

“EU4Climate” UNDP-EU/00115652  
Regional Project

## FINANCIAL TOOLS FOR PROMOTION OF CLIMATE CHANGE TECHNOLOGY TRANSFER

Tigran Petrosyan  
Expert

---

# CONTENT

<b>CONTENT .....</b>	<b>1</b>
<b>INTRODUCTION .....</b>	<b>2</b>
Green credit lines .....	3
Applying credit lines at significantly lower market rates may inadvertently exclude funds from other sources, thereby reducing the potential of development of climate change programs. ....	5
ON-Bill Financing Model .....	6
Remittance based payment model .....	6
Energy Service Companies (ESCO) .....	7
Green bonds .....	8
<b>MAP OF FINANCIAL TOOLS AND INCENTIVES IN THE REPUBLIC OF ARMENIA .....</b>	<b>10</b>
«Jerm Ojakh» Program .....	11
GAF Energy Efficiency Programme for MSMEs .....	12
EBRD GCF-GEFF ARMENIA ENERGY EFFICIENT LENDING PROGRAM.....	13
HOUSING ENERGY EFFICIENCY LOANS.....	14
ADAPTATION PROGRAMS.....	15
FINANCIAL INCENTIVES IN THE REPUBLIC OF ARMENIA.....	16
<b>CLIMATE PROGRAM FINANCING PROBLEMS, OBSTACLES FOR EXPANDING: POSSIBLE SOLUTIONS .....</b>	<b>17</b>
Credit Products .....	17
Remittance based model.....	18
Financial Incentives .....	19
Armenian Market of Green Bonds (or its absence) .....	19
<b>References.....</b>	<b>21</b>
<b>Annex.....</b>	<b>22</b>
<b>MITIGATION.....</b>	<b>23</b>
GAF Energy Efficiency Program for MSMEs.....	23
HOUSING ENERGY EFFICIENCY LOANS within Housing finance, 4th phase program implemented by National Mortgage Company.....	24
Jerm Ojakh.....	25
EBRD GCF-GEFF ARMENIA energy efficient lending program.....	26
<b>ADAPTATION .....</b>	<b>27</b>
Subsidized Loans for Implementation of Modern irrigation systems .....	27
Subsidized Loans for Implementation of Anti-hail Nets in the agriculture .....	28
Subsidized Loans for Establishing Intensive Fruit, Berry Gardens and Vineyards Cultivated by Use of Modern Technologies .....	29

## INTRODUCTION

This report has been produced as part of the EU4Climate project. Further EU support to Eastern Partner countries to modernize the economy with a focus on action on the environment, circular economy and climate to reduce emissions will be provided through the new EU-funded programme EU4Climate. The EU4Climate programme is designed to support implementation of the Paris Climate Agreement and to improve climate policies and legislation.

The Eastern Partnership (EaP) is a joint policy initiative which aims to deepen and strengthen relations between the European Union (EU), its Member States and its six Eastern neighbors: Armenia, Azerbaijan, Belarus, Georgia, Moldova and Ukraine.

Limiting the rise in average global temperatures to 2°C and reducing the vulnerability of economies, ecosystems and societies to the adverse effects of climate change requires an unprecedented reorientation of economic activity towards a low-carbon development pathway. A principal challenge for the financial sector will therefore be to shift existing investment flows from traditional carbon-intensive sectors towards the low-carbon economy.

The purpose of the report is to study the role and impact of financial instruments on mitigation and adaptation processes. The use of financial instruments and the expansion of their composition contribute to expanding access to energy-efficient technologies. Focusing on financial instruments does not mean underestimating the role of other initiatives or economic incentives; moreover, in some cases, unjustified “abusement” of financial instruments may limit the transfer of technology and even compensate the benefits of other incentives.

Obviously, climate change solution assumes measured combination of initiatives and actions that result in the creation of effective incentives to promote the transfer of Climate change technologies.

**While studying the international experience of applying technology transfer financing instruments, the opportunities for their application in Armenia have been taken into account, highlighting the importance of expanding the financial instrumentation and emphasizing the need to invest and develop those financial instruments in Armenia which, together with the attraction and allocation of funds, also envisage bringing together the public on the challenges of climate change, contributing to the transformation of broader public perceptions and behaviors.**

## INTERNATIONAL EXPERIENCE OF FINANCING CLIMATE CHANGE

The redirection of financial flows to the low-carbon economy implies the unconditional participation of the private sector, including international corporations, small and medium-sized enterprises, and households, whose total volume of investments can make up more than two-thirds of climate-focused investments.

To ensure the growth of investments in energy efficiency, a wide range of financial instruments and solutions (financing methods) is necessary. There are many ways to classify financial instruments, below is a generalized version:

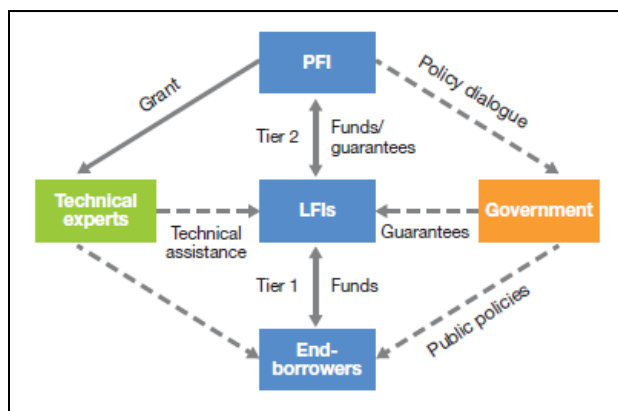
- Debt instruments
- Equity instruments
- Grants
- Risk reduction tools

Some of the above tools and their subtypes will be discussed in detail in this report.

### Green credit lines

Commercial banks, investment funds and credit organizations have may play an important role in promoting small investments. Those organizations are faced with the problem of bringing the "long" money and the international financial institutions respond to this problem by way of creating a so-called "green" credit lines.

Green credit lines are financial intermediation tools for lending mitigation and adaptation therefore they are conditionally called Green. Under a GCL, funds are typically extended by a PFI



to participating LFIs – such as commercial banks, specialized financial institutions and non-banking credit organizations – that in turn on-lend them to developers of eligible green projects.

GCLs may include special financial conditions, such as reduced interest rates, longer tenors, increased grace periods or incentive payments. GCLs may also include technical assistance (TA), which is usually funded by a

PFI and aims at building capacity of local banks to provide loans to green investment projects and/or capacity of end-borrowers to structure investment proposals.

Standard loan flow is presented on the chart.

