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International School of Economics at TSU
Policy Institute

NOVEMBER

2019

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 and on a monthly basis, mainly associated with thermal generation.
- Consumption decreased on a yearly basis and increased on a monthly basis.
- Consumption exceeded the generation by 156 mln. kWh.
- Imported electricity came mainly from Russia.
- Georgia exported 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 with an HHI value of 1,990 than in November 2018 with HHI value of 1,649.

ABBREVIATION USED

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

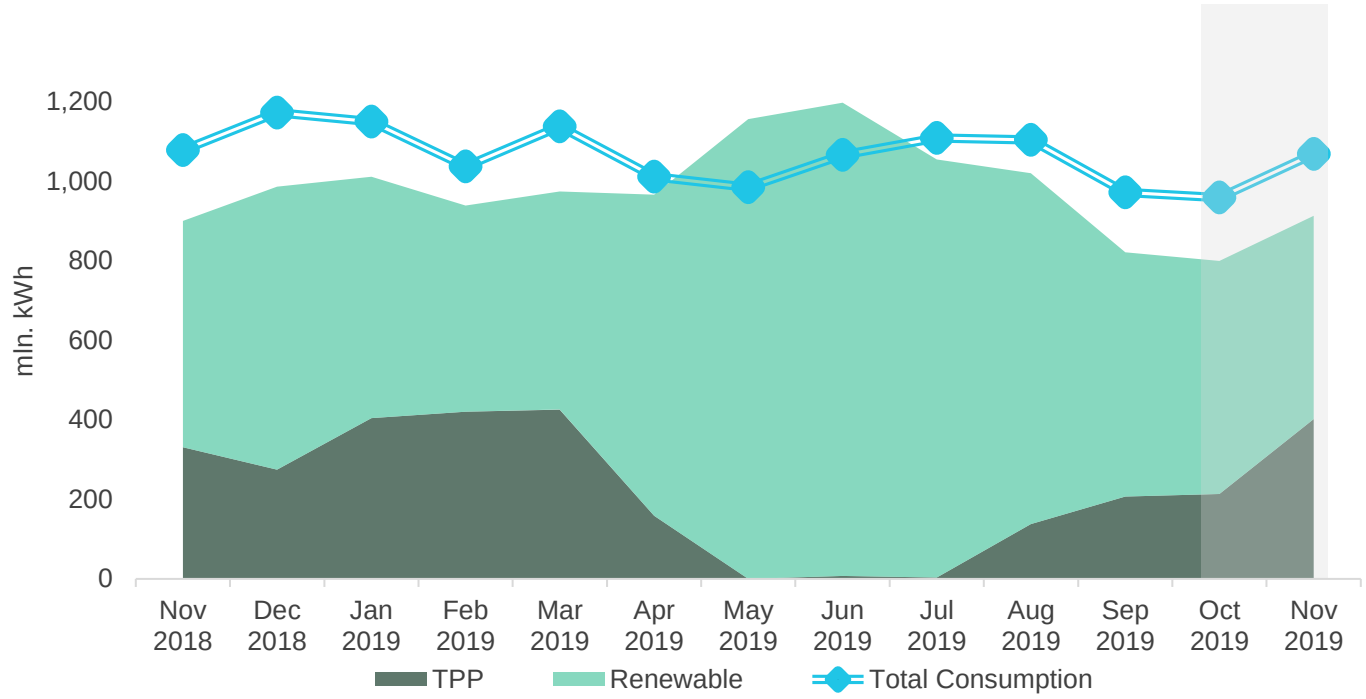
Generation – Consumption – Trade

In November 2019, Georgian power plants generated 913 mln. kWh of electricity (Figure 1). This represents a 1% increase in total generation, compared to the previous year (in November 2018, the total generation was 900 mln. kWh). The increase in generation on a yearly basis comes from the increase of 22% in thermal and 16% in wind power generation, more than offsetting the decrease in hydro power generation (-11%).

On a monthly basis, generation increased by 14% (in October 2019, total generation was 800 mln. kWh). The monthly increase in total generation was the result of an increase in electricity produced by thermal power plants (+88% with respect to October 2019) and wind power plants (+35% with respect to October 2019) more than offsetting the decrease in hydro power generation (-13% compared to October 2019).

The consumption of electricity on the local market was 1,069 mln. kWh (-1% and +11% compared to November 2018, and October 2019, respectively) (Figure 1). In November 2019, the total consumption exceeded the total generation by 156 mln. kWh which is around 17% of total generation (in contrast in November 2018 difference between total generation and consumption resulted in a deficit of 178 mln. kWh which was around 20% of the total generation for the month).

