

# ISET

International School of Economics at TSU  
Policy Institute

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## **ELECTRICITY MARKET REVIEW**



# ISSET POLICY INSTITUTE

## ENERGY AND ENVIRONMENT POLICY RESEARCH CENTER

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### INFORMATION

- In July 2022 there was an increase in the total electricity generation by 5% on a yearly basis, and a decrease by approximately 12% on a monthly basis.
- Consumption decreased by 1% on yearly basis and increased by 6% compared to the previous month.
- Generation exceeded consumption by 161 mln. kWh which was 12% of the total generation in July 2022.
- There was an 57% decrease in imports annually.
- The main import partner country was Azerbaijan; however, the level was too low.
- There was an 206% increase in exports annually.
- The main export partner was Turkey.
- The weighted average price of exports in GEL increased by 199% on a yearly basis and by 10% on a monthly basis.
- The HHI index for the Georgian electricity generation market increased above the threshold of highly concentrated market. In July 2022, it reached the level of 3,204.
- The HHI for the Georgian electricity consumption market remained below the threshold of a highly concentrated market. In July 2022, it reached the level of 1,954.

### 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

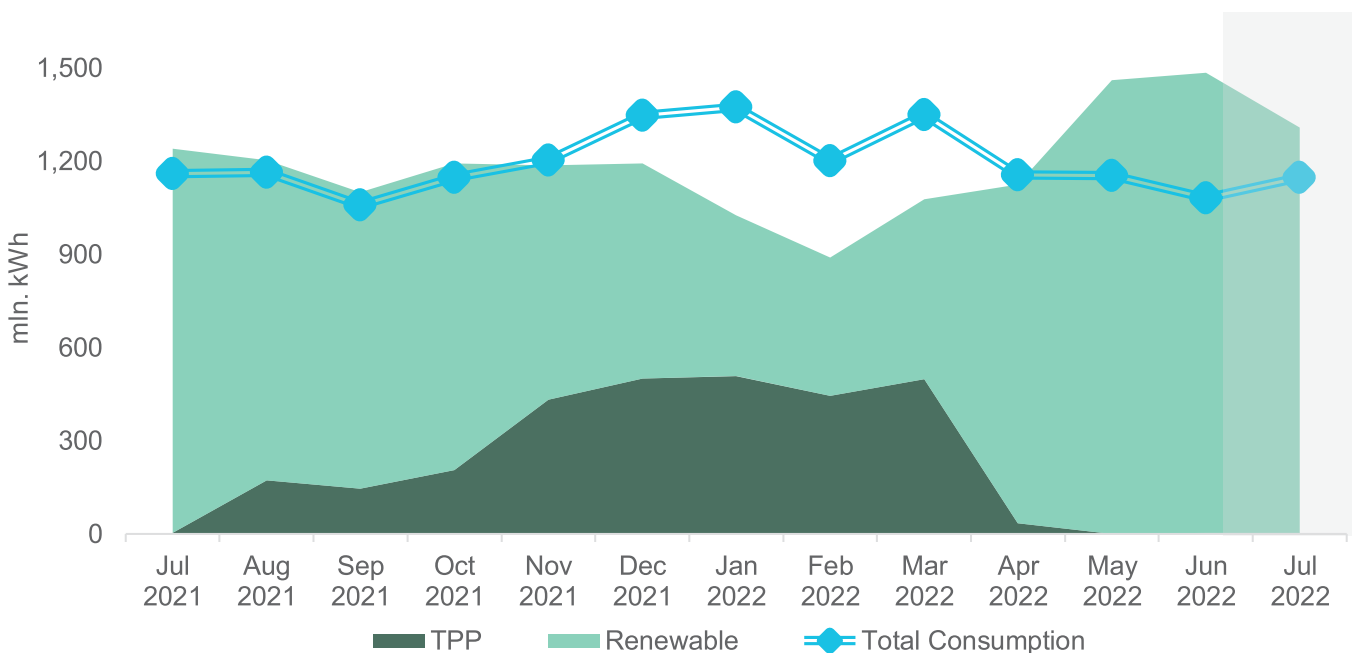
## Generation – Consumption – Trade

In July 2022, Georgian power plants generated 1,308 mln. kWh of electricity (Figure 1). This represents a 5% increase in the total generation compared to the previous year (in July 2021, the total generation was 1,240 mln. kWh). The increase in the generation on a yearly basis comes from a rise of 6% in hydro power generation, and 23% in wind power generation, respectively, more than offsetting a 31% decline in thermal power generation.

On a monthly basis, the generation decreased by approximately 12% (in June 2022, the total generation was 1,485 mln. kWh) (Figure 1). The monthly decrease in the total generation, is induced by a 12% decrease in hydro power generation, and 15% reduction in thermal power generation, while there was a 34% increase in wind power generation.

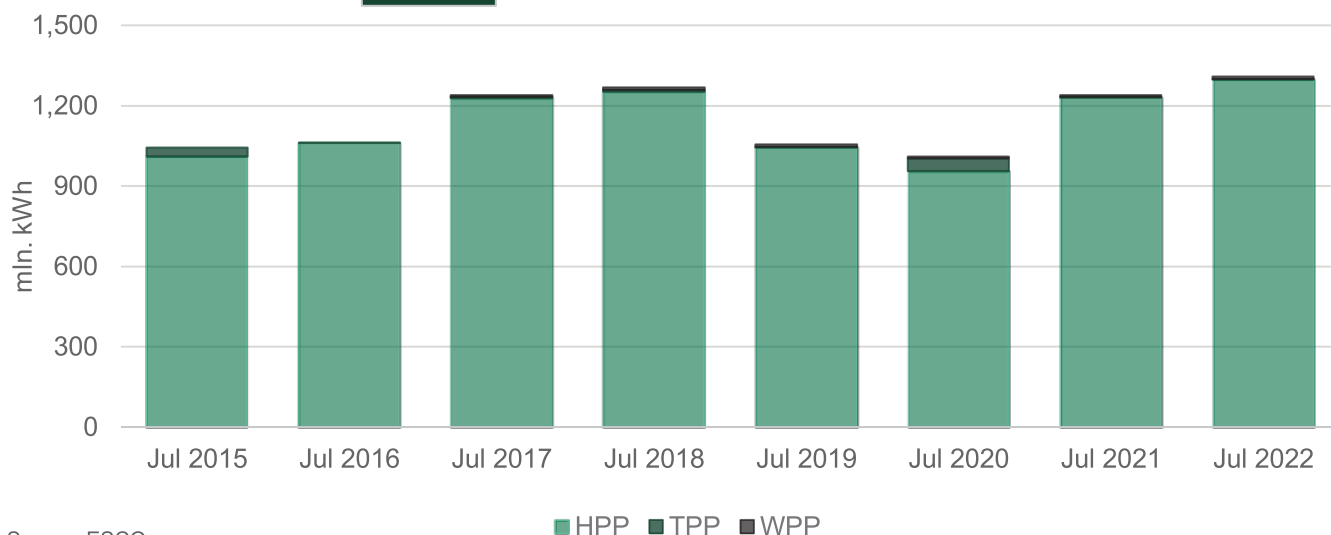
The consumption of electricity on the local market was 1,147 mln. kWh (-1% compared to July 2021, and +6% compared to June 2022) (Figure 1). In July 2022, power generation exceeded consumption by 161 mln. kWh which was 12% of the total generation and 14% of the total consumption (in July 2021, the difference between the total generation and the consumption resulted in a surplus of 79 mln. kWh, around 6% of the total generation and 7% of the total consumption for the month).

