GEFF Green Economy Financing Facility

European Bank for Reconstruction and Development

Where finance and green technologies meet

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Source: unsplash.com

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What is climate adaptation and why is it important?

The climate has always been changing, but the recent changes caused by industrial activities of the XX-XXI centuries, have caused the climate change to happen on a significantly higher scale and in a much shorter timeframe than forecasted. As a result, the Earth is warming. Climate change is already causing significant upheaval: rising temperatures and unpredictable seasonal rains, reduced river flows and landslides. These impacts damage the infrastructure, disrupt trade and supply chains, affect business performance and people's livelihoods and wealth.

Whether climate change accelerates any further depends on our lifestyle and economic activities. We certainly should act **towards reducing the greenhouse gas emissions** (through climate mitigation activities), but since the Earth won't stop warming immediately, our best bet is to **adapt to inevitable climate changes**. There are certain things we can do differently that can help us adapt to climatic shifts.

One thing that is absolutely necessary is to plan for the future with the climate change in mind. Government

policies and public and private investment projects need to incorporate the changing climate into decisions and business models. On the national level, Georgia is a party to a number of international environment treaties that compel the country to work on a wide spectrum of issues related to climate change, which affect the most common industries in the country, such as tourism, power generation, production, construction, mining, etc. In fact, there are few, if any, industries that are not affected by climate change, directly or indirectly. One of the most vulnerable industries, however, is agriculture, which is one of the key economic sectors in Georgia, employing more than 42% of the population. According to the Agriculture and Rural Development Strategy of Georgia 2021-2027, "significant steps are planned to adapt the agricultural sector to climate change, such as:

1. Preparation and implementation of plans for rapid response to droughts, floods and other extreme events in agriculture;

2. Introduction of innovative methods of irrigation management and water use and more."

The document further states that one of the goals of the strategy is to "support the implementation of energy-efficient and renewable energy technologies and practices".

Switching to a cleaner energy source can help a business significantly decrease its costs and reduce CO_2 emissions by hundreds of tonnes per year, and energy-efficient storage facilities will sustain indoor temperatures better and need less energy when in use.

With the pressing issues of water availability brought about by climate change (farming is the biggest water consumer worldwide), it has become vital to plan for water-efficient measures. One such measure is drip irrigation. Traditional irrigation mechanisms, such as flooding fields or using imprecise sprinklers, offer low efficiency and can contribute to soil erosion and desalination. In addition, they use excessive amounts of water, resulting in high agricultural runoffs that carry fertilisers and pesticides to rivers and lakes, leading to water pollution. With the Parliament of Georgia recently adopting the "Polluter Pays" principle in the draft law on Environmental Responsibility, efficient irrigation systems not only result in less waste but also serve as a way to avoid unnecessary business costs. Drip irrigation systems, which are financed under the GEFF Programme, offer up to 95% efficiency compared to traditional methods. Depending on the conditions, they can reduce water use between 20-60%. What's most important, each system can be designed to accommodate specific crop needs, elevations, distances to be covered, etc. They can also be used to minimise the amount of fertilisers and pesticides used in farming.

Another way to reduce soil erosion is by using no-tillage seeders that are designed to seed in mulch layers, cover crops or stubbles. They help increase the organic matter in soil, leading to better harvests, which in turn brings in more profits. The Green Technology Selector offers various types of equipment that can further contribute to better farming, reduced costs (both monetary and environmental) and high profitability, such as sub-soilers, mulchers, or roller crimpers.

These adaptation options illustrate that caring for the environment will not only increase our standard of living, but also bring immediate benefits to businesses and individuals alike. They are a good start towards combating both the current and the predicted impact of climate change.

EBRD president: Georgia has great potential for renewable energy development

Source: EBRD

"Georgia has great potential in the field of renewable energy," said Odil Renaud-Basso, President of the European Bank for Reconstruction and Development (EBRD), in an exclusive interview with BMG.

"By 2025, half of our funding should include green investments. This is a very important priority for us. Thus, in the short term, we think it is a priority to develop the principle of auction for investment in renewable energy in Georgia, which we are intaroducing in several countries. We think this is a strong enough framework for the sector to attract very high quality private investors, at the lowest cost, and to accelerate its potential," she added.
The EBRD is involved in the construction of new hydropower plants in Georgia, as well as in the process of network modernisation. Among them is the largest hydropower project funded by the bank, Nenskra HPP, of which the EBRD covers $174 million out of a $1 billion investment. Ms Renaud-Basso further stated that the Bank has also taken important steps to support business by providing GEL credit resources to the Georgian private sector.

