

# 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

- There was an increase in total electricity generation on a yearly basis, mainly associated with thermal generation - and a decrease on a monthly basis.
- Consumption decreased on a yearly and on a monthly basis.
- Consumption exceeded the generation by 159 mln. kWh.
- Imported electricity came mainly from Russia.
- Georgia exported electricity to Azerbaijan.
- Average price of imports increased, and average price of exports declined, on a yearly basis.
- According to the Hirschmann-Herfindahl Index (HHI) Georgian electricity market was concentrated with an HHI value of 1954.

### ABBREVIATION USED

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

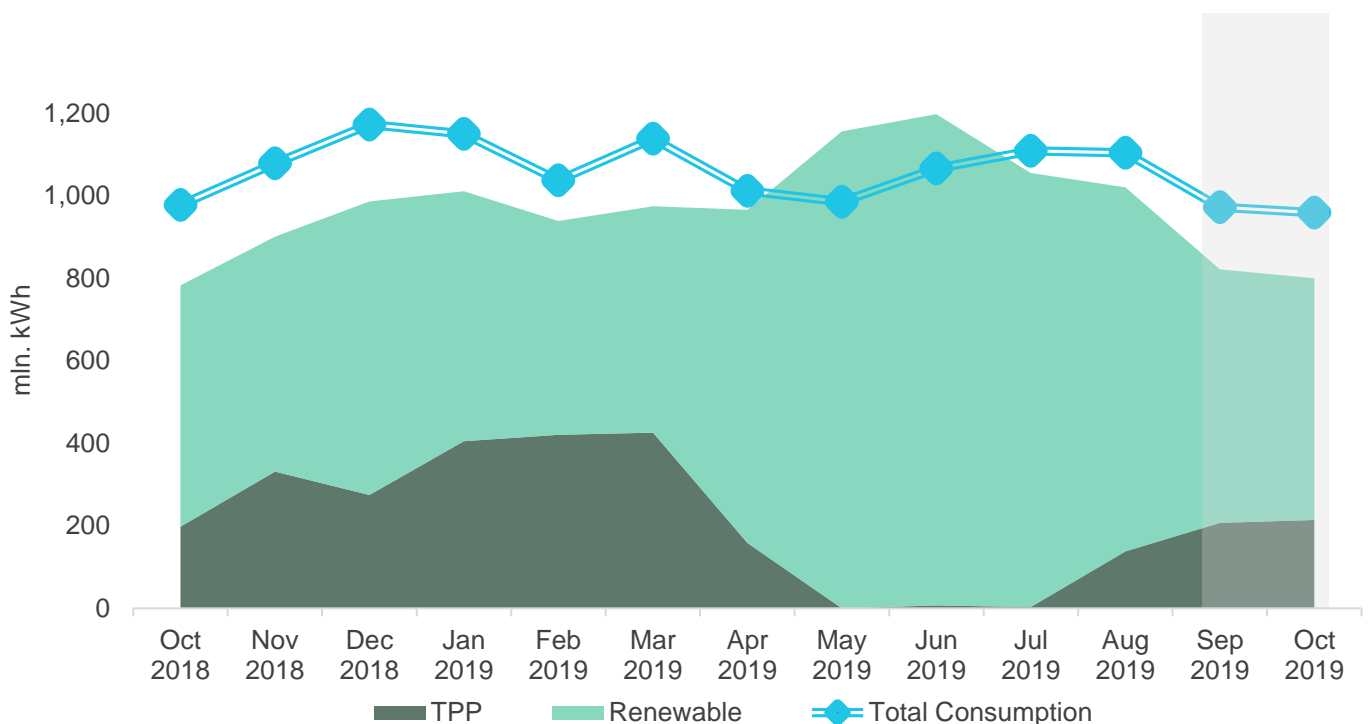
## 1. Generation – Consumption – Trade

In October 2019, Georgian power plants generated 800 mln. kWh of electricity (Figure 1). This represents a 2% increase in total generation, compared to the previous year (in October 2018, the total generation was 783 mln. kWh). The increase in generation on a yearly basis comes from the increase of 8% in thermal and 0.4% in hydro power generation, more than offsetting the decrease in wind power generation (-19%).

On a monthly basis, generation decreased by 3% (in September 2019, total generation was 821 mln. kWh). The monthly decrease in total generation was the result of a decrease in electricity produced by wind power plants (-20% with respect to September 2019) and hydropower plants (-4% with respect to September 2019) more than offsetting the increase in thermal power generations (+3% compared to September 2019).

The consumption of electricity on the local market was 959 mln. kWh (-2% and -1% compared to October 2018, and September 2019, respectively) (Figure 1). In October 2019, the total consumption exceeded the total generation by 159 mln kWh which is around 20% of total generation (in contrast in October 2018 difference between total generation and consumption resulted in a deficit of 195 mln.kWh which was around 25% of the total generation for the month).

