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Policy Institute

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ELECTRICITY MARKET REVIEW

ISET POLICY INSTITUTE
ENERGY AND ENVIRONMENT POLICY RESEARCH CENTER

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INFORMATION

- In July 2021 there was an increase in total electricity generation by 23% on a yearly basis, and a decrease by 6% on a monthly basis.
- Consumption increased by 21% on yearly basis and increased by 6% on a monthly basis.
- Generation exceeded consumption by 79 mln. kWh – 6% of total generation for June.
- The main import partner country was Azerbaijan.
- The cost of imports from Azerbaijan was 1.8 tetri per kWh.
- The weighted average price of imports decreased by 16% in GEL on a yearly, and by 43% on a monthly basis.
- The main export partner was Armenia.
- The price of exports to Armenia was 11.0 tetri per kWh.
- The weighted average export price decreased by 34% in GEL on a yearly, and by 9% on a monthly basis.
- HHI index for the Georgian electricity generation market moved further above the threshold of highly concentrated market in July 2021, indicating that the generation side of the market became substantially less competitive compared to previous months (it was more competitive in April, May, and June – index values of 706, 2183, and 3884 respectively, while it reached 4217 in July), mainly due to the high share of generation of state owned facilities.
- HHI for the Georgian electricity consumption market was slightly below the threshold of a highly concentrated market. It demonstrates a downward sloping trend over the past year.

ABBREVIATION USED

Mln – million
kWh – kilowatt-hour
HPP – Hydro Power Plant
WPP – Wind Power Plant
TPP – Thermal Power Plant
HHI – Hirschmann-Herfindahl Index

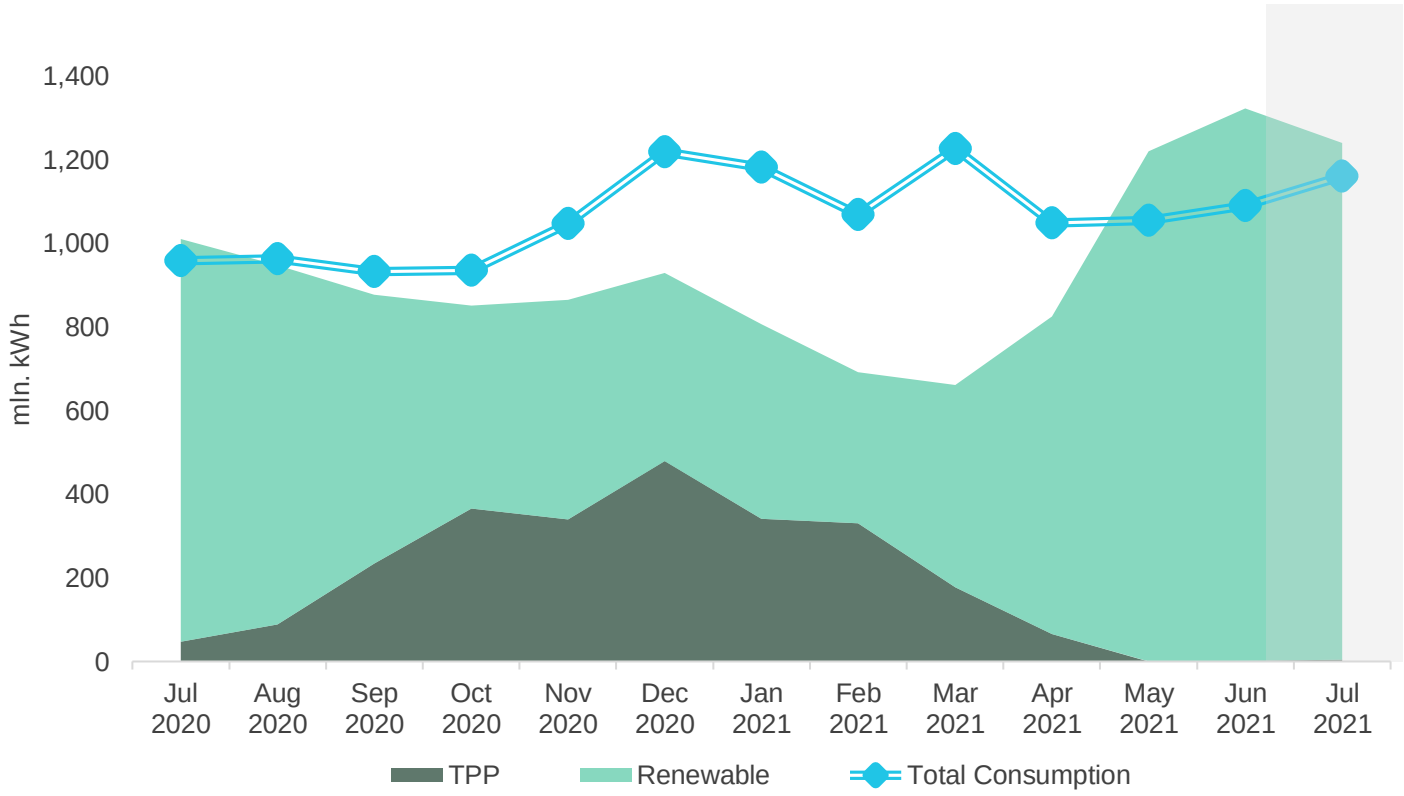
Generation – Consumption – Trade

In July 2021, Georgian power plants generated 1240 mln. kWh of electricity (Figure 1). This represents a 23% increase in total generation, compared to the previous year (in July 2020, the total generation was 1010 mln. kWh). The increase in generation on a yearly basis comes from the increase of 29% in hydro power generation, while there was a decrease of 91% and 11% in thermal power and wind power generation, respectively.

On a monthly basis, generation decreased by approximately 6% (in June 2021, total generation was 1323 mln. kWh) (Figure 1). The monthly decrease in total generation, is mostly caused by a reduction in hydro power generation by 6% compared to June 2021, as well as the decrease of 15% in wind power generation. There was a 122% increase in thermal power generation in July 2021 compared to June.

The consumption of electricity on the local market was 1,161 mln. kWh (+21% and +6% compared to July 2020, and June 2021, respectively) (Figure 1). In July 2021, power generation exceeded consumption by 79 mln. kWh which was 6% of total generation (in July 2020 difference between total generation and consumption resulted in a surplus of 51 mln. kWh, around 5% of the total generation for the month).

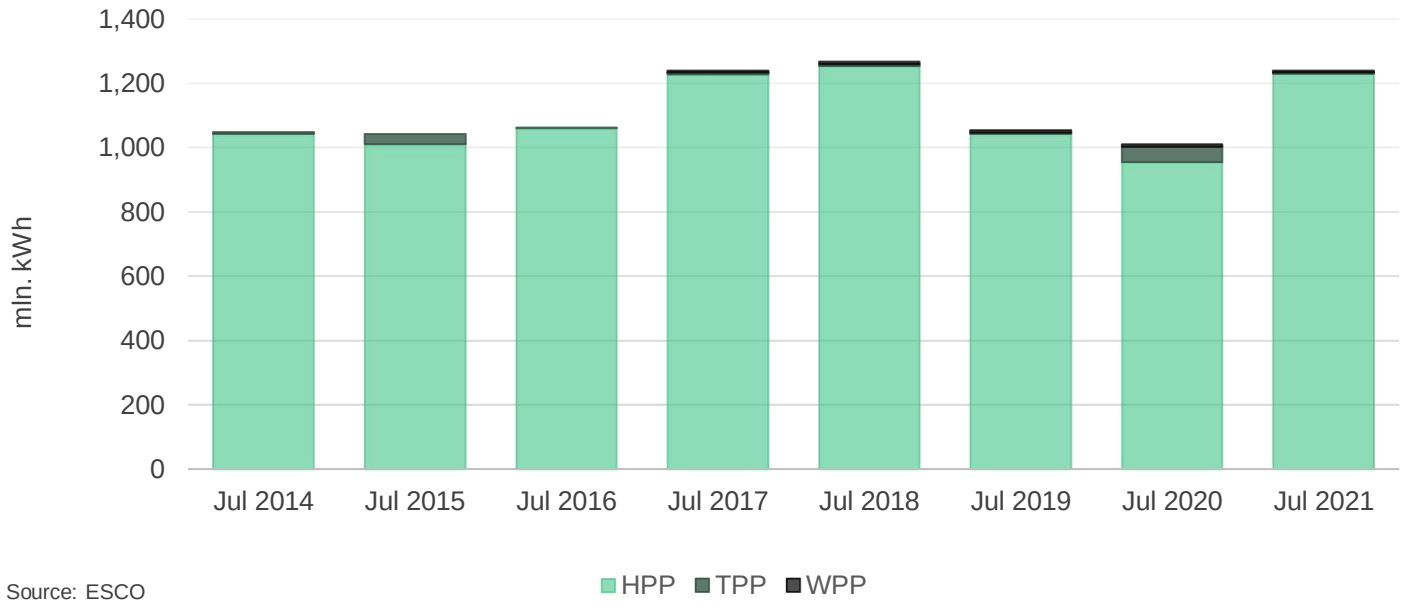
Figure 1 - **Electricity Consumption and Generation**



