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Policy Institute



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ELECTRICITY MARKET REVIEW

ISET POLICY INSTITUTE

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INFORMATION

- There was a decrease in total electricity generation on a yearly basis, and an increase on a monthly basis.
- Consumption increased on yearly basis, but decreased on a monthly basis.
- Consumption exceeded generation by 224 mln. kWh – 27% of total generation for April.
- The main import partner country was Russia.
- The cost of Russian imports was 0.46 tetri per kWh.
- The weighted average price of imports decreased on a yearly, and on a monthly basis.
- The weighted average price of exports remained the same on a yearly basis in USD, but increased in GEL (due to depreciation of GEL).
- HHI index for the Georgian electricity generation market remained lower than the threshold between concentrated and not concentrated markets, indicating that the generation side of the market is competitive (although it was more competitive in March – index values of 498 in March, and 706 in April).
- HHI for the Georgian electricity consumption market was slightly below the threshold of 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

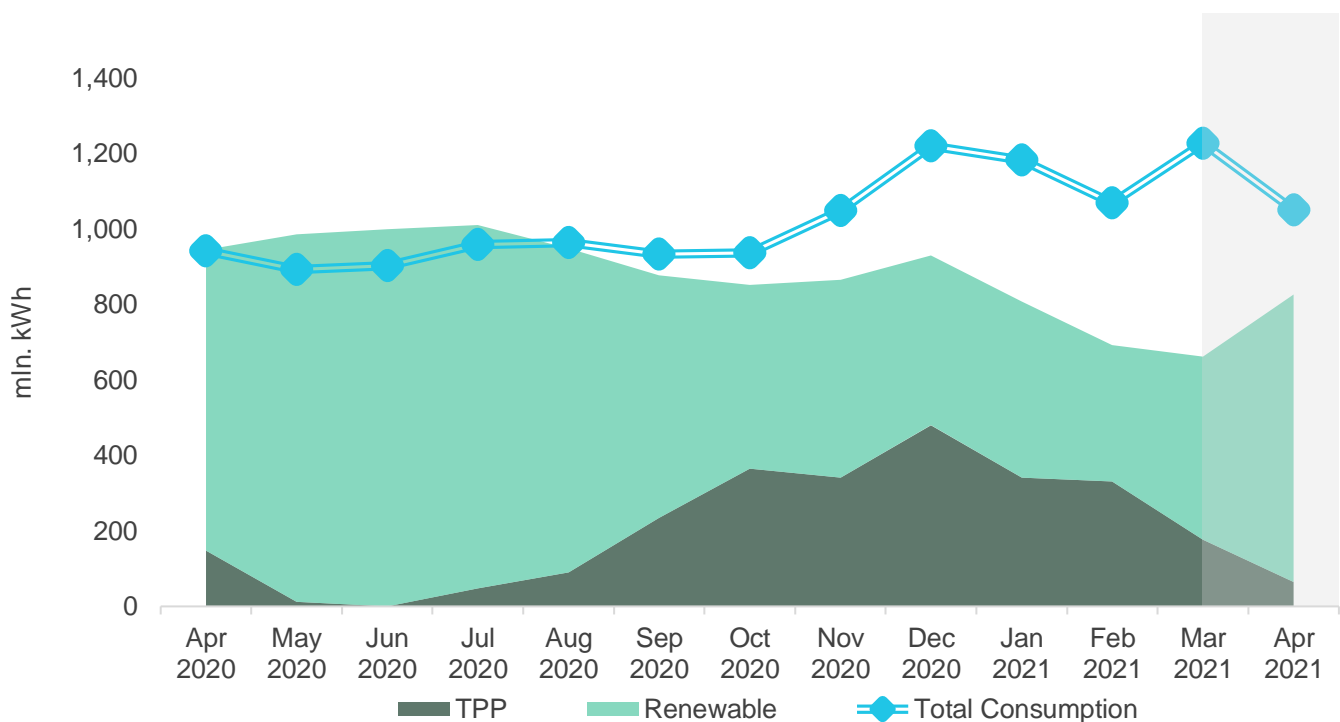
Generation – Consumption – Trade

In April 2021, Georgian power plants generated 825 mln. kWh of electricity (Figure 1). This represents a 13% decrease in total generation, compared to the previous year (in April 2020, the total generation was 944 mln. kWh). The decrease in generation on a yearly basis comes from the decrease of 4% in hydro power generation, as well as, from decrease in the generation of thermal and wind power by 56% and 18%, respectively.

On a monthly basis, generation increased by approximately 25% (in March 2021, total generation was 661 mln. kWh) (Figure 1). The monthly decrease in total generation, despite an increase in hydro generation of 58% compared to March 2021, was caused by a 63% reduction in thermal power generation, and 23% decrease in wind power generation.

The consumption of electricity on the local market was 1,049 mln. kWh (+12% and -14% compared to April 2020, and March 2021, respectively) (Figure 1). In April 2021, power consumption exceeded generation by 224 mln. kWh which was 27% of total generation (in April 2020 difference between total generation and consumption resulted in a surplus of 3 mln. kWh, around 0.3% of the total generation for the month).

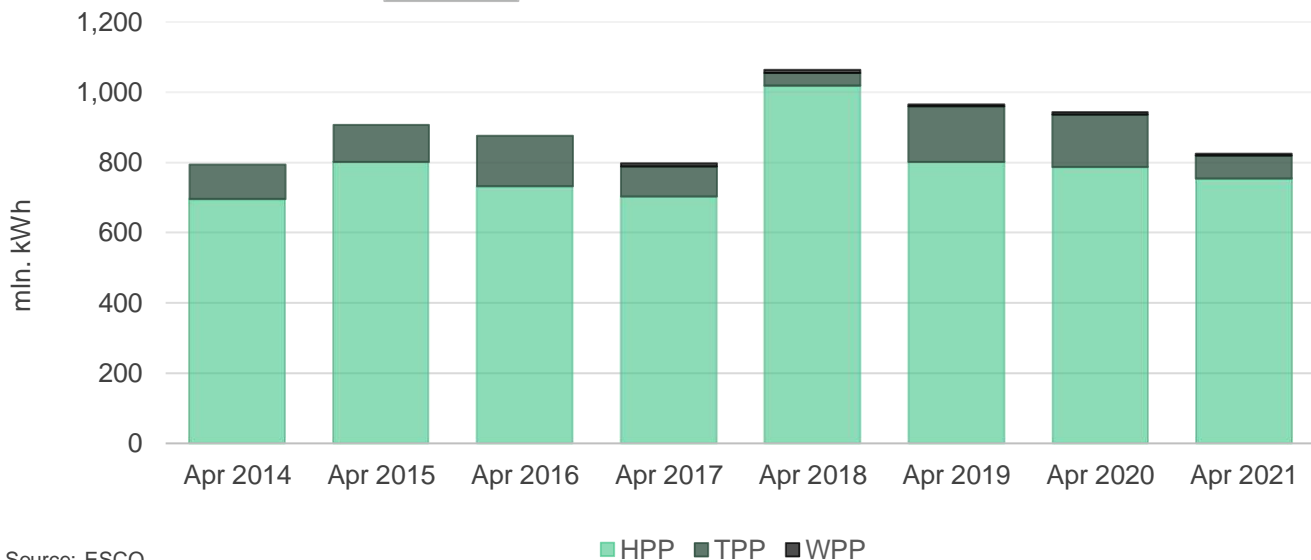
Figure 1 - Electricity Consumption and Generation



Source: Electricity System Commercial Operator (ESCO)

Most generation came from hydro power plants. In April 2021, hydro power (HPP) generation amounted to 753 mln. kWh (91% of total), while thermal power (TPP) generation was 65 mln. kWh (8% of total), and wind power (WPP) generation was 7 mln. kWh (1% of total) (Figure 2).

