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ELECTRICITY MARKET REVIEW

ISET POLICY INSTITUTE

ENERGY AND ENVIRONMENT POLICY RESEARCH CENTER

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INFORMATION

- There was an increase in total electricity generation by 32% on a yearly basis, and an increase by 8% on a monthly basis.
- Consumption increased by 21% on yearly basis and increased by 3% on a monthly basis.
- Generation exceeded consumption by 233 mln. kWh – 18% of total generation for June.
- The main import partner country was Russia.
- The cost of Russia imports was 25.6 tetri per kWh.
- The weighted average price of imports increased by 382% in GEL on a yearly, and by 22% on a monthly basis.
- The main export partner was Turkey
- The price of exports to Turkey was 10.78 tetri per kWh.
- The weighted average export price increased by 79% in GEL on a yearly, and by 9% on a monthly basis.
- HHI index for the Georgian electricity generation market rose above the threshold of highly concentrated market in June 2021, indicating that the generation side of the market became substantially less competitive compared to previous months (it was more competitive in April and May – index values of 706, 2183 – against 3884 in June), mainly due to the launch of Enguri HPP.
- HHI for the Georgian electricity consumption market was slightly below the threshold of a highly concentrated market.

ABBREVIATION USED

Mln – million

kWh – kilowatt-hour

HPP – Hydro Power Plant

WPP – Wind Power Plant

TPP – Thermal Power Plant

HHI – Hirschmann-Herfindahl Index

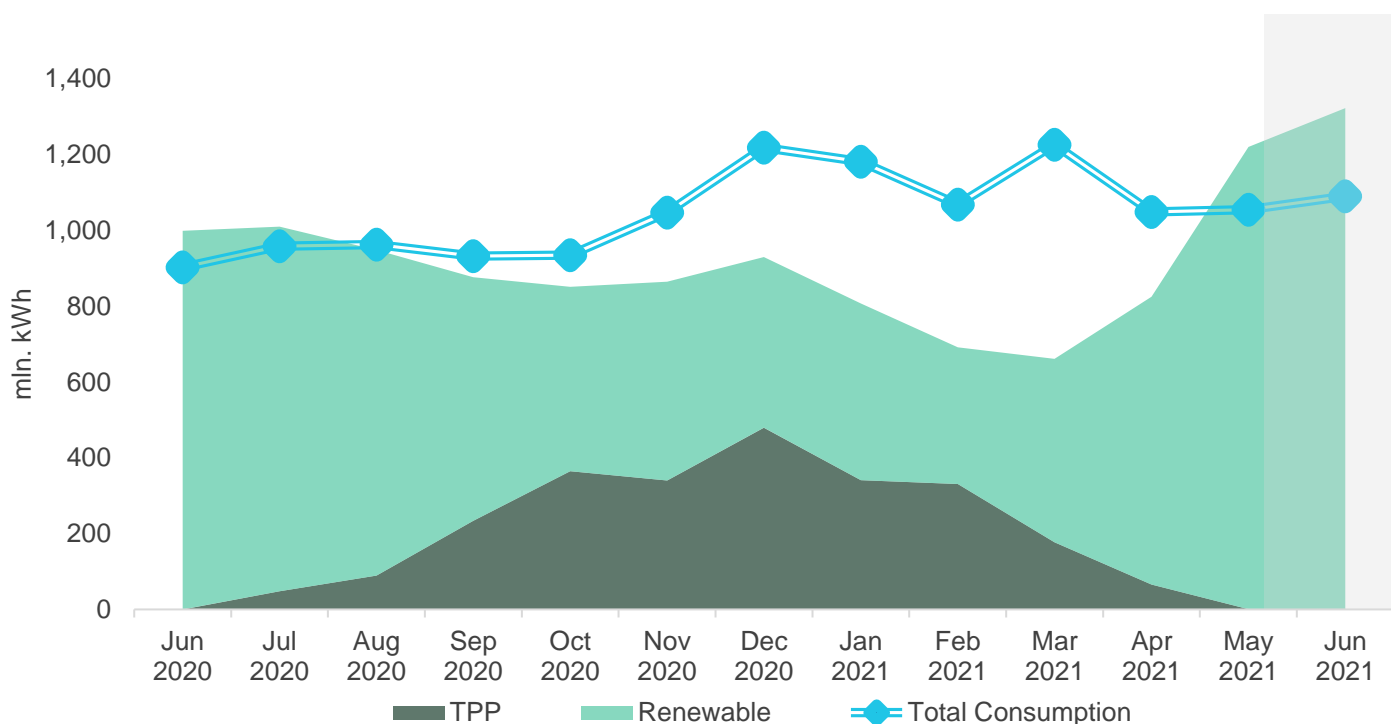
Generation – Consumption – Trade

In June 2021, Georgian power plants generated 1323 mln. kWh of electricity (Figure 1). This represents a 32% increase in total generation, compared to the previous year (in June 2020, the total generation was 999 mln. kWh). The increase in generation on a yearly basis comes from the increase of 32% in hydro power generation, as well as, from increase in the generation of wind power by 15%.

On a monthly basis, generation increased by approximately 8% (in May 2021, total generation was 1221 mln. kWh) (Figure 1). The monthly increase in total generation, despite a reduction in wind power generation of 14% compared to May 2021, was caused by an 8% increase in hydro power generation and increase in wind power generation seven times.

The consumption of electricity on the local market was 1,090 mln. kWh (+21% and +3% compared to June 2020, and May 2021, respectively) (Figure 1). In June 2021, power generation exceeded consumption by 233 mln. kWh which was 18% of total generation (in June 2020 difference between total generation and consumption resulted in a surplus of 96 mln. kWh, around 10% of the total generation for the month).

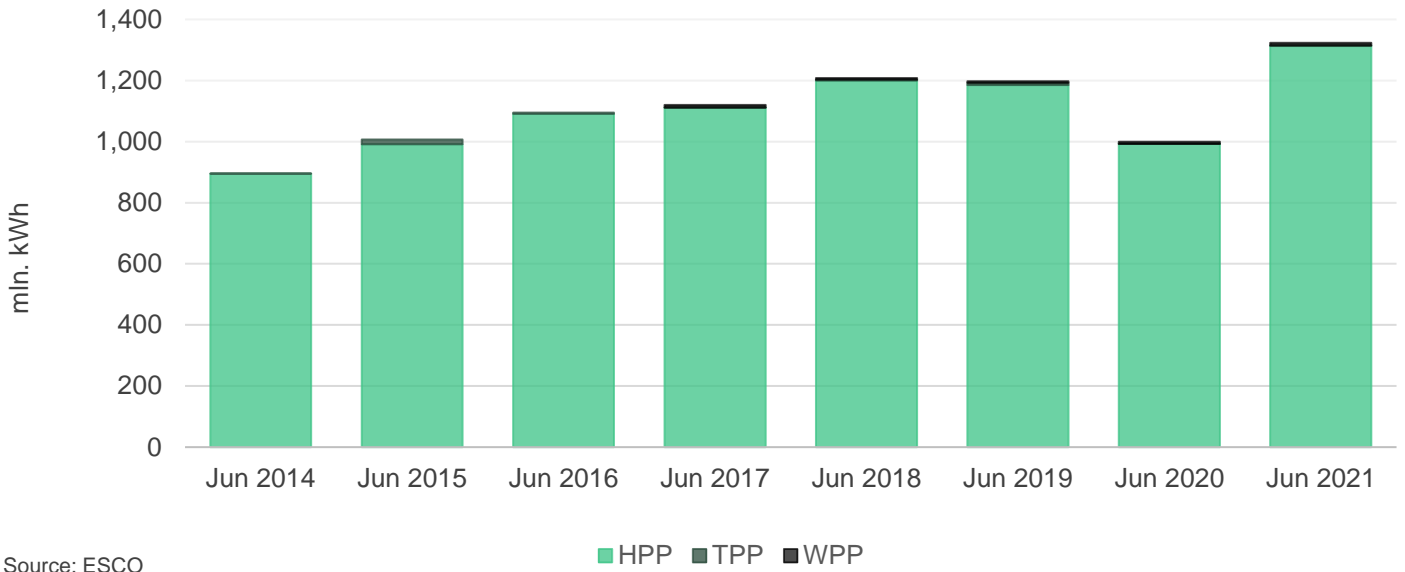
Figure 1 - Electricity Consumption and Generation



