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ELECTRICITY MARKET REVIEW

ISET POLICY INSTITUTE

ENERGY AND ENVIRONMENT POLICY RESEARCH CENTER

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INFORMATION

- There was an increase in total electricity generation on a yearly basis and a decrease on a monthly basis
- Consumption increased on a yearly basis and decreased on a monthly basis
- The consumption exceeded the generation by 84 mln. kWh
- Imported electricity came solely from Azerbaijan
- Georgia exported just a negligible amount of electricity to Azerbaijan
- According to the Hirschmann-Herfindahl Index (HHI) Georgian electricity market was highly concentrated with an HHI value of 3771, up from July

ABBREVIATION USED

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

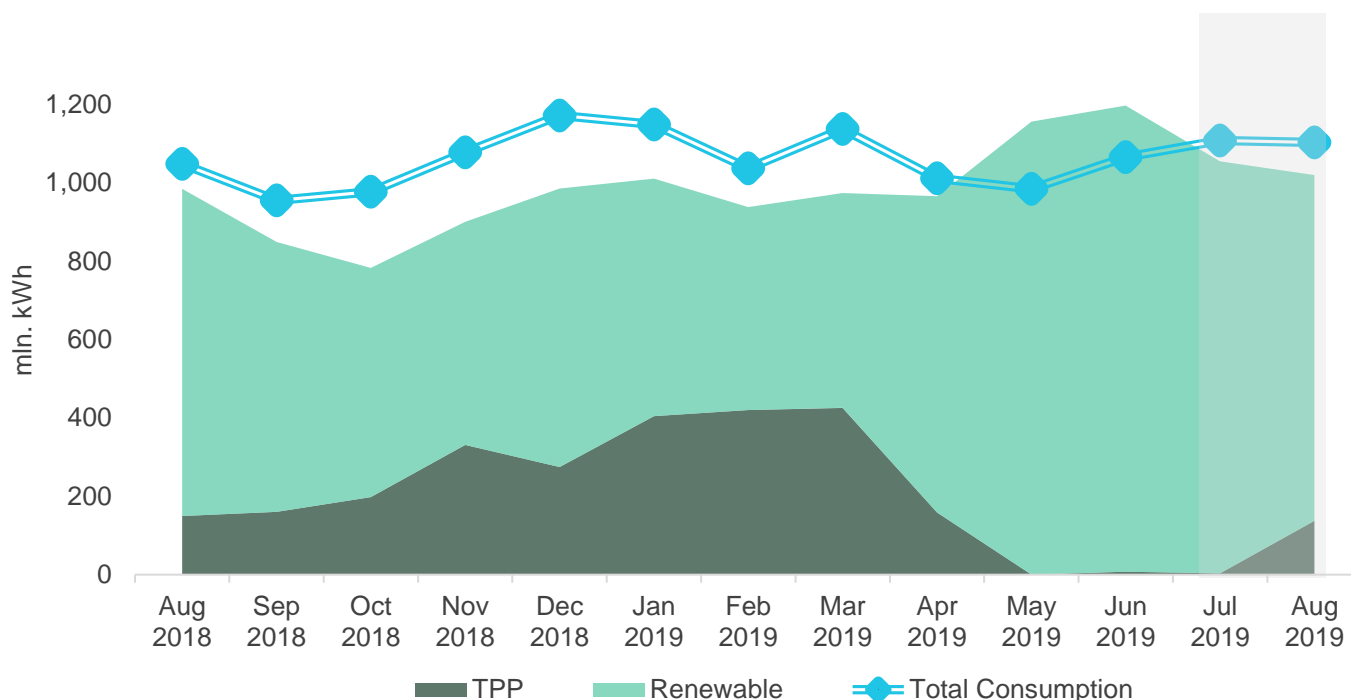
1. Generation – Consumption – Trade

In August 2019, Georgian power plants generated 1,020 mln. kWh of electricity (Figure 1). This represents a 3.6% increase in total generation, compared to the previous year (in August 2018, the total generation was 985 mln. kWh). The increase in generation on a yearly basis comes from the increase in wind (+9%) and hydro power generation (+6%), more than offsetting the decrease in thermal power generation (-8%).

On a monthly basis, generation decreased by 3% (in July 2019, total generation was 1,055 mln. kWh). The monthly decrease in total generation was the result of a decrease in electricity produced by wind power plants (-7% with respect to July 2019) and hydropower plants (-16% with respect to July 2019) more than offsetting a substantial increase in thermal power generations (more than 40-times increase compared to July 2019).

The consumption of electricity on the local market was 1,104 mln. kWh (+5% and -0.5% compared to August 2018, and July 2019, respectively) (Figure 1). In August 2019, the total consumption exceeded the total generation by 84 mln kWh which is around 8% of total generation (In contrast in August 2018 difference between total generation and consumption resulted in a deficit which was around 7% of the total generation for the month).

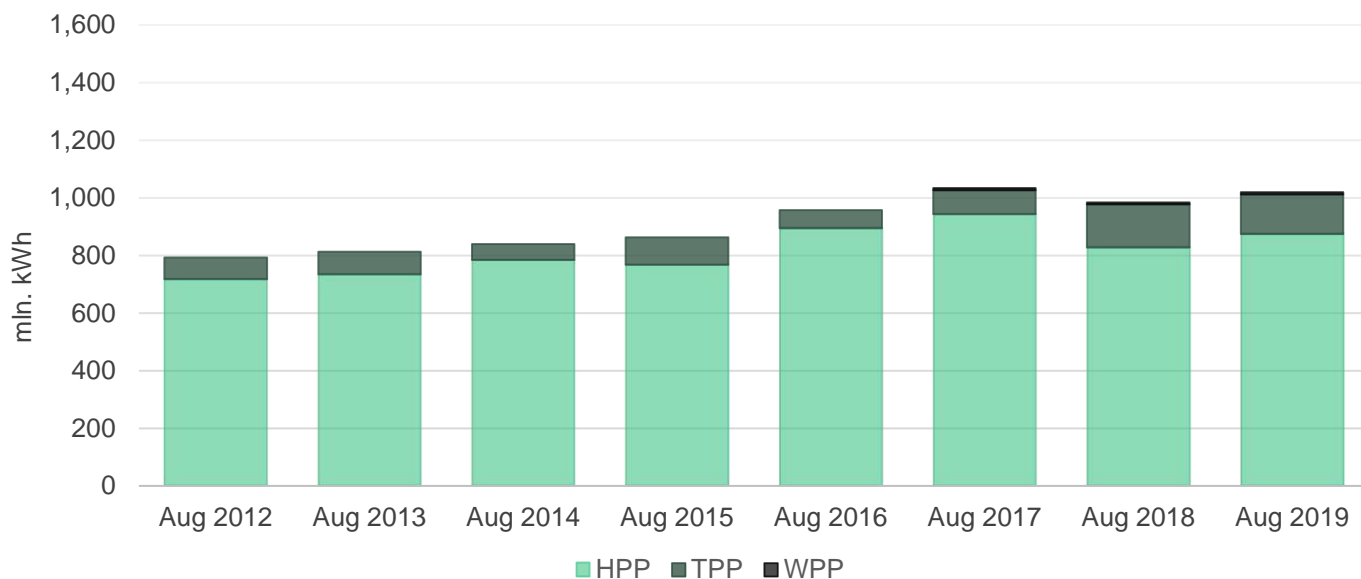
Figure 1 - Electricity Consumption and Generation



