

# ISET

International School of Economics at TSU  
Policy Institute

AUGUST  
2023



# ELECTRICITY MARKET REVIEW



# ISET POLICY INSTITUTE

## AGRICULTURE & RURAL POLICY RESEARCH CENTER

### Authors:

Erekle Shubitidze  
Senior Researcher

 [erekle.shubitidze@iset.ge](mailto:erekle.shubitidze@iset.ge)

### INFORMATION

- In August 2023 there was an increase in the total electricity generation by 4% on a yearly basis and decrease by 5% on a monthly basis.
- Consumption increased by 1% on a yearly basis and increased by 10% compared to the previous month.
- Generation exceeded consumption by 250 mln. kWh which was 17% of the total generation and 21% of the total consumption in August 2023.
- There were no imports in August 2023.
- There were exports of 196 mln. kWh in August.
- The main export partner country was Turkey.
- The price of exports reached 7.00 ჯ, or 18.36 tetri per kWh.
- The HHI index for the Georgian electricity generation market remained above the threshold of highly concentrated market. In August 2023, its level was 5,694.
- The HHI for the Georgian electricity consumption market remained below the threshold of a highly concentrated market. In August 2023, its level was 2,345.

### ABBREVIATION USED

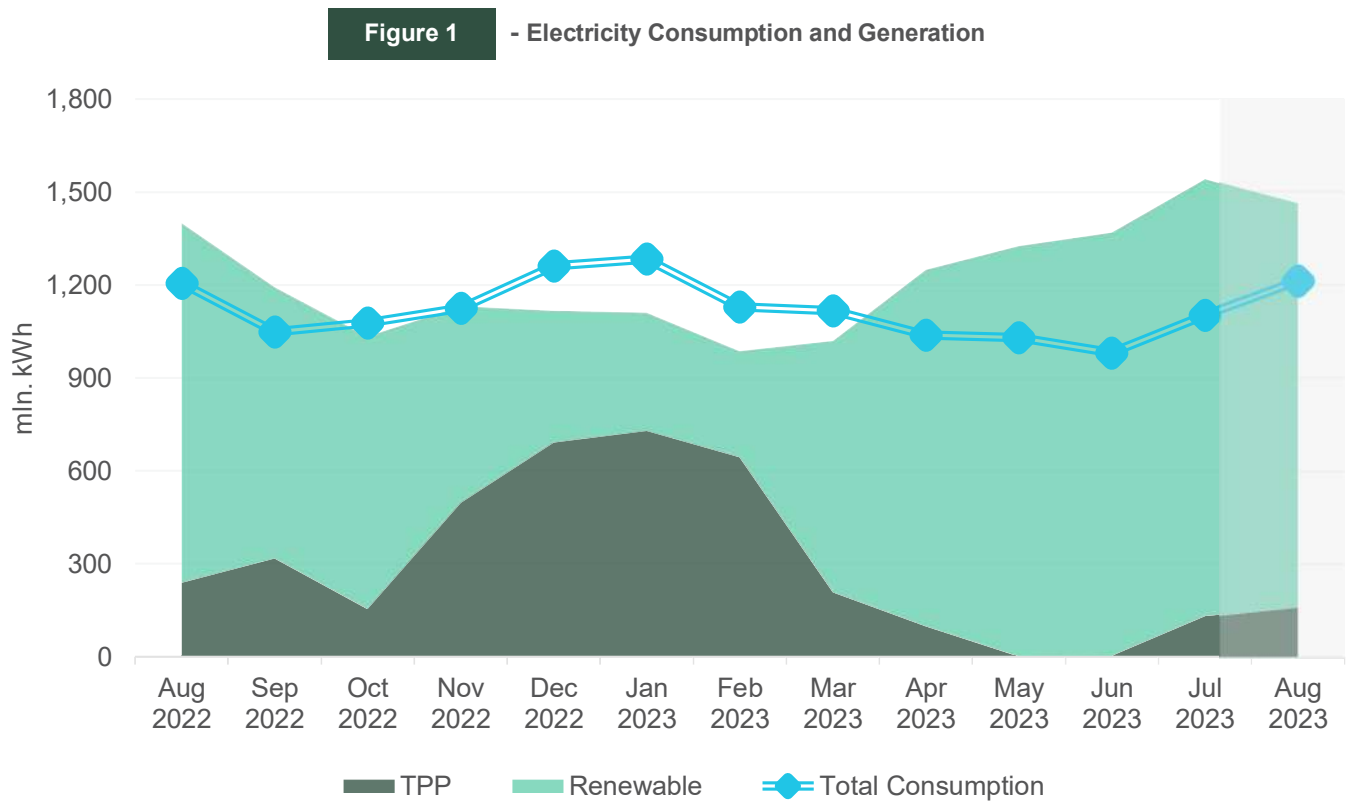
Mln	million
kWh	kilowatt-hour
HPP	Hydro Power Plant
WPP	Wind Power Plant
TPP	Thermal Power Plant
HHI	Hirschmann-Herfindahl Index
Telmico	Tbilisi Electricity Supply Company
Ep Georgia	Ep Georgia Supply
Geostat	National Statistics Office of Georgia
ESCO	Electricity System Commercial Operator

## Generation – Consumption – Trade

In August 2023, Georgian power plants generated 1,463 mln. kWh of electricity (Figure 1). This represents a 4% increase in the total generation compared to the previous year (in August 2022, the total generation was 1,401 mln. kWh). The rise in generation on a yearly basis comes from a rise of 12% in Hydro power generation, while generation of wind and thermal power plants decreased by 29% and 32%, respectively.

On a monthly basis, the generation decreased by approximately 5% (in July 2023, the total generation was 1,541 mln. kWh) (Figure 1). The monthly fall in total generation is induced by a decrease of hydro and wind generation by 8% both, while thermal power generation increased by 23%.

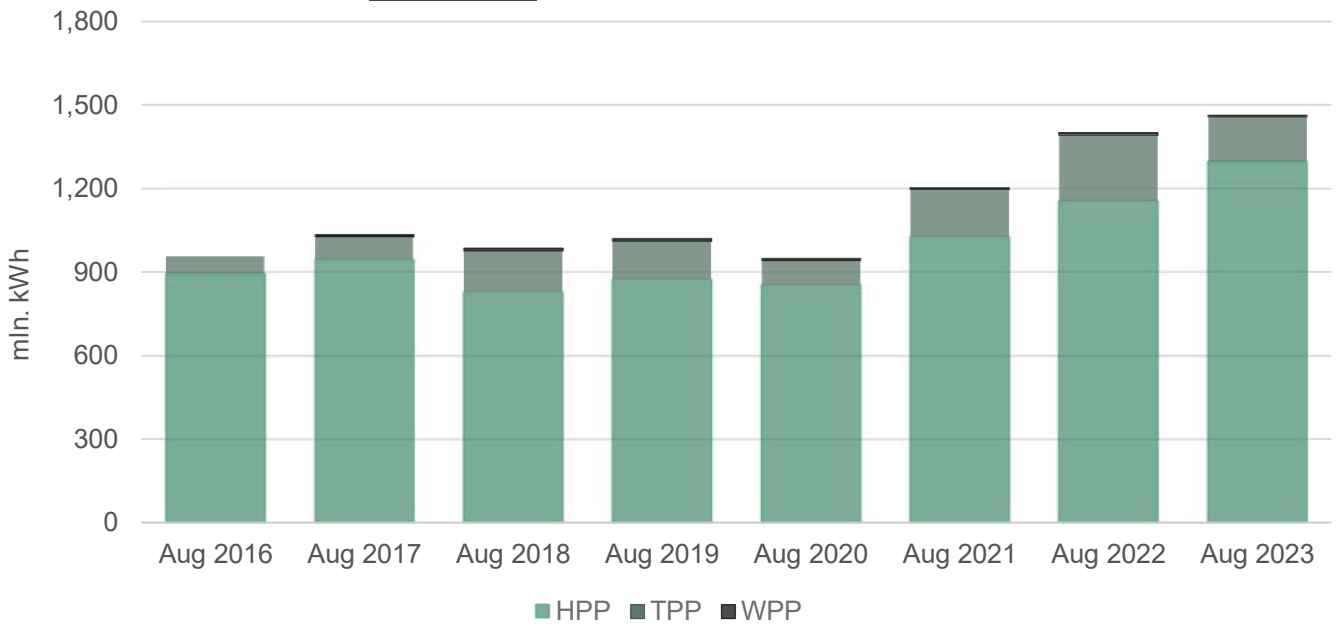
The consumption of electricity on the local market was 1,213 mln. kWh (+1% compared to August 2022, and +10% compared to July 2023) (Figure 1). In August 2023, power generation exceeded consumption by 250 mln. kWh which was 17% of the total generation and 21% of the total consumption (in August 2022, the difference between the total generation and the consumption resulted in a surplus of 195 mln. kWh, around 14% of the total generation and 16% of the total consumption for the month).