Source: Electricity System Commercial Operator (ESCO)

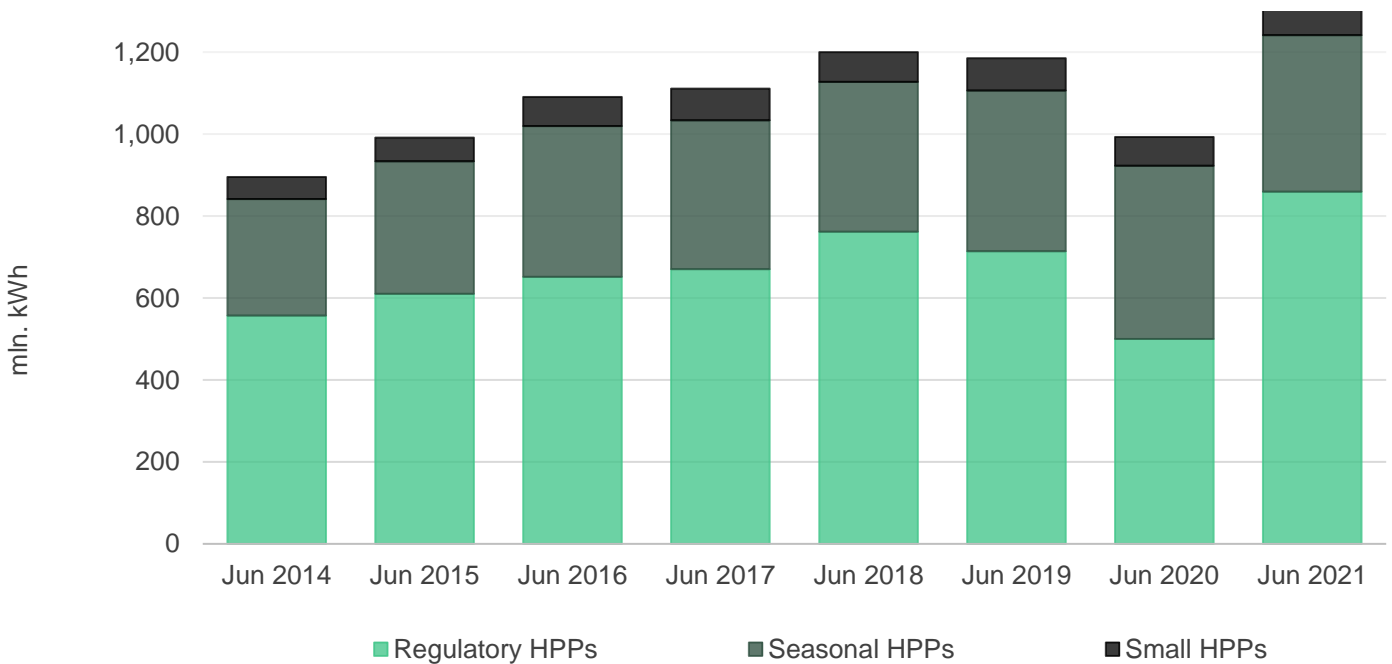
Most generation came from hydro power plants. In May 2021, hydro power (HPP) generation amounted to 1314 mln. kWh (99% of total), while thermal power (TPP) generation was 2 mln. kWh, and wind power (WPP) generation was 8 mln. kWh (both less than 1% of total) (Figure 2).

Figure 2 - Electricity Generation by Sources



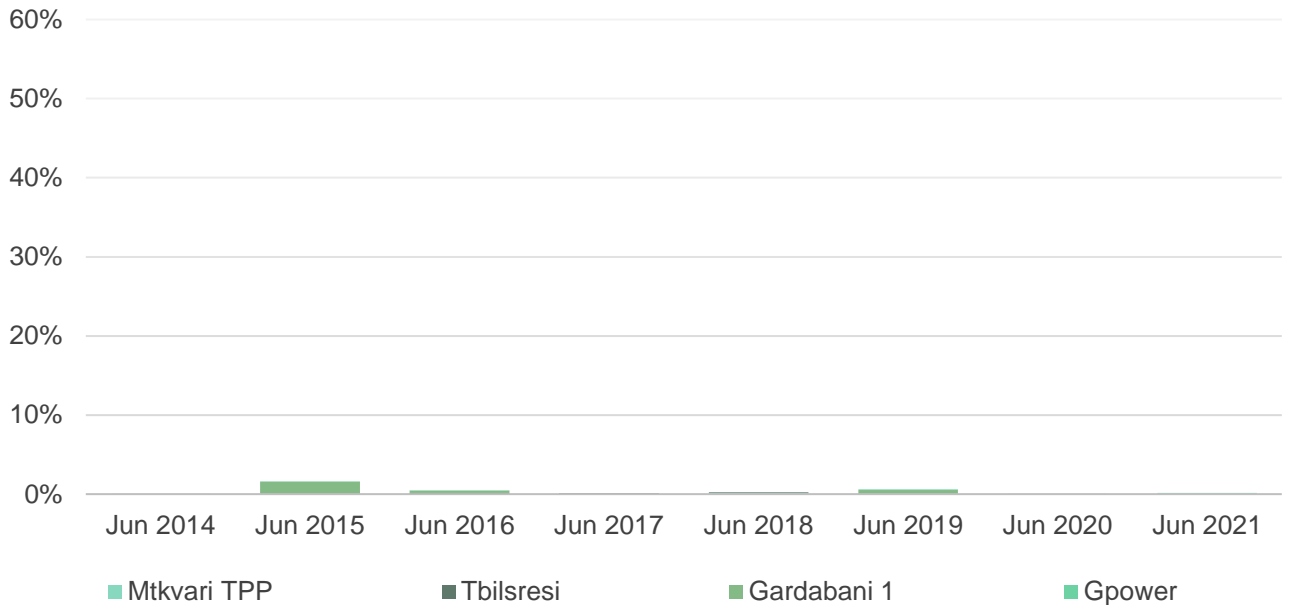
Among hydropower generators, large (regulatory) HPPs produced 65% (859 mln. kWh) of electricity, while seasonal and small HPPs produced 29% (382 mln. kWh) and 5% (72 mln. kWh), respectively (Figure 3).

Figure 3 - HPP Generation by Type



Among thermal power plants, Gpower TPP generated 0.5 mln. kWh, 28% of total thermal power generation, but only 0.04% of total generation, and Mtkvari TPP generated 1.3 mln kWh, 72% of total thermal power generation, but only 0.1% of total generation (Figure 4).

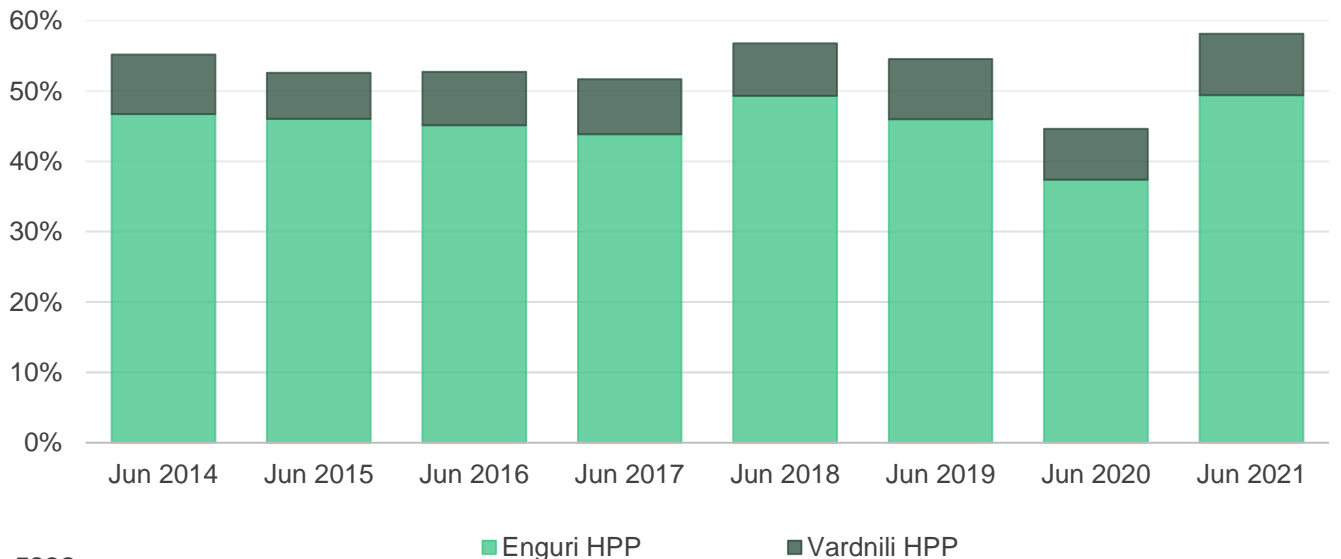
Figure 4 - Share of Large TPPs in Total Generation



