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ELECTRICITY MARKET REVIEW

ISET POLICY INSTITUTE
AGRICULTURE & RURAL POLICY RESEARCH CENTER

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INFORMATION

- Electricity generation increased by 1% as a result of HPP (+1%) and TPP (+2%) generation increase.
- Among the different sources of electricity, hydropower remained dominant with its share in generation of 75.5%.
- Electricity supply exceeded demand by 1,326 mln. kWh.
- Georgian imports decreased significantly (-48%) compared to the previous year and came mainly from Russia. Most of these imports went to Abkhazia
- Georgian exports increased significantly (+51%) compared to the previous year and went mostly towards Turkey.
- Compared to 2022, the weighted average electricity import price decreased by 96%.
- The weighted average export price decreased by 29% compared to 2022.
- According to the Hirschman-Herfindahl Index (HHI) Georgian electricity generation market rose above the thresholds for a highly concentrated market.
- According to the Hirschman-Herfindahl Index (HHI) Georgian electricity consumption market remained concentrated.

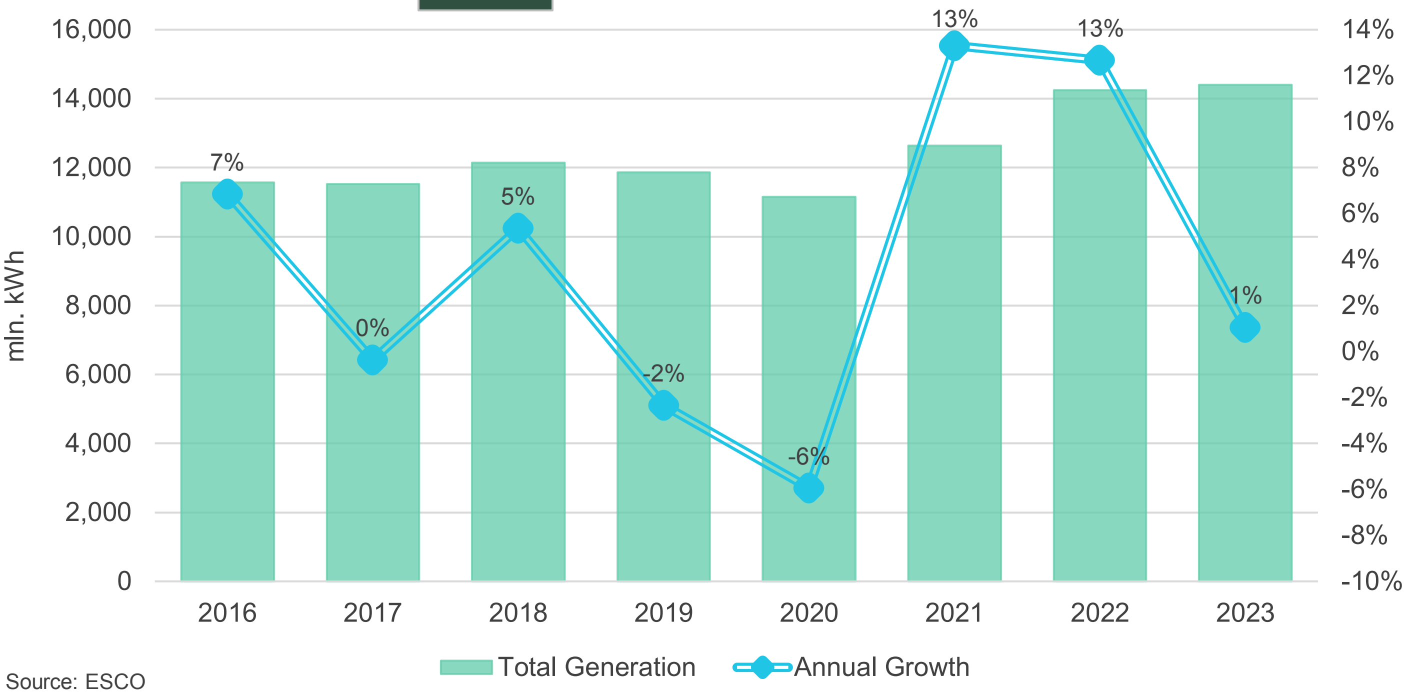
ABBREVIATION USED

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

1. Generation – Consumption – Trade

In 2023, Georgian power plants generated 14,396 mln. kWh of electricity, record high generation for a single year. This represents a 1% increase in total generation, compared to the previous year (in 2022, total generation was 14,247 mln. kWh) (Figure 1). The increase in generation on a yearly basis comes from the increase in hydro power generation (1%) and thermal power (2%), while wind power generation decreased (-2%).

