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Policy Institute



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ELECTRICITY MARKET REVIEW

ISET POLICY INSTITUTE

ENERGY AND ENVIRONMENT POLICY RESEARCH CENTER

Authors:

Norberto Pignatti
Policy Center Head

 n.pignatti@iset.ge

Mariam Chachava
Researcher

 m.chachava@iset.ge

Mariam Tsulukidze
Research Assistant

 m.tsulukidze@iset.ge

Mariam Lobjanidze
Research Assistant

 m.lobjanidze@iset.ge

INFORMATION

- There was an increase in total electricity generation on a yearly and on a monthly basis, mainly associated with thermal generation, despite a decline in hydro generation.
- Consumption increased, on a yearly basis and on a monthly basis.
- Consumption exceeded the generation by 164 mln. kWh.
- Imported electricity came mainly from Azerbaijan.
- Georgia exported a negligible amount of electricity to Azerbaijan.
- There was a transit from Azerbaijan to Turkey.
- Average price of imports increased, on a yearly and on a monthly basis.
- According to the Hirschmann-Herfindahl Index (HHI) Georgian electricity market was much more concentrated than in December 2018 with an HHI value of 1,968 vs a HHI value of 1,742.

ABBREVIATION USED

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

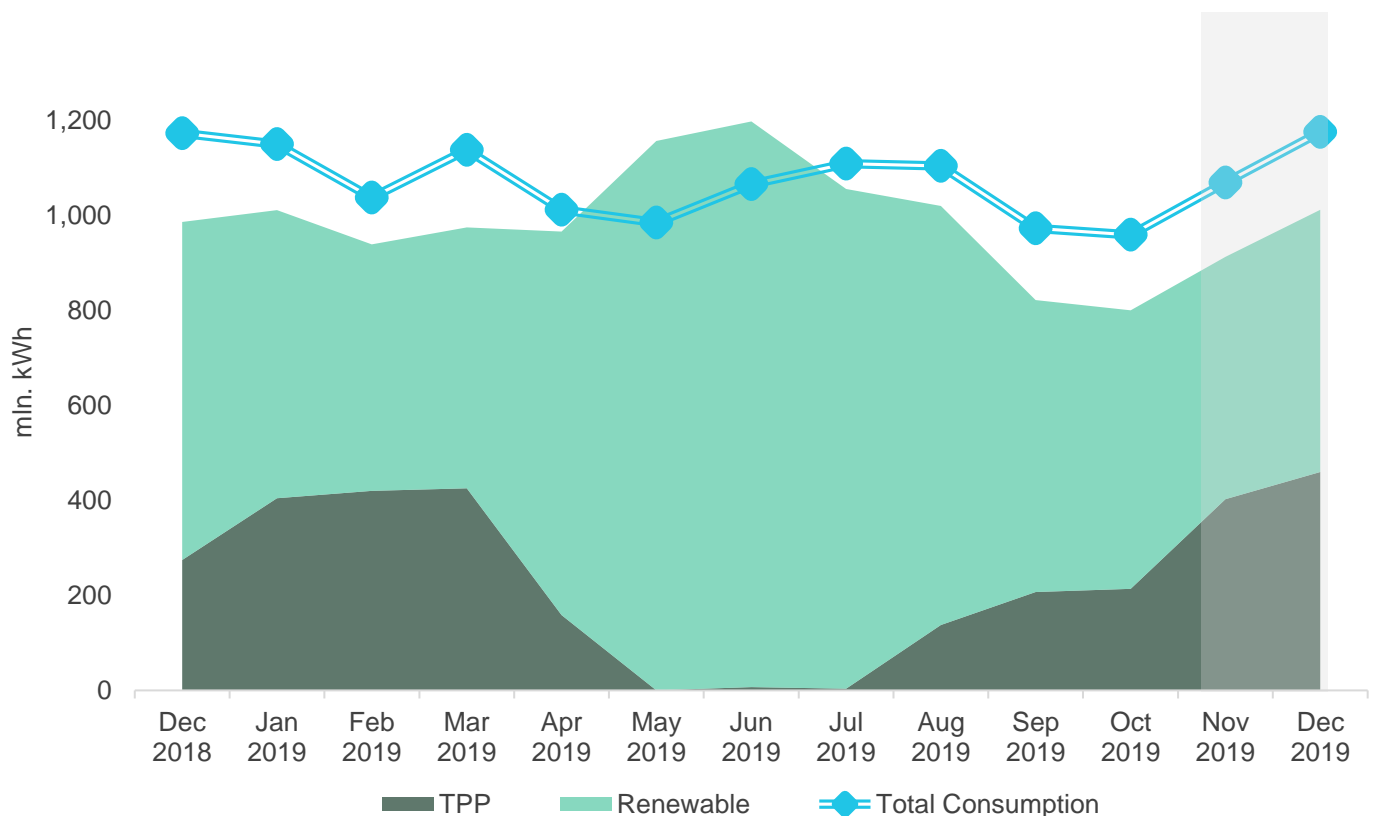
Generation – Consumption – Trade

In December 2019, Georgian power plants generated 1,012 mln. kWh of electricity (Figure 1). This represents a 3% increase in total generation, compared to the previous year (in December 2018, the total generation was 986 mln. kWh). The increase in generation on a yearly basis comes from the increase of 67% in thermal and 5% in wind power generation, more than offsetting the decrease in hydro power generation (-23%).

On a monthly basis, generation increased by 11% (in November 2019, total generation was 913 mln. kWh). The monthly increase in total generation was the result of an increase in electricity produced by thermal power plants (+14% with respect to November 2019) and hydro power plants (+8% with respect to November 2019) more than offsetting the decrease in wind power generation (-13% compared to November 2019).

The consumption of electricity on the local market was 1,175 mln. kWh (+0.2% and +10% compared to December 2018, and November 2019, respectively) (Figure 1). In December 2019, the total consumption exceeded the total generation by 164 mln. kWh which is around 16% of total generation (in contrast in December 2018 difference between total generation and consumption resulted in a deficit of 186 mln. kWh which was around 19% of the total generation for the month).

