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ELECTRICITY MARKET REVIEW

ISET POLICY INSTITUTE
ENERGY AND ENVIRONMENT POLICY RESEARCH CENTER

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INFORMATION

- There was a decrease in total electricity generation on a yearly and on a monthly basis
- Consumption increased on a yearly basis and decreased on a monthly basis
- The consumption exceeded the generation by 151 mln. kWh
- Imported electricity came mainly from Russia
- Georgia exported just a negligible amount of electricity to Russia
- According to the Hirschmann-Herfindahl Index (HHI) Georgian electricity market was concentrated with an HHI value of 2,180, down from August 2019 and September 2018

ABBREVIATION USED

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

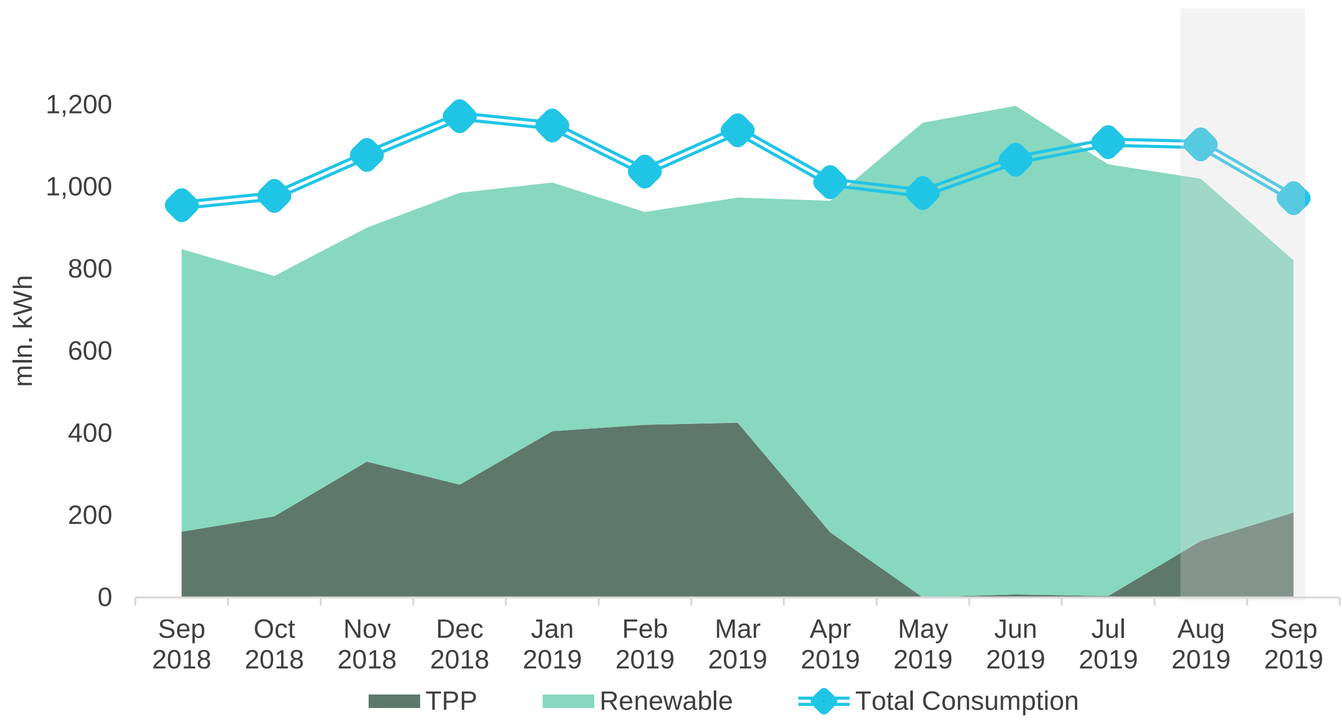
1. Generation – Consumption – Trade

In September 2019, Georgian power plants generated 821 mln. kWh of electricity (Figure 1). This represents a 3% decrease in total generation, compared to the previous year (in September 2018, the total generation was 849 mln. kWh). The decrease in generation on a yearly basis comes from the decrease of 11% separately in wind and hydro power generation, more than offsetting the increase in thermal power generation (+29%).

On a monthly basis, generation decreased by 19% (in August 2019, total generation was 1,020 mln. kWh). The monthly decrease in total generation was the result of a decrease in electricity produced by wind power plants (-13% with respect to August 2019) and hydropower plants (-31% with respect to August 2019) more than offsetting the increase in thermal power generations (+51% compared to August 2019).

The consumption of electricity on the local market was 972 mln. kWh (+2% and -12% compared to September 2018, and August 2019, respectively) (Figure 1). In September 2019, the total consumption exceeded the total generation by 151 mln kWh which is around 18% of total generation (in contrast in September 2018 difference between total generation and consumption resulted in a deficit of 106 mln.kWh which was around 13% of the total generation for the month).

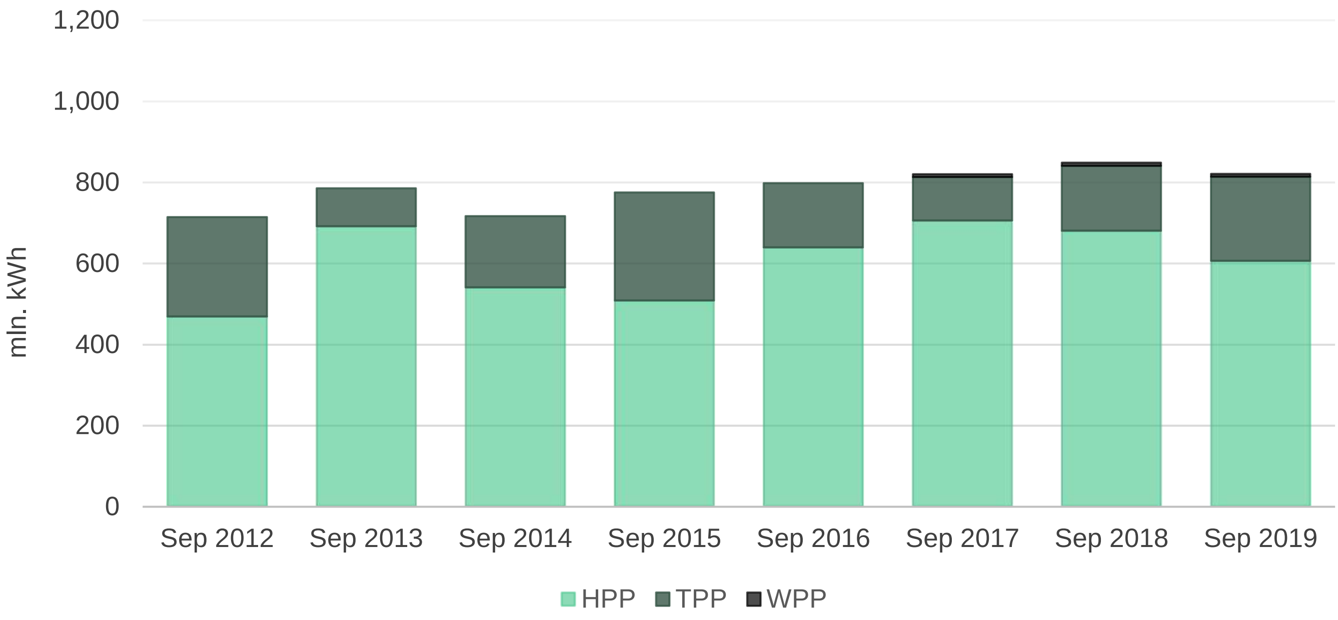
Figure 1 - **Electricity Consumption and Generation**