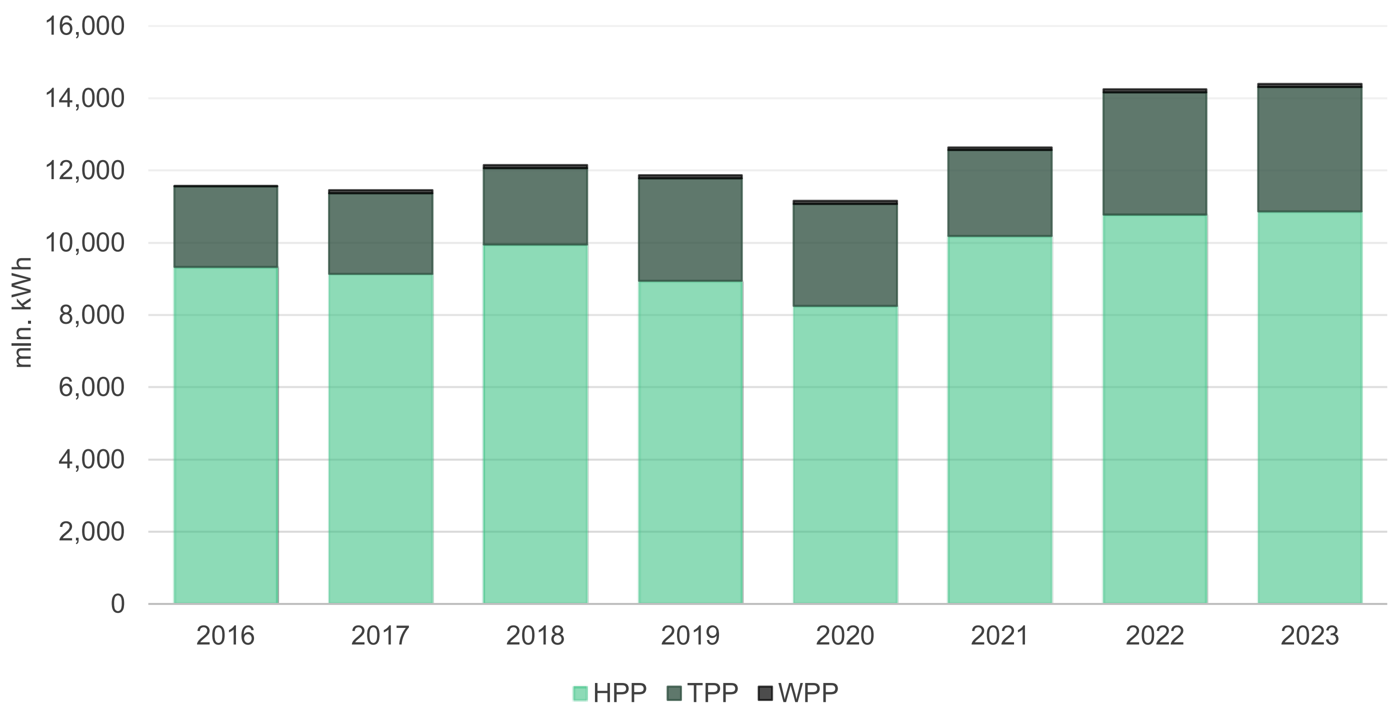
Figure 1 - **Electricity Generation and Annual Growth**



Source: ESCO

Among the different sources of electricity, hydropower remained dominant, reaching record high generation for a single year. Specifically, in 2023, hydropower (HPP) generation amounted to 10,863 mln. kWh (75.5% of total); wind power (WPP) generation was 86 mln. kWh (0.6% of total), and thermal power (TPP) generation was 3,447 mln. kWh (23.9% of total) (Figure 2).

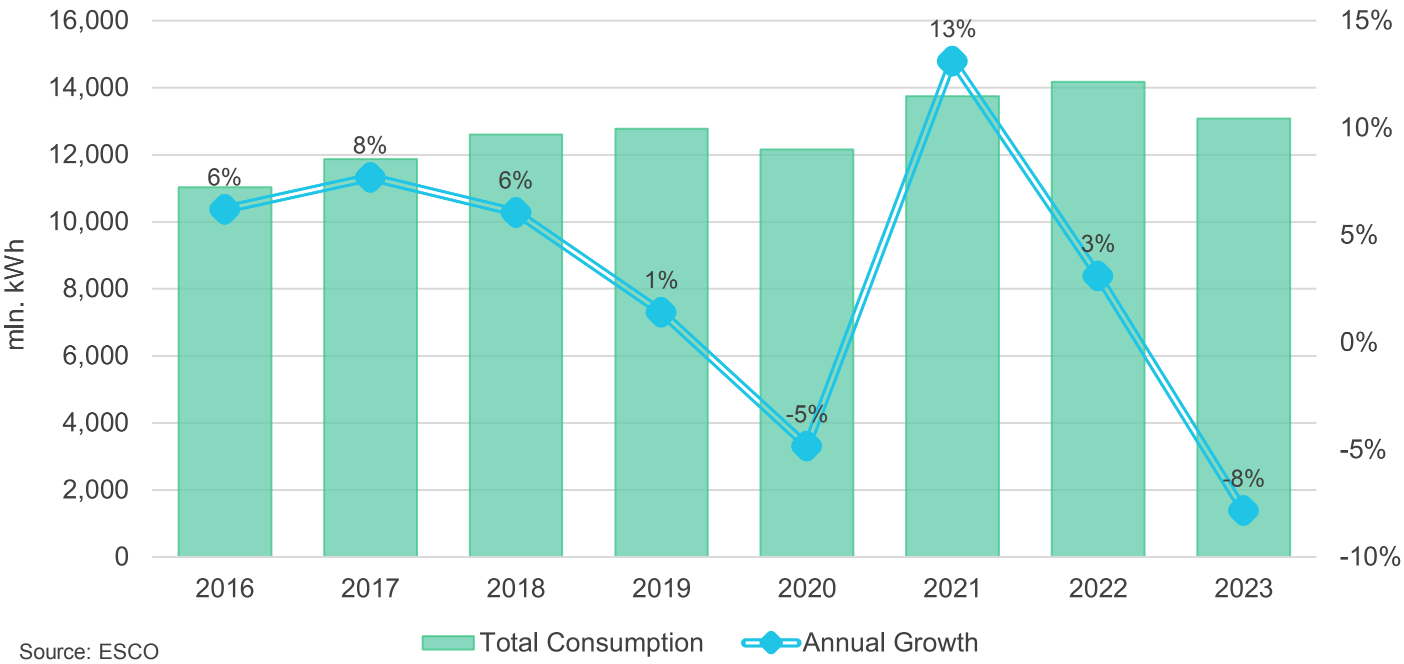
Figure 2 - **Electricity Generation by Sources**



