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ELECTRICITY MARKET REVIEW

ISET POLICY INSTITUTE

ENERGY AND ENVIRONMENT POLICY RESEARCH CENTER

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INFORMATION

- In September 2023 there was a decrease in the total electricity generation by 6% on a yearly basis and decrease by 24% on a monthly basis.
- Consumption decreased by 11% on a yearly basis and by 23% compared to the previous month.
- Generation exceeded consumption by 180 mln. kWh which was 16% of the total generation and 19% of the total consumption in September 2023.
- There were no imports in September 2023.
- There were exports of 132 mln. kWh in September.
- The main export partner country was Turkey.
- The price of exports reached 7.00 ჯ, or 18.52 tetri per kWh.
- The HHI index for the Georgian electricity generation market remained above the threshold of highly concentrated market. In September 2023, its level was 5,964.
- The HHI for the Georgian electricity consumption market remained below the threshold of a highly concentrated market. In September 2023, its level was 2,399.

ABBREVIATION USED

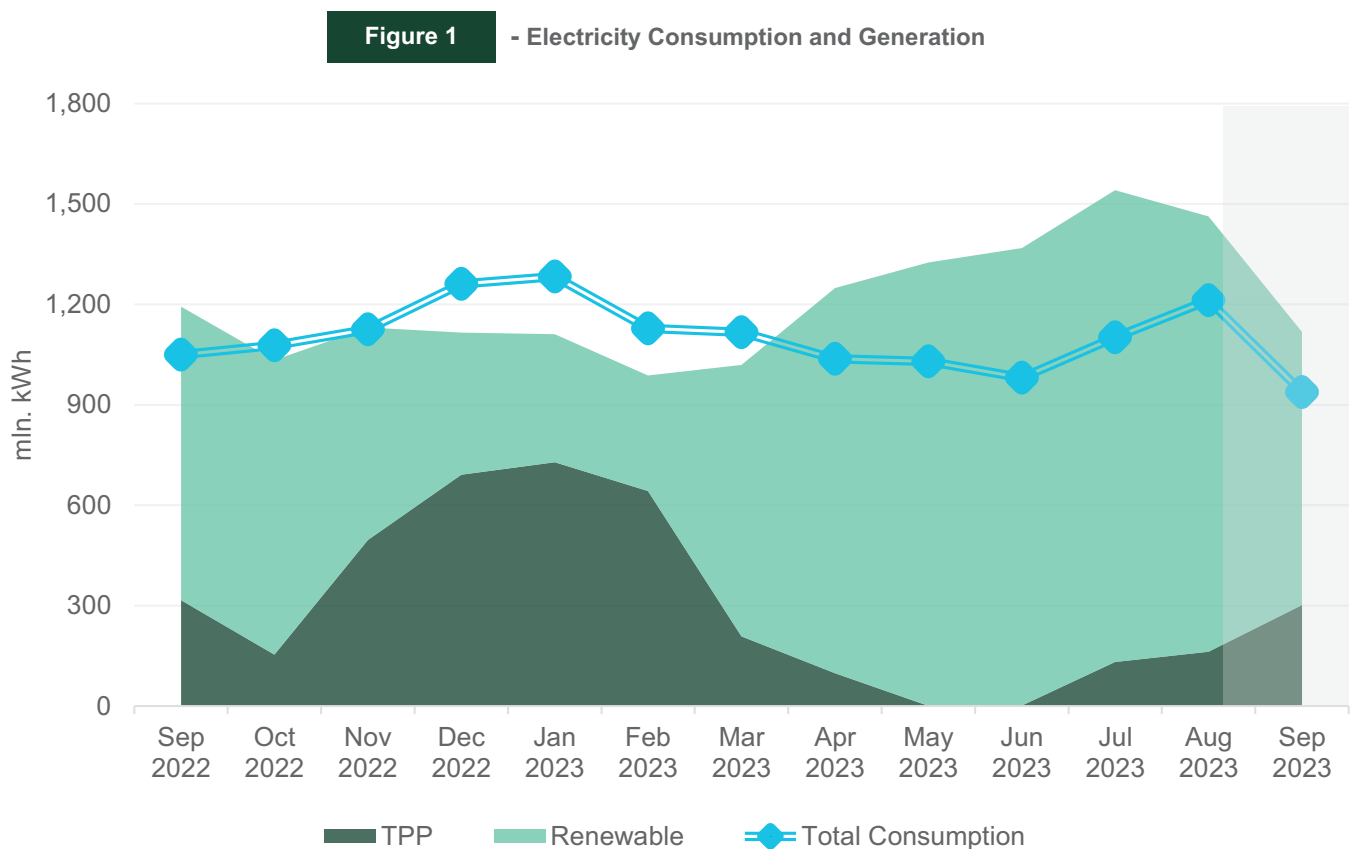
Mln	million
kWh	kilowatt-hour
HPP	Hydro Power Plant
WPP	Wind Power Plant
TPP	Thermal Power Plant
HHI	Hirschmann-Herfindahl Index
Telmico	Tbilisi Electricity Supply Company
Ep Georgia	Ep Georgia Supply
Geostat	National Statistics Office of Georgia
ESCO	Electricity System Commercial Operator

Generation – Consumption – Trade

In September 2023, Georgian power plants generated 1,118 mln. kWh of electricity (Figure 1). This represents a 6% decrease in the total generation compared to the previous year (in September 2022, the total generation was 1,194 mln. kWh). The fall in generation on a yearly basis comes from a decrease of 7% in hydro and thermal power generation by 7% and 5%, respectively, while generation of wind power plant increased by 10%.

On a monthly basis, the generation decreased by approximately 24% (in August 2023, the total generation was 1,463 mln. kWh) (Figure 1). The monthly fall in total generation is induced by a decrease of hydro generation by 38%, while thermal and wind power generation increased by 86% and 25%, respectively.

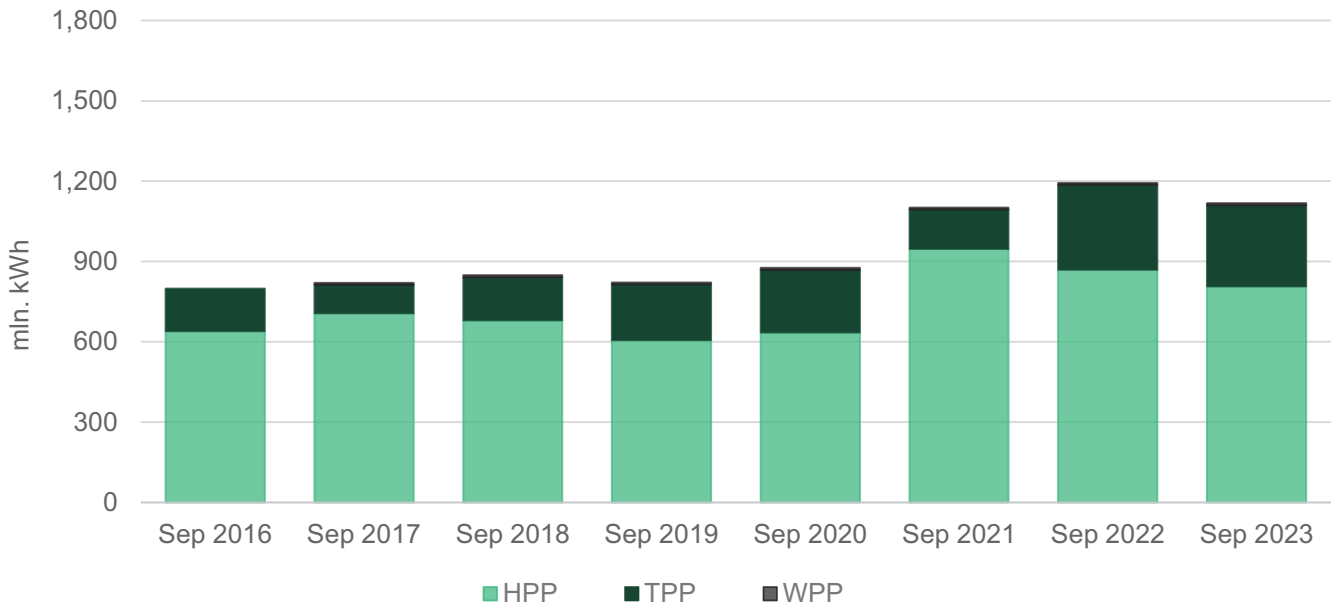
The consumption of electricity on the local market was 938 mln. kWh (-11% compared to September 2022, and -23% compared to August 2023) (Figure 1). In September 2023, power generation exceeded consumption by 180 mln. kWh which was 16% of the total generation and 19% of the total consumption (in September 2022, the difference between the total generation and the consumption resulted in a surplus of 144 mln. kWh, around 12% of the total generation and 14% of the total consumption for the month).