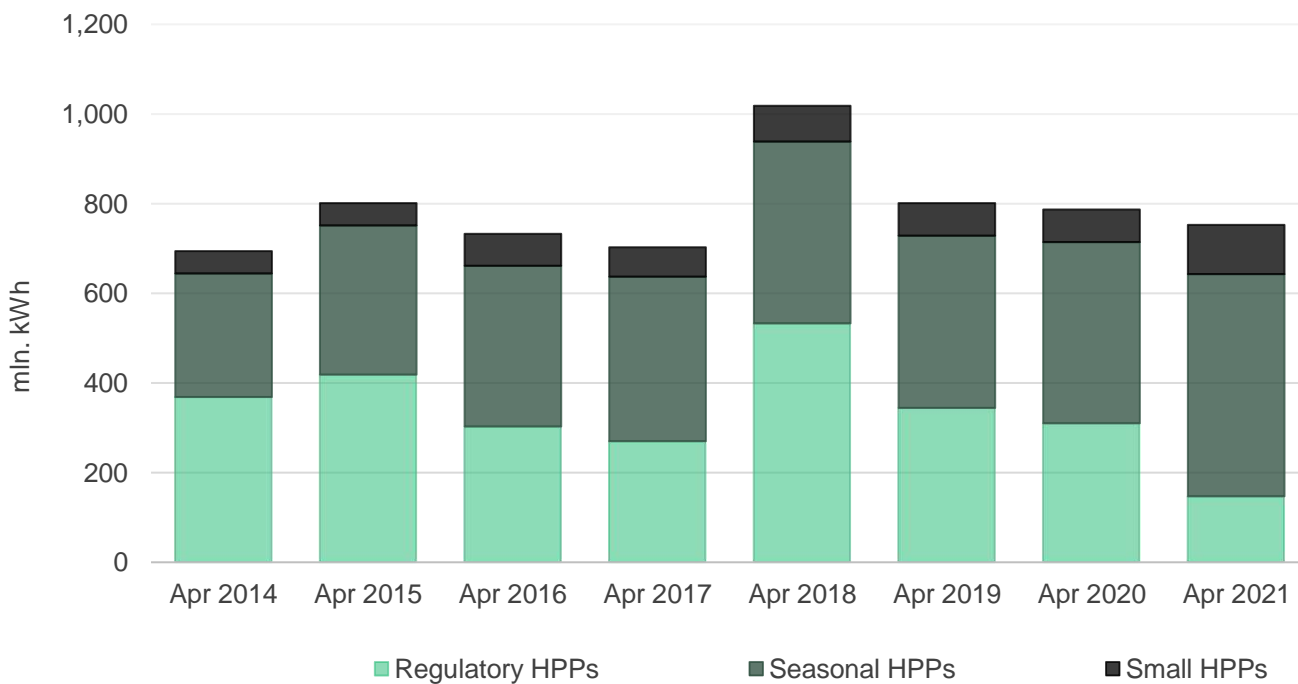
Figure 2 - Electricity Generation by Sources



Source: ESCO

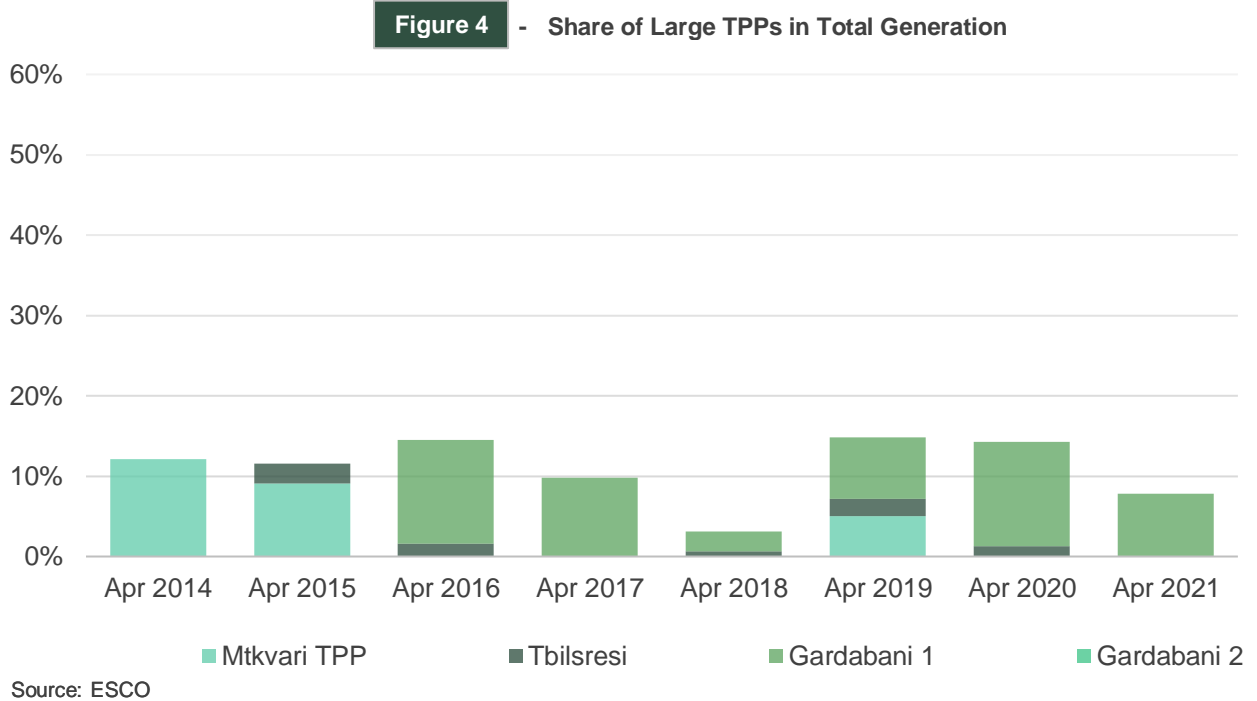
Among hydropower generators, large (regulatory) HPPs produced 20% (147 mln. kWh) of electricity, while seasonal and small HPPs produced 66% (496 mln. kWh) and 15% (110 mln. kWh), respectively (Figure 3).