Source: Electricity System Commercial Operator (ESCO)

In August 2023, hydro power plants were the leading source of generation. In August 2023, hydro power (HPP) generation amounted to 1,294 mln. kWh (88.5% of total), thermal power (TPP) generation was 162 mln. kWh (11.1% of the total generation), while wind power (WPP) generation amounted to 7 mln. kWh (0.5% of the total generation) (Figure 2).

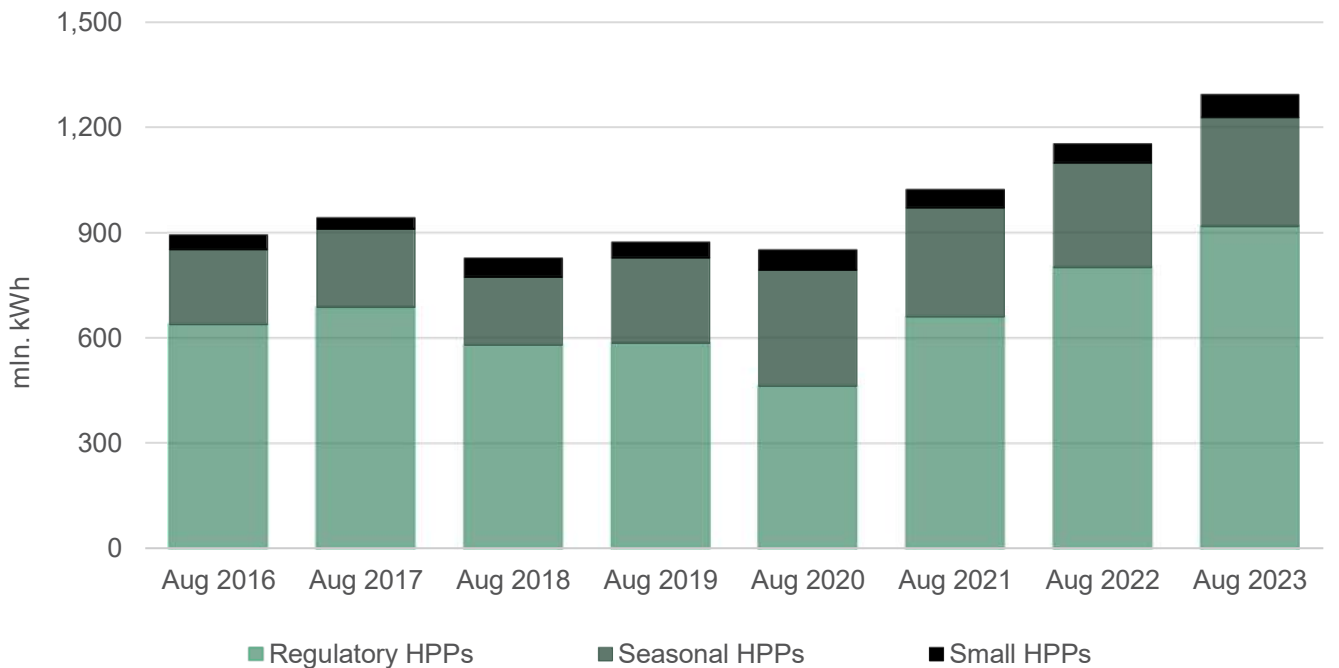
**Figure 2 - Electricity Generation by Sources**



Source: ESCO

Among hydropower generators, large (regulatory) HPPs produced 71% (918 mln. kWh) of electricity, while seasonal and small HPPs produced 24% (310 mln. kWh) and 5% (66 mln. kWh), respectively (Figure 3).

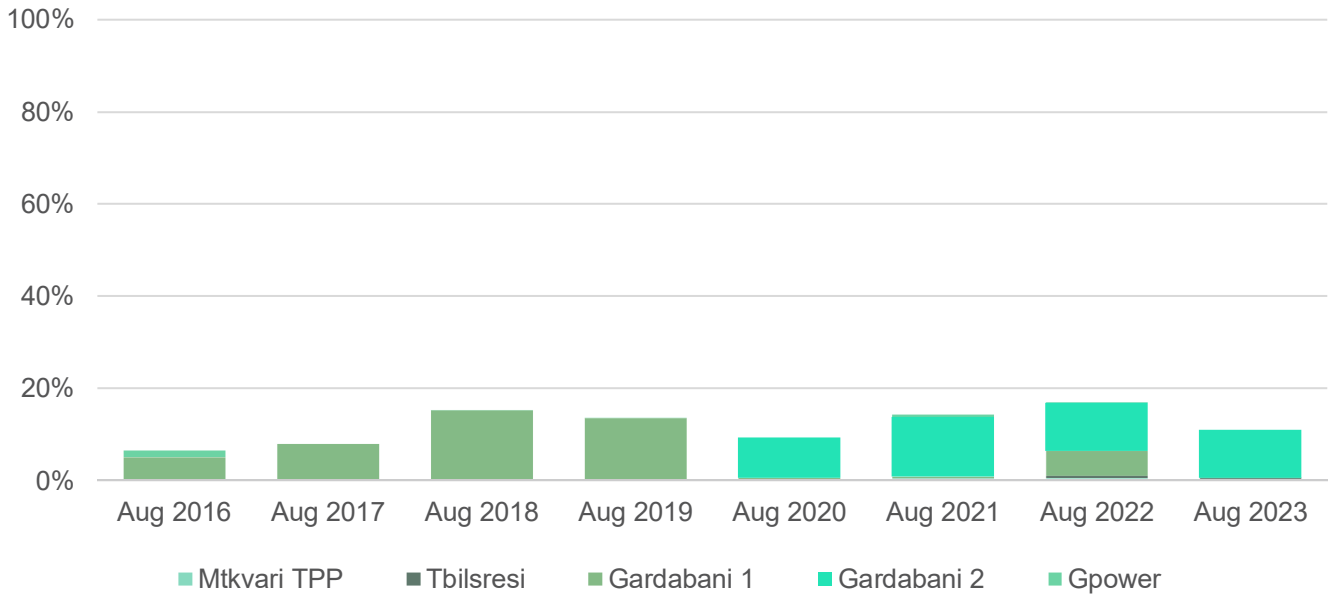
**Figure 3 - HPP Generation by Type**



Source: ESCO

As for thermal power generation, Tbilisresi generated 3.1 mln. kWh electricity (1.9% of TPP generation and 0.2% of total power generation), Mtkvari TPP generated 5.7 mln. kWh electricity (3.5% of TPP generation and 0.4% of total power generation), Gardabani 1 generated 0.7 mln. kWh (0.4% of TPP generation and 0.1% of total power generation) and Gardabani 2 generated 153 mln. kWh (94.2% of TPP generation and 10.4% of total power generation) (Figure 4).

