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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 monthly basis and decrease in electricity generation on a yearly basis
- Regulatory HPPs' share decreased substantially in the total electricity generation
- Consumption increased both on a monthly and on a yearly basis
- The negative generation-consumption gap increased both on a monthly and on a yearly basis
- Imports have increased on a monthly and on a yearly basis
- Imported electricity came from Azerbaijan and Russia
- Georgia exported a negligible amount of electricity to Azerbaijan
- According to the Hirschmann-Herfindahl Index (HHI) Georgian electricity market passed from moderately concentrated to un-concentrated

ABBREVIATION USED

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

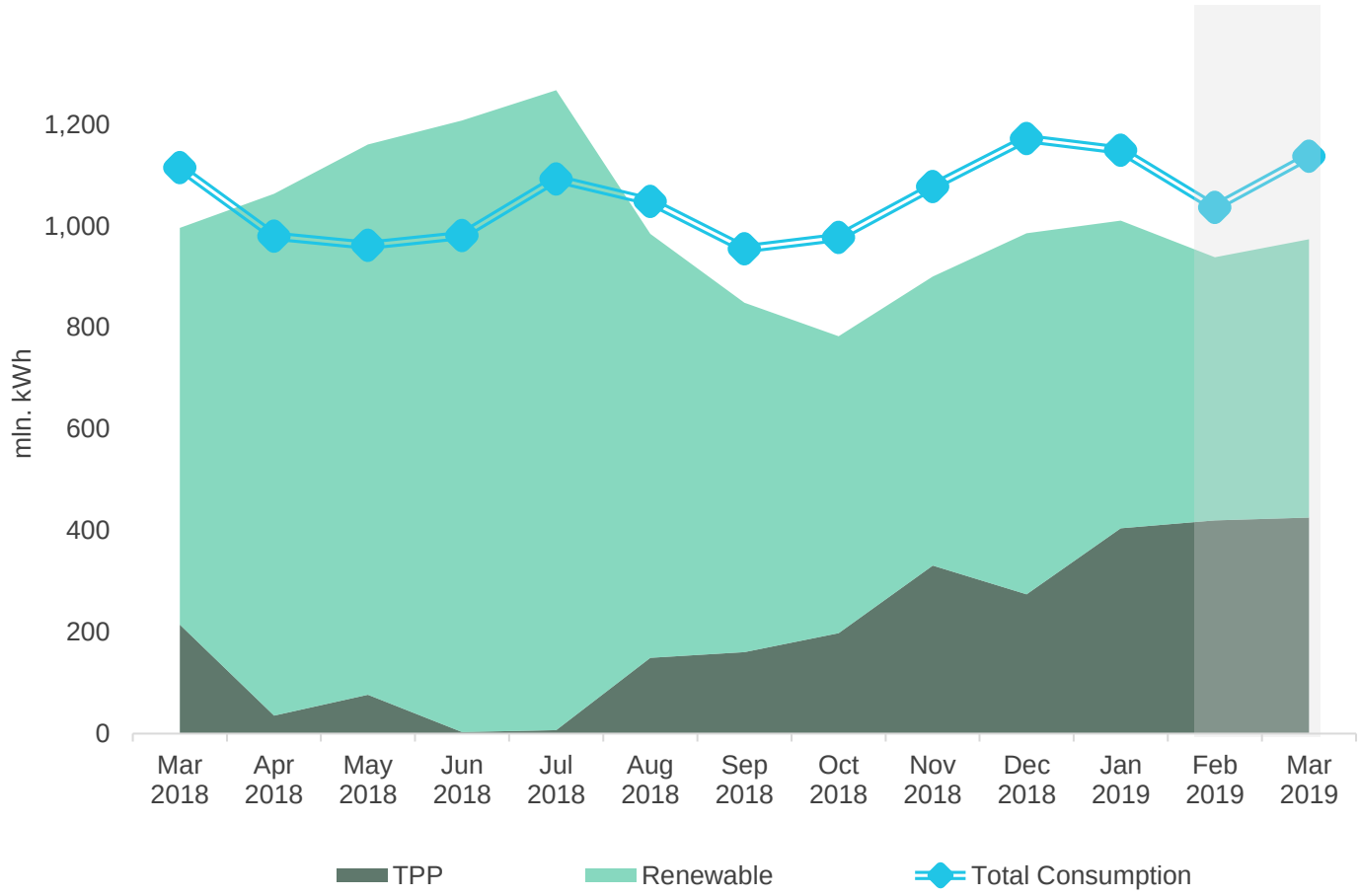
1. Generation – Consumption – Trade

In March 2019, Georgian power plants generated 974 mln. kWh of electricity (Figure 1). This represents a 2.2% decrease in total generation, compared to the previous year (in 2018, total generation in March was 997 mln. kWh.) The decrease in generation on a yearly basis comes from the decrease in hydro power generation (-30%), more than offsetting the increase in thermal and wind power generation (+98% and +42%).

On a monthly basis, generation increased by 4% (in February 2019, total generation was 939 mln. kWh). The monthly increase in total generation was the result of an increase in electricity produced by hydro, thermal and wind power plants (+6%, +1% and +12% with respect to February 2019).