Figure 3 - HPP Generation by Type

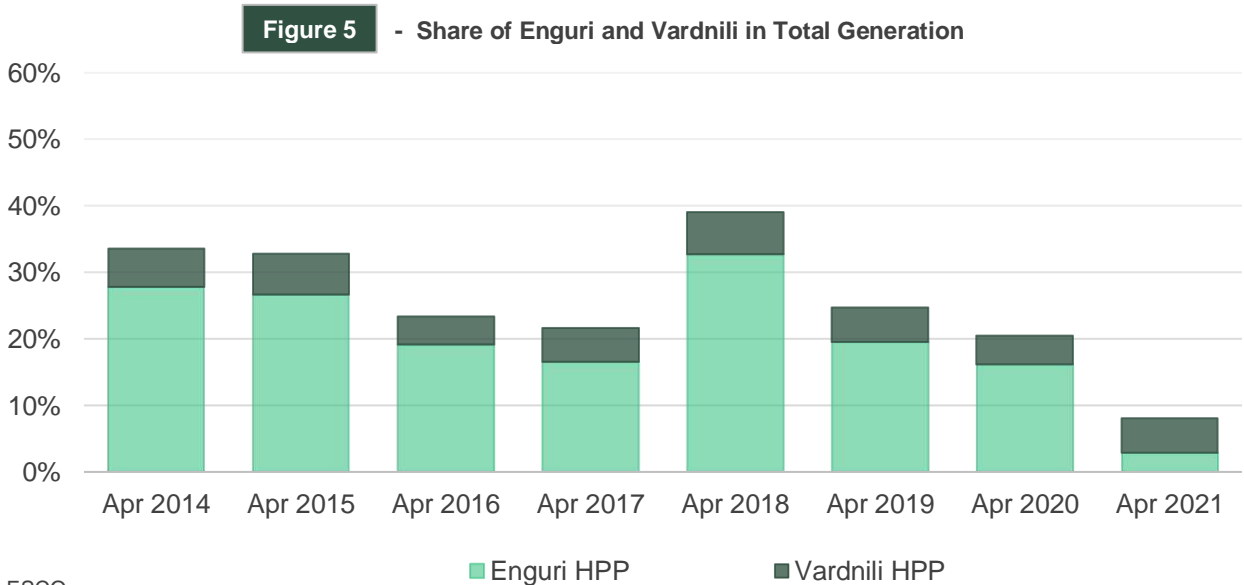


Source: ESCO

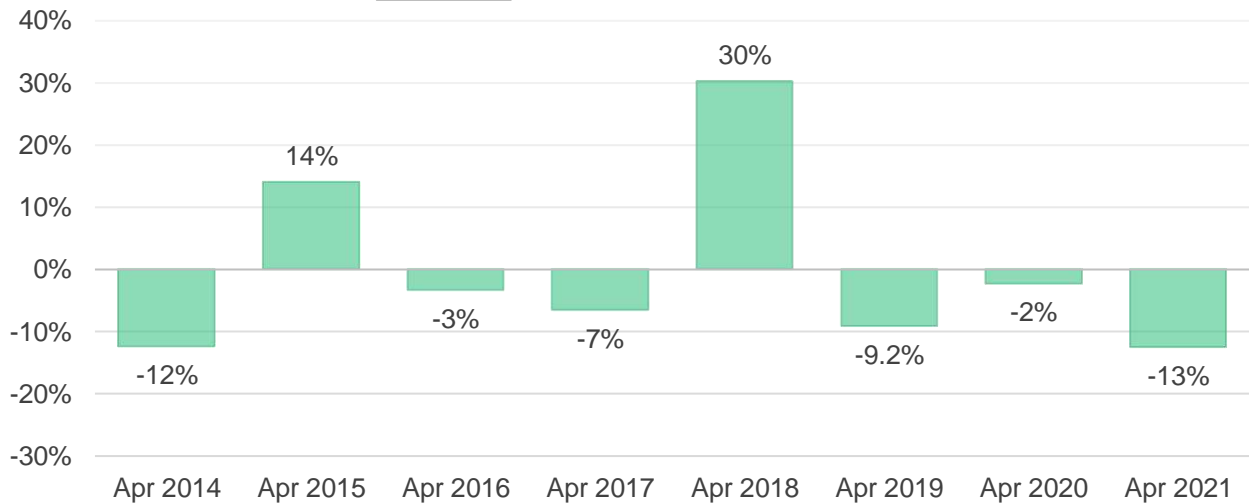
Among thermal power plants, Gardabani 1 TPP generated 64 mln. kWh, 99% of total thermal power generation, but only 8% of total generation (Figure 4).



As for HPP generation, Vardnili HPP generated 43 mln. kWh (29% of generation for regulatory HPPs and 5% of total generation). Enguri HPP was fully stopped during the largest share of April. However, after opening it managed to generate 24 mln. kWh in last 4 days of April, and this represents 16% of generation of regulatory HPPs and 3% of total generation (Figure 5).

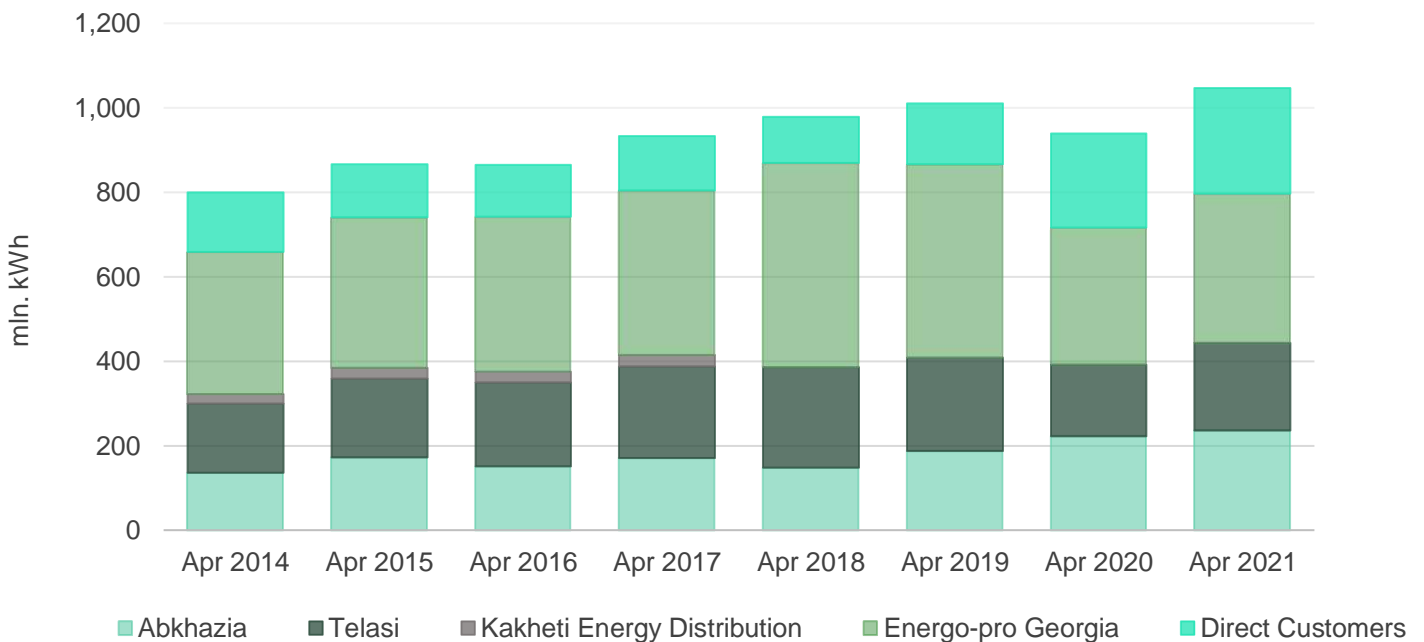


Overall, total generation decreased by 13% compared to April 2020 (Figure 6).