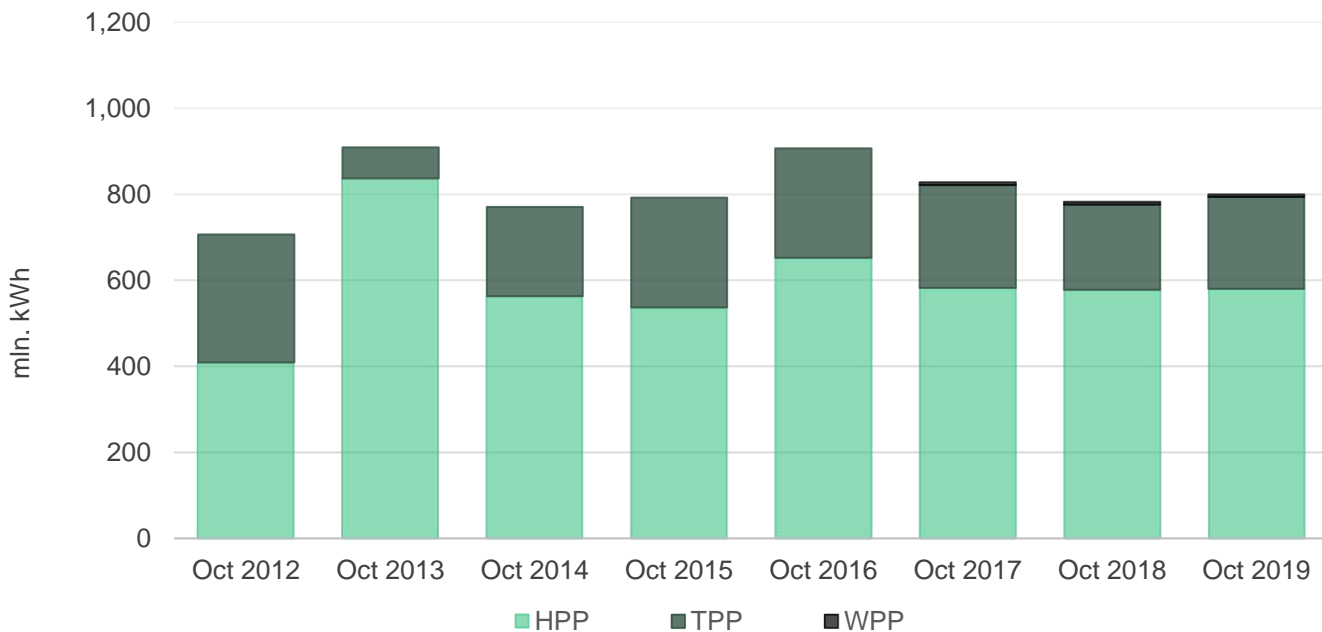
**Figure 1** - Electricity Consumption and Generation



Source: Electricity System Commercial Operator (ESCO)

As usual, most generation came from hydropower plants (HPPs). In October 2019, hydropower (HPP) generation amounted to 580 mln. kWh (73% of total); wind power (WPP) generation was 6 mln. kWh (1% of total), and thermal power (TPP) generation was 214 mln. kWh (27% of total) (Figure 2).

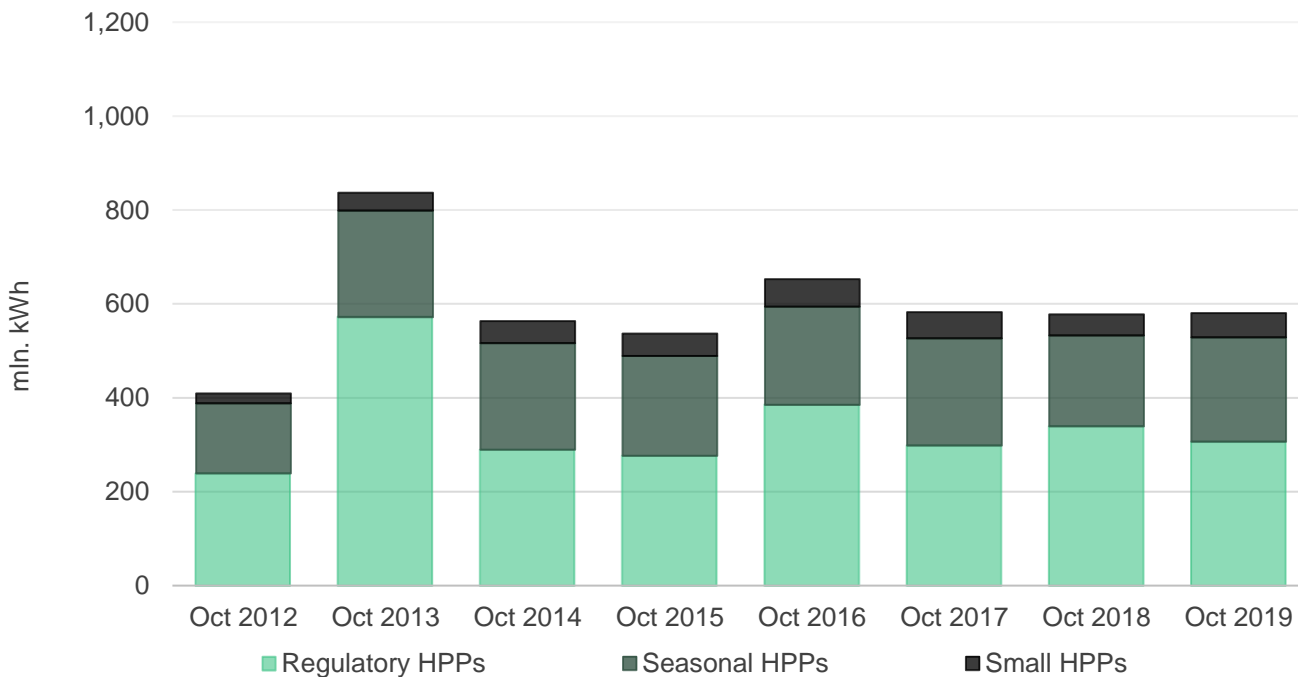
**Figure 2 - Electricity Generation by Sources**



Source: ESCO

Among hydropower generators, large (regulatory) HPPs produced 53% (307 mln. kWh) of electricity, while seasonal and small HPPs produced 38% (222 mln. kWh) and 9% (52 mln. kWh), respectively (Figure 3).

