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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 November 2021 there was an increase in total electricity generation by 37% on a yearly basis, and a decrease by 1% on a monthly basis.
- Consumption increased by 15% on yearly basis and increased by 5% on a monthly basis.
- Consumption exceeded generation by 17 mln. kWh – 1% of total generation for November.
- The level of export was extremely low.
- The main import partner country was Russia.
- The cost of imports from Russia was 14.86 tetri per kWh, against 16.63 tetri for imports from Azerbaijan.
- The weighted average price of imports in GEL increased by 9% on a yearly, and by 3% on a monthly basis.
- The main export partner was Armenia.
- The electricity export price to Armenia was 20.39 tetri per kWh.
- The HHI index for the Georgian electricity generation market remained above the threshold of highly concentrated market in November 2021, but decreased compared to the levels in September and October, indicating that the generation side of the market became slightly more competitive compared to the previous month (the index value in September was 3,677, while in October and November it fell to 3,366 and 3,160, respectively).
- The HHI for the Georgian electricity consumption market was below the threshold of a highly concentrated market. September 2020 (index value of 2,522) was the last month during which the index value was above the level of highly concentrated market. Afterwards, the index clearly demonstrated a downward trend, reaching the level of 1.833 in November 2021.

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

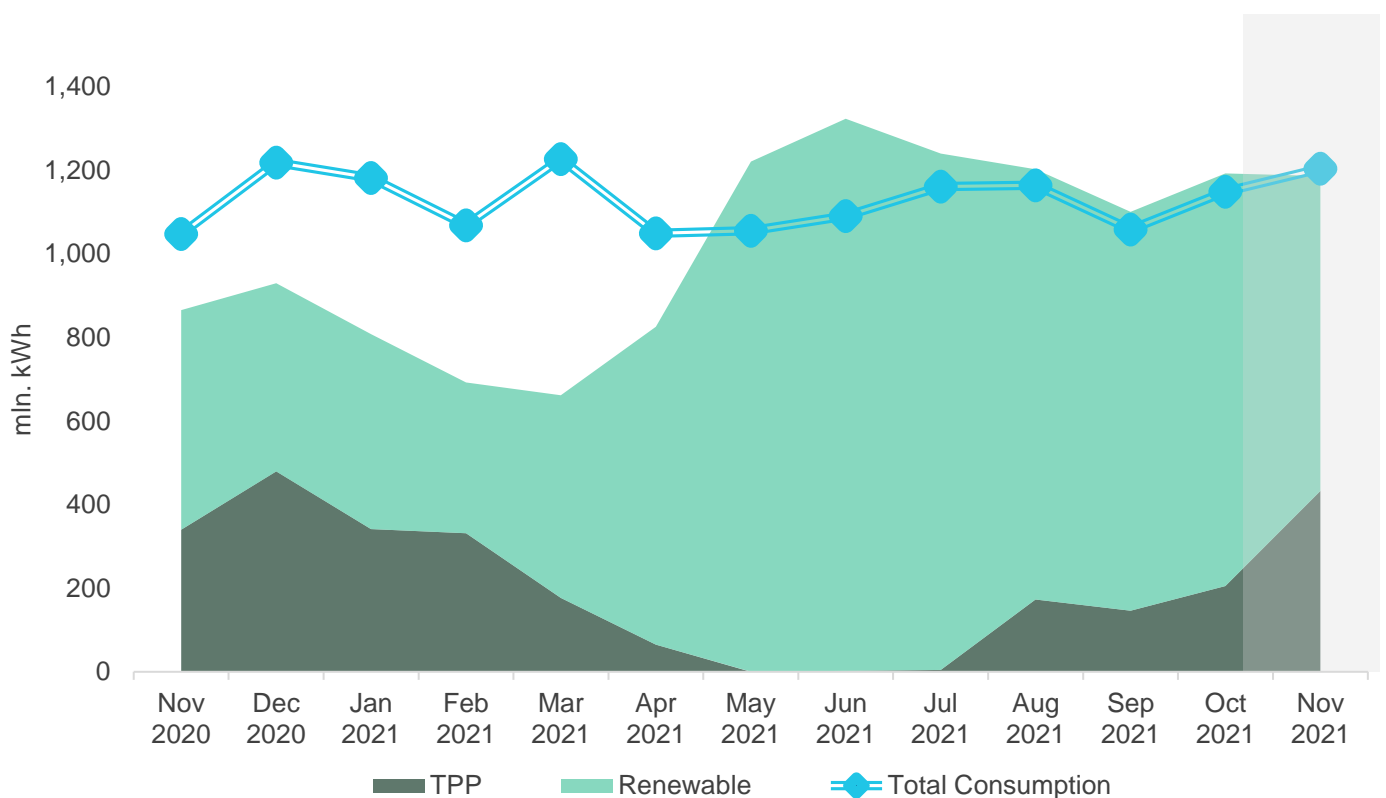
Generation – Consumption – Trade

In November 2021, Georgian power plants generated 1186 mln. kWh of electricity (Figure 1). This represents a 37% increase in total generation, compared to the previous year (in November 2020, the total generation was 865 mln. kWh). The increase in generation on a yearly basis comes from the increase of 44% and 27% in hydro power, and thermal power generation, respectively. Meanwhile, there was a 12% decrease in wind power generation.

On a monthly basis, generation decreased by approximately 1% (in October 2021, total generation was 1192 mln. kWh) (Figure 1). The monthly decrease in total generation, is caused by a reduction of 24% and 35% in hydro, and wind power generation, respectively, while thermal power generation increased by 111%.

The consumption of electricity on the local market was 1204 mln. kWh (+15% compared to November 2020, and +5% compared to October 2021) (Figure 1). In November 2021, power consumption exceeded generation by 17 mln. kWh which was 1% of total generation (in November 2020 difference between total generation and consumption resulted in a deficit of 182 mln. kWh, around 21% of the total generation for the month).

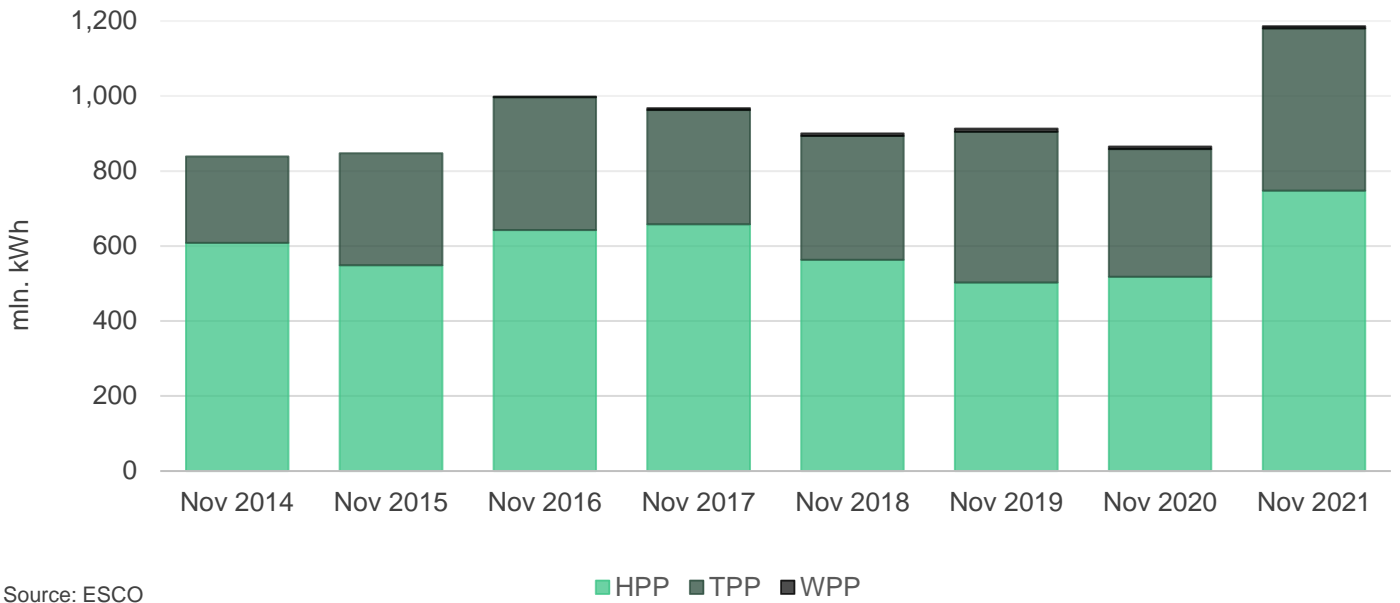
Figure 1 - Electricity Consumption and Generation



