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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 May 2020, both power generation (-15%) and consumption (-9%) have decreased compared to the same month in 2019.
- Substantial decrease in consumption, both in monthly (-5% compared to April 2020) and annual basis (-9% compared to May 2019), is clearly caused by the COVID 19 lockdown.
- Interestingly, electricity consumption in Abkhazia has increased by a staggering 47%, while in the rest of the country consumption decreased.
- In May 2020, cross-border electricity trade was unsubstantial, with imports from Azerbaijan and reduced exports to Azerbaijan, Armenia and Turkey compared to the corresponding month of the previous year.
- In May 2020 the concentration in the Demand side of the market kept below the threshold of highly concentrated markets, while it approached the threshold of concentrated markets on the Generation side.

ABBREVIATION USED

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

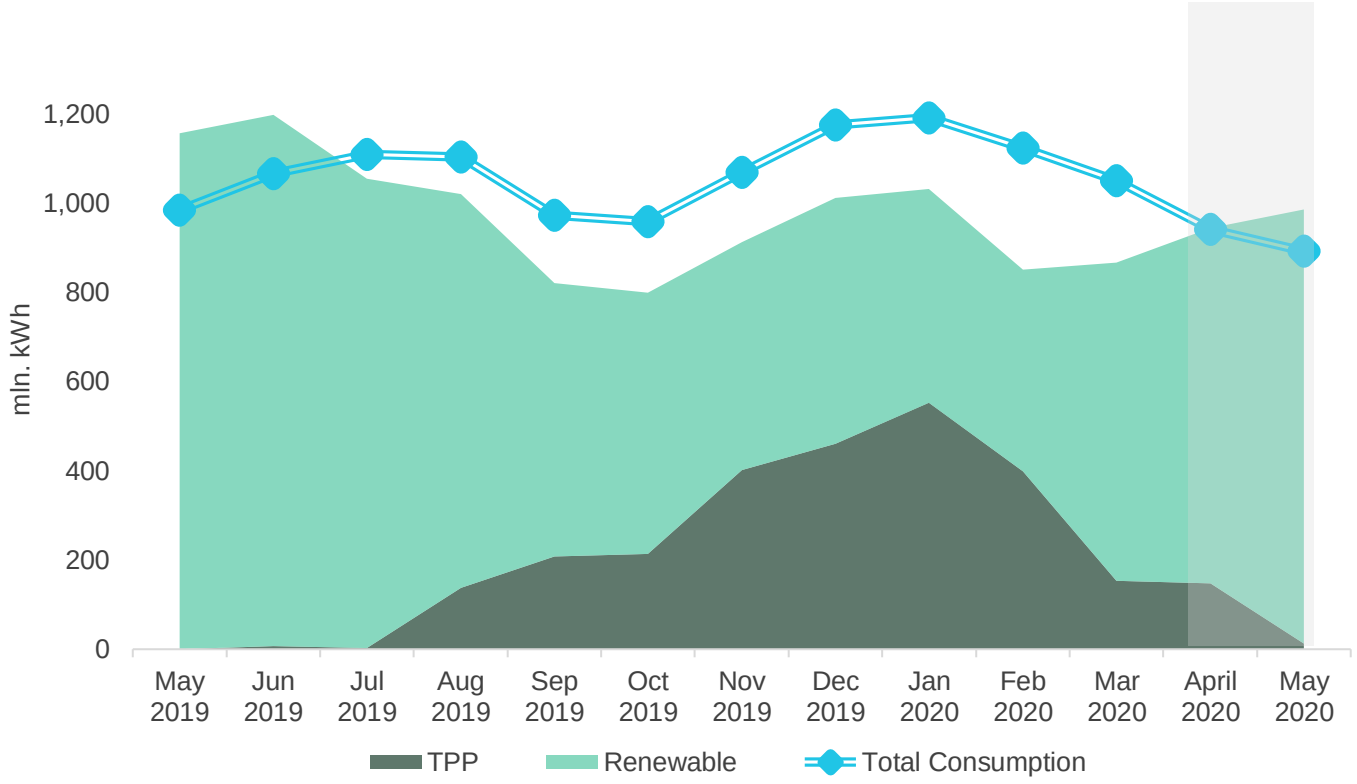
Generation – Consumption – Trade

In May 2020, Georgian power plants generated 986 mln. kWh of electricity (Figure 1). This represents a 15% decrease in total generation, compared to the previous year (May 2019, the total generation was 1,156 mln. kWh). The decrease in generation on a yearly basis comes from the decrease of 16% in hydro power generation more than offsetting an increase in thermal and wind power generation, high in percentage terms (+34% and + 500%, respectively) but low in absolute terms.

On a monthly basis, generation increased by 4% (in April 2020, total generation was 944 mln. kWh) (Figure 1). The monthly increase in total generation was the result of the increase of 23% in hydro, that offset 3% and 91% decrease in wind and thermal power generation, respectively.

The consumption of electricity on the local market was 892 mln. kWh (-9% and -5% compared to May 2019, and April 2020, respectively) (Figure 1). In May 2020, power generation exceeded consumption by 94 mln. kWh which was 9.5% of total generation (in contrast in May 2019 difference between total generation and consumption resulted in a surplus of 171 mln. kWh which was around 15% of the total generation for the month).

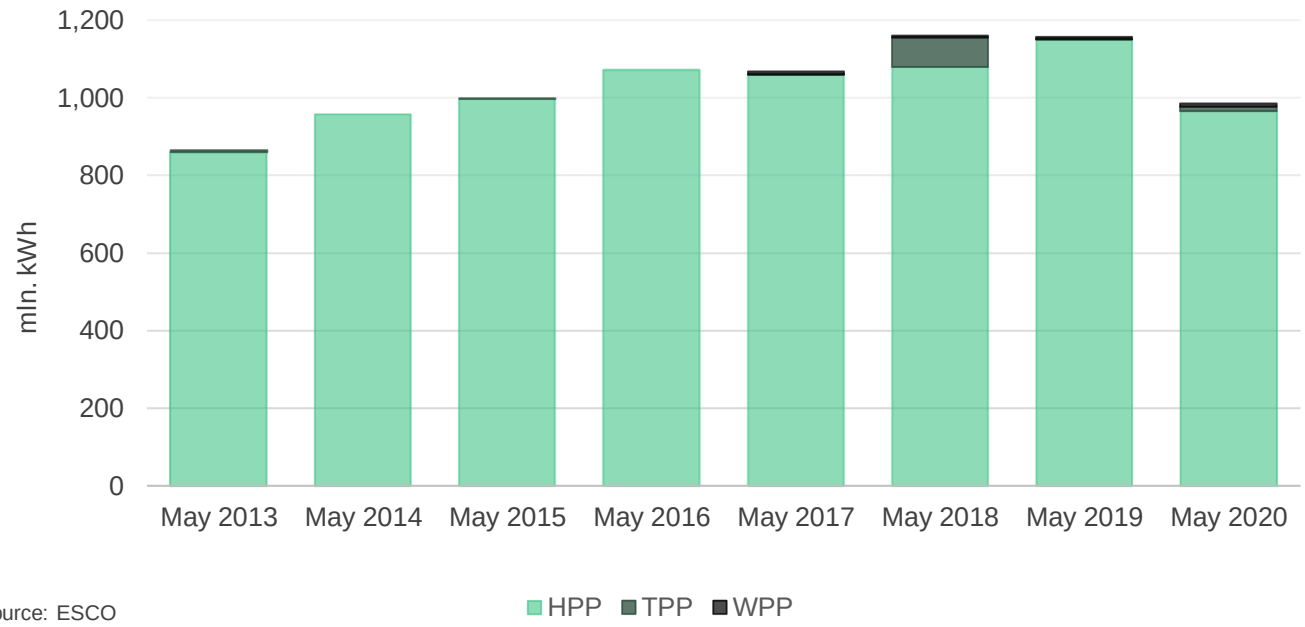
Figure 1 - Electricity Consumption and Generation



Source: Electricity System Commercial Operator (ESCO)

In this month most generation came from hydro power plants. In May 2020, hydro power (HPP) generation amounted to 965 mln. kWh (98% of total), while thermal power (TPP) generation was 13 mln. kWh (1.3% of total), and wind power (WPP) generation was 8 mln. kWh (0.8% of total) (Figure 2).

