

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 decreased as a result of HPP generation substantial decrease (-10%), despite an increase in TPP and WPP generation.
- Among the different sources of electricity, hydropower remained dominant despite its share dropping below 80%.
- Electricity demand exceeded supply this year too.
- Imported electricity came mainly from Azerbaijan.
- Georgian exports decreased compared to the previous year and went mostly to towards Turkey.
- According to the Hirschmann-Herfindahl Index (HHI) Georgian electricity generation market remained concentrated (close to the upper threshold).
- According to the Hirschmann-Herfindahl Index (HHI) Georgian electricity consumption market became concentrated (down from very concentrated).

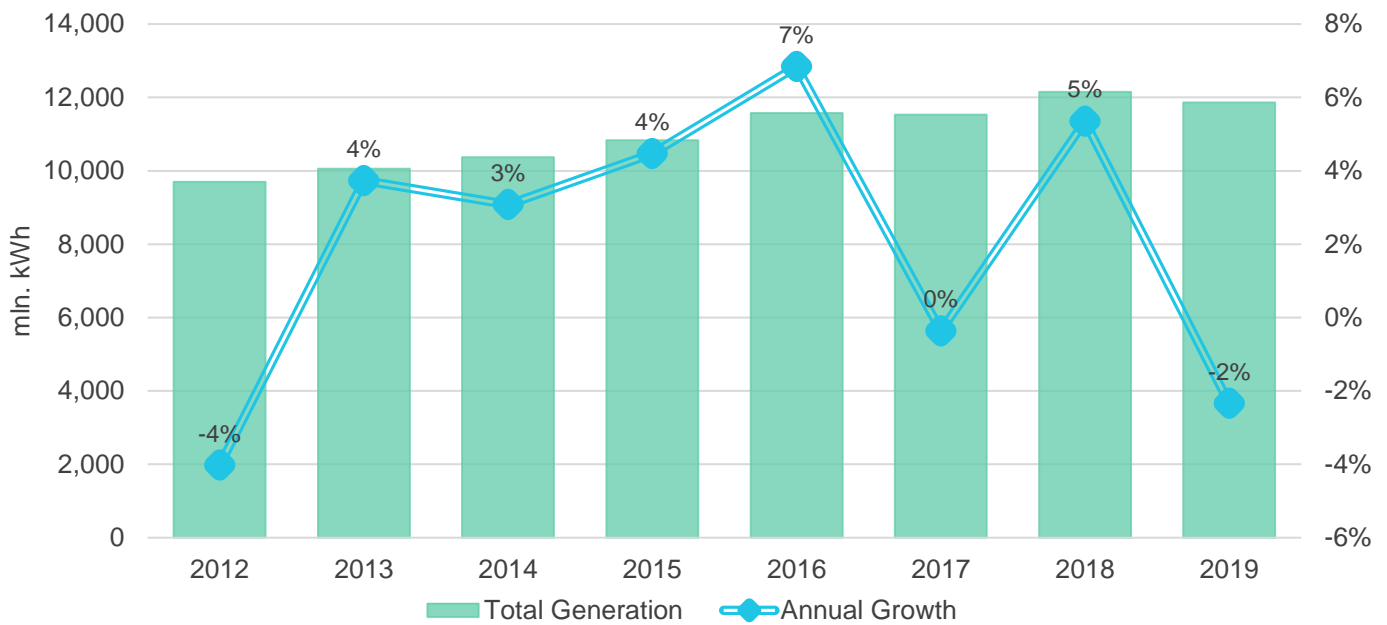
ABBREVIATION USED

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

1. Generation – Consumption – Trade

In 2019, Georgian power plants generated 11,865 mln. kWh of electricity. This represents a 2% decrease in total generation, compared to the previous year (in 2018, total generation was 12,149 mln. kWh) (Figure 1). The decrease in generation on a yearly basis comes from decrease in hydropower (-10%), more than offsetting the increase in thermal (+34%) and wind power generation (+0.5%).