Source: Electricity System Commercial Operator (ESCO)

In September 2023, hydro power plants were the leading source of generation. In September 2023, hydro power (HPP) generation amounted to 808 mln. kWh (72.2% of total), thermal power (TPP) generation was 302 mln. kWh (27% of the total generation), while wind power (WPP) generation amounted to 8 mln. kWh (0.7% of the total generation) (Figure 2).

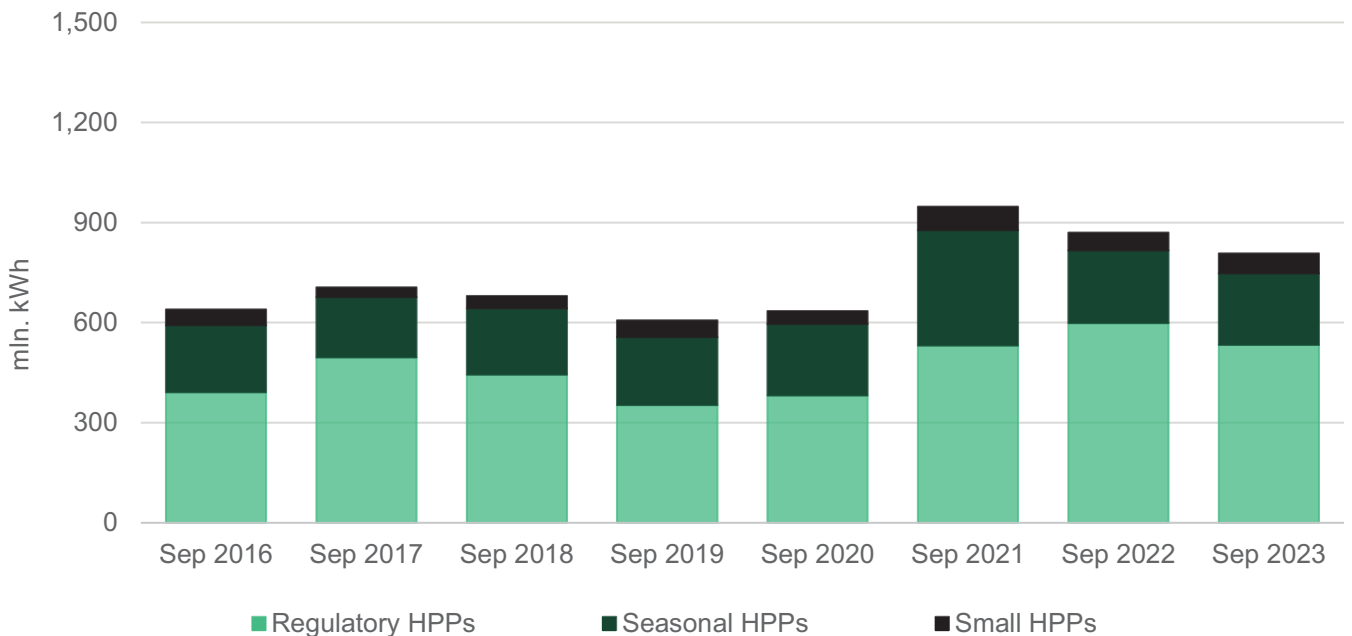
Figure 2 - Electricity Generation by Sources



Source: ESCO

Among hydropower generators, large (regulatory) HPPs produced 66% (533 mln. kWh) of electricity, while seasonal and small HPPs produced 26% (213 mln. kWh) and 8% (61 mln. kWh), respectively (Figure 3).

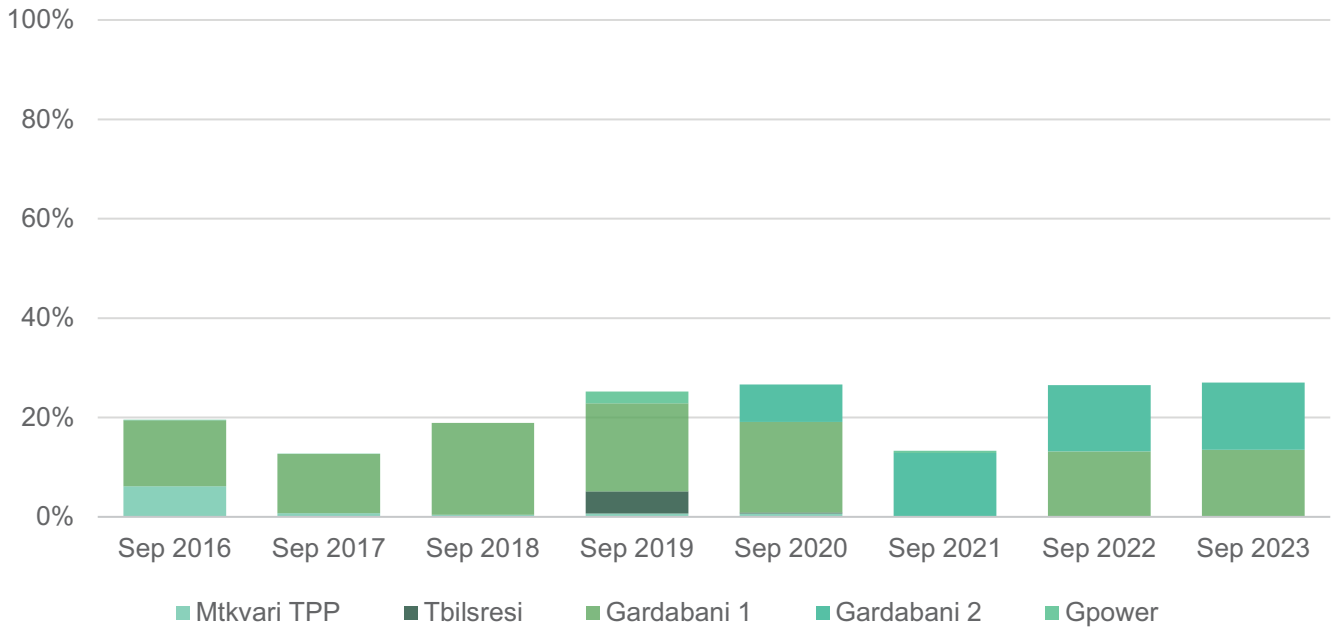
Figure 3 - HPP Generation by Type



Source: ESCO

As for thermal power generation, Gardabani 1 generated 151 mln. kWh (50% of TPP generation and 13.5% of total power generation) and Gardabani 2 generated 151 mln. kWh (50% of TPP generation and 13.5% of total power generation) (Figure 4).

