# INCENTIVES TO PROMOTE LOCAL GREEN FINANCING TO SMES:

*Lessons from the Armenia Green Economy Financing Facility*

// April 2025

CLIMATE DELIVERY INITIATIVE SERIES //

Case Study

CIF Program: SREP

TOPICS

- Energy Financing
- Gender

# ACKNOWLEDGMENTS



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# PROJECT DATA

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| **PROJECT TITLE** | Caucasus Green Economy Financing Facility (GEFF) – SREP Armenia Renewable Energy Grant Support |
| **PARTNER ORGANIZATION/S** | • European Bank for Reconstruction and Development (EBRD)<br>• Green Climate Fund |
| **COUNTRY** | Republic of Armenia |
| **SECTOR/S** | Energy Financing and Gender |
| **TOTAL PROJECT COST** | $ 57.3 million (including $16.3 million from the Climate Investment Funds (CIF) under its Scaling Up Renewable Energy Program in Low Income Countries SREP) |
| **PROJECT DURATION** | 2018-2028 (*including additional financing approved in 2023) |

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|---|---|
| **DELIVERY CHALLENGES** | • The project works to increase the use of renewable energy by businesses in Armenia.<br>• Addressing prevalent social and gender norms in Armenia. |
| **CASE AUTHORS** | Jimmy Pannett and Liliia Zhukovska |
| **PROJECT EXPERTS** | Anoud Allouzi, European Bank for Reconstruction and Development (EBRD) |

## KEY MESSAGES

Renewable Energy Financing: Providing financial incentives to SMEs and capacity building to financial institutions can help overcome the private sector's misplaced perceptions regarding the financial feasibility of implementing renewable energy projects.

Empowering Women in Green Finance: The project financed training of women entrepreneurs in financial literacy and green finance, enabling their participation in Armenia's renewable energy market.

Gender Integration in Financial Institutions: Capacity-building programs for PFIs mainstreamed gender-responsive approaches, improving inclusivity and expanding access to finance for women-led SMEs.

Driving Results with Data and Training: Sex-disaggregated data collection and tailored training programs were key tools in identifying and addressing barriers to women's participation in green financing.

# EXECUTIVE SUMMARY

This case study examines the Armenia Green Economy Financing Facility (GEFF), which is implemented by the European Bank for Reconstruction and Development (EBRD). GEFF launched in 2018 and received financial support from the Scaling Renewable Energy Program (SREP) of the Climate Investment Funds (CIF).

**The project aims to tackle the main development challenge of incentivizing Armenia's transition to a low-carbon, climate-resilient economy, while also advancing efforts toward gender parity.** Armenia's government set an ambitious goal of increasing renewable energy (RE) to 66 percent of its power generation mix by 2036. But a significant barrier to expansion of renewable energy in Armenia was the high cost of investment compared to the existing low-cost electricity generation mix.

**The project works to increase the use of renewable energy by businesses in Armenia.** The SREP fund was used to overcome affordability issues in installing building-integrated RE systems in Armenia. The SREP funds complemented the EBRD's Armenia GEFF program to provide finance in the form of commercially priced senior unsecured loans to five participating financial institutions (PFIs), including banks, microfinance, and leasing companies. In addition to financing, the Armenia GEFF has a technical advisory component to develop the capacity of participating financial institutions and support sub-borrowers to improve their operations, productivity, environmental sustainability, and quality standards.

Moreover, under GEFF, the EBRD worked closely with PFIs (i.e., banks, microfinance, and leasing companies) and end beneficiaries to (1) integrate gender considerations into the PFIs' management and operations, and (2) promote gender equality in green financing through awareness raising and capacity building.

**DELIVERY CHALLENGE: Risk and reward perceptions:** A critical delivery challenge was overcoming weaknesses related to risk and reward perception. Renewable energy technologies were associated with a significant upfront cost, which hindered several users from purchasing them, and some business owners did not think that these technologies would be commercially viable. Moreover, there was a general lack of awareness regarding climate issues and the benefits of renewable energy technologies.

> **Implementation solutions:** The government of Armenia and the EBRD mobilized financing to create incentives and address market barriers. The EBRD GEFF program has also worked to build awareness of the benefits of renewable energy among PFIs by reaching out, first to the PFIs, and subsequently to businesses.

> The key innovative tool deployed by the EBRD GEFF program in Armenia was financial incentives—a cash-back option payable to eligible sub-borrowers, which ranged from 15 to 20 percent, depending on the technology. Eligible investments include solar photovoltaic panels, solar water heaters, electric vehicle charging infrastructure, and solar batteries, as well as up to 10 percent for investments in electric vehicles or energy efficiency. The cash back is paid out at the end of the loan payment, conditional on implementation and verification of the works and its energy saving criteria.

**DELIVERY CHALLENGE: Gender:** The intervention faced delivery challenges related to prevalent social and gender norms in Armenia, as a result of PFIs' perceptions and female business owners' circumstances. For example, several representatives of interviewed PFIs did not see the need for a gender-responsive approach to finance and expressed the view that all sub-borrowers should be targeted in an equal way. Meanwhile, women typically had lesser access to collateral, and had to contend with social norms that discourage lending to women. Overall, a notable gap existed in awareness and understanding of green finance among women entrepreneurs, particularly in rural areas.

> **Implementation solution:** EBRD GEFF launched a green finance training program, which focused on providing information on green finance and helping participants prepare and submit their loan applications. Women who participated in trainings reported that they developed a better sense of available opportunities, and believed they had access to a business network and mentorship opportunities. At the same time, outreach and training efforts helped shift perceptions among participating PFIs, leading to institutional improvements in financial products and increasing their marketing focus on women.

> **By December 31, 2023, the project had exceeded most of its targets,** reaching 14,619 total beneficiaries (of whom 5,651 were women), averting annual GHG emissions equal to 27,279 tons of $CO_2$ equivalent, and generating 62,854 MWh/year in renewable energy. Qualitatively, feedback from the four out of five interviewed PFIs and several clients who received loans through the program was overwhelmingly positive. PFIs and small and medium enterprises (SMEs) also highlighted the benefits of the technical assistance (TA) provided under the project. Moreover, the project was recognized for driving growth in green finance in Armenia, as demonstrated by other financial institutions entering the market.

**The experience of GEFF suggests important lessons for projects seeking to incentivize renewable energy uptake in an equitable, gender-responsive way.** Lessons learned include:

- **The use of incentives.** The cash-back mechanism was an essential incentive for SMEs, with some taking out loans for green energy only because of it. Cash-back levels of 15–20 percent provided sufficient incentives for SMEs to get involved, but it is unclear whether cash-back amounts could be reduced without obstructing the effectiveness of the program. Overall, the design and mechanism were effective in the case of a lower-middle-income country, such as Armenia.
- **Working toward gender equity.** The GEFF experience suggests lessons on how to improve access to green finance for women. This includes the need for capacity building to enable PFIs to deploy a gender-differentiated approach and to raise awareness among women business owners. While significant progress has been made, there is a need for continued efforts to support women-led SMEs, simplify loan processes, and continue enhancing raising awareness of the benefits of green finance.

