



Georgia's Energy Sector Electricity Market Watch

Georgia | Energy
Summary of 10M22
December 8, 2022

Key Highlights

Government announced new support scheme for renewable energy projects - contract for differences (CFD) granted based on capacity auctions. The regulatory framework of the proposed support mechanism is expected to be finalized by end of 2022. Some of the details have been revealed by the government during the meeting with potential investors, we have summarized the shared information on p. 2.

Export revenues hit historic high in 2022. In 10M22, export of electricity stood at US\$ 84.3mn, while import cost was only US\$ 40.7mn, resulting in positive trade balance of US\$ 43.6mn. On the one hand, energy crisis and global price growth of energy products impacted our key export destination Turkey – where prices tripled. On the other hand, prices on local market increased much less than that of export. Main reason for maintaining low prices on local market is high share of hydro generation in supply mix, regulated structure of the market and comparatively moderate increase in import prices- as our key import providers - Russia and Azerbaijan - make their pricing decisions independently from global trends. Therefore, Georgian companies benefited from current energy crisis with increased revenue from electricity exports to Turkey, while prices on local markets increased far below global trend.

Despite the positive trade balance in US\$ terms, Georgia remains net importer in kWh terms over 10M22 and more import is expected by the end of 2022. The demand on electricity grew from local consumers by 5.3% annually and by 153.7% y/y from export markets due to abovementioned price growth in Turkey. The growth of electricity demand (local consumption plus export) was mostly satisfied on back of increased hydro generation (attributable to good hydrology of this year) and thermal generation (supported by social gas).

The launch of organized markets postponed once again to March 31, 2023. As expected, the start of day-ahead market and balancing and ancillary services market was postponed from its previous set date of September 1, 2022. The officially announced reason was policymakers' fear of global price crisis hitting Georgian market, additional factor was unpreparedness of market participants, especially for ancillary services and balancing market. As time passes, the details of upcoming organized markets are shaping, many questions have been answered, although a number of issues remain open. For example, whether importers and thermal power plants will trade directly on the day-ahead market and at what price, whether there will be respectable limits for imbalances, etc.

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Support scheme for renewable energy projects – Capacity auctions and contract for price differences (CFD).

Government announced new support scheme for renewable energy projects - contract for differences (CFD) granted based on capacity auctions. Relevant legislative acts are expected to be adopted by end of the year and the first auction is also planned by end of 2022. The main conditions of proposed support scheme is following:

- The government will periodically announce an auction for interested investors on a certain capacity of renewable energy. The prerequisite for participation in the auction will be a feasibility study of specific power plant, a fee for participation in the auction and a bank guarantee.
- The winners of the auction will enter into a Contract for Difference (CFD) agreement with the government (and ESCO), the duration of which will be the initial 15 years of operation of the power plant.
- CFD price is the main criterion for investor selection in the auction process – the power plants with the lowest bid for CFD price will fill the announced capacity first.
- Investors must sell electricity in the organized markets (day-ahead and intraday markets) and ESCO will compensate them any difference between the market price and the prices set in the CFD contract.
- Contract for difference will affect the energy sold throughout the year for solar power plants. In case of hydro plants, CFD will be valid only for 8 months (from September through April), and for wind plants for 9 months (from August through April).
- The Government of Georgia plans to announce an auction for 1500 MW of renewable energy projects in the next three years under this scheme. The approximate distribution of this 1500 MW will be as follows: 950 MW hydro (including 650 natural flows), 250 MW wind, 250 MW solar and 50 MW other renewable resources.
- The first auction will be held at the end of 2022 or the beginning of 2023 for 300 MW renewable energy capacity. The auction will show more vividly which direction of technology is more in demand from investors.
- The key difference between currently proposed scheme and guaranteed Power Purchase Agreement (PPA) in force prior 2017, is the principle of its allocation (based on capacity auctions), and the fact that power plants bear more market risk (e.g. responsibility for imbalances, negative price risk, etc.).



