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RESEARCH

Georgia's Energy Sector
Electricity Market Watch - FY23

Georgia | Energy
Summary of 2023
February 2, 2024

Key Highlights of 2023

The energy sector witnessed an outstanding year in 2023, marked by record-high export revenue and a positive trade balance. Electricity exports soared to 1.5TWh, reflecting a remarkable 51.2% y/y growth, generating US$ 95.4mn in revenues, an increase of 13.2% y/y. This growth was attributed to elevated electricity prices in Turkey and increased export volumes, driven by decreased local consumption and enhanced thermal generation. Concurrently, imports were kept minimal, aligning with the reduced energy needs of the Abkhazian region, which receives electricity from Russia at USc 0.1/kWh. Consequently, the year 2023 concluded with a positive trade balance of US$94.4mn, representing a 122.0% y/y increase, and Georgia became a net exporter of electricity, with a record high net export of 0.7TWh. (Details on P. 7-10)

Electricity consumption in Georgia reduced by 7.9% y/y in 2023, after a decade of unprecedented growth (excluding year of Covid-19). This decrease was attributable to reduced consumption of the Abkhazian region and direct consumers such as data mining and metallurgical companies. The reduced consumption not only led to a decrease in electricity imports but also, coupled with the growth in thermal generation, facilitated an increase in exports. (Details on P 6-7)

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Other news on the market:

- Installed capacity of Georgia increased by 28.7MW to 4.6GW in 2023 (Page 2)
- Second capacity auction for 800MW renewable capacity announced (Page 3)
- GNERC decreased tariffs for retail consumers (Page 4) and approved new tariffs for regulated HPPs (Page 5)

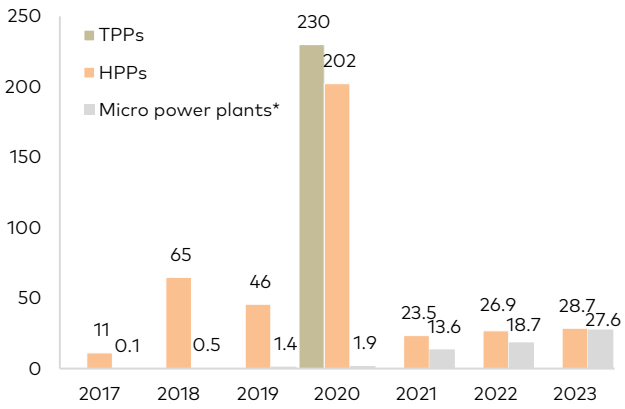
Capacity additions in 2023

7 hydro power plants were commissioned in 2023, with a total installed capacity of 28.7MW. The largest was the 20.0MW Mestiachala-1 HPP, which was re-commissioned second time in Dec-23 (first commissioning was in 2019, but HPP stopped operation after flooding accident). Other 6 HPPs include: Dmanisi HPP (2.0MW), Toloshi HPP (1.7MW), Roshka and Roshka-1 HPP (2.5MW), Korsha and Korsha-1 HPPs (2.5MW).

Notably, micro power plants had impressive growth in 2023: 316 power plants with total capacity of 27.6MW were added to the distribution grid. Micro power plants are power plants with installed capacity of less than 0.5MW falling under "Net Metering" regulations (special support scheme allowing direct connection between micro power plants and consumers). These power plants also have additional support from "Enterprise Georgia" and donor organizations. By end-2023, total capacity of power plants benefitting from net metering regulation reached 64MW (over 1,000 stations). Due to high interest, GNERC increased the maximum allowed capacity for such stations from 4% to 8% of the peak load, which is about 100-110 MW. The generation of such power plants is not included in generation statistics. Part of their generation reduces statistics of retail consumption.

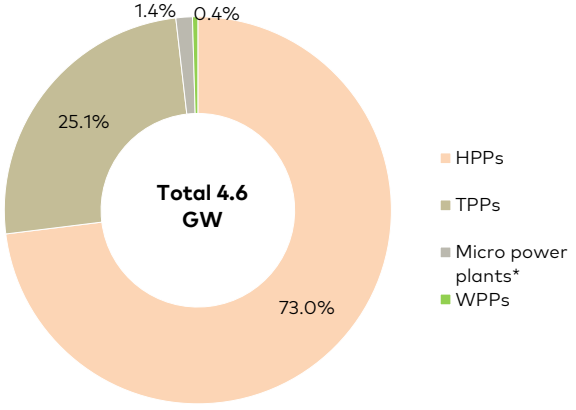
Installed capacity of Georgia reached 4.6GW by end-2023. Of which 3.4 GW were HPPs (115 stations), 1.2 GW thermal power plants (6 stations), 20.6 MW - wind power plant and 64 MW micro power plants. With the introduction of a Contract for Differences (CFD) as a new support mechanism for the development of renewable energy, we anticipate an increase in investor interest and acceleration of capacity additions in coming years.