Source: ESCO

As for HPP generation, Vardnili HPP generated 115 mln. kWh (13% of generation for regulatory HPPs and 9% of total generation). Enguri HPP generated 654 mln. kWh, which represents 76% of generation of regulatory HPPs and 49% of total generation (Figure 5).

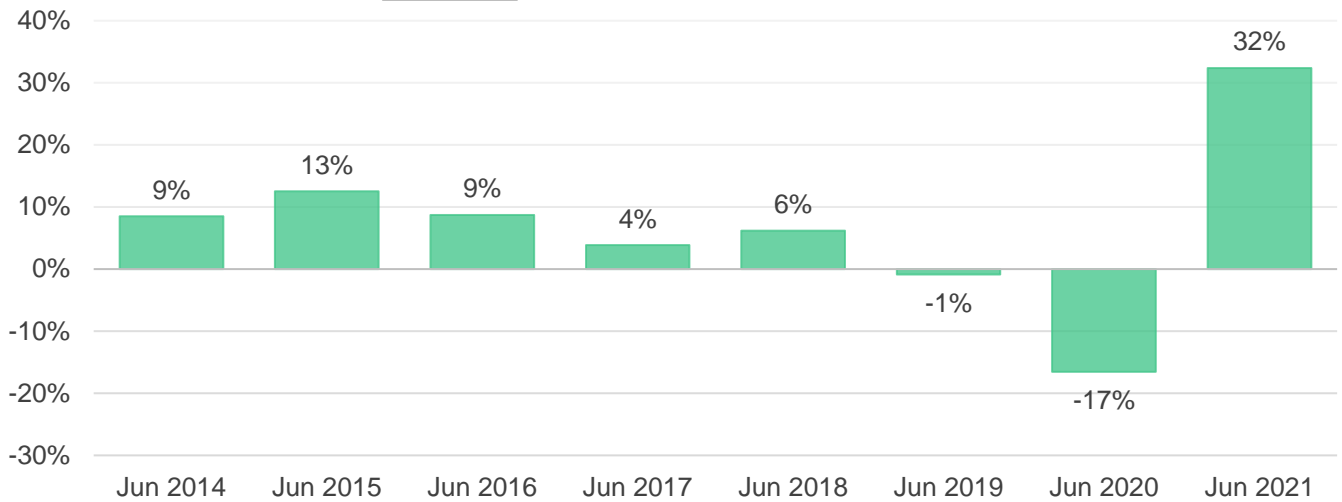
Figure 5 - Share of Enguri and Vardnili in Total Generation



Source: ESCO

Overall, total generation increased by 32% compared to May 2020 (Figure 6).

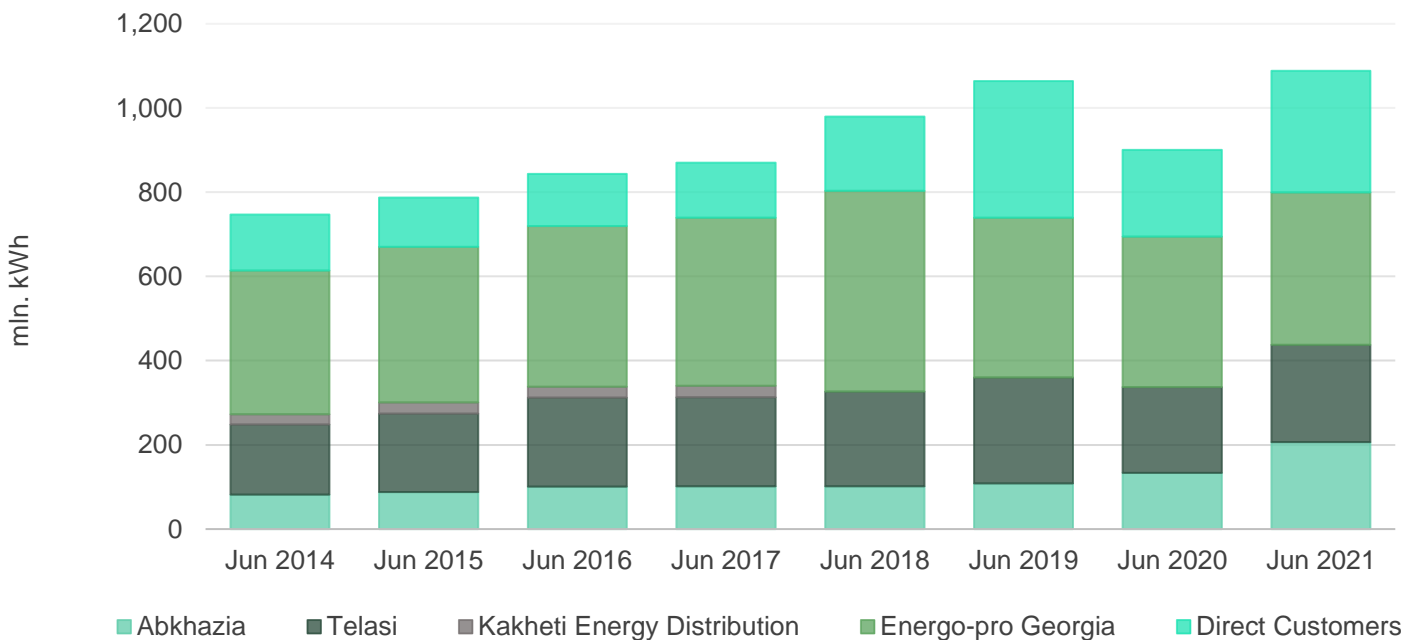
Figure 6 - Growth of Generation (% ,y/y)



Source: ESCO

Total electricity demand came from: Energo-Pro Georgia¹ (33% - 362 mln. kWh), Abkhazia (19% - 206 mln. kWh), Telasi (21% - 231 mln. kWh), and direct customers (26% - 289 mln. kWh) (Figure 7). Annual demand from Energo-Pro, Telasi, Abkhazia and direct customers increased by 1%, 14%, 55% and 40%, respectively. Overall, there was an annual growth of 21% in the total electricity consumption in June 2021, compared to June 2020 (Figure 8).