In accordance with the GCLs procedure, funds from the International Finance Organizations are distributed among participating local financial institutions, which in turn carry out the lending process. International Finance Organizations may cooperate with national development (Central) banks (NDBs), which in turn extend GCLs to either LFIs for on-lending, or directly to end-borrowers.

Specific benchmarks, target groups or focused beneficiaries may be defined by the International FI.

**Due to traditional fundraising approaches, the use of green credit lines remains one of the most effective financing tools for climate project financing**

The largest providers of GCLs – including the EIB, the EBRD, the Inter-American development Bank (IDB), Kreditanstalt für Wiederaufbau (KfW), the International Bank for Reconstruction and Development (IBRD), Agence Française de Développement (AFD), the International Finance Corporation (IFC) and Japan International Cooperation Agency (JICA) – have each more than EUR 1 billion outstanding green credit lines, with IDB's, EIB's, EBRD's and AFD's active portfolios exceeding EUR 2 billion each. These major providers focus on different regions.

GCLs make available for local FIs with long-term low-interest money, which solves the problem of the relatively longer duration of climate programs, especially adaptation programs.

Listed below are the main barriers to lending related to financing of climate change programs at two key levels: attracting capital and allocating it to the final beneficiary.

## CLIMADAPT

### Tajikistan

The Climate Resilience Financing Facility (CLIMADAPT) is a USD 10 million credit line programme to facilitate access to climate resilient technologies in Tajikistan. Partners in the EBRD programme include the government of Tajikistan, the Climate Investment Funds, and the United Kingdom. Concessional finance is disbursed through five local Micro Finance Institutions (MFI) for on-lending to local households, farmers, and SMEs. Loans are provided in the local currency, protecting borrowers from foreign exchange risk. A positive list of pre-approved technologies and suppliers available was established to support local MFIs understanding of what constitutes a green loan, to increase MFIs' abilities to market them to potential borrowers, and to ease the due diligence process, which can otherwise be too burdensome for small loans. Eligible residential homeowners can access loans from USD 500 to USD 300'000 to invest in energy efficiency systems and building insulation. As of 1 October 2018, within the programme about 3400 projects were financed.

It should be noted that barriers are common to almost all countries, especially to developing countries, where donors or large financial institutions play an important role in securing capital.

TABLE 1. BARRIERS TO DEVELOPMENT OF GREEN LENDING BY LOCAL FINANCIAL INSTITUTIONS (LFIS)

<b>General investment environment barriers</b> <i>(at the national and subnational level)</i>	<b>Economic barriers:</b> low risk-adjusted returns for green investments due to weak, unstable or absent climate and environmental policy, fossil fuel subsidies <b>Financial barriers:</b> high real and perceived risks, large upfront investment needs, high cost of capital for low-carbon investments compared to returns <b>Legal barriers:</b> insufficient financial sector regulations
<b>Demand-side barriers</b> <i>(from project developers' side)</i>	<b>Low awareness:</b> lack of understanding of climate investment opportunities <b>Prevailing business practices:</b> preference for near-term benefits instead of long-term savings and revenue streams <b>Lack of in-house capacity</b> to develop sound investment proposals for LFIs
Supply-side barriers <i>(from Local Finance Institutions' side)</i>	<b>Lack of access to long-term capital</b> for matching long-term climate investment horizons <b>Low awareness and lack of capacity</b> to perform the operational steps involved in green lending <b>Unsuitable lending practices</b> of banks that do not match the requirements of private climate investments <b>Lack of risk management mechanisms</b> <b>High up-front costs and risks</b> for developing new business lines in green lending

Along with a number of advantages associated with the GCLs, they may result in market distortions affecting the competition among local institutions also providing green financial products, but not part of the GCL.

**Applying credit lines at significantly lower market rates may inadvertently exclude funds from other sources, thereby reducing the potential of development of climate change programs.**

## ON-Bill Financing Model

The model enables energy utility customers to acquire energy efficient equipment, mainly large home appliances, and to pay for the equipment over time through their monthly utility bills. This means that the energy cost savings equal or exceed debt service, resulting in a lower total bill (debt repayment and electricity) after retrofit. There are several ways to structure on-bill financing models:

- ✓ In one approach, the utility incurs the capital cost of the energy efficiency upgrade, which is repaid through the utility. The utility thereby effectively takes on the role of a financing entity in addition to selling electricity.
- ✓ Another approach, sometimes referred to as “on-bill repayment”, the upfront capital is provided by a third party, typically public or private financial institutions, rather than the utility. In exchange for a management fee, the utility acts as a repayment conduit, collecting the payments through the electricity bills for the original lenders.
- ✓ It is also possible to tie the cost recovery for an efficiency investment to the property’s meter rather than the property owner, which means that tariffs remain in force regardless of a change in occupancy. These tariff-based on-bill models allow customers to make investments that may outlive their residency at the property, in which case the next owner can either repay the equipment in full or continue with monthly on-bill payments.

### CAMBIA TU VIEJO POR UNO NUEVO

#### MEXICO

The initiative “Cambia tu Viejo por uno Nuevo” (Translated: “Replace your old one (appliance) for a new one”) in Mexico, coordinated by the Ministry of Energy, was implemented by the Trust for Saving Electricity in partnership with the National Development Bank. Concessional funding was received from the World Bank and the Inter-American Development Bank to finance energy efficient refrigerators and air conditioning systems to residential clients through electricity bills. Through this program 1,700,000 residential refrigerators and 200,000 air conditioners were replaced over 5

## Remittance based payment model

Remittances are a significant and growing source of financial inflows for developing countries. As at 2017, official remittances flows to low and middle income countries reached a total of USD 466 billion globally, and were more than three times the size of official development assistance.

For this purpose a model was developed that enables migrant workers living and working abroad, to channel part of the remittance money that is traditionally spent on the consumption of energy towards investment in sustainable energy products.

**The model puts part of the investment decision making power in the hands of the migrant workers, who often have a strong interest in seeing remittance monies spent on investments with a longer-term tangible benefit for their families at home.**

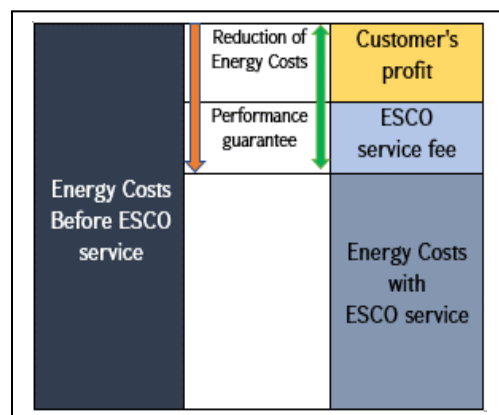
The model helps overcome the upfront cost barrier to sustainable energy investments and empowers migrant workers to contribute to sustainable development in their home countries.