Source: Electricity System Commercial Operator (ESCO)

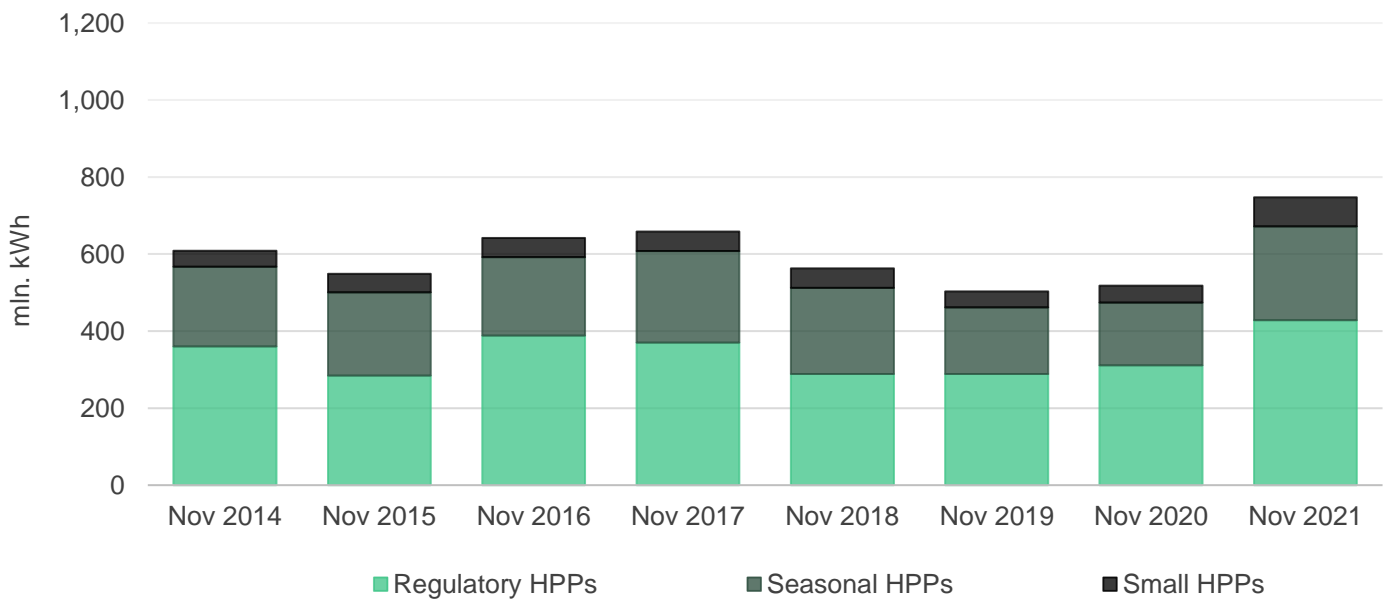
Most generation came from hydro power plants. In November 2021, hydro power (HPP) generation amounted to 747 mln. kWh (63% of total), while thermal power (TPP) generation was 433 mln. kWh, and wind power (WPP) generation was 6 mln. kWh (36% and 1% of the total generation, respectively) (Figure 2).

Figure 2 - Electricity Generation by Sources



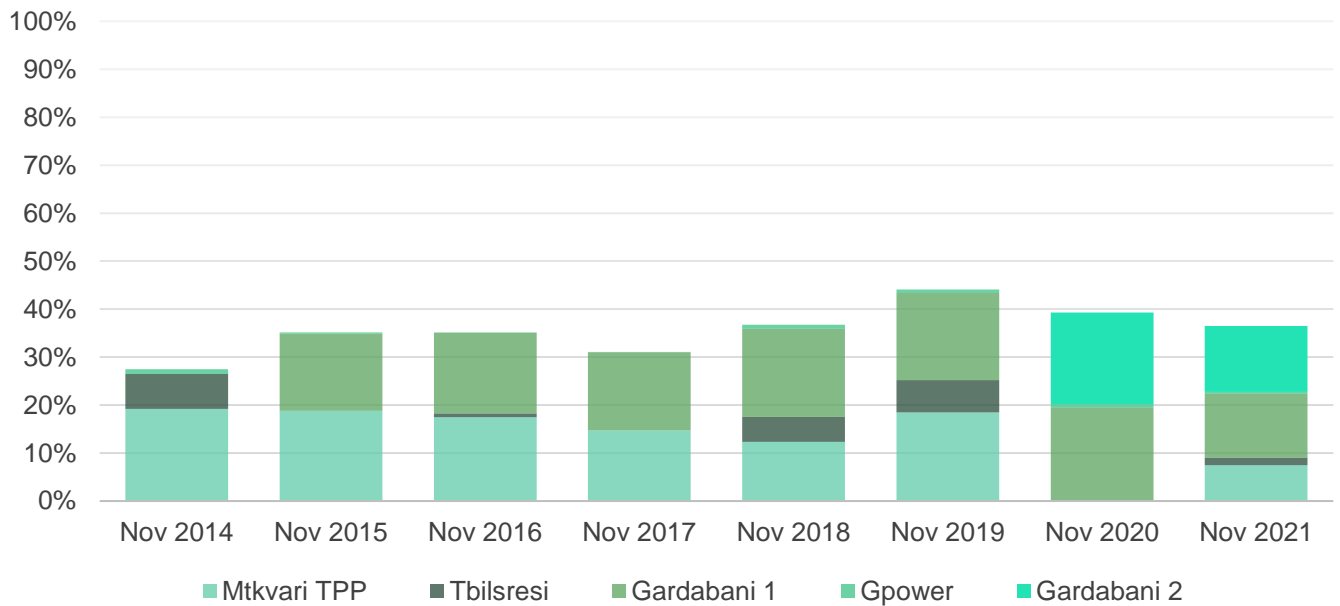
Among hydropower generators, large (regulatory) HPPs produced 57% (429 mln. kWh) of electricity, while seasonal and small HPPs produced 33% (243 mln. kWh) and 10% (76 mln. kWh), respectively (Figure 3).

Figure 3 - HPP Generation by Type



Among thermal power plants, Mtkvari TPP generated 88 mln. kWh, 20% of total thermal power generation and 7% of total generation. Gardabani 1 TPP generated 158 mln. kWh, 36% of total thermal power generation and 13% of total generation. Gardabani 2 TPP generated 163 mln. kWh, 38% of total thermal power generation and 14% of total generation. Tbilisresi generated 19 mln. kWh, 4% of total thermal power generation and 2% of total generation. (Figure 4).

