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ELECTRICITY MARKET REVIEW

ISET POLICY INSTITUTE
ENERGY AND ENVIRONMENT POLICY RESEARCH CENTER

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INFORMATION

- Electricity generation decreased as a result of HPP generation decline, despite an increase in TPP generation
- Demand on electricity continued to exceed supply
- Imported electricity came mainly from Azerbaijan
- Georgia did not export any electricity
- Hirschmann-Herfindahl (HHI) declined further, approaching the threshold of an unconcentrated market.

ABBREVIATION USED

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

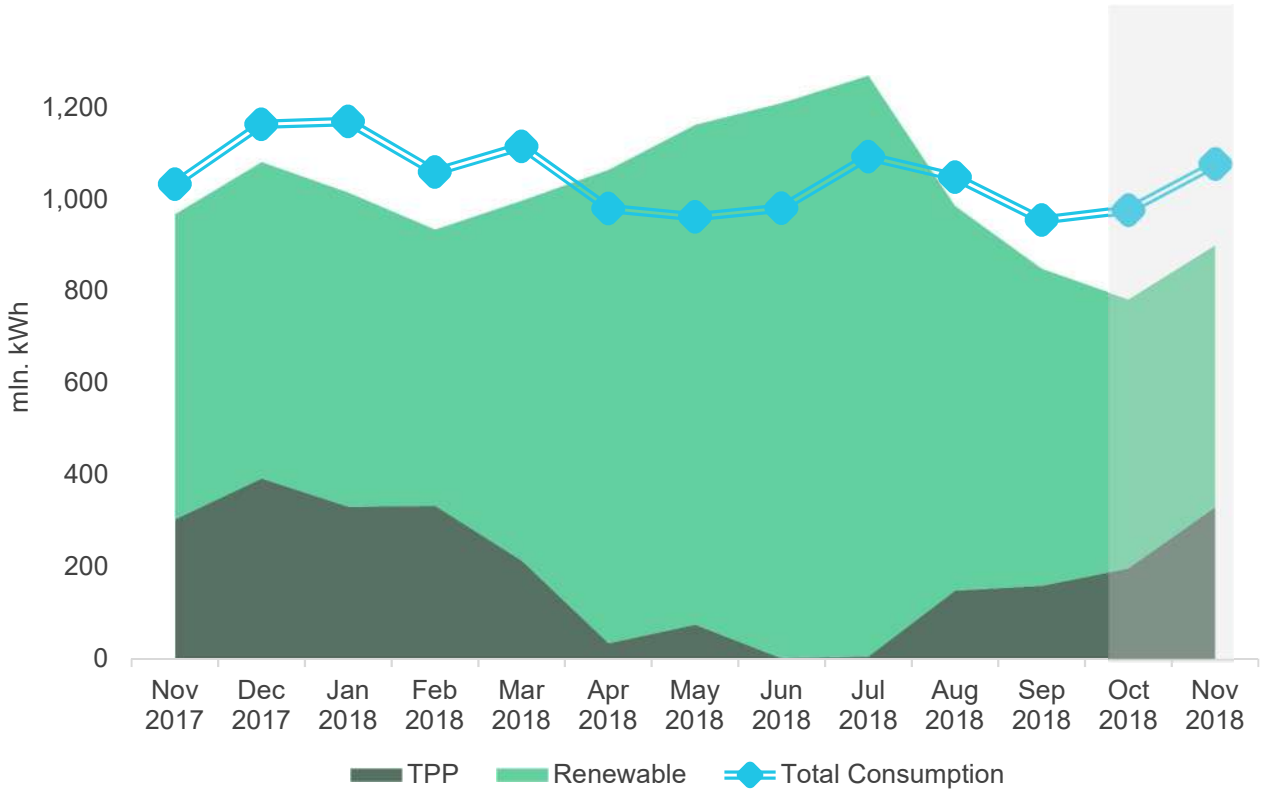
1. Generation – Consumption – Trade

In November 2018, Georgian power plants generated 900 mln. kWh of electricity (Figure 1). This represents a 7% decrease in total generation, compared to the previous year (in 2017, total generation in November was 968 mln. kWh) (Figure 5). The decrease in generation on a yearly basis comes from and decrease in hydropower (-15%), more than offsetting the increase in thermal (+9%) and wind power generation (+33%).

On a monthly basis, generation increased by 15% (in October 2018, total generation was 783 mln. kWh). The monthly increase in total generation was the result of an increase in electricity produced by thermal power generation (up to 331 mln. kWh, which represents +67% with respect to October 2018), while there was a decrease in generation of renewable sources (570 mln. kWh, -3% with respect to October 2018).

Consumption of electricity on the local market was 1078 mln. kWh (+4% compared to November 2017, and +10% with respect to October 2018) (Figure 1). In November 2018, total consumption exceeded generation by 178 mln kWh, which is 16% of the total consumption and 20% of the amount generated (compared to 195 mln. kWh and 25% deficit of total generation for October 2018).

