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EN GEORGIE**

# THE ENERGY SECTOR IN GEORGIA

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# TOTAL ENERGY CONSUMPTION IN GEORGIA

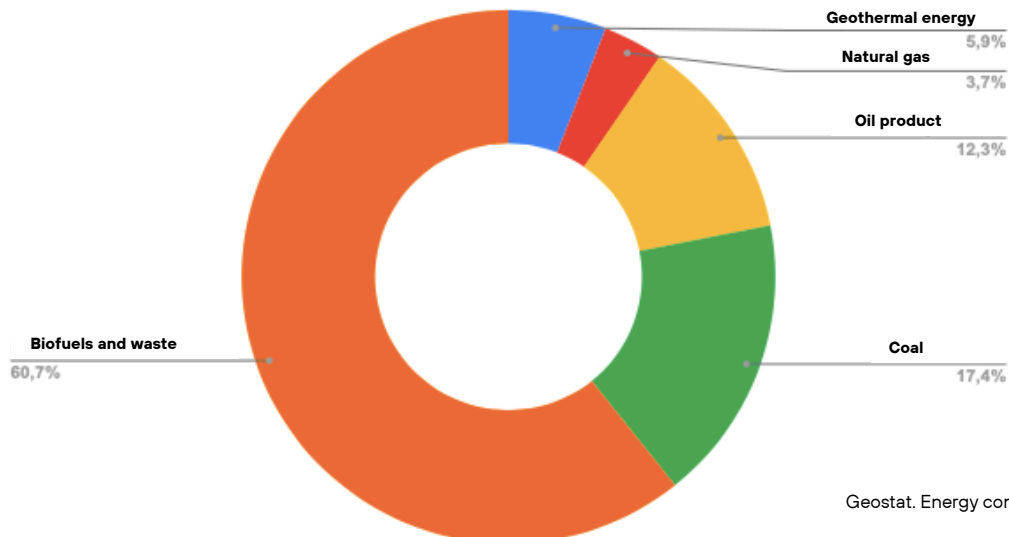
Georgia's energy sector has been relatively stable since the 1990s. The country's main energy resources are hydropower and firewood. However, although the country may have the capacity to be self-sufficient in electricity production, this is not the case for gas and oil.<sup>1</sup> For these two raw materials, Georgia is dependent on imports from other countries. As a result, Georgia's energy production is disproportionately distributed. As mentioned above, the leading source is electricity, which accounts for 78.1% of the country's total production, followed by biofuels at 13.3%.



French Development Agency (AFD)

This is followed by coal production (3.8%), petroleum products (2.7%), geothermal and solar energy (1.3%) and natural gas production (0.8%).<sup>2</sup> In 2020, the net share of energy imports accounted for around 81.4%, more than double the level in 2002. Georgia therefore needs to diversify its energy sources and invest more in renewable energies in order to reduce its dependence on harmful and polluting raw materials.

## Energy production in Georgia in 2022



Geostat. Energy consumption in Georgia 2022

1. International Energy Agency. (2023, Mars). Georgia Energy Profile. France. <https://iea.blob.core.windows.net/assets/eb7ac3b7-929b-4360-ac91-ae5b8e02be3e/GeorgiaEnergyProfile.pdf>

2. Geostat. (2023, Décembre 15). Energy consumption in Georgia 2022. <https://www.geostat.ge/media/59175/Results-of-Energy-Consumption-Survey---2022.pdf>

There are many sources of imports. Russia is obviously a major exporter of raw materials to Georgia, due to its geographical proximity and its large natural gas resources. However, since the mid-2000s, Georgia has also turned to Azerbaijan for its gas and oil supplies.



Source: BBC

Azerbaijan has become Georgia's main gas supplier, particularly since the war in Ukraine.<sup>3</sup> In terms of consumption, the trend is reversed and is not proportional to Georgian production, confirming the need to turn to foreign players.

Natural gas and oil are the most consumed raw materials in Georgia, with consumption of 41.8 % and 27.1 %<sup>4</sup> respectively for the entire Georgian population. This is not surprising, given that these two energy sources are essential to the functioning of Georgian society.