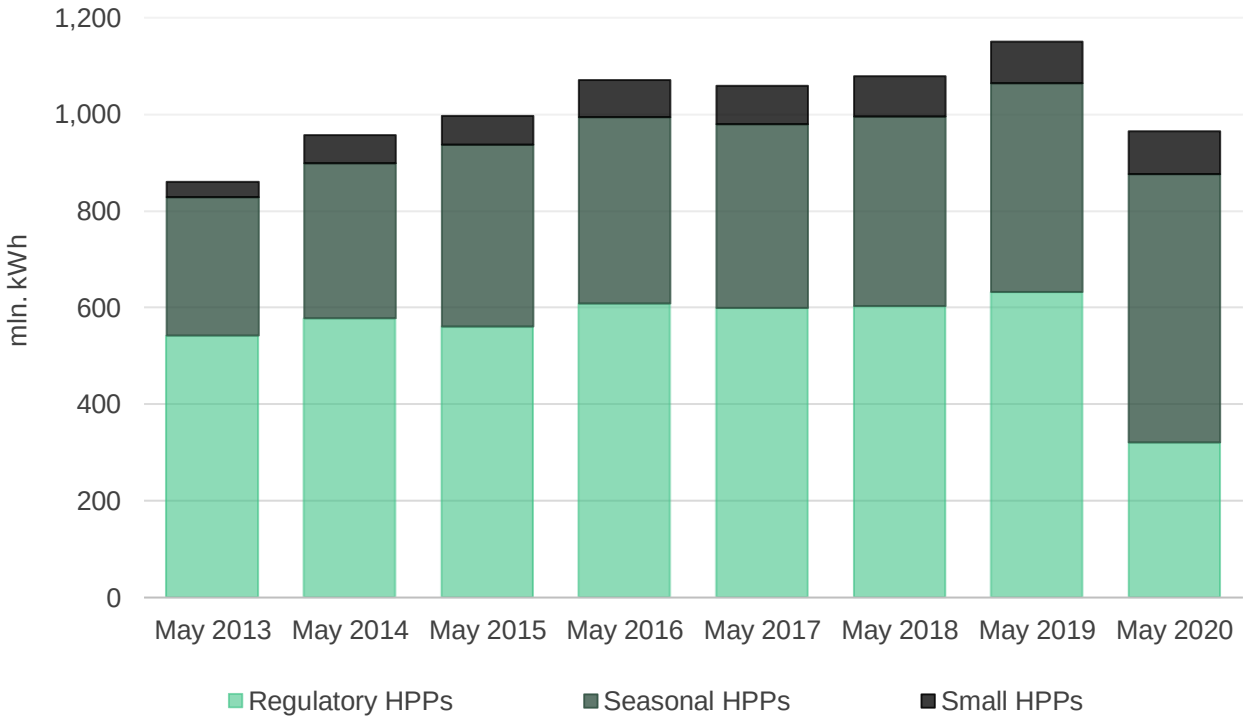
Figure 2 - Electricity Generation by Sources



Source: ESCO

Among hydropower generators, large (regulatory) HPPs produced 33% (322 mln. kWh) of electricity, while seasonal and small HPPs produced 57% (555 mln. kWh) and 9% (89 mln. kWh), respectively (Figure 3).

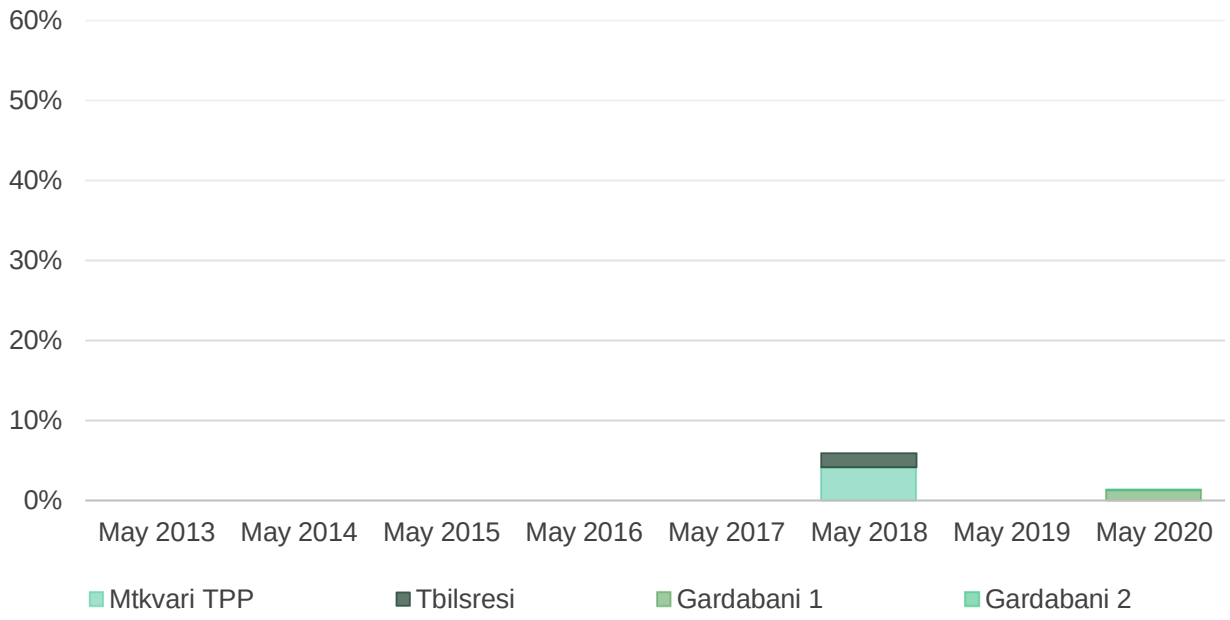
Figure 3 - HPP Generation by Type



Source: ESCO

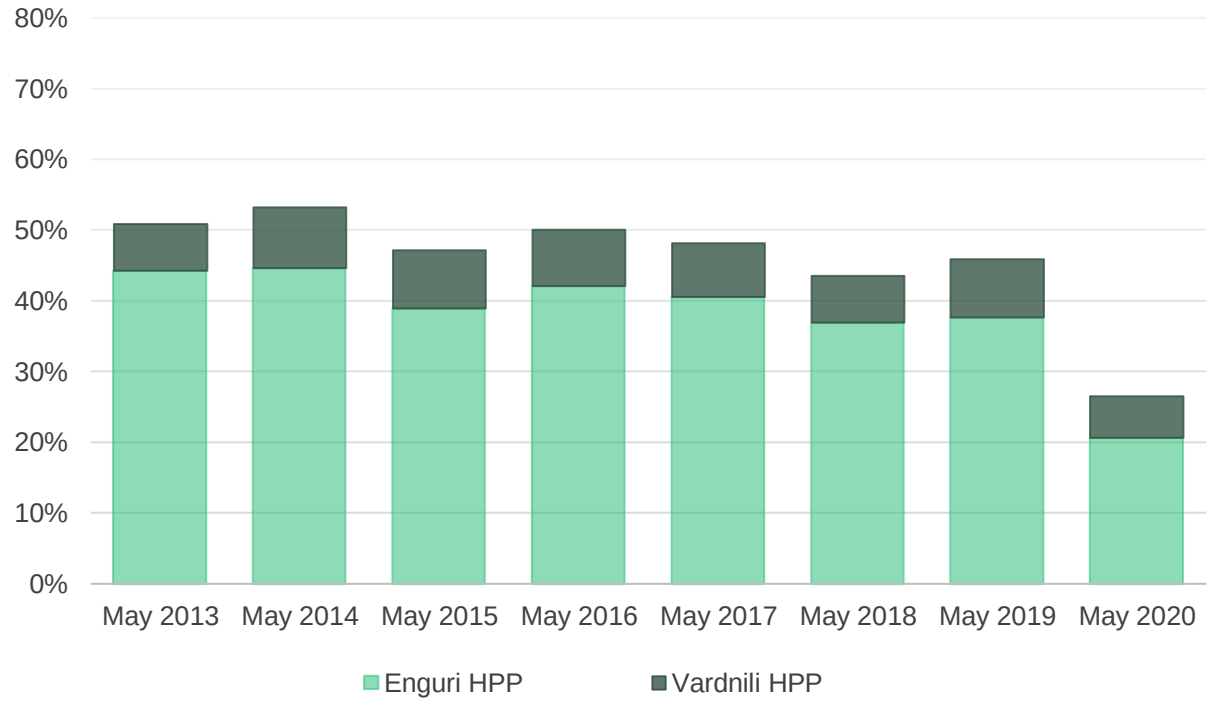
Among thermal power plants Gardabani 1 generated 12.85 mln. kWh, 99.7% of total thermal power generation and just 1.3% of total generation (Figure 4). As for HPP generation, the large HPPs, Enguri and Vardnili generated 262 mln. kWh (81% of generation for regulatory HPPs), with 204 mln. kWh and 58 mln. kWh, respectively. Power generated by Enguri and Vardnili represents around 27% of the total generation (Figure 5). Overall, total generation decreased by 15% compared to May 2019 (Figure 6).

