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ELECTRICITY MARKET REVIEW



ISET POLICY INSTITUTE

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INFORMATION

- In April 2023 there was an increase in the total electricity generation by 11% on a yearly basis and increase by 23% on a monthly basis.
- Consumption decreased by 10% on a yearly basis and by 7% compared to the previous month.
- Generation exceeded consumption by 212 mln. kWh which was 17% of the total generation and 20% of the total consumption in April 2023.
- There was almost no import in April.
- 166 mln. kWh of electricity was exported in April.
- The main export partner was Turkey (almost 100% of exports)
- The price of exports reached 7.37 ¢, or 18.58 tetri per kWh.
- The HHI index for the Georgian electricity generation market remained below the threshold of concentrated market. In April 2023, its level was 2,267.
- The HHI for the Georgian electricity consumption market remained below the threshold of a highly concentrated market. In April 2023, its level was 2,134.

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

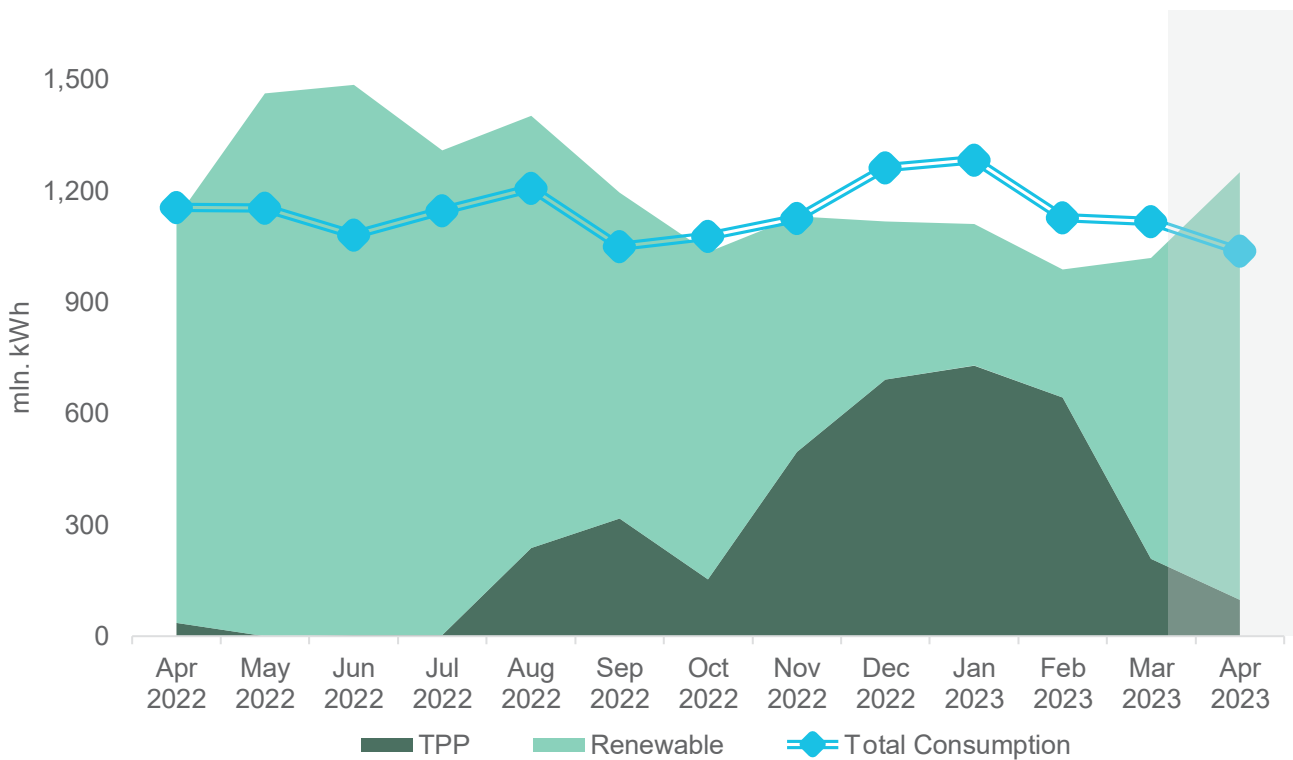
Generation – Consumption – Trade

In April 2023, Georgian power plants generated 1,249 mln. kWh of electricity (Figure 1). This represents an 11% increase in the total generation compared to the previous year (in April 2022, the total generation was 1,125 mln. kWh). The increase in the generation on a yearly basis comes from an increase of 181%, 38%, and 5% in thermal, wind, and hydro power generation, respectively.

On a monthly basis, the generation increased by approximately 23% (in March 2023, the total generation was 1,019 mln. kWh) (Figure 1). The monthly rise in total generation is induced by a 42% increase in hydro power generation and 29% in wind power generation, while thermal power generation decreased by 53%.

The consumption of electricity on the local market was 1,037 mln. kWh (-10% compared to April 2022, and -7% compared to March 2023) (Figure 1). In April 2023, power generation exceeded consumption by 212 mln. kWh which was 17% of the total generation and 20% of the total consumption (in April 2022, the difference between the total generation and the consumption resulted in a deficit of 30 mln. kWh, around 3% of the total generation and 3% of the total consumption for the month).

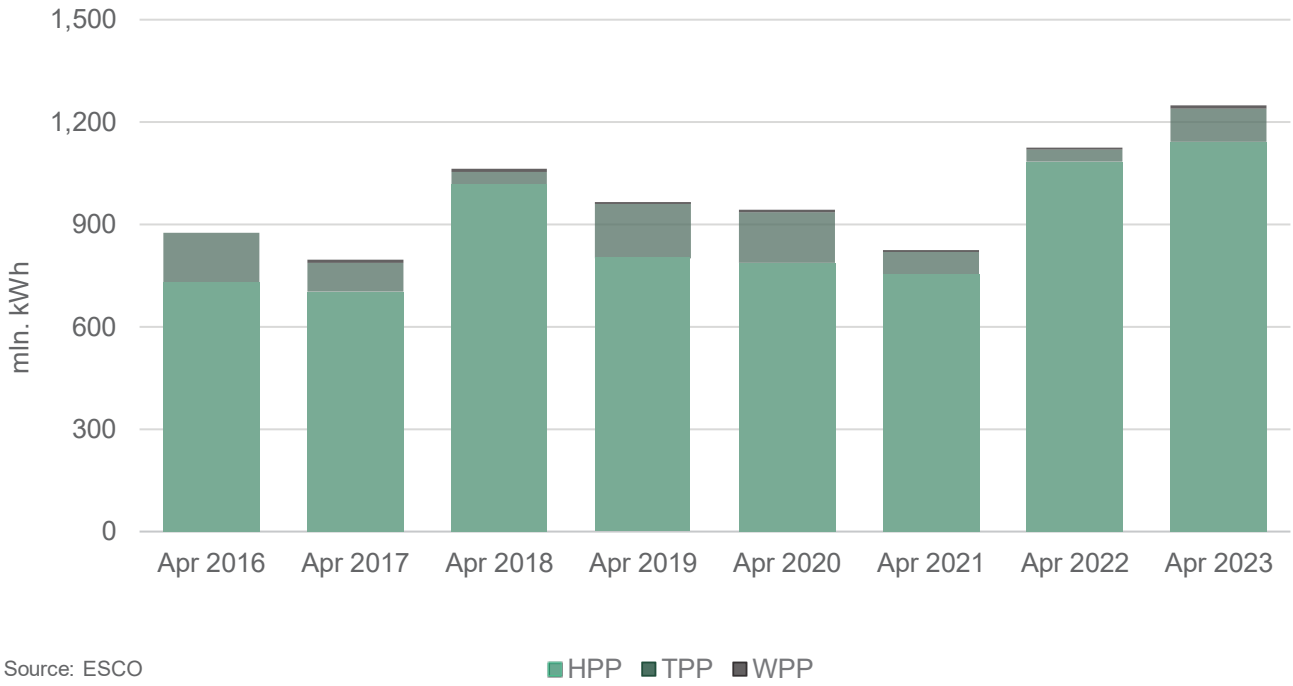
Figure 1 - Electricity Consumption and Generation