Source: ESCO

Consumption of electricity in the local market was 13,070 mln. kWh. Overall, the annual decrease in electricity consumption was 8% in 2023 (compared to 2022 - 14,181 mln. kWh) (Figure 3). In 2023, total generation exceeded consumption by 1,326 mln. kWh (due to record high TPP and HPP generation), which is approximately 10.1% of the total consumption and 9.2% of the amount generated (compared to a deficit of 65 mln. kWh in 2022, which represented 0.5% of total generation and 0.5% of total consumption for 2022).

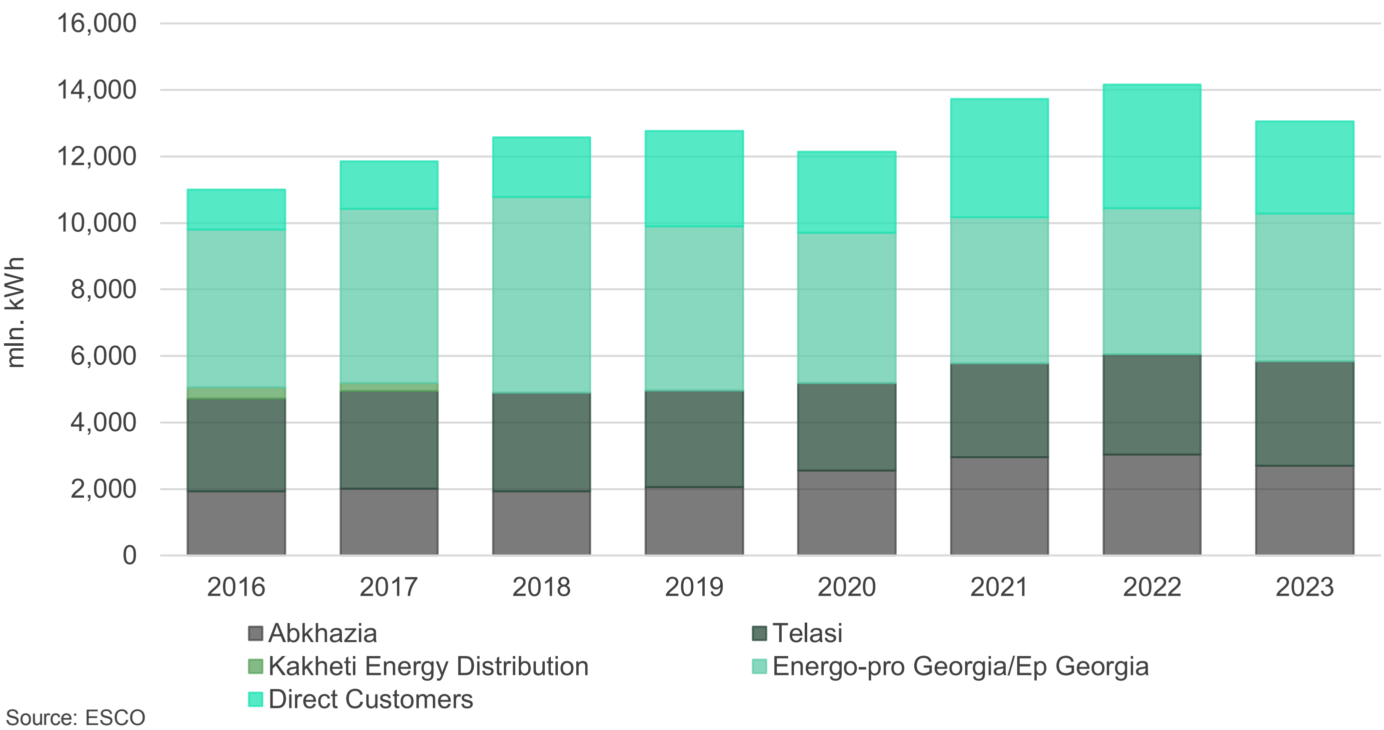
Figure 3 - **Total Consumption and Annual Growth**



