



Georgia's Energy Sector Electricity Market Watch

Georgia | Energy
Summary of 2022
February 14, 2023

Key Highlights

The electricity sector in Georgia had an outstanding year with record high export revenues of US\$ 84.3mn and a positive trade balance of US\$ 43.2mn. Growth in electricity exports revenues reflected high prices as Georgia remained net importer in kWh terms with a net import of 0.6 TWh.

Prices on local market increased far below global trend, rising by only 5.5% to USc 5.7/kWh. Georgia was not impacted by global energy crisis, due to a high share of hydro generation in the supply mix, a regulated market structure, the availability of “social gas” for thermal power plants, and a moderate increase in import prices from Russia and Azerbaijan.

Electricity consumption increased by 3.3% y/y to 14.2 TWh, with a 9.8% y/y increase in 1H22 and a 2.7% y/y decrease in 2H22 due to reduced production at Georgian Manganese, metallurgical and data mining companies. In 2022, HPPs accounted for 68.3% of total supply mix, TPPs for 21.5%, wind power plant for 0.6% and 9.7% was imported electricity.

First capacity auction for 300MW of renewable energy was announced on February 10, 2023. Bids are collected within 45 calendar days. Auction winners will sign contract for difference agreement with ESCO for 15 years of power plant's operation (see auction details [here](#) and [here](#)).

7 small hydro power plants were commissioned in 2022, with a total installed capacity of 26.9MW. The largest was the 10.0MW Nakra HPP, while the smallest was the 0.9MW Berali HPP. As of end-2022, Georgia's total installed capacity is 4.5GW, of which HPPs account for 3.4GW, wind power plant for 0.02GW, and 1.1GW are thermal 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.

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Electricity supply, demand and prices

In 2022, electricity supplied to the grid reached 15.8TWh, out of which 10.8 TWh (68.3%) was hydro generation, 3.4TWh (21.5%) thermal generation, 0.09TWh (0.6%) wind generation and 1.5TWh (9.7%) of electricity was imported.

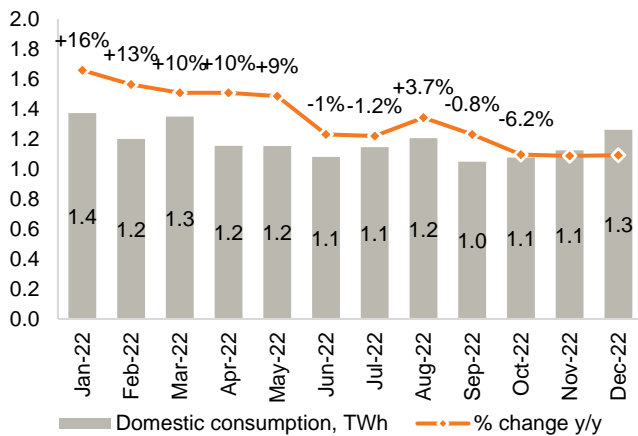
Out of these 15.8TWh of electricity supplied to the grid in 2022, the majority, 14.2TWh (89.8%) was consumed locally at wholesale level, 1.0TWh (6.2%) was exported and 0.6TWh (4.1%) lost in transmission.

Demand on electricity: consumption

Electricity consumption increased by 3.3% y/y to 14.2TWh in 2022.

In 1H22, the consumption of electricity saw a 9.8% y/y increase, however, in 2H22 it decreased by 2.7% y/y. The reduction in consumption during the 2nd half of the year was primarily due to a decrease in electricity consumption by Georgian Manganese, BFDC Georgia (Bitfury) and several metallurgical companies. The reduction in electricity consumption by these companies was caused by a decrease in production levels, which was in turn tied to a drop in demand and prices for their final products.