Figure 1: Installed capacity additions, MW



Source: ESCO, GSE, GNERC, Galt & Taggart
Note: Capacity additions by year of commissioning; micro power plants have installed capacity of less than 0.5MW and fall under net-metering regulation

Figure 2: Installed capacity of Georgia, Dec-23 GW



Source: GNERC, Galt & Taggart

Second capacity auction

Second capacity auction for 800 MW renewable capacity announced. Ministry of Economy and Sustainable Development starts receiving application on February 8, 2024 untill 18:00 February 12, 2024. The auction winners will be announced by end of March 2024. Unlike the previous auction, this one also accepts power plants with regulation capabilities. Capacity limits by plant type can be found on the Ministry's website here or in the table below:

Table 1: Upper limits of capacity announced at the second capacity auction, MW

Project type	**Total capacity**	Power plants with no regulating capabilities	Power plants with regulating capabilities (reservoir or storage unit)
Hydro	400	100	300*
Wind	195	125	70
Solar	195	125	70
Others	10	10	
Total	**800**	**360**	**440**

Source: Ministry of Economy and Sustainable Development, Galt & Taggart
* There are additional sub-limits based on reservoir volume (hours).

The auction winners will secure contract for difference (CFD) agreements with the government and ESCO, offering compensation based on the day-ahead market price and CFD price difference. Notably, some amendments were made into legislation stating that prior commencement of day-ahead market CFD contract owners will be compensated by ESCO with full CFD price, **similar to standard PPA principle**.

The amendment to the legislation also defined what the regulating capabilities are and how a violation of the regulation condition affects the final tariff. These modification show country's needs and set the right technological priorities for developers. It is important that the classification of storage devices as a means of regulation happened for the first time in Georgia, which is in line with modern international technological achievements and increases the potential of wind and solar utilization.

Other principles of the auction and the key terms of the CFD contract are summarized in one of our previous reports here.

Retail electricity tariff and its components

GNERC reduced electricity tariff for residential and commercial users of retail market by 3 tetri. For residential users this is on average 14.0% decrease and 10.0% for businesses. In Georgia, the tariff is differentiated according to the monthly consumption volume, voltage and service company. The table below shows the current tariffs for all categories of retail customers and the percentage change compared to the previous period.

Table 2: Retail electricity tariffs in 2024-25, per kWh

User category	Monthly consumption/voltage	Telmico		EP Georgia supply	
		tariff	change, %	tariff	change, %
Residential consumers	<100 kWh	15.0	-16.6%	14.7	-16.9%
	101-300 kWh	19.1	-13.6%	18.7	-13.8%
	>300 kWh	23.5	-11.3%	23.2	-11.4%
Businesses	220 V	29.9	-9.1%	29.0	-9.4%
	6-10 kV	26.6	-10.1%	27.9	-9.7%
	35-110 kV	24.4	-11.0%	25.3	-10.6%

Source: GNERC, Matsne, Galt & Taggart
Note: Prices include VAT
Note 2: Includes the tariff of both the universal service provider (residents and small businesses) and the electricity providers in the form of public service (Telmiko and other consumers of EP Georgia)

Notably, the tariffs apply to approximately 60% of the total electricity consumption (population fully and part of businesses), while the rest of the consumers (mainly large businesses) buy electricity on the wholesale market not regulated by GNERC. The dynamics of wholesale prices can be found on page 11.

The retail electricity tariff has 4 main components:

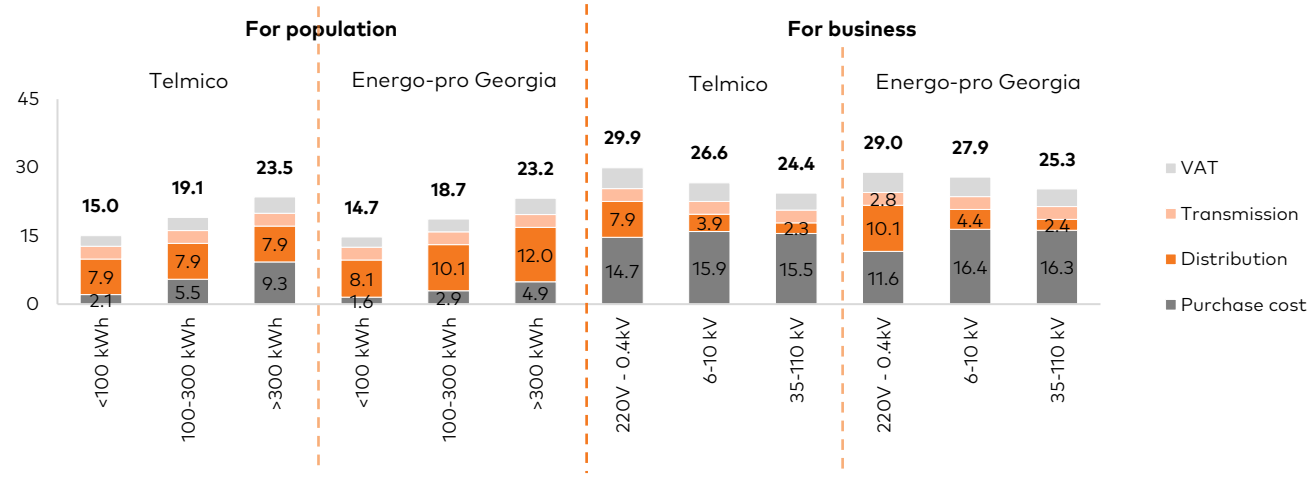
1. Cost of electricity purchase: Electricity suppliers buy electricity on wholesale market, directly from power plants or from ESCO. Suppliers of retail market get cheap electricity from Enguri (3.41Tetri/kWh), lowering average price of electricity to 4.4 tetri/kWh for population. Average price for commercial users is 15.0 Tetri/kWh. This component also includes various fees, such as the ESCO's service fee and the guaranteed capacity fee.