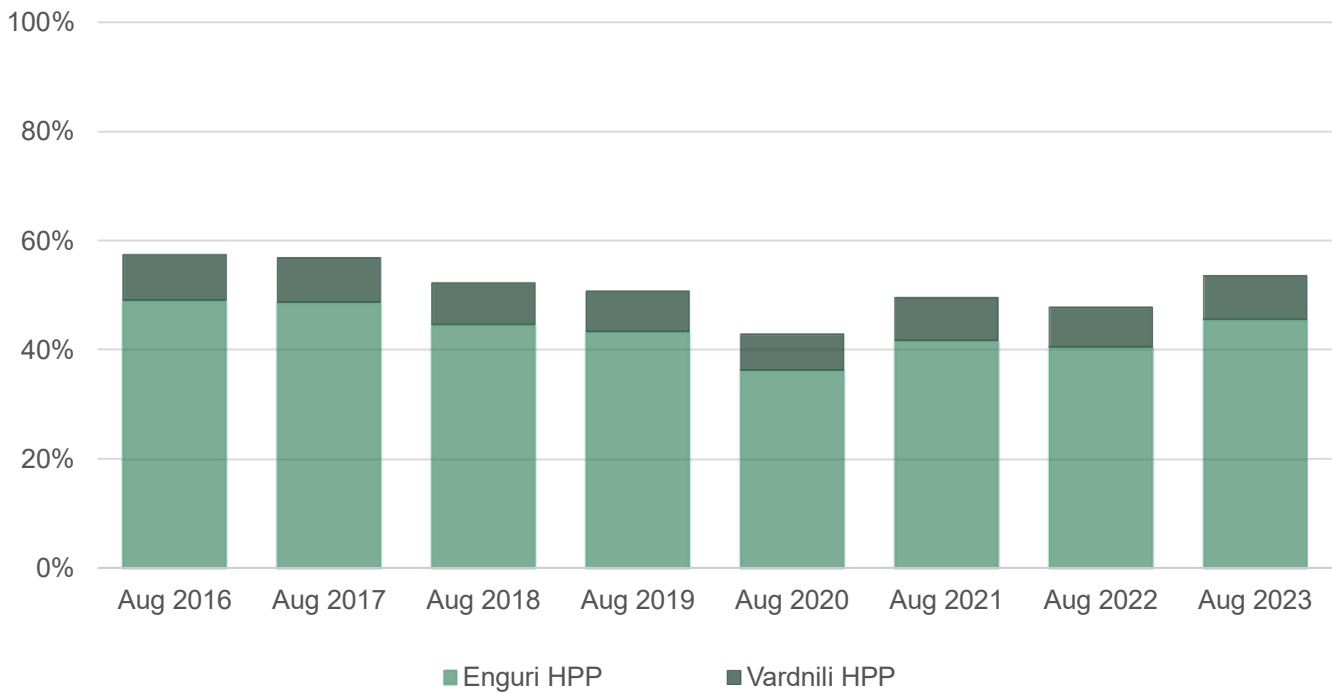
**Figure 4 - Share of Large TPPs in Total Generation**



Source: ESCO

As for HPP generation, Vardnili HPP generated 117 mln. kWh (12.7% of generation for regulatory HPPs and 8% of total generation). Enguri HPP generated 667 mln. kWh, which represents 72.6% of generation of regulatory HPPs and 45.6% of total generation (Figure 5).

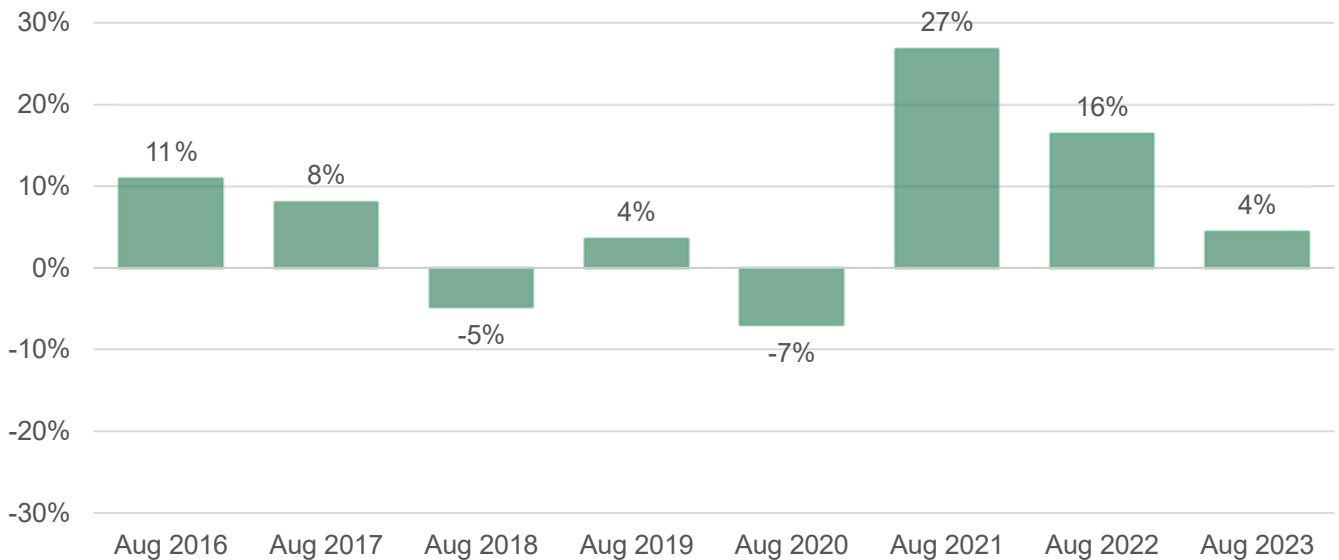
**Figure 5 - Share of Enguri and Vardnili in Total Generation**



Source: ESCO

Overall, the total generation increased by 4% compared to August 2022 (Figure 6).

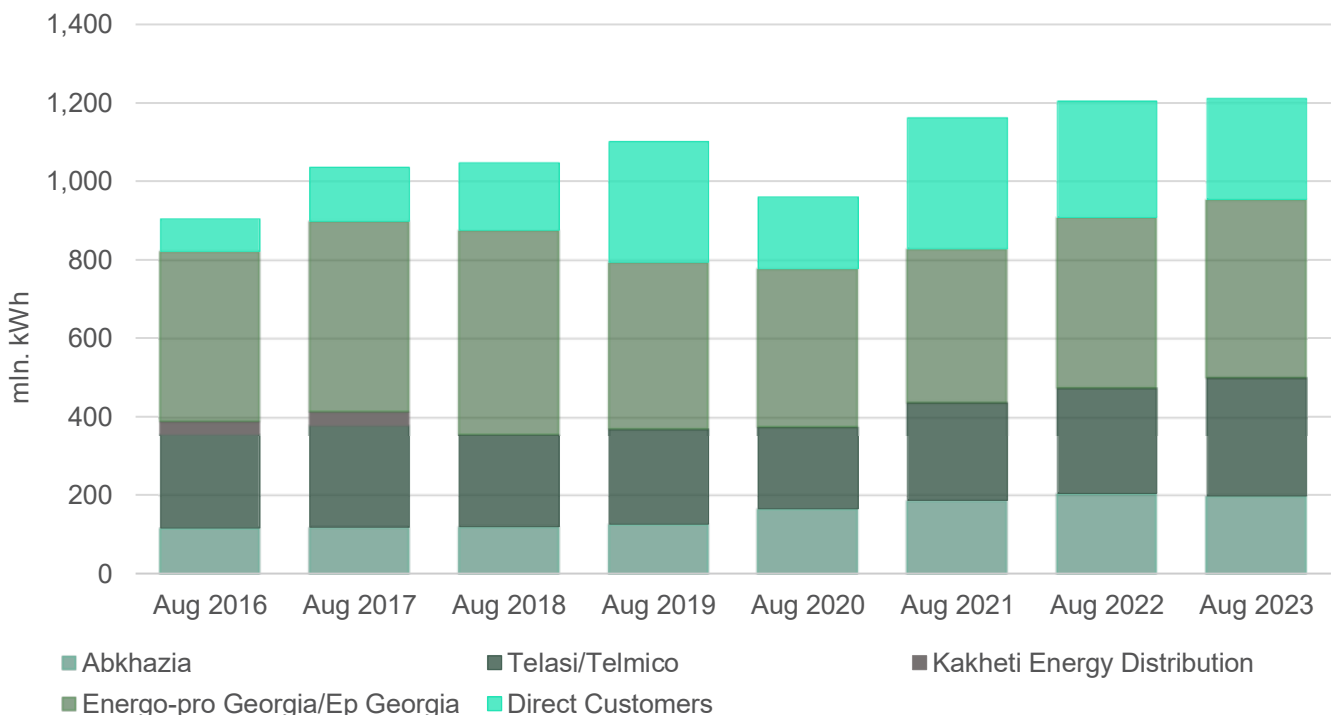
**Figure 6 - Growth of Generation (% , y/y)**



Source: ESCO

Total electricity demand came from: Energo-Pro Georgia/Ep Georgia<sup>1</sup> (37% - 453 mln. kWh), Abkhazia (16% - 199 mln. kWh), Telasi/Telmico<sup>2</sup> (25% - 301 mln. kWh), and direct customers (21% - 257 mln. kWh) (Figure 7). Annual demand from Abkhazia and direct customers fell by 3% and 13%, while it increased from Telasi/Telmico and Energo-Pro Georgia/Ep Georgia by 12% and 5%, respectively. Overall, there was an annual increase of 1% in the total electricity consumption in August 2023, compared to August 2022 (Figure 8).