# LIST OF ABBREVIATIONS

| | |
|---|---|
| **AMD** | Armenian Drams |
| **CDI** | Climate Delivery Initiative |
| **CIF** | Climate Investment Funds |
| **CTF** | Clean Technology Fund |
| **EBRD** | European Bank for Reconstruction and Development |
| **ECA** | Europe and Central Asia |
| **ENA** | Electrical Networks of Armenia |
| **EU** | European Union |
| **GoA** | Government of Armenia |
| **GCF** | Green Climate Fund |
| **GEF** | Global Environment Facility |
| **GEFF** | Green Economy Financing Facility |
| **GTS** | Green Technology Selector |
| **HP** | Heat-pump |
| **IFC** | International Finance Corporation |
| **IP** | Investment plan |
| **KPI** | Key performance indicator |
| **MSME** | Micro, small, and medium enterprise |
| **PFI** | Participating financial institution |
| **PPCR** | Pilot Program for Climate Resilience |
| **PSRC** | Public Services Regulatory Commission |
| **PV** | Photovoltaic |
| **R2E2** | Armenia Renewable Resources and Energy Efficiency Fund |
| **RE** | Renewable energy |
| **SME** | Small and medium enterprise |
| **SREP** | Scaling Up Renewable Energy Program |

| | |
|---|---|
| **SWH** | Solar water heater |
| **TA** | Technical assistance |
| **TuREEFF** | Turkish Residential Energy Efficiency Financing Facility |
| **USAID** | United States Agency for International Development |
| **USD** | United States Dollars |
| **WSME** | Woman-led small and medium enterprise |

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# 1. INTRODUCTION

Armenia has low energy costs but high carbon intensity. In 2014, when Armenia proposed its investment plan (IP) for the CIF Scaling Up Renewable Energy Program (SREP) in lower-income countries, the country's power infrastructure was already decades old and in need of both modernization and diversification to ensure energy security. However, upgrading systems and changing the status quo to incorporate more renewable energy (RE) presented several challenges, such as raising awareness about climate change; updating traditional mindsets to embrace RE technologies; and developing financing mechanisms to support the necessary sectoral changes.

Armenia has a strong entrepreneurial tradition, where private sector actors are often willing to step in and adjust to different realities, if given the right incentives and means. Consequently, one of the paths sought by the country to catalyze the RE market was to address the funding obstacles faced by the private sector by providing the right financial incentives and allowing the market to determine how to increase the share of RE in its matrix.

Hence, in 2014, when SREP issued a new round of financing, Armenia expressed its interest, presenting the Armenia Green Economy Financing Facility (GEFF) as one of its key pillars. Initiated in 2018, GEFF sought to use a combination of concessional financing, financial incentives, and technical assistance (TA) to catalyze interest and capacity in increased RE development and usage by small and medium enterprises (SMEs). This case study examines the implementation of this financing mechanism, drawing insights from interviews with stakeholders, including financial institutions, policy makers, and end-users, to examine operational challenges and their solution strategies.

## 1.1. Gender Parity and its Intersection with Climate Effectiveness

Given one of GEFF's components is a focus on greater gender equity in the sector, this case study examines prevalent gender issues within the context of green finance in Armenia. The study draws insights from women's experiences in accessing finance, effectively utilizing trainings and capacity-building activities, and navigating gender-specific challenges and barriers. A gender integration lens on both IP strategy and operations is important across the CIF-supported climate programming because gains, losses, and even harm can affect women and men unequally from individual program and project investments. It is, therefore, crucial to identify, act upon, and monitor gender opportunities and constraints during the prioritization of investments, as well as in the design and implementation of projects.

Supporting women's role as agents of change and decision-makers in climate action[1] is also important, as evaluations from other countries and CIF programs have found that gender-responsive design contributes to institutional changes and market-related outcomes that can help scaling. For example, in Mexico, women have begun working in the forestry sector, challenging gender norms in a wood products company in Oaxaca, thanks to FIP-supported increased mechanization and training.[2] Other strategies include developing gender-differentiated loan products and marketing techniques for female-headed households and businesses, which has shown potential for improving the performance of financial facilities in Türkiye (CTF) and Tajikistan (PPCR). In Türkiye, for instance, the Clean Technology Fund (CTF) helped design specialized loans for women-owned enterprises to support their participation in clean energy and energy efficiency sectors. This approach did not only increase female participation in green markets, but also improved the overall performance of financial facilities, as shown by increased loan uptake and repayment rates among women borrowers.[3] In Tajikistan, under the Pilot Program for Climate Resilience (PPCR), a similar strategy was implemented to assist female-headed households in adapting to climate risks. The program developed gender-sensitive loan products to address unique climate adaptation needs for women-led agricultural ventures, which helped stabilize these households against climate impacts while enhancing their financial security.[4]

Extracting lessons from gender-focused interventions provides critical nuances and strategies for improving the design and delivery of future gender-responsiveness in projects and programs. For example, based on gender analysis of its experience working on district heating interventions in Ukraine and Kazakhstan, the EBRD prepared a district heating and gender toolkit that has been mainstreamed into its processes and is informing new country operations. Learnings from the gender assessment of the Turkish Residential Energy Efficiency Financing Facility (TuREEFF) have informed the design of green economy financing facilities (GEFFs) that the EBRD will be rolling out in ten countries with some of the facilities co-financed by the Green Climate Fund (GCF).[5] By examining women's experiences with GEFF, this case study builds on and extends such insights. A gender-integrated approach like GEFF's is essential in climate programs to ensure equitable outcomes and leverage women's role as climate change agents. Drawing lessons from CIF's gender initiatives in other countries, such as Mexico and Türkiye, GEFF aims to refine strategies that enhance market outcomes, boost financial security, and promote gender equity in green finance.

# 2. CONTEXT

## 2.1. Energy

Armenia's electricity sector underwent significant changes between the late 1990s and 2018—the same period in which the Green Economy Financing Facility (GEFF) project was proposed to the Scaling Up Renewable Energy Program (SREP). The sector transformed from one that was near financial bankruptcy and facing severe supply shortages to one that was stable, more characteristic of that in developed economies. The use of renewable energy (RE) was a key factor to this transition.[6]

In 2019, Armenia's electricity system had 3,238 MW of installed generation capacity, and 2,729 MW of available generation capacity. The electricity generation mix included 34 percent nuclear, 37 percent thermal, and 29 percent renewable energy. The latter was drawn from two large hydropower plants (965 MW installed capacity); over 180 privately-owned small hydropower plants (less than 30 MW); wind power plants (2.6 MW); and small photovoltaic (PV) installations (6.3 MW). Small RE plants supplied electricity to the national electricity distribution company, Electrical Networks of Armenia (ENA), under standardized contracts that were approved by the Public Services Regulatory Commission (PSRC), the independent regulatory agency responsible for tariff setting, service quality, and licensing.[7] Armenia's government has an ambitious goal of increasing RE to 66 percent of its power generation mix by 2036.[8]

### 2.1.1. Utilizing New Renewable Energy Capacity to Meet Burgeoning Demand

Prior to submitting Armenia's investment plan (IP) in 2014, PSRC, with support from development partners, including the World Bank and the International Finance Corporation (IFC), created a conducive legal and regulatory framework for promoting the development of RE. The framework also included the introduction of feed-in tariffs for renewables (i.e., small hydro, solar, wind, and biomass) in 2007. The total electricity demand in the country was expected to grow at an average annual rate of two percent over the long term. Although there was sufficient generation capacity to meet forecasted peak load and total electricity demand in the short term, new capacity would be needed in the future to meet forecasted peak load and ensure sufficient reserve margin in the system, particularly as thermal plants were set to be decommissioned.[9]

### 2.1.2. Import Dependence and Energy Security

At the time of project concept in 2014, around 70 percent of Armenia's electricity generation was dependent on imported fuels, making the increase of energy security a top priority for Armenia. All the natural gas required for electricity generation came from Russia and Iran, while the nuclear fuel required for nuclear power generation came from Russia

alone.[10] To decrease the country's dependence on imported fuel, the government of Armenia worked to expand the use of RE. For example, the 2004 Law on Energy Savings and Renewable Energy supported the establishment of the Armenia Renewable Resources and Energy Efficiency (R2E2) Fund, a non-governmental agency dedicated to promoting and facilitating RE and energy efficiency in Armenia.[11]

Starting in 2005, the R2E2 Fund implemented a RE program, which was supported by the World Bank and the Global Environment Facility (GEF), that helped remove barriers to the development of renewable energy generation and created an enabling environment for private investors. However, barriers to the increased use of renewable sources persisted in Armenia, blocking wider market entry for sustainable technologies, such as solar water heaters, solar PVs, and heat pumps.[12]

### 2.1.3. Energy Poverty

One of the most significant barriers to the expansion of RE in Armenia was the high cost of RE investment compared to the country's low-cost electricity generation mix. Tariffs were low because many of the thermal plants generating electricity were fully depreciated and only needed to recover variable costs. As new generation plants come online, tariffs will increase to reflect their capital costs. In the meantime, the low cost of generation made it difficult for consumers to understand the need for higher-cost RE generation, which would satisfy, at least initially, only a small portion of demand.[13] In other words, energy was not expensive for many consumers due to the availability of relatively cheap natural gas. In contrast, switching to low-carbon intensity electricity is expensive in the short term.