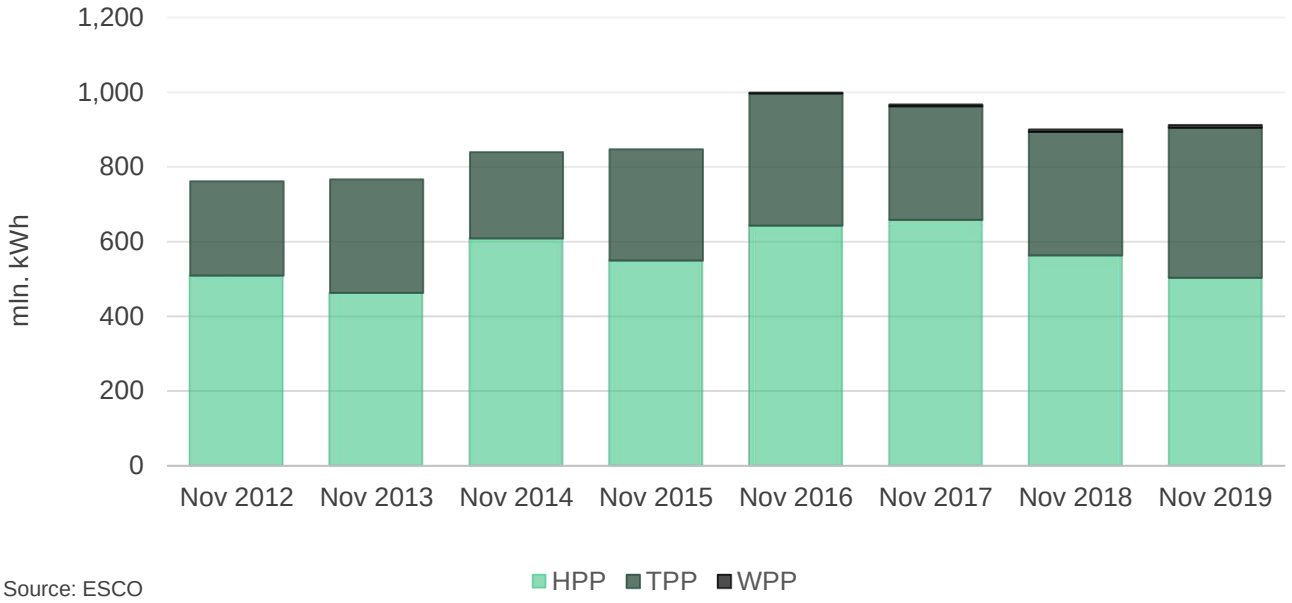
Figure 1 - **Electricity Consumption and Generation**



Source: Electricity System Commercial Operator (ESCO)

As usual, most generation came from hydropower plants (HPPs). In November 2019, hydropower (HPP) generation amounted to 503 mln. kWh (55% of total); wind power (WPP) generation was 8 mln. kWh (1% of total), and thermal power (TPP) generation was 402 mln. kWh (44% of total) (Figure 2).

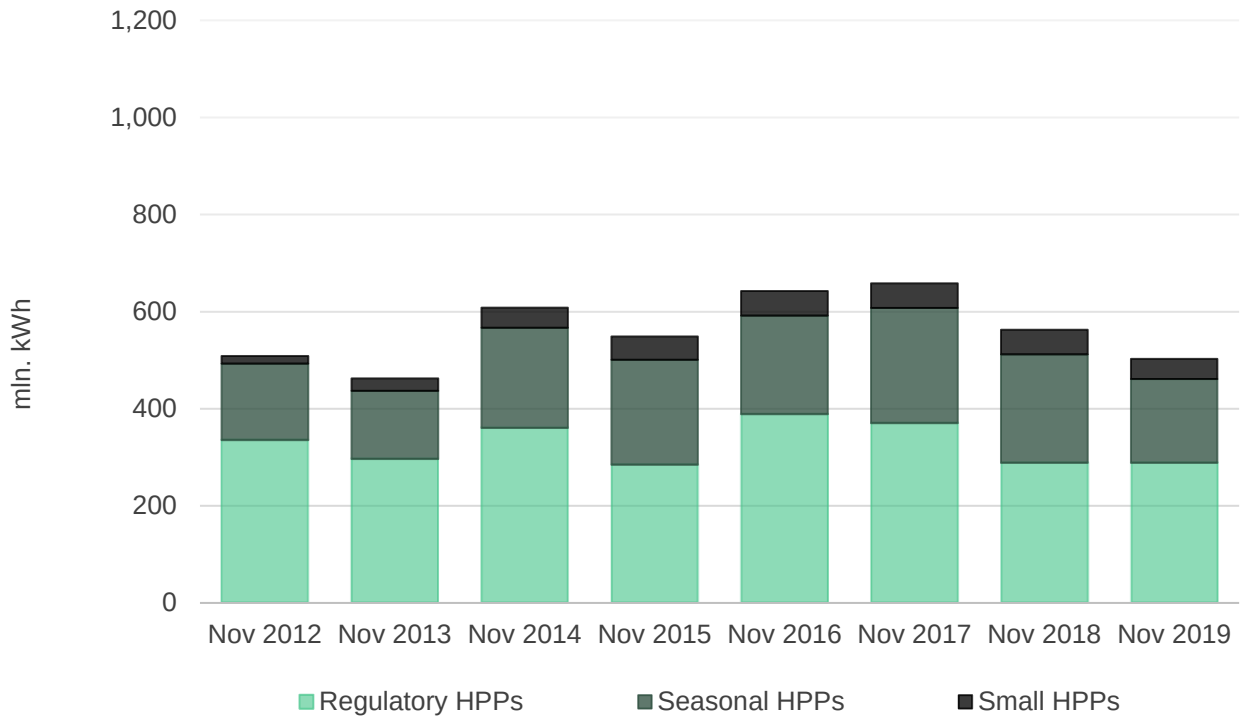
Figure 2 - **Electricity Generation by Sources**



Source: ESCO

Among hydropower generators, large (regulatory) HPPs produced 57% (288 mln. kWh) of electricity, while seasonal and small HPPs produced 34% (173 mln. kWh) and 8% (41 mln. kWh), respectively (Figure 3).

