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ELECTRICITY MARKET REVIEW

ISET POLICY INSTITUTE

ENERGY AND ENVIRONMENT POLICY RESEARCH CENTER

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INFORMATION

- In May 2023 there was a decrease in the total electricity generation by 9% on a yearly basis and increase by 6% on a monthly basis.
- Consumption decreased by 11% on a yearly basis and by 1% compared to the previous month.
- Consumption exceeded generation by 295 mln. kWh which was 22% of the total generation and 29% of the total consumption in May 2023.
- There were no imports in May.
- There were exports of 248 mln. kWh in May.
- The main export partner country was Turkey.
- The price of exports reached 7.12 ¢, or 18.05 tetri per kWh.
- The HHI index for the Georgian electricity generation market rose above the threshold of highly concentrated market. In May 2023, its level was 2,670.
- The HHI for the Georgian electricity consumption market remained below the threshold of a highly concentrated market. In May 2023, its level was 2,083

ABBREVIATION USED

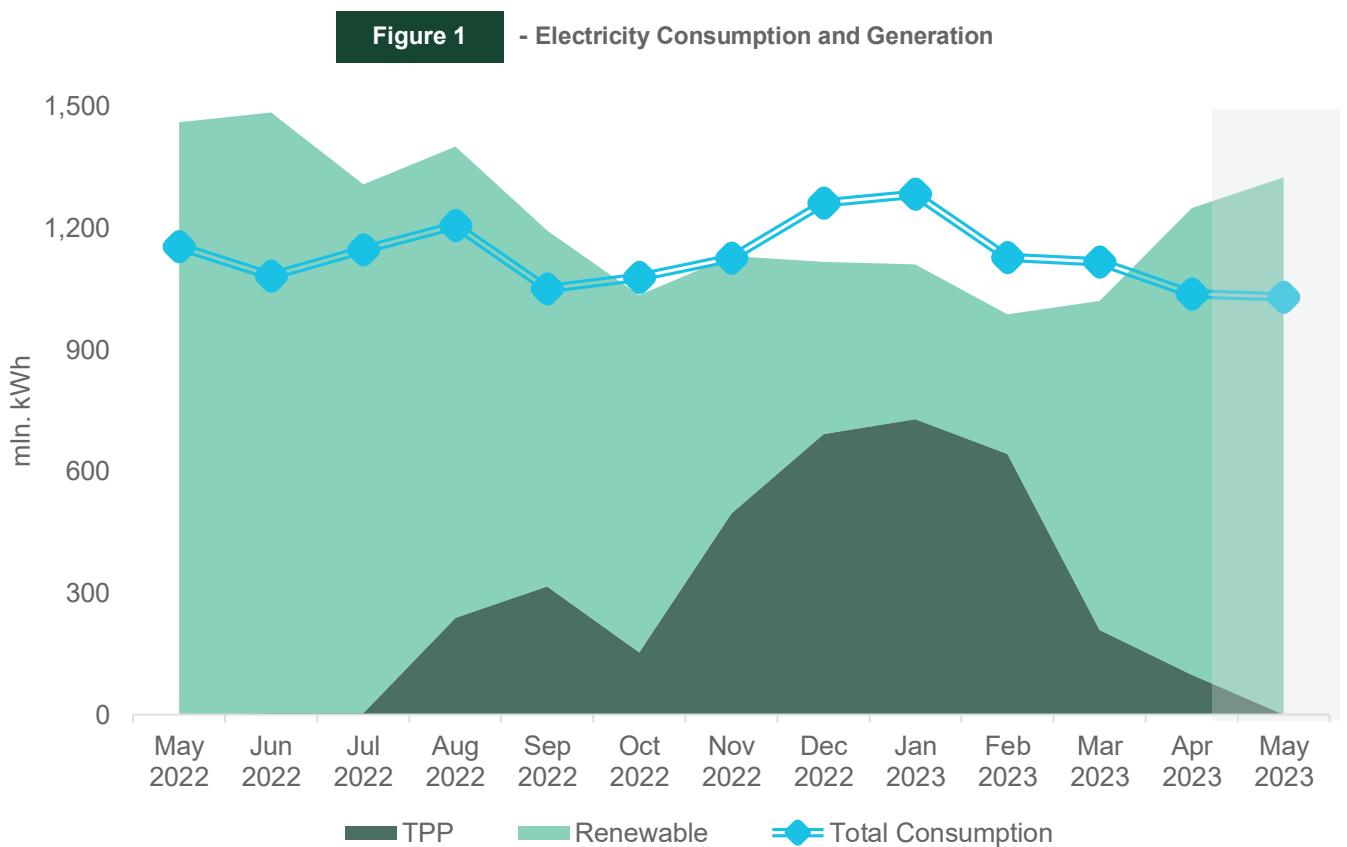
Mln – million
 kWh – kilowatt-hour
 HPP – Hydro Power Plant
 WPP – Wind Power Plant
 TPP – Thermal Power Plant
 HHI - Hirschmann-Herfindahl Index
 Telmico - Tbilisi Electricity Supply Company
 Ep Georgia - Ep Georgia Supply
 Geostat – National Statistics Office of Georgia
 ESCO - Electricity System Commercial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

Generation – Consumption – Trade

In May 2023, Georgian power plants generated 1,325 mln. kWh of electricity (Figure 1). This represents a 9% decrease in the total generation compared to the previous year (in May 2022, the total generation was 1,461 mln. kWh). The decrease in generation on a yearly basis comes from a fall of 9% in Hydro and 6% in wind power, while thermal power generation increased by 89%.

On a monthly basis, the generation increased by approximately 6% (in April 2023, the total generation was 1,249 mln. kWh) (Figure 1). The monthly rise in total generation is induced by a 15% increase in hydro power generation, while thermal and wind power generation decreased by 99% and 14%, respectively.

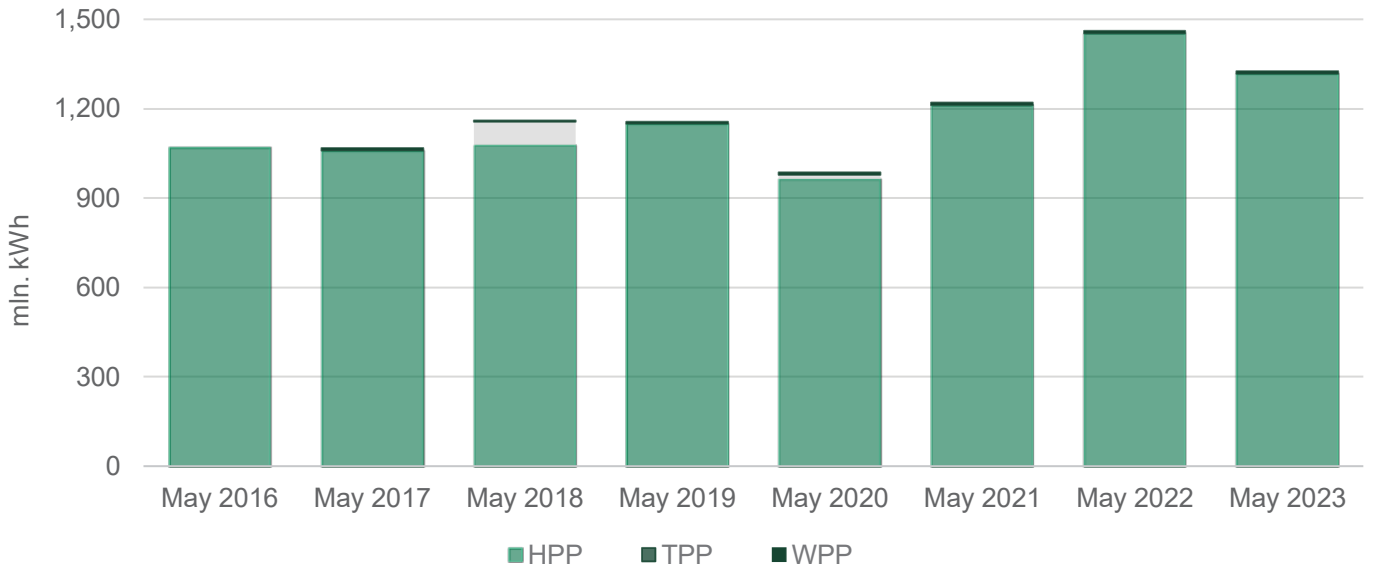
The consumption of electricity on the local market was 1,030 mln. kWh (-11% compared to May 2022, and -1% compared to April 2023) (Figure 1). In May 2023, power generation exceeded consumption by 295 mln. kWh which was 22% of the total generation and 29% of the total consumption (in May 2022, the difference between the total generation and the consumption resulted in a surplus of 307 mln. kWh, around 21% of the total generation and 27% of the total consumption for the month).



