

# ISET

International School of Economics at TSU  
Policy Institute



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# ELECTRICITY MARKET REVIEW

## ISET POLICY INSTITUTE ENERGY AND ENVIRONMENT POLICY RESEARCH CENTER

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## INFORMATION

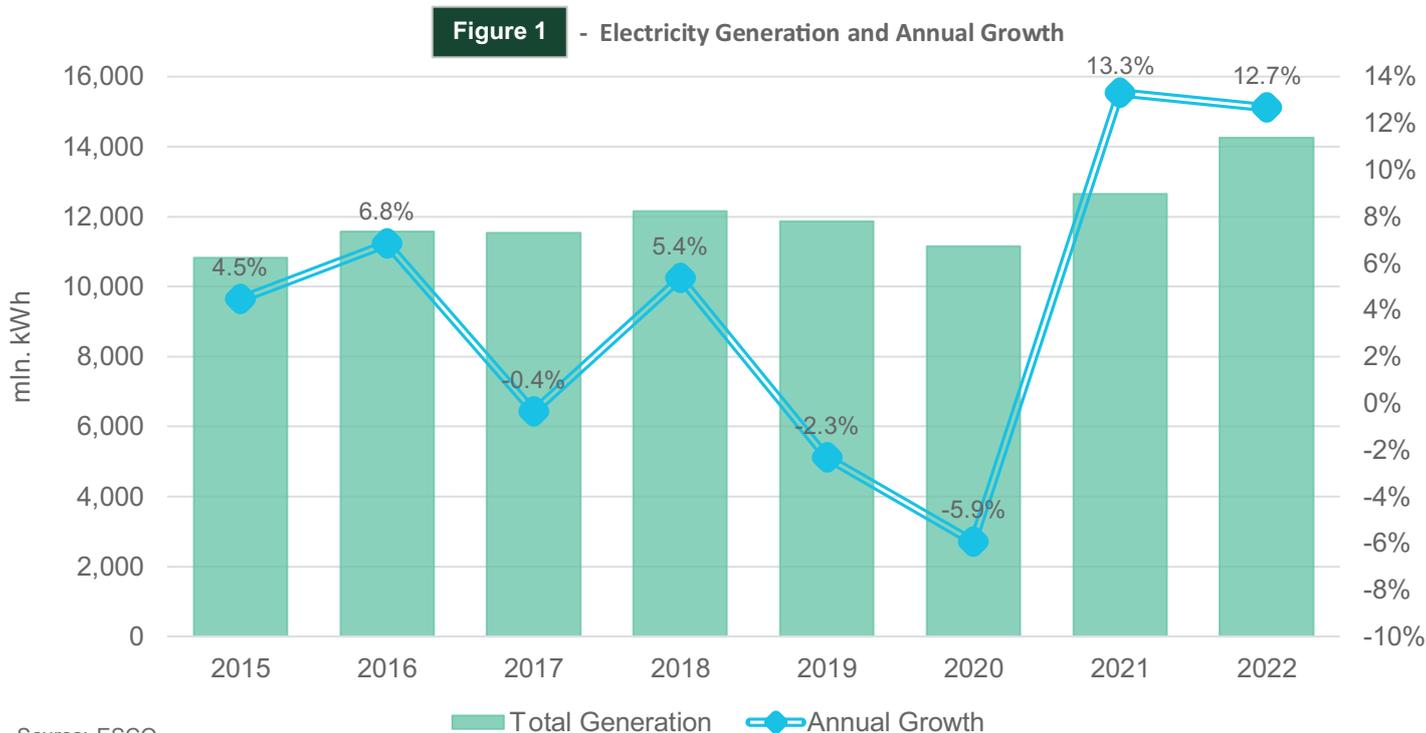
- Electricity generation increased by 13% due to HPP (+6%), TPP (+42%), and WPP (+5%) generation increase.
- Among the different sources of electricity, hydropower remained dominant, with its share in generation of approximately 76%.
- Imported electricity came mainly from Russia, most of which went to Abkhazia.
- Georgian exports increased significantly (+148%) compared to the previous year and mainly went toward Turkey.
- Weighted average export prices increased by 134% compared to 2021.
- According to the Hirschman-Herfindahl Index (HHI) Georgian electricity consumption market remained concentrated, with a noticeable decreasing trend emerging in the last four years.

