

# ISSET

International School of Economics at TSU  
Policy Institute

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## ELECTRICITY MARKET REVIEW



# ISSET POLICY INSTITUTE

## ENERGY AND ENVIRONMENT POLICY RESEARCH CENTER

### Authors:

Norberto Pignatti

Policy Center Head

 [n.pignatti@iset.ge](mailto:n.pignatti@iset.ge)

Mariam Tsulukidze

Researcher

 [m.tsulukidze@iset.ge](mailto:m.tsulukidze@iset.ge)

Mariam Lobjanidze

Researcher

 [m.lobjanidze@iset.ge](mailto:m.lobjanidze@iset.ge)

Guram Lobzhanidze

Junior Researcher

 [guram.lobzhanidze@iset.ge](mailto:guram.lobzhanidze@iset.ge)

## INFORMATION

- Electricity generation decreased, as a result of a decline in HPP and TPP generation, despite an increase in WPP generation.
- Among the different sources of electricity, hydropower remained dominant despite its share dropping below 80%.
- Electricity demand continued to exceed supply despite its decline in absolute terms, due to the pandemic.
- Imported electricity came mainly from Azerbaijan.
- Georgian exports decreased compared to the previous year and went mostly towards Turkey.
- According to the Hirschmann-Herfindahl Index (HHI) Georgian electricity generation market remained concentrated (closer to the upper threshold).
- According to the Hirschmann-Herfindahl Index (HHI) Georgian electricity consumption market remained concentrated.

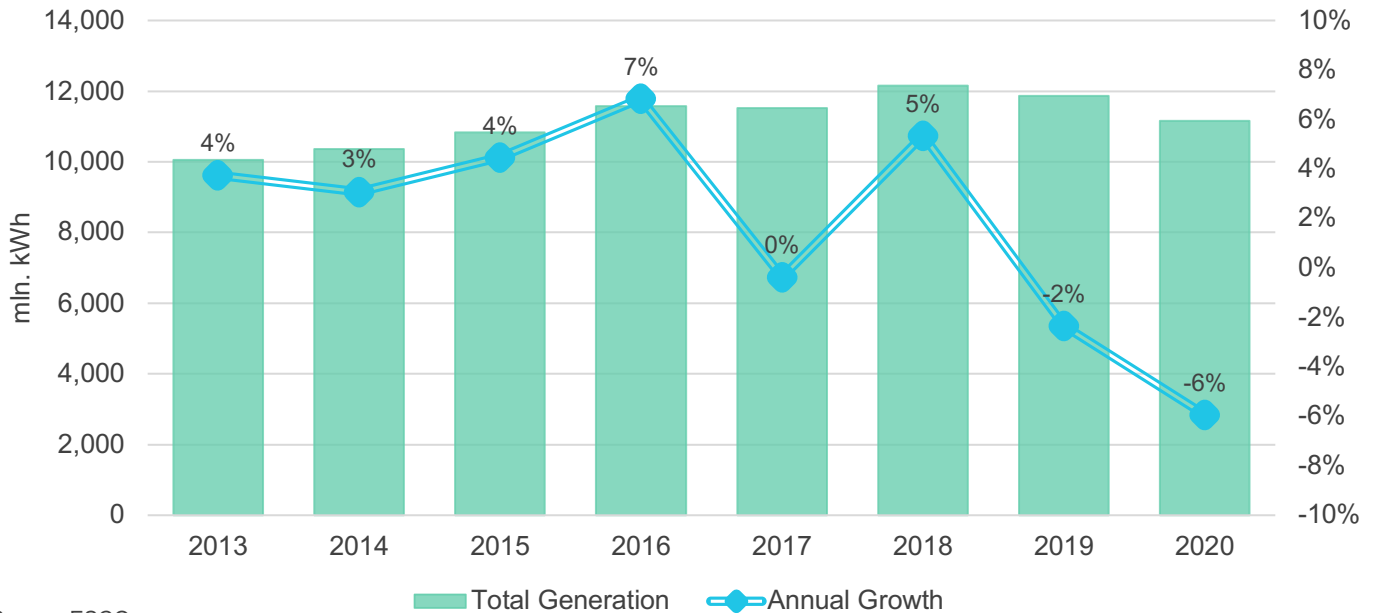
## ABBREVIATION USED

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 2020, Georgian power plants generated 11,160 mln. kWh of electricity. This represents a 6% decrease in total generation, compared to the previous year (in 2019, total generation was 11,865 mln. kWh) (Figure 1). The decrease in generation on a yearly basis comes from decrease in hydro (-8%) and thermal power (-1%), more than offsetting the increase in wind power generation (+7%).