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

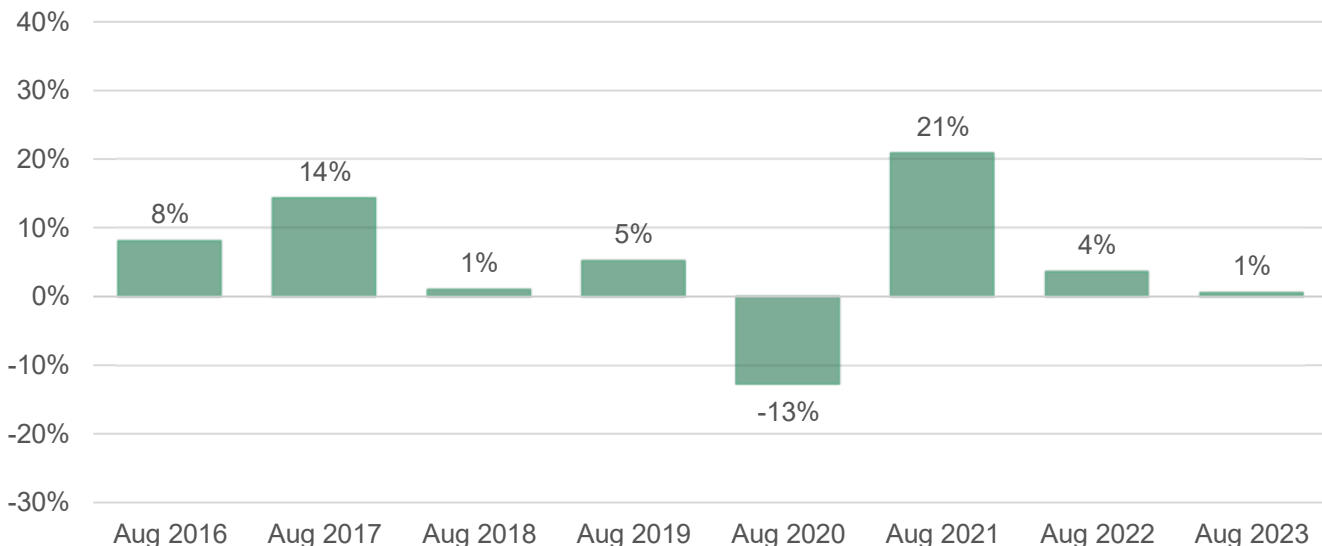


Source: ESCO

<sup>1</sup> Energo-Pro Georgia acquired Kakheta 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.

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

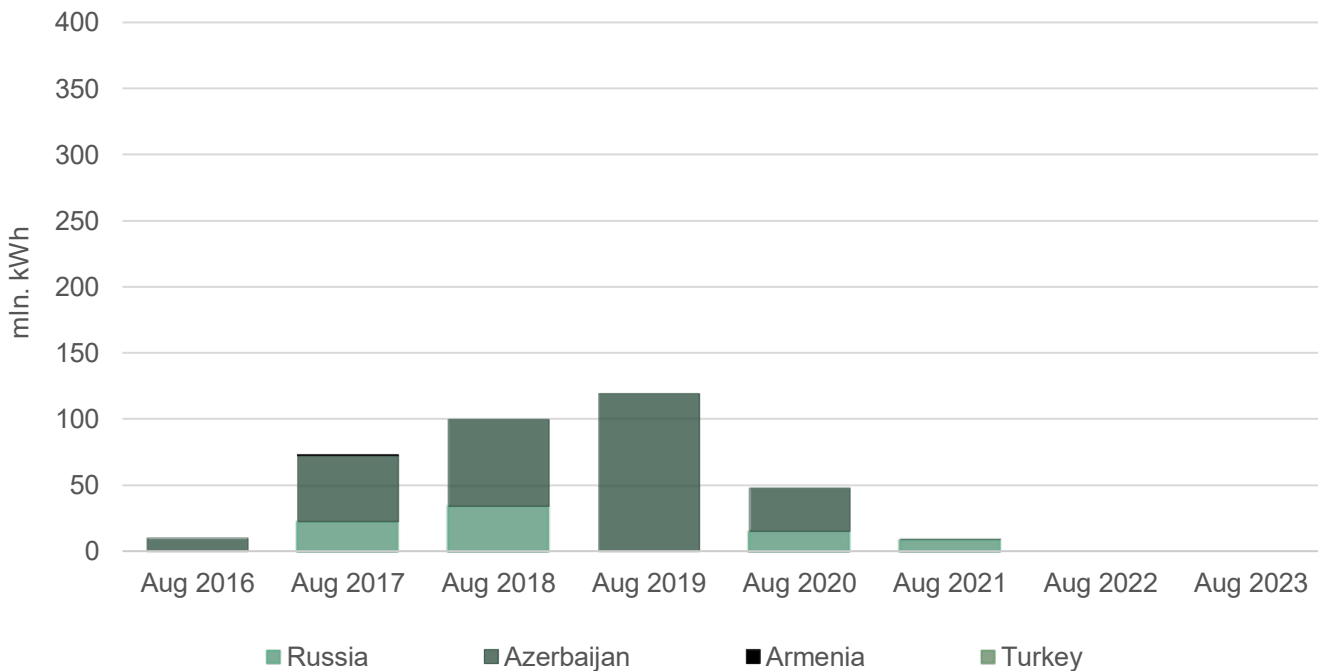


Source: ESCO

In August 2023, there was no import of electricity (in August 2022, there was no electricity imports as well) (Figure 9). In August 2023, there was an export of 196 mln. kWh of electricity (compared to 140 mln. kWh in August 2022) (Figure 10). 100% of this export went to Turkey (in August 2022, 100% of exports went to Turkey as well). There was 240 mln. kWh transit in August 2023 from Azerbaijan to Turkey (in August 2022, there was 354 mln. kWh transit from Azerbaijan to Turkey).

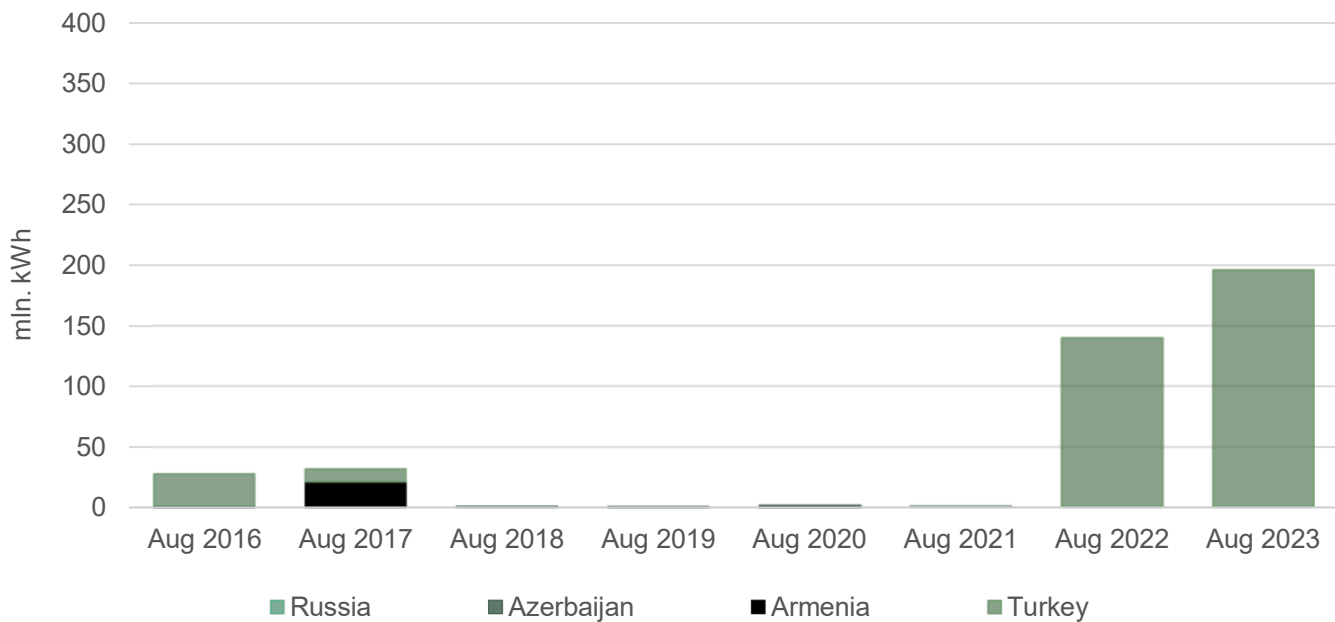
In August 2023, imports have not changed compared to August 2022, while exports increased by 40%.