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

Source: ESCO

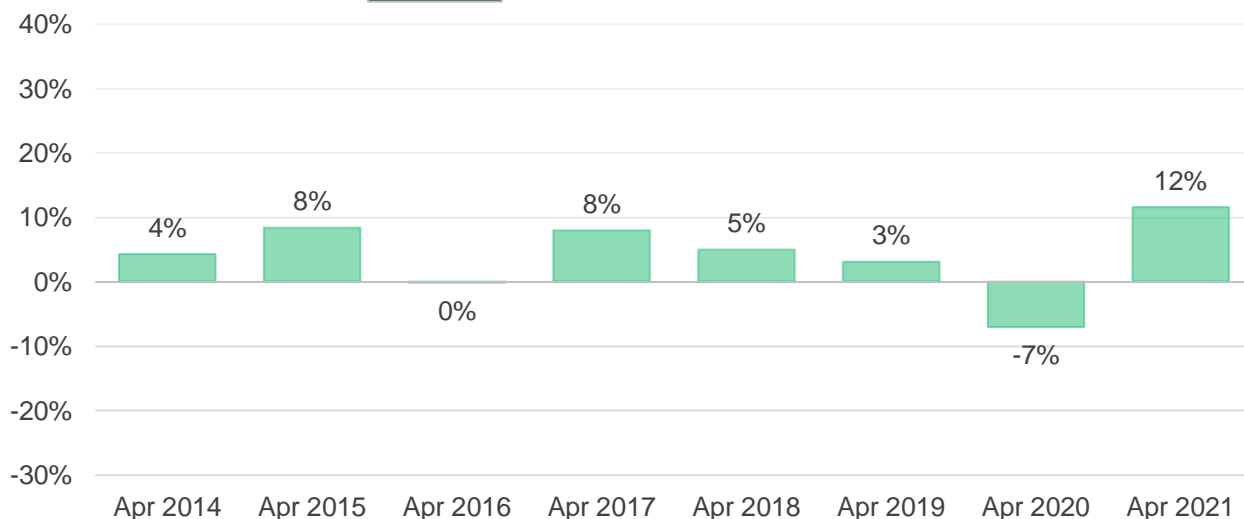
Total electricity demand came from: Energo-Pro Georgia¹ (34% - 353 mln. kWh), Abkhazia (23% - 236 mln. kWh), Telasi (20% - 208 mln. kWh), and direct customers (24% - 249 mln. kWh) (Figure 7). Annual demand from Energo-Pro, Telasi, Abkhazia and direct customers increased by 9%, 22%, 7% and 12%, respectively. Overall, there was an annual growth of 12% in the total electricity consumption in April 2021, compared to April 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)

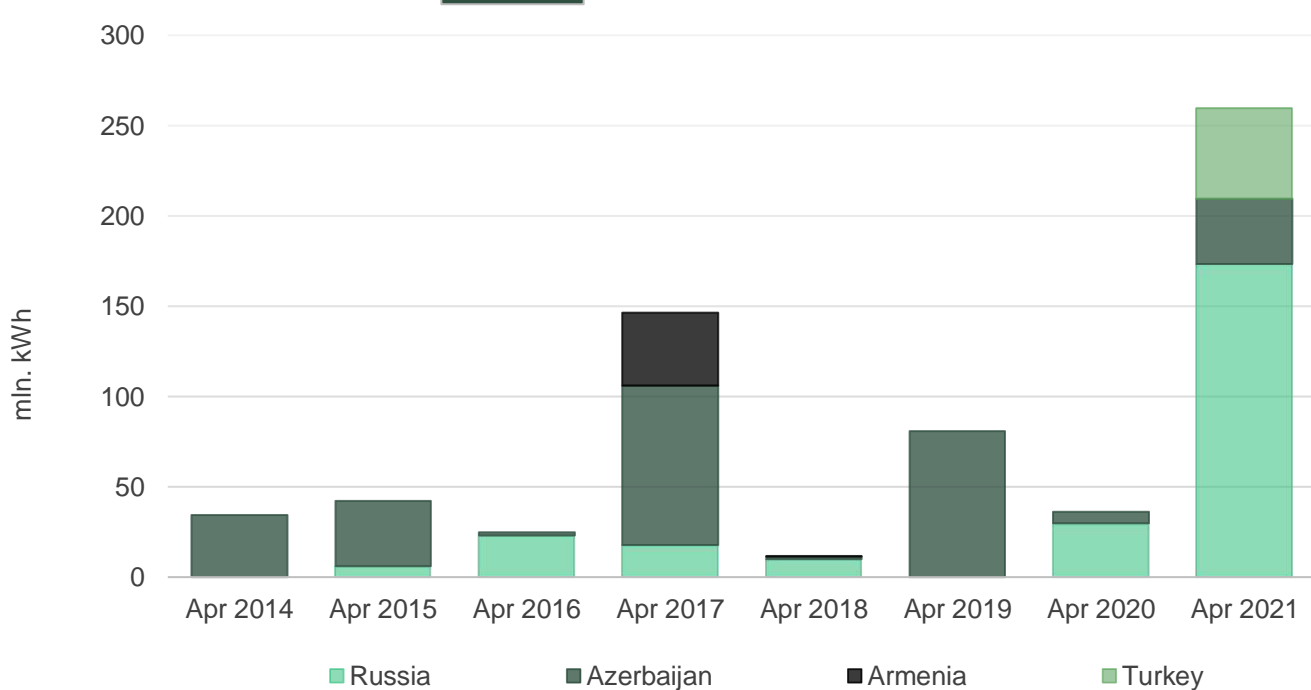


Source: ESCO

In April 2021, Georgia imported 260 mln. kWh of electricity (compared to 36 mln. kWh April 2020), 67% of which came from Russia, 14% came from Azerbaijan and 19% came from Turkey (Figure 9). In April 2021, Georgia exported 5 mln. kWh (6 mln. kWh in April 2020), 100% of which was exported to Azerbaijan (Figure 10). There was no electricity transit in April 2021 (In April 2020, there was no electricity transit as well).

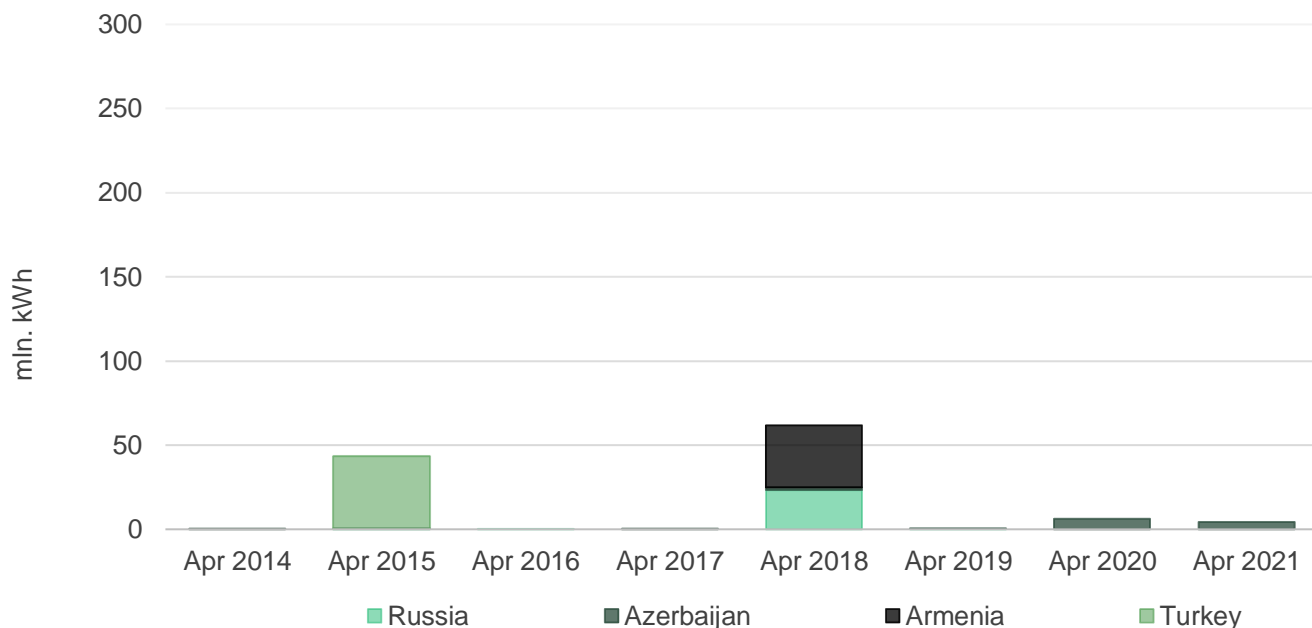
April 2021 is the sixth consecutive month that was characterized by the increased annual imports. Compared to April 2020, imports increased by approximately 6 times (Figure 9).