While many consumers benefited from cheap energy, Armenia experienced significant energy poverty, which is defined as households spending more than 10 percent of their budgets on energy. Between 2008 and 2010, energy poverty affected nearly 30 percent of Armenian households, and historically, the poor rural households of the country would switch to traditional fuels (e.g., firewood) when energy prices increased.[14]

### 2.1.4. Enabling Environment

Another factor affecting the uptake of renewables was the overall perception of RE, including the understanding within Armenia that solar PV was not commercially viable, which contributed to a lack of regulatory incentives for certain technologies.[15] Furthermore, there was limited capacity for equipment acquisition and installation due to limited experience. For example, at the start of the project, there were no regular suppliers of heat-pumps (HPs) in Armenia, and there was a lack of availability of equipment, maintenance, and service infrastructures for solar thermal heating,[16] which meant higher costs for first movers. In addition, financiers lacked capacity to assess RE technologies. Overall, the general lack of experience made developers, financiers, and property owners skeptical of entering the RE market.

On the other hand, external factors started influencing business needs. Requirements to export to the US and EU markets meant that firms that wanted to enter or continue in these markets needed to abide by requirements regarding emission intensities. As such, a greater number of progressive businesses were wanting to move to a greener direction.

### 2.1.5. Concessional Finance to Scale Renewable Energy Resources

Faced with these persistent contextual barriers to adoption of RE technologies, the government of Armenia requested SREP support in 2014 to reduce the cost of selected RE technologies[17] by incentivizing increased adoption of RE and providing space for markets to develop. Armenia has significant solar resources, which, on average, are about 70 percent higher than those in Europe. There are 2,500 sunny hours per year, on average, with an average solar radiation of 1,720 KWh/$m^2$, meaning more effective PV production.[18] SREP's objective, among others, was to address the perception that high-cost RE technologies are an unnecessary expense, alongside concerns about affordability. As the country's market gained further experience and scale in RE, the expectation was that the cost for these technologies would decrease.[19]

## 2.2. Gender

Armenia presents a range of improvements in the political and economic participation of women, but gender-based barriers in these spheres remain. The country has experienced positive trends regarding the promotion of women's political participation—the first woman mayor in the country was elected in August 2018, and, in the last parliamentary elections in 2021, there was a notable, but modest, representation of women in the National Assembly. In particular, out of the 107 seats, women secured 35 seats, making up approximately 32.7 percent of the parliament. This was a slight increase from previous elections, reflecting gradual progress towards gender equality in political representation. However, women's underrepresentation in politics and public decision-making remains a challenge. International observers found that some women candidates were "a target of disparaging rhetoric because of their gender"[20] during the last parliamentary elections. The scale of engagement of women in the executive arm is yet more limited, with only two women among 15 members of the current government, and none among the 10 governors. The persistent underrepresentation of women indicates the need for continued efforts to promote gender parity in Armenian politics.

Despite the positive developments and efforts in recent years, there are signs of persistent disparities, which are evident in various aspects of labor force participation and economic engagement. The participation rate of women in the labor force is lower than that of men. In 2023, it reached 68.3 percent for men, and 56 percent for women. The scarcity of employment opportunities in regions outside the capital city, Yerevan, contributes to a trend of outward migration in search of better job prospects and living conditions. This highlights the need for policies that address regional disparities and create more equitable employment opportunities across the country.

The asset ownership gap in Armenia is even more pronounced than that of the employment opportunity. In 2016, 72.2 percent of men owned a dwelling either alone or jointly, while the same was true for only 48.5 percent of women. In addition, access to finance was more limited in Armenia than in Europe and Central Asia (ECA) region, with even larger gaps affecting women—in 2021, only 52 percent of women in Armenia held an account at a financial institution or mobile money provider, compared to 59 percent of men. Comparable data for ECA is 88 percent and 91 percent respectively. Understandably, the restricted access to finance limits opportunities for women to engage in and own businesses.

### 2.2.1. Understanding barriers faced by women-led enterprises in Armenia

The survey of owners of micro, small, and medium enterprises (MSMEs) in Armenia, conducted in 2020 as part of the gender baseline assessment under the Green Economy Financing Facility (GEFF) program, highlighted various factors that impact the success of women-led small and medium enterprises (WSMEs).

Social norms impact the success of WSMEs, as societal expectations often lead women to shoulder a disproportionate amount of unpaid care and household work, which reduces the time and energy they can dedicate to their businesses. Additionally, some female entrepreneurs prefer to share management and decision-making responsibilities with men, (44% of WSMEs surveyed share formal management and actual decision-making power with men), often because they consider them as more experienced. Gender role stereotypes can also deter women from pursuing entrepreneurial activities in the first place. Furthermore, women entrepreneurs often have limited access to business networks and mentorship opportunities, which are crucial for business growth and development. This lack of support can limit their exposure to new ideas, markets, and potential partners. These factors partially explain why successful WSMEs are overrepresented in the capital city of Yerevan, where networking is easier, social norms related to gender roles are less pronounced, and access to basic business supplies and services is more readily available.

As for business profiles, mirroring national statistics, women are predominantly involved in services, followed by agriculture, wholesale and trade, manufacturing, and food processing. They are also

active in the hospitality sector, as well as in the apparel and textile industry, though to a lesser degree. Women more frequently become self-employed or sole entrepreneurs than men, while men-led SMEs often rely on family members' informal help. The gender assessment also highlighted that there is a higher proportion of women-led businesses with less than 10 employees, whereas larger businesses are mostly male-led.

In Armenia, gender disparities in access to finance remain a significant barrier to economic growth and sustainable development. Despite various initiatives aimed at promoting financial inclusion, WSMEs often face greater challenges in accessing credit and financial services compared to their male counterparts. This reflects issues related to social inheritance practices and land privatization of the 1990s, which have contributed to greater access to productive resources for men than women. Participants in the qualitative study noted high interest rates and the highly collateralized nature of loans, which are significant obstacles.

Although the Armenian legislative framework provides equal opportunities and property rights to women and men, in practice, women are often at a disadvantage. During the post-independence period of the early 1990s, the government of Armenia began privatizing land by distributing it among households, and granted land ownership to the "head of the household," which could legally be a woman or a man. However, the majority of land was registered in the names of men, as the household heads by default. Furthermore, due to widespread traditional inheritance practices in Armenia, parents usually grant the house and other assets to sons.[21] A significant impediment to growth is the perceived higher risk of women borrowers, even though women in fact present a lower-financial risk.[22]

## 2.3. Development Challenge

### 2.3.1. Energy

The key development challenge that the project sought to overcome was how to incentivize Armenia's transition to a low-carbon and climate-resilient economy. The SREP fund is being used to overcome affordability issues in the installation of building-integrated RE in Armenia. On the supply side, the demand stimulated by the SREP grant program is supporting the scale up of installations and reduction of per-unit cost. On the demand side, the high visibility of the installations will lead to increased overall demand for these technologies, with the expectation of bringing their costs down through effects of economy of scale.