Source: Electricity System Commercial Operator (ESCO)

As usual, most generation came from hydropower plants (HPPs). In August 2019, hydropower (HPP) generation amounted to 874 mln. kWh (85.7% of total); wind power (WPP) generation was 8 mln. kWh (0.8% of total), and thermal power (TPP) generation was 138 mln. kWh (13.5% of total) (Figure 2).

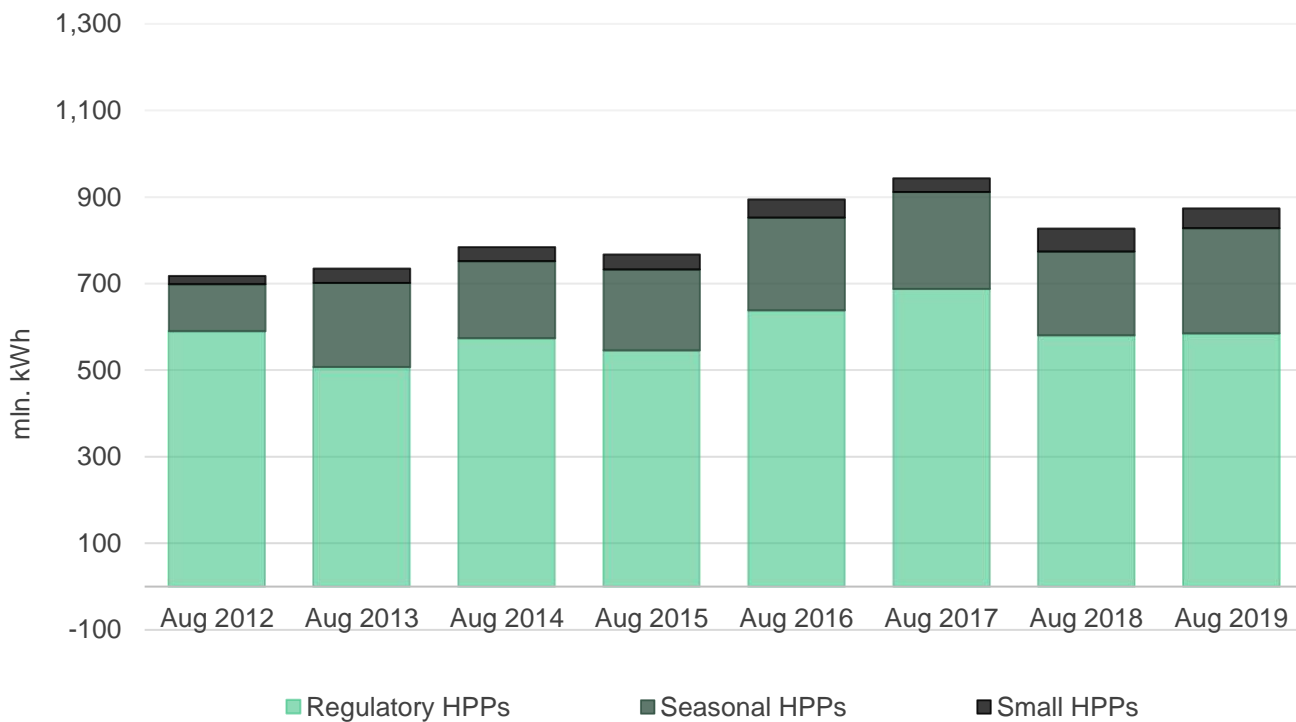
Figure 2 - Electricity Generation by Sources



Source: ESCO

Among hydropower generators, large (regulatory) HPPs produced 67% (585 mln. kWh) of electricity, while seasonal and small HPPs produced 28% (243 mln. kWh) and 5% (46 mln. kWh), respectively (Figure 3).