**Figure 1 - Electricity Consumption and Generation**



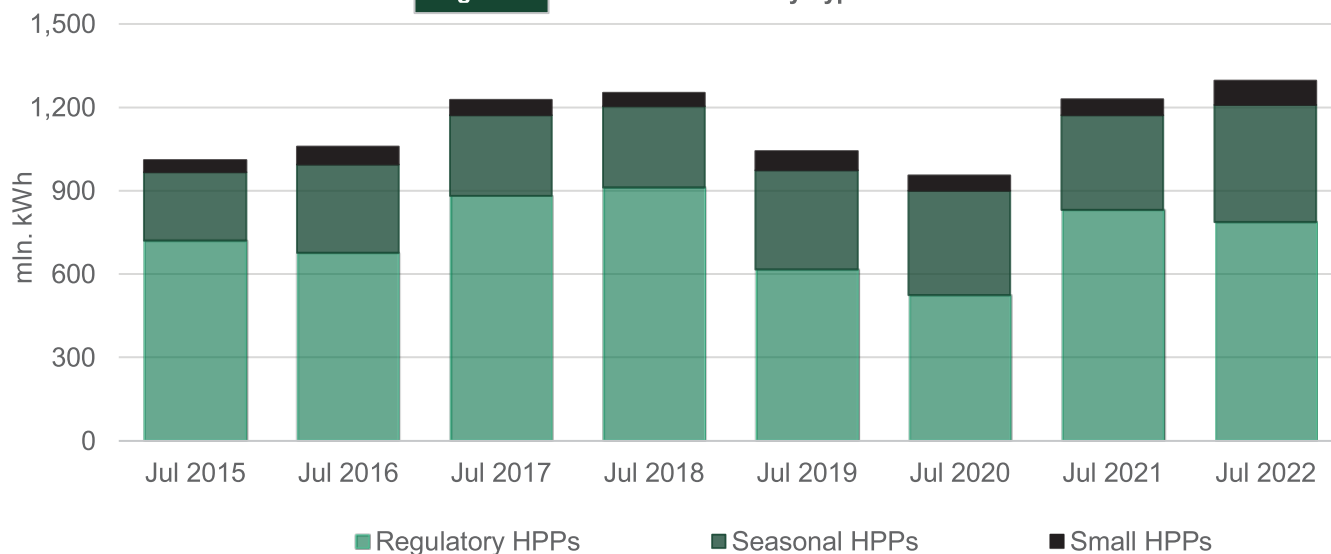
Source: Electricity System Commercial Operator (ESCO)

In July 2022, hydro power plants were the leading source of generation. In July 2022, hydro power (HPP) generation amounted to 1,297 mln. kWh (99% of total), wind power (WPP) generation was 8 mln. kWh (less than 1% of the total generation), while thermal power (TPP) generation amounted to 3 mln. kWh (less than 1% of the total generation) (Figure 2).

**Figure 2 - Electricity Generation by Sources**

Source: ESCO

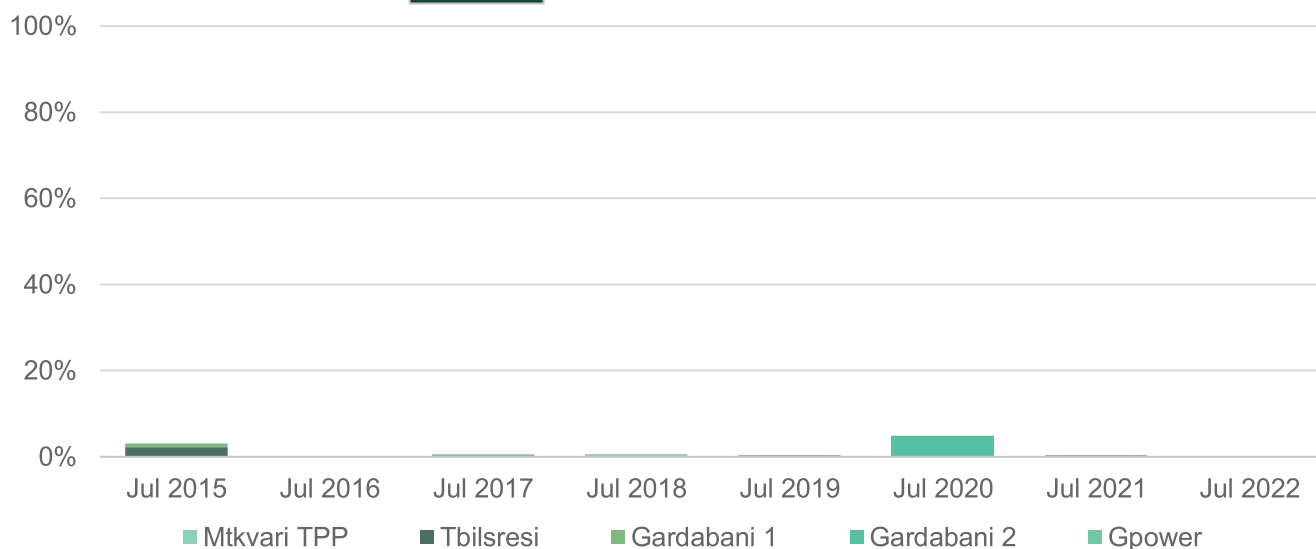
Among hydropower generators, large (regulatory) HPPs produced 60% (788 mln. kWh) of electricity, while seasonal and small HPPs produced 32% (420 mln. kWh) and 7% (90 mln. kWh), respectively (Figure 3).

**Figure 3 - HPP Generation by Type**

Source: ESCO

As for the thermal power generation, all of the power came from Gpower, and the generation was less than 1% of the total (TPP) (Figure 4).

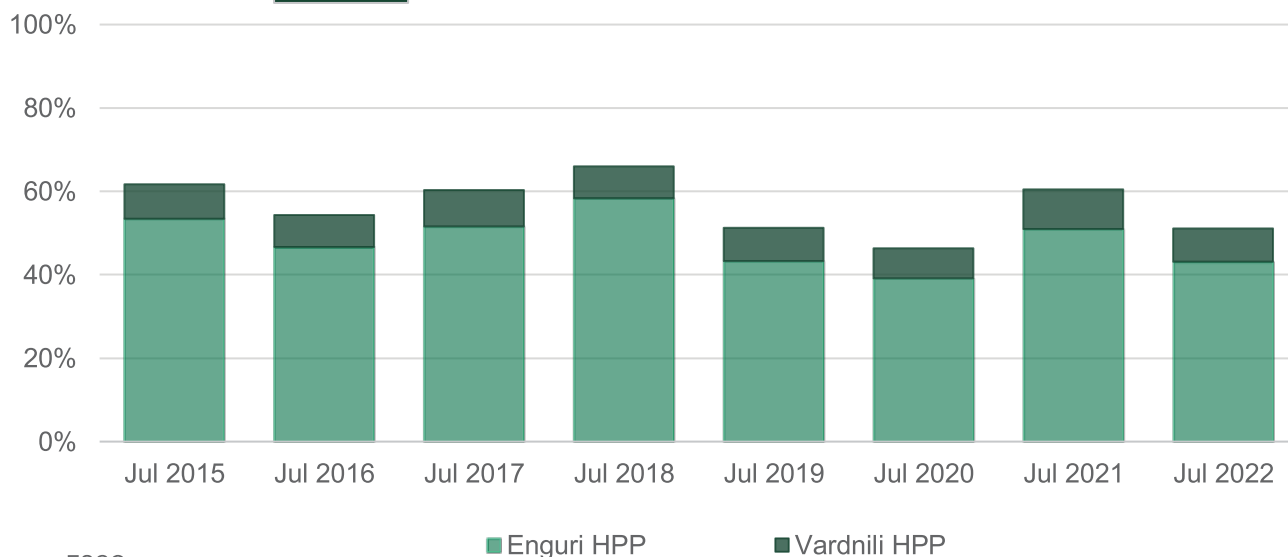
**Figure 4** - Share of Large TPPs in Total Generation