Source: Electricity System Commercial Operator (ESCO)

In May 2023, hydro power plants were the leading source of generation. In May 2023, hydro power (HPP) generation amounted to 1317 mln. kWh (99.4% of total), thermal power (TPP) generation was 1 mln. kWh (0.1% of the total generation), while wind power (WPP) generation amounted to 8 mln. kWh (0.6% of the total generation) (Figure 2).

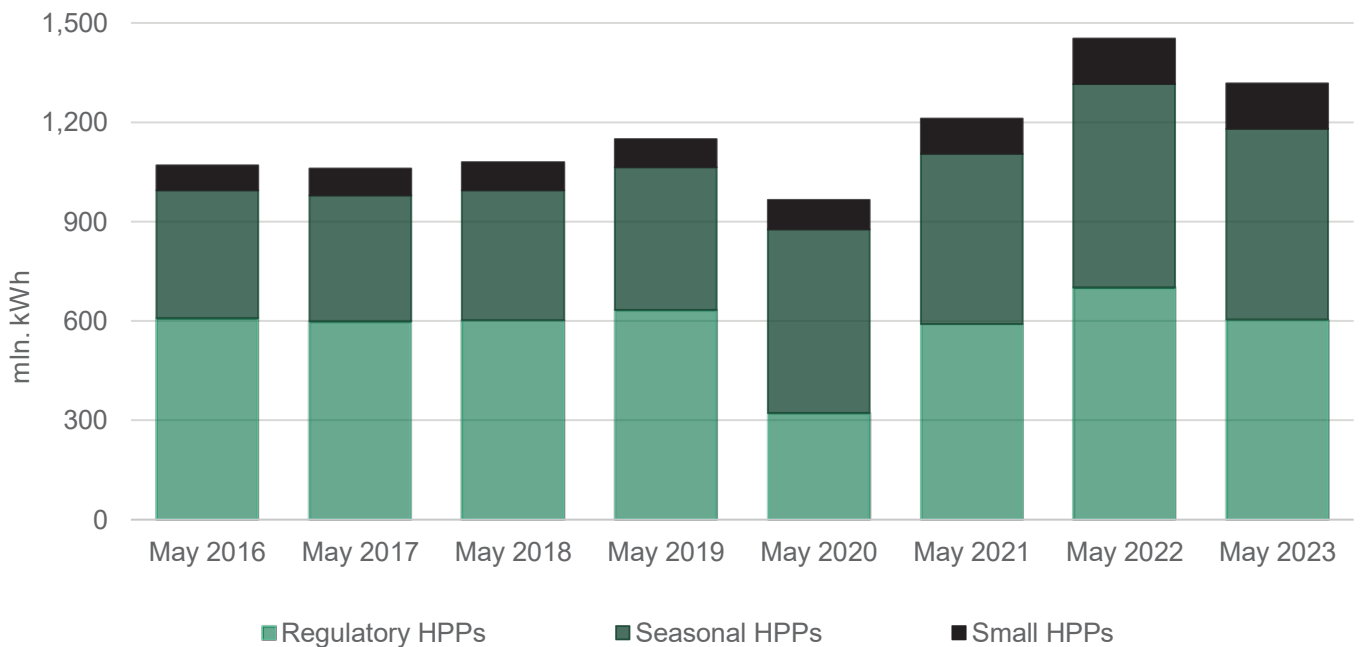
Figure 2 - Electricity Generation by Sources



Source: ESCO

Among hydropower generators, large (regulatory) HPPs produced 46% (605 mln. kWh) of electricity, while seasonal and small HPPs produced 44% (576 mln. kWh) and 10% (136 mln. kWh), respectively (Figure 3).

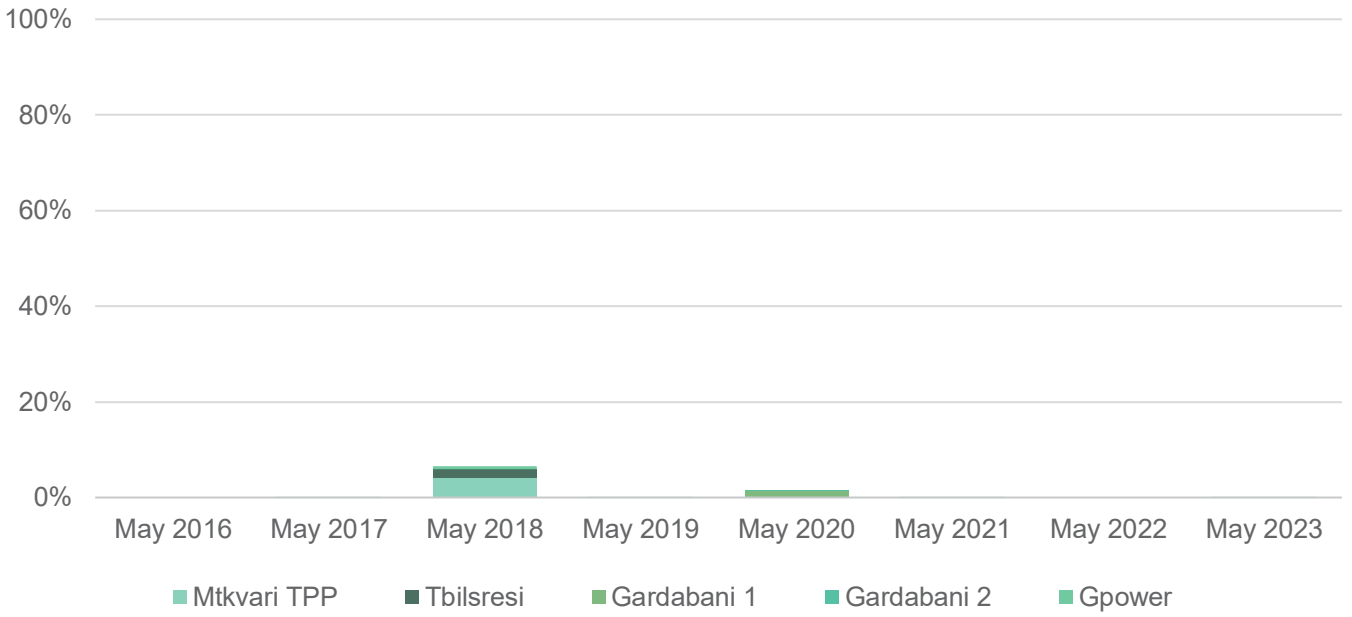
Figure 3 - HPP Generation by Type



Source: ESCO

As for thermal power generation, Gpower generated 1 mln. kWh electricity (100% of TPP generation and 0.1% of total power generation) (Figure 4).