Source: ESCO

Total electricity consumption in Georgia came from: Energo-Pro Georgia[1] (34% - 4,440 mln. kWh), Telasi (23.7% - 3,132 mln. kWh), Abkhazia (20.7% - 2,703 mln. kWh), and direct customers (21.3% - 2,779 mln. kWh) (Figure 4). Annual demand from Telasi and Energo-Pro Georgia/Ep Georgia increased by 4% and 1%, respectively, while it decreased in case of Abkhazia and direct customers by 11% and 25%, respectively.

Figure 4 - **Electricity Consumption by Type of Customer**

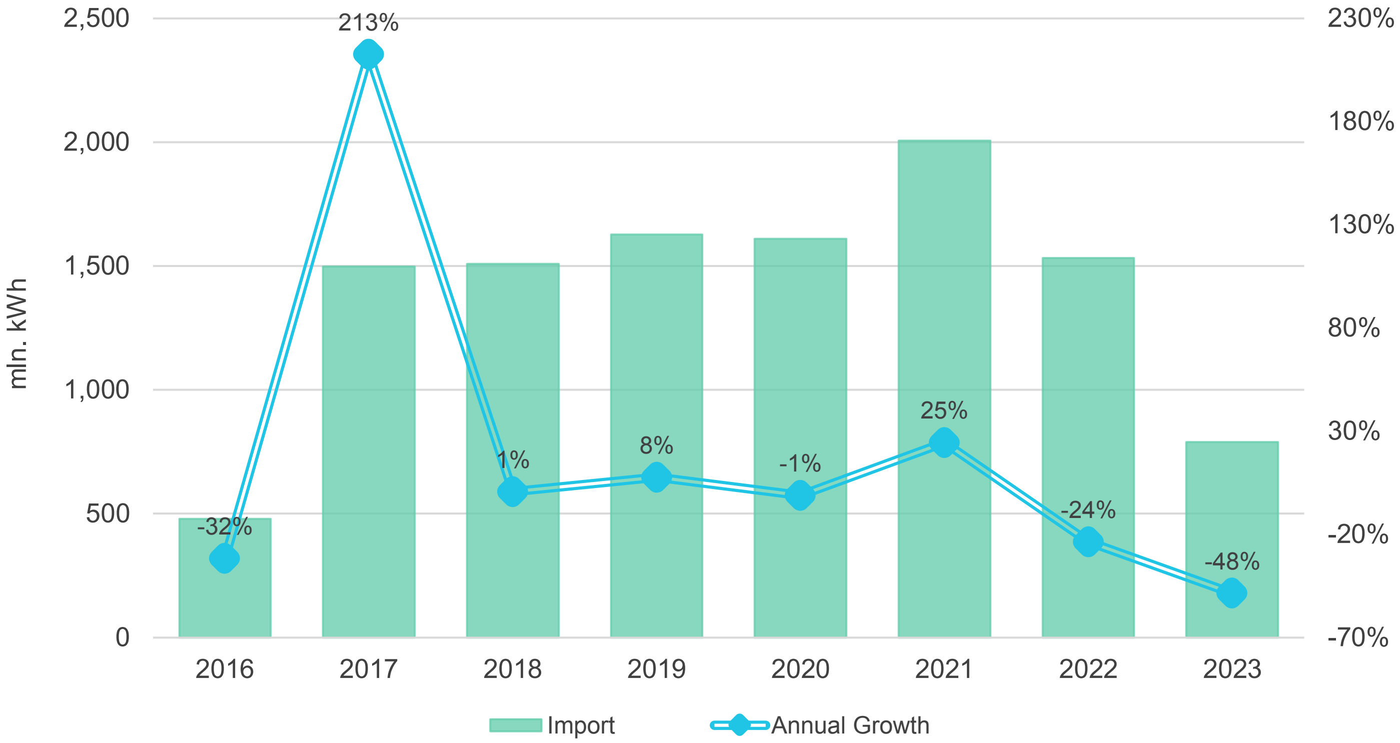


Source: ESCO

[1] Energo-Pro Georgia acquired Kakheti Energy Distribution in September 2017.

