

ISET

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Policy Institute



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ELECTRICITY MARKET REVIEW

ISET POLICY INSTITUTE ENERGY AND ENVIRONMENT POLICY RESEARCH CENTER

Authors:

Mariam Tsulukidze
Deputy Practice Head

✉ m.tsulukidze@iset.ge

Guram Lobzhanidze
Researcher

✉ guram.lobzhanidze@iset.ge

Erekle Shubitidze
Researcher

✉ erekle.shubitidze@iset.ge

INFORMATION

- In October 2022 there was a decrease in the total electricity generation by 13% on both, on a yearly and yearly basis.
- Consumption decreased by 6% on yearly basis and increased by 3% compared to the previous month.
- Consumption exceeded generation by 44 mln. kWh which was 4% of the total generation in October 2022.
- There was an import of 86 mln. kWh in October
- There was no export in October.
- The main import partner country was Russia
- The price of exports reached 6.99 ჯ, or 19.47 tetri per kWh.
- The HHI index for the Georgian electricity generation market remained above the threshold of highly concentrated market. In October 2022, its level was 3,304.
- The HHI for the Georgian electricity consumption market remained below the threshold of a highly concentrated market. In October 2022, its level was 1,929.

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

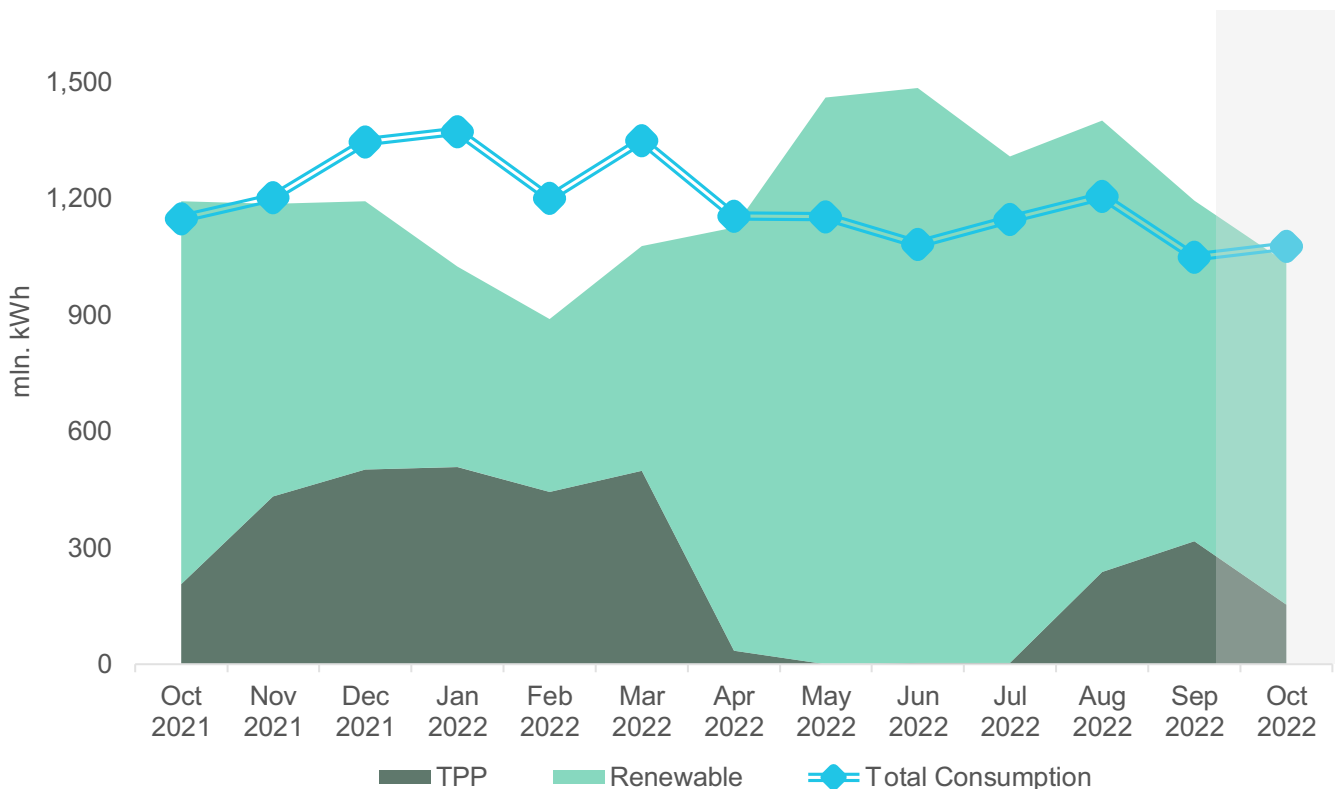
Generation – Consumption – Trade

In October 2022, Georgian power plants generated 1,034 mln. kWh of electricity (Figure 1). This represents a 13% decrease in the total generation compared to the previous year (in October 2021, the total generation was 1,192 mln. kWh). The decrease in the generation on a yearly basis comes from a decline of 11%, 17%, and 25% in hydro power, wind power, and thermal power generation, respectively.

On a monthly basis, the generation decreased by approximately 13% (in September 2022, the total generation was 1,194 mln. kWh) (Figure 1). The monthly decrease in the total generation is induced by a 51% decrease in thermal power generation. Meanwhile, wind power generation increased by 6%, while hydro power generation remained almost the same as in September.

The consumption of electricity on the local market was 1,078 mln. kWh (-6% compared to October 2021, and +3% compared to September 2022) (Figure 1). In October 2022, power consumption exceeded generation by 44 mln. kWh which was 4% of the total generation and 4% of the total consumption (in October 2021, the difference between the total generation and the consumption resulted in a surplus of 44 mln. kWh, around 4% of the total generation and 4% of the total consumption for the month).

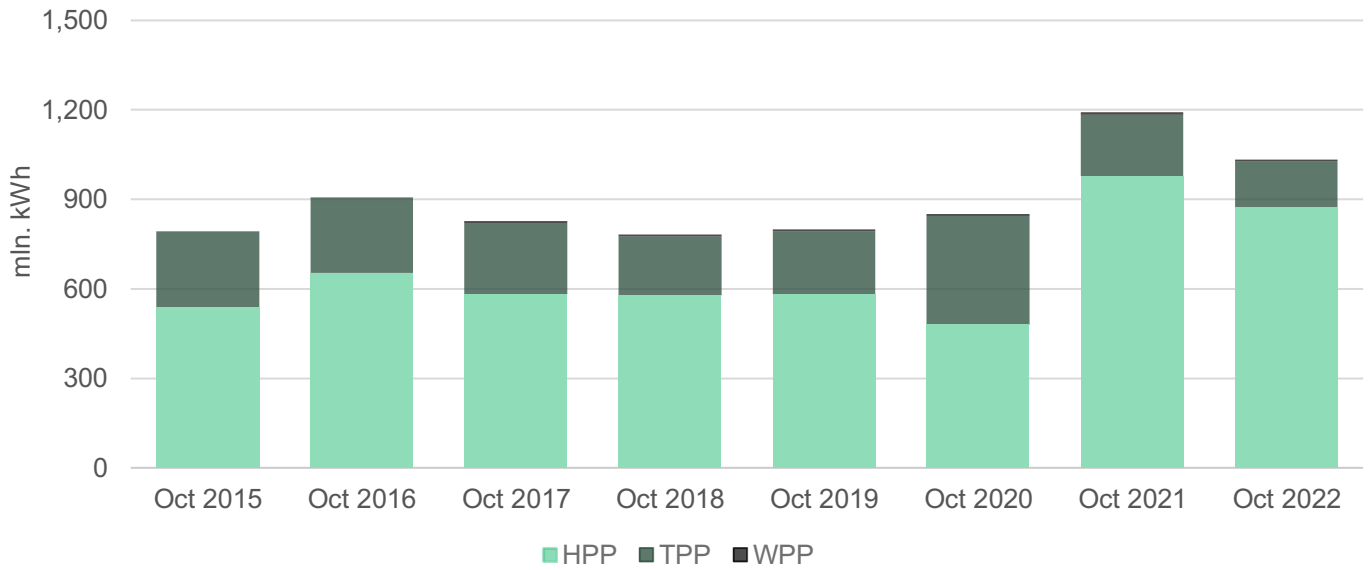
Figure 1 - Electricity Consumption and Generation



Source: Electricity System Commercial Operator (ESCO)

In October 2022, hydro power plants were the leading source of generation. In October 2022, hydro power (HPP) generation amounted to 872 mln. kWh (84% of total), thermal power (TPP) generation was 154 mln. kWh (15% of the total generation), while wind power (WPP) generation amounted to 8 mln. kWh (1% of the total generation) (Figure 2).