The Armenia GEFF project aims to help both the participating financial institutions (PFIs) and sub-borrowers through the provision of advisory services that would help identify investment opportunities and fine-tune potential investments. It also works with PFIs to build their capacity in assessing project eligibility and mitigating project risks. Investment financing for green economy investments is provided for best-in-class equipment through local private financial intermediaries, and investment incentives are given for certain types of high-performing green technology.[23]

### 2.3.2. Gender

Overcoming gender-specific barriers is a significant development challenge, as deeply rooted cultural norms, traditional views, and stereotypes continue to perpetuate gender inequality and often limit women's opportunities and reinforce discrimination in various spheres of life.[24] The underrepresentation of women is influenced by media portrayals that do not highlight their capabilities in areas of business and finance—a practice that can further reinforce societal biases and discourage women from pursuing financial independence and entrepreneurial ventures.

Limited institutional support, such as women-focused financial policies and products, makes it more difficult for women in Armenia to secure loans from banks and financial institutions compared to men. They typically

receive smaller loan amounts and are subjected to higher interest rates, despite credit portfolio data showing that lending to WSMEs may in fact be less risky than to their male counterparts.[25] Due to the unfounded perception of higher risk associated with women-led businesses, banks may apply stricter lending criteria to female borrowers.[26] This issue, compounded by limited collateral and credit histories among women entrepreneurs, leads many women to borrow money from relatives to start their businesses.

To address the gender barriers, multiple sources of the prevalent gender gaps should be addressed, including tackling cultural and social norms; strengthening and expanding insitutional support; improving the business environment; widening networking and community opportunities available to women; and developing risk assessment tools both generally and specifically targeted at women.

## 2.4. The Intervention

### 2.4.1. Energy

The European Bank for Reconstruction and Development's (EBRD) Green Economy Financing Facility (GEFF) program in Armenia provides finance in the form of commercially priced senior unsecured loans to five participating financial institutions (PFIs), including banks, microfinance and leasing companies.[27] The facility targets gender-responsive on-lending to private MSMEs and individual sub-borrowers, which will invest in small-scale renewable energy projects, and in water, energy, and resource efficiency projects. The initial project financing amounted to USD 17 million (see Table 1).

**TABLE 1.** Initial Armenia GEFF Project Financing

| SOURCE | FINANCING (USD MILLIONS) |
|---|---|
| EBRD | 12.00 |
| SREP | 3.00 |
| Private | 2.00 |
| **Total** | **17.00** |

*Source: CIF*

In addition to financing, the Armenia GEFF has a technical advisory component to engage consultants in the capacity building of participating financial institutions, and supports sub-borrowers to improve their operations, productivity, environmental sustainability, and quality standards.

The financing can be utilized by various entities, including private companies, enterprises, firms, and sole proprietors, which may invest in eligible fixed asset technologies. Examples of such technologies include equipment and machinery, transportation vehicles, and the construction of buildings, as detailed in the Green Technology Selector (GTS) (see Box 1). Vendors of equipment or materials listed on the Green Technology Selector can also use the financing for working capital investments, if they wish to participate in the Facility's vendor financing program. As listed on the Green Technology Selector, "green" technology manufacturers who are planning to sustain or expand the "green" part of their business are also eligible borrowers. The loans can be in Armenian Drams (AMD), US Dollars (USD) or Euros (EUR), and the financing is subject to the usual eligibility criteria of each participating financial institution.[28]

EBRD GEFF Armenia's innovative tool is the inclusion of financial incentives in the form of a cash-back option, payable to eligible sub-borrowers. These incentives ranged from the amount of 10 to 20 percent, depending on the technology.[29] Eligible investments include solar PV panels, solar water heaters, electric vehicle charging infrastructure, and solar batteries (not applying to feed-in tariffs), electric vehicles, or energy efficiency. The cash back is given at the end of the loan payment and is conditional on the verification of completed works and/or installed goods by an independent agent funded by the project.

## BOX 1. Green Technology Selector[30]

The Green Technology Selector (GTS) developed by the EBRD is a global-shopping-style platform that connects vendors of high performing green technologies with businesses and homeowners. The platform was developed with funding from the Austrian Federal Ministry of Finance and links vendors that have been pre-approved as eligible for the EBRD financing programs via local participating financial institutions. Each country participating in GEFF has a dedicated page of product/vendors.

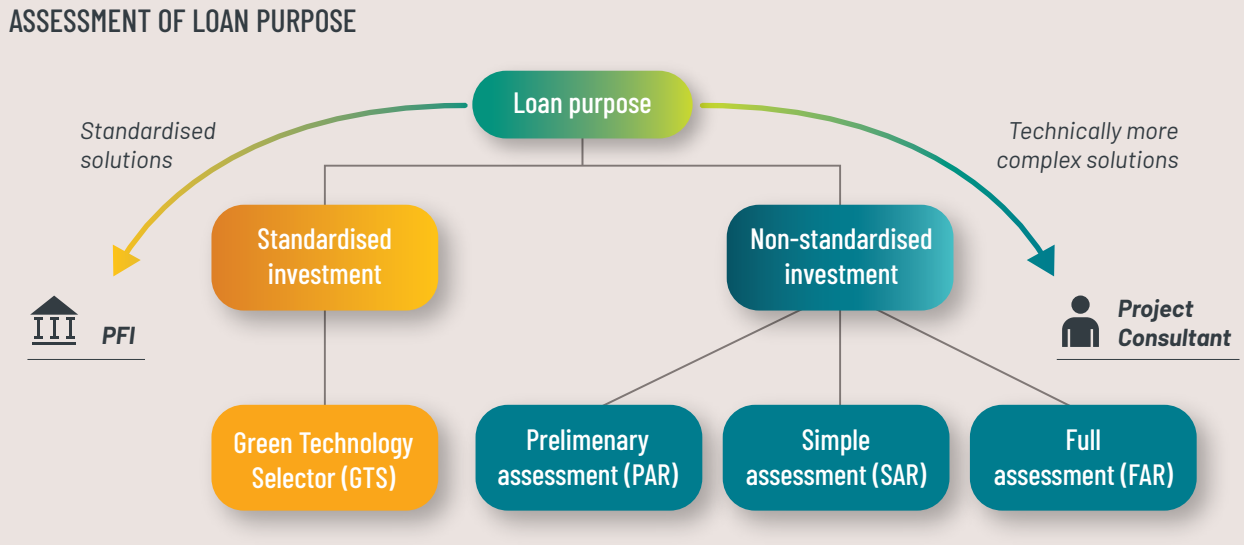
The GTS promotes technologies that are aligned with the principles, policies, and practices of the EBRD, including integrity standards, environmental and social policy, and a technical guide for green economy transition. The technologies must contribute to climate change mitigation and/or adaptation and conform to a minimum performance criteria and vendors must maintain updated product details. Products that do not conform to these criteria are removed from the GTS.

The GTS currently promotes approximately 39,000 technologies from more than 2,600 vendors, resulting in around 15,000 technology purchases each year. Buyers can identify suppliers of the green technologies that participating financial institutions want to finance. Vendors can register their technologies free-of-charge and upon verification and can access the markets where investment-ready buyers have access to finance. Lastly, PFIs can reduce transaction costs by referring to technologies that are already eligible for the EBRD financing programs.

The GTS, which is available via a web page (i.e., https://techselector.com/) and a mobile app, has permanent access for the users; allows for product search and comparisons; provides information about local suppliers; and provides daily updates.

There are two paths for assessing loans. In the case of loans for standard technical solutions, the PFI would apply its standard procedures, and the Green Technology Selector (see Box 1) would be utilized by the client to identify a vendor of the requested/required technology. In the case of technically more complex solutions, a project consultant, hired by the project, would conduct an assessment to review whether the project is eligible as presented, or if further assessment is needed, which will require the approval of the EBRD Operation Leader of the facility.