Effective cooperation between money transfer organizations in both the remittance sender and receiver country is important to launch this model.

### Energy Service Companies (ESCO)

Energy Service Companies (ESCO) provide energy efficiency improvements and energy management services to companies and other customers, and get paid out of the savings realized from the improvements. ESCOs invest primarily in CHP (combined heat and power technologies), in industry, in fuel substitution, and in small hydropower.

The business has two forms: "Guaranteed savings agreement" where customers cover business costs and "Shared savings agreement" where the ESCO business covers business costs. According to first model



ESCOs are companies that provide technical expertise with a guarantee of reductions in energy costs. Usually third parties as funds providers are included. By the second form the ESCO makes the investment and receives a portion of the savings (around 50%) as its compensation. These options enable service provision according to customer needs.

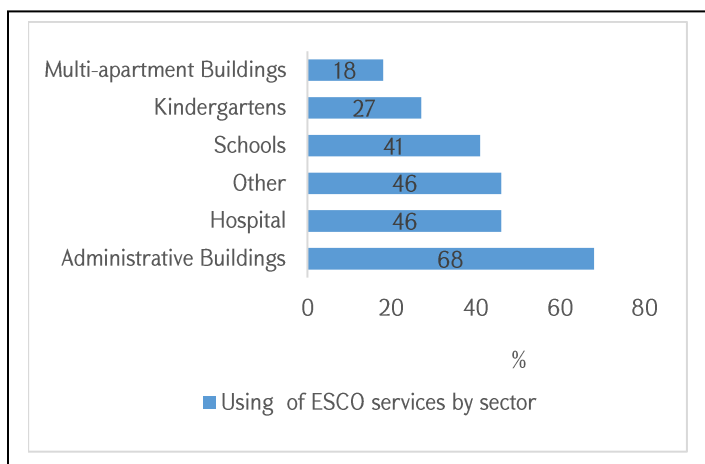
A soundly-based ESCO industry can operate in the private sector with limited government support, resulting in significant energy savings. To be effective, ESCOs need to operate in a market economy with no subsidy on energy prices and with a sound legal framework.

Along with benefits that ESCO provides there are some concern as well: since the savings are being shared, only the most cost-effective measures will be pursued, and the overall extent of energy saving measures may not be as great as if the energy-consuming firms operated independently. ESCOs might also be reluctant to propose investments in advanced but risky technologies.



At the same time, if the ESCO industry did not exist, many firms would not even consider energy efficiency investments. The allocation of benefits and/or risks between the ESCO and the beneficiary company is an important issue.

There are several ways countries can support the introduction of ESCO businesses, through partial subsidies for initial investments and low-interest loans for example, and this support could be extended to private enterprises and local governments implementing the ESCO business.



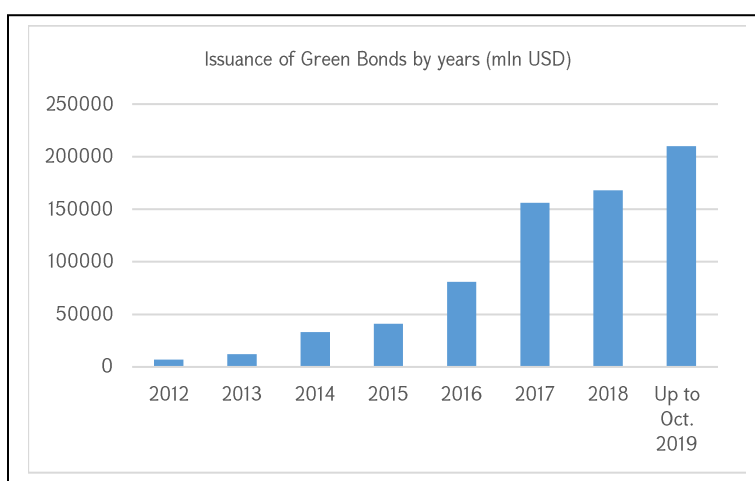
## Green bonds

A green bond is a bond specifically earmarked to be used for climate and environmental projects.

Green bonds come with tax incentives such as tax exemption and tax credits, making them a more attractive investment compared to a comparable taxable bond. To qualify for green bond status, they are often verified by a third party such as the Climate Bond Standard Board, which certifies that the bond will fund projects that include benefits to the environment.

89% (in volume) of green bonds issued in 2018 passed at least one external review.

According to a report released by Moody's, green bonds' issuance for the first nine months of 2019 was 67% higher than during the same period in 2018, and 2019 issuance eclipsed full-year 2018 issuance of \$171.1 billion in September.



Moody's experts believe that green bond issuance could top \$250 billion for the full year, well in excess of the original 2019 forecast of \$200 billion. As recently as 2012, green bond issuance amount only to \$2.6 billion.

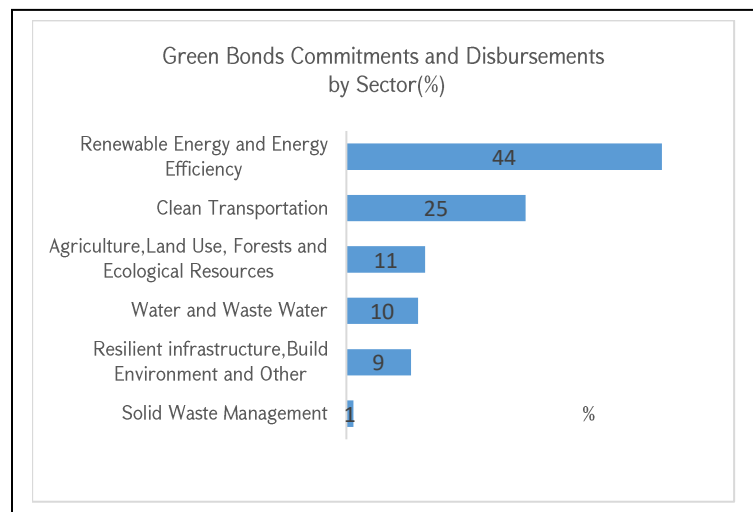
**If that pace of issuance can be sustained over the coming five years, the global stock of green bonds would total around USD 1.5 trillion by 2024. While such growth would be impressive, compared to the total volume of fixed-income securities worldwide, that amount is still a modest 1.5%.**

More is needed to finance a low-carbon economy. According to the Climate Bonds initiative, issuance of green bonds should reach \$ 1 trillion a year.