"I am very proud of what we have achieved over the years in cooperation with the National Bank," she announced. "We were able to provide loans in GEL, thus protecting companies from exchange rate fluctuations. We have also expanded consulting services for the SME sector, thus facilitating their navigation in the current crisis – how they can develop their digital business, how they can attract new clients, and so on. These are all very specific answers to the challenges," she elaborated.

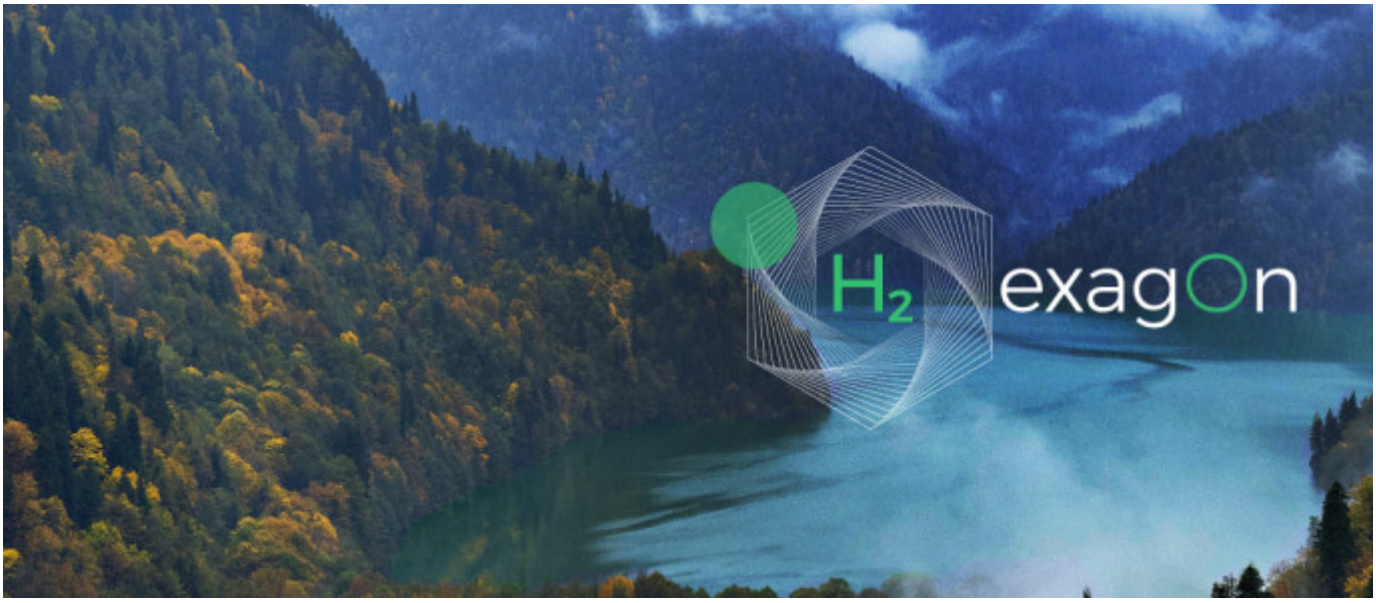
The EBRD has allocated GEL financial resources to the Georgian banking system to increase lending to green energy, as well as small and medium-sized businesses, in the form of GEL bonds.

NBG signs a second cooperation agreement with the IFC to boost sustainable finance

The National Bank of Georgia (NBG) signed a Cooperation Agreement with the International Finance Cooperation (IFC), a member of the World Bank Group. The agreement aims to support the NBG in its journey to develop a Sustainable Finance Framework. This is the second agreement between the NBG and the IFC, after the first successful collaboration in 2018 that lead to the launch of the Sustainable Finance Roadmap by NBG in April 2019. The Roadmap combines all possible steps planned by the NBG for supporting sustainable finance over the next few years.