## ABBREVIATION USED

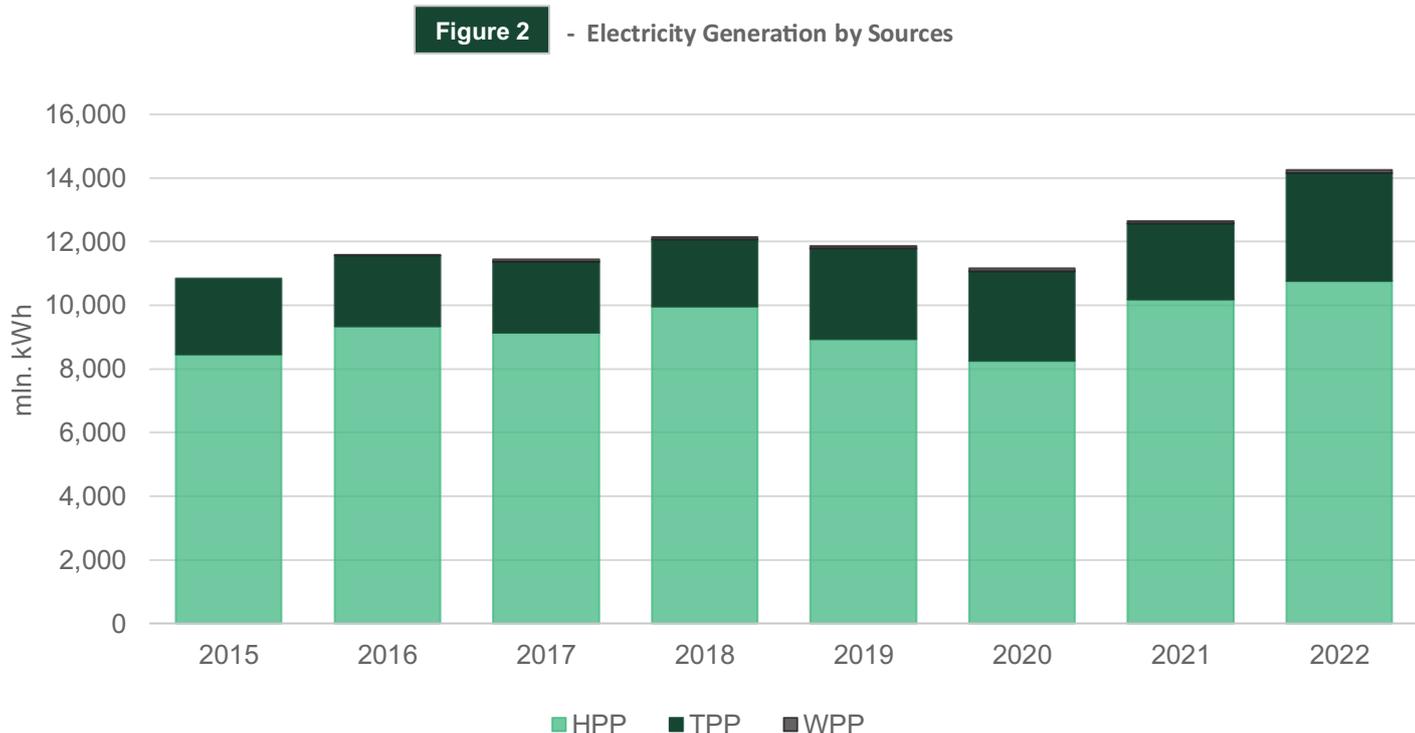
Mln	million
kWh	kilowatt-hour
HPP	Hydro Power Plant
WPP	Wind Power Plant
TPP	Thermal Power Plant
HHI	Hirschmann-Herfindahl Index
Telmico	Tbilisi Electricity Supply Company
Ep Georgia	Ep Georgia Supply
Geostat	National Statistics Office of Georgia
ESCO	Electricity System Commercial Operator

### 1. Generation – Consumption – Trade

In 2022, Georgian power plants generated 14,247 mln. kWh of electricity, record high generation for a single year. This represents a 13% increase in total generation, compared to the previous year (in 2021, total generation was 12,645 mln. kWh) (Figure 1). The increase in the generation on a yearly basis comes from the increase in hydro power generation (6%), thermal power (42%), and wind power generation (5%).