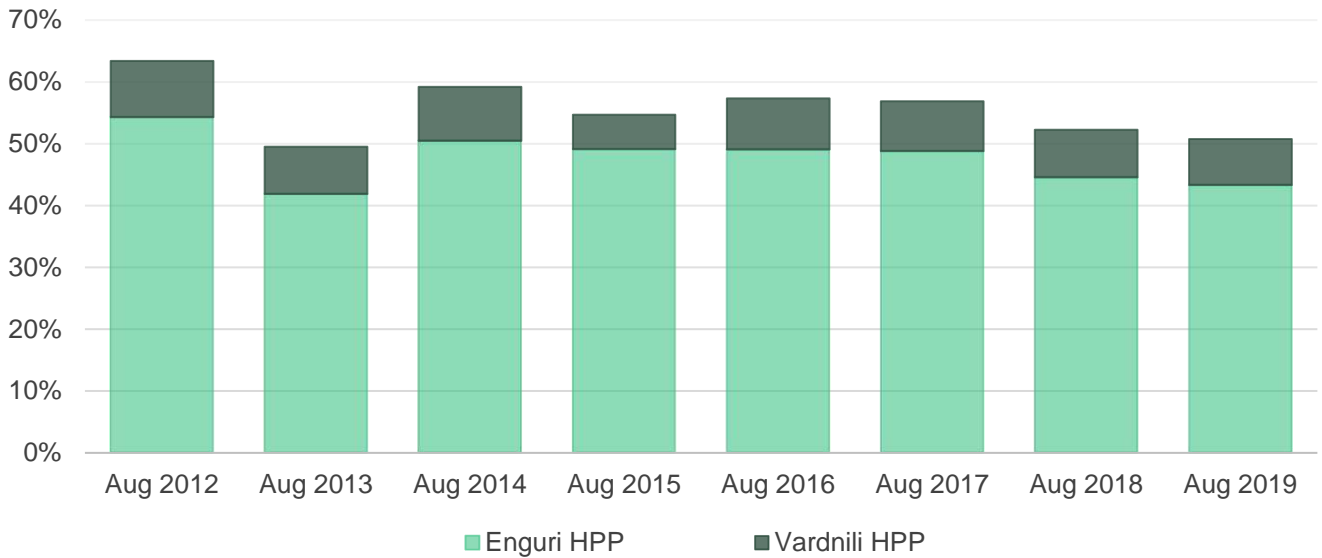
Figure 3 - HPP Generation by Type



Source: ESCO

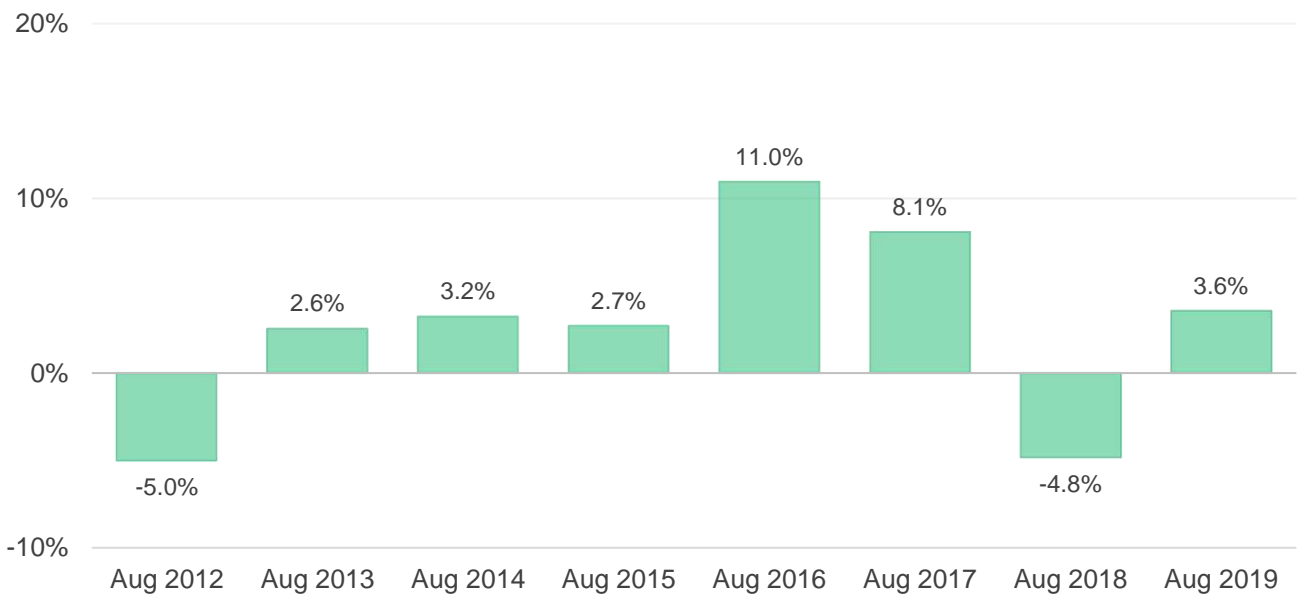
Among the large HPPs, Enguri and Vardnili generated the largest power, producing 518 mln. kWh (89% of generation for regulatory HPPs), with 442 mln. kWh and 76 mln. kWh, respectively. They represent around 51% of the total generation (Figure 4).

Figure 4 - Share of Enguri and Vardnili in Total Generation



Source: ESCO

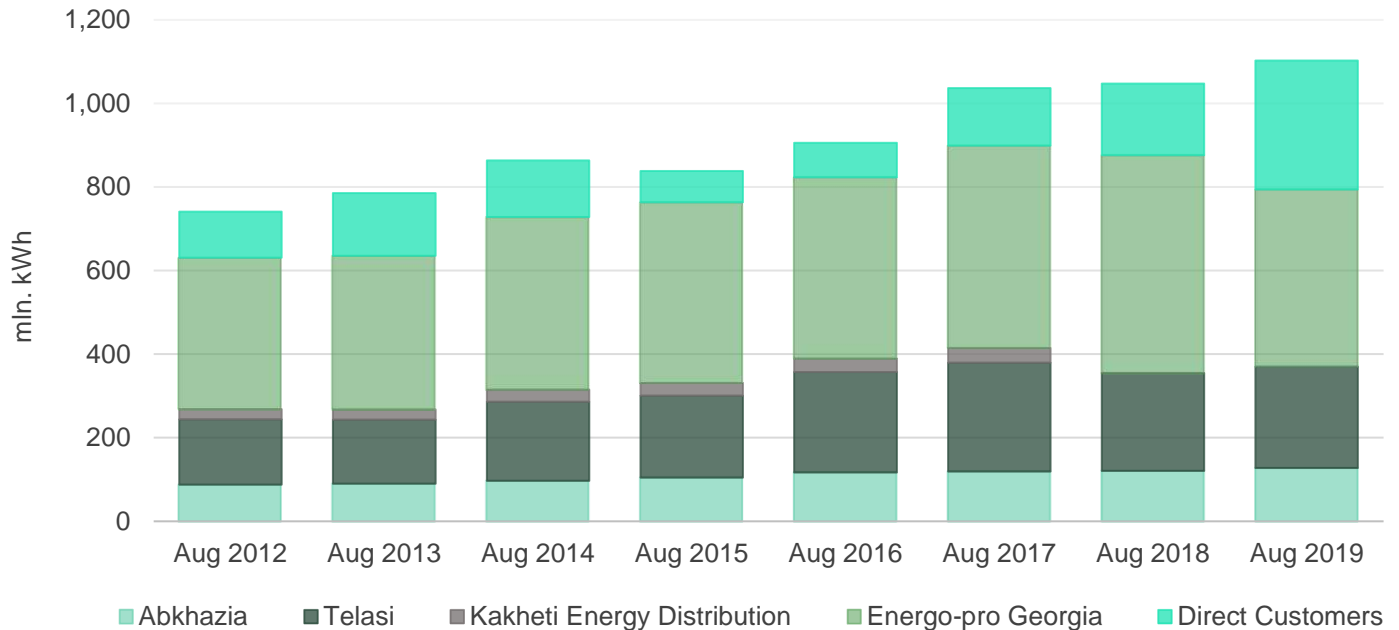
Figure 5 - Growth of Generation (% , y/y)