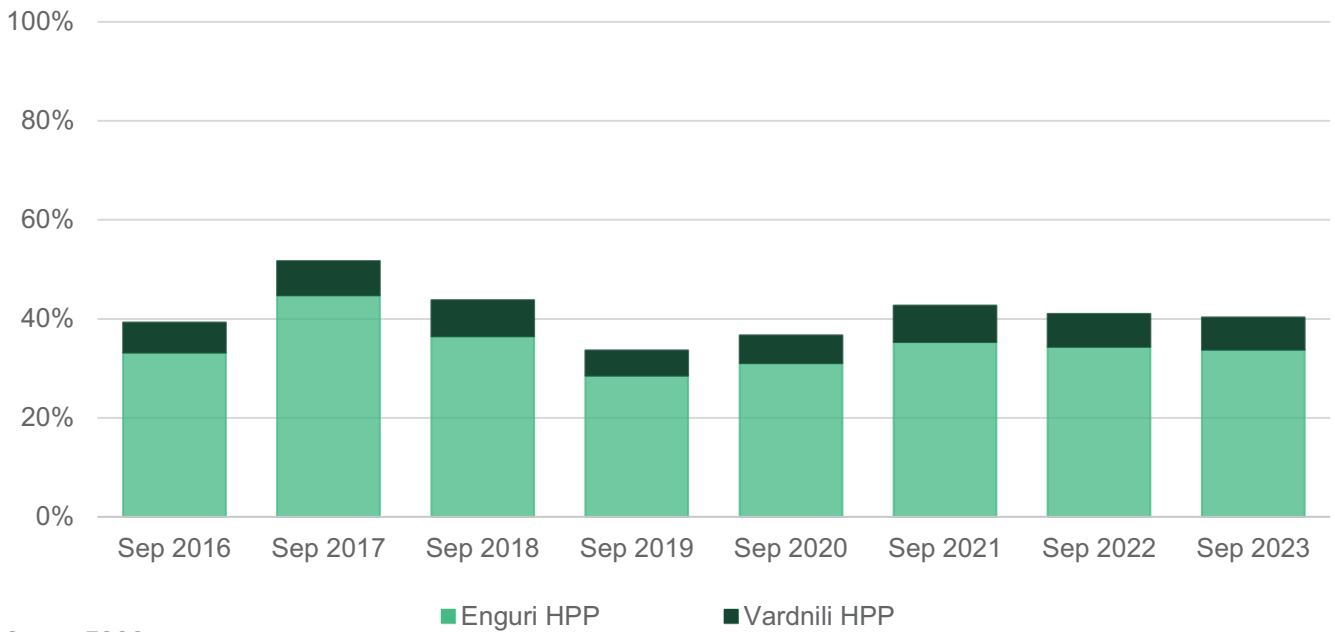
Figure 4 - Share of Large TPPs in Total Generation



Source: ESCO

As for HPP generation, Vardnili HPP generated 72 mln. kWh (13.6% of generation for regulatory HPPs and 6.5% of total generation). Enguri HPP generated 378 mln. kWh, which represents 70.8% of generation of regulatory HPPs and 33.8% of total generation (Figure 5).

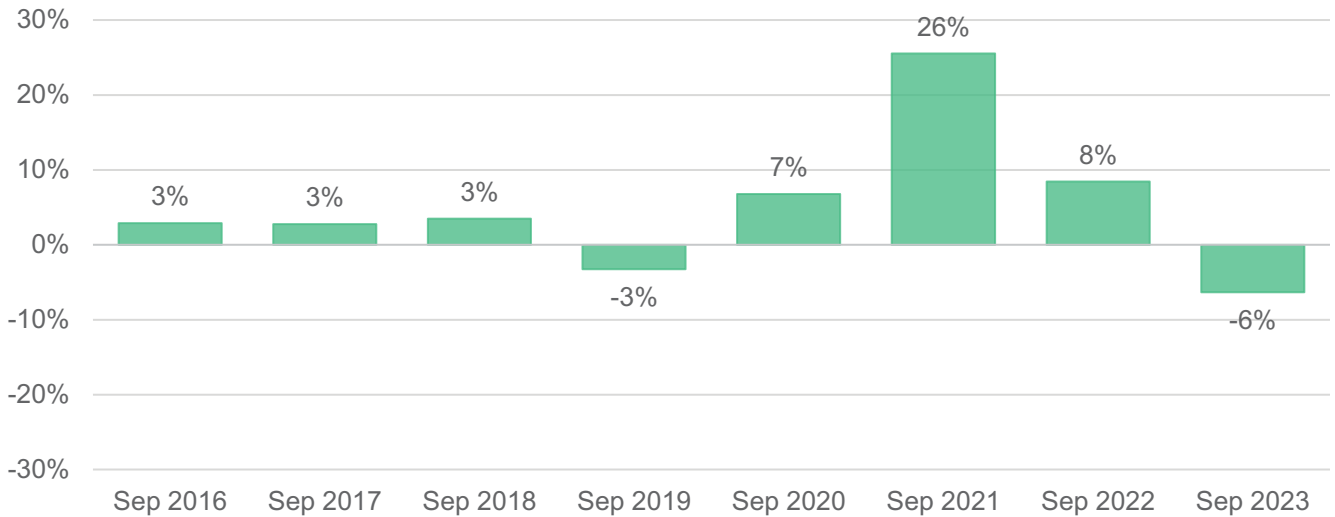
Figure 5 - Share of Enguri and Vardnili in Total Generation



Source: ESCO

Overall, the total generation decreased by 6% compared to September 2022 (Figure 6).

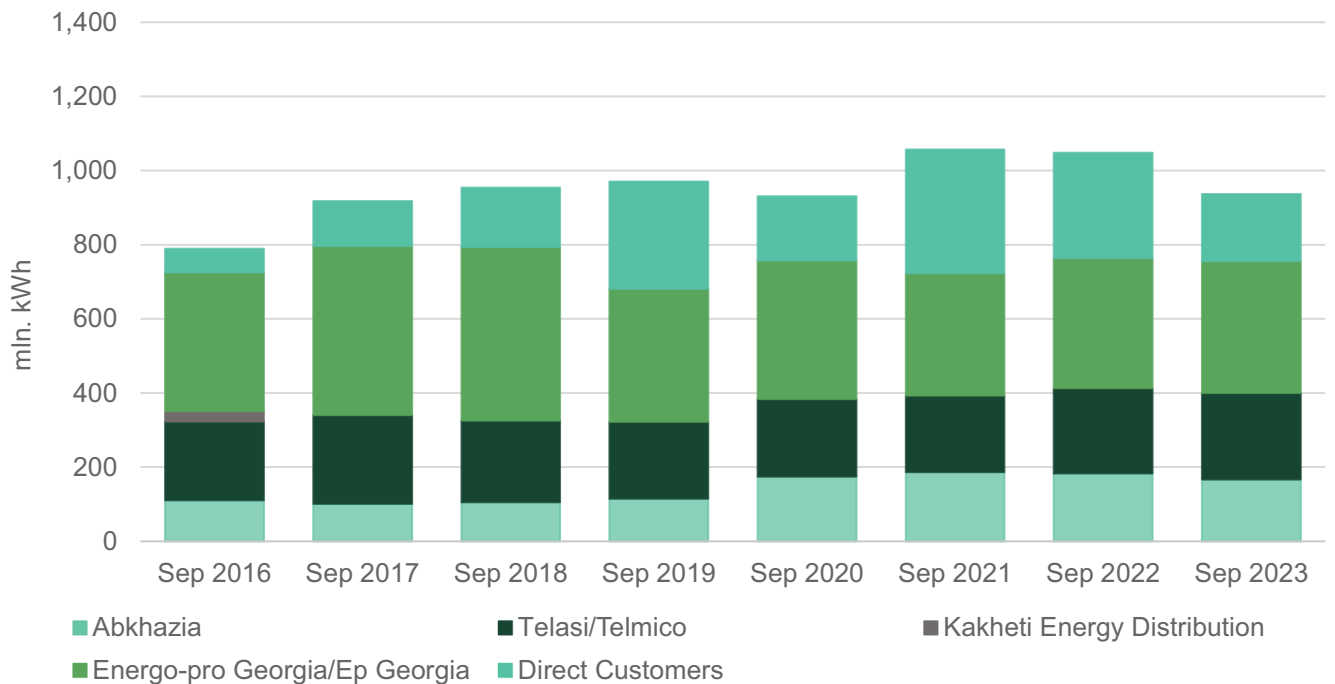
Figure 6 - Growth of Generation (% , y/y)