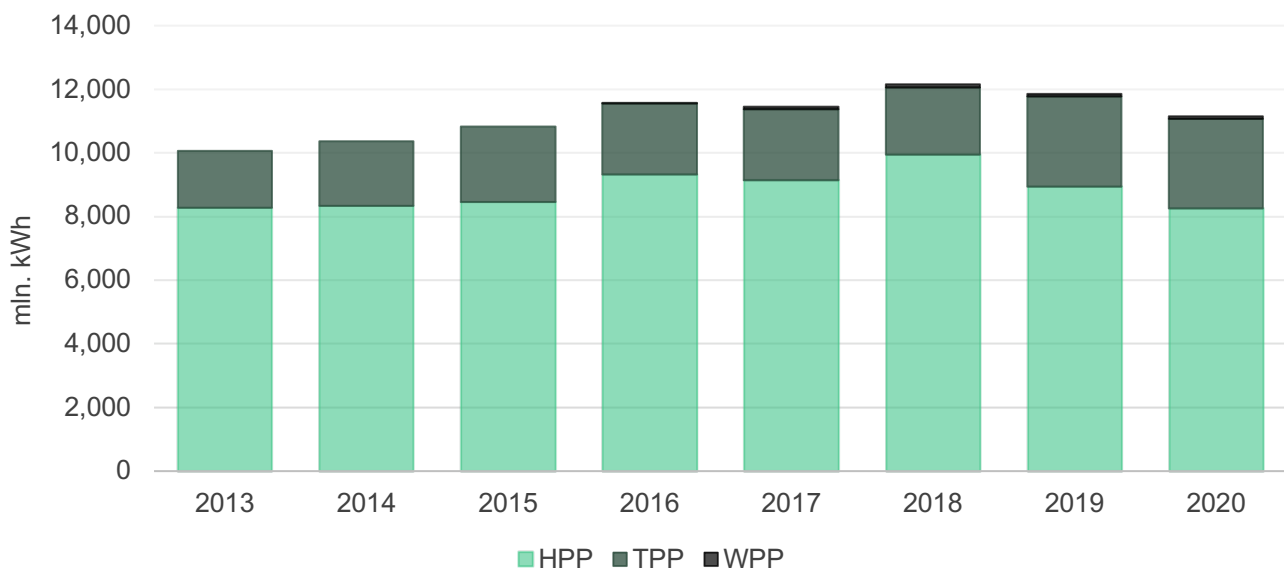
**Figure 1** - Electricity Generation and Annual Growth



Source: ESCO

Among the different sources of electricity, hydropower remained dominant, despite its decline in absolute and relative terms. Specifically, in 2020, hydropower (HPP) generation amounted to 8,248 mln. kWh (74% of total – used to be above 80%); wind power (WPP) generation was 91 mln. kWh (1% of total), and thermal power (TPP) generation was 2,821 mln. kWh (25% of total) (Figure 2).