Source: Electricity System Commercial Operator (ESCO)

Most generation came from hydro power plants. In May 2021, hydro power (HPP) generation amounted to 1229 mln. kWh (99% of total), while thermal power (TPP) generation was 4 mln. kWh, and wind power (WPP) generation was 6 mln. kWh (both less than 1% of total) (Figure 2).

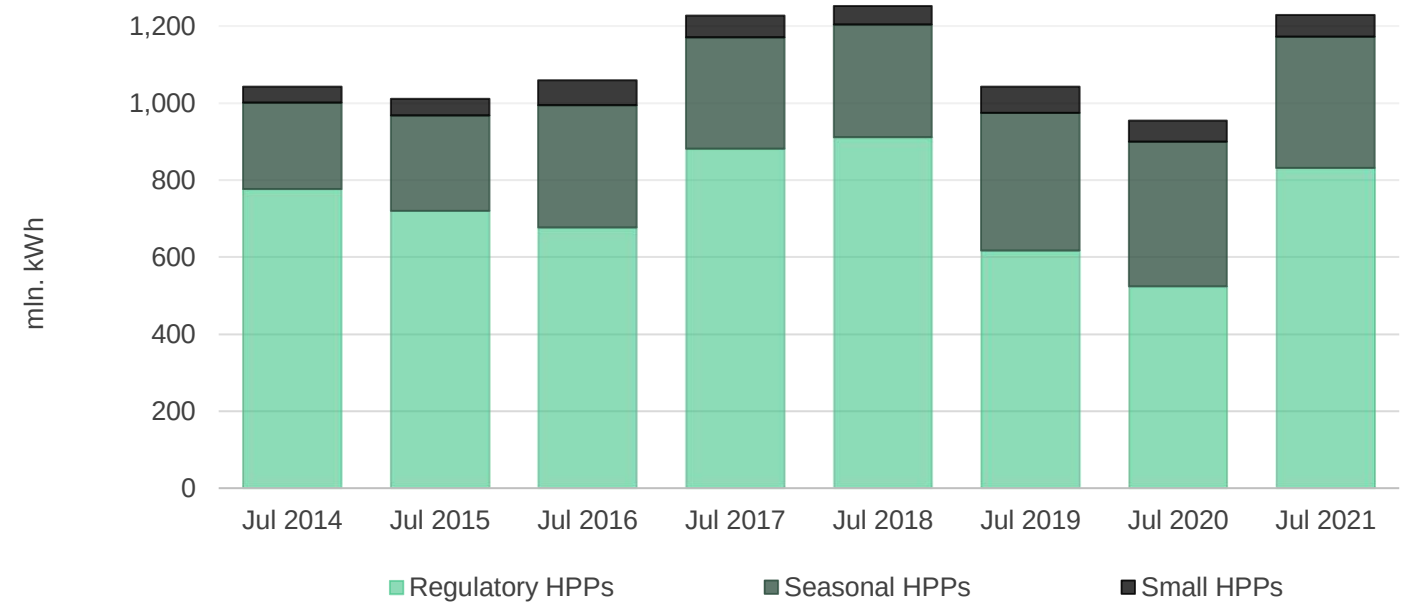
Figure 2 - Electricity Generation by Sources



Source: ESCO

Among hydropower generators, large (regulatory) HPPs produced 68% (831 mln. kWh) of electricity, while seasonal and small HPPs produced 28% (340 mln. kWh) and 5% (58 mln. kWh), respectively (Figure 3).

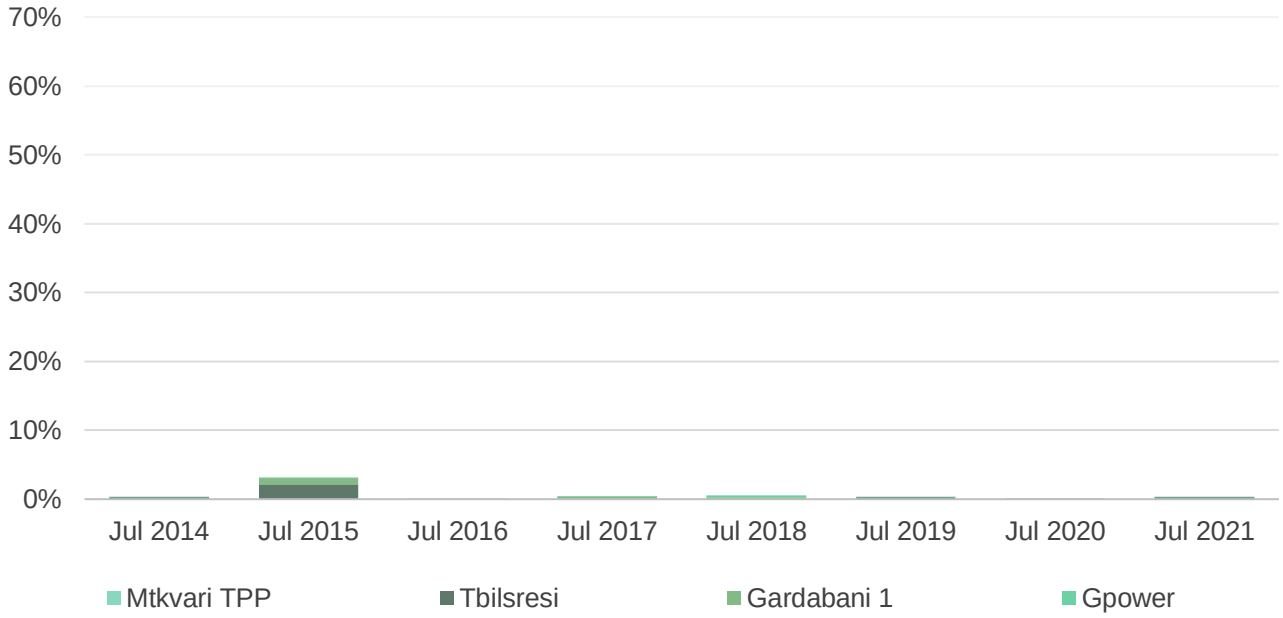
Figure 3 - HPP Generation by Type



Source: ESCO

Among thermal power plants, Gpower TPP generated 0.9 mln. kWh, 21% of total thermal power generation, but only 0.07% of total generation, and Mtkvari TPP generated 3.2 mln kWh, 79% of total thermal power generation, but only 0.26% of total generation (Figure 4).