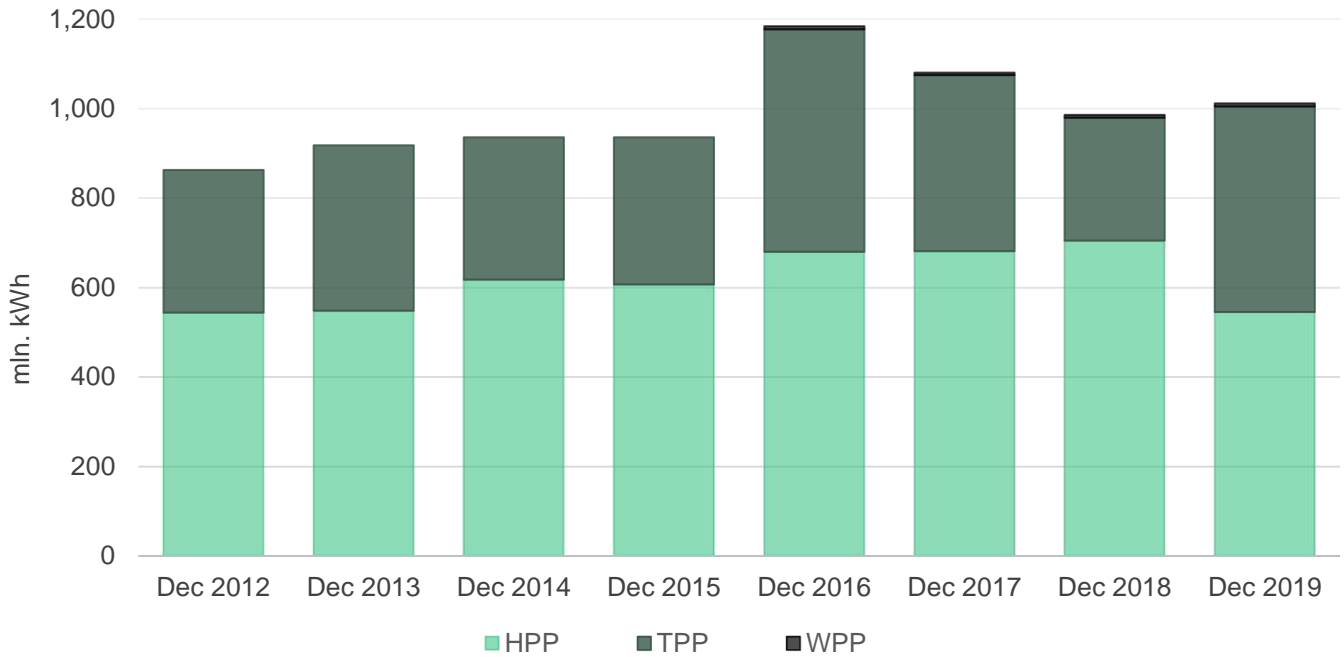
Figure 1 - Electricity Consumption and Generation



Source: Electricity System Commercial Operator (ESCO)

As usual, most generation came from hydropower plants (HPPs). In December 2019, hydropower (HPP) generation amounted to 545 mln. kWh (54% of total); wind power (WPP) generation was 7 mln. kWh (1% of total), and thermal power (TPP) generation was 460 mln. kWh (45% of total) (Figure 2).

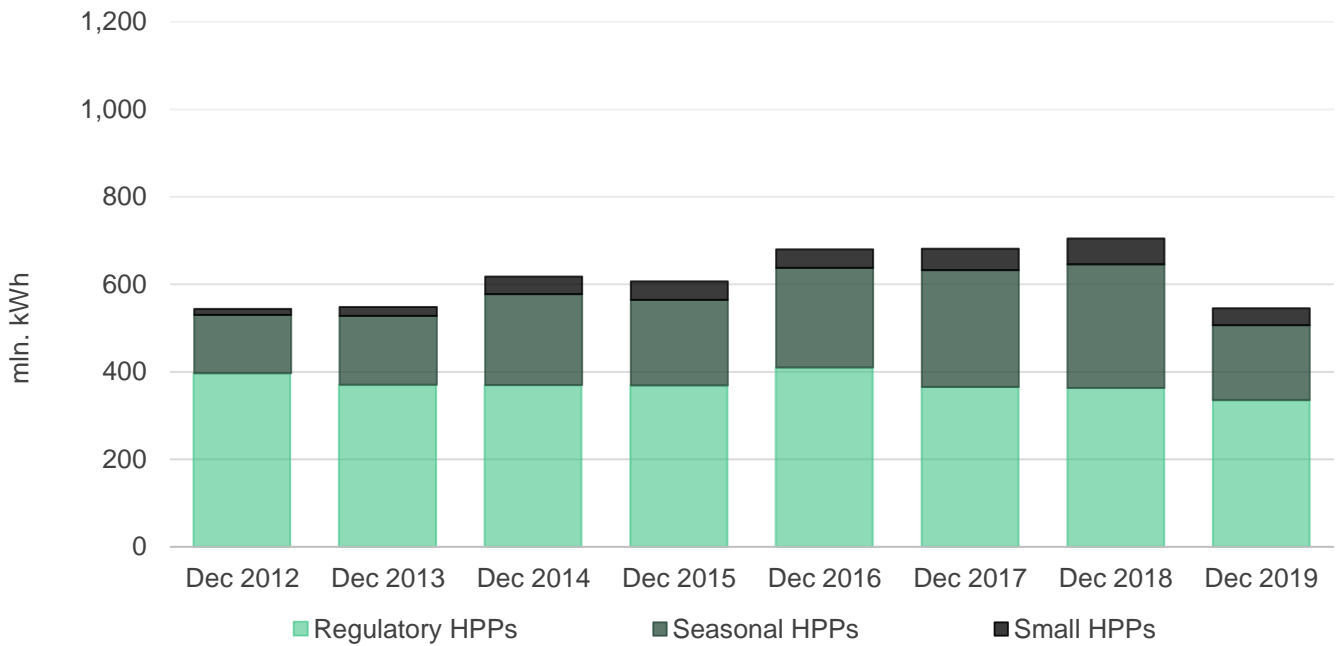
Figure 2 - Electricity Generation by Sources



Source: ESCO

Among hydropower generators, large (regulatory) HPPs produced 62% (336 mln. kWh) of electricity, while seasonal and small HPPs produced 31% (171 mln. kWh) and 7% (39 mln. kWh), respectively (Figure 3).