The scope of the new agreement includes more comprehensive actions for the next two years. As highlighted in the agreement, the NBG will continue to collaborate with the IFC on awareness-raising events and capacity-building measures. The IFC will also provide support and expertise to the NBG while working on the development of a Sustainable Finance Taxonomy, the aim of which is to provide the market with a homogeneous definition of green, social and sustainable economic activities.
Read the full article here.

HyGeorgia – an €11 billion "green hydrogen" project planned in Georgia



Source: bm.ge

Green hydrogen is gaining momentum as the world's best hope for a clean fuel. With the European Union's ambitious target of installing 500 GW capacity by 2050, more countries are exploring their potential to become green hydrogen producers.

Ukraine is one of the potential suppliers of green hydrogen. It is is estimated that more than 500 million m³ of green hydrogen could be produced in Ukraine annually and various hydrogen-related projects are starting to be unveiled there.

Alongside Ukraine, Georgia could also become a new player on the green hydrogen market. The water currently wasted during the summer months would be put to better use producing hydrogen, which could then be blended and transported to end-users through existing gas pipelines.

Joining the race to produce green hydrogen, the French-registered engineering and consulting company H2exagOn has developed an €11 billion green hydrogen production project in Georgia called HyGeorgia. According to the company's managing partner Davit Otarishvili, the intention is to overcome the economic challenges in Georgia and lift the country out of the energy crisis. H2exagOn started working on the project about a year ago with international specialists and conducted feasibility studies for the project.

"Georgia is rich in renewable resources that can be developed in accordance with international standards, with minimal impact on the natural and social environment. Green hydrogen brings unique and alternative prospects for Georgia. It can be used as a transport fuel, as well as for heating and electricity generation," Mr Otarishvili explained.

The new project aims at developing a total of 3 GW of installed capacity, which will allow for the production of approximately 500 million kg of green hydrogen annually. In addition to the related infrastructure and new generation facilities, the project also includes the construction of production plants for electrolysis technology in the country's free industrial zones.

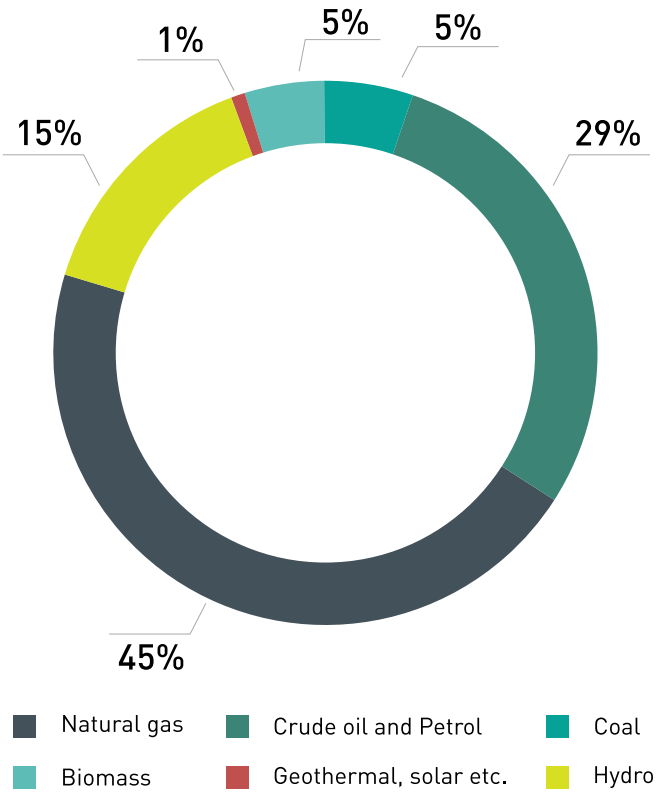
H2exagOn also prepared and submitted the National Green Hydrogen Strategy (2021-2030) to the state. The proposed strategy includes the following key issues: a guide to meet its own electricity consumption, the establishment of a National Commission on Green Hydrogen, and the establishment of an Energy Academy to train professionals.

"With the implementation of the project, Georgia can become an important part of the EU-integrated energy system and one of the most competitive exporters of green hydrogen on the European continent," Mr Otarishvili stated.

Georgia's energy security

Energy security is the "uninterrupted availability of energy sources at an affordable price" (definition by IEA). To assess the level of energy security in Georgia, one has to look at the country's energy sources and evaluate their availability, affordability and and last but not least, their impact on environment.