Figure 1: Electricity consumption in 2022



Source: ESCO, GSE

Table 1: Electricity consumption by consumer groups in 2022

	1H22	2H22	FY 22
Domestic consumption, total	7,307	7,938	15,246
% change y/y	+9.8%	-2.7%	+2.9%
Of which:			
Abkhazian Region	1,689	1,524	3,213
% change y/y	+6.6%	-3.5%	+1.6%
Direct consumers	2,006	2,045	4,050
% change y/y	+33.4%	-12.6%	+5.4%
Retail suppliers (Telmico and EPG supply)	3,613	4,370	7,983
% change y/y	+1.2%	+3.0%	+2.2%

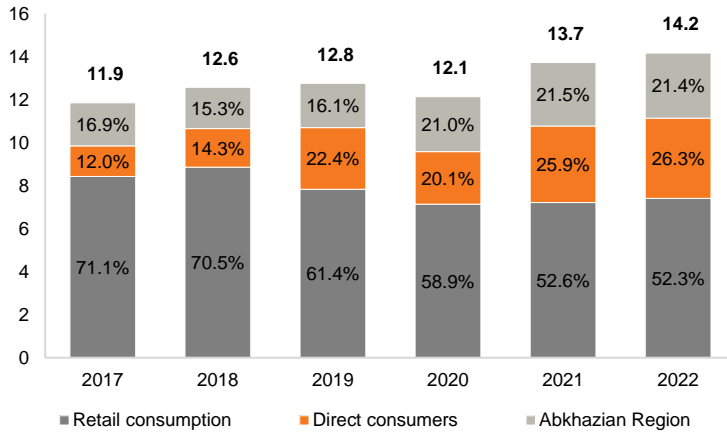
Source: ESCO, GSE, Galt & Taggart

* 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.

Legislative changes significantly influenced statistics of certain wholesale consumer groups. Particularly, the regulation requires specific companies to register as direct consumers instead of being subscribers of Telmico and EPG supplier (previously Telasi and Energo-pro Georgia). As a result, the number of direct consumers increased by 6 companies in 2022 and 30 companies throughout 2021. Consequently, the share of direct consumers in total electricity consumption of Georgia increased.



Figure 2: Electricity consumption by consumer groups, TWh



Source: ESCO, 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.

** 6 new companies were registered as direct consumers in 2021 and 26 companies in 2022. This caused increase of direct consumer's consumption in total

Table 2: Local demand growth breakdown

Consumer	Growth rate, y/y	Share in consumption
Domestic consumption	+3.2%	100.0%
Abkhazian region	+2.5%	21.4%
Direct consumers**	+4.8%	26.3%
Retail consumption*	+2.7%	52.3%
EPG Supply*	+0.3%	31.2%
Telmico*	+6.3%	21.2%

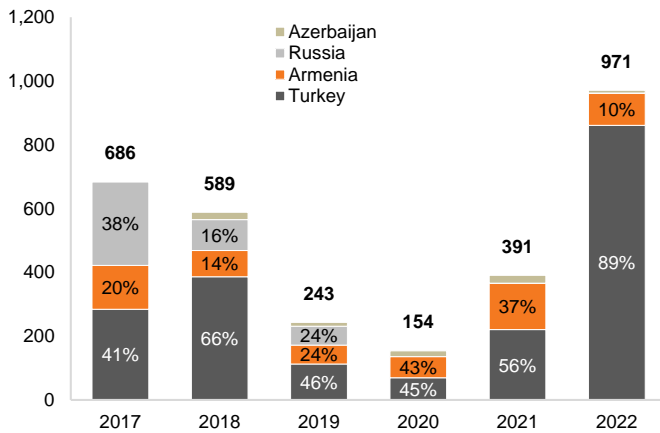
Demand on electricity: export and transit

Electricity exports and transit surged due to rise in electricity prices in Turkey. The overall export of electricity from Georgia increased by 153.7% in volume to 1.0TWh and a substantial increase of 436.5% (5.4 times) in value to US\$ 84.3mn. The average export price was USc 8.7/kWh, representing a 116.0% y/y growth.

Electricity exports from Georgia began in May and continued until the end-September. August and September typically saw limited exports due to high local demand. However, the significant price increase of electricity in Turkey and comparatively lower prices in Georgia, prompted policymakers to make an exception and support exports with thermal generation fuelled by imported gas. 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. This "social gas" was reserved for residential use and thermal power plants and its limited supply restricted the continuation of electricity exports beyond September.