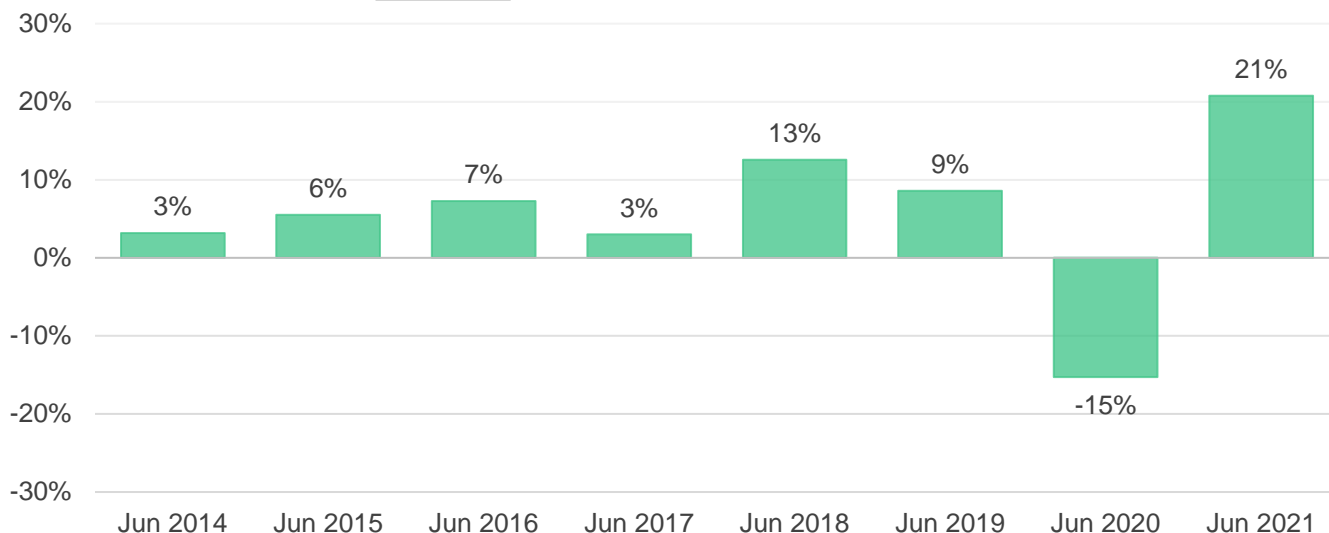
Figure 7 - Electricity Consumption by Type of Customer



Source: ESCO

¹ Energo-Pro Georgia acquired Kakheti Energy Distribution in September 2017.

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

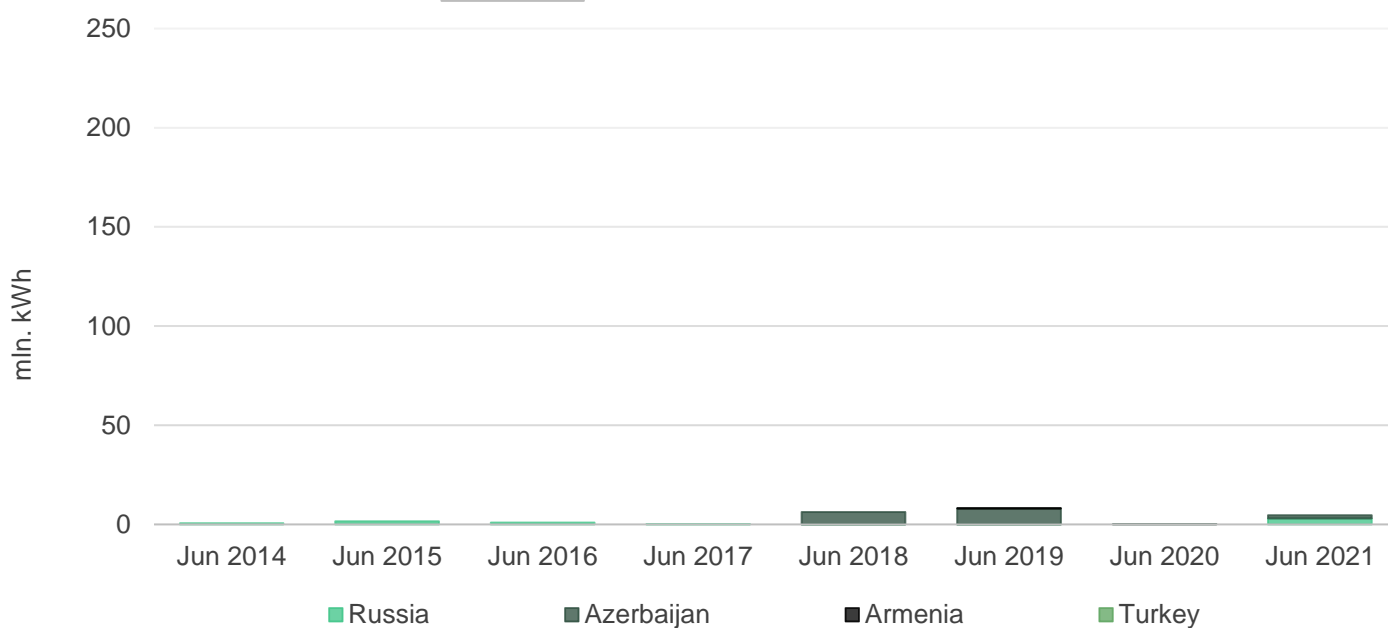


Source: ESCO

In June 2021, Georgia imported 5 mln. kWh of electricity (compared to 0.1 mln. kWh June 2020), 36% of which came from Azerbaijan and 64% from Russia (Figure 9). In June 2021, Georgia exported 195 mln. kWh (62 mln. kWh in June 2020), 1% of which was exported to Azerbaijan, 67% to Turkey and 32% to Armenia (Figure 10). There was a 35 mln. kWh electricity transit from Azerbaijan to Turkey in June 2021 (In June 2020, there was 31 mln. kWh electricity transit from Azerbaijan to Turkey).

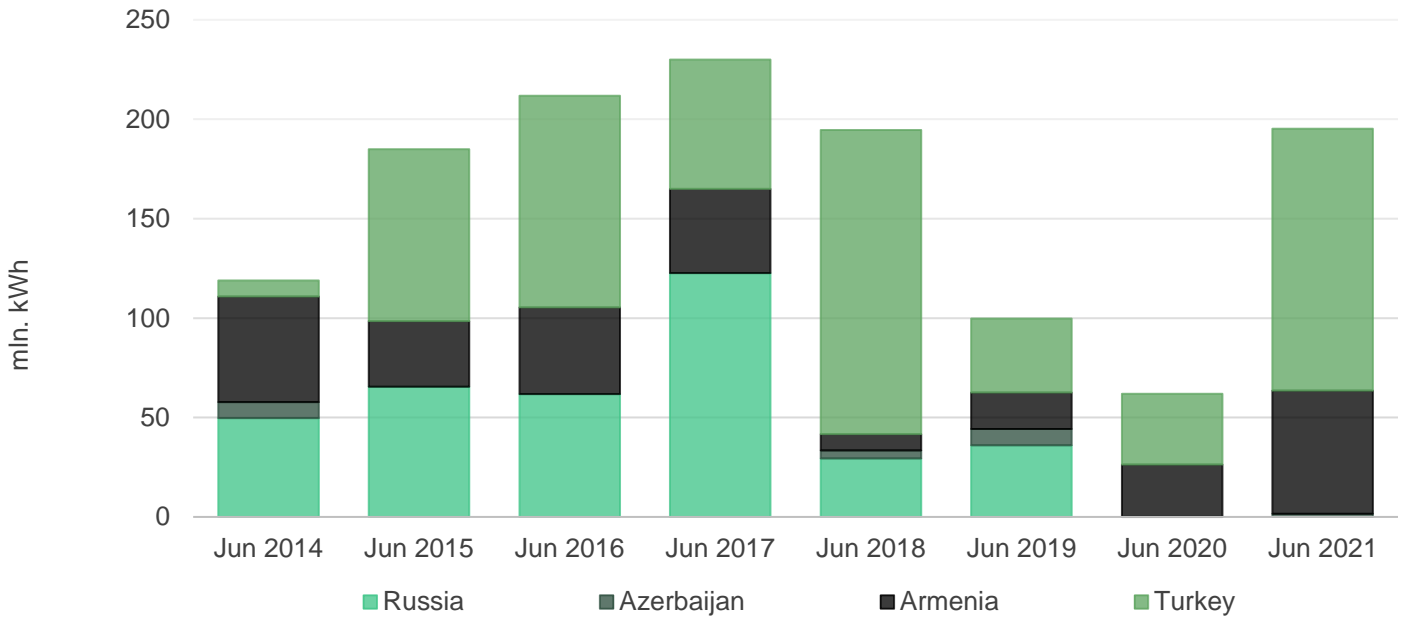
Compared to June 2020, imports increased 50 times (Figure 9).