**Figure 9** - Imports by Year



Source: ESCO

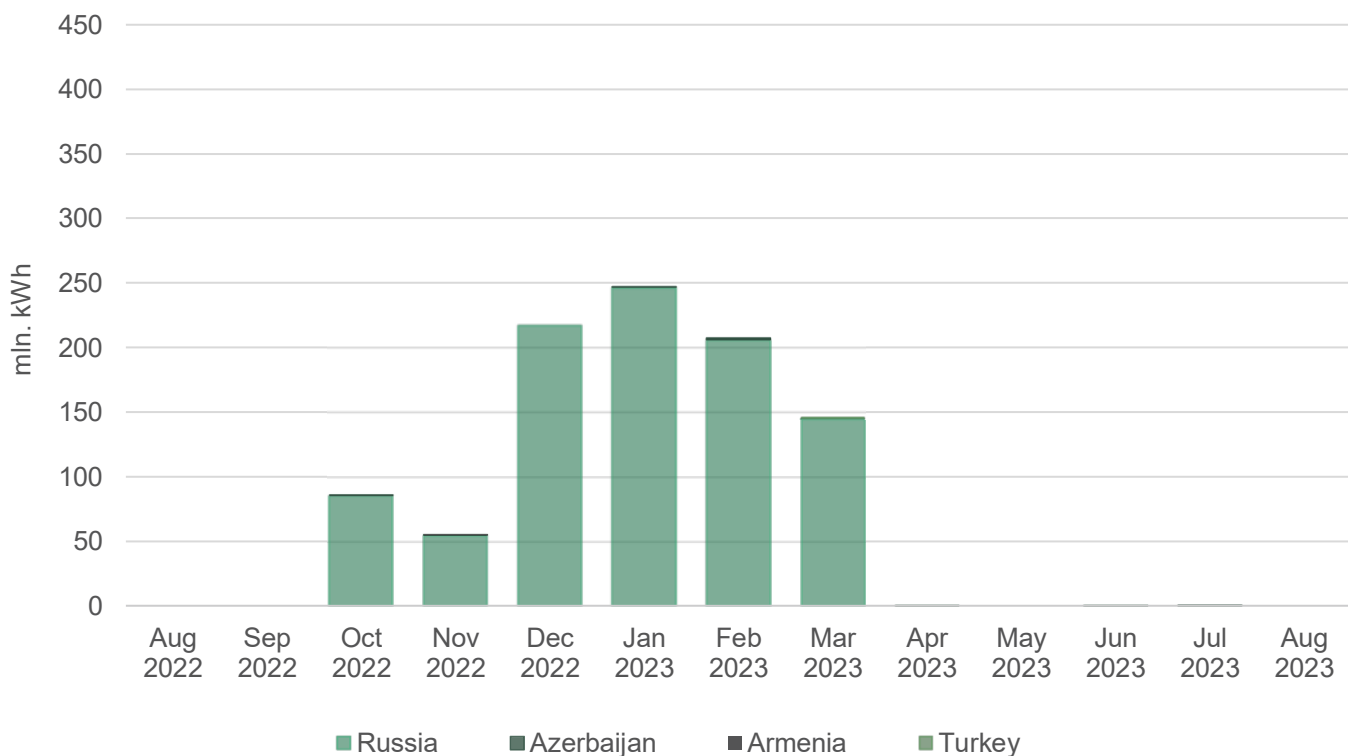
**Figure 10** - Exports by Year



Source: ESCO

Electricity imports decreased by 100% in August 2023, compared to July 2023 (Figure 11). Electricity exports decreased by 49% in August 2023, compared to July 2023 (Figure 12).