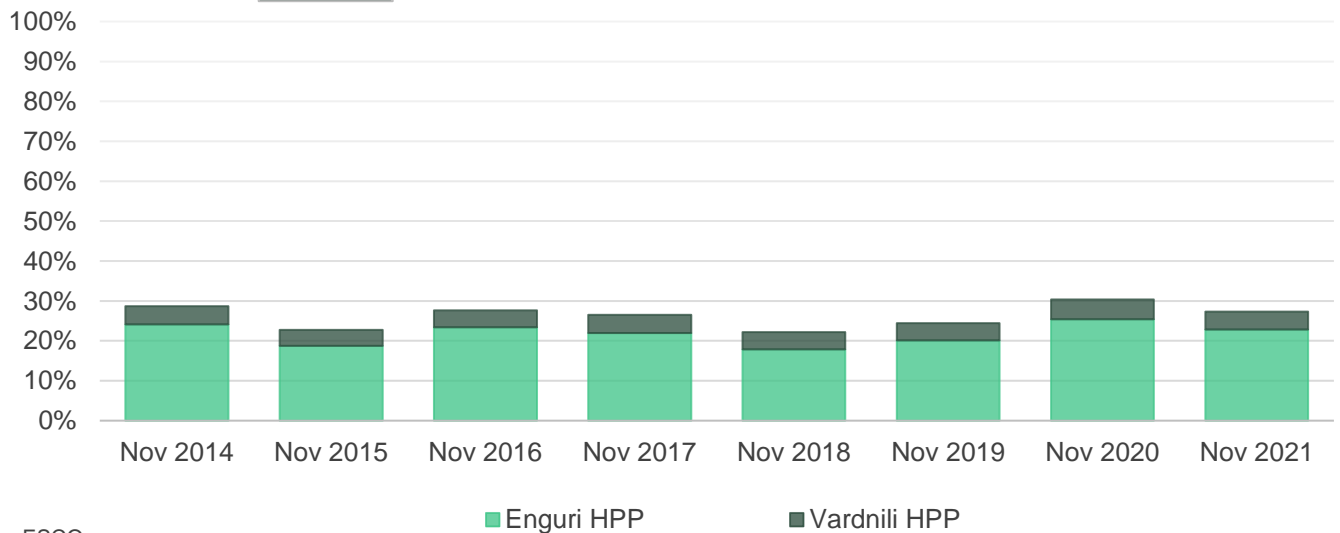
Figure 4 - Share of Large TPPs in Total Generation



Source: ESCO

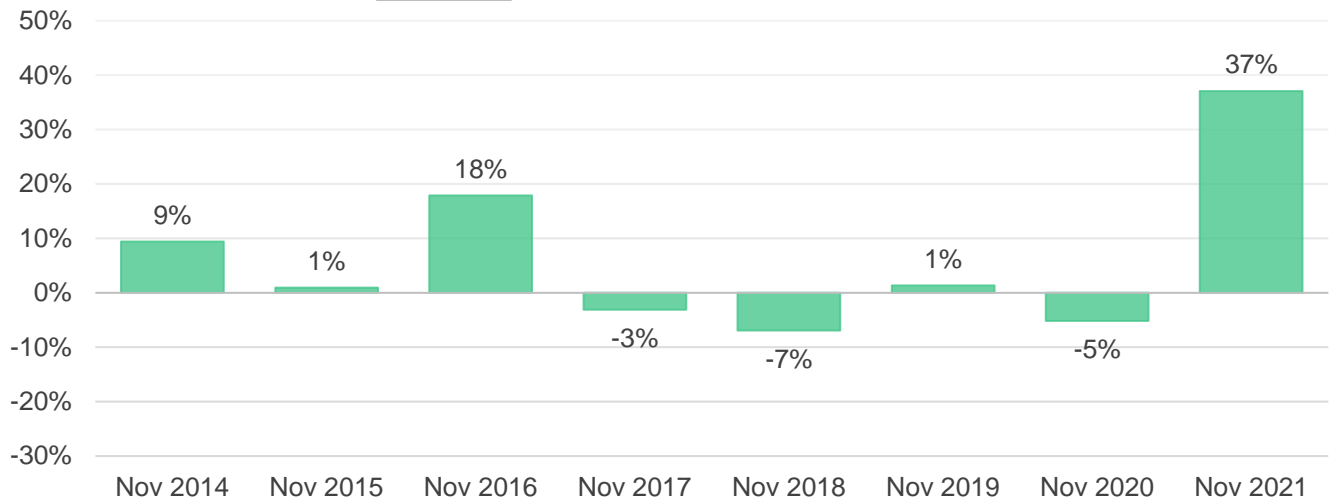
As for HPP generation, Vardnili HPP generated 53 mln. kWh (12% of generation for regulatory HPPs and 4% of total generation). Enguri HPP generated 271 mln. kWh, which represents 63% of generation of regulatory HPPs and 23% of total generation (Figure 5).

Figure 5 - Share of Enguri and Vardnili in Total Generation



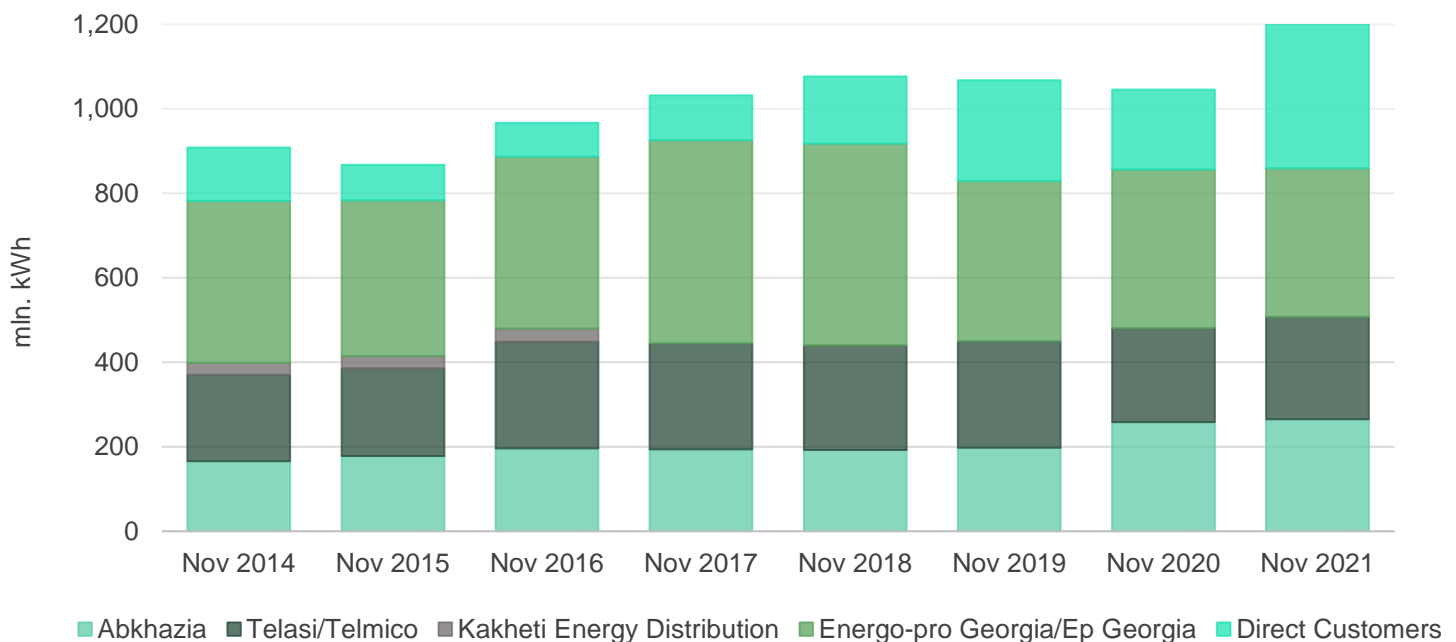
Source: ESCO

Overall, total generation increased by 37% compared to November 2020 (Figure 6).