2. Tariff for distribution of electricity: This component takes into account the costs of rehabilitation/expansion of the electricity distribution grid, the planned and already implemented investments and the reasonable return on these investments. The difference between the planned and actual costs and revenues in the previous tariff period are also included in tariff calculation with reflection of the time value of money. The distribution company for Telmico is Telasi and its tariff averages 7.9 tetri/kWh for 2024-25 tariff period. EP Georgia's distribution is done by Energo-Pro Georgia, with an average tariff of 10.1 tetri/kWh.

3. Electricity transmission fee of GSE, which for 2024-25 tariff period is set at 2.813 tetri /kWh (5.6% increase compared to 2020-23 period). The increase of this component is related to the planned investments of state company Georgian State Electrosystem (GSE) in the high-voltage transmission network.

4. State taxes: Value added tax, which is 18% of the tariff.

Figure 3: Retail electricity tariff by components for 2024-25, per tetri/kWh



Source: GNERC, Matsne, Galt & Taggart

Tariffs of regulated HPPs

GNERC approved new tariffs for regulated power plants based on their investment plans and projected generation. The tariff increased for Enguri (+29.9%), Vardnili (+19.6%), Zhinvali (+33.2%) and Gumati (x3.3) and decreased for Dzevrula (-70.5%) and Lajanuri (-22.9%) HPPs. Notably, GNERC sets tariff caps only for HPPs which were constructed prior 2008 and have installed capacity over 65MW. In 2023, these HPPs accounted for 66.4% of hydro generation and 47.5% of total supply to the grid.

Table 3: Tariff limits for regulated power plants, Tetri/kWh

HPP Name	Old tariff	New tariff	% change	Generation in 2023, GWh	share in total supply, %
Enguri	1.857	2.412	29.9%	3,556	23.4%
Vartsikhe	1.250	1.250		911	6.0%
Vardnili	2.565	3.067	19.6%	677	4.5%
Lajanuri	2.768	2.133	-22.9%	400	2.6%
Zhinvali	2.721	3.625	33.2%	378	2.5%
Gumati	2.494	8.296	232.6%	334	2.2%
Khrami-2	4.149	4.149		324	2.1%
Khrami-1	2.300	2.300		206	1.4%
Dzevrula	4.653	1.374	-70.5%	148	1.0%

Source: GNERC, Matsne, Galt & Taggart
Note: GNERC sets fixed price only for Enguri and Vardnili HPPs, tariff of other HPPs is actually upper-cap

Electricity supply, demand and prices

Supply: In 2023, electricity supplied to the grid reached 15.2TWh, out of which 10.9TWh (71.5%) was hydro generation, 3.4TWh (22.7%) thermal generation, 0.09TWh (0.6%) wind generation and 0.8TWh (5.2%) of electricity was imported.

Demand: Out of these 15.2TWh of electricity supplied to the grid in 2023, the majority, 13.1TWh (86.0%) was consumed locally at wholesale level, 1.5TWh (9.7%) was exported and 0.7TWh (4.4%) lost during transmission in high voltage grid.

Electricity consumption

Electricity consumption in Georgia dropped by 7.9% y/y in 2023. This decline was driven by significant drop in consumption of Abkhazian region (-10.8% y/y) and direct consumers (-25.4% y/y). Among direct consumers, the consumption decrease was significant for data mining companies, manganese producers, and metallurgical companies. These companies reduced their electricity usage due to lower production levels, likely influenced by declining demand and prices for their final products. Notably, this downward trend started in 2H22 and is expected to continue in 1H24.