Source: Electricity System Commercial Operator (ESCO)

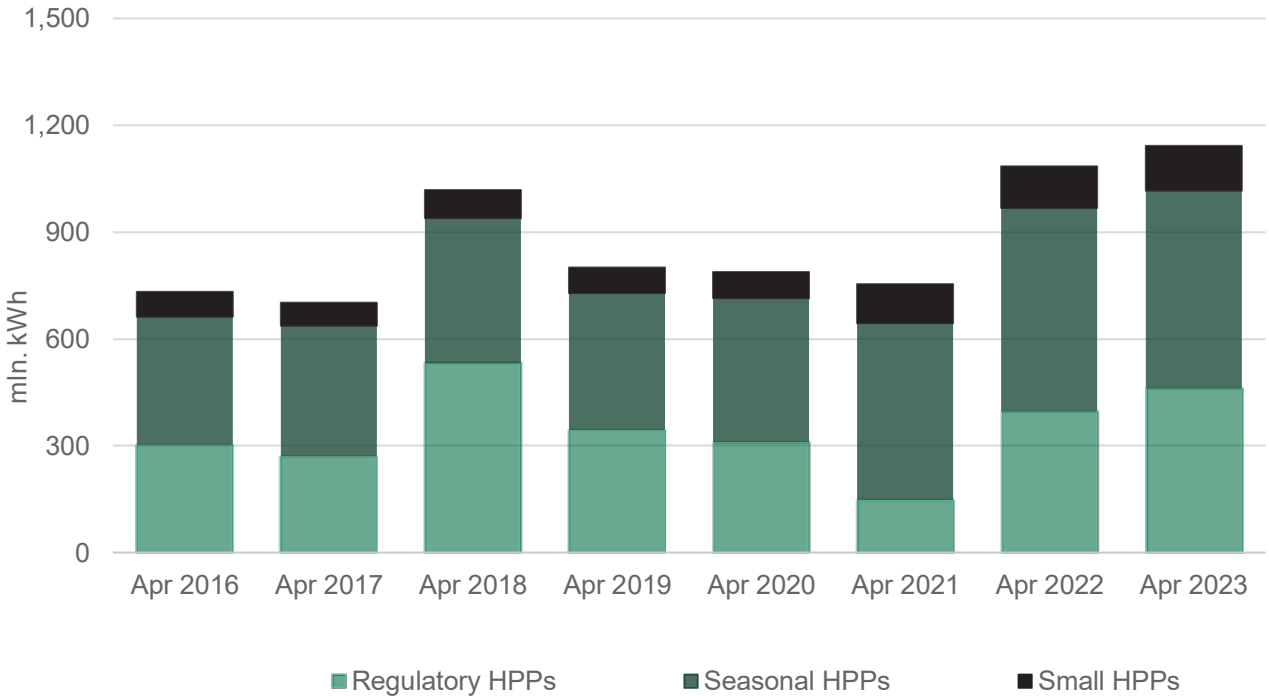
In April 2023, hydro power plants were the leading source of generation. In April 2023, hydro power (HPP) generation amounted to 1,142 mln. kWh (91% of total), thermal power (TPP) generation was 98 mln. kWh (8% of the total generation), while wind power (WPP) generation amounted to 9 mln. kWh (1% of the total generation) (Figure 2).

Figure 2 - Electricity Generation by Sources



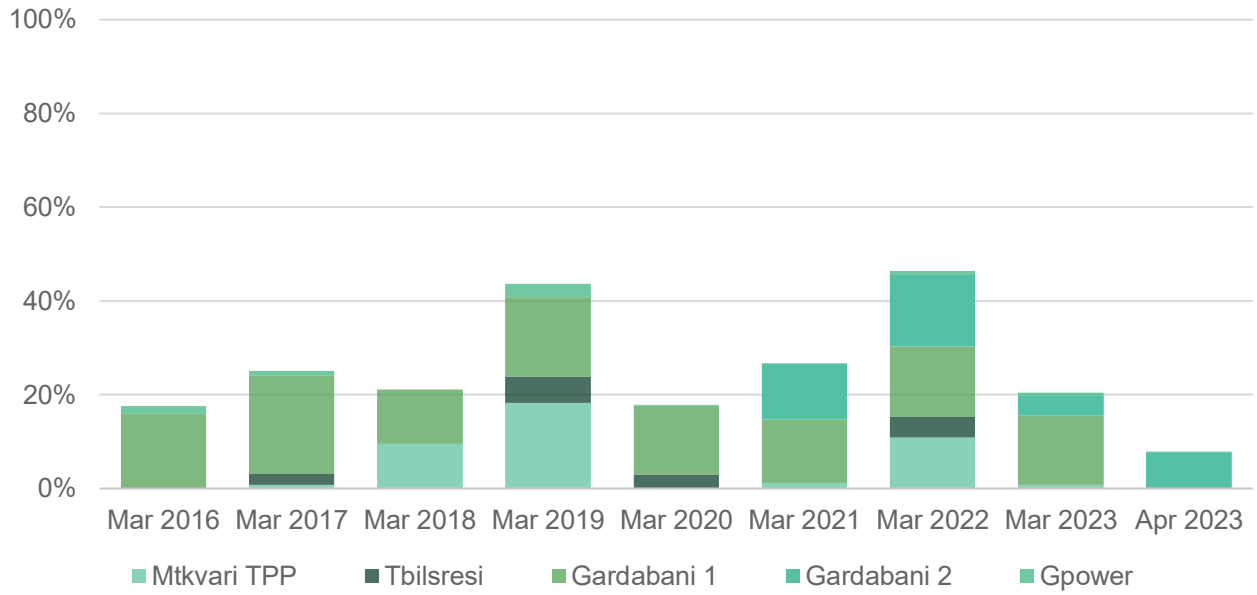
Among hydropower generators, large (regulatory) HPPs produced 40% (461 mln. kWh) of electricity, while seasonal and small HPPs produced 49% (555 mln. kWh) and 11% (126 mln. kWh), respectively (Figure 3).

Figure 3 - HPP Generation by Type



As for thermal power generation, Gardabani 2 TPP generated 96 mln. kWh (98% of TPP generation and 8% of total power generation), while Gpower generated 2 mln. kWh (2% of TPP generation and 0.2% of total power generation). (Figure 4).

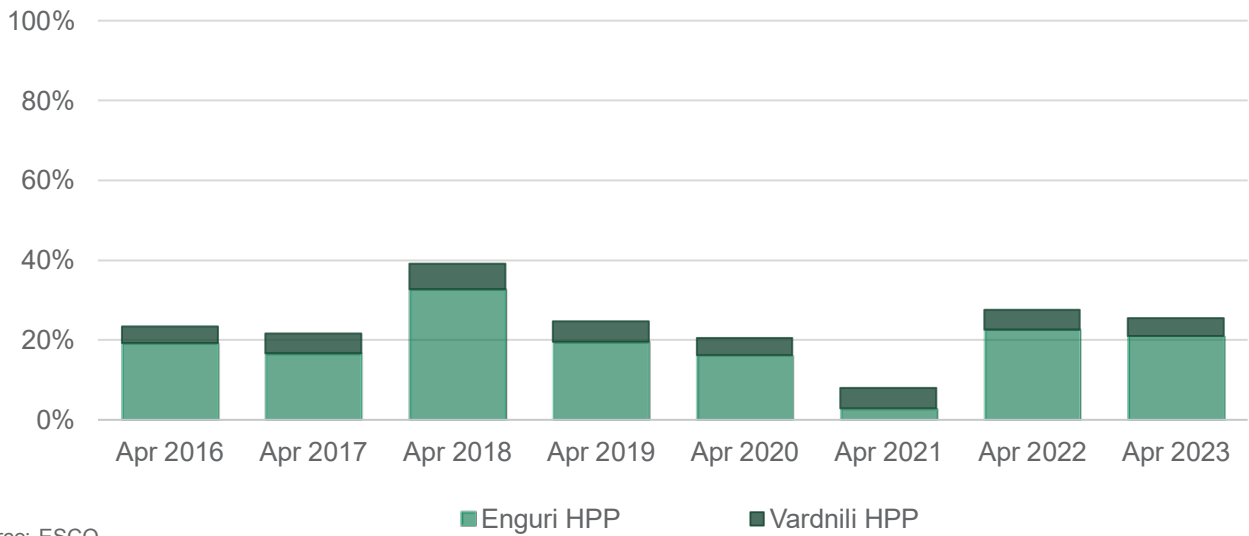
Figure 4 - Share of Large TPPs in Total Generation



Source: ESCO

As for HPP generation, Vardnili HPP generated 56 mln. kWh (12% of generation for regulatory HPPs and 5% of total generation). Enguri HPP generated 263 mln. kWh, which represents 57% of generation of regulatory HPPs and 21% of total generation (Figure 5).