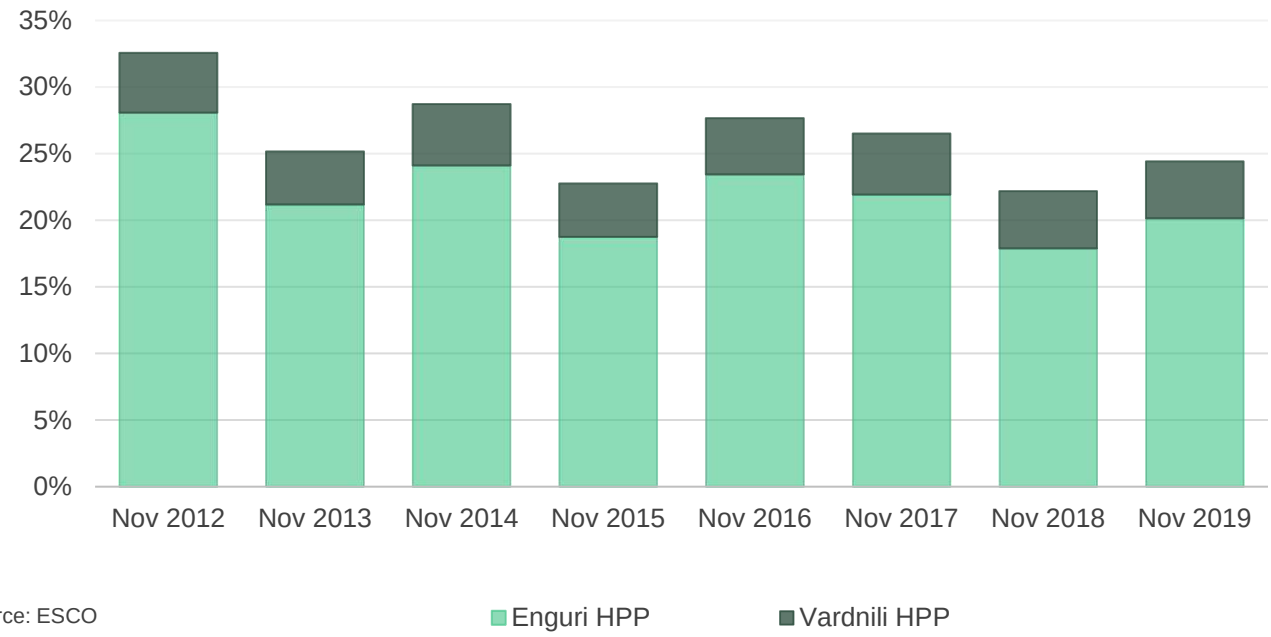
Figure 3 - **HPP Generation by Type**



Source: ESCO

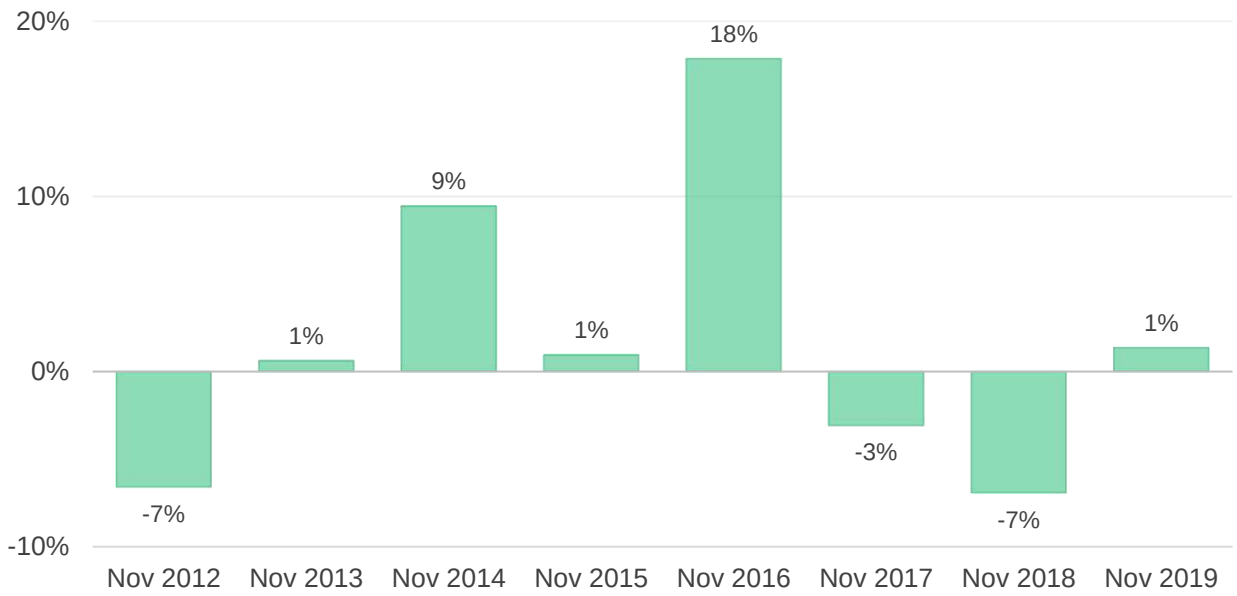
Among the large HPPs, Enguri and Vardnili generated the largest power, producing 223 mln. kWh (77% of generation for regulatory HPPs), with 184 mln. kWh and 39 mln. kWh, respectively. They represent around 24% of the total generation (Figure 4).

