Electricity market in Georgia

June 2025

Electricity sector in 2024

Generation

14.2

TWh

Consumption

14.4

TWh

Import

1.2

TWh

Export

1.0

TWh

Wholesale Price

5.6

Usc/kWh

Source: GNERC; Galt & Taggart

Note: Consumption includes transmission losses

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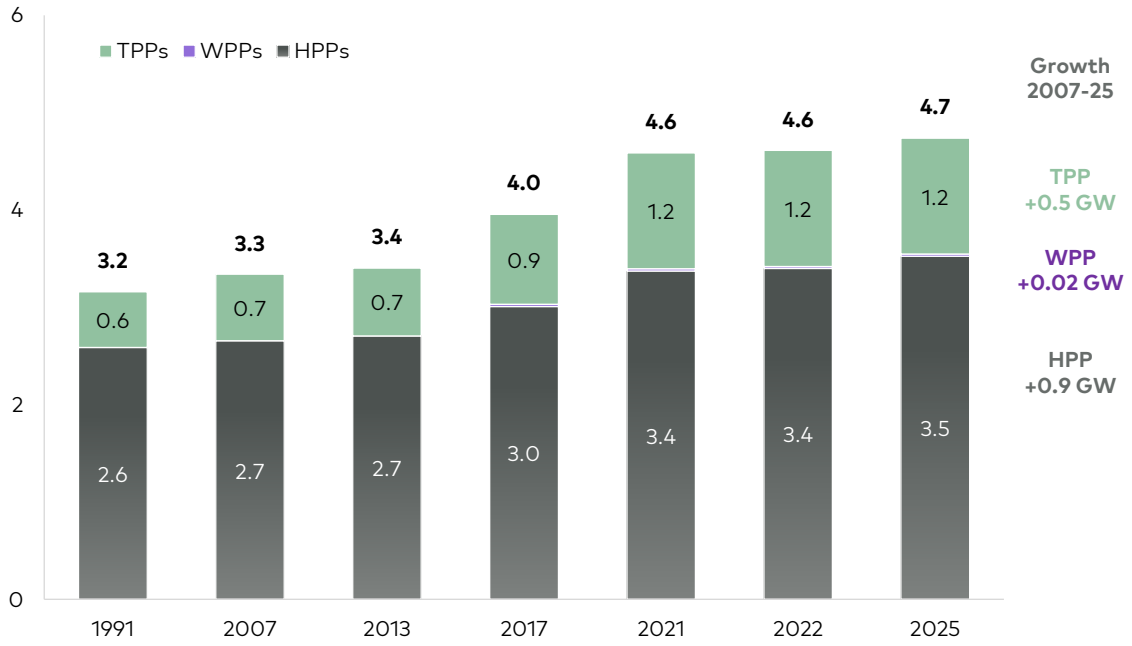
Generation

Question 1

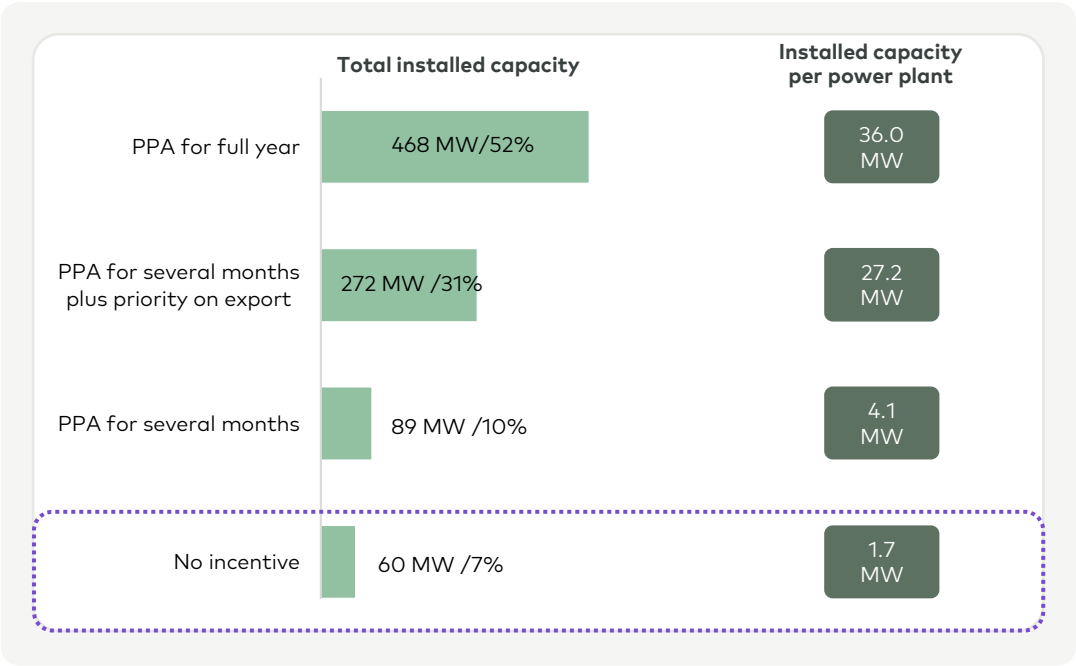
Which power plants have been built in recent years, and what are the current needs of Georgia's energy system?

93% of power plants constructed in recent years were supported by state incentives

Installed capacity of power plants in Georgia, GW



Renewable energy power plants constructed over 2007-25 by the incentive mechanism

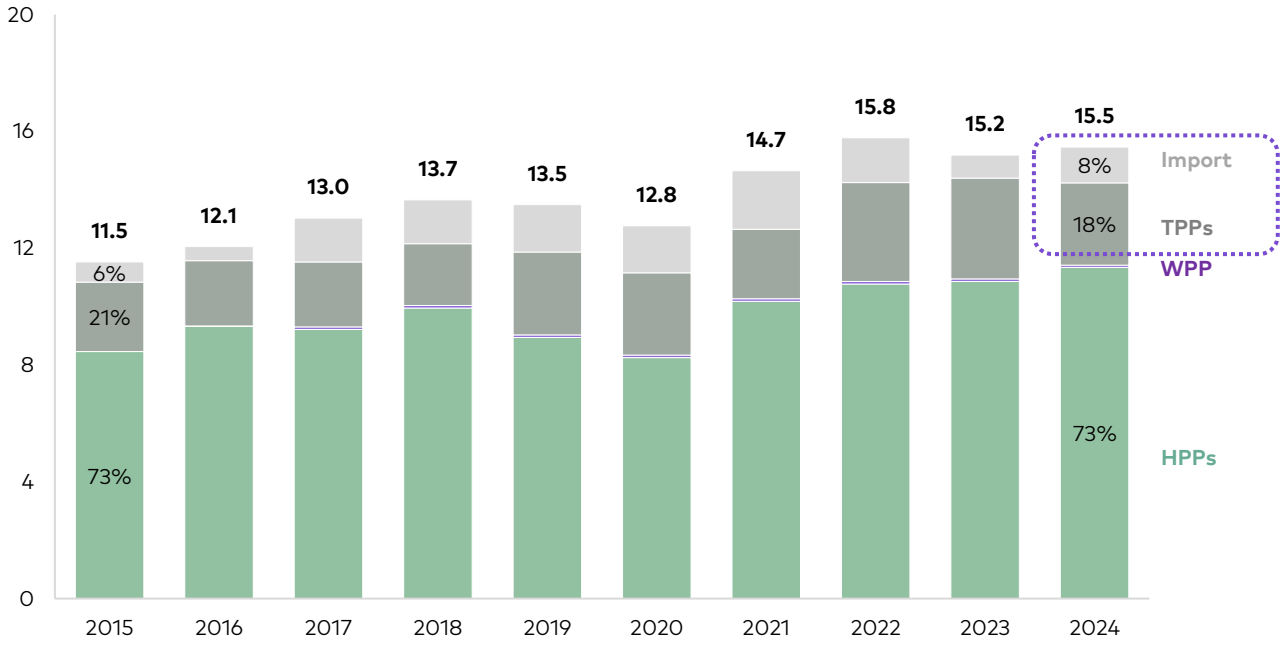


Following the introduction of the incentive mechanism (PPA) in 2007, 83 power plants with a total installed capacity of 1.4 GW were constructed. However, the suspension of the PPA between 2017-21, along with increased public protests, slowed construction activity. The sector was revitalized with the introduction of the CFD scheme in 2022.

Source: GSE, ESCO, Galt & Taggart

Despite the growth in installed capacity, import dependency remains unchanged, driven by the increased demand and seasonality of hydropower generation

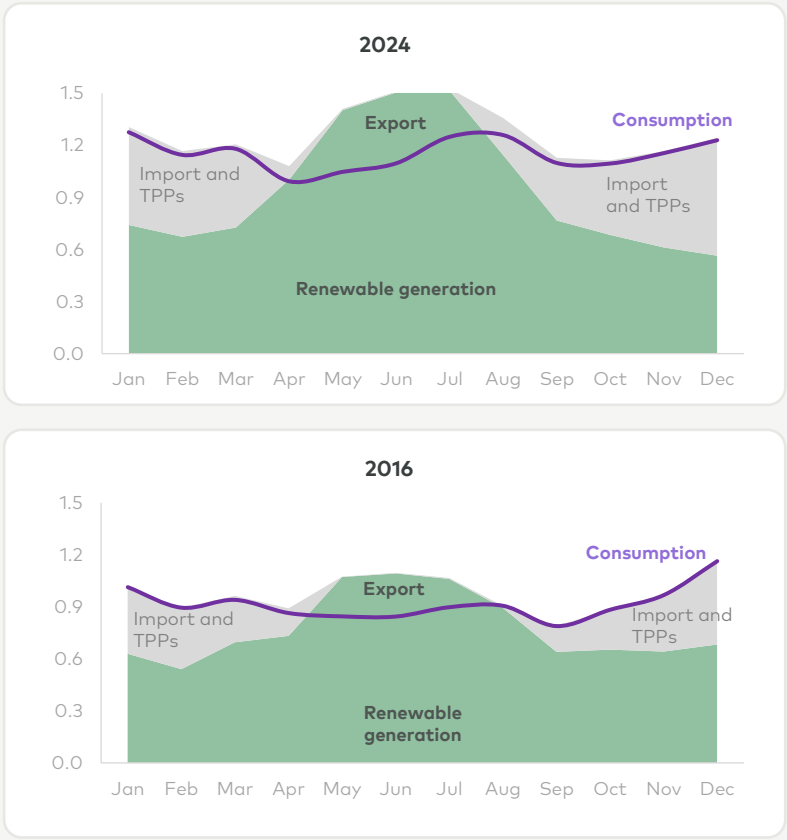
Electricity generation and import, TWh



The unchanged need for imports or thermal generation is caused by the growth of local consumption of electricity and the seasonality of hydropower plants' generation. The choice between imports and thermal power generation is mainly made on the basis of price, with technical limitations taken into account. Winter deficits can be filled with reservoir hydropower plants.