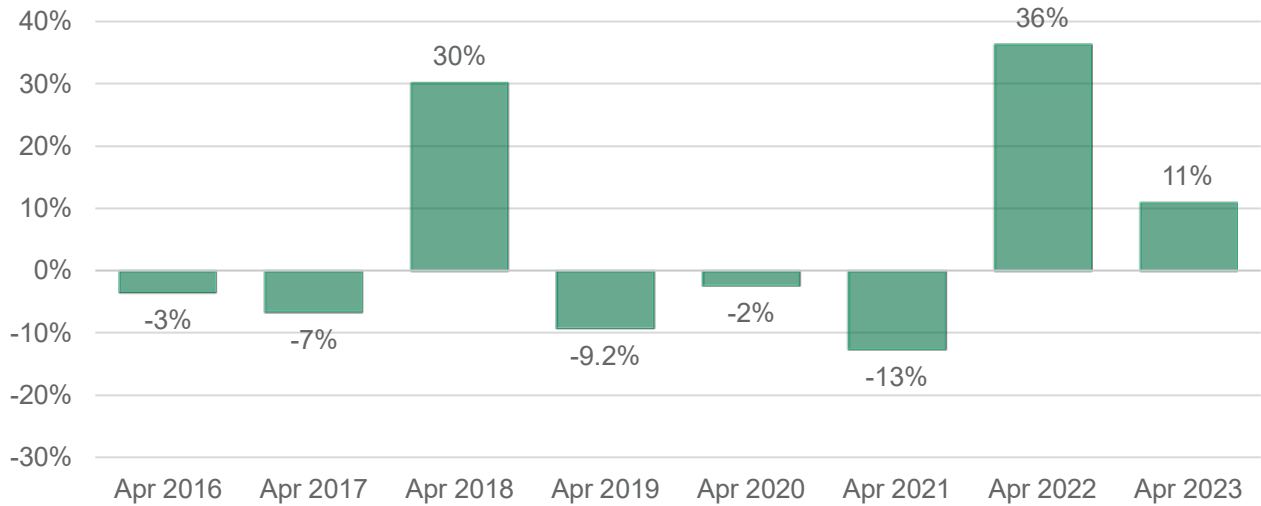
Figure 5 - Share of Enguri and Vardnili in Total Generation



Source: ESCO

Overall, the total generation increased by 11% compared to April 2022 (Figure 6).

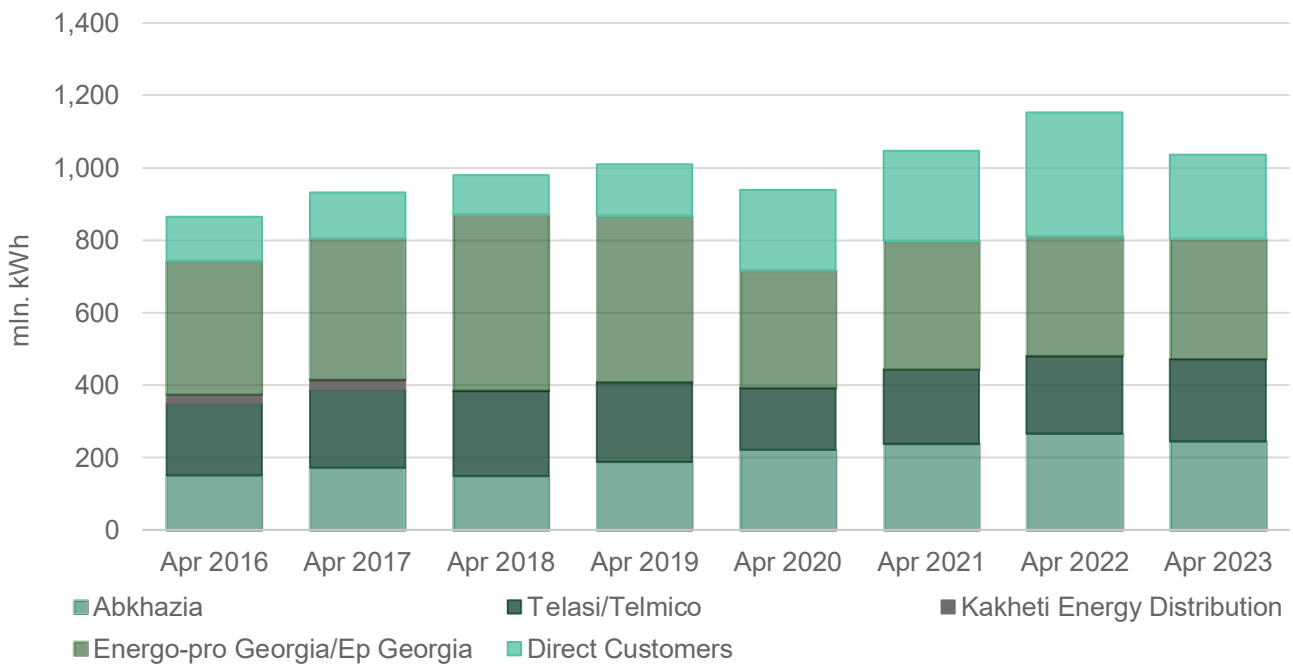
Figure 6 - Growth of Generation (% , y/y)



Source: ESCO

Total electricity demand came from: Energo-Pro Georgia/Ep Georgia¹ (32% - 331 mln. kWh), Abkhazia (24% - 244 mln. kWh), Telasi/Telmico² (22% - 227 mln. kWh), and direct customers (22% - 234 mln. kWh) (Figure 7). Annual demand from Telasi/Telmico, Energo-Pro Georgia/Ep Georgia grew by 5%, and 1%, respectively, while in case of Abkhazia and direct customers, the demand fell by 8%, and 32%, respectively. Overall, there was an annual decrease of 10% in the total electricity consumption in April 2023, compared to April 2022 (Figure 8).