According to Geostat data from 2019, Georgia's energy mix can be described as follows:



As can be seen from the chart, natural gas makes up the largest share of energy resources for Georgia. Its availability is highly dependent on imports, thus posing high risks to the country's energy security and global energy price fluctuations. As for crude oil and petrol products, which is also imported, the supply portfolio is more or less diversified across different regions of the world (Europe and Central Asia). In addition, crude oil and petrol products are globally traded commodities, which poses less risk to its supply security.

The most "available" and secure energy source in the energy mix is the energy generated by hydropower plants. The big advantage of this energy source is that it is produced locally. However, given the number of rivers flowing in Georgia, the country's hydro potential could be further exploited. According to GEDF CEO Giorgi Chikovani, a number of large-scale HPP projects with various capacities are under development, with a couple in the tender documentation phase and one in the construction stage.

The affordability or cost of the source of energy is the next criterion to assess. The retail price per unit of each energy source indicates that electricity is the cheapest (1 kWh of electricity is GEL 0.20, with GEL 0.70 for 1 m^3 of natural gas), however converting them to a normalised unit of energy,TOE, reveals that the cheapest source of energy is in fact natural gas (1 TOE of natural gas costs GEL 792.4, whereas 1 TOE of electricity costs GEL 2,326). Nevertheless, the costs are very relative and largely depend on the efficient use of each source, various government subsidies, taxes and regulations.

Traditionally used sources of energy such as coal and petrol are highly harmful to the environment. Natural gas produces fewer emissions, but according to the US Energy Information Administration, it is still one of the top three sources of energy-related CO_2 emissions. It is undisputed that hydro and solar power (renewable energy sources) have the least impact on the environment. Georgia plans to increase its use of renewable energy sources, aiming for 35% of final energy consumption to be produced from renewable sources by 2030.

Analysing the availability, affordability and impact of each energy source, the general conclusion is that renewable energy sources meet most of the criteria that constitute energy security. Despite natural gas being significantly cheaper than electricity, it's not the most sustainable source to use in the long-run. The efficient use of hydropower plants (increased capacities, new plants) might mitigate the price difference overtime. It is easier said than done, but directing Georgia's efforts at developing its renewable energy potential will lead to more affordable and available sources of energy.

Investments in green economy – a sustainable way of working and living Joint event with TBC Bank

GEFF in Georgia and TBC Bank continue to support the development of renewable energy (RE) and climate adaptation investment in the country. The recent online forum entitled "Investments in Green Economy", held on 11 March 2021, showcased the importance and benefits of a sustainable approach to doing business and living.

"Start with yourself" was the message TBC Bank shared with the audience as Environmental and Social Risk Manager Ana Saralidze presented the bank's sustainable financing strategy. "Compliance with international environmental and social standards, financing green investments, supporting women in business and young entrepreneurs are essential to TBC Bank's long-term financing goals," participants were told.

Investments in RE, particularly in solar energy, have become a hot topic in Georgia, and rightfully so. As GEFF in Georgia Expert Andro Butkhuzi pointed out in his presentation, the country has great potential for solar energy development, as the average number of annual sunshine hours is approximately 2,200. A recent increase in electricity rates was the final nudge businesses needed to shift their attention to this clean energy source. Questions about the investment size for an average solar station, the space and area needed for setup, along with requests for vendor recommendations, suggest that the popularity of solar energy is increasing in the country. A variety of businesses are interested, too: more than 100 company representatives attended the event from numerous sectors, including wineries, building owners, developers, hospitals, steel producers, etc.

Following the "Investments in Renewable Energy" talk, GEFF in Georgia Expert Murad Kharaishvili presented "Investments in Climate Adaptation Measures" – a third type of investment financed under GEFF along with RE and EE. "Climate change affects millions of people across the world," he stated, "so it is vital to know what businesses can do to adapt to or to mitigate its consequences." Rainwater harvesting systems, efficient irrigation systems, minimum or no-till farming technologies, and water-efficient agri-processing equipment are just a few of the technologies financed by the EBRD's GEFF in Georgia that could prove beneficial for the agribusiness sector.

The two-hour long, interactive forum ended on a note of gratitude from the participants towards the speakers for providing relevant and timely information on these important topics.