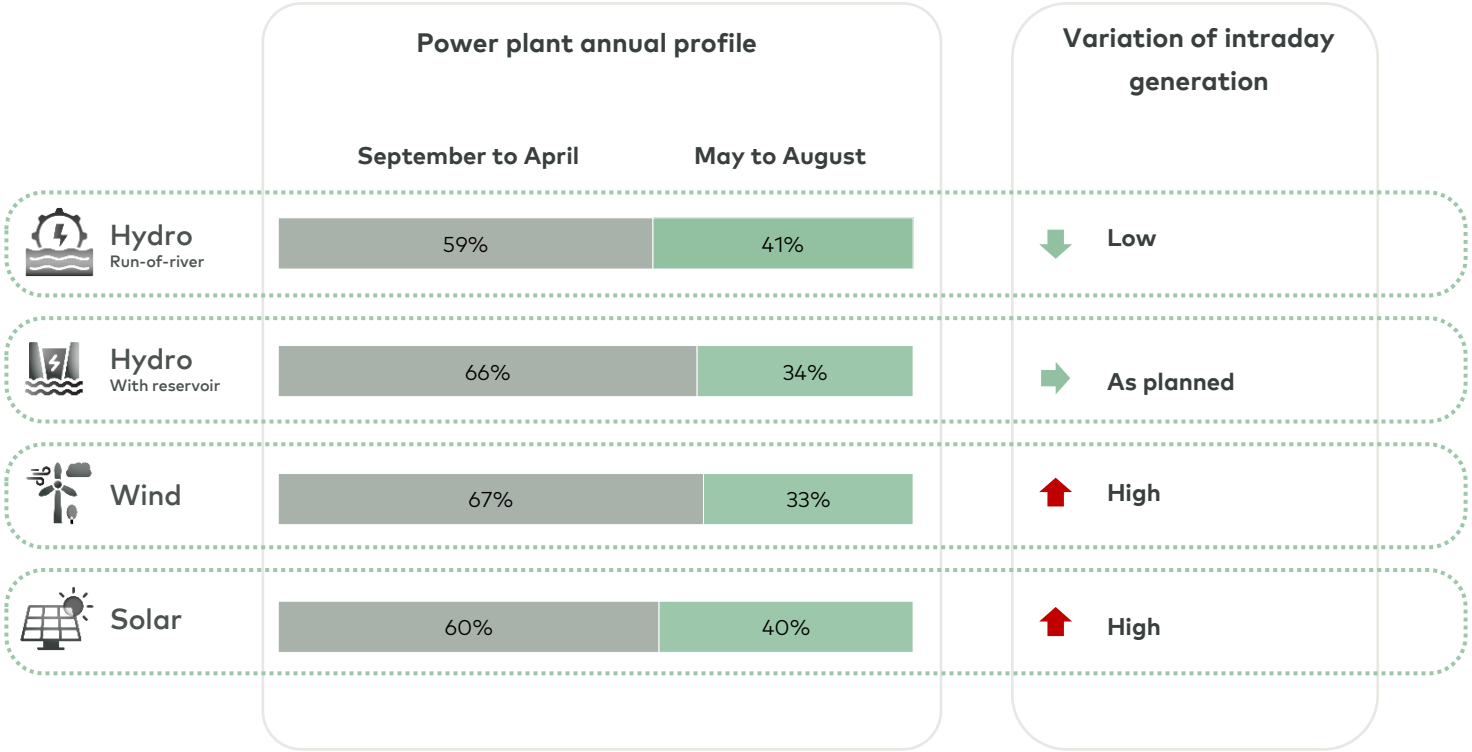
Source: GNERC, Galt & Taggart

Supply-demand seasonality of Georgia, TWh



The variability in hourly consumption and wind and solar power generation creates a need for several hours of reserve capacity

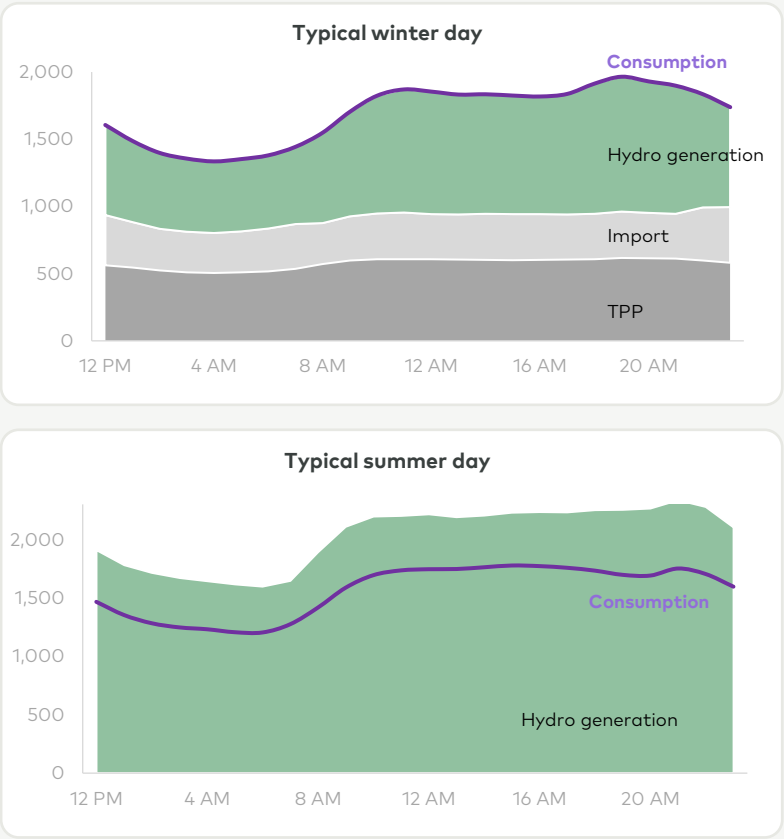
Comparison of renewable energy sources by generation profile



Generation of wind and solar power plants fluctuates throughout the day and requires quick reserves sources (provided by reservoir hydropower, batteries, steam turbines)

Source: GNERC, GSE, survey of companies, Galt & Taggart

Daily profile of electricity consumption and generation in Georgia, MW

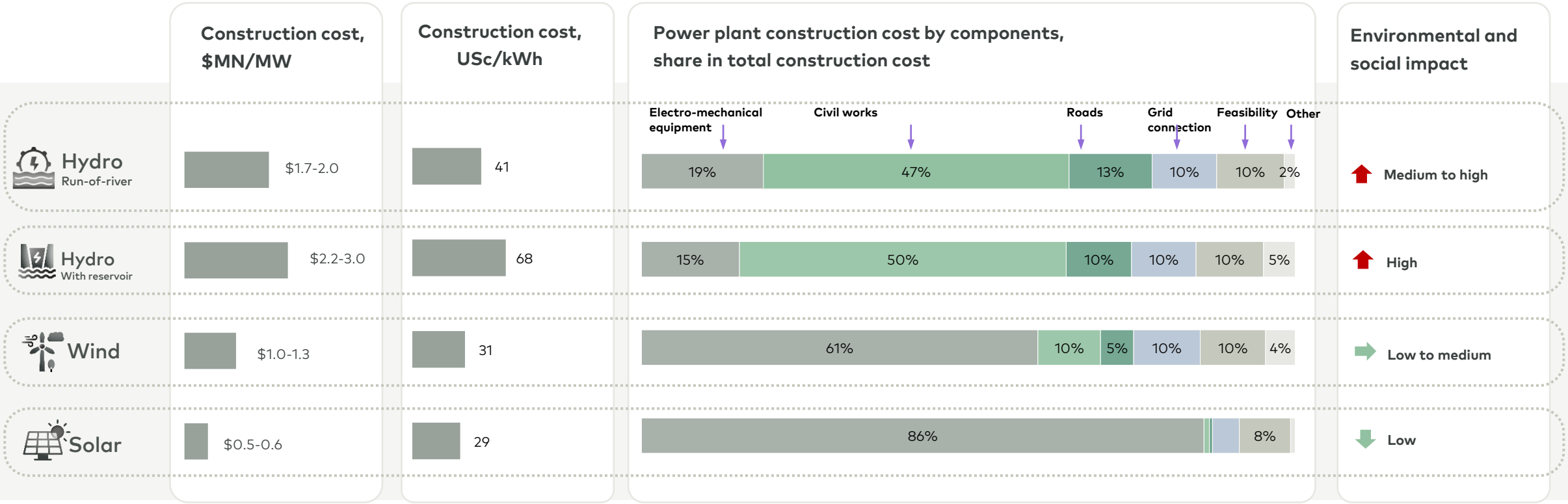


Source: GSE, Galt & Taggart

Note: Summer day is an average day of June 2023 and June 2024: Winter Day is average day of November, December, January and February of 2023-25

The construction of wind and solar power plants is relatively simple and less expensive

Comparison of renewable energy sources by construction cost and risks



Source: survey of companies, Galt & Taggart

Wind and solar power plants provide higher returns on investment, while hydropower plants have higher efficiency and longer lifespan

Comparison of renewable energy sources by capacity factor, CFD conditions and IRR

	Capacity factor, %[1]	LCOE[2], USc/kWh	CFD tariff[3] for 15 years, USc/kWh	Number of months the CFD is valid	Generation beyond CFD, % from annual	Equity IRR[4]
Hydro Run-of-river	45-50%	6.4	6.5	8	40%	13-15%
Hydro With reservoir	40-45%	8.2	7.7	8	36%	5-9%
Wind	35-43%	5.9	6.0	9	25%	17-19%
Solar	17-22%	5.4	5.6	12	0%	17-19%

Investors' increased interest in wind and solar power plants is explained by high returns and low construction risks

Source: survey of companies, Galt & Taggart

Note: 1) Capacity utilization rate for reservoir hydro varies depending on its usage rate; 2) LCOE (levelized cost of electricity) refers to the ratio of lifetime costs to the amount of generation, taking into account the time value of money (discount rate WACC=12.5%). 3) CFD tariff reflects terms offered by MoESD for direct negotiation (excluding hydro with reservoir, where we took results of 2nd capacity auction) 4) Equity IRR is the return on the invested capital of the project and is calculated for a 20-year operating period.