Source: ESCO

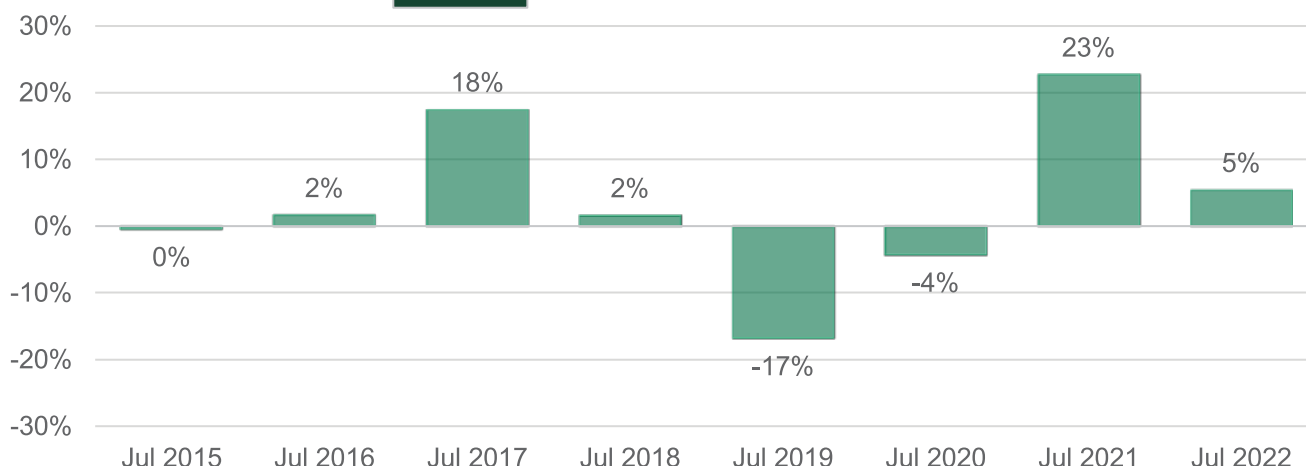
As for HPP generation, Vardnili HPP generated 104 mln. kWh (13% of generation for regulatory HPPs and 8% of total generation). Enguri HPP generated 564 mln. kWh, which represents 72% of generation of regulatory HPPs and 43% of total generation (Figure 5).

**Figure 5** - Share of Enguri and Vardnili in Total Generation



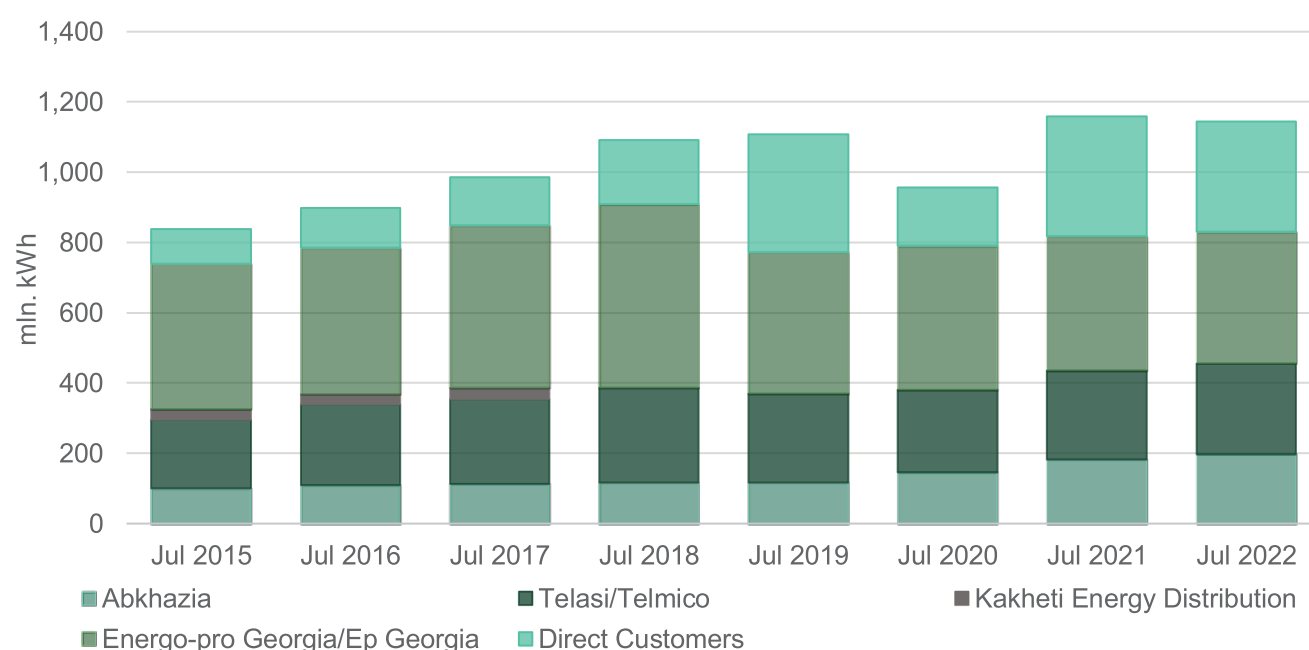
Source: ESCO

Overall, the total generation increased by 5% compared to July 2021 (Figure 6).

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

Source: ESCO

Total electricity demand came from: Energo-Pro Georgia/Ep Georgia<sup>1</sup> (33% - 375 mln. kWh), Abkhazia (17% - 197 mln. kWh), Telasi/Telmico<sup>2</sup> (23% - 259 mln. kWh), and direct customers (27% - 314 mln. kWh) (Figure 7). Annual demand from Telasi and Abkhazia increased by 2%, and 8%<sup>3</sup>, respectively, while the demand from direct customers, and Energo-Pro Georgia fell by 8%, and 2%, respectively. Overall, there was an annual decrease of 1% in the total electricity consumption in July 2022, compared to July 2021 (Figure 8).

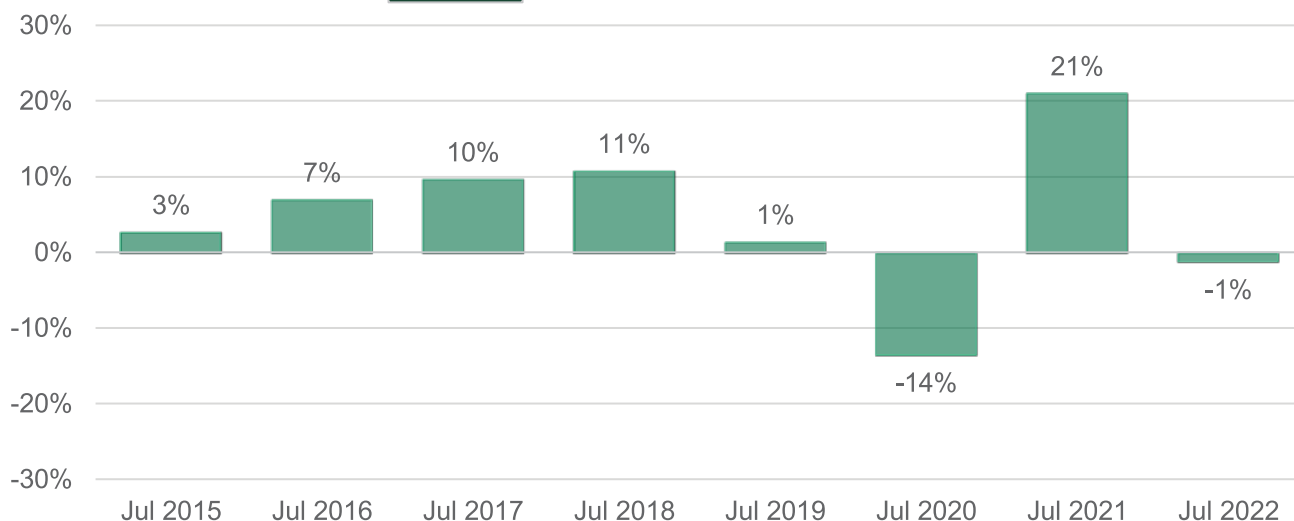
**Figure 7 - Electricity Consumption by Type of Customer**

Source: ESCO

<sup>1</sup> Energo-Pro Georgia acquired Kakheti Energy Distribution in September 2017.