As of June 2018, renewable energy and energy efficiency projects, as well as green transport projects, were the largest in the Green Bonds project portfolios.

Together, these two projects secured about 69 percent of Green Bond commitments.

As the market expands, offerings will become diverse. There are already a substantial number of individual bonds and exchange Traded Funds(ETF), and this development is likely to run parallel with the growth in renewable investments. Investors also can choose broader socially responsible funds-ESG (environment, social and government) funds.



**Green bonds will not yield the highest returns, but not all profit is quantifiable. Green bonds offer investors the option to diversify their portfolio by not only income-based decisions but environment-based ones as well.**

Green bonds differ from the usual one only in its stable component. As an effective way to attract credit, bond issuing by companies is widespread. Currently, most green bond issuers are sovereign and development banks, but the number of companies is increasing. And if there are no questions about the targeted use of funds raised by sovereigns or development banks, the use of funds by companies has certain risks. To this end, the International Capital Market Association (ICMA) has developed the Green Bond Principles.

The principles of green bonds help establish the integrity and uniformity of the green bond market by setting standards for transparency, disclosure and reporting. The Green Bonds Principles also contain a list of eligible investment projects, but the Principles remain voluntary.

## MAP OF FINANCIAL TOOLS AND INCENTIVES IN THE REPUBLIC OF ARMENIA

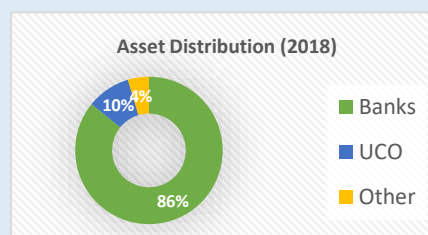
On November 30, 2018, within Financial System Stability Assessment the Executive Board of the International Monetary Fund (IMF) assessed Financial System of Armenia as stable. Armenia's financial system has expanded further since the 2012 Financial Sector Assessment Program (FSAP). Armenia's banking sector has weathered the 2014 economic slowdown. Executive Board of the IMF noted that financial soundness indicators show signs of improvement, bank profitability has gradually recovered, although it is still below pre-crisis levels. Nonperforming loans (NPLs) have fallen, of which a substantial proportion is covered by provisions, although NPL ratios are still high in a few banks.

Sustainable assessment of Armenia's financial system provides a good basis for considering Armenia a credible partner for international financial and other institutions. This provides opportunities for the latter to implement a number of initiatives in Armenia by applying a wide range of tools to finance climate change mitigation and adaptation programs.

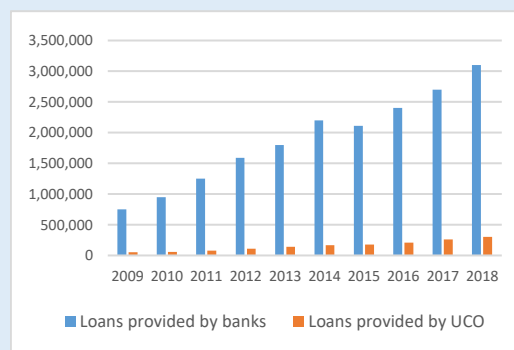
A number of projects focused on energy efficiency and renewable energy implemented in Armenia, are provided in a mixed, combined way: (i) loans are combined with grants, (ii) loans provided under the renewable energy investment program can also be used to purchase energy-saving household appliances, (iii) improving energy efficiency is associated with increasing comfort at home.

An example of this could be the "Jerm Ojakh" (translated: cordial house) program implemented by the National Mortgage Company.

17 banks and 42 universal credit organizations (UCOs) are licensed by the CBA. The assets of banks and credit organizations in the financial system of the Republic of Armenia is about 96 % of total assets (2018).



The role of credit institutions in the financial market is growing: if in 2010 the share of the latter in total assets was only 5.2 %, then in 2018 - 9.6 %.



The volume of loans provided by credit organizations grew faster than the volume of loans of commercial banks, in particular, lending volume increased by about 6 times.

## «Jerm Ojakh» Program

National Mortgage Company in cooperation with French Development Agency (Agence Francaise de Development) and EU is implementing “Jerm Ojakh” (Translated: warm, cordial home) home renovation program aimed at making energy efficient improvements to apartments/houses more affordable.

The program targets to benefit 3000 households with low and middle income. The purpose of the Program is to stimulate energy efficient renovations, particularly in RA regions (Only "Centre" administrative district of city of Yerevan is excluded under the Program) and to encourage financial institutions to grant smaller loans with longer maturity for energy efficient renovations.

Households shall spend more than 40% of the loan amount on energy efficiency measures and equipment, of which 20% can be used to buy home appliances (the list is presented below).

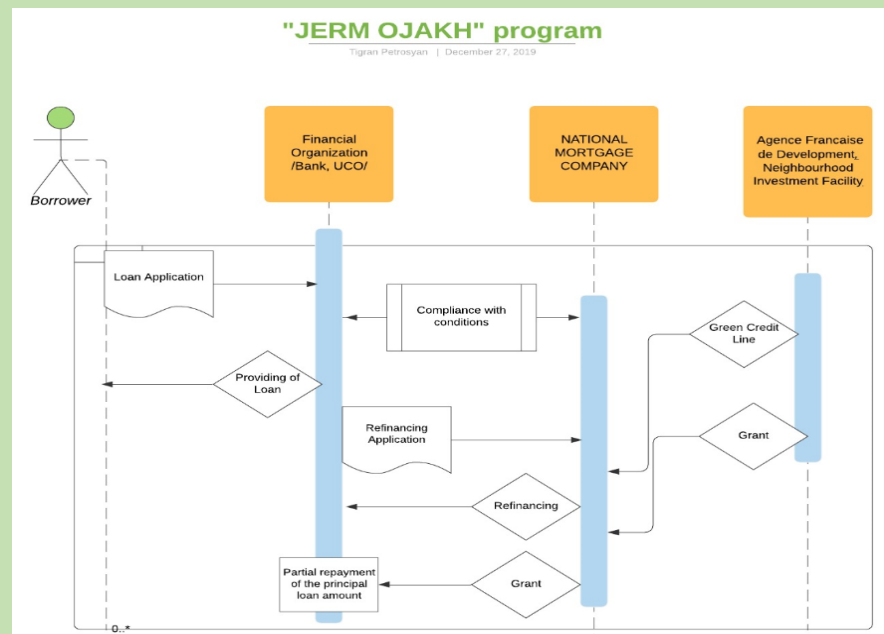
Based on the assessment of the planned renovation project grants are provided to borrowers: 5 % from the initial loan amount, if the share of energy efficient investments is greater than 40% of the loan amount. 15% from the initial loan amount, if the share of energy efficient investments is greater than 70% of the loan amount. Grant is used to repay the loan principal amount.