The introduction of CFDs has increased investor interest in wind and solar power plants, although GSE has set limits for their grid connection

Potential power plant projects, GW

	Hydro	Wind	Solar	Total
Projects under feasibility/ construction	4.0	1.5	0.4	6.0
Projects submitted for approval	0.6	3.1	5.1	8.8
Limits set by GSE	NA	0.75	0.5	1.25

The introduction of CFD (Contract for difference) mechanism, two auctions held in 2022 and 2023, and the announcement of direct negotiations in 2025 have increased investor interest, especially in wind and solar power plants.

Implemented and upcoming government initiatives

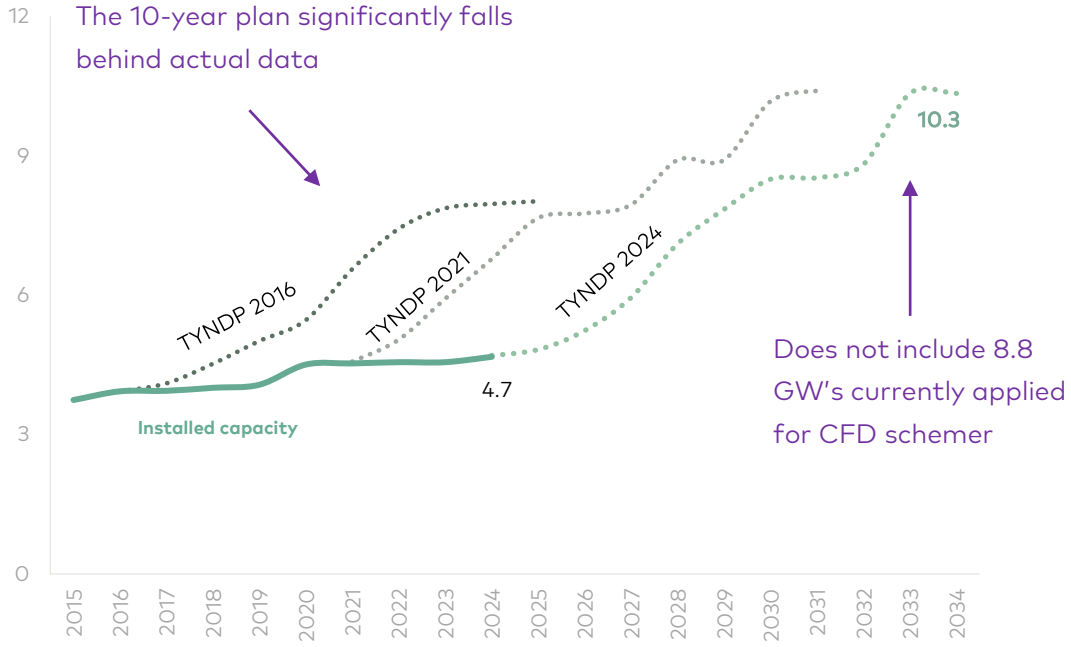
- Introduction of CFD (contract for difference) mechanism
- Investments in transmission grid
- Building energy storage (batteries)
- Reservoir hydropower plants
- One-stop shop principle to reduce bureaucratic barriers
- Updating plan of market reform

Source: GSE, MoESD, Galt & Taggart

Note: Projects are submitted to MoESD request CFD, the results will be announced by end of the year

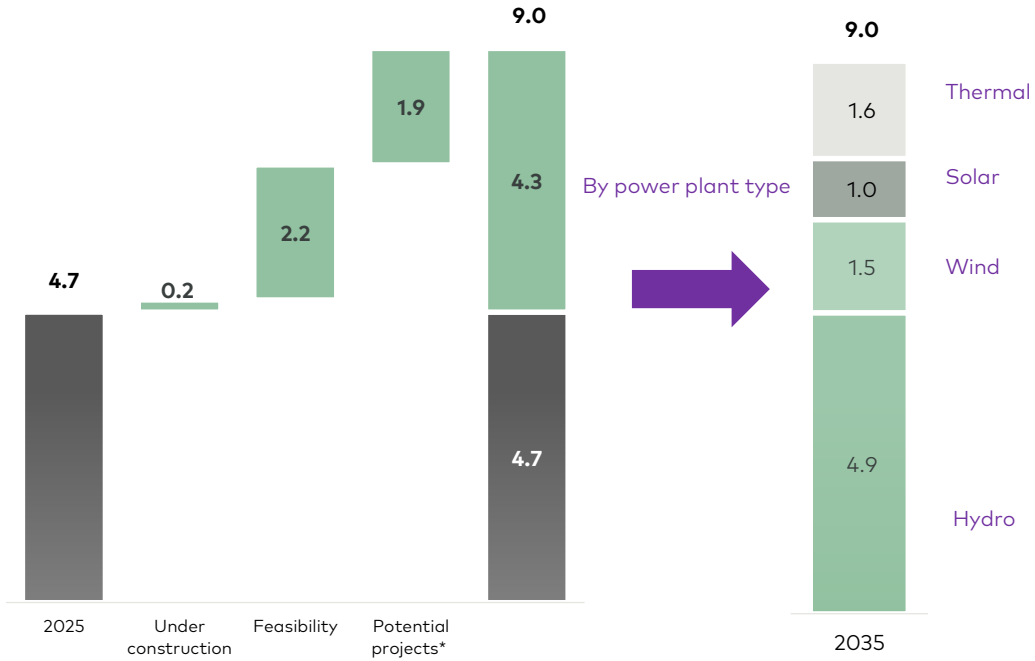
We expect an acceleration in power plant construction, with installed capacity reaching 9.0 GW by 2035

Installed capacity additions by TYNDP, GW



The power plants planned in the 10-year roadmap are unlikely to become operational on schedule.

Installed capacity additions, baseline scenario of Galt & Taggart, GW

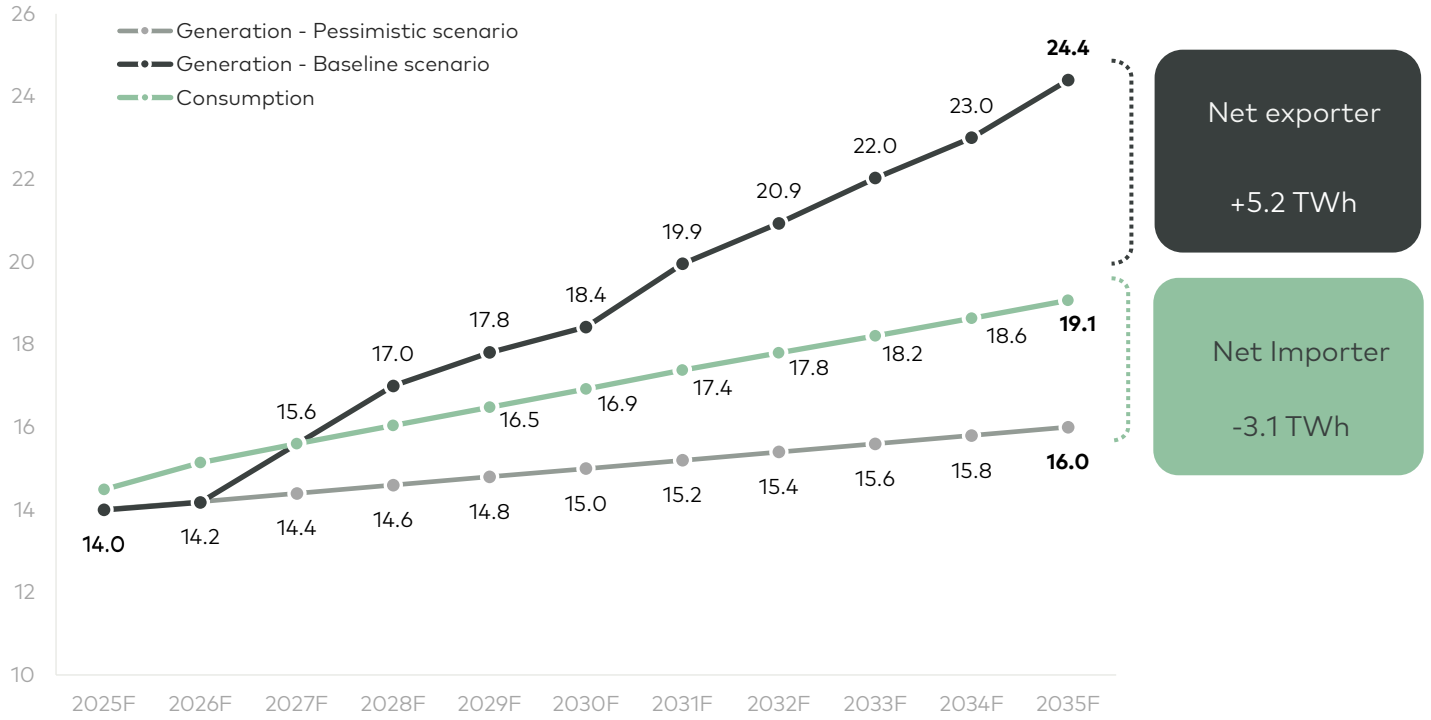


We forecast the addition of 1.4 GW of hydro, 1.5 GW of wind, 1.0 GW of solar, and 0.4 GW of thermal power plants by 2035. This will raise the country's installed capacity to 9.0 GW, representing a 90% increase over the current capacity.