Source: ESCO

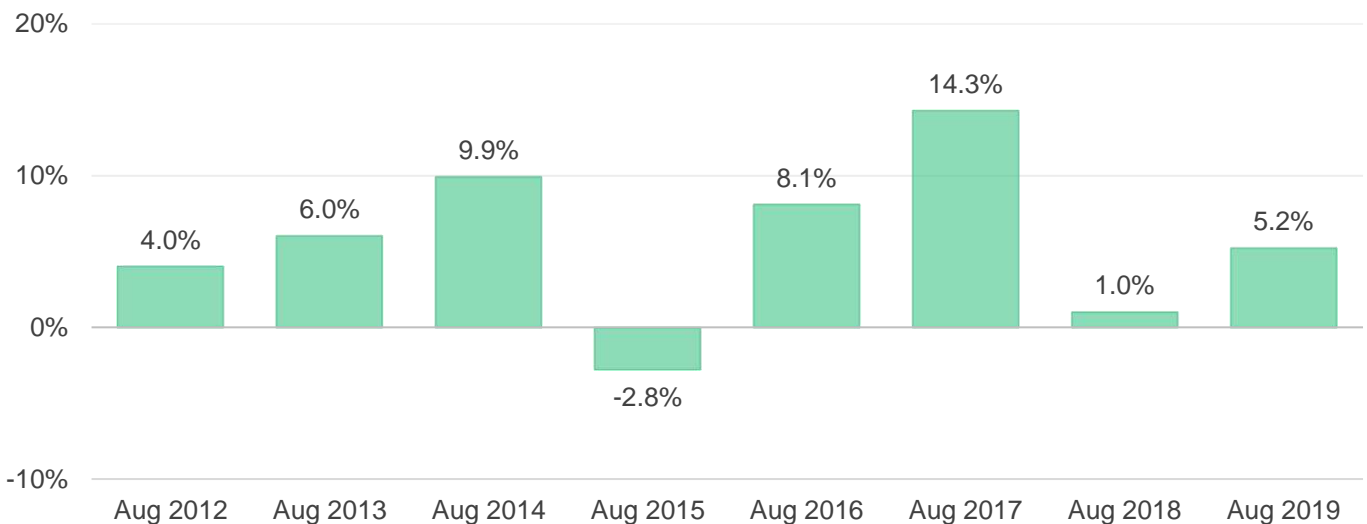
Total electricity demand came from: Energo-Pro Georgia¹ (38% - 424 mln. kWh), Telasi (22% - 243 mln. kWh), Abkhazia (12% - 128 mln. kWh), and direct customers (28% - 309 mln. kWh) (Figure 6). Overall, there was an annual increase of 5% in the total electricity consumption in August 2019, compared to August 2018 (Figure 7). Annual demand from Abkhazia, Telasi and direct consumers increased by 6%, 3% and 80% respectively, more than offsetting a 19% decrease from Energo-Pro Georgia.²