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

Source: ESCO

Total electricity demand came from: Energo-Pro Georgia/Ep Georgia¹ (29% - 352 mln. kWh), Abkhazia (22% - 265 mln. kWh), Telasi/Telmico² (20% - 243 mln. kWh), and direct customers (29% - 343 mln. kWh) (Figure 7). Annual demand from Abkhazia, Telasi and direct customers increased by 3%, 9%, and 81%, respectively, while demand from Energo-pro Georgia decreased by 6%. Overall, there was an annual growth of 15% in the total electricity consumption in November 2021, compared to November 2020 (Figure 8).

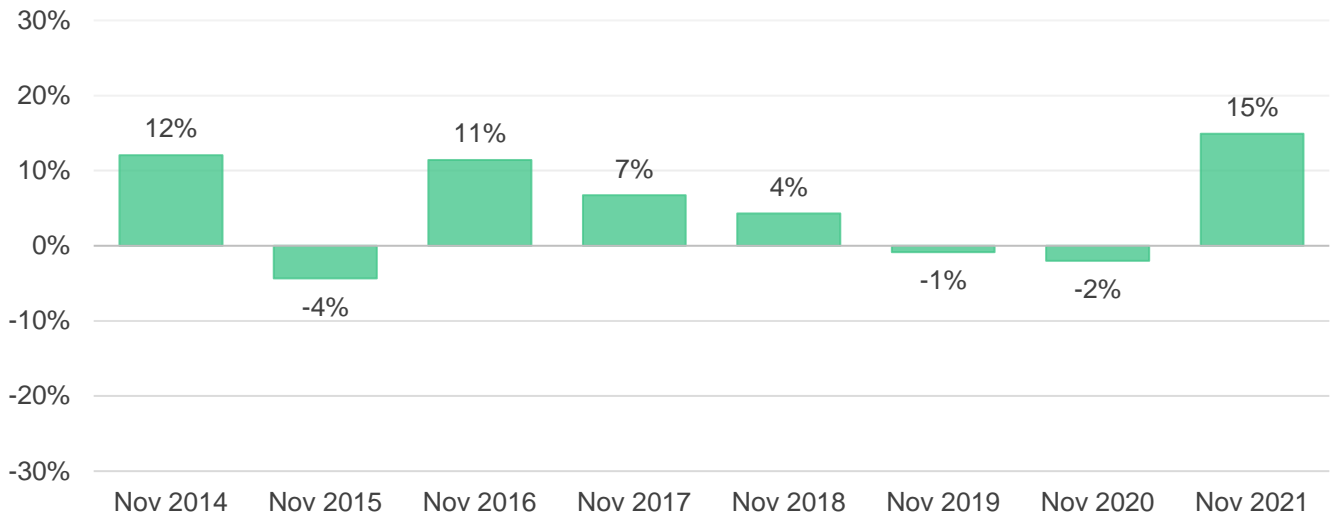
Figure 7 - Electricity Consumption by Type of Customer

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)

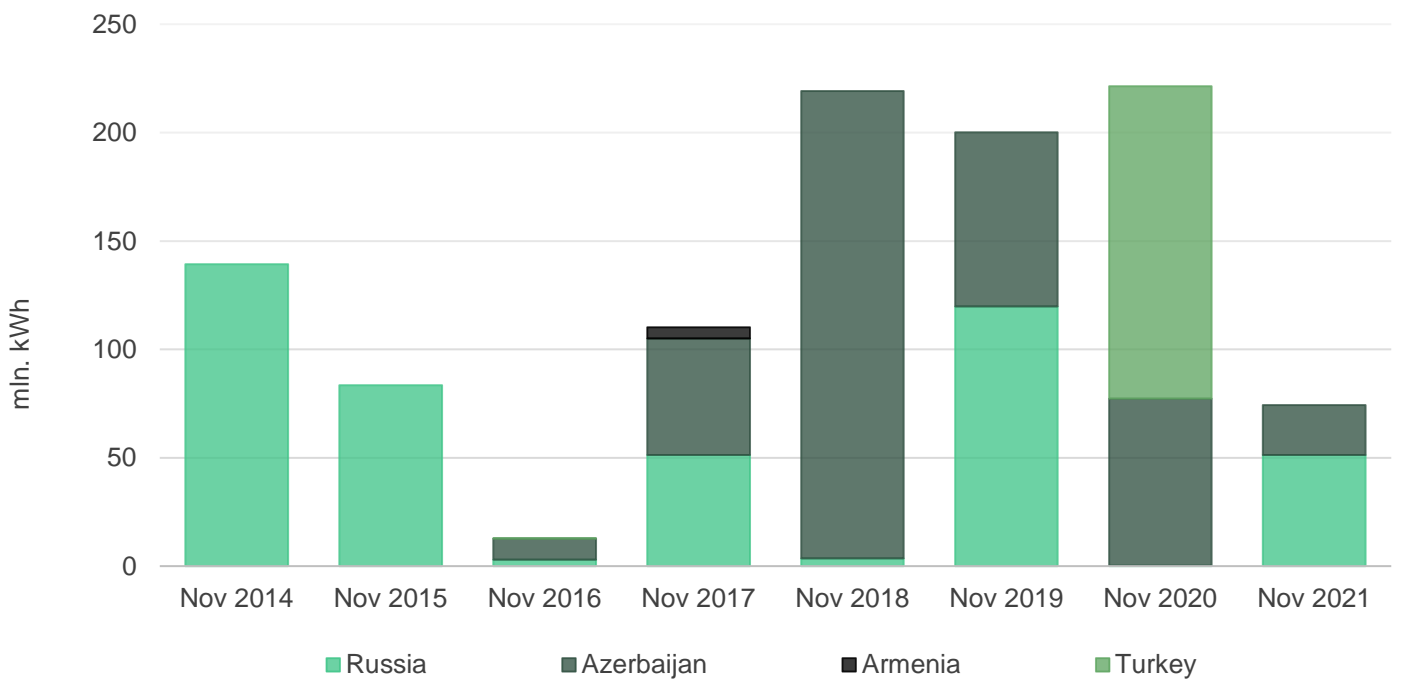


Source: ESCO

In November 2021, Georgia imported 74 mln. kWh of electricity (compared to 221 mln. kWh November 2020). 69% of imports came from Russia and the rest came from Azerbaijan (Figure 9). In November 2021, Georgia exported 8 mln. kWh of electricity (almost no export in November 2020) (Figure 10). There was a 199 mln. kWh electricity transit from Azerbaijan to Turkey in November 2021 (In November 2020, there was no transit at all).