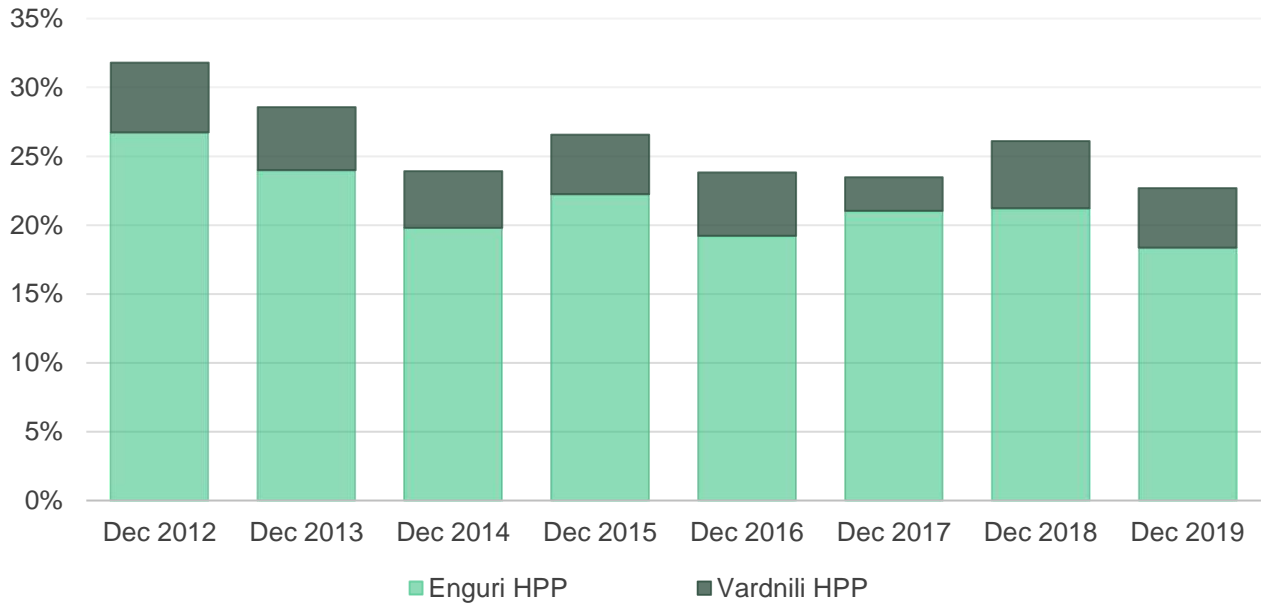
Figure 3 - HPP Generation by Type



Source: ESCO

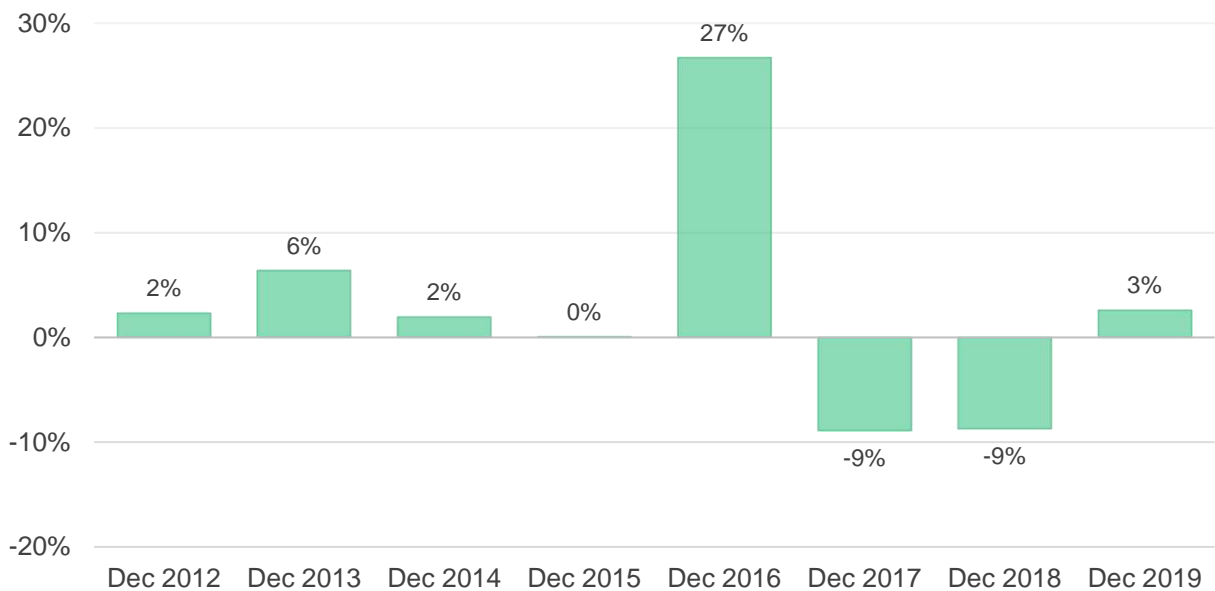
Among the large HPPs, Enguri and Vardnili generated the largest power, producing 230 mln. kWh (68% of generation for regulatory HPPs), with 186 mln. kWh and 44 mln. kWh, respectively. They represent around 23% of the total generation (Figure 4).

Figure 4 - Share of Enguri and Vardnili in Total Generation



Source: ESCO

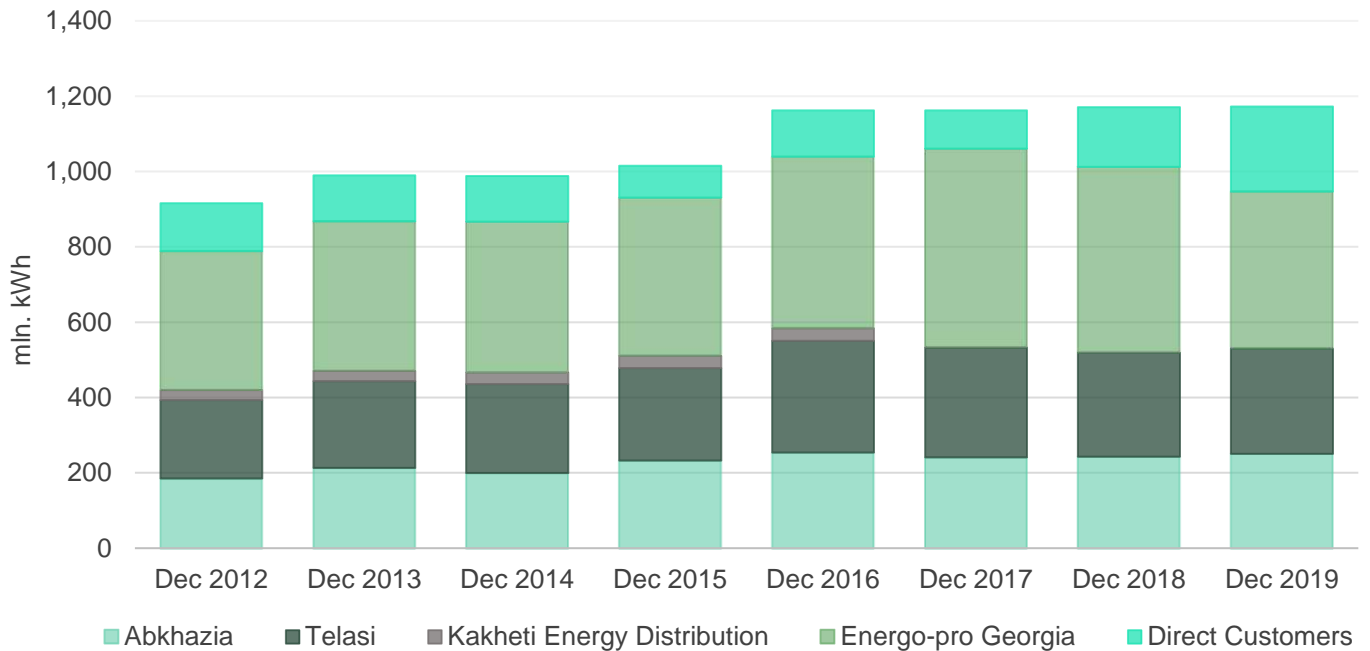
Figure 5 - Growth of Generation (% , y/y)