Figure 6 - Electricity Consumption by Type of Customer



Source: ESCO

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



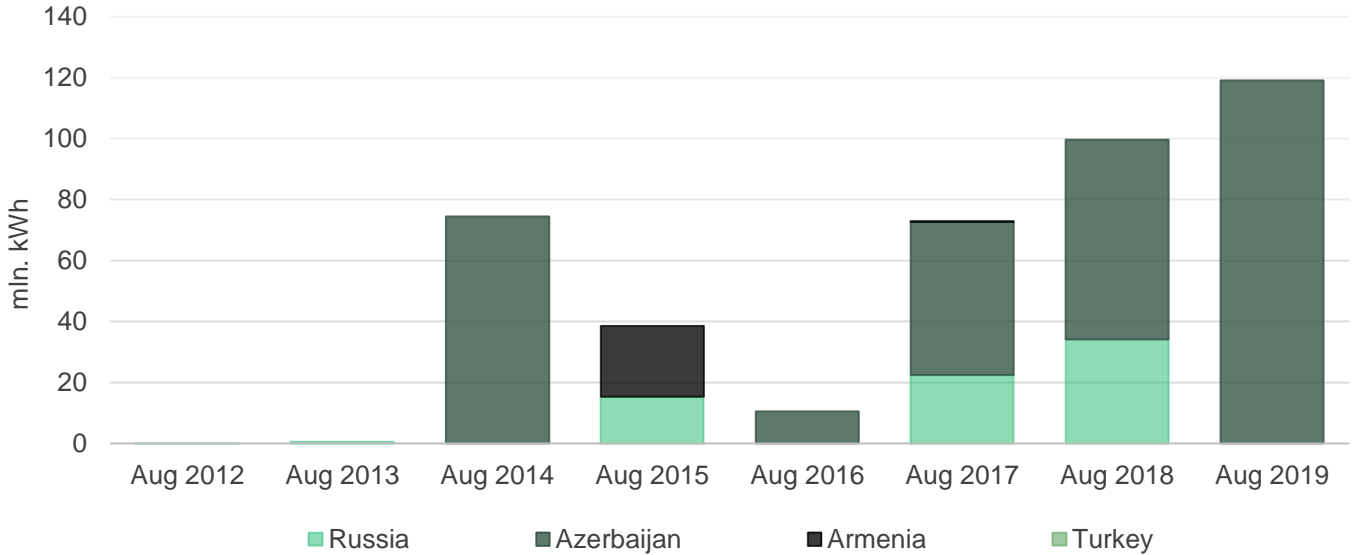
Source: ESCO

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

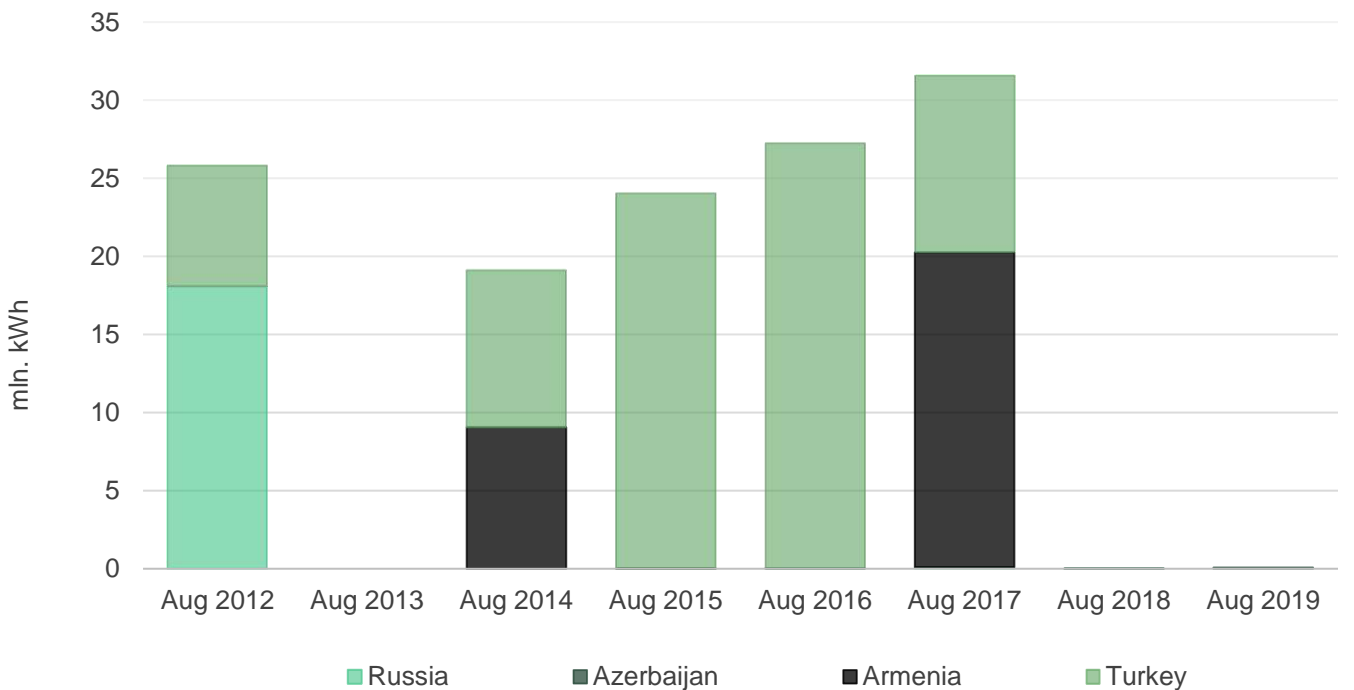
In August 2019, Georgia imported 119 mln. kWh of electricity (+20% compared to August 2018), 100% of which came from Azerbaijan (Figure 8). In August 2019, Georgia exported 0.08 mln. kWh (more than 4-times increase compared to August 2018), out of which 100% came to Azerbaijan (Figure 9).