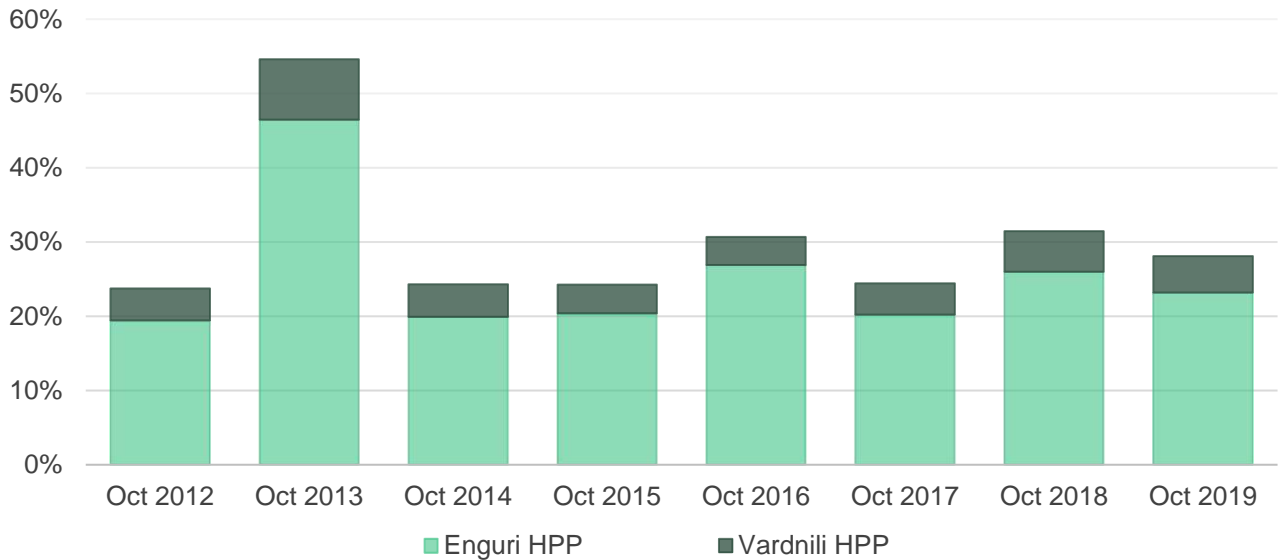
**Figure 3 - HPP Generation by Type**



Source: ESCO

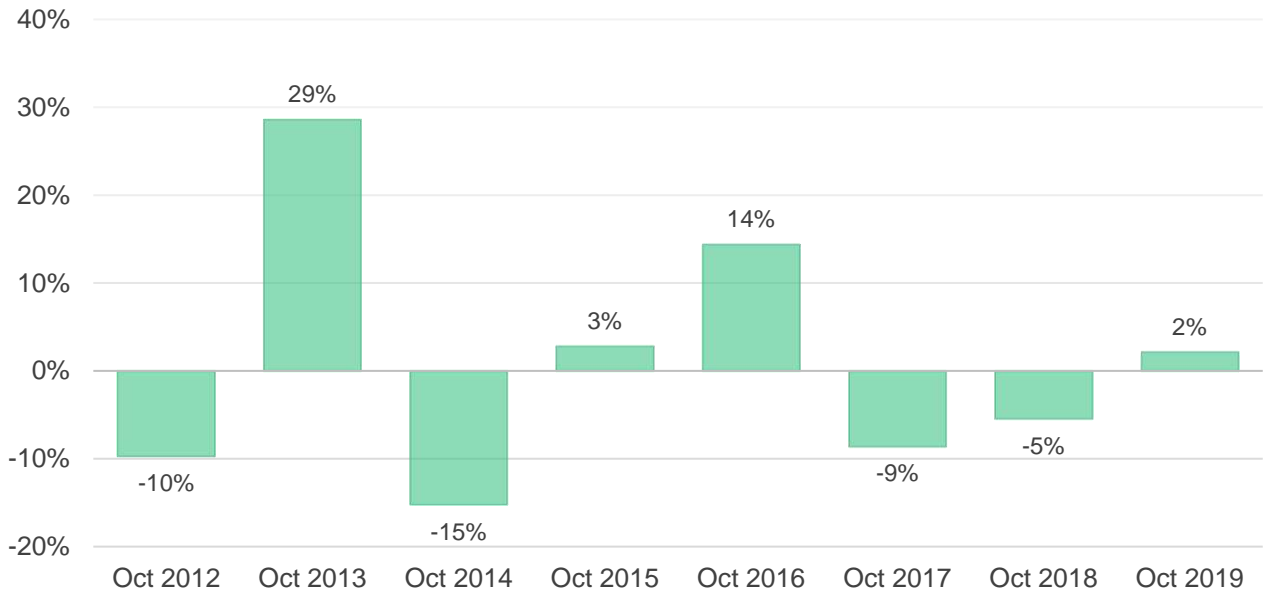
Among the large HPPs, Enguri and Vardnili generated the largest power, producing 225 mln. kWh (73% of generation for regulatory HPPs), with 185 mln. kWh and 39 mln. kWh, respectively. They represent around 28% of the total generation (Figure 4).

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



Source: ESCO

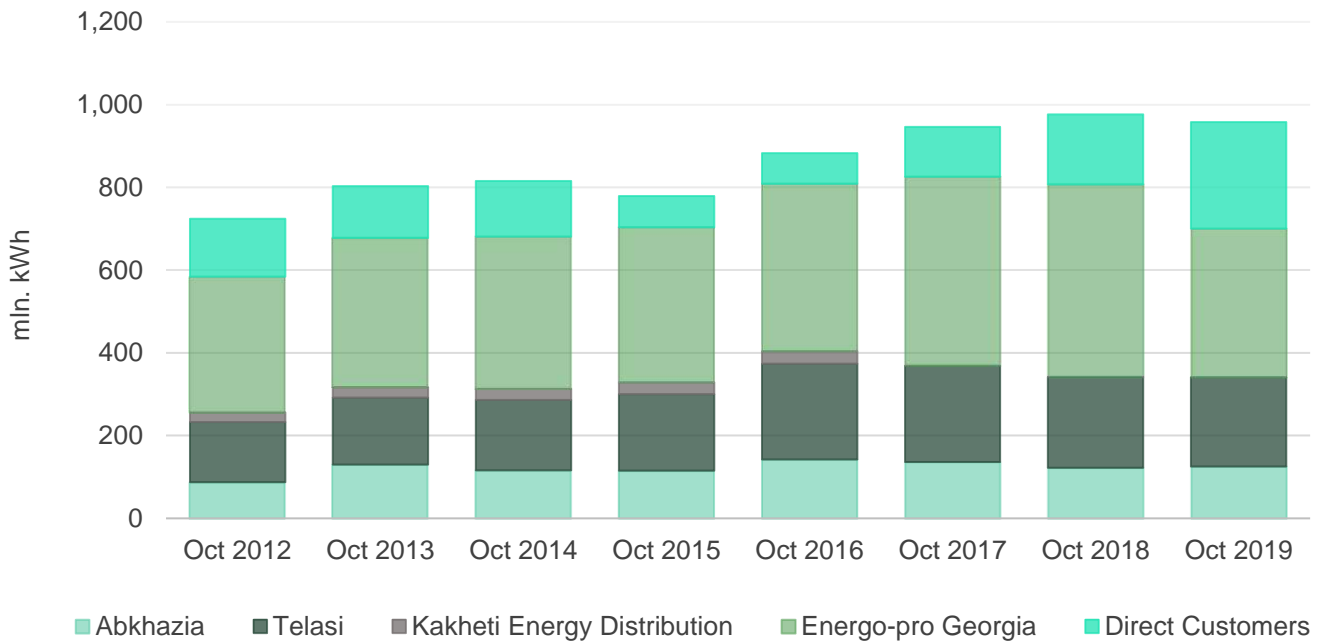
**Figure 5** - Growth of Generation (% y/y)