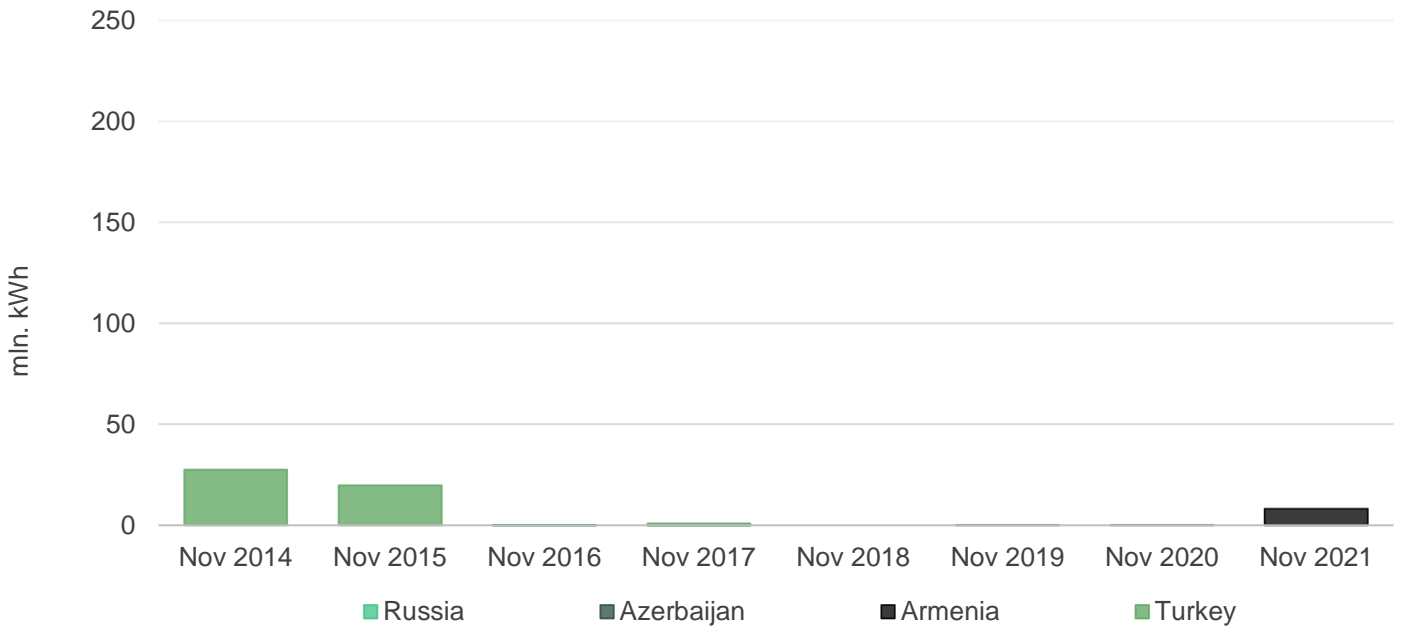
Compared to November 2020, imports decreased by 67%, reaching the five-year low for the month of November (Figure 9).

Figure 9 - Imports by Year



Source: ESCO

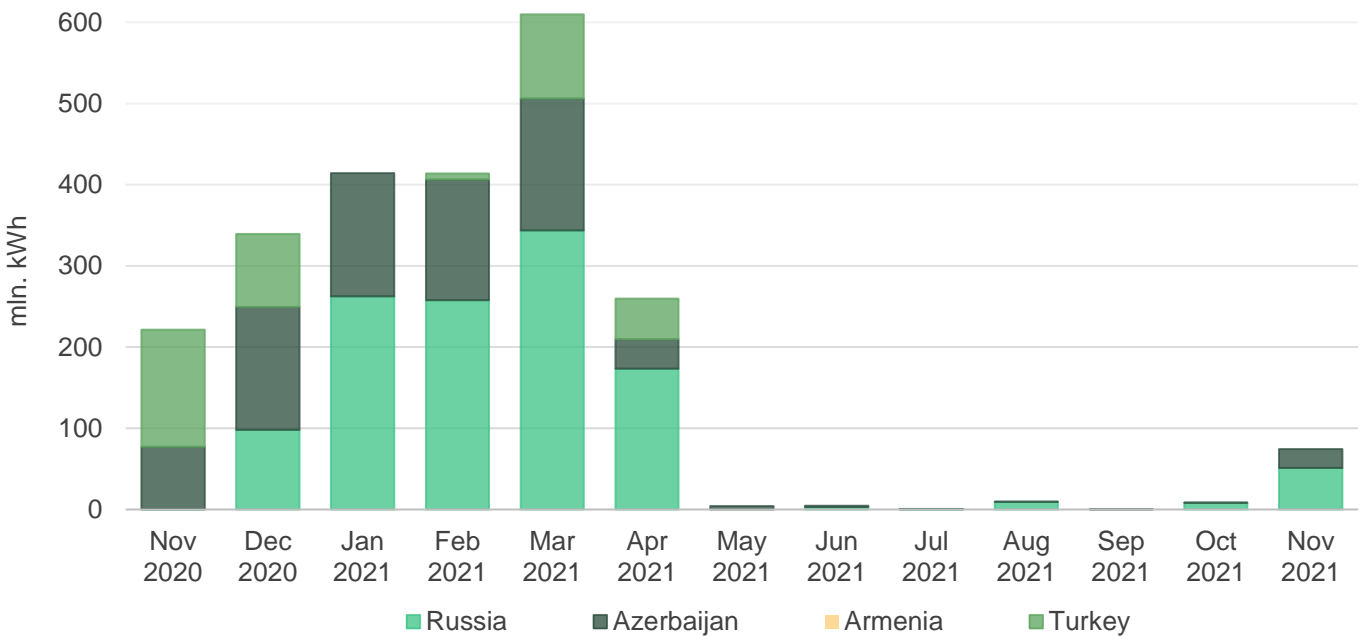
Figure 10 - Exports by Year



Source: ESCO

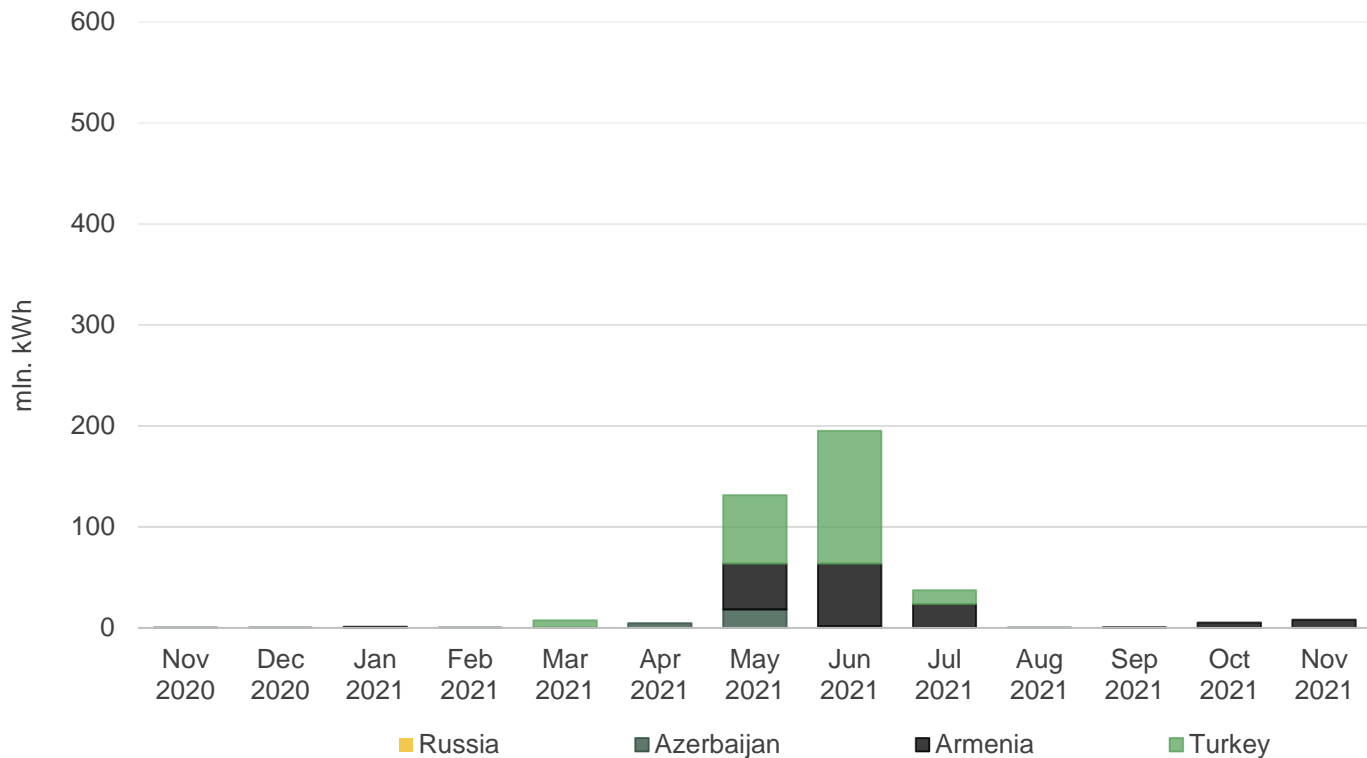
In November 2021, electricity imports increased 9 times compared to October 2021 (Figure 11) Electricity exports increased by 59%, compared to October 2021, but the level is still very low (The export comprised only 8 mln. kWh, compared to 5 mln. kWh in September 2021) (Figure 12). November was the first month after a long surplus period to end up in generation-consumption deficit.