Source: Electricity System Commercial Operator (ESCO)

As usual, most generation came from hydropower plants (HPPs). In September 2019, hydropower (HPP) generation amounted to 607 mln. kWh (74% of total); wind power (WPP) generation was 7 mln. kWh (1% of total), and thermal power (TPP) generation was 207 mln. kWh (25% of total) (Figure 2).

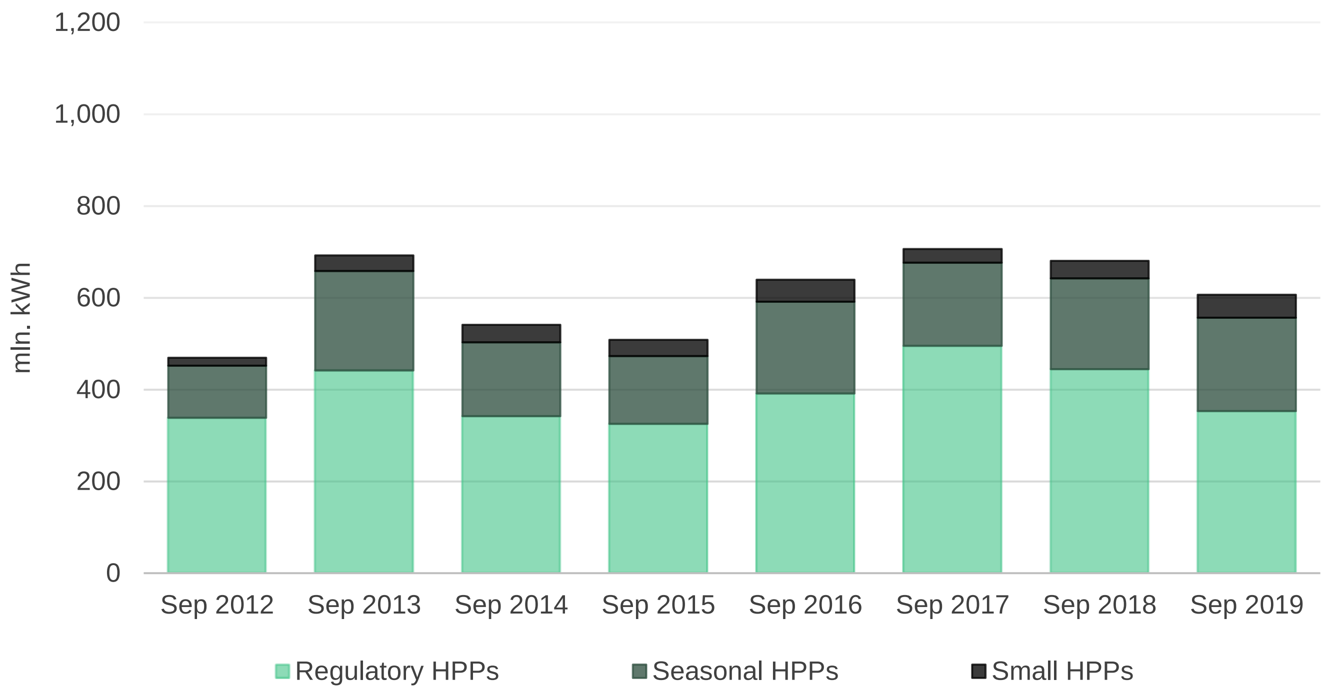
Figure 2 - **Electricity Generation by Sources**



Source: ESCO

Among hydropower generators, large (regulatory) HPPs produced 58% (353 mln. kWh) of electricity, while seasonal and small HPPs produced 34% (204 mln. kWh) and 8% (50 mln. kWh), respectively (Figure 3).