## FIGURE 1. GEFF Eligibility Assessment




*Source: Green Economy Financing Facility in Armenia: Targeted Finance to Commercial Sectors, EBRD presentation 2024*

Once the loan is fully paid off, an independent agent confirms the completion of works and/or installation of goods and advises the PFI, following the EBRD Operation Leader's approval, to release the payment of the cash-back amount. According to the interviewees, depending on the complexity and location of the SME, it may take up to two months for the repayments to be completed.

#### 2.4.1.1. COMPLIMENTARY INTERVENTIONS

The United States Agency for International Development (USAID) and the World Bank have been working closely with the government of Armenia to further liberalize the market. This collaboration has contributed to the implementation of further reforms to accelerate the transition to a green economy. In 2021, the Energy Strategy of Armenia was adopted, which aimed to increase PV capacity to 100 MW by 2024 and 1,000 MW by 2030.[31] This helped increase demand for PV and GEFF financing, leading to an additional financing request in 2022 of USD 15.75 million (see Table 2).

**TABLE 2.** First Additional Armenia GEFF Project Financing

| SOURCE | FINANCING (USD MILLIONS) |
|---|---|
| EBRD | 11.25 |
| SREP | 2.25 |
| Private | 2.25 |
| **Total** | **15.75** |

*Source: CIF*

Also, in 2022, an electronic electricity trading platform was introduced to facilitate free and open trading under the auspices of Armenia's PSRC, enabling a more open power market. The government of Armenia also adopted the Program on Energy Saving and Renewable Energy for 2022–30, setting out goals and targets related to renewable energy, energy savings, and climate change.[32] The reforms helped aid demand, and in 2024, an additional financing request for GEFF was made for USD 39 million (see Table 3), which included co-financing from the Green Climate Fund (GCF).

**TABLE 3.** Second Additional Armenia GEFF Project Financing

| SOURCE | FINANCING (USD MILLIONS) |
|---|---|
| EBRD | 22.5 |
| GCF | 7.5 |
| SREP | 5.5 |
| Private | 3.5 |
| **Total** | **39.0** |

*Source: CIF*

All additional financing has followed the same implementation model as the original investment.

### 2.4.2. Gender

Under the GEFF program, the EBRD worked closely with PFIs (i.e., banks, microfinance, and leasing companies) and end beneficiaries to (1) integrate gender considerations into the PFIs' management and operations, and (2) promote gender equality in green financing through awareness raising and capacity building.

To understand the existing challenges and provide an evidence base for female and male sub-borrowers regarding their awareness of and access to information related to climate change risks, as well as differentiated needs, priorities, and vulnerabilities to climate change, the EBRD implemented a baseline assessment. This evaluation identified interventions focused on addressing gender gaps in access to green finance. The EBRD worked with PFIs to mainstream gender considerations into their on-lending practices, with the aim to support women's and men's equal access to finance through capacity building on gender-responsive green finance. Furthermore, EBRD conducted awareness campaigns and training for both men- and women-led/owned SMEs to increase awareness of green financing opportunities, with a focus on highlighting constraints and specificities of gender financing.

# 3. DELIVERY CHALLENGES

## 3.1. Delivery Challenge 1: Weaknesses in Risk and Reward Perception

The project's key challenge was how to incentivize Armenia's transition to a low-carbon and climate-resilient economy, given the large market gap. A critical aspect of the incentive is related to the significant upfront cost associated with green technology that hindered users from purchasing it, as well as communities' limited awareness of the ongoing climate issues. Due to the urgency of climate action, rather than focusing on awareness, the project focused on the financial incentives to encourage users to adopt renewable energy (RE). The challenge, however, faced by the government of Armenia was how to incentivize without distorting the local RE market through the provision of subsidies.

Prior to GEFF Armenia, the EBRD's Caucasus Energy Facility project promoted energy efficiency technology and covered white goods,[33] providing valuable lessons for GEFF Armenia. Even though the SREP IP discussions brought up the opportunity to cover other goods, such as heat pumps (HPs), the general low awareness and lack of suppliers for them in Armenia was a major constraint. An opportunity was seen to invest in the promotion of HPs if the financing conditions were attractive. Similarly, there was much potential in supporting the growth of PV, solar water heaters (SWH), and biogas.

The EBRD wanted to move away from financing the retail of white goods, and there was demand from the banking system for renewable energy technology, despite its general lack of awareness of the technology. To address this barrier, the government of Armenia and the EBRD mobilized financing to create incentives and address market barriers, particularly through the cash-back mechanism and outreach, first to the PFIs, and then to businesses, to increase their awareness of these benefits.

## 3.2. Delivery Challenge 2: Gender Gap in Access to Green Finance

The intervention faced several delivery challenges due to the prevalent social and gender norms in Armenia. The challenges limiting WSMEs' access to green finance were found to be the result of the perceptions held by PFIs and the obstacles faced by female business owners. Several PFIs did not see the need for a gender-responsive approach to finance, arguing that no specific approaches or financial products targeting women should be viewed as policies promoting gender equality, as all sub-borrowers should be targeted in an equal way. Some PFIs had limited capacity to design approaches tailored to women, even though they agreed that this is an issue that needs to be addressed. The summary of interviews with PFI's management is provided in Box 2.

Moreover, women typically had lesser access to collateral, had to contend with social norms that could discourage lending to women, and showed a notable gap in awareness and understanding of green finance among women entrepreneurs, particularly in rural areas. The latter, was likely partly fueled by skepticism about women's ability to obtain green loans due to the preceding two factors.

While some of the challenges faced by women represented systemic issues that would be difficult for GEFF to address, the project worked to address delivery challenges related to gender. As described above, the EBRD and GEFF carried out a baseline assessment to better understand women's needs, worked with PFIs to integrate gender considerations into their lending, and provided training to women business owners to raise their capacity and awareness.

# 4. TRACING THE IMPLEMENTATION PROCESS OF GEFF

The Armenia Green Economy Financing Facility (GEFF) was approved by the EBRD's Board in 2018, and through EBRD's engagement with financial institutions on the ground, participating financial institutions (PFIs) were identified to participate in the facility and work with the EBRD on the implementation of green financing approaches.

## 4.1. Changing Risk and Reward Perceptions: Building Awareness and Shifting Incentives

The first challenge to implementing the GEFF program was the need to build awareness within PFIs. Interviews with the selected PFIs confirmed that before the program, there was no dedicated green financing option for the private sector to access, and all financing followed the PFI's regular loan approval processes, making financing more expensive and cumbersome. Initially, much of the EBRD's efforts focused on raising awareness and building the capacity of PFIs to recognize the need for and importance of this type of financial instrument. Building on the efforts to raise awareness and strengthen capacity, the cash-back option enhanced the program's appeal and helped drive market interest.

One lesson from the Caucasus Energy Facility project was that financing alone could not be successful without an incentive. Considering that commercial banks struggled with on-lending and would need help, the government of Armenia and the EBRD mobilized financing to create incentives to address some of the market barriers. Even though there was awareness about the benefits and payback period of the sub-loans to be given, the key challenge was to identify the correct incentive. At the time, the EBRD had experience of providing incentives in other countries, but not in lower-income countries.

Furthermore, in Armenia, the definition of a small and medium enterprise (SME) encompasses a smaller-scale business than in the EU,[34] presenting an additional challenge due to the difference in scale. A key consideration was to not subsidize pricing or financing, but to undertake full pass-through for the promotion of the green technology. Even though previous experience had shown that when promoting technology, having loss-cover (insurance) was effective, in the case of renewable energy (RE), a survey prior to the GEFF project determined that it was not relevant.

At the start of the project, the proposed solution was the cash-back incentive. To mitigate the "no risk cover," the financing was limited to low-risk segments of RE and was rolled out in phases. The first phase (i.e., GEFF Armenia and two additional financing rounds) was used to calibrate the incentive mechanism, while the subsequent phases would be used to gradually reduce the grant intensity as the market gains experience and gets accustomed to the technology and financing mechanisms.