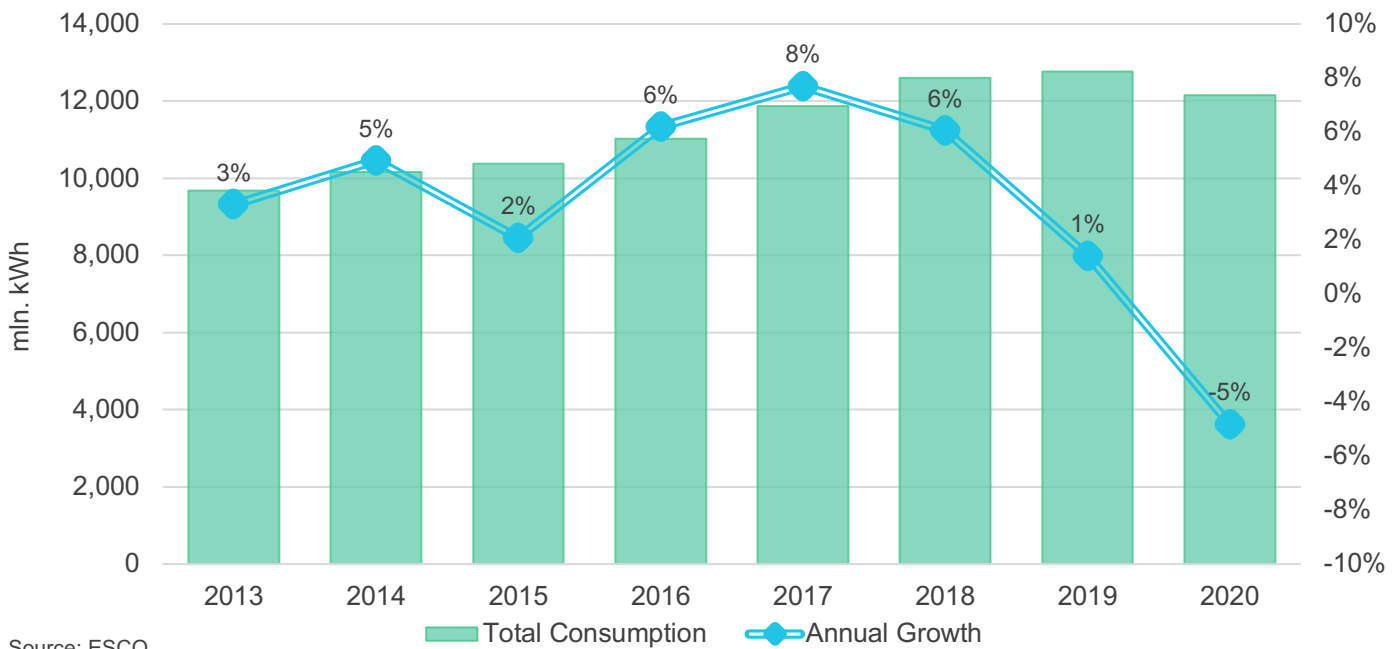
**Figure 2** - Electricity Generation by Sources



Source: ESCO

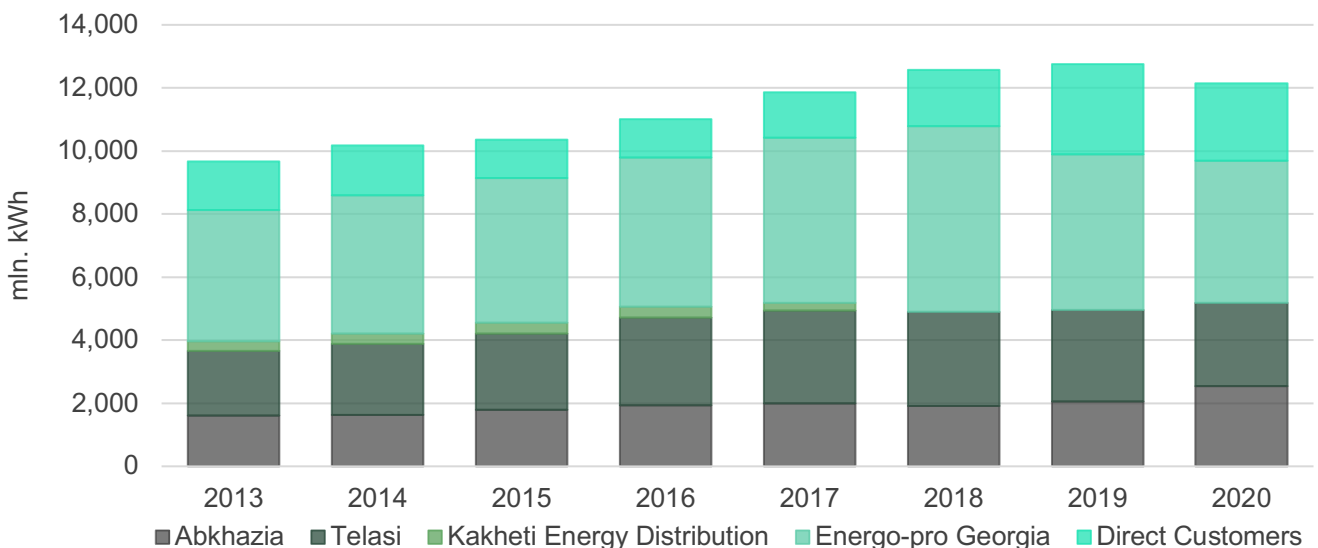
Consumption of electricity in the local market was 12,157 mln. kWh. Overall, the annual decrease in electricity consumption was 5% in 2020 (compared to 2019 -12,774 mln. kWh) (Figure 3). In 2020, total consumption exceeded generation by 997 mln. kWh, which is approximately 8% of the total consumption and 9% of the amount generated (compared to 909 mln. kWh and 8% deficit of total generation for 2019).