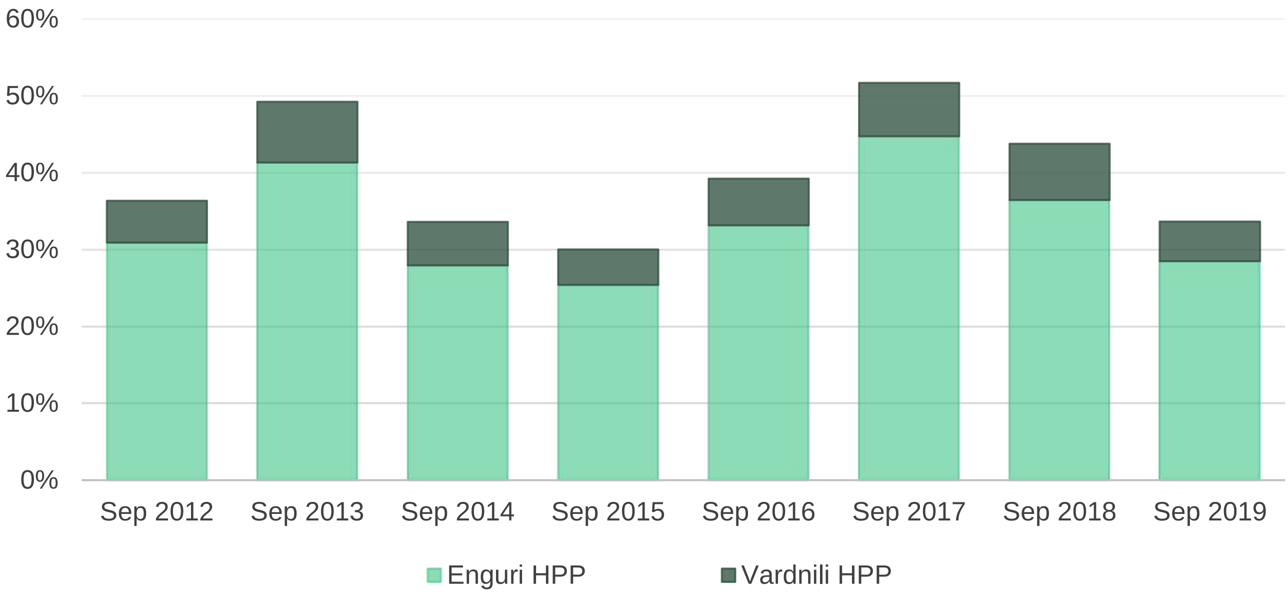
Figure 3 - **HPP Generation by Type**



Source: ESCO

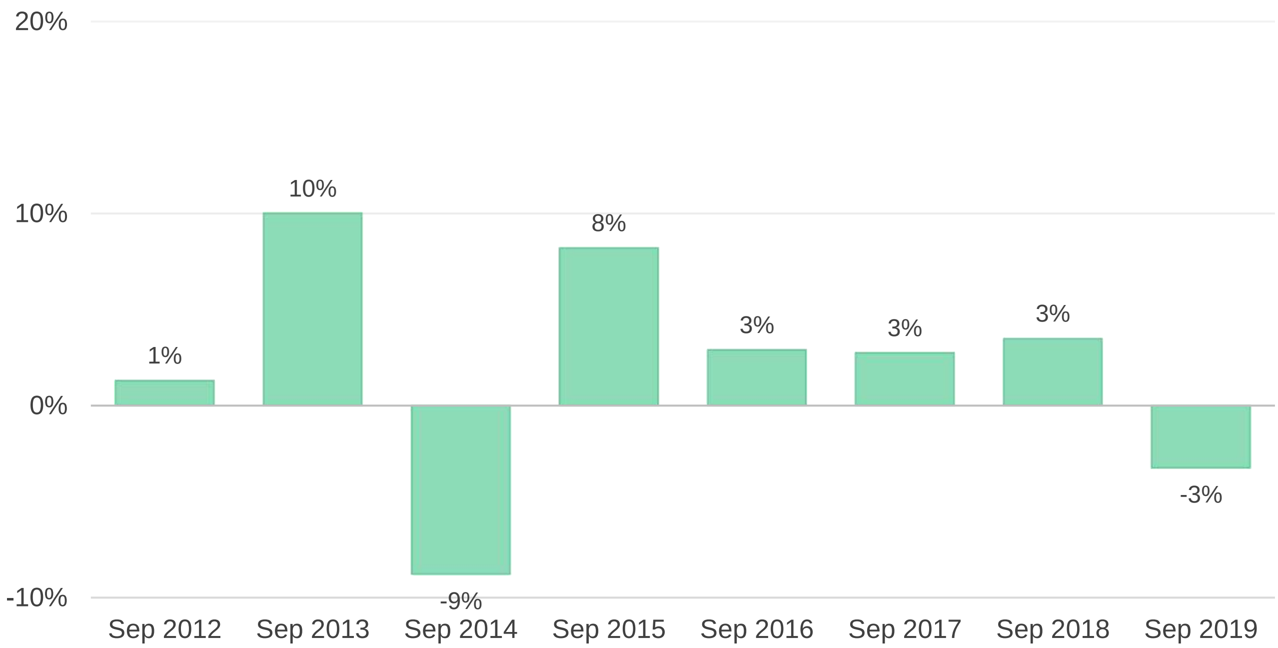
Among the large HPPs, Enguri and Vardnili generated the largest power, producing 276 mln. kWh (78% of generation for regulatory HPPs), with 234 mln. kWh and 42 mln. kWh, respectively. They represent around 34% of the total generation (Figure 4).

Figure 4 - **Share of Enguri and Vardnili in Total Generation**



Source: ESCO

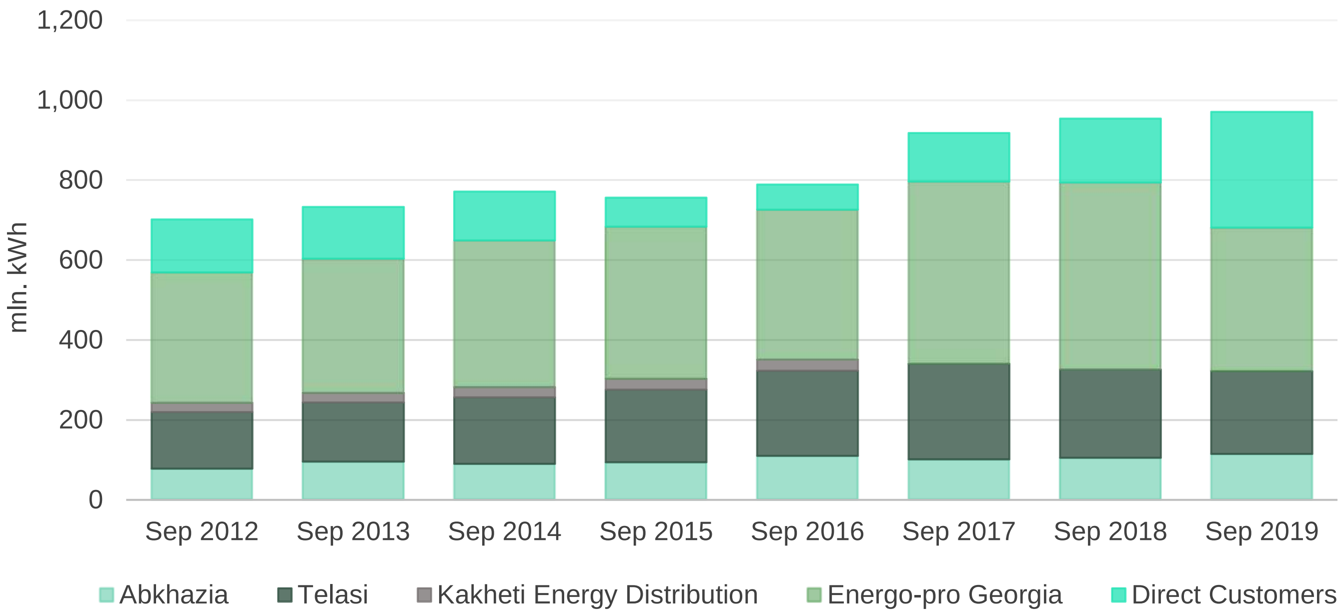
Figure 5 - **Growth of Generation (%, y/y)**