Figure 4 - Share of Enguri and Vardnili in Total Generation



Source: ESCO

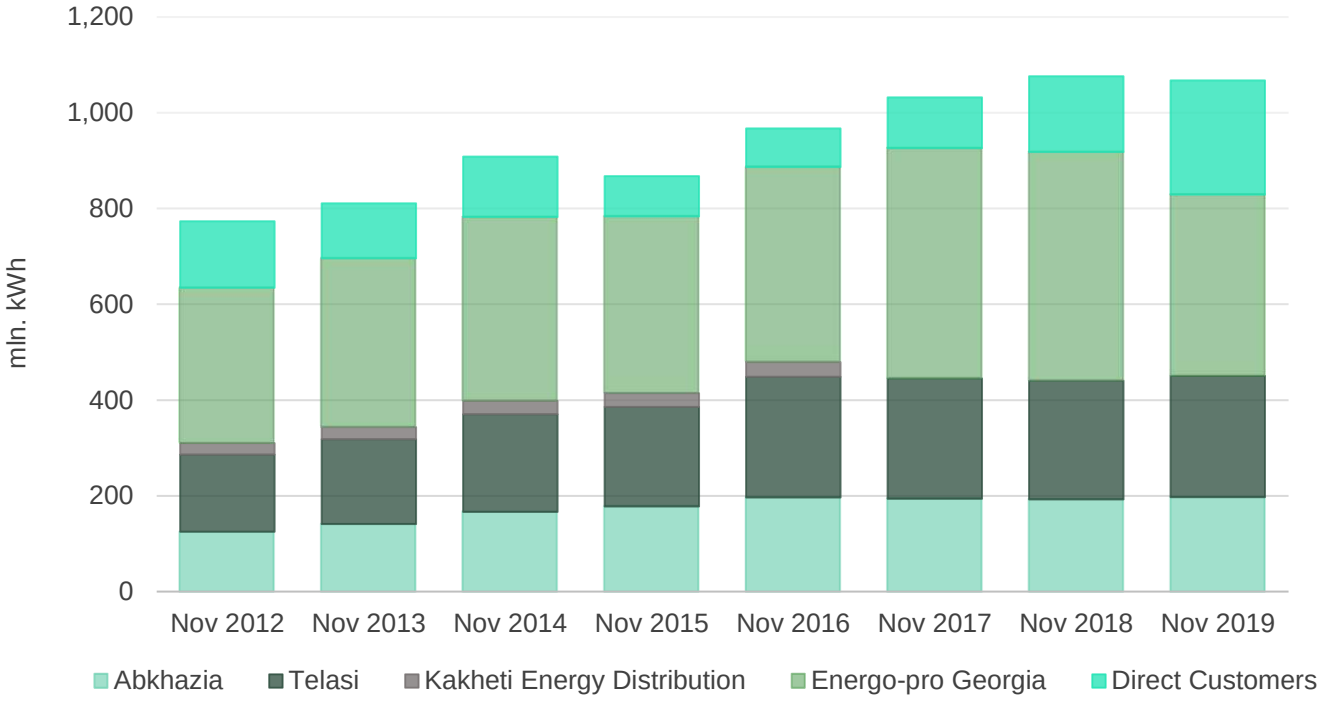
Figure 5 - Growth of Generation (%, y/y)



Source: ESCO

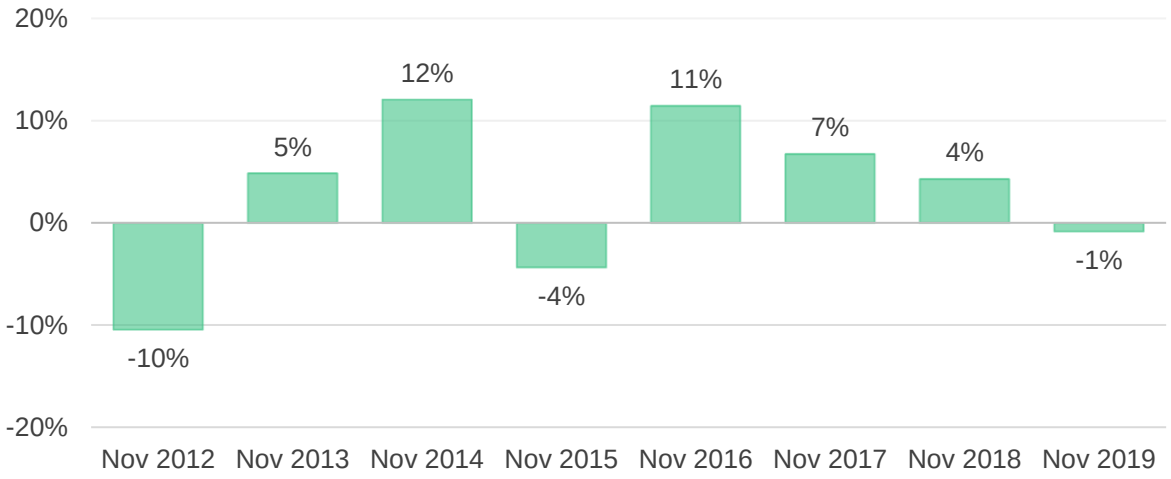
Total electricity demand came from: Energo-Pro Georgia[1] (35% - 379 mln. kWh), Telasi (24% - 253 mln. kWh), Abkhazia (18% - 197 mln. kWh), and direct customers (22% - 239 mln. kWh) (Figure 6). Overall, there was an annual decrease of 1% in the total electricity consumption in November 2019, compared to November 2018 (Figure 7). Annual demand from Energo-Pro Georgia decreased by 21%, more than offsetting the increase from Telasi, Abkhazia and direct consumers (+2%, +2% and +50% respectively).[2]