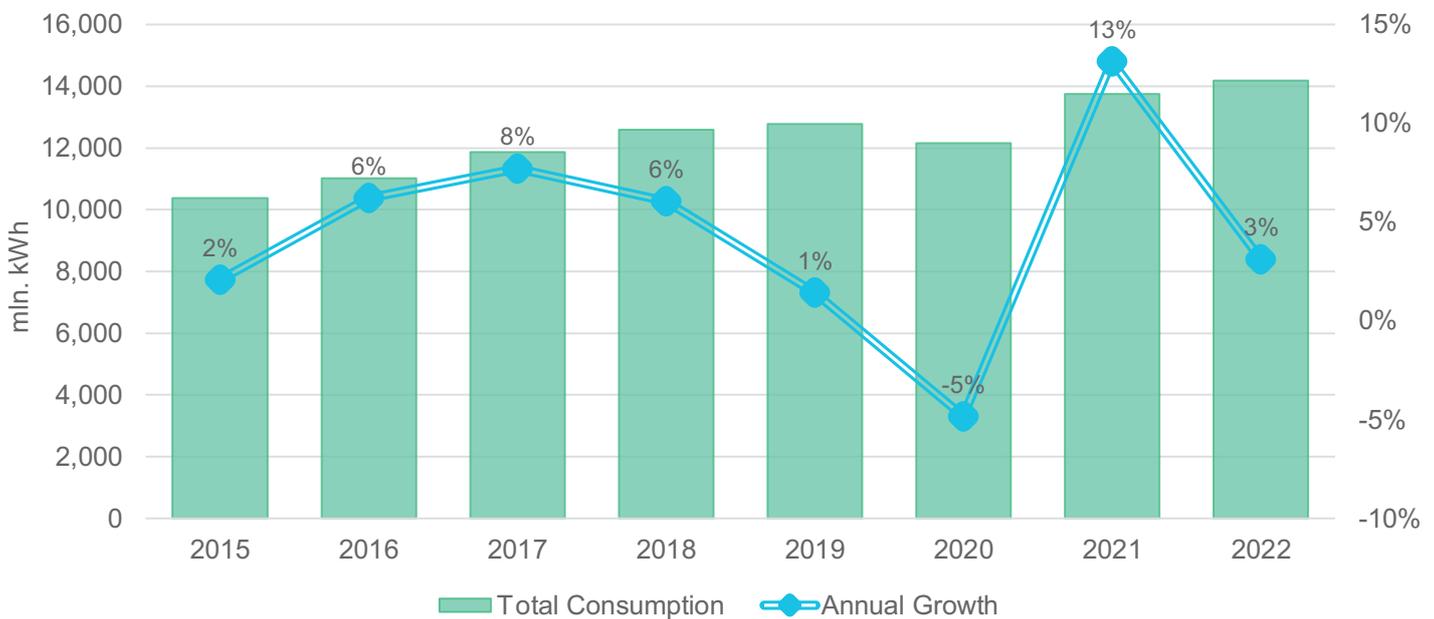


Among the different sources of electricity, hydropower remained dominant, reaching record generation for a single year. Specifically, in 2022, hydropower (HPP) generation amounted to 10,771 mln. kWh (75.6% of total); wind power (WPP) generation was 88 mln. kWh (0.6% of total), and thermal power (TPP) generation was 3,388 mln. kWh (23.8% of total) (Figure 2).



Consumption of electricity in the local market was 14,181 mln. kWh, also a record high for a single year. Overall, the annual increase in electricity consumption was 3% in 2022 (compared to 2021 - 13,753 mln. kWh) (Figure 3). In 2022, total generation exceeded consumption by 65 mln. kWh (due to record high TPP generation), which is approximately 0.5% of the total consumption and 0.5% of the amount generated (compared to a deficit of 1,108 mln. kWh in 2021, which represented 9% of total generation and 8% of total consumption for 2021).