Figure 4: Electricity consumption by consumer groups, TWh

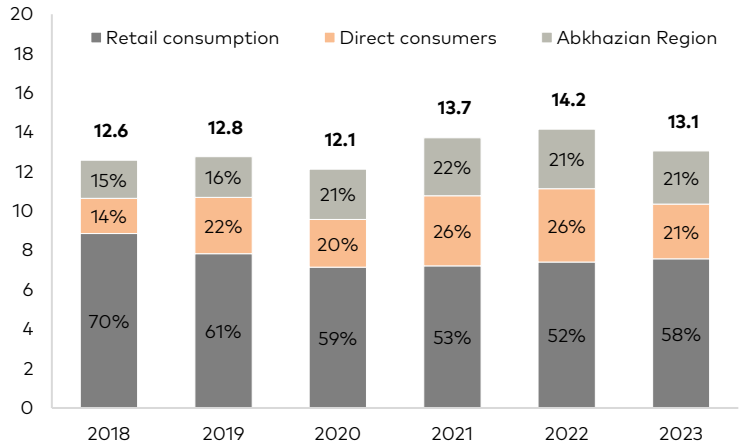


Table 4: Local demand growth breakdown, 2023

Consumer	Growth rate, y/y	Share in consumption
Domestic consumption	**-7.9%**	**100.0%**
Abkhazian region	-10.8%	20.7%
Direct consumers**	-25.4%	21.3%
Retail consumption*	+2.2%	58.0%
EPG Supply*	+1.4%	34.3%
Telmico*	+3.2%	23.7%

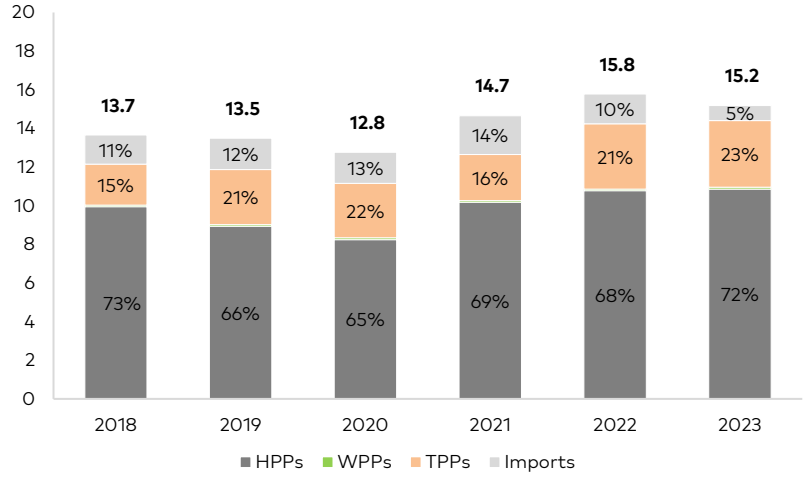
Source: GNERC, Galt & Taggart
* EPG Supply used to be Energo-pro Georgia and Telmico used to be Telasi prior Jun-21. The name and functions changed in line with ongoing energy reform's unbundling requirement.
** Consumption of direct consumers increased in 2021 and 2022 mostly due to reallocation of certain consumers from retail to wholesale market in "direct consumers" category, enforced by legislative changes. Criteria for mandatory registration as direct consumer is currently 0.4GWh per month.

Supply of electricity

Decreased electricity consumption resulted in lower electricity imports. Hydro generation was up by 0.9% y/y and satisfied 71.5% of total electricity demand in 2023. **Wind generation** accounted for only 0.6% of the grid's supply. **Thermal generation** (22.7%) and direct imports (5.2%) covered the remaining 27.9% of the demand. Thermal generation was up by 1.7% y/y (from previous years' high base of +42.4% y/y), while electricity imports decreased by 48.5% y/y to lowest volume since 2016.

The shift from direct import of electricity to thermal generation working on imported natural gas in 2022-23 happened due to the cost difference: the price of commercial import was in the range of USc 7.0-7.5/kWh, while price of thermal generation ranged between USc 3.4 and USc 5.4/kWh depending on TPP. Notably, the thermal generation prices were unaffected by global price spikes due to the availability of "social gas," a cheap gas supplied to Georgia for transit via the South-Caucasus Pipeline from Azerbaijan to Turkey. Moreover, this supply mix prolonged the export period from April to September.

Figure 5: Electricity generation and imports, TWh



Source: GNERC, Galt & Taggart

Table 5: Supply growth breakdown 2023

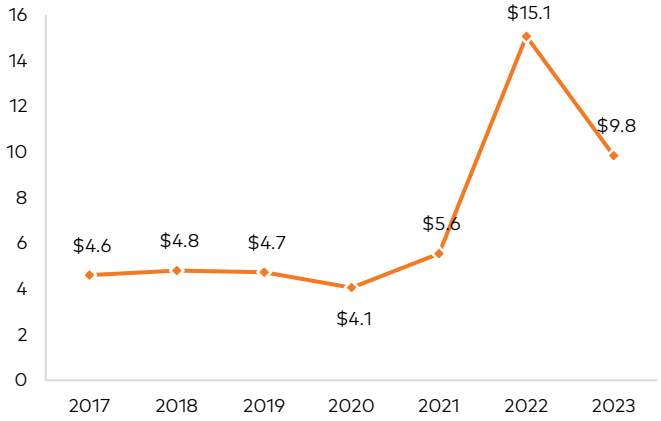
Supply source	Annual growth	Share in supply
Total supply	**-3.8%**	**100.0%**
Imports	-48.5%	5.2%
Domestic generation	+1.1%	94.8%
TPPs	+1.7%	22.7%
WPPs	-1.6%	0.6%
HPPs	+0.9%	71.5%
Enguri and Vardnili	-6.1%	27.9%
Other regulated HPPs	+6.5%	19.6%
Deregulated HPPs	+5.4%	24.1%