<sup>2</sup> 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.

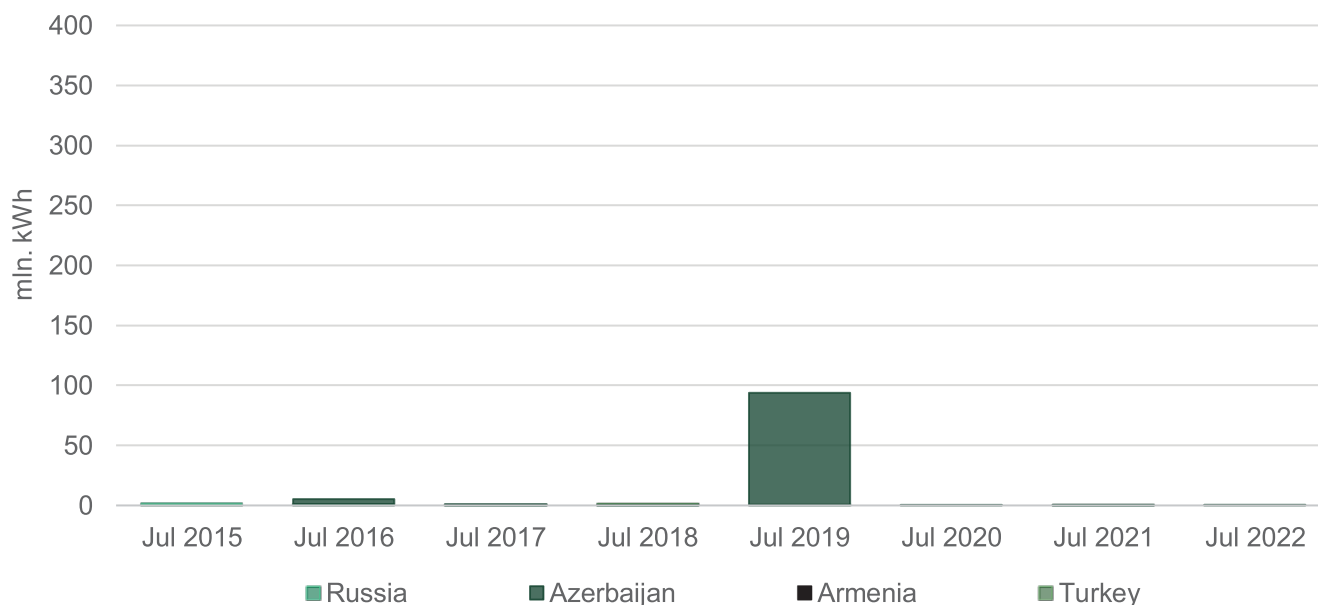
<sup>3</sup> The rise in demand from the direct customers is caused by the fact that according to [a new regulation](#) (adopted in April 2020 and enforced in July 2021), companies that consume more than 0.4 mln. kWh per month should buy electricity directly.

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

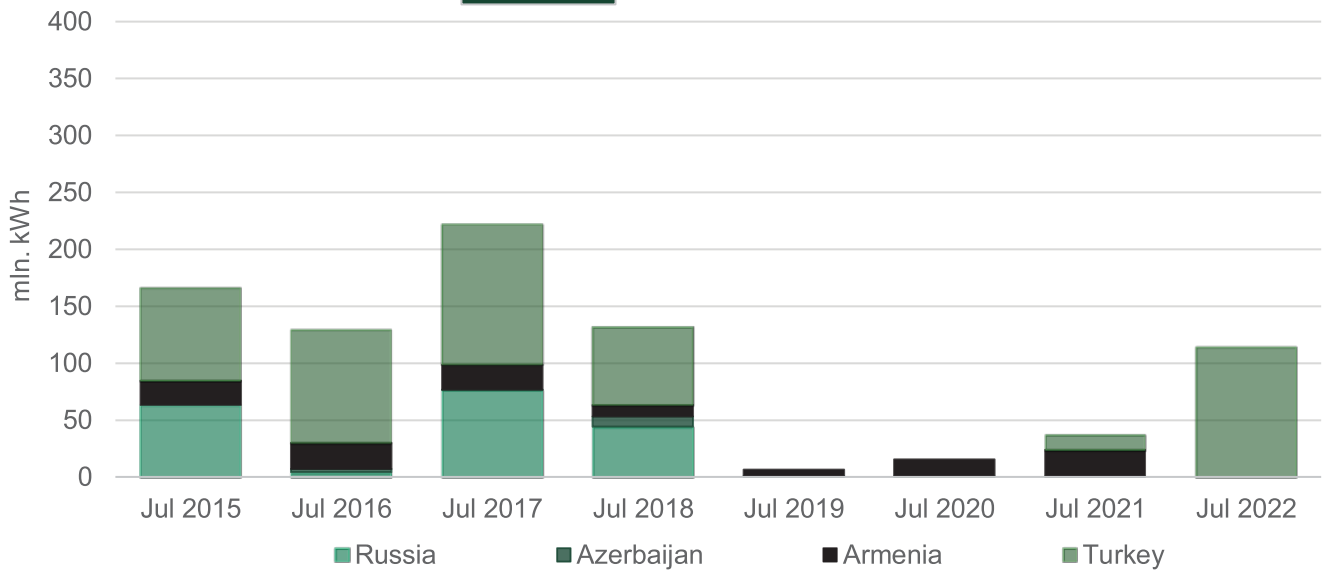
Source: ESCO

In July 2022, Georgia imported 0.2 mln. kWh of electricity (compared to 0.3 mln. kWh in June 2021). All of imports came from Azerbaijan (Figure 9). In July 2022, Georgia exported 115 mln. kWh of electricity, 100% of which went to Turkey (there was 37 mln. kWh export in July 2021) (Figure 10). There was 334 mln. kWh transit from Azerbaijan to Turkey (there was 60 mln. kWh transit from Azerbaijan to Turkey in July 2021).

Compared to July 2021, imports decreased by 57%, while exports increased by 206%.