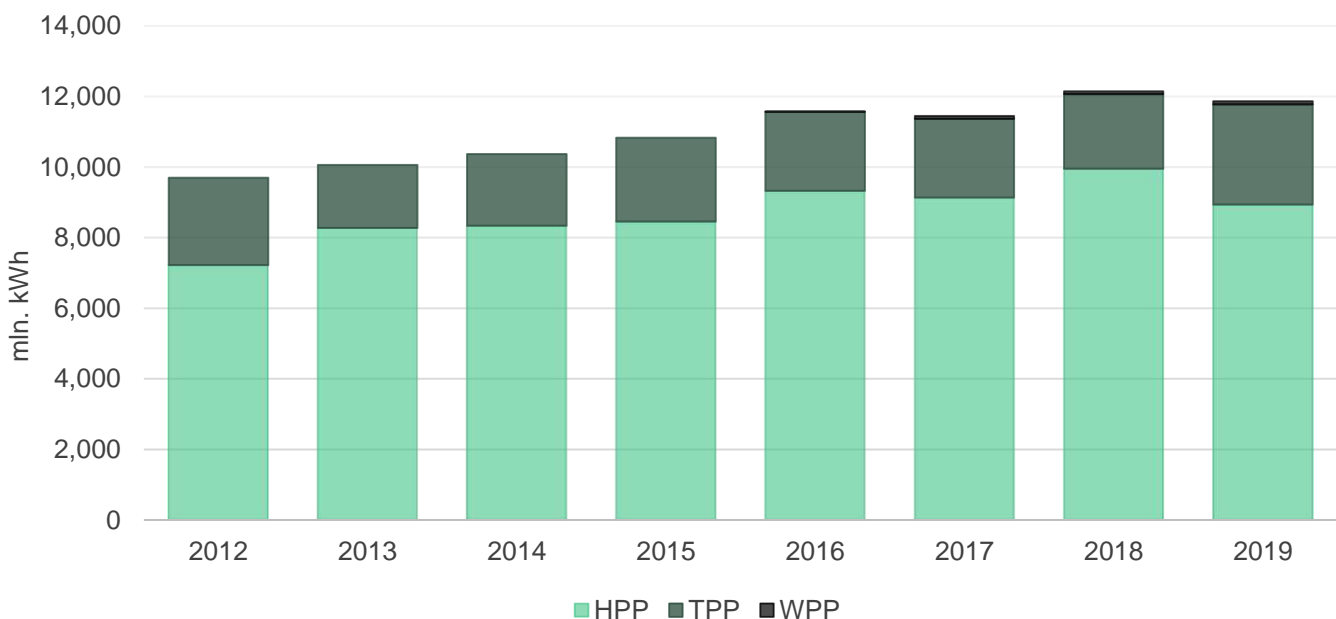
Figure 1 - Electricity Generation and Annual Growth



Source: ESCO

Among the different sources of electricity, hydropower remained dominant, despite its decline in absolute and relative terms. Specifically, in 2019, hydropower (HPP) generation amounted to 8,940 mln. kWh (75% of total – used to be above 80%); wind power (WPP) generation was 85 mln. kWh (1% of total), and thermal power (TPP) generation was 2,840 mln. kWh (24% of total) (Figure 2).

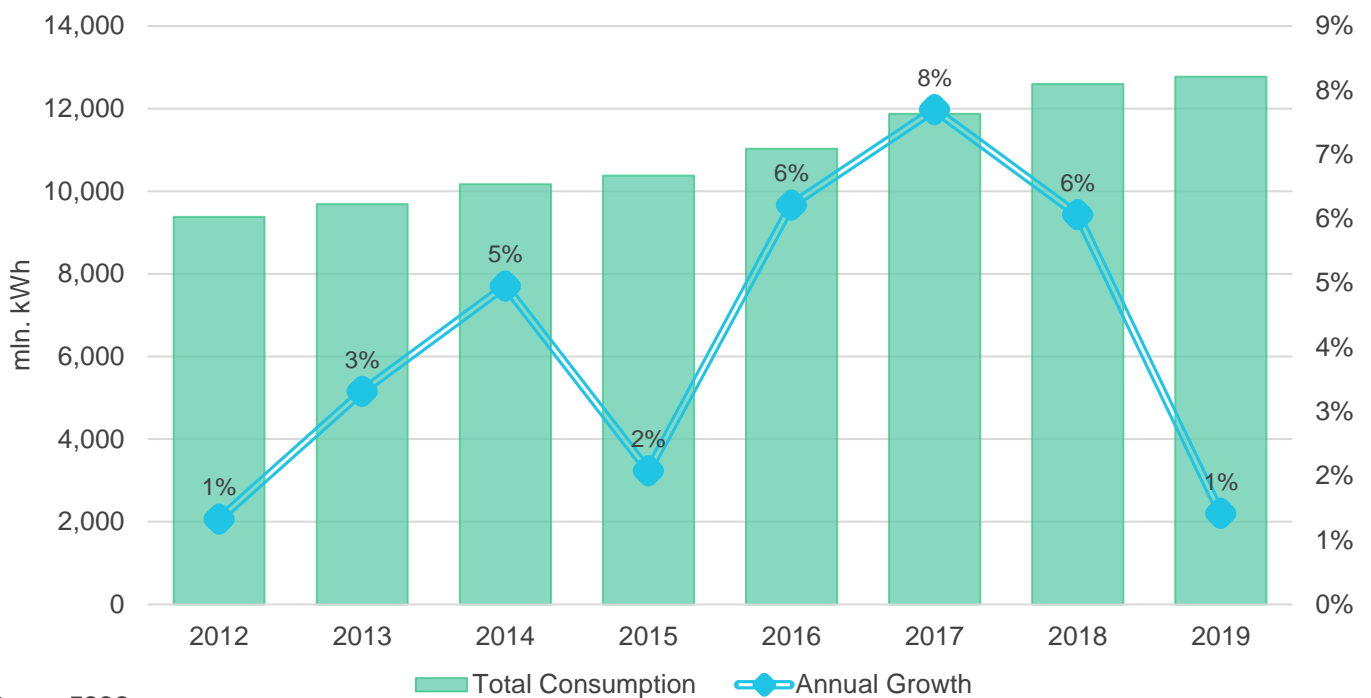
Figure 2 - Electricity Generation by Sources



