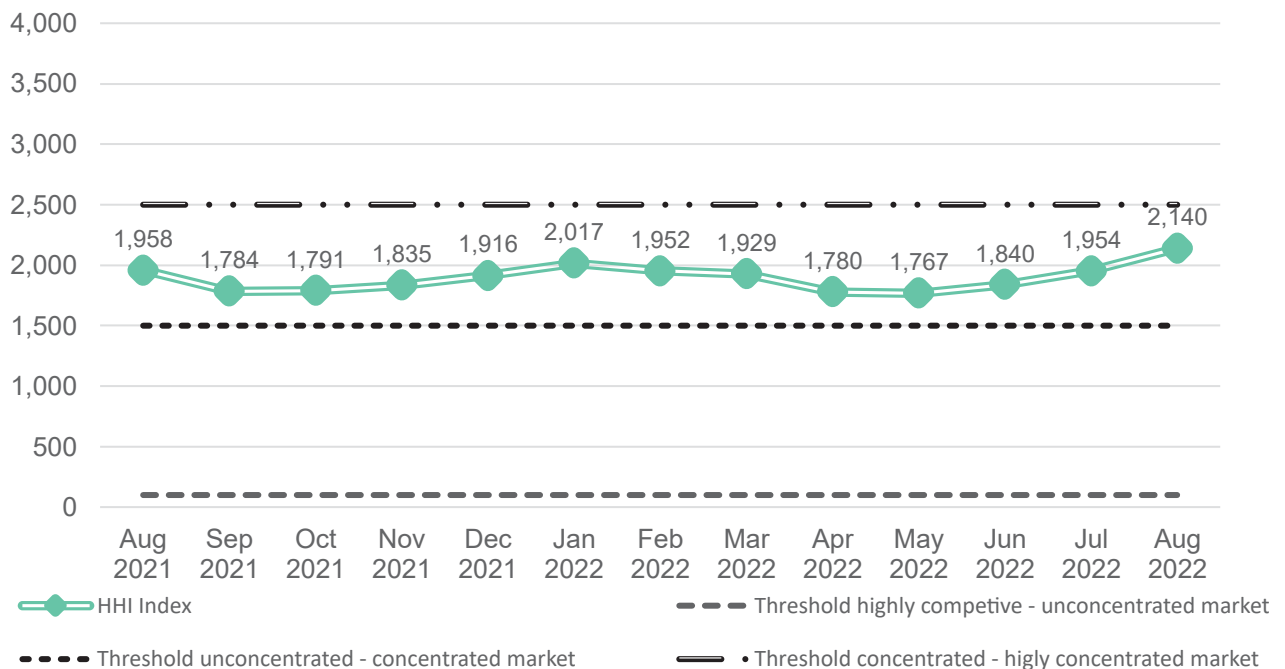
In conclusion, we utilize the Hirschman -Herfindahl (HHI) market concentration index to evaluate how competitive the generation and consumption segments of the market have been over the year. In August 2022, the Georgian electricity generation market index increased above the threshold of highly concentrated market with an HHI value of 4,656 (Figure 19). This is higher than the level in August 2021 (with an HHI value of 4,469), and higher than the level in July 2022 (the HHI was 3,204). As for the consumption segment, in August 2022, the HHI consumption index remained below the threshold for a highly concentrated market, with an HHI value of 2,140 (above the level in August 2021 – 1,958 and above the level in July 2022 – 1,954). 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 competitive, with new direct customers emerging. Since then, an overall annually decreasing trend 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