GEFF Green Economy Financing Facility

European Bank for Reconstruction and Development

Where finance and green technologies meet

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Georgia to launch Electricity Market Model Concept in September

The Government of Georgia has been reforming the country's electricity market since 2019, when a new Law on Energy and Water Supply entered into force and established a general legal framework to further implement the European Union directives and regulations.

The new Electricity Market Model Concept, which is one of the main components of the Law on Energy and Water Supply, is to be launched on 1 September 2022. According to Deputy Minister of Economy and Sustainable Development of Georgia, Romeo

Mikautadze, the concept introduces general principles for the organisation and functioning of the wholesale trade market of electricity, such as:

- Establishing an attractive environment for investors and providing free options for consumers by means of developing competitive and transparent electricity markets
- Forming organised electricity markets, namely day-ahead and intraday markets, as well as a balancing and ancillary services market, and a market for bilateral agreements
- Providing a clear distinction between the duties and responsibilities of the entities functioning in the energy sector
- Forming a competitive and liquid market price

By design, an electricity market will enable numerous HPPs in Georgia to become buyers and sellers of electricity. Furthermore, it will stimulate large-scale investments in other renewable energies as well, such as solar and wind. These large-scale projects will not only contribute to the security of energy supply and decrease Georgia's dependency on other countries, but they could also give rise to related businesses, such as solar panel production. As an additional benefit, local vendors might develop new business areas. Commercialising renewable energy (RE) will also strengthen the expertise of local suppliers and their employees.

Developing large-scale RE projects requires long-term financing and capital. In the greener economies of the world, the existence of and access to green financing constitute a crucial part of the development chain. Financing RE projects is one of the main pillars of GEFF in Georgia, and for its last three years of operation it has successfully financed numerous projects for businesses, ranging from supermarkets to metal production. GEFF in Georgia offers financing for the technologies needed for solar, wind and hydro power generation as well as all related businesses, including, but not limited to, the production of these technologies.

As for the organised electricity market, the concept foresees the establishment of a few competitive markets, where participants will be able to purchase and sell electric energy at binding day-ahead prices for following day (day-ahead markets or DAMs), and buy or sell energy on the same trading day (intraday markets or IDMs). Apart from buyers and sellers, however, the market will consist of services that ensure the security of supply (balancing and ancillary services). The market will also allow for bilateral agreements, where parties can freely negotiate prices for their products.

"As a result of this reform, competition in the electricity market should be gradually developed through a gradual opening of the market," Mr. Mikautadze said.

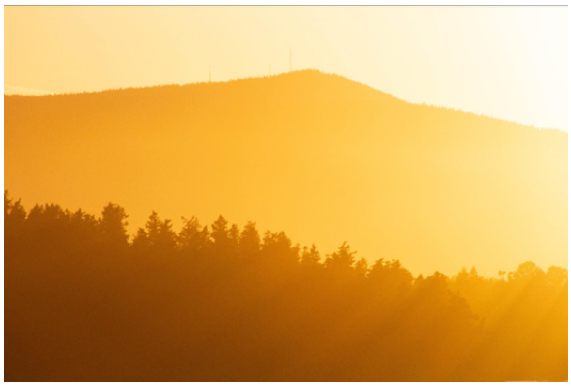
The large-scale reform should qualitatively change the existing market model and lead to the establishment of a system that will give the right price signals to both generating investors and consumers.

Georgia's challenges in developing its renewable energy potential

Georgia is methodically advancing towards realizing its renewable energy potential. According to local solar technology vendors the interest towards solar energy has doubled, even tripled in the last period. "Every business owner is thinking about switching to solar energy," – says Helios Energy founder, Tornike Darjania.

Indeed, investment in solar energy is lucrative. Over the lifespan of the station, which averages 20 years a company can enjoy a reduced electricity bill, generate own electricity and become more energy independent. Not only that, increased rates on electricity contributed to a shorter payback period for investment.

As an example, if the payback period is 5 years the company can benefit from own electricity for an average of 15 years. However developing country's RE potential comes with its own challenges.



Climate change effects prognosis for Georgia

According to a joint study published by the World Bank and the Asian Development Bank, the average temperature will increase in Georgia, in parallel to global climate change.

