GEFF Green Economy Financing Facility

European Bank for Reconstruction and Development

Where finance and green technologies meet

GEFF in Armenia Newsletter N12, Q4 2021

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Key results as of 31 December 2021

- GEFF in Armenia has financed 303 projects totalling EUR 25 million through partner financial institutions (PFIs), thus reducing primary energy usage by 117,000 MWh/year, saving 27,500 tonnes of CO_2 annually and enabling 5,250 tonnes/year in water savings
- Renewable energy projects with an installed capacity of 41 MW make it possible to avoid 23,500 tonnes of CO_2 annually
- 1,433 RE and EE technologies offered by 174 vendors from 21 locations in Armenia accessible through the **Green Technology Selector**

GEFF in Armenia's green achievements in 2021

Notwithstanding the negative impact of the COVID-19 pandemic, **2021 was a successful year** and continued to contribute and particularly promising in terms of green growth for GEFF in Armenia. Bearing in mind the three years of our activities to date, the following key results were achieved:

- Investment of more than 300 green projects with a volume of EUR 25 million
- Increase of investments in energy and water efficiency
- Intensified the use of renewable energy reaching an installed capacity of 41 MW
- Decrease of primary energy consumption by 116k MWh/year
- Reduction of 27 tonnes of CO_2 emissions annually

Although all the green investment projects carried out have – without exception – contributed to the reduction of greenhouse gas and have achieved a minimum of at least 20% energy efficiency, it is worth sharing some of the most noteworthy projects with our stakeholder community while summing up the year.

The project with the **most significant reduction of CO_2** (381 t/year) was an investment in a **ground-based PV plant** in Artashat made by Karen ev Rafik LLC, which operates a local gas station. The investment is a further exemplary project in the field of renewable energy, especially in the area of solar energy, and is an efficient combination of new customised technical solutions and existing business operations. It goes without saying that the investment leads to a lower dependence on energy supply from external providers as well as to a significant reduction of electricity and operating costs. The environmentally friendly aspect of the investment will also enhance the company's status.

Variant Group LLC, a poultry producer in the Ararat region, invested in a multifunctional completely **automated layer cage system** with feed loading and egg collection as well as a drinking system and a manure cleaning component, among others. Unlike the previous system, the **new solution** has a more efficient ventilation system with four speed-controlled rooftop fans allowing precise control of the ventilation rate, in addition to other features. Furthermore, the new system makes it possible to preserve the natural biorhythm of the birds. After the installation of the new cage layer system, the company will significantly increase its production capacity as well as the number of birds it keeps. The investment is a smart way to better interlink strategic objectives and operative implementation.

Within the context of Kataro LLC's move to new premises in Ayntap in the Ararat region, the winery acquired an **innovative wine production unit** consisting of high-performance European winery equipment and bottling machines. The new unit is characterised by fairly low specific consumption resulting in energy expenses 41% lower than the market average. In addition, apart from **increased reliability in production and improved working conditions**, the investment has enabled the company to keep its local wine production running and, in this way, continue its long-term success story.

Bacon Product LLC, a leading meat products company, has made one of the most efficient investments by installing a new **efficient refrigeration system** made in Europe with an air-cooled condenser and air cooler-based compressor at its Arzni production site. It is worth noting that the company spent the **lowest amount on each MWh of energy saved** thus contributing to the overall efficiency of the investment per unit of energy savings. Apart from that, Bacon Product will meet the targets set with this investment and achieve the expected benefits: improving production safety, efficiency and product quality.

Another project considered **one of the most efficient investments based on payback period** is Daroink LLC's **high-performing rotating deck ovens** made in Italy and with a payback period of only two years' time. The new ovens allow more precise control of the baking process and enable the most optimal use of the steam generator. In addition to reducing baking time by 23%, the investment also makes it possible for the bakery to minimise maintenance costs. The purchase of the new equipment can be seen as an important step towards strengthening Daroink's competitiveness and position in the local market.

Solar energy is free and abundant, which is why Artiki PHK LLC, a Shirak-based clothing company with a **70% share of women employees**, invested in a **rooftop PV plant** to reduce its energy dependence and to take an important step towards achieving sustainability. The investment is efficient, has zero emissions, was installed quickly, has low noise, and requires only very little maintenance. Finally, and most importantly – it helps to slow global warming.

Each GEFF project makes a difference by enabling the companies making the investment to be role models for the partners in their sector as well as for the competition. Furthermore, the apparent energy savings make the country more sustainable and capable of tackling the challenges to be faced in the years to come.

Interview with Luiza Vardanyan, General Director of the Armenian Energy Agency Foundation

In an interview with GEFF in Armenia, Luiza Vardanyan, General Director of the Armenian Energy Agency Foundation, shared her insights into the new energy reality of Armenia and the way things need to be developed:

What are the overall achievements in the energy field in Armenia in 2021?