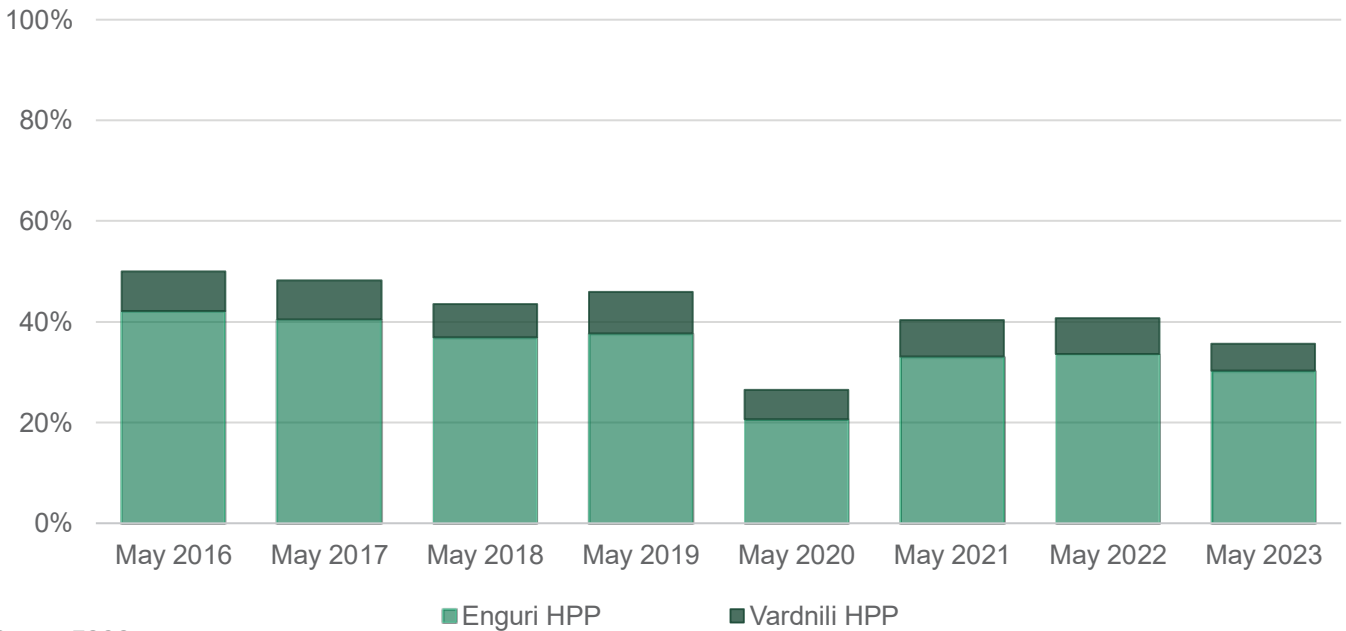
Figure 4 - Share of Large TPPs in Total Generation



Source: ESCO

As for HPP generation, Vardnili HPP generated 72 mln. kWh (12% of generation for regulatory HPPs and 5% of total generation). Enguri HPP generated 401 mln. kWh, which represents 66% of generation of regulatory HPPs and 30% of total generation (Figure 5).

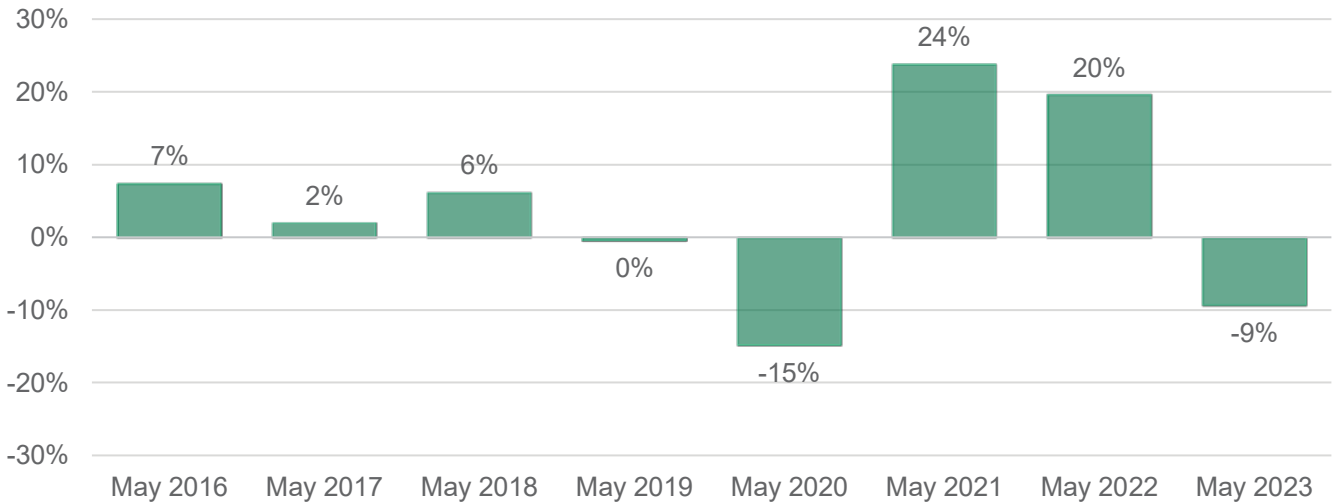
Figure 5 - Share of Enguri and Vardnili in Total Generation



Source: ESCO

Overall, the total generation decreased by 9% compared to May 2022 (Figure 6).

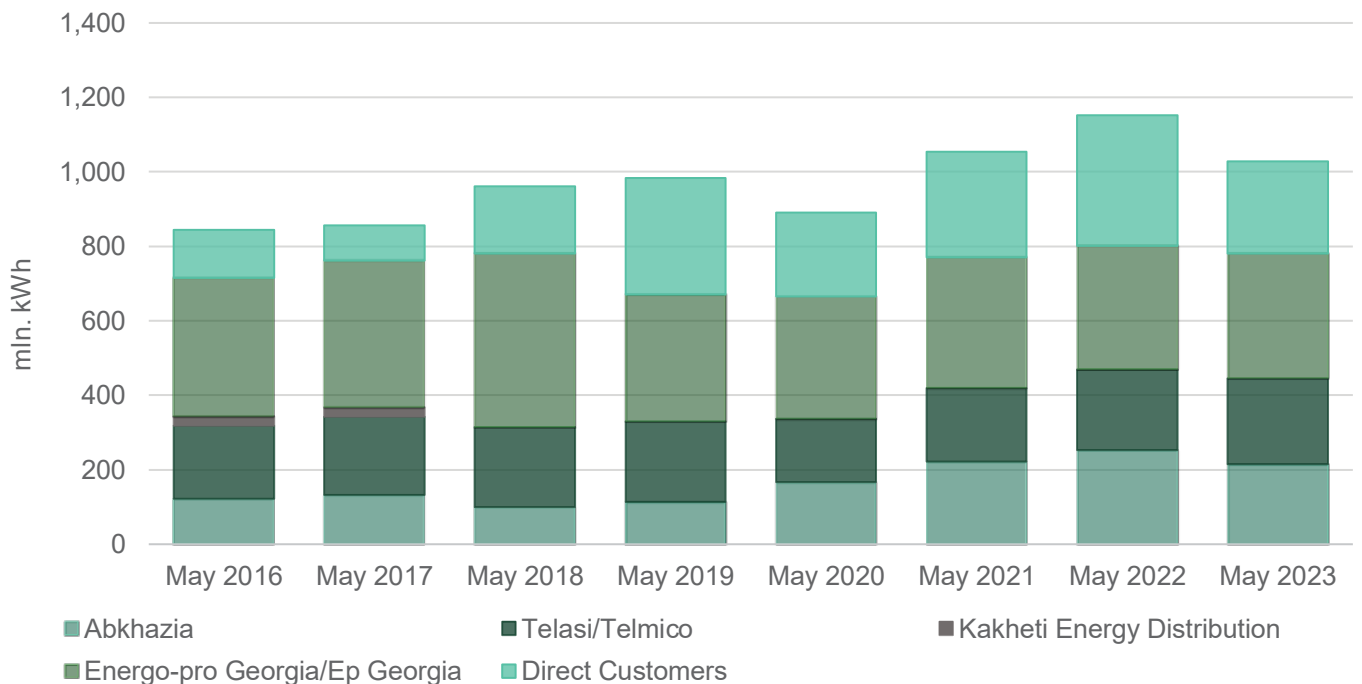
Figure 6 - Growth of Generation (% , y/y)



Source: ESCO

Total electricity demand came from: Energo-Pro Georgia/Ep Georgia¹ (33% - 335 mln. kWh), Abkhazia (21% - 215 mln. kWh), Telasi/Telmico² (22% - 230 mln. kWh), and direct customers (24% - 248 mln. kWh) (Figure 7). Annual demand from Abkhazia and direct customers fell by 15% and 29%, while it increased from Telasi/Telmico and Energo-Pro Georgia/Ep Georgia by 6% and 1%, respectively. Overall, there was an annual decrease of 11% in the total electricity consumption in May 2023, compared to May 2022 (Figure 8).