Solar power stations – what you need to know to ensure proper implementation

More and more business owners are looking into installing solar PVs as an independent and auxiliary source of electricity. The most common questions that the GEFF team and partner financial institutions receive largely focus on the financial aspects of installing a solar power station, but other factors, such as security, reliability, stability and vendor selection, are also crucial for the station's operations and profitability. High risks tend to occur during the implementation stage, and seemingly small shortcomings can have significant consequence down the line.

Drawing from GEFF's solar PV projects, we have gathered recommendations and some general points to consider during the implementation stage of the solar station.

Profile of the supplier

Reputation and experience. Consider the period that the supplier has been operating on the market. Check the supplier's previous projects, and, if possible, get in touch with the company's clients. This is a good place to start your research at the beginning of your project.

Certification. When gathering information, ask for certification. It is always a good sign if the supplier is an authorised representative or an official dealer. Furthermore, inquire about the supplier's employees, e.g. whether they also have appropriate certification or necessary qualifications.

Commercial offer. A reliable supplier will always provide you with an officially drawn commercial offer that includes all pricing, without any hidden costs. It should include calculations on the station's performance as well as detailed prices on equipment, materials and work.

Equipment compliance. It is a good idea to ask for a TUV certificate for the equipment and check its compliance with EU quality standards.

Guarantees. Give preference to vendors who provide quality and/or performance guarantees, with clearly written compensation mechanisms. A qualified supplier should be able to provide a long-term output guarantee, with performance monitoring, and ought to be willing to accept liability for defects.

Installation. Look into the individuals who will be installing your station: are they members of staff or hired freelancers? Furthermore, check whether the vendor has the necessary certification to carry out electricity work.

Compliance with existing regulations. Ensure that the project is implemented in accordance with existing laws and regulations. The design and material selection should meet the general requirements for the construction and installation of equipment, and connection schemes and cables should be in line with electricity safety norms.

Construction of the solar station

There are a number of considerations during the building of the station that concern its design, security and mounting.

Design of the solar station. Ensure proper distance between panels. Although it might seem like a trivial matter, improper distance between panels can reduce their performance by 5-30%. It is also important to remove any objects that could cast shade on the panels, as this could also lead to a decrease in performance. Furthermore, station areas should be free of heat and ignition sources, as these can cause equipment failure.

Safety. In order to avoid equipment damage and serious injury to users, proper grounding and surge protection measures have to be taken into account.

Mounting. Whether on the ground or on the roof, all panels are mounted on an appropriate structure that ensures their static positioning. The structure should be made of a durable metal to minimise the risk of corrosion. All placements and connections should be done according to the manufacturers' guidelines. Last but not least, the foundation for the structure should be solid, so that extreme weather conditions (wind, snow) do not cause any damage to the equipment or pose potential health and safety risks to the users.

Success Stories

Vake Hill Ltd

Vake Hill Ltd, which has been operating in Tbilisi since 2009, decided to construct a multifunctional building of about 9,000 m^2 dedicated to offices, restaurants and a spacious car park (the latter had been lacking in the city).

Investor	Vake Hill Ltd
Location	Tbilisi, Georgia
Investment	Thermal insulation, windows, doors, heating and cooling systems, LED lighting, elevators
Investment size	US$ 2,255,660
Energy savings	1,946.04 MW/h per year
CO_2 savings	344.59 tonnes per year
Impact	Improved working conditions and enhanced environmental protection
Donor	GCF, BMF

Hostel Beko's Garden Inn

Hostel Beko's Garden Inn, located in Mestia, Georgia has been successfully operating in the hospitality business, accommodating guests of this mountainous region. To realise its full tourism potential, the owner decided to expand the hostel by adding one more floor with six more rooms to the existing two floors and 12 rooms.

Investor	Hostel Beko's Garden Inn
Location	Mestia, Georgia
Investment	Thermal insulation on external walls, floors and roofs, windows and doors, LED lighting
Investment size	US$ 31,544
Energy savings	5.86 MWh per year
Natural gas savings	222.79 MWh per year
CO_2 savings	6.80 tonnes per year
Impact	More guests accommodated at a lesser cost to the owner and environment
Donor	GCF, BMF

Read more Success Stories.

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