Source: GSE, MoESD, Galt & Taggart

Georgia has the potential to meet 95% of its electricity consumption with renewable energy resources

Galt & Taggart forecast for consumption and generation, TWh

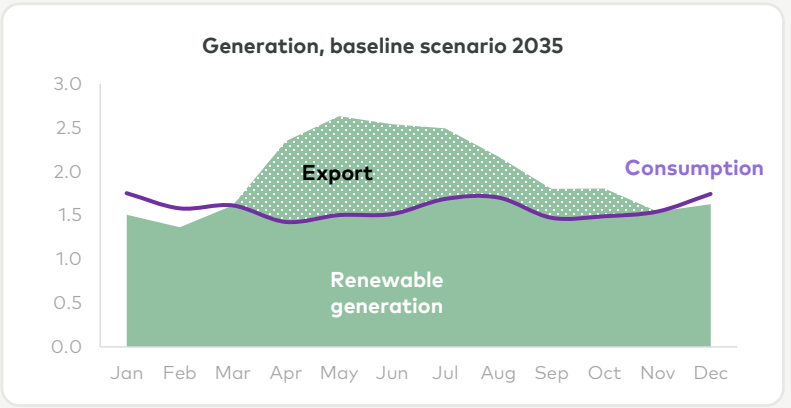


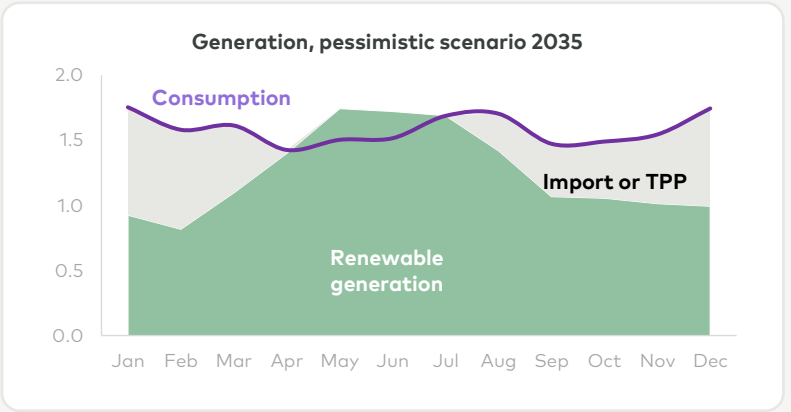
Net exporter

+5.2 TWh

Net Importer

-3.1 TWh





Georgia will become a net exporter of electricity from 2028, in the baseline scenario, and will meet 95% of its consumption with renewable energy by 2035. In the pessimistic scenario, Georgia will need to import electricity for almost the entire year.

Source: Galt & Taggart

Note: In the pessimistic scenario, the pace of construction continues at the same rate as it did in the previous 10 years; the base case is described on the previous page

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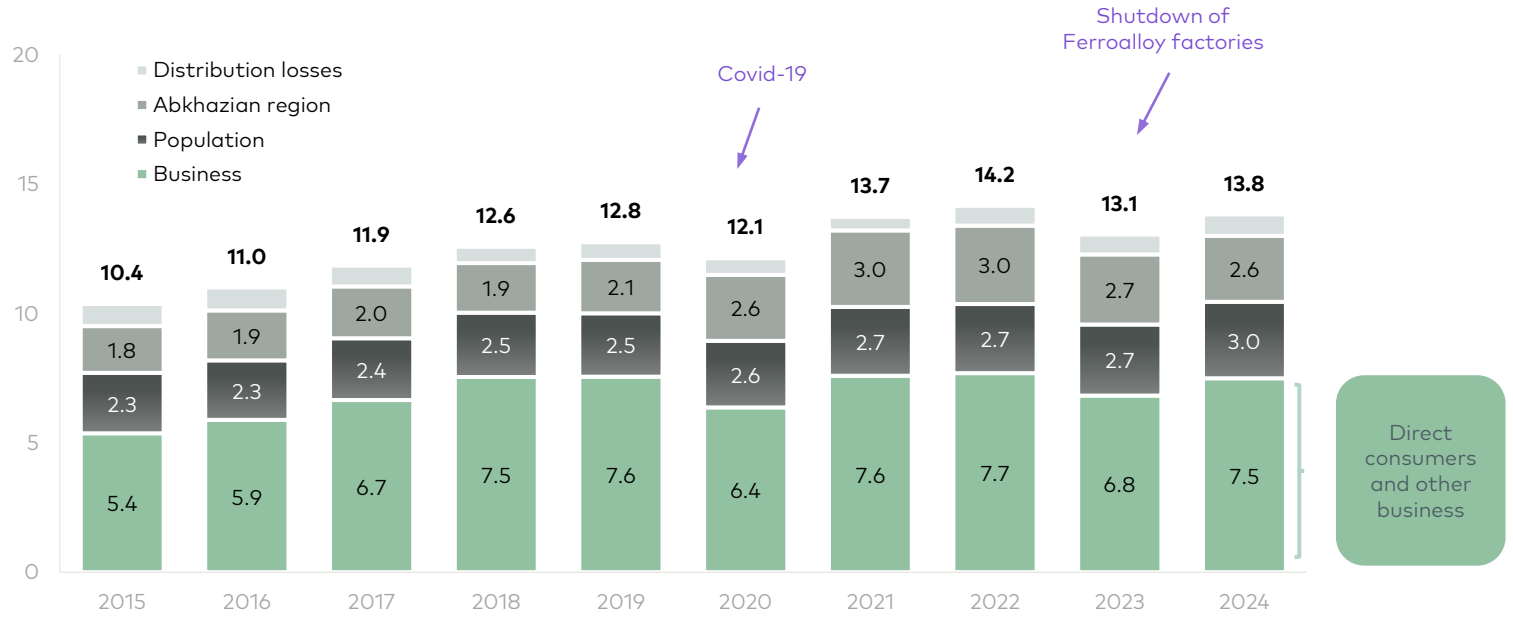
Local consumption

Question 2

What factors drive the growth of local electricity consumption?

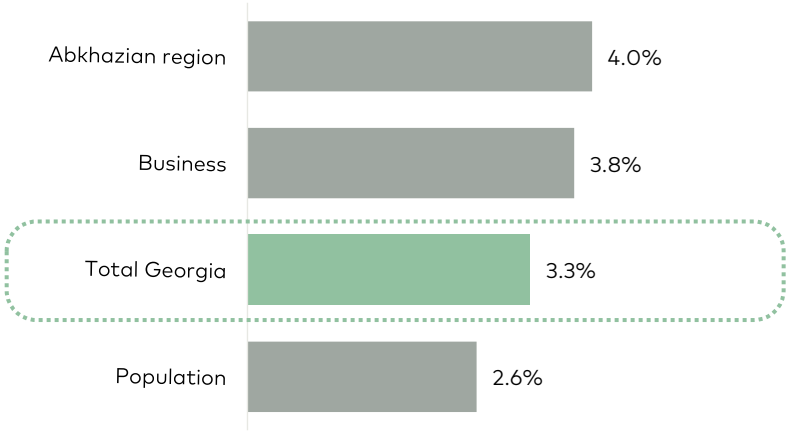
Household consumption is steadily increasing, while commercial sector consumption is fluctuating

Consumption of electricity in Georgia, TWh



The local population accounts for 21.4% of total electricity consumption. Businesses account for 54.2% of total consumption, the majority of which receive electricity through intermediary supply companies (Telmico and EP Georgia), while a third trades directly on the wholesale market.

Growth of electricity consumption in Georgia by consumer groups over 2015-24

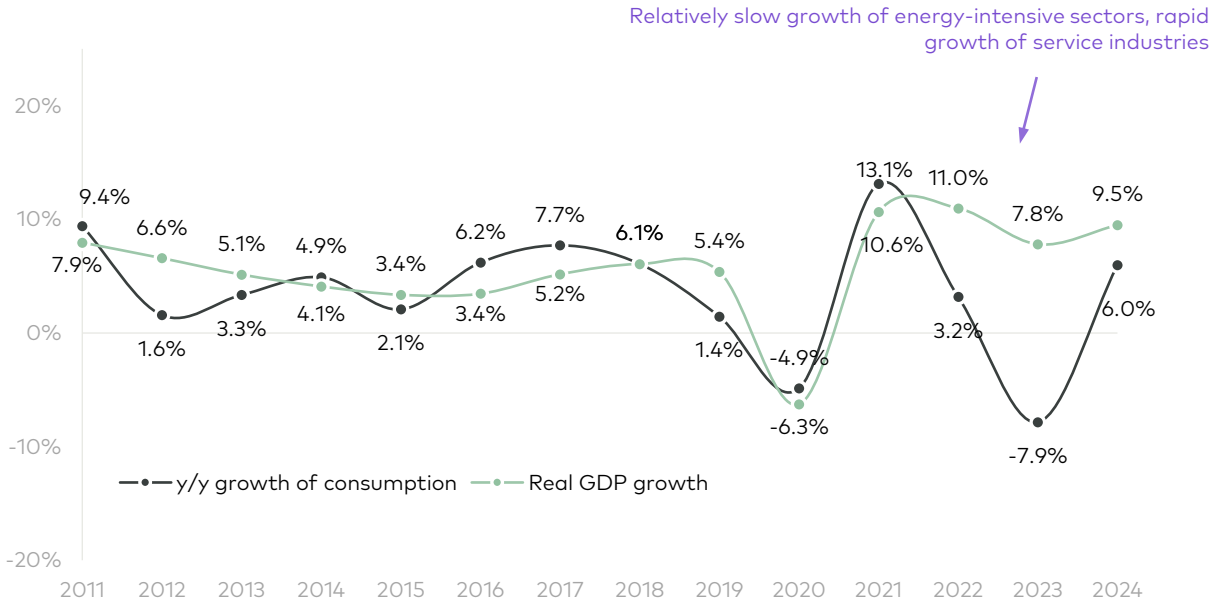


The main source of electricity consumption growth over the past 10 years has been the Abkhazian region and businesses.

Source: GNERC, Galt & Taggart

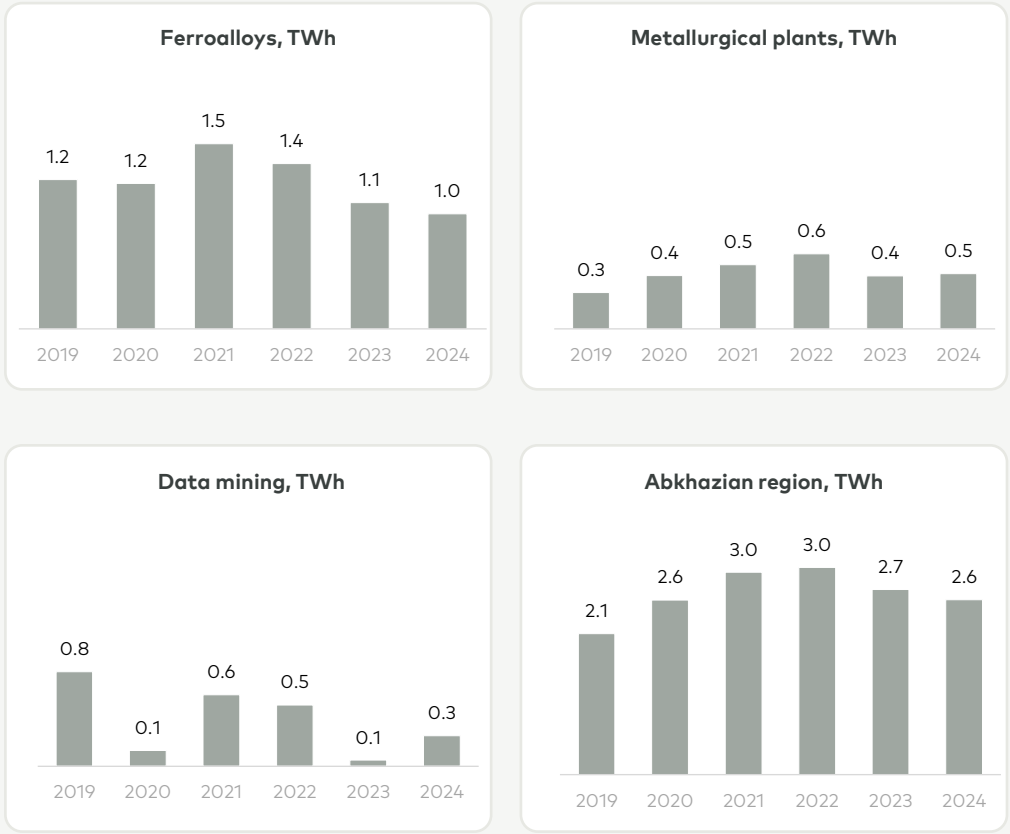
Electricity consumption growth rates have generally followed economic growth trends, with a few exceptions

Growth in electricity consumption and real GDP



Traditionally, electricity consumption and economic growth have been characterized by similar growth dynamics, however, this trend changed in 2022-23. The change is due to the relatively slow growth of energy-intensive sectors in the Georgian economy, and the rapid growth of service industries.