Figure 4 - Share of Large TPPs in Total Generation



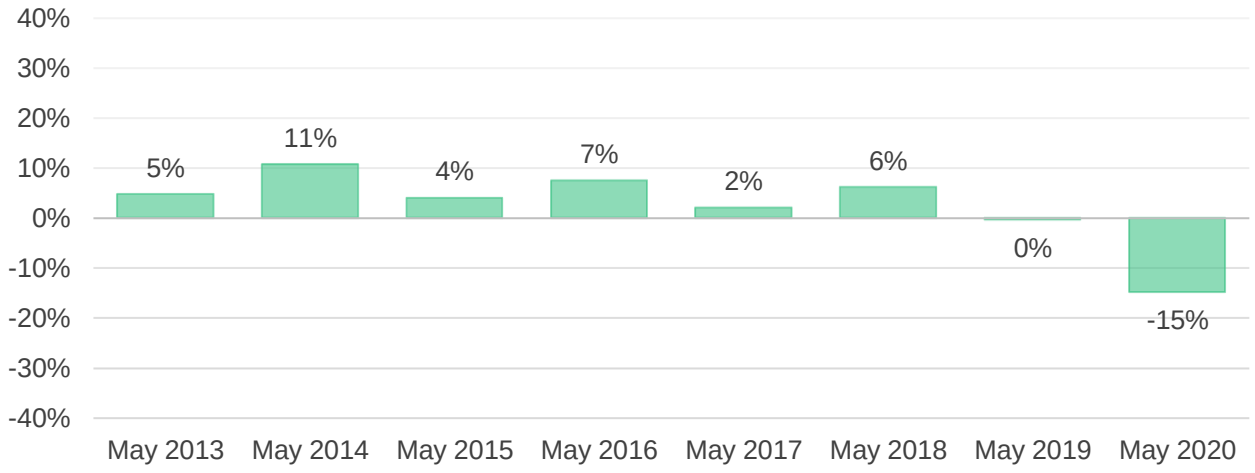
Source: ESCO

Figure 5 - Share of Enguri and Vardnili in Total Generation



Source: ESCO

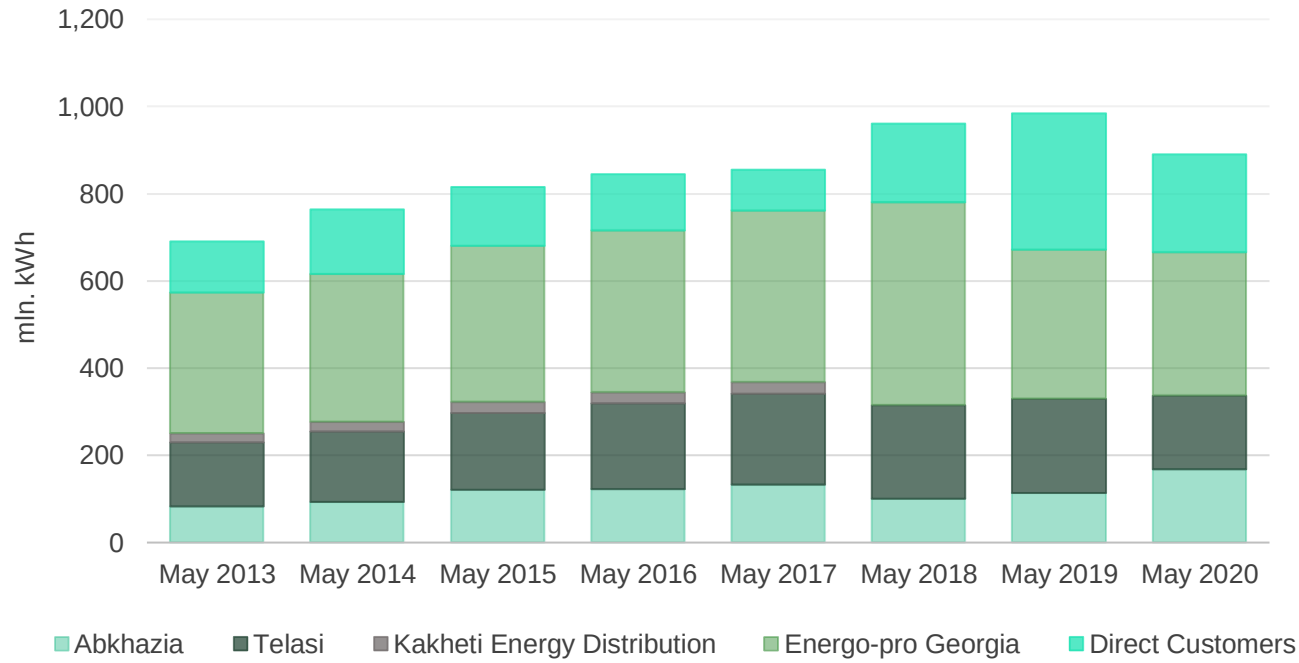
Figure 6 - Growth of Generation (%, y/y)



Source: ESCO

Total electricity demand came from: Energo-Pro Georgia[1] (37% - 328 mln. kWh), Telasi (19% - 169 mln. kWh), Abkhazia (19% - 168 mln. kWh), and direct customers (25% - 225 mln. kWh) (Figure 7). Annual demand from Energo-Pro Georgia Telasi and direct customers decreased by 4%, 22% and 28%[2] respectively, while consumption in Abkhazia increased by a staggering 47%. Overall, there was an annual decrease of 9% in the total electricity consumption in May 2020, compared to May 2019 (Figure 8). Similar to April, consumption decreased due to the COVID-19 lockdown of the economy in May 2020 as well.

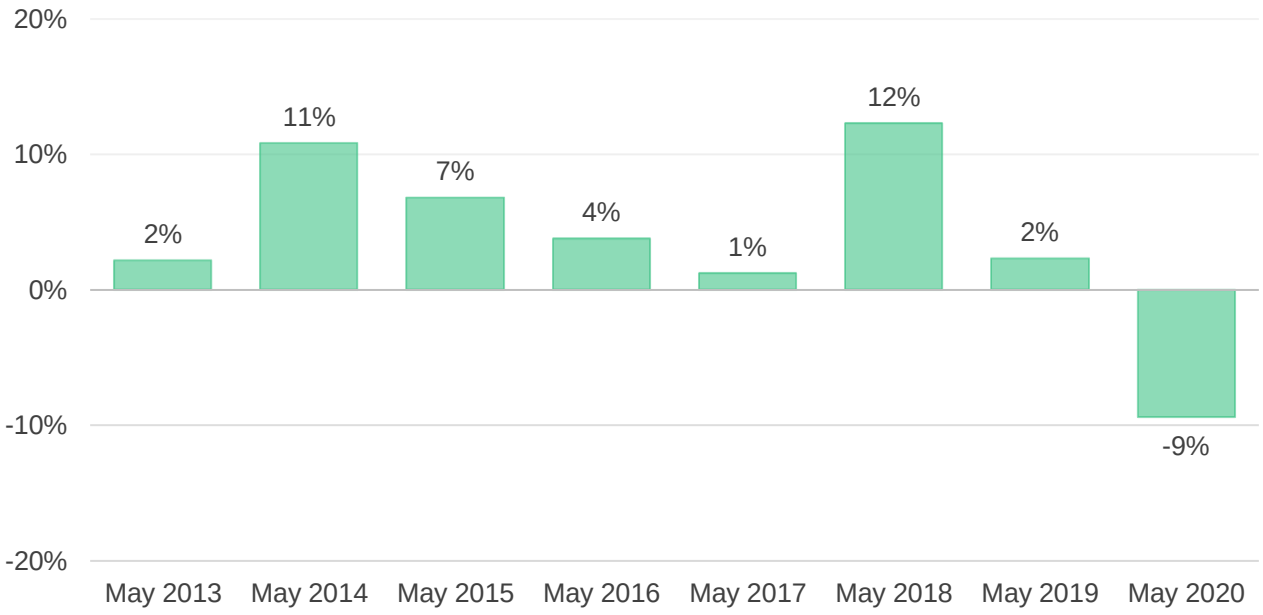
Figure 7 - Electricity Consumption by Type of Customer



Source: ESCO

[1] Energo-Pro Georgia acquired Kakheti Energy Distribution in September 2017.
[2] Due the wholesale market opening, since May 2019 large customers started buying their electricity on the market, as direct customers, with their market share steadily increasing since then. The effect of Covid-19 shutdown were so large that led to a temporary reversal of the trend, with a decline in the consumption share of this group compared to the previous year.

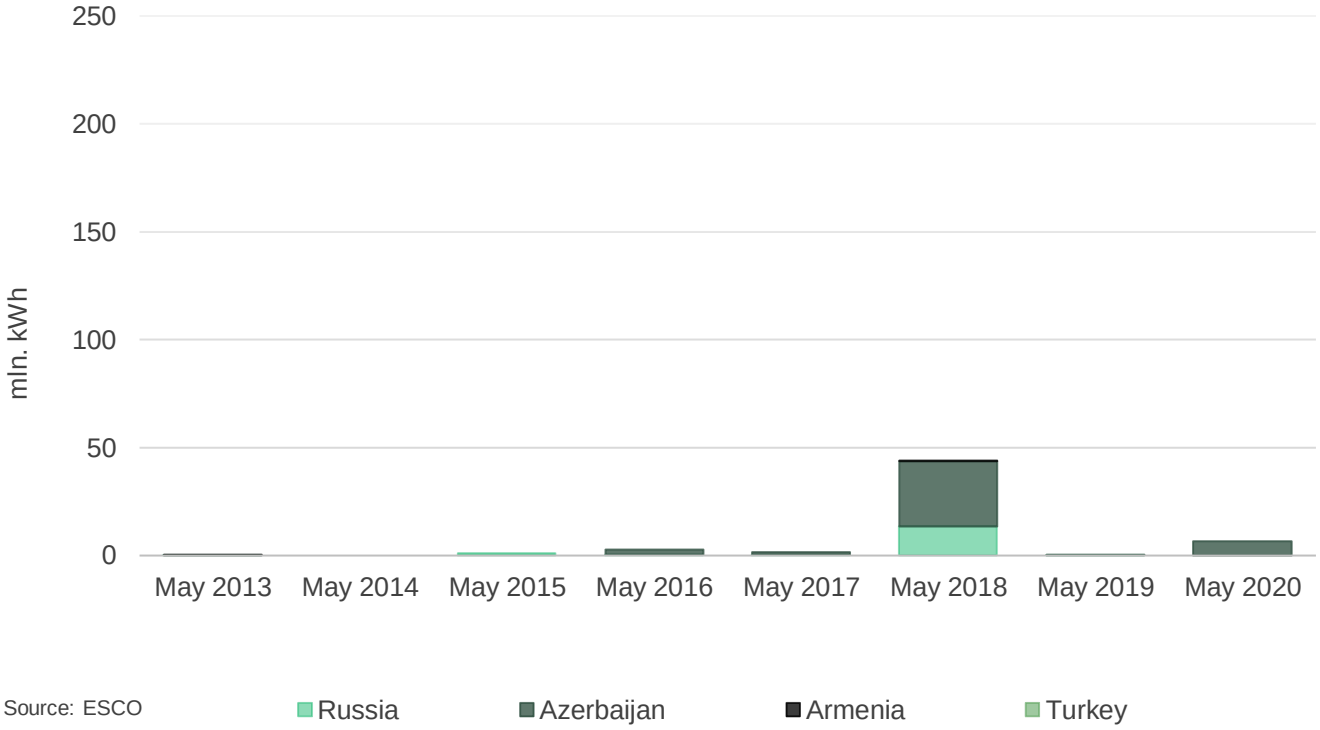
Figure 8 - Electricity Consumption Growth (%, y/y)



Source: ESCO

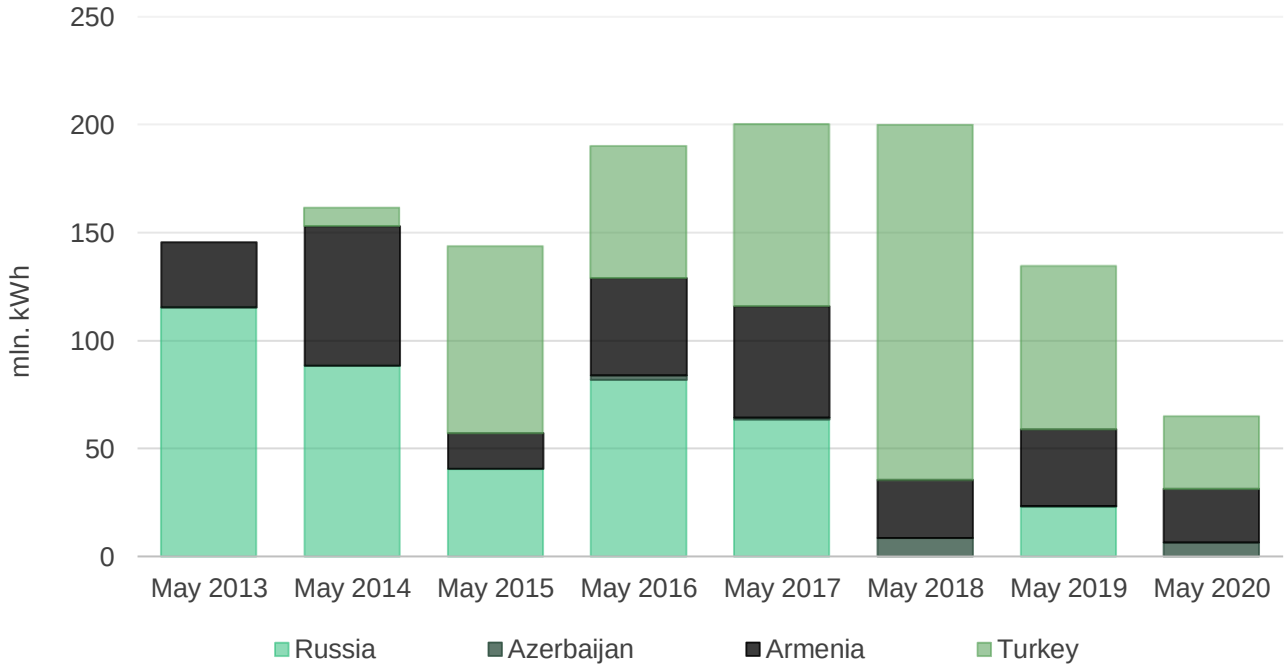
In May 2020, Georgia imported 7 mln. kWh of electricity (compared to 0.2 mln. kWh May 2019) 100% of which came from Azerbaijan (Figure 9). In May 2020, Georgia exported 65 mln. kWh (51% decrease compared to May 2019), 52% of which was exported to Turkey, 38% to Armenia and 10% to Azerbaijan. In May 2020, Georgia has not transited any electricity among neighboring electricity markets.

Figure 9 - **Imports by Year**



Source: ESCO

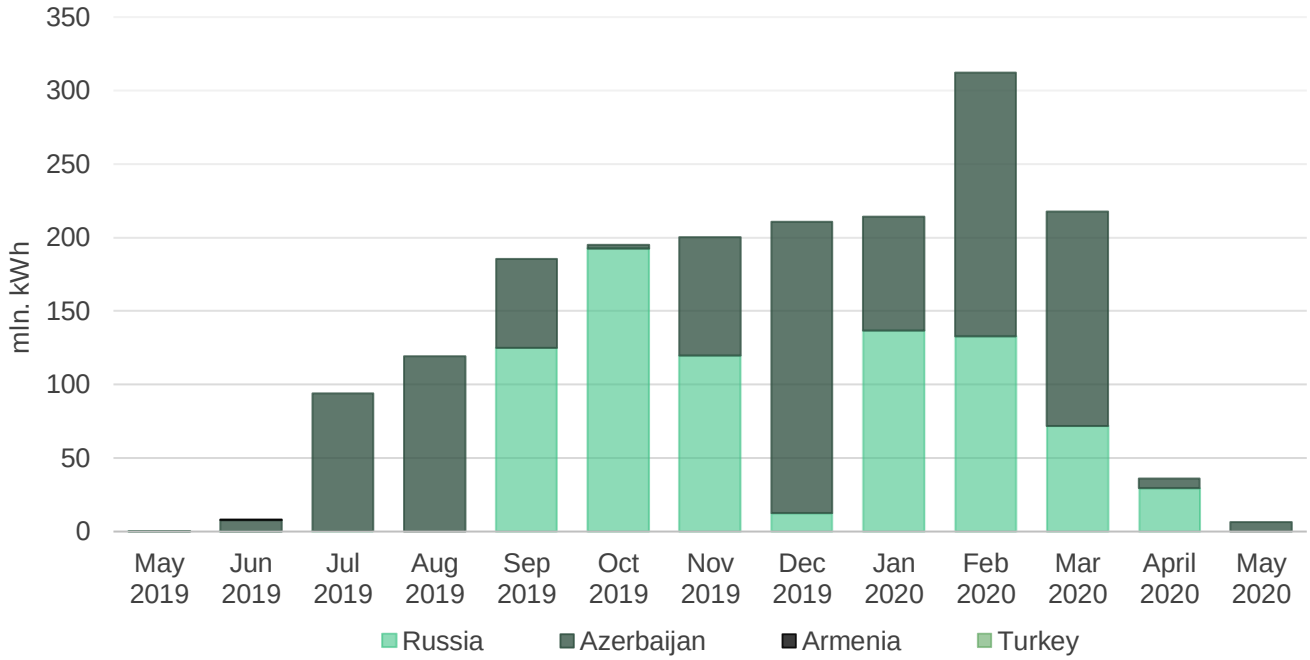
Figure 10 - **Exports by Year**



Source: ESCO

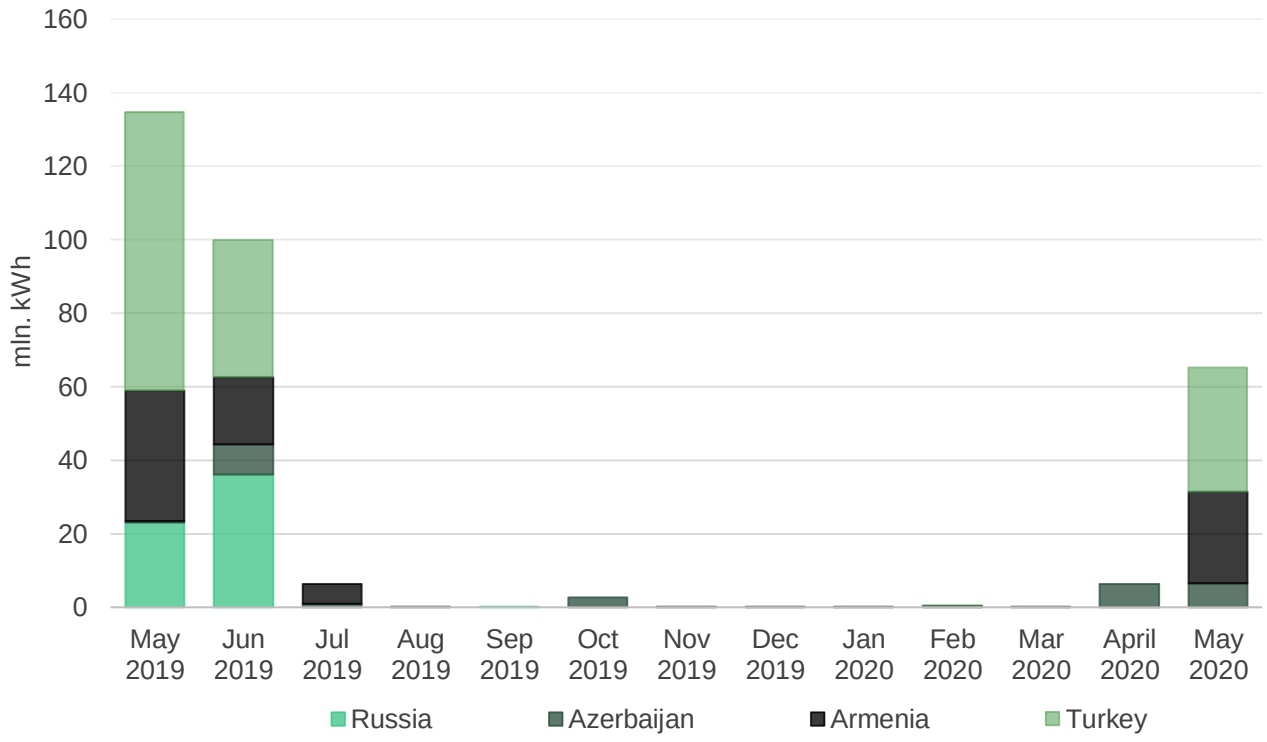
In May 2020, electricity exports and imports have substantially decreased compared to the previous year due to economic slowdown induced by COVID-related shutdowns (Figure 11,12).

Figure 11 - **Imports by Month**



Source: ESCO

Figure 12 - **Exports by Month**

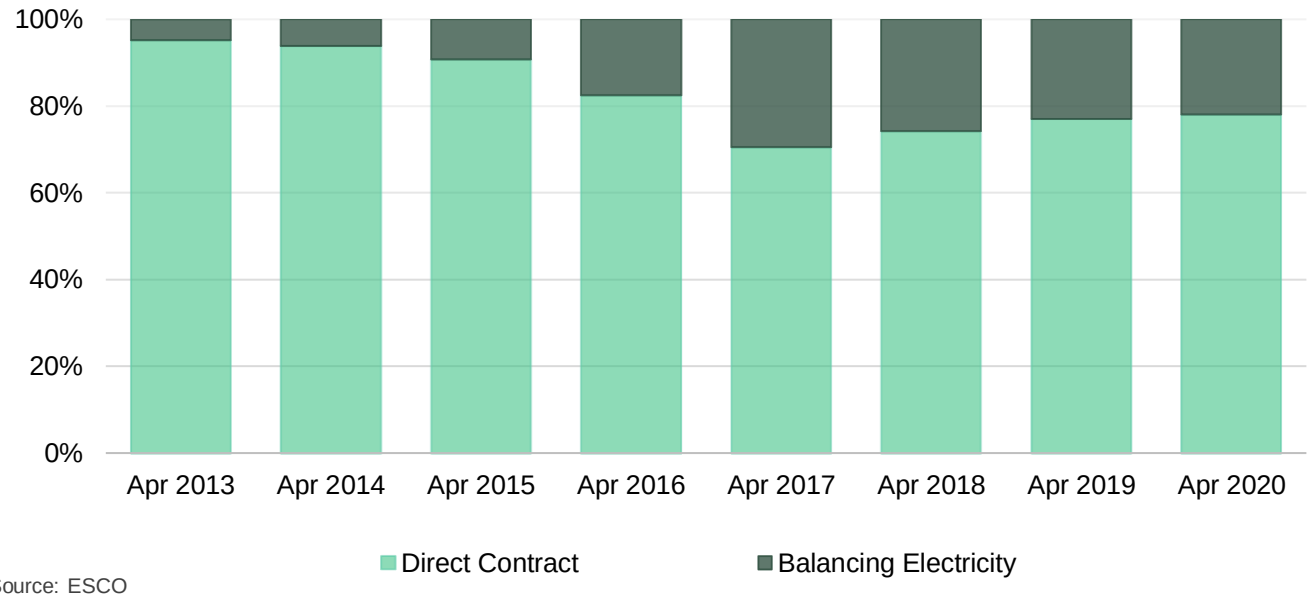


Source: ESCO

1. Market Operations

In May 2020, 74% of the electricity sold on/from the local market was sold through direct contracts. The remaining 26% was sold as balancing electricity (Figure 13).

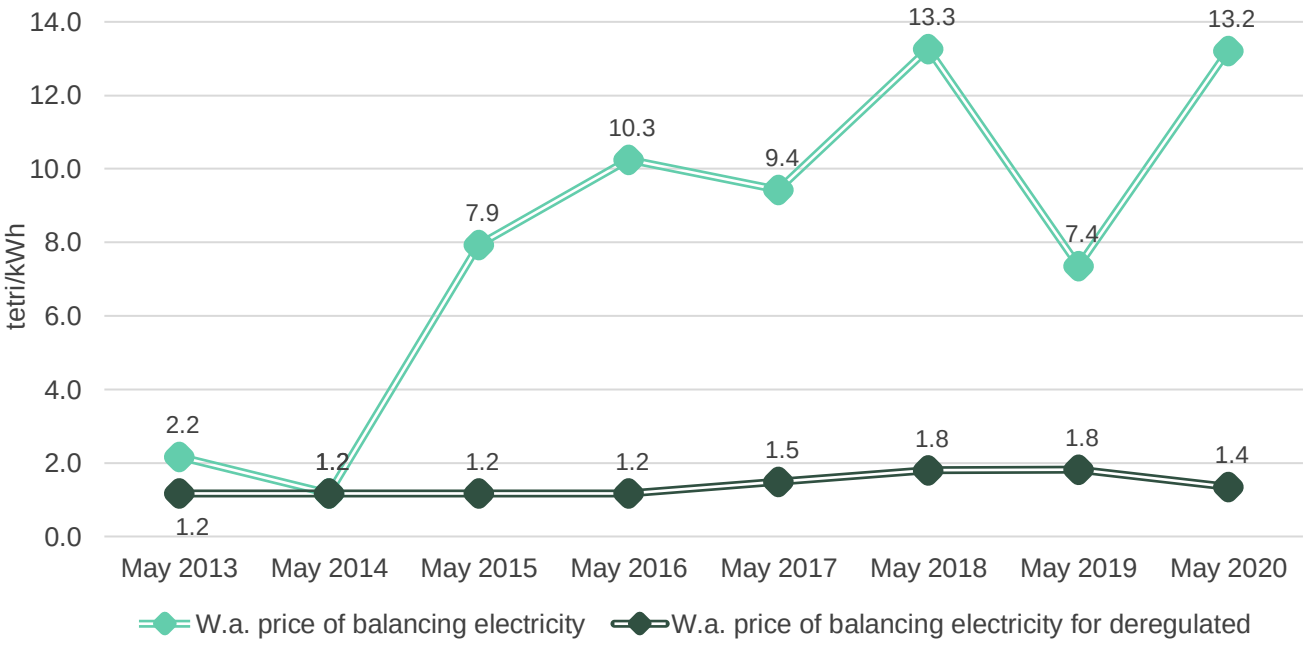
Figure 13 - Electricity Purchased / Sold Shares of Direct Contracts and Balancing Electricity



Source: ESCO

In May 2020, the weighted average price of balancing electricity was 13.2 tetri/kWh, which corresponds to an annual increase of 79% compared to May 2019. As for the weighted average price for deregulated (small) HPPs, it was 1.4 tetri/kWh, decreased by 25% compared to the corresponding month of the previous year (Figure 14).

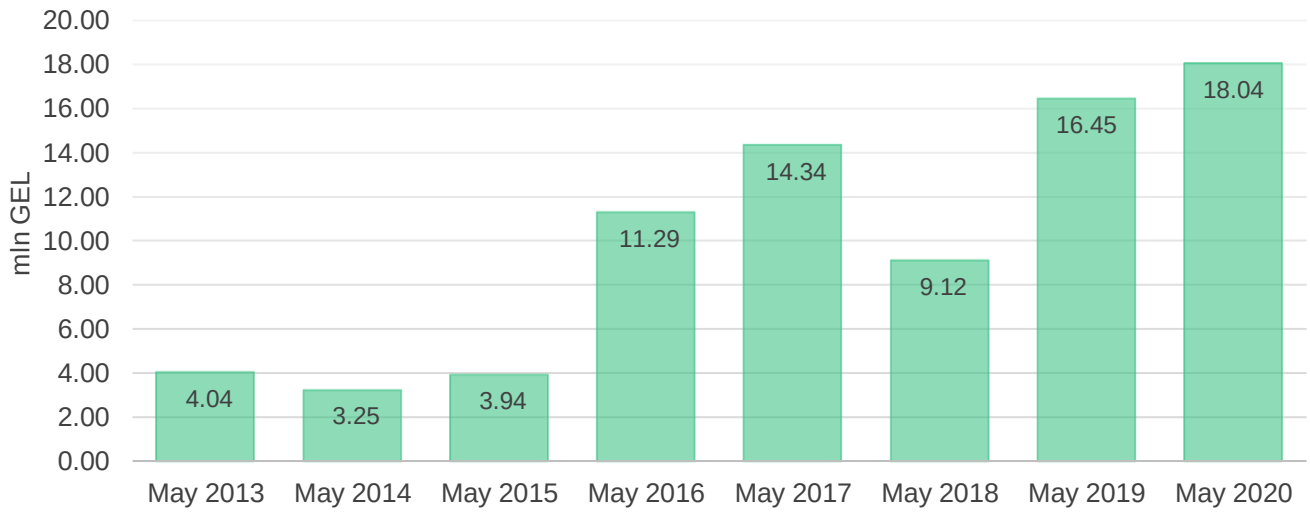
Figure 14 - Balancing Electricity Prices Weighted Average and Weighted Average Price for Deregulated HPPs



Source: ESCO

Guaranteed capacity payments in May 2020 were roughly 18.04 mln. GEL, which represents a 9.7% increase compared to May 2019 (Figure 15).