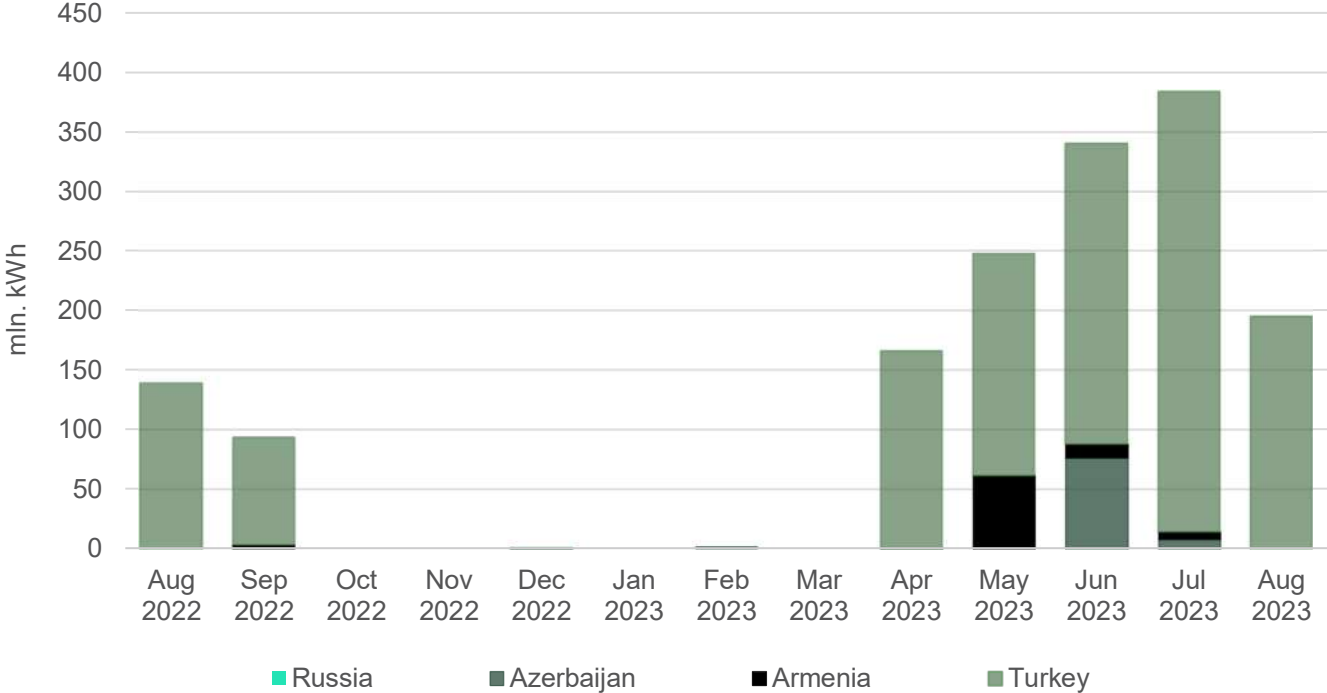
**Figure 11** - Imports by Month



Source: ESCO



**Figure 12** - Exports by Month

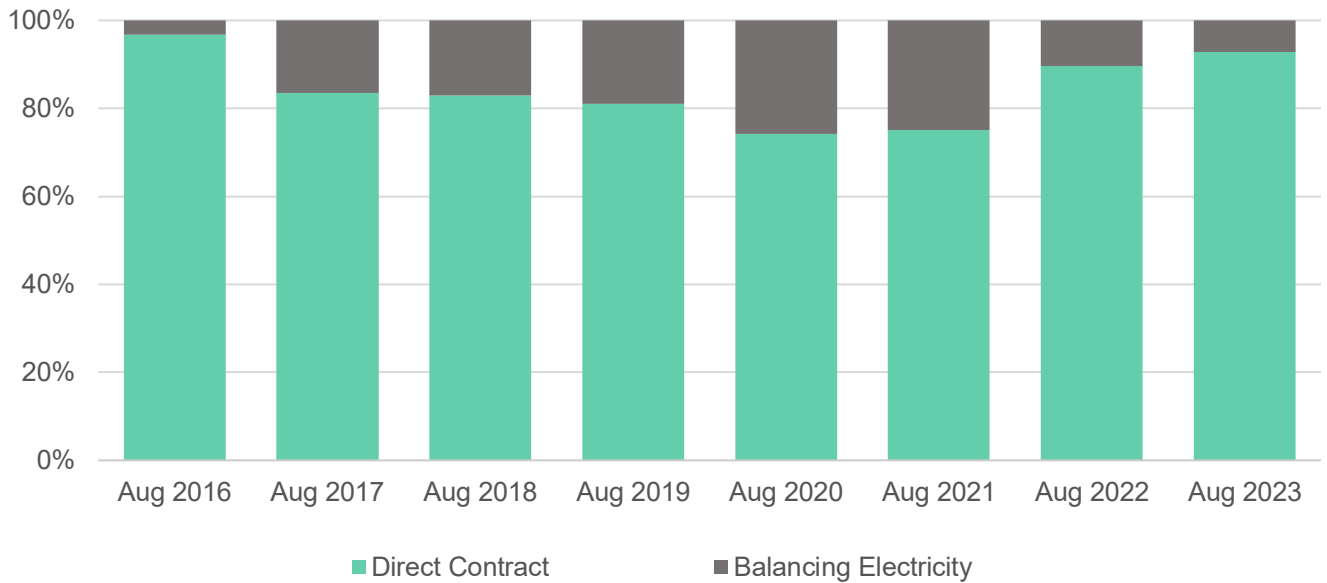


Source: ESCO

## 1. Market Operations

In August 2023, 93% of the electricity sold on/from the local market was sold through direct contracts. The remaining 7% was sold as balancing electricity (Figure 13).

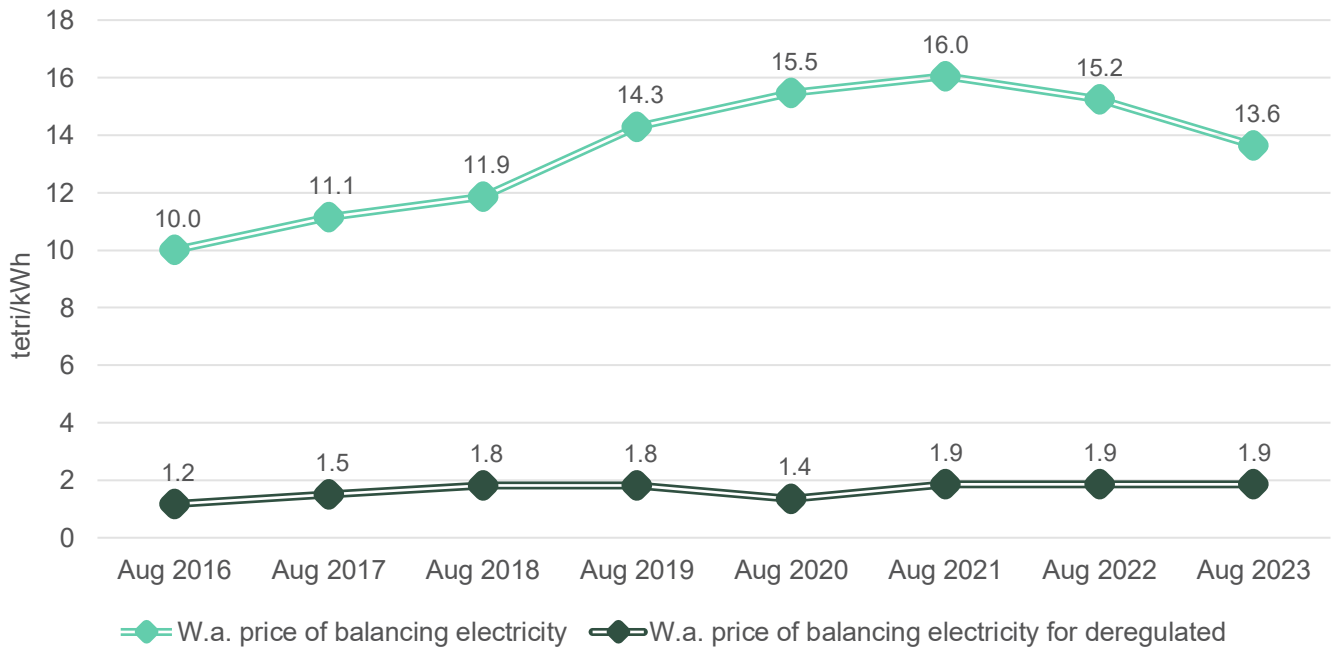
**Figure 13** - Electricity Purchased / Sold Shares of Direct Contracts and Balancing Electricity



Source: ESCO

In August 2023, the weighted average price of balancing electricity was 13.6 tetri/kWh, which corresponds to an annual decrease of 10% compared to August 2022. As for the weighted average price for deregulated (small) HPPs, it was 1.86 tetri/kWh, same price as in August 2022 (Figure 14).

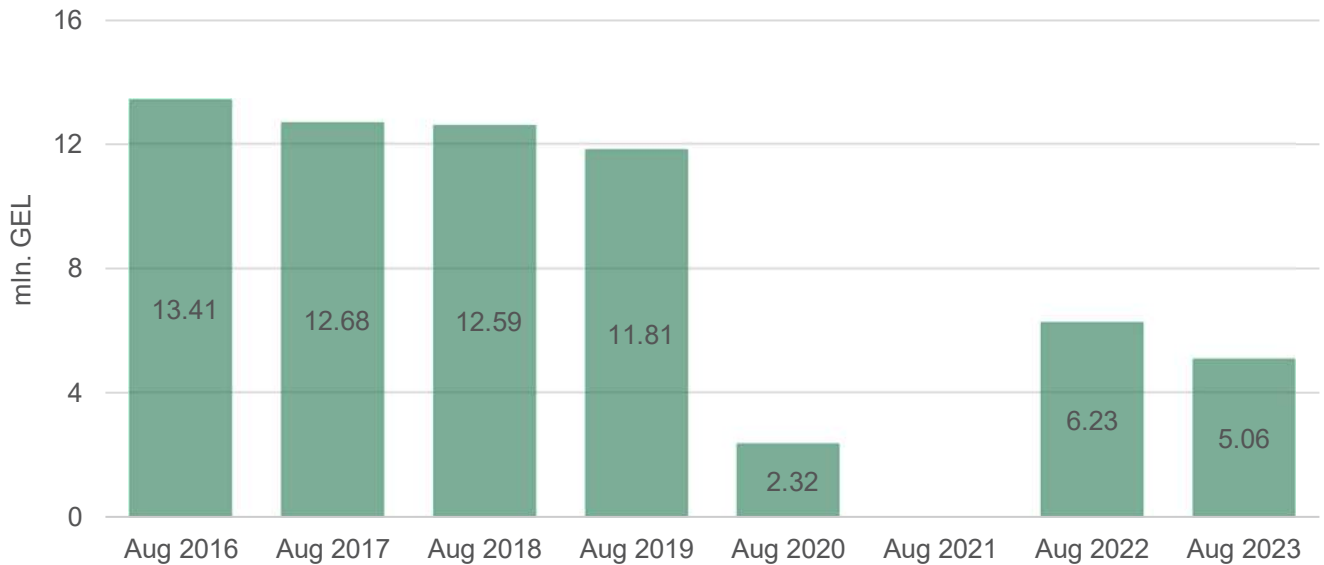
**Figure 14** - Balancing Electricity Prices Weighted Average and Weighted Average Price for Deregulated HPPs



Source: ESCO

Guaranteed capacity payments in August 2023 were roughly 5.06 mln. GEL, which represents a 19% decrease compared to August 2022 (Figure 15).