Figure 7 - Electricity Consumption by Type of Consumer

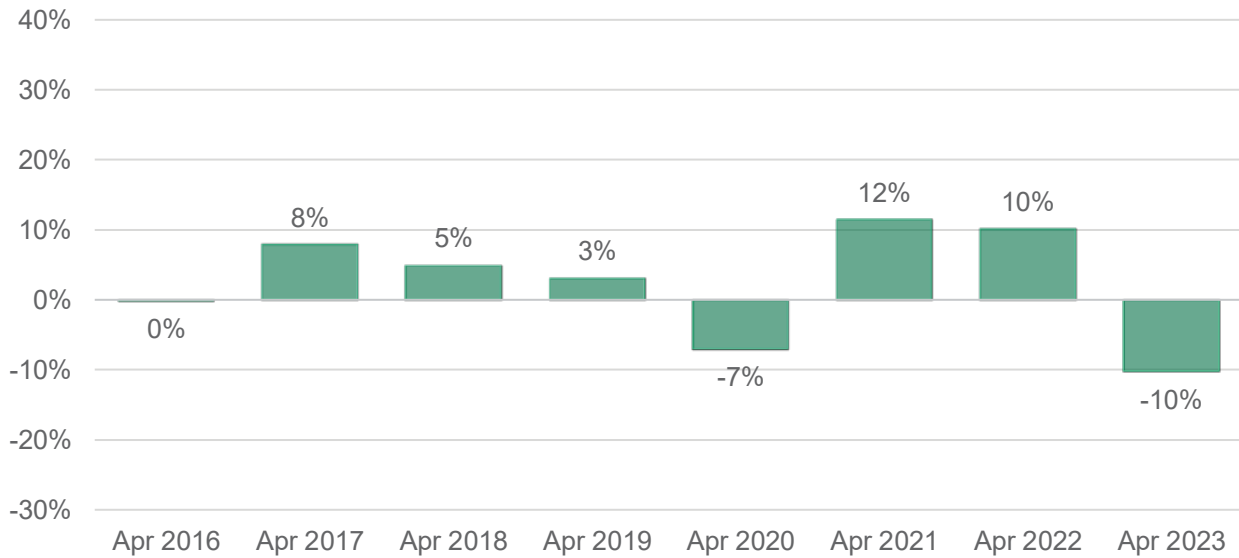


Source: ESCO

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)

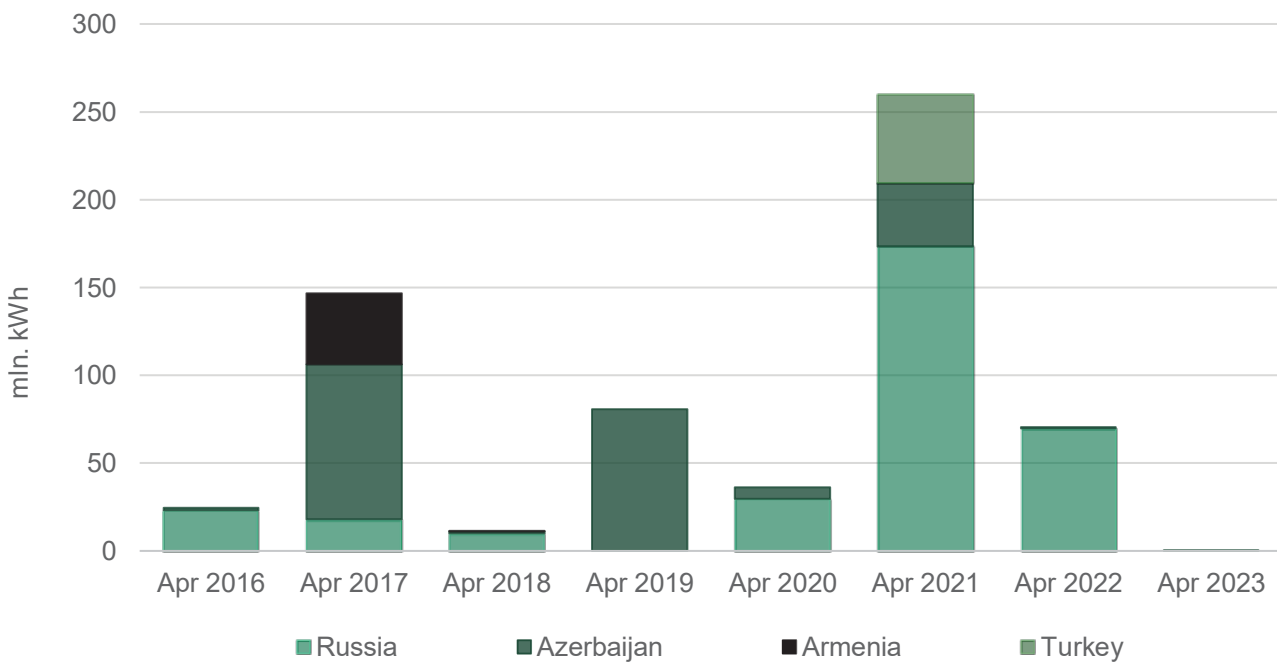


Source: ESCO

In April 2023, there was an import of 0.065 mln. kWh of electricity (compared to 71 mln. kWh in April 2022) (Figure 9). 100% of this import came from Azerbaijan. In April 2022, almost all imported electricity came from Russia. In April 2023, there was an export of 166 mln. kWh of electricity almost 100% of which went to Turkey and only insignificant amount was sold in Russia and in Azerbaijan (there was only an insignificant export to Turkey, Azerbaijan, and Russia in April 2022) (Figure 10). There was 98 mln. kWh transit from Russia to Turkey (there was 86 mln. kWh transit from Russia to Turkey and 53 mln. kWh transit from Armenia to Turkey in April 2022).

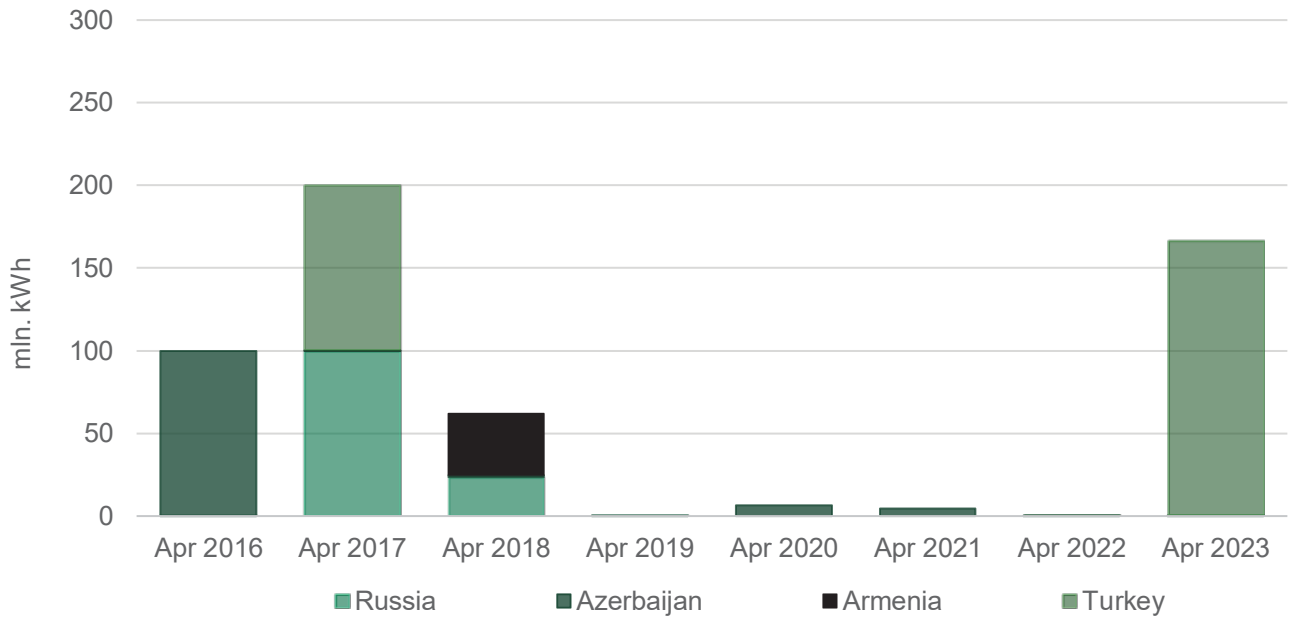
In April 2023, imports decreased by almost 100% compared to April 2022, while exports increased by over 1,000 times (The effects are caused by little imports in 2023 and little exports in 2022).