Figure 11 - Imports by Month



Source: ESCO

Figure 12 - Exports by Month

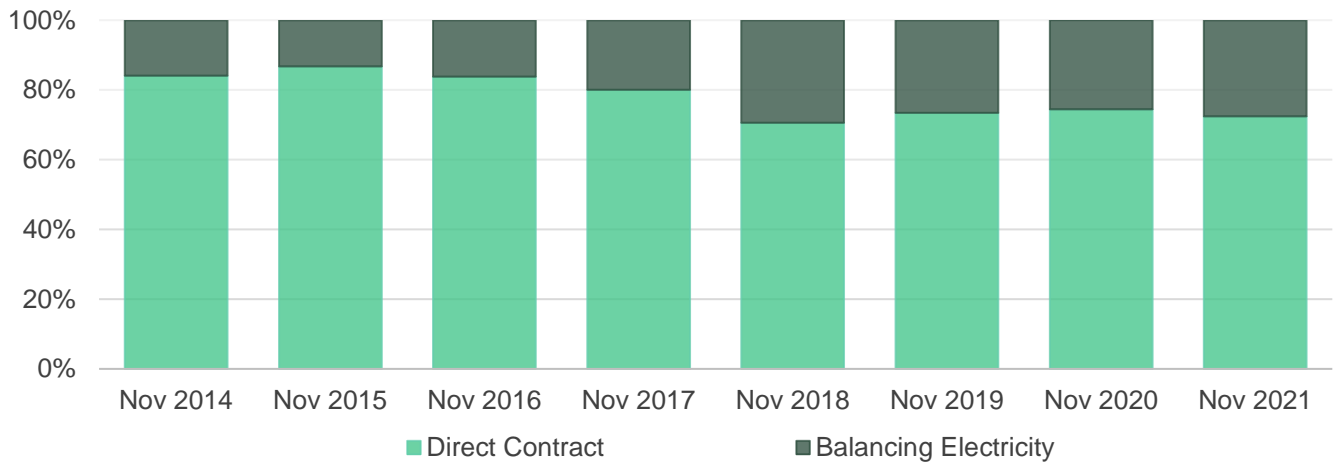


Source: ESCO

1. Market Operations

In November 2021, 72% of the electricity sold on/from the local market was sold through direct contracts. The remaining 28% was sold as balancing electricity (Figure 13).

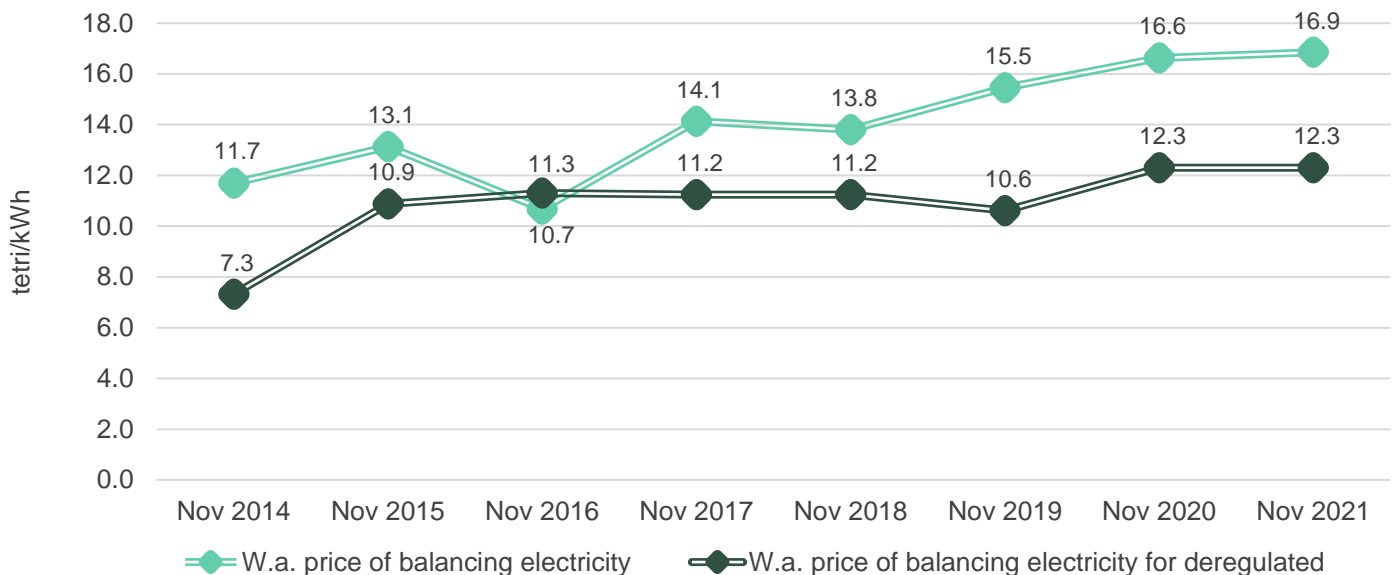
Figure 13 - Electricity Purchased / Sold Shares of Direct Contracts and Balancing Electricity



Source: ESCO

In November 2021, the weighted average price of balancing electricity was 16.9 tetri/kWh, which corresponds to an annual increase of 1% compared to November 2020. As for the weighted average price for deregulated (small) HPPs, it was 12.3 tetri/kWh, which is identical to the price in November 2020 (Figure 14).