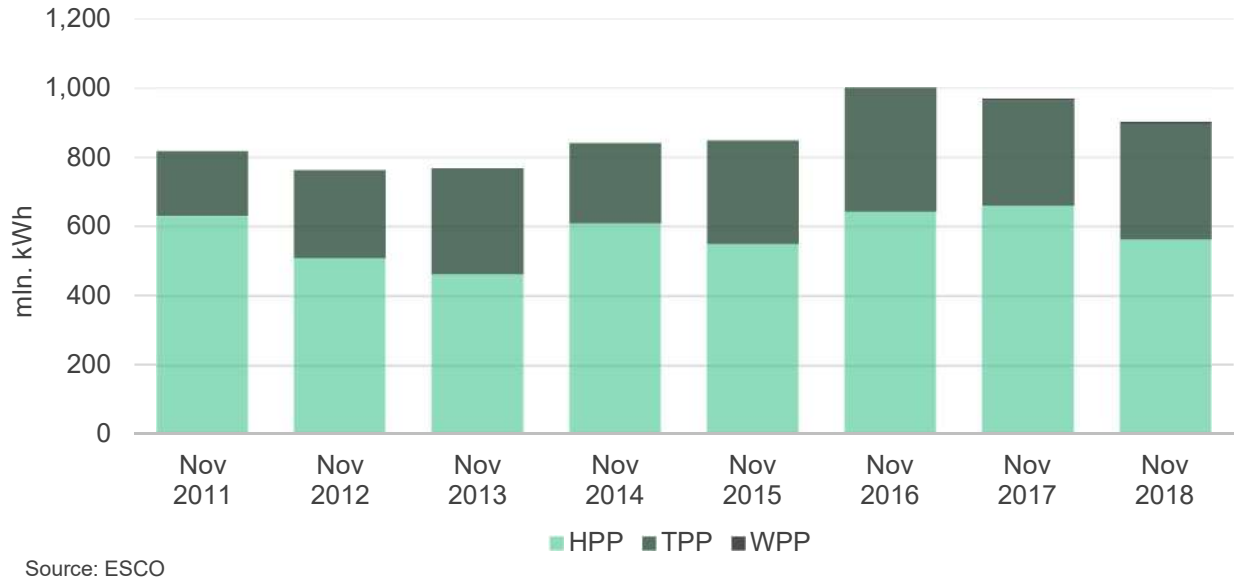
Figure 1 - Electricity Consumption and Generation



Source: Electricity System Commercial Operator (ESCO)

Among the different sources of electricity, hydropower remains dominant. Specifically, in November 2018, hydropower (HPP) generation amounted to 563 mln. kWh (63% of total); wind power (WPP) generation was 7 mln. kWh (1% of total), and thermal power (TPP) generation was 331 mln. kWh (37% of total) (Figure 2).

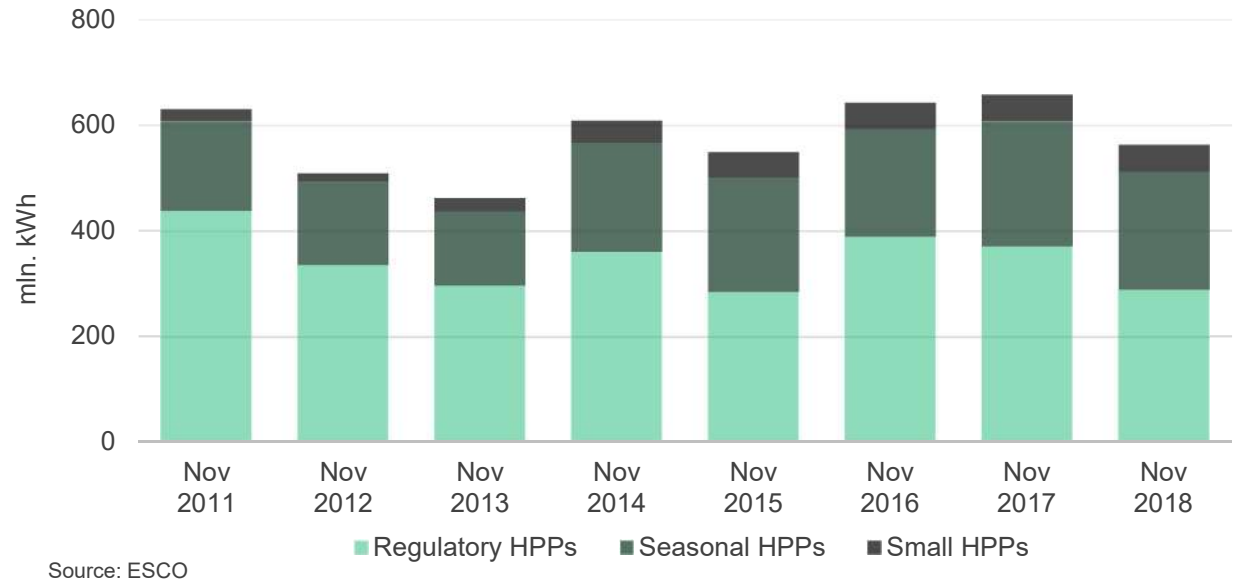
Figure 2 - Electricity Generation by Sources



Source: ESCO

Among hydropower generators, large (regulatory) HPPs produced 51% (288 mln. kWh) of electricity, while seasonal and small HPPs produced 40% (224 mln. kWh) and 9% (51 mln. kWh), respectively (Figure 3).