**Figure 3 - Total Consumption and Annual Growth**



Total electricity consumption in Georgia came from: Energo-Pro Georgia<sup>1</sup> (37% - 4,512 mln. kWh), Telasi (22% - 2,634 mln. kWh), Abkhazia (21% - 2,552 mln. kWh), and direct customers (20% - 2,438 mln. kWh) (Figure 4). Annual demand from Abkhazia increased by 24%, while it decreased direct consumers, Energo-Pro Georgia and Telasi by 15%, 9%, and 9%, respectively.

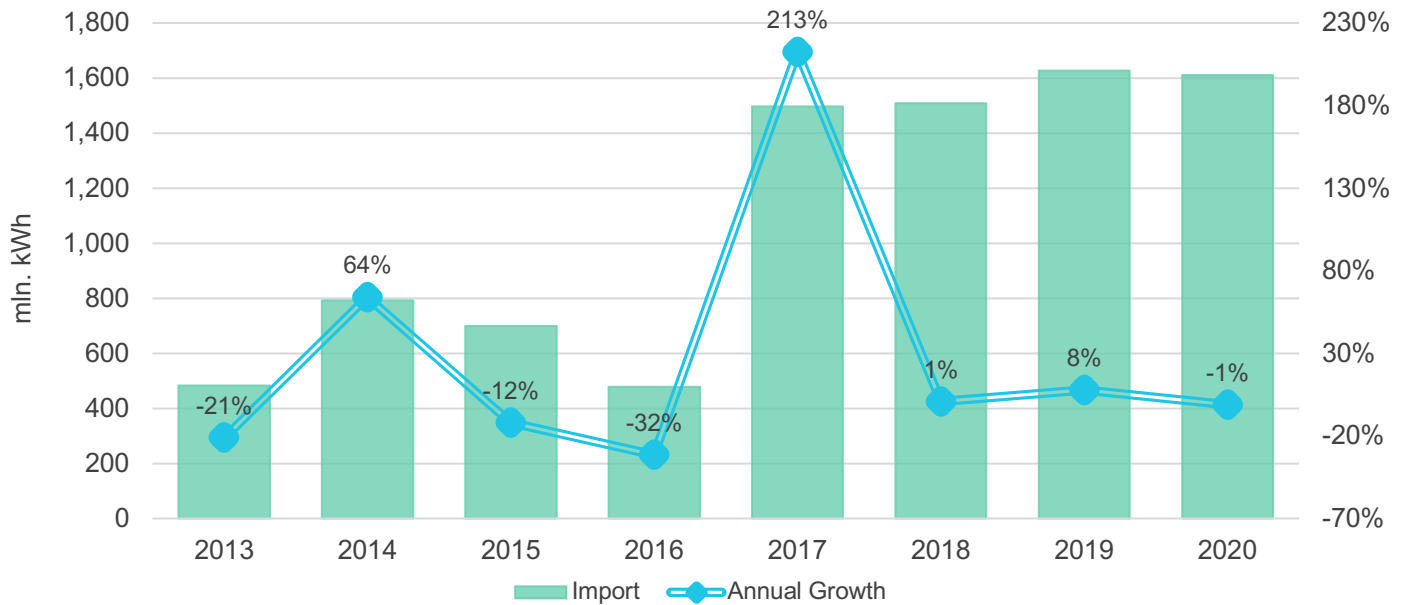
**Figure 4 - Electricity Consumption by Type of Customer**