Source: ESCO

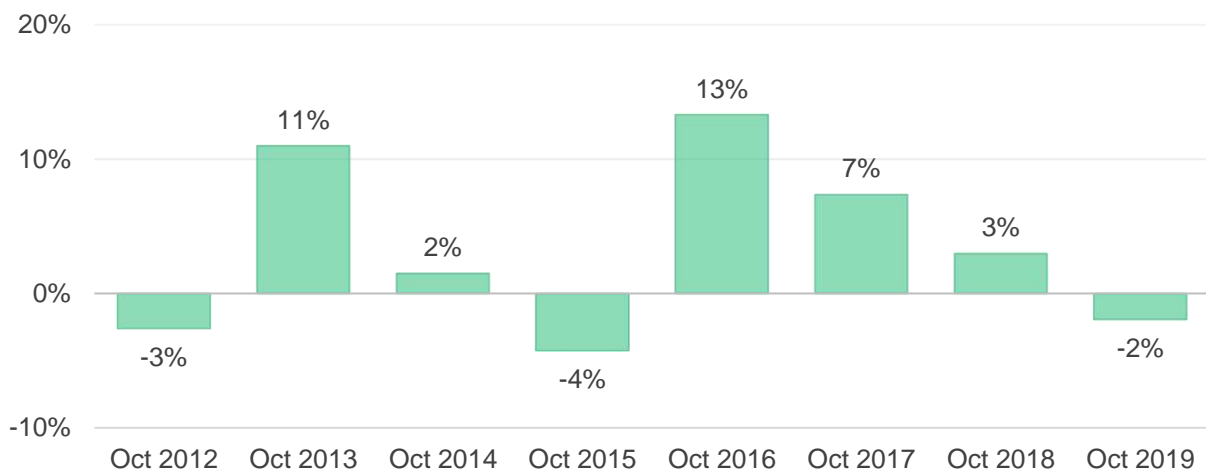
Total electricity demand came from: Energo-Pro Georgia<sup>1</sup> (38% - 360 mln. kWh), Telasi (22% - 215 mln. kWh), Abkhazia (13% - 126 mln. kWh), and direct customers (27% - 257 mln. kWh) (Figure 6). Overall, there was an annual decrease of 2% in the total electricity consumption in October 2019, compared to October 2018 (Figure 7). Annual demand from Telasi and Energo-Pro Georgia decreased by 2% and 23% respectively, more than offsetting the increase from Abkhazia and direct consumers (+3% and +52% respectively).<sup>2</sup>

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



Source: ESCO

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



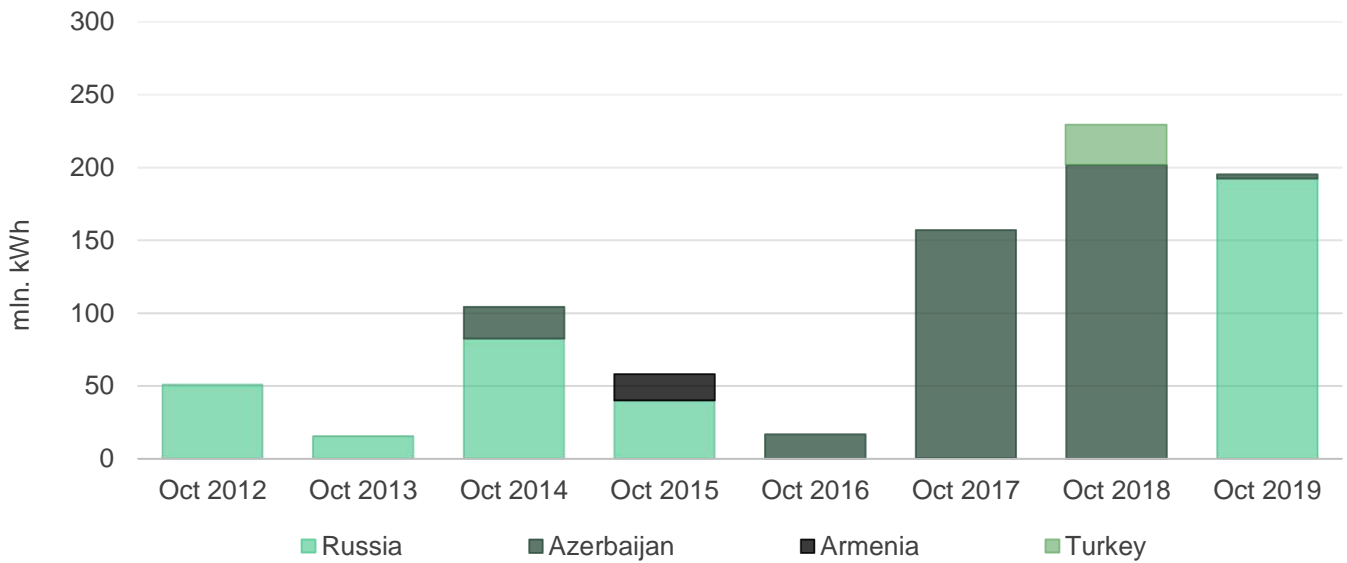
Source: ESCO

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

<sup>2</sup> 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.