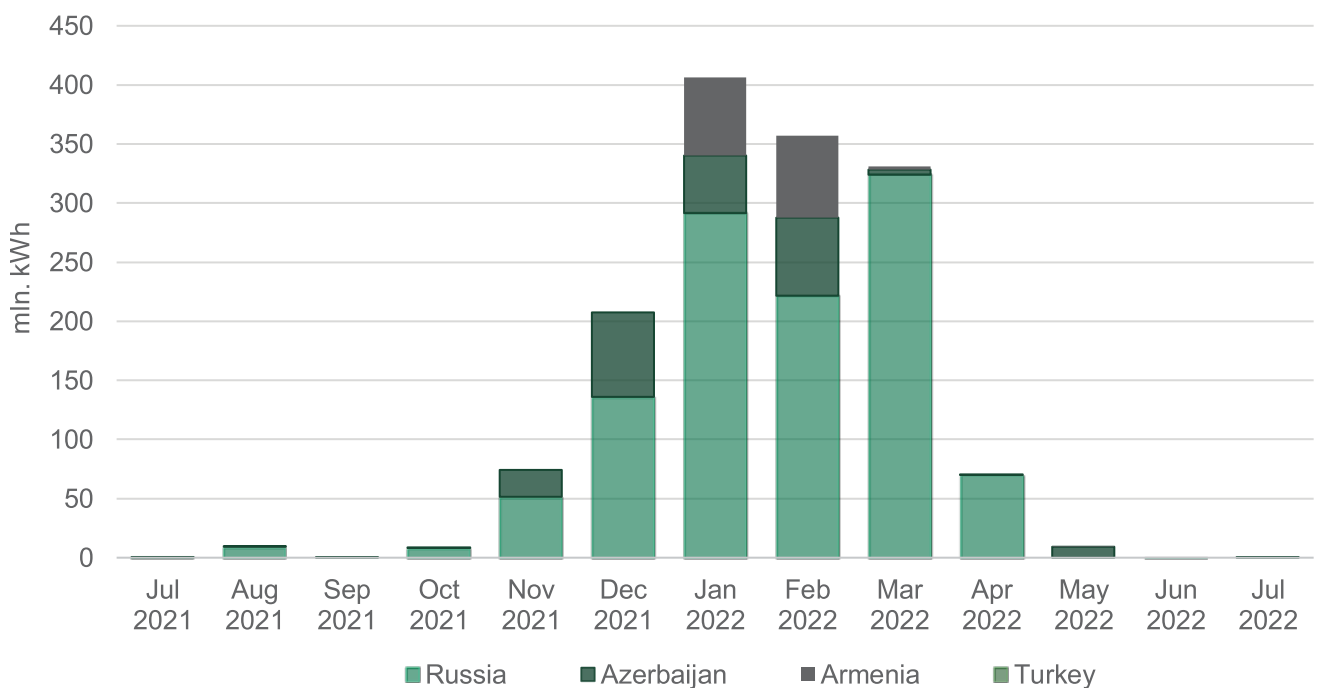
**Figure 9** - Imports by Year

Source: ESCO

**Figure 10** - Exports by Year

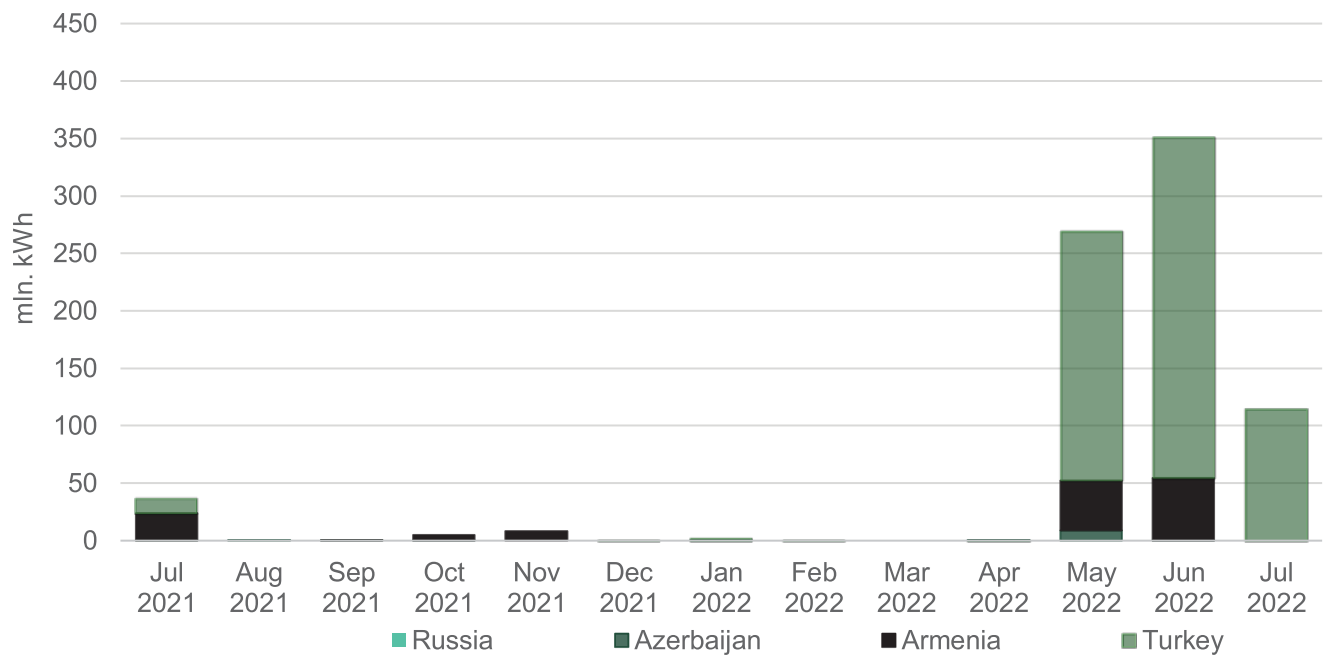
Source: ESCO

In July 2022, electricity imports decreased by 75% compared to June 2022 (Figure 11). Electricity exports decreased by 67%, compared to June 2022 (Figure 12). July 2022 was the third straight month with generation-consumption surplus.

**Figure 11** - Imports by Month

Source: ESCO



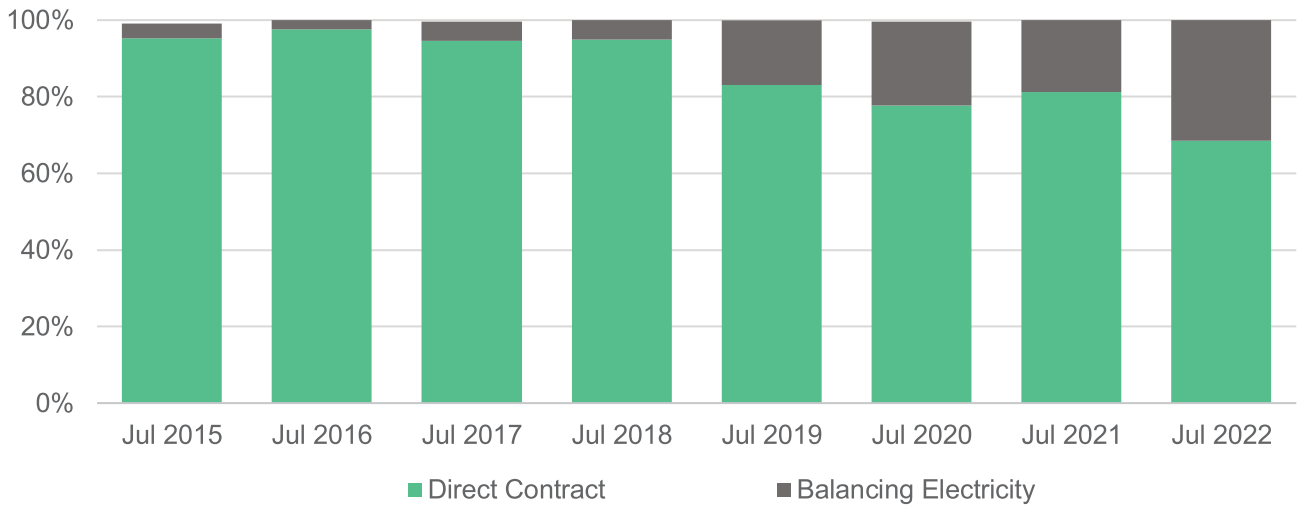
**Figure 12** - Exports by Month

Source: ESCO

## 1. Market Operations

In July 2022, 68% of the electricity sold on/from the local market was sold through direct contracts. The remaining 32% was sold as balancing electricity (Figure 13).