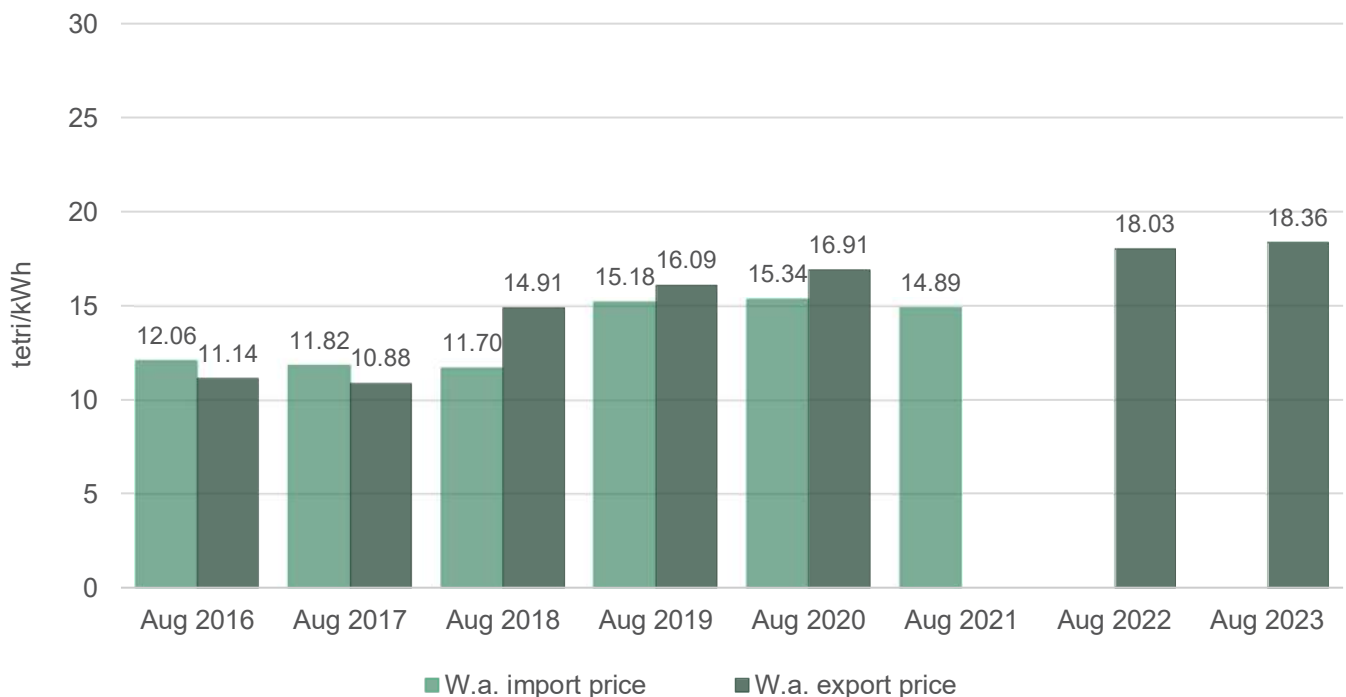
**Figure 15** - Cost of Guaranteed Capacity



Source: ESCO

In August 2023 as well as in August 2022 there was no electricity import (Figure 16). Compared to July 2023, import prices decreased by 100% in USD and GEL (prices were 6.50  $\phi$ , or 16.88 tetri per kWh in July 2023). The electricity export prices in August 2023 were 7.00  $\phi$ , or 18.36 tetri per kWh (Figure 16). This corresponds to an annual increase in price by 8% in USD and 2% in GEL (prices were 6.50  $\phi$ , or 18.03 tetri per kWh in August 2022). Compared to July 2023, export price increased by 0.5% in USD and 1.4% in GEL (prices were 6.97  $\phi$ , or 18.10 tetri per kWh in July 2023).

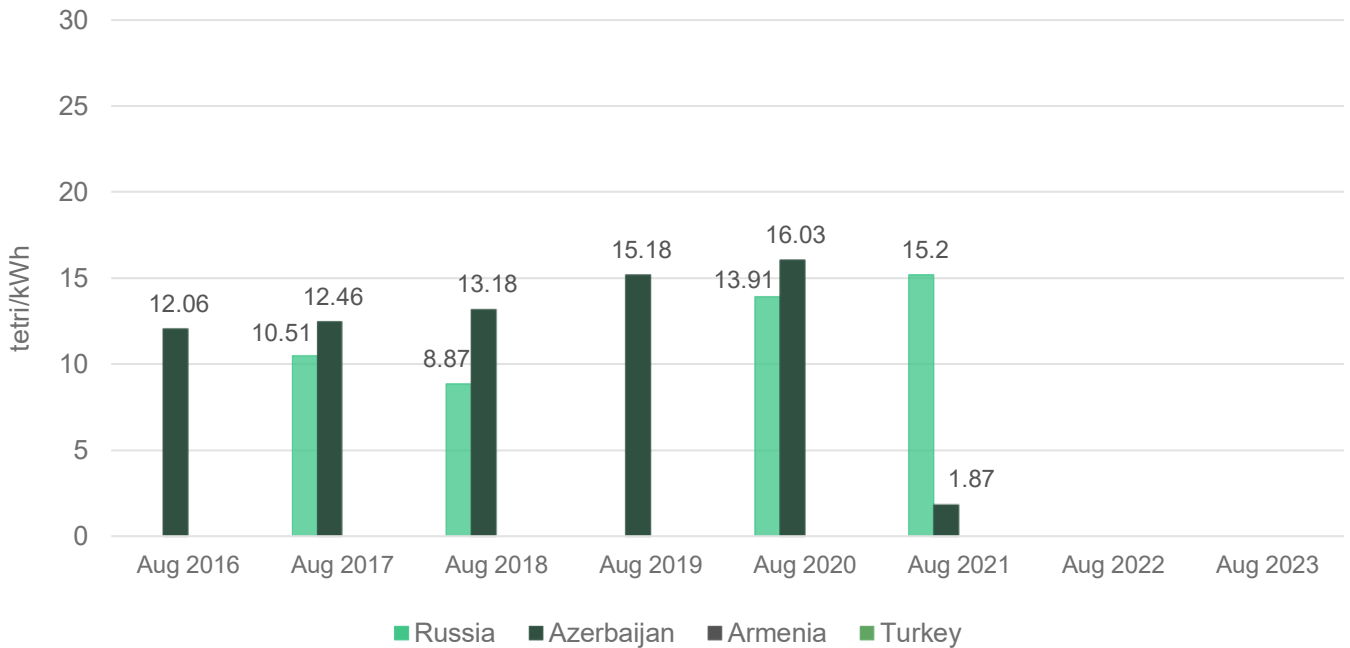
**Figure 16** - Prices Import/Export



Source: ESCO

In August 2023, there was no electricity import, therefore, prices could not be calculated (Figure 17).

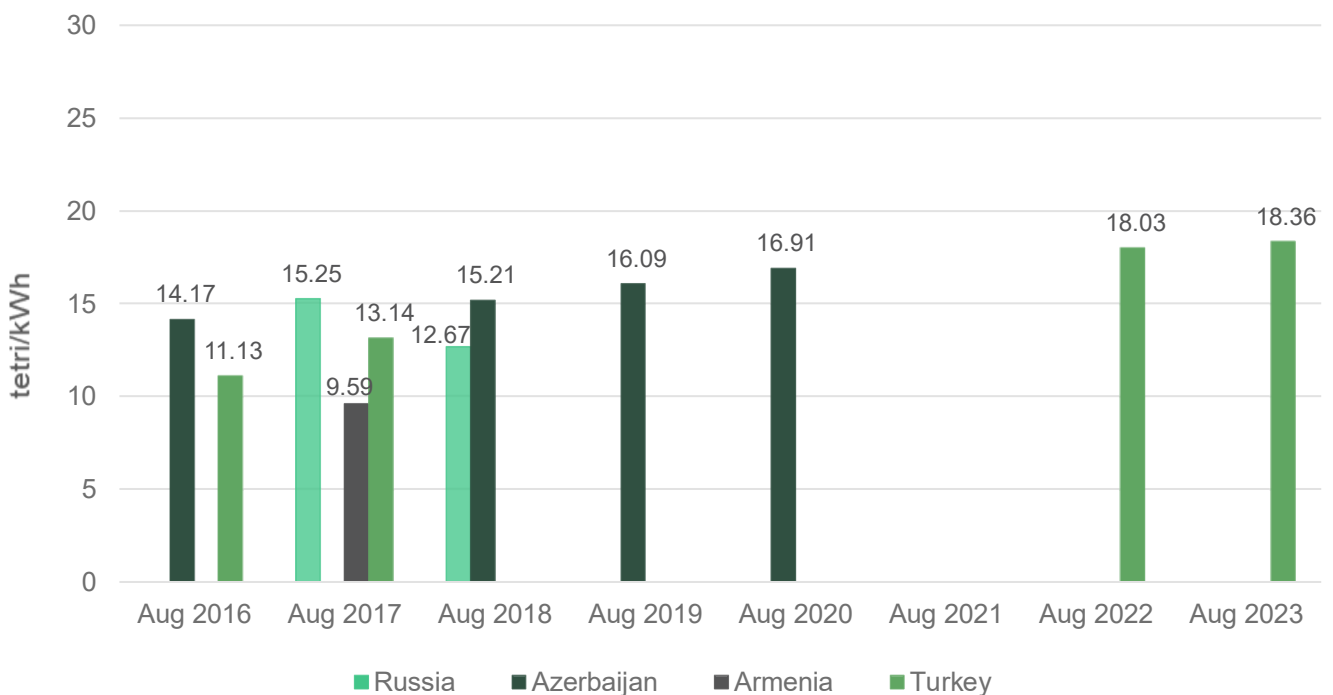
**Figure 17** - Import Prices by Countries