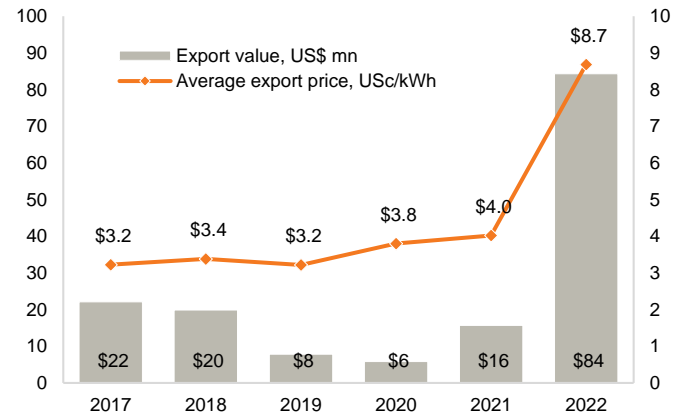


Figure 3: Electricity exports by destination, GWh



Source: ESCO, GSE

Figure 4: Export value and average price of electricity exports

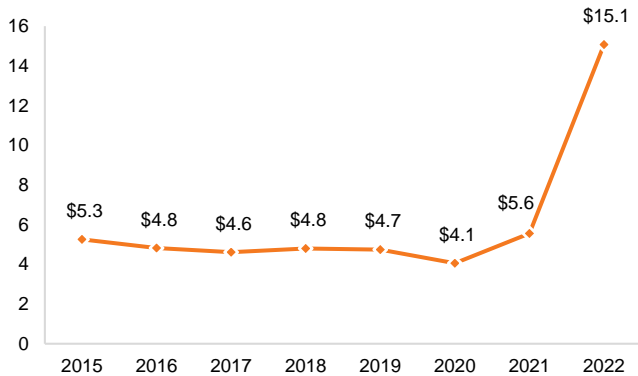


Source: Geostat, ESCO, GSE, Galt & Taggart

Price of electricity on Turkish market almost tripled in 2022.

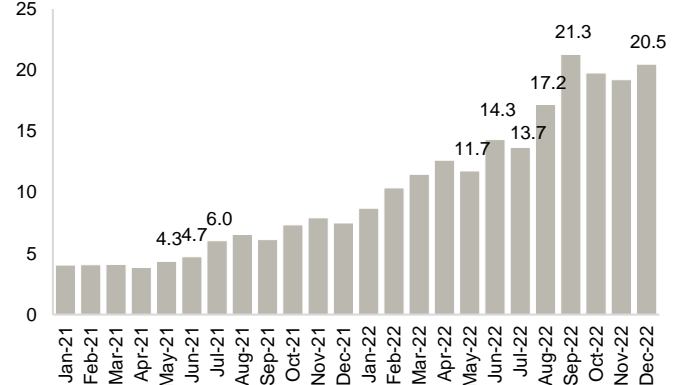
Average monthly market clearing price in Turkey went up from USc 5.6/kWh in 2021 to USc 15.1/kWh in 2022. The highest market price was recorded in Sep-22 at USc 21.3/kWh. The main drivers behind this surge were the global rise in natural gas prices amid the current energy crisis and Turkey's reliance on gas-fired thermal power plants. In contrast, electricity prices in Georgia saw a much smaller increase. Therefore Georgian power producers were eager to export on Turkish market rather than sell to local consumers.

Figure 5: Average annual Market Clearing Prices in Turkey, USc/kWh



Source: EPIAS, EVDS, Galt & Taggart

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



Source: EPIAS, EVDS, Galt & Taggart

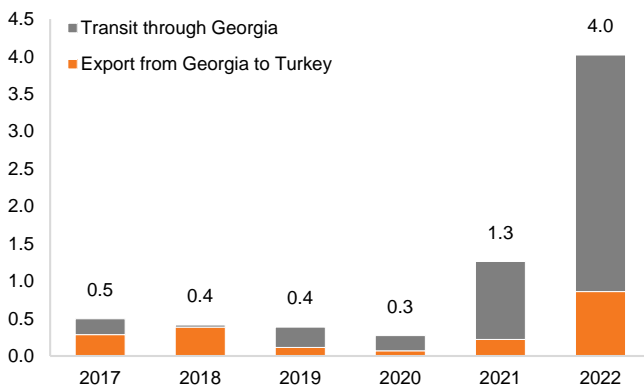
The Akhaltsikhe-Borchka transmission line, which links Georgia's electricity grid to Turkey, operated at full capacity starting from May-22. As a result, Turkey received 4.2TWh of electricity from Georgian in 2022, with 0.9TWh being exported from Georgian producers (+290.4% y/y) and 3.2TWh (up by 2.8x times) being transited through



Georgia from neighbouring countries, primarily from Azerbaijan (84.3% of total).