Electricity supply, demand and prices

Over 10M22, 13.3TWh of electricity was supplied to the grid, out of which 9.7 TWh (73.4%) was hydro generation, 2.2TWh (16.6%) thermal generation, 0.07TWh (0.5%) wind generation and 1.3TWh (9.5%) of electricity was imported.

Out of these 13.3TWh of electricity supplied to the grid in 10M22, 11.8TWh (88.9%) was consumed locally at wholesale level, 1.0TWh (7.3%) was exported and 0.5TWh (3.8%) lost during transmission.

Domestic consumption

Electricity consumption increased by 5.4% y/y and reached 11.8TWh in 10M22. Growth of electricity consumption slowed since June due to comparatively cool summer and warm autumn. In overall, legal entities contributed the most to consumption growth.

Abkhazian region's consumption increased by 4.9% y/y and accounted for 21.1% of electricity consumption. Consumption of the rest of Georgia increased by 5.5% y/y to 9.3TWh in 10M22.

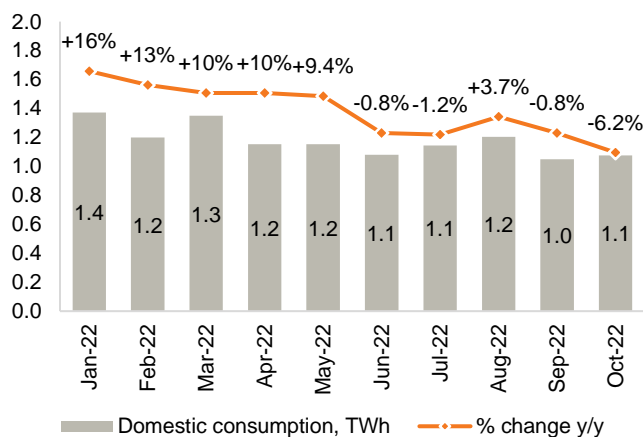
Electricity consumption by certain groups of wholesale consumers was highly impacted by increased number of direct consumers. As of September 2022, 55 companies registered as direct consumers bought electricity on wholesale market. Most of them had legal obligation of registration, but there are some volunteers hoping for utility cost optimization via direct purchase of electricity. Repositioning of certain consumers from one group to another made significant impact on y/y statistics of wholesale consumption breakdown.

Table 1: Local demand growth breakdown

Consumer	Growth rate, y/y	Share in consumption
Domestic consumption	+5.4%	100.0%
Abkhazian region	+4.9%	21.1%
Direct consumers	+11.8%	27.1%
Retail consumption*	+2.5%	51.8%
EPG Supply*	-0.6%	30.8%
Telmico*	+7.4%	20.9%

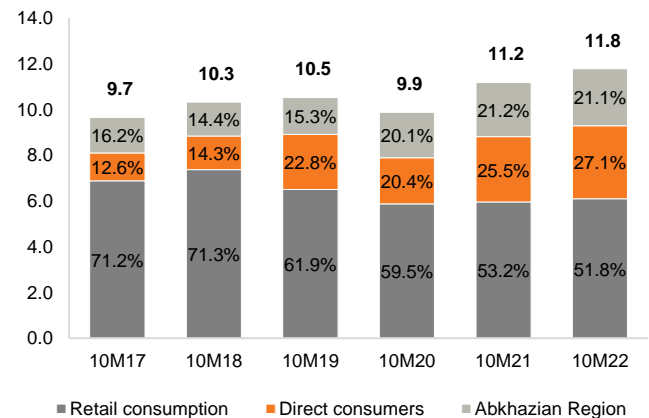
Source: ESCO, GSE, Galt & Taggart
Note: EPG Supply used to be Energo-pro Georgia and Telmico used to be Telasi prior Jun-21. The name and functions changed in line with ongoing energy reform's unbundling requirement.