Source: ESCO/Geostat

In August 2023, the electricity export price from Turkey stood at 7.00¢ or 18.36 tetri (Figure 18).

**Figure 18** - Export Prices by Countries

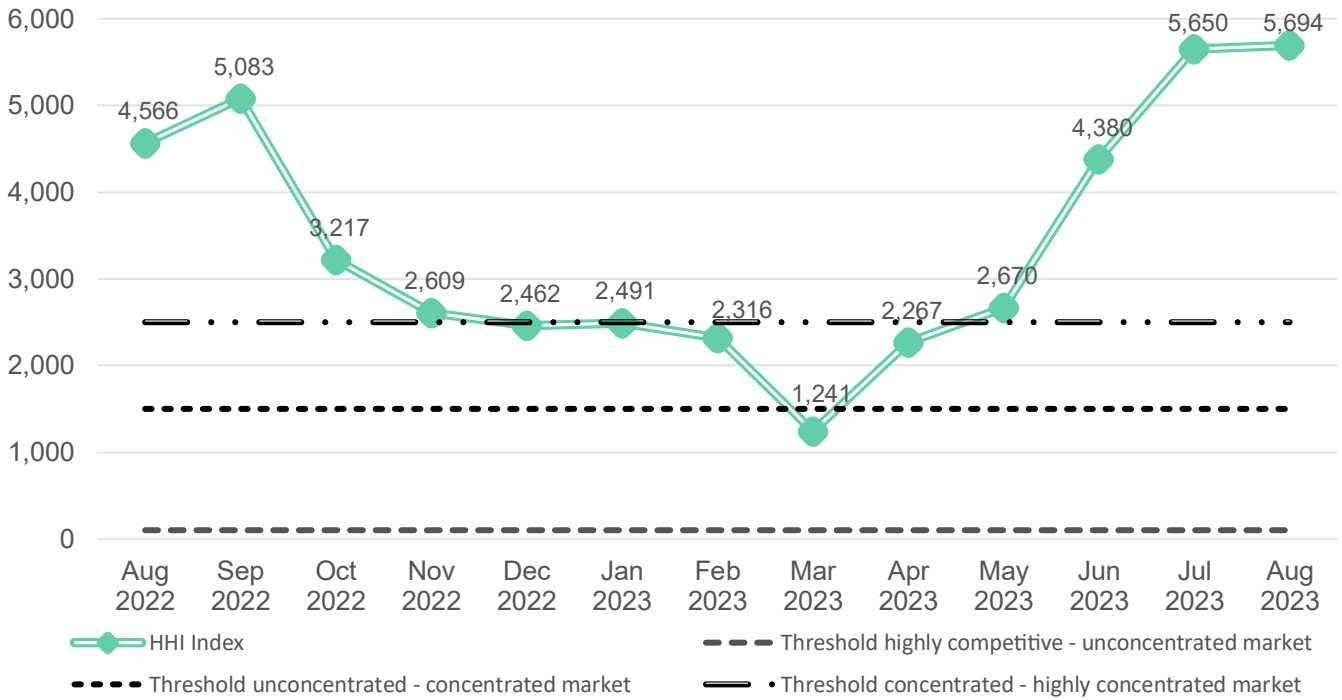


Source: ESCO/Geostat

## 2. Market Concentration

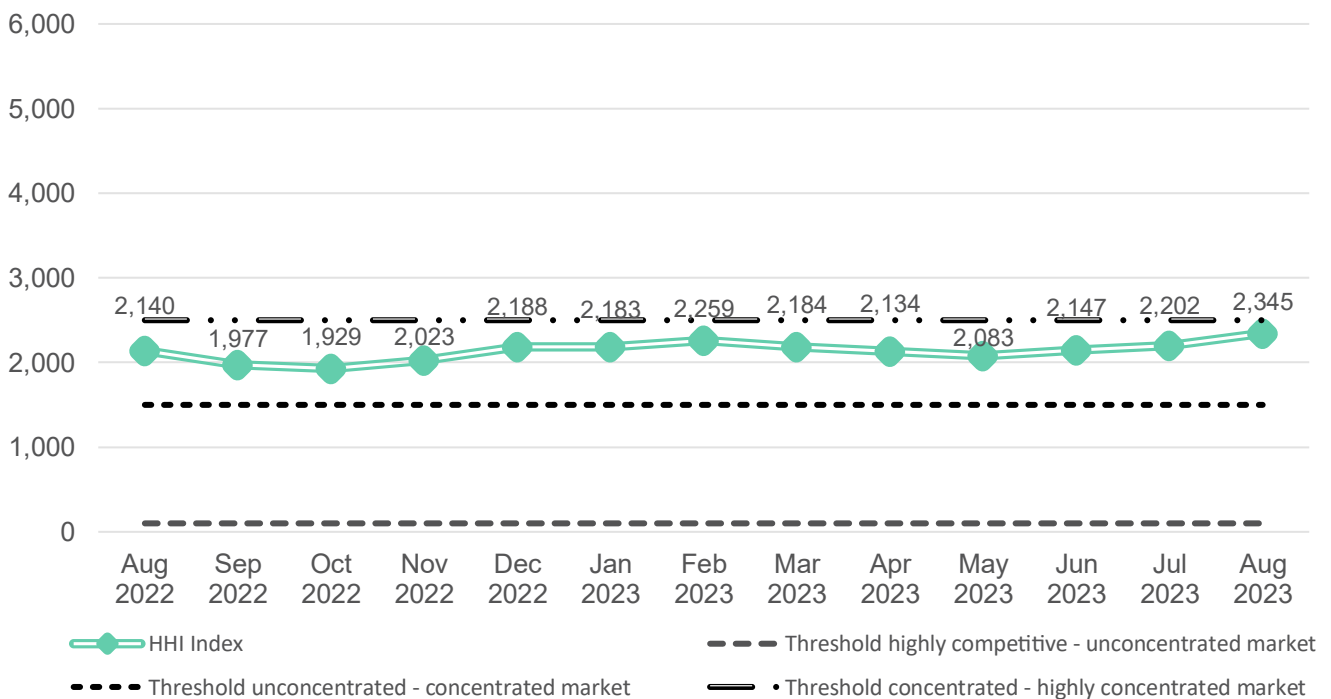
In conclusion, we utilize the Hirschman-Herfindahl (HHI) market concentration index to evaluate how competitive the generation and consumption segments of the market have been over the year. In August 2023, Georgian electricity generation market index remained above the threshold of highly concentrated market with an HHI value of 5,694 (Figure 19). This is higher than the level in August 2022 (with an HHI value of 4,566), and higher than the level in July 2023 (the HHI was 5,650). As for the consumption segment, in August 2023, the HHI consumption index remained below the threshold for a highly concentrated market, with an HHI value of 2,345 (above the level in August 2022 – 2,140 and the level in July 2023 – 2,202). In fact, September 2020 was the last month when the index value was above the level of a highly concentrated market, which indicates that the market is becoming increasingly competitive (Figure 20).

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



Source: ESCO

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



Source: ESCO