# ENERGY CONSUMPTION BY CATEGORY

**Electricity consumption:** Georgia's total annual electricity consumption is 12.6 billion kWh.<sup>5</sup> This high figure is partly due to excessive consumption in Abkhazia, a region annexed by Russia. In fact, the region's electricity consumption is three times that of the rest of Georgia.<sup>6</sup> And yet it covers a tiny area of just 8,600 km<sup>2</sup>. Most of the energy used by the country is produced and supplied by Russia.

This high level of consumption is leading to a shortage of electricity for Georgia, which nevertheless has the capacity to be self-sufficient in the production of this energy, if it is used reasonably and sufficiently for the country's consumption. Between 2012 and 2022, the construction of new power stations increased dramatically. In the space of 10 years, 61 % of the power stations built will be hydroelectric, while 39 % will be thermal.<sup>7</sup>

3.Ganbay, A. (2024, Janvier 9). Azerbaijan to supply more than 90% of Georgia's natural gas needs. AzerNews. [https://www.azernews.az/oil\\_and\\_gas/220067.html](https://www.azernews.az/oil_and_gas/220067.html)

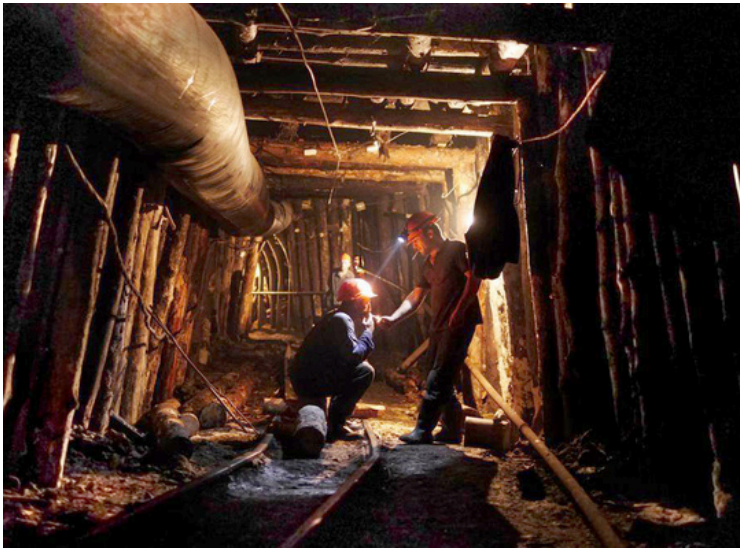
4.Geostat. (2023, Décembre 15). Energy consumption in Georgia 2022. <https://www.geostat.ge/media/59175/Results-of-Energy-Consumption-Survey---2022.pdf>

5.Données Mondiales. (n.d.). Le budget énergétique en Géorgie. [donneesmondiales.com/asia/georgie/bilan-energetique.php](https://www.donneesmondiales.com/asia/georgie/bilan-energetique.php)

6.Economic Policy Research Center. (2023). Georgia's Energy Dependency Review. p. 4. <https://eprc.ge/wp-content/uploads/2023/12/georgias-energy-dependency-review-b.pdf>

7.Economic Policy Research Center. (2023). Georgia's Energy Dependency Review. <https://eprc.ge/wp-content/uploads/2023/12/georgias-energy-dependency-review-b.pdf>

**Biofuel consumption:** According to the French Ministry of Ecological Transition and Territorial Cohesion, “Biofuels are substitute fuels obtained from biomass (raw material of plant, animal or waste origin)”<sup>8</sup>. Biofuels are therefore a renewable energy source that is healthier for the environment and less expensive. In Georgia, around 500,000 households use biomass for heating, particularly in rural areas: 40% of households use this type of energy for heating.<sup>9</sup>



Source: Georgia Today

**Coal consumption:** Georgia's coal consumption, although higher than its oil consumption, is still minimal compared to countries with much higher consumption. The country ranks 84<sup>e</sup> among coal-consuming countries, explaining its modest position in the production of this resource.<sup>10</sup>

**Oil consumption:** Georgia has an oilfield that has produced a total of 28 million tonnes of oil.<sup>11</sup> However, the quantities imported are substantial: by the end of 2023, more than 140,000 tonnes of oil had been imported into Georgia.<sup>12</sup> Supplying this raw material requires the construction of massive and costly pipelines. Georgia is a transit country, with pipelines crossing the country and passing through the Black Sea to supply Turkey, the countries of south-eastern Europe and the Mediterranean.