The consumption of electricity on the local market was 1138 mln. kWh (+2% and +10% compared to March 2018, and February 2019 respectively) (Figure 1). In March 2019, total consumption exceeded generation by 164 mln kWh, which is 14% of the total consumption and 17% of the amount generated (compared to 98 mln. kWh and 10% deficit of the total generation for February 2019 and 119 mln. kWh and 12% deficit of the total generation for March 2018).

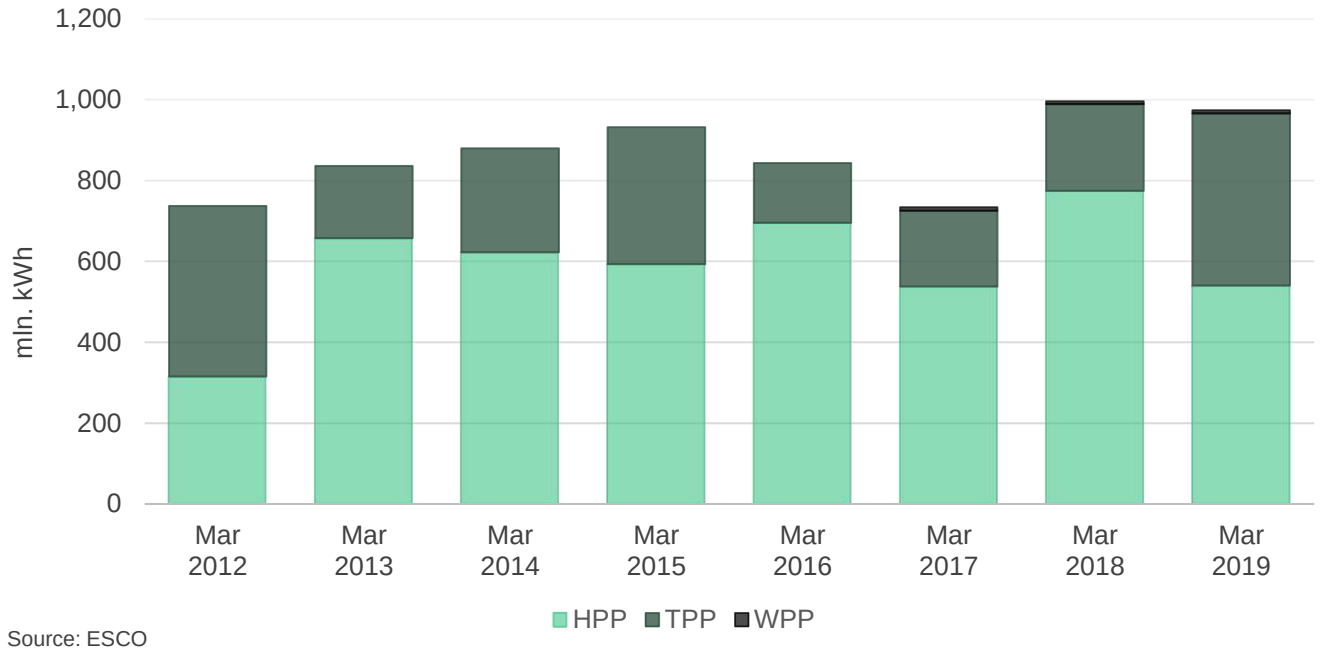
Figure 1 - Electricity Consumption and Generation



Source: Electricity System Commercial Operator (ESCO)

As usual, most generation came from hydropower plants (HPPs). In March 2019, hydropower (HPP) generation amounted to 540 mln. kWh (55% of total); wind power (WPP) generation was 8 mln. kWh (1% of total), and thermal power (TPP) generation was 426 mln. kWh (44% of total) (Figure 2).

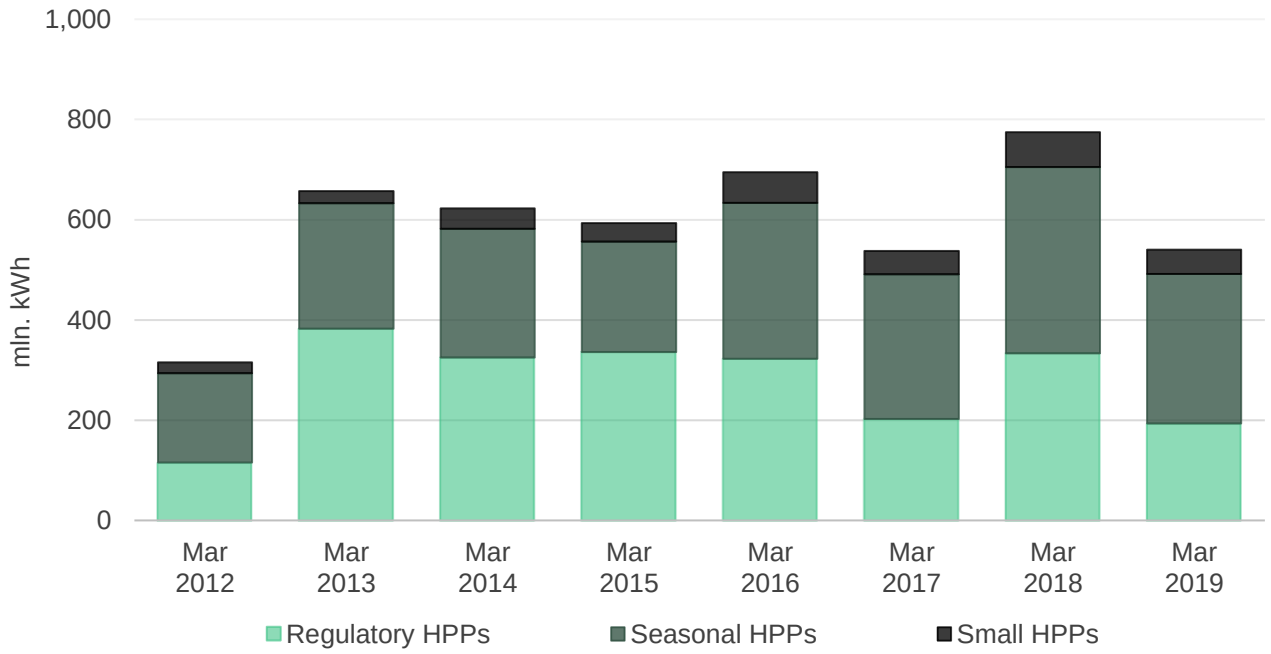
Figure 2 - **Electricity Generation by Sources**