Figure 9 - Imports by Year



Source: ESCO

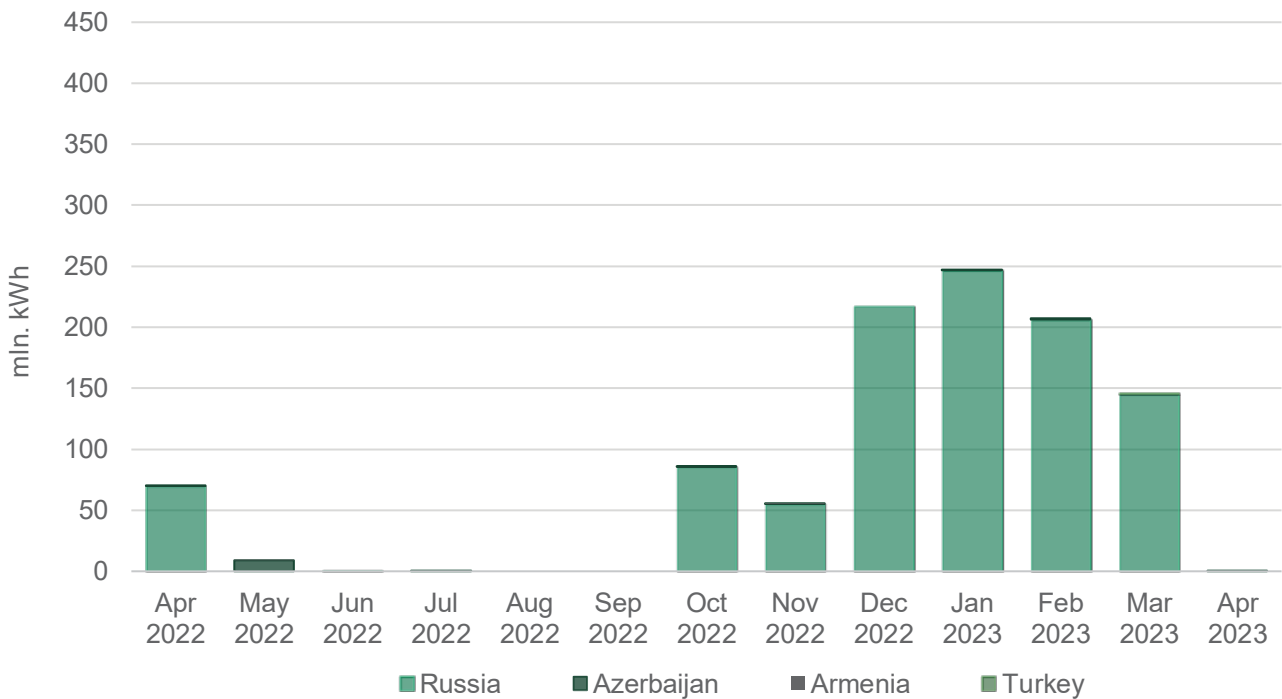
Figure 10 - Exports by Year



Source: ESCO

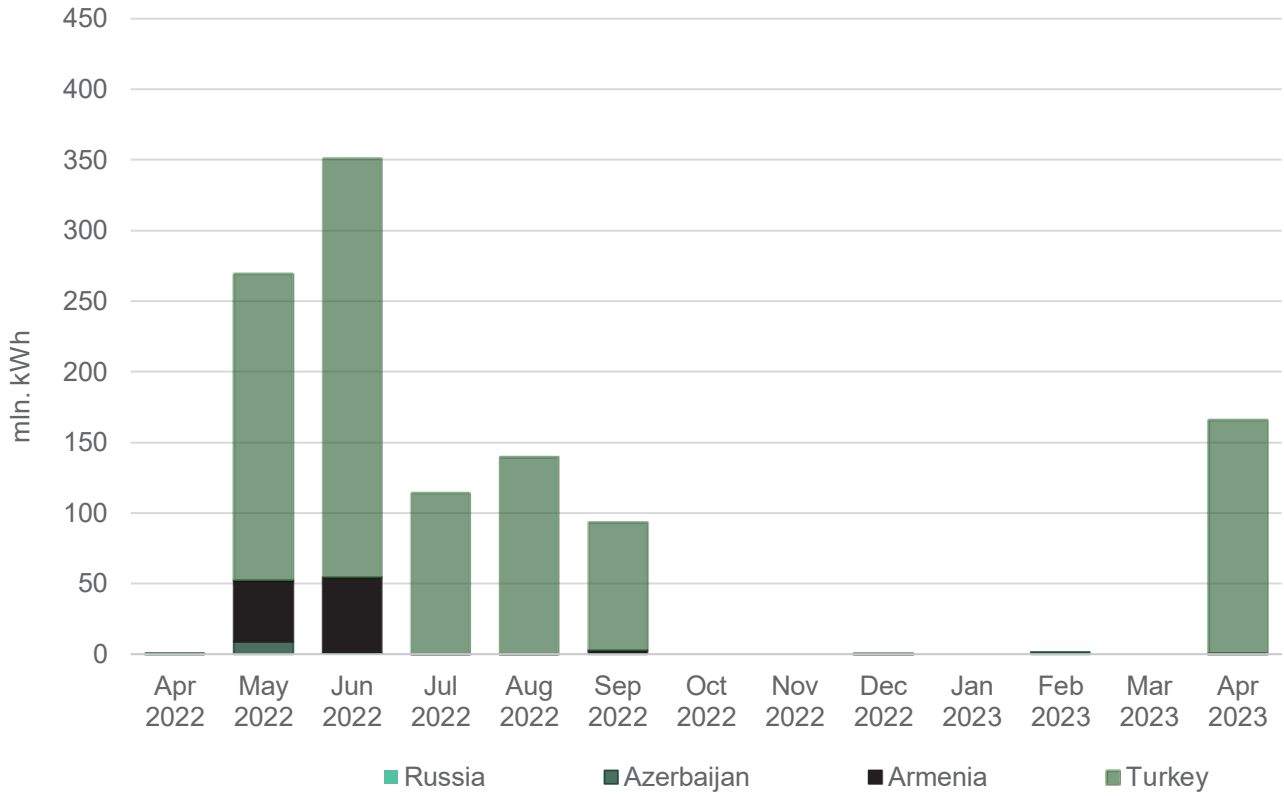
Electricity imports decreased by almost 100%, compared to March 2023 (Figure 11). There were no exports in March 2023, so the growth rate cannot be assessed (Figure 12).

Figure 11 - Imports by Month



Source: ESCO

Figure 12 - Exports by Month

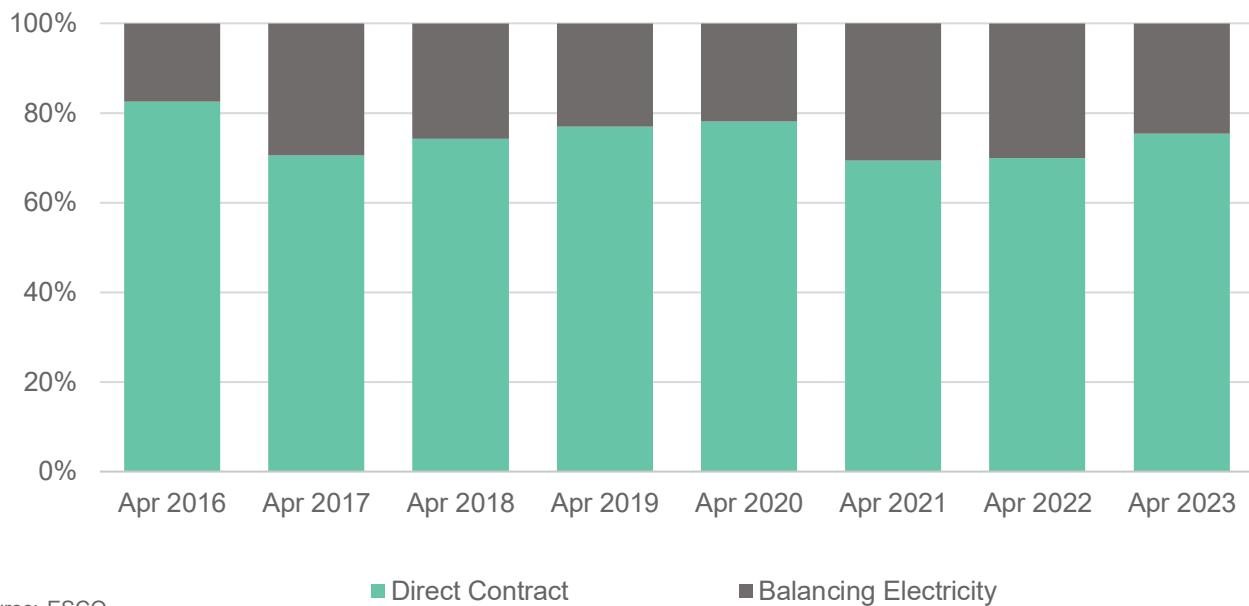


Source: ESCO

1. Market Operations

In April 2023, 75% of the electricity sold on/from the local market was sold through direct contracts. The remaining 25% was sold as balancing electricity (Figure 13).