Source: ESCO

Consumption of electricity in the local market was 12,774 mln. kWh. Overall, the annual increase in electricity consumption was 1% in 2019 (compared to 2018) (Figure 3). In 2019, total consumption exceeded generation by 909 mln kWh, which is approximately 7% of the total consumption and 8% of the amount generated (compared to 447 mln. kWh and 4% deficit of total generation for 2018).

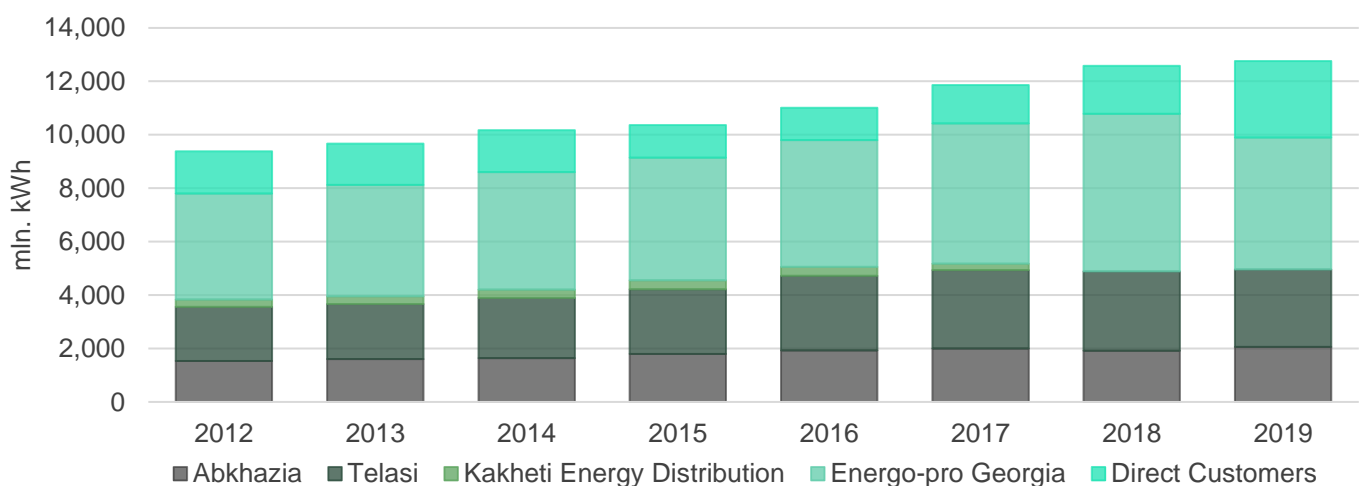
Figure 3 - Total Consumption and Annual Growth



Source: ESCO

Total electricity consumption in Georgia came from: Energo-Pro Georgia¹ (39% - 4,933 mln. kWh), Telasi (23% - 2,902 mln. kWh), Abkhazia (16% - 2,060 mln. kWh), and direct customers (22% - 2,864 mln. kWh) (Figure 4). Annual demand from direct consumers and Abkhazia increased by 60%² and 7%, respectively, while it decreased from Energo-Pro Georgia and Telasi by 16% and 2%, respectively.