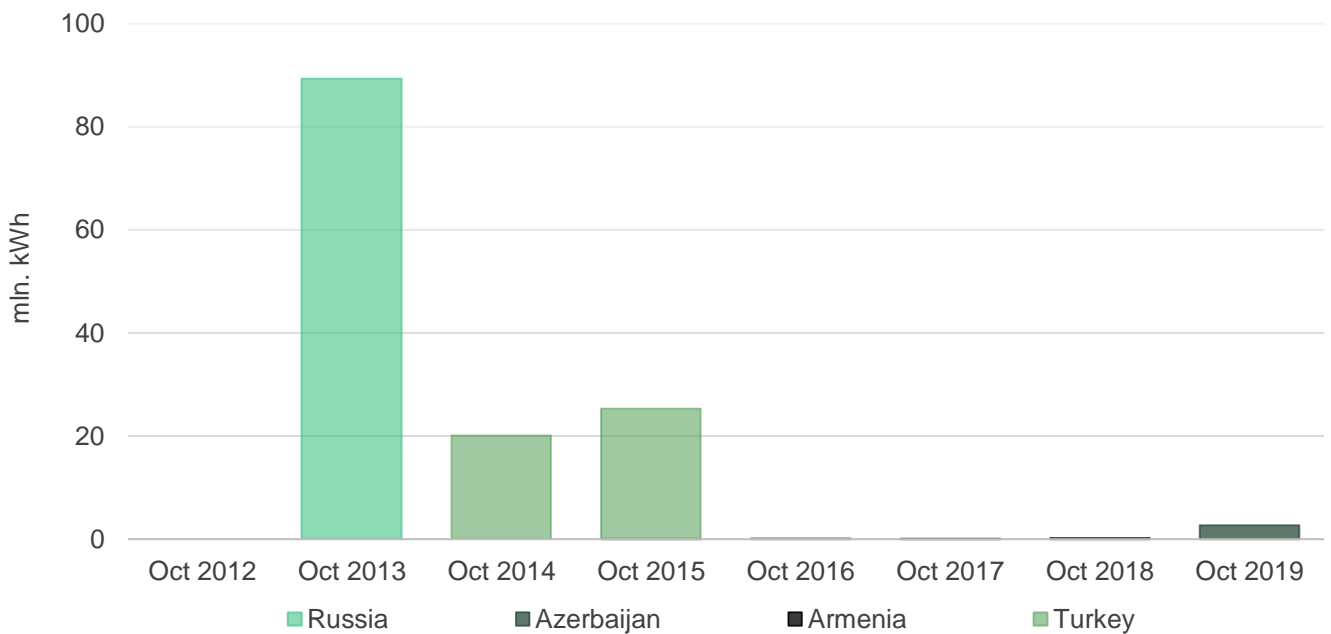
In October 2019, Georgia imported 195 mln. kWh of electricity (-15% compared to October 2018) 99% of which came from Russia, while the remaining 1% was provided by Azerbaijan (Figure 8). In October 2019, Georgia exported 3 mln. kWh electricity to Azerbaijan (increased more than 10 times compared to October 2018) (Figure 9).