Source: ESCO

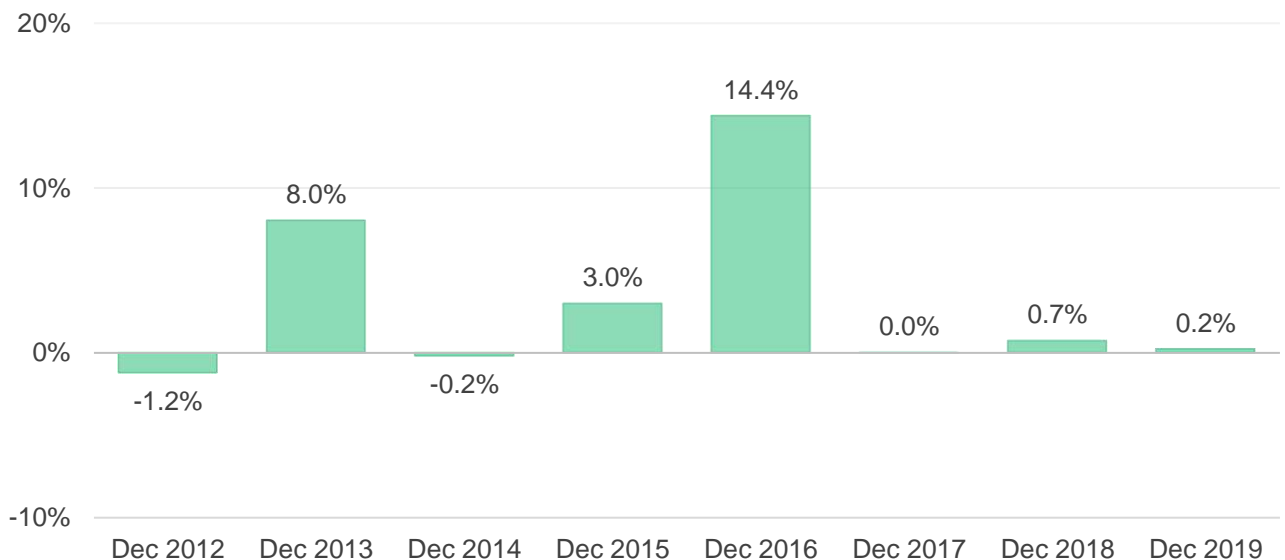
Total electricity demand came from: Energo-Pro Georgia¹ (35% - 416 mln. kWh), Telasi (24% - 279 mln. kWh), Abkhazia (21% - 251 mln. kWh), and direct customers (19% - 227 mln. kWh) (Figure 6). Overall, there was an annual increase of 0.2% in the total electricity consumption in December 2019, compared to December 2018 (Figure 7). Annual demand from Telasi, Abkhazia and direct consumers increased by 1%, 3% and 42% respectively, more than offsetting the decrease of 16% from Energo-Pro Georgia.²

Figure 6 - Electricity Consumption by Type of Customer



Source: ESCO

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



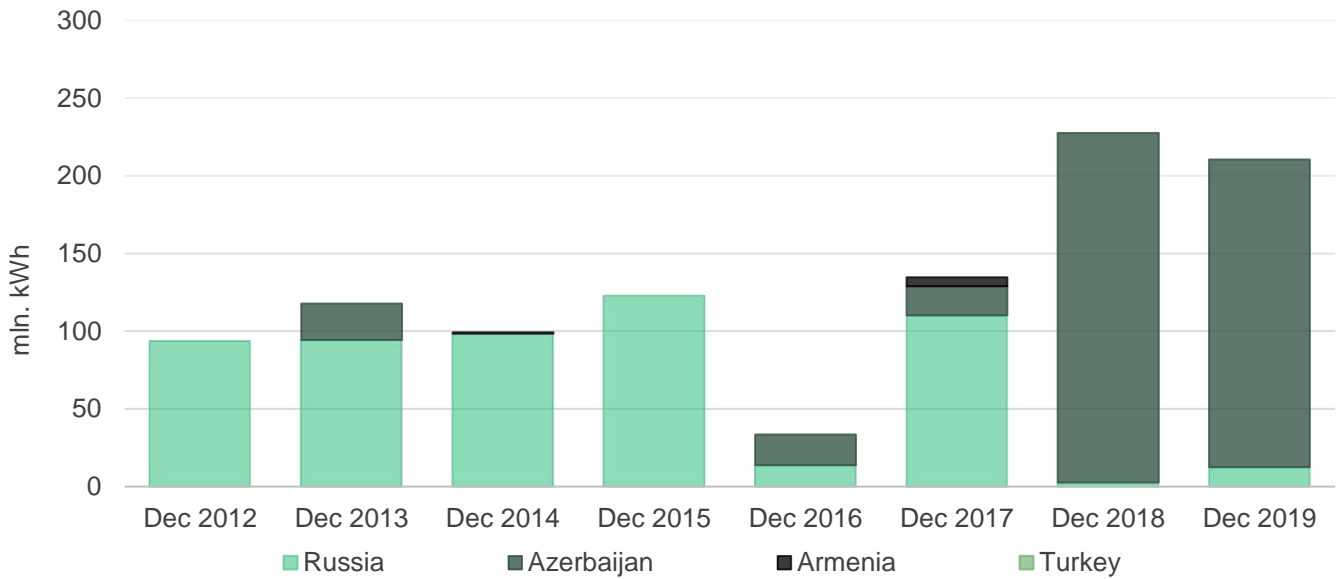
Source: ESCO

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.