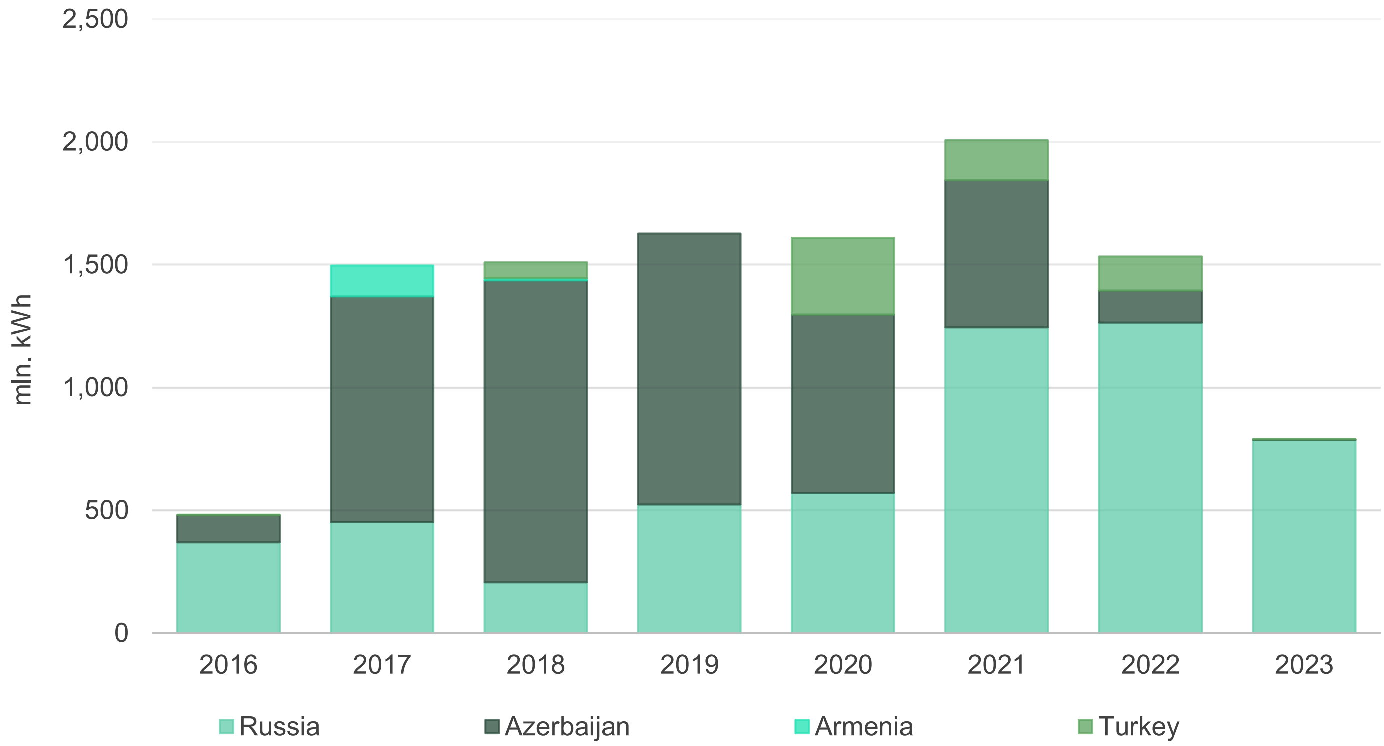
In 2023, electricity imports decreased by 48% from 1,533 to 790 mln. kWh compared to 2022 (Figure 5). Third straight year, Russia was the main importing partner. Russia provided 99.6% of the total imported (note that 98.7% of these imports went to Abkhazia), Azerbaijan provided 0.3%, and Turkey provided the remaining 0.1% (Figure 6).