Source: Les Échos

8. Ministère de la Transition écologique. (2024, février 26). Biocarburants. Ministère de la Transition écologique. <https://www.ecologie.gouv.fr/biocarburants>

9. International Energy Agency. (n.d.). Context for bioenergy in Georgia – Sustainable Bioenergy for Georgia: A Roadmap – Analysis - IEA.

International Energy Agency. <https://www.iea.org/reports/sustainable-bioenergy-for-georgia-a-roadmap/context-for-bioenergy-in-georgia>

10. Worldometer. (n.d.). Georgia Coal Reserves and Consumption Statistics. Worldometer. <https://www.worldometers.info/coal/georgia-coal/>

11. Oil | Georgian Oil & Gas Corporation. (s. d.). Default\_Site\_Name.

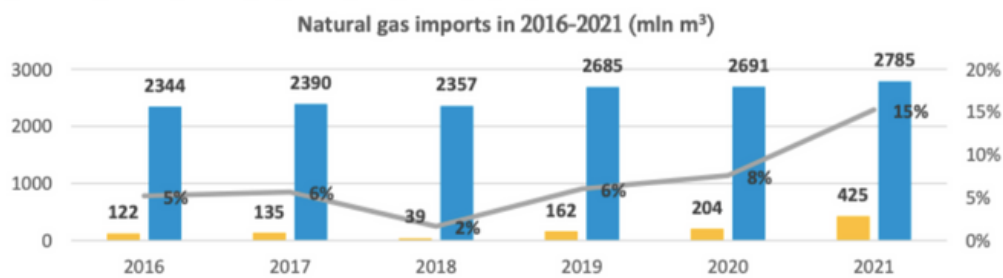
<https://www.gogc.ge/en/page/activitiesfields/oil/7#:~:text=Presently%2C%2015%20oil%20fields%20and,been%20produced%20from%20these%20fields.>

12. Gesotat

# DEPENDENCY ON ENERGY IMPORTS

Due to its lack of natural resources, Georgia has to import many essential raw materials. This forces Georgia to depend on certain exporting countries to guarantee its energy supplies. Depending on the resource, the importing countries differ. For natural gas, for instance, the main supplier is, unsurprisingly, Russia. In 2021, gas imports from the country reached 15%, i.e. three times more than in 2005, for an equivalent sum of 77 million dollars.<sup>12</sup>

CHART 6. NATURAL GAS IMPORTS IN 2016-2021.

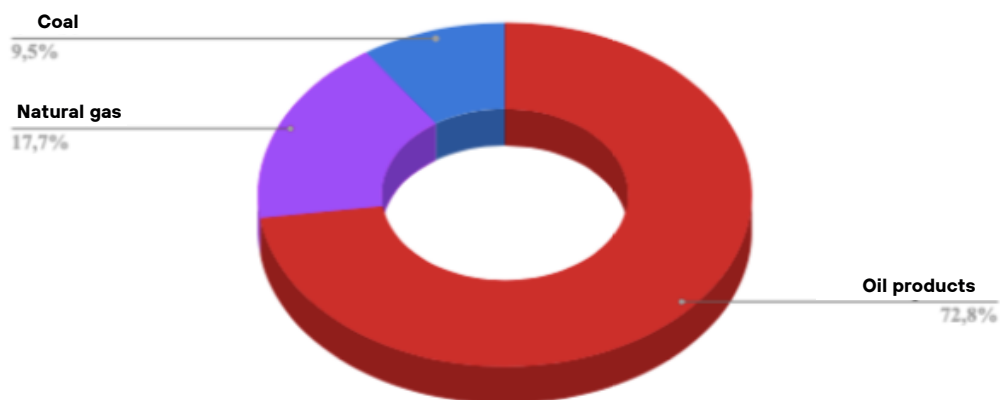


Economic Policy Research Center

Russia is also present in other markets, such as the oil market. However, it is not the leading exporter of this commodity, but occupied the second place in 2021, behind Turkmenistan. In third place is Romania, followed by Azerbaijan. The partnerships established between these countries and Georgia are essential in order to guarantee its energy supply. On the one hand, Russia's relations with the importing countries can be described as 'normal', but it is true that the growing dependence on Russia in recent years is increasingly worrying.<sup>13</sup>