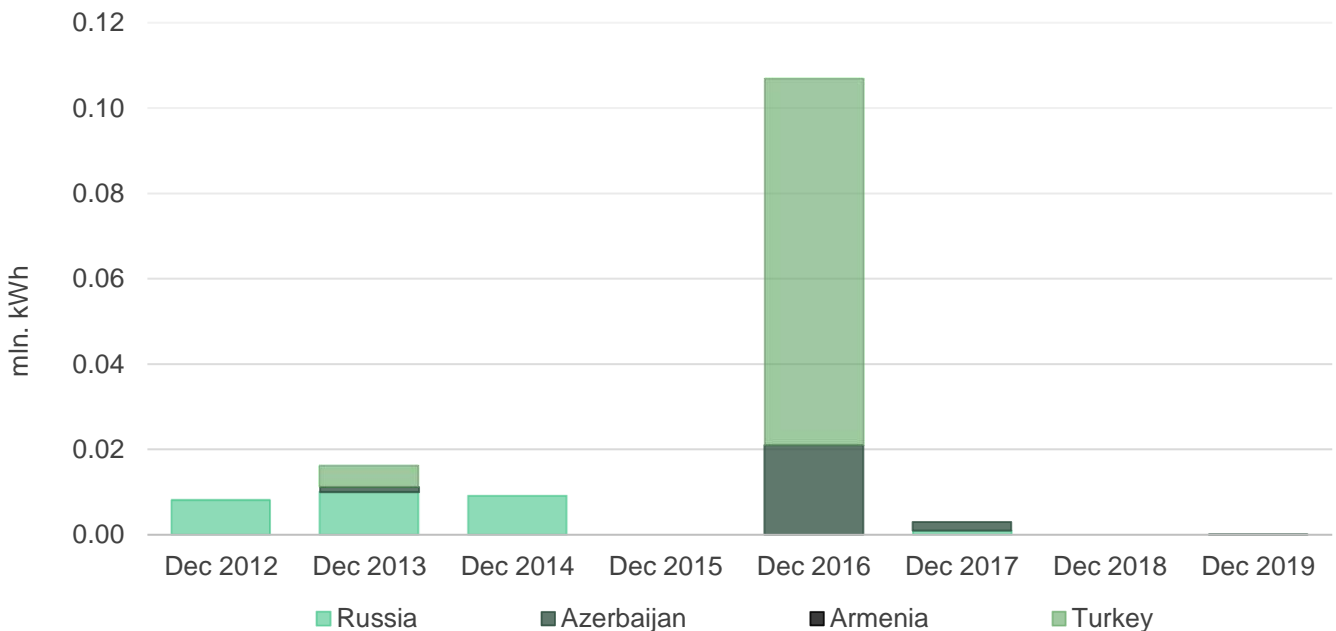
In December 2019, Georgia imported 211 mln. kWh of electricity (-8% compared to December 2018) 94% of which came from Azerbaijan, while the remaining 6% was provided by Russia (Figure 8). In December 2019, Georgia exported 0.0001 mln. kWh electricity to Azerbaijan (compared to no exports in December 2018) (Figure 9).

Figure 8 - Imports by Year



Source: ESCO

Figure 9 - Exports by Year

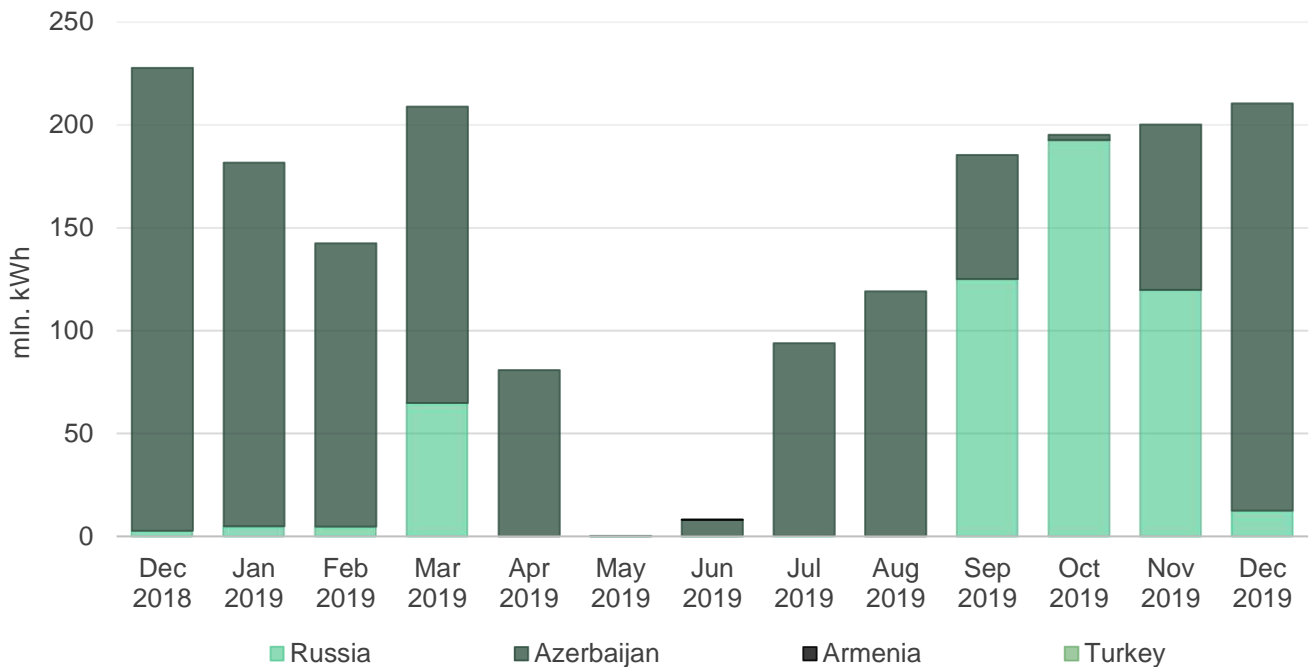


Source: ESCO

In December 2019, electricity imports increased by 5% from 200 to 211 mln. kWh compared to the previous month (Figure 10). As for the exports, it decreased from 0.058 to 0.0001 mln. kWh (Figure 11). As mentioned above, in this month the main export partner country was Azerbaijan.