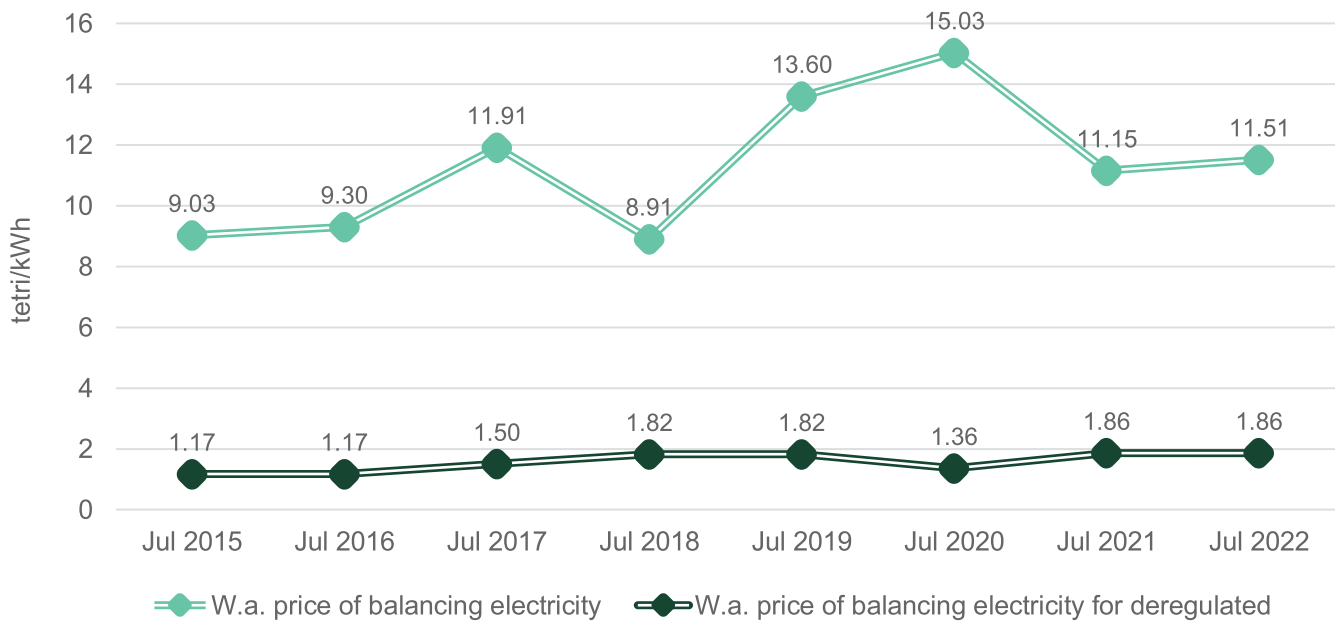
**Figure 13** - Electricity Purchased / Sold Shares of Direct Contracts and Balancing Electricity



Source: ESCO

In July 2022, the weighted average price of balancing electricity was 11.51 tetri/kWh, which corresponds to an annual increase of 3% compared to July 2021. As for the weighted average price for deregulated (small) HPPs, it was 1.86 tetri/kWh, the same as in July 2021 (Figure 14).

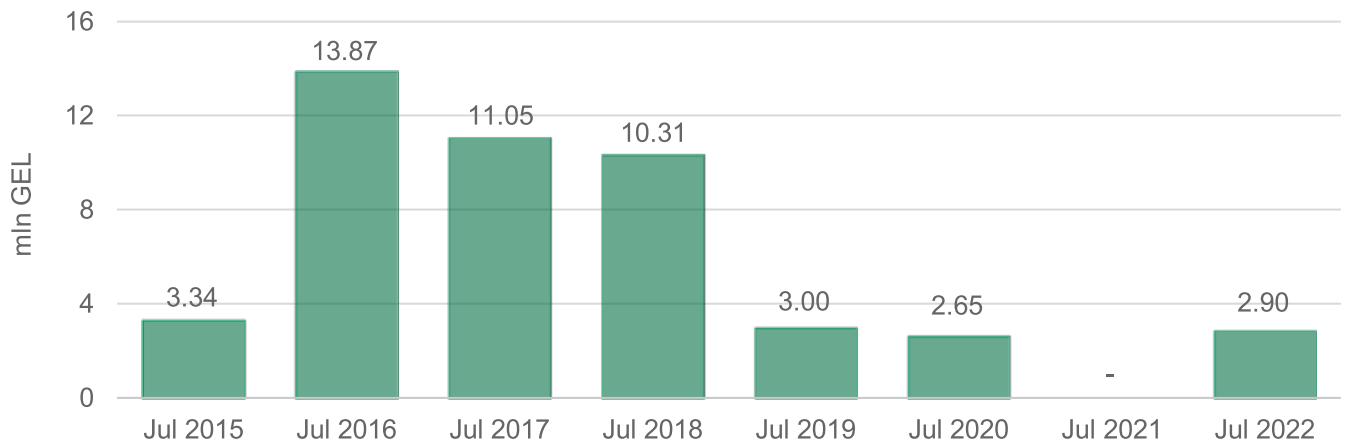
**Figure 14** - Balancing Electricity Prices Weighted Average and Weighted Average Price for Deregulated HPPs



Source: ESCO

Guaranteed capacity payments in July 2022 were roughly 2.90 mln. GEL, which represents an 10% increase compared to July 2020. The data about July 2021 are not available (Figure 15).

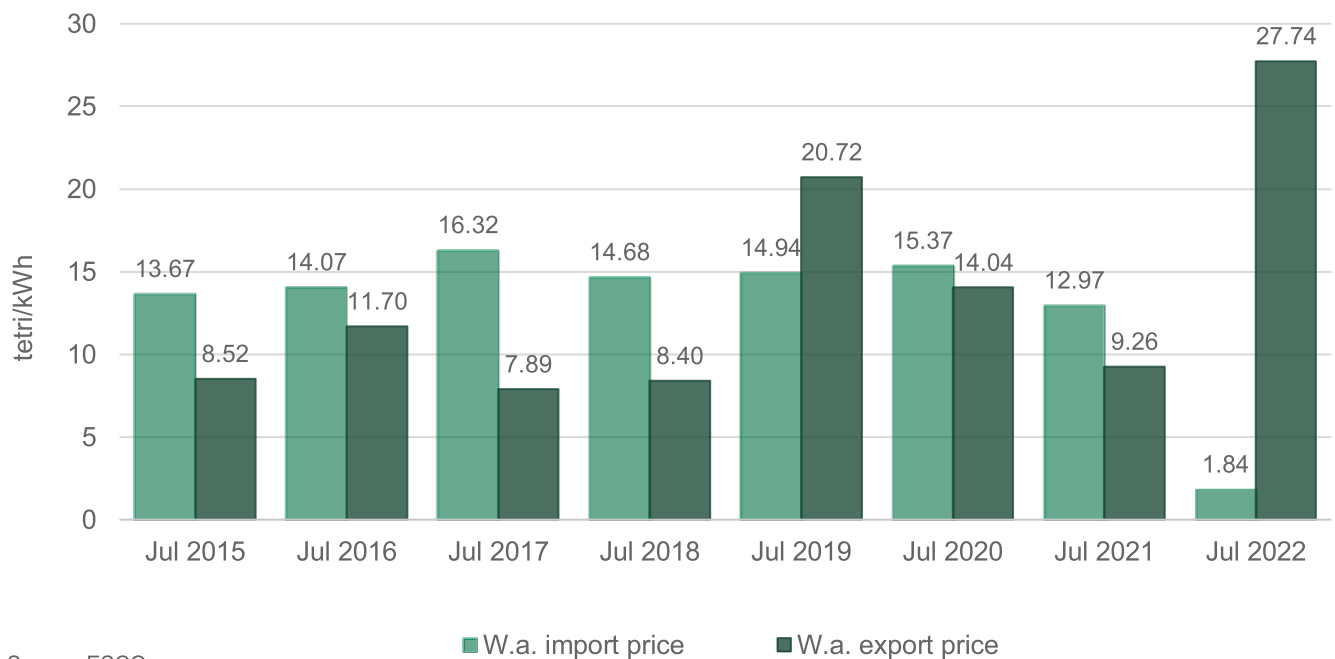
**Figure 15 - Cost of Guaranteed Capacity**