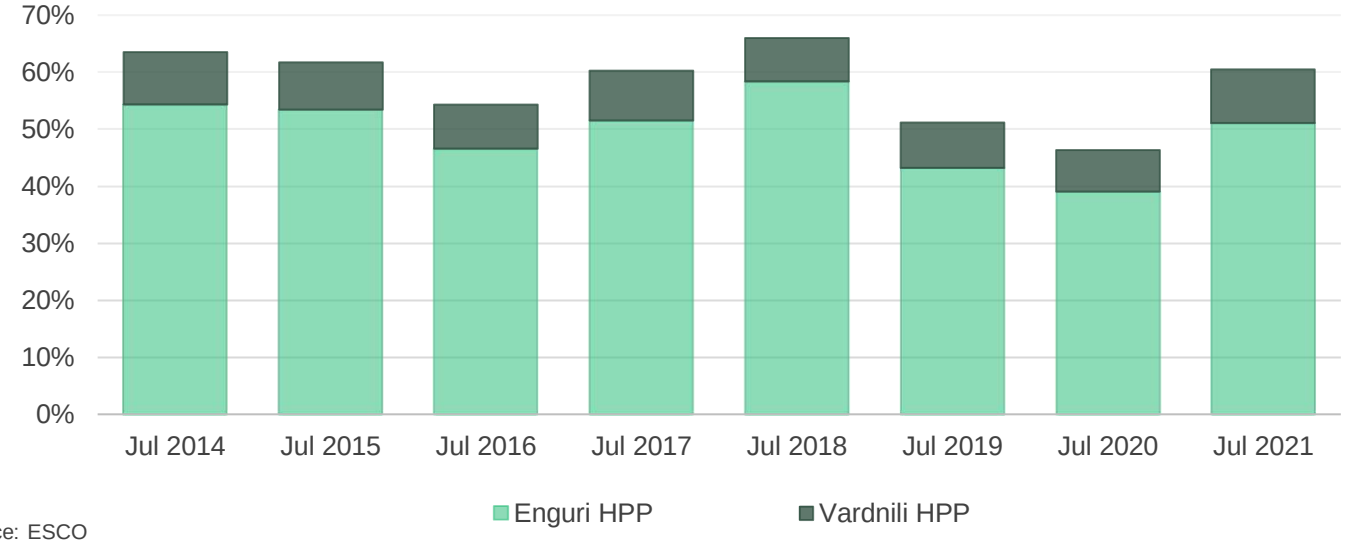
Figure 4 - Share of Large TPPs in Total Generation



Source: ESCO

As for HPP generation, Vardnili HPP generated 118 mln. kWh (14% of generation for regulatory HPPs and 10% of total generation). Enguri HPP generated 632 mln. kWh, which represents 76% of generation of regulatory HPPs and 51% of total generation (Figure 5).

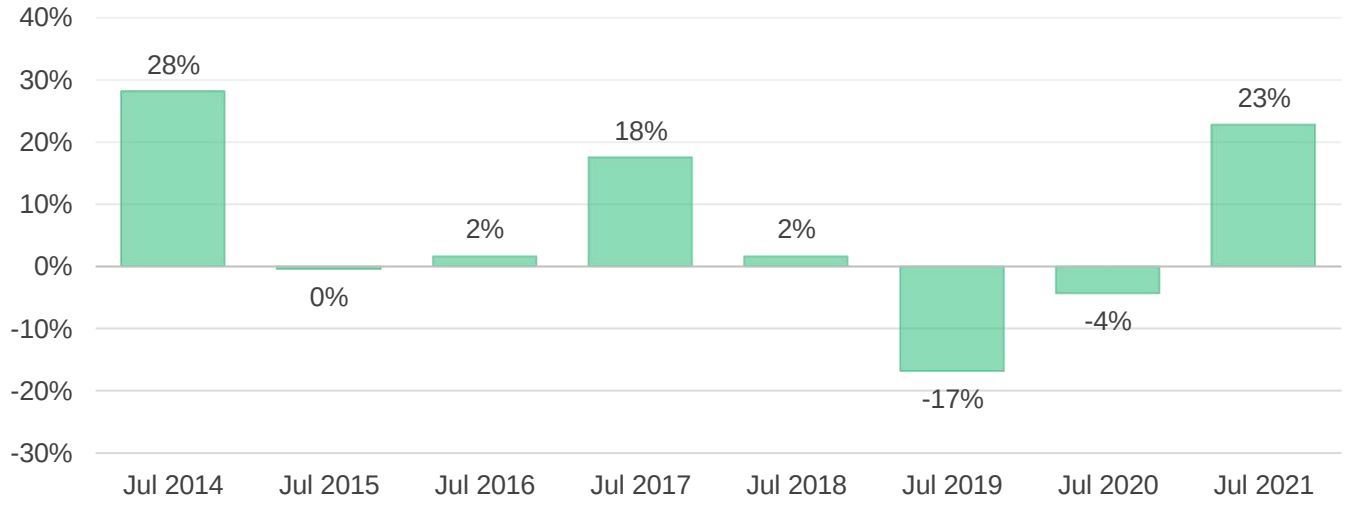
Figure 5 - Share of Enguri and Vardnili in Total Generation



Source: ESCO

Overall, total generation increased by 23% compared to July 2020 (Figure 6).

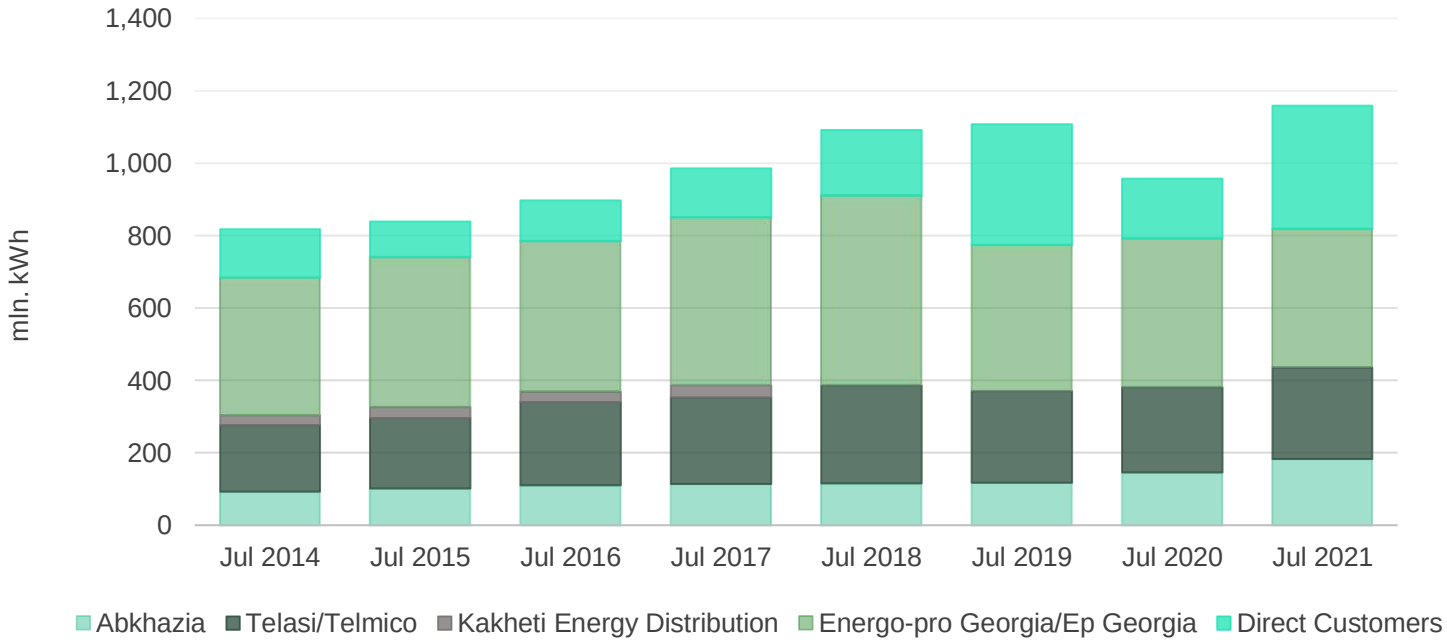
Figure 6 - Growth of Generation (%, y/y)



Source: ESCO

Total electricity demand came from: Energo-Pro Georgia/Ep Georgia[1] (33% - 382 mln. kWh), Abkhazia (16% - 182 mln. kWh), Telasi/Telmico[2] (22% - 253 mln. kWh), and direct customers (29% - 341 mln. kWh) (Figure 7). Annual demand from Telasi, Abkhazia and direct customers increased by 7%, 26%, and 107%, respectively, while demand from Energo-pro Georgia decreased by 7%. Overall, there was an annual growth of 21% in the total electricity consumption in July 2021, compared to July 2020 (Figure 8).