Figure 7 - Electricity Consumption by Type of Consumer

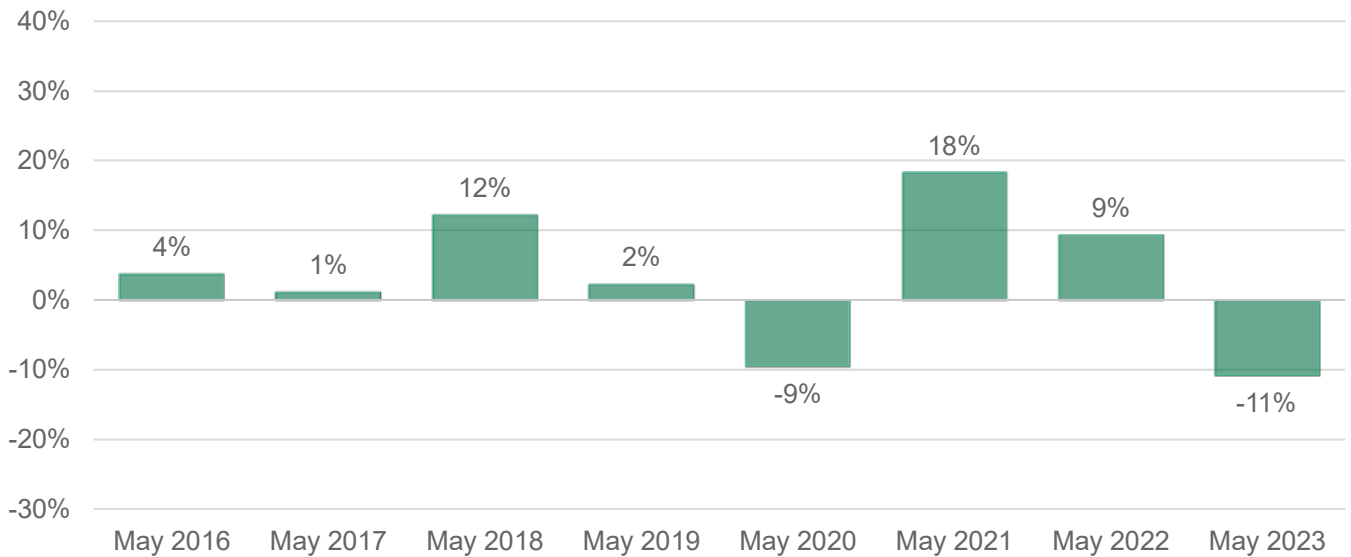


Source: ESCO

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)

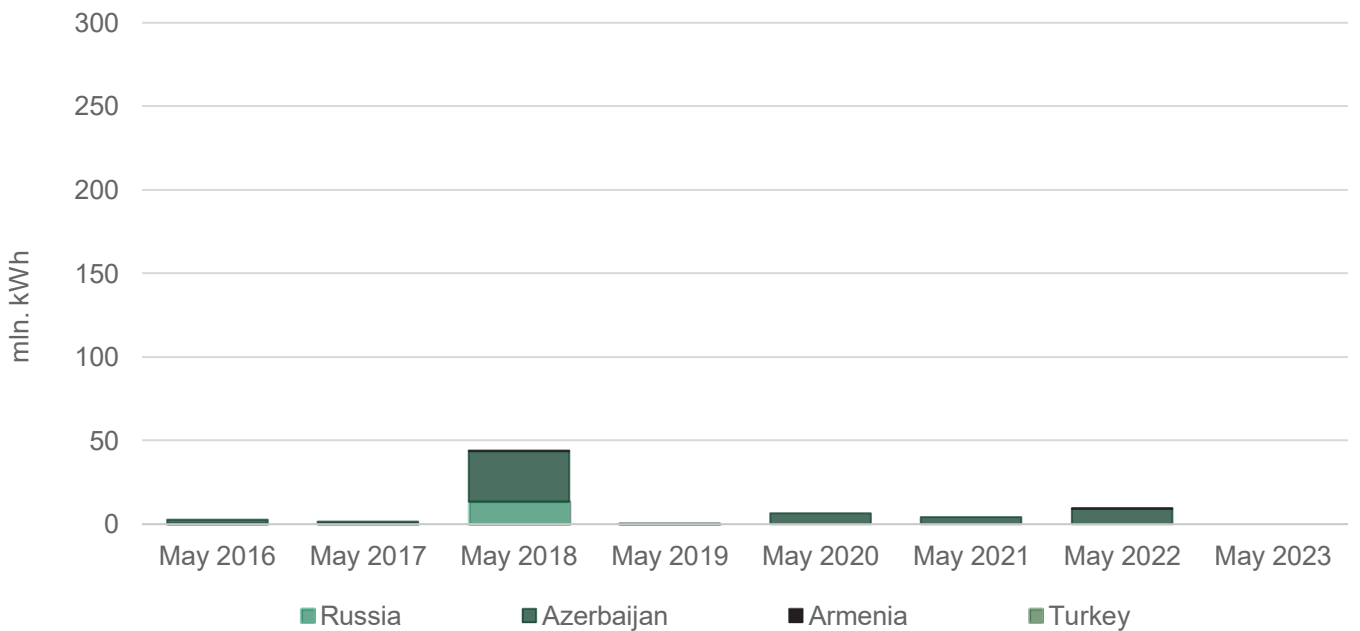


Source: ESCO

In May 2023, there was no import (in May 2022, there was 9 mln. kWh of electricity import to Azerbaijan, and insignificant amount of import to Armenia) (Figure 9). In May 2023, there was an export of 248 mln. kWh of electricity (compared to 269 mln. kWh in May 2022) (Figure 10). Almost 100% of this export went to Turkey, and there was insignificant amount of electricity exports to Russia (in May 2022, 81% of exports went to Turkey, 3% to Azerbaijan, and 34% to Armenia). There was 65 mln. kWh transit from Russia to Turkey (in May 2022, there was no transit).

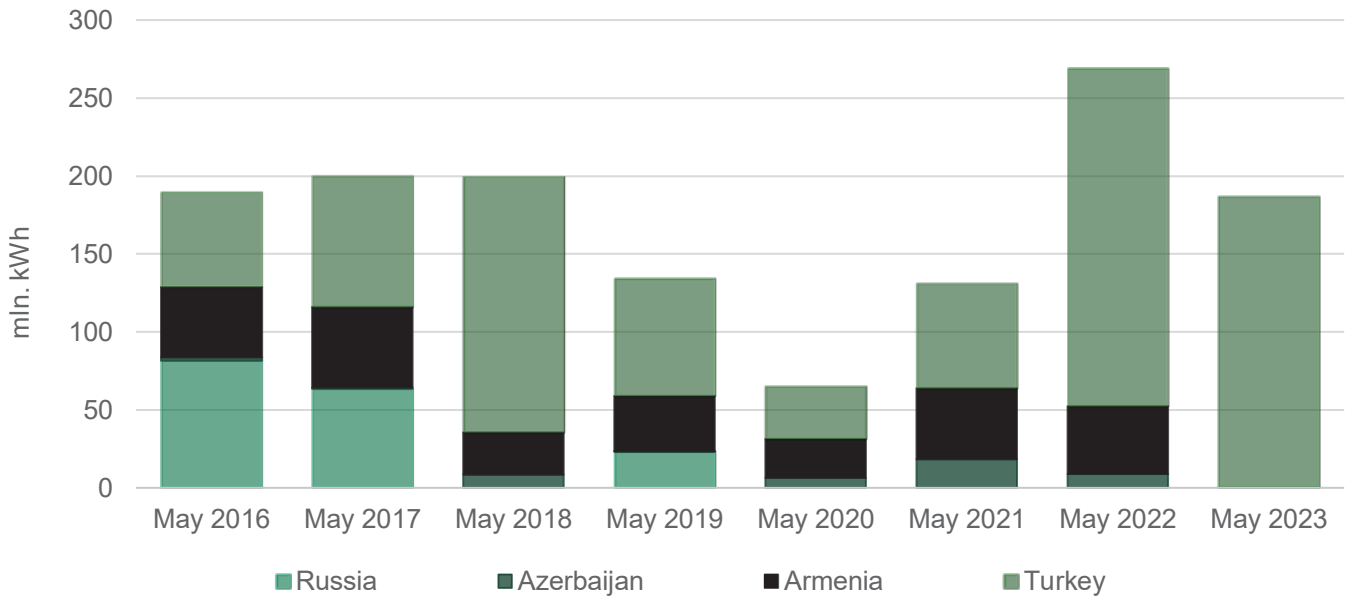
In May 2023, imports decreased by 100% compared to May 2022, while exports decreased by 8%.