Electricity consumption by sectors causing a slowdown in total consumption in 2023

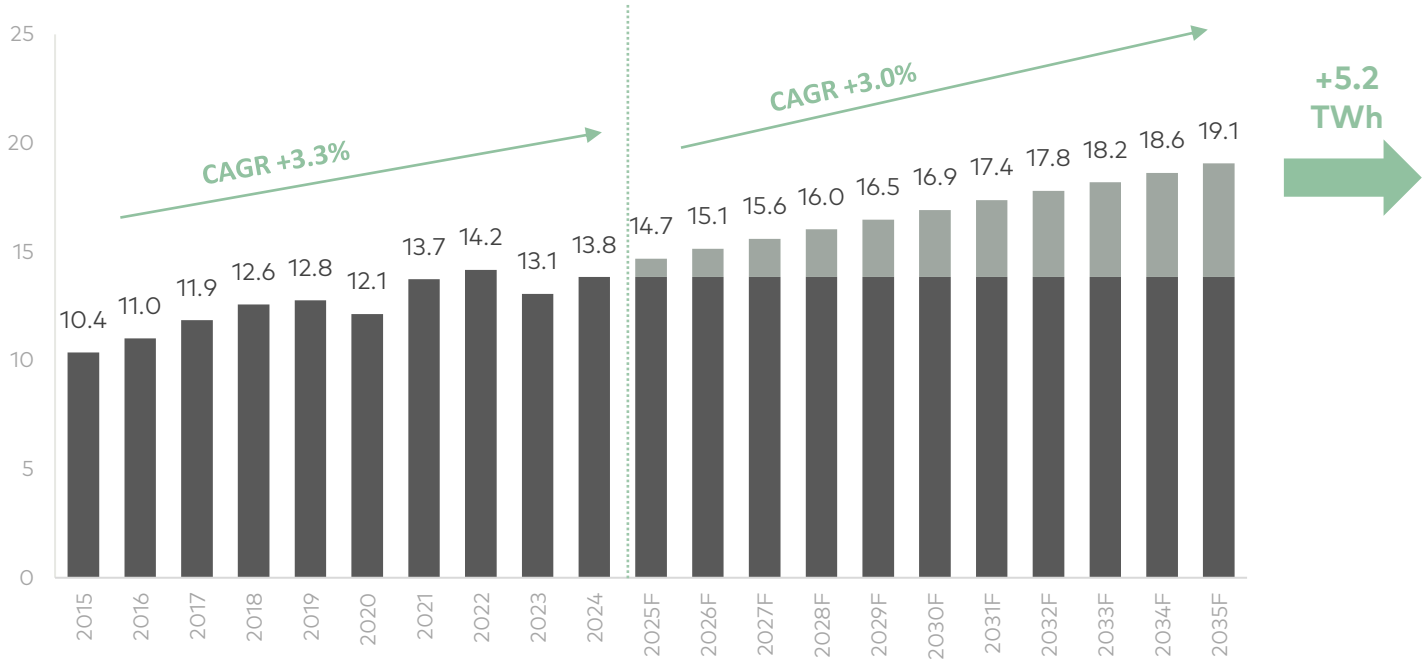


Source: GNERC, Geostat, Galt & Taggart

Note: The increase in consumption by metallurgical plants in 2022 and 2020 was due to the tightening of the criteria for direct user registration

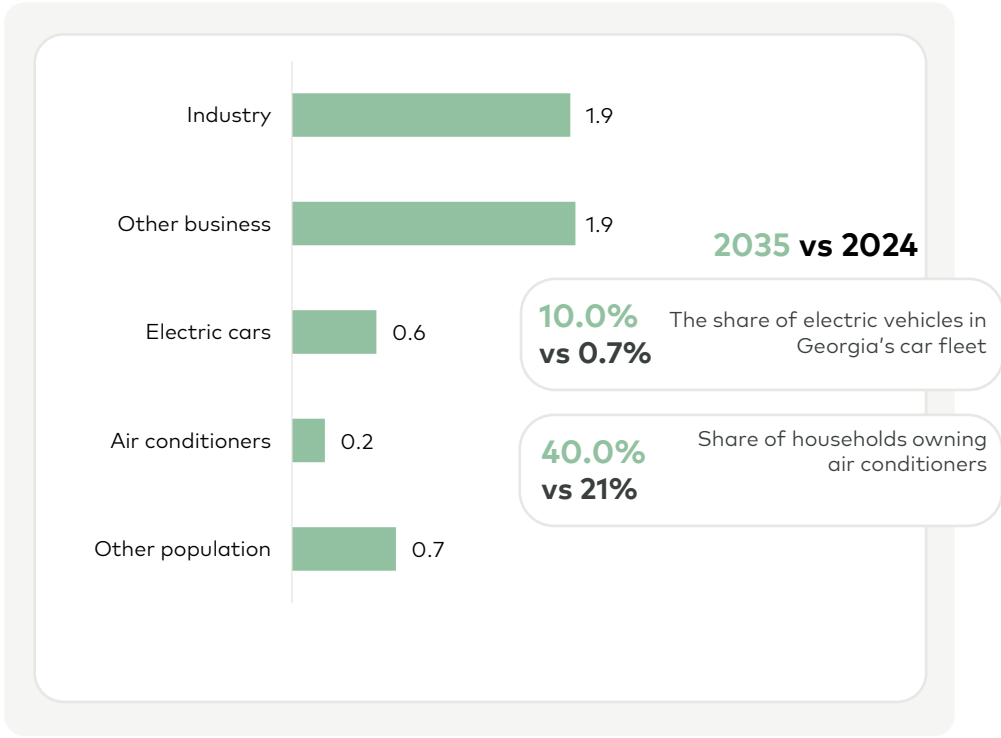
We expect electricity consumption to grow at a 3.0% CAGR over 2025-2035

Electricity consumption, TWh



+5.2 TWh

Forecast of electricity consumption growth by components for 2025–2035, TWh



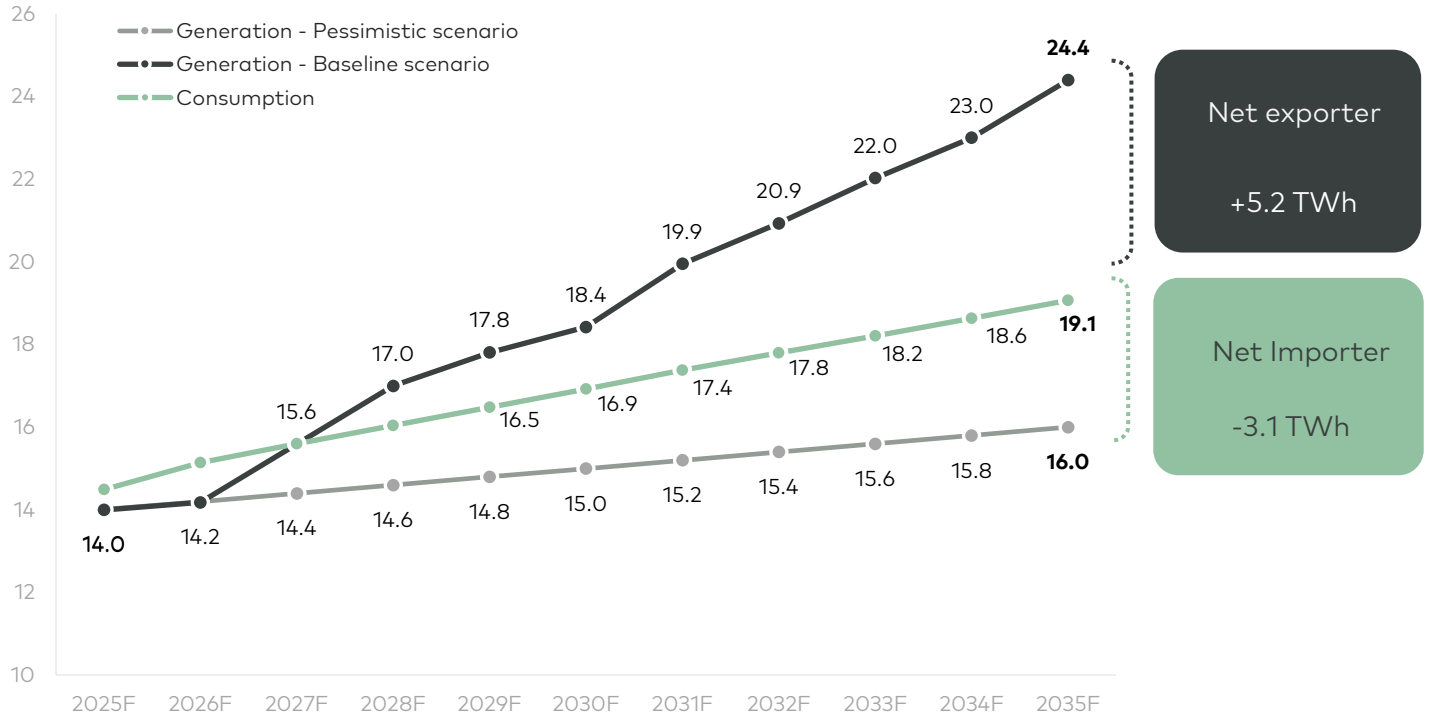
We expect electricity consumption to grow at 3.0% CAGR and reach 19.1 TWh by 2035.