Figure 7 - Electricity Consumption by Type of Customer

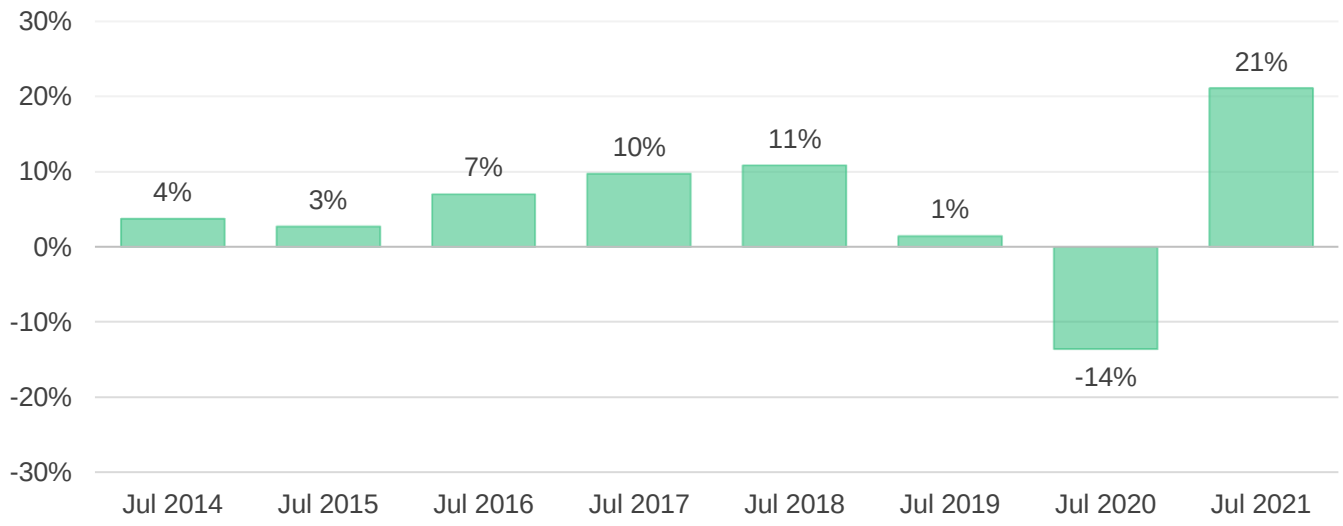


Source: ESCO

[1] Energo-Pro Georgia acquired Kakheti Energy Distribution in September 2017. Since July 2021, Ep Georgia is responsible for supply of electricity.

[2] Since July 2021, Telmico is responsible for supply of electricity.

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

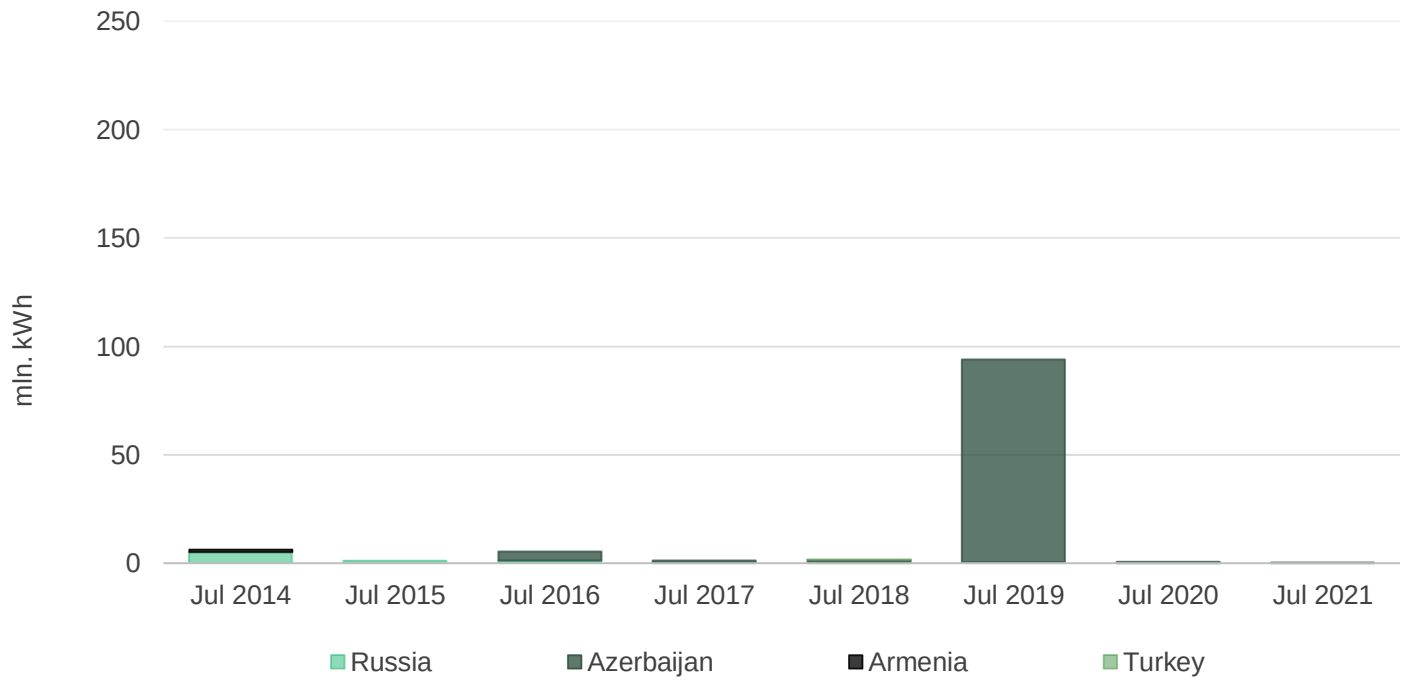


Source: ESCO

In July 2021, Georgia imported 0.3 mln. kWh of electricity (compared to 0.5 mln. kWh July 2020), 51% of which came from Azerbaijan and 49% from Russia (Figure 9). In July 2021, Georgia exported 37 mln. kWh (15 mln. kWh in July 2020), less than 1% of which was exported to Azerbaijan, 36% to Turkey and 63% to Armenia (Figure 10). There was a 60 mln. kWh electricity transit from Azerbaijan to Turkey in July 2021 (In July 2020, there was 20 mln. kWh electricity transit from Azerbaijan to Turkey).