Source: GNERC, Galt & Taggart

Foreign trade: export and transit

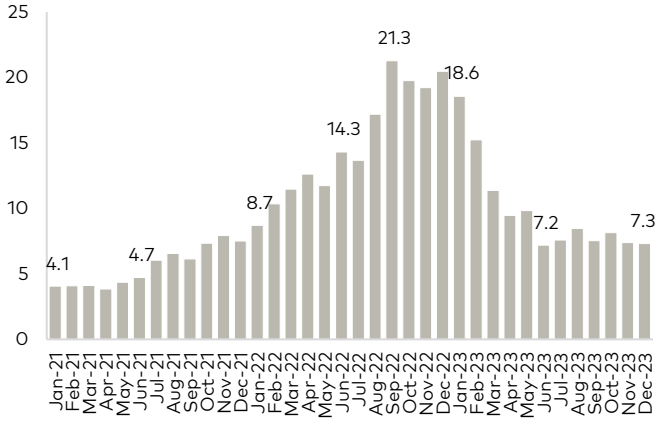
Price of electricity in Turkey retreated in 2023, but still above compared to pandemic levels. Average monthly market clearing price (MCP) in Turkey was USc 8.8/kWh over April-June 2023, while average price during 2022 export season (Apr-Sep) was USc 15.1/kWh. The main drivers of Turkish electricity price dynamics are the global price of natural gas, as Turkey heavily relies on gas-fired thermal power plants.

Figure 6: Average annual Market Clearing Prices in Turkey, USc/kWh



Source: EPIAS, EVDS, Galt & Taggart

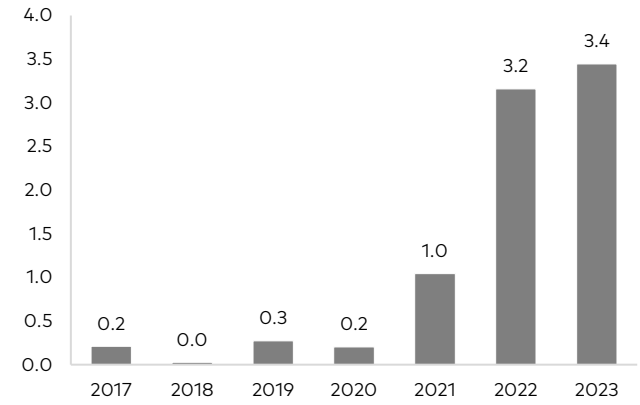
Figure 7: Average monthly Market Clearing Prices in Turkey, USc/kWh



Source: EPIAS, EVDS, Galt & Taggart

The elevated prices on Turkish market continued driving demand for electricity **export and transit**. In 2023, Turkey received 4.9TWh of electricity from Georgia, with 1.5TWh being exported from Georgian producers (+51.2% y/y) and 3.4TWh (+9.0% y/y) being transited through Georgia from neighbouring countries, with 90.2% originating from Azerbaijan, 5.6% from Russia, and 4.2% from Armenia.

Figure 8: Electricity transit though Georgia to Turkey, TWh



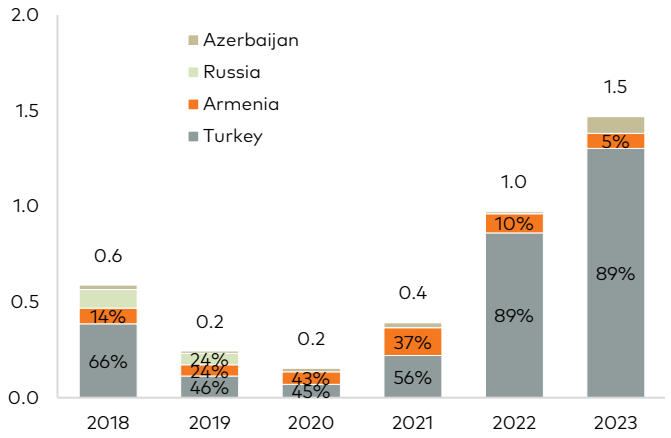
Source: GNERC, Galt & Taggart

Export of electricity witnessed substantial growth in both volume and value terms, reaching 1.5TWh (+51.2% y/y) and US$ 95.4mn (+13.2% y/y), respectively. The export started in April and continued up to September. This extraordinarily long export season was facilitated by a decrease in local consumption and an increase in thermal generation. The average export price of electricity from Georgia decreased by 25.1% y/y to USc 6.5/kWh.