Source: ESCO

Among hydropower generators, large (regulatory) HPPs produced 36% (193.4 mln. kWh) of electricity, while seasonal and small HPPs produced 55% (298.1 mln. kWh) and 9% (48.9 mln. kWh), respectively (Figure 3).

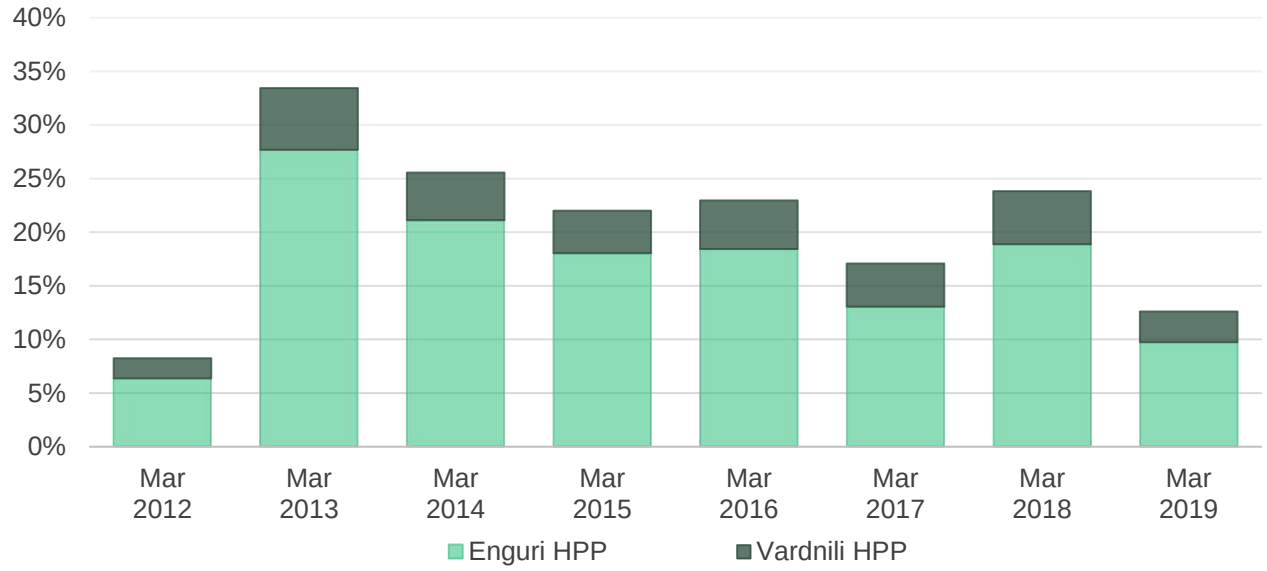
Figure 3 - **HPP Generation by Type**



Source: ESCO

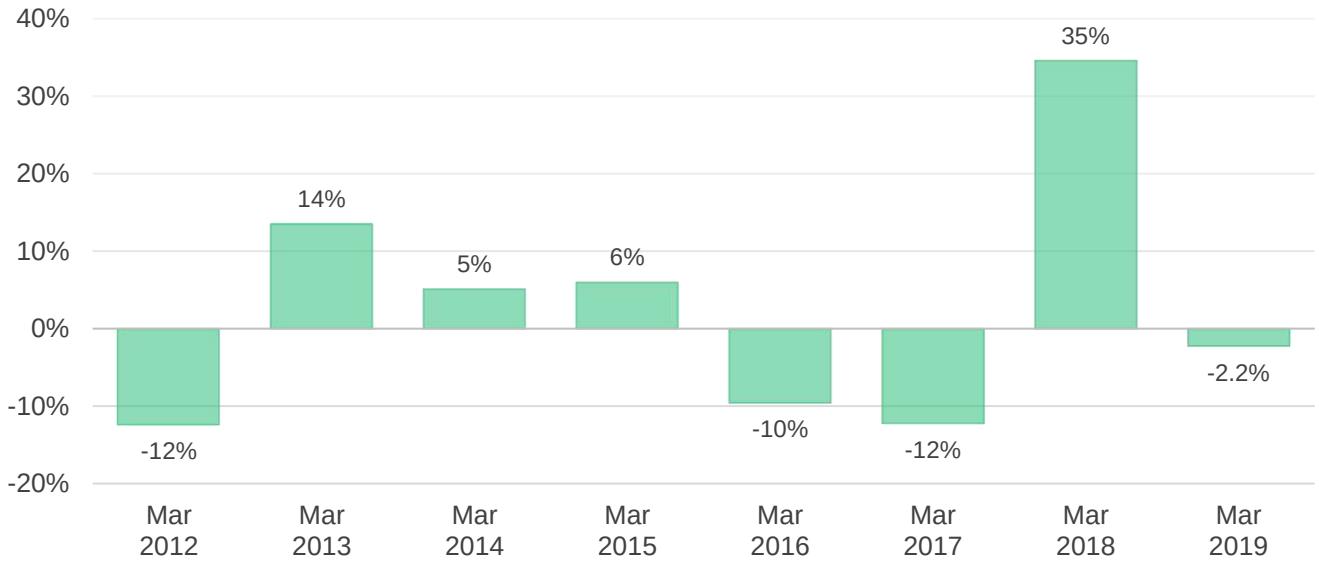