The program is implemented by cooperating financial institutions. Below is a list of them:

Banks		Universal Credit Organizations
ACBA-Credit Agricole Bank ID Bank Ardshinbank ArmSwissBank Artsakhbank	EVOCABANK Converse Bank ARMBUSINESSBANK ARMECONOMBANK UniBank	First Mortgage COMPANY GLOBAL CREDIT EXPRESS CREDIT KAMURG MYCREDIT Fast Credit Capital

The project establishes lending standards, methods for evaluating applications that are used by financial partner organizations of the project when providing credits. Loans are provided to borrowers in stages, after each stage assessing the compliance of the work performed to those previously established within the program.

After assessing the effectiveness of the borrower's actual work, the financial institution applies to the National Mortgage Company for refinancing of the loan. The NMC also provides the financial institution with the appropriate grant, which is used to repay the principal amount of the loan.

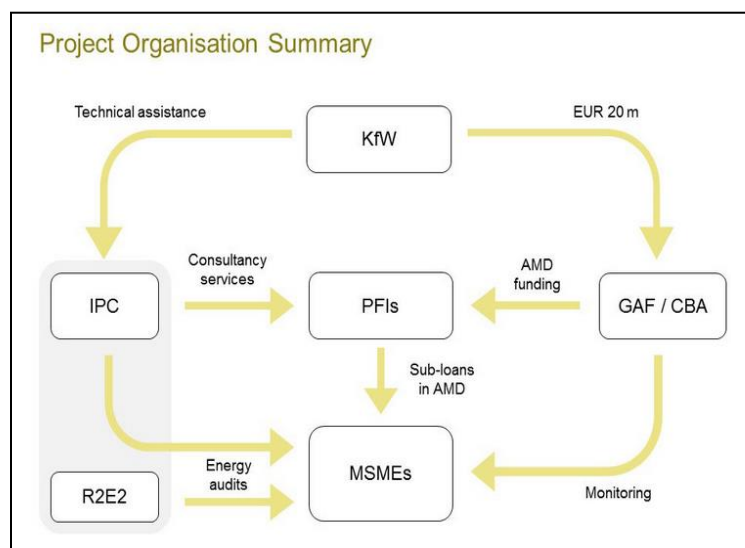


Web-based tool is created, which serves to assess the eligibility of the planned renovation project and to calculate corresponding energy and emissions savings.

### GAF Energy Efficiency Programme for MSMEs

Another “Energy Efficiency Program for MSMEs” program operates under the auspices of the German-Armenian Foundation (GAF). The German-Armenian Fund (GAF) is managed by Central Bank of Armenia. The program is financed by The German Development Bank (KfW) which provides the funds from the Federal Ministry of Economic Cooperation and Development (BMZ). Micro, small and medium sized all legal entities, sole proprietors and individual farmers are eligible to apply for an EE/RE loan, regardless of the economic sector or the location of the business activities.

This service is available to those who are planning to invest in energy efficient technologies, production plants and other machinery and equipment, which will reduce energy consumption and increase the quality of production.



In order to ensure the effective implementation of the program Internationale Projekt Consult GmbH (IPC) and as an Armenian partner The Renewable Resources and Energy Efficiency Fund (R2E2) are involved in the program.

IPC is the responsible project consultant for the GAF Energy Efficiency Programme for MSMEs. IPC is responsible for development and implementation of standards, principles, policies and guidelines. The Renewable Resources and Energy Efficiency Fund (R2E2) supports the PFIs in the assessment of non-standard and technically complicated EE/RE investments by carrying out energy audits. In certain cases – depending on the size and complexity (if the planned

Partner Financial Institutions (PFIs)	
ACBA-Credit Agricole Bank	Ameriabank
Arshinbank	InecoBank
ARMBUSINESSBANK	ARARATBANK
ARMECONOMBANK	UniBank
ACBA LEASING UCO	

investment is above AMD 80 million) of the project – a simplified Energy Audit is required. Investments which do not require a simplified energy audit are registered in the positive list of standard EE/RE investment measures.

EE/RE loans are disbursed by our partner financial institutions (PFIs). Each PFI has defined its own MSME loan application procedures. Consequently, the PFIs' loan applications may differ somewhat. After the loan is granted by the PFI, the PFI applies to GAF for refinancing the loan.

#### EBRD GCF-GEFF ARMENIA ENERGY EFFICIENT LENDING PROGRAM

In Armenia, Green Economy Financing Facility (GEFF) provides finance, advice and incentives to help businesses become more competitive by investing in high-performance technologies and adopting energy efficiency practices. The Facility in Armenia is a product of the European Bank for Reconstruction and Development (EBRD), supported by the Green Climate Fund (GCF) and the Scaling-up Renewable Energy Program (SREP) of the Climate Investment Funds (CIF).

#### There are two basic approaches:

- Pre-approved investments available on the EBRD GEFF Technology Selector (<https://ts.ebrdgeff.com/armenia-en/>). Items on the Technology Selector are eligible to be financed using GEFF without any further technical approval. This list is developed with support of Federal Ministry of Finance of Republic of Austria.
- Assessed investments with free technical consultancy. Some green investments can benefit from specific solutions that are not obvious or available under the simple “pre-approved” approach described above. In these cases, the GEFF local team provides expert advice at various stages of project implementation to ensure that the investment proposal is technically eligible and the most appropriate green technologies and services are financed using GEFF.

Facility supports Armenia's green economy transition with US\$ 20 million through participating local financial institutions.

### Who is eligible?

#### *Participating Financial Companies*

Ameriabank, ArmSwissBank, InecoBank and  
ACBA LEASING

- Private companies, enterprises, firms, sole proprietors or other legal entities who wish to invest in eligible technologies
- Vendors of equipment or materials listed on the Technology Selector who are interested in participating in the Facility's vendor financing programme
- "Green" technology manufacturers, as listed

on the Technology Selector, who are planning to sustain or expand the "green" part of their business.