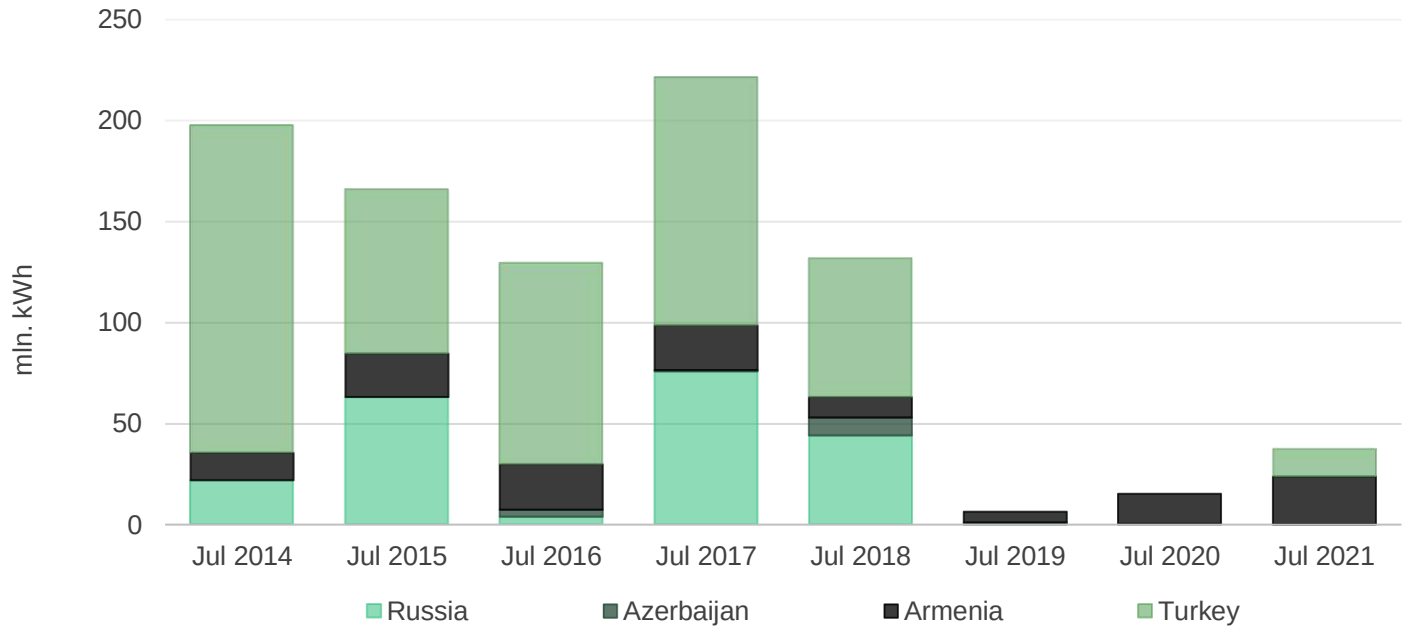
Compared to July 2020, imports decreased by 37% times (Figure 9).

Figure 9 - Imports by Year



Source: ESCO

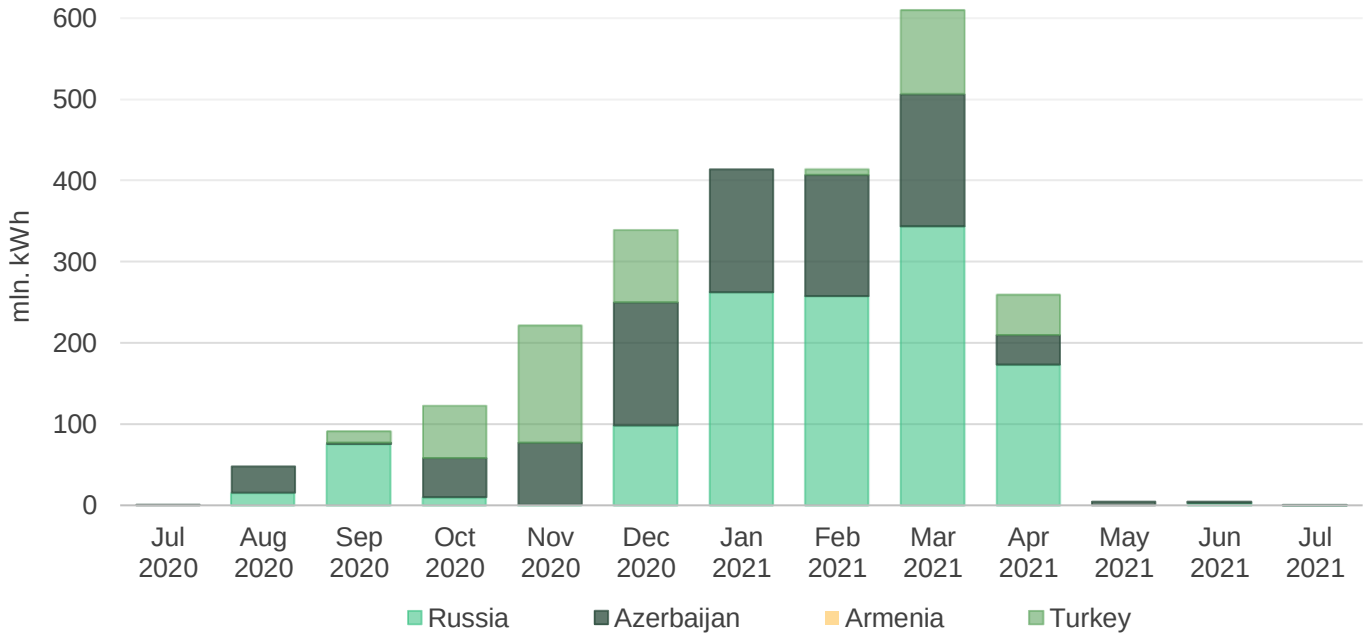
Figure 10 - **Exports by Year**



Source: ESCO

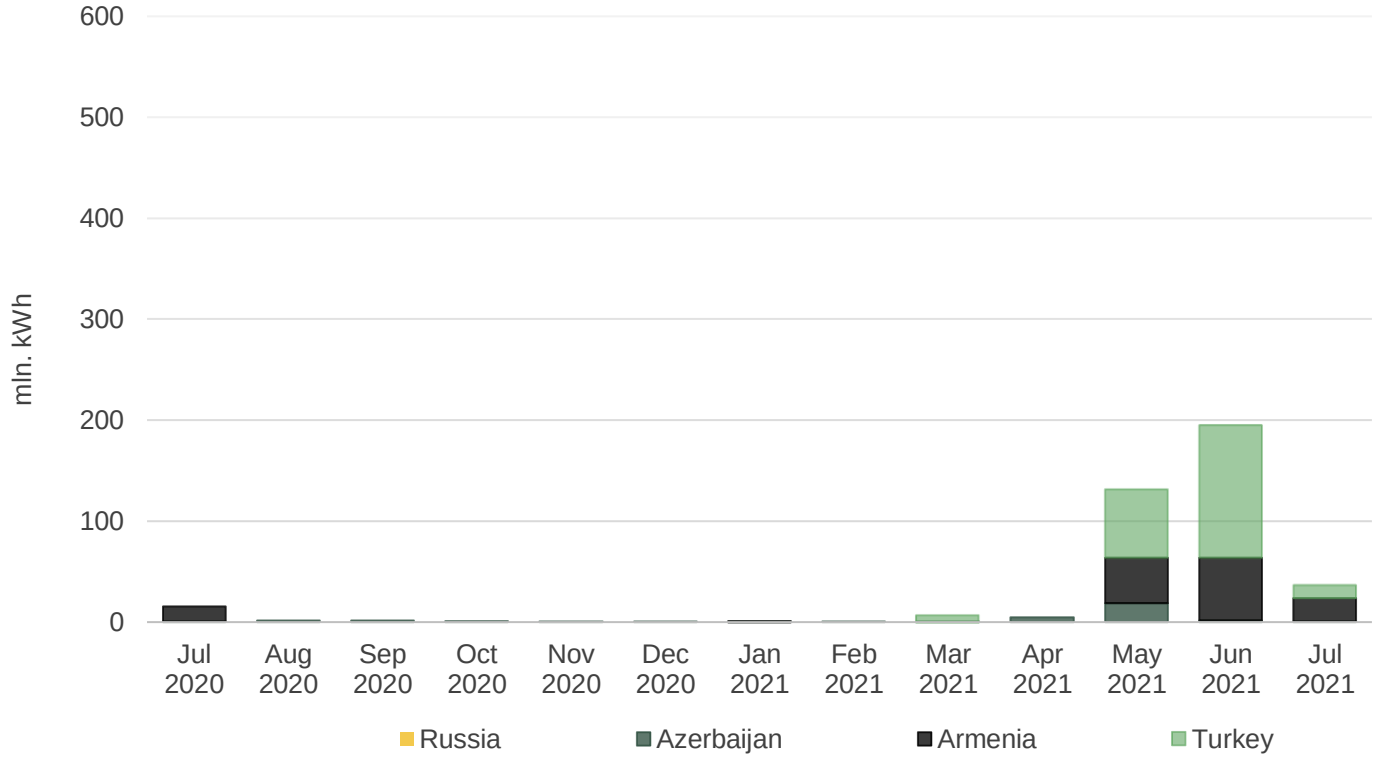
In July 2021, electricity imports decreased by 93% compared to June 2021 (Figure 11), while electricity export decreased by 81% (Figure 12).