Among the large HPPs, Enguri and Vardnili generated the largest power, producing 123 mln kWh (64% of generation for regulatory HPPs), with 95 mln. kWh and 28 mln. kWh, respectively. They represent around 13% of total generation (Figure 4).

Figure 4 - Share of Enguri and Vardnili in Total Generation



Source: ESCO

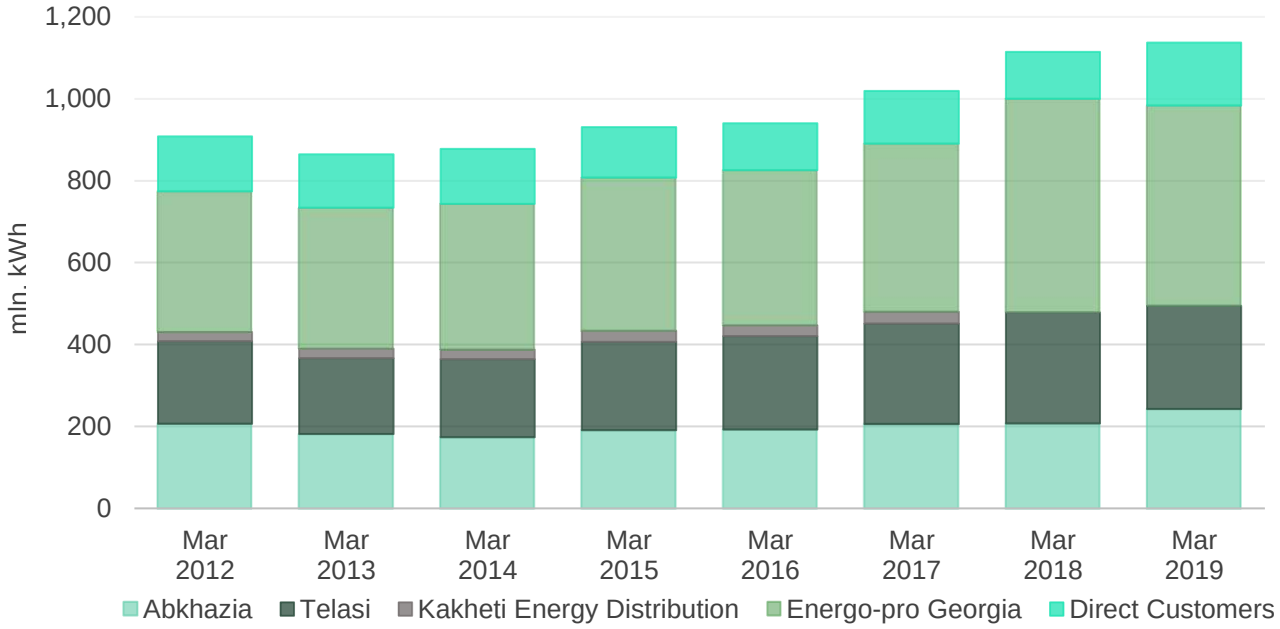
Figure 5 - Growth of Generation (%, y/y)