**Borrowers of financing partners may be entitled to receive payment of an investment incentive equal to 20% of the borrowed amount upon successful completion and verification of small-scale renewable energy projects implemented in appropriate fields.**

### HOUSING ENERGY EFFICIENCY LOANS

#### *Cooperating Financial Organizations*

ACBA-Credit Agricole Bank, Ardshinbank, EVOCABANK,  
Converse Bank, ARMBUSINESSBANK,  
ARMECONOMBANK, InecoBank, First Mortgage  
COMPANY UCO, GLOBAL CREDIT UCO, KAMURG UCO

National Mortgage Company is offering energy efficiency (EE) loans under the Housing finance, 4th phase program, which is financed by German KfW bank.

Interest rate for energy efficiency loans is at least one percentage point less as compared to the standard mortgage loans. There are three main funding

goals under this program:

- ✓ EE purchase loans
- ✓ EE renovation loans
- ✓ EE construction loans

#### EE purchase/renovation/construction loans' general terms

Amount	up to AMD 35 mln
Maturity	Minimum 5 years (in case of renovation min 5 years)
Interest rate	Defined by PFI (average 10.5% annually)
Down payment	Only I case of EE purchase - min 30% (min 10% in case of down payment insurance or additional real estate collateral)
Pledge	Property to be purchased or renovated

This loan product is designed for the purchase of a house or an apartment, which meets the eligibility criteria. A house is considered EE, if it complies with the requirements of the EE measurement criteria designed specifically for this program. If the apartment is in a building, which has EE class of at least C+, no EE evaluation is needed.

Loans are provided by 10 Financial Organizations cooperating within this program.

## ADAPTATION PROGRAMS

### *Participating Financial Organizations*

ACBA-Credit Agricole Bank, ArmSwissBank, Converse Bank, Ardshinbank, EVOCABANK, ARMBUSINESSBANK, ARMECONOMBANK, FARM CREDIT ARMENIA UCO, Development and Investments Corporation of Armenia UCO

At the beginning of 2019, the Government of the Republic of Armenia approved agricultural assistance programs. Although detailed project descriptions and decision grounds do not address climate change and its consequences, the following climate change adaptation programs are worthy of attention in the context of this report:

**PROGRAM OF SUBSIDIZATION OF INTEREST RATES OF LOANS FOR IMPLEMENTATION OF MODERN IRRIGATION SYSTEMS** was adopted by the RA Government's decision N212-L from March 7, 2019.

**PROGRAM OF SUBSIDIZATION OF INTEREST RATES OF LOANS FOR IMPLEMENTATION OF ANTI-HAIL NETS IN THE AGRICULTURE OF THE REPUBLIC OF ARMENIA** was adopted by the RA Government's decision N362-L from April 4, 2019

**PROGRAM OF SUBSIDIZATION OF INTEREST RATES OF LOANS FOR ESTABLISHING INTENSIVE FRUIT, BERRY GARDENS AND VINEYARDS CULTIVATED BY USE OF MODERN TECHNOLOGIES IN REPUBLIC OF ARMENIA** was adopted by the RA Government's decision N361 from March 29, 2019.



Terms of programs are practically the same, which allows to represent them in a unified manner. The basic terms and conditions of loans provided by participating financial institutions are presented in a comparative manner in Annex.

**All programs are financed by the State Budget of the Republic of Armenia.**

**Programs are implemented by** “Rural Areas Economic Development Programmes Implementation Unit” (RAED PIU) State Agency of Republic of Armenia Government Staff

**Individuals and legal entities engaged in agriculture may participate to programs.**

**There are two modes of implementation:**

- Providing of subsidized loans, moreover for border settlements and in some cases for Agricultural Cooperatives interest rate may be fully subsidized,
- By compensation (in case of the program for implementation of anti-hail nets the compensation method is not defined).

List of contractor organizations for implementation of projects is compiled and published.

Loan interest rate subsidy is based on actual repayments. The financial institution submits a loan subsidy application to the RAED PIU every month.

## **FINANCIAL INCENTIVES IN THE REPUBLIC OF ARMENIA**

Import and sale of entirely electric cars, motorcycles and bicycles is exempt from VAT till January 1, 2022.

As of January 1, 2020, the rate will be set at 15% for individuals and legal entities instead of the current 10% when importing electric cars into the customs territory of Armenia (EAEU) from a non-member state of the Eurasian Economic Union.

The "Armenia Energy Agency" foundation has launched the Plug.am project with financing from the UNDP/GEF Small Grants Program. The main objective of the project is to develop infrastructure for electric car charging stations and boost the market development in Armenia. The plan is to set up a network of 25 units of 22 KW Level 2 AC charging stations.

The import of solar panels is also exempt from VAT, and the zero rate is also set for customs duties.

## CLIMATE PROGRAM FINANCING PROBLEMS, OBSTACLES FOR EXPANDING: POSSIBLE SOLUTIONS

There is no unified information on the results of climate projects implemented so far by financial and other institutions of Armenia and this situation does not allow to evaluate the overall effectiveness of programs, identify systemic problems. Because of this problems, barriers analysis as well as proposals will be presented according to each financial tool or project implemented.

### Credit Products

GCLs provide a number of benefits to all actors involved along the green lending cycle. However, there are a number of challenges that PFIs and LFIs face when deploying GCLs.

By providing funds at below market rates, PFIs may unintentionally subsidize LFIs, if the latter fail to pass on the benefits of concessionality terms to end-borrowers.

One such problem is observed when examining the terms of lending by financial institutions under the “Jerm Ojakh” program implemented by National Mortgage Company's (NMC).

Please note that except for the interest rate on the loan, the basic credit terms are similar in almost all banks and credit organizations (see. Appendix).

The National Mortgage Company (NSA) sets the maximum loan interest rate at 13% without specifying, it should be nominal or actual interest rate. Analyzing the proposals of cooperating banks and credit organizations, we can see that it is about nominal interest rate, which does not matter for the borrower, taking into account peculiarities of the credit industry: The nominal interest rate is more declarative, since the actual interest rate on a loan under the influence of a number of applied commissions may differ significantly from the nominal interest rate previously announced. Looking through the conditions of various banks and credit organizations, we can see that the NMC restriction is essentially maintained at the maximum nominal interest rate, while the actual interest rate can reach 19%.

**It is very important to carry out a balanced control over the implementation of the program. Why balanced control? The answer is obvious: unreasonably strict controls can offset program's preferential terms.**

The business model of financial institutions (and not only financial institutions) assume maximizing profitability due to minimal costs (efforts). Strict control mechanisms and complicated operating processes may require additional resources and consequently increased costs and reduced profitability from project implementation. Financial resources offered by international organizations can be opposed by the own financial resources of local financial institutions, the allocation of which may be prevailing from a business point of view, and in this case, not always for the purposes of the program.