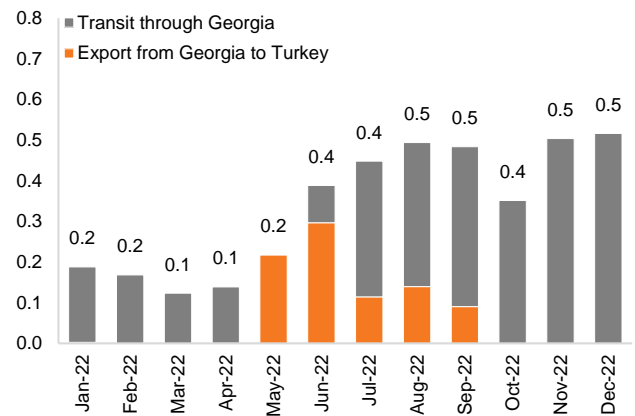
From electricity exports to Turkey Georgian exporters earned US\$ 79.6mn revenue (up by 10.3x y/y). Top 3 exporters to Turkey were Tbilisi Investment Group, Inter Rao Georgia and Adjaristskali Georgia. The benefit for the Georgian side from electricity transit is the transit fee received by the Georgian State Electrosystem from transit companies. However, the exact amount of such fee has not been publicly disclosed yet.

Figure 7: Electricity export and transit to Turkey, TWh



Source: GNERC, Galt & Taggart
Note: Electricity transit through Georgia to Turkey in 2022 came mostly from Azerbaijan (84.3% of total), followed by Russia at 8.5% and Armenia at 7.2%.

Figure 8: Electricity flow from Georgia to Turkey in 2022, TWh



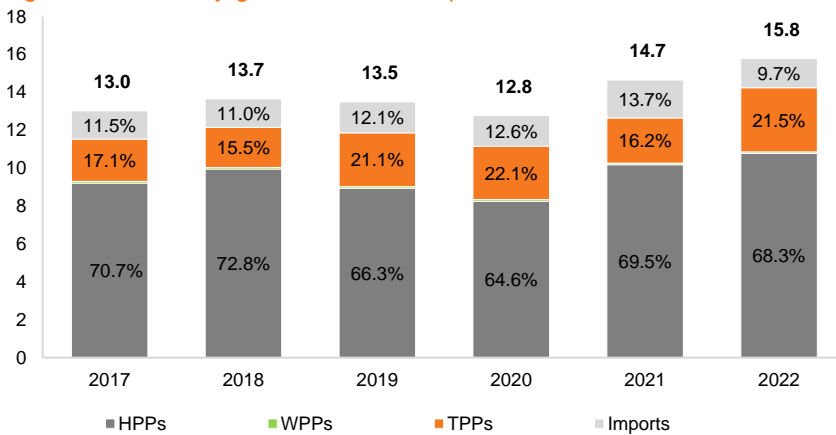
Source: GNERC, Galt & Taggart



Supply of electricity: domestic generation and import in Georgia

The growth in consumption and exports was met primarily by an increase in hydro and thermal generation. **Hydro Power Plants** saw a 5.0% y/y increase in generation due to favourable hydrological conditions and a low base for the Enguri HPP (which underwent maintenance in 1H21).

Figure 9: Electricity generation and imports, TWh



Source: GNERC, Galt & Taggart

Table 3: Supply growth breakdown, 2022

Supply source	Annual growth	Share in supply
Total supply	+7.7%	100.0%
Imports	-23.6%	9.7%
Domestic generation	+12.6%	90.3%
TPPs	+42.4%	21.5%
WPPs	+5.0%	0.6%
HPPs	+5.8%	68.3%
Enguri and Vardnili	+4.5%	28.6%
Other regulated HPPs	+0.3%	17.7%
Deregulated HPPs	+12.5%	22.0%