Source: ESCO

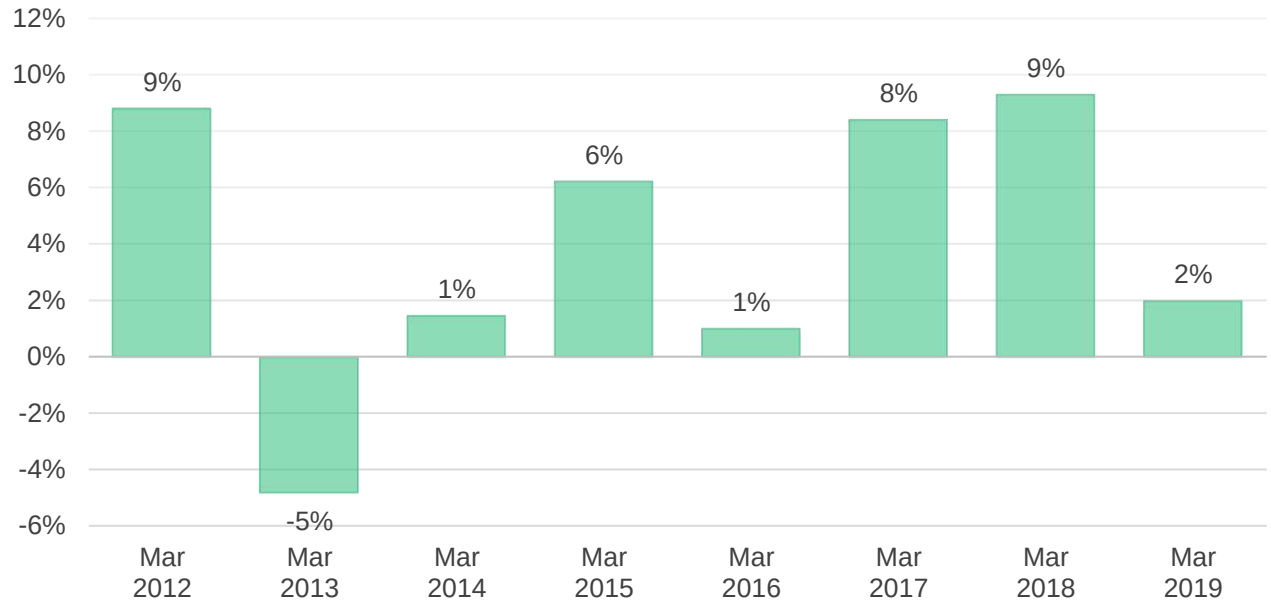
Total electricity demand came from: Energo-Pro Georgia[1] (43% - 488.3 mln. kWh), Telasi (22% - 252.9 mln. kWh), Abkhazia (21% - 242 mln. kWh), and direct customers (14% - 153.8 mln. kWh) (Figure 6). Overall, there was an annual increase of 2% in electricity consumption in March 2019, compared to March 2018 (Figure 7). Annual demand from Abkhazia and direct consumers increased by 17% and 34% more than offsetting the 6% and 7% decrease from Energo-Pro Georgia and Telasi respectively.

Figure 6 - Electricity Consumption by Type of Customer



Source: ESCO

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

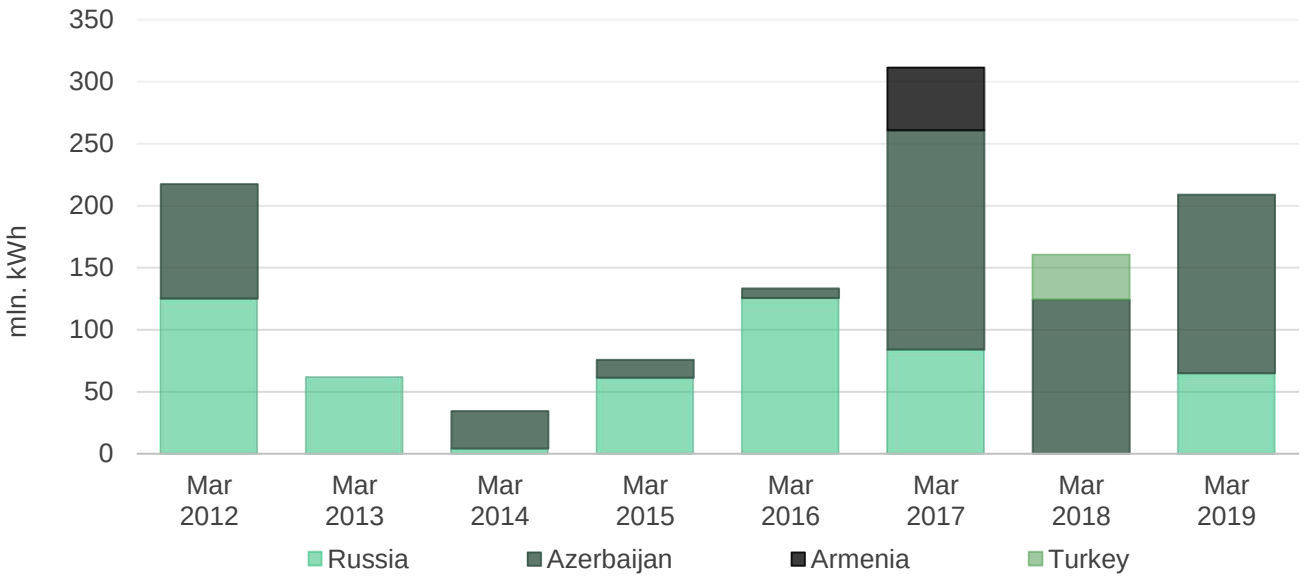


Source: ESCO

[1] Energo-Pro Georgia acquired Kakheti Energy Distribution in September 2017

In March 2019, Georgia imported 209 mln. kWh of electricity. 69% of this electricity was imported from Azerbaijan, while 31% was imported from Russia (Figure 8). In March 2019, Georgia exported 0.002 mln. kWh of electricity back to Azerbaijan and the total transit from Azerbaijan to Turkey amounted to 6 mln. kWh of electricity.