Figure 6 - Electricity Consumption by Type of Customer



Source: ESCO

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

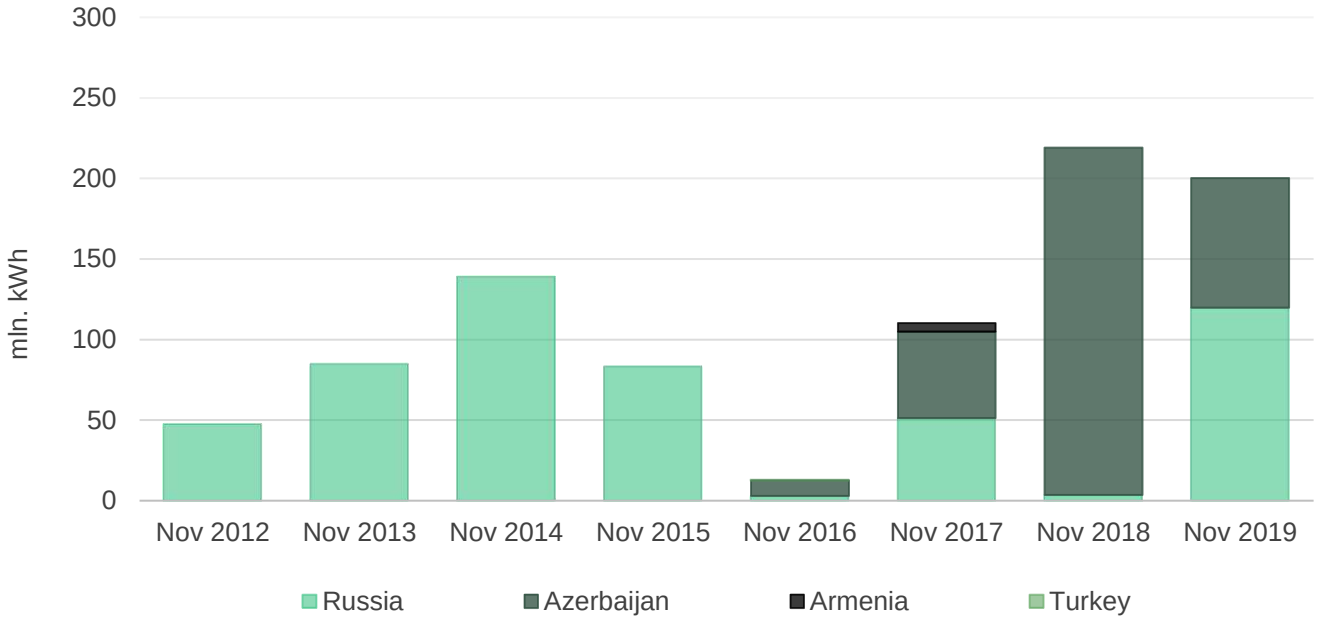


Source: ESCO

[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.

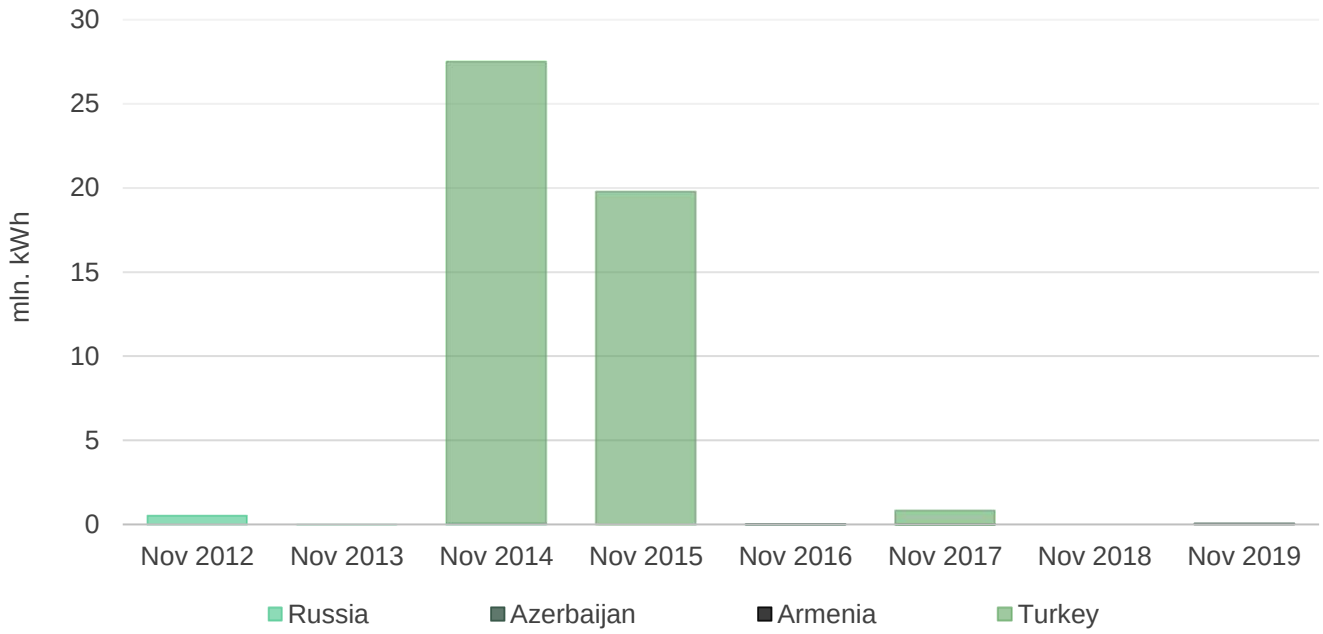
In November 2019, Georgia imported 200 mln. kWh of electricity (-9% compared to November 2018) 60% of which came from Russia, while the remaining 40% was provided by Azerbaijan (Figure 8). In November 2019, Georgia exported 0.06 mln. kWh electricity to Azerbaijan (compared to no exports in November 2018) (Figure 9).