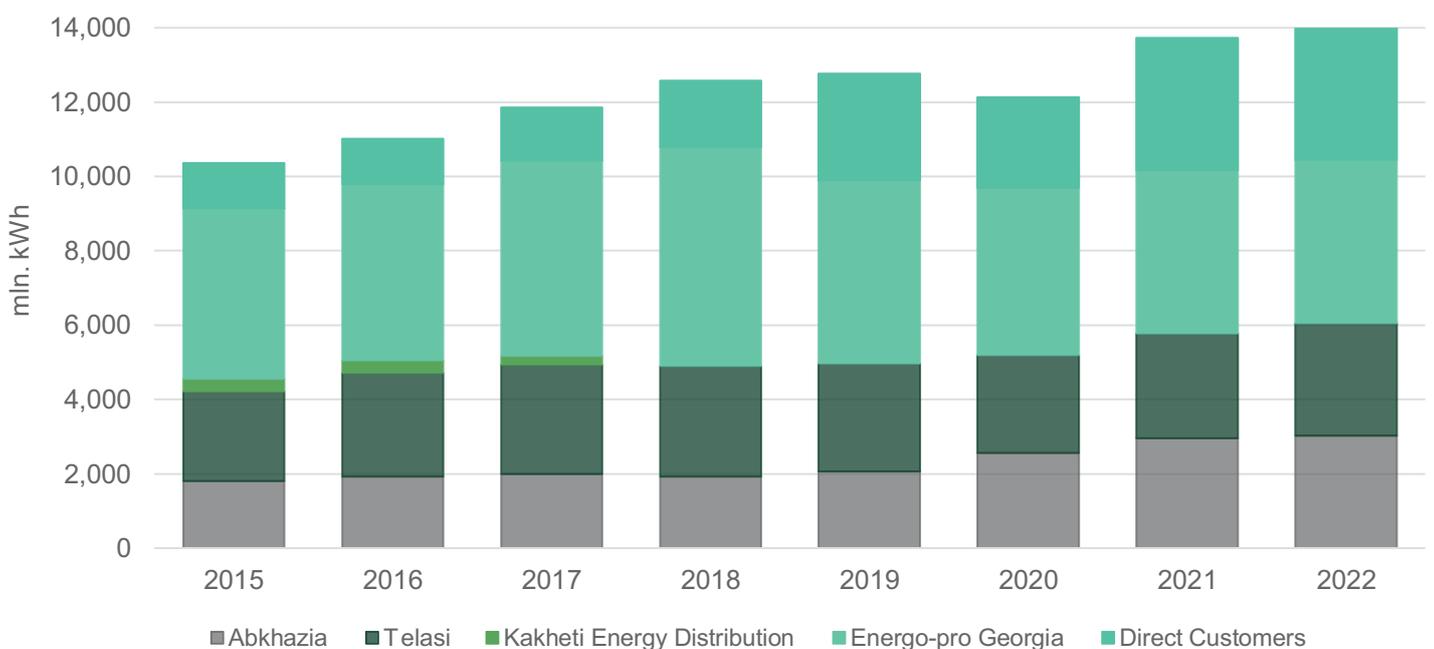
**Figure 3** - Total Consumption and Annual Growth



Source: ESCO

Total electricity consumption in Georgia came from: Energo-Pro Georgia<sup>1</sup> (31% - 4,388 mln. kWh), Telasi (21% - 3,023 mln. kWh), Abkhazia (21% - 3,029 mln. kWh), and direct customers (26% - 3,726 mln. kWh) (Figure 4). Annual demand from Abkhazia, Telasi and direct customers increased by 3%, 7%, and 5%, respectively while it decreased in case of Energo-Pro Georgia by 0.3%.