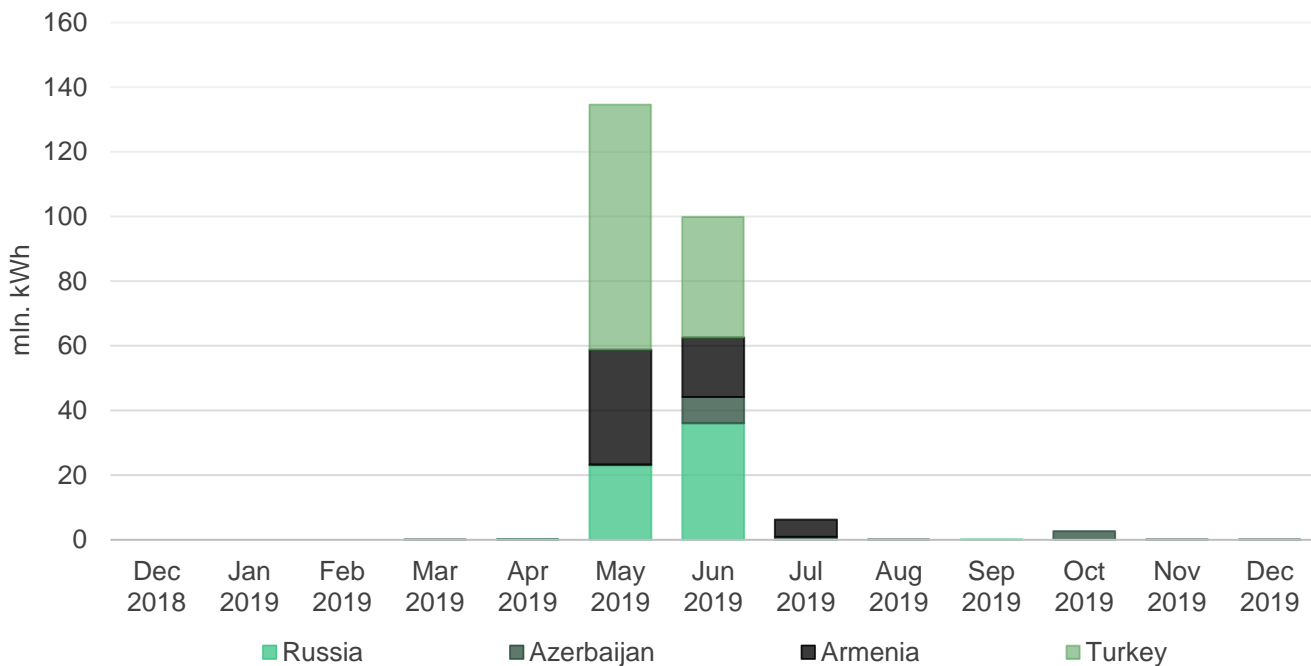
This month 19 mln. kWh electricity was transited from Azerbaijan to Turkey.

Figure 10 - Imports by Month



Source: ESCO

Figure 11 - Exports by Month

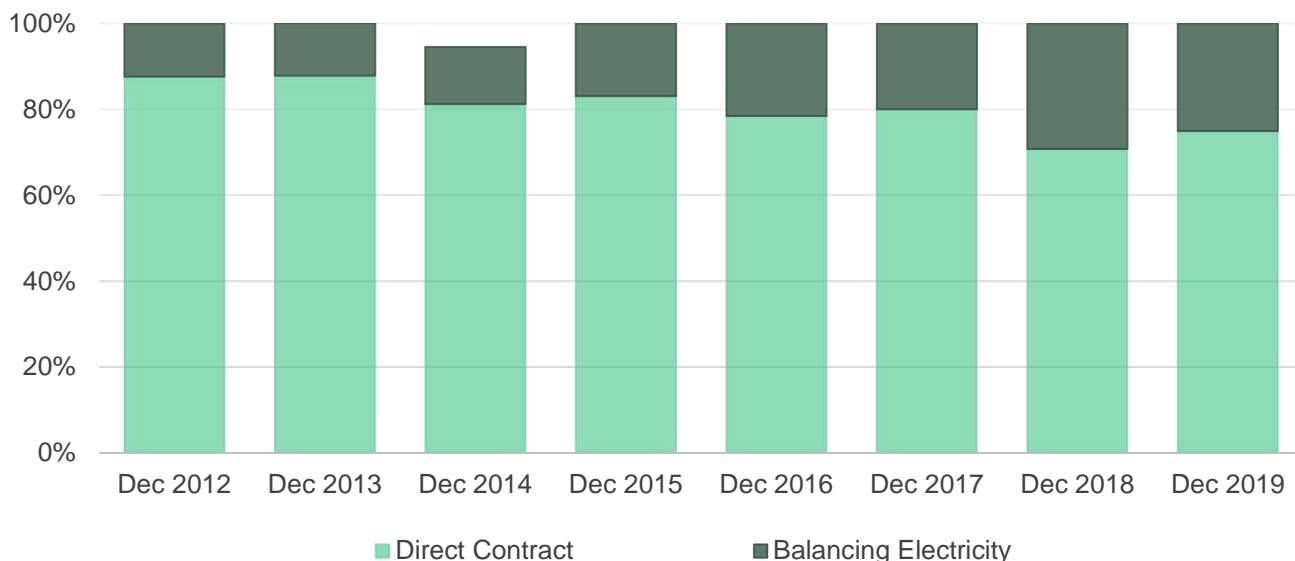


Source: ESCO

1. Market Operations

In December 2019, 75% of the electricity sold on/from the local market was sold through direct contracts. The remaining 25% was sold as balancing electricity (Figure 12).