In 2023, energy imports from Russia continued to rise, particularly in the gas and oil sectors. Russian gas imports to Georgia have risen by 119%, whereas they represented just 11.6% in the first half of 2022. For oil, the situation is similar: an increase of 119% in 6 months in 2023.<sup>14</sup> These increases are mainly intended to build up reserves to guarantee Georgia's energy supply in the event of a major emergency

## Raw materials imported from Russia to Georgia in January and July 2023



Transparency International Georgia

12.Economic Policy Research Center. (2023). Georgia's Energy Dependency Review. p.11

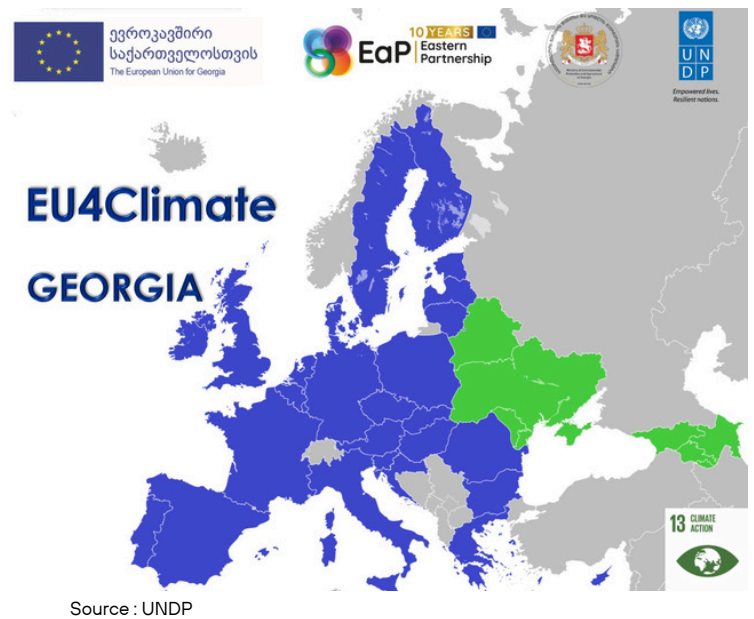
13.Economic Policy Research Center. (2023). Georgia's Energy Dependency Review. p.12

14.Transparency International Georgia. (2023, September 29). Georgia's Economic Dependence on Russia Continues to Grow: January-June 2023. საქართველოს გამჭვირვალობა - საქართველო. <https://transparency.ge/en/post/georgias-economic-dependence-russia-continues-grow-january-june-2023>

These increases in imports are probably associated with the outbreak of war in Ukraine, which has turned the global energy market upside down. As Russia is one of the world's leading exporters of oil and gas, this event has had a significant impact on Georgia's energy imports. But Russia is not the only country to have increased its import levels into the Caucasus. Since the war in Ukraine, the countries mentioned above have succeeded in establishing themselves as key players in Georgia's energy supply, making the country increasingly dependent on them. On the other hand, demand continues to grow, forcing Georgia to maintain links with its main importers. Nevertheless, a new strategy is opening up for the country, which is beginning to diversify its energy sources, notably by turning to renewable energies.

# INTERNATIONAL AGREEMENTS ON RENEWABLE ENERGY

Georgia ratified the Paris climate agreements in 2017, demonstrating the country's interest in renewable energy and its willingness to change the way it operates to move towards a cleaner energy supply. As part of the ratification of the Paris agreements, the European Union set up the EU4Climate project, which involves helping the member countries (Armenia, Azerbaijan, Belarus, Georgia, the Republic of Moldova and Ukraine) to combat global warming and implement the actions promoted by the EU.



This project aims to identify the key actions that need to be taken in the target countries, while helping them to adapt and respond to the new challenges brought about by global warming.