Figure 9 - Imports by Year



Source: ESCO

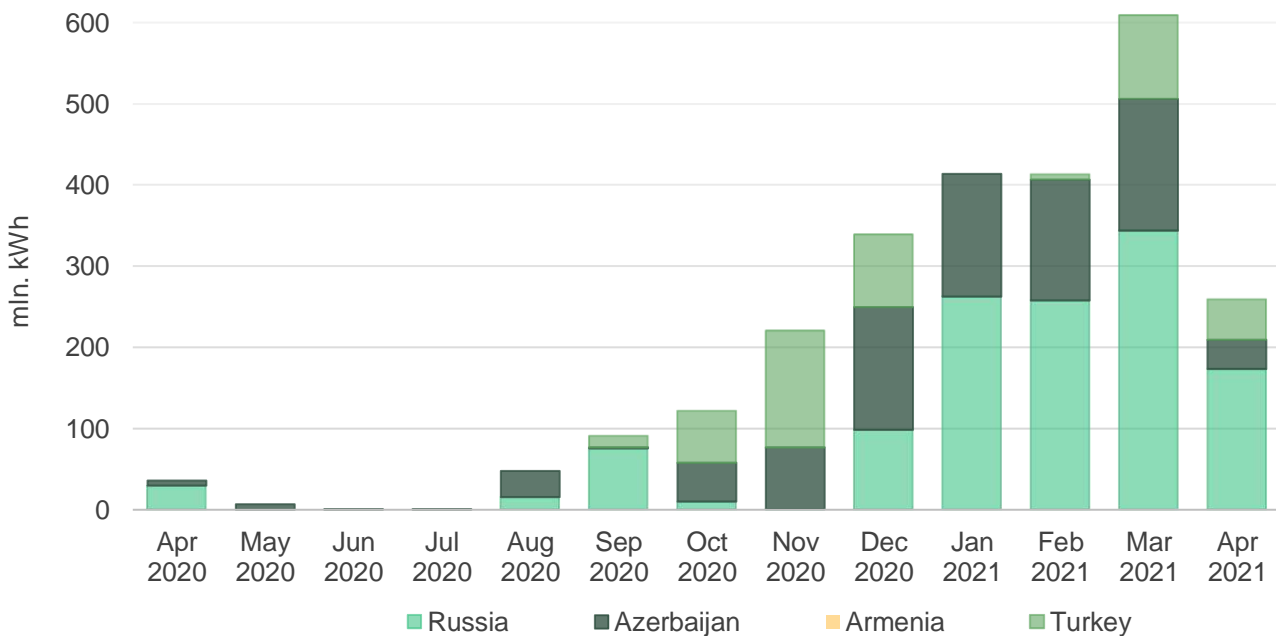
Figure 10 - Exports by Year



Source: ESCO

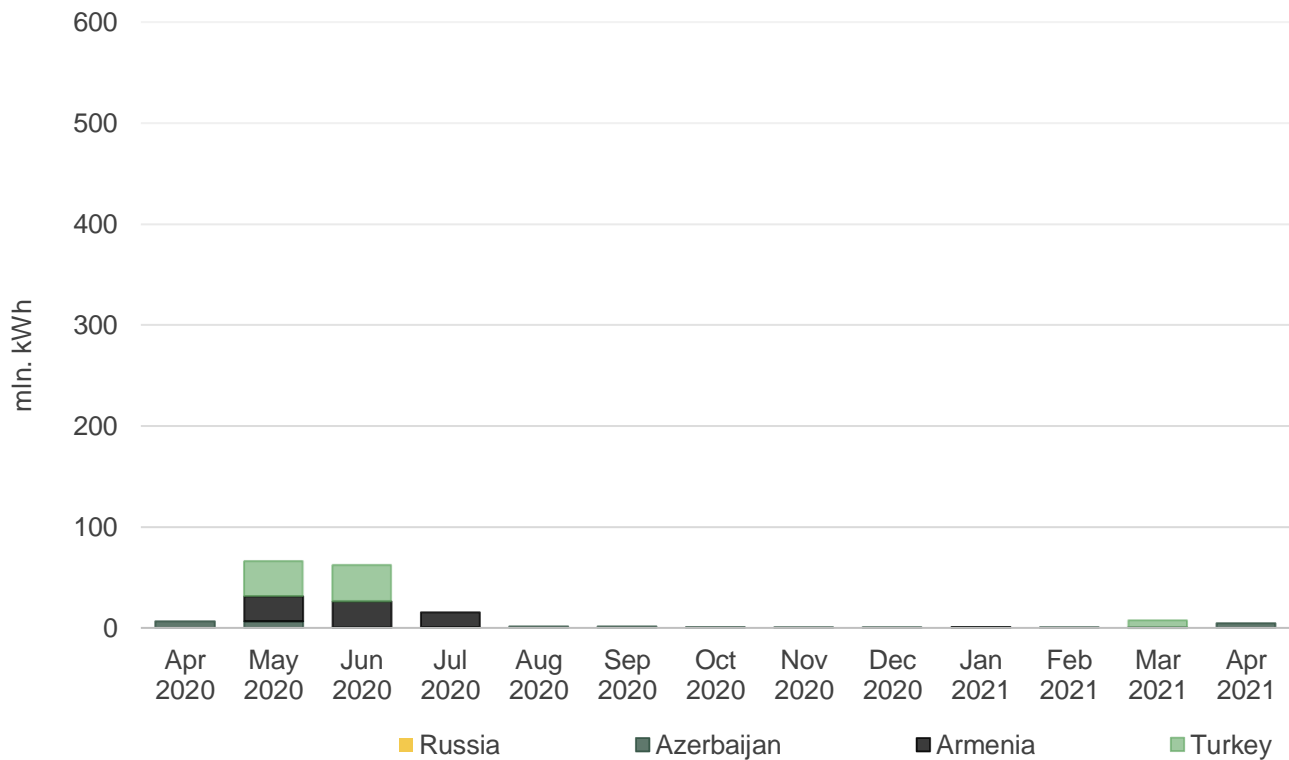
In April 2021, electricity imports decreased by 57% compared to March 2021 (Figure 11), while electricity export decreased by 40% (Figure 12).