Source: ESCO

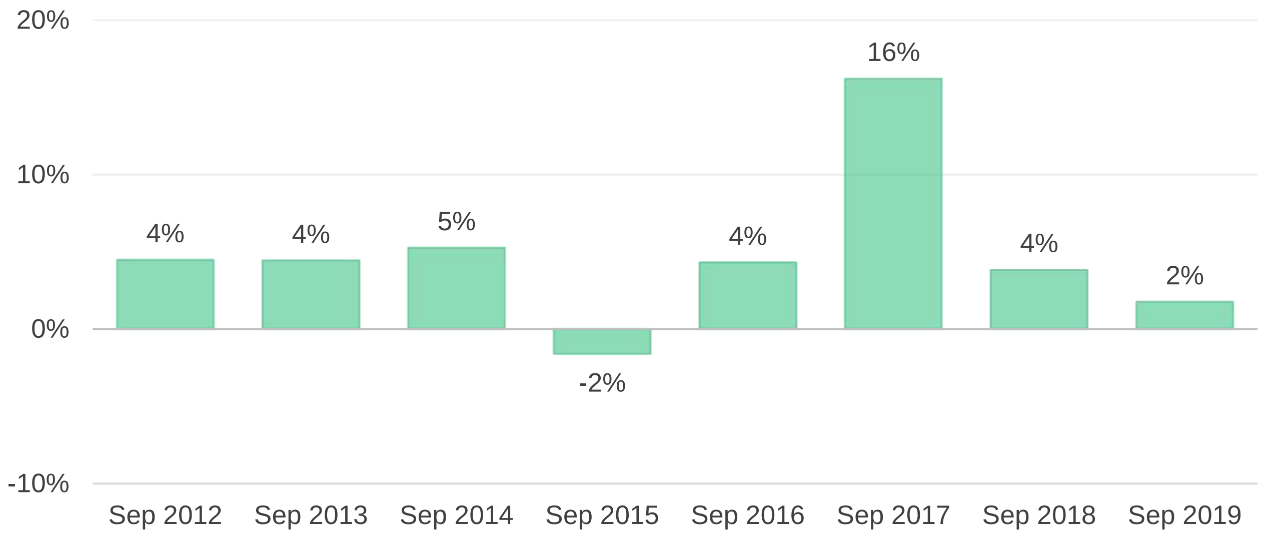
Total electricity demand came from: Energo-Pro Georgia[1] (37% - 358 mln. kWh), Telasi (21% - 208 mln. kWh), Abkhazia (12% - 115 mln. kWh), and direct customers (30% - 290 mln. kWh) (Figure 6). Overall, there was an annual increase of 2% in the total electricity consumption in September 2019, compared to September 2018 (Figure 7). Annual demand from Abkhazia and direct consumers increased by 9% and 81% respectively, more than offsetting the decrease from Telasi and Energo-Pro Georgia (-6% and -23% respectively).[2]

Figure 6 - **Electricity Consumption by Type of Customer**



Source: ESCO

Figure 7 - **Electricity Consumption Growth (%, y/y)**



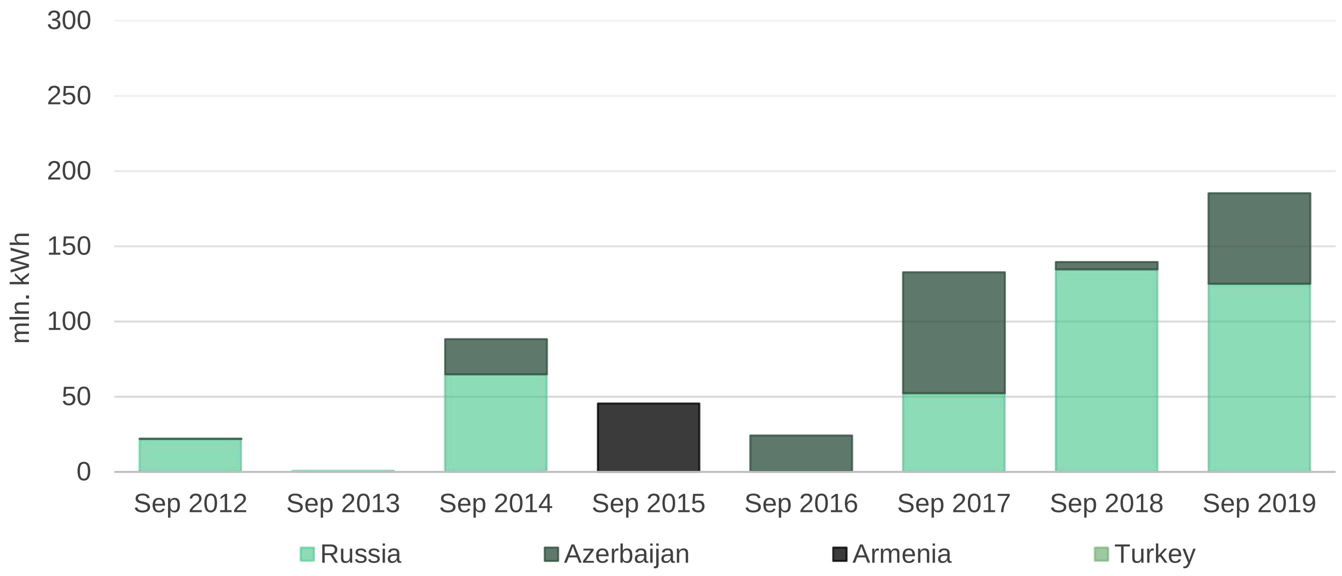
Source: ESCO

[1] Energo-Pro Georgia acquired Kakheti 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