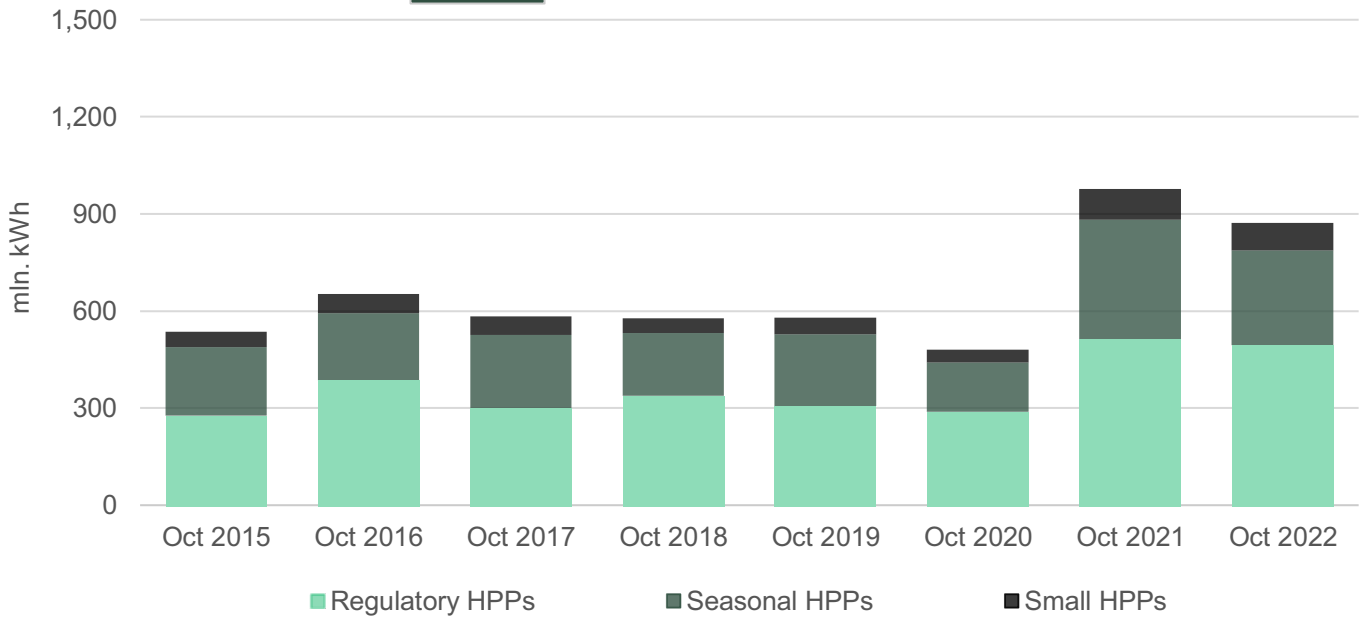
Figure 2 - Electricity Generation by Sources



Source: ESCO

Among hydropower generators, large (regulatory) HPPs produced 57% (495 mln. kWh) of electricity, while seasonal and small HPPs produced 33% (293 mln. kWh) and 10% (84 mln. kWh), respectively (Figure 3).

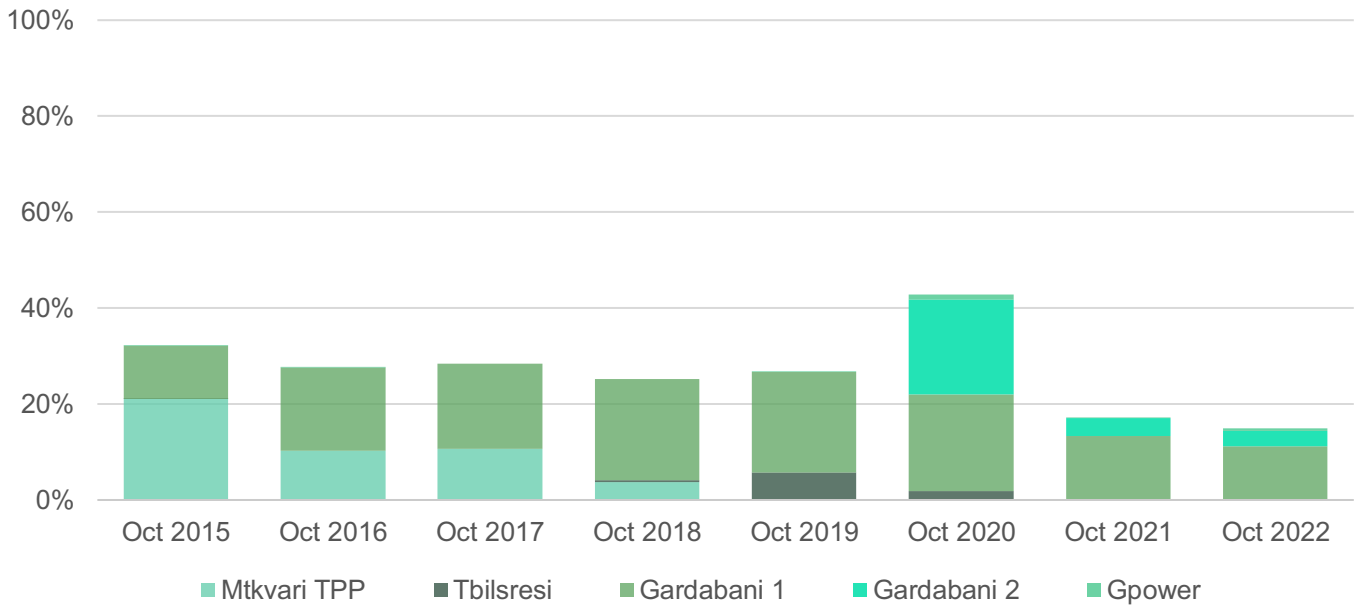
Figure 3 - HPP Generation by Type



Source: ESCO

As for the thermal power generation, Gardabani 1 TPP generated 116 mln. kWh electricity (75% of TPP generation and 11% of total power generation), Gardabani 2 TPP generated 33 mln. kWh (21% of TPP generation and 3% of total power generation) the remaining 3% of TPP generation was produced by Gpower TPP (Figure 4).