Figure 9 - Imports by Year



Source: ESCO

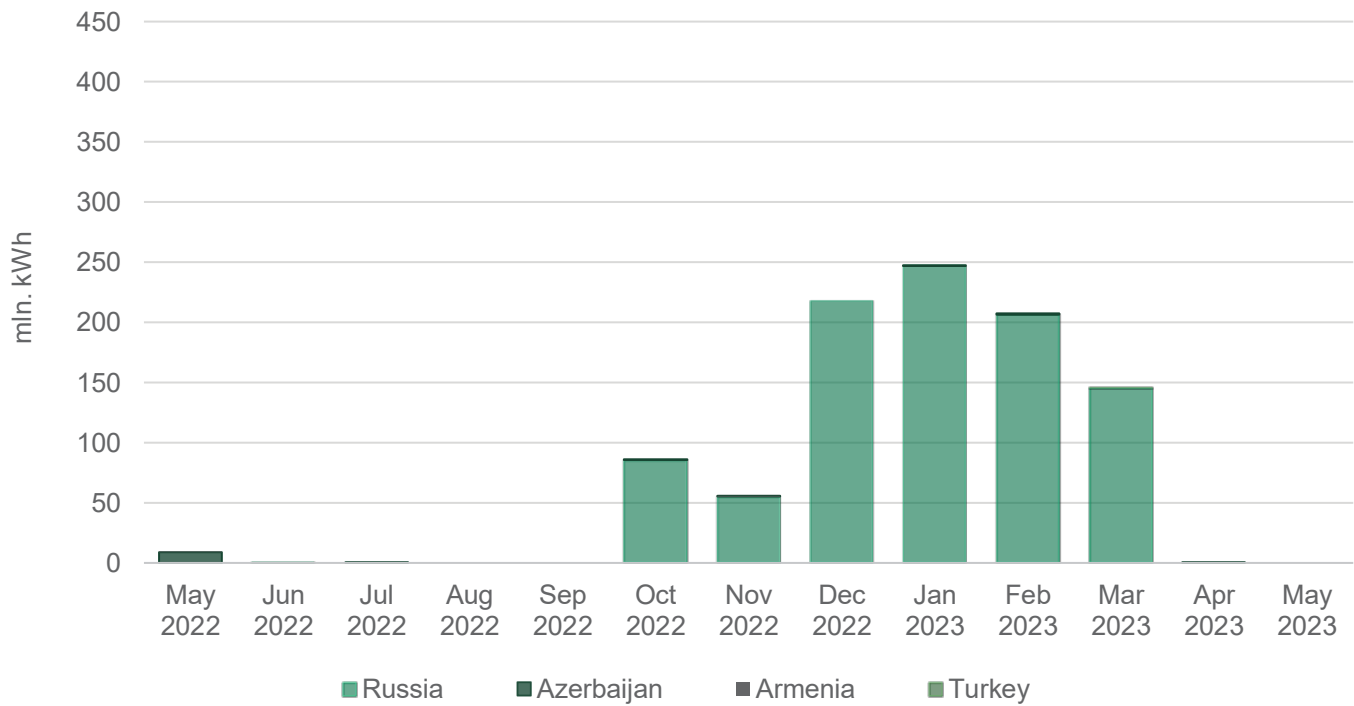
Figure 10 - Exports by Year



Source: ESCO

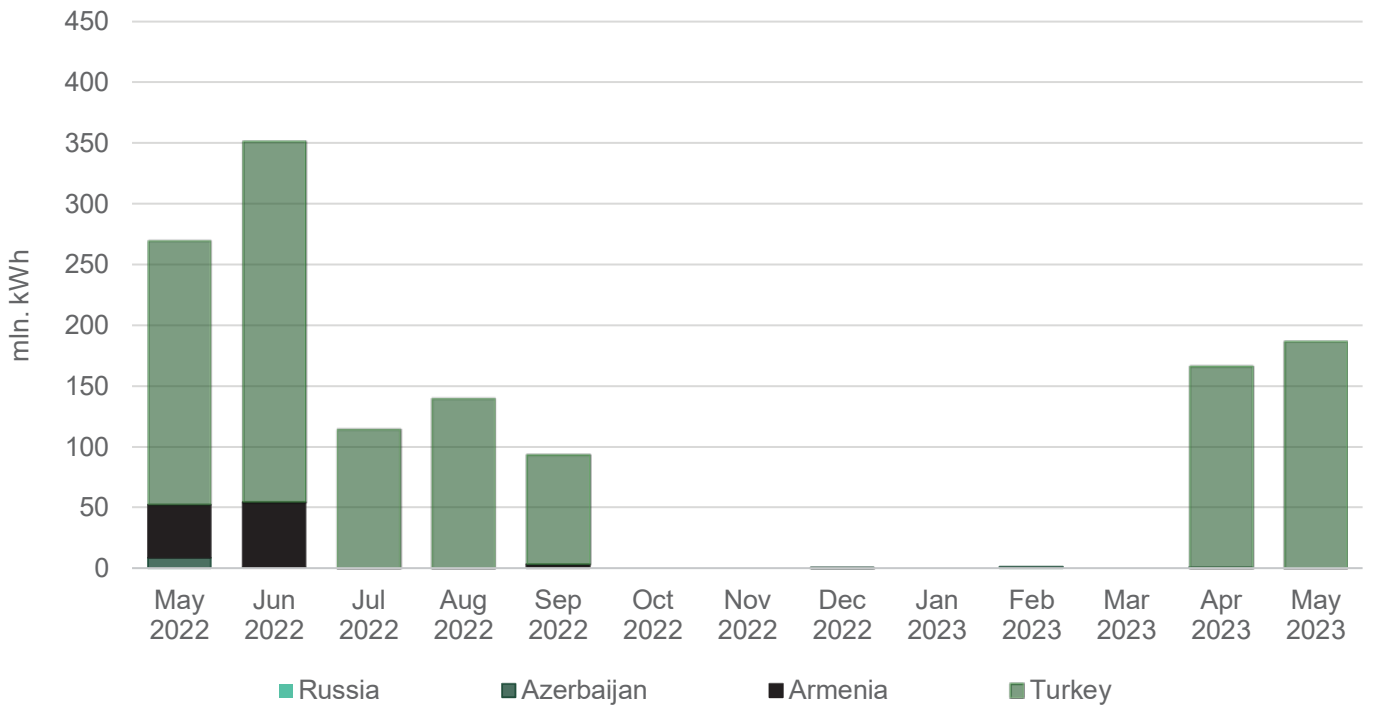
Electricity imports decreased by 100%, compared to April 2023 (Figure 11). Electricity exports increased by 49% in May 2023, compared to April 2023 (Figure 12).