Consumption growth could accelerate if data centers are built in Georgia.

Source: GNERC, Caucasus Barometer, Galt & Taggart

The rate of consumption and generation growth will shape deficit/surplus dynamics

Galt & Taggart forecast for consumption and generation, TWh

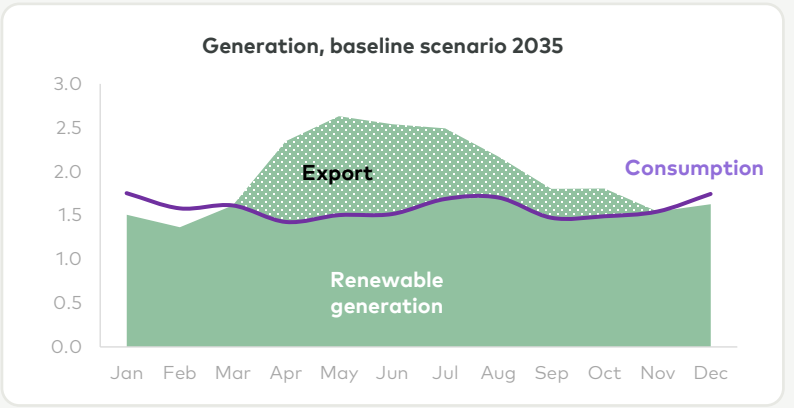


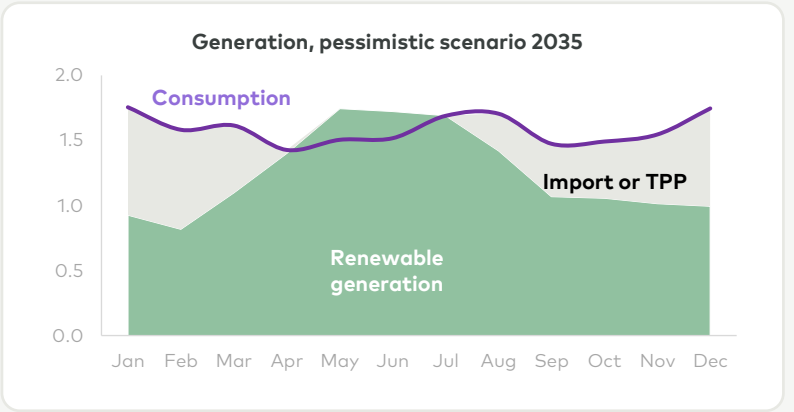
Net exporter

+5.2 TWh

Net Importer

-3.1 TWh





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Source: Galt & Taggart

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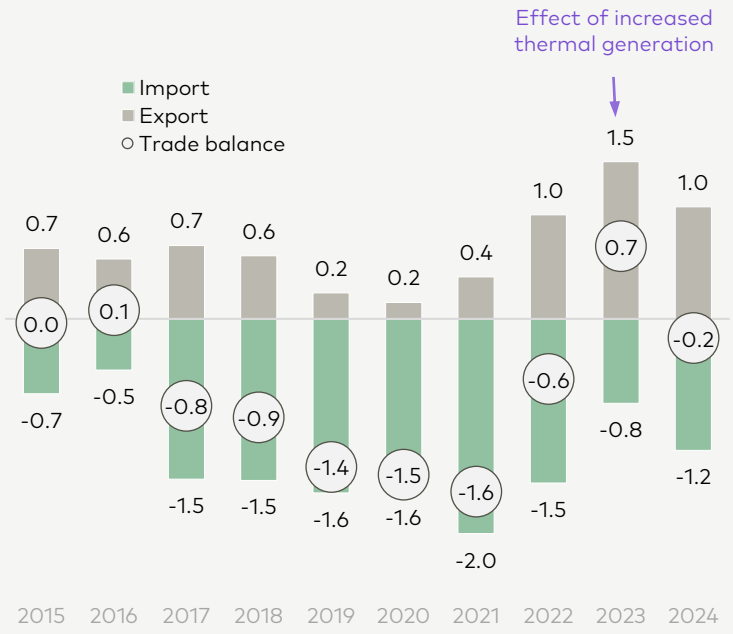
Export Potential

Question 3

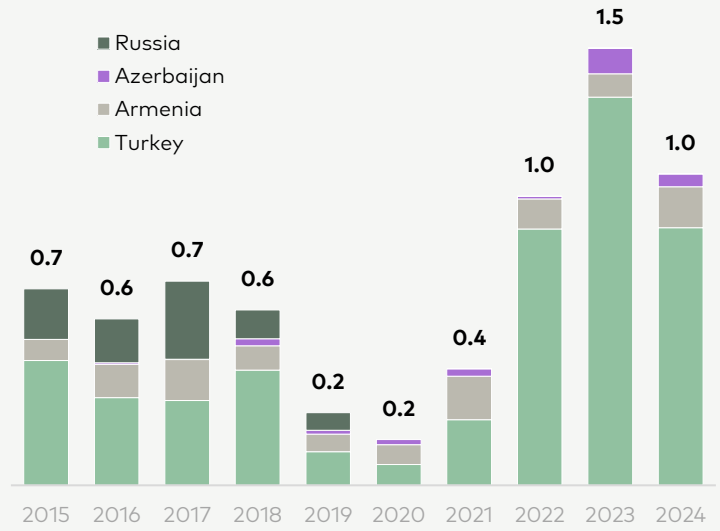
What are potential export markets for Georgia?

Georgia is a net importer of electricity, with seasonal summer exports mainly to Turkey

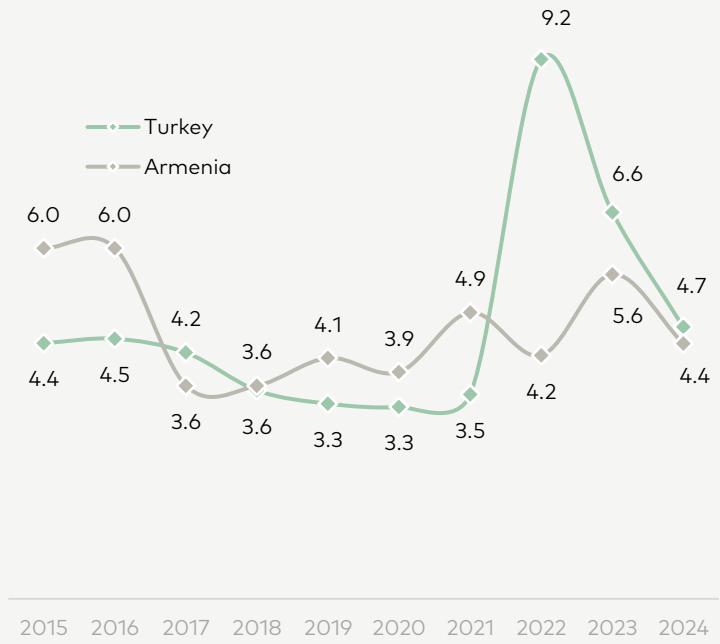
Foreign trade of electricity, TWh



Export by countries, TWh



Average export price, USc/kWh

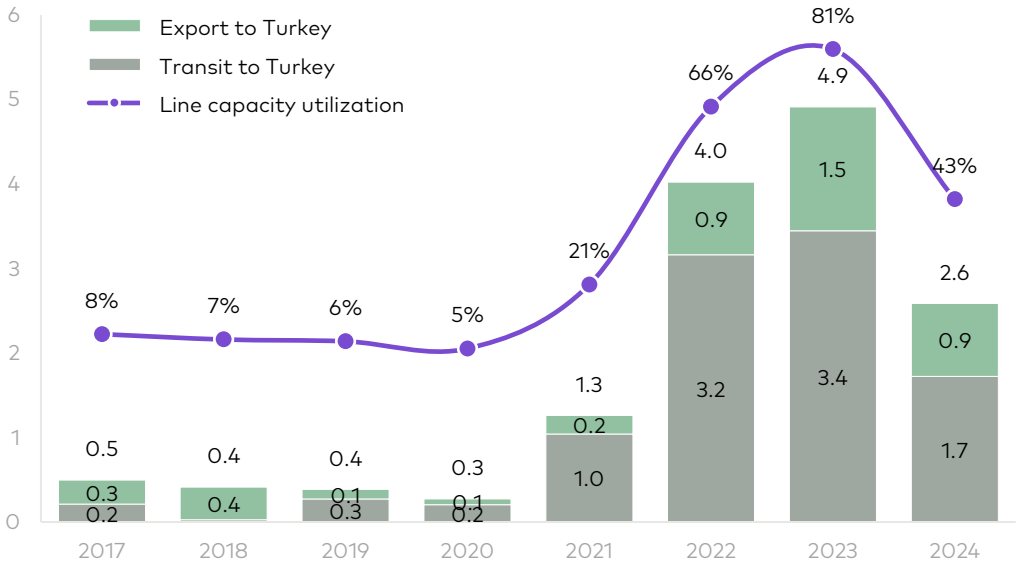


Record high exports in 2022-23 were driven by reduced domestic consumption, increased thermal generation, and attractive prices in the Turkish market.

Source: GNERC, Geostat, Galt & Taggart

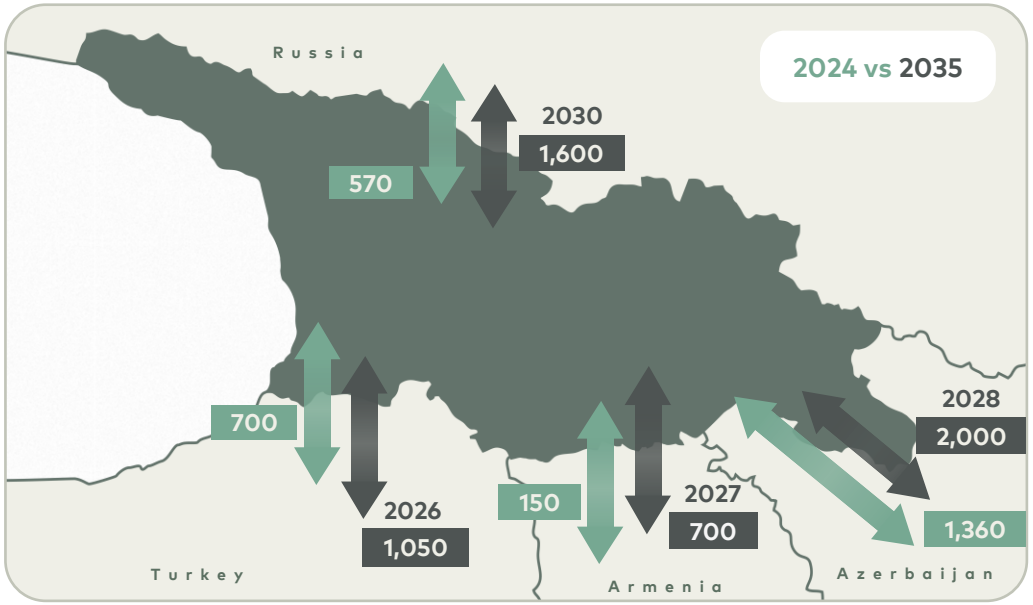
Improvements in cross-border transmission infrastructure can help Georgia fully utilize its export and transit potential

Electricity transit and export from Georgia to Turkey, TWh



Due to the increased price in Turkey in 2022-23, the Georgia-Turkey transmission line was fully loaded during the export season. Enhancing export infrastructure is important for increasing export and transit flows from Georgia.