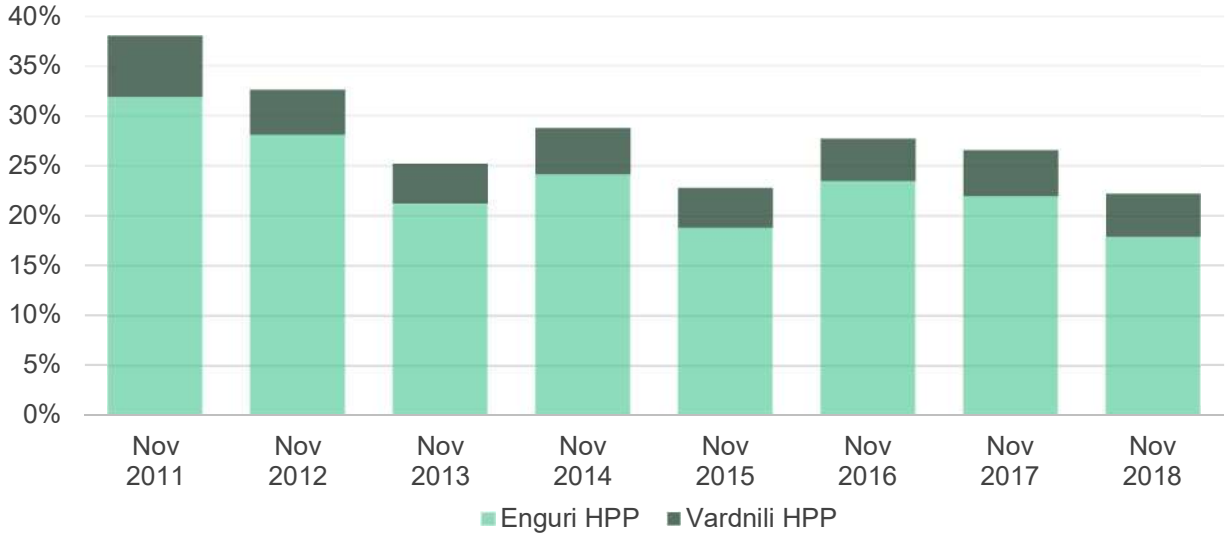
Figure 3 - HPP Generation by Type



Source: ESCO

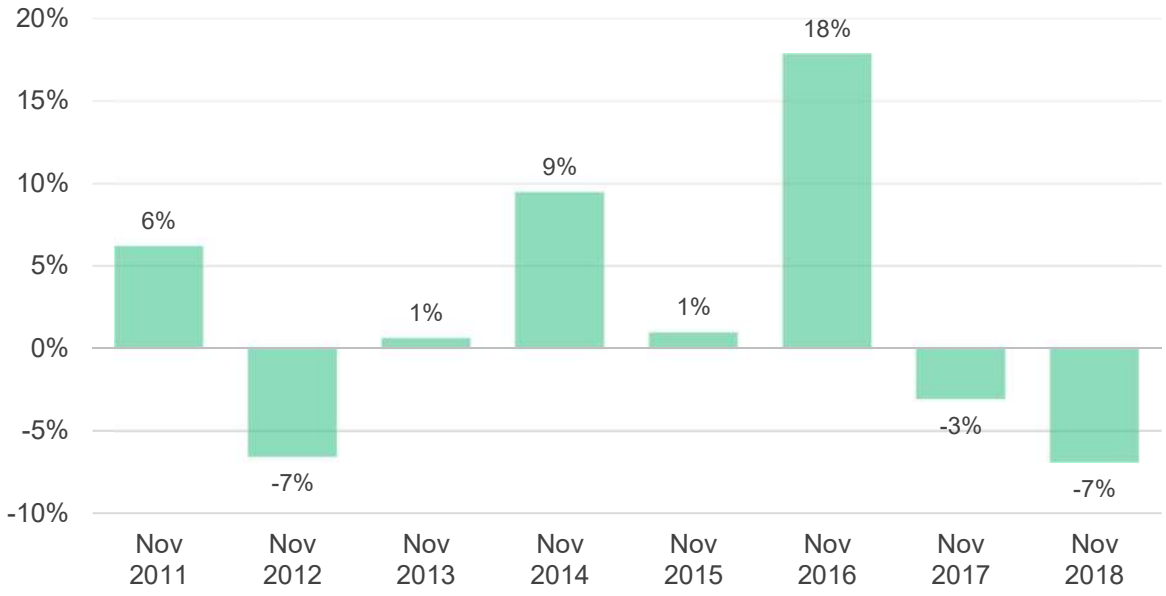
Among the large HPPs, Enguri and Vardnili generated the largest amounts of power, producing 200 mln kWh (22% of total generation), with 161 mln. kWh and 39 mln. kWh, respectively (Figure 4). They also represent around 69% of generation for regulatory HPPs.

Figure 4 - Share of Enguri and Vardnili in Total Generation



Source: ESCO

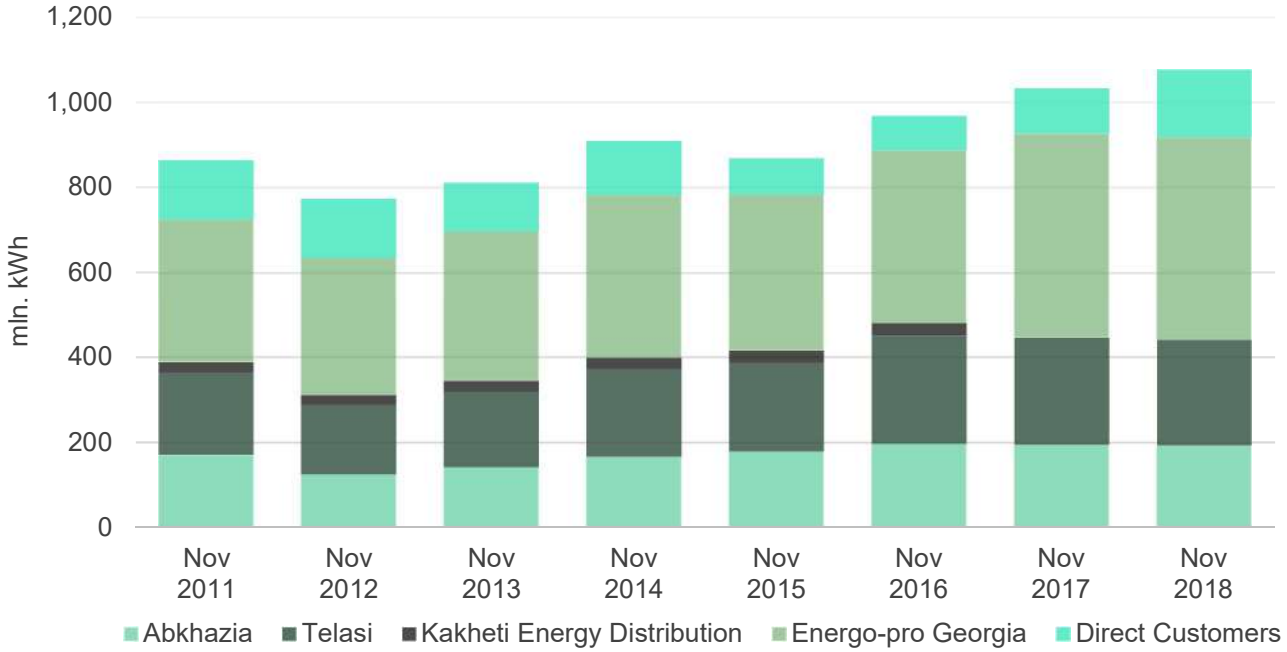
Figure 5 - Growth of Generation (%, y/y)