Figure 11 - Imports by Month



Source: ESCO

Figure 12 - Exports by Month

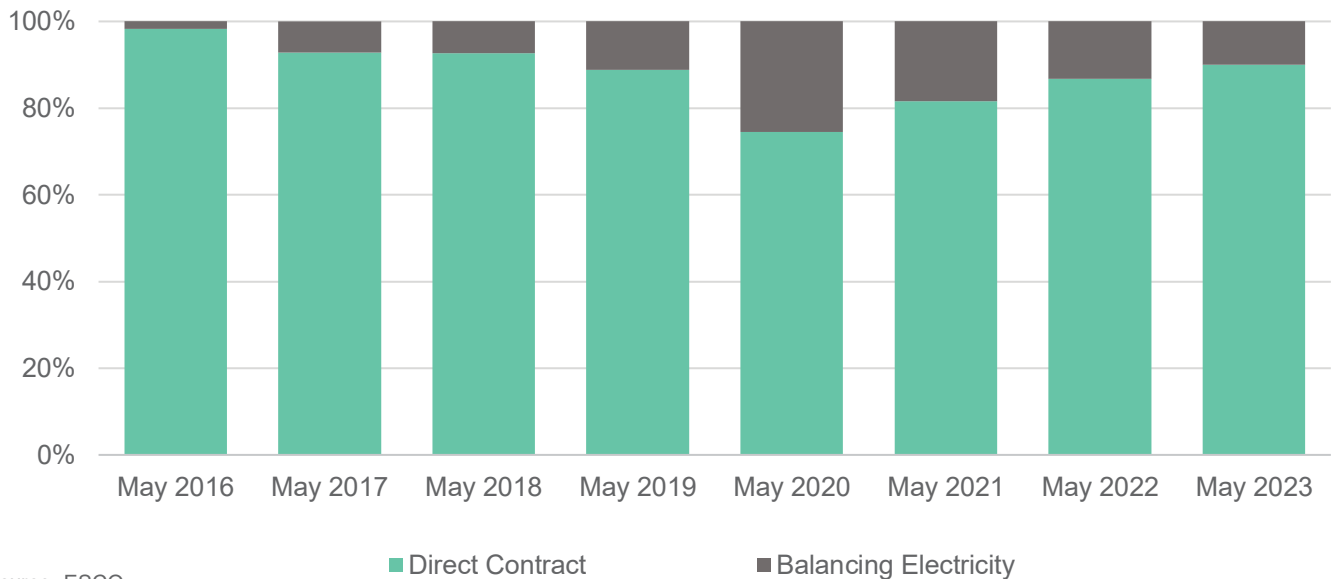


Source: ESCO

1. Market Operations

In May 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).

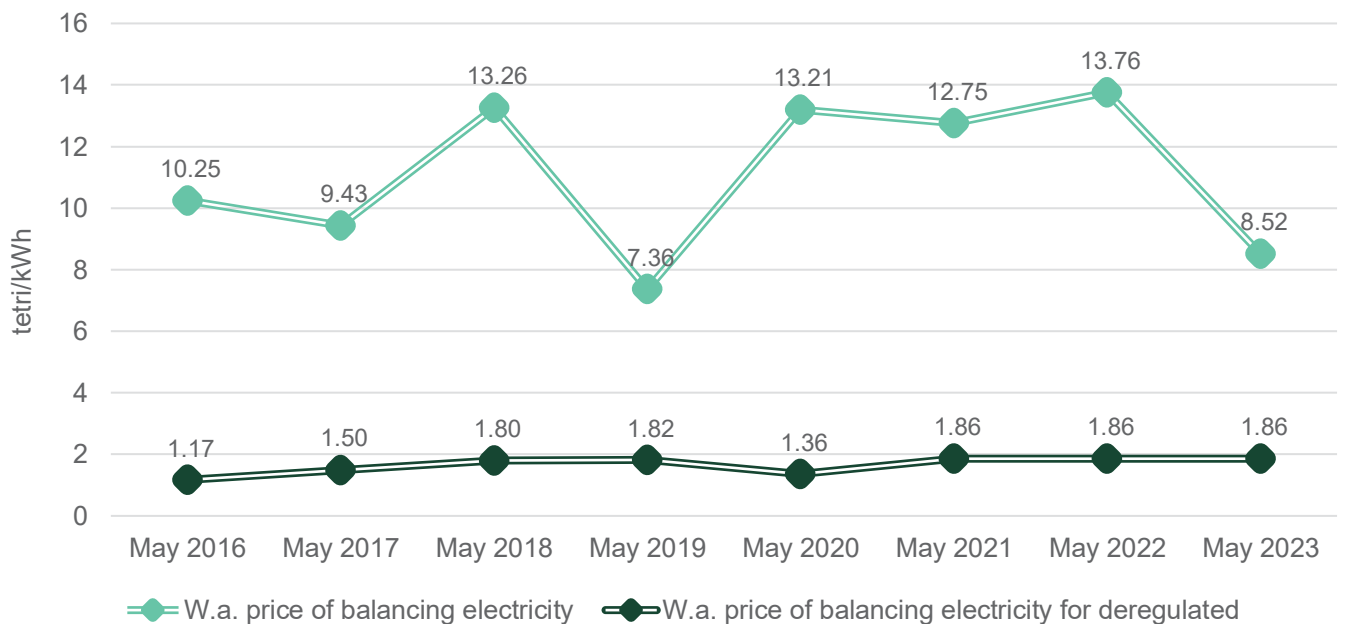
Figure 13 - Electricity Purchased / Sold Shares of Direct Contracts and Balancing Electricity



Source: ESCO

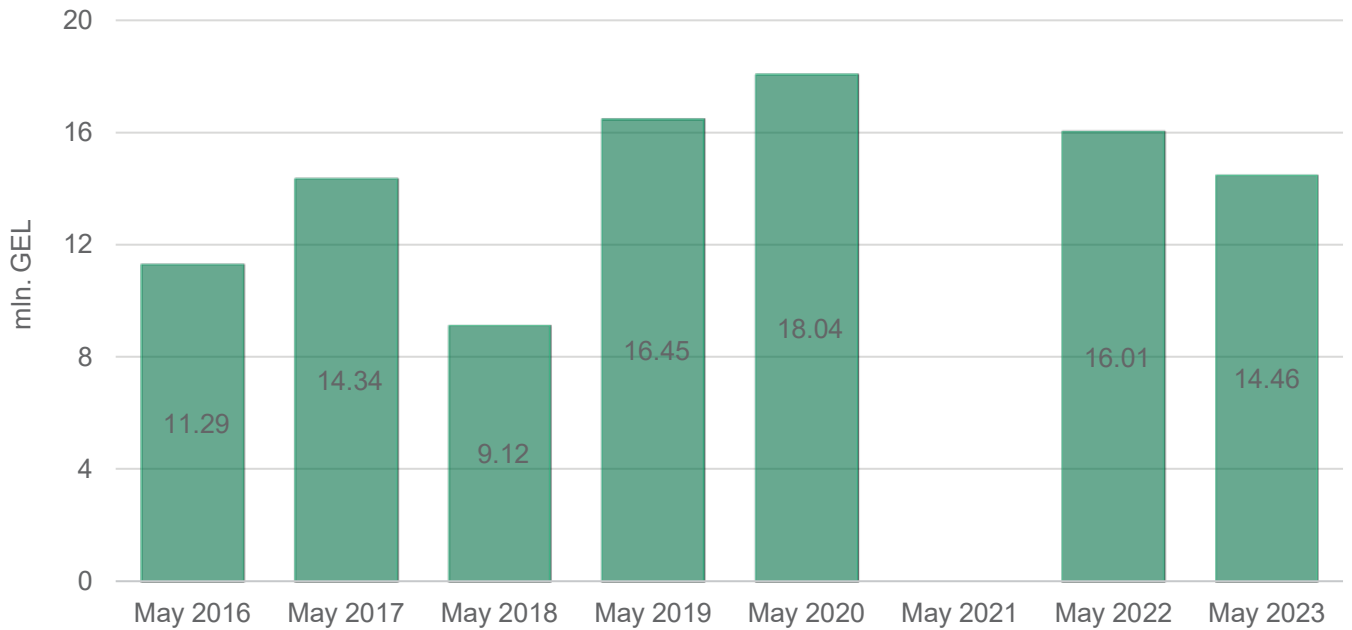
In May 2023, the weighted average price of balancing electricity was 8.52 tetri/kWh, which corresponds to an annual decrease of 38% compared to May 2022. As for the weighted average price for deregulated (small) HPPs, it was 1.86 tetri/kWh, same price as in May 2022 (Figure 14).