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

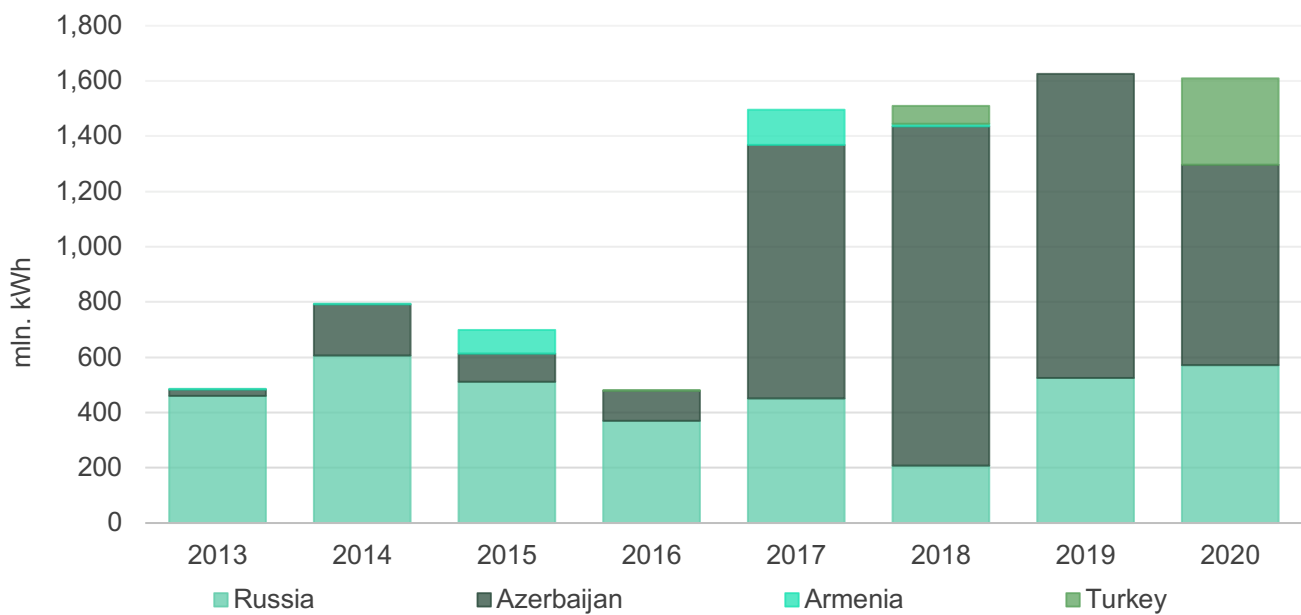
In 2020, electricity imports decreased by 1% from 1,627 to 1,610 mln. kWh compared to 2019 (Figure 5). For the fourth year in a row, the main electricity provider was Azerbaijan, providing 45% of the total imported, while the second major trade partner was Russia offering 35% of imported electricity (Figure 6).