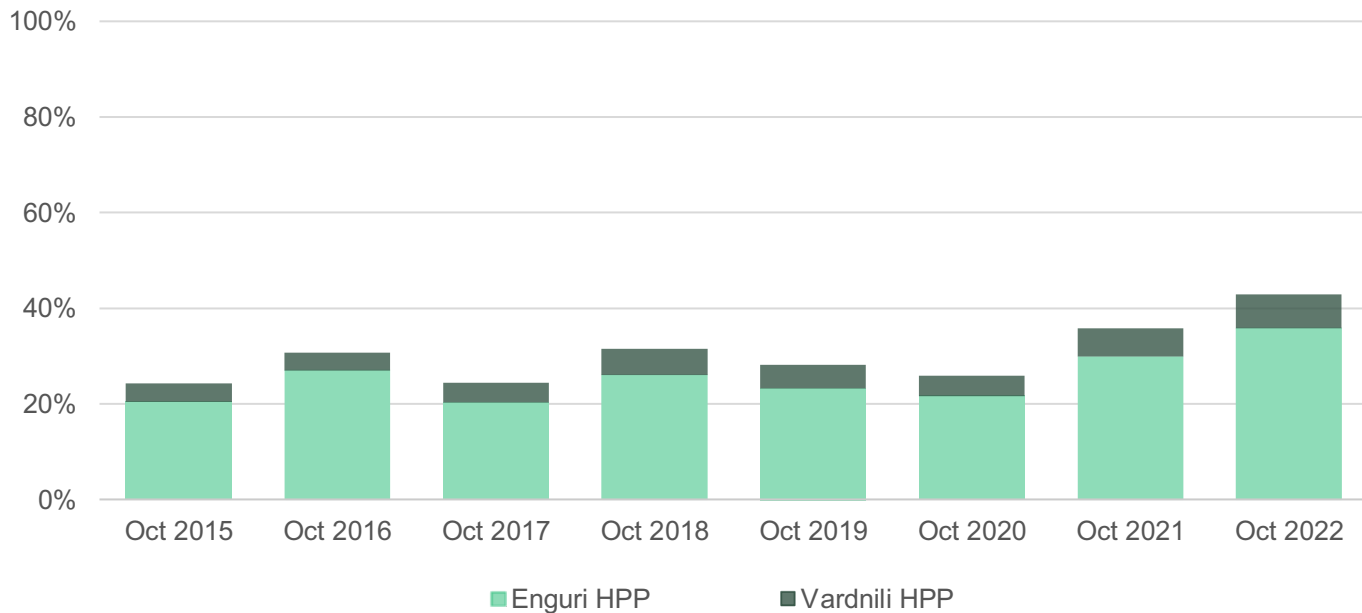
Figure 4 - Share of Large TPPs in Total Generation



Source: ESCO

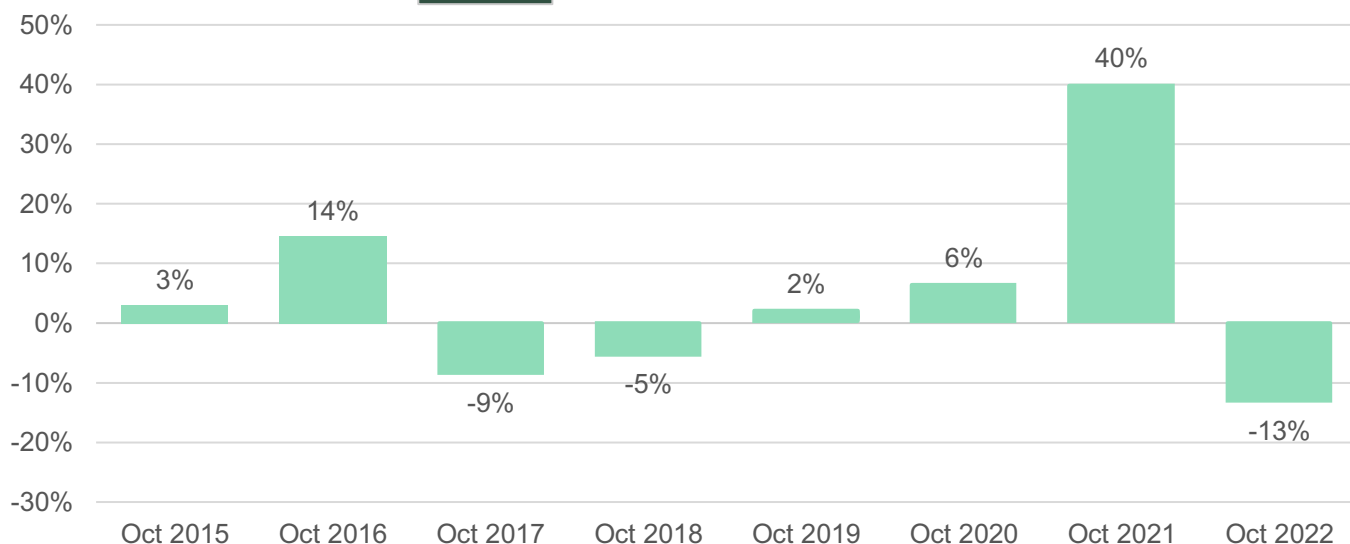
As for HPP generation, Vardnili HPP generated 72 mln. kWh (15% of generation for regulatory HPPs and 7% of total generation). Enguri HPP generated 370 mln. kWh, which represents 75% of generation of regulatory HPPs and 36% of total generation (Figure 5).

Figure 5 - Share of Enguri and Vardnili in Total Generation



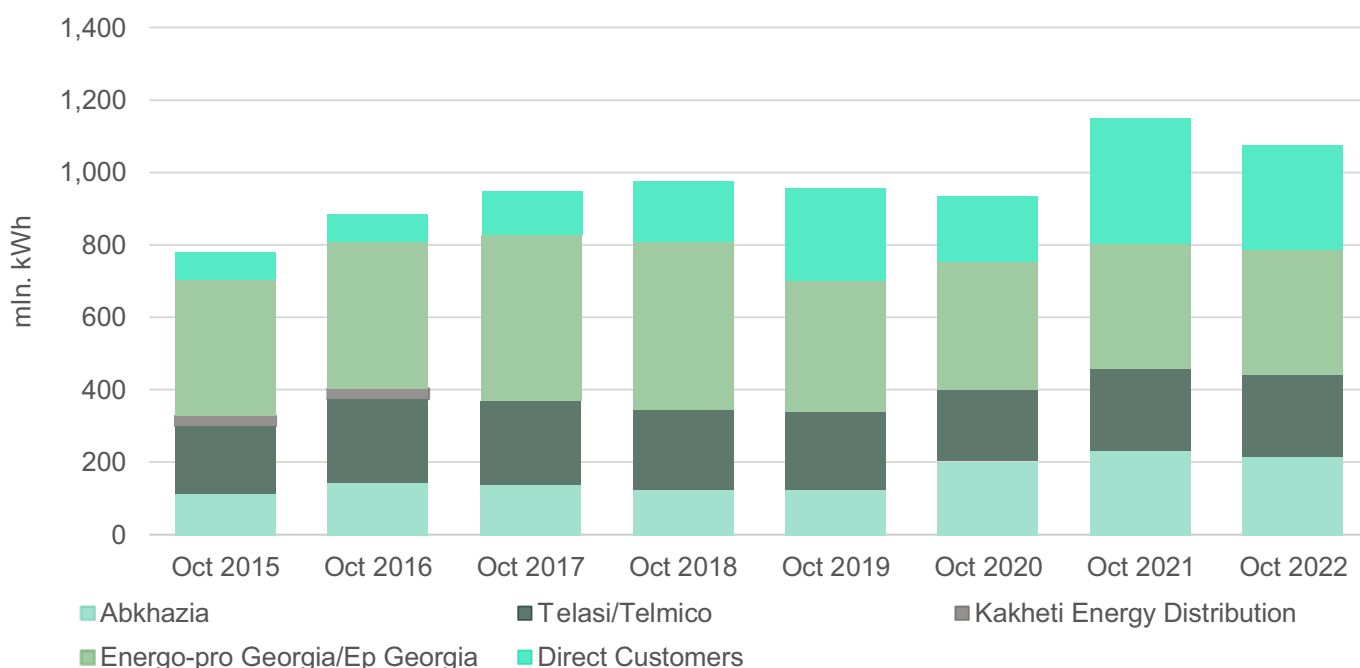
Source: ESCO

Overall, the total generation decreased by 13% compared to October 2021 (Figure 6).

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

Source: ESCO

Total electricity demand came from: Energo-Pro Georgia/Ep Georgia¹ (32% - 344 mln. kWh), Abkhazia (20% - 214 mln. kWh), Telasi/Telmico² (21% - 226 mln. kWh), and direct customers (27% - 292 mln. kWh) (Figure 7). Annual demand from Energo-Pro Georgia and Telasi remained the same as in October 2021, while the demand from Abkhazia and direct customers fell by 8% and 16%, respectively. Overall, there was an annual decrease of 6% in the total electricity consumption in October 2022, compared to October 2021 (Figure 8).