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



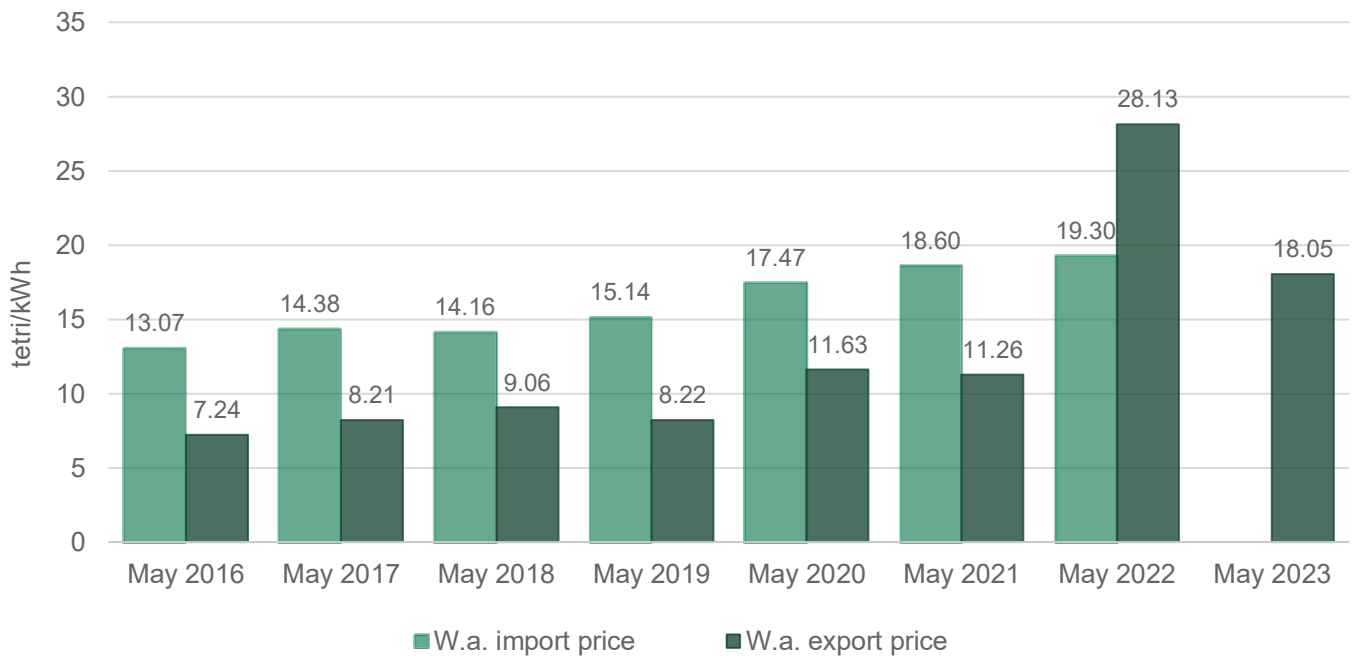
Source: ESCO

Guaranteed capacity payments in May 2023 were roughly 14.46 mln. GEL, which represents a 10% decrease compared to May 2022 (Figure 15).

Figure 15 - Cost of Guaranteed Capacity

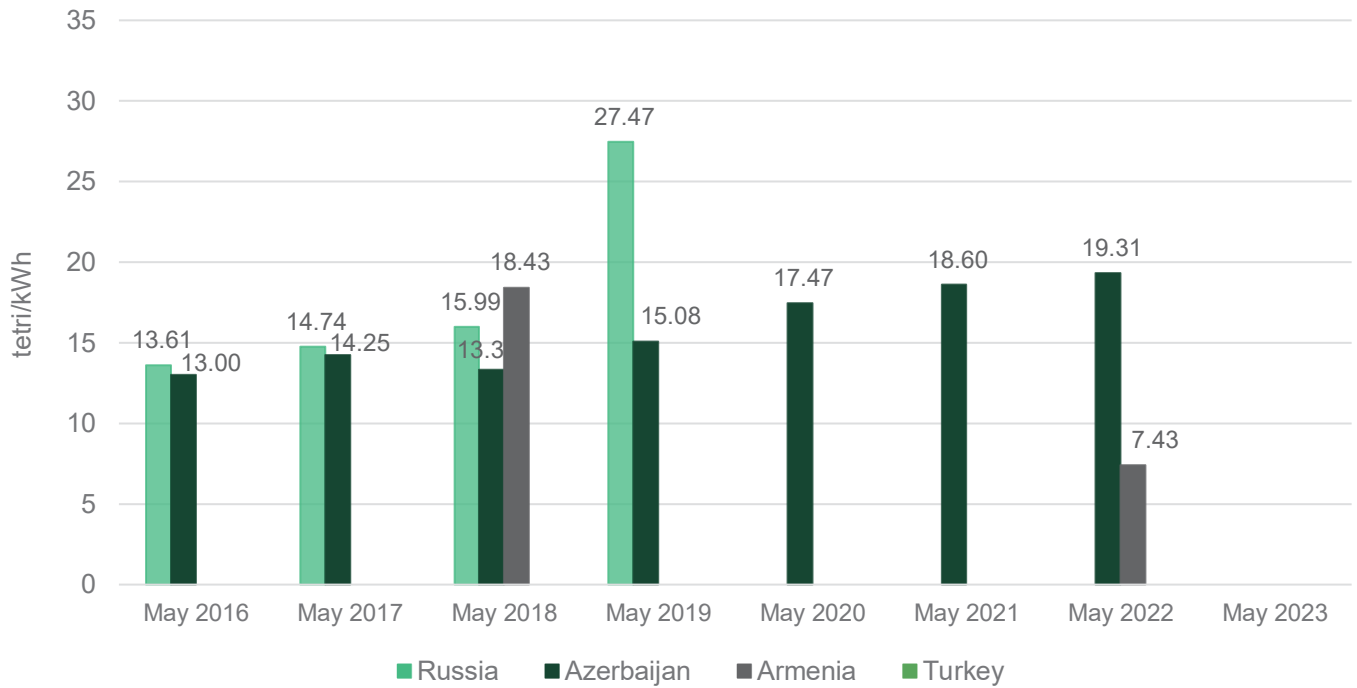
Source: ESCO

In May 2023 there were no imports (Figure 16). The electricity export prices in May 2023 were 7.12 ϕ , or 18.05 tetri per kWh (Figure 16). This corresponds to an annual decrease in price by 25% in USD and 36% in GEL (prices were 9.47 ϕ , or 28.13 tetri per kWh in May 2022). Compared to April 2023, export price decreased by 3% in USD and 3% in GEL (prices were 7.36 ϕ , or 18.58 tetri per kWh in April 2023).

Figure 16 - Prices Import/Export

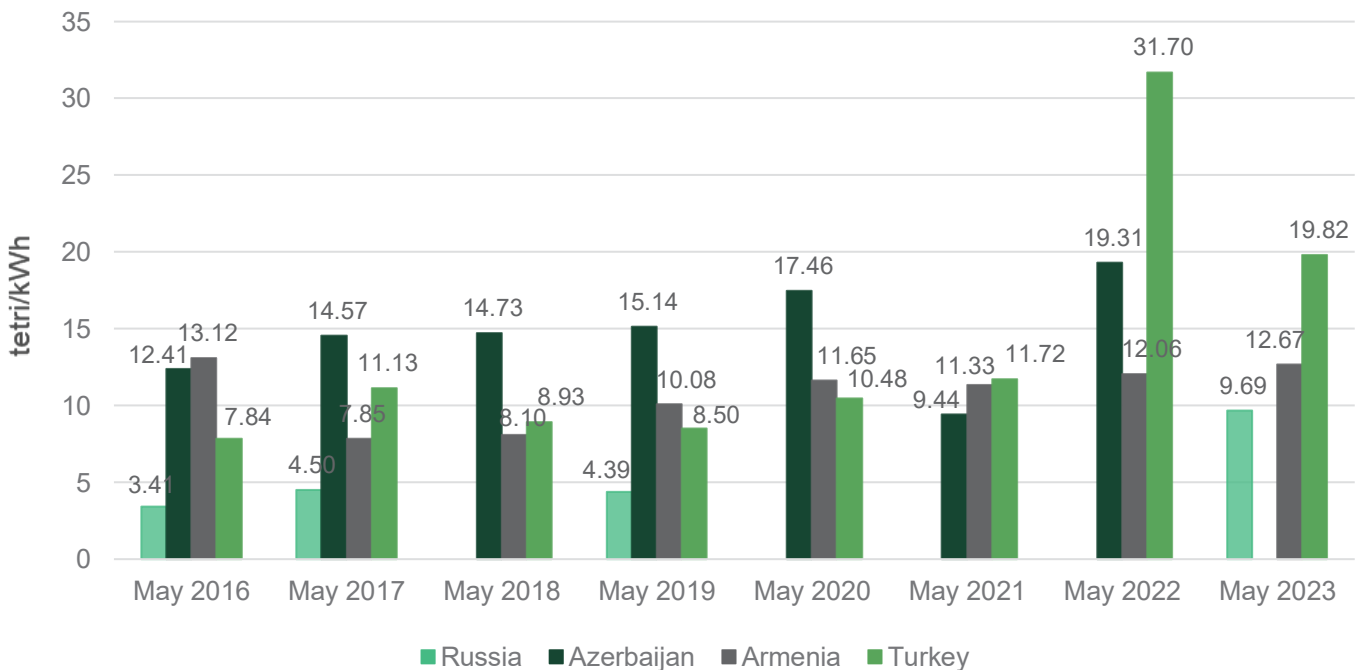
Source: ESCO

In May 2023, there were no imports (Figure 17).