Figure 8 - Imports by Year



Source: ESCO

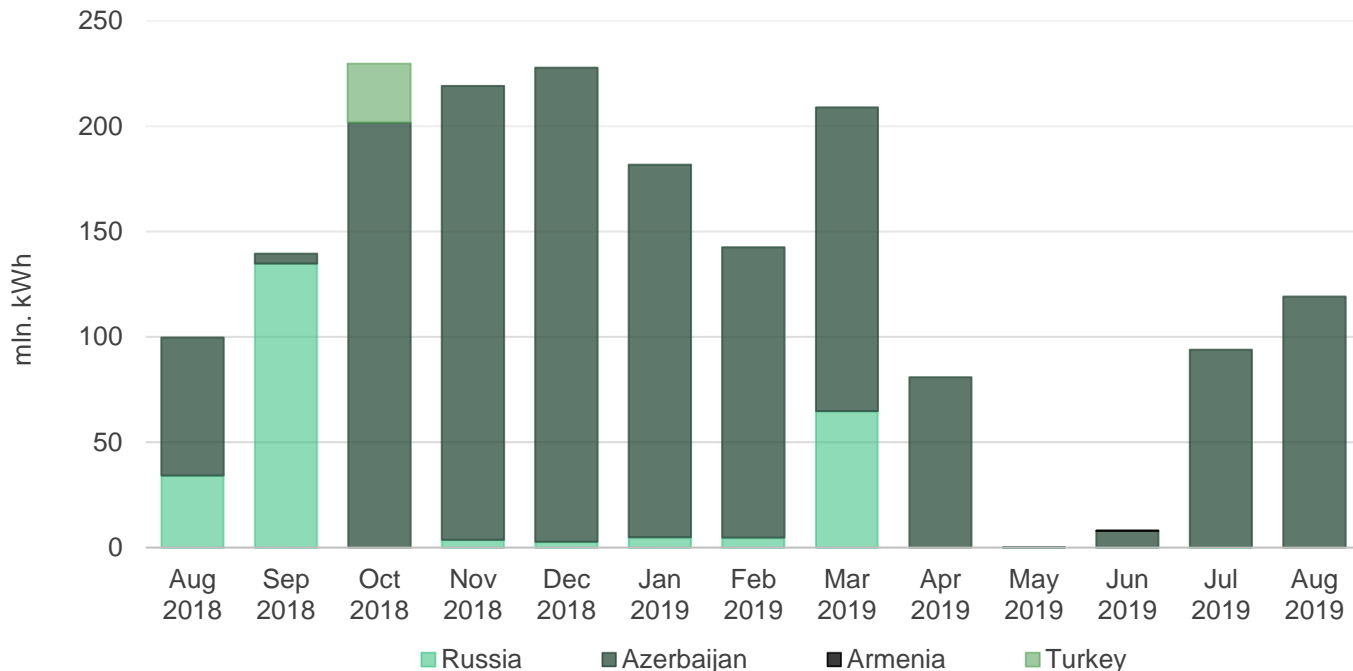
Figure 9 - Exports by Year



Source: ESCO

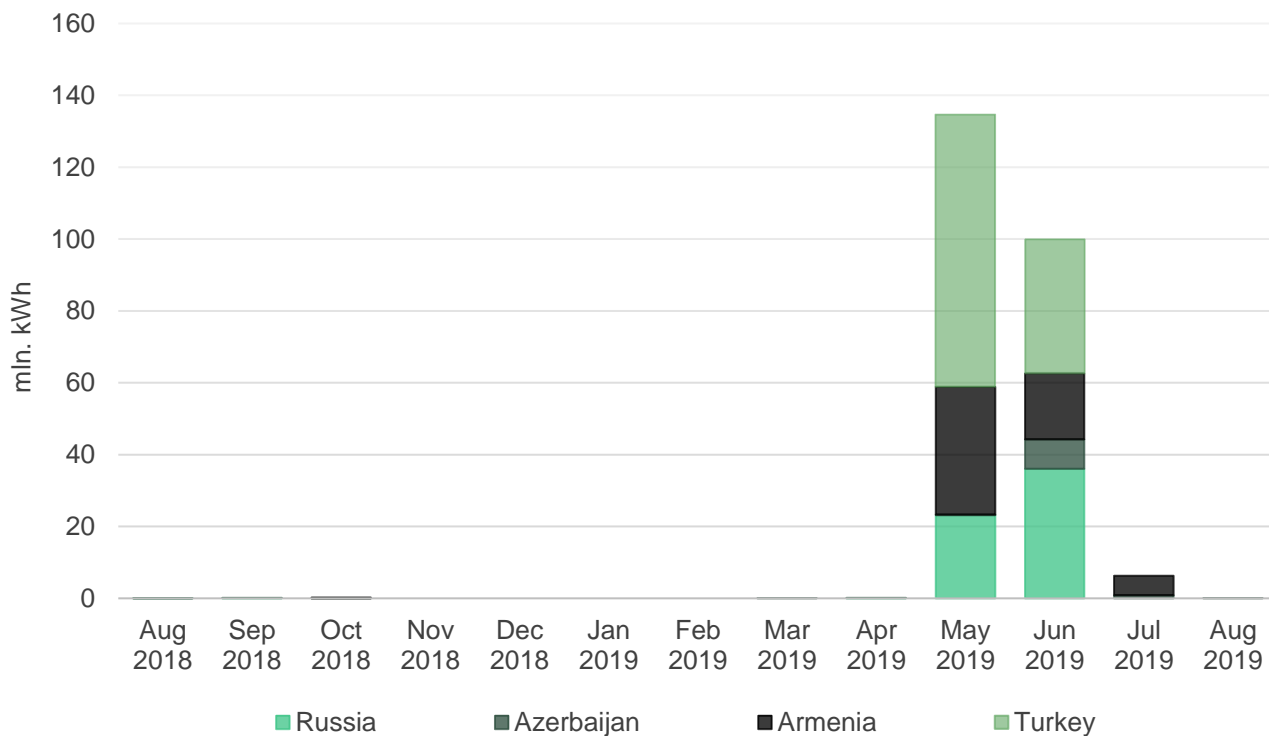
In August 2019, electricity imports increased by 27% from 93.7 to 119 mln kWh. compared to the previous month (Figure 10). As for the exports, they decreased almost 6-times from 6 to 0.08 mln. kWh (Figure 11). As mentioned above, in this month the main export partner country was Azerbaijan.

Figure 10 - Imports by Month



Source: ESCO

Figure 11 - Exports by Month

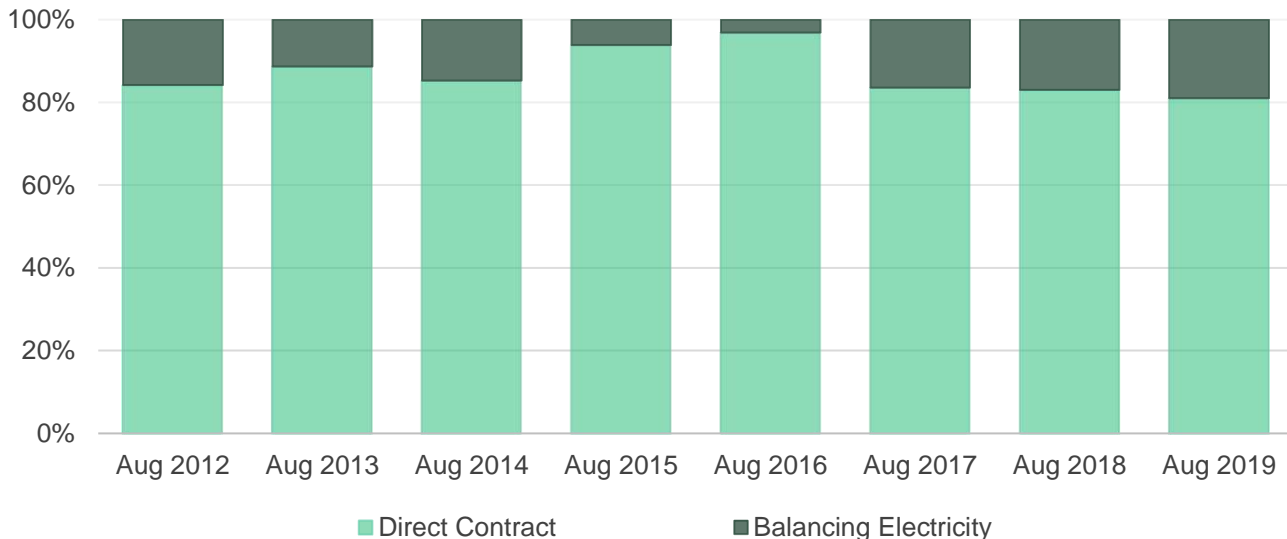


Source: ESCO

2. Market Operations

In August 2019, 81% of the electricity sold on/from the local market was sold through direct contracts. The remaining 19% was sold as balancing electricity (Figure 12).

