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ELECTRICITY MARKET REVIEW

ISET POLICY INSTITUTE

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INFORMATION

- There was a large decrease in total electricity generation, on both yearly and monthly basis.
- The yearly decrease took place in HPP, TPP, as well as in WPP generation.
- Consumption decreased, on both yearly and monthly basis, despite a 3% growth from both Abkhazia and direct customers (on a yearly basis).
- Consumption exceeded generation by 377 mln. kWh.
- The main import partner country was Russia.
- The cost of Russian imports was 0.4 tetri per kWh.
- The main export partner country was Azerbaijan.
- The weighted average price of imports decreased on a yearly and monthly basis.
- The weighted average price of exports decreased on a yearly and monthly basis.
- HHI index for the Georgian electricity generation market was below the threshold between concentrated and not concentrated markets, indicating that market is increasingly competitive.
- 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

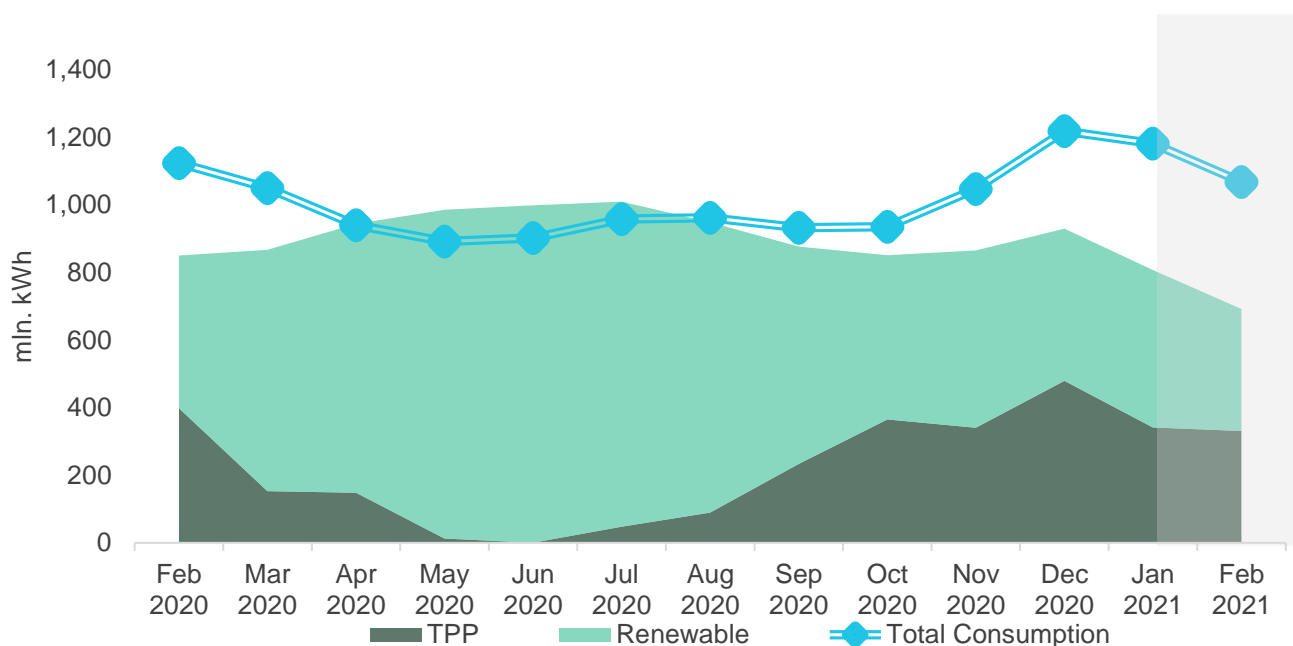
Generation – Consumption – Trade

In February 2021, Georgian power plants generated 692 mln. kWh of electricity (Figure 1). This represents a 19% decrease in total generation, compared to the previous year (February 2020, the total generation was 851 mln. kWh). The decrease in generation on a yearly basis comes from the decrease of 20%, 17% and 13% in hydro, thermal and wind power generation, respectively.

On a monthly basis, generation decreased by approximately 14% (in January 2021, total generation was 808 mln. kWh) (Figure 1). The monthly decrease in total generation was the result of a 23% reduction in hydro power generation and of a 3% decrease in thermal power generation. Only the wind power generation increased by 14% on a monthly basis.

The consumption of electricity on the local market was 1,068 mln. kWh (-5% and -10% compared to February 2020, and January 2021, respectively) (Figure 1). In February 2021, power consumption exceeded generation by 377 mln. kWh which was 54% of total generation (in February 2020 difference between total generation and consumption resulted in a shortage of 273 mln. kWh, around 32% of the total generation for the month).

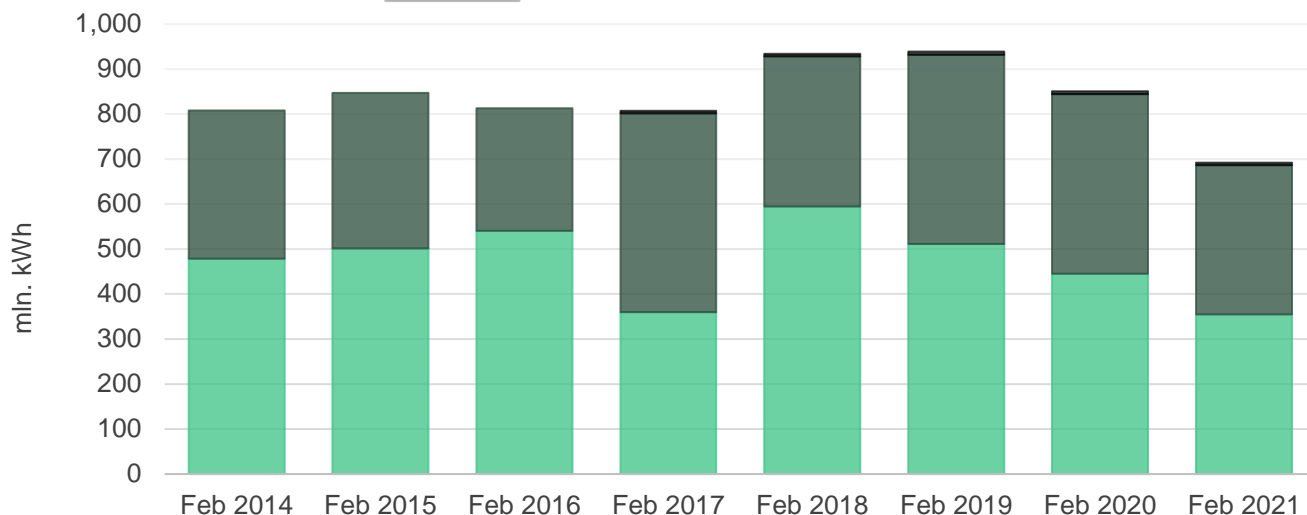
Figure 1 - Electricity Consumption and Generation



Source: Electricity System Commercial Operator (ESCO)

Most generation came from hydro power plants. In February 2021, hydro power (HPP) generation amounted to 355 mln. kWh (51% of total), while thermal power (TPP) generation was 331 mln. kWh (48% of total), and wind power (WPP) generation was 6 mln. kWh (less than 1% of total) (Figure 2).

Figure 2 - Electricity Generation by Sources

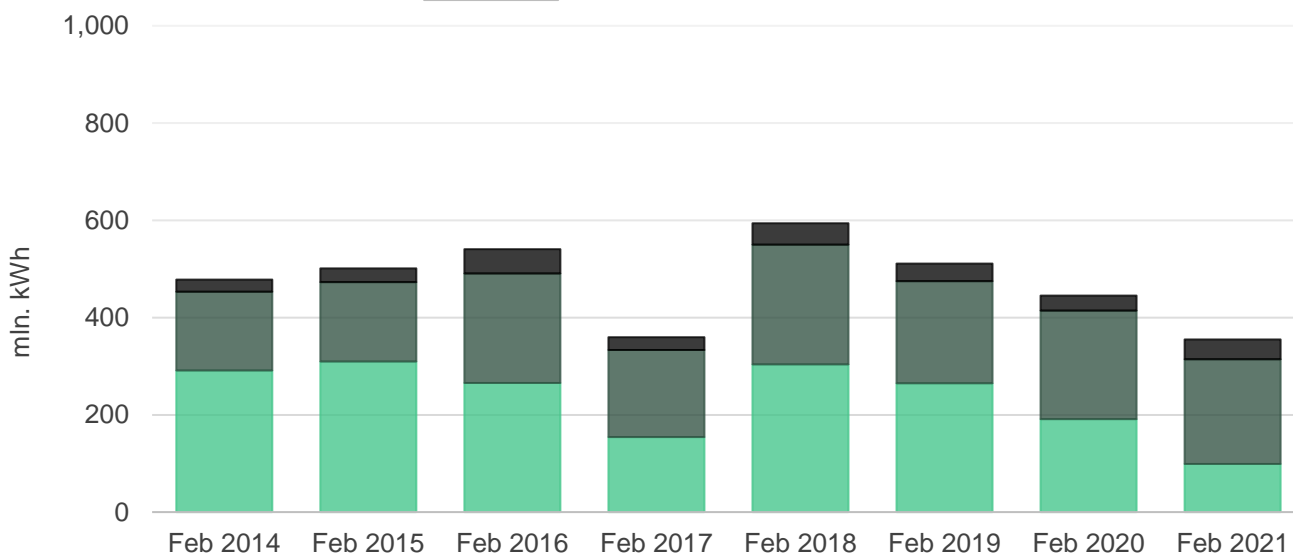


Source: ESCO

■ HPP ■ TPP ■ WPP

Among hydropower generators, large (regulatory) HPPs produced 28% (99 mln. kWh) of electricity, while seasonal and small HPPs produced 61% (215 mln. kWh) and 11% (41 mln. kWh), respectively (Figure 3).

Figure 3 - HPP Generation by Type

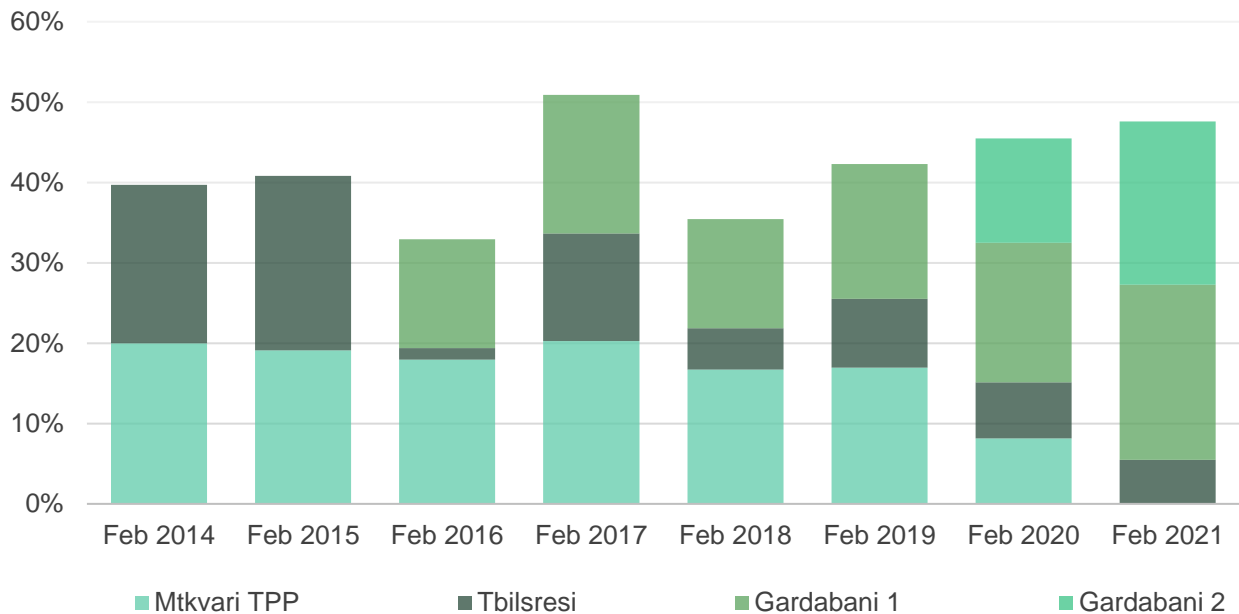


Source: ESCO

■ Regulatory HPPs ■ Seasonal HPPs ■ Small HPPs

Among thermal power plants, Gardabani 1 TPP generated 151 mln. kWh, 45% of total thermal power generation and 22% of total generation. Gardabani 2 TPP generated 141 mln. kWh, 42% of total thermal power generation and 20% of total generation (Figure 4).

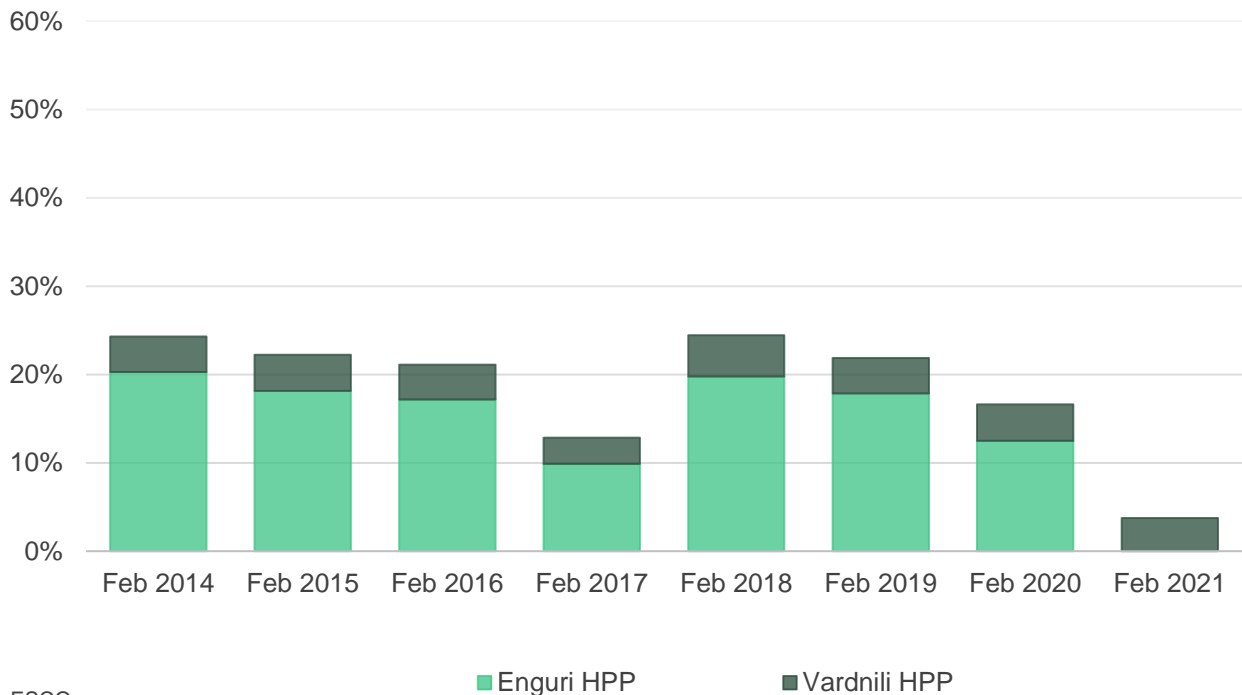
Figure 4 - Share of Large TPPs in Total Generation



Source: ESCO

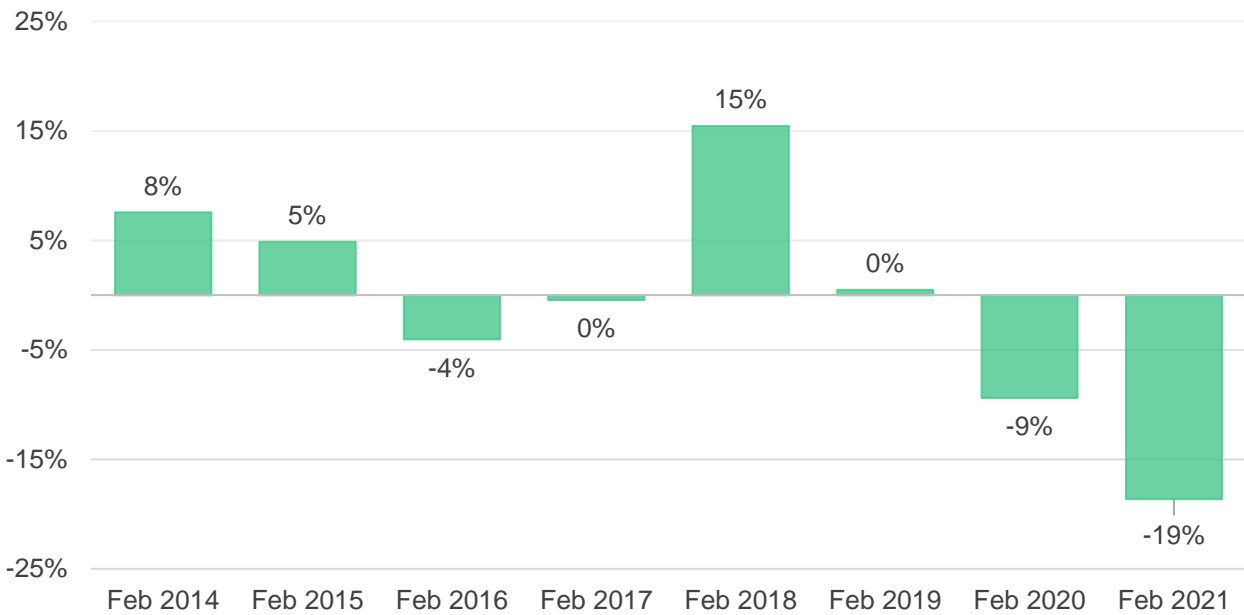
As for HPP generation, Vardnili HPP generated 26 mln. kWh (26% of generation for regulatory HPPs). Enguri HPP was fully stopped during February 2021. Power generated by Vardnili represented around 4% of the total generation (Figure 5).

Figure 5 - Share of Enguri and Vardnili in Total Generation



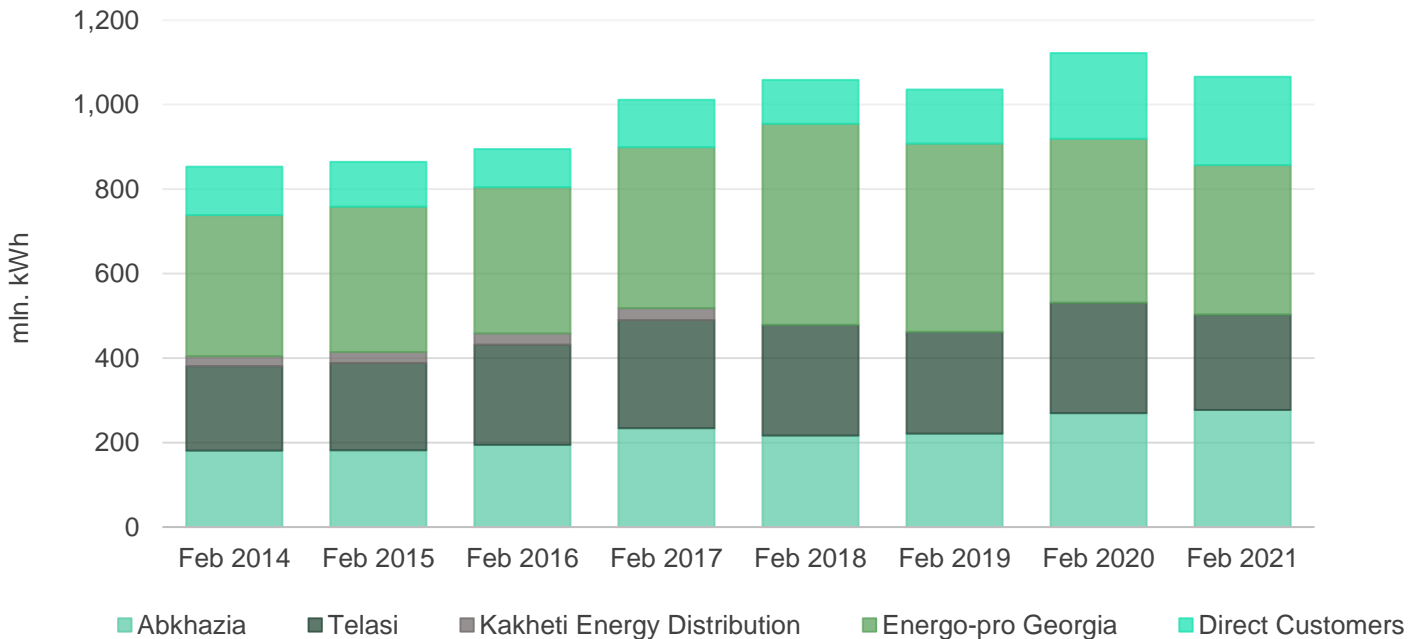
Source: ESCO

Overall, total generation decreased by 19% compared to February 2020 (Figure 6).

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

Source: ESCO

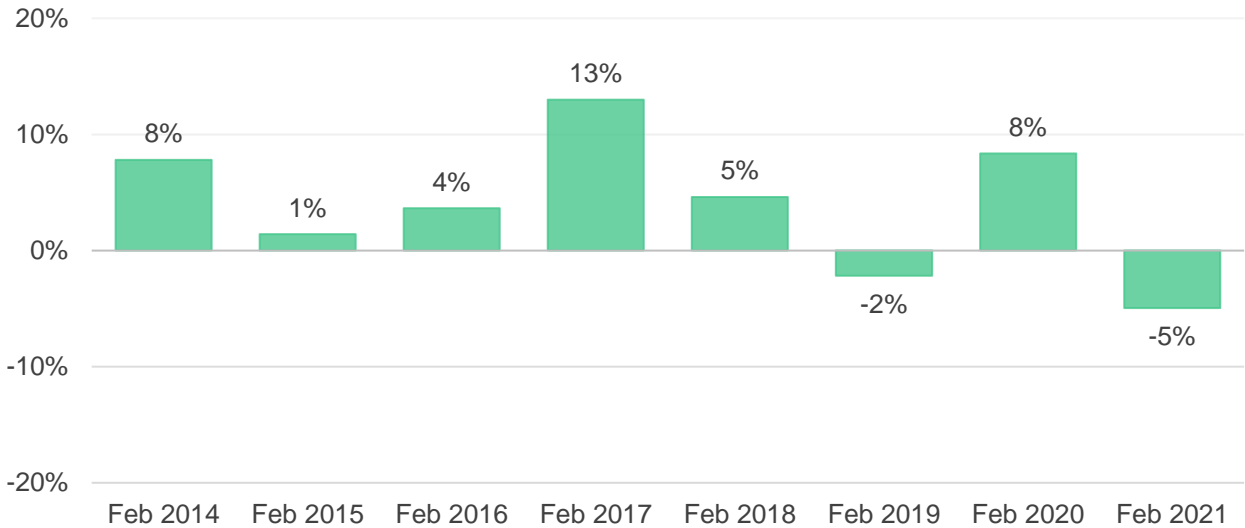
Total electricity demand came from: Energo-Pro Georgia¹ (33% - 355 mln. kWh), Abkhazia (26% - 277 mln. kWh), Telasi (21% - 225 mln. kWh), and direct customers (20% - 209 mln. kWh) (Figure 7). Annual demand from Energo-Pro and Telasi decreased by 9% and 14%, respectively, while the demand from Abkhazia and direct customers increased by 3% each. Overall, there was an annual decrease of 5% in the total electricity consumption in February 2021, compared to February 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)

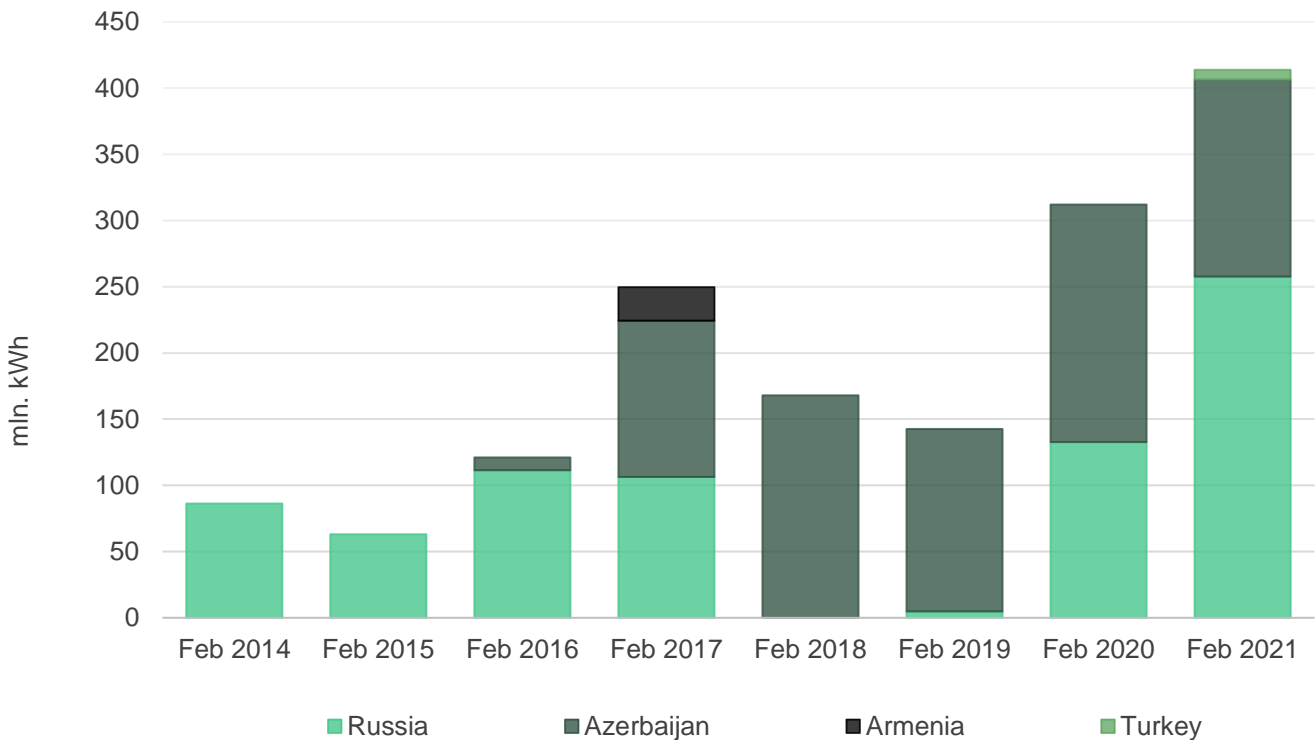


Source: ESCO

In February 2021, Georgia imported 414 mln. kWh of electricity (compared to 312 mln. kWh February 2020), 62% of which came from Russia, 36% came from Azerbaijan and 2% came from Turkey (Figure 9). In February 2021, Georgia exported 0.02 mln. kWh (0.5 mln. kWh in February 2020), 100% of which was exported to Azerbaijan (Figure 10). There was no electricity transit in February 2021 (In February 2020, the electricity transit from Azerbaijan to Turkey comprised 25 mln. kWh).

February 2021 is the fourth consecutive month that was characterized by the increased annual imports. Compared to February 2020, imports increased by approximately 33% (Figure 9).

Figure 9 - Imports by Year



Source: ESCO

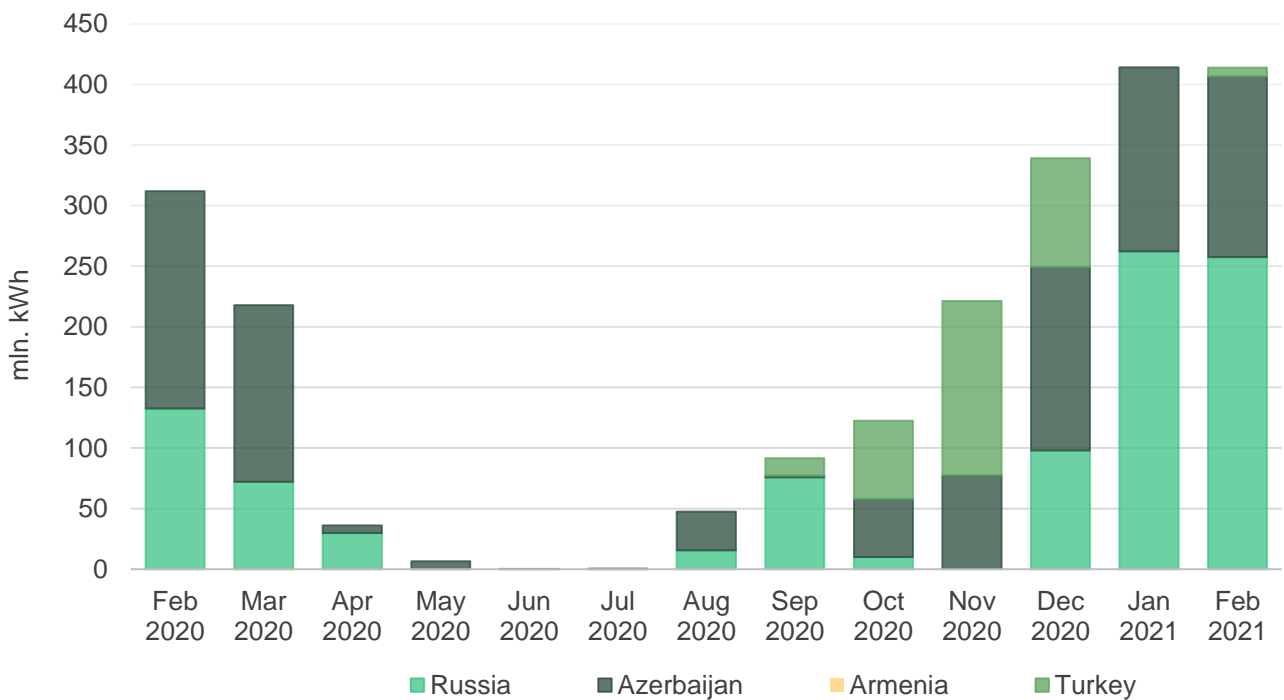
Figure 10 - Exports by Year



Source: ESCO

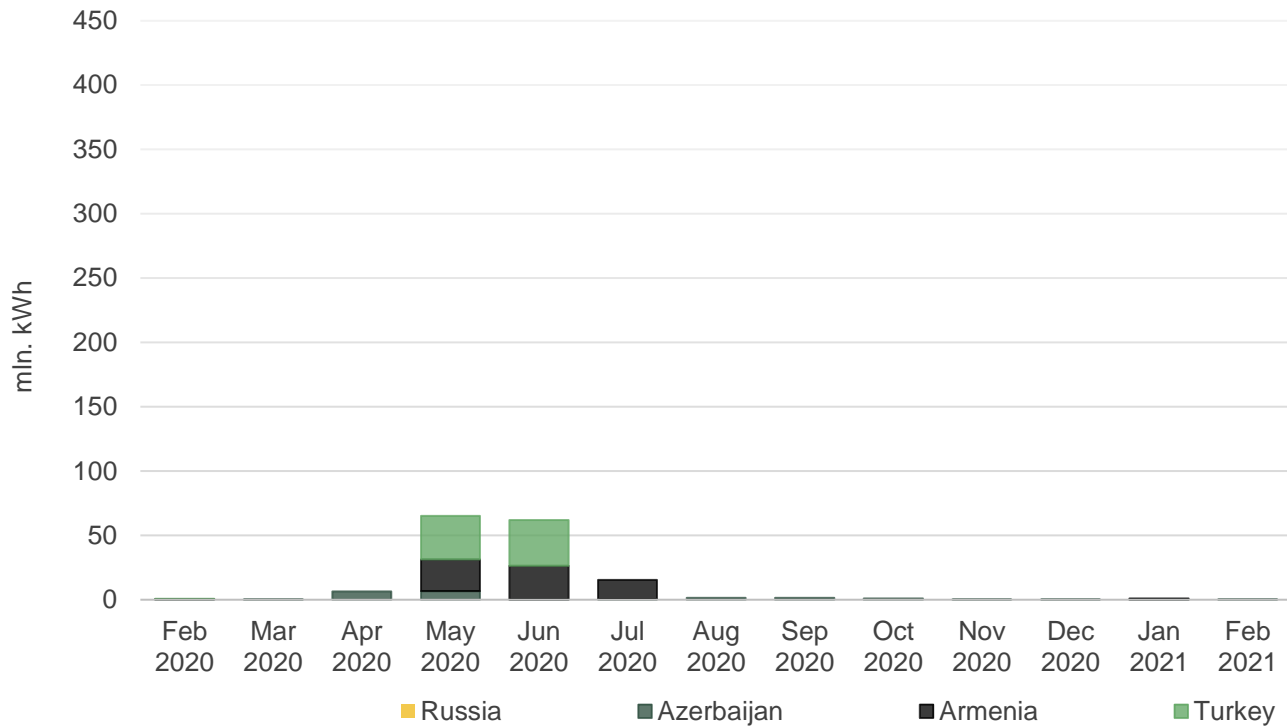
In February 2021, electricity imports remained almost unchanged compared to January 2021 (it increased only slightly) (Figure 11), while electricity export decreased from 1 mln. kWh to 0.017 mln. kWh (Figure 12).

Figure 11 - Imports by Month



Source: ESCO

Figure 12 - Exports by Month

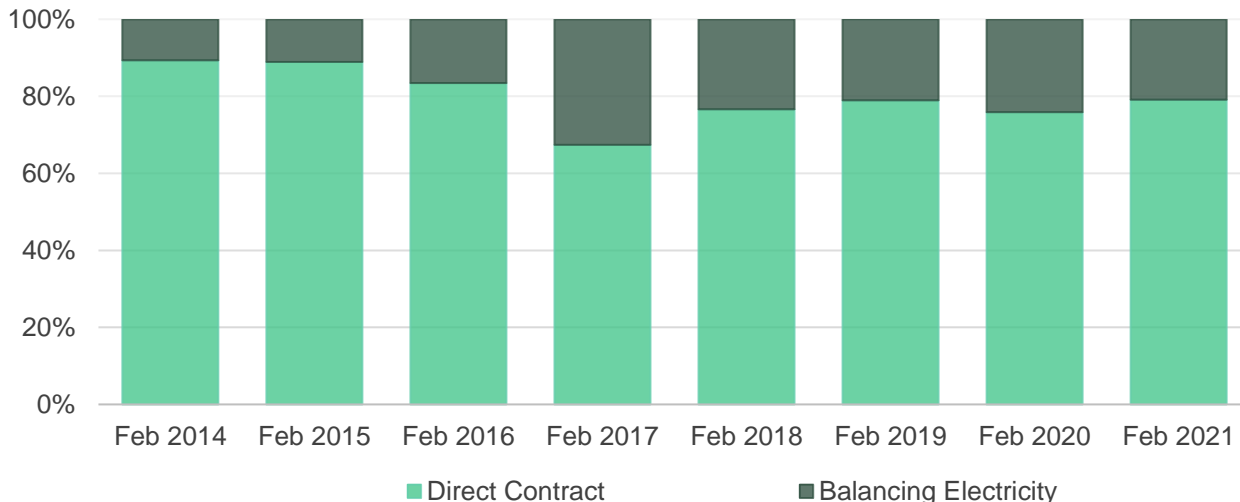


Source: ESCO

1. Market Operations

In February 2021, 79% of the electricity sold on/from the local market was sold through direct contracts. The remaining 21% was sold as balancing electricity (Figure 13).

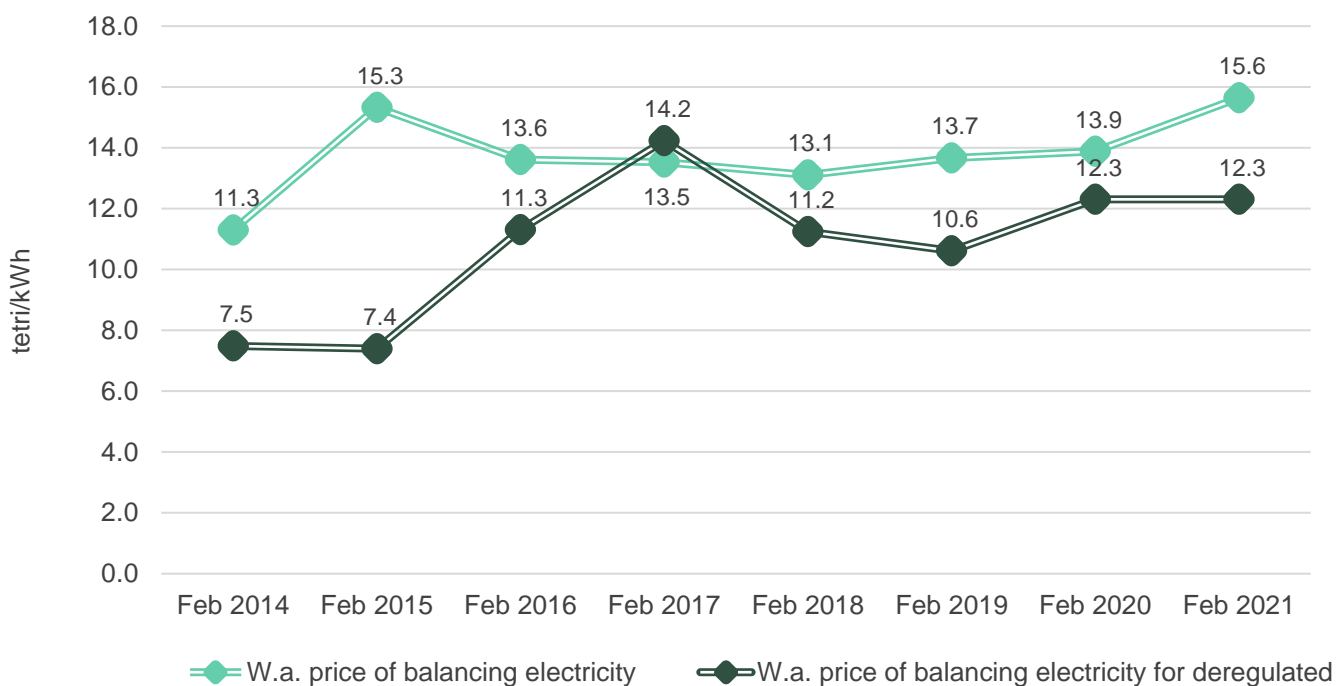
Figure 13 - Electricity Purchased / Sold Shares of Direct Contracts and Balancing Electricity



Source: ESCO

In February 2021, the weighted average price of balancing electricity was 15.6 tetri/kWh, which corresponds to an annual increase of 13% compared to February 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).

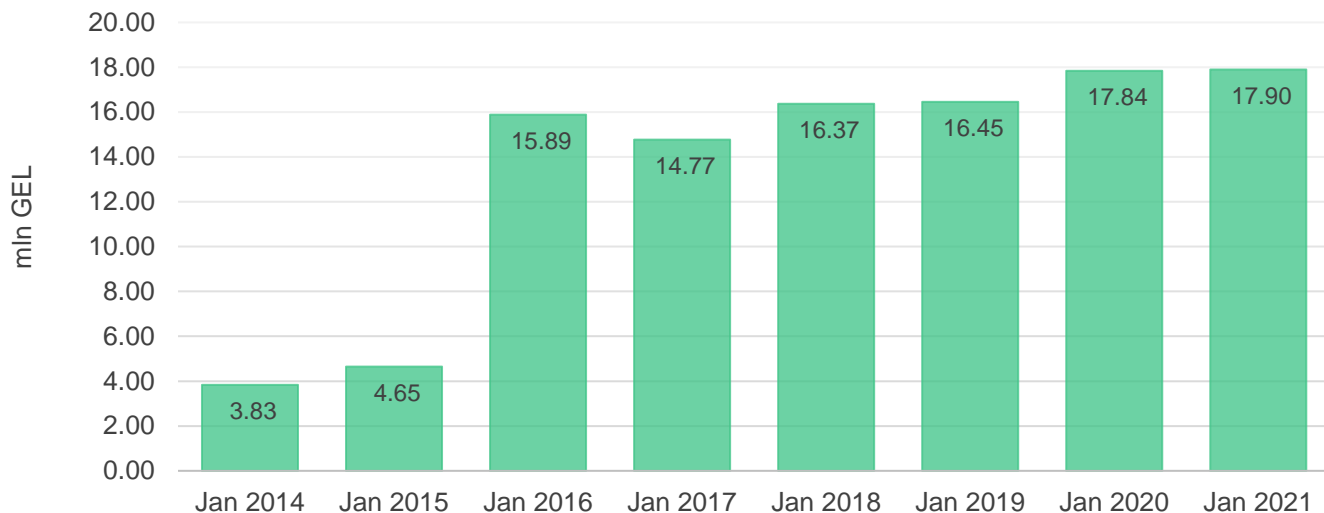
Figure 14 - Balancing Electricity Prices Weighted Average and Weighted Average Price for Deregulated HPPs



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 2021 is still not available, so we use the information from January.

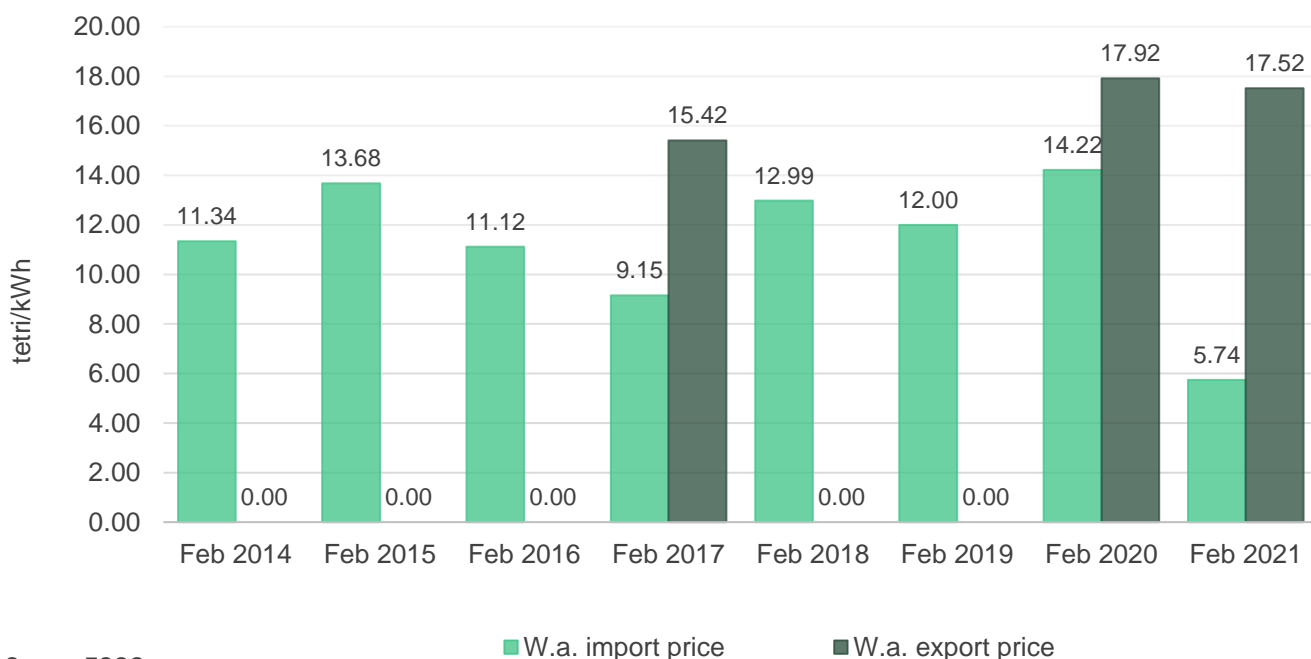
Figure 15 - Cost of Guaranteed Capacity



Source: ESCO

The weighted average electricity import price in February 2021 decreased by 65% in USD, on an annual basis, and decreased by approximately 60% in GEL (from 4.99 ¢ or 14.22 tetri per kWh in February 2020 to 1.73 ¢ or 5.74 tetri per kWh in February 2021) (Figure 16). The weighted average import price decreased by 31% in both USD and GEL, on a monthly basis (import price was 2.51 ¢ or 8.27 tetri per kWh in January 2021). The weighted average electricity export price in February 2021 decreased by 16% in USD by 2% in GEL on an annual basis (from 6.28 ¢ or 17.92 tetri per kWh in February 2020 to 5.29 ¢ or 17.52 tetri per kWh in February 2021) (Figure 17). The weighted average export price decreased by 19% in both USD and GEL on a monthly basis (export price was 6.54 ¢ or 21.56 tetri per kWh in January 2021).

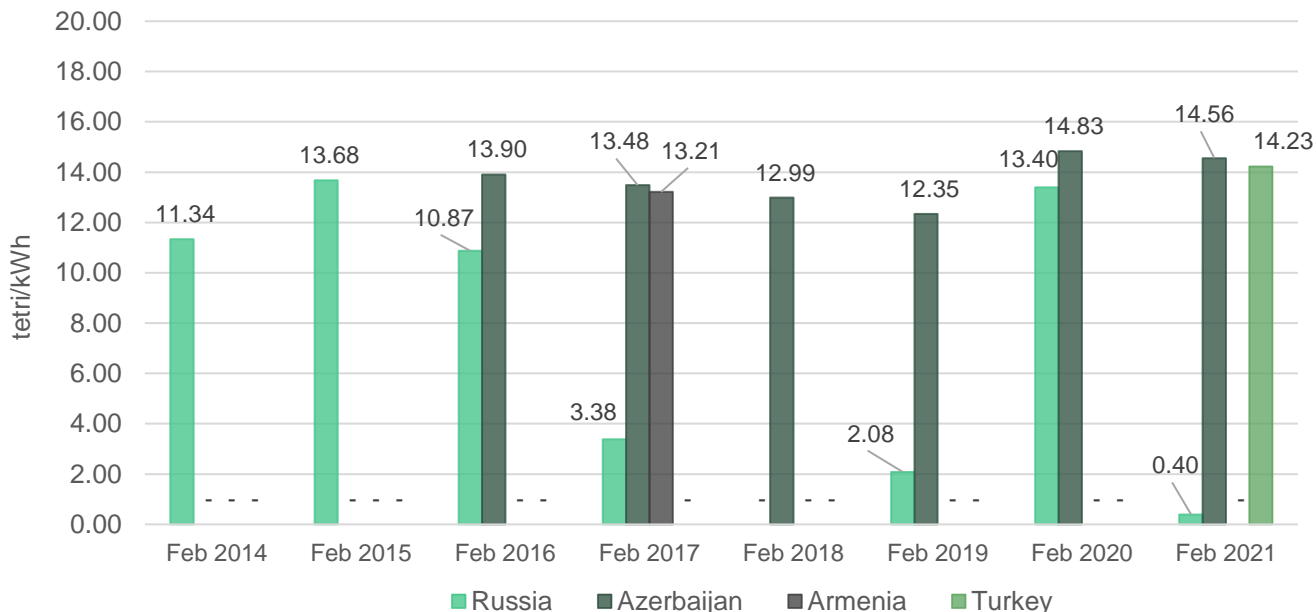
Figure 16 - Prices Import/Export



Source: ESCO

Import prices from Russia, Azerbaijan, and Turkey stood at 0.12 ¢ or 0.4 tetri per kWh, 4.4 ¢ or 14.56 tetri per kWh, and 4.3 ¢ or 14.23 tetri per kWh, respectively (Figure 17).

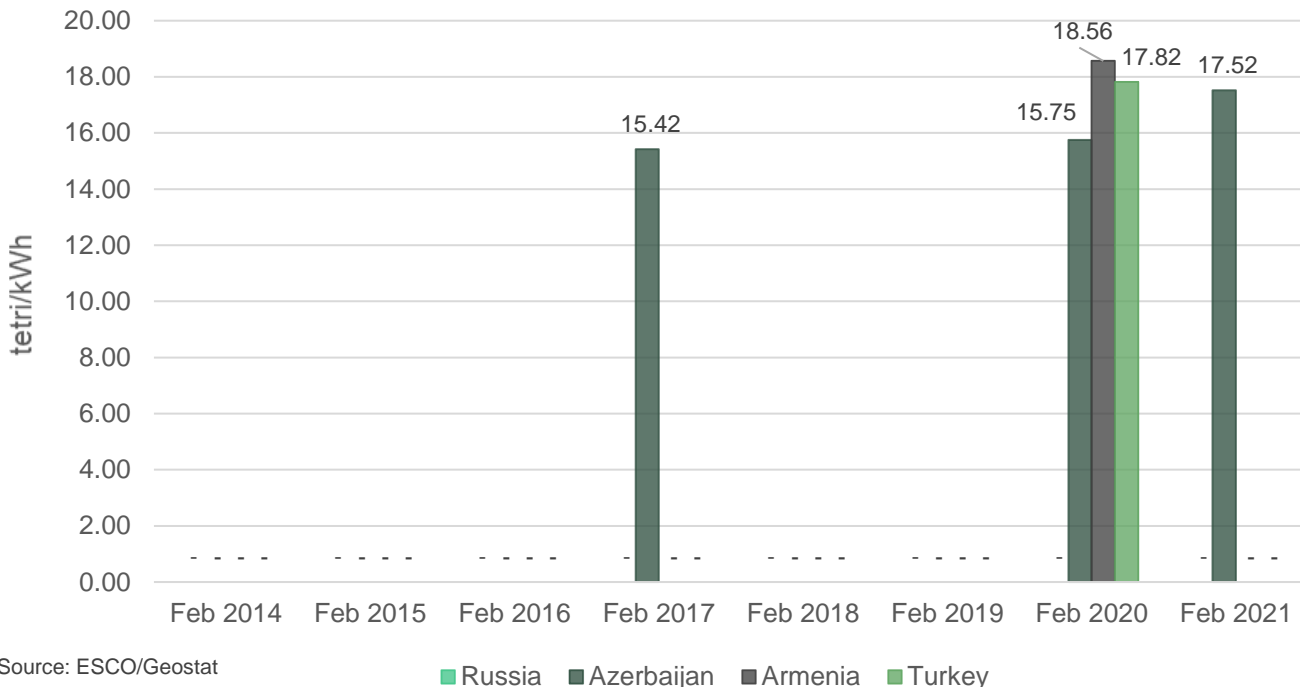
Figure 17 - Import Prices by Countries



Source: ESCO/Geostat

In January 2021, the electricity export price to Azerbaijan stood at 5.29 ¢ or 17.52 (Figure 18).

Figure 18 - Export Prices by Countries

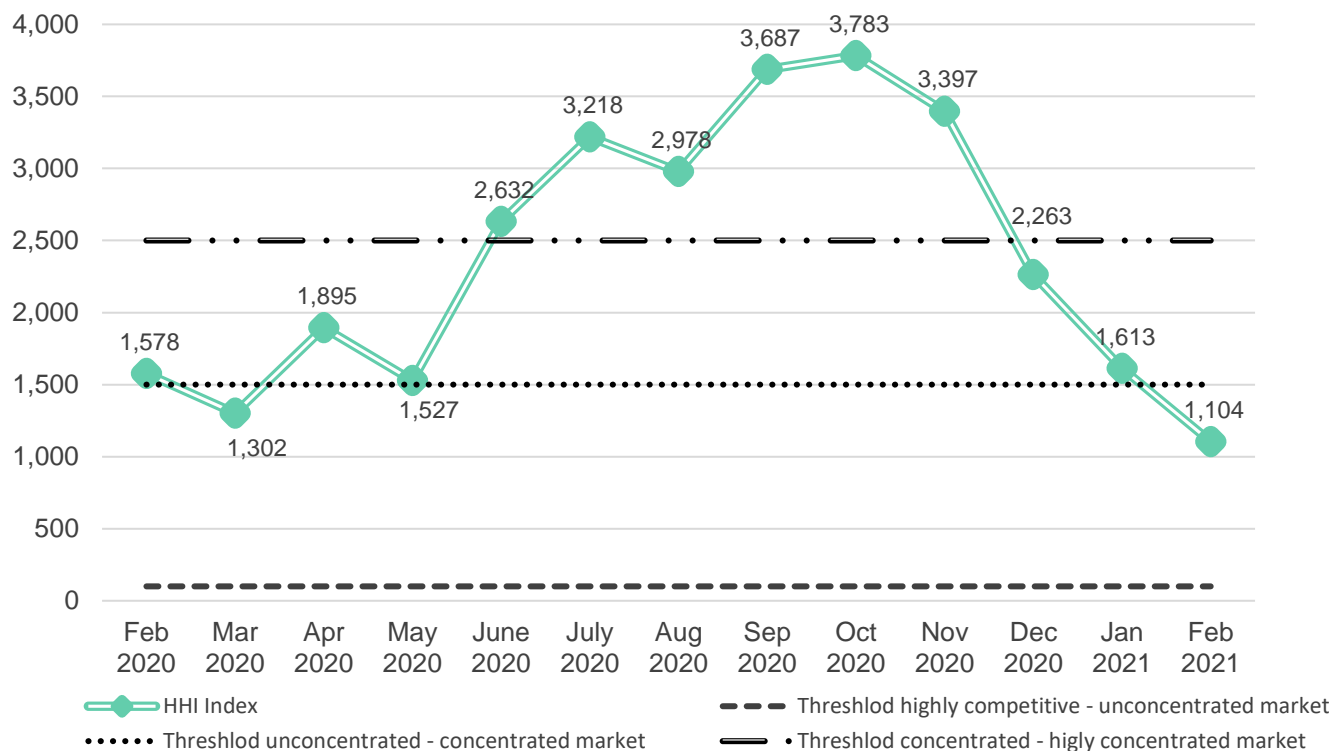


Source: ESCO/Geostat

2. Market Concentration

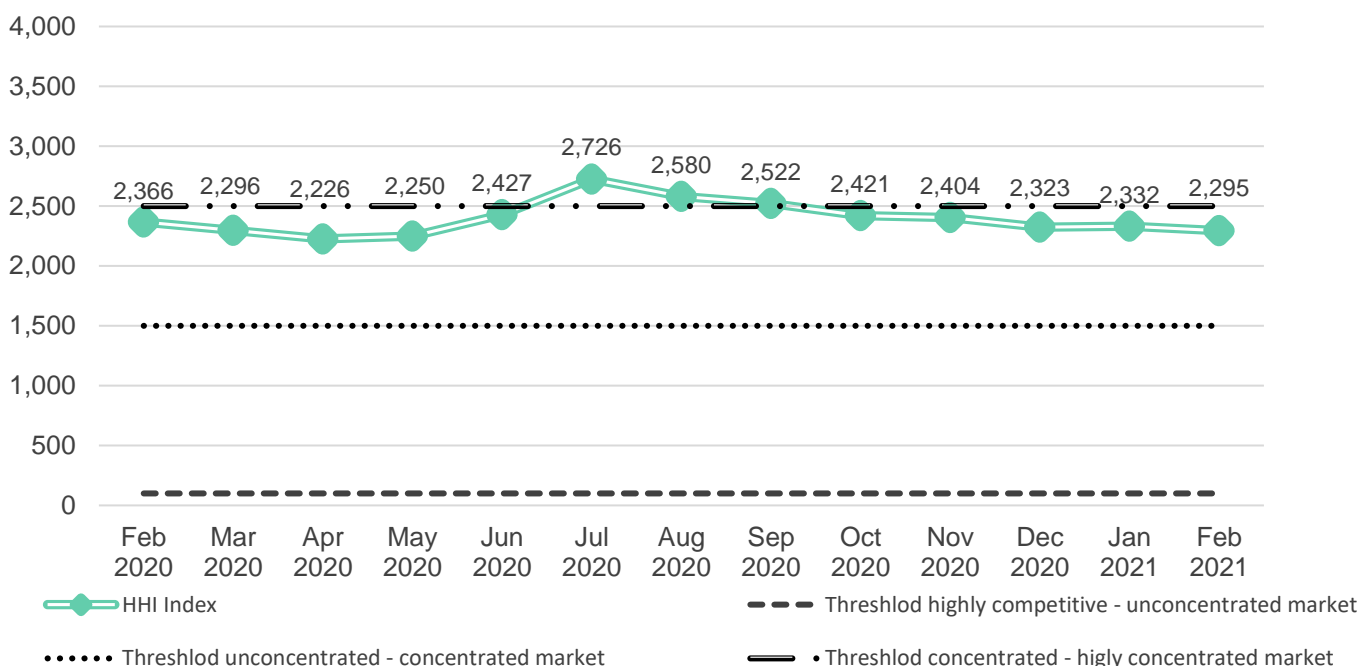
In conclusion, we utilize the Hirschman-Herfindahl (HHI) market concentration index to evaluate how competitive the generation and consumption segments of the market have been over the year. In February 2021, the Georgian electricity generation market fell well below the threshold between concentrated and not concentrated markets for the first time since March 2020, with an HHI value of 1,104 (Figure 19). This is lower than the level in February 2020 (with an HHI value of 1,578), and also lower than the level in January 2021 (HHI was 1,613). As for the consumption segment, in February 2021, the HHI consumption index was slightly below the threshold for a highly concentrated market, with an HHI value of 2,295 (also slightly below the level for February 2020 – 2,366 and for January 2021 – 2,332).

Figure 19 - Hirschman-Herfindahl Index for Power Generation



Source: ESCO

Figure 20 - Hirschman-Herfindahl Index for Power Consumption



Source: ESCO