Existing and planned capacity of intercountry lines, MW

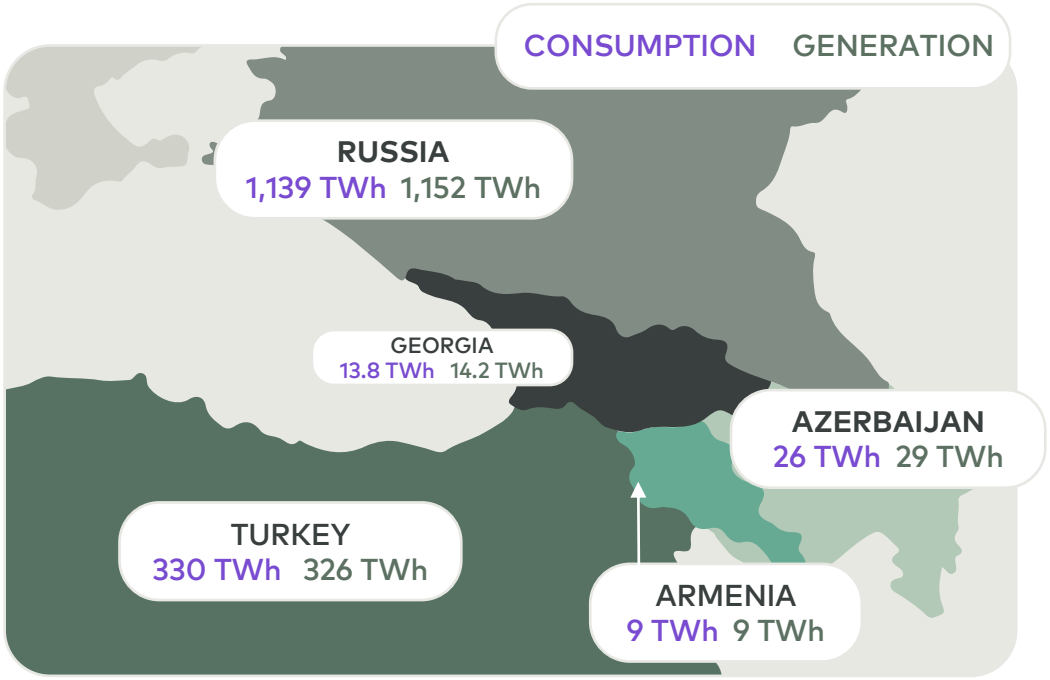


The probability of delays in planned projects is high.

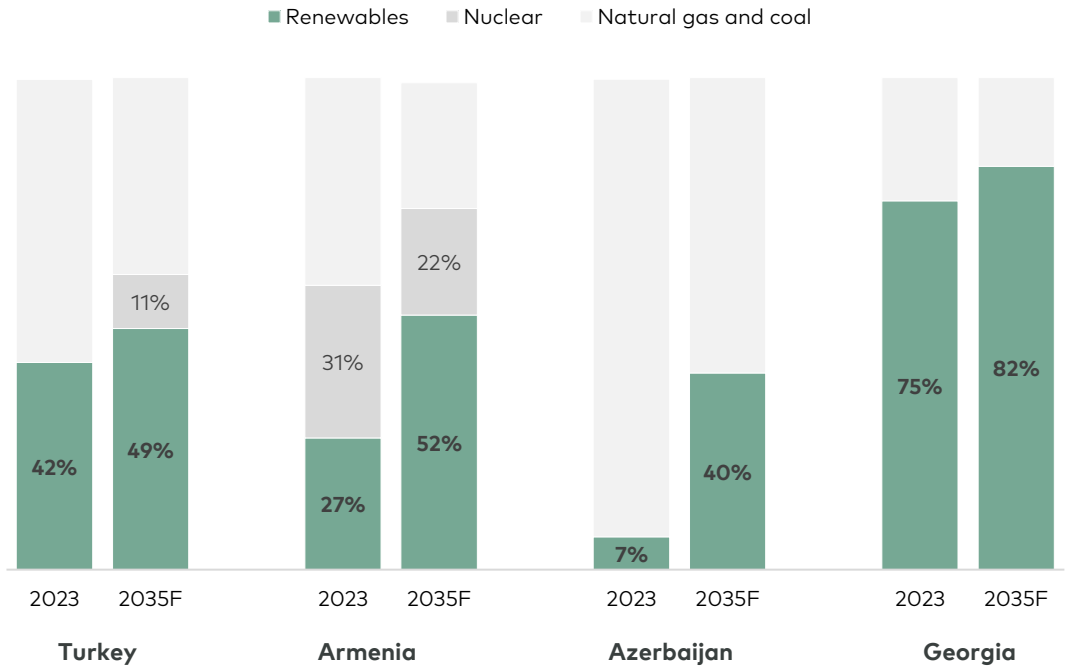
Source: GSE, GNERC, Galt & Taggart

The level of exports will depend on price trends, as the neighboring countries are actively expanding their renewable energy capacity

Electricity consumption and generation of neighboring countries in 2023, TWh



Existing and planned generation mix in neighboring countries, % share in total



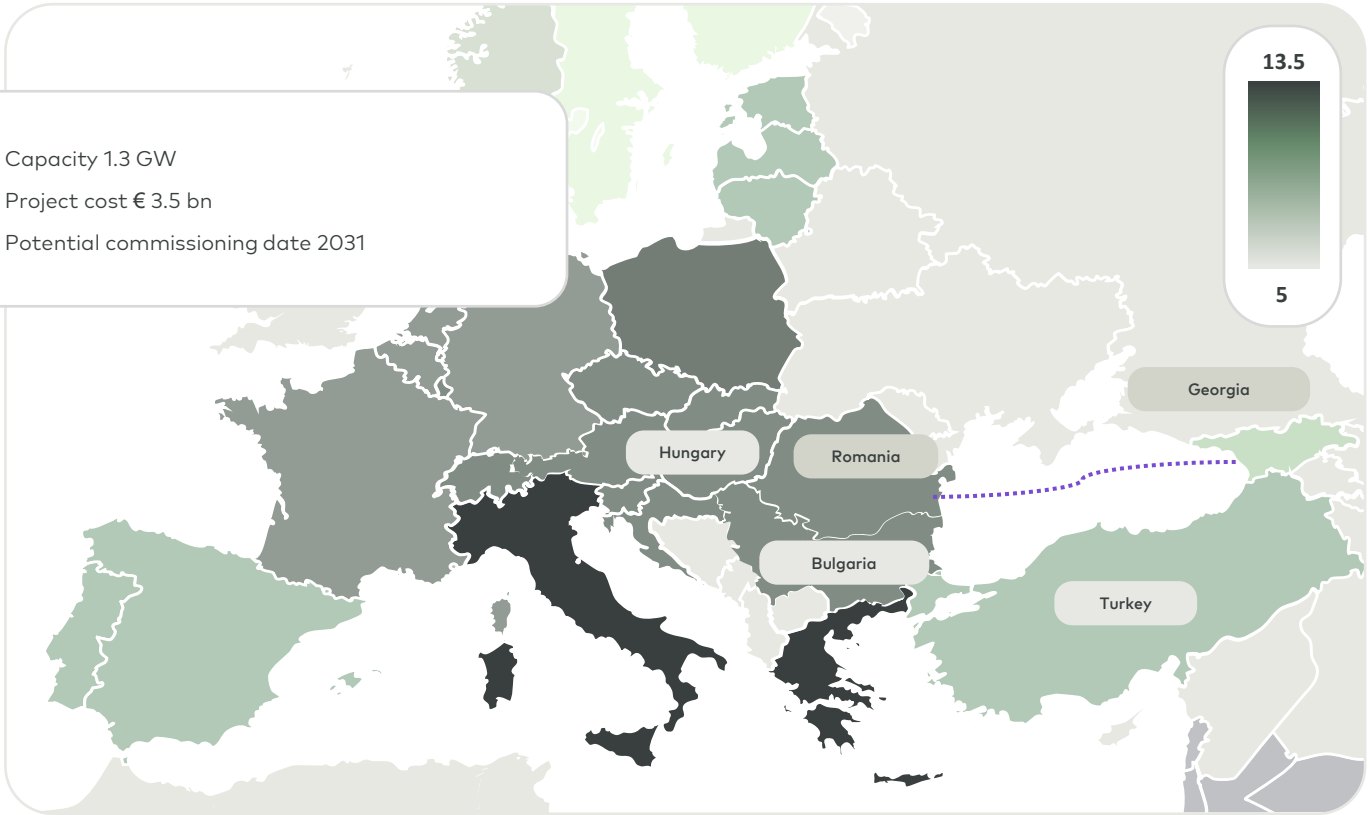
Countries across the region have intensive plans to expand renewable capacity, which will impact wholesale prices in the region, trade flows and timing.