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

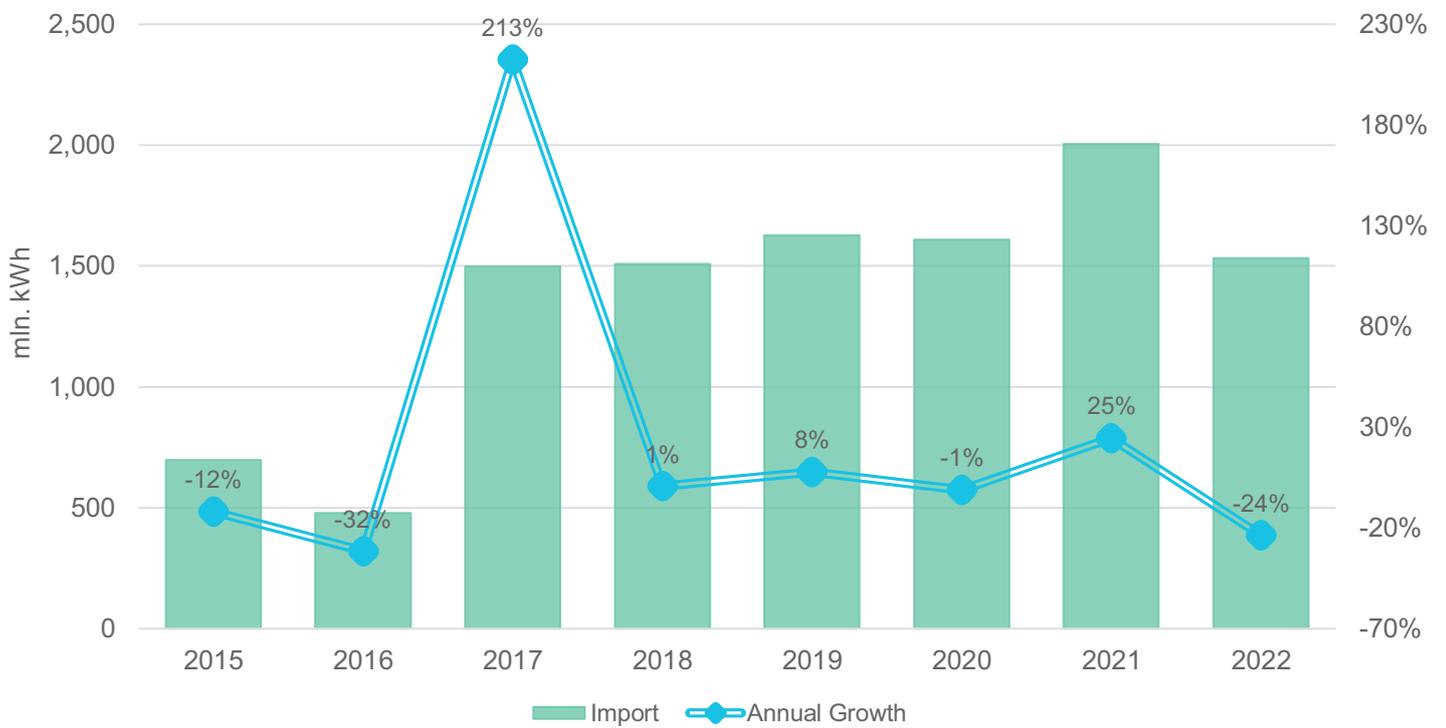


Source: ESCO

<sup>1</sup> Energo-Pro Georgia acquired Kakheta Energy Distribution in September 2017.

In 2022, electricity imports decreased by 24% from 2,006 to 1,533 mln. kWh compared to 2021 (Figure 5). Second straight year, Russia was the main importing partner. Russia provided 83% of the total imported (note that 71% of these imports went to Abkhazia), Turkey provided 9%, and Azerbaijan provided the remaining 8% (Figure 6).