**In this case, the initiative may lose the most important factor for the effective implementation of the program - the popularization of the project, in which the role of local financial institutions cannot be underestimated.**

Strict controls may also limit stakeholder interest in the project:

- Loans within program “Jerm Ojakh” are disbursed on the basis of prepared and approved estimates, which causes some difficulties in the preparation and coordination of the relevant estimates
- Loans are provided in stages: provision of the loan amount at each stage is made only after evaluating the performance of work and/or necessary purchases stipulated for the previous stage. Private repayments often forces changes to the sequence of work. This creates problems associated with the mismatch of works (procurements) specified in the estimate and actually performed work.
- Recently, the terms of “Jerm Ojakh” program were changed, according to which completed works and purchased goods need to be verified by cashier's checks. If possible when purchasing materials and products, it is not always possible when performing works.

Another examples of programs with strict regulation mechanisms are the programs implemented within Rural Finance Facility of Rural Areas Economic Development Programs Implementation Unit: the Government of Armenia has even set a deadline for submitting every month applications for compensation, but at the same time it is unclear what kind of consequences may be if a financial institution fails to file a claim within that time frame. Such strict regulation creates additional risks (including risks associated with financial consequences) for financial institutions, which is an obstacle to the promotion and development of such programs.

**Raising public awareness during project implementation is another important issue:** there are only four financial institutions cooperating with EBRD GCF-GEFF Armenia Energy Efficient Lending Program and it is necessary to expand the cooperation with other financial institutions in order to raise public awareness.

**Inefficiency of mechanisms for checking creditworthiness of potential participants and at the same time lack of creditworthiness of potential project participants are one of the major obstacles for promotion of Climate Programs.** The solution to this problem may be the creation of Guarantee funds.

### Remittance based model

This financing model can have great potential for investment and development in Armenia. According to “Study of the quality of life in the Republic of Armenia 2016” in 2016 20.4% of Armenian families had migrant worker: the number of families with migrant workers is relatively higher in the villages – 27.5%, in the cities it is 20.7% and in Yerevan it is 12.2%.

## Financial Incentives

1. As already mentioned, import to Armenia of solar panels are currently exempt from VAT and a zero tax rate has been set. However, with an intention to boost the local production of solar panels, a draft law has been circulated with a view to revising the terms and conditions of imported solar panels. According to experts, as a result of this, prices for solar panels in the market may increase and, accordingly, increase the cost of the projects.

**Limiting competitive environment can lead to a number of problems (lack of new technologies, low quality of the goods offered), which in turn may hinder further development of the renewable energy sector.**

2. The lack of infrastructure for the operation of cars with electric motors is an important problem that restrains their dissemination. It should be noted that in 2017 only 28 such cars were imported to Armenia and in 2018 – 33.

For comparison, using the excise tax exemption mechanism in Georgia in 2017, the number of imported electric vehicles was approximately 300 more than in the previous year: 34 cars were imported in 2016 and 328 in 2017.

## Armenian Market of Green Bonds (or its absence)

If the government bond market in Armenia can be considered established, the corporate bond market still has great potential for development. This method of attracting funds is becoming increasingly popular not only among financial institutions, which are key players in the Armenian corporate bond market.

Given the purpose of issuing Green Bonds, there are two groups of potential issuers:

- Financial institutions: there are two local banks that are interested in issuing of Green bonds. This interest is mostly due to the existence of investors who are willing to invest in green bonds.
- Non financial institutions. Those are mainly companies that engaged in production of renewable energy, given their need for financial resources. Currently AMD loans are provided at an average interest rate of 11.5 %. For comparison, the average interest rate on corporate bonds listed on the Armenian stock exchange is 9.9 % for 2018-2019 years.

In order to effectively organize the green bond listing process, the Armenian Stock Exchange intends to introduce a special platform for such bonds. At the same time, based on requirements it is planned to have two sub-platforms for bank issuers and non-bank issuers.

Despite the fact that the Central Bank of Armenia is a member of ICMA, no separate procedure has been implemented yet and no regulation has been adopted in Armenia regarding the issuance of green bonds. The following key issues require legislative regulations:

- Assessment of "Green" activity
- Definition of requirements for reports about "Green" activity
- Impact Report Assessment

Nevertheless, the Green Bonds market has great potential for introduction and development in Armenia. The funded pension system introduced in Armenia in 2014, whose actives are managed by the Armenian branches of large European asset management companies can also contribute to this. This means that, for Asset managers investing in green projects is at the institutional level.

Limited investment instruments in the financial market of Armenia, in turn, creates favorable conditions for directing pension assets to climate projects. As of November 30, 2019, the net value of pension assets amounted to AMD 244.5 billion, which makes up more than 16% of Armenia's 2019 state budget revenue and about 14% of budget's spending. It should be noted, that the funded pension system was introduced just 6 years ago and has already accumulated a significant amount of assets. The volume of assets has great potential for growth, also taking into account the amount of funds raised by new investment funds registered by the CBA in 2019.

In essence, renewable energy projects are stable and predictable sources of income, the alternatives of which are limited. Of course, a stable and predictable income for pension funds is an incentive to target such programs. Another important factor may be the attitude of pension system participants towards climate change initiatives:

**Both projects - the funded pension system and climate programs - are future-oriented initiatives, and since these projects are ideologically consistent with each other, their joint development has no alternative.**

## References

IMF Executive Board Concludes Armenia's 2018 Financial System Stability Assessment

<https://www.imf.org/en/News/Articles/2018/12/03/pr18447-imf-executive-board-concludes-armenias-2018-financial-system-stability-assessment>

10 Years of Green Bonds: Creating the Blueprint for Sustainability across Capital markets

<https://www.worldbank.org/en/news/immersive-story/2019/03/18/10-years-of-green-bonds-creating-the-blueprint-for-sustainability-across-capital-markets>

Climate Bond Standard Board

<https://www.climatebonds.net/certification>

**Green bonds are making a dent, but there is further to go**

<https://investors-corner.bnpparibas-am.com/investment-themes/sri/green-bonds-further-growth/>

Moody's - Global green bond issuance could top \$250 billion in 2019 after strong third quarter

[https://www.moody's.com/research/Moodys-Global-green-bond-issuance-could-top-250-billion-in--PBC\\_1201931](https://www.moody's.com/research/Moodys-Global-green-bond-issuance-could-top-250-billion-in--PBC_1201931)

Green, Social and Sustainability bonds

<https://www.icmagroup.org/green-social-and-sustainability-bonds/green-bond-principles-gbp/>