Figure 11 - Imports by Month



Source: ESCO

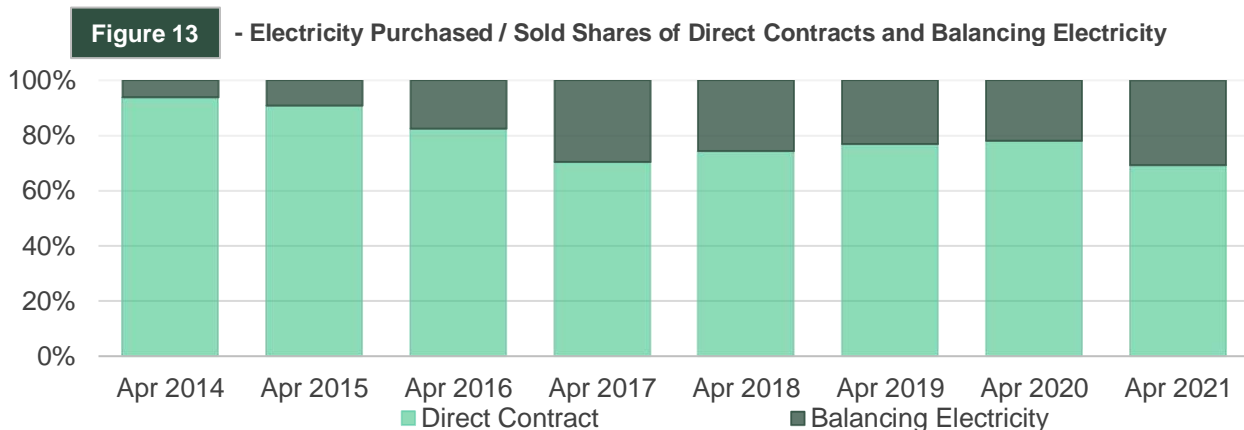
Figure 12 - Exports by Month



Source: ESCO

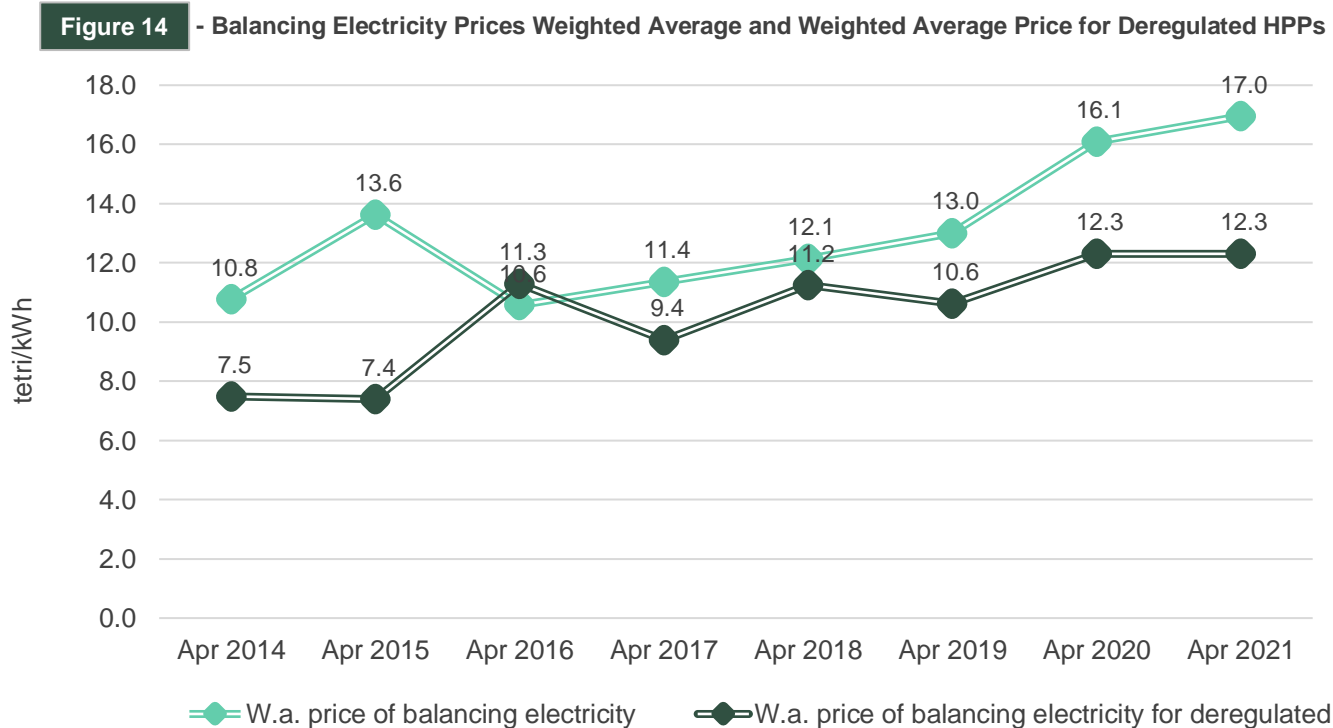
1. Market Operations

In April 2021, 69% of the electricity sold on/from the local market was sold through direct contracts. The remaining 31% was sold as balancing electricity (Figure 13).



Source: ESCO

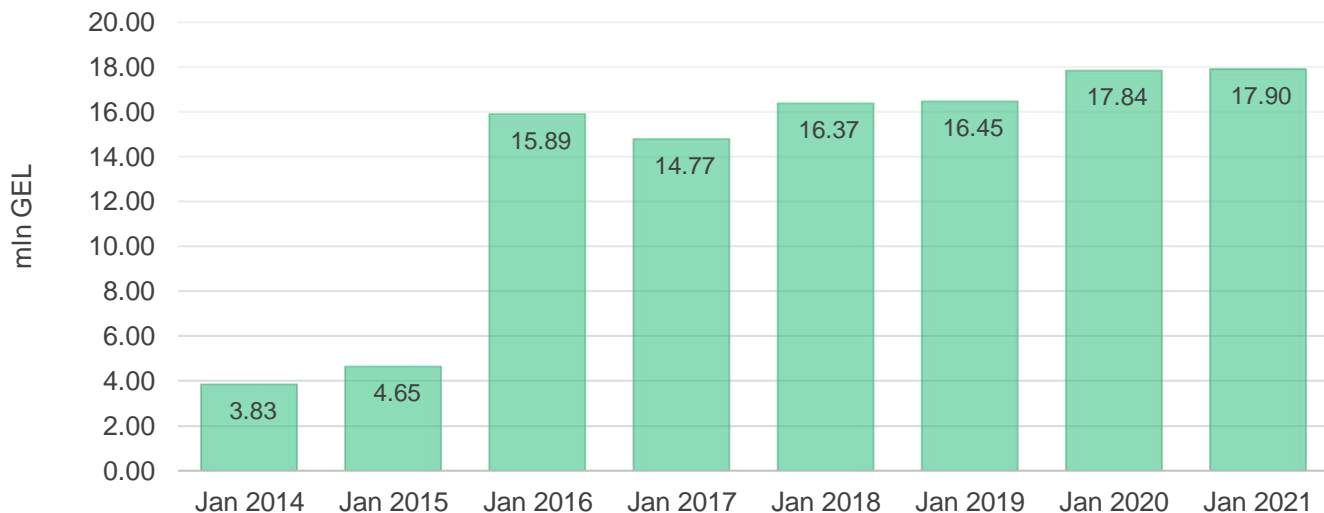
In April 2021, the weighted average price of balancing electricity was 17 tetri/kWh, which corresponds to an annual increase of 5% compared to April 2020. As for the weighted average price for deregulated (small) HPPs, it was 12.3 tetri/kWh, and remained the same as in the corresponding month of the previous year (Figure 14).



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, and April 2021 are still not available, so we use the information from January.