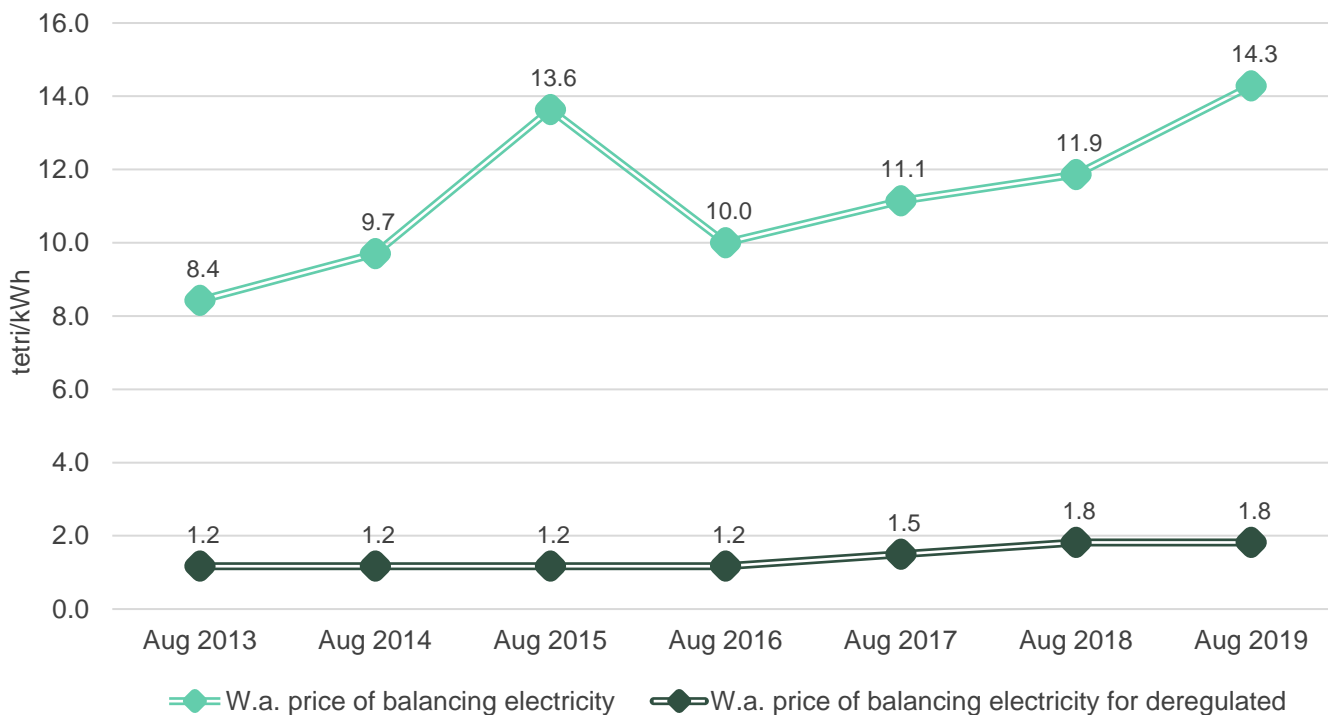
Figure 12 - Electricity Purchased / Sold Shares of Direct Contracts and Balancing Electricity



Source: ESCO

The weighted average price of balancing electricity was 14.3 tetri/kWh in August 2019, which is an annual increase of 20% compared to August 2018. As for the weighted average price for deregulated (small) HPPs, it was 1.8 tetri/kWh, which is similar indicator compared to the corresponding month of the previous year (Figure 13).

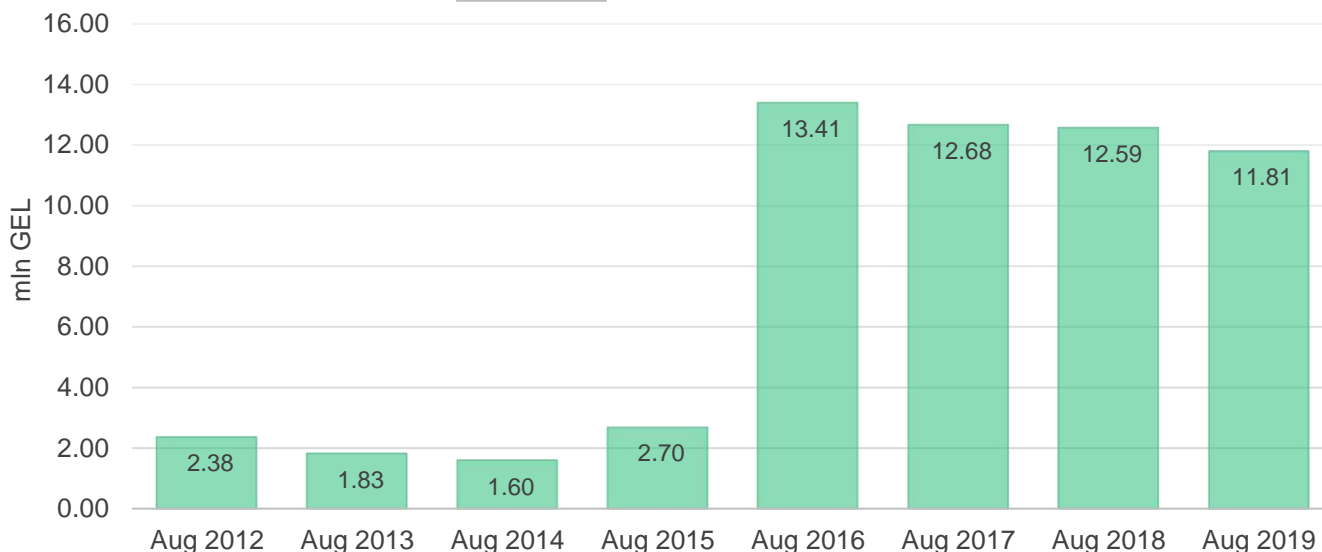
Figure 13 - Balancing Electricity Prices Weighted Average and Weighted Average Price for Deregulated HPPs



Source: ESCO

Guaranteed capacity payments in August 2019 were roughly 11.81 mln. GEL, which represents 6% decrease compared to August 2018 (Figure 14).