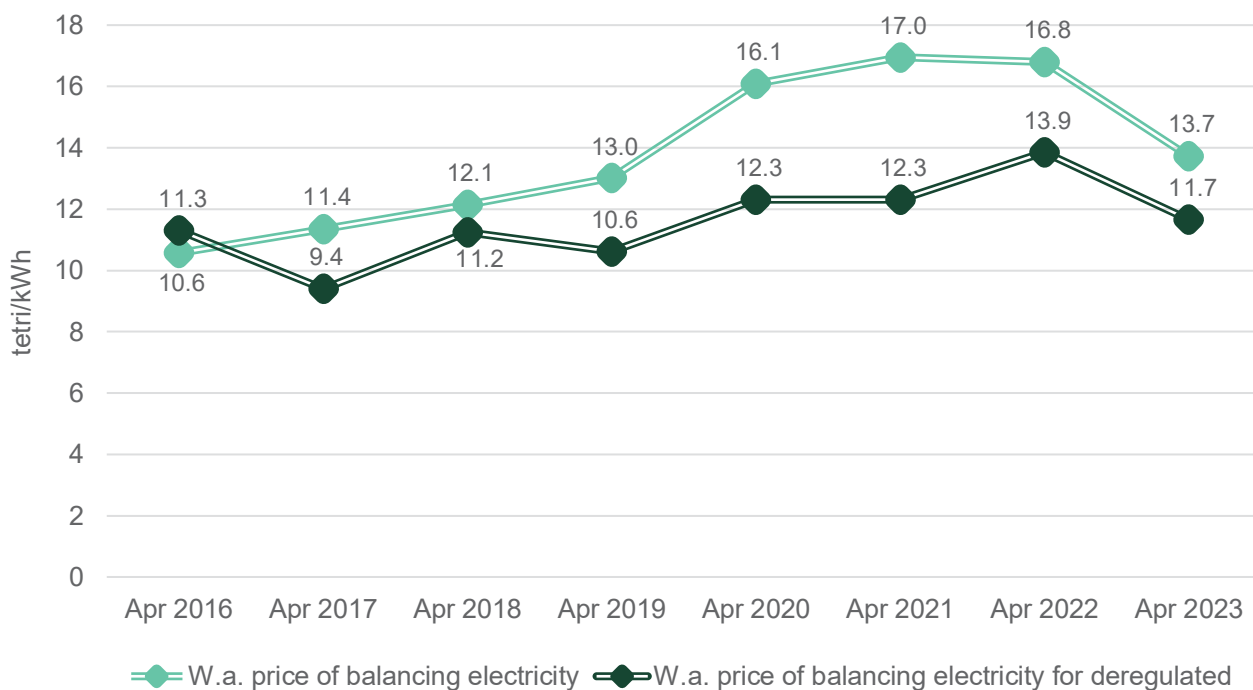
Figure 13 - Electricity Purchased / Sold Shares of Direct Contracts and Balancing Electricity



Source: ESCO

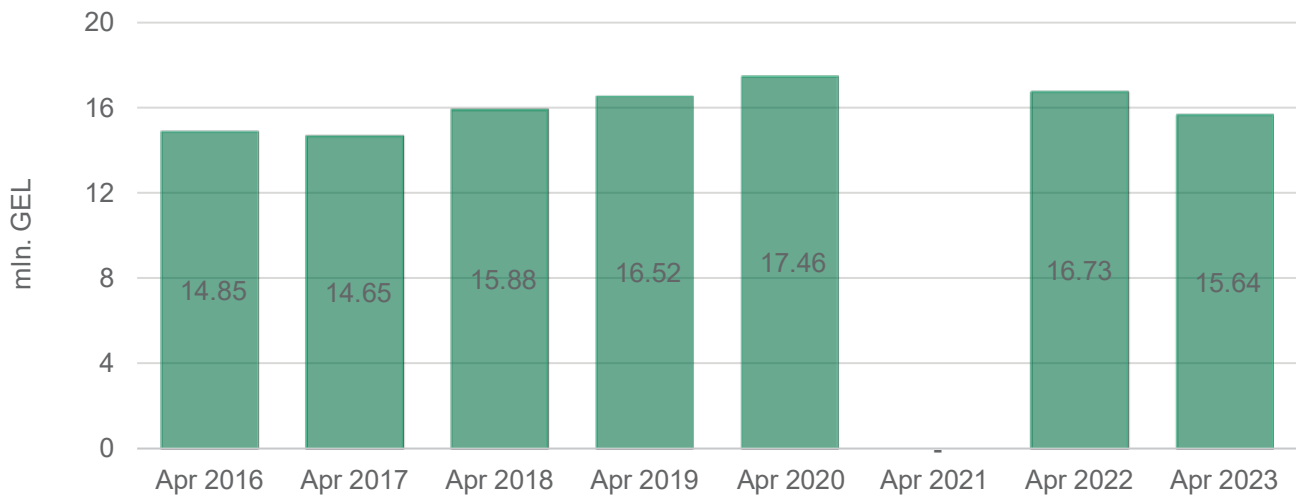
In April 2023, the weighted average price of balancing electricity was 13.7 tetri/kWh, which corresponds to an annual decrease of 18% compared to April 2022. As for the weighted average price for deregulated (small) HPPs, it was 11.7 tetri/kWh, 16% less than the price in April 2022 (Figure 14).