The initial PFIs that partnered with the program were ACBA Leasing, INECOBANK, ArmSwissBank, and AmeriaBank, followed by HSBC Bank Armenia. The next challenge to overcome was how to market the new fund program to SME clients.

At the beginning of GEFF, the approach was primarily supply-driven, with PFIs reaching out to their customer base to promote the program. An external factor encouraging SMEs to seek financing from PFIs was the EU's requirement for greater energy efficiency in products exported to its market. As SMEs began approaching PFIs for financing of more energy-efficient equipment, PFIs used these opportunities to market the new instrument. For example, LA Solar, a solar panel manufacturing company that started in


2019 with 30 employees and a manufacturing capacity of 90 MW, by 2023, it had reached 60 employees and a manufacturing capacity of 350 MW. As a result of this continued expansion, LA Solar approached a PFI for financing, and was then informed about the GEFF program. Initially, nearly all of the company's production was intended for export. In 2022, for example, 90 percent of its production was destined for export. However, this percentage gradually decreased as the internal market grew, with 70 percent of production destined for export in 2023.[35]

Another example of a PFI marketing the program to an SME is Artiki PHK LLC, a textile recycling business, which found out about GEFF during negotiations about another loan utilizing the government subsidy program.[36] The company sought to install around 550 MW of solar capacity to help stabilize its energy supply, and invested USD 288,500 from the GEFF program. A third example is Vedi Alco Winery, which now powers more than 50 percent of its energy using RE. It was during the installation of solar panels in one of their factories that the owners learned about the GEFF program, which led to the installation of PVs in a second factory with financing from GEFF.[37] As the market matured and local equipment suppliers became available, PFIs began collaborating with them. Local suppliers would refer their clients to the PFIs, who would then introduce them to the GEFF program.

Where an SME approached a PFI for a regular business loan, it was challenging to justify why the SME should buy RE equipment. The lack of awareness of climate change issues was also highlighted by the Ministry of Environment,[38] which pointed out that to attract clients to adopt RE initiatives, the program has to demonstrate clear financial benefits through concessional loans and subsidy or financial incentives.[39] Otherwise, communities, which tend to be price driven, will revert to traditional energy sources. One PFI stated that they did not use the "good for climate" argument to market the program, but they rather used the payback benefits as the selling point for new clients. Other PFIs commented on how clients often return for another green-related loan, once they experience the advantages of installing green technology.

A few approaches were used by PFIs to attract clients. In some instances energy audits were performed to show the benefits of purchasing more energy-efficient equipment. First, eligibility assessments for the GEFF program were conducted free of charge for the potential client. Second, a project's consultant assisted the overall process by bringing together the PFI and the potential client and informing both sides of the future energy gains and long term lower costs of electricity. The consultant also assisted the PFI in evaluating the client's proposed program, providing financial modeling and risk assessments to help package the loan structure. One PFI exemplified how the technical assistance (TA) aided a client to install solar PVs.

A PFI held a promotional event about the program with 20–30 clients and vendors, while another PFI conducted awareness workshops and seminars. As the program matured, PFIs started to share success stories with clients, presenting concrete examples of savings that were achieved by the respective projects. In terms of what benefits were marketed, at the time of writing this report, most PFIs monitored their clients' financial savings, but not the energy impact.

An unexpected output of the project was that most technology purchased through the program included solar PV, production equipment, transportation, construction, and medical equipment, rather than heat pumps (HPs) or solar water heaters (SWHs). During the project design phase, however, it was expected that the main investment would be in HP or SWH, which is why 55 percent of the project's USD 17 million funding was initially allocated to these technologies and only 15 percent to rooftop PV.

## 4.2. Addressing Gender Gaps

Women face a variety of challenges in accessing green finance. Women business owners who were interviewed for this report highlighted several issues that impede efforts to ease their access to finance, including to green loans. Some of these key issues are:

1. **Lack of collateral:** Women often lack access to collateral, which is a significant barrier to obtaining loans, even if other issues, such as those related to social norms, are addressed. As is often the case with gender gaps, this is a result of cross-sectional factors, such as the custom of bequeathing assets to male offspring.

2. **Social norms:** Traditional social norms and stigma make financial institutions skeptical about lending to women-led businesses. Despite evidence to the contrary (see Box 2), women are often seen as being less responsible or lacking the abilities to manage financial matters.

3 **Lack of awareness and knowledge:** There is a notable gap in awareness and understanding of green finance among women entrepreneurs, particularly in rural areas. However, this lack of awareness is at least partially fueled by skepticism about their ability to obtain green loans due to the factors described earlier. Women are also less likely to borrow money from financial institutions due to traditional social norms and stigma.

The interventions that were advanced under GEFF could not address all identified delivery challenges, as some obstacles, such as lack of collateral, required more comprehensive efforts by various stakeholders who were outside GEFF's scope. Nevertheless, the project committedly addressed challenges related to knowledge and awareness. In particular, GEFF launched a green finance training program, which focused on understanding the economics of green finance and helping participants to prepare and submit their loan applications to PFIs. Women participants reported that during the training, they developed a better sense of the available opportunities and a better perception of access to networking and mentoring opportunities. At the same time, a shift in perception among participating PFIs helped drive the necessary institutional improvements, promoted the marketing of financial products to women, and increased awareness of the actual level of risk associated with female borrowers.

The selection criteria for women participating in green finance training programs varied to ensure broad representation and inclusivity. Some participants volunteered, while others were recommended by business associations, or selected through specific criteria set by the training organizers.

### 4.2.1. Effectiveness of the training

Feedback from participants was generally positive, indicating that the training was beneficial. However, follow-up initiatives to measure the long-term impact of the training did not occur; hence, it was not possible to collect information about whether participants were more likely to take up green loans.

### 4.2.2. Women who took up green loans

According to women entrepreneurs who took up green loans, the financial incentives, and the potential for reduced operating costs were the key motivators for their action. Also, they cited that energy audits helped them to understand the return on payment period of their investments. Overall, the training that was provided as part of the loan program was beneficial, but accessing the loans remained challenging due to bureaucratic hurdles and PFIs' stringent documentation requirements.

### 4.2.3. Women who did not take up green loans

Women who participated in the training but did not take up green loans mentioned several obstacles, including high interest rates, complex application processes, and lack of information on the benefits of green finance. Many suggested that more personalized support and simplified loan procedures could improve uptake rates.

### 4.2.4. Outreach and follow-up with women participants

There was limited outreach to women who participated in the training but did not take up green loans. Financial institutions and training organizers recognized the need for more comprehensive data collection methods, such as organizing focus groups with the women to understand their challenges and reasons for not pursuing green loans. This was an important input for conclusions and lessons stemming from the project implementation.

## BOX 2. Insights from financial institutions on women financing

According to feedback collected from interviews with local participating financial institutions of Armenia, they are instrumental in distributing GEFF funds, and helping women-led small and medium enterprises (SMEs) in Armenia, including in rural areas, gain access to green financing opportunities.

Some financial institutions, according to an interview with the leasing company, demonstrate their commitment to providing access to green financing by actively integrating green components into their financial products, while recognizing that this would not be possible without the EBRD's programs. Even though customers have begun to recognize the financial benefits of leasing energy-efficient equipment, further efforts are needed to support specific targeting of women-led SMEs and there is still a lack of women-focused loan products.

One of the banks highlighted in their interview that no focused analysis is conducted on the participation of women-led businesses, even though that bank offers more favorable conditions to women borrowers. The bank personnel also stated that women borrowers are less risky and more responsible in repaying loans; however, there are still no policies related to promoting loans to women-led SMEs, resulting in a low participation rate of women-led businesses in their portfolio.