Source: IEA, Galt & Taggart, EPIAS;
Note: Latest available data

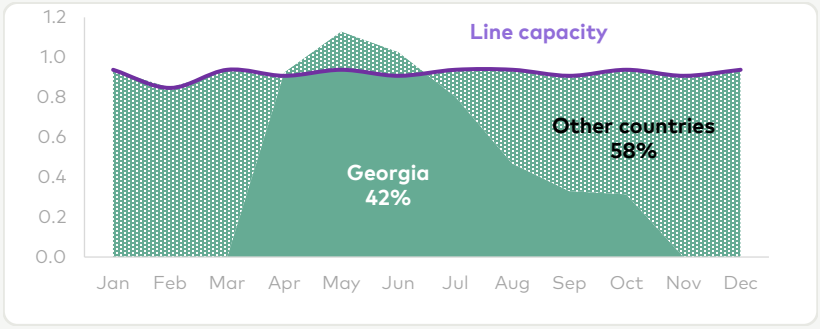
The Black Sea Submarine Project is an opportunity for Georgia to diversify its export routes

Electricity price by country, EUR cent/kWh

- Capacity 1.3 GW
- Project cost € 3.5 bn
- Potential commissioning date 2031



Load distribution of Black Sea Submarine Cable in Baseline Scenario 2035, TWh



Electricity prices in selected countries, EUR cent/kWh

	2024	2030F
Turkey	6.9	8.4
Bulgaria	10.3	6.6
Romania	10.4	6.4
Hungary	10.2	6.2

Source: ENTSO-e, GET, GSE, Galt & Taggart

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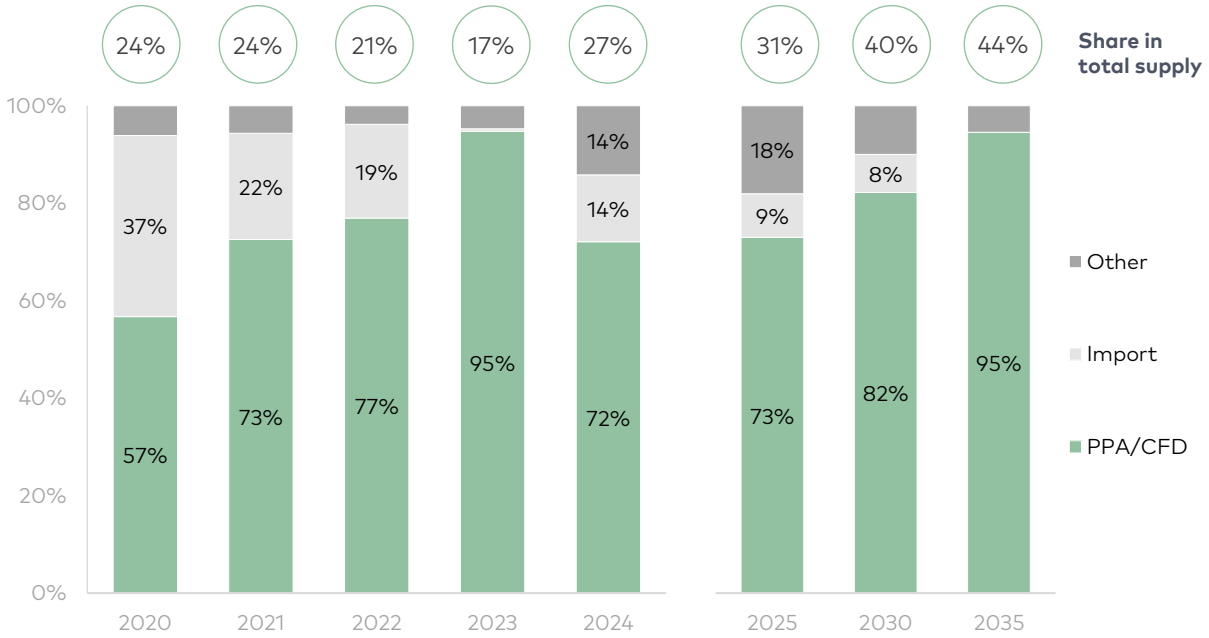
Wholesale Price

Question 4

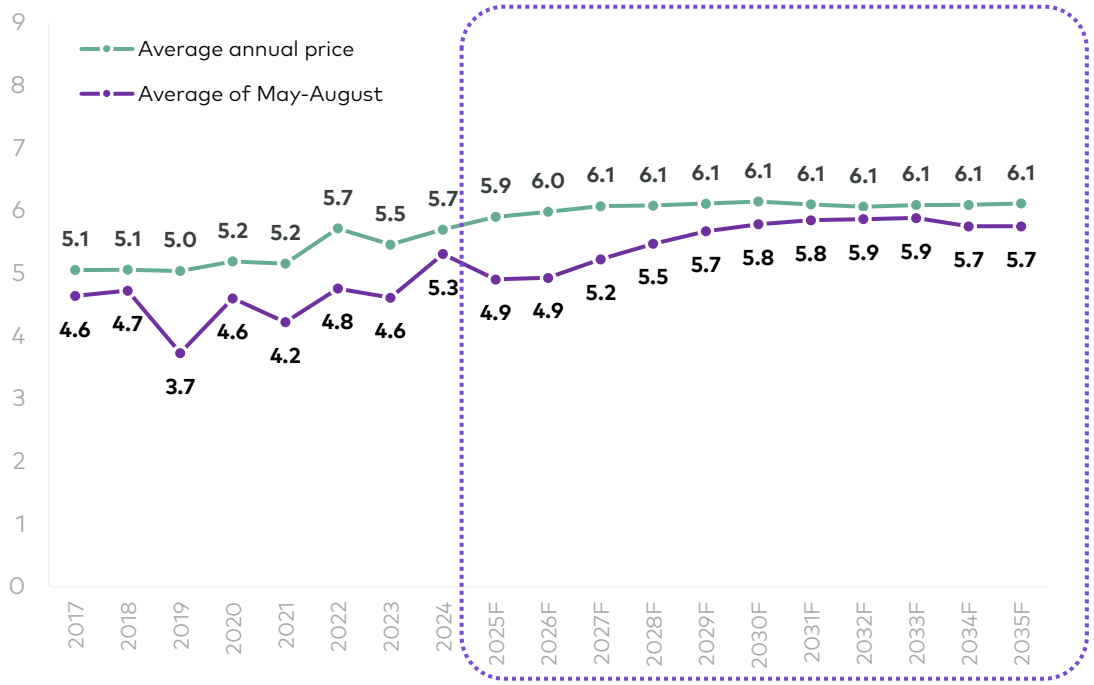
What is the outlook for wholesale electricity prices?

Under the current market rules, ESCO selling price determines the wholesale electricity price in Georgia, which is expected to rise to 6.2 cents per kWh by 2035

Electricity purchased by ESCO



Selling price of ESCO, USc/kWh



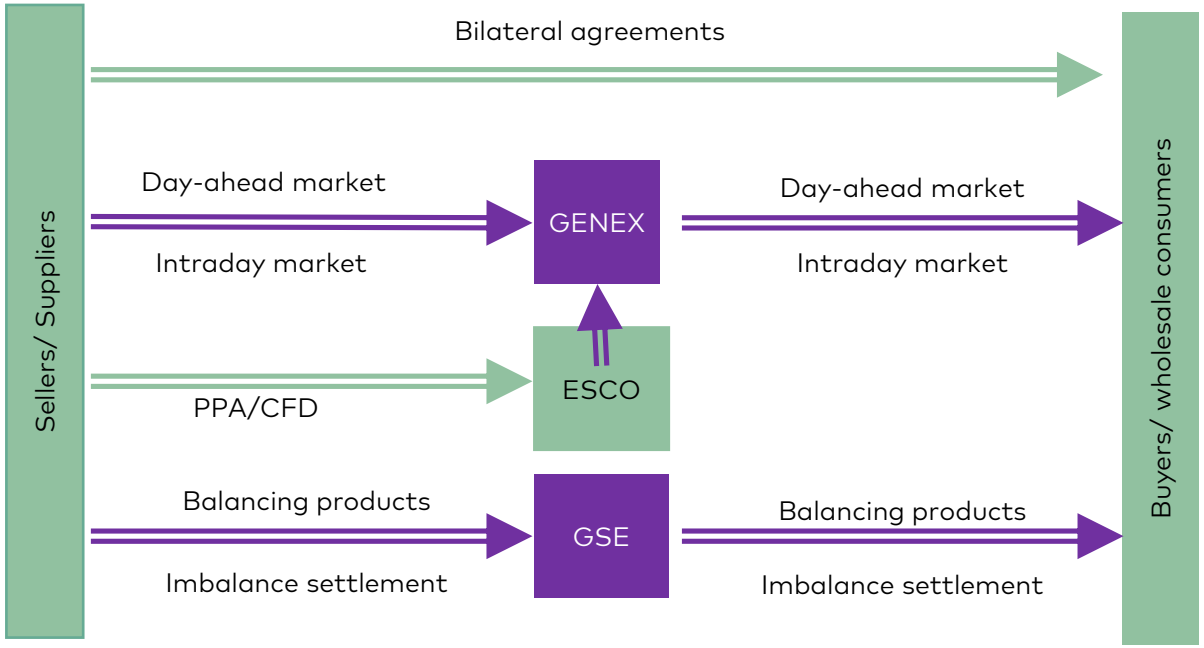
The Electricity System Commercial Operator (ESCO) purchases electricity through PPAs/CFDs, part of imported electricity, and other sources, and sells it to direct consumers and suppliers (such as Telmico, EPGeorgia) at a weighted average price. Since 95% of the electricity purchased by ESCO is priced in US$, the ESCO selling price is also viewed in US$ terms.

The ESCO selling price serves as the best indicator of the wholesale electricity price, as it is commonly used as a reference point in bilateral contracts—typically set at 5–10% below the ESCO price.

Source: ESCO, GNERC, NBG, Galt & Taggart

How are the market rules expected to change?

New model of the wholesale market of electricity



What are the expected effects of the new market model?

- **The wholesale electricity price** on day-ahead market will be determined by the marginal cost of TPPs during the winter months and by reservoir-based HPPs or export during the summer months.
- **Imbalance liability** may increase or decrease a power plant's revenue by c. 10%
- **End-user tariffs** are likely to increase during the incentive mechanism period and decline thereafter.
- Some 24.1% of total supply will be able to freely bid in the future markets, up from 11.1% in 2024.

Source: Galt & Taggart

Key findings

GENERATION

What are the needs of the Georgian energy system?

- Reducing import dependence
- Increasing the integration limits of solar and wind power plants

LOCAL CONSUMPTION

What will be the driving factors for consumption growth?

- Economic growth
- Electric appliances ownership
- Electric vehicles
- Data centers

EXPORT

What are potential export markets for Georgia?

- Trading activity will depend on prices in neighboring countries and interconnection capacities
- The Black Sea Submarine Cable to Europe is a tool for export diversification.

WHOLESALE PRICE

How will the wholesale electricity price change?

- Wholesale price is expected to increase under the current market model.
- With the planned reform, wholesale prices are expected to decrease, uncertainties remain.

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Head of Research
Eva Bochorishvili
evabochorishvili@gt.ge

Head of Sector
Mariam Chakhvashvili
mchakhvashvili@gt.ge

Address: 3 Pushkin Street, Tbilisi, 0105, Georgia
Tel: + (995) 32 2401 111
E-mail: research@gt.ge

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