Figure 5 - Imports and Annual growth



Source: ESCO

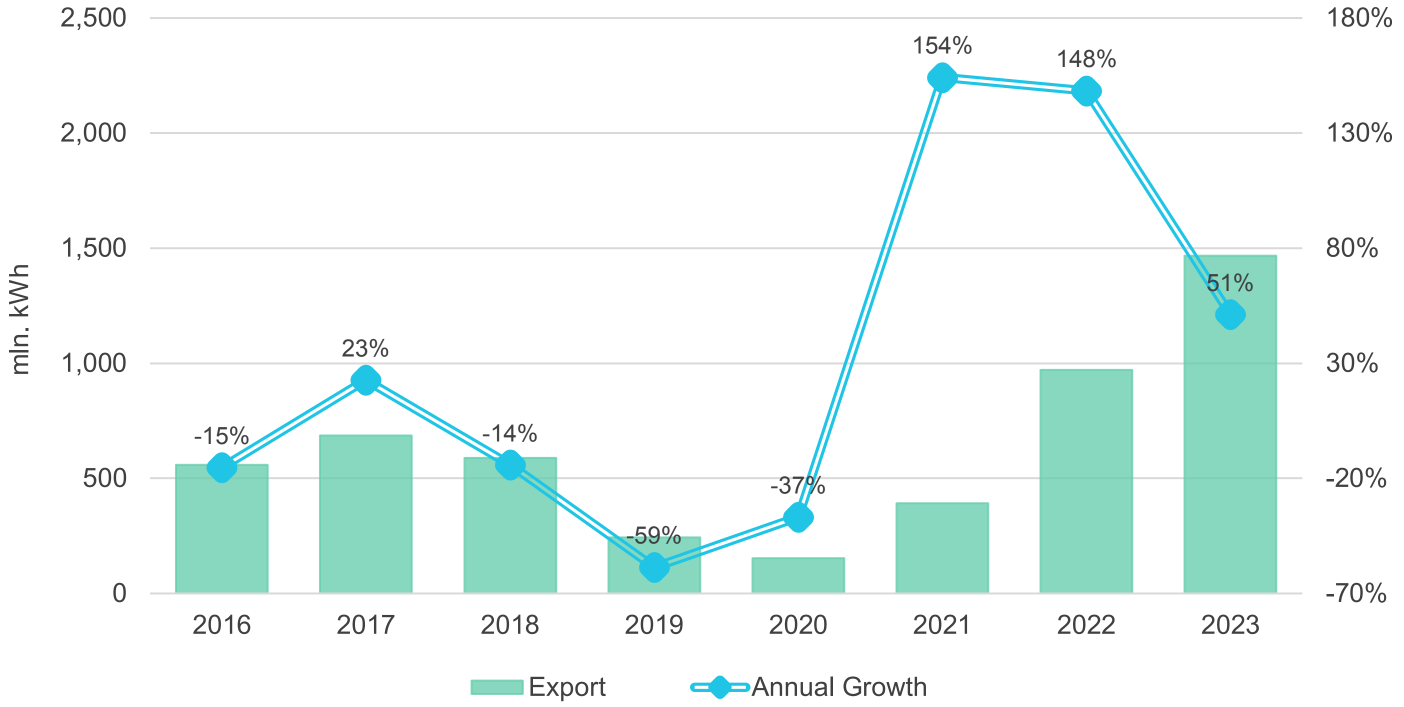
Figure 6 - Imports by Country



Source: ESCO

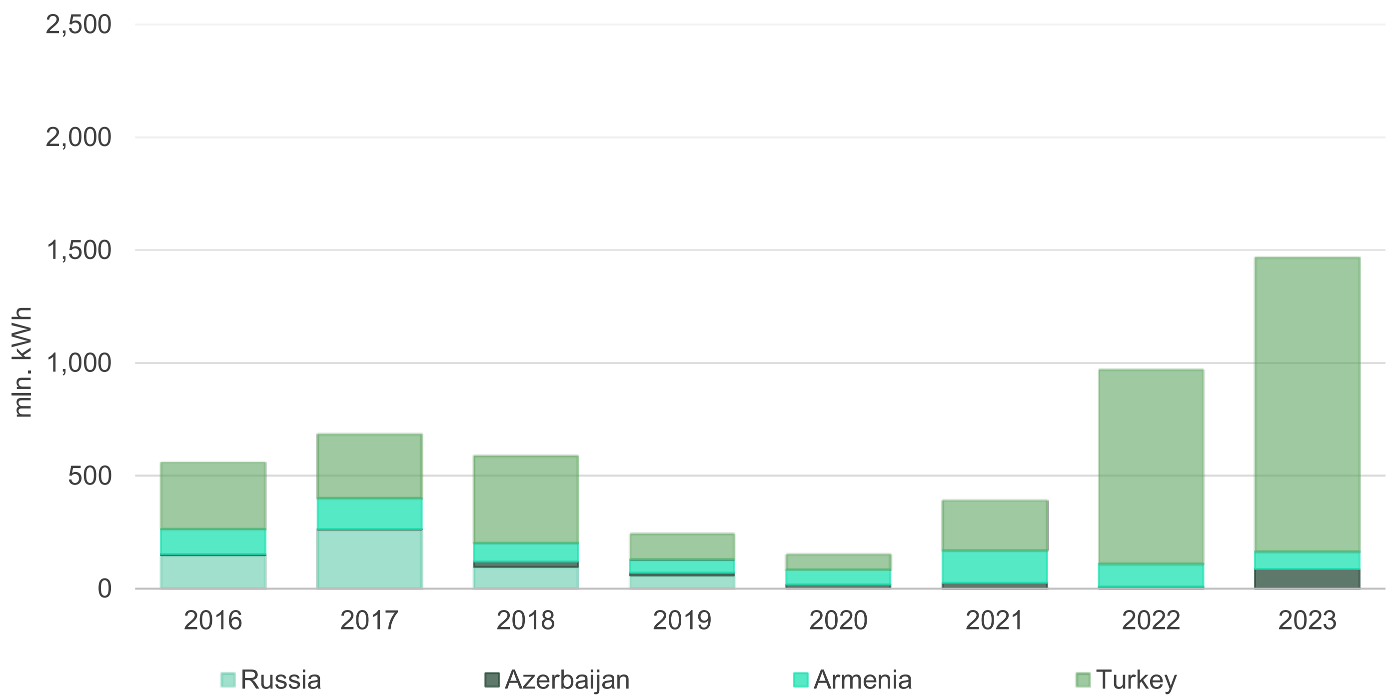
In 2023, electricity exports increased by 51%, from 971 to 1,468 mln. kWh compared to 2022 (Figure 7). This year, the main electricity export partner was Turkey, absorbing 88.8% of the total exported electricity. The second major export partner was Azerbaijan purchasing 5.9% of exported electricity. 5.4% of these exports went to Armenia and 0.01% was demanded from Russia (Figure 8).