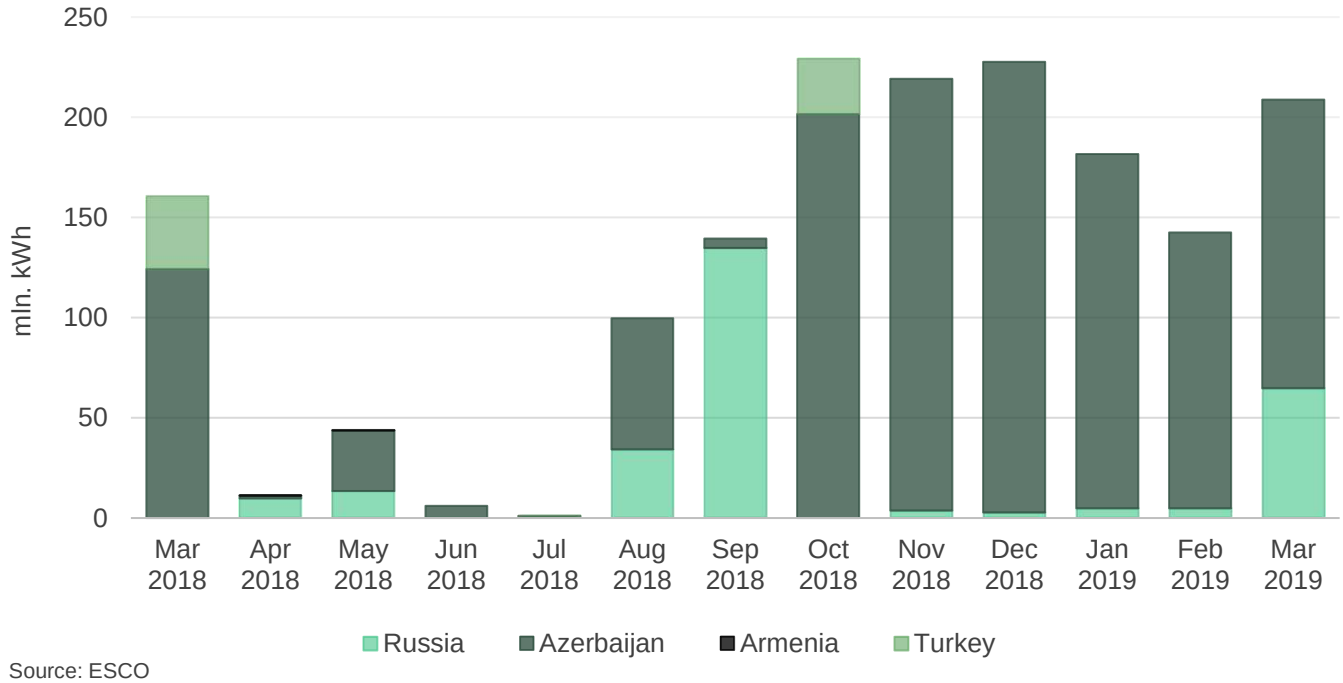
Figure 8 - Imports by Year



Source: ESCO

In March 2019, electricity imports increased by 47% compared to February 2019 and by 30% compared to the same month in 2018. As mentioned above, in this month the main electricity provider was Azerbaijan, confirming its role of the main electricity provider to the Georgian system (Figure 9).