Figure 9 - Imports by Year



Source: ESCO

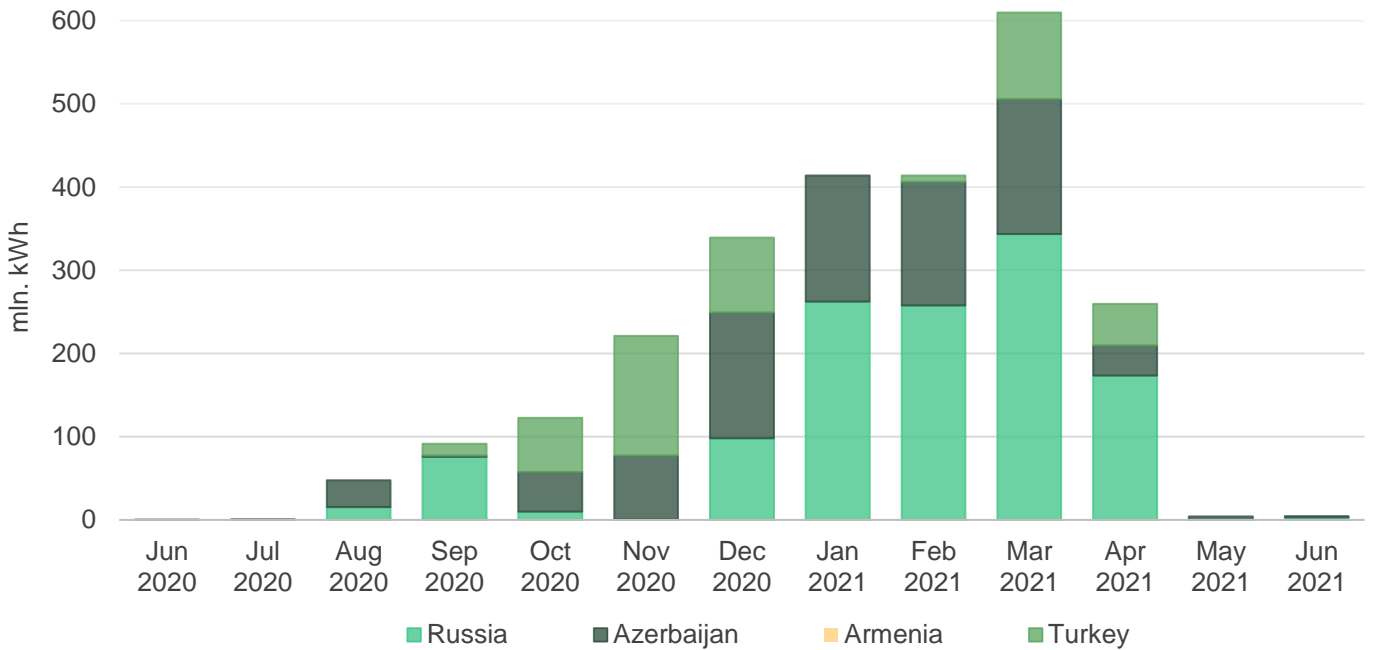
Figure 10 - Exports by Year



Source: ESCO

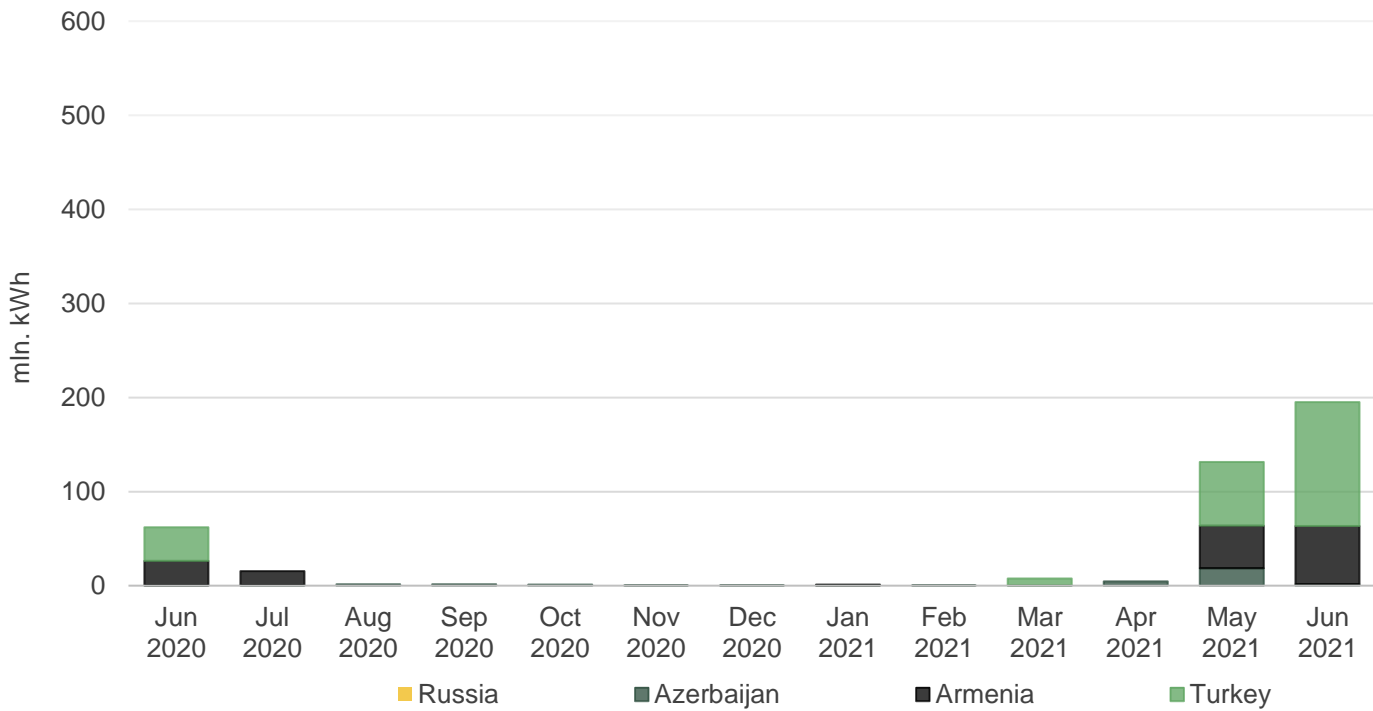
In June 2021, electricity imports increased by 12% compared to May 2021 (Figure 11), while electricity export increased by 49% (Figure 12).

Figure 11 - Imports by Month



Source: ESCO

Figure 12 - Exports by Month

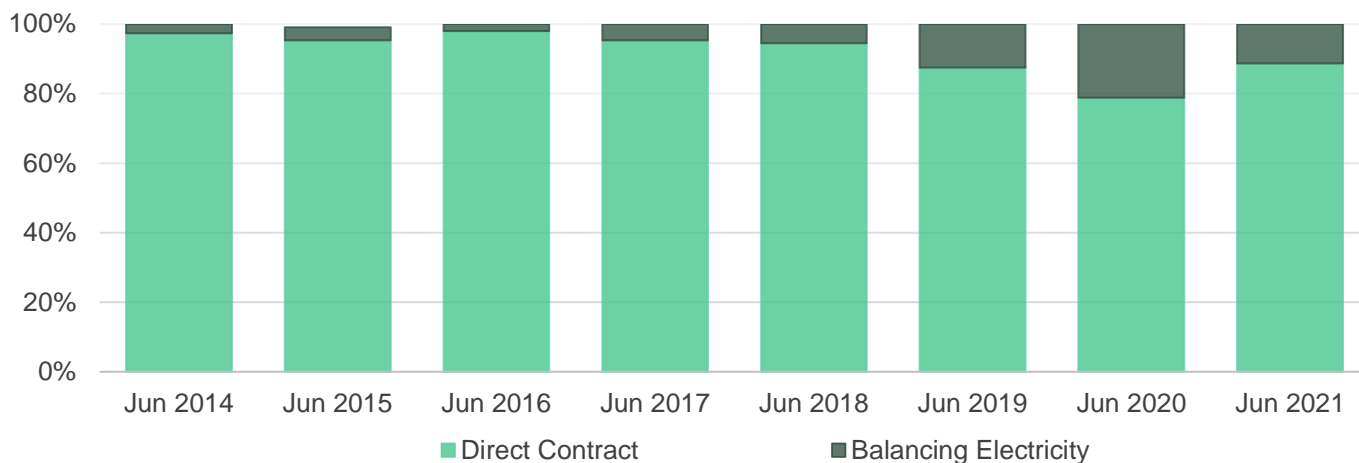


Source: ESCO

1. Market Operations

In June 2021, 89% of the electricity sold on/from the local market was sold through direct contracts. The remaining 11% was sold as balancing electricity (Figure 13).