The forecast published by the organisations above considers several climate change scenarios, according to which, if global carbon emissions increase at the highest forecast rate, then by 2090 the average annual temperature in Georgia will be 4.9°C higher. In an alternative scenario which assumes the best conditions for reducing carbon emissions, the average temperature increase in Georgia by 2090 is 1.4°C.

Carbon emissions and greenhouse gas (GHG) emissions are a result of global industrialization. Georgia's impact on global emissions, however is minimal (the country accounts for only 0.03% of global 49 billion tons of GHG). China is in first place, in this regards, whose economy

Larger scale solar power stations, for instance, require significant investment which in turn requires creating and attractive environment both for direct and foreign investment. With the deregulation of the energy market, it is difficult for investors to predict what may happen in the coming years. Therefore, it is very important to have instruments, that will ensure a guaranteed income for the investor, even during the return period of their own capital.

The main challenge for investors today is to predict what the price of electricity might be tomorrow. The market liberalization reform has been initiated and the hourly trading market should be opened soon, but there are still many question marks about this market, especially what the price drivers will be for electricity. Today, it is difficult for any developer or analyst to predict what the price will be tomorrow. This is crucial since the forecast has to be made for the period of 5-10-20 years, because these projects are all looking at long-term investment.

The second overall challenge is communication and raising awareness, which needs consistent work, from both businesses and the government. The participants, as well as the general public have to aware of the benefits of developing RE. Businesses, should know about financial returns that the investment provides.

By all means, creating a competitive market is rather good, but any innovation needs to be implemented first, all the while increasing investors' confidence in

emits 11.7 billion tons of GHG annually, followed by the USA with 5.8 billion tons.

The World Bank study considers four main scenarios. According to the the RCP 8.5 (which does not envisage reduction of global greenhouse gas emissions) by 2090, the average temperature in Georgia will be 4.9 degrees Celsius higher.

The RCP 2.6 scenario envisages a reduction of global emissions in line with the Paris Climate Agreement. Under these conditions, according to the forecast of the World Bank, by 2090, the average temperature of Georgia will be 1.4 degrees Celsius higher than today.

The 4 alternative scenarios of climate change are divided as follows:

- RCP 2.6 - the increase by 2090 is 1.4 degrees Celsius;
- RCP 4.5 - the increase by 2090 is 2.3 degrees Celsius;
- RCP 6.0 - the increase by 2090 is 3.1 degrees Celsius;
- RCP 8.5 - the increase by 2090 is 4.9 degrees Celsius

Georgia has also undertaken the obligation to reduce carbon emissions and general GHG emissions. In particular, the goal announced by the state is that by 2030, the country's GHG emissions will be 35% lower than the 1990 figure.

The highest emissions in the history of Georgia were recorded in 1990, when many large enterprises were operating in the country before the fall of the Soviet Union. That year, CO_2 emissions reached 16 million tons, but in the 5 years since

the market. One of the possibilities to build trust is to enable guaranteed purchase agreements for a short period, all the while opening the free electricity market. As the market become more stable, the investors will gain more confidence, choosing to become participants in an open trade.

Another related challenge is the expertise available on the market. With RE only gaining popularity in the recent years, the market for technology suppliers remains small. The number of experts of the field is low and with the increasing demand might put a strain on their availability. As the experience of the GEFF in the region suggests, the presence of the knowledge and expertise is crucial for technical projects such as solar, wind or hydro power plants. Many projects have suffered dire consequences (decreased generation, damage to the station etc.), precisely because of the lack of competence, poor installation and improper planning.

It is clear that Georgia's government is keen on developing a number of RE stations, however the steps to overcome challenges above still remain to be seen.

independence, emissions have decreased seven times to only 2.3 million tons. During this period, the industrial capacity of Georgia was at zero and almost no enterprises were working. By 2004, the economy's emissions had increased to 4 million tons of CO_2, by 2010 it had reached 6 million tons, and 10 million in 2020. This indicator is 38% less than the emissions of 1990.

Currently, Georgia's per capita carbon emissions are 2.5 tons per year, while the world average is 4.5 tons. Accordingly, the economy of Georgia emits 44% less carbon emissions per inhabitant than the world average.