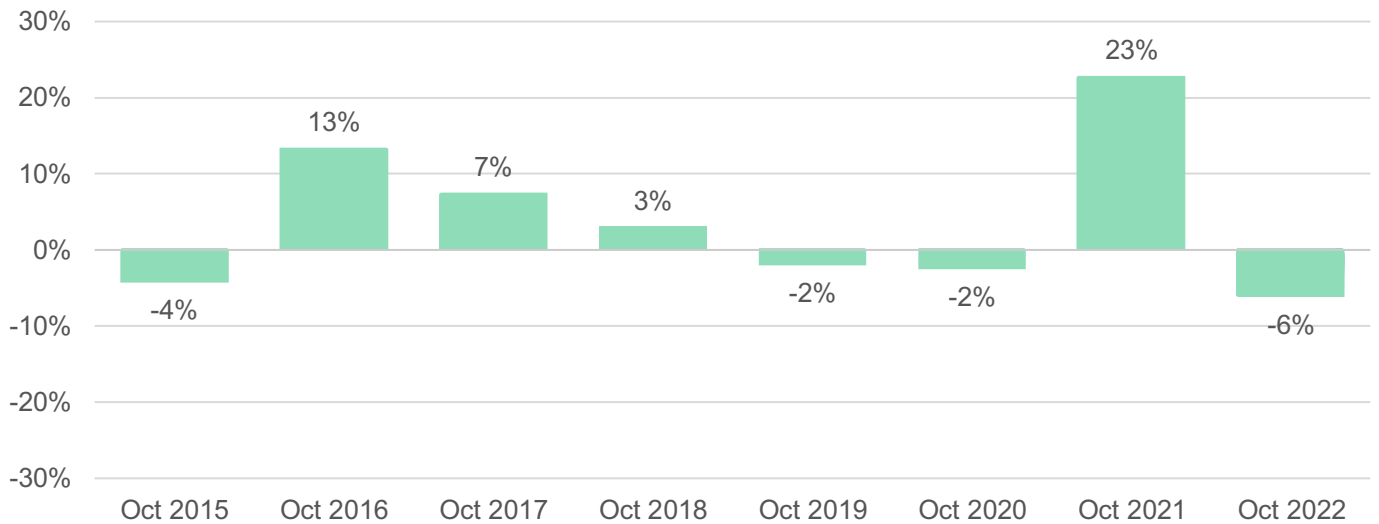
Figure 7 - Electricity Consumption by Type of Customer

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.

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

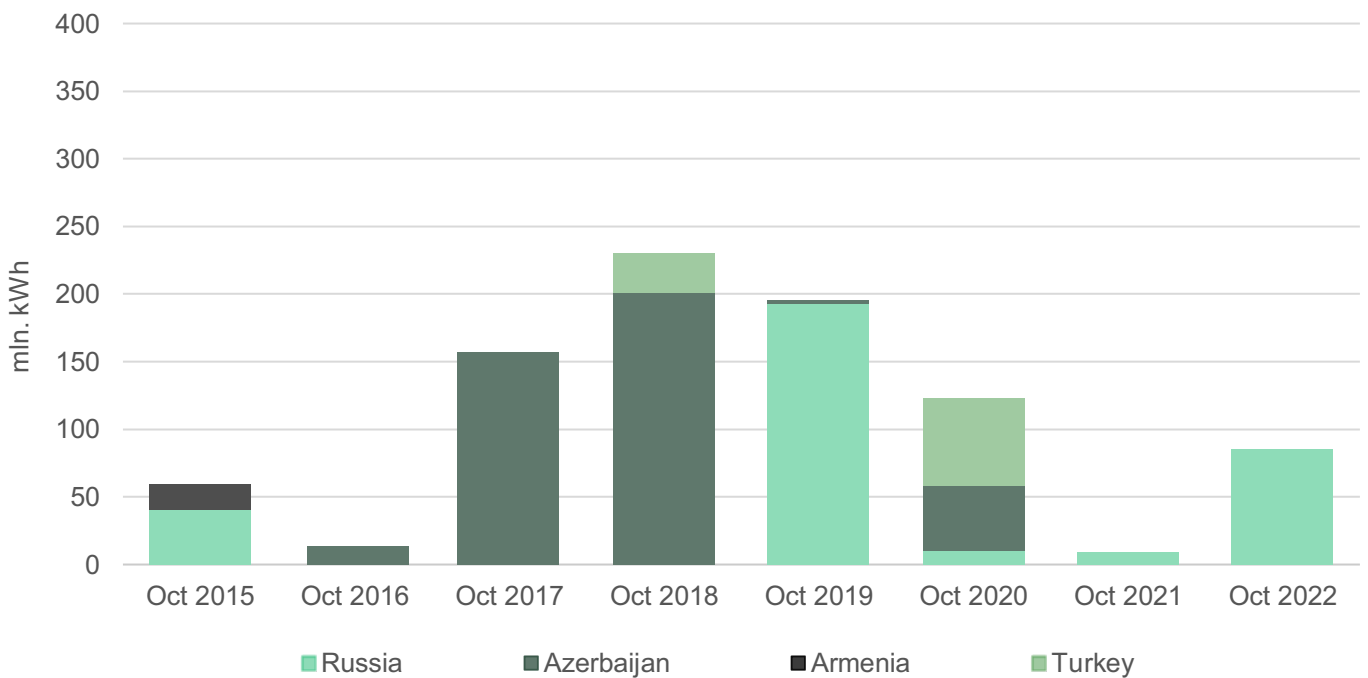


Source: ESCO

In October 2022, there was the import of 86 mln. kWh of electricity (compared to 8 mln. kWh in October 2021) (Figure 9). More than 99% of this import came from Russia, and just a fraction came from Azerbaijan (the same picture was in October 2021). In October 2022, there was no electricity export (there was 5 mln. kWh export in October 2021) (Figure 10). There was 282 mln. kWh transit from Azerbaijan to Turkey and 70 mln. kWh transit from Russia to Turkey (there was 153 mln. kWh transit from Russia to Turkey and 115 mln. kWh transit from Azerbaijan to Turkey in October 2021).

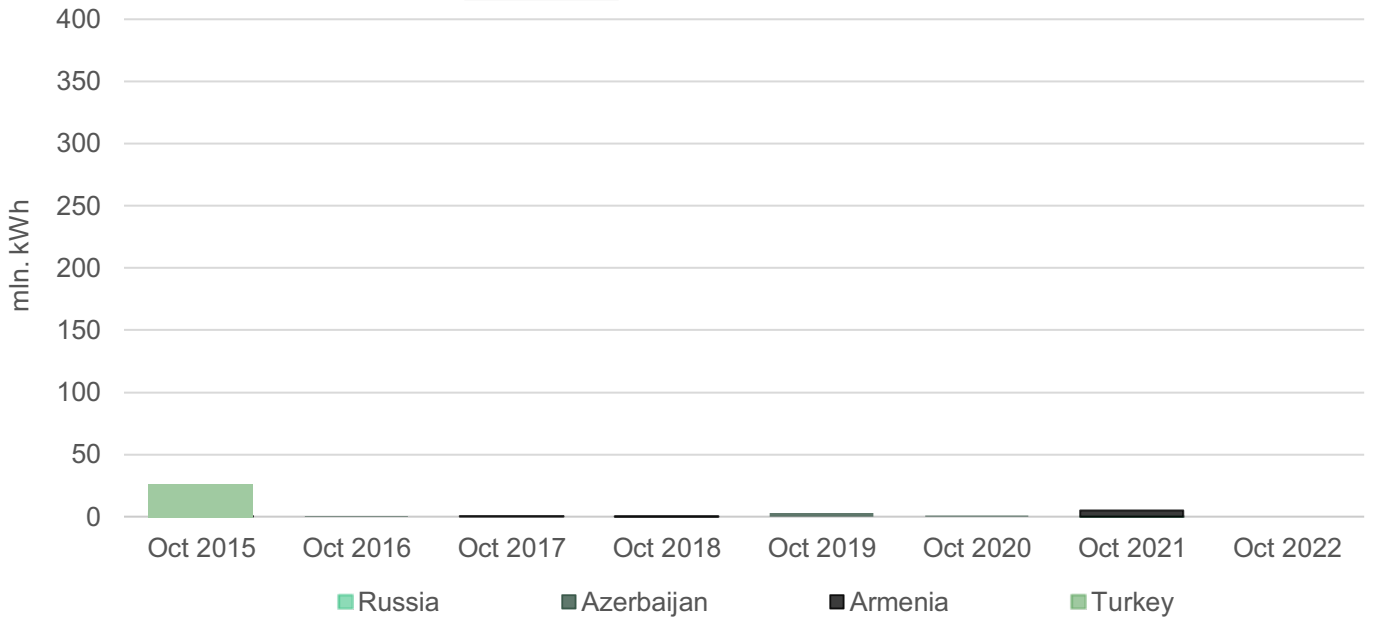
In October 2022, imports grew 10 times compared to October 2021 (the effect of small initial value), while exports were reduced to zero.