Figure 7 - **Exports and Annual Growth**



Source: ESCO

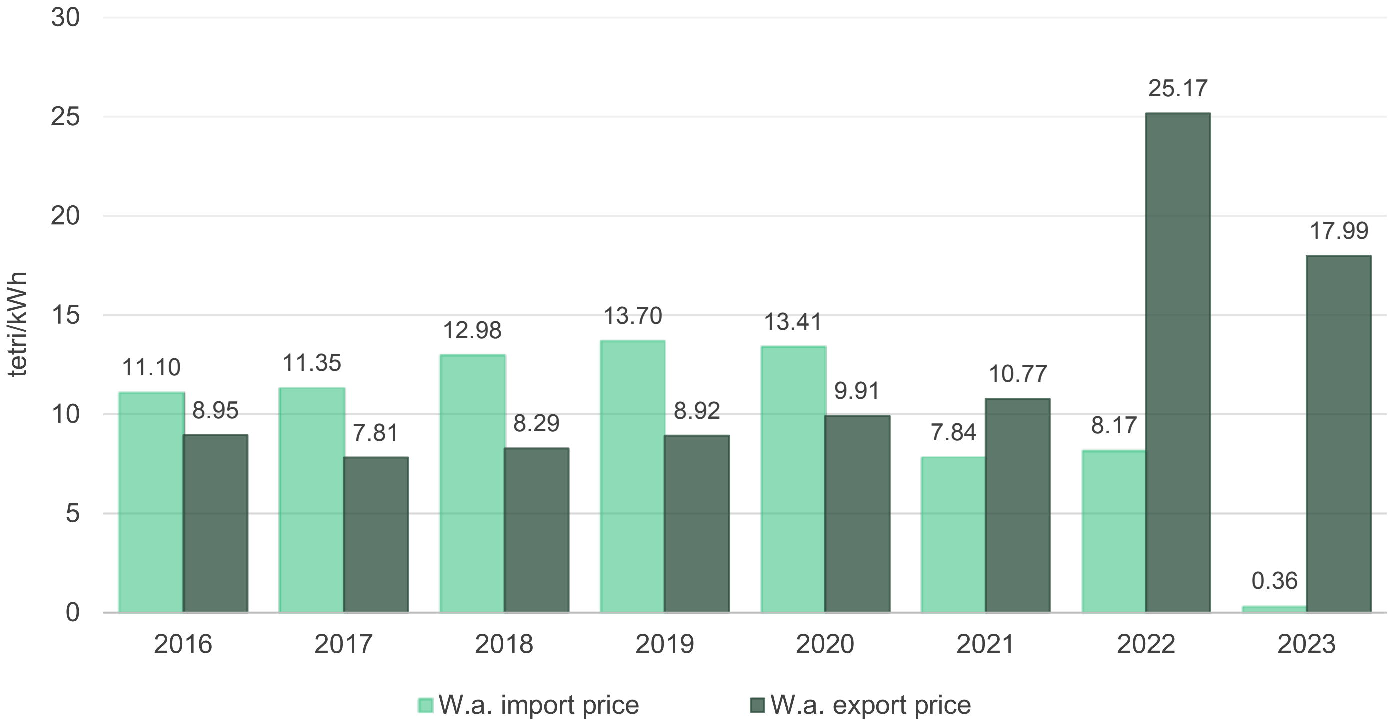
Figure 8 - **Exports by Country**



Source: ESCO

The weighted average electricity import price in 2023 decreased to 0.36 tetri per kWh from 8.17 (a decrease of 96%) compared to 2022. As for the weighted average export prices, it increased to 17.99 tetri per kWh from 25.17 (a decrease of 29%) compared to 2022 (Figure 9).