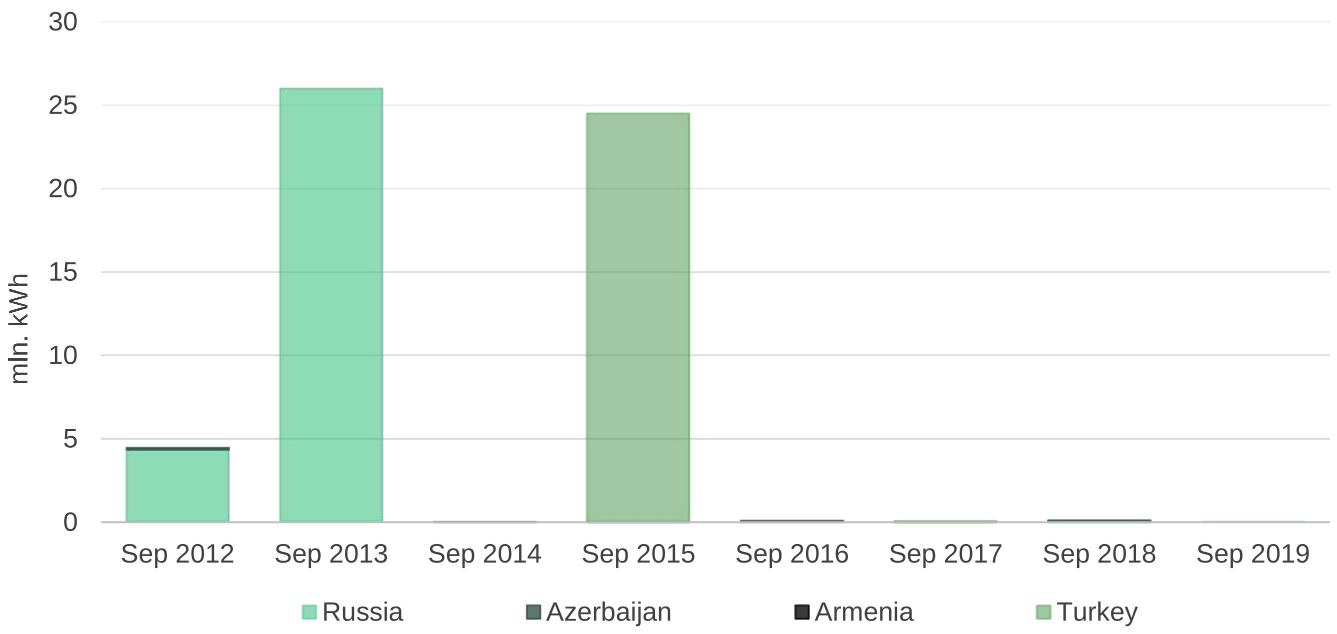
In September 2019, Georgia imported 185 mln. kWh of electricity (+33% compared to September 2018) 67% of which came from Russia, while the remaining 33% was provided by Azerbaijan (Figure 8). In September 2019, Georgia exported 0.001 mln. kWh electricity to Russia (-99% decrease compared to September 2018) (Figure 9).