Energy efficient buildings – a new standard for Georgia

Georgia is waiting for the new regulations under the law on energy-efficient buildings to roll out. Although scheduled to enter into force in June 2021, implementation was deferred by the pandemic.

According to the law, all new buildings, regardless of the form of ownership, must meet minimum requirements for energy efficiency (EE). In particular, the relevant bylaw defines

standards for the roof, walls and floor of a new building, along with other aspects.

As the wait for the official regulation implementation continues, the private sector has begun taking a pro-active approach by establishing EE measures in these buildings. One such initiative is GEFF in Georgia's green certification. Here, buildings that show a minimum of 20% EE improvement compared to a set baseline will be eligible to receive an unofficial certificate that recognises the level of EE and the amount of CO_2emissions avoided. The certification will allow construction companies and developers to showcase their achievements in moving the Georgian construction industry towards a European standard of building and living. GEFF in Georgia's green certification will be a solid stepping stone that will set the scene for rollout of the official certification.

Most countries in Europe employ certificates for buildings, and no houses or apartments can be bought or sold without proper evaluation of the respective certificates. Even though certification is not yet required in Georgia, the new regulations will inevitably establish certain standards that, as a minimum, all new buildings will be obliged to meet. These standards will likely be in line with or close to EU regulations, which widely use the EDGE (Excellence in Design for Greater Efficiencies) certification. GEFF in Georgia's green certification was specifically designed using the EDGE app and is thus based on EDGE standards. Certification takes into account the thickness of walls, type of windows, insulation, roof parameters, specific climatic conditions and more. Buildings certified with GEFF's green certificates will be at least 20% more efficient than the current baseline standard.

Nonetheless, EE is more than just specific measurements. The technical parameters used to evaluate the state of a building translate into the practical aspects of everyday living. Having a well-insulated roof, floors and walls means a warmer home in winter and a cooler one in summer. Double or triple-glazed windows not only improve the climate at home, but keep the noisy bustle of the city out of the household. A smarter heating system means more control over the climate in the house and thus over utility bills. In short, an EE building means a better home.

Largest solar power station in Georgia to start operating in July

A 1.1 MW installed capacity solar power station will soon be launched in Kaspi. The total investment amounts to US$ 610,000, and will serve three enterprises at once. This is by far the largest solar power station in the country.

Georgia has been moving towards a more sustainable economy for the last decade. Developing its RE potential is a crucial aspect of the country's well-being in the future. With an abundance of rivers, HPP's have been more popular; however, increased rates for electricity also gave rise to interest in solar energy. More and more businesses are implementing PV stations that can meet 100% of their electricity needs.

Investing in RE benefits business and the environment. Besides decreasing utility bills and CO_2 emissions, RE provides for a low-risk investment that is sure to bring returns from the first day of operations. The payback period for the Kaspi power station is said to be only five years.

Featured Technology:

Solar power station

Ever wondered what it's like to not pay for electricity each month? A solar power station is your chance to enjoy a reduced electricity bill or even none at all. A solar PV can be especially lucrative for companies that are highly energy intensive (manufacturing of any kind) or businesses operating in hospitality (large or mid-scale hotels). A well-implemented solar power station with high quality components can be a relatively low-risk investment that is sure to yield a return over its operating lifetime.

See which solar technology suppliers are available on the Georgian market through Green Technology Selector

Success story

Established in 2014, My Office is a Tbilisi-based company that sells office equipment, paper products and stationery, and mainly specialises in printer sales, cartridge refills, and office equipment repairs. It is the first and only company in Georgia to produce its own printer cartridges. The company also offers free delivery throughout Georgia on orders above GEL 150.

As a company with its own distribution and delivery network, My Office was looking to upgrade its vehicle fleet. Keeping up with the newest developments in the automotive industry, the company's management looked into electric vehicles and decided to go the sustainable route.

View more success stories on our website.

Investor
My Office

Location
Tbilisi, Georgia

Investment
Electric vehicles

Investment size
US$ 82,700

CO2 savings
5 tonnes per year

Impact
Establishing a precedent with electric distribution vehicles

Donor
GCF, BMF

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