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



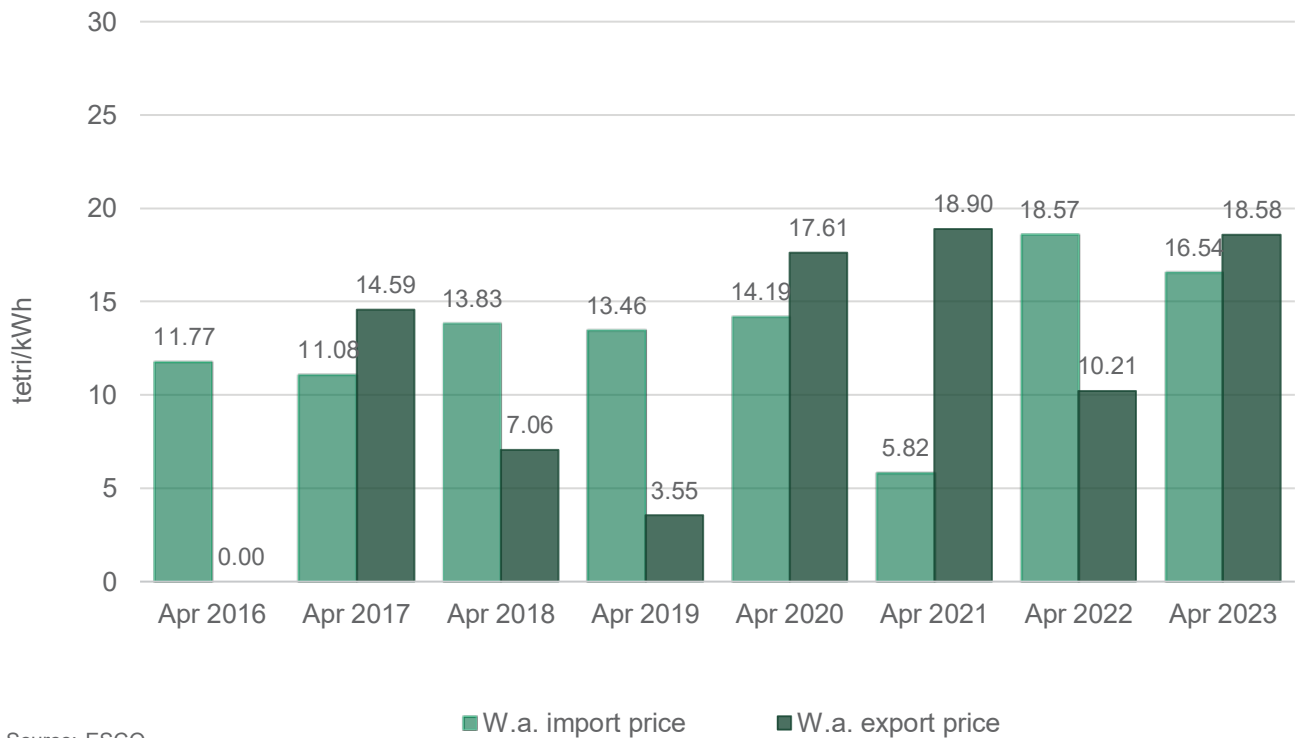
Source: ESCO

Guaranteed capacity payments in April 2023 were roughly 15.64 mln. GEL, which represents an 7% decrease compared to April 2022 (Figure 15).

Figure 15 - Cost of Guaranteed Capacity

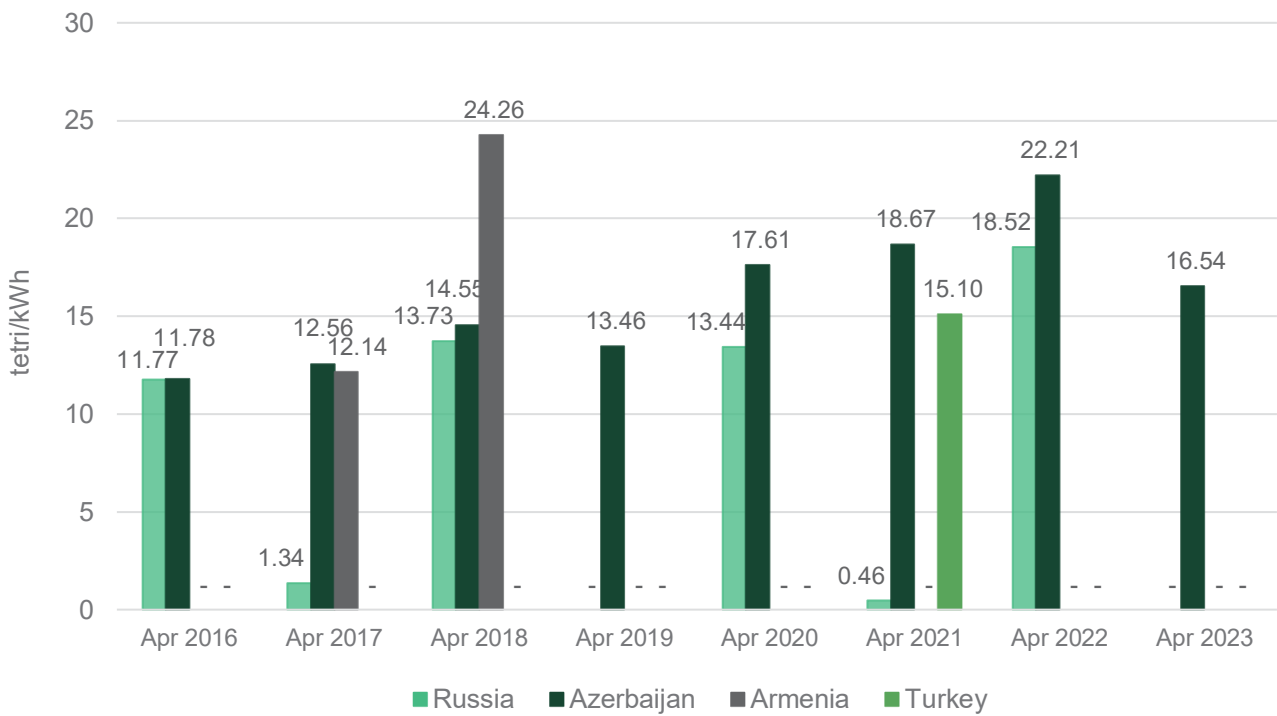
Source: ESCO

The electricity import price in April 2023 reached 6.55 ϕ , or 16.54 tetri per kWh (Figure 16). This corresponds to an annual increase in price by 8% in USD and decrease of 11% in GEL (prices were 6.05 ϕ , or 18.57 tetri per kWh in April 2022). Compared to March 2023, the import price increased by 54 times in USD and by 52 times in GEL (prices were 0.12 ϕ , or 0.31 tetri per kWh in March 2023), however, it is noteworthy that import was insignificant in April. The electricity export price in April 2023 reached 7.37 ϕ , or 18.58 tetri per kWh (Figure 16). This corresponds to an annual increase in price by 121% in USD and by 82% in GEL (prices were 3.33 ϕ , or 10.21 tetri per kWh in April 2022). There were no exports in March 2023, so the monthly dynamics of price cannot be assessed (Figure 16).

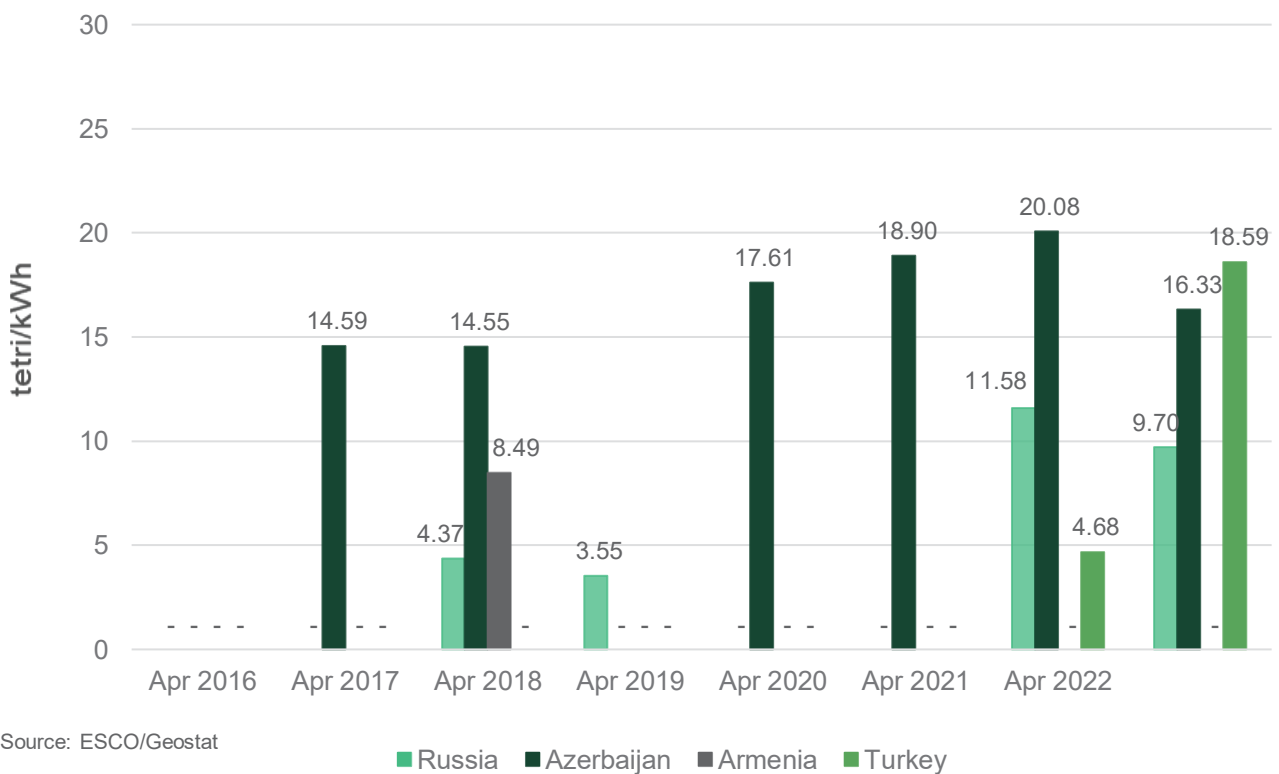
Figure 16 - Prices Import/Export

Source: ESCO

In April 2023, the electricity import price from Azerbaijan stood at 6.55 ϕ or 16.54 tetri (Figure 17).