Another bank actively markets green loans to women by providing targeted consultations, awareness, and capacity building, even though financing terms remain the same. Share of businesses with significant female ownership, management, or employment is much higher in this bank's portfolio, and the institution has collected data that support the perception that women-owned SMEs tend to be more diligent and less risky in loan repayment. This data should be leveraged to promote described practices in supporting access to green financing for women. Interviews revealed regulatory challenges in promoting green finance, including bureaucratic hurdles, inadequate supportive legal frameworks, and compliance issues with environmental regulations. Finally, one of the interviewed financial institutions encountered challenges with disbursing green loans due to regulatory requirements and high interest rates.

## 4.3. Moving into Phase II

The experience of the project has demonstrated that the current value of the cash-back option has been properly calibrated, and the incentives program is the program of choice for prospective clients who seek support for green energy investments. Furthermore, as one PFI noted in an interview, there are more solar panel suppliers in Armenia than there were five years ago, demonstrating the establishment of the RE market in the country. PFIs expected the continued growth of the market, given the ongoing policy and regulatory changes. The EBRD and the government of Armenia aim to support market growth while maintaining a balance and ensuring the effectiveness and sustainability of the program. As such, the next phase of GEFF, starting in 2024, will continue with the cash-back option, but with a reduced incentive level, which is still being defined. Regardless of the level of incentives, some PFIs expressed that while there might be a slight slow-down, green financing will not disappear in Armenia; on the contrary, some PFIs noted that they are now facing competition from other financial intermediaries that have recently entered the RE market.

Furthermore, there is a continued need to integrate gender considerations in green financing, given the deep-rooted cultural and social norms in Armenia. In GEFF's next phase, the EBRD will continue to work with PFIs on incorporating a gender lens to green lending and strengthening sex-disaggregated data collection. Subsequently, the EBRD will engage with women sub-borrowers to promote their demand for green finance.

This is already demonstrated by several notable projects approved by the EBRD in 2024 that are aimed at promoting renewable energy, green technologies, and sustainable development, while facilitating gender equality:

- Green Economy Financing Facility (GEFF) for Egypt: This €140 million program supports energy efficiency and small-scale renewable energy investments through participating financial institutions, combined with EU-backed technical support and incentives. It aims to strengthen energy security and enhance competitiveness in the private sector. This program emphasizes the inclusion of women entrepreneurs, facilitates access to green financing for women-led businesses and encourages gender equality in the renewable energy sector.
- Renewable Energy Projects in Kazakhstan: The EBRD provided financing for initiatives promoting sustainable energy solutions, including solar and wind energy projects. These initiatives promote the inclusion of women in technical training and workforce participation in renewable energy sectors.
- Expansion of the GEFF Framework: The GEFF initiative was rolled out in various countries, including West Bank and Gaza and Georgia, to finance renewable energy, energy efficiency and circular economy projects, particularly targeting MSMEs and residential sectors. This gender-responsive initiative strengthens local supply chains, while the Climate Investment Funds further incentivizes green technology adoption among MSMEs, fostering inclusive and sustainable growth.
- Support for Agribusiness and Sustainable Infrastructure: In addition to energy projects, the EBRD invested in agribusiness and infrastructure, incorporating energy-efficient and resource-efficient solutions across its operational regions. These solutions aim to empower women in rural areas by enhancing their access to resources, training, and employment opportunities.

# 5. RESULTS

The project largely exceeded its targets and was acknowledged as effective by both PFIs and borrowers. The Scaling Renewable Energy Program's (SREP) results achieved by the project, as of December 31, 2023, are as follows:

**TABLE 4. Project Results (as of December 31, 2023)**

| RESULTS INDICATORS | TARGETS | RESULTS |
|---|---|---|
| Annual electricity production | 59,980 MWh/year | 62,854 MWh/year |
| Annual GHG emissions reduced/avoided (tons of $CO_2$ equivalent) | 22,091 | 27,279 |
| Beneficiaries (men) | 8,000 | 8,968 |
| Beneficiaries (women) | 10,000 | 5,651 |

*Source: CIF*

## 5.3.1. Effectiveness of program rollout

As shown in Table 4, quantitatively, most SREP results indicators for the Armenia Green Economy Financing Facility (GEFF) project have surpassed their targets, except for the number of women beneficiaries. Qualitatively, feedback from the four interviewed participating financial institutions (PFIs) and several clients who received loans through the program was overwhelmingly positive. One PFI reported that 20–25 percent of their large clients were repeat clients,[40] while another reported that 60 percent of their clients were repeat clients.

Despite the increasing availability of programs designed to promote and encourage renewable energy (RE) usage, EBRD GEFF still stands out as the favored choice for borrowers. During the time when GEFF was being implemented, the government rolled out a subsidy program in 2019, while another donor began to implement a green loan program. In instances where clients were offered all three programs, PFIs reported that GEFF was overwhelmingly borrowers' top selection. When asked why they chose the GEFF program over others, participating small and medium enterprises (SMEs) unanimously cited the cash-back incentive as their primary rationale. Furthermore, in many instances, the clients mentioned that without the cash-back option, they probably would not have taken the loan. SMEs reported using their savings/cash back in a variety of ways, from paying off loans earlier to expanding their production lines. The programs differ in several ways. For example, the government subsidy program can lower the cost of items by 10 percent, while the cash-back option offers a potentially greater return. In the case of the donor loan program, the given loan pricing is lower and has a longer payback period, but its approval process is more complex than GEFF's.

PFIs and SMEs also highlighted the benefits of the project's technical assistance (TA), which enabled them to work together to optimize the proposed solutions. As PFIs were gradually dealing with more informed clients due to the growth of the local RE markets, the TA helped them build their staff members' capacity to deal with green financing. For example, one PFI noted that their staff's improved understanding of benchmarking helped reduce loan processing time, ultimately improving the PFI's turnaround time. Furthermore, the TA was seen to improve the quality of investments. As a final point, the project resulted in a rise in green funding in Armenia, prompting other financial institutions to enter this emerging market.

# 6. CONCLUSIONS AND LESSONS

## 6.1. GEFF's Approach: Leveraging Technical Assistance and Cash-Back Option to Catalyze Green Financing and the Renewable Energy Market

Throughout the implementation of the program a few factors influenced the type and size of investments in Armenia. Essential for the progress of Armenia's green economy is the development of a green taxonomy—the lack of which was highlighted by government officials, participating financial institutions (PFIs), and small and medium enterprises (SMEs). A green taxonomy will establish a standardized policy and legal framework, which will enable the government of Armenia to promote local green investments, using clear, consistent criteria. For this reason, the government of Armenia and the World Bank partnered to develop Armenia's green taxonomy, which will lay the foundation for robust and sustainable green financing ecosystems (e.g., monitoring and reporting of KPIs) in the country.

Another consideration among SMEs regarding the installation of PVs was the licensing. Up until 2022, a license was a necessary requirement for installations of more than 500 kW of solar PV. In 2022, however, the value of solar PV was lowered to 150 kW, posing capacity challenges for smaller enterprises, which were likely to have wanted to install more than this amount, given the difficulty of navigating the time-consuming requirements for obtaining the license.

Regarding the level of ease of accessing GEFF financing, all interviewed participants and PFIs attested to the program's ease of navigation compared to the government's subsidy program or other donor programs in the country. Nevertheless, there were requests to further simplify the process, and increase the span of eligible technologies under the program, as well as a desire to shorten the verification period to enable faster payback at the end of the loan.

The Scaling Renewable Energy Program's (SREP) GEFF Armenia was instrumental in helping to promote investment in green technologies, primarily thanks

to the project's cash-back mechanism, which was an essential incentive for SMEs. This was clearly illustrated by the fact that SMEs took up loans to install RE technology, sometimes without previous planning to do so. Also, feedback from some SMEs that they would not enter into loan agreements, were it not for the cash-back option, demonstrated the project's relevance and effectiveness. Overall, GEFF financing has been constantly favored, even though the government of Armenia implemented a subsidy program, and other donors have made green financing available.

The catalytic and transformational impact of the financing can be seen in the continued interest of PFIs in green financing, even beyond the completion of GEFF. Green financing is now widely available in Armenia,[41] and financial institutions are fully engaged in the sector. This shift also reflects the development of a robust market with local suppliers—where previously, such suppliers were rare.