**Figure 8** - Imports by Year



Source: ESCO

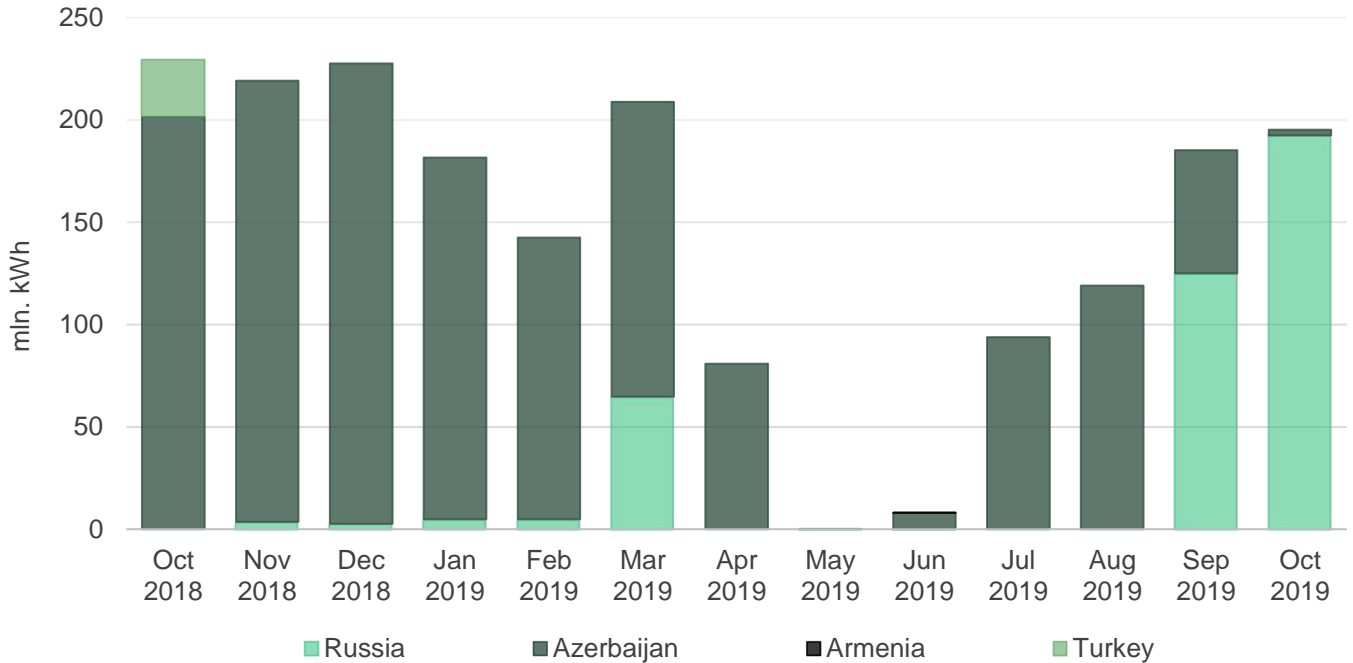
**Figure 9** - Exports by Year



Source: ESCO

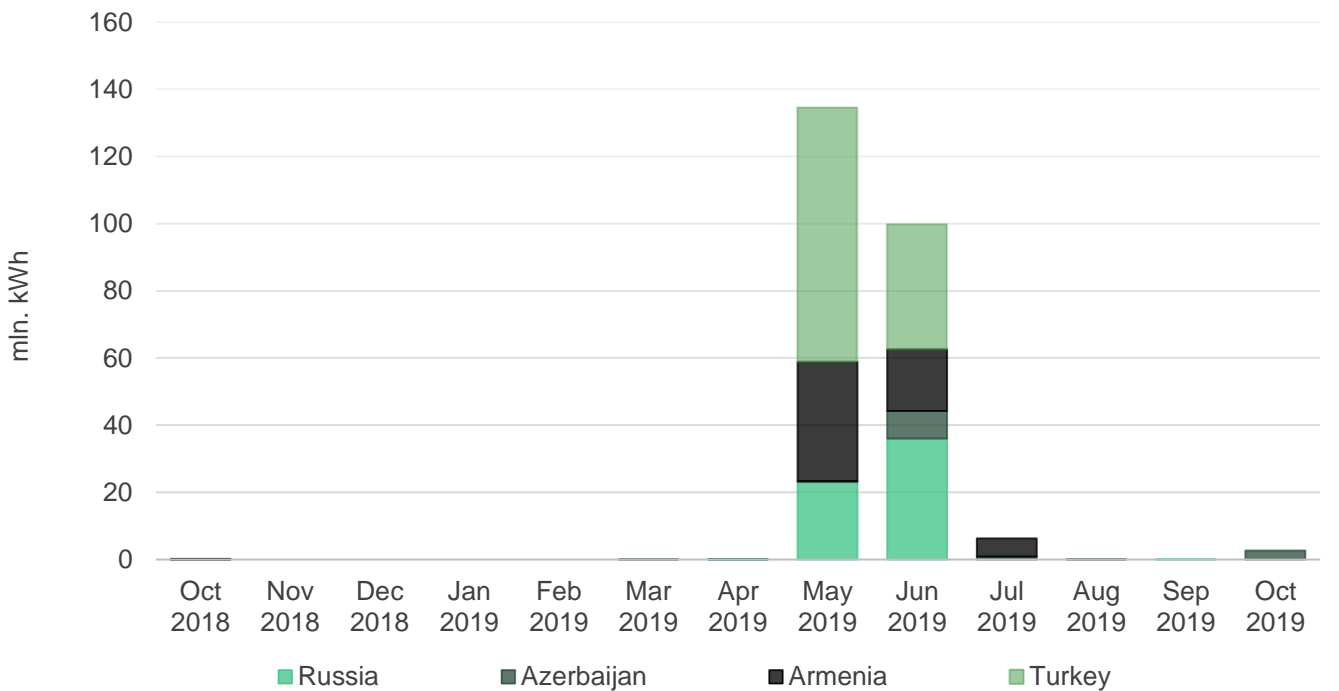
In October 2019, electricity imports increased by 5% from 185 to 195 mln. kWh compared to the previous month (Figure 10). As for the exports, it increased from 0.001 to 2.715 mln. kWh (Figure 11). As mentioned above, in this month the main export partner country was Azerbaijan.

**Figure 10** - Imports by Month



Source: ESCO

**Figure 11** - Exports by Month



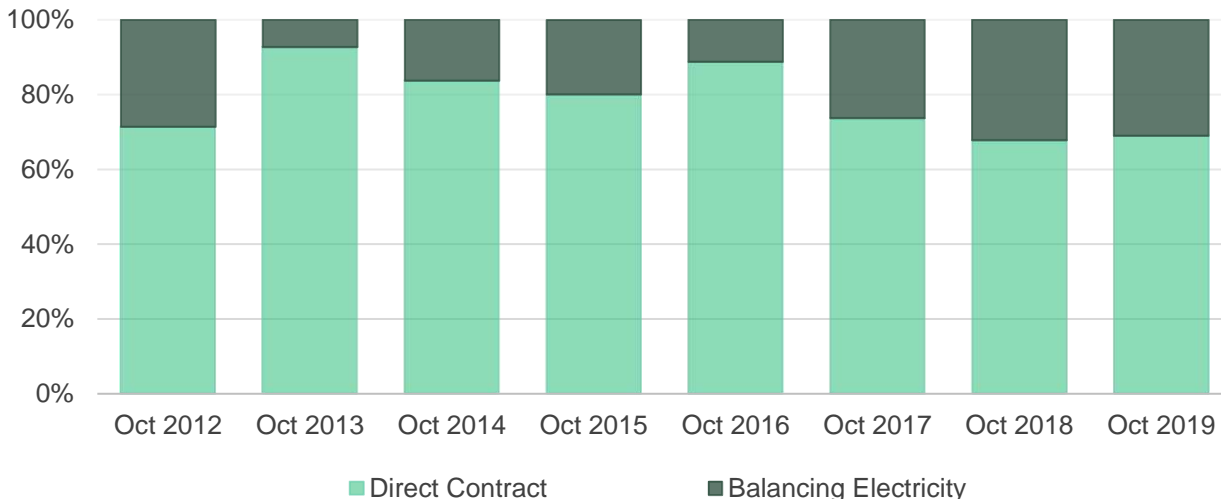
Source: ESCO



## 2. Market Operations

In October 2019, 69% of the electricity sold on/from the local market was sold through direct contracts. The remaining 31% was sold as balancing electricity (Figure 12).