**Figure 5 - Imports and Annual growth**



Source: ESCO

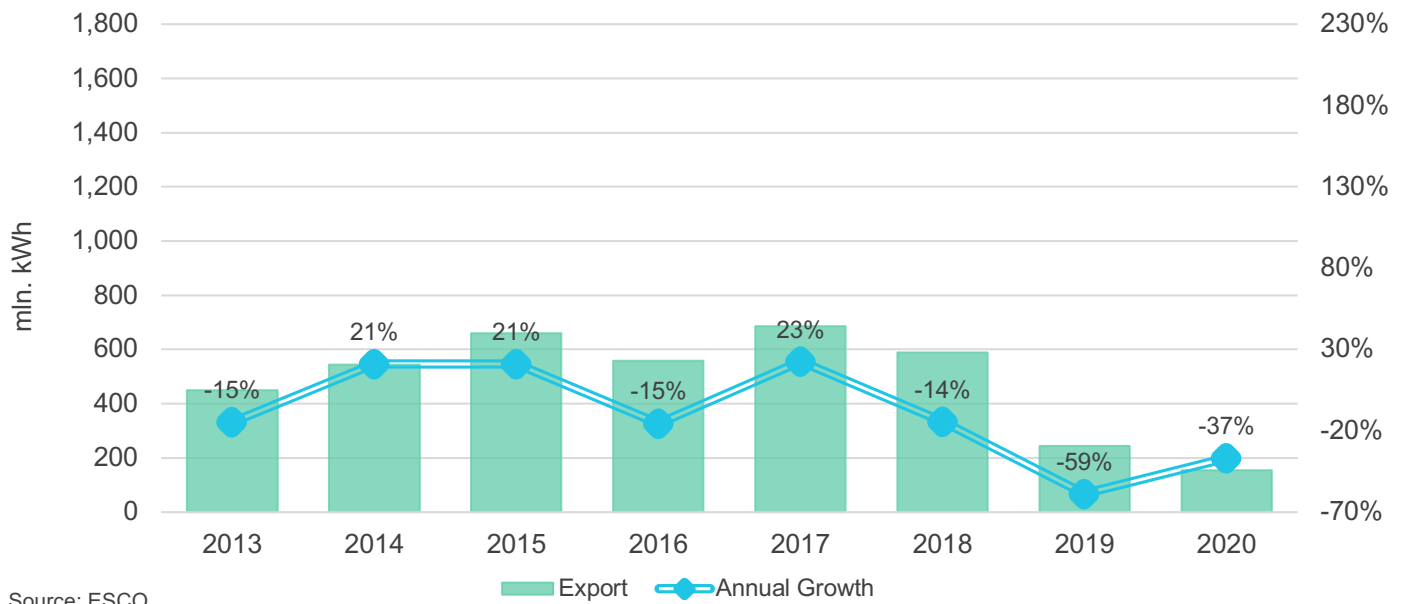
**Figure 6 - Imports by Country**



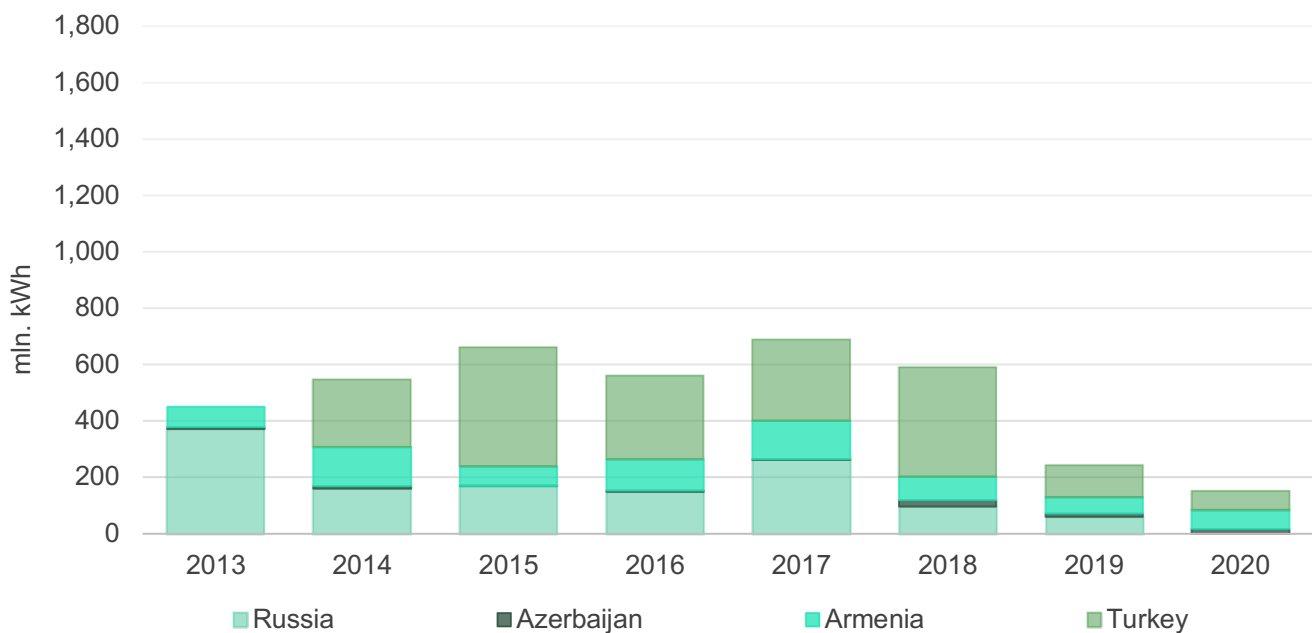
Source: ESCO

In 2020, electricity exports decreased by 37%, from 243 to 154 mln. kWh compared to 2019 (Figure 7). In this year, the main electricity consumer was Turkey, absorbing 45% of the total exported electricity. The second major export partner was Armenia purchasing 43% of exported electricity. The remaining (12%) was demanded from Azerbaijan (Figure 8).