Figure 1: Electricity consumption, TWh



Source: ESCO, GSE

Figure 2: Electricity consumption by consumer groups, TWh



Source: ESCO, GSE

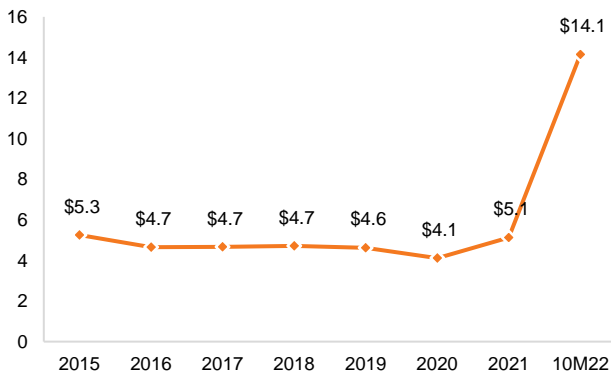
Note: Retail consumption includes consumption of subscribers of Energo-pro Georgia and Telasi prior Jun-21 and subscribers of Telmico and EP Georgia Supply after Jul-21. Their subscribers are households and small and medium enterprises.



Electricity export and transit

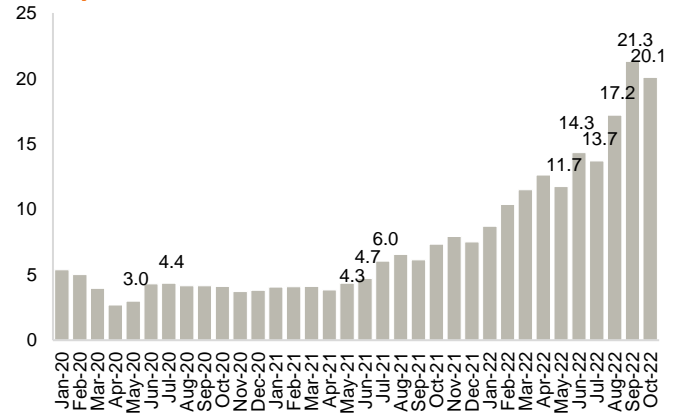
Price of electricity on Turkish market almost tripled and reached USc 14.1/kWh in 10M22 up from USc 5.1/kWh in 10M21. The highest market price was seen in Sep-22 - USc 21.3/kWh. Globally increased natural gas prices due to current energy crisis and Turkish markets' dependence on gas-fired thermal power plants are the cause of this spike. Prices in Georgia increased much less significantly, therefore Georgian power producers were eager to export on Turkish market rather than sell to local consumers.

Figure 3: Average annual Market Clearing Prices in Turkey, USc/kWh



Source: EPIAS, EVDS, Galt & Taggart

Figure 4: Average monthly Market Clearing Prices in Turkey, USc/kWh



Source: EPIAS, EVDS, Galt & Taggart

Electricity exports from Georgia hit historic high due to abovementioned price growth in Turkey. Over 10M22 exports were up by 153.7% in volume terms to 1.0TWh and by 455.4% (5.6x times) in value terms to US\$ 84.3mn. Average export price reached USc 8.7 /kWh, up by 118.9% y/y.

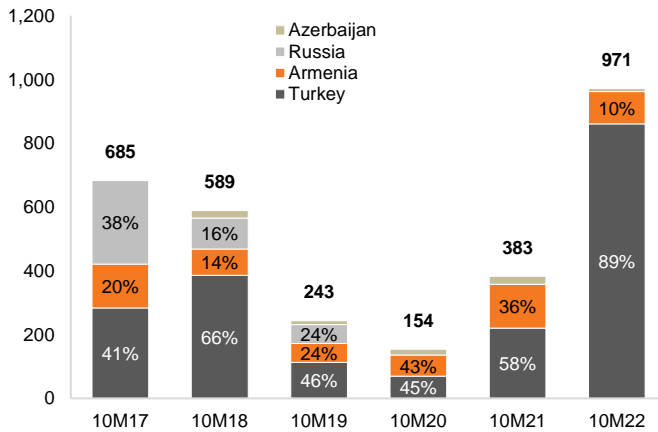
Turkey was the main export direction, accounting to 88.7% of export volume and 94.3% of export value (US\$ 79.6mn). Price of electricity exports to Turkey increased by 2.6x y/y and reached USc 9.2/kWh in 10M22 in line with increased prices on Turkish market.