Figure 9 - Imports by Month

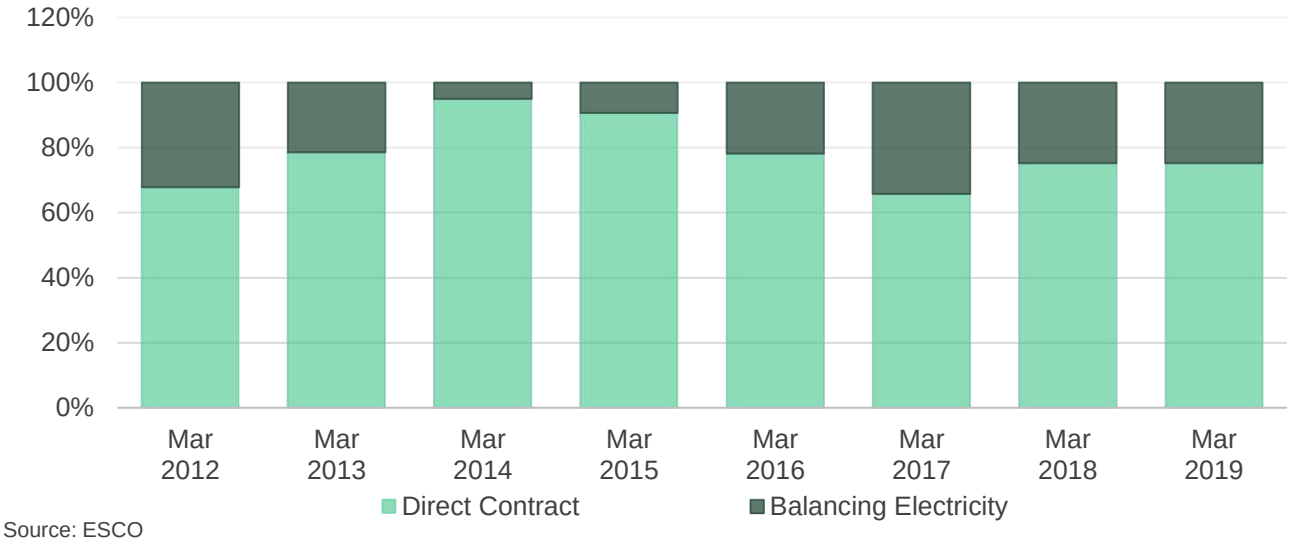


Source: ESCO

2. Market Operations

In March 2019, 75% of the electricity sold on/from the local market (868 mln. kWh) was sold through direct contracts. The remaining 25% (287 mln. kWh) was sold as balancing electricity (Figure 10).

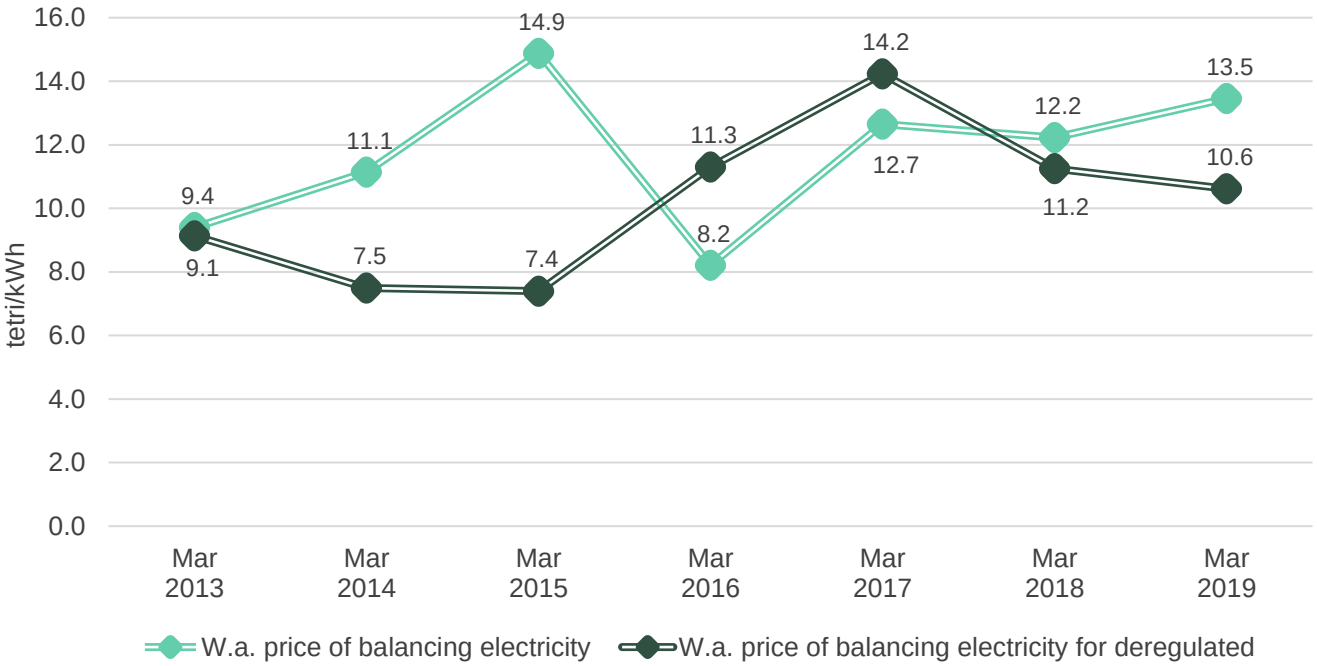
Figure 10 - Electricity Purchased / Sold Shares of Direct Contracts and Balancing Electricity



Source: ESCO

The weighted average price of balancing electricity was 13.5 tetri/kWh in March 2019, which is an annual increase of 10% compared to March 2018. As for the weighted average price for deregulated (small) HPPs, it was 10.6 tetri/kWh, which represented 6% decrease compared to the corresponding month of the previous year (Figure 11).