Source: ESCO

Total electricity demand came from: Energo-Pro Georgia/Ep Georgia¹ (38% - 356 mln. kWh), Abkhazia (18% - 167 mln. kWh), Telasi/Telmico² (25% - 232 mln. kWh), and direct customers (19% - 182 mln. kWh) (Figure 7). Annual demand from Abkhazia and direct customers fell by 9% and 36%, while it increased from Telasi/Telmico and Energo-Pro Georgia/Ep Georgia by 1% and 1.5%, respectively. Overall, there was an annual decrease of 11% in the total electricity consumption in September 2023, compared to September 2022 (Figure 8).

Figure 7 - Electricity Consumption by Type of Consumer

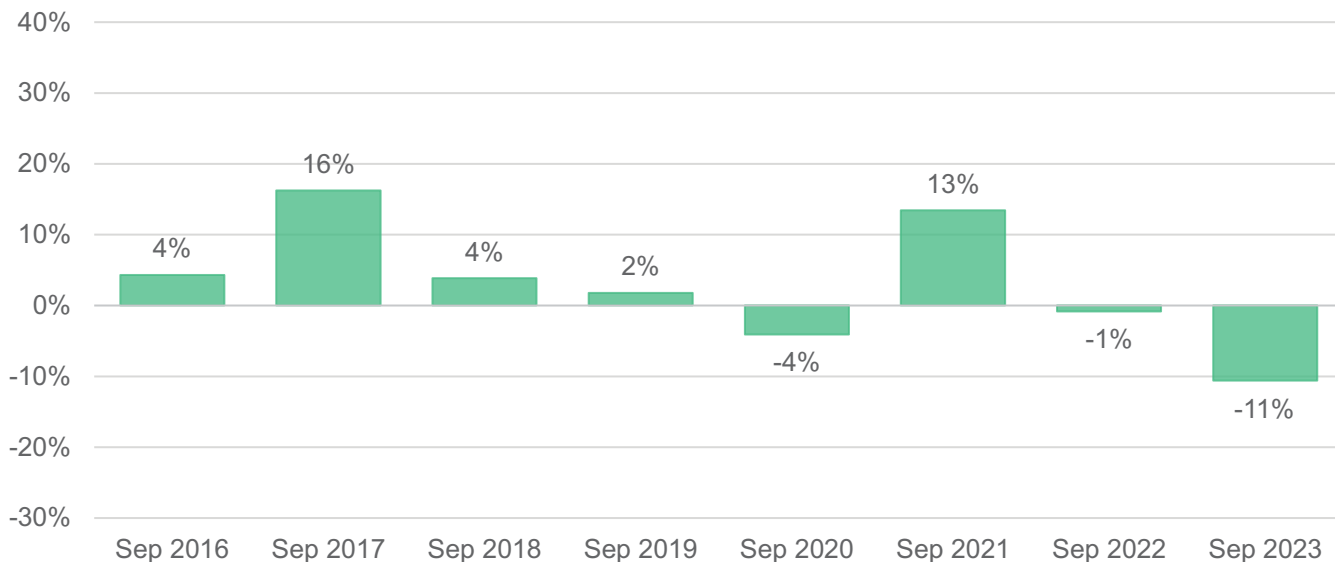


Source: ESCO

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.

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

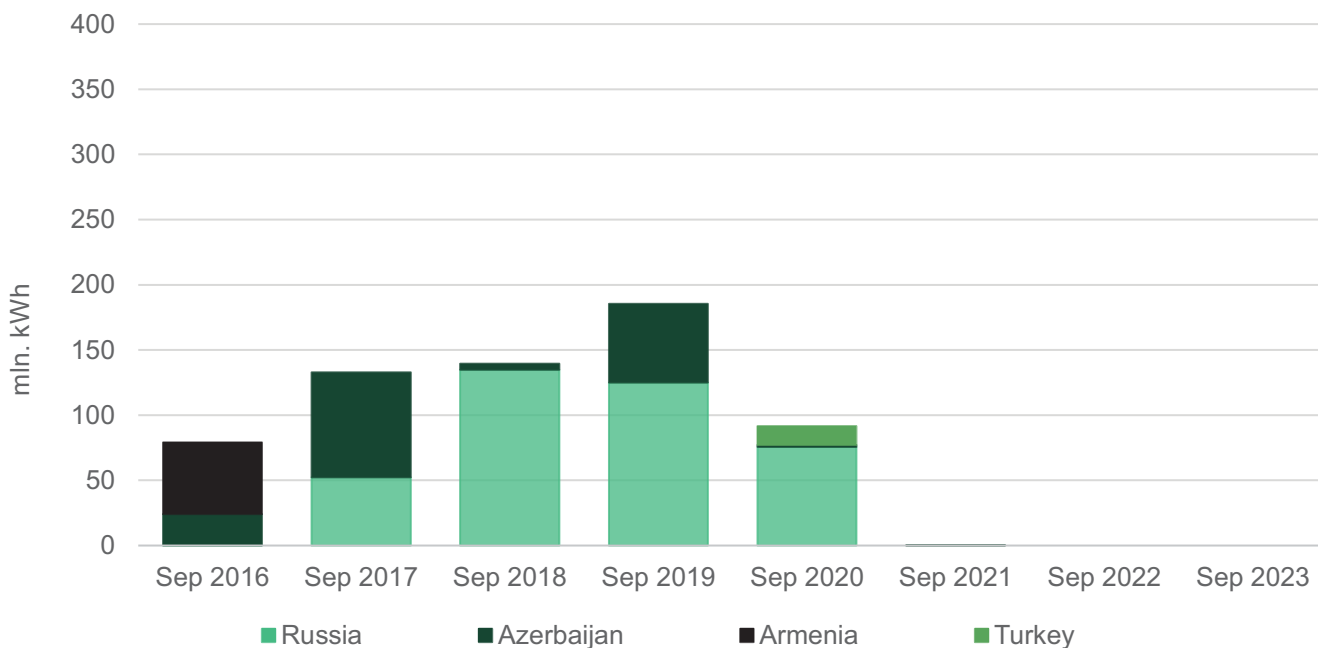


Source: ESCO

In September 2023, there was no import of electricity (in September 2022, there was import of 0.15 mln electricity to Azerbaijan) (Figure 9). In September 2023, there was an export of 132 mln. kWh of electricity (compared to 94 mln. kWh in September 2022) (Figure 10). Almost 100% of this export went to Turkey, and insignificant amount went to Azerbaijan (in September 2022, 97% of exports went to Turkey and 3% to Armenia). There was 300 mln. kWh transit in September 2023 from Azerbaijan to Turkey (in September 2022, there was 393 mln. kWh transit from Azerbaijan to Turkey).

In September 2023, imports decreased by 100% compared to September 2022, while exports increased by 41%.