Electricity export started in May and continued until end of September. Having electricity exports in September is very unusual for Georgia, even exporting in August has been a rare occurrence lately, as increased local consumption left no room for export. The price spike in Turkey up to USc 21.3/kWh in September, coupled with comparatively low prices on local market, gave stimulus for policymakers to make an exception and support exports with thermal generation (which works on imported gas). Thermal generation prices were not impacted by global



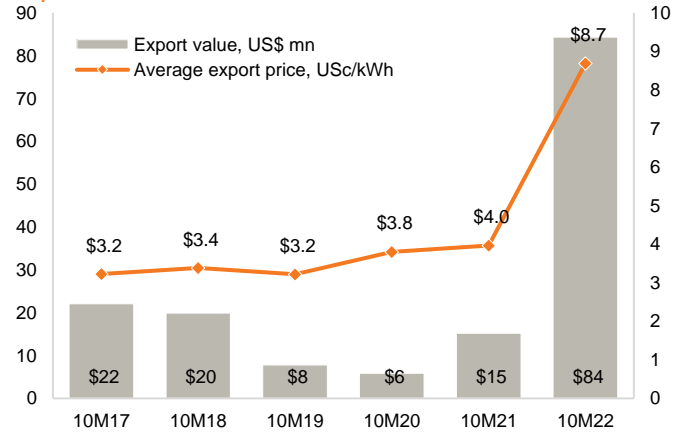
price spikes due to availability of social gas. The “social gas” is cheap gas available for Georgia for transiting gas via South-Caucasus Pipeline from Azerbaijan to Turkey. The volume of social gas is limited and used only for residential usage and thermal power plants. This limitation is the reason, why electricity export could not continue further in October.

Figure 5: Electricity exports by destination, GWh



Source: ESCO, GSE

Figure 6: Export value and average price of electricity exports



Source: Geostat, ESCO, GSE, Galt & Taggart

Increased prices on Turkish market also caused jump (2.9x times) in transit volume to 2.1TWh in 10M21. A 96.1% of transit was directed to Turkey, out of which 83.5%pts came from Azerbaijan and 12.6%pts from Russia. The rest 3.9% of transit went from Russia to Armenia in 10M22. Notably, there was no transit of electricity between Aug-20 and Jun-21, due to low energy prices on Turkish market. Once prices went up in Turkey (in 2H21), transit started again.

Electricity generation and import in Georgia

The growth of consumption and exports was supported mainly by growth in hydro and thermal generation. Generation of **HPPs** increased by 11.2% y/y due to favourable hydrological conditions and low base of Enguri HPP (due to maintenance works in 1H21).

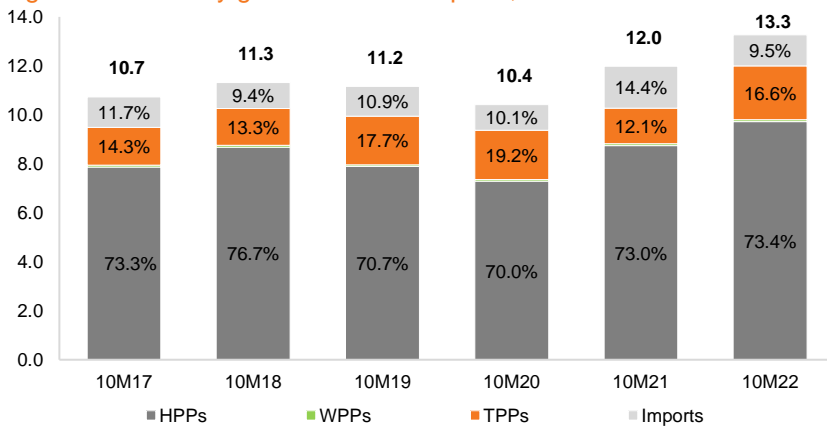
Thermal generation was up by 52.2% y/y, while electricity **imports** were down by 26.9% y/y. This shift from electricity import to thermal generation (which works on imported natural gas) is explained by:

- 1) Price difference between import and thermal generation - average price of commercial import of electricity was in range of USc 7.0-7.8/kWh, while price of thermal generation ranged between USc 3.3/kWh (e.g. for gardabani 1 TPP) and USc 4.5/kWh (e.g. Mtkvari Energy).