Figure 17 - Import Prices by Countries

Source: ESCO/Geostat

In May 2023, the electricity export price from Russia, Armenia and Turkey stood at 3.82 ϕ or 9.69 tetri, 5 ϕ or 12.67 tetri and 7.82 ϕ or 19.82 tetri, respectively (Figure 18).

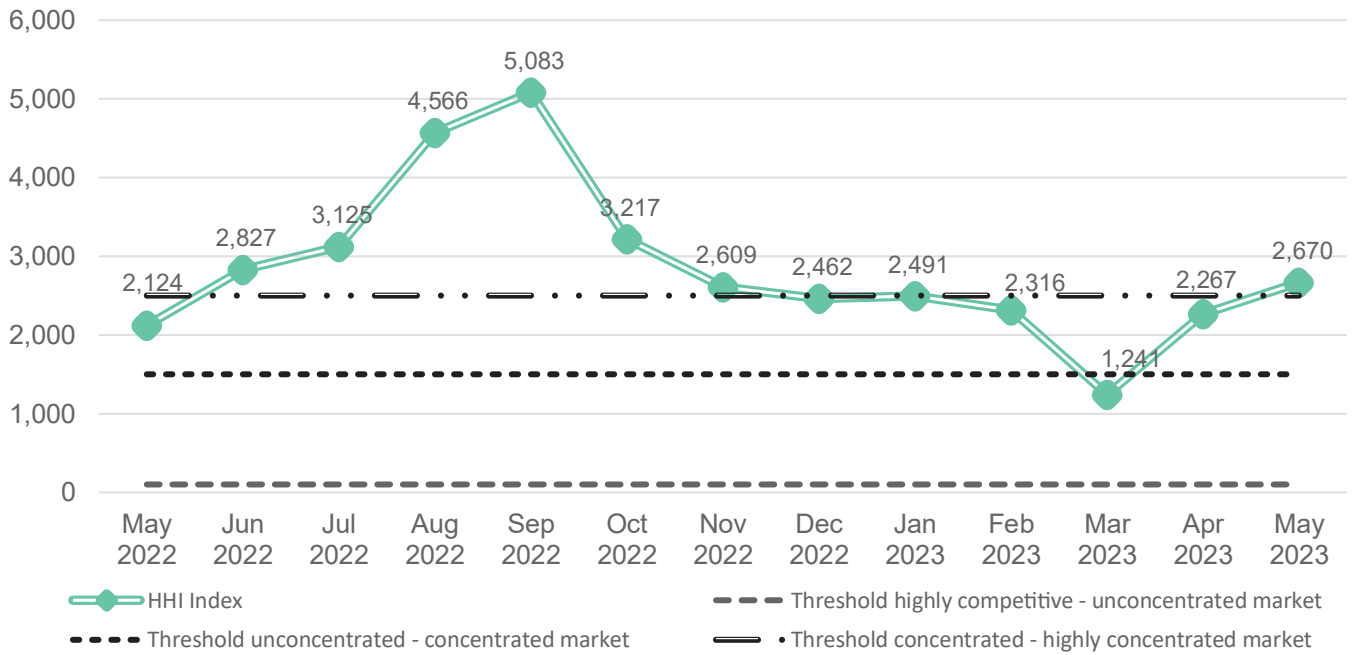
Figure 18 - Export Prices by Countries

Source: ESCO/Geostat

2. Market Concentration

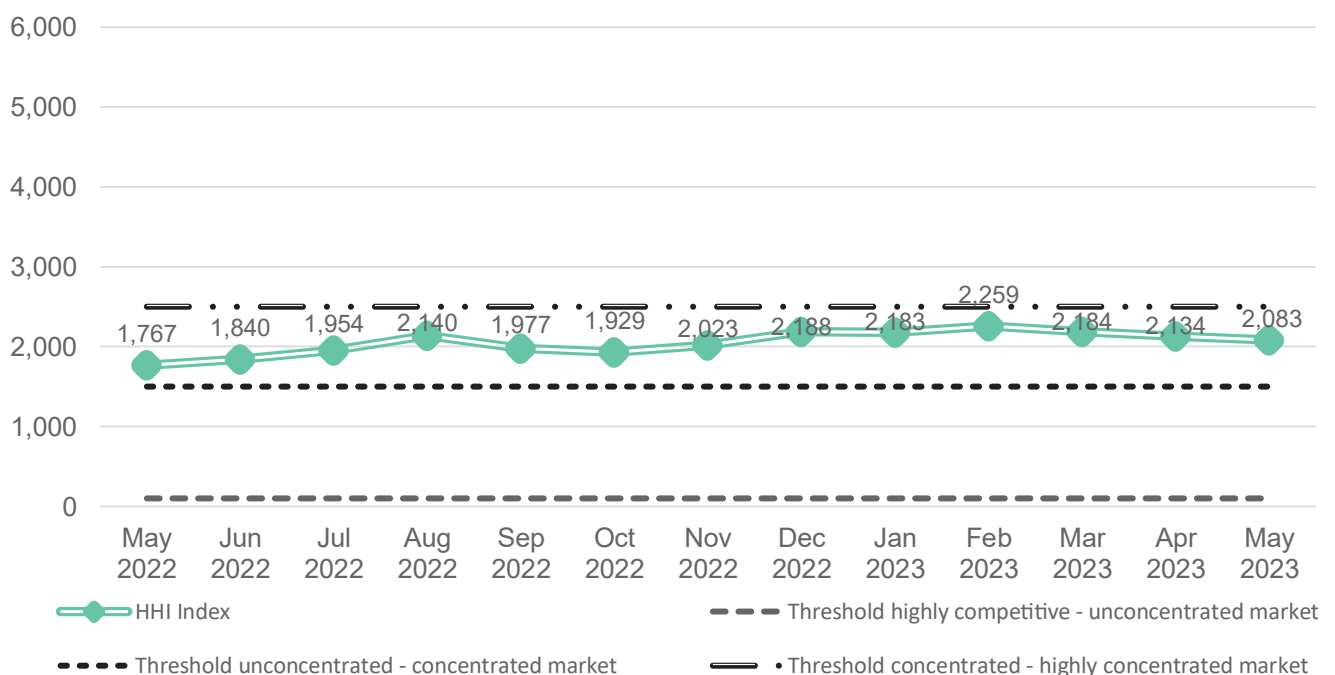
In conclusion, we utilize the Hirschman-Herfindahl (HHI) market concentration index to evaluate how competitive the generation and consumption segments of the market have been over the year. In May 2023, Georgian electricity generation market index rose above the threshold of highly concentrated market with an HHI value of 2,670 (Figure 19). This is higher than the level in May 2022 (with an HHI value of 2,124), and higher than the level in April 2023 (the HHI was 2,267). As for the consumption segment, in May 2023, the HHI consumption index remained below the threshold for a highly concentrated market, with an HHI value of 2,083 (above the level in May 2022 – 1,767 and below the level in April 2023 – 2,134). 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 (Figure 20).

Figure 19 - Hirschman-Herfindahl Index for Power Generation



Source: ESCO

Figure 20 - Hirschman-Herfindahl Index for Power Consumption



Source: ESCO