Figure 9 - Imports by Year



Source: ESCO

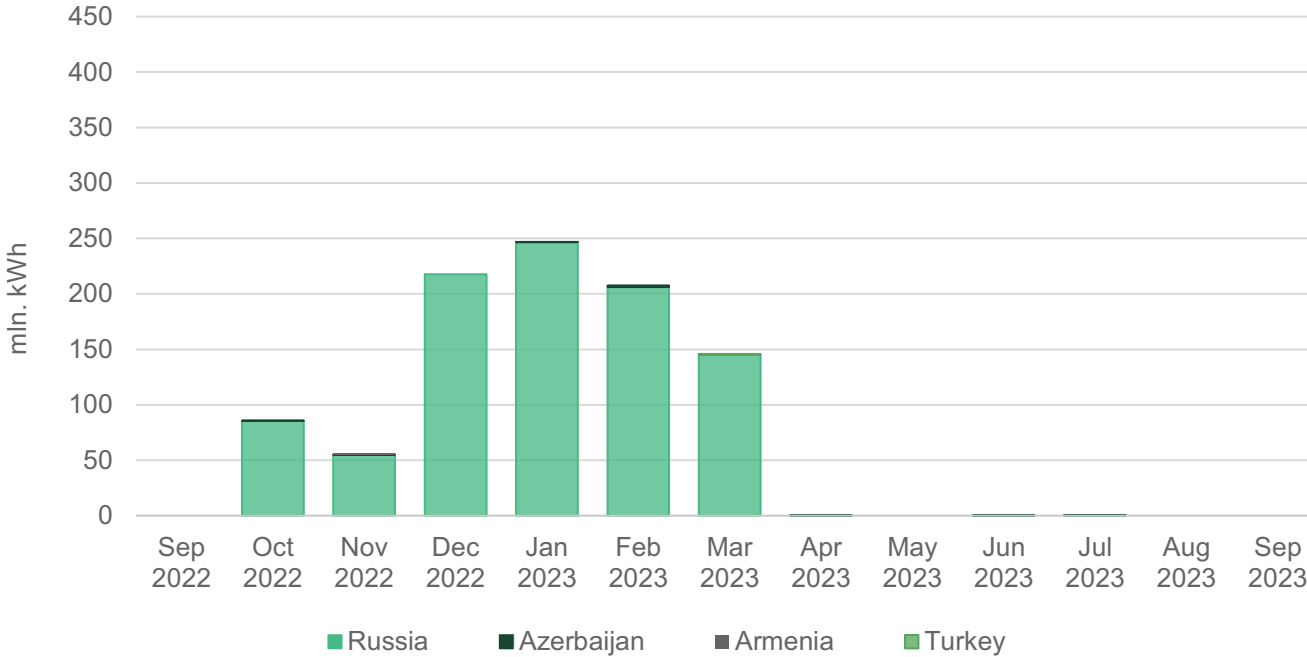
Figure 10 - Exports by Year



Source: ESCO

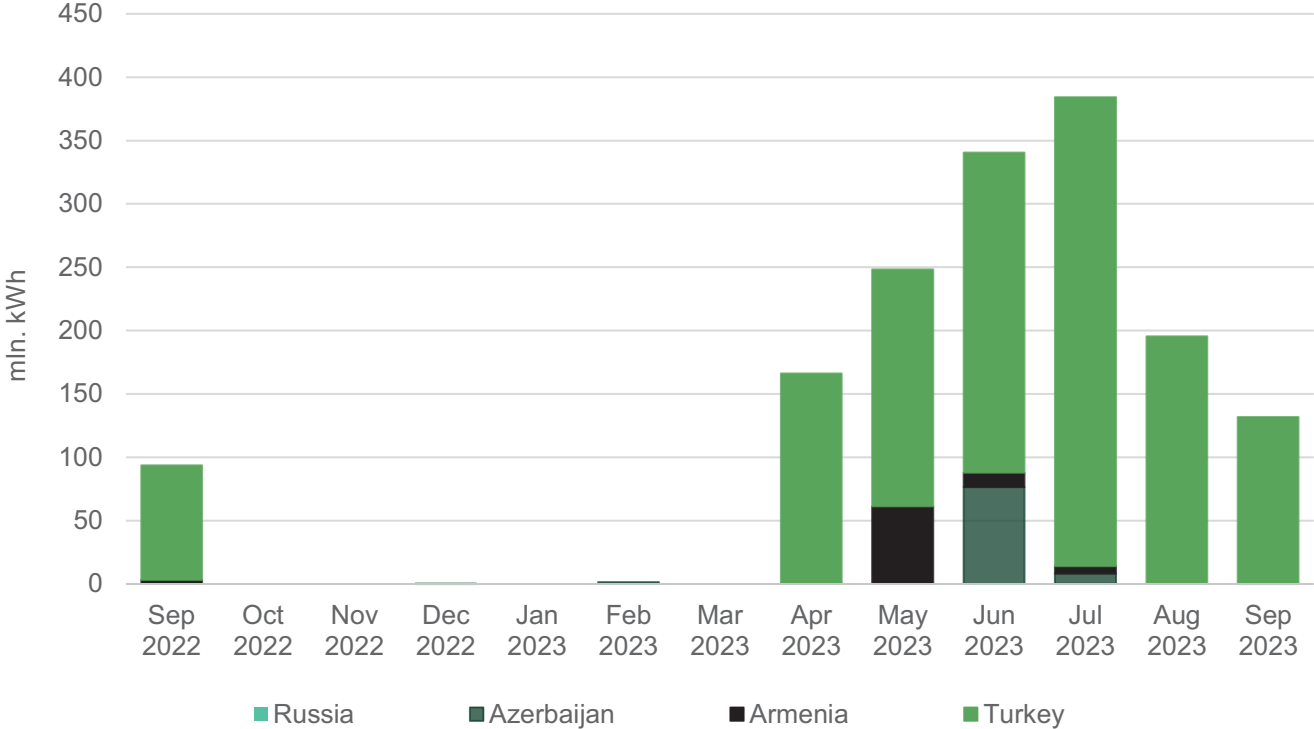
There were no electricity imports in September 2023, just as in August 2023 (Figure 11). Electricity exports decreased by 33% in September 2023, compared to August 2023 (Figure 12).

Figure 11 - Imports by Month



Source: ESCO

Figure 12 - Exports by Month

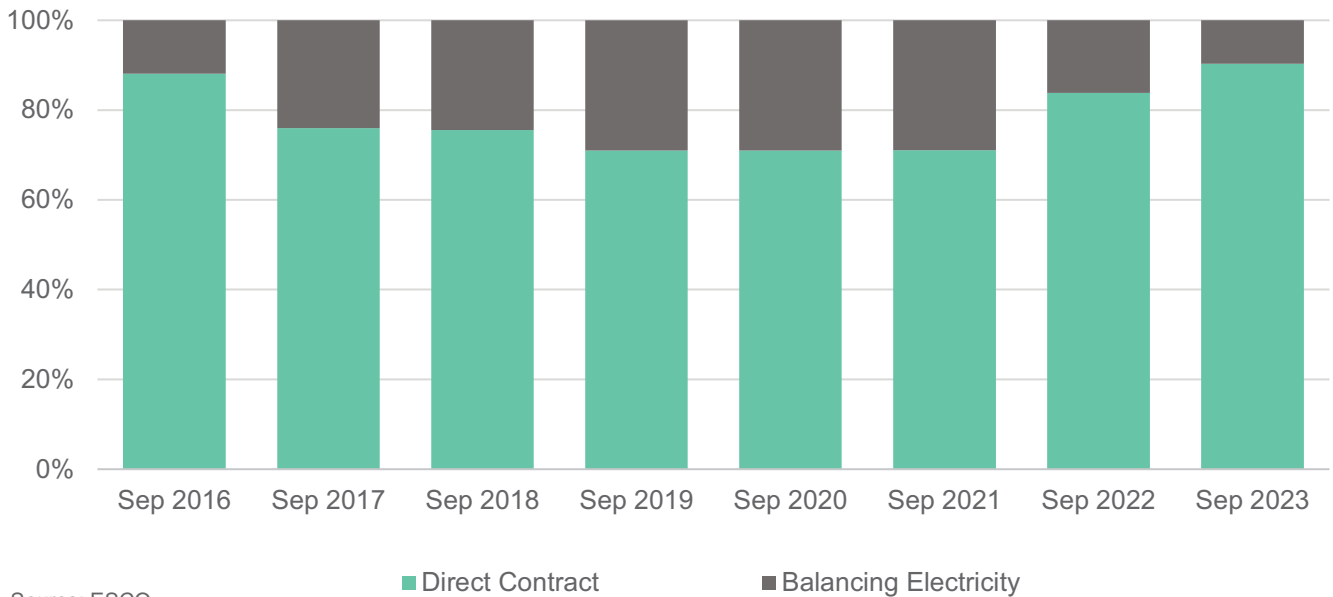


Source: ESCO

1. Market Operations

In September 2023, 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).