Figure 11 - **Imports by Month**



Source: ESCO

Figure 12 **- Exports by Month**

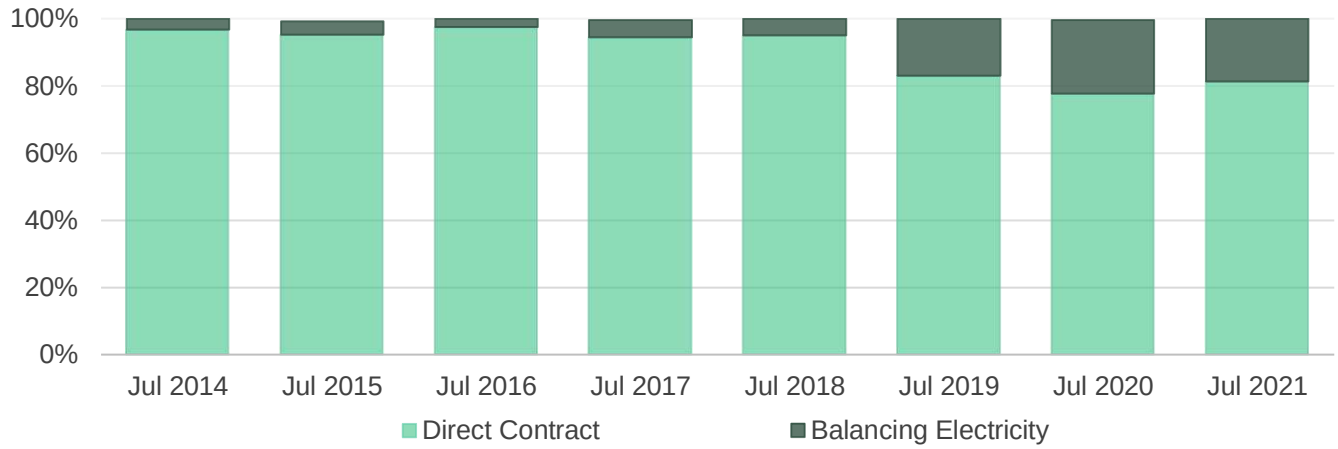


Source: ESCO

1. Market Operations

In July 2021, 81% of the electricity sold on/from the local market was sold through direct contracts. The remaining 19% was sold as balancing electricity (Figure 13).

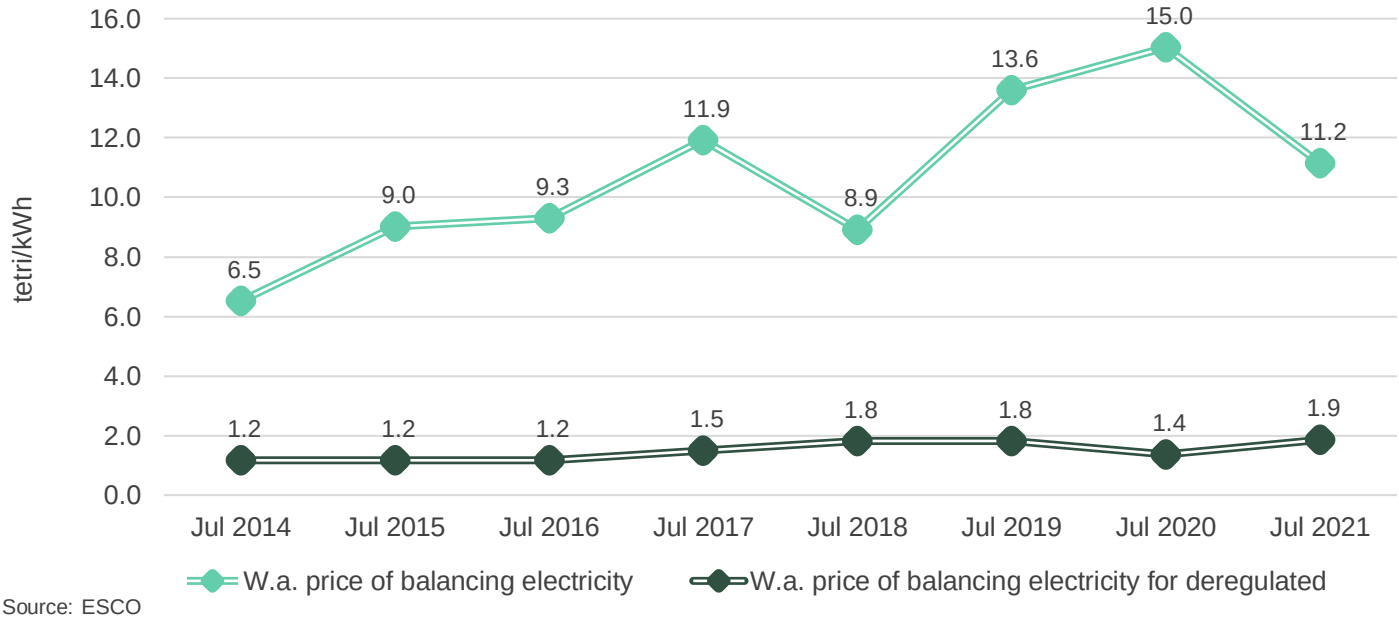
Figure 13 - Electricity Purchased / Sold Shares of Direct Contracts and Balancing Electricity



Source: ESCO

In July 2021, the weighted average price of balancing electricity was 11.2 tetri/kWh, which corresponds to an annual decrease of 26% compared to July 2020. As for the weighted average price for deregulated (small) HPPs, it was 1.9 tetri/kWh, which corresponds to an annual increase of 37% compared to July 2020 (Figure 14).