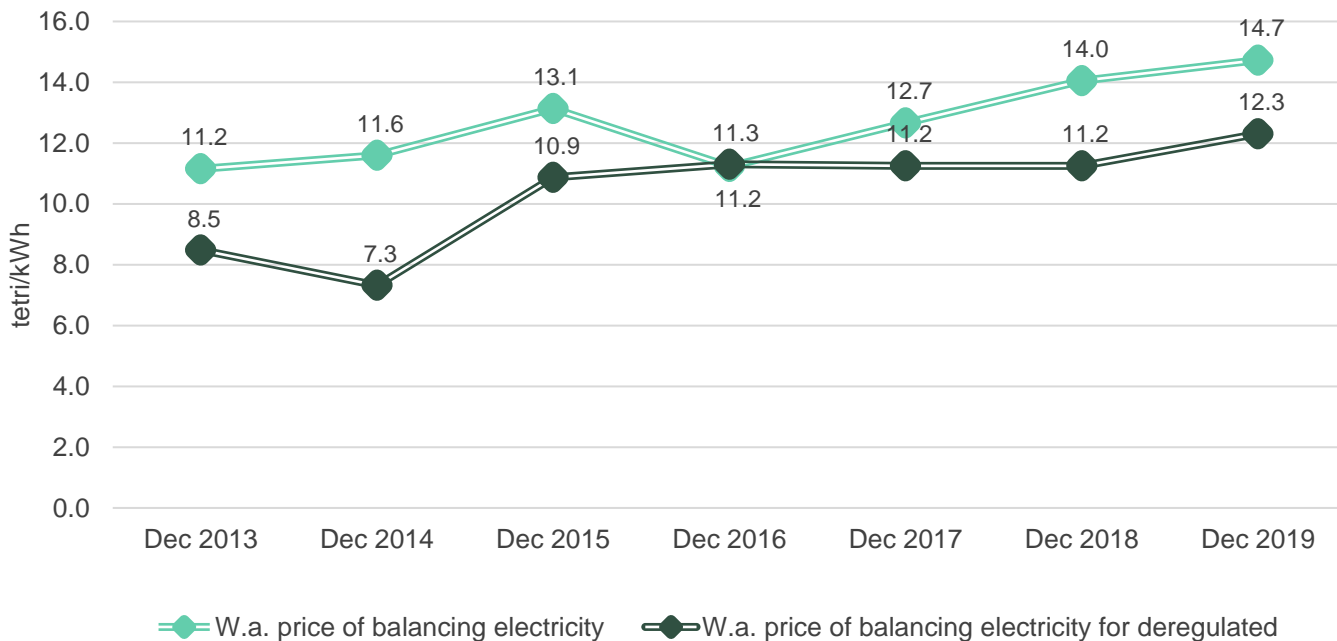
Figure 12 - Electricity Purchased / Sold Shares of Direct Contracts and Balancing Electricity



Source: ESCO

In December 2019, the weighted average price of balancing electricity was 14.7 tetri/kWh in, which is an annual increase of 5% compared to December 2018. As for the weighted average price for deregulated (small) HPPs, it was 12.3 tetri/kWh, increased by 9% compared to the corresponding month of the previous year (Figure 13).

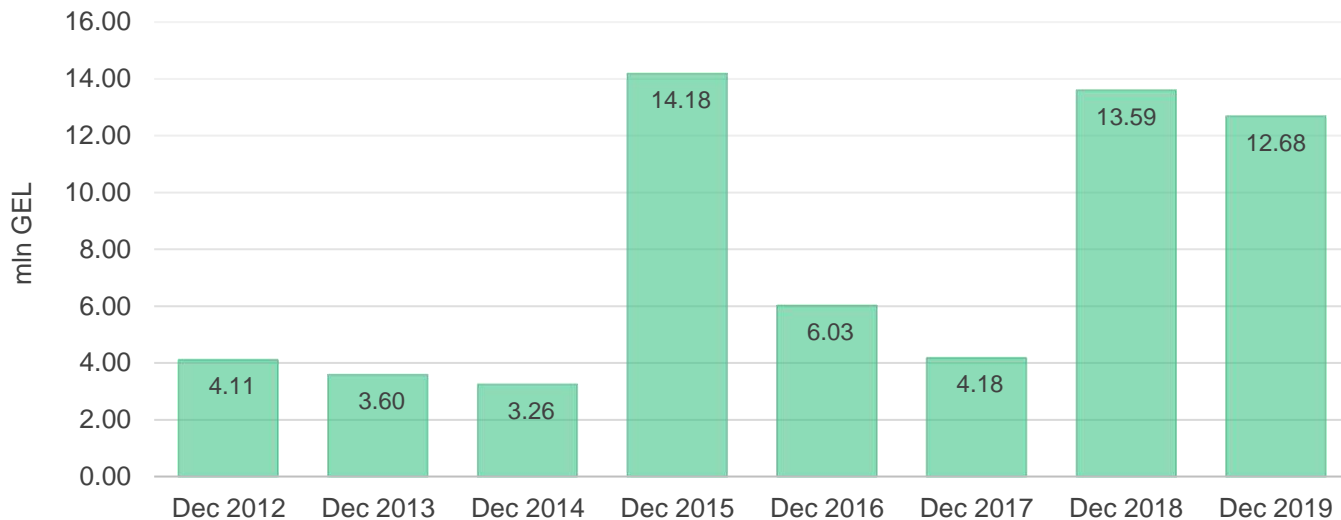
Figure 13 - Balancing Electricity Prices Weighted Average and Weighted Average Price for Deregulated HPPs



Source: ESCO

Guaranteed capacity payments in December 2019 were roughly 12.68 mln. GEL, which represents a 7% decrease compared to December 2018 (Figure 14).