Source: ESCO

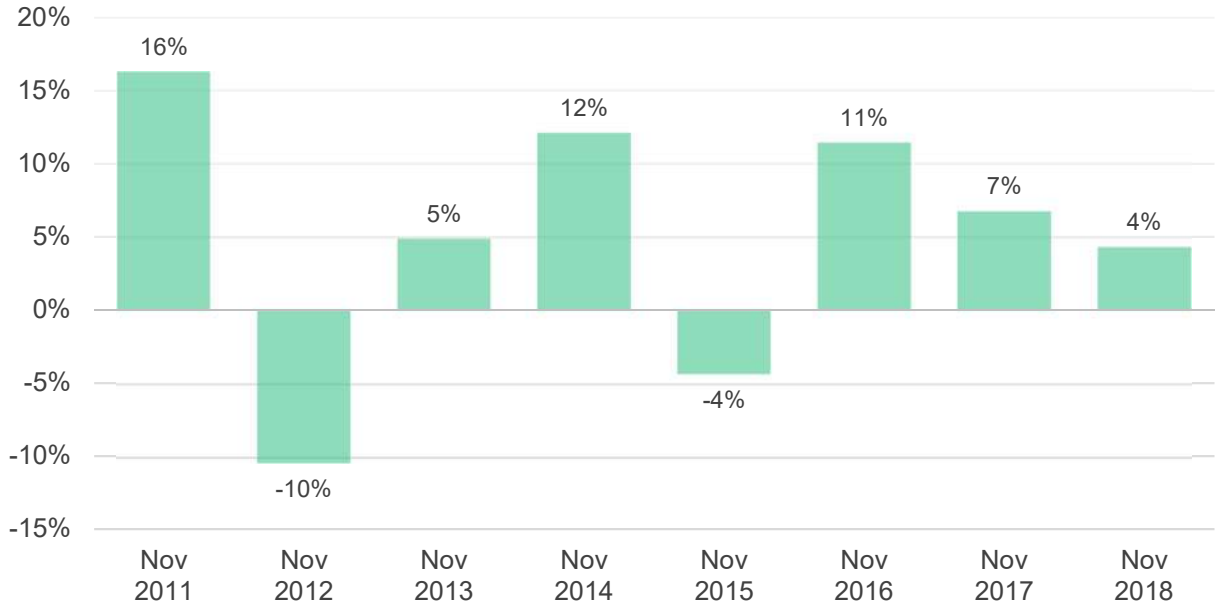
Total electricity consumption in Georgia came from: Energo-Pro Georgia (44% - 477 mln. kWh), Telasi (23% - 247.8 mln. kWh), Abkhazia (18% - 193 mln. kWh), and direct customers (15% - 159 mln. kWh) (Figure 6). Overall, the annual increase in electricity consumption was 4% in November 2018, compared to November 2017 (Figure 7). Annual demand from direct consumers increased by 49%, while it decreased from Energo-Pro Georgia, Telasi and from Abkhazia (by 1% each).

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



Source: ESCO

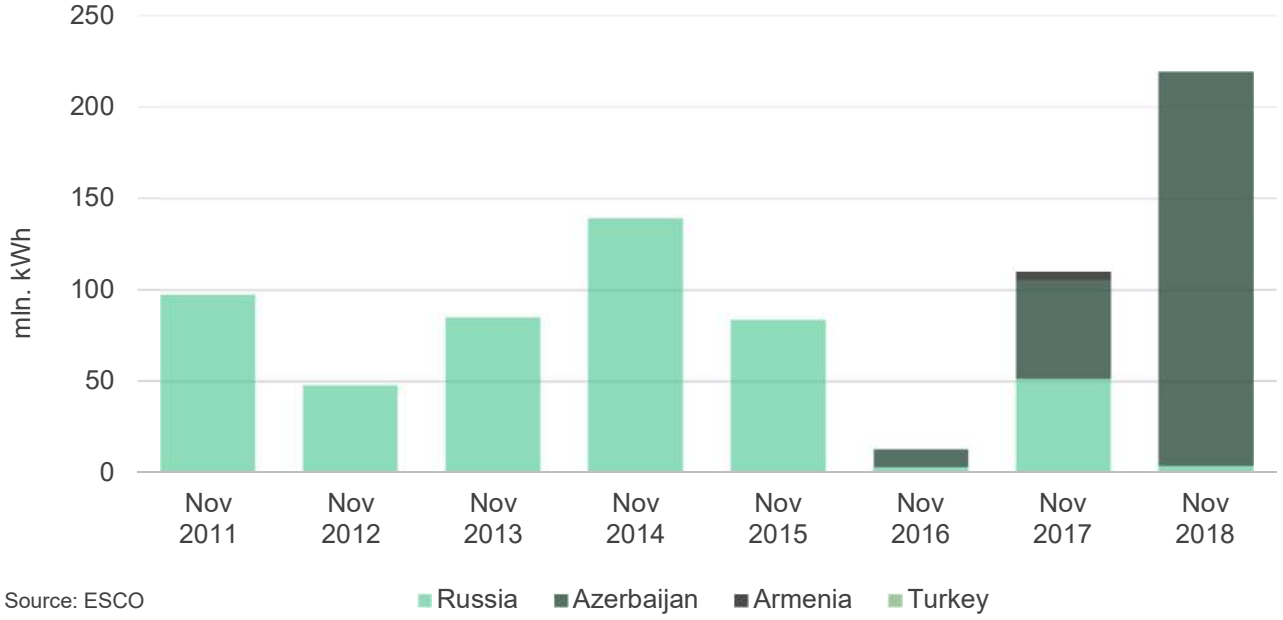
Figure 7 - **Electricity Consumption Growth (%, y/y)**