Figure 4 - Electricity Consumption by Type of Customer



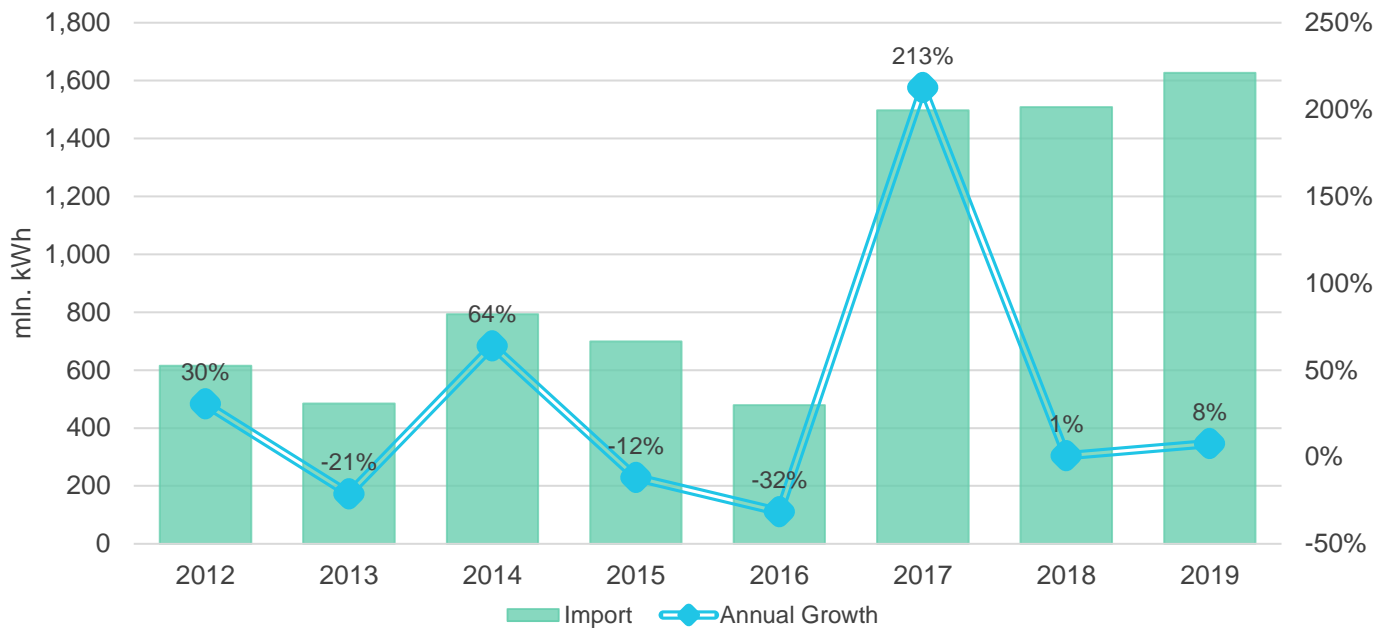
Source: ESCO

¹ Energo-Pro Georgia acquired Kakheta Energy Distribution in September 2017.

² It has to be noted that with the market opening since May 2019 large customers started buying their electricity on the market, as direct customers. This is the main reason behind decrease in electricity consumption from Energo-Pro Georgia and increase of direct consumption.

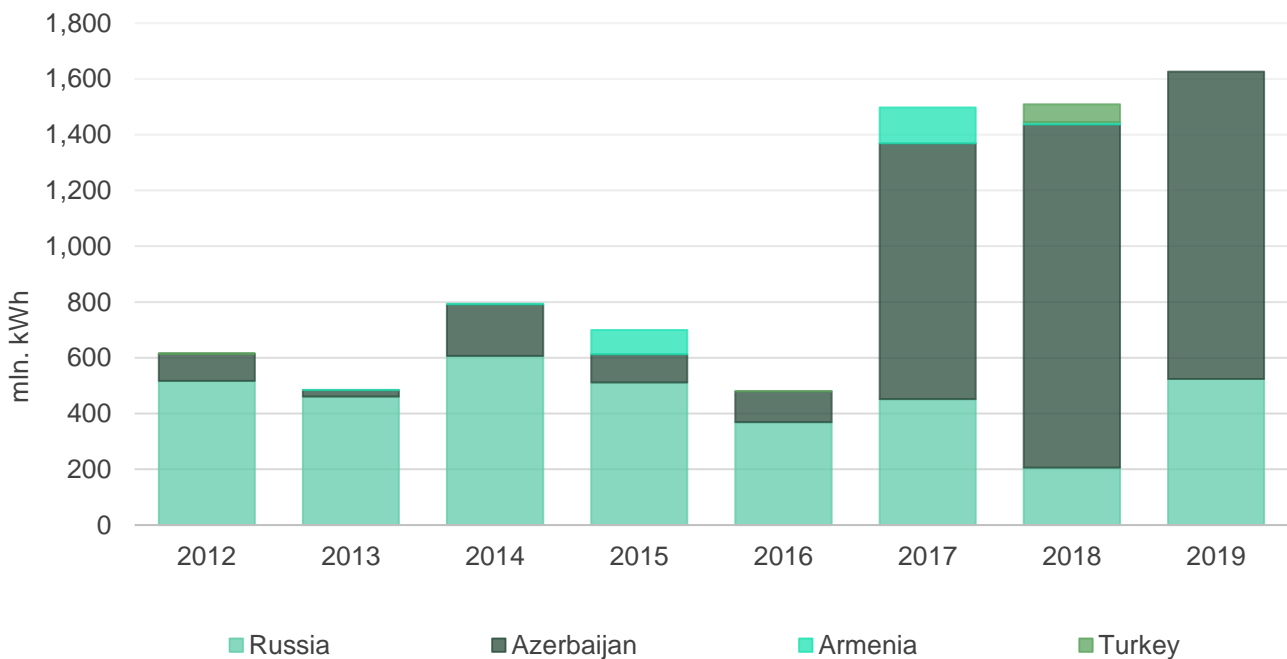
In 2019, electricity imports increased by 8% from 1,509 to 1,627 mln. kWh compared to 2018 (Figure 5). For the third year in a row, the main electricity provider was Azerbaijan, providing 68% of the total imported electricity and strengthening its role of the main electricity provider to the Georgian system. The second major trade partner was Russia offering 32% of imported electricity (Figure 6).