Figure 17 - Import Prices by Countries

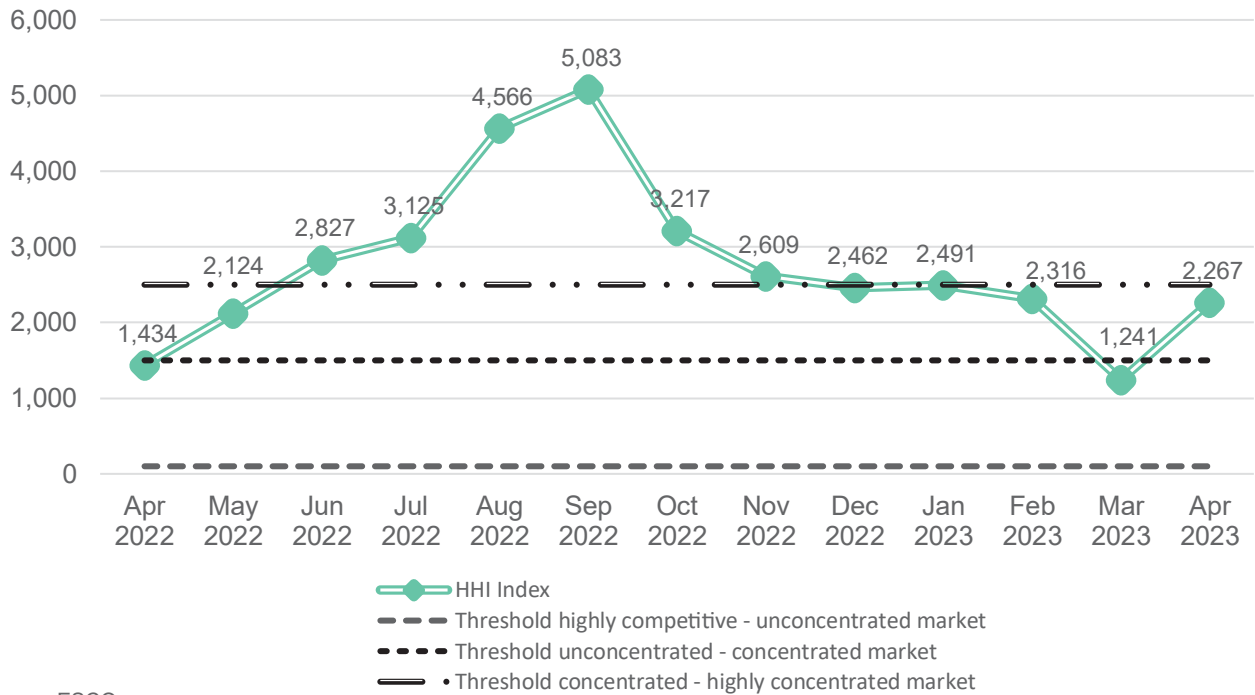
In April 2023, the electricity export price to Azerbaijan, Russia and Turkey stood at 6.47 ¢ or 16.33 tetri, 3.84 ¢ or 9.70 tetri, and 7.36 ¢ or 18.59 tetri (Figure 18).

Figure 18 - Export Prices by Countries

2. Market Concentration

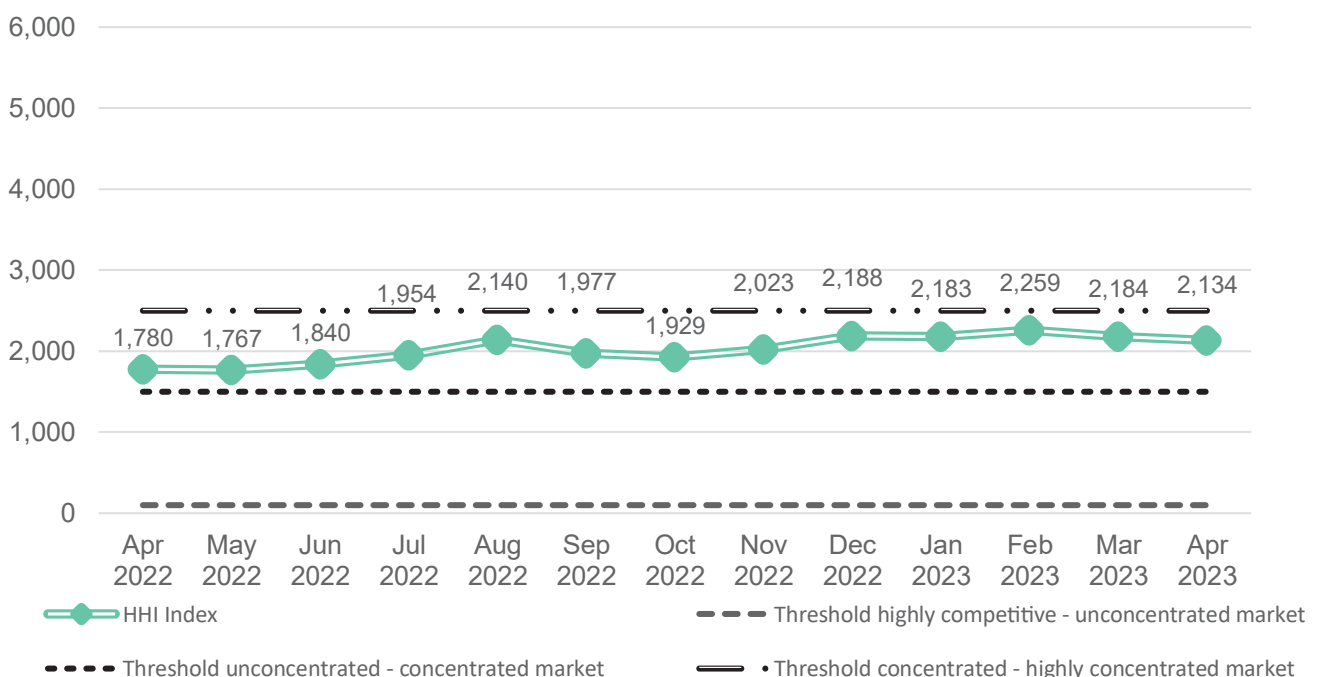
In conclusion, we utilize the Hirschman-Herfindahl (HHI) market concentration index to evaluate how competitive the generation and consumption segments of the market have been over the year. In April 2023, Georgian electricity generation market index stayed below the threshold of concentrated market with an HHI value of 2,267 (Figure 19). This is higher than the level in April 2022 (with an HHI value of 1,434), and higher than the level in March 2023 (the HHI was 1,241). The increase is primarily caused by a high share in state-owned generation. As for the consumption segment, in April 2023, the HHI consumption index remained below the threshold for a highly concentrated market, with an HHI value of 2,134 (above the level in April 2022 – 1,780 and below the level in March 2023 – 2,184). 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