2) Increased demand on electricity exports. As showed above, average price of electricity exports reached USc 8.7/kWh in 10M22, resulting in high demand of electricity exports. According to Georgian regulation, export and import of electricity cannot be conducted simultaneously, therefore in order to have electricity export, the deficit between electricity demand (local consumption plus export) and hydro generation was filled by thermal generation.

Figure 7: Electricity generation and imports, TWh



Source: ESCO, GSE

Table 2: Supply growth breakdown, 2021

Supply source	Annual growth	Share in supply
Total supply	+10.6%	100.0%
Imports	-26.9%	9.5%
Domestic generation	+16.9%	90.5%
TPPs	+52.2%	16.6%
WPPs	+8%	0.5%
HPPs	+11.2%	73.4%
Enguri and Vardnili	+12.1%	31.7%
Other regulated HPPs	+5.7%	18.7%
Deregulated HPPs	+14.7%	22.9%

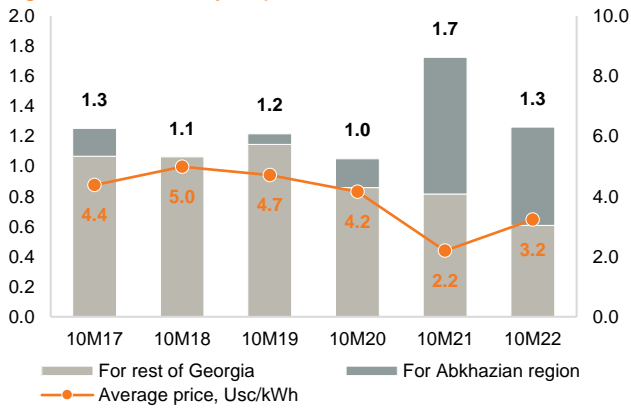
Source: ESCO, GSE

Imports accounted to 9.5% of total demand. In 10M22, 78.8% of total imports came from Russia (mostly for Abkhazian region), 10.3% from Azerbaijan and 11.0% from Armenia. Abkhazian region consumed half of total electricity imported to Georgia. This electricity is received at “special” price (less than USc 0.5/kWh), decreasing the average import price to USc 3.2/kWh. Commercial price of electricity imports varies by importer country in 10M22:

- Price of electricity imports from Azerbaijan stood at US\$ 7.5/kWh, up by 62.0% y/y in 10M22
- Price of electricity imports from Armenia stood at US\$ 7.4/kWh
- Price of electricity imports from Russia in October stood at USc 7.0/kWh, up by 42.3% y/y from USc 4.9/kWh in Oct-21. Importantly, in October there was no import of electricity for Abkhazian region, therefore this is pure commercial price of electricity imports from Russia