To meet this target, member countries must fulfil certain conditions, such as

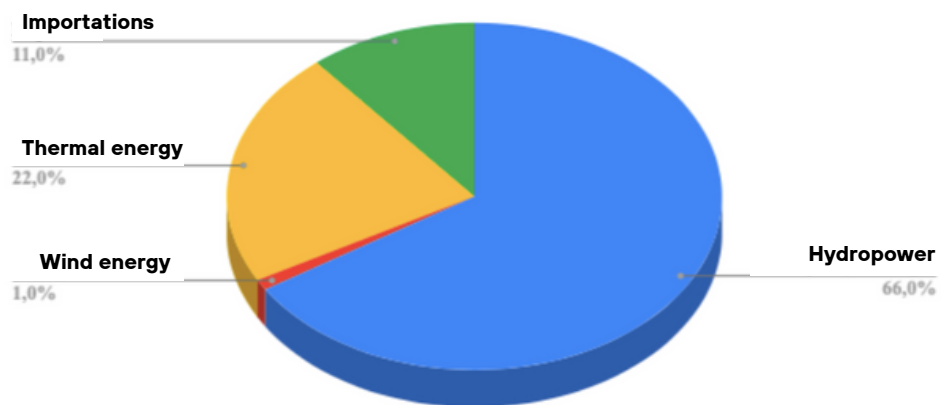
- Alignment with the EU's climate legislation, provided for in bilateral agreements with the EU and in the Energy Community Treaty, on climate issues not covered by the EU4Energy programme.
- Greater mobilisation of funding to combat climate change

# DEVELOPING RENEWABLE ENERGIES

Georgia has a wealth of knowledge when it comes to harnessing renewable energies, particularly in the electricity sector. This is not surprising given that the country is virtually self-sufficient in electricity production, thanks in part to hydroelectric power.

This resource accounts for around 66% of the country's share of renewable energy. In addition, 22% of Georgia's "clean" electricity is generated using thermal energy and 11% is attributed to foreign imports.<sup>16</sup>

**Georgia's electricity mix in 2021**



Source : REN21

# GOVERNMENT POLICIES AND INITIATIVES TO PROMOTE RENEWABLE ENERGY

The Georgian government is increasingly concerned about the country's energy transition and is gradually introducing new ecological standards. These changes are being implemented for a number of reasons: for ecological reasons, but also to diversify the country's energy supply sources and reduce its dependence on importing countries.

These policies are also designed to bring the country into line with European standards.

16.REN21. (n.d.). Factsheet: Renewable Energy in Georgia - Country Overview. REN21. [https://www.ren21.net/wp-content/uploads/2019/05/Factsheet\\_Georgia-HardTalk-2021.pdf](https://www.ren21.net/wp-content/uploads/2019/05/Factsheet_Georgia-HardTalk-2021.pdf)



With Georgia having been granted candidate status for EU membership in December 2023, the country now needs to adapt its policies to stand a chance of becoming an official member. To this end, in 2019 the Georgian government enacted the “Law on the Promotion of Energy Production and Consumption from Renewable Sources”.<sup>17</sup> The law aims to legally regulate Georgia's ecological trajectory by encouraging the production and consumption of renewable energy resources.

Under this law, financial support programmes have been drawn up by the government, which has issued numerous calls for tender for energy infrastructure projects producing renewable energy, particularly in the electricity sector.<sup>18</sup>



Source : Ouest-France

The prospect of EU membership is a key factor in Georgia's policy decisions on climate change. These political changes are characterised in particular by bilateral relations encouraging the implementation of renewable energy initiatives through agreements, such as the EU-Georgia Association Agreement, which was signed in 2014 and came into force in 2016.<sup>19</sup>



Source : info.center.gov

17.Parliament of Georgia. (2019, décembre 26). ON PROMOTING THE GENERATION AND CONSUMPTION OF ENERGY FROM RENEWABLE SOURCES. საკანონმდებლო მაცნე. <https://www.matsne.gov.ge/en/document/view/4737753?publication=1>

18.Bochorishvili, E., & Chakhvashvili, M. (2022, décembre 8). Georgia's Energy Sector Electricity Market Watch. Galt and Taggart.