Figure 8 - **Imports by Year**



Source: ESCO

Figure 9 - **Exports by Year**

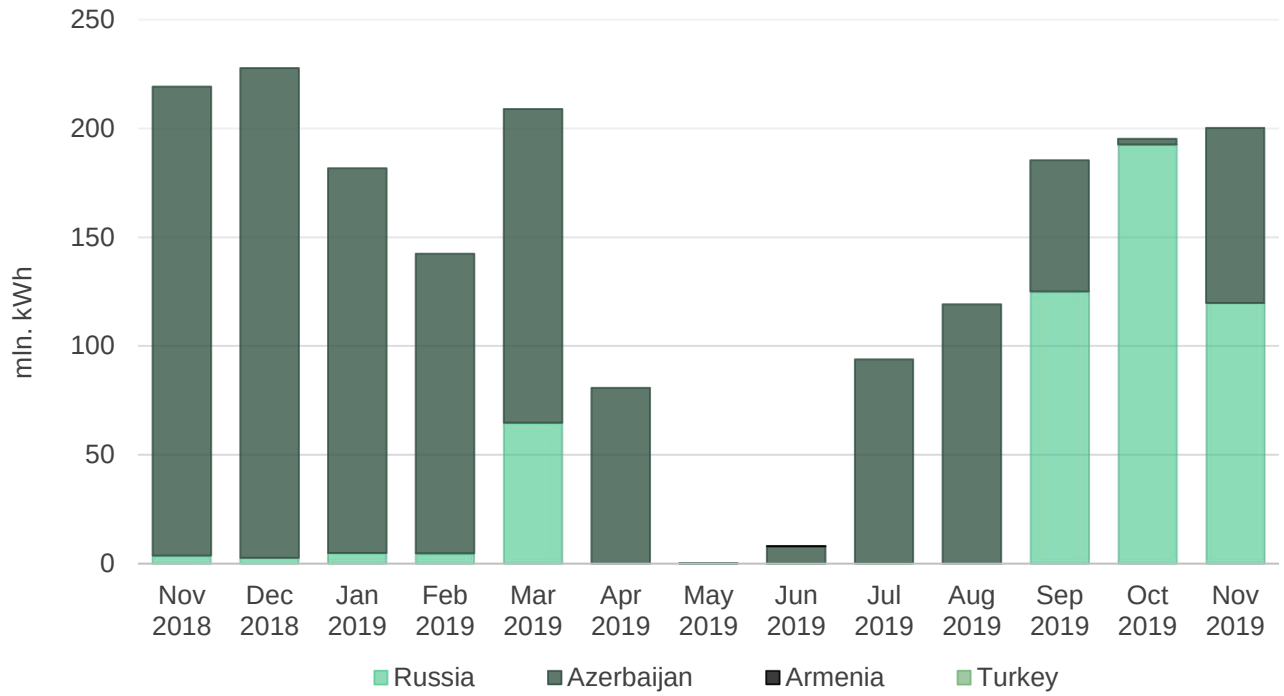


Source: ESCO

In November 2019, electricity imports increased by 2.5% from 195 to 200 mln. kWh compared to the previous month (Figure 10). As for the exports, it decreased from 3 to 0.06 mln. kWh (Figure 11). As mentioned above, in this month the main export partner country was Azerbaijan.

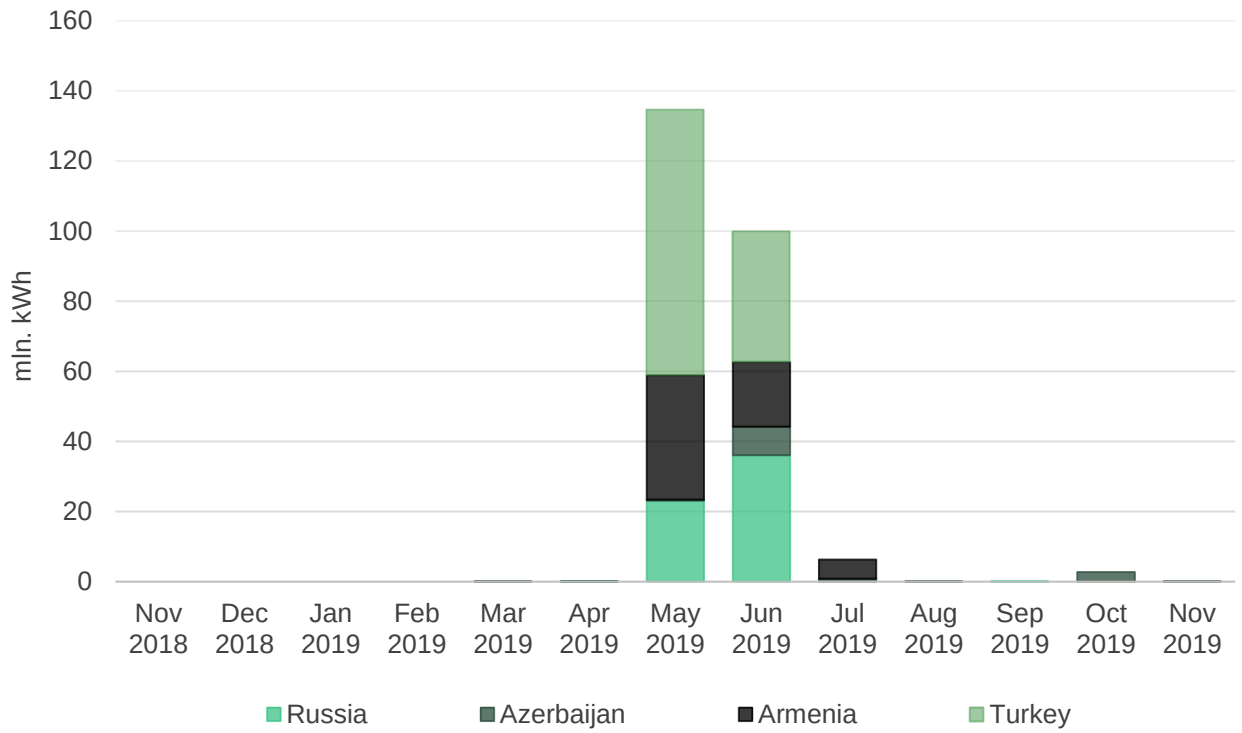
This month 22 mln. kWh electricity was transited from Azerbaijan to Turkey.