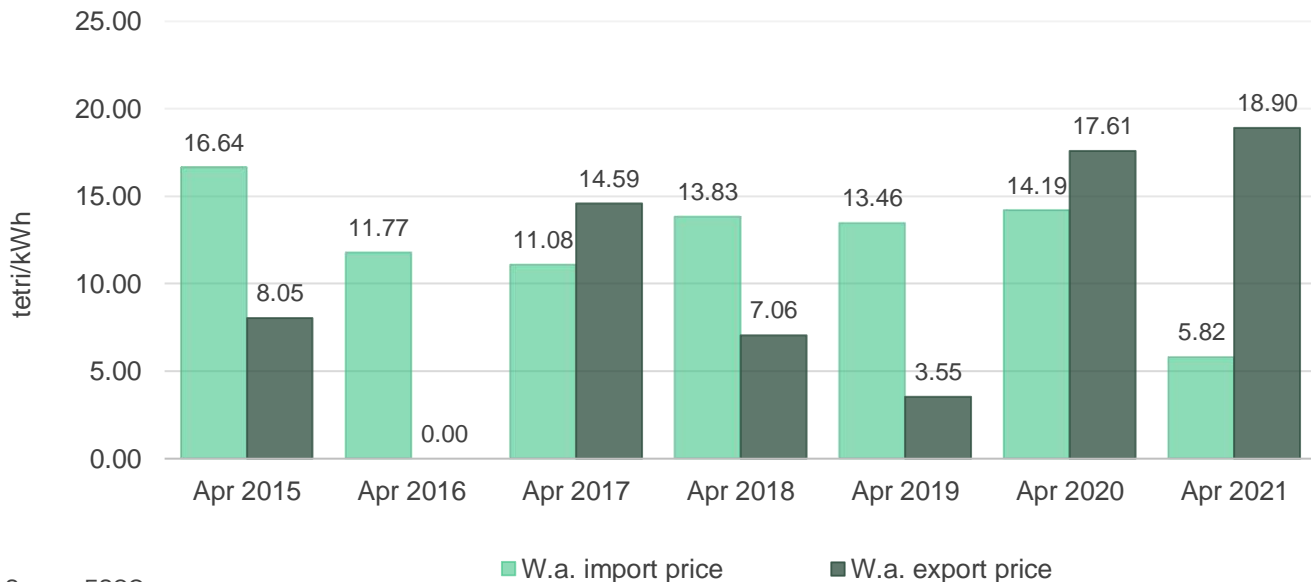
Figure 15 - Cost of Guaranteed Capacity



Source: ESCO

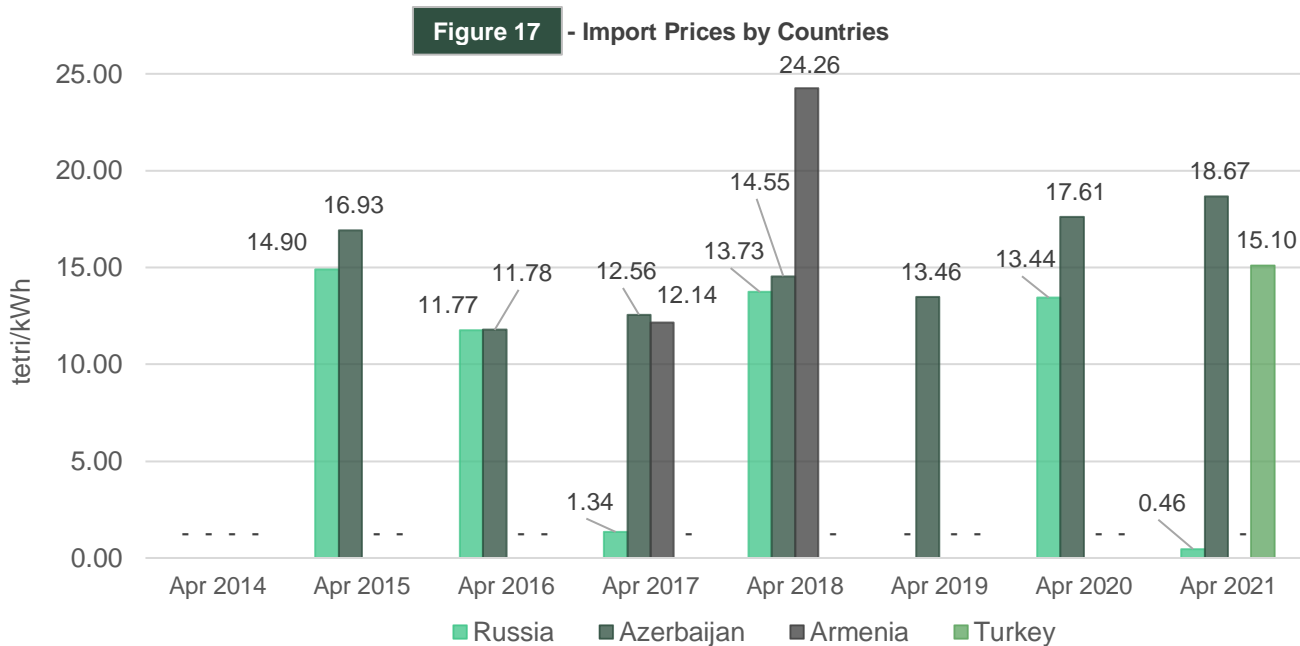
The weighted average electricity import price in April 2021 decreased by 62% in USD, on an annual basis, and decreased by approximately 59% in GEL (from 4.43 ¢ or 14.19 tetri per kWh in April 2020 to 1.69 ¢ or 5.82 tetri per kWh in April 2021 - Figure 16). The weighted average import price decreased by 28% in USD and 26% in GEL, on a monthly basis (import price was 2.37 ¢ or 7.9 tetri per kWh in March 2021). The weighted average electricity export price in April 2021 remained the same compared to the previous year in terms of USD, but increased by 7% in GEL (from 5.5 ¢ or 17.61 tetri per kWh in April 2020 to 5.499 ¢ or 18.9 tetri per kWh on an annual basis - Figure 17). The weighted average export price increased from 0.003 ¢ or 0.01 tetri per kWh to 5.5 ¢ or 18.9 tetri per kWh on a monthly basis.

Figure 16 - Prices Import/Export

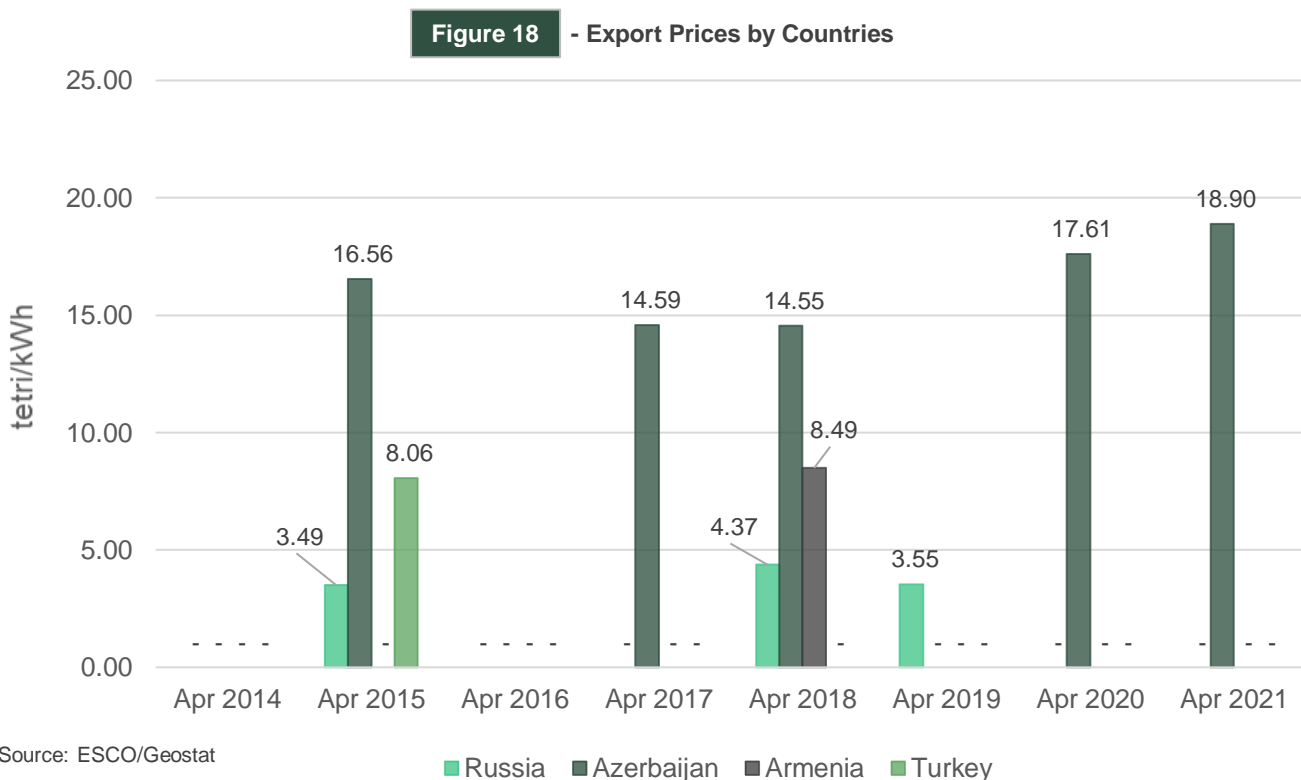


Source: ESCO

Import prices from Russia, Azerbaijan, and Turkey stood at 0.13 ¢ or 0.46 tetri per kWh, 5.43 ¢ or 18.67 tetri per kWh, and 4.4 ¢ or 15.1 tetri per kWh, respectively (Figure 17).