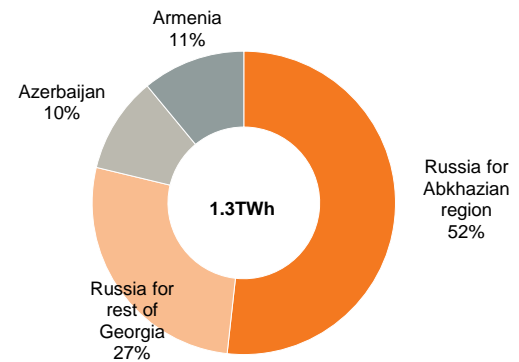


Figure 8: Electricity imports, TWh



Source: ESCO, Galt & Taggart

Figure 9: Electricity import source-countries in 10M22

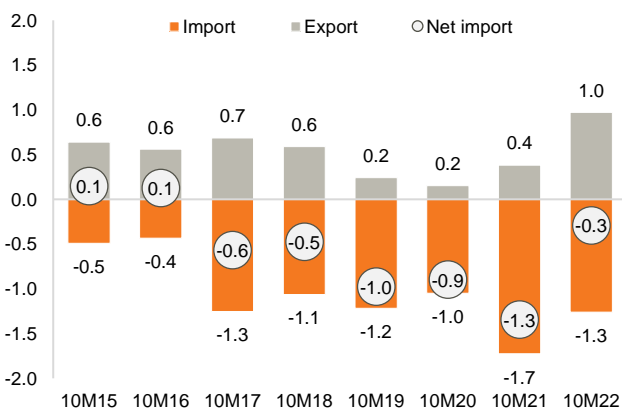


Source: ESCO, Geostat, Galt & Taggart

Trade balance of electricity was positive - Georgia earned US\$ 84.3mn via electricity exports and spent US\$ 40.7mn on electricity imports, resulting in US\$ 43.6mn of net export. Increased export revenues are attributable to incredibly increased prices in key export destination – Turkey (see figures 5 and 6), while import costs increased less significantly.

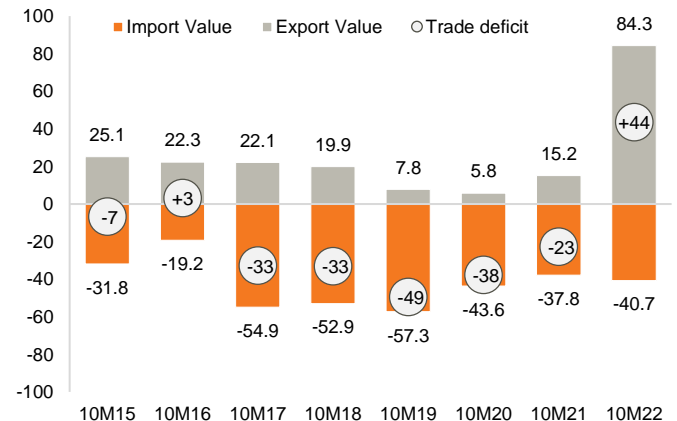
Despite the positive trade balance in US\$ terms, Georgia remains net importer in kWh terms. Georgia imported 1.3TWh electricity and exported 1.0TWh in 10M22, resulting in 0.3TWh net import. The trade deficit in kWh terms is expected to widen as forecasted balance of electricity adopted by Ministry of Economy and Sustainable Development predicts electricity imports to reach 2.3TWh by end of 2022.

Figure 10: Foreign trade of electricity, TWh



Source: ESCO, Geostat, Galt & Taggart

Figure 11: Trade deficit, US\$ mn



Source: ESCO, Geostat, Galt & Taggart



Wholesale electricity prices in Georgia

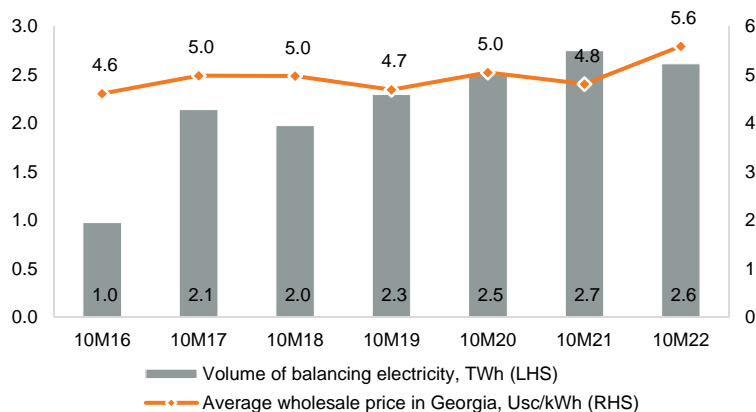
Balancing electricity price in Georgia increased by 16.2% y/y to USc 5.6/kWh. The main reason is growth of average import price. On a monthly basis, the price of balancing electricity fluctuated within USc 4.0-6.5 per kWh.