Figure 5 - Imports and Annual growth



Source: ESCO

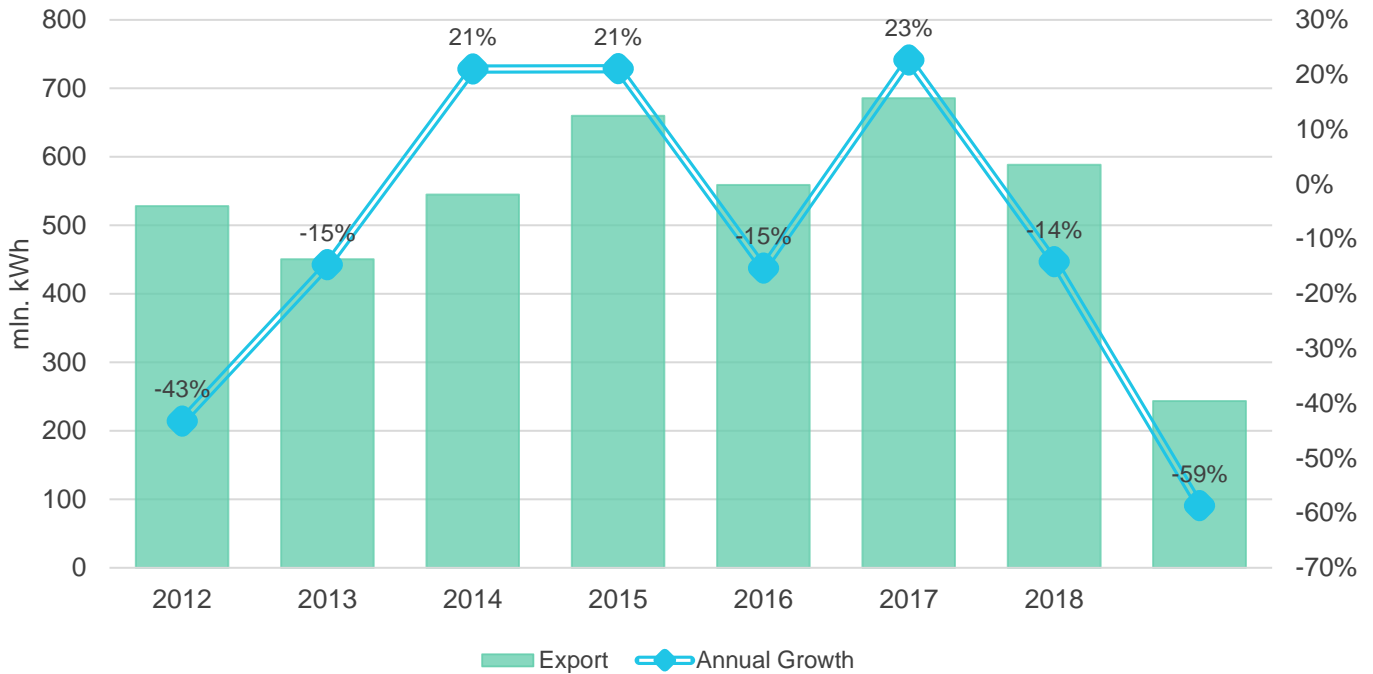
Figure 6 - Imports by Country



Source: ESCO

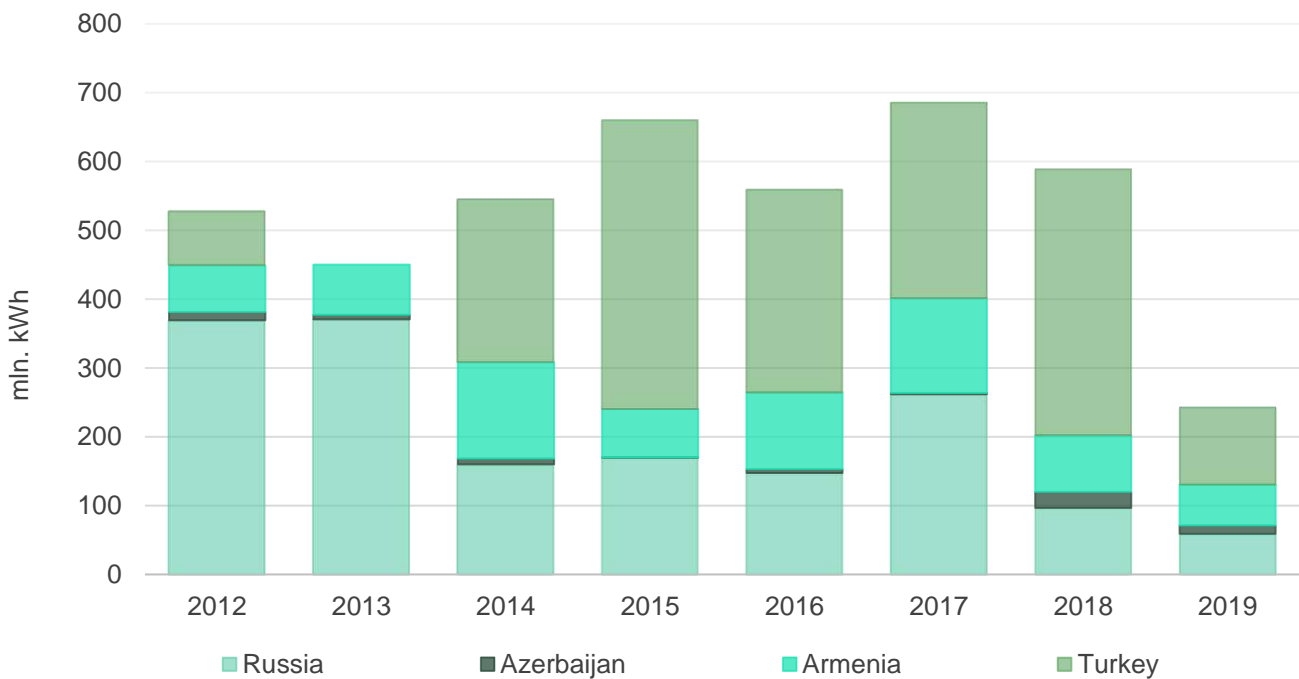
In 2019, electricity exports decreased by 59%, from 589 to 243 mln. kWh, compared to 2018 (Figure 7). In this year the main electricity consumer was Turkey, absorbing 46% of the total exported electricity. The second major export partners were Russia and Armenia purchasing 24% of exported electricity each. The remaining (5%) was demanded from Azerbaijan (Figure 8).

Figure 7 - Exports and Annual Growth



Source: ESCO

Figure 8 - Exports by Country



Source: ESCO

The average electricity import price in 2019 increased to 14.3³ tetri per kWh (an increase of 7.5%) compared to 2018. As for the average export prices, it increased to 12.1 tetri per kWh (an increase of 3.6%) compared to 2018 (Figure 9).