Compared to 2020, the energy sector in Armenia has achieved more in 2021.

From a policy-making point of view, the Government of Armenia approved the Energy Sector Development Strategic Programme until 2040. According to the Strategic Programme, the share of renewable resources, mainly solar, for energy production should be increased by up to 15% in total energy production. As a follow-up, the Renewable Energy and Energy Saving National Plan for 2022-2030 has also been developed. Another point worth mentioning is that the Government has continued with the liberalisation process of the energy sector. Within the market liberalisation framework, changes were carried out in the Energy Law of the Republic of Armenia, which provides policies and regulations for the whole energy sector in the country. The changes will come into force in 2022.

From an operations and technical point of view, the first achievement was the upgrade of Armenian Nuclear Plant Unit 2 (Outage 2021) with the aim of maintaining the reliability and safe operation of this plant and the stability of the energy system. Another achievement is the operation of the new Yerevan Thermal Power Plant (combined steam cycle) with a 250 MW positioning power capacity.

The last achievement for the sector worth highlighting is a contract between the Government of Armenia and Masdar, one of the world's leading renewable energy companies, for the construction of a solar power plant with a positioning power capacity of 200 MW.

What actions need to be undertaken in connection with the UN Climate Change Conference in Glasgow in 2022 to tackle the main challenges and make systematic changes and improvements towards achieving the goals set?

Experts say that COP 26 in Glasgow was more productive and efficient in terms of reaching a consensus on the further steps to address climate change. Adaptation, mitigation and finance are the three main factors that should be strengthened and balanced by all parties: governments, private and public sectors, CSOs, local communities, etc.

To my understanding, a strategy on how to work together and one that puts every part in place should

be developed first or the previous strategy should be reviewed. Another essential document should outline the transition to net zero and then monitoring and reporting norms must be put in place, which are acceptable and available to all countries. Finally, the financial industry must be prepared, if it isn't already, to support the implementation of green projects. Financing green or greening finance – both of these!

Locally, Armenia has its own Nationally Determined Contribution 2021-2030 plan in connection with the Paris Agreement. The Government has approved the Climate Change National Adaptation Plan and the Action Plan for 2021-2025. Armenia should work on the taxonomy and should actively participate in International Consortium meetings as well as adapt related international regulations as needed and if possible.

How do you see the role of gender impact investments in Armenia?

For me, gender-related topics are significant, not only because I'm woman and hold a leading position, but because Armenia has traditionally been a society dominated by men.

Investments mean business, investments mean private sector development as well as making and maintaining partnerships, decision making, etc. During the last decade, many projects have been implemented to improve the business skills of women, to improve their financial skills and to create more opportunities for gender-related investment by developing financial products. Though changes are taking place, more time is needed owing to the complexity of it all.

To my understanding, thorough research should be conducted regularly to understand the demand, field and impact in Armenia.

Thank you very much for this interview, Ms.Vardanyan!

Private sector-based awareness raising initiatives

Over the past few years, a new small, but very important development has become identifiable: an increasing number of local private businesses have become engaged in **voluntary awareness raising activities**, mainly initiated by the companies themselves. Many enterprises, such as technology vendors or producers of equipment and machinery, have begun paying closer attention and have developed a more consistent approach to green practices and public awareness raising as well as shown interest and strong engagement in various short- and long-term projects.

Even if the individual approaches vary, some general directions can be observed:

(1) Several companies focus on **training and developing the skills and abilities young people**. While SolarOn and Shtigen implement trainings for students in public schools, EcoStep is active in providing technical education to unemployed young adults in the regions. This enables them to discuss current challenges faced by younger people due to their lack of energy saving practices and how these can be addressed on an individual level.

(2) Other initiatives include **real investment projects**. One example worth mentioning is OHM Energy's solar PV power plants in rural schools and youth development centres, thus making them real cases for replication by businesses and homes in the immediate vicinity. Another company, SunnyCity, donated two off-grid power plants; one location had never had access to electricity before (St. Karapet's Church located in the mountains).

(3) Another equally effective approach is EcoVille's **online-based action strategy**. The activities comprise energy savings tips, support for a web project to continuously build an audience keen on topics such as the climate and the environment by starting engaging discussions and sharing of experiences, as well as providing assistance with technical issues for start-ups and innovators. In the latter case, young scientists can receive support to bring to their ideas to life.

There are multiple awareness raising strategies, methods and tools that can be used to advise the public. All these activities seek to inform and provide knowledge to people about climate action with the intention of influencing their attitudes and behaviours. In this way, they **mobilise the power of public opinion to fight climate change and to promote sustainable development** – most likely the greatest challenge of our time.