Figure 10 - Imports by Month



Source: ESCO

Figure 11 - Exports by Month

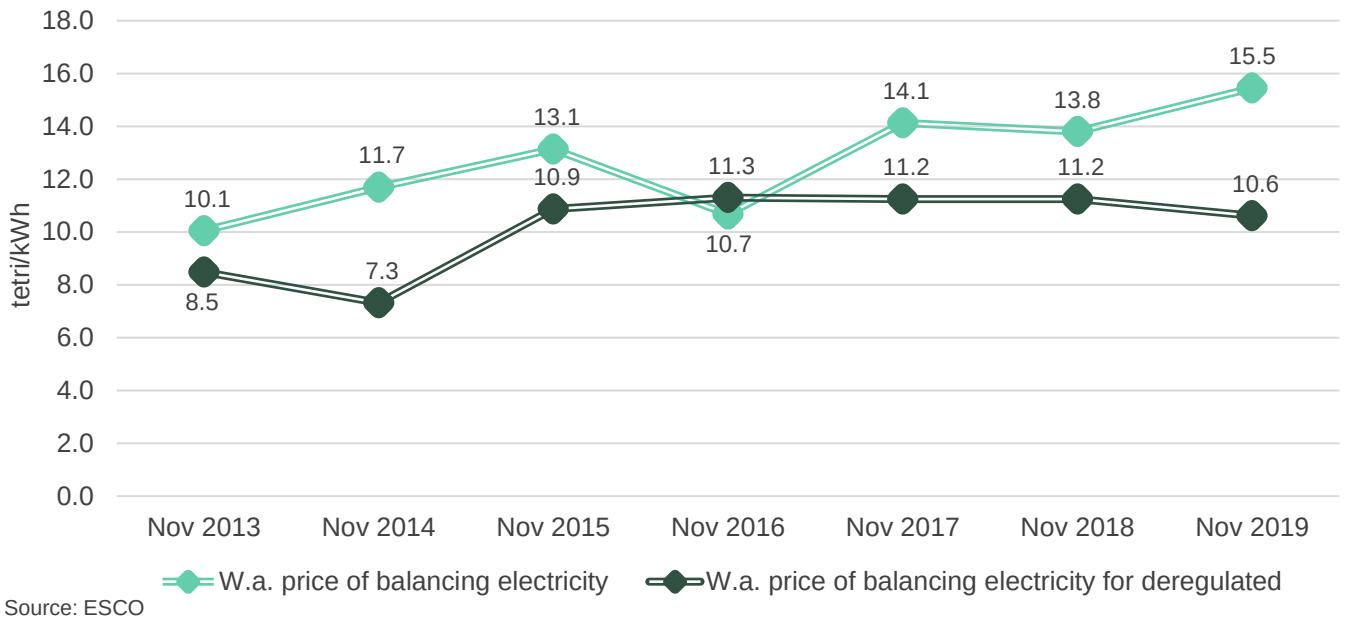


Source: ESCO

1. Market Operations

In November 2019, the weighted average price of balancing electricity was 15.5 tetri/kWh in November 2019, which is an annual increase of 12% compared to November 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 12).

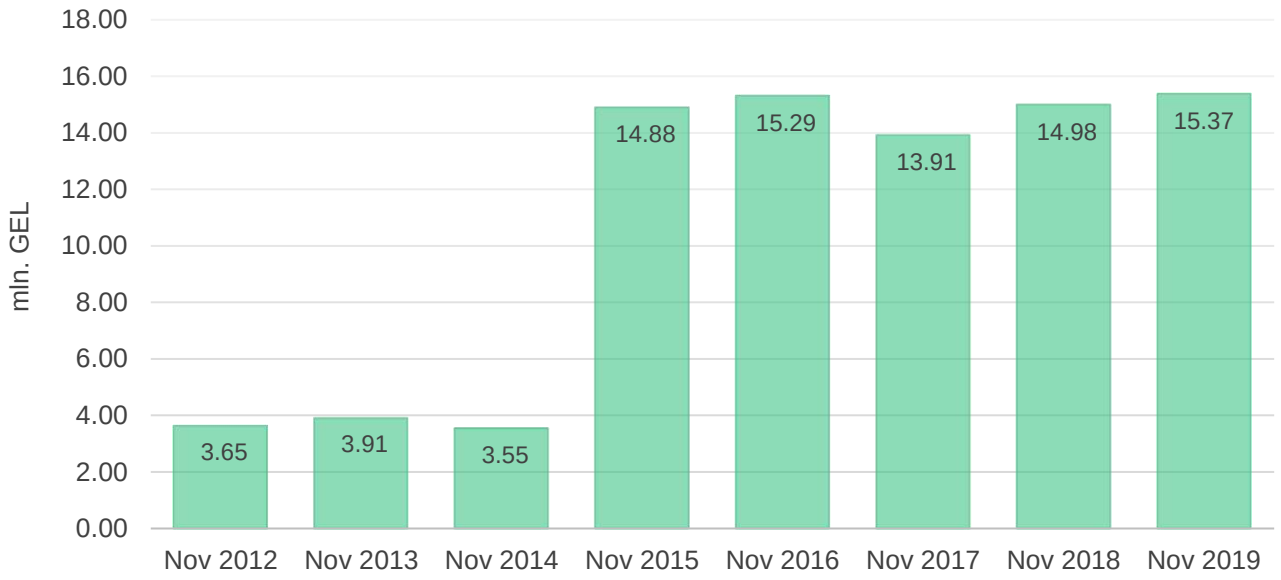
Figure 12 - Balancing Electricity Prices Weighted Average and Weighted Average Price for Deregulated HPPs



Source: ESCO

Guaranteed capacity payments in November 2019 were roughly 15.37 mln. GEL, which represents a 3% increase compared to November 2018 (Figure 13).