Figure 8 - **Imports by Year**



Source: ESCO

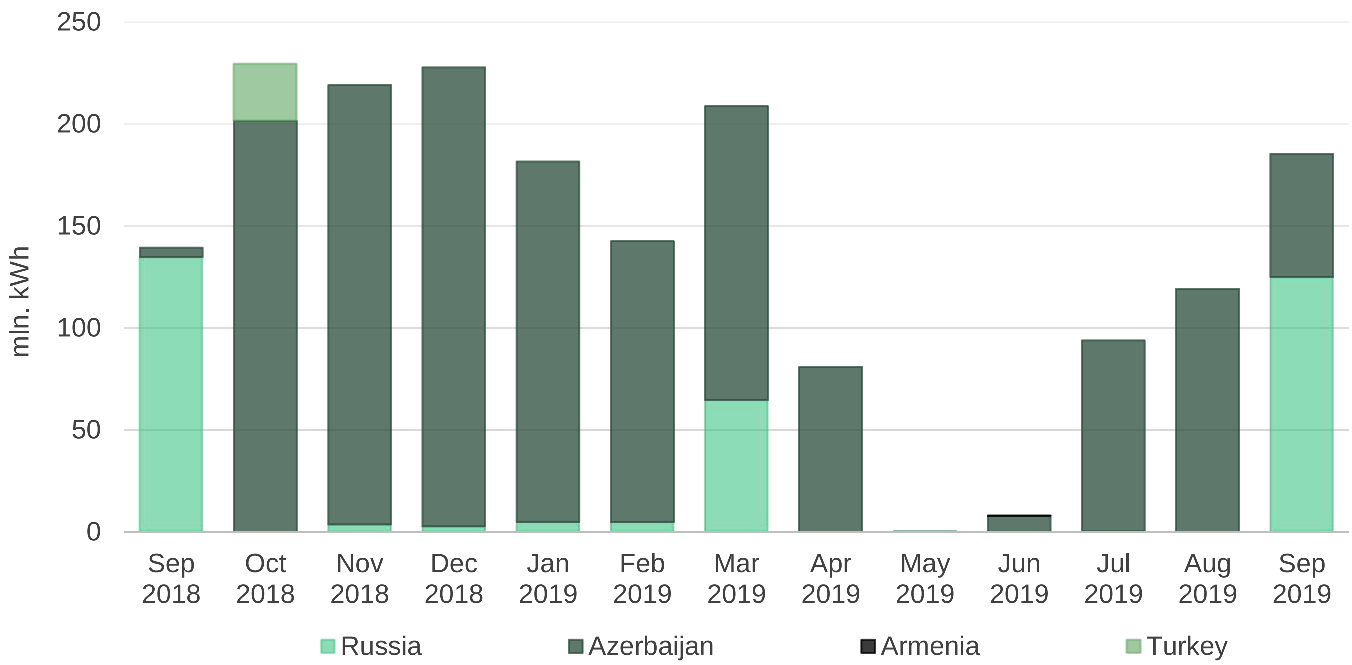
Figure 9 - **Exports by Year**



Source: ESCO

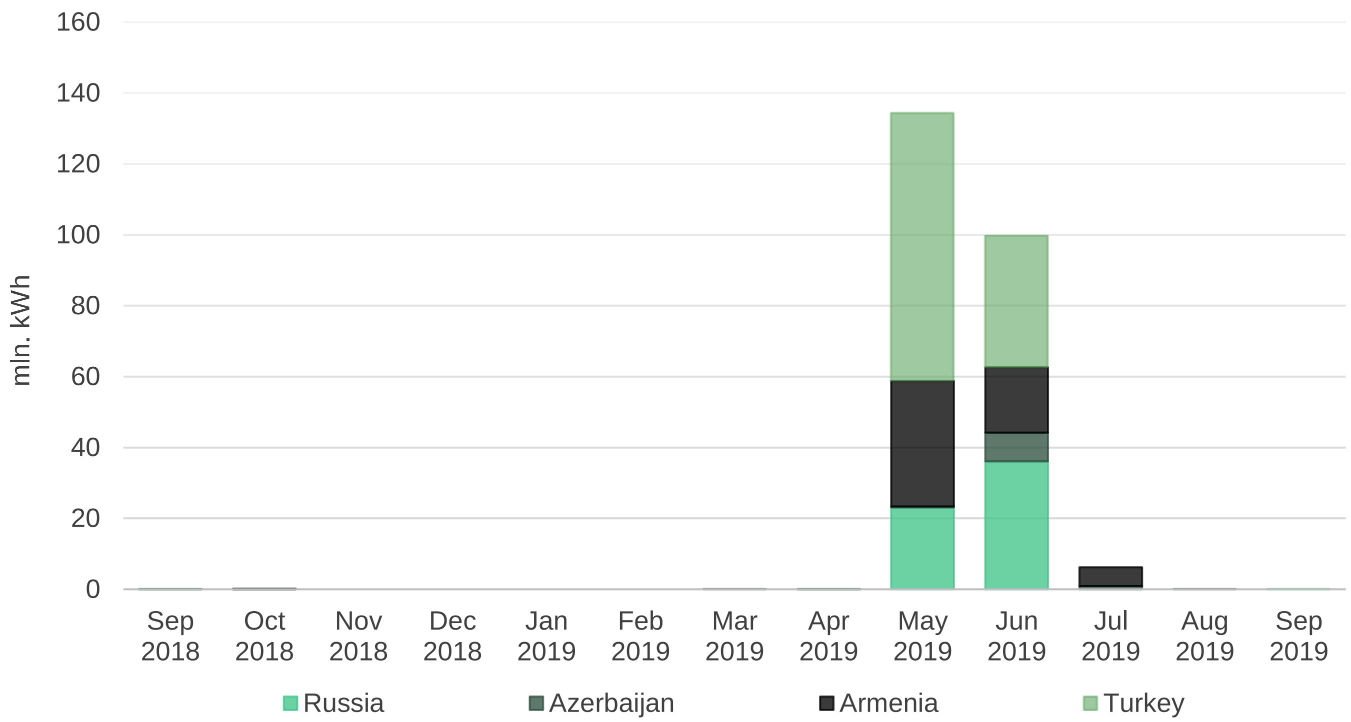
In September 2019, electricity imports increased by 56% from 119 mln.kWh to 185 mln kWh compared to the previous month (Figure 10). As for the exports, it decreased by 99% from 0.08 to 0.001 mln. kWh (Figure 11). As mentioned above, in this month the main export partner country was Russia.

Figure 10 - **Imports by Month**



Source: ESCO

Figure 11 - **Exports by Month**

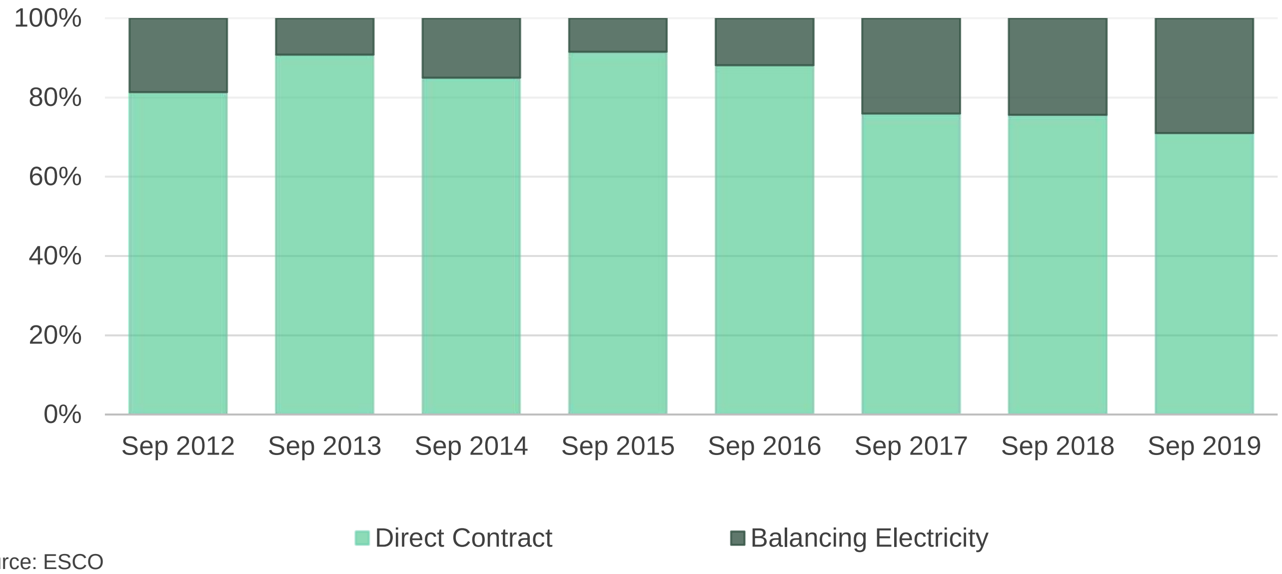


Source: ESCO

2. Market Operations

In September 2019, 71% of the electricity sold on/from the local market was sold through direct contracts. The remaining 29% was sold as balancing electricity (Figure 12).