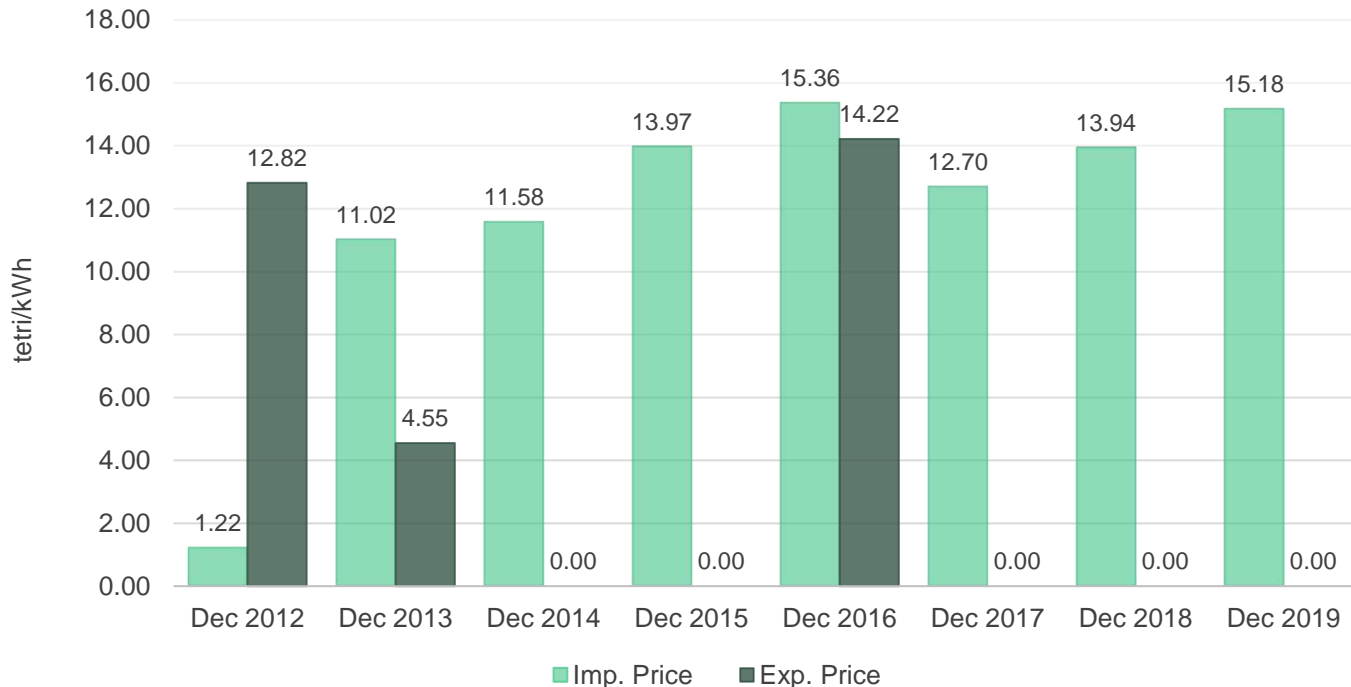
Figure 14 - Cost of Guaranteed Capacity



Source: ESCO

The average electricity import price in December 2019 increased by 9%³ (from 5.22 ¢ or 13.94 to 5.22 ¢ or 15.18 tetri per kWh) compared to December 2018 (Figure 15). The average import price increased by 2% on a monthly basis (import price was 5.02 ¢ or 14.90 tetri per kWh in November 2019).

Figure 15 - Prices Import/Export



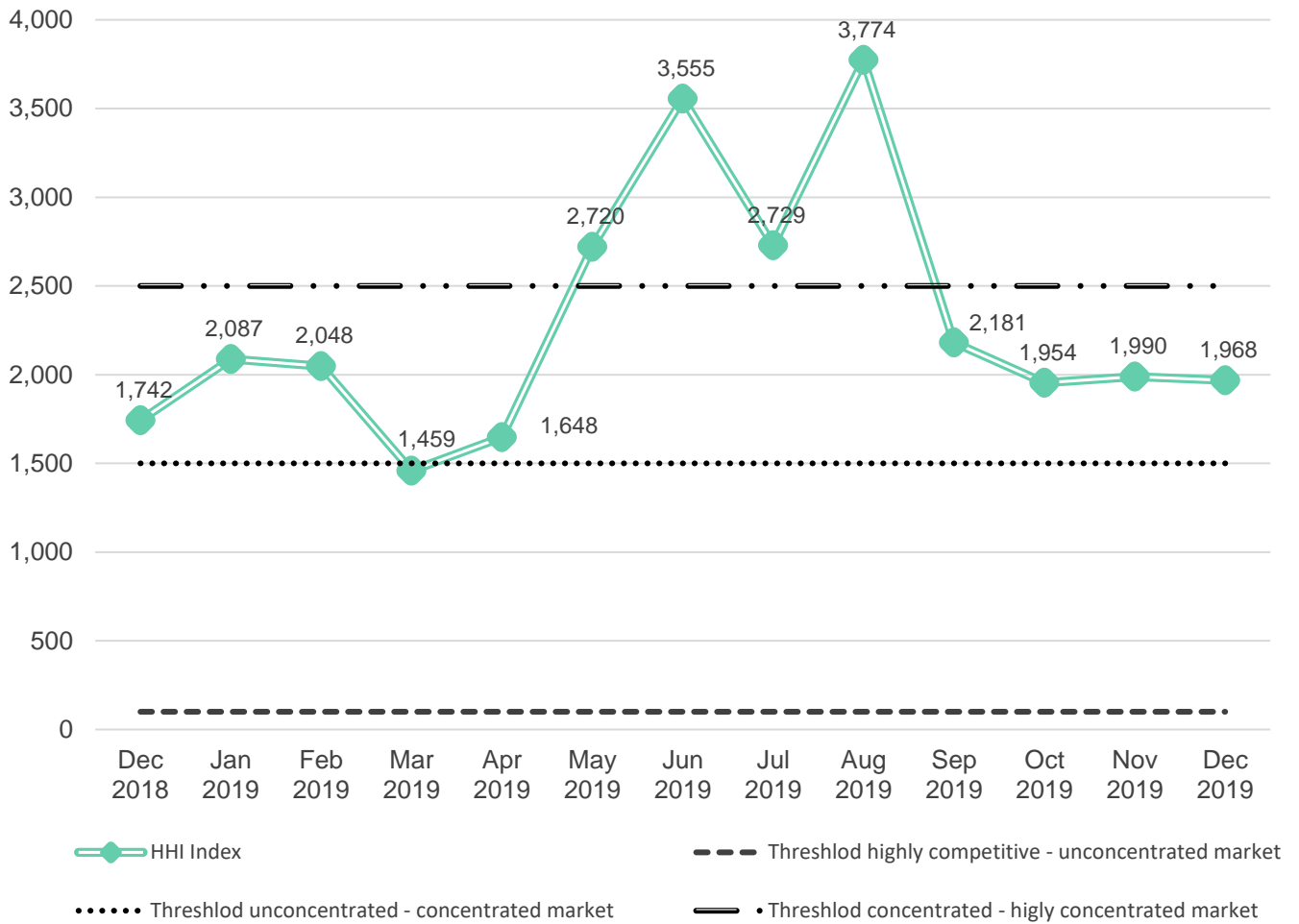
Source: ESCO

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 segment of the market has been over the year. In December 2019, the Georgian electricity market was concentrated, with an HHI value of 1,968 (Figure 16), similarly (with minor differences) to December 2018 (when the HHI was smaller) and November 2019 (when the HHI was marginally higher).

Figure 16 - Hirschman-Herfindahl Index for Power Generation



Source: ESCO