Despite price decrease, export revenues increased due to growth in volume.

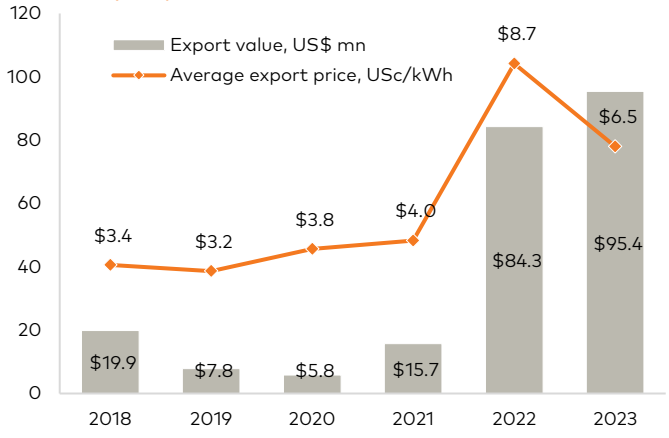
The top-3 exporters to Turkey were Bookup Solution, Lux Energy Trading and Tbilisi investment group.

Figure 9: Electricity exports by destination, TWh



Source: GNERC, Galt & Taggart

Figure 10: Export value and average price of electricity exports

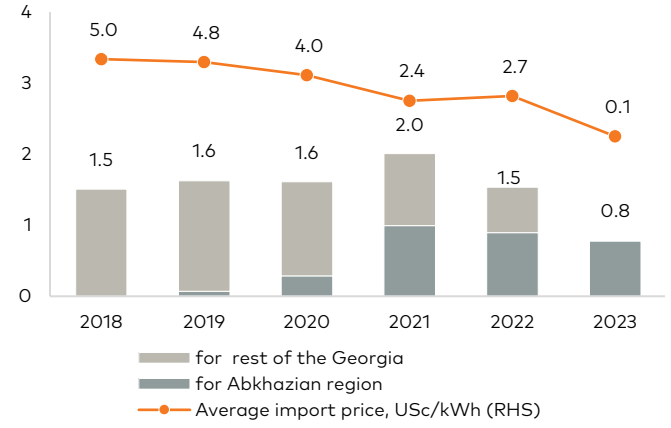


Source: Geostat, GNERC, Galt & Taggart

Import of electricity

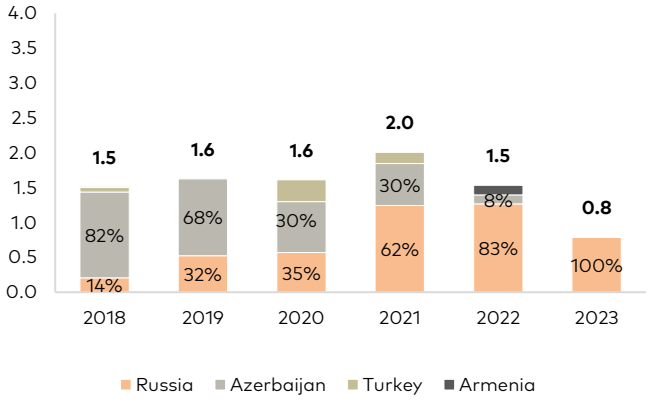
Russia was the sole provider of electricity imports and the sole consumer of such energy was Abkhazian region in 2023. Georgia imported 0.8TWh of electricity (5.2% of total demand). The Abkhazian region receives a "special" price from Russia, resulting in an average import price of USc 0.1/kWh in 2023. Notably, 98% of this electricity was sold by direct contract and was not included in ESCO's balancing electricity volume. There was no commercial import of electricity for rest of Georgia.

Figure 11: Electricity imports by usage, TWh



Source: GNERC, Galt & Taggart

Figure 12: Electricity import by source-countries, TWh



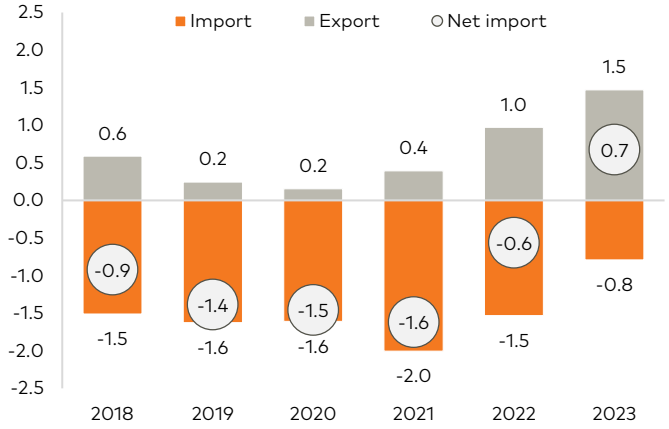
Source: GNERC, Geostat, Galt & Taggart

Trade balance

Trade balance of electricity was positive and record high in 2023. The increase in export volume and revenues, along with unprecedented low cost of electricity imports, resulted Georgia becoming a net exporter of electricity. Georgia earned US$ 95.4mn (+13.2% y/y) via electricity exports and spent only US$ 1.0mn (-97.5% y/y) on electricity imports, resulting in US$ 94.4mn (+122.0% y/y) of net export.