What became also clear was the tangible benefits of the technical assistance for both PFIs and SMEs to structure tailored financial loans according to the necessary green technological needs and guide SMEs to create effective RE projects. The increased capacity of PFIs and SMEs can be seen in the speed with which additional financing was approved and used within a relatively short period.

Cash-back levels of 15–20 percent provided sufficient incentives for SMEs to get involved, but moving forward, the question to be answered is how to lower this number without compromising the effectiveness of the program. The experience of GEFF Armenia has shown that the overall design and mechanism is effective, even in a lower-to-middle-income country.

## 6.2. Gender

Addressing gender disparities in access to green finance is critical for promoting inclusive and sustainable economic growth in Armenia. GEFF Armenia offered training on gender-responsive green finance to PFIs to enhance their understanding of women's and men's different vulnerabilities to and awareness of climate change risks, and training on the differentiated needs of women sub-borrowers to address unconscious bias within on-lending practices and promote women's access to the GEFF credit line. Moreover, women entrepreneurs received capacity building training on financial literacy and participated in awareness-raising activities to help them increase their chances for access to finance and manage their business effectively.

The EBRD, via the facility consultant, collected sex-disaggregated data to track the impact of the facility through a gender lens. While significant progress has been made, there is a need for continued efforts to support women-led SMEs, simplify loan processes, and continue raising awareness of the benefits of green finance. By implementing these recommendations, financial institutions and policy makers can create a more inclusive financial ecosystem that supports the participation of women in Armenia's green economy. Consequently, to address the existing gaps, a combination of interventions will be needed, including:

1. **Enhanced data collection:** Financial institutions should utilize GEFF sex-disaggregated data and embed it in their systems to better understand the barriers women face and design targeted interventions.

2. **Simplified loan processes:** Simplifying the application process and providing personalized support can help increase the participation of women-led SMEs in green finance.

3. **Exploring new financial instruments:** By addressing the gap between perceived risk and the actual lower risk profile of female borrowers, new instruments can be offered to the market, such as financial risk insurance or a first-loss facility. These could improve access to finance for women in an economically sustainable way.

4. **Awareness campaigns:** National awareness campaigns focusing on the benefits of green finance can help increase interest and participation among women entrepreneurs.

5. **Technical assistance:** Continued technical assistance and capacity building programs are crucial to support women in understanding and accessing green finance.

# ENDNOTES

CLICK ON ANY NOTE TO GO BACK TO THE REFERENCED PAGE


→ 1 Climate Investment Funds, *CIF Gender Policy (Revised)*, (2018), https://www.cif.org/sites/cif_enc/files/knowledge-documents/joint_ctf-scf_17_4_rev.1_cif_gender_policy_rev1_2_final.pdf.

→ 2 Climate Investment Funds, *Mexico: The Contribution of the Forest Investment Program to Forest and Climate Goals*, (2021), https://fmcn.org/uploads/publication/file/pdf/FIP_Case%20Study.pdf.

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→ 6 Caucasus Green Economy Financing Facility (GEFF) – SREP Armenia Renewable Energy Grant Support Cover Page for Project/Program Approval Request (2018).

→ 7 Republic of Armenia, *Scaling Up Renewable Energy Program (SREP) – Investment Plan for Armenia*, (2019), https://www.cif.org/sites/cif_enc/files/meeting-documents/srep_update_ip_armenia_06.12.2019.pdf.

→ 8 International Energy Agency (IEA), "Armenia: Energy Profile – Overview," (2023), https://www.iea.org/reports/armenia-energy-profile/overview.

→ 9 Scaling Up Renewable Energy Program (SREP) – Investment Plan for Armenia.

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→ 12 Caucasus Green Economy Financing Facility (GEFF) – SREP Armenia Renewable Energy Grant Support Cover Page for Project/Program Approval Request, (2018).

→ 13 Scaling Up Renewable Energy Program (SREP) – Investment Plan for Armenia.

→ 14 Ibid.

→ 15 Ibid.

→ 16 Caucasus Green Economy Financing Facility (GEFF) – SREP Armenia Renewable Energy Grant Support Cover Page for Project/Program Approval Request, (2018).

→ 17 The technologies chosen were identified through comprehensive analyses and stakeholder consultations, which aligned well with SREP's objectives at the time of investment plan (IP) preparation. Initially, these covered geothermal heat pump and solar thermal. In 2019, during a revision of the IP, biogas and solar PV were added as eligible RE technologies.

→ 18 Caucasus Green Economy Financing Facility (GEFF) – SREP Armenia Renewable Energy Grant Support Cover Page for Project/Program Approval Request, (2018).

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→ 20 United States Department of State, Bureau of Democracy, *Human Rights and Labor, Armenia 2018 Human Rights Report*, (2018), https://am.usembassy.gov/wp-content/uploads/sites/92/hrr2018.pdf.

→ 21 International Finance Corporation, *Women Entrepreneurship Study in Armenia*, (2021), https://documents1.worldbank.org/curated/en/911301621224449437/pdf/Women-Entrepreneurship-Study-in-Armenia-Qualitative-and-Quantitative-Study-Synthesis-Report.pdf.

→ 22 As assessed by financial intermediaries interviewed for the purposes of this case study.

→ 23 Examples include (but are not limited to): primary agriculture (e.g., tractors, greenhouses, ventilators), food processing (e.g., ovens, air compressors), buildings (e.g., improvement of buildings, PV technology, etc.), logistics and transportation (e.g., trucks, forklifts), textiles and garments (e.g., washing machines, cutting machines), and hospitality (e.g., automated systems, solar hot water systems, combined heat and power).

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→ 25 As corroborated in later sections of the case study through interviews with PFIs.

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→ 27 The PFIs for the Armenia GEFF are Ameriabank, ArmSwissBank, INECOBANK, Acba leasing, and HSBC.

→ 28 Green Economy Financing Facility, "Eligibility Criteria," https://ebrdgeff.com/armenia/eligible-projects/.

→ 29 Under the first round of GEFF, the following technologies are eligible for an investment incentive of 20 percent:

→ Commercial rooftop or building-integrated photovoltaic power generation that does not exceeding acapacity of 150 kW;

→ Solar thermal heating installations;

→ Biogas installations;

→ Geothermal heat pump installations.

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→ 31 Business Unusual, Transition Report 2022–23, Country Assessments: Armenia.

→ 32 Ibid.

→ 33 White goods refer to refrigerators, ranges, air conditioning units, washing machines, etc.

→ 34 An SME in Armenia has <250 employees, an annual turnover of <+EUR 3,557,000 and a balance sheet of <+EUR 2,371,000. An SME in the EU has <250 employees, an annual turnover of <+EUR 50,000,000 and a balance sheet of <+EUR 43,000,000. [Source: OECD, SME Policy Index: Eastern Partner Countries 2024, https://www.oecd-ilibrary.org/development/sme-policy-index-eastern-partner-countries-2024_d5143f3f-en.]

→ 35 An additional attraction is that Armenia is exempt from duties on exports to the US of PV panels.

→ 36 Green Economy Financing Facility, "Recycling is Even Greener with Renewable Energy – GEFF in Armenia," https://ebrdgeff.com/armenia/projects/recycling-is-even-greener-with-renewable-energy/.

→ 37 Green Economy Financing Facility, "Harvesting Efficiency: A Wine-Maker's Journey," https://ebrdgeff.com/projects/harvesting-efficiency-a-wine-makers-journey/.

→ 38 Interview conducted with the Ministry of Environment, March 12–15, 2024.

→ 39 In Armenia, SMEs can access either the government subsidy program or financial incentives, such as GEFF, but cannot "double-dip."

→ 40 Small clients can generally only afford one investment.

→ 41 Interviews carried out in Armenia, March 2024.

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