**Figure 5** - Imports and Annual growth



Source: ESCO

**Figure 6** - Imports by Country



Source: ESCO

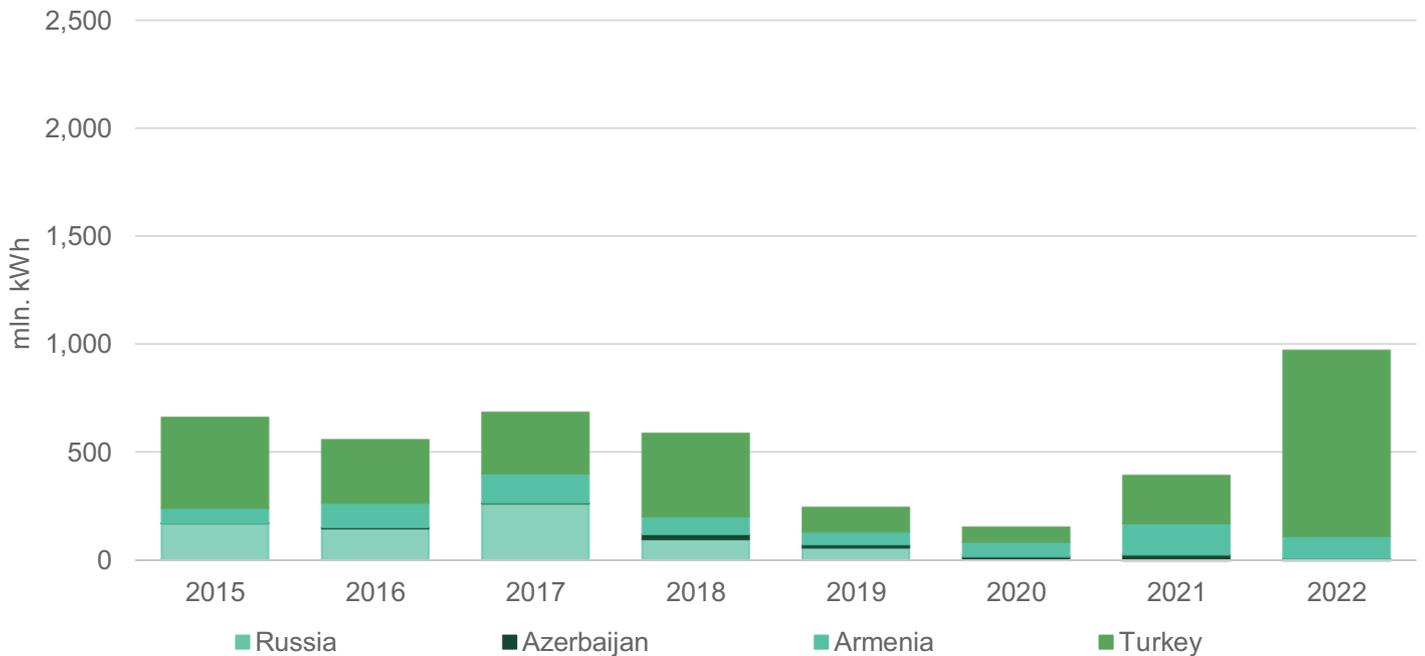
In 2022, electricity exports increased by 148%, from 391 to 971 mln. kWh compared to 2021 (Figure 7). This year, the main electricity export partner was Turkey, absorbing 89% of the total exported electricity. The second major export partner was Armenia purchasing 10% of exported electricity. The remaining 1% was demanded from Azerbaijan (Figure 8).

**Figure 7** - Exports and Annual Growth



Source: ESCO

**Figure 8** - Exports by Country



Source: ESCO

The weighted average electricity import price in 2022 increased to 8.17 tetri per kWh from 7.84 (an increase of 4%) compared to 2021. As for the weighted average export prices, it increased to 25.17 tetri per kWh from 10.77 (an increase of 134%) compared to 2021 (Figure 9).