Source: ESCO

The weighted average electricity import price in July 2022 decreased by 84% in USD, on an annual basis, and decreased by approximately 86% in GEL (from 4.15 ¢, or 12.97 tetri per kWh in July 2021 to 0.65 ¢, or 1.84 tetri per kWh in July 2022 - Figure 16). The weighted average electricity import price increased by 1% in USD and decreased by 3% in GEL monthly (prices were 0.64 ¢, or 1.89 tetri per kWh in June 2022). The weighted average electricity export price in July 2022 increased by 229% in USD, on an annual basis, and increased by approximately 199% in GEL (from 2.96 ¢, or 9.26 tetri per kWh in July 2021 to 9.74 ¢, or 27.74 tetri per kWh in July 2022 - Figure 16). The weighted average export price increased by 14% USD and by 10% in GEL on a monthly basis (prices were 8.55 ¢, or 25.27 tetri per kWh in June 2022).

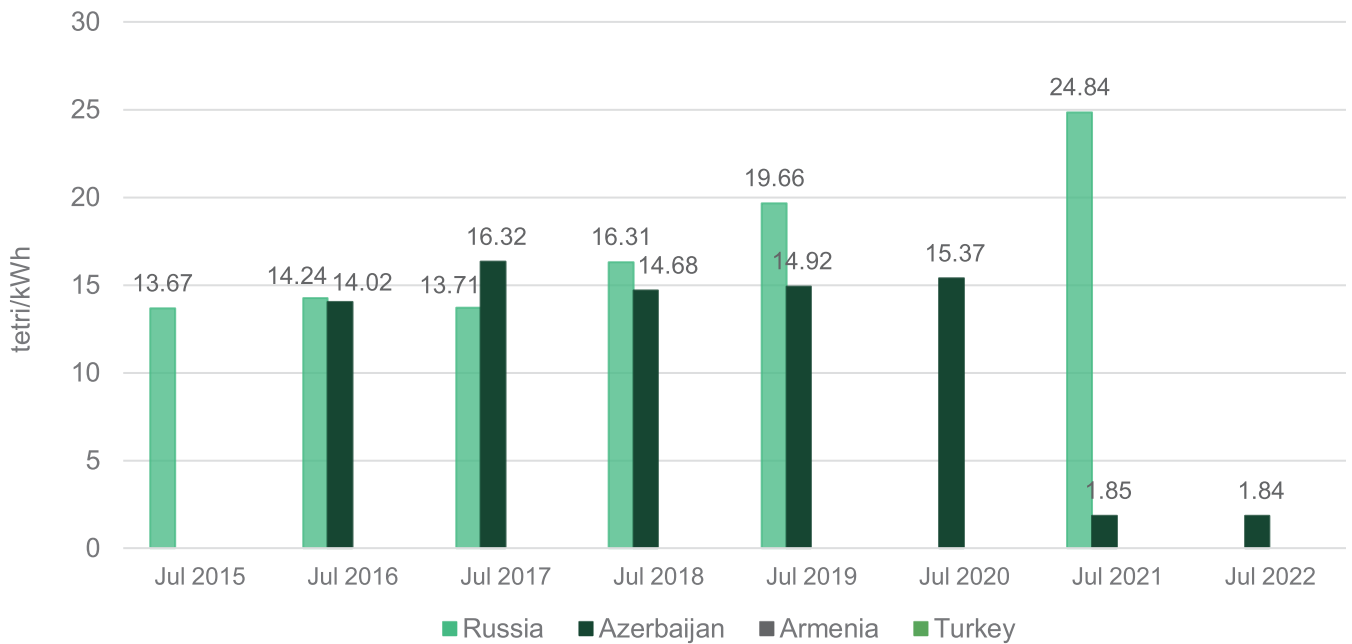
**Figure 16 - Prices Import/Export**



Source: ESCO

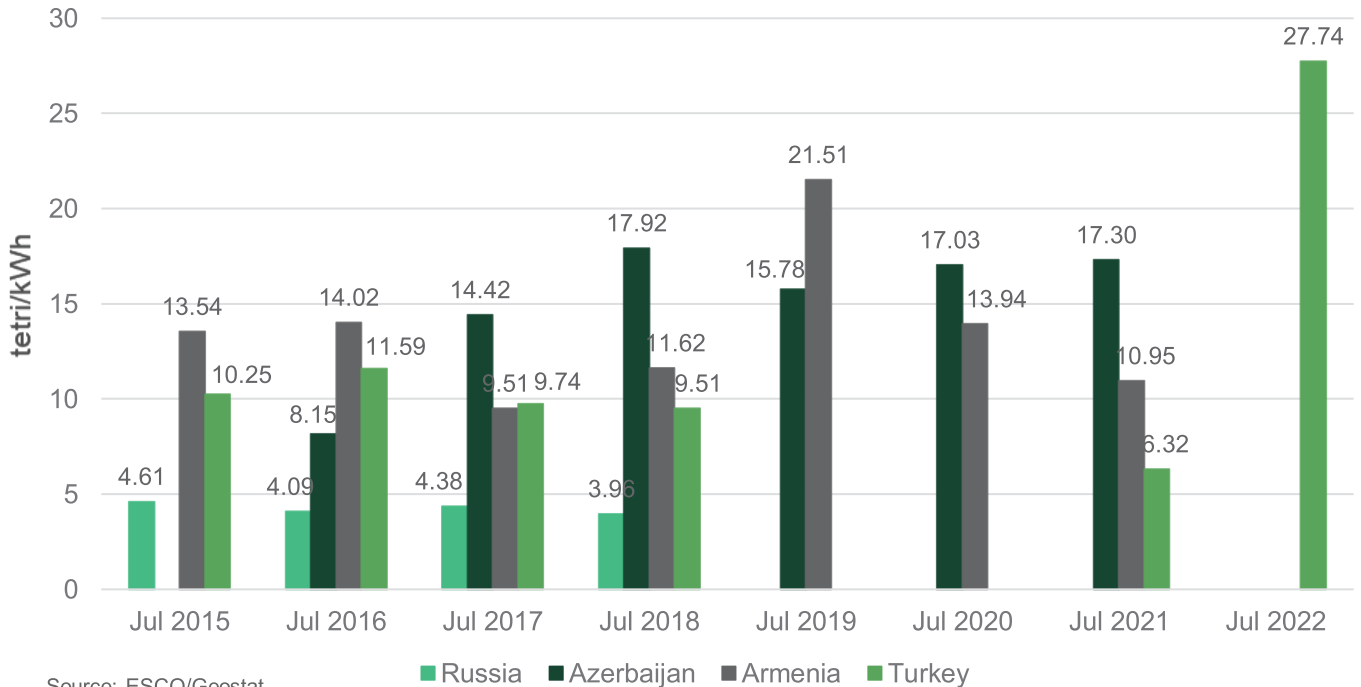
In July 2022, the electricity import price from Azerbaijan stood at 0.65 ¢ or 1.84 tetri (Figure 17).