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

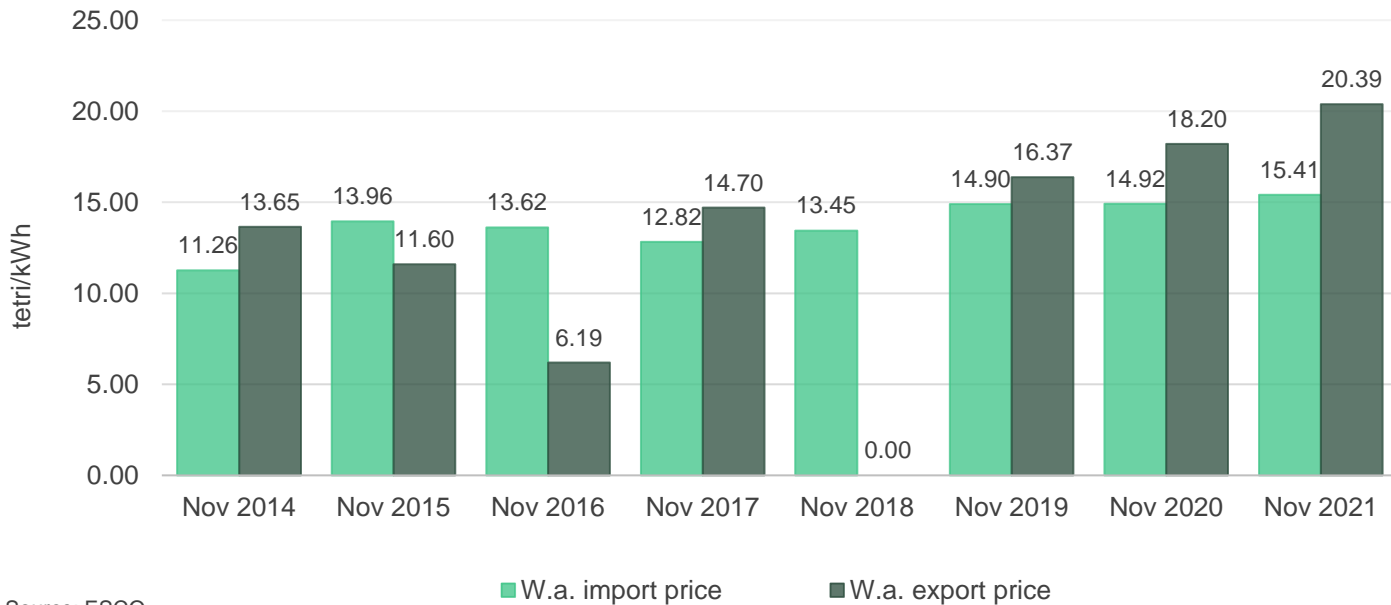


Source: ESCO

Data about guaranteed capacity payments in November 2021 are not available. Latest available data refer to January 2021 (available in EMR of January).

The weighted average electricity import price in November 2021 increased by 9% in USD, on an annual basis, and increased by approximately 3% in GEL (from 4.51 ¢, or 14.92 tetri per kWh in November 2020 to 4.91 ¢, or 15.41 tetri per kWh in November 2021 - Figure 15). The weighted average import price remained the same in both USD and GEL on a monthly basis. The weighted average electricity export price in November 2021 increased by 18% in USD, on an annual basis, and increased by approximately 12% in GEL (from 5.50 ¢, or 18.2 tetri per kWh in November 2020 to 6.50 ¢, or 20.39 tetri per kWh in November 2021 - Figure 15). The weighted average export price remained the same in both USD and GEL on a monthly basis.

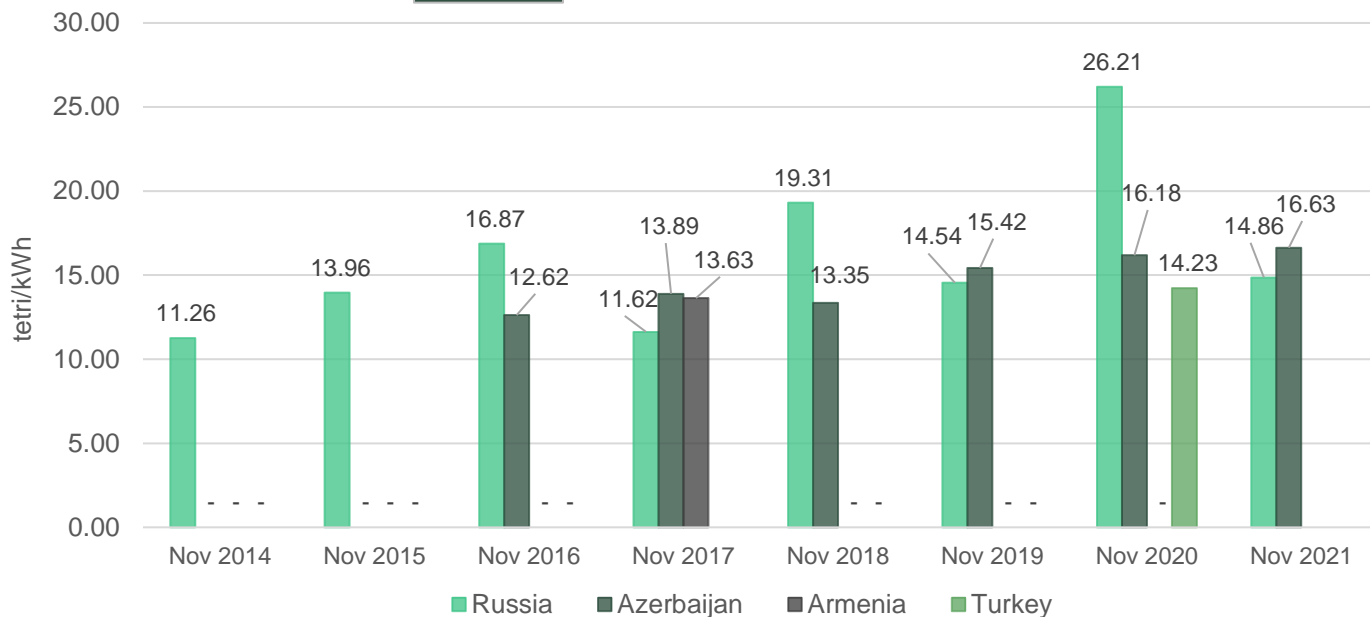
Figure 15 - Prices Import/Export



Source: ESCO

In November 2021, the electricity import price from Azerbaijan and Russia stood at 5.30 ¢ or 16.63 tetri, and 4.74 ¢ or 14.86 tetri per kWh, respectively. (Figure 16).

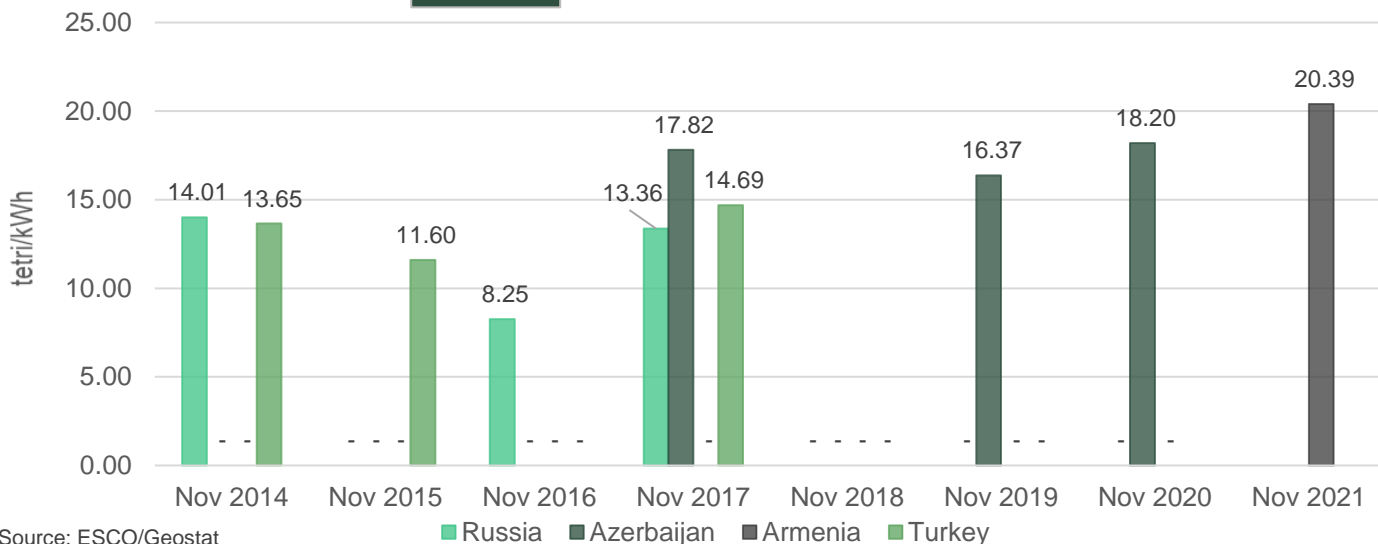
Figure 16 - Import Prices by Countries



Source: ESCO/Geostat

In November 2021, the electricity export price to Armenia stood at 6.50 ¢ or 20.39 tetri. (Figure 17).