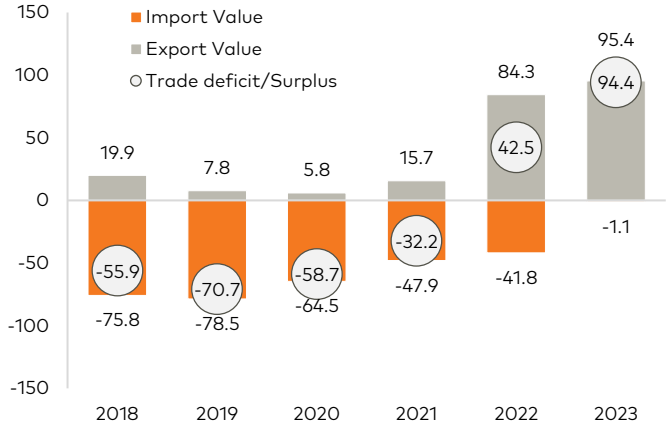
In kWh terms, Georgia also became a net exporter of electricity with 0.7TWh net export in 2023, first time since 2016.

Figure 13: Foreign trade of electricity, TWh



Source: GNERC, Geostat, Galt & Taggart

Figure 14: Trade deficit/Surplus, US$ mn



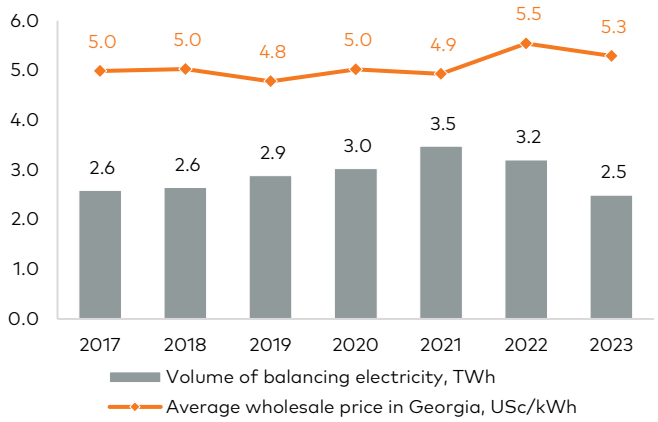
Source: GNERC, Geostat, Galt & Taggart

Balancing electricity prices in Georgia

The volume of electricity traded through ESCO as balancing electricity was 2.5TWh, down by 22.1% y/y. Volume of electricity traded via ESCO was 16.4% of total electricity supplied to the grid. The remaining volume of electricity was traded via bilateral contracts. The decrease in volume of balancing electricity was due to decreased imports included in balancing electricity calculations.

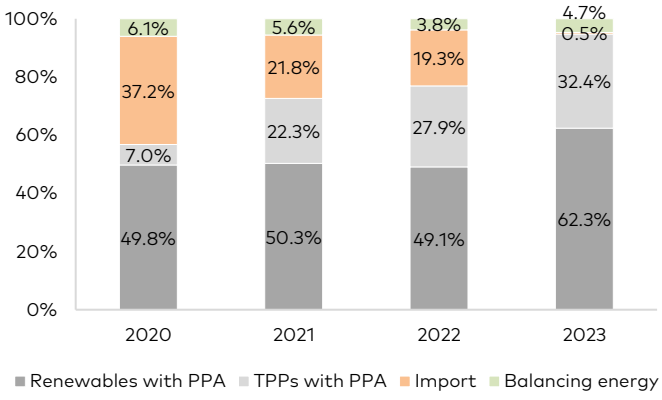
Weighted average price of balancing electricity price in Georgia decreased by 4.5% y/y to USc 5.3/kWh. The main reason was drop of import volume. On a monthly basis, the price of balancing electricity fluctuated between USc 3.4 and 5.6 per kWh. The majority of balancing electricity (94.8%) was purchased by ESCO under a Guaranteed Power Purchase Agreement (PPA), out of which 58.9ppts came from HPPs, 32.4ppts from Gardabani-2 TPP and rest from WPP (3.5ppts). Import was a mere 0.5% of the balancing electricity, unlike previous years. The share of electricity purchased by ESCO at balancing electricity prices was 4.7% of total balancing energy.