**Figure 7** - Exports and Annual Growth

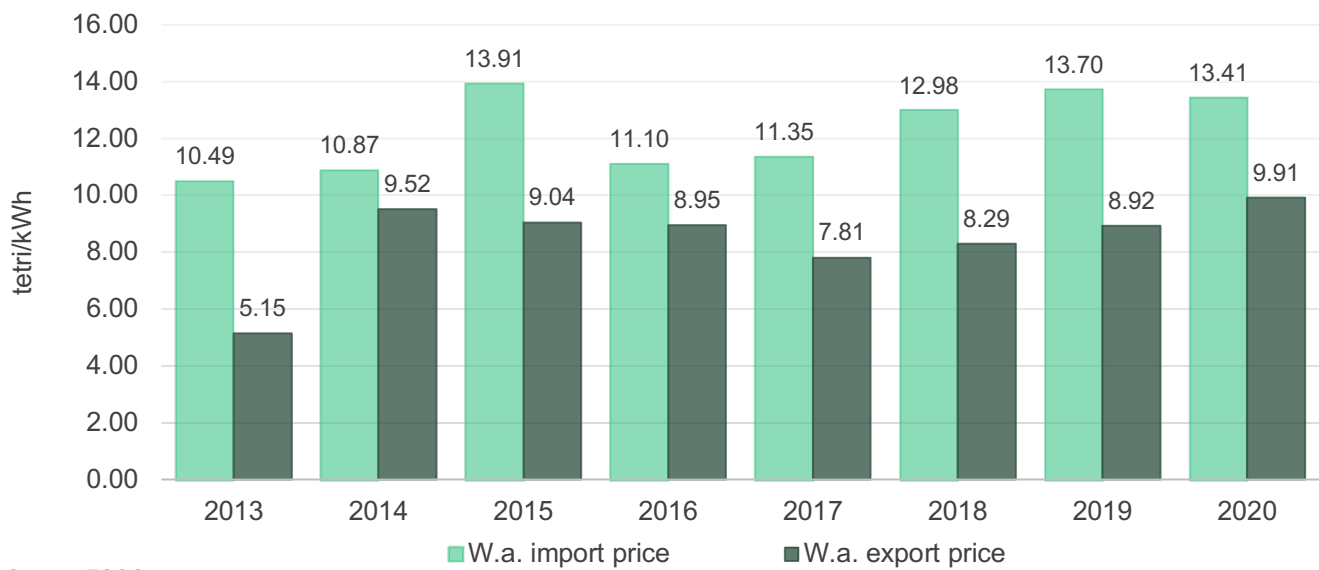


**Figure 8** - Exports by Country



The weighted average electricity import price in 2020 decreased to 13.41 tetri per kWh (a decrease of 2%) compared to 2019. As for the weighted average export prices, it increased to 9.91 tetri per kWh (an increase of 11%) compared to 2019 (Figure 9).