Study of the quality of life in the Republic of Armenia 2016

[https://www.gov.am/u\\_files/file/documents/IPSC\\_Q%D6%85LI%207-16\\_Final%20Report\\_05\\_05\\_2017\\_Website.pdf](https://www.gov.am/u_files/file/documents/IPSC_Q%D6%85LI%207-16_Final%20Report_05_05_2017_Website.pdf)

Using credit lines to foster green lending: opportunities and challenges

<https://www.i4ce.org/download/using-credit-lines-to-foster-green-lending-opportunities-and-challenges/>

Statistics of Financial Institutions

<https://www.cba.am/am/SitePages/statfinorg.aspx>

## **Annex**

Of “Financial Tools for Promotion of Climate  
Change Technology Transfer” report

The following are the basic terms and conditions of loans offered by financial institutions of Armenia. Not all financial institutions' proposals are presented. When choosing offers, the goal was to show from one side differences in loan offers operating within the framework of the same program (for example, in the case of nominal rate-limiting programs) and from the other side their similarity, which is result of strict regulation (for example, in case of adaptation programs).

## MITIGATION

### GAF Energy Efficiency Program for MSMEs

	AMERIABANK	Ardshinbank	ArmSwiss bank	ACBA-Leasing	ARARAT BANK
Beneficiary	Companies	Small and Medium enterprises	Corporate customers	Legal entities and sole proprietors	Corporate customers
Amount	AMD equivalent to Maximum 10,000,000 USD	1,000,000-500,000,000 AMD	50,000,000 - 3,000,000,000 AMD or other equivalent currency	financing the projects of photo voltaic stations and solar water heaters at up to 500 kW nominal capacity, until the expiration of corresponding funds	USD equivalent to Maximum 500,000 EURO
Maturity Period	8 - 15 year	In case of energy efficient loan - 60 months, in case of small hydro powering plant -180 months	1-12 year, Maximum 2 year արտոնյալ	Up to 10 year	Up to 60 months
Annual interest rate	10.5%-12.9 % AMD 7.9%-9.9% USD	In case of energy efficient loan negotiable, in case of small hydro powering plant 10,5 %	7.5%-9.5%	8.5%-9.9 %	Up to 48 months - 11 % 49-60 months - 12 %
Collaterals	Cash, fixed assets, securities, cash flows and other assets	-	Real estate, fixed capital, shares / stocks, third party guarantees	One or two guarantors (no income statement)	Movables or real estate
Additional guarantees	personal guarantees of founders / individual's guarantees	-	-	-	-



## HOUSING ENERGY EFFICIENCY LOANS within Housing finance, 4th phase program implemented by National Mortgage Company

	Evocabank	Inecobank	Converse Bank	Kamurj UCO	Global Credit UCO
Stakeholder	Citizen of the RA	Citizen of the RA	Resident and citizen of the RA	RA citizen and RA resident physical person	Citizen of the RA
Amount	2,000,000 - 25,000,000 AMD	1,500,000 - 35,000,000 AMD	Purchase and construction 1,000,000 - 35,000,000 Renovation 3,000,000 - 35,000,000 AMD	2,000,000-35,000,000 AMD	1,500,000-25,000,000 AMD
Maximum period	120 - 240 months	120 - 180 months	Purchase and construction 120 - 240 months Renovation 60 - 240 months	60-240 months, with up to 12 months grace period	60-180 months, with up to 12 months grace period
Annual interest rate	9.3 - 11.4 %	Nominal 9,8 % <b>Actual 10.45% - 16.17%</b>	Nominal 10 % <b>Actual maximum 15.49%</b>	Nominal 10-11 % <b>Actual 10.63 % - 12.3 %</b>	Nominal 11-12 % <b>Actual 13.48 -16.68 %</b>
Collaterals	Purchased real estate, other real estate	Purchased real estate	Pledge of purchasing/renovating real estate and guarantee of at least one physical person	Pledge of renovating, purchasing real estate, Other real estate as an additional collateral for construction loans	Pledge of renovating, purchasing real estate. For construction Pledge of other available real estate and land.
Requirement for additional guarantee	-	-	-	Guarantees from individuals and/or legal entities, Other real estate or movables	In case of loans below 2 million AMD in the regions, the pledge of the movable property / third party guarantee is acceptable

## Jerm Ojakh

### Home renovation program aimed at making energy efficient improvements

	ARMSWISS BANK	ID Bank	Ardshinbank	Evocabank	Armeconombank	Unibank	Armbusiness Bank
Stakeholder	Individuals	Individuals	Individuals	Individuals	Individuals	Individuals	Individuals
Amount	275,000-3,000,000 AMD	275,000-3,000,000 AMD	500,000-3,000,000 AMD	275,000-3,000,000 AMD	275,000-3,000,000 AMD	500,000-3,000,000 AMD	300,000-3,000,000 AMD
Period(moths)	60-84, which 6-12 grace period	60-84, which 6-12 grace period	60-120	60-84, which 6 grace period	60, which 6-12 grace period	60	60, which 6-12 grace period
Annual Interest Rate	Nominal 11%-13% <b>Actual 11.79%-16.67%</b>	<b>Actual 14.25% - 16.47%</b>	Nominal 12% <b>Actual 16,5%</b>	Nominal 10.5 % <b>Actual 11.26 %</b>	Nominal 10.9 % <b>Actual 11.95%</b>	Nominal 12.7% <b>Actual 13.97%</b>	Nominal 13 % <b>Actual 14.5%-19%</b>
Grant amount	5-15%	5-15%	5-15%	5-15%	5-15%	5-15%	
Collaterals	-	Guarantees from 2 physical person	-	Third party (s) guarantees (in case of need)	Guarantees from 1 or 2 physical person	-	Guarantees from at least 2 physical person

## EBRD GCF-GEFF ARMENIA energy efficient lending program

	Armswissbank	ACBA-Leasing
Stakeholder	Corporate clients	Legal entities and sole proprietors
Acount	50,000,000 - 3,000,000,000 AMD or equivalent other currency	
Maximum period	Maximum 7 years, with maximum 2 years grace period	Lease Period- 3-96 months
Annual Interest Rate	Fixed interest rate 10.50%- 11.50 % Variable interest rate 9.75%- 10.50%	Nominal 8,5% - 9,9%
Collateral	Real estate, fixed capital, shares / stocks, third party guarantees	One or two guarantors (no income statement)
Requirement for additional guarantee	-	-

## ADAPTATION

### Subsidized Loans for Implementation of Modern irrigation systems

	ArmSwissBank	ACBA-CREDIT AGRICOLE BANK	Converse Bank	DICