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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 February 2022 there was an increase in total electricity generation by 29% on a yearly basis, and a decrease by 13% on a monthly basis.
- Consumption increased by 12% on yearly basis and decreased by 13% on a monthly basis.
- Consumption exceeded generation by 311 mln. kWh – 35% of total generation for February.
- There was a 14% decrease in imports annually.
- The main import partner country was Russia.
- The cost of imports from Russia was 0.33 tetri per kWh.
- The weighted average price of imports in GEL increased by 51% on a yearly basis and increased by 2% on a monthly basis.
- The only export partner was Turkey, although the level of exports was extremely small.
- The electricity export price to Turkey was 22.87 tetri per kWh.
- For the second successive month, The HHI index for the Georgian electricity generation market remained below the threshold of concentrated market. In February 2022, it reached the level of 1324. It was higher compared to the levels in February 2021 and lower than the level in January 2022 (1104 and 1381, respectively).
- The HHI for the Georgian electricity consumption market remained below the threshold of a highly concentrated market. September 2020 (index value of 2522) was the last month during which the index value was above the level of highly concentrated market. Since then, the trend of the index was downward, however it started to hike up starting from October 2021. February 2022 is the first month since October 2021 with a monthly decrease of index value - it reached the level of 1949.

ABBREVIATION USED

Mln – million
 kWh – kilowatt-hour
 HPP – Hydro Power Plant
 WPP – Wind Power Plant
 TPP – Thermal Power Plant
 HHI – Hirschmann-Herfindahl Index
 Telmico - Tbilisi Electricity Supply Company
 Ep Georgia - Ep Georgia Supply

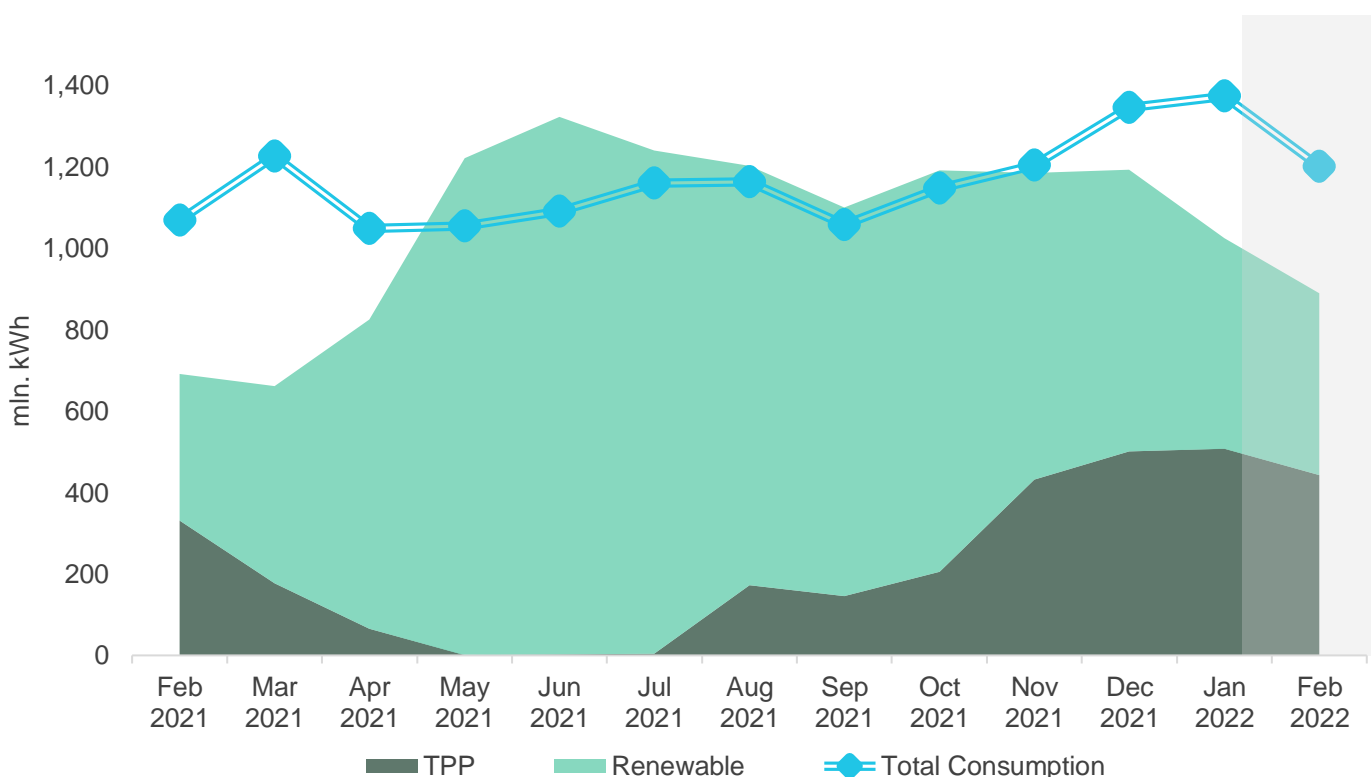
Generation – Consumption – Trade

In February 2022, Georgian power plants generated 890 mln. kWh of electricity (Figure 1). This represents a 29% increase in total generation, compared to the previous year (in February 2021, the total generation was 692 mln. kWh). The increase in generation on a yearly basis comes from the increase of 34% and 24% in thermal and hydro power generation, respectively, more than offsetting 7% decline in wind power generation.

On a monthly basis, generation decreased by approximately 13% (in January 2022, total generation was 1024 mln. kWh) (Figure 1). The monthly decrease in total generation, is induced by a 13%, 14%, and 18% decrease in thermal, hydro, and wind power generation, respectively. February is a significantly shorter month than January, so this decline is not a surprise.

The consumption of electricity on the local market was 1201 mln. kWh (+12% compared to February 2021, and -13% compared to January 2022) (Figure 1). In February 2022, power consumption exceeded generation by 311 mln. kWh which was 35% of total generation (in February 2021 difference between total generation and consumption resulted in a deficit of 377 mln. kWh, around 54% of the total generation for the month).

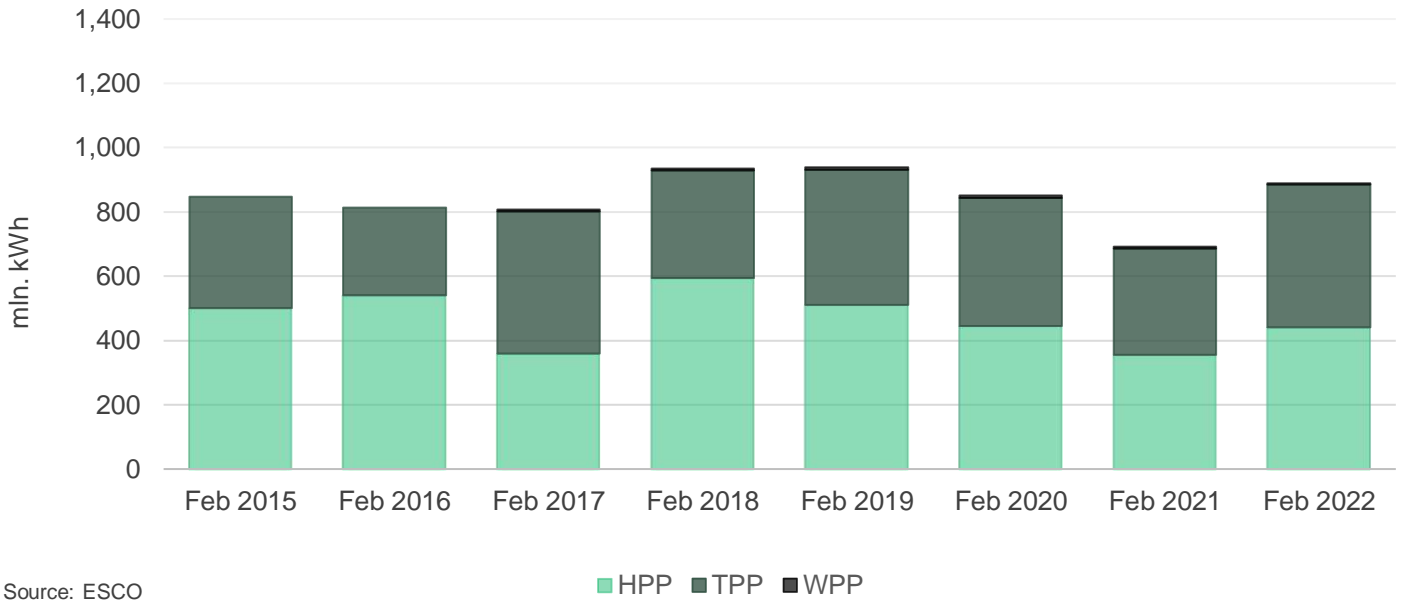
Figure 1 - Electricity Consumption and Generation



Source: Electricity System Commercial Operator (ESCO)

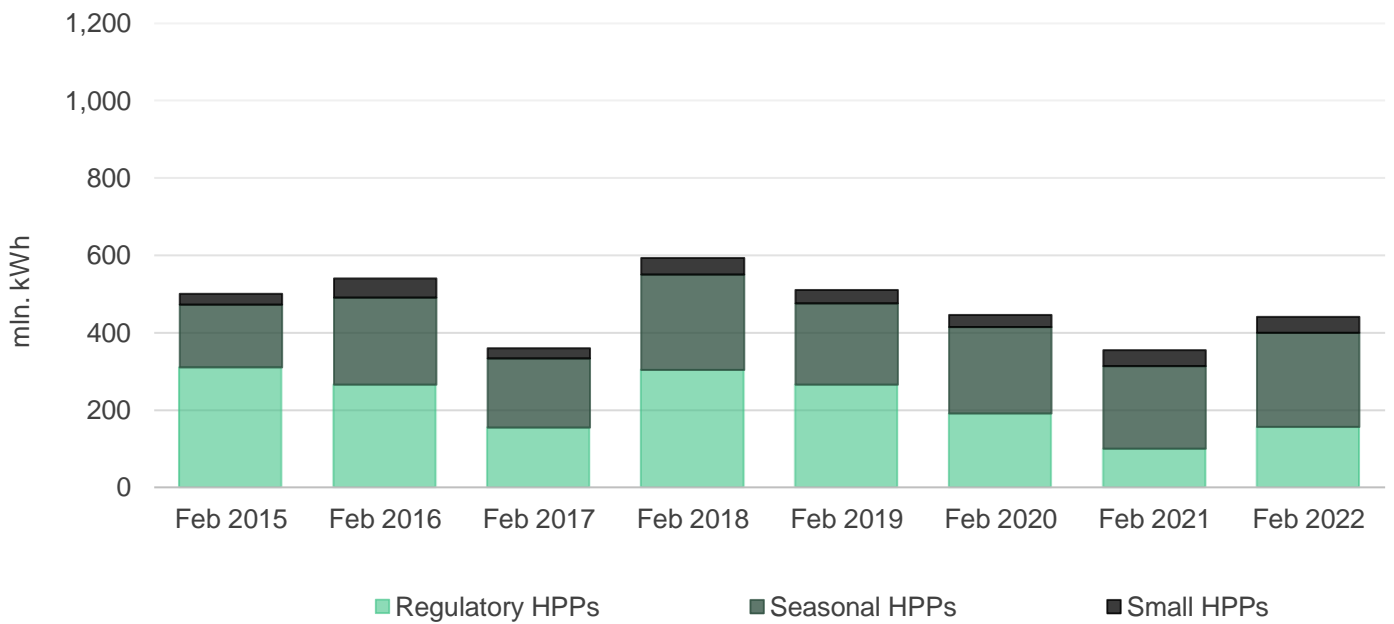
In February 2022, thermal power plants became the leading source of generation. In February 2022, thermal power (TPP) generation amounted to 444 mln. kWh (50% of total), while hydro power (HPP) generation was 441 mln. kWh, and wind power (WPP) generation was 5 mln. kWh (50% and less than 1% of the total generation, respectively) (Figure 2).

Figure 2 - Electricity Generation by Sources



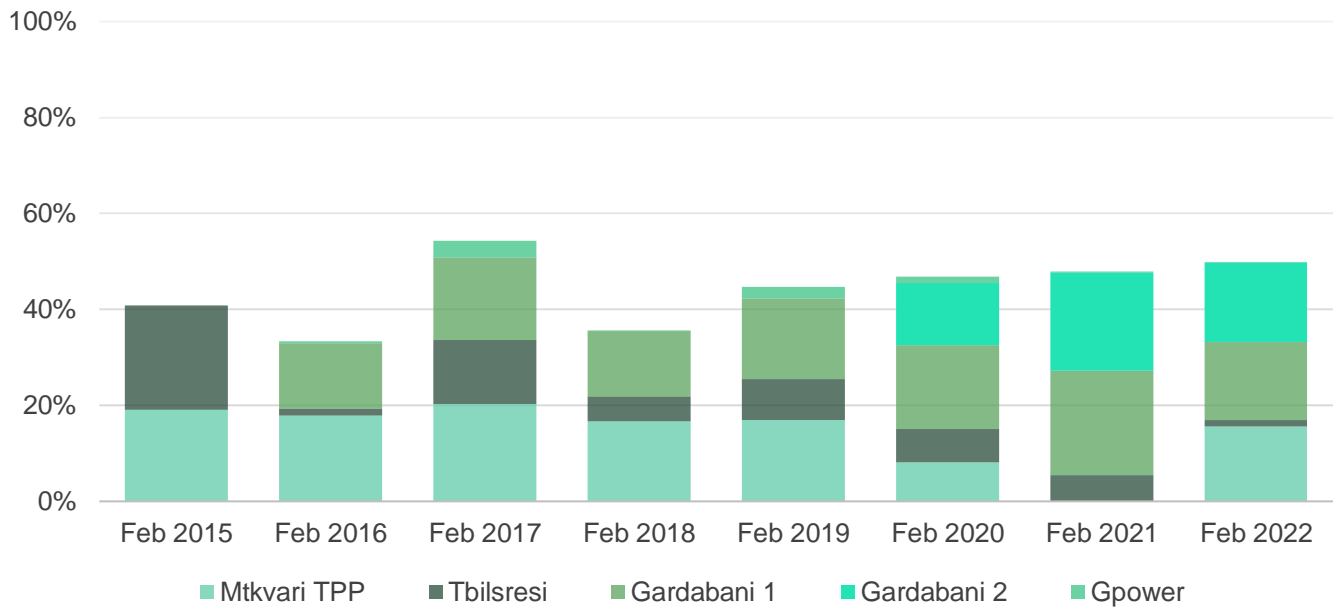
Among hydropower generators, large (regulatory) HPPs produced 35% (156 mln. kWh) of electricity, while seasonal and small HPPs produced 56% (244 mln. kWh) and 9% (41 mln. kWh), respectively (Figure 3).

Figure 3 - HPP Generation by Type



Among thermal power plants, Mtkvari TPP generated 139 mln. kWh, 31% of total thermal power generation and 16% of total generation. Gardabani 1 TPP generated 145 mln. kWh, 33% of total thermal power generation and 16% of total generation. Gardabani 2 TPP generated 148 mln. kWh, 33% of total thermal power generation and 17% of total generation. The remaining 12 mln. kWh of TPP generation came from Gpower and Tbilisresi (Figure 4).

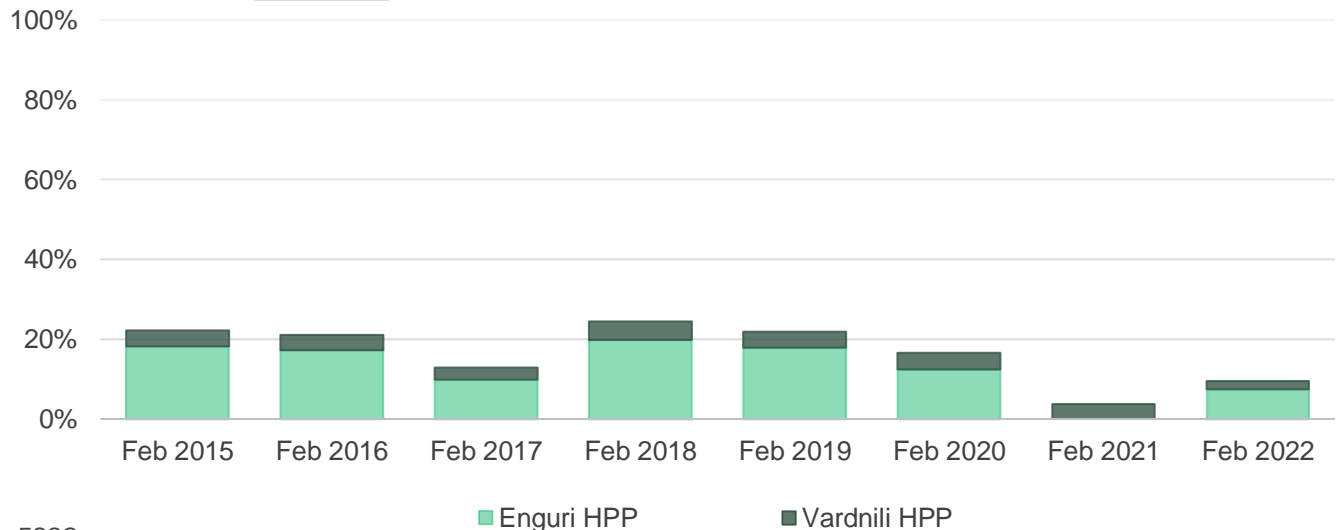
Figure 4 - Share of Large TPPs in Total Generation



Source: ESCO

As for HPP generation, Vardnili HPP generated 19 mln. kWh (12% of generation for regulatory HPPs and 2% of total generation). Enguri HPP generated 66 mln. kWh, which represents 42% of generation of regulatory HPPs and 7% of total generation (Figure 5).

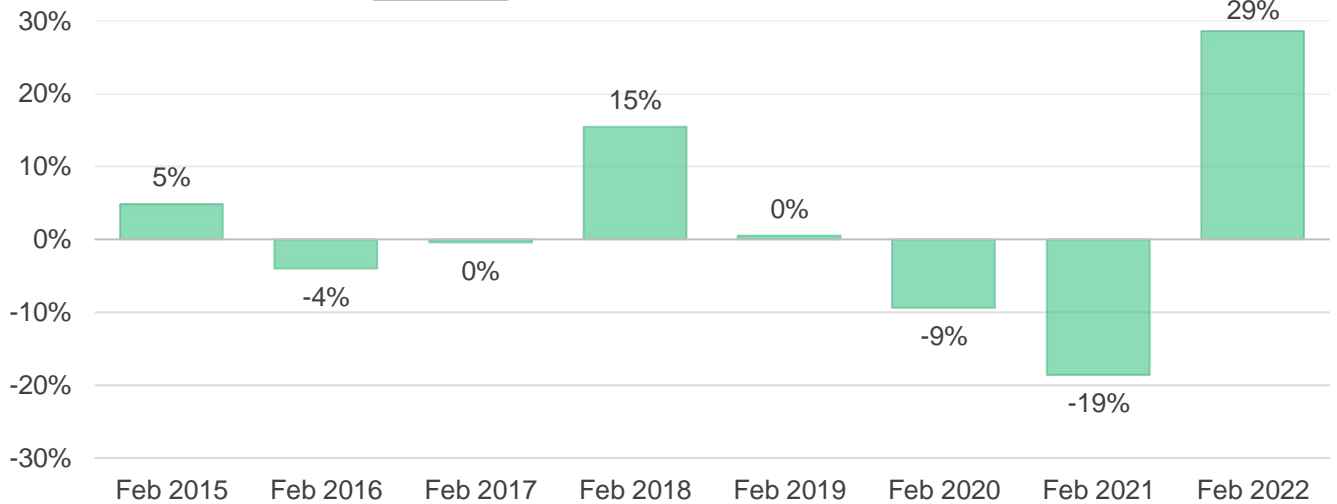
Figure 5 - Share of Enguri and Vardnili in Total Generation



Source: ESCO

Overall, total generation increased by 29% compared to February 2021 (Figure 6).

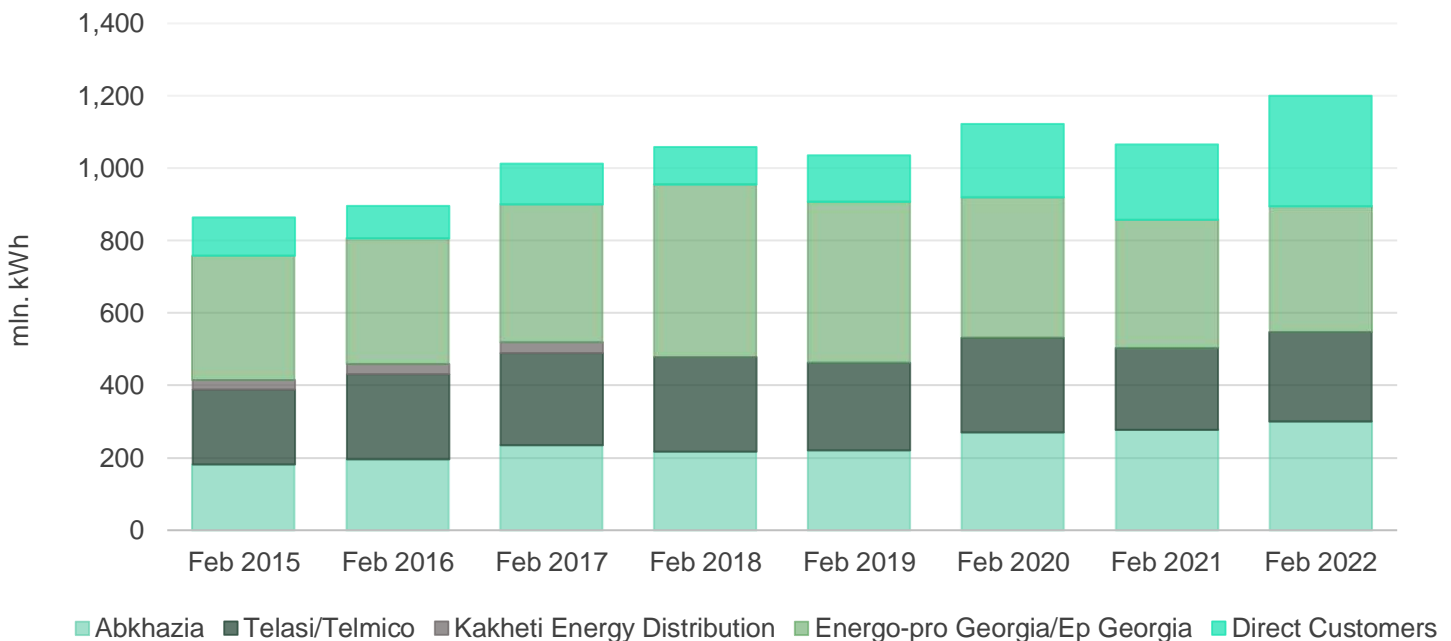
Figure 6 - Growth of Generation (% , y/y)



Source: ESCO

Total electricity demand came from: Energo-Pro Georgia/Ep Georgia¹ (29% - 347 mln. kWh), Abkhazia (25% - 300 mln. kWh), Telasi/Telmico² (21% - 247 mln. kWh), and direct customers (25% - 306 mln. kWh) (Figure 7). Annual demand from Abkhazia, Telasi and direct customers increased by 8%, 10%, and 47%, respectively, while the demand from Energo-Pro Georgia fell by 2%. Overall, there was an annual growth of 12% in the total electricity consumption in February 2022, compared to February 2021 (Figure 8).

Figure 7 - Electricity Consumption by Type of Customer

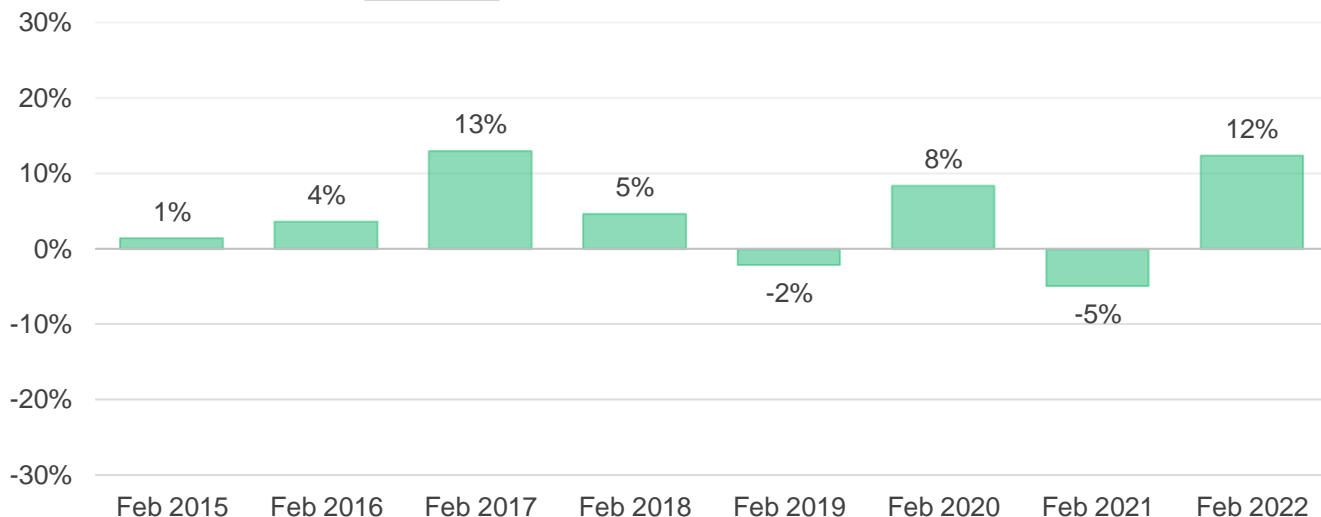


Source: ESCO

¹ Energo-Pro Georgia acquired Kakheta 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)

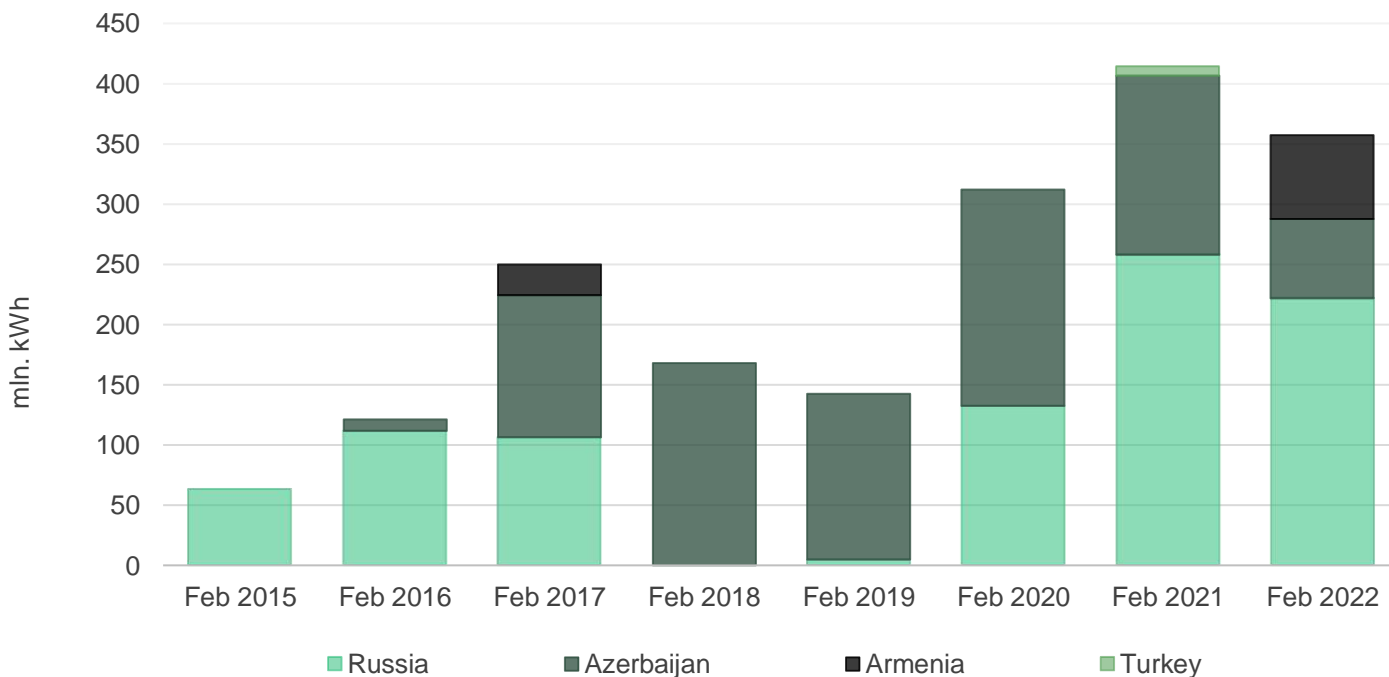


Source: ESCO

In February 2022, Georgia imported 357 mln. kWh of electricity (compared to 414 mln. kWh January 2021). 62% of imports came from Russia (almost all of which was supplied to Abkhazia), while 20% and 18% came from Armenia and Azerbaijan, respectively (Figure 9). In February 2022, Georgia exported less than 1 mln. kWh of electricity, all of which went to Turkey (there was almost no export in February 2021) (Figure 10). There was a 168 mln. kWh electricity transit from Azerbaijan to Turkey in February 2022 (In February 2021, there was no transit at all).

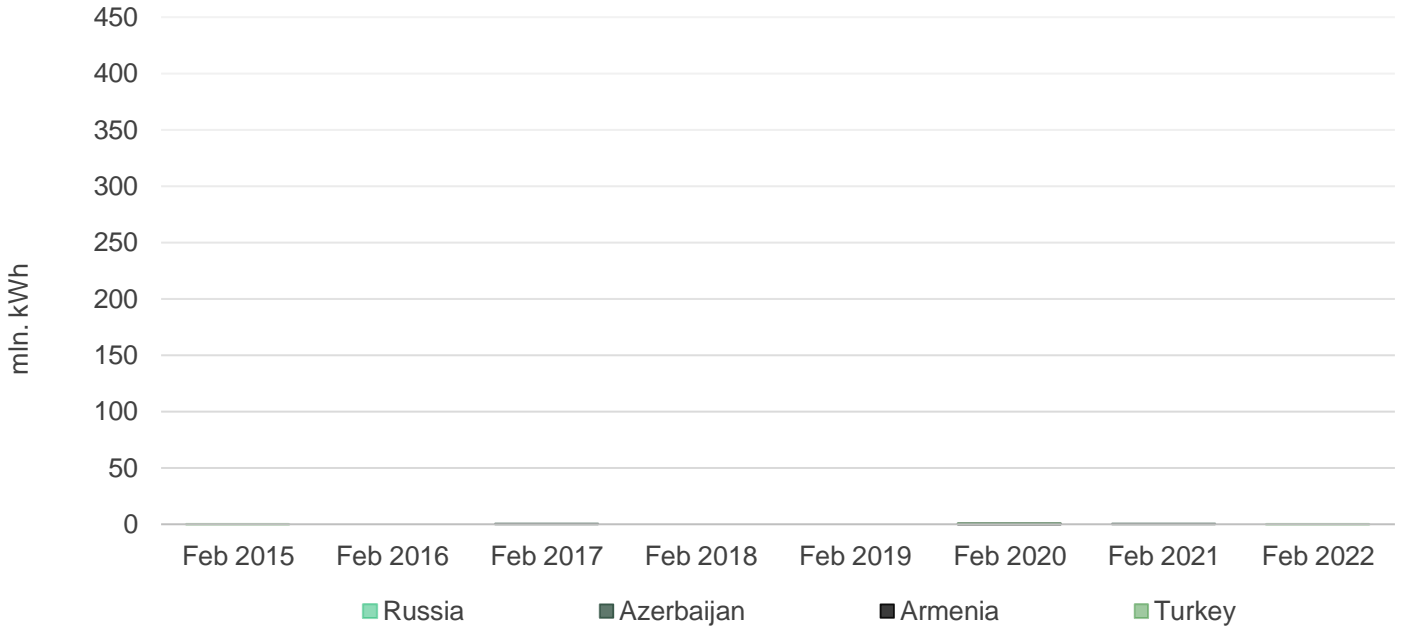
Compared to February 2021, imports decreased by 14%, while exports increased by almost 17 times (the effect of small numbers).

Figure 9 - Imports by Year



Source: ESCO

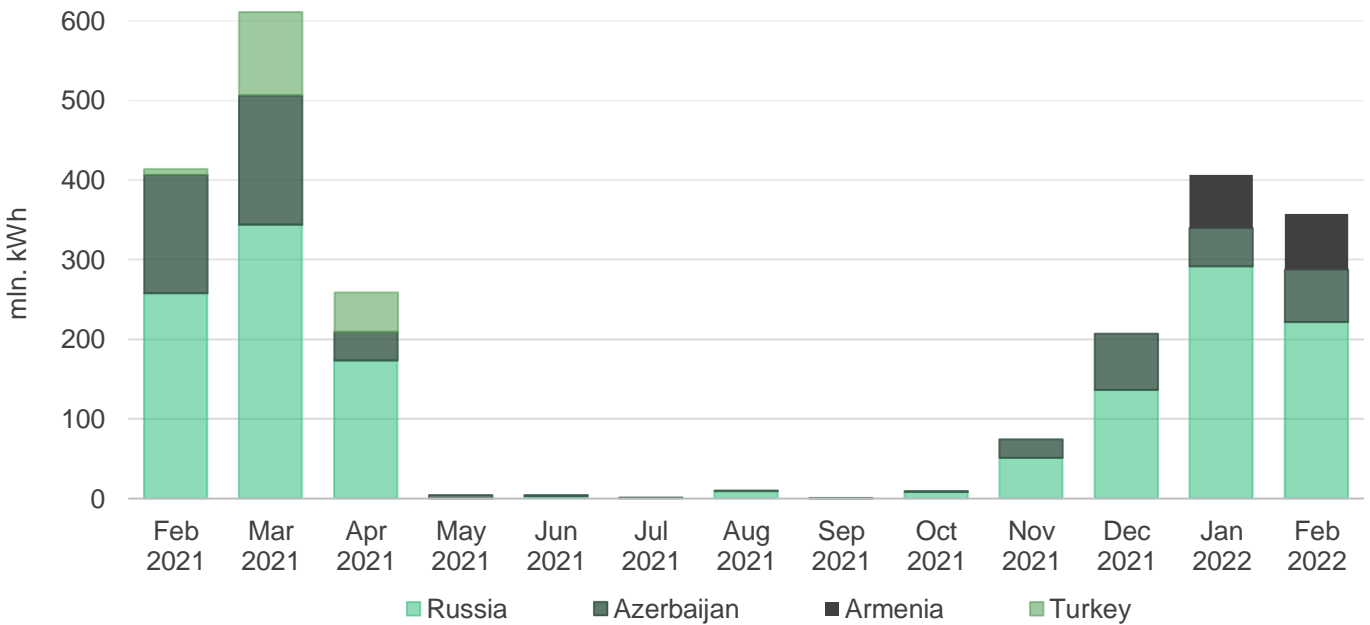
Figure 10 - Exports by Year



Source: ESCO

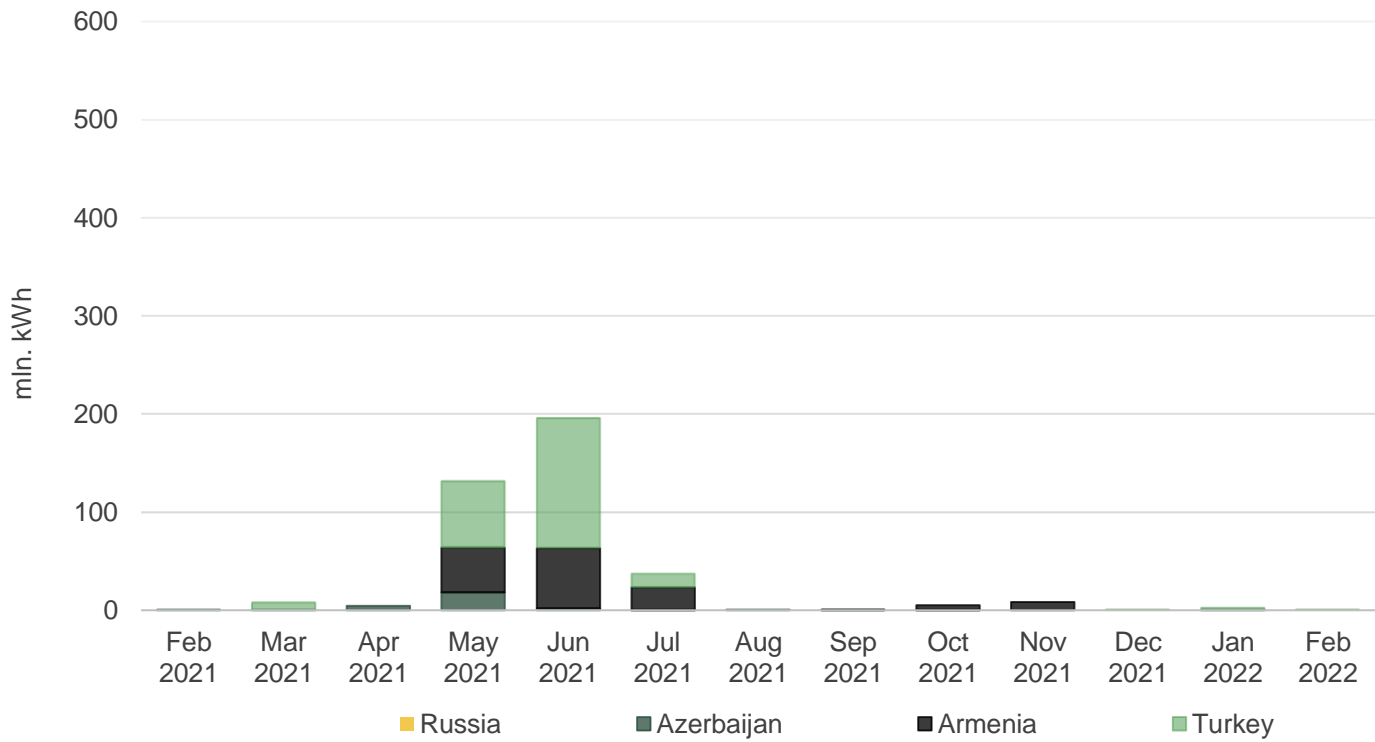
In February 2022, electricity imports decreased by 12% compared to January 2022 (Figure 11) Electricity exports decreased by 89%, compared to January 2022, and the level remains low (Figure 12). February was the fourth consecutive month to end up in generation-consumption deficit after a six-month surplus period.

Figure 11 - Imports by Month



Source: ESCO

Figure 12 - Exports by Month

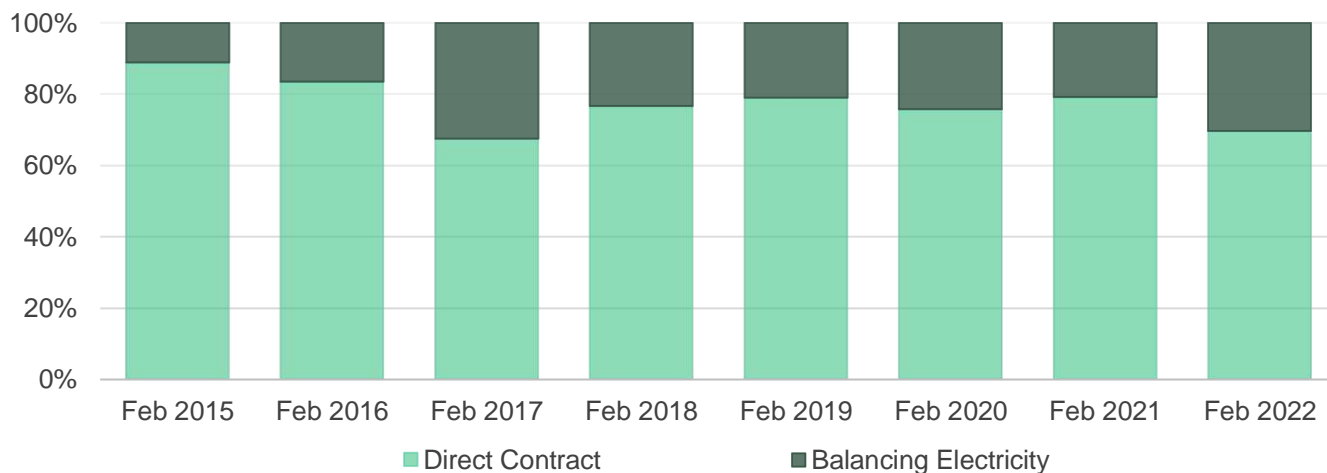


Source: ESCO

1. Market Operations

In February 2022, 70% of the electricity sold on/from the local market was sold through direct contracts. The remaining 30% was sold as balancing electricity (Figure 13).

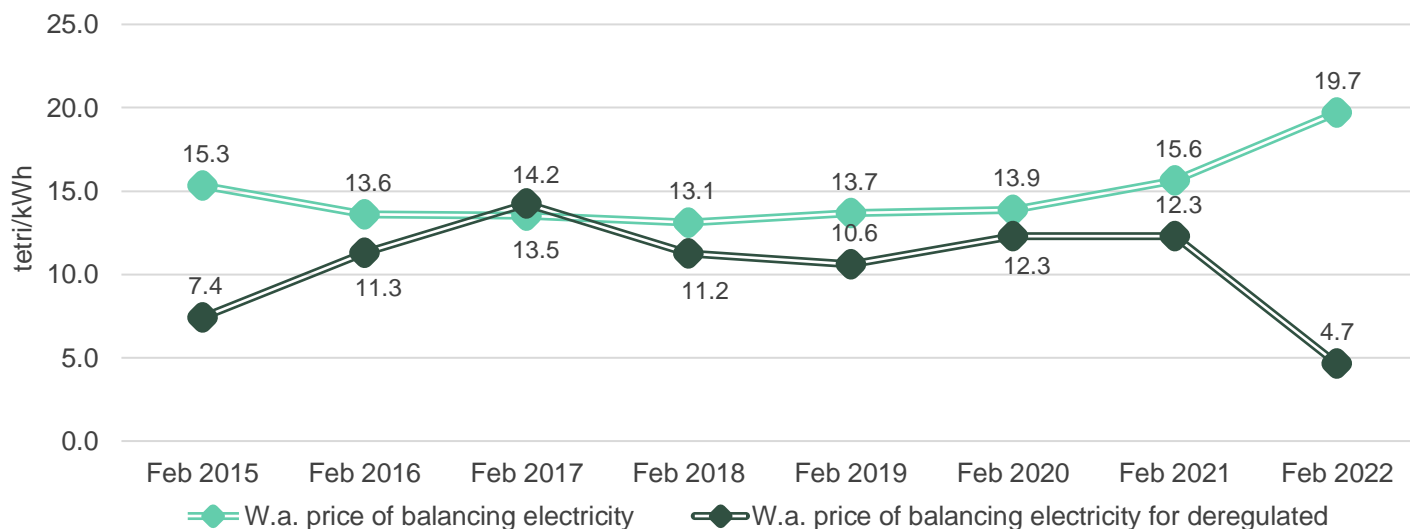
Figure 13 - Electricity Purchased / Sold Shares of Direct Contracts and Balancing Electricity



Source: ESCO

In February 2022, the weighted average price of balancing electricity was 19.7 tetri/kWh, which corresponds to an annual increase of 26% compared to February 2021. As for the weighted average price for deregulated (small) HPPs, it was 4.7 tetri/kWh, which represents a 62% decrease compared to February 2021 (Figure 14).

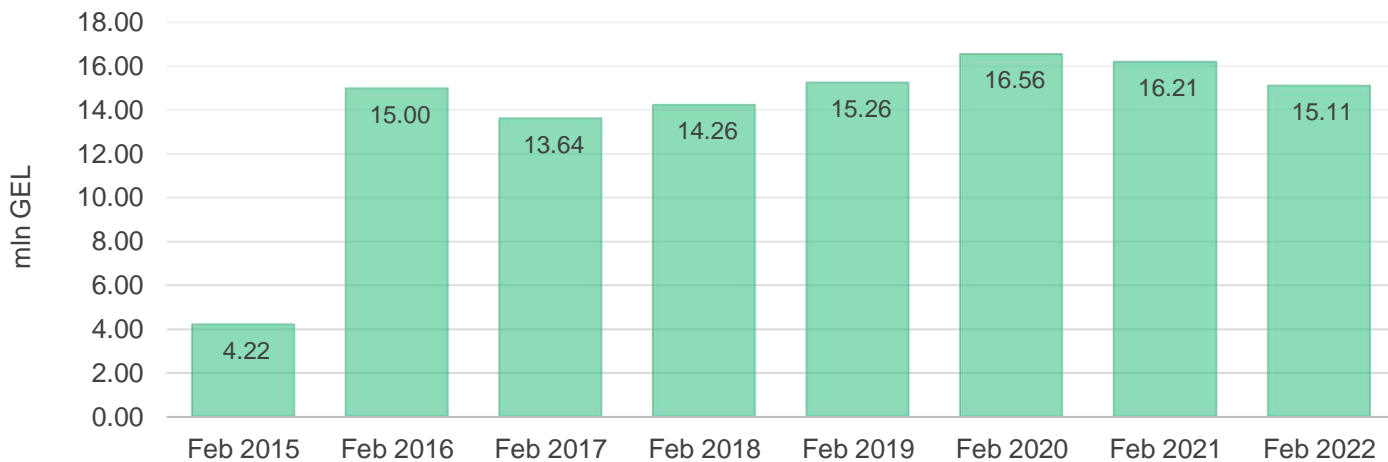
Figure 14 - Balancing Electricity Prices Weighted Average and Weighted Average Price for Deregulated HPPs



Source: ESCO

Guaranteed capacity payments in February 2022 were roughly 15.11 mln. GEL, which represents a 7% decrease compared to February 2021 (Figure 15).

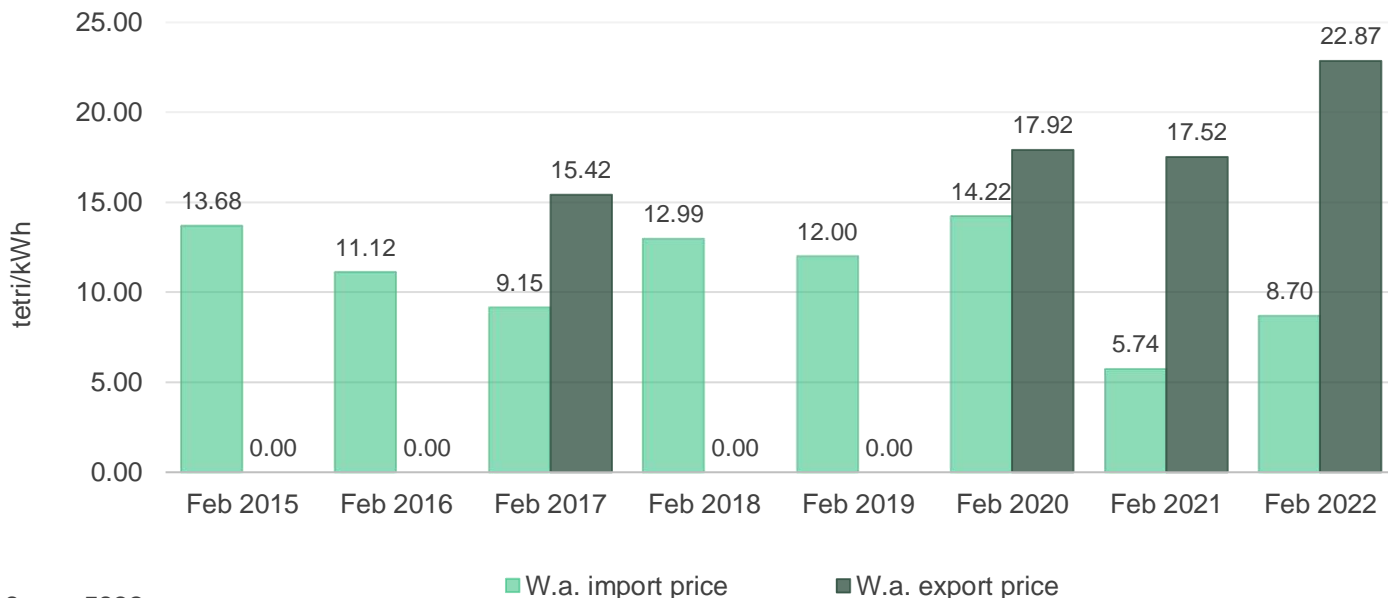
Figure 15 - Cost of Guaranteed Capacity



Source: ESCO

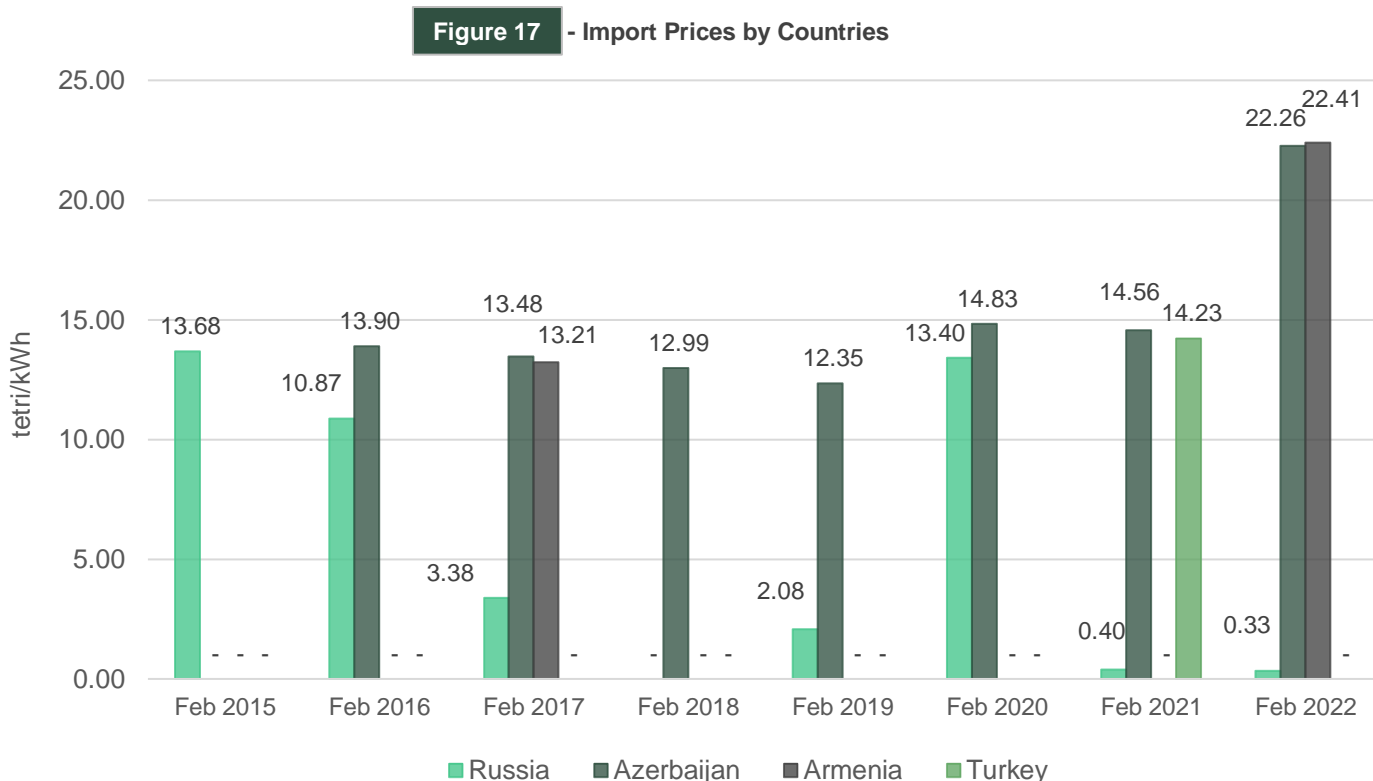
The weighted average electricity import price in February 2022 increased by 67% in USD, on an annual basis, and increased by approximately 51% in GEL (from 1.73 ¢, or 5.74 tetri per kWh in February 2021 to 2.89 ¢, or 8.70 tetri per kWh in February 2022 - Figure 16). The weighted average import price increased by 4% in USD and by 2% in GEL on a monthly basis (prices were 2.78 ¢, or 8.55 tetri per kWh in January 2022). The weighted average electricity export price in February 2022 increased by 44% in USD, on an annual basis, and increased by approximately 31% in GEL (from 5.29 ¢, or 17.52 tetri per kWh in February 2021 to 7.60 ¢, or 22.87 tetri per kWh in February 2022 - Figure 16). The weighted average export price increased by 1% USD and decreased by 1% in GEL on a monthly basis (prices were 7.51 ¢, or 23.13 tetri per kWh in January 2022).

Figure 16 - Prices Import/Export

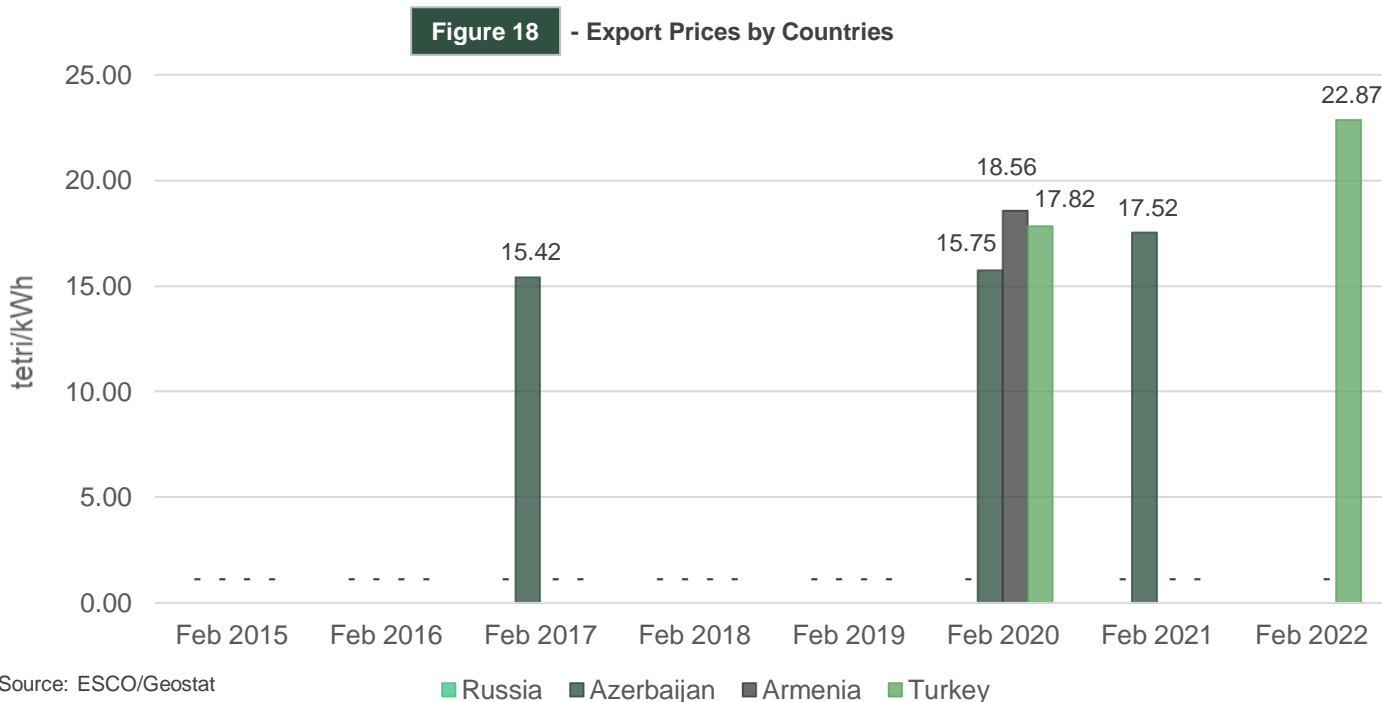


Source: ESCO

In February 2022, the electricity import price from Armenia, Azerbaijan and Russia stood at 7.45 ¢ or 22.41 tetri, 7.40 ¢ or 22.26 tetri and 0.11 ¢ or 0.33 tetri per kWh, respectively. (Figure 17).



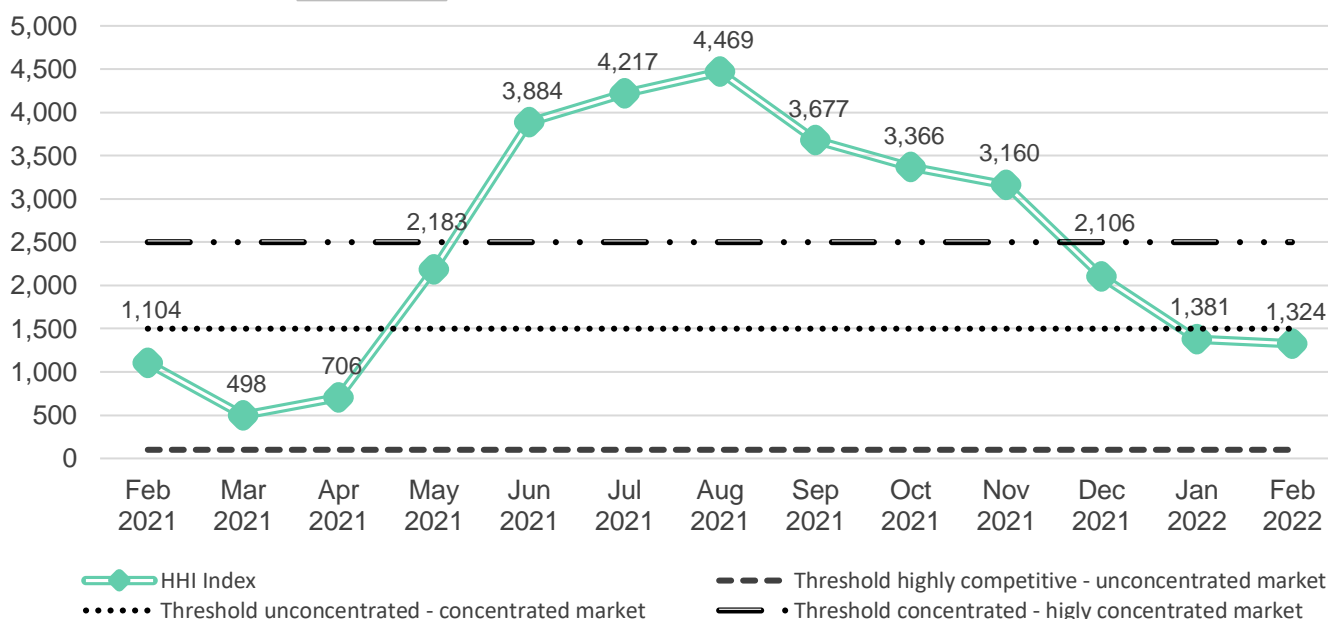
In February 2022, the electricity export price to Turkey stood at 7.60 ¢ or 22.87 tetri. (Figure 18).



2. Market Concentration

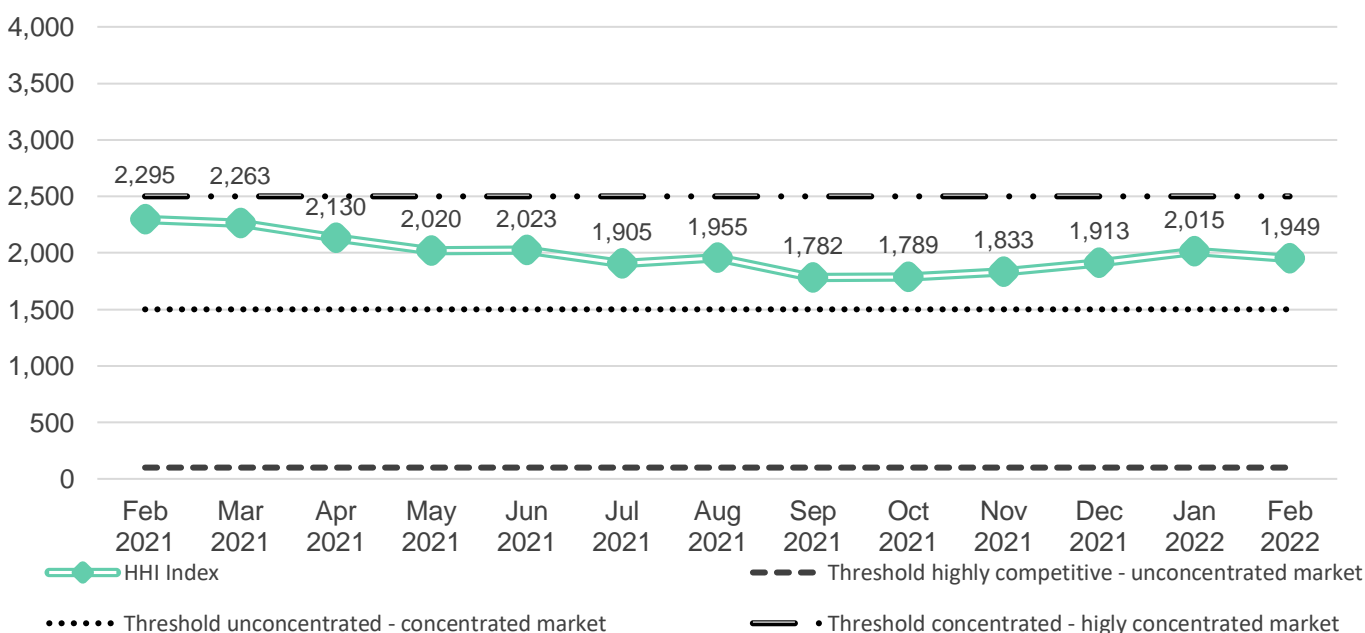
In conclusion, we utilize the Hirschman-Herfindahl (HHI) market concentration index to evaluate how competitive the generation and consumption segments of the market have been over the year. In February 2022, the Georgian electricity generation market remained below the threshold between unconcentrated and concentrated markets (for the second consecutive month), with an HHI value of 1324 (Figure 19). This is higher than the level in February 2021 (with an HHI value of 1104), but lower than the level in January 2022 (HHI was 1381). We should keep in mind that Enguri HPP was not operating in February 2021, thus lowering the overall index then. As for the consumption segment, in February 2022, the HHI consumption index remained below the threshold for a highly concentrated market, with an HHI value of 1949 (below the level in February 2021 – 2295 and also below the level in January 2022 – 2015). In fact, September 2020 was the last month when the index value was above the level of highly concentrated market. Since then, an overall decreasing trend in the market concentration of consumption segment was observable. The pattern changed after September 2021 and the last 4 months demonstrate a slightly increasing trend (Figure 20). February is the first month with a monthly decrease in HHI value since September 2021.

Figure 19 - Hirschman-Herfindahl Index for Power Generation



Source: ESCO

Figure 20 - Hirschman-Herfindahl Index for Power Consumption



Source: ESCO