Figure 9 - Prices Import/Export



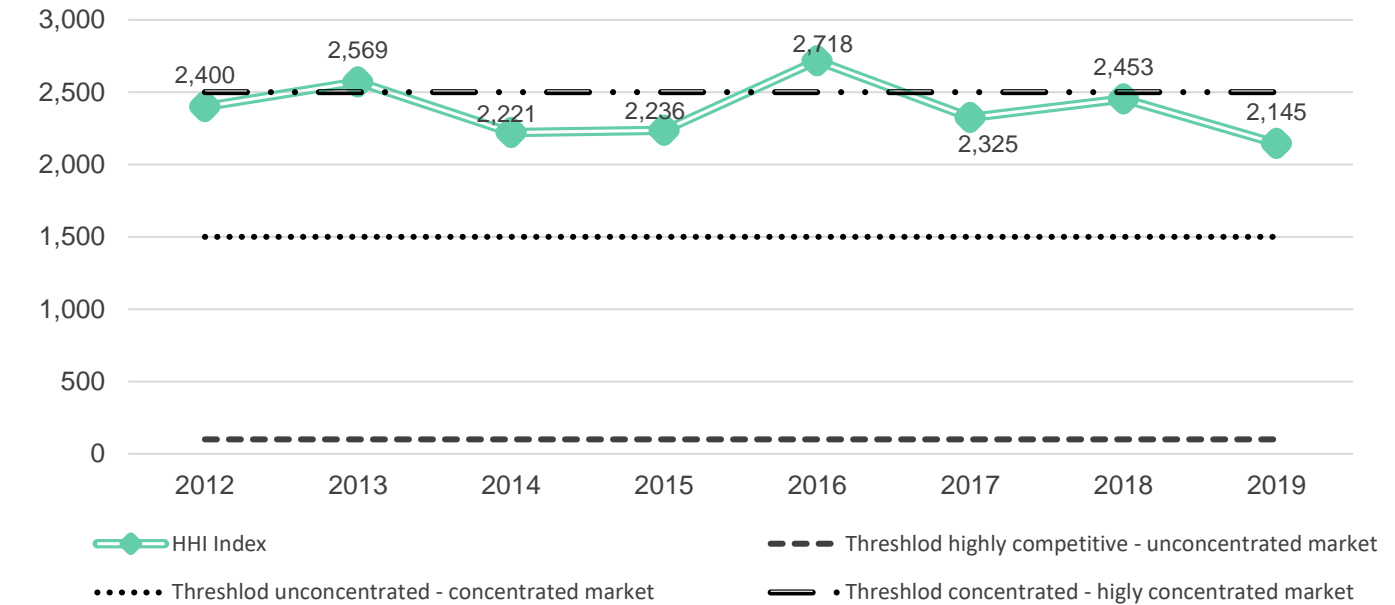
Source: ESCO

³ Because of large depreciation of Georgian Lari

2. Market Concentration

In conclusion, we utilize the Hirschmann-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 2019, the Georgian electricity generation market was close to the threshold for a highly concentrated market, with an HHI value of 2,145 (the threshold for an un-concentrated market is 1500, while for a highly concentrated market is 2500). The level of concentration is lower than in 2018, when its value was very close to the 2,500 threshold (2,453), and lower than in 2016 and 2013, the two most recent years in which the index passed the 2,500 thresholds.

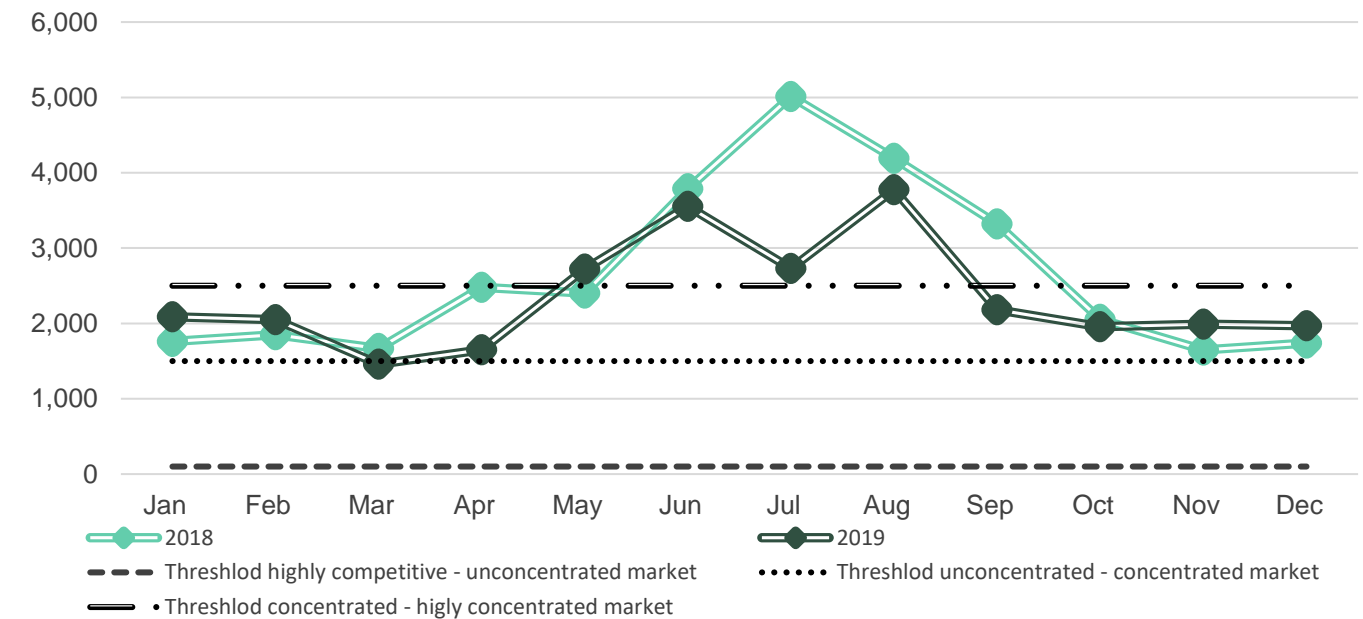
Figure 10 - Yearly Hirschman-Herfindahl Index for Power Generation



Source: ESCO

If we compare 2018 and 2019 on a monthly basis, we observe that 2018 HHI indexes were clearly higher for 2018 in most of the months. The highest market concentration in 2018 year was registered in July, while in 2019 it was registered in August, with the HHI index reaching 5,013 and 3,774, respectively. The lowest market concentrations for 2018 and 2019 were registered, respectively, in November 2018 (1,648) and in March 2019 (1,459) (Figure 11).