Figure 9 - Imports by Year



Source: ESCO

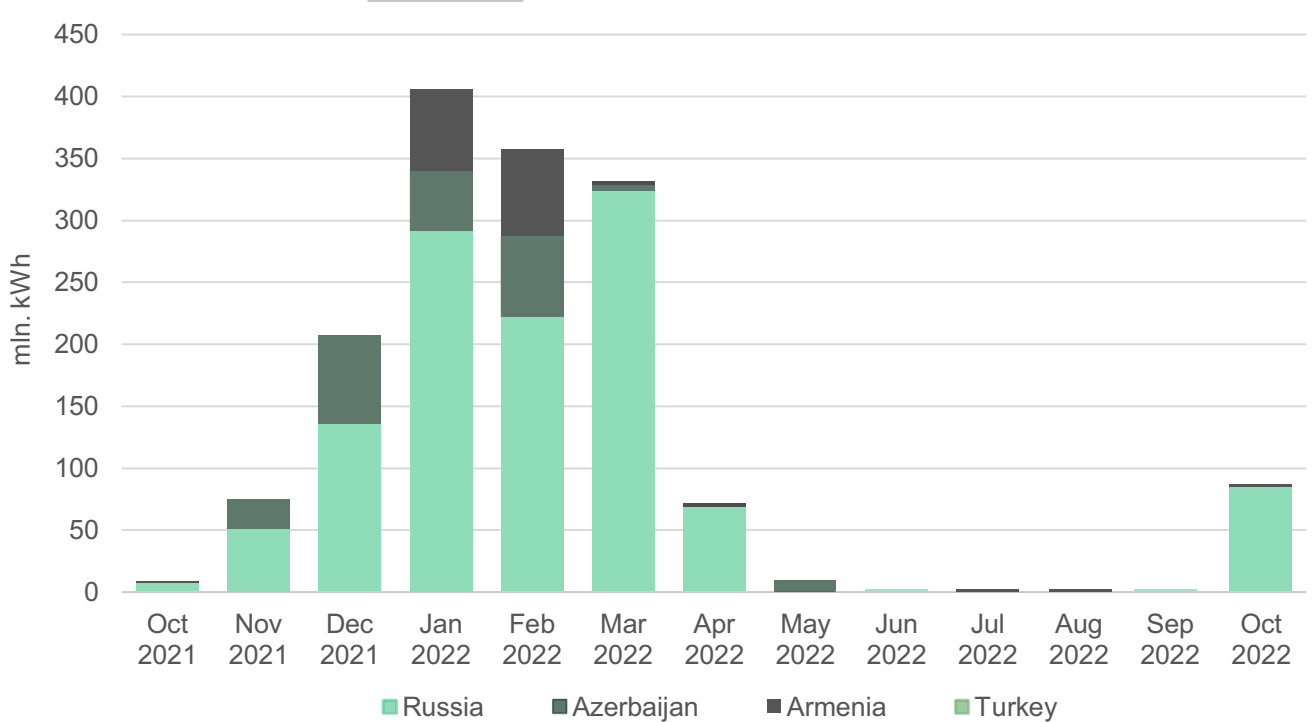
Figure 10 - Exports by Year



Source: ESCO

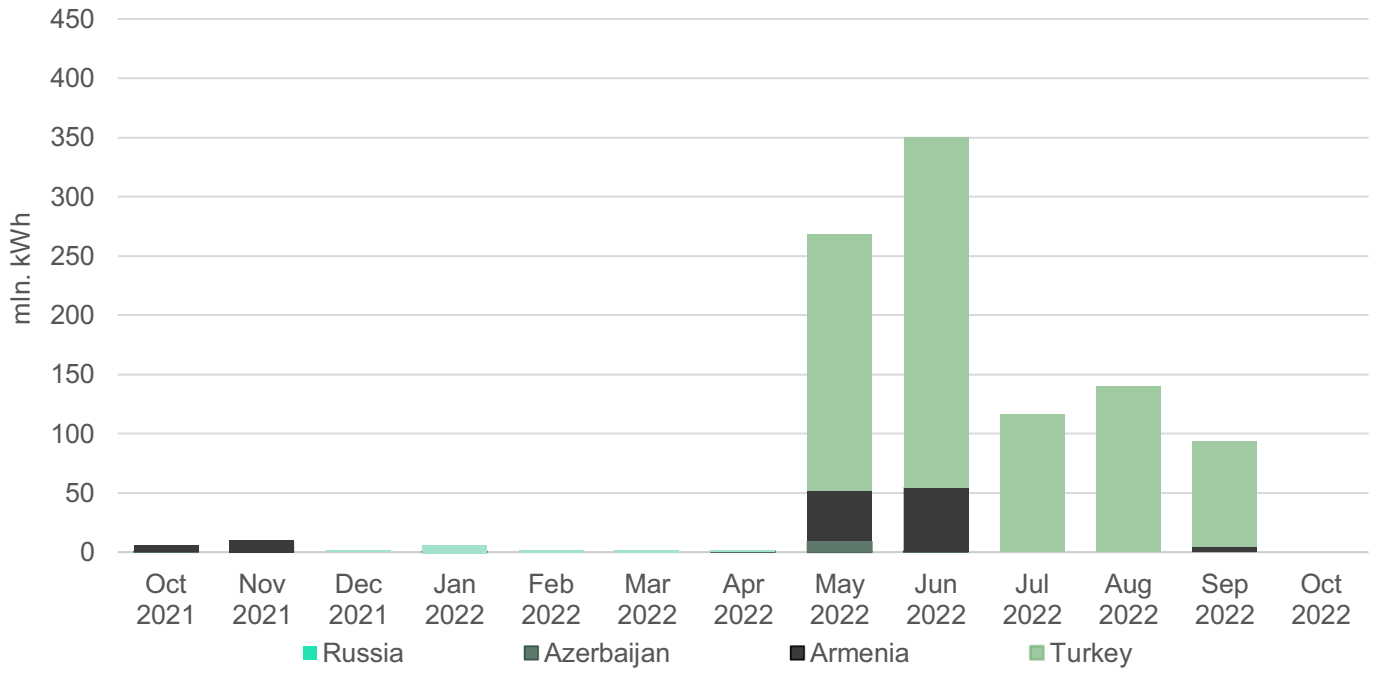
There were no imports in September 2022, so we cannot assess the level of monthly growth (Figure 11). Electricity exports decreased by 100 %, compared to September 2022 (Figure 12). After 5 months of generation-consumption surplus, October became the first month with deficit.