Source: ESCO

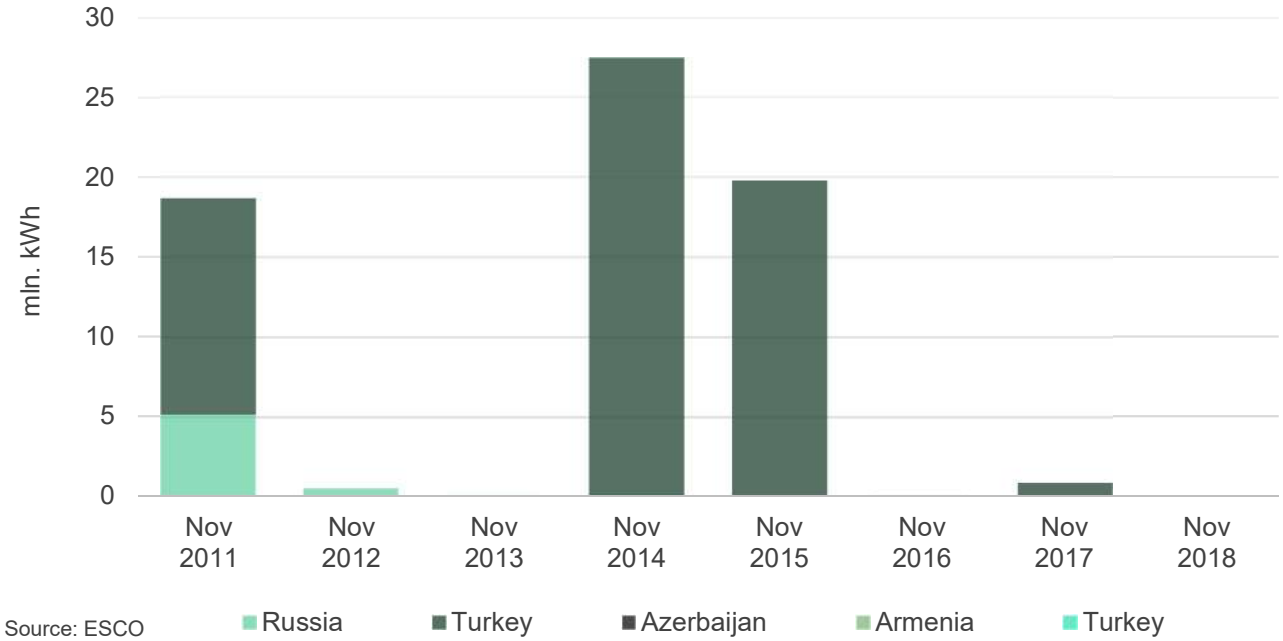
In November 2018, Georgia imported 219 mln. kWh of electricity. 98% of this electricity was imported from Azerbaijan, 2% was imported from Russia (Figure 8). In November 2018, Georgia did not export any electricity (Figure 9).