**Figure 17** - Import Prices by Countries



In July 2022, the electricity export price to Turkey stood at 9.74 ¢ or 27.7 tetri (Figure 18).

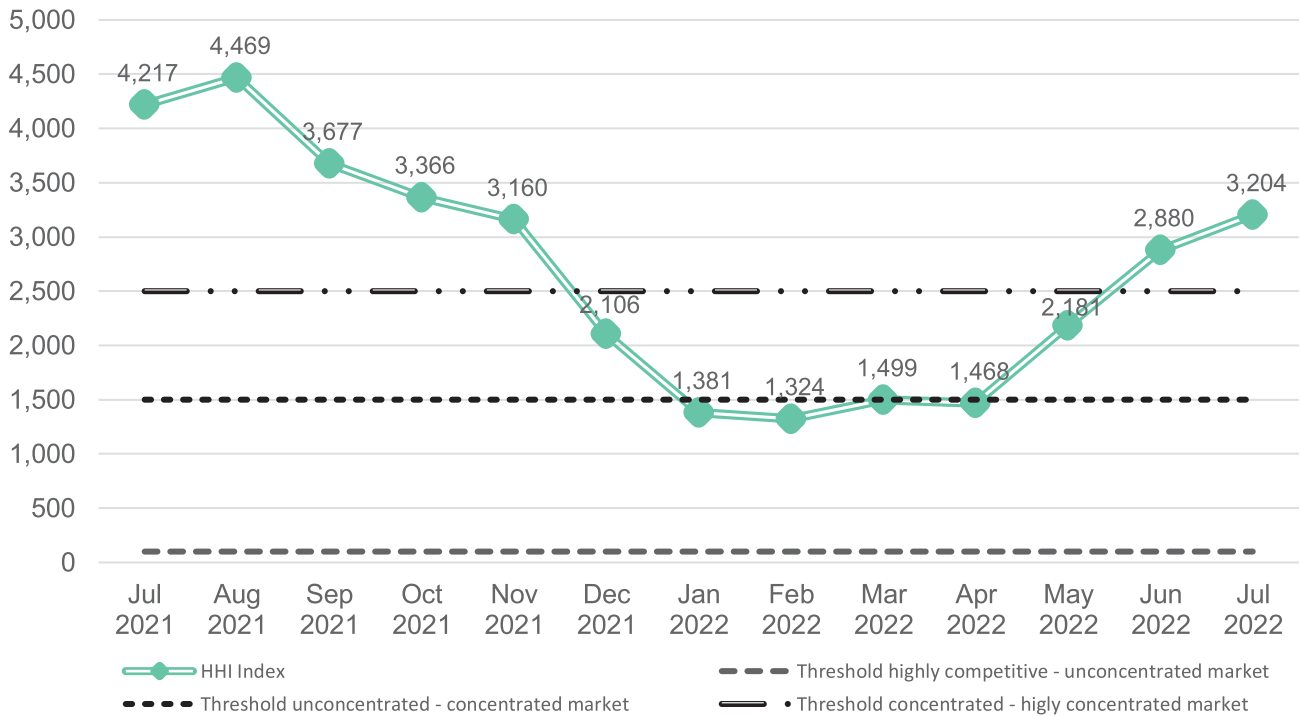
**Figure 18** - Export Prices by Countries



## 2. Market Concentration

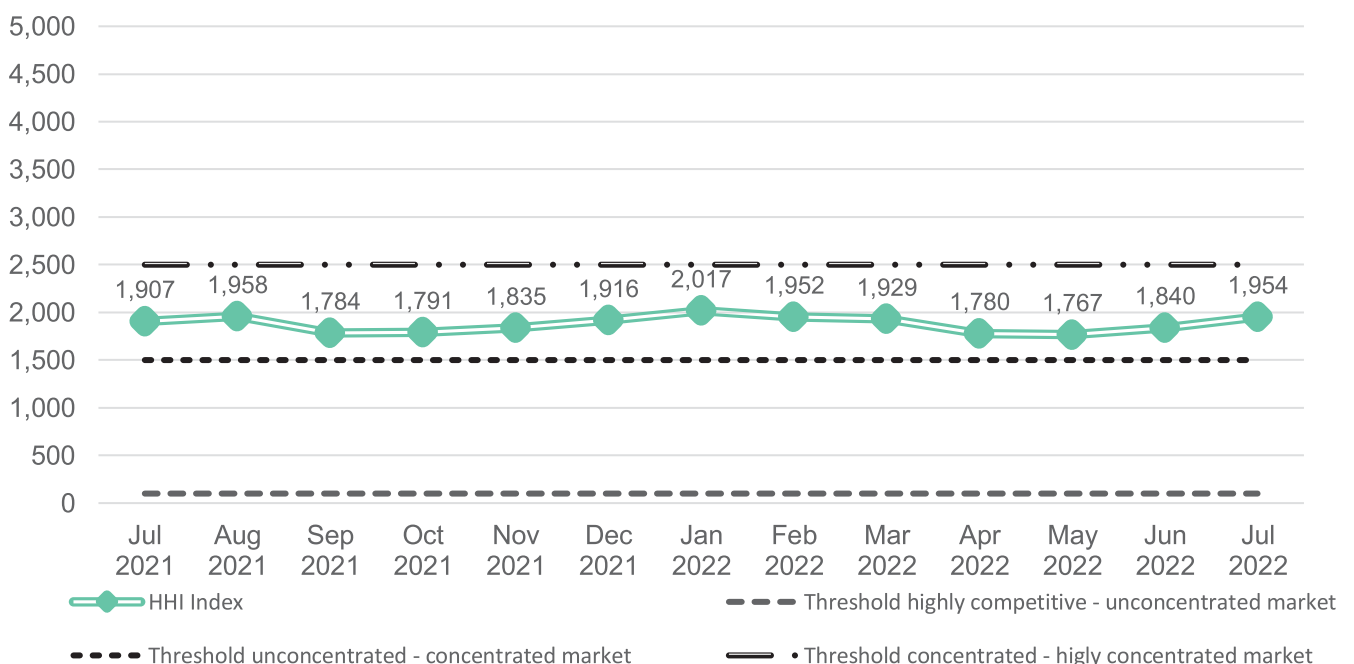
In conclusion, we utilize the Hirschman-Herfindahl (HHI) market concentration index to evaluate how competitive the generation and consumption segments of the market have been over the year. In July 2022, the Georgian electricity generation market index increased above the threshold of highly concentrated market with an HHI value of 3,204 (Figure 19). This is lower than the level in July 2021 (with an HHI value of 4,217), but higher than the level in June 2022 (the HHI was 2,880). As for the consumption segment, in July 2022, the HHI consumption index remained below the threshold for a highly concentrated market, with an HHI value of 1,954 (above the level in July 2021 – 1,907 and above the level in June 2022 – 1,840). 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 20).

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



Source: ESCO

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



Source: ESCO