Figure 11 - Imports by Month



Source: ESCO

Figure 12 - Exports by Month

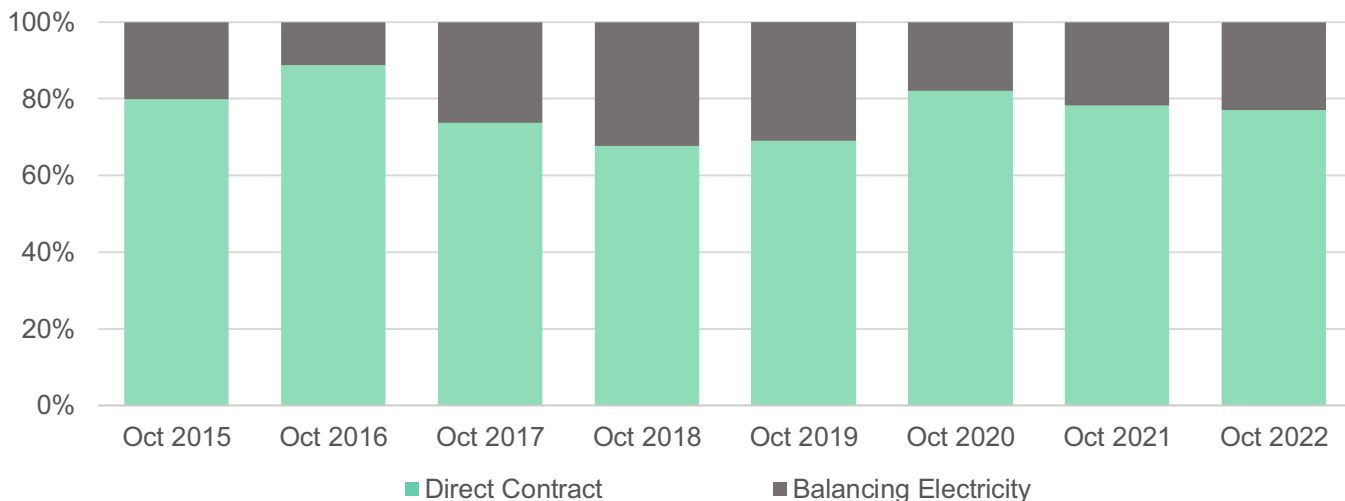


Source: ESCO

1. Market Operations

In October 2022, 77% of the electricity sold on/from the local market was sold through direct contracts. The remaining 23% was sold as balancing electricity (Figure 13).

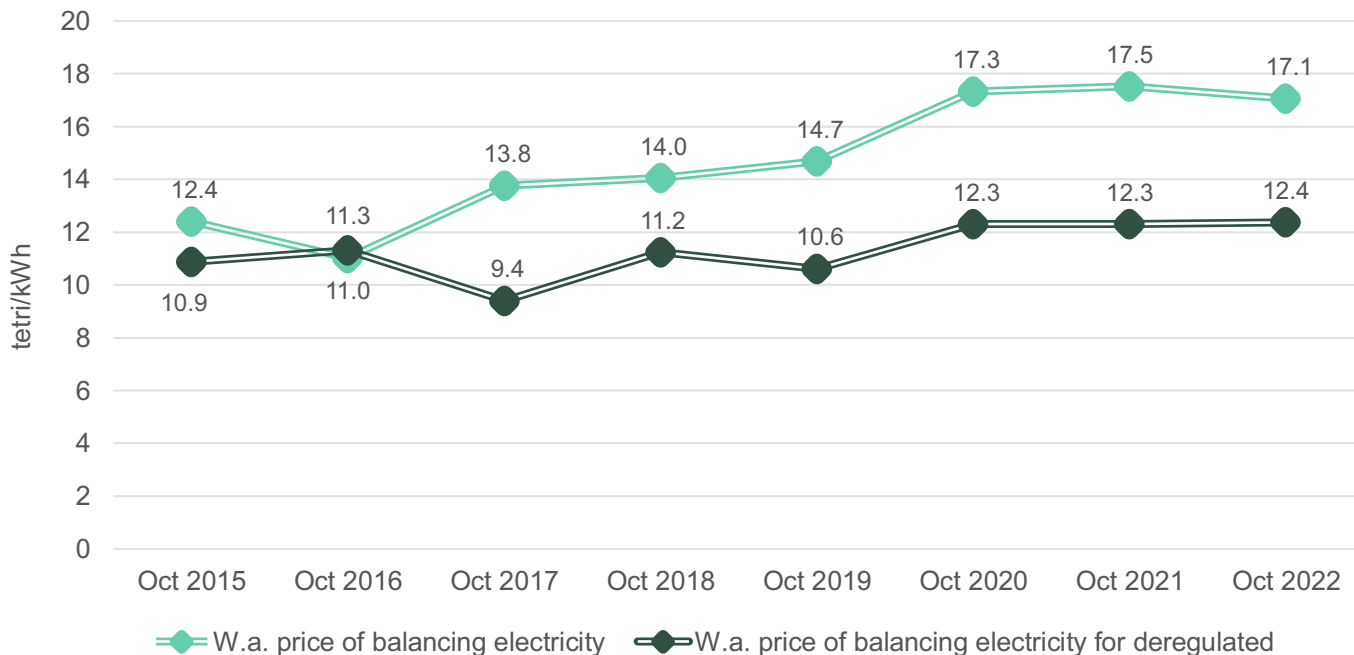
Figure 13 - Electricity Purchased / Sold Shares of Direct Contracts and Balancing Electricity



Source: ESCO

In October 2022, the weighted average price of balancing electricity was 17.1 tetri/kWh, which corresponds to an annual decrease of 3% compared to October 2021. As for the weighted average price for deregulated (small) HPPs, it was 12.4 tetri/kWh, 1% more than the price in October 2021 (Figure 14).

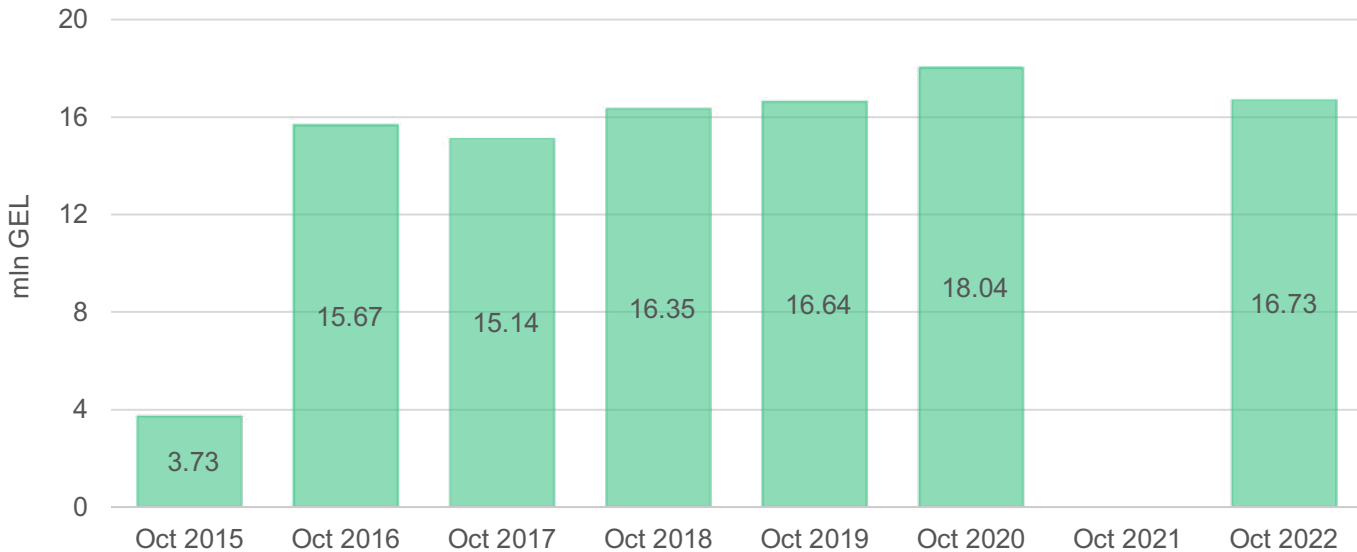
Figure 14 - Balancing Electricity Prices Weighted Average and Weighted Average Price for Deregulated HPPs



Source: ESCO

Guaranteed capacity payments in October 2022 were roughly 17 mln. GEL, which represents an 7% decrease compared to October 2020. The data about October 2021 are not available (Figure 15).