Figure 8 - Imports by Country



Source: ESCO

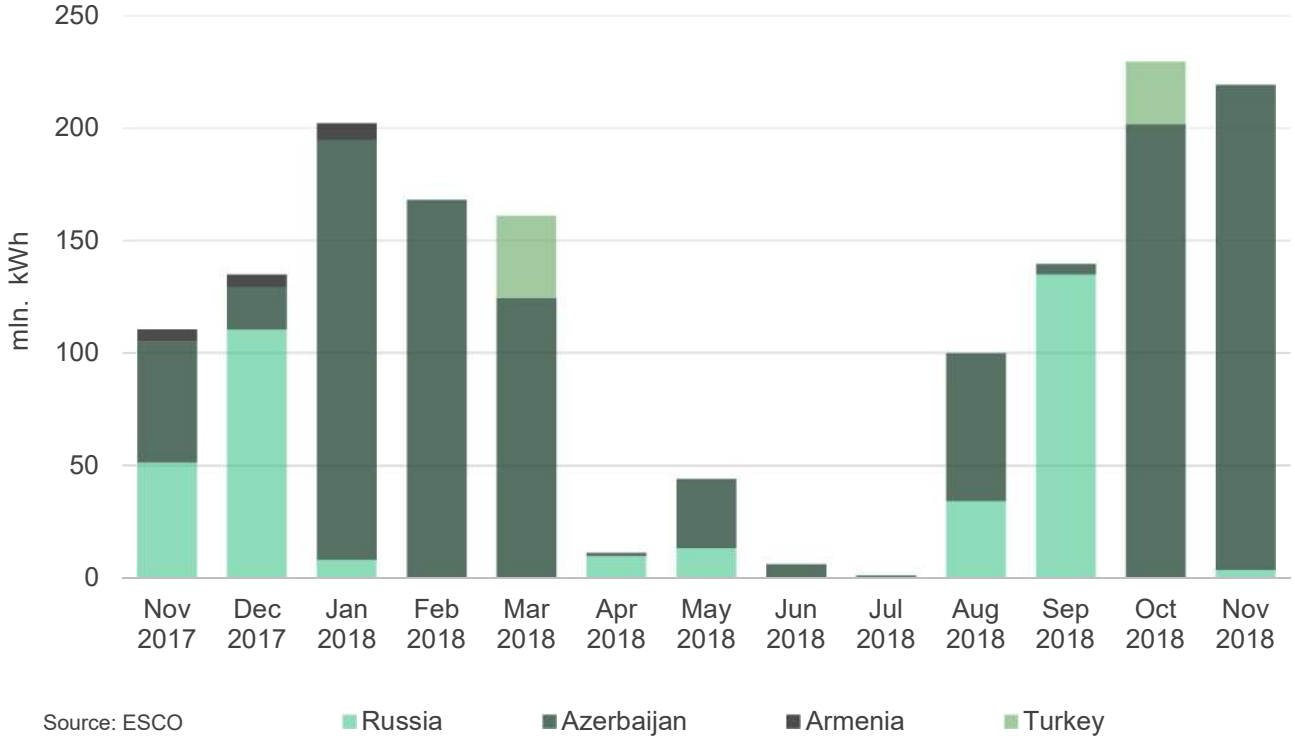
Figure 9 - Exports by Country



Source: ESCO

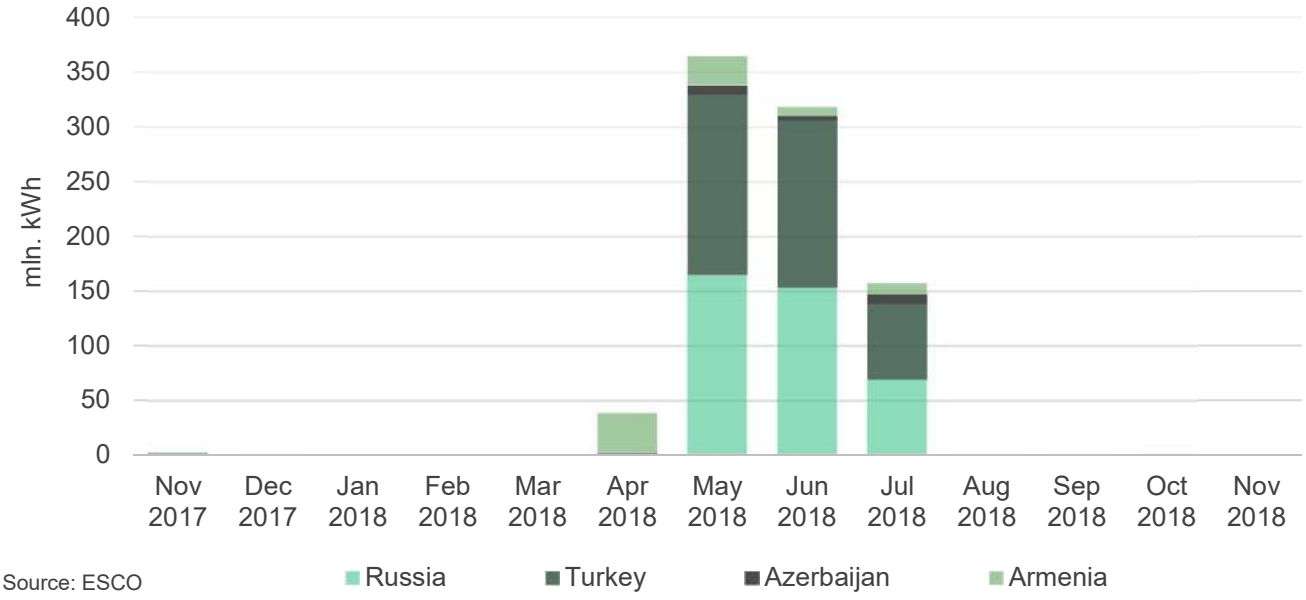
In November 2018, electricity imports decreased by 4% compared to October 2018 (Figure 10). As mentioned above, in this month the main electricity provider was Azerbaijan, strengthening its role of the main electricity provider to the Georgian system. In October 2018 Georgia did not export electricity (Figure 11).

Figure 10 - **Imports**



Source: ESCO

Figure 11 - **Exports**

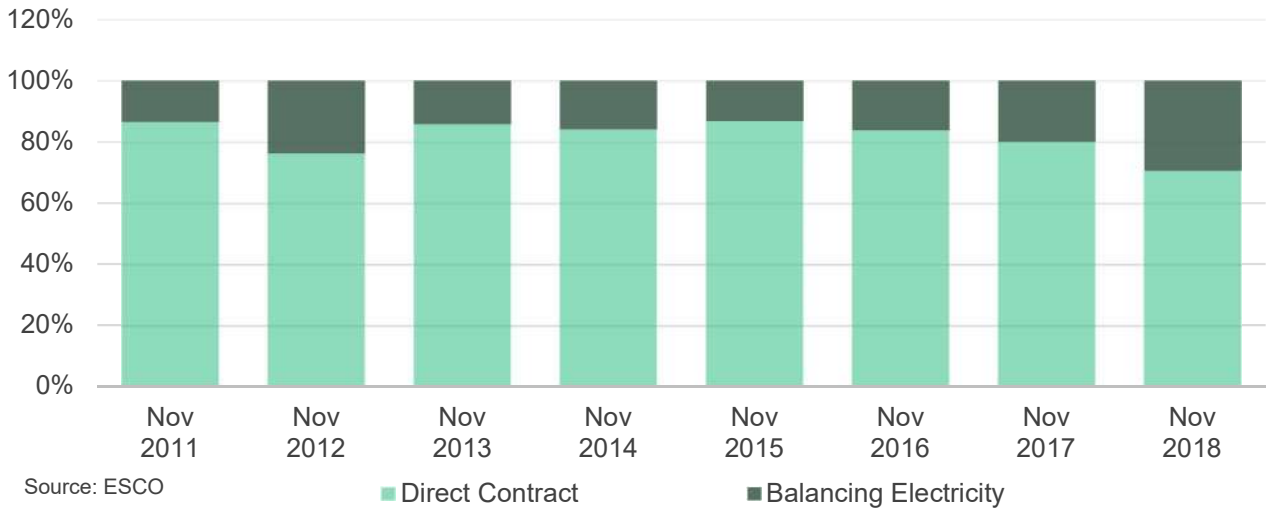


Source: ESCO

2. Market Operations

In November 2018, 71% of the electricity sold on/from the local market (774. mln. kWh) was sold through direct contracts. The remaining 29% (323 mln. kWh) was sold as balancing electricity (Figure 12).