Source: GNERC, Galt & Taggart

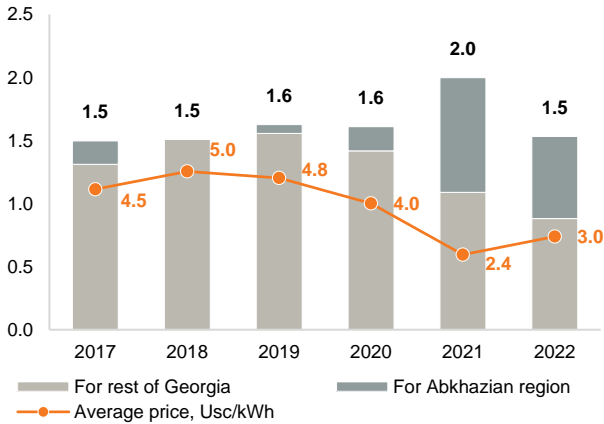
Thermal generation increased by 42.4% y/y, while electricity imports dropped by 23.6% y/y in 2022. This shift from electricity imports to thermal generation, which runs on imported natural gas, was influenced by the cost difference between the two. The average cost of commercial electricity imports was USc 7.0-7.8/kWh, while the cost of thermal generation was between USc 3.3/kWh (e.g. Gardabani 1 TPP) to USc 4.5/kWh (e.g. Mtkvari Energy). The lower cost of thermal generation was sustained by the availability of "social gas" (details provided above).

1.5TWh of electricity was imported in 2022, accounting for 9.7% of the total demand. Of the total imports, 82.5% came from Russia (mainly for Abkhazia), 8.4% from Azerbaijan, and 9.0% from Armenia. Half of imported electricity was sent to the Abkhazian region at a "special" price (below USc 0.5/kWh), bringing the average import price to USc 3.0/kWh. The price of commercially imported electricity varied depending on the country:

- imports from Azerbaijan were priced at US\$ 7.5/kWh (+55.5% y/y);
- imports from Armenia were priced at US\$ 7.4/kWh;
- and imports from Russia were priced at USc 7.0/kWh in Oct-22 (+42.3% y/y). It's important to note that October was selected as an example for the pure commercial price of electricity imports from Russia because there were no imports to the Abkhazian region that month.

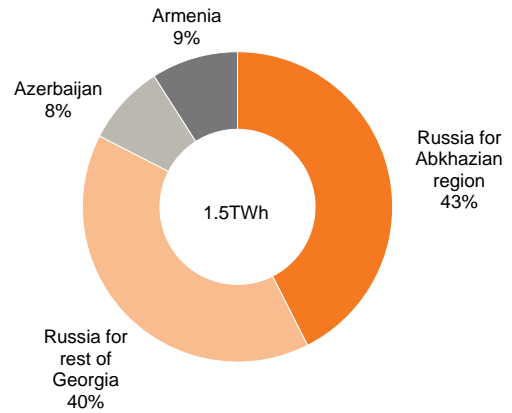


Figure 10: Electricity imports, TWh



Source: GNERC, Galt & Taggart

Figure 11: Electricity import source-countries in 2022

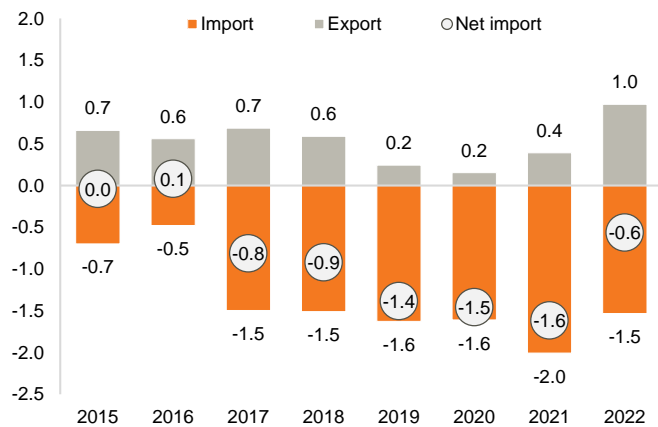


Source: GNERC, Geostat, Galt & Taggart

Trade balance of electricity was positive - Georgia earned US\$ 84.3mn via electricity exports and spent US\$ 41.2mn on electricity imports, resulting in US\$ 43.2mn of net export. Increased export revenues are attributable to increased prices in key export destination – Turkey (see figures 4 and 5), while import costs increased less significantly.