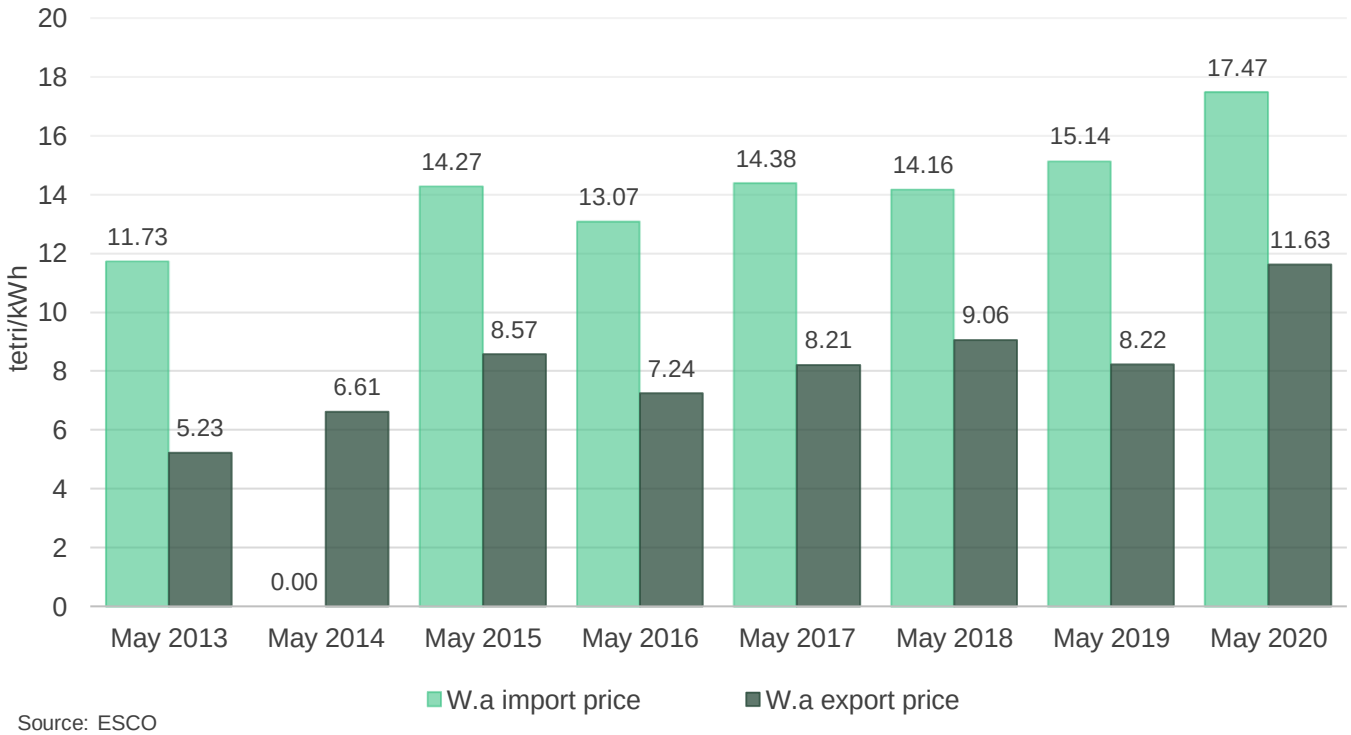
Figure 15 - Cost of Guaranteed Capacity



Source: ESCO

The weighted average electricity import price in May 2020 decreased by 0.2% in USD, on an annual basis, while increasing 15.4% in GEL due to the depreciation of the National Currency (from 5.51 ¢ or 15.14 tetri per kWh in May 2019 to 5.5 ¢ or 17.47 tetri per kWh in May 2020) (Figure 16). The weighted average import price increased by 24% and 23.1% in USD and GEL, respectively, on a monthly basis (import price was 4.43 ¢ or 14.19 tetri per kWh in April 2020). The weighted average electricity export price in May 2020 increased by 22.3% and 41.4% in USD and Gel, respectively, on an annual basis (from 2.99 ¢ or 8.22 tetri per kWh in May 2019 to 3.66 ¢ or 11.63 tetri per kWh in May 2020) (Figure 17). The weighted average export price decreased by 33.4% and 34% in USD and GEL, respectively, on a monthly basis (export price was 5.5 ¢ or 17.61 tetri per kWh in April 2020).

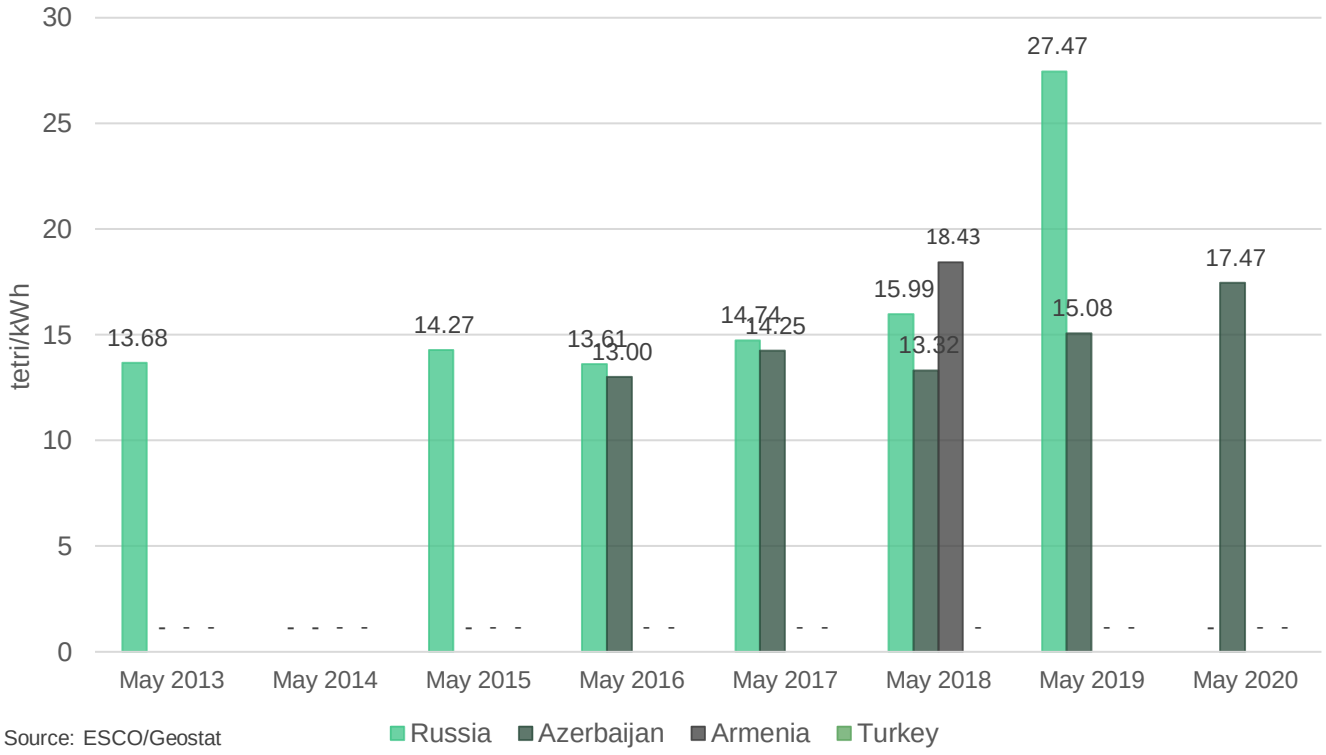
Figure 16 - Prices Import/Export



Source: ESCO

Import prices from Azerbaijan stood at 5.5 ¢ or 17.47 tetri per kWh (Figure 17).