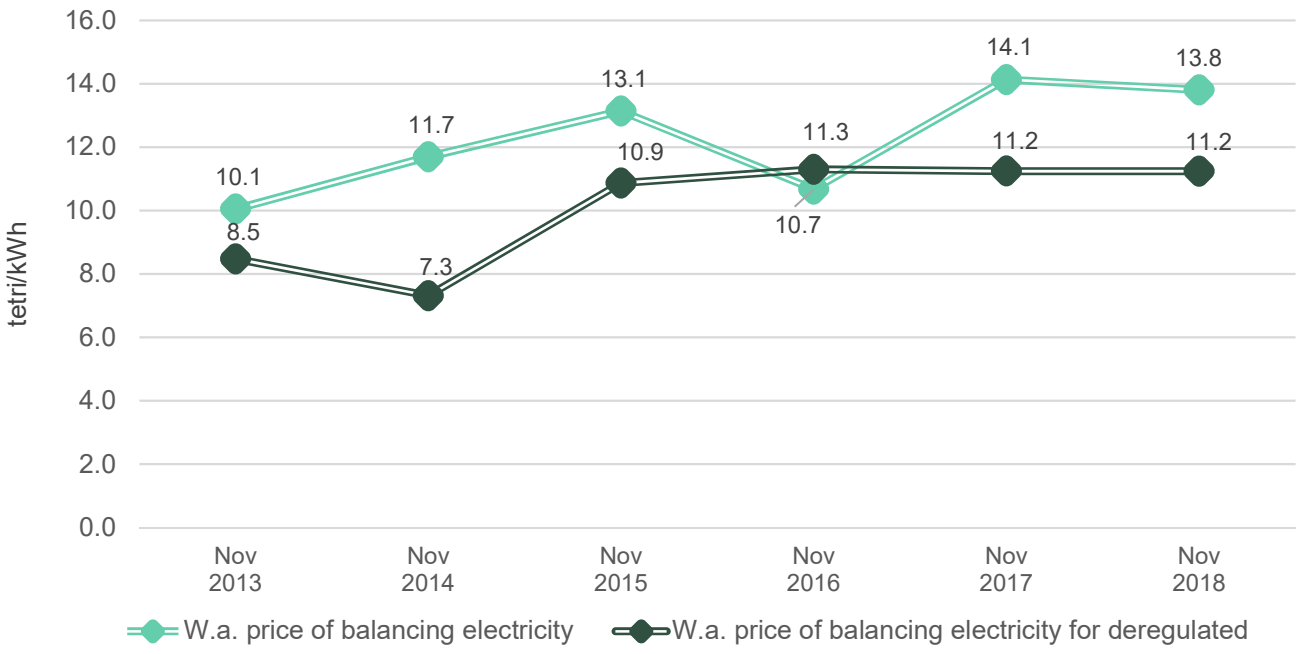
Figure 12 - Electricity Purchased / Sold Shares of Direct Contracts and Balancing Electricity



Source: ESCO

The weighted average price of balancing electricity was 13.8 tetri/kWh in November 2018, which is an annual decrease of 2% compared to November 2017. As for the weighted average price for deregulated (small) HPPs, it reached 11.2 tetri/kWh (Figure 13).

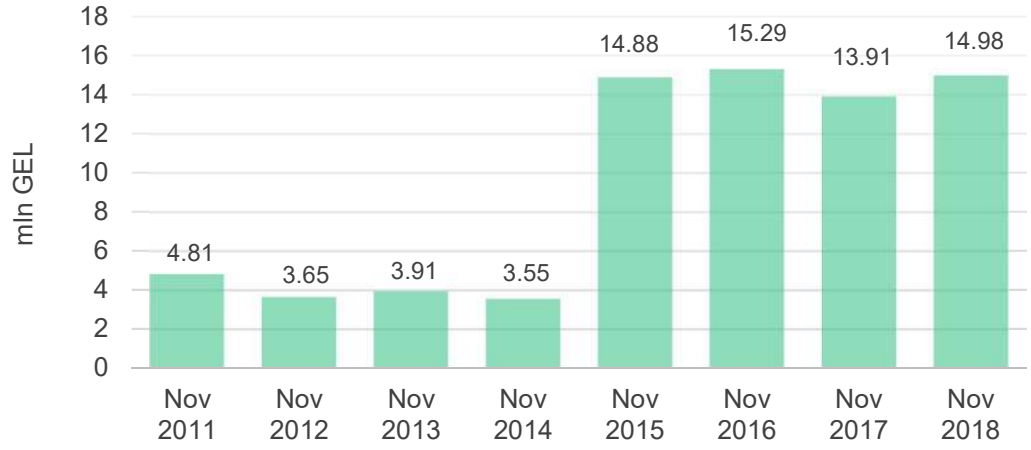
Figure 13 - Balancing Electricity Prices Weighted Average and Weighted Average Price for Deregulated HPPs



Source: ESCO

Guaranteed capacity payments in October 2018 were roughly 14.98 mln. GEL, an increase of 8% compared to November 2017 (Figure 14).