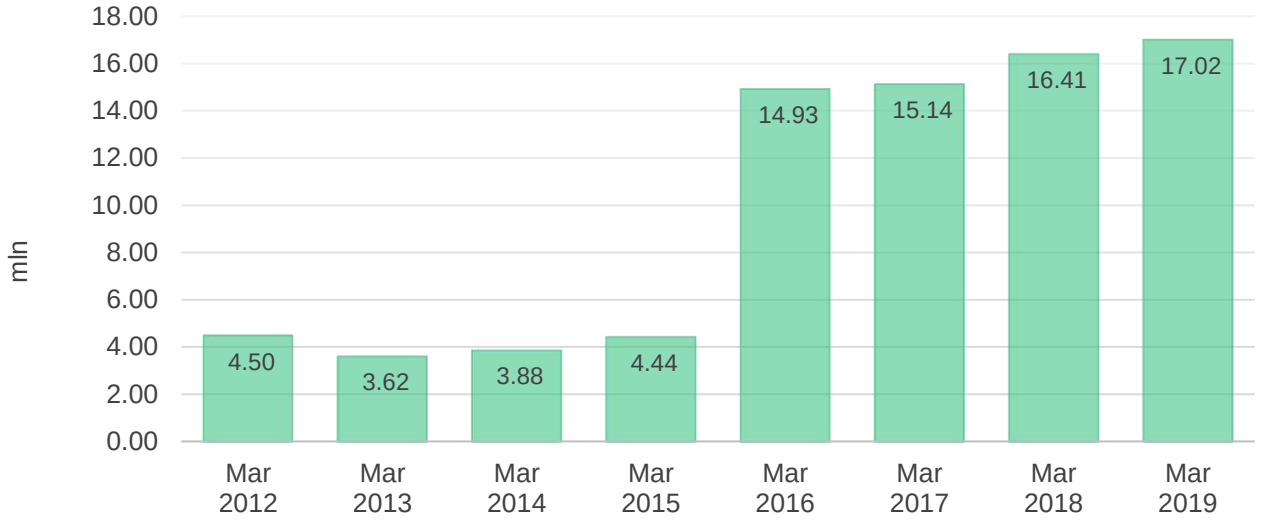
Figure 11 - Balancing Electricity Prices Weighted Average and Weighted Average Price for Deregulated HPPs



Source: ESCO

Guaranteed capacity payments in March 2019 were roughly 17.02 mln. GEL, which represents 4% increase compared to March 2018 (Figure 12).

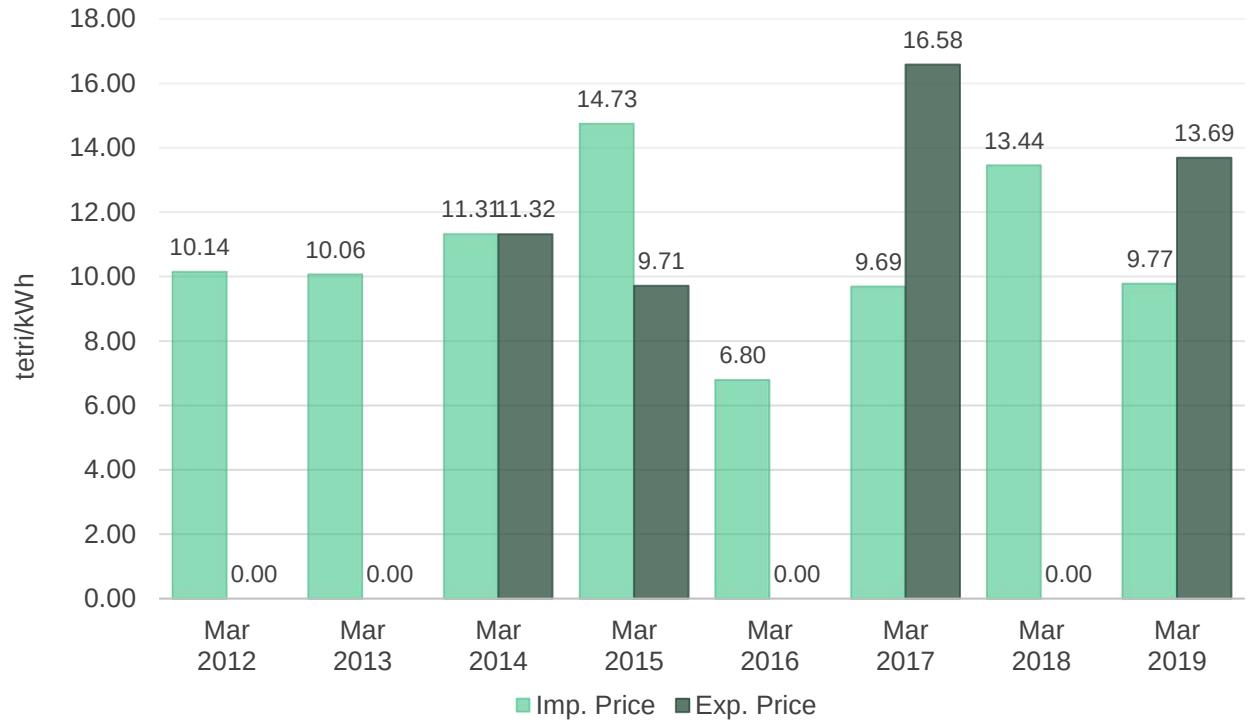
Figure 12 - Cost of Guaranteed Capacity



Source: ESCO

The average electricity import price in March 2019 decreased by 27% (from 6 ¢ or 13.44 tetri per kWh to 4 ¢ or 9.77 tetri per kWh) compared to March 2018 (Figure 13). Import price also went down from the previous month, it was 4.5 ¢, or 12 tetri per kWh in February 2019.

Figure 13 - Prices Import/Export



Source: ESCO

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 March 2019, the Georgian electricity market was un-concentrated, with an HHI value of 1457 (Figure 14). The level of concentration is lower, compared to the same period of the previous year (with an HHI value of 1665 in March 2018).

Figure 14 - Hirschman-Herfindahl Index for Power Generation

Source: ESCO