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



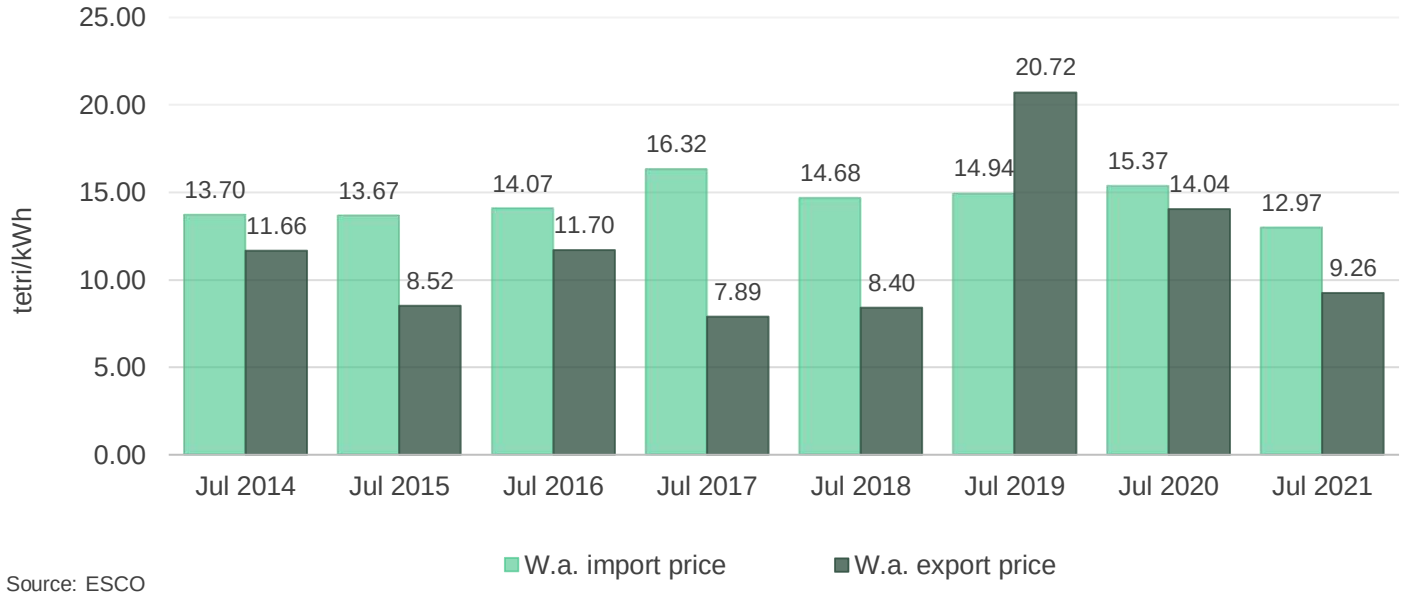
Source: ESCO

Data about guaranteed capacity payments in July 2021 are not available. Latest available data refer to January 2021 (available in previous EMR).

The weighted average electricity import price in July 2021 decreased by 17% in USD, on an annual basis, and decreased by approximately 16% in GEL (from 5.02 ¢ or 15.37 tetri per kWh in July 2020 to 4.15 ¢ or 12.97 tetri per kWh in July 2021 - Figure 15). The weighted average import price decreased by 42% in USD and 43% in GEL, on a monthly basis (import price was 7.18 ¢ or 22.69 tetri per kWh in June 2021). The weighted average electricity export price in July 2021 decreased by 35% compared to the previous year in terms of USD and by 34% in GEL (from 4.59 ¢ or 14.04 tetri per kWh

in July 2020 to 2.96 ¢ or 9.26 tetri per kWh in July 2021 - Figure 15). The weighted average export price decreased by 8% in terms of USD and by 9% in GEL from 3.23 ¢ or 10.22 tetri per kWh to 2.96 ¢ or 9.26 tetri per kWh on a monthly basis.

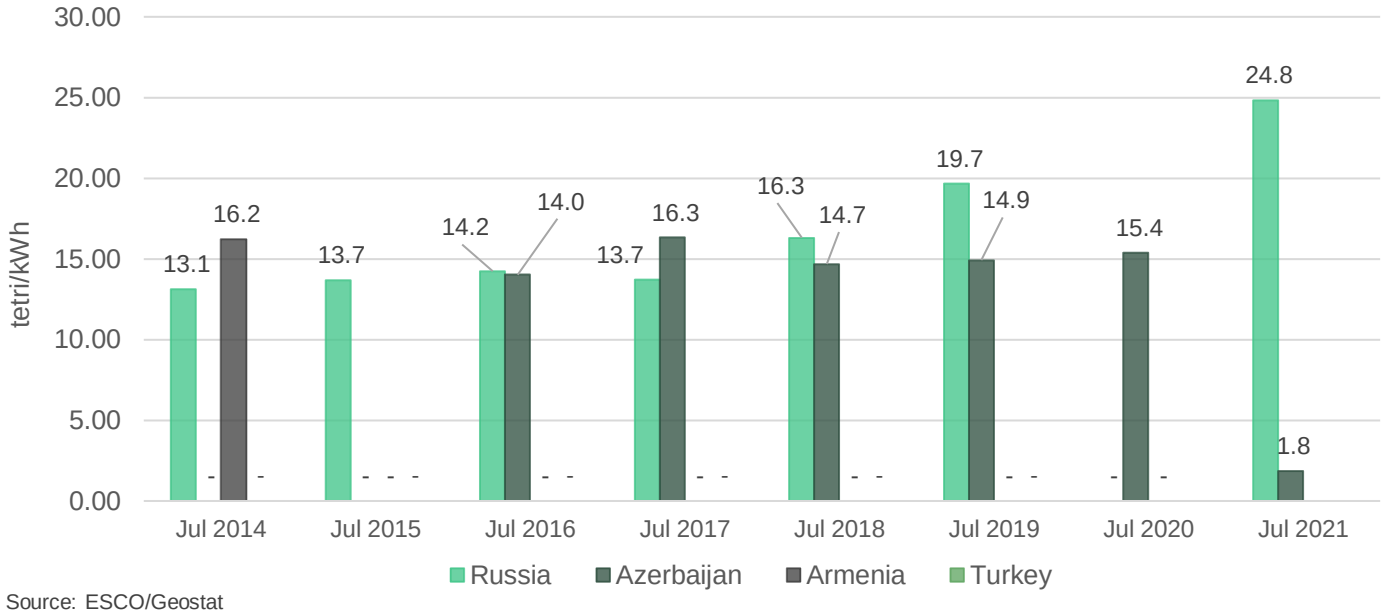
Figure 15 - Prices Import/Export



Source: ESCO

In July 2021, the electricity import price from Azerbaijan and Russia stood at 0.5 ¢ or 1.8 tetri per kWh and 7.9 ¢ or 24.8 tetri per kWh, respectively (Figure 16).

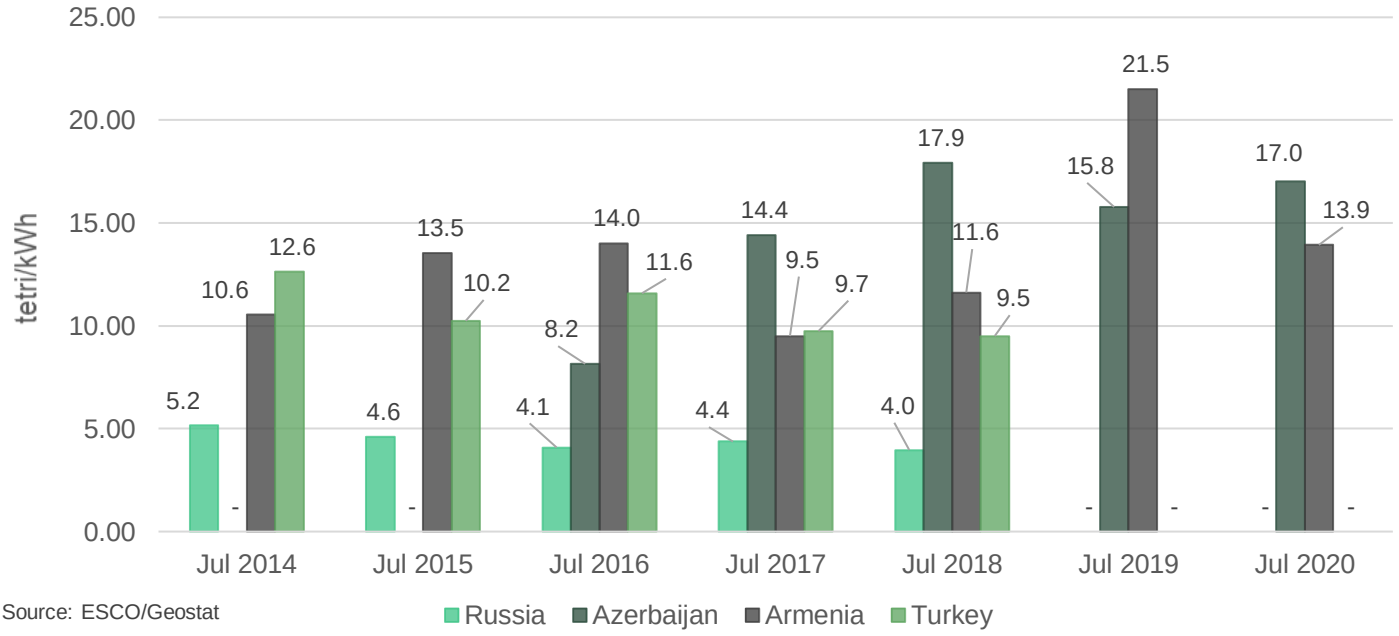
Figure 16 - Import Prices by Countries



Source: ESCO/Geostat

In July 2021, the electricity export price to Azerbaijan, Armenia and Turkey stood at 5.5 ¢ or 17.3 tetri per kWh, 3.5 ¢ or 11.0 tetri per kWh, and 2.0 ¢ or 6.3 tetri per kWh, respectively (Figure 17).