19.Georgia Today. (2024, mai 23). Energy Efficiency in Georgia – The Government's Promise. Georgia Today. <https://georgiatoday.ge/energy-efficiency-in-georgia-the-governments-promise/>

This agreement sets out specific guidelines for change, including :

- Promoting renewable energy and energy efficiency
- Compliance with EU energy efficiency and environmental standards
- Cooperation on energy security and the diversification of energy sources
- Liberalisation of the electricity and gas markets



Source : Energy Community

A year later, on 1 July 2017, following the same initiatives, Georgia joined the Energy Community, an international organisation created by the European Union and bringing together its members and neighbours to create an integrated energy market. Membership of the Energy Community requires Georgian legislation to be in line with EU directives and regulations.<sup>20</sup>

In the same vein, Georgia's accession to candidate status automatically brings it within the scope of the Green Deal set up by the European Union. The aim of the Green Deal is to reduce greenhouse gas (GHG) emissions and achieve climate neutrality by 2050.<sup>21</sup> This is one of Georgia's state objectives, as it aims to reduce its greenhouse gas emissions by "35% by 2030 compared to 1990 levels".<sup>22</sup>



Source : Sciences Po

### OBJECTIFS DE DÉVELOPPEMENT DURABLE



Source : Cité Unies France

The Georgian government has also taken the initiative of joining the 17 Sustainable Development Goals (SDGs) set up by the UN. Goal 7 is entitled: 'Ensure universal access to reliable, sustainable and modern energy services at affordable cost'. As well as helping to tackle climate change, the programme provides significant economic support to change regulatory policies and finance infrastructure.

20. Energy Community. (n.d.). Who we are. Energy Community. <https://www.energy-community.org/aboutus/whoweare.html>

21. Consilium Europa. (n.d.). Pacte vert pour l'Europe - Consilium. <https://www.consilium.europa.eu/fr/policies/green-deal/>

22. PNUD. (2023, novembre 27). Géorgie | Climate Promise. UNDP Climate Promise. <https://climatepromise.undp.org/fr/what-we-do/where-we-work/georgie>

# SOLAR ENERGY

Solar energy is generally preferred to other types of renewable energy, as it is considered to be the “cleanest”. Georgia's favourable climate is also an advantage when it comes to setting up solar-powered infrastructures.

In fact, the sun shines on average between 250 and 280 days a year in the country,<sup>23</sup> which represents a significant amount for producing electricity or heating through the use of solar rays. However, the in-depth exploitation of this resource is still in the minority, mainly due to the lack of research and expertise in the field, which is holding back its development. In 2019, within the framework of the “Georgian Law on Electricity and Natural Gas”, the Georgian government drew up a 10-year action plan entitled “Ten-Year Development Plan of the Grid of Georgia 2019-2029”.

This plan puts in place initiatives to encourage the development of renewable energies in Georgia, including solar energy.



Garbadani floating photovoltaic power plant. Agenda.ge

# WIND POWER



Kartli wind farm. euneighbourseast.eu

Like solar energy, wind power represents an interesting source of opportunities for electricity generation. The climate is conducive to its use, and a number of wind farm projects have been launched. Construction of Kartli, the country's first wind farm, began in 2016 and has been operational since 2017.

The construction of the infrastructure was made possible by funds from the European Bank for Reconstruction and Development (EBRD),<sup>24</sup> the European Union and various donations via the Green for Growth Fund. Other investors include the Danish company Vestas and the nuclear engineering services company, China Nuclear industry 23rd construction co. LTD.<sup>25</sup> Since the majority of electricity used in Georgia comes from hydroelectric power stations, the construction of this wind farm has opened up new horizons for the country in terms of diversifying its renewable energy sources.