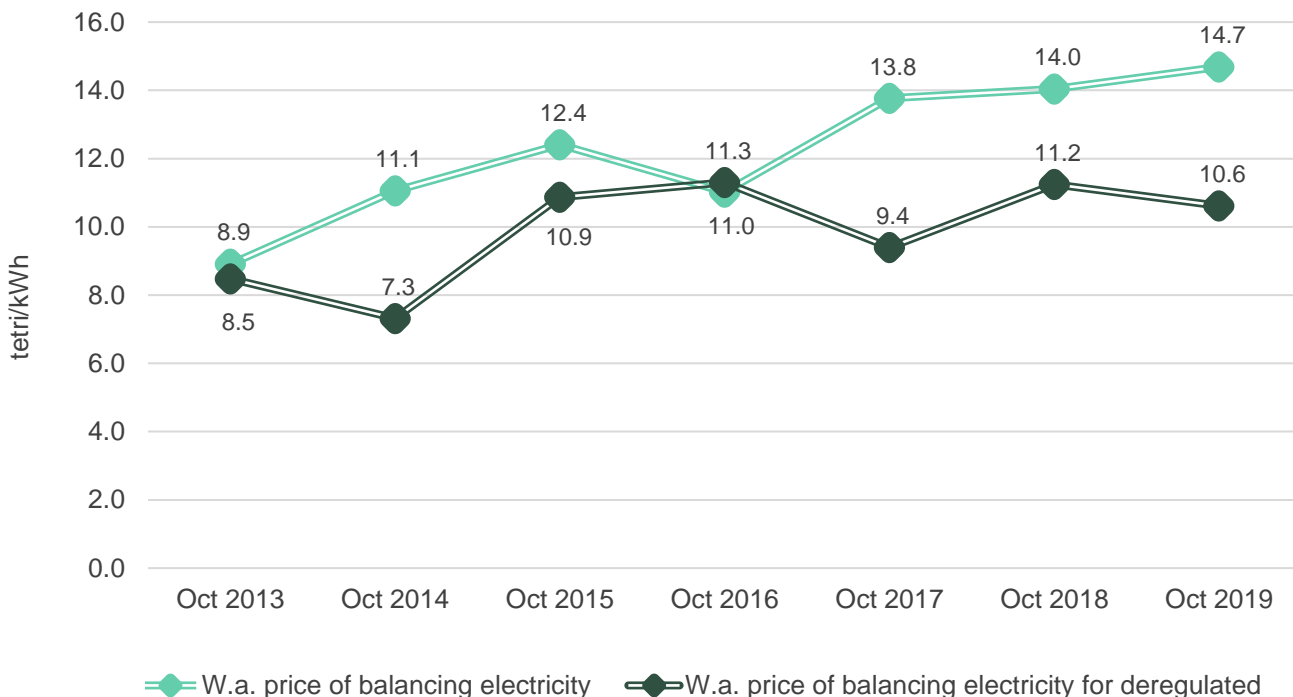
**Figure 12** - Electricity Purchased / Sold Shares of Direct Contracts and Balancing Electricity



Source: ESCO

The weighted average price of balancing electricity was 14.7 tetri/kWh in October 2019, which is an annual increase of 5% compared to October 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).

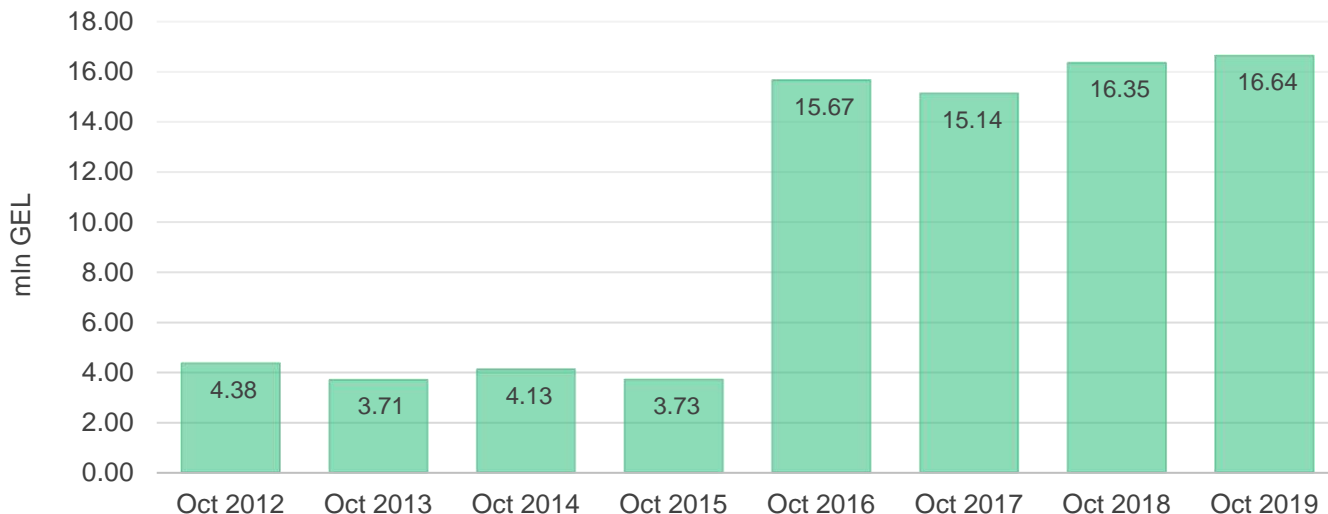
**Figure 13** - Balancing Electricity Prices Weighted Average and Weighted Average Price for Deregulated HPPs



Source: ESCO

Guaranteed capacity payments in October 2019 were roughly 16.64 mln. GEL, which represents a 2% increase compared to October 2018 (Figure 14).

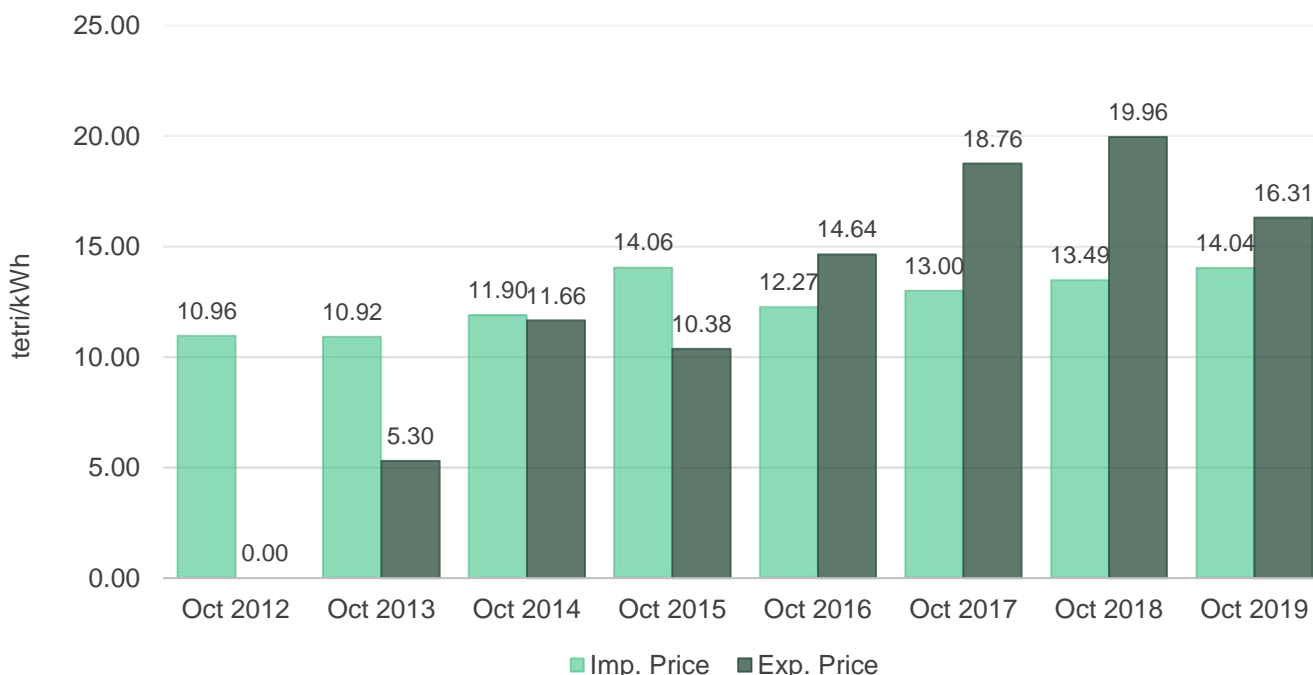
**Figure 14 - Cost of Guaranteed Capacity**