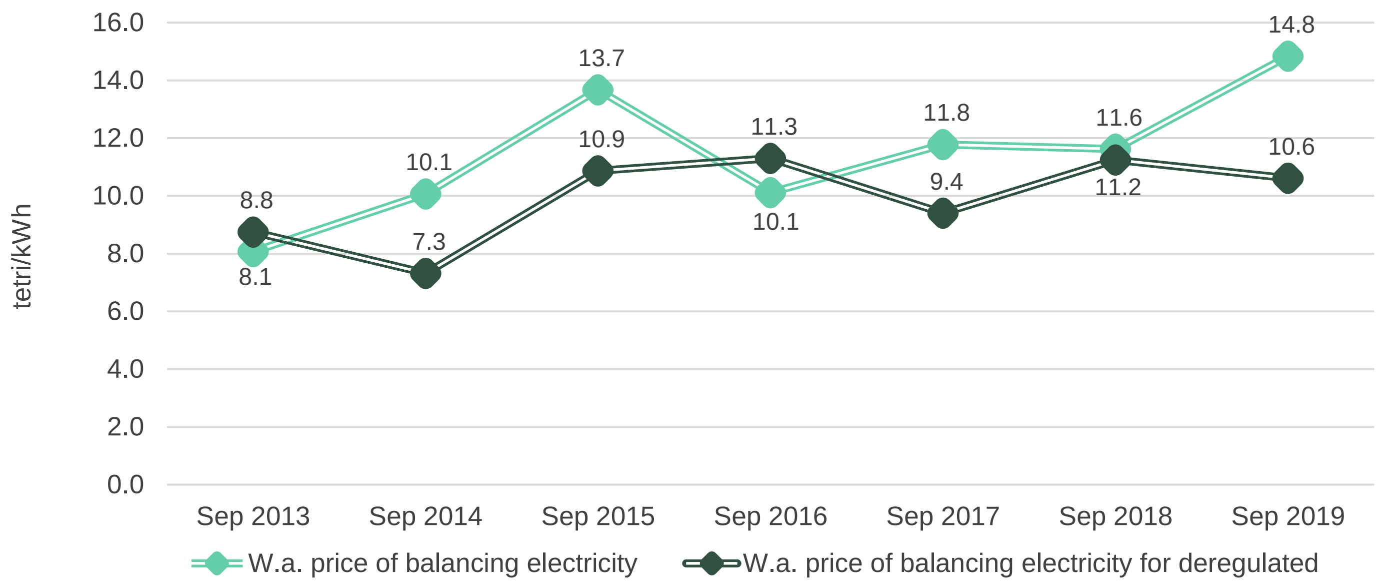
Figure 12 - **Electricity Purchased / Sold Shares of Direct Contracts and Balancing Electricity**



Source: ESCO

The weighted average price of balancing electricity was 14.8 tetri/kWh in September 2019, which is an annual increase of 28% compared to September 2018. As for the weighted average price for deregulated (small) HPPs, it was 10.6 tetri/kWh, decreased by 6% compared to the corresponding month of the previous year (Figure 13).

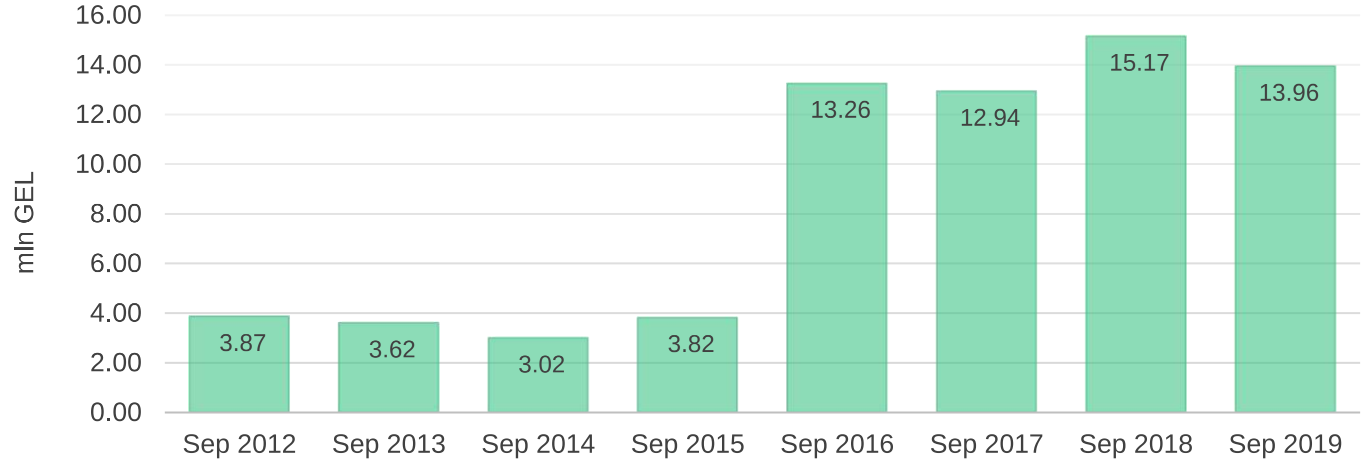
Figure 13 - **Balancing Electricity Prices Weighted Average and Weighted Average Price for Deregulated HPPs**



Source: ESCO

Guaranteed capacity payments in September 2019 were roughly 13.96 mln. GEL, which represents an 8% decrease compared to September 2018 (Figure 14).

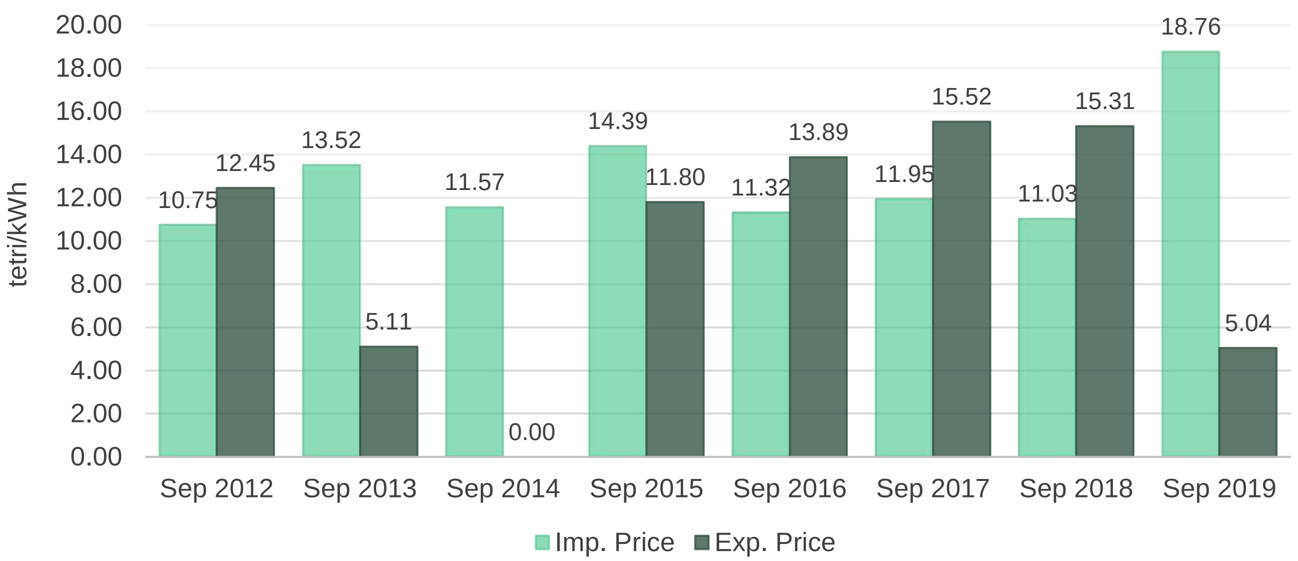
Figure 14 - **Cost of Guaranteed Capacity**