A new wind farm project has also been announced for 2019, near the town of Gori, in the village of Nigoza.<sup>26</sup> The wind farm will have a production capacity of 200 million kilowatt-hours a year, and is estimated to cost 70 million dollars to build. Another wind farm construction project is at Rikoti, with an estimated lifespan of 20 years.<sup>27</sup>

24. European Union External Action. (2018, mai 27). EU supports first wind farm in Georgia. EEAS. [https://www.eeas.europa.eu/node/45476\\_en](https://www.eeas.europa.eu/node/45476_en)

25. Georgian Energy Development Fund. (2019, Septembre). Qartli Wind Farm Investment teaser. <https://www.gogc.ge/uploads/tinymce/documents/Qartli-Wind-Farm-teaser-2019.pdf>

26. Agenda.ge. (2021, mai 13). 50-megawatt wind power plant in eastern Georgia to launch in 2022. Agenda.ge. <https://agenda.ge/en/news/2021/1275#gsc.tab=0>

27. Public Private Partnership Agency. (n.d.). Rikoti Wind Power Plant. Rikoti Wind Power Plant - PPP სააგენტო. <https://ppp.gov.ge/en/project/rikoti-wpp/>

# HYDROELECTRIC ENERGY

Despite its large electricity production capacity, Georgia remains dependent on electricity imports from Russia and Azerbaijan. Hydroelectricity accounts for 78% of Georgia's energy mix. The country is also a transit country and exported almost 1.497 million kilowatt hours in 2018 to its neighbouring countries.<sup>28</sup>

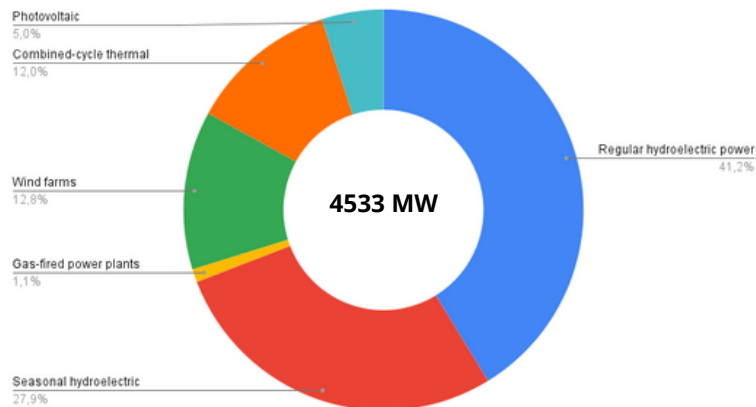
Hydroelectric power has been exploited in Georgia since 1898. In 1978, the Enguri power station in Abkhazia was built to meet growing demand. It is now the largest hydroelectric power station in the country, but is located on the other side of the administrative border, making it particularly complex to operate.<sup>29</sup>

Nevertheless, demand continues to rise, and Georgia is having to adapt its production and supply resources, as the country does not wish to be entirely dependent on imports from Russia and Azerbaijan. This increase in demand is due in particular to the excessive consumption of electricity in the region of Abkhazia, annexed by Russia in 1992. This use is essential for the country, however, as it accounts for 33.4% of the country's total electricity production. The Georgian government has drawn up an agreement stipulating that Georgia must supply the region with electricity free of charge in order to gain access to the plant.<sup>30</sup>

To meet this growing demand, the Georgian government has developed an action plan to increase electricity production capacity using hydroelectric power stations. This action plan is part of the "Ten-Year Network Development Plan of Georgia 2021-2031" and aims to double Georgia's electricity capacity from 4,533 MW per year to 10,396 MW by 2031.

Hydropower will thus account for 69 % of the country's electricity production. To achieve this, water retention capacities will have to be doubled, which will require the construction of new infrastructure.<sup>31</sup>

Generating capacity of power stations installed in 2031



Georgia's ten-year network development plan 2021-2031. gse.com.ge

28. Baigent, N. (n.d.). Hydropower in Georgia.

29. Baigent, N. (n.d.). Hydropower in Georgia.

30. Gegechkori, T. (2022, Février). Georgia's Hydropower Center. [https://api.caspianpolicy.org/media/ckeditor\\_media/2022/03/02/georgias-hydropower-dilemma-final.pdf](https://api.caspianpolicy.org/media/ckeditor_media/2022/03/02/georgias-hydropower-dilemma-final.pdf)

31. Transmission System Operator JSC "Georgian State Electrosystem". (2021). Ten-Year Network Development Plan of Georgia 2021-2031, p.8. [https://www.gse.com.ge/sw/static/file/TYNDP\\_GE-2021-2031\\_ENG\\_NEW.pdf](https://www.gse.com.ge/sw/static/file/TYNDP_GE-2021-2031_ENG_NEW.pdf)

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