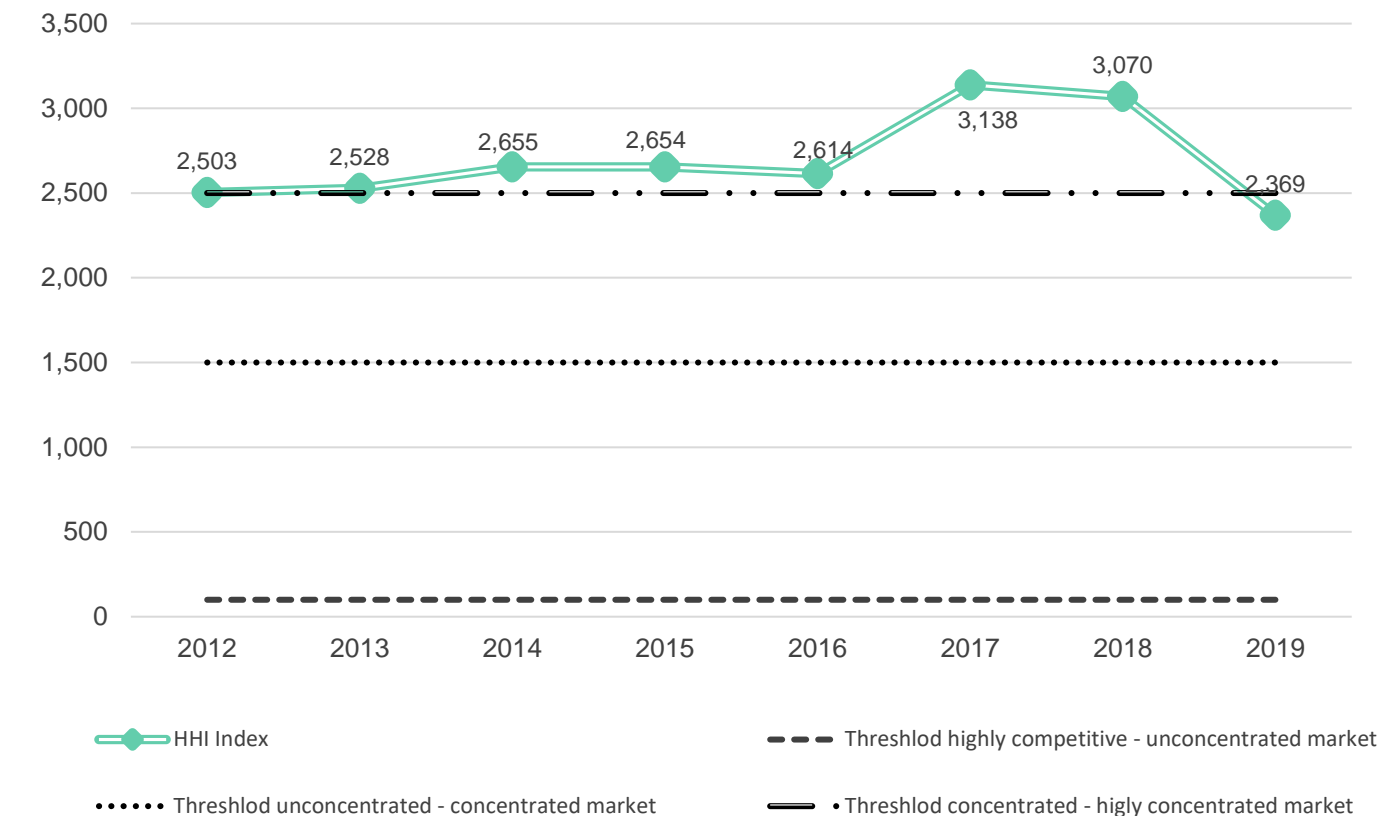
Figure 11 - Monthly Hirschman-Herfindahl Index for Power Generation



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 qualifies it as highly concentrated. The HHI index had shown a slow growth since 2012, jumped above 3,000 in 2017 and remained above in 2018 (to 3,138 and 3,070, respectively) (Figure 12). In 2019, HHI index for the electricity wholesale market has jumped back below the threshold value of 2500. According to the HHI index in 2019, the demand side of the Georgian electricity consumption market was concentrated, with an HHI value 2,369.⁴

Figure 12 - Yearly Hirschman-Herfindahl Index for Electricity Consumption



Source: ESCO

⁴ It has to be noted that with the market opening since May 2019 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.