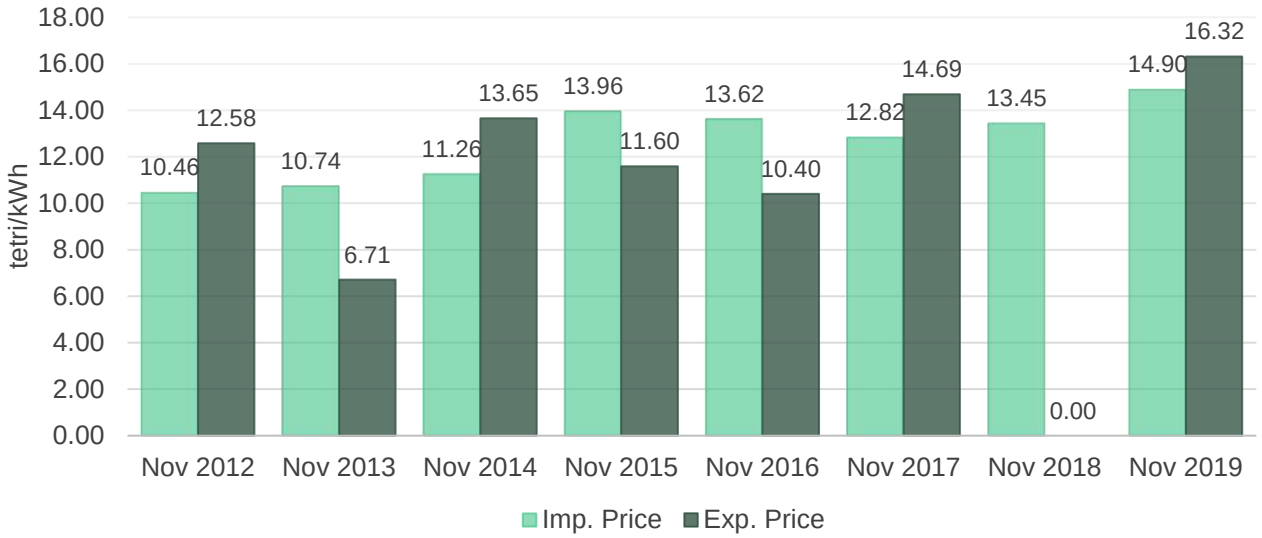
Figure 13 - Cost of Guaranteed Capacity



Source: ESCO

The average electricity import price in November 2019 increased by 11%[3] (from 4.99 ¢ or 13.45 to 5.02 ¢ or 14.9 tetri per kWh) compared to November 2018 (Figure 15). The average import price increased by 6% on a monthly basis (import price was 4.73 ¢ or 14.04 tetri per kWh in October 2019). The average electricity export price in November 2019 was 5.5 ¢ or 16.32 tetri per kWh (Figure 14). The average export did not change much on a monthly basis after October 2019.

Figure 14 - Prices Import/Export



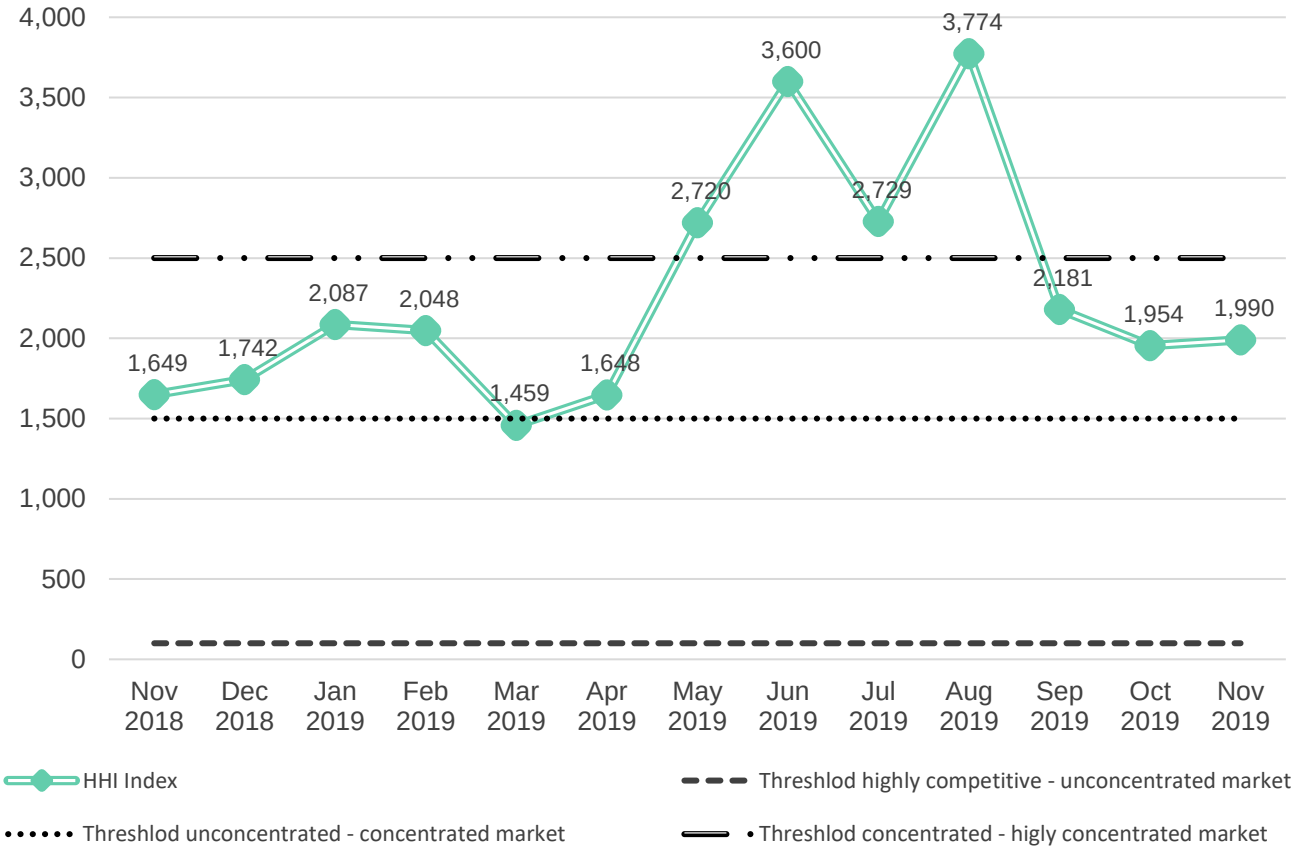
Source: ESCO

[3] Mostly 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 November 2019, the Georgian electricity market was concentrated, with an HHI value of 1,990 (Figure 16). While, Georgian electricity market was less concentrated in November 2018 and October 2019, with an HHI value of 1,649 and 1,945, respectively.

Figure 15 - Hirschman-Herfindahl Index for Power Generation



Source: ESCO