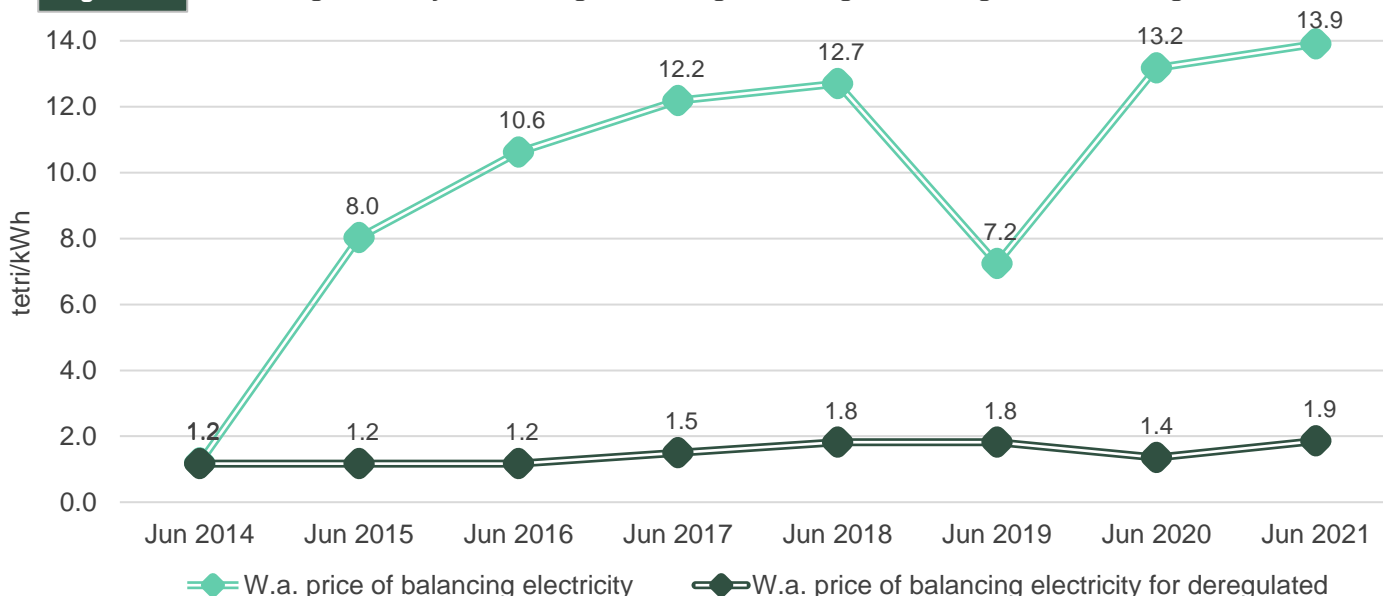
Figure 13 - Electricity Purchased / Sold Shares of Direct Contracts and Balancing Electricity



Source: ESCO

In June 2021, the weighted average price of balancing electricity was 13.9 tetri/kWh, which corresponds to an annual increase of 6% compared to June 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 June 2020 (Figure 14).

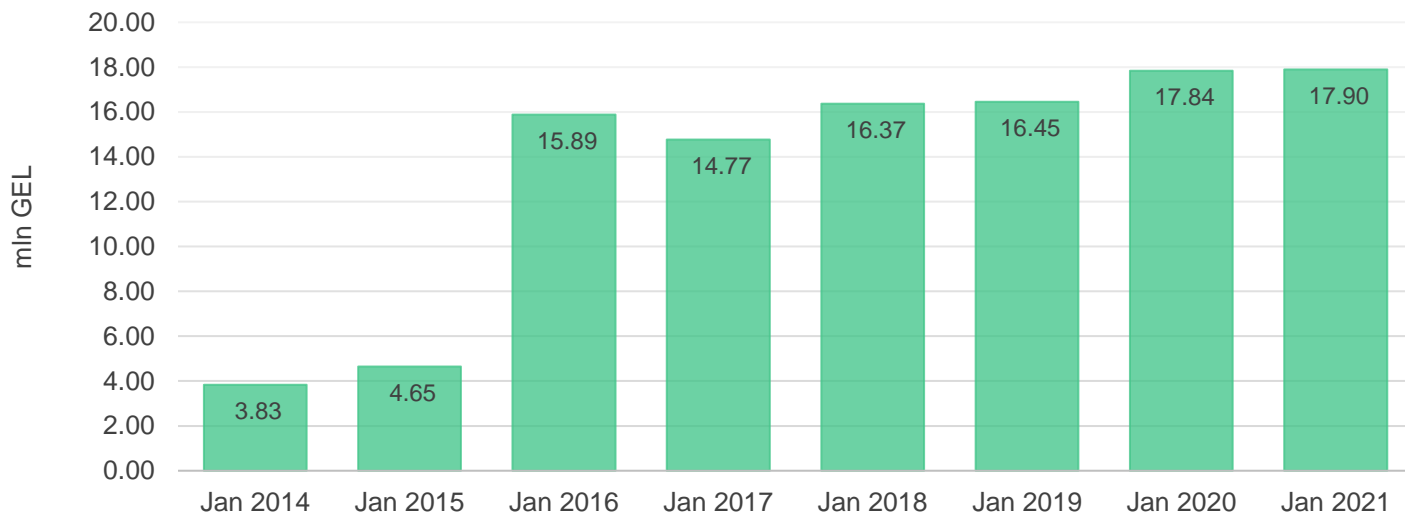
Figure 14 - Balancing Electricity Prices Weighted Average and Weighted Average Price for Deregulated HPPs



Source: ESCO

Guaranteed capacity payments in January 2021 were roughly 17.90 mln. GEL, which represents a 0.3% increase compared to January 2020 (Figure 15). The data for February, March, April and May 2021 are not available, so we continue to report the information from January.