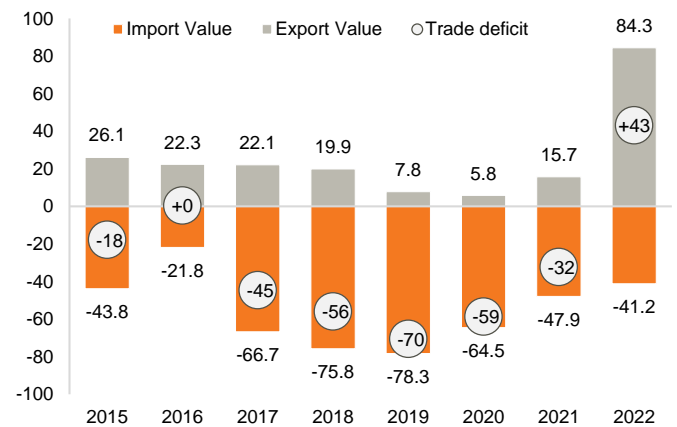
Despite the positive trade balance in US\$ terms, Georgia remains net importer in kWh terms. Georgia imported 1.5TWh electricity and exported 1.0TWh in 2022, resulting in 0.6TWh net import.

Figure 12: Foreign trade of electricity, TWh



Source: GNERC, Geostat, Galt & Taggart

Figure 13: Trade deficit, US\$ mn



Source: GNERC, Geostat, Galt & Taggart



Balancing electricity prices in Georgia

The volume of electricity traded through ESCO as balancing electricity was 3.2TWh, a 20.3% of total supplied energy. The remaining volume of electricity was traded via bilateral contracts.

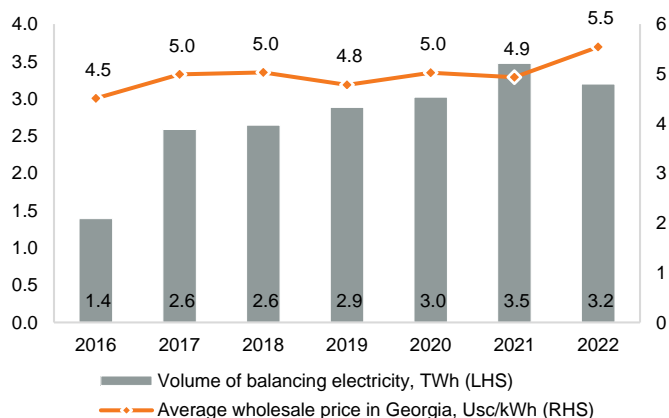
Balancing electricity price in Georgia increased by 12.4% y/y to USc 5.5/kWh. The main reason is growth of average import price. On a monthly basis, the price of balancing electricity fluctuated between USc 4.0 and 6.5 per kWh.

The majority of balancing electricity, 76.9%, was purchased by ESCO under a Guaranteed Power Purchase Agreement (PPA), out of which 43.3ppts came from HPPs, 27.9ppts from Gardabani-2 TPP and rest from WPP (2.7ppts). Only 19.3% of the balancing electricity was imported, and the remaining 3.8% of balancing energy came from hydro and thermal generation.

Georgia managed to maintained low electricity prices on local market and was not effected by global energy crisis and price hikes due to several reasons, namely:

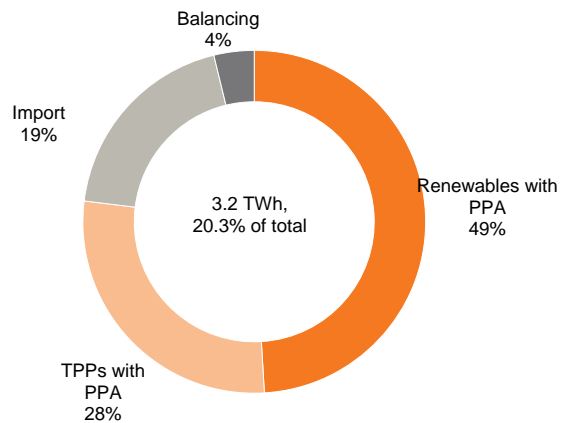
1. Over 70% of supply comes on hydro generation and its cost does not depend on any external factors,
2. Thermal power plants in Georgia use the so-called “Social gas”, the price of which is fixed by a long-term contract and does not change along with global trends,
3. The electricity market is largely regulated and more resistant to price spikes.