Total volume of electricity traded through ESCO as balancing electricity reached 2.6TWh, down by 4.9% y/y. It accounted for 19.7% of total electricity supplied to the grid, the remaining volume of electricity was traded through bilateral contracts. Majority of balancing electricity was the energy purchased by ESCO under the Guaranteed Power Purchase Agreement (PPA) - 60.1% of total, of which 40.0%ppts came from HPPs, 17.8ppts from Gardabani-2 TPP and rest from WPP. Only 18.5% of the balancing electricity was imported, and the remaining 21.4% 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 world trends
3. The electricity market is largely regulated and more resistant to price spikes.

Figure 12: Balancing electricity volume and prices



Source: ESCO



Table 3: Electricity Balance in 10M22, GWh

	2021	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	10M22
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	11,781
% 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%	+5.4%
Of which:												
- Abkhazian Region	2,956	359	300	329	264	253	184	197	206	183	214	2,488
% change y/y	+15.8%	+13%	+8%	+1%	+12%	+14%	-11%	+8%	+10%	-2%	-8%	+4.9%
- Eligible consumers	3,554	332	306	350	344	350	324	314	296	285	292	3,193
% change y/y	+45.8%	+46%	+46%	+42%	+38%	+24%	+12%	-8%	-11%	-15%	-16%	+11.8%
- Retail consumption	7,219	682	594	670	545	549	572	634	703	581	570	6,100
% change y/y	+1.0%	+7%	+2%	+3%	-3%	+0%	-4%	-0%	+9%	+8%	+0%	+2.5%
Of which:												
- Energo-Pro Georgia + EP Georgia Supply	4,400	399	347	389	329	332	336	375	433	351	344	3,634
% change y/y	-2.5%	+1%	-2%	-2%	-7%	-5%	-7%	-2%	+11%	+6%	+0%	-0.6%
-Telasi + Telmico	2,819	283	247	281	217	217	236	259	270	230	226	2,466
% change y/y	+7.0%	+16%	+10%	+10%	+4.4%	+10%	+2%	+2.2%	+7.6%	+11.6%	-0.2%	+7.4%
Domestic Generation, total	12,645	1,025	890	1,077	1,125	1,461	1,485	1,308	1,401	1,182	1,034	11,999
% change y/y	+13.3%	+27%	+29%	+63%	+36%	+20%	+12%	+5%	+16%	+7%	-13%	+16.9%
Of which:												
- TPPs	2,380	508	444	499	35	-	3	3	238	304	154	2,200
% change y/y	-15.6%	+49%	+34%	+182%	-46%	NM	NM	-31%	+38%	+108%	-25%	+52.2%
- WPPs	83	7	5	7	6	8	6	8	9	8	8	73
% change y/y	-8.2%	+30%	-7%	-20%	-6%	-9%	-23%	+23%	+71%	+7%	-17%	+0.8%
- HPPs	10,182	510	441	571	1,084	1,453	1,475	1,297	1,153	869	872	9,726
% change y/y	+23.4%	11%	24%	20%	44%	20%	12%	5.5%	12.6%	-8%	-11%	+11.2%
Imports	2,006	406	357	331	71	9	1	0	-	-	86	1,260
% change y/y	+24.6%	-2%	-14%	-46%	-73%	+119%	-87%	-56.1%	-100%	-100%	+917%	-26.9%
Exports	391	3	-	0	0	269	351	115	140	94	-	971
% change y/y	+154%	+142%	N/A	N/A	N/A	+105%	+80%	+206%	N/A	NM	N/A	+153.7%
Trade balance	(1,615)	(404)	(357)	(331)	(70)	260	351	114	140	94	(86)	(289)
Transit	1,184	186	168	124	139	-	92	334	354	393	352	2,140
% change y/y	+481%	+2816%	N/A	N/A	N/A	N/A	+417%	+457%	+62%	+99%	+22%	+191.9%

Source: ESCO

Note: N/A= not available; NM= not meaningful



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