Source: ESCO

The average electricity import price in September 2019 increased by 70%[3] (from 4 ¢ or 11 tetri per kWh to 6.3 ¢ or 18.76 tetri per kWh) compared to September 2018 (Figure 15). The average import price also increased by 23.6% on a monthly basis (Import price was 5.2 ¢ or 15.18 tetri per kWh in August 2019). The average electricity export price in September 2019 decreased by 67%[4] (from 6 ¢ or 15.3 tetri per kWh to 1.7 ¢ or 5.04 tetri per kWh) compared to September 2018 (Figure 15). The average export price decreased on a monthly basis by 68.6%, down from 5.5 ¢ or 16.05 tetri per kWh in August 2019.

Figure 15 - **Prices Import/Export**



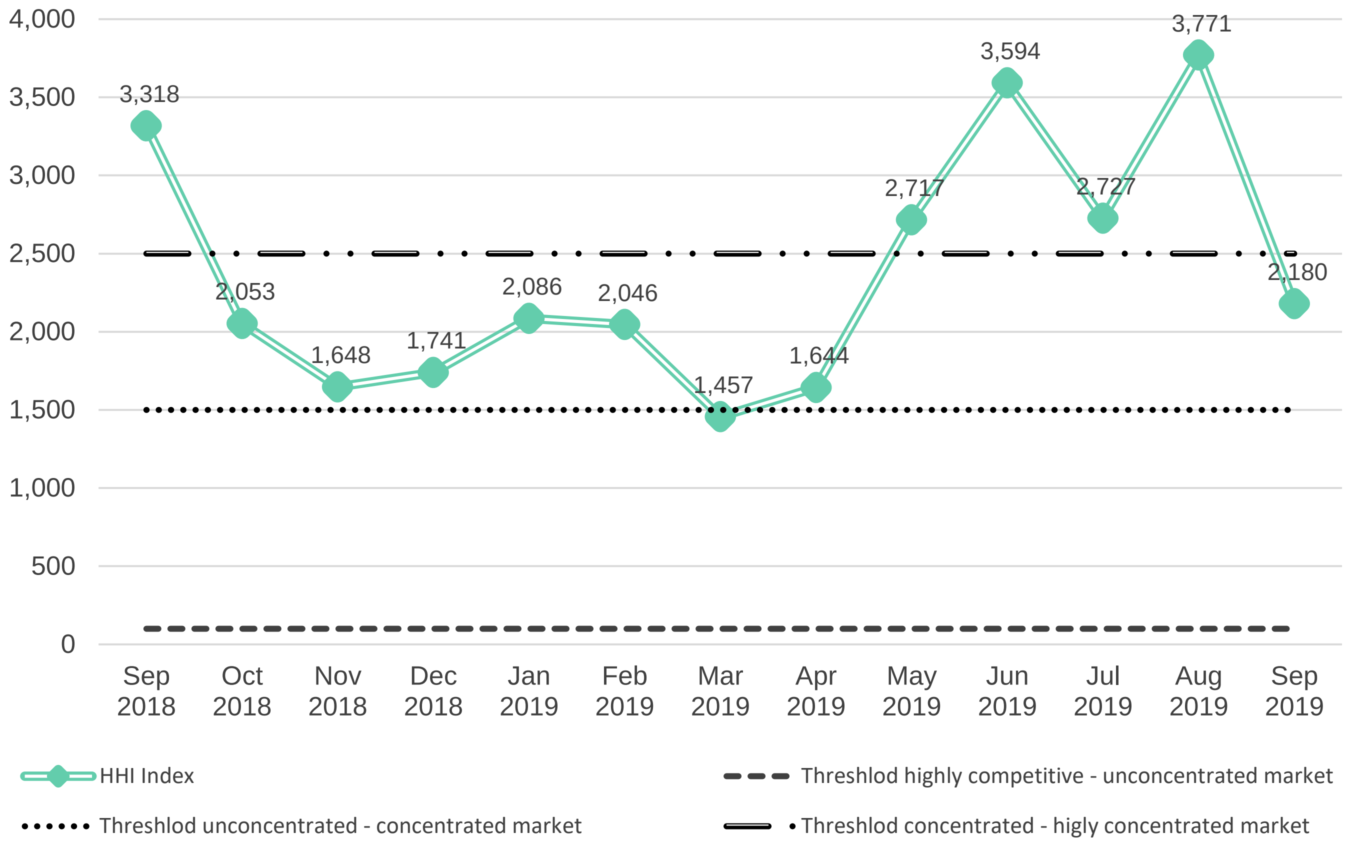
Source: ESCO

[3] Mostly because of large depreciation of Georgian Lari
[4] Because of large depreciation of Georgian Lari

3. Market Concentration

In conclusion, we utilize the Hirschmann-Herfindahl (HHI) market concentration index to evaluate how competitive the generation segment of the market has been over the year. In September 2019, the Georgian electricity market was concentrated, with an HHI value of 2,180 (Figure 16). In contrast, Georgian electricity market was highly concentrated in September 2018 and August 2019, with an HHI value of 3,318 and 3,771 respectively.

Figure 16 - **Hirschman-Herfindahl Index for Power Generation**



Source: ESCO