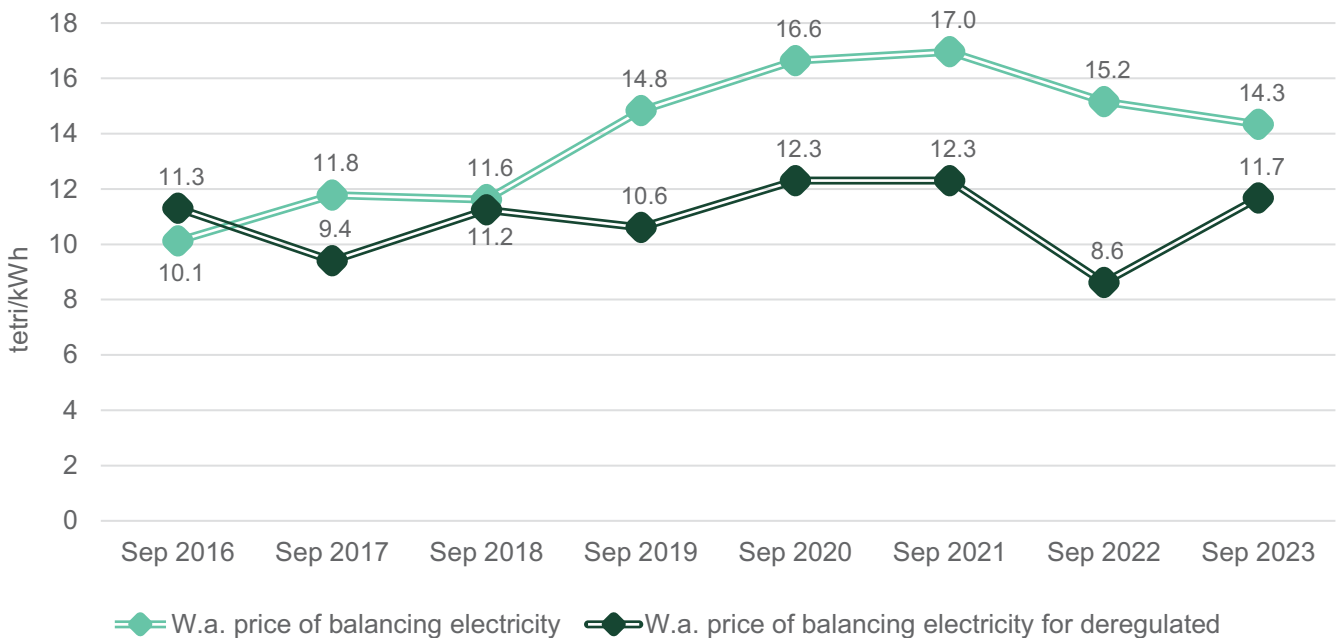
Figure 13 - Electricity Purchased / Sold Shares of Direct Contracts and Balancing Electricity



Source: ESCO

In September 2023, the weighted average price of balancing electricity was 14.3 tetri/kWh, which corresponds to an annual decrease of 5% compared to September 2022. As for the weighted average price for deregulated (small) HPPs, it was 11.7 tetri/kWh, 35% higher than in September 2022 (Figure 14).

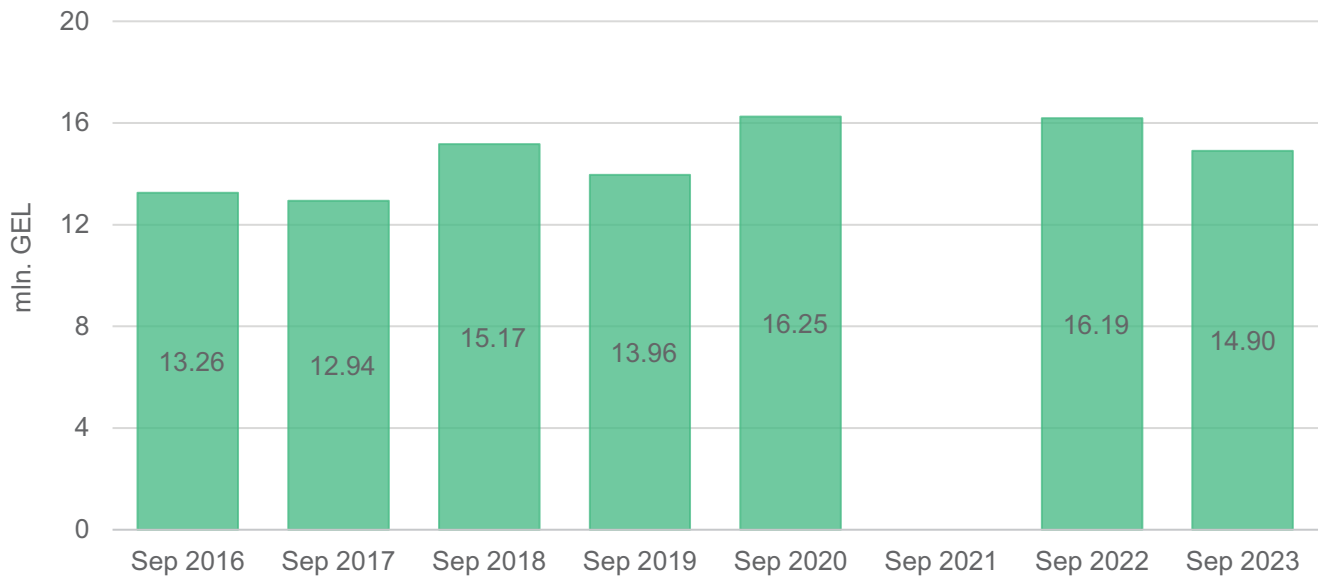
Figure 14 - Balancing Electricity Prices Weighted Average and Weighted Average Price for Deregulated HPPs



Source: ESCO

Guaranteed capacity payments in September 2023 were roughly 14.9 mln. GEL, which represents an 8% decrease compared to September 2022 (Figure 15).