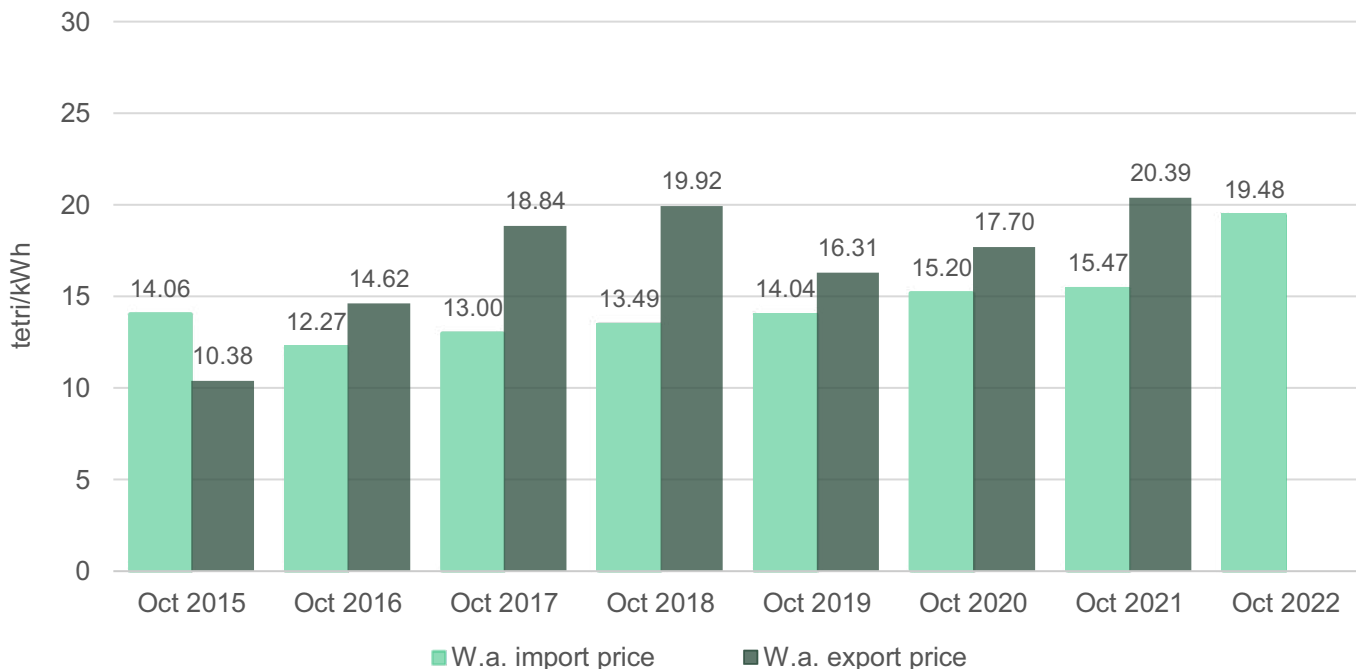
Figure 15 - Cost of Guaranteed Capacity



Source: ESCO

The electricity import price in October 2022 reached 6.99 ϕ , or 19.47 tetri per kWh (Figure 16). This corresponds to an annual growth in price by 42% in USD and 26% in GEL (prices were 4.93 ϕ , or 15.47 tetri per kWh in October 2021). There was no export in October 2022, and there was no import in September 2022, so annual and monthly dynamics cannot be assessed.

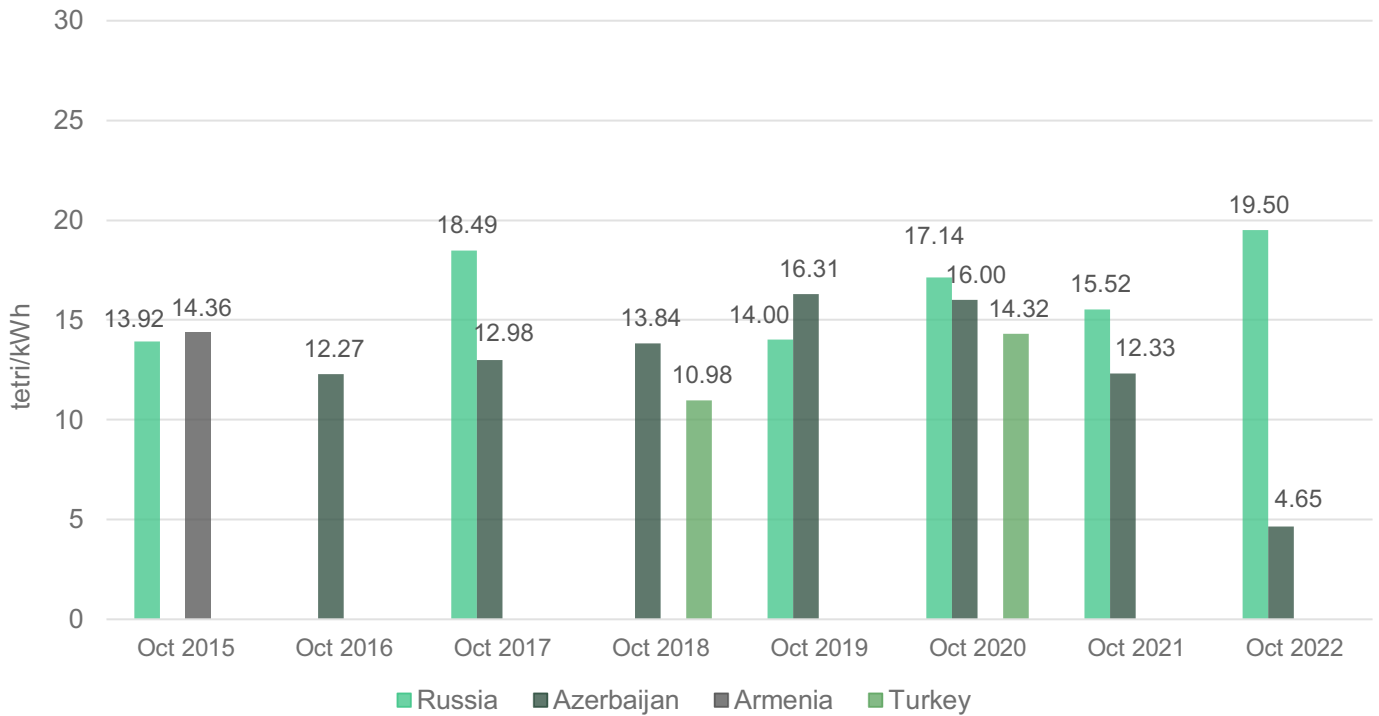
Figure 16 - Prices Import/Export



Source: ESCO

In October 2022, the electricity import price from Russia and Azerbaijan stood at 7.00 ϕ or 19.50 tetri and at 1.67 ϕ or 4.65 tetri, respectively. (Figure 17).