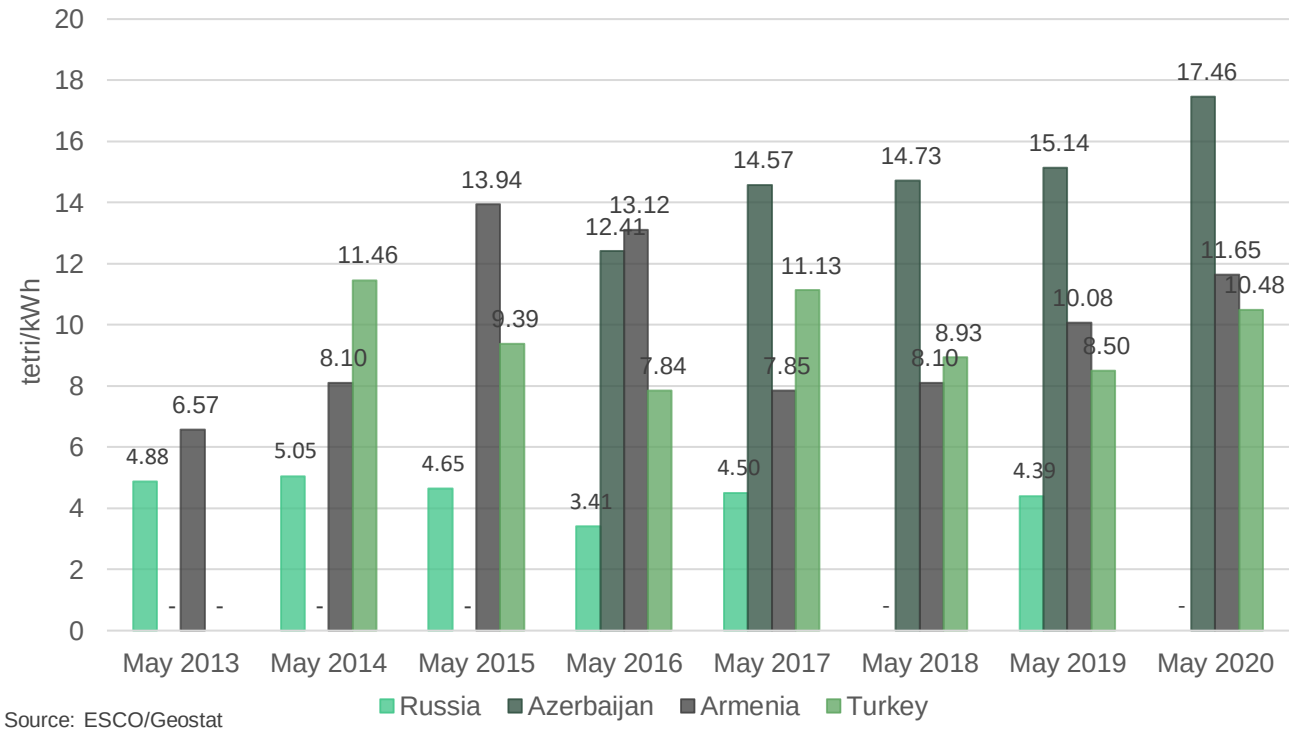
Figure 17 - Import Prices by Countries



Source: ESCO/Geostat

In May 2020, the electricity export price to Azerbaijan, Armenia and Turkey stood at 5.5 ¢ or 17.46 tetri per kWh, 3.7 ¢ or 11.65 tetri per kWh and 3.3 ¢ or 10.48 tetri per kWh, respectively (Figure 18).

Figure 18 - Export Prices by Countries

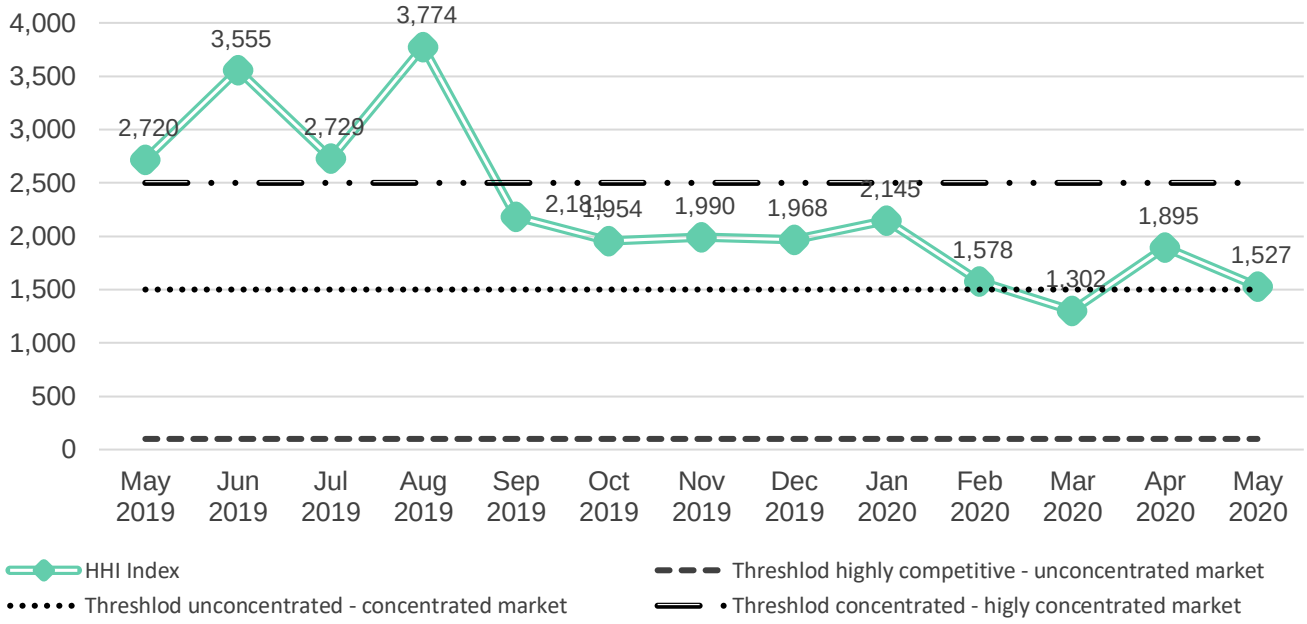


Source: ESCO/Geostat

2. Market Concentration

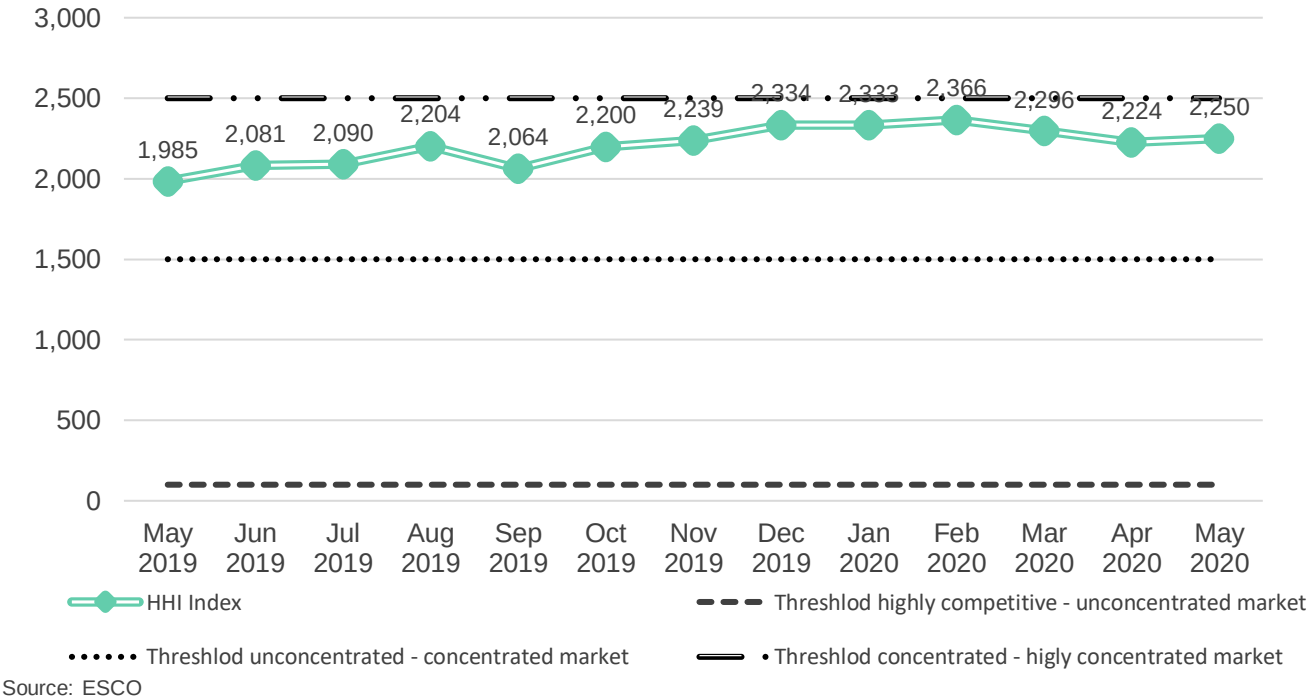
In conclusion, we utilize the Hirschmann-Herfindahl (HHI) market concentration index to evaluate how competitive the generation and consumption segments of the market have been over the year. In May 2020, the Georgian electricity generation market was almost on the threshold of a concentrated market, with an HHI value of 1,527 (Figure 19). This is way lower than the level in May 2019 (when the HHI had a value of 2,720) and lower than in April 2020 (HHI was 1,895). As for the consumption segment, in April 2020 the HHI consumption index kept below the threshold for a highly concentrated market, reaching the value of 2,250 (above the level for May 2019 and April 2020).

Figure 19 - Hirschman-Herfindahl Index for Power Generation



Source: ESCO

Figure 20 - Hirschman-Herfindahl Index for Power Consumption



Source: ESCO