CBA joins the Sustainable Banking and Finance Network

We recall that two years ago the Central Bank of Armenia (CBA) became a full member of the Network for Greening Financial System (NGFS). In November 2021, the CBA took a further key step towards **developing an integrated approach to sustainable finance** and joined the Sustainable Banking and Finance Network (SBFN). The SBFN is a voluntary community of financial sector regulators, central banks, industry associations, and environmental regulators from emerging markets committed to advancing sustainable finance for national development priorities, financial market deepening, and stability (currently 68 institutions from 45 countries). Their approaches draw on **international good practices, reflecting national contexts and priorities**.

The community originated from a collective need expressed by banking regulators and associations for a global platform about sustainable banking for knowledge and learning; one of the key initiators is the International Finance Corporation (IFC), which acts as a knowledge partner and connects members with its global development partners.

The SBFN's main objectives are as follows:

(a) Provide **technical assistance with the aim of supporting members** in the creation of an enabling environment through the development and implementation of national sustainable finance frameworks;
(b) Convene a global **platform for practitioners** to benefit from best practices and deepen collective learning;

(c) Provide **capacity building and knowledge sharing**, with a focus on peer-to-peer exchanges among members.

The IFC assists in the implementation of activities and provides technical assistance to SBFN members based on practical experience gained from the setting and application of Environmental, Social and Governance (ESG) sustainability standards, as well as from investing and advising the private sector in emerging markets on green/climate finance innovation.

Sustainable Banking and Finance Network

Featured technology: Thermal insulation

Traditional building materials (brick, wood, reinforced concrete) used in a single-layer building envelope do not address the problem of energy saving and the reduction of operating costs in construction. However, this is not the case in multi-layer structures, often called thermal insulation systems, where effective thermal insulation materials are used.

At the moment, two systems are widely used: a „wet type" system either with plastering or facade cladding or with a ventilated facade.

a) The thermal insulation of a facade is made up of several layers, each of which performs a specific function:

- adhesive layer securely fixes the insulation on the wall
- heat-insulating layer keeps heat in the building
- reinforcing layer provides reliability and durability and increases the strength of the facade and reduces the risk of cracks
- decorative and protective layer protects the insulation from snow, rain, wind, sunlight, and mechanical damage

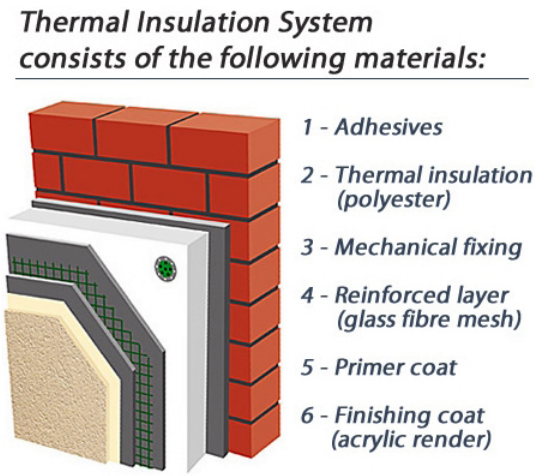
Various mineral and polymer materials can be used as thermal insulation. Often, materials of various types and thicknesses are used on various walls and parts of a building, enabling the high-quality insulation of an existing building without disrupting the architectural appearance. This system has some limitations associated with the seasonality of work, as this technology requires wet processes (glue, plaster, paint), which can only be carried out in warm weather (up to + 5°C).

b) A ventilated facade system consists of the following layers:

- metal supporting frame on the walls of the building onto which the facing material is fastened
- mineral heat-insulating layer keeps heat in the building
- air gap, which works according to the "chimney principle" and removes moisture from the heat-insulating layer
- cladding material fixed to the frame, which protects the thermal insulation from atmospheric influences and also addresses the overheating of walls in the summer months

It is possible to use various facing materials — natural stone, porcelain stoneware, wooden boards, aluminium composite panels, etc. The facade system can be installed quickly at any time of the year and also repaired in the case of partial damage.

Please browse our **Green Technology Selector** to view accessible thermal Insulation solutions.



Success Stories

Daroink LLC was established in 1999 and offers high-quality bakery products on the local market. The company chose to invest in high-performance rotating deck ovens with a gas backburner and a heat exchanger with forced air circulation from an Italian producer to replace its electric ovens.

Investor	Daroink LLC
Location	Yerevan, Armenia
Investment	Rotating deck ovens
Investment size	US$ 97,200
Payback	2 years
Energy savings	738 MWh/year
CO_2 savings	41 tonnes/year
Impact	Increased cost efficiency, high-quality production
Donor	GCF, CIF

Vil Food LLC is a producer of traditional canned fruits and vegetables established in 2007. The company leased a new high-performance loader (HZM S25D) to expand its range of products and modernise its equipment and fleet.

Investor	Vil Food LLC
Location	Kotayk, Armenia
Investment	Loader
Investment size	US$ 27,350
Payback	3 years
Energy savings	161 MWh/year
CO_2 savings	43 tonnes/year
Impact	Reduced operation and maintenance costs, improved safety
Donor	GCF, CIF

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