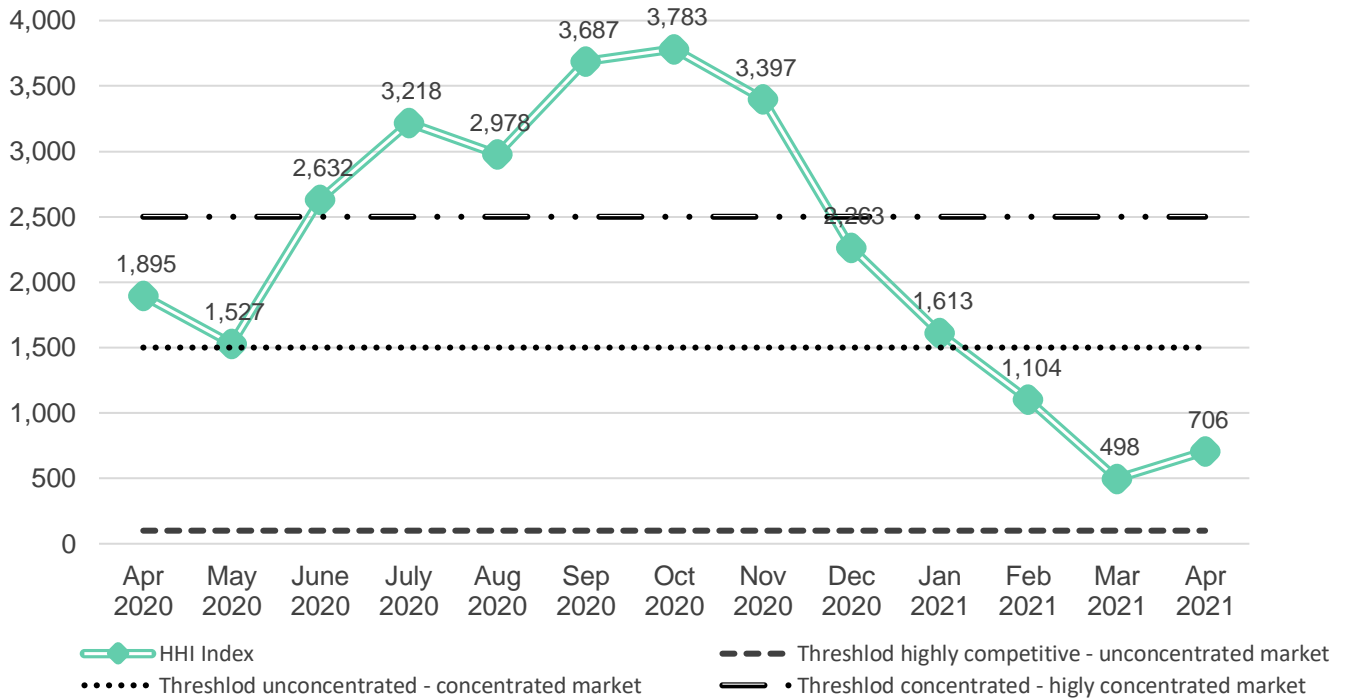
In April 2021, the electricity export price to Azerbaijan stood at 5.5 ¢ or 18.9 tetri per kWh (Figure 18).



2. Market Concentration

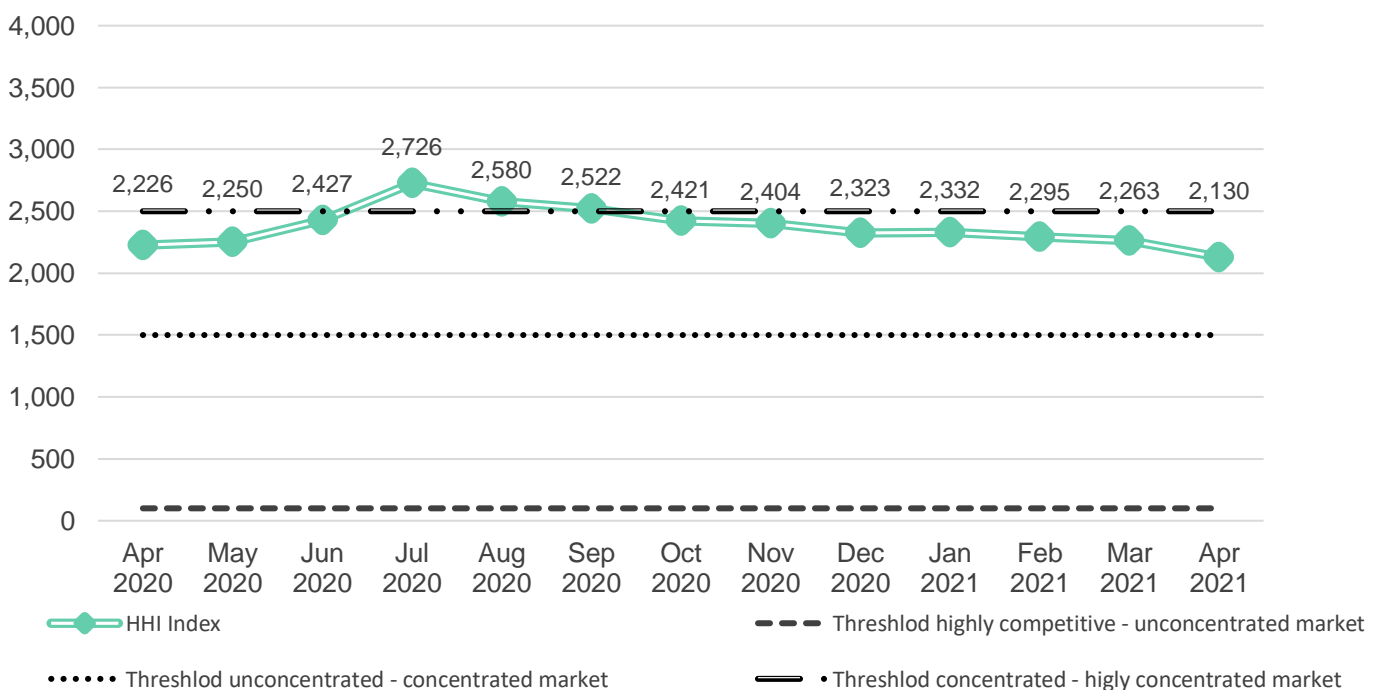
In conclusion, we utilize the Hirschman-Herfindahl (HHI) market concentration index to evaluate how competitive the generation and consumption segments of the market have been over the year. In April 2021, the Georgian electricity generation market fell well below the threshold between concentrated and not concentrated markets, with an HHI value of 706 (Figure 19). This is lower than the level in April 2020 (with an HHI value of 1,895), but higher than the level in March 2021 (HHI was 498). As for the consumption segment, in April 2021, the HHI consumption index was slightly below the threshold for a highly concentrated market, with an HHI value of 2,130 (also slightly below the level in April 2020 – 2,226) and in March 2021 – 2,263).

Figure 19 - Hirschman-Herfindahl Index for Power Generation



Source: ESCO

Figure 20 - Hirschman-Herfindahl Index for Power Consumption



Source: ESCO