Source: ESCO

The average electricity import price in October 2019 increased by 4%<sup>3</sup> (from 5.07 ¢ or 13.49 to 4.73 ¢ or 14.04 tetri per kWh) compared to October 2018 (Figure 15). The average import price decreased by 25% on a monthly basis (import price was 6.33 ¢ or 18.76 tetri per kWh in September 2019). The average electricity export price in October 2019 decreased by 18% (from 7.5 ¢ or 19.96 to 5.5 ¢ or 16.31 tetri per kWh) compared to October 2018 (Figure 15). The average export price more than tripled on a monthly basis, up from 1.7 ¢ or 5.04 tetri per kWh in September 2019.

**Figure 15 - Prices Import/Export**



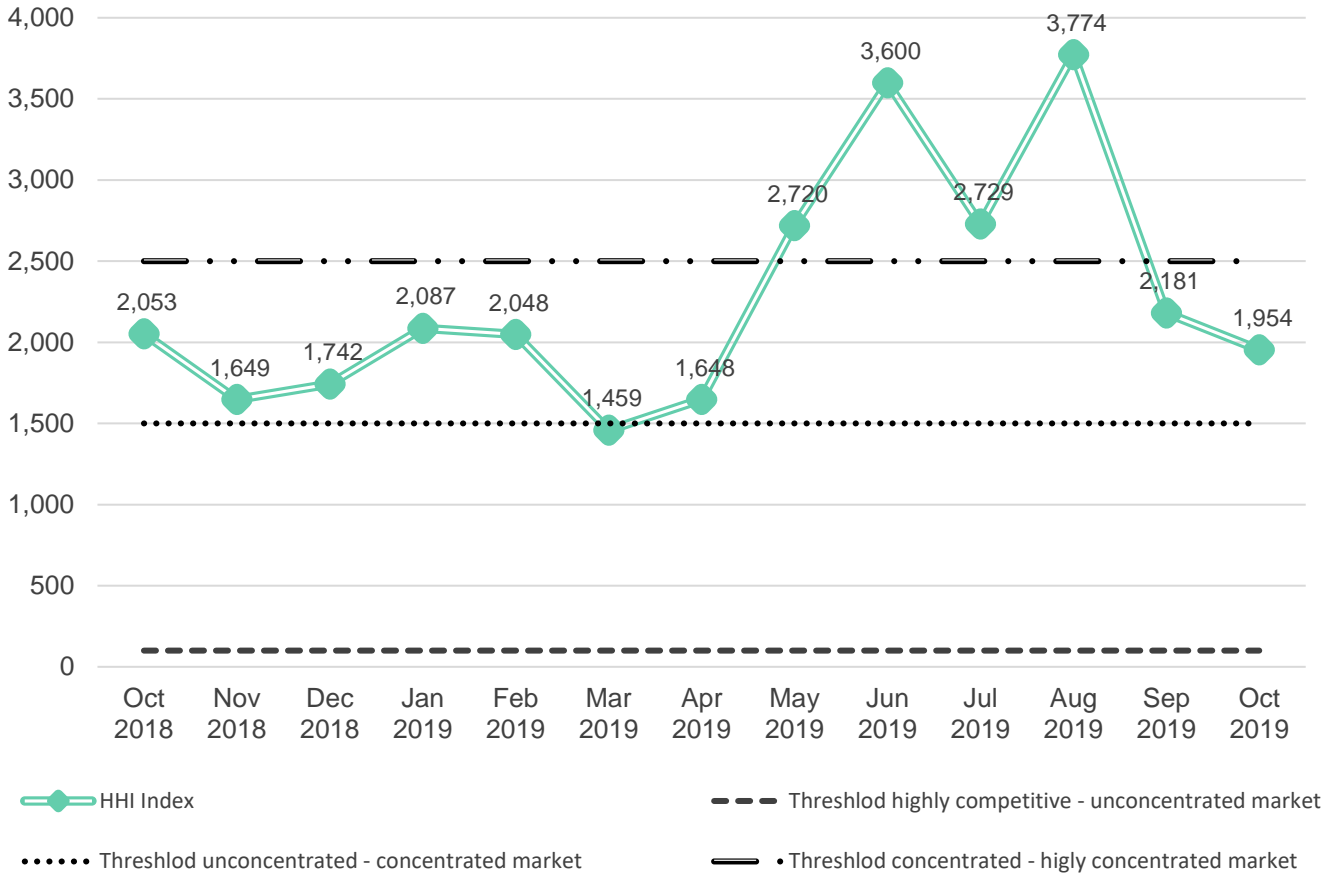
Source: ESCO

<sup>3</sup> Mostly 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 October 2019, the Georgian electricity market was concentrated, with an HHI value of 1,954 (Figure 16). While, Georgian electricity market was more concentrated in October 2018 and September 2019, with an HHI value of 2,053 and 2,181 respectively.

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



Source: ESCO