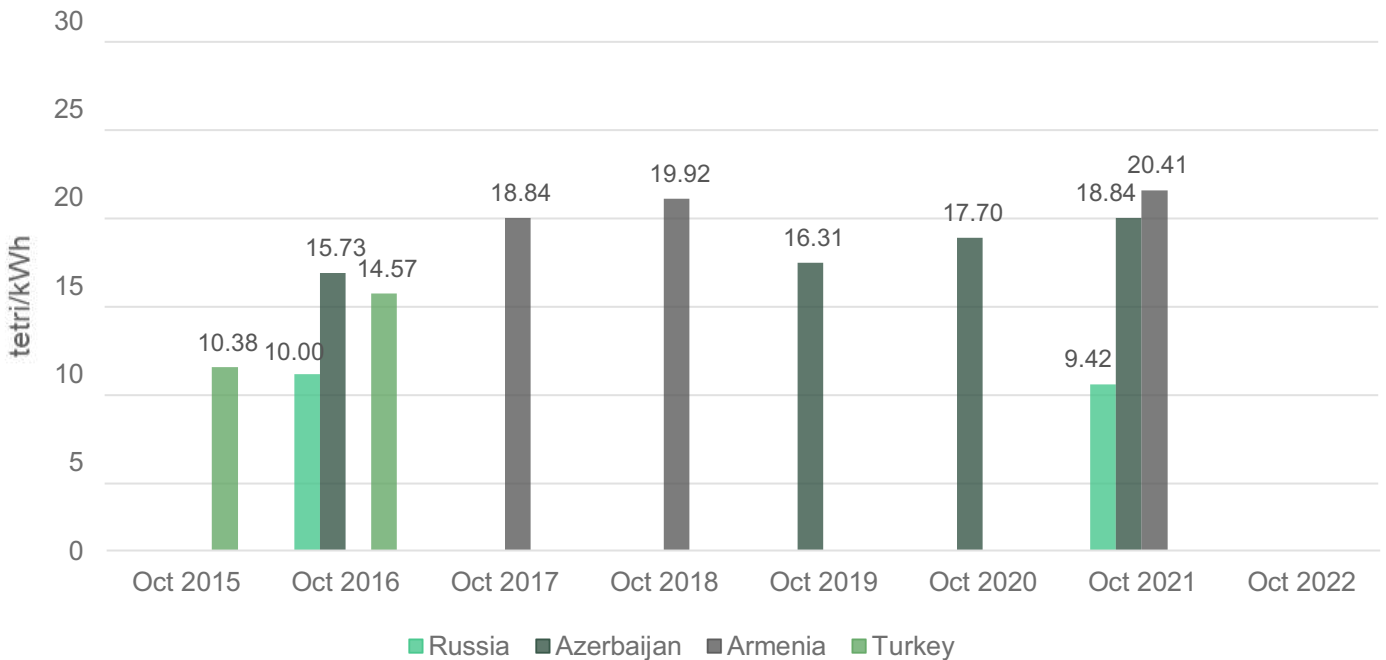
Figure 17 - Import Prices by Countries



Source: ESCO/Geostat

In October 2022, there was no export (Figure 18).

Figure 18 - Export Prices by Countries

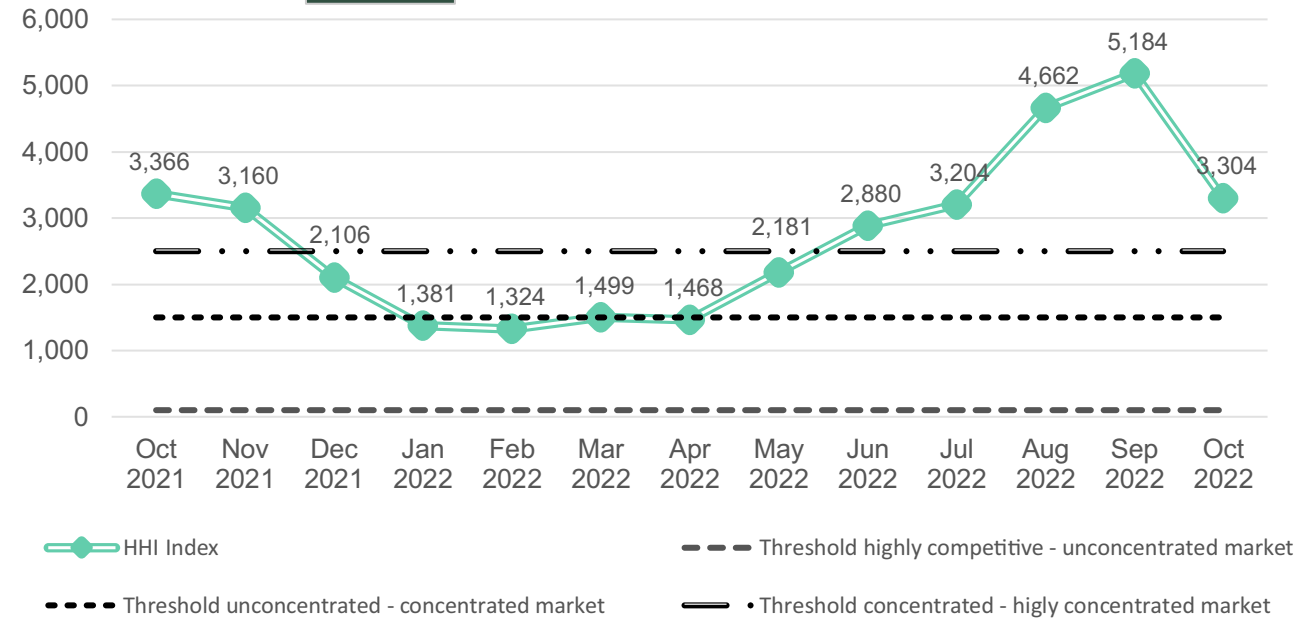


Source: ESCO/Geostat

2. Market Concentration

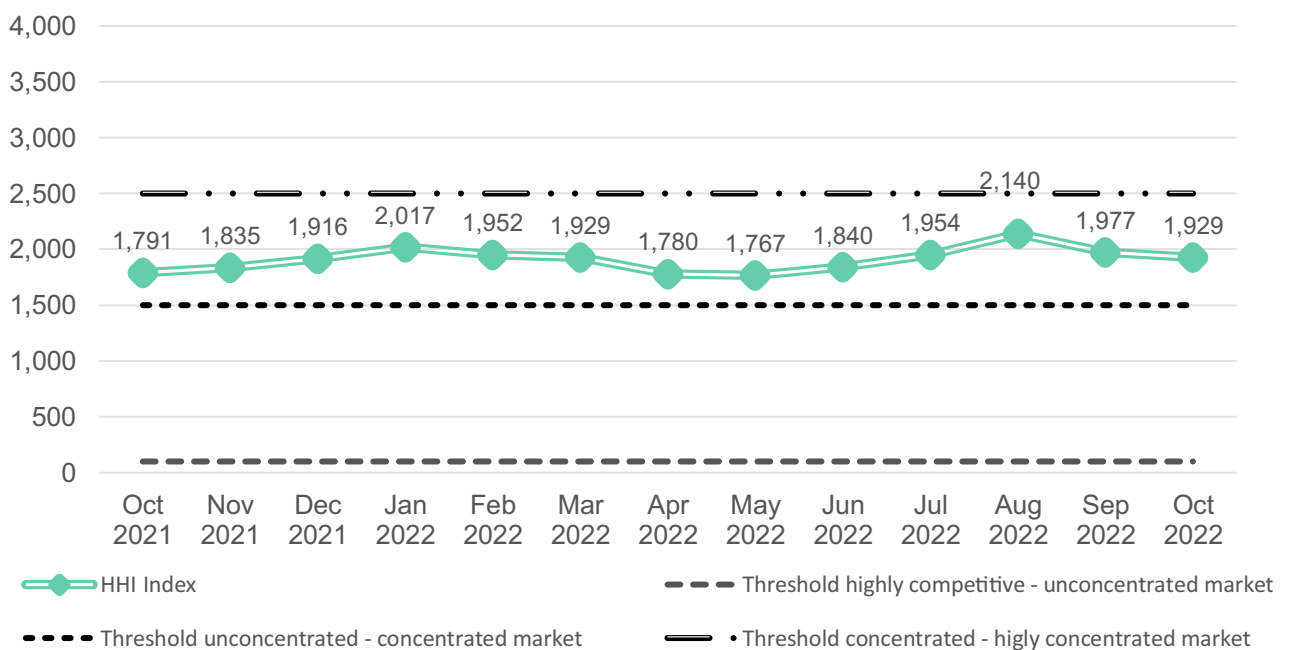
In conclusion, we utilize the Hirschman-Herfindahl (HHI) market concentration index to evaluate how competitive the generation and consumption segments of the market have been over the year. In October 2022, the Georgian electricity generation market index remained above the threshold of highly concentrated market with an HHI value of 3,304 (Figure 19). This is lower than the level in October 2021 (with an HHI value of 3,366), and lower than the level in September 2022 (the HHI was 5,184). As for the consumption segment, in October 2022, the HHI consumption index remained below the threshold for a highly concentrated market, with an HHI value of 1,929 (above the level in October 2021 – 1,791 and below the level in September 2022 – 1,977). 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