**Figure 9 - Prices Import/Export**

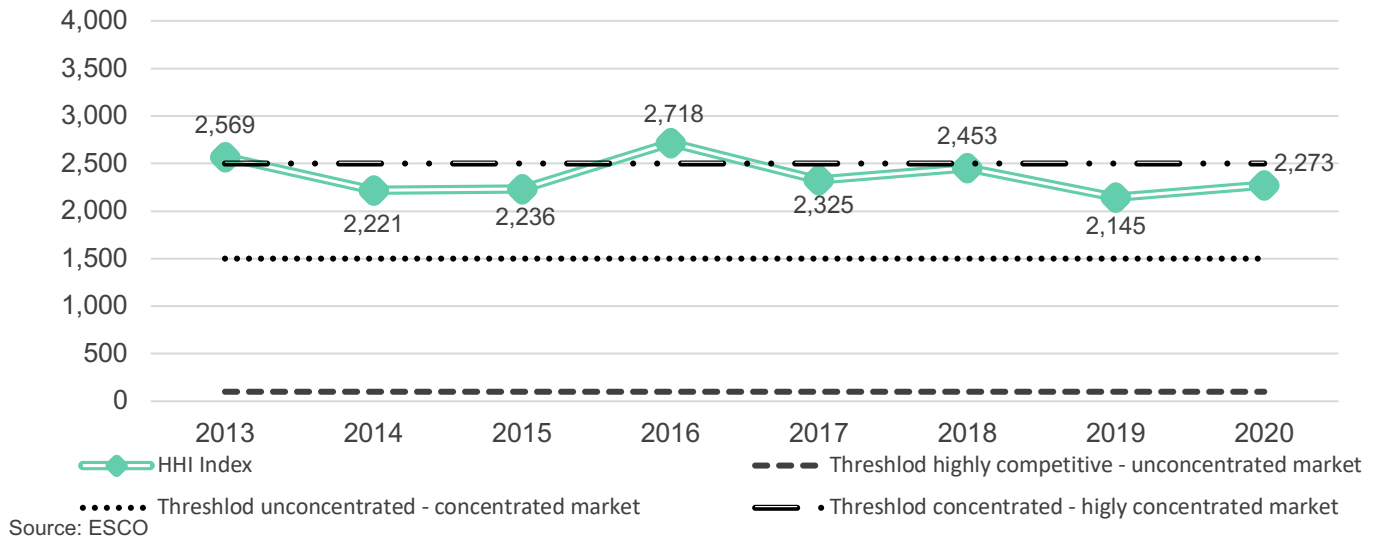


Source: ESCO

## 2. Market Concentration

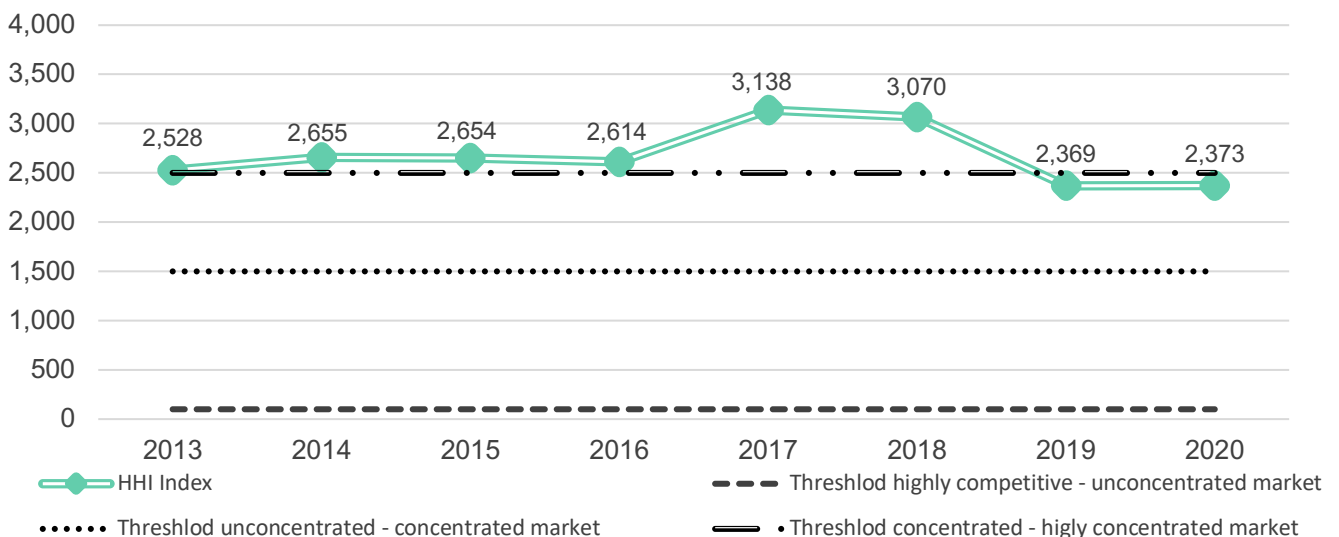
In conclusion, we utilize the Hirschmann-Herfindahl (HHI) market concentration index to evaluate how competitive the generation and consumption segments of the market have been over the years. As shown in Figure 10, in 2020, the Georgian electricity generation market was close to the threshold for a highly concentrated market, with an HHI value of 2,273 (the threshold for an un-concentrated market is 1,500, while for a highly concentrated market is 2,500). The level of concentration is higher than in 2019 (2,453), and lower than in 2016 and 2013, the two most recent years in which the index passed the 2,500 thresholds.

**Figure 10** - Yearly Hirschman-Herfindahl Index for Power Generation



On the consumption side, the HHI index for the electricity wholesale market has historically been above the threshold value of 2,500, which qualifies it as highly concentrated. The HHI index had shown a slow growth since 2012, jumped above 3,000 in 2017 and remained above in 2018 (to 3,138 and 3,070, respectively) (Figure 11). In 2020, for the second year in a row HHI index for the electricity wholesale market has been below the threshold value of 2,500. According to the HHI index in 2020, the demand side of the Georgian electricity consumption market was concentrated, with an HHI value 2,373.<sup>2</sup>

**Figure 11** - Yearly Hirschman-Herfindahl Index for Electricity Consumption



<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 HHI consumption index as many individual buyers joined the market.