Figure 14: Balancing electricity volume and prices



Source: ESCO

Figure 15: breakdown of ESCO's balancing electricity volumes in 2022



Source: ESCO



Table 4: Electricity Balance in 2022, GWh

	2021	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	2022
Domestic consumption, total	13,730	1,372	1,199	1,349	1,154	1,152	1,080	1,145	1,205	1,048	1,076	1,124	1,260	14,165
% change y/y	+13.1%	+16.3%	+12.5%	+10.3%	+10.3%	+9.4%	-0.8%	-1.2%	+3.7%	-0.8%	-6.2%	-6.5%	-6.3%	+3.2%
Of which:														
- Abkhazian Region	2,956	359	300	329	264	253	184	197	206	183	214	244	297	3,029
% change y/y	+15.8%	+13%	+8%	+1%	+12%	+14%	-11%	+8%	+10%	-2%	-8%	-8%	-7%	+2.5%
- Eligible consumers	3,554	332	306	350	344	350	324	314	296	285	292	275	258	3,726
% change y/y	+45.8%	+46%	+46%	+42%	+38%	+24%	+12%	-8%	-11%	-15%	-16%	-20%	-27%	+4.8%
- Retail consumption	7,219	682	594	670	545	549	572	634	703	581	570	605	706	7,411
% change y/y	+1.0%	+7%	+2%	+3%	-3%	+0%	-4%	-0%	+9%	+8%	+0%	+2%	+5%	+2.7%
Of which:														
- Energo-Pro Georgia + EP Georgia Supply	4,400	399	347	389	329	332	336	375	433	351	344	354	424	4,413
% change y/y	-2.5%	+1%	-2%	-2%	-7%	-5%	-7%	-2%	+11%	+6%	+0%	+1%	+8%	+0.3%
- Telasi + Telmico	2,819	283	247	281	217	217	236	259	270	230	226	251	281	2,998
% change y/y	+7.0%	+16%	+10%	+10%	+4.4%	+10%	+2%	+2.2%	+7.6%	+11.6%	-0.2%	+3.3%	+0.6%	+6.3%
Domestic Generation, total	12,645	1,025	890	1,077	1,125	1,461	1,485	1,308	1,401	1,182	1,034	1,130	1,115	14,244
% change y/y	+13.3%	+27%	+29%	+63%	+36%	+20%	+12%	+5%	+16%	+7%	-13%	-5%	-7%	+12.6%
Of which:														
- TPPs	2,380	508	444	499	35	-	3	3	238	304	154	496	691	3,388
% change y/y	-15.6%	+49%	+34%	+182%	-46%	NM	NM	-31%	+38%	+108%	-25%	+15%	+38%	+42.4%
- WPPs	83	7	5	7	6	8	6	8	9	8	8	7	8	87
% change y/y	-8.2%	+30%	-7%	-20%	-6%	-9%	-23%	+23%	+71%	+7%	-17%	+16%	+50%	+5.0%
- HPPs	10,182	510	441	571	1,084	1,453	1,475	1,297	1,153	869	872	627	416	10,769
% change y/y	+23.4%	11%	24%	20%	44%	20%	12%	5.5%	12.6%	-8%	-10.8%	-16.2%	-39%	+5.8%
Imports	2,006	406	357	331	71	9	1	0	-	-	86	55	218	1,533
% change y/y	+24.6%	-2%	-14%	-46%	-73%	+119%	-87%	-56.1%	-100%	-100%	+917.1%	-26%	+4.9%	-23.6%
Exports	391	3	-	0	0	269	351	115	140	94	0	-	0	971
% change y/y	+154%	+142%	N/A	N/A	N/A	+105%	+80%	+206%	N/A	NM	N/A	N/A	N/A	+148.4%
Trade balance	(1,615)	(404)	(357)	(331)	(70)	260	351	114	140	94	(86)	(55)	(218)	(562)
Transit	1,184	186	168	124	139	-	92	334	354	393	352	504	516	3,160
% change y/y	+481%	+2816%	N/A	N/A	N/A	N/A	+417%	+457%	+62%	+99%	+22%	+154%	+154%	+178.3%

Source: GNERC, Galt & Taggart
Note: N/A= not available; NM= not meaningful



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