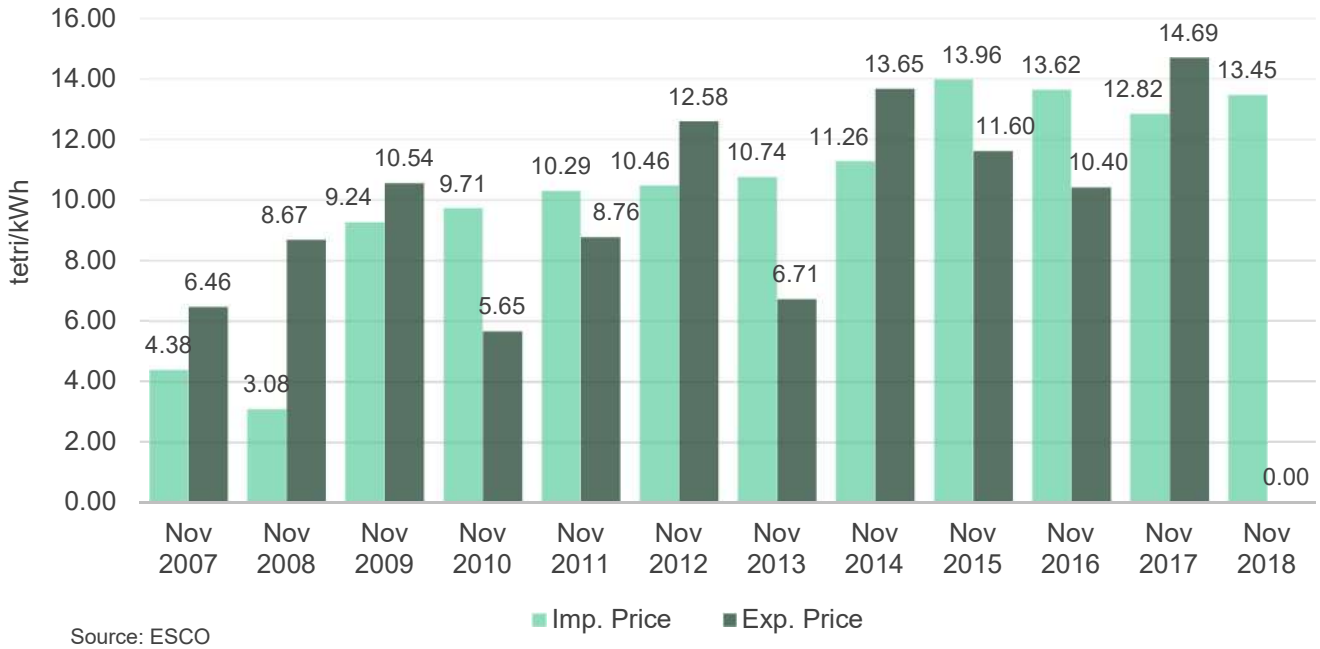
Figure 14 - Cost of Guaranteed Capacity



Source: ESCO

The average electricity import price in November 2018 increased to 5¢ (13.45 tetri) per kWh (an increase of 5%) compared to November 2017, while the country did not export any electricity (Figure 15).

Figure 15 - Prices Import/Export

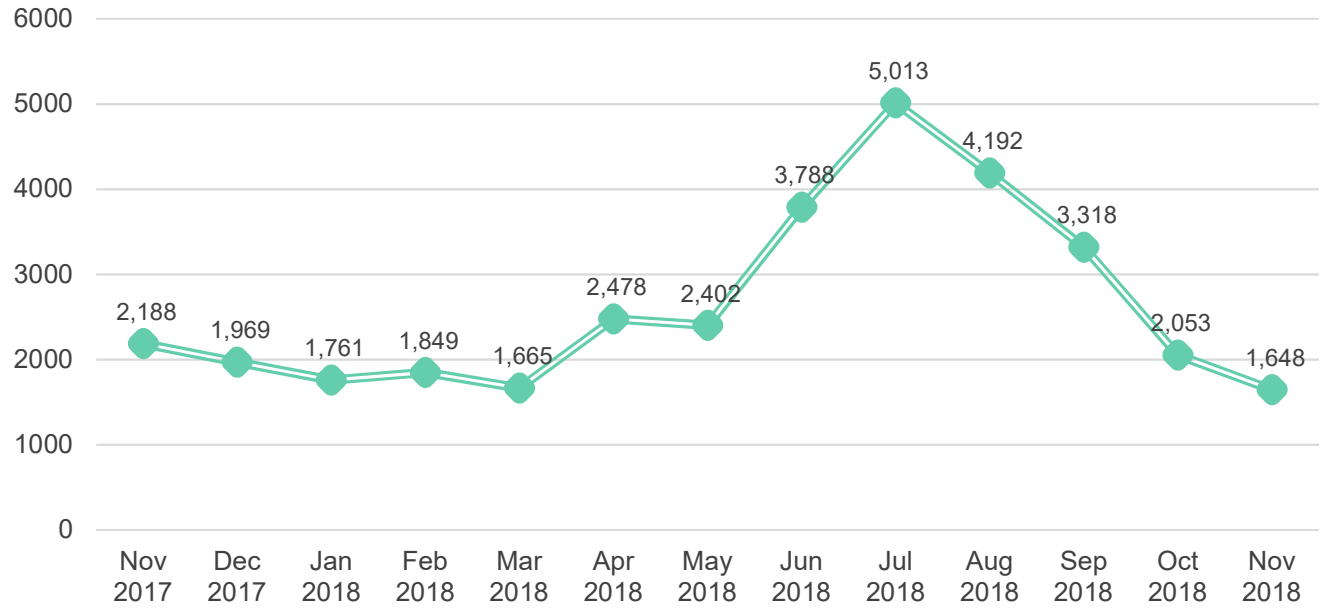


Source: ESCO

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 past 12 months. In November 2018, the Georgian electricity market was modestly concentrated, with an HHI value of 1648 (approaching to the threshold for an un-concentrated market – 1,500 while the threshold for a highly concentrated market is 2,500)(Figure 16). The level of concentration is noticeably lower, compared to the same period of the previous year (with an HHI value of 2188 in November 2017 the Georgian market was much closer to be classified as concentrated).

Figure 16 - Hirschman-Herfindahl Index for Power Generation



Source: ESCO