Figure 17 - Export Prices by Countries

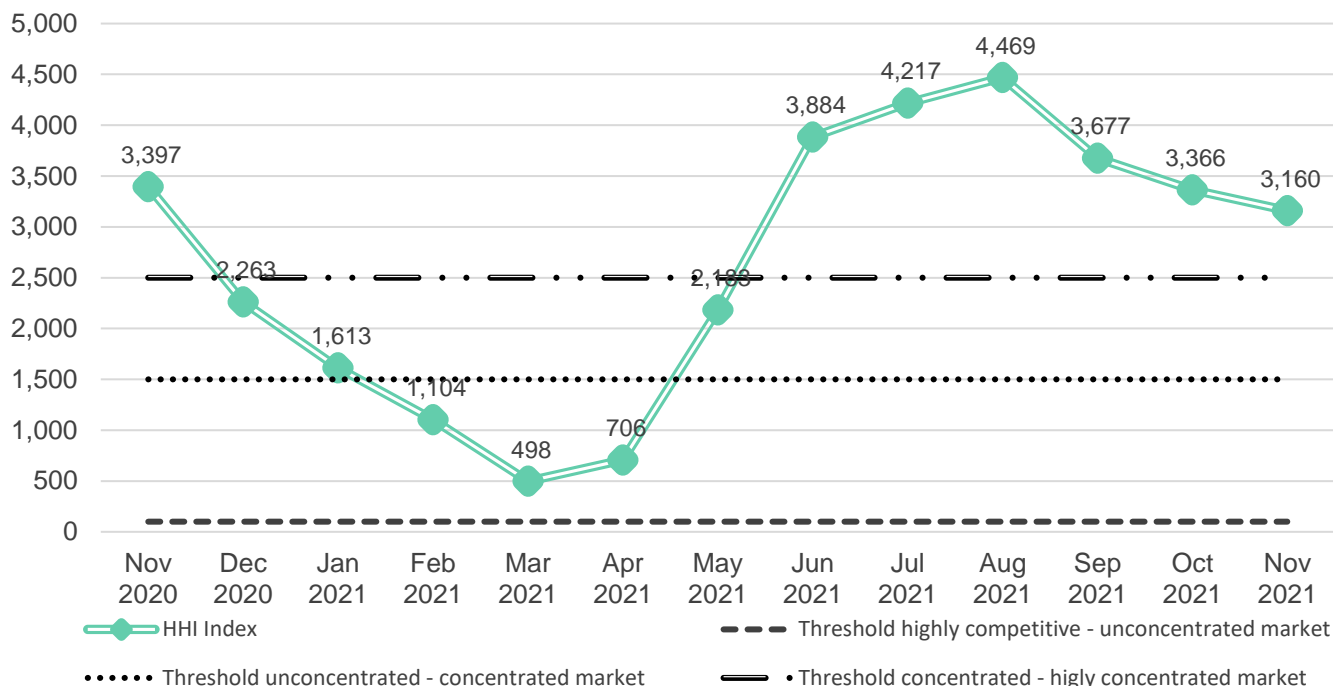


Source: ESCO/Geostat

2. Market Concentration

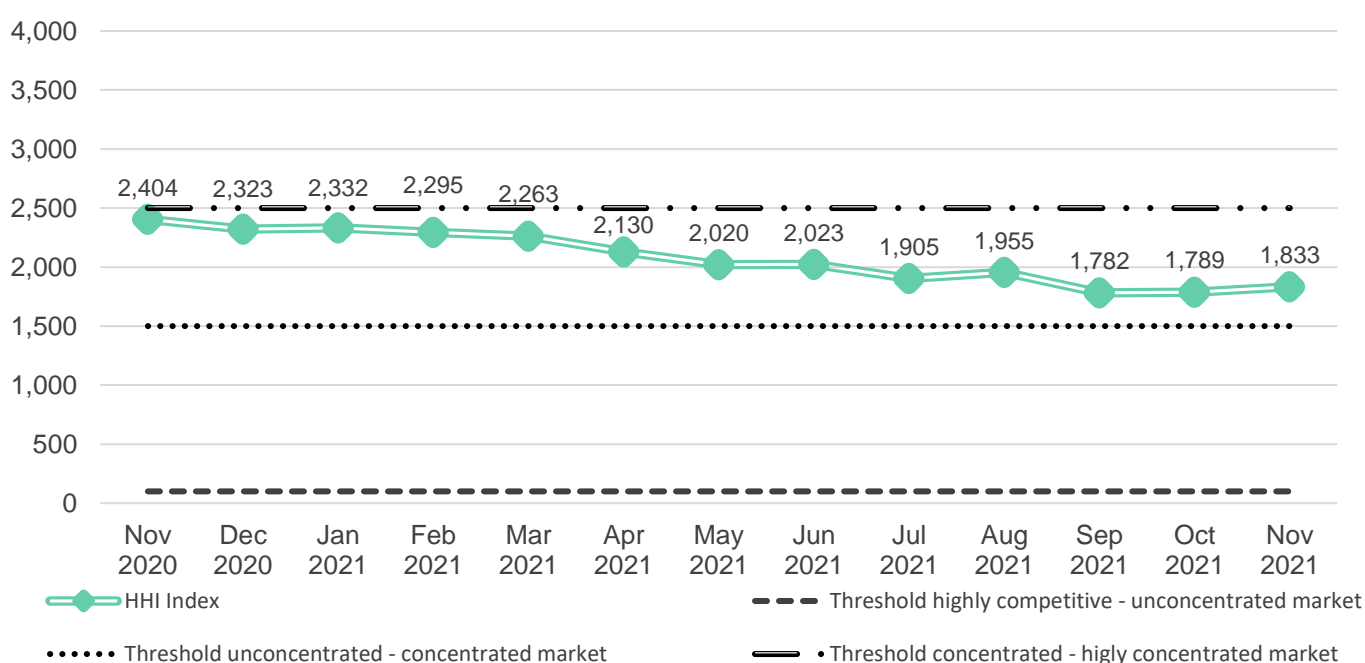
In conclusion, we utilize the Hirschman-Herfindahl (HHI) market concentration index to evaluate how competitive the generation and consumption segments of the market have been over the year. In November 2021, the Georgian electricity generation market remained above the threshold of highly concentrated market, with an HHI value of 3,160 (Figure 18). This is slightly lower than the level in November 2020 (with an HHI value of 3,397), and also lower than the level in October 2021 (HHI was 3,366) As for the consumption segment, in November 2021, the HHI consumption index was below the threshold for a highly concentrated market, with an HHI value of 1,833 (substantially below the level in November 2020 – 2,404 and slightly above the level in October 2021 – 1,789). In fact, September 2020 was the last month when the index value was above the level of highly concentrated market. Over the last 12 months, an overall decreasing trend in market concentration is observable on the consumption side of the electricity market, however, last three months demonstrate a slight increase (Figure 19).

Figure 18 - Hirschman-Herfindahl Index for Power Generation



Source: ESCO

Figure 19 - Hirschman-Herfindahl Index for Power Consumption



Source: ESCO