**Figure 9** - Prices Import/Export

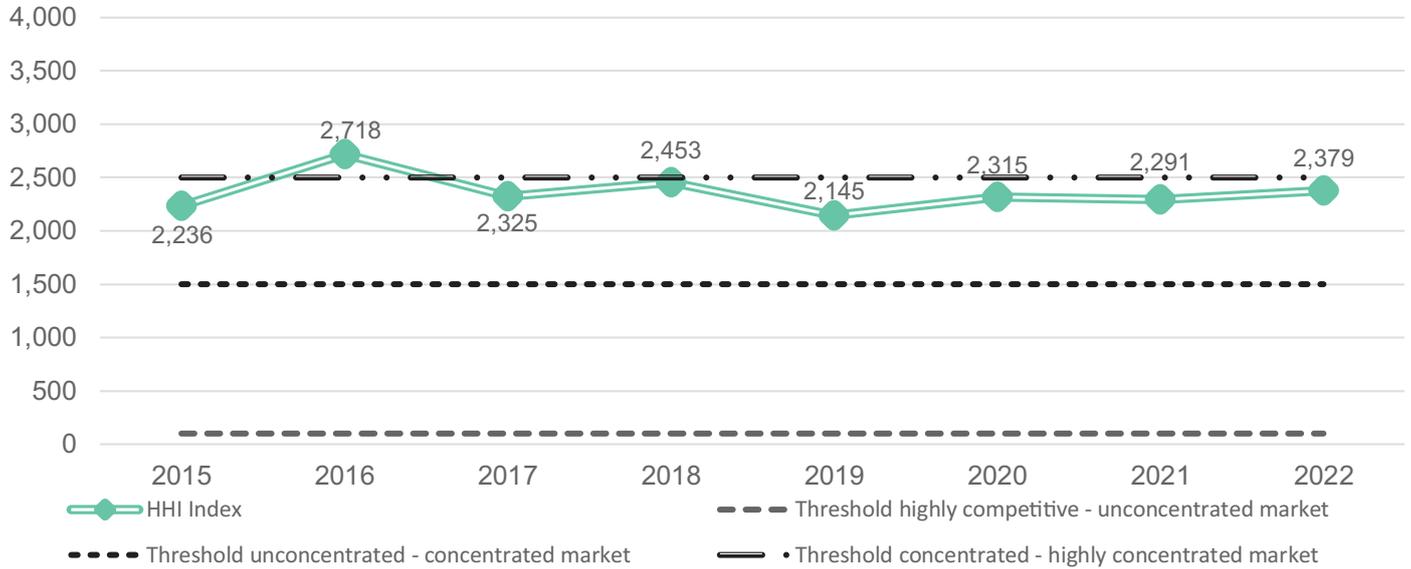


Source: ESCO

## 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 2022, the Georgian electricity generation market was slightly below the thresholds for a highly concentrated market, with an HHI value of 2,379. The level of concentration is slightly above than in 2021 (2,291).

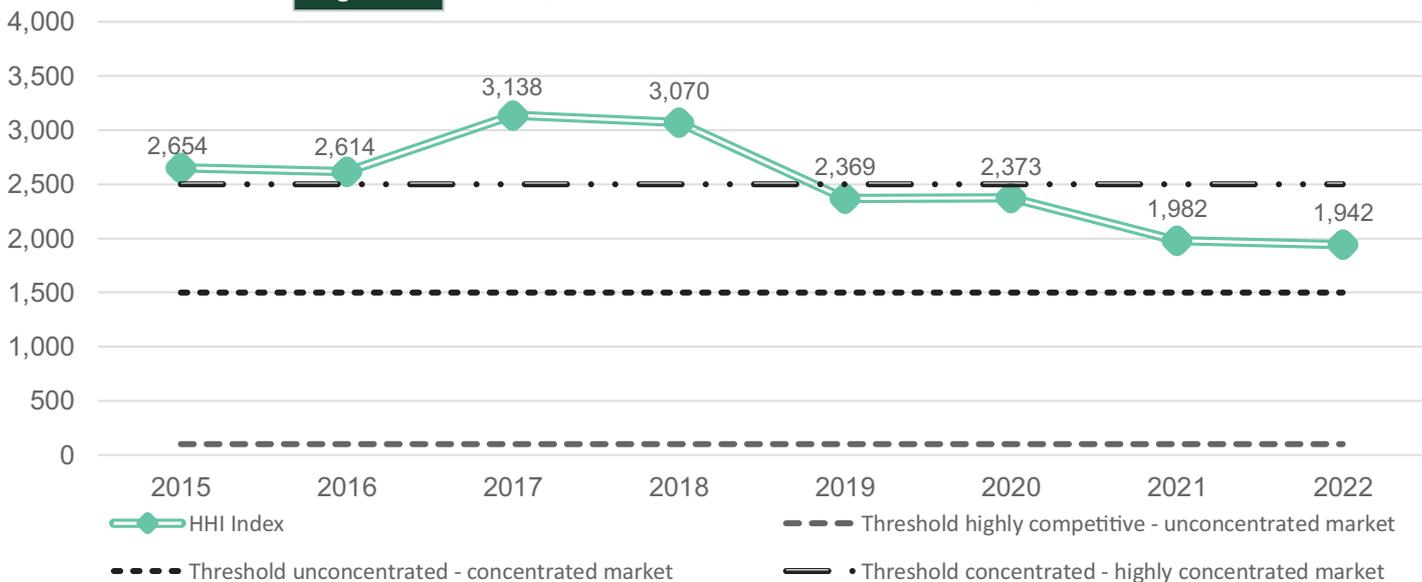
**Figure 10** - Yearly Hirschman-Herfindahl Index for Power Generation



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.<sup>2</sup> Thus, unsurprisingly, 2022, for the fourth 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 2022, the demand side of the Georgian electricity consumption market was concentrated, with an HHI value 1,942. The recent trend seems to be decreasing.

**Figure 11** - Yearly Hirschman-Herfindahl Index for Electricity Consumption



Source: ESCO

<sup>2</sup> 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.