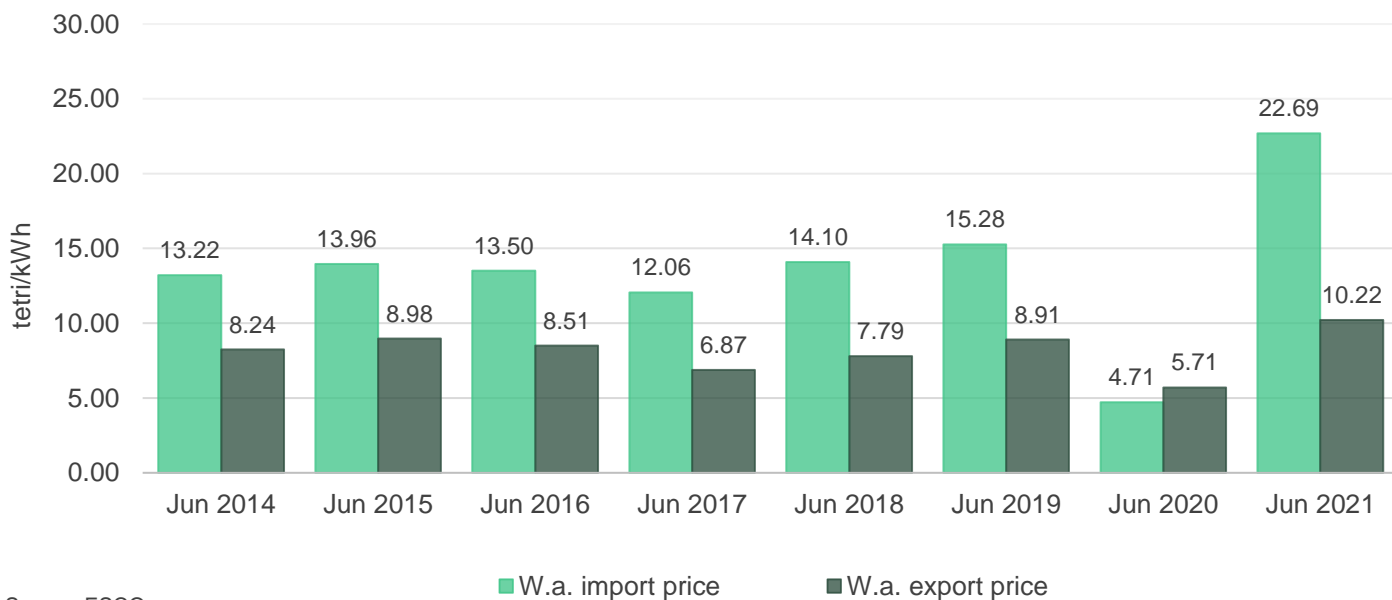
Figure 15 - Cost of Guaranteed Capacity



Source: ESCO

The weighted average electricity import price in June 2021 increased by 364% in USD, on an annual basis, and increased by approximately 382% in GEL (from 1.55 ¢ or 4.71 tetri per kWh in June 2020 to 7.18 ¢ or 22.69 tetri per kWh in June 2021 - Figure 16). The weighted average import price increased by 30% in USD and 22% in GEL, on a monthly basis (import price was 5.50 ¢ or 18.60 tetri per kWh in May 2021). The weighted average electricity export price in June 2021 increased by 72% compared to the previous year in terms of USD and by 79% in GEL (from 1.88 ¢ or 5.71 tetri per kWh in June 2020 to 3.23 ¢ or 10.22 tetri per kWh in June 2021 - Figure 17). The weighted average export price decreased by 3% in terms of USD and by 9% in GEL from 3.33 ¢ or 11.26 tetri per kWh to 3.23 ¢ or 10.22 tetri per kWh on a monthly basis.

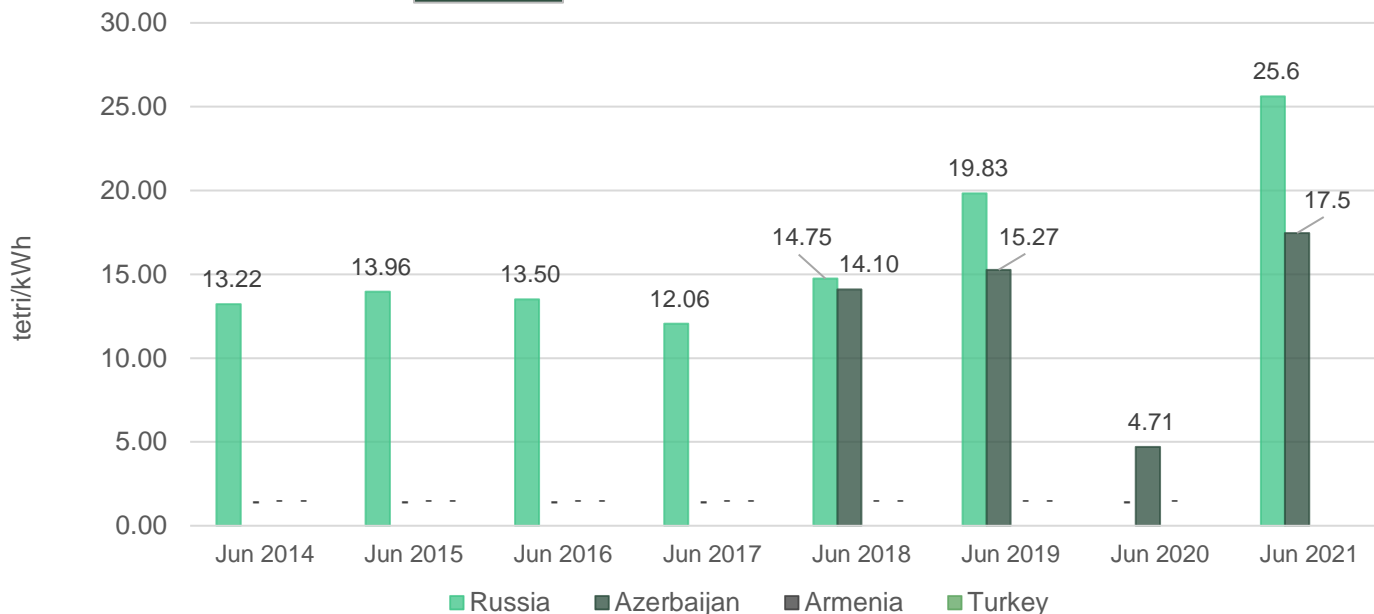
Figure 16 - Prices Import/Export



Source: ESCO

In June 2021, the electricity import price from Azerbaijan and Russia stood at 5.5 ¢ or 17.5 tetri per kWh and 8.1 ¢ or 25.6 tetri per kWh, respectively (Figure 17).

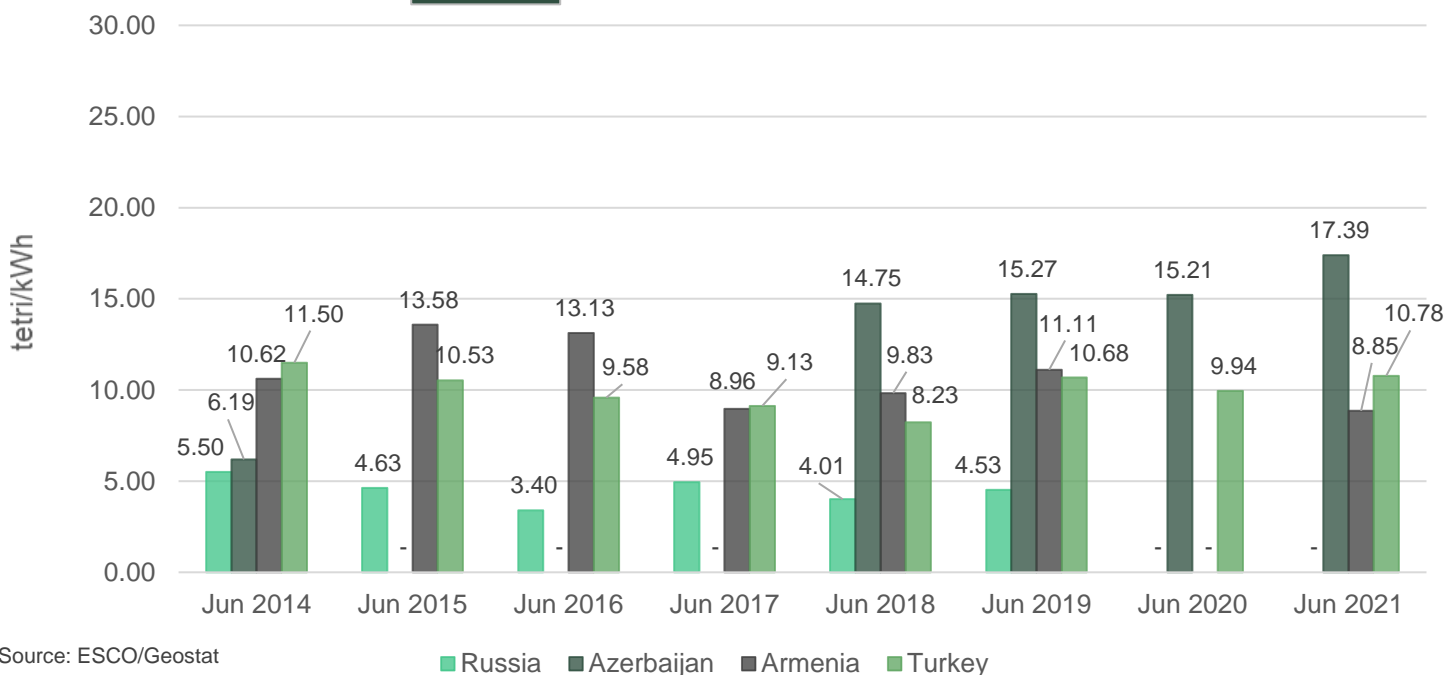
Figure 17 - Import Prices by Countries



Source: ESCO/Geostat

In June 2021, the electricity export price to Azerbaijan, Armenia and Turkey stood at 5.5 ¢ or 17.39 tetri per kWh, 2.8 ¢ or 8.85 tetri per kWh, and 3.41 ¢ or 10.78 tetri per kWh, respectively (Figure 18).

Figure 18 - Export Prices by Countries

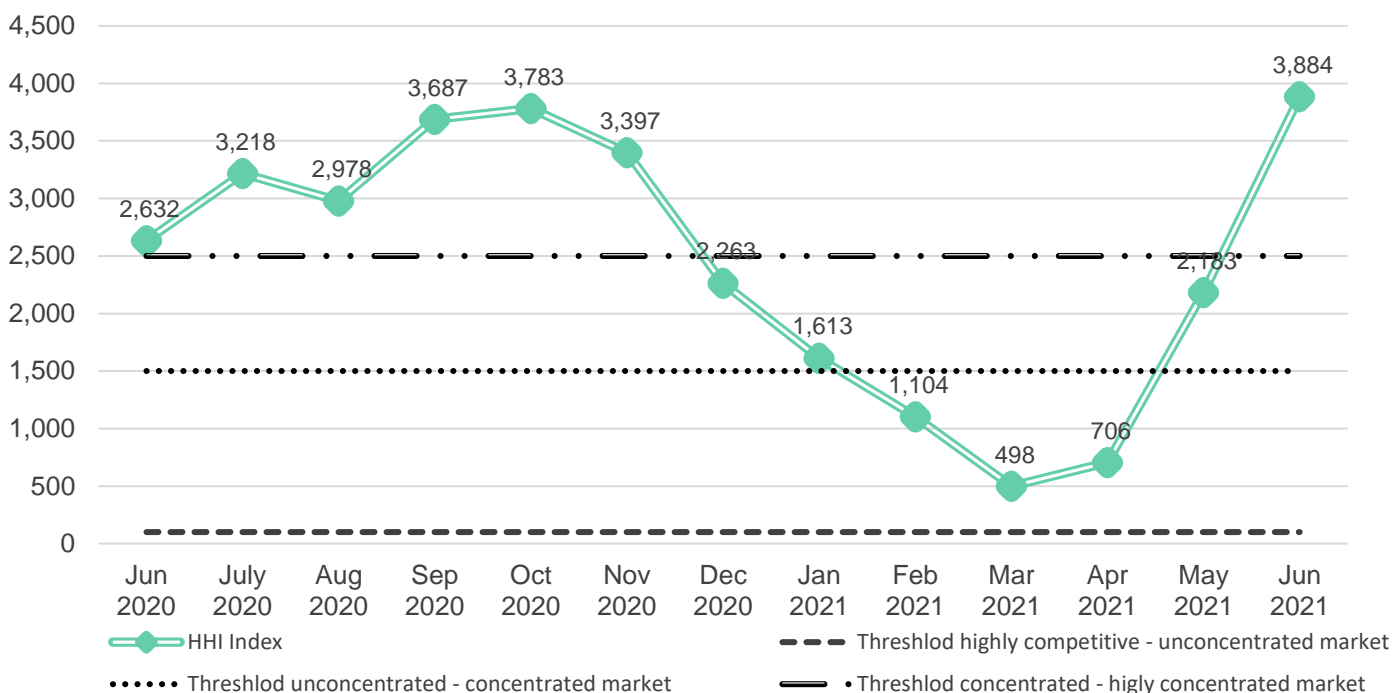


Source: ESCO/Geostat

2. Market Concentration

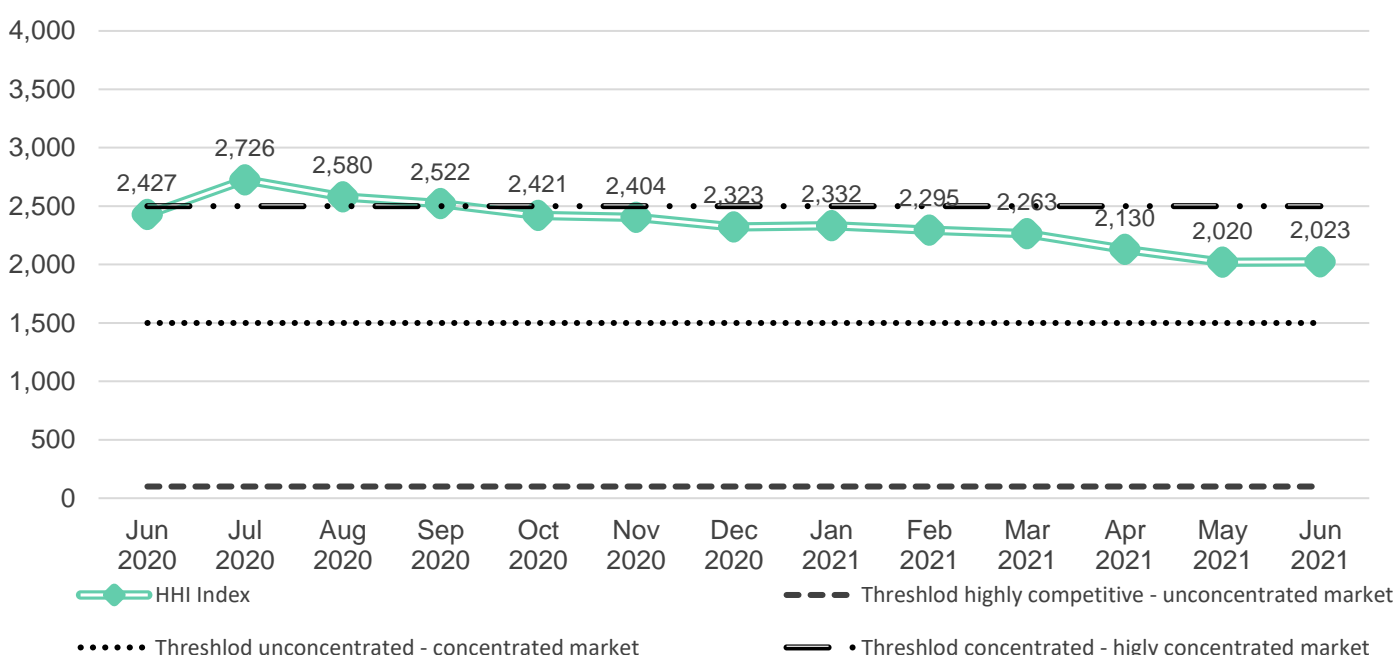
In conclusion, we utilize the Hirschman-Herfindahl (HHI) market concentration index to evaluate how competitive the generation and consumption segments of the market have been over the year. In June 2021, the Georgian electricity generation market passed the threshold of highly concentrated market, with an HHI value of 3,884 (Figure 19). This is higher than the level in June 2020 (with an HHI value of 2,632), and also substantially higher than the level in May 2021 (HHI was 2,183). Such a big increase on a monthly basis may be attributed to the return of Enguri HPP on the market, with a substantial amount of electricity generated. As for the consumption segment, in June 2021, the HHI consumption index was below the threshold for a highly concentrated market, with an HHI value of 2,023 (also slightly below the level in June 2020 – 2,427 and in May 2021 – 2,020).

Figure 19 - Hirschman-Herfindahl Index for Power Generation



Source: ESCO

Figure 20 - Hirschman-Herfindahl Index for Power Consumption



Source: ESCO