Figure 17 - Export Prices by Countries

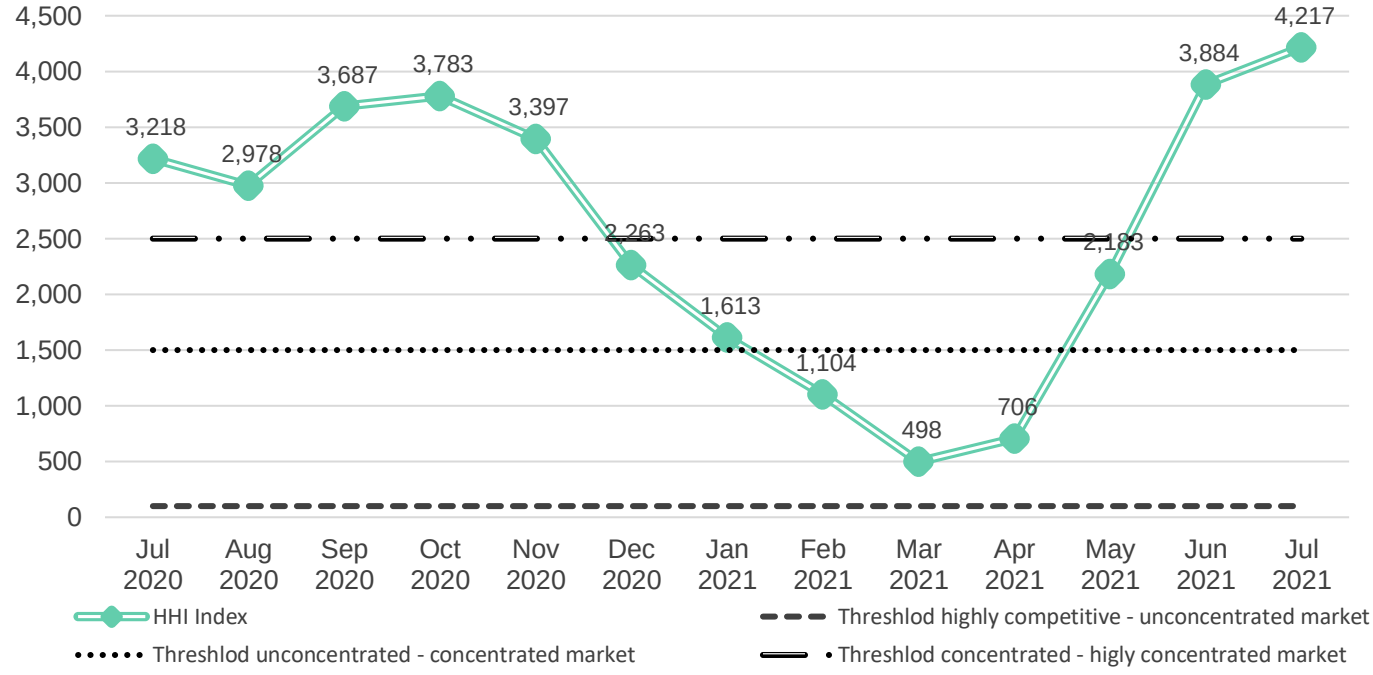


Source: ESCO/Geostat

2. Market Concentration

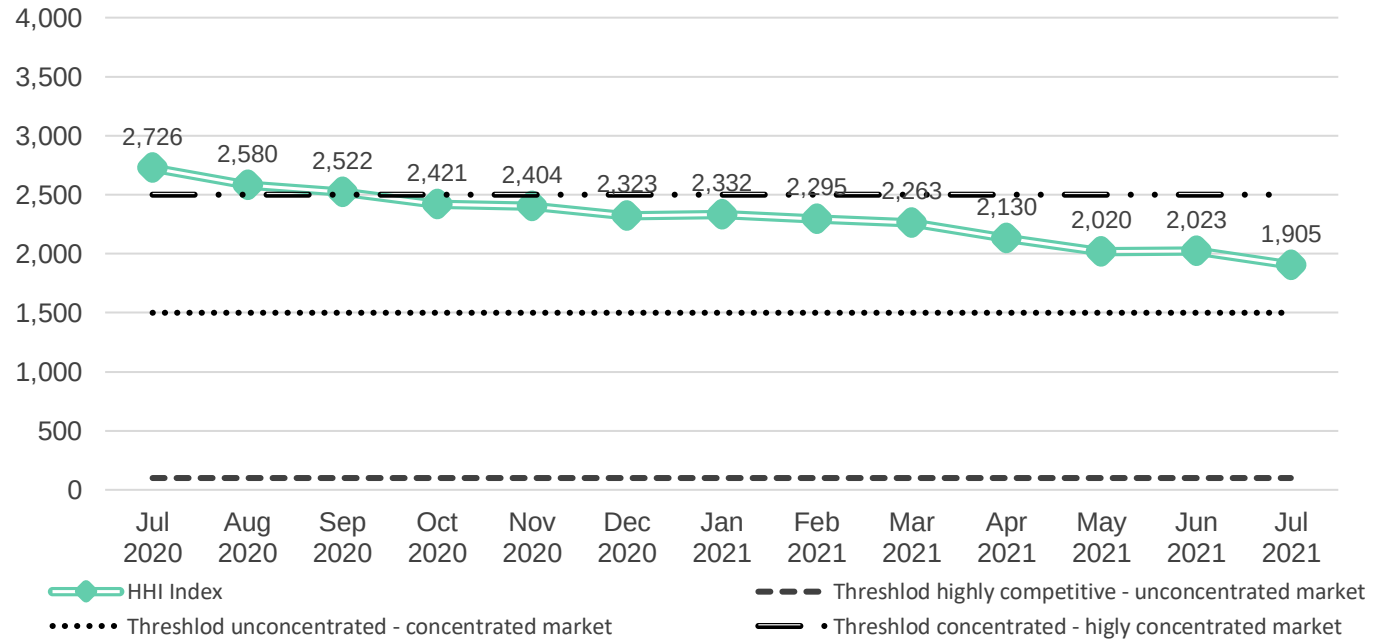
In conclusion, we utilize the Hirschman-Herfindahl (HHI) market concentration index to evaluate how competitive the generation and consumption segments of the market have been over the year. In July 2021, the Georgian electricity generation market remained above the threshold of highly concentrated market, with an HHI value of 4,217 (Figure 18). This is substantially higher than the level in July 2020 (with an HHI value of 3,218), and also higher than the level in June 2021 (HHI was 3,884). As for the consumption segment, in July 2021, the HHI consumption index was below the threshold for a highly concentrated market, with an HHI value of 1,905 (also slightly below the level in July 2020 – 2,726 and in June 2021 – 2,023). Over the months, a clear decreasing trend in market concentration is observable on the consumption side of the electricity market (Figure 19).

Figure 18 - Hirschman-Herfindahl Index for Power Generation



Source: ESCO

Figure 19 - Hirschman-Herfindahl Index for Power Consumption



Source: ESCO