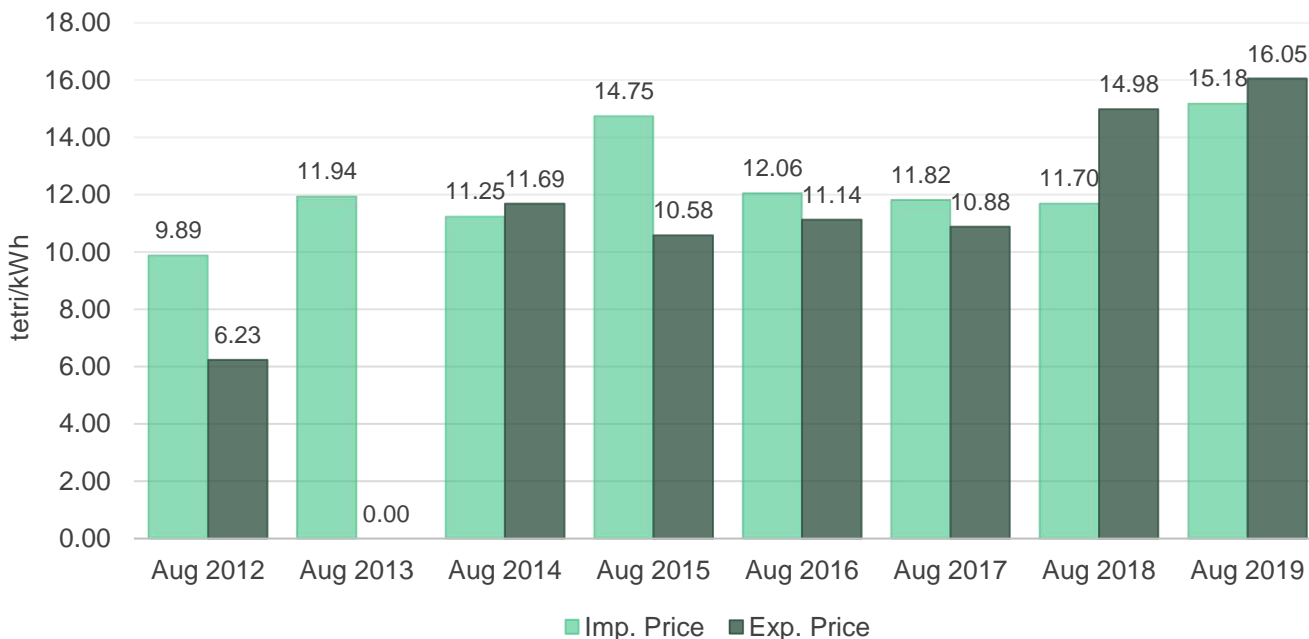
Figure 14 - Cost of Guaranteed Capacity



Source: ESCO

The average electricity import price in August 2019 increased by 29.8%³ (from 4.6 ¢ or 11.7 tetri per kWh to 5.2 ¢ or 15.18 tetri per kWh) compared to August 2018 (Figure 15). The average import price also increased by 1.6% on a monthly basis (Import price was 5.21 ¢ or 14.94 tetri per kWh in July 2019). The average electricity export price in August 2019 increased by 7%⁴ (from 5.9 ¢ or 14.98 tetri per kWh to 5.5 ¢ or 16.05 tetri per kWh) compared to August 2018 (Figure 15). The average export price decreased on a monthly basis, down from 7.09 ¢ or 20.72 tetri per kWh in July 2019.

Figure 15 - Prices Import/Export



Source: ESCO

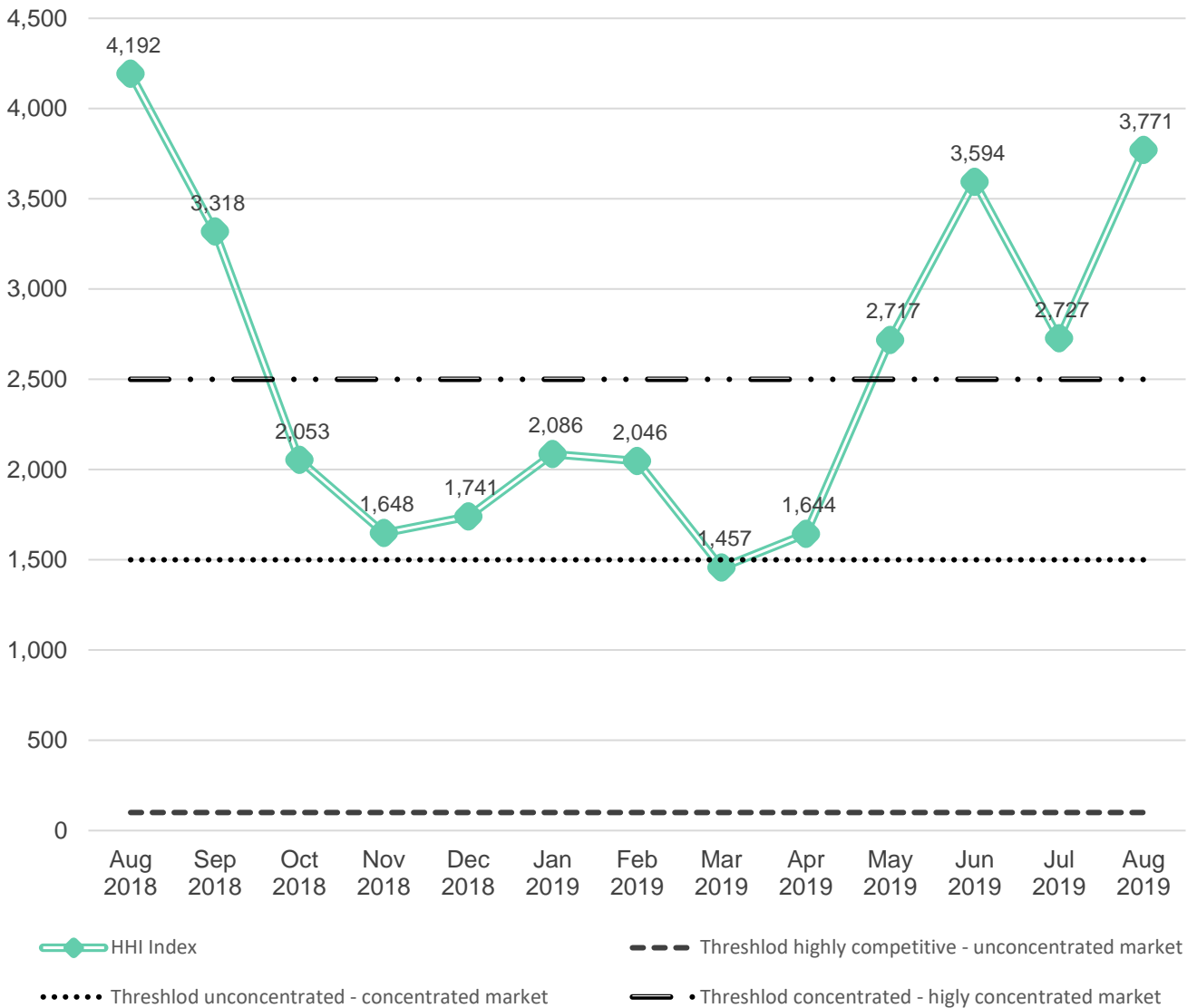
³ Mostly because of large depreciation of Georgian Lari

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 August 2019, the Georgian electricity market remained highly concentrated, with an HHI value of 3,771 (Figure 16). However, the level of concentration is lower compared to the same period of the previous year and much higher than the previous month (with an HHI value of 4,192 in August 2018 and 2,727 July 2019).

Figure 16 - Hirschman-Herfindahl Index for Power Generation



Source: ESCO