Figure 9 - **Prices Import/Export**

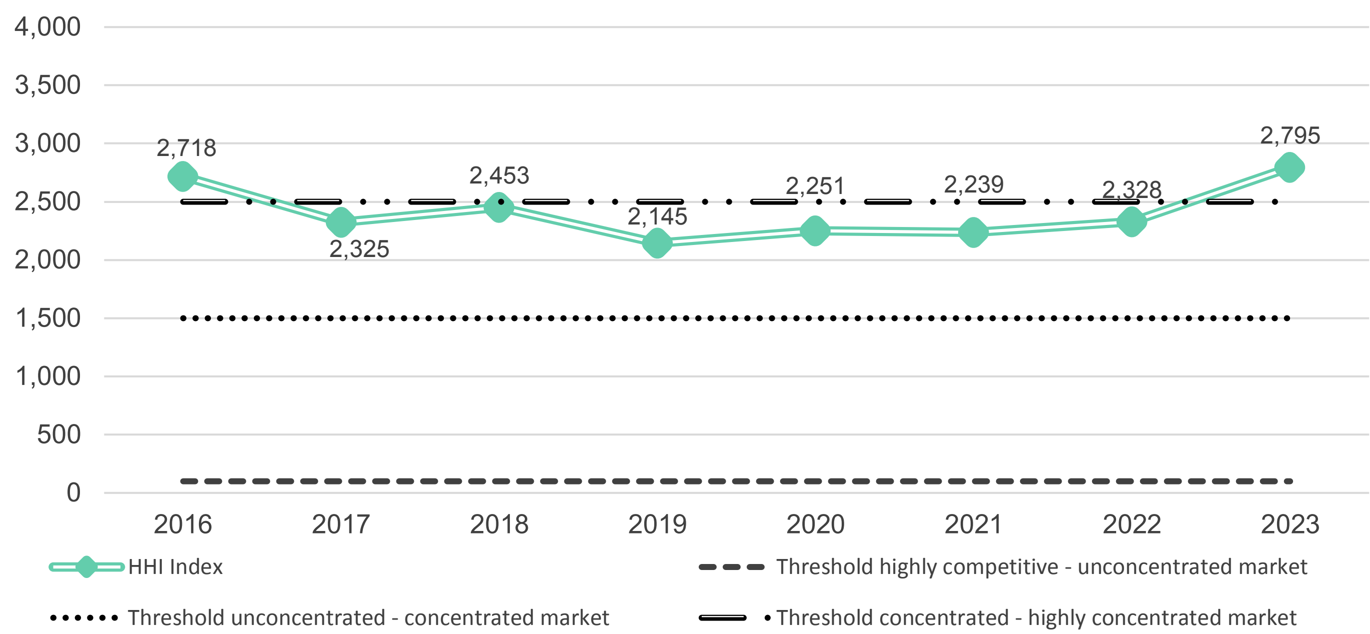


Source: ESCO

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 years. As shown in Figure 10, in 2023, the Georgian electricity generation market rose above the thresholds for a highly concentrated market, with an HHI value of 2,795. The level of concentration is more than in 2022 (2,328).

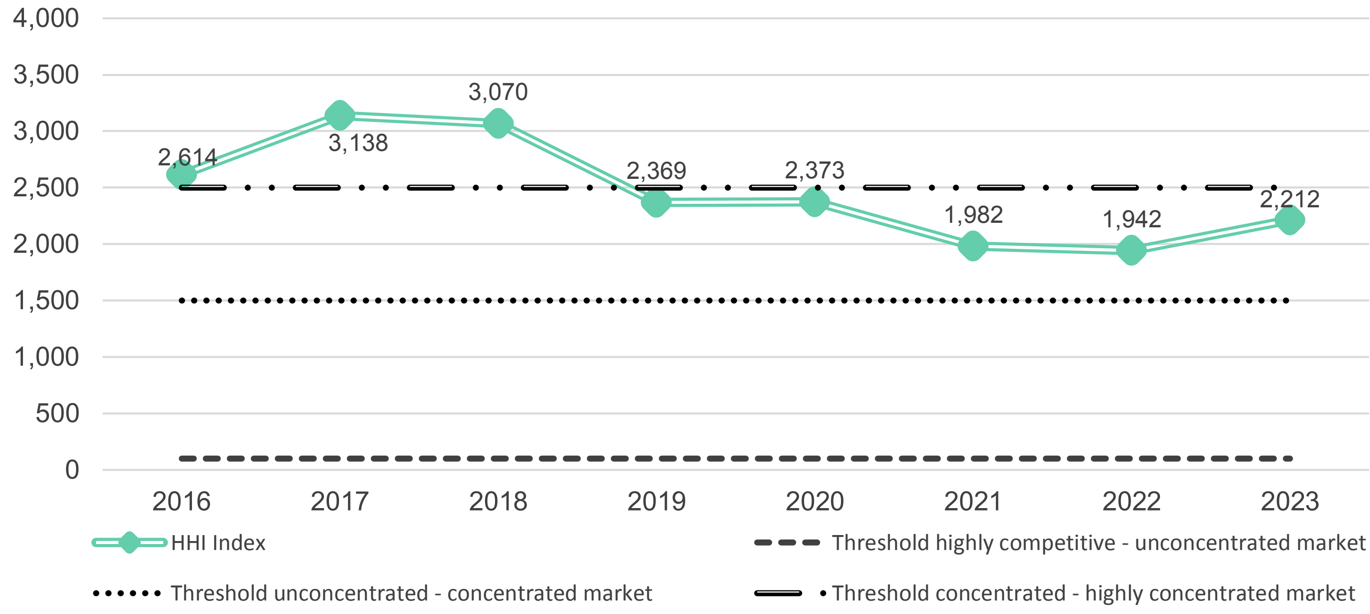
Figure 10 - Yearly Hirschman-Herfindahl Index for Power Generation



Source: ESCO

On the consumption side, the HHI index for the electricity wholesale market has historically been above the threshold value of 2,500, which qualified it highly concentrated market before the market opening in 2019.[2] Thus, unsurprisingly, 2023, for the fifth year in a row HHI index for the electricity wholesale market has been below the threshold value of 2,500. According to the HHI index in 2023, the demand side of the Georgian electricity consumption market was concentrated, with an HHI value 2,212. It is more than in 2022 (1,942).

Figure 11 - Yearly Hirschman-Herfindahl Index for Electricity Consumption



Source: ESCO

[2] Since then, large customers started buying their electricity on the market, as direct customers. This is the main reason behind decrease in HHI consumption index as many individual buyers joined the market.