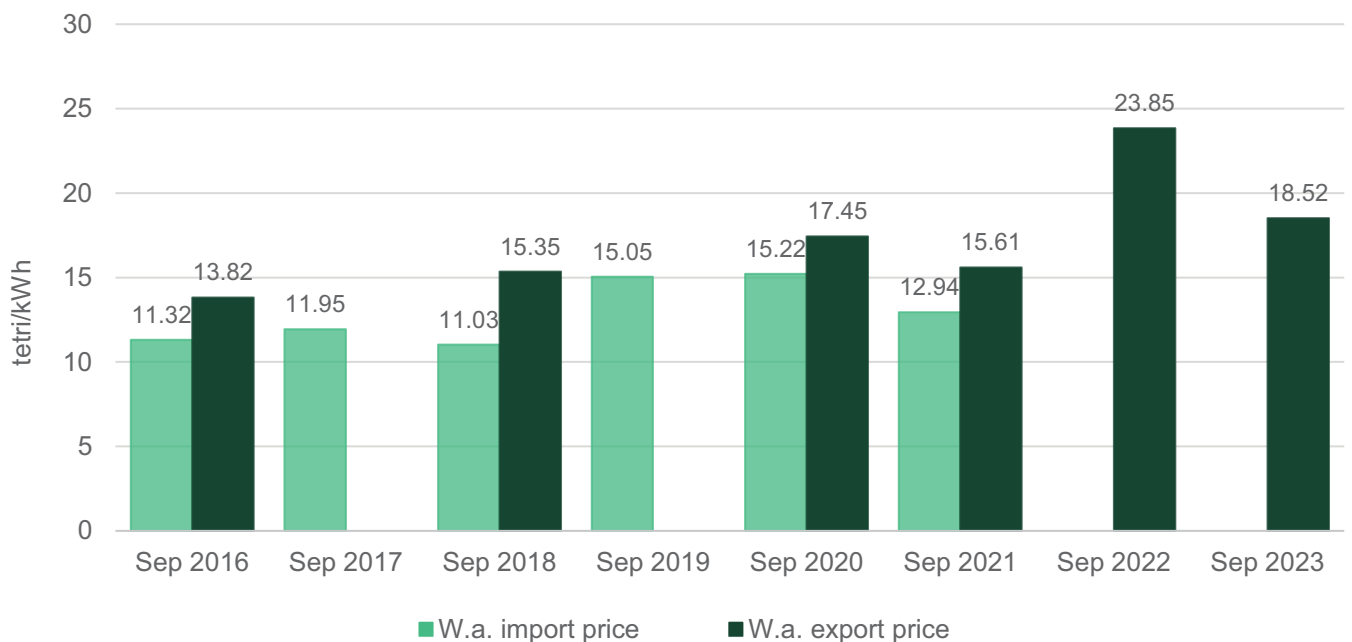
Figure 15 - Cost of Guaranteed Capacity



Source: ESCO

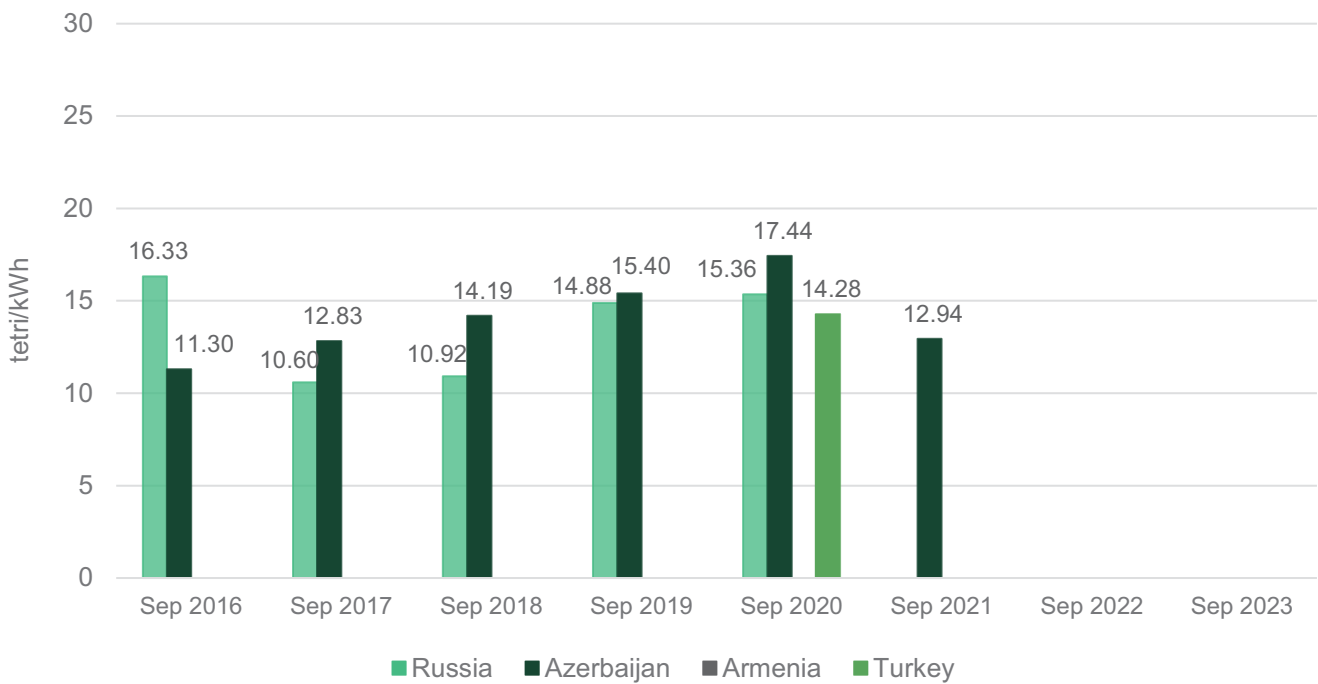
In September 2023 as well as in September 2022 and August 2023 there was no electricity import, therefore, an annual, and monthly trends could not be analysed (Figure 16). The electricity export prices in September 2023 were 7.00 ϕ , or 18.52 tetri per kWh (Figure 16). This corresponds to an annual decrease in price by 16% in USD and 22% in GEL (prices were 8.37 ϕ , or 23.85 tetri per kWh in September 2022). Compared to August 2023, export price decreased by 0.001% in USD and increased by 0.88% in GEL (prices were 7.00 ϕ , or 18.36 tetri per kWh in August 2023).

Figure 16 - Prices Import/Export



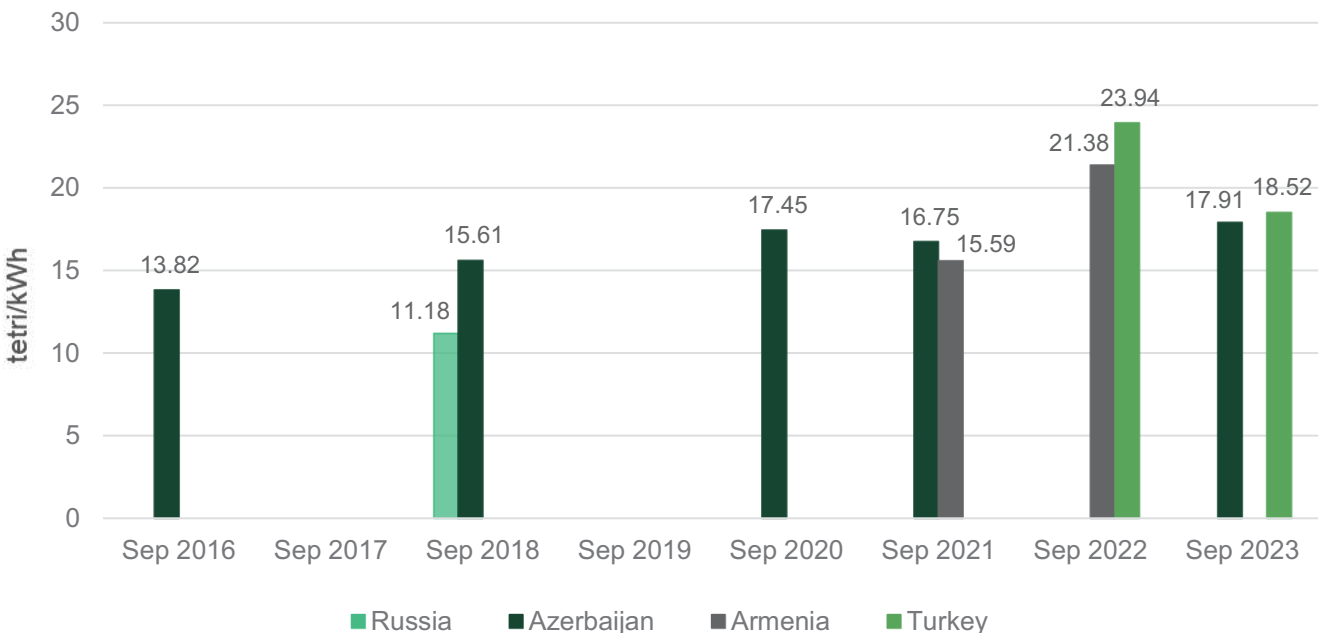
Source: ESCO

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

Figure 17 - Import Prices by Countries

Source: ESCO/Geostat

In September 2023, the electricity export price from Turkey stood at 7.00 ¢ or 18.52 tetri and price from Azerbaijan stood at 6.77 ¢ or 17.91 tetri (Figure 18).