Figure 15: Balancing electricity volume and prices



Source: ESCO, NBG, Galt & Taggart

Figure 16: Composition of ESCO's balancing electricity volume



Source: ESCO, Galt & Taggart

Table 6: Electricity Balance in 2023, GWh

	2022	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	2023
Domestic consumption, total	**14,165**	**1,282**	**1,127**	**1,115**	**1,036**	**1,029**	**980**	**1,100**	**1,211**	**937**	**987**	**1,032**	**1,218**	**13,053**
% change y/y	**+3.2%**	-7%	-6%	-17%	-10%	-11%	-9%	-3.9%	+0.5%	-10.6%	-8.3%	-8.2%	-3.3%	**-7.9%**
Of which:														
- Abkhazian Region	**3,029**	321	255	252	244	215	163	178	199	167	199	222	288	**2,703**
% change y/y	**+2.5%**	-11%	-15%	-23%	-8%	-15%	-11%	-10%	-3.2%	-8.5%	-7.2%	-8.7%	-2.9%	**-10.8%**
- Eligible consumers	**3,726**	264	222	240	234	248	238	260	257	182	204	202	229	**2,779**
% change y/y	**+4.8%**	-20%	-27%	-31%	-32%	-29%	-27%	-17%	-13.3%	-36.3%	-30%	-26.6%	-11.2%	**-25.4%**
- Retail consumption	**7,411**	697	651	623	558	566	579	662	755	588	584	608	701	**7,571**
% change y/y	**+2.7%**	+2%	+10%	-7%	+2%	+3%	+1%	+4%	+7.4%	+1.3%	+2.4%	+0.4%	-0.6%	**+2.2%**
Of which:														
- Energo-Pro Georgia + EP Georgia Supply*	**4,413**	430	369	365	331	335	337	392	453	356	349	357	402	**4,477**
% change y/y	**+0.3%**	+8%	+7%	-6%	+1%	+1%	+0%	+4%	+4.7%	+1.5%	+1.6%	+0.7%	-5.3%	**+1.4%**
-Telasi + Telmico*	**2,998**	267	281	258	227	230	242	270	301	232	235	251	299	**3,094**
% change y/y	**+6.3%**	-6%	+14%	-8%	+5%	+6%	+3%	+4%	+11.8%	+1.0%	+3.7%	-0.0%	+6.4%	**+3.2%**
Domestic Generation, total	**14,244**	**1,111**	**987**	**1,019**	**1,249**	**1,325**	**1,369**	**1,541**	**1,463**	**1,118**	**1,043**	**1,003**	**1,166**	**14,396**
% change y/y	**+12.6%**	+8%	+11%	-5%	+11%	-9%	-8%	+18%	+4%	-6%	+1%	-11%	+5%	**+1.1%**
Of which:														
- TPPs	**3,388**	728	643	208	98	1	2	132	162	302	429	364	378	**3,446**
% change y/y	**+42.4%**	+43%	+45%	-58%	+181%	N/A	-46%	+4516 %	-32%	-5%	+179%	-27%	-45%	**+1.7%**
- WPPs	**87**	8	6	7	9	8	5	9	7	8	7	6	6	**86**
% change y/y	**+5.0%**	+22%	+7%	-2%	+38%	-6%	-9%	+8%	-29%	+10%	-11%	-13%	-16%	**-1.6%**
- HPPs	**10,769**	374	339	804	1,142	1,317	1,361	1,401	1,294	808	608	633	782	**10,863**
% change y/y	**+5.8%**	-27%	-23%	41%	5%	-9%	-8%	8%	12%	-7%	-30.3%	1.1%	88%	**+0.9%**
Imports	**1,533**	**247**	**207**	**146**	**0**	**-**	**0**	**1**	**-**	**-**	**-**	**81**	**108**	**790**
% change y/y	**-23.6%**	-39%	-42%	-56%	-100%	-100%	-97%	+352%	N/A	N/A	N/A	+46%	-50.3%	**-48.5%**
Exports	**971**	**-**	**1**	**-**	**166**	**248**	**341**	**384**	**196**	**132**	**-**	**-**	**-**	**1,468**
% change y/y	**+148.4%**	N/A	N/A	N/A	N/A	-7.8%	-3.0%	+235%	+40%	+41%	N/A	N/A	N/A	**+51.2%**
Trade balance	**(562)**	**(247)**	**(206)**	**(146)**	**166**	**248**	**341**	**384**	**196**	**132**	**(0)**	**(80)**	**(108)**	**679**
Transit	**3,160**	**520**	**370**	**445**	**98**	**65**	**-**	**32**	**240**	**300**	**251**	**193**	**243**	**3,444**
% change y/y	**+178.3%**	+181%	+120%	+260%	-29%	N/A	N/A	-91%	-32%	-24%	-28%	-62%	-53%	**+9.0%**

Source: GNERC, Galt & Taggart
* EPG Supply used to be Energo-pro Georgia and Telmico used to be Telasi prior Jun-21. The name and functions changed in line with ongoing energy reform's unbundling requirement.
Note: N/A= not available; NM= not meaningful

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