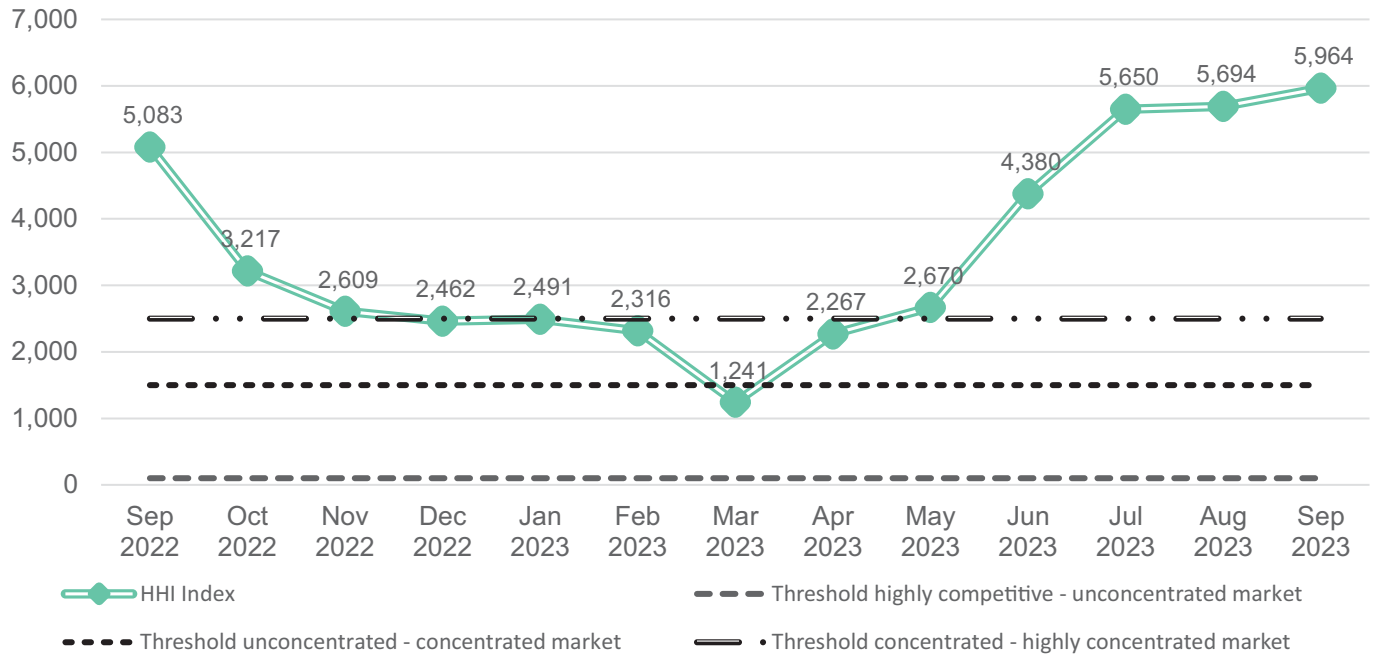
Figure 18 - Export Prices by Countries

Source: ESCO/Geostat

2. Market Concentration

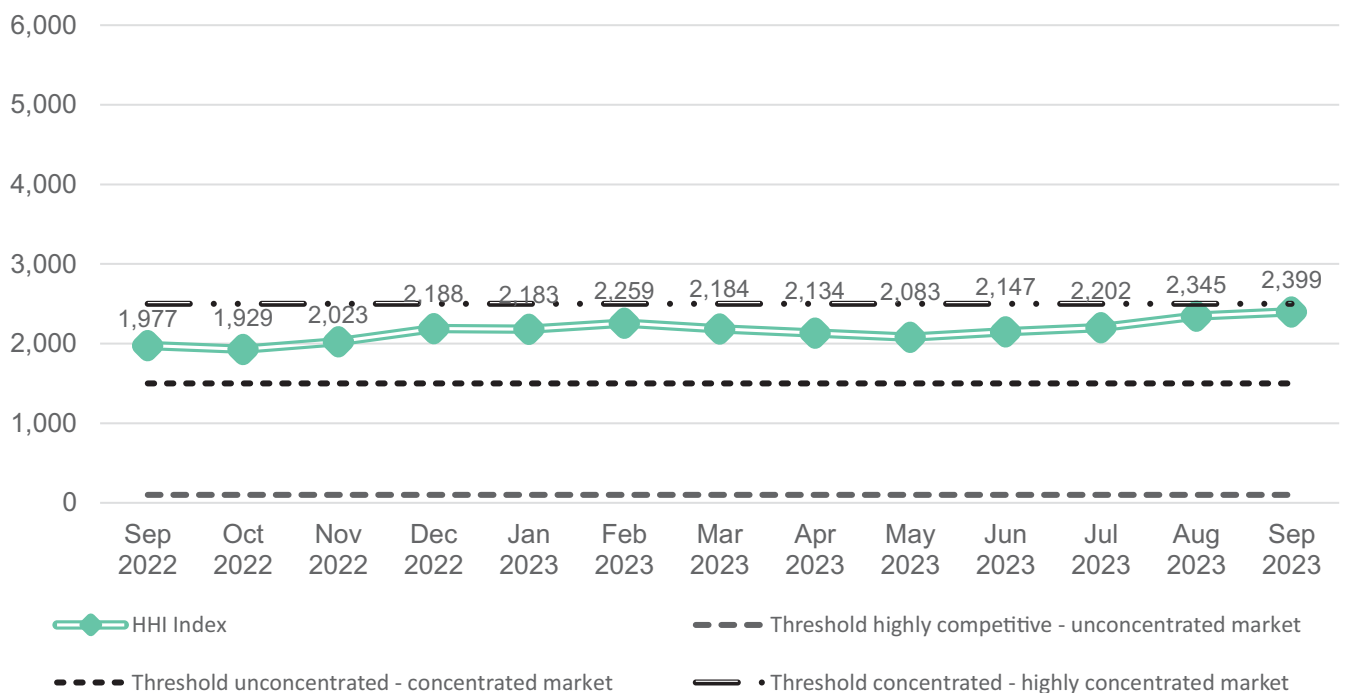
In conclusion, we utilize the Hirschman-Herfindahl (HHI) market concentration index to evaluate how competitive the generation and consumption segments of the market have been over the year. In September 2023, Georgian electricity generation market index remained above the threshold of highly concentrated market with an HHI value of 5,964 (Figure 19). This is higher than the level in September 2022 (with an HHI value of 5,083), and higher than the level in August 2023 (the HHI was 5,694). As for the consumption segment, in September 2023, the HHI consumption index remained below the threshold for a highly concentrated market, with an HHI value of 2,399 (above the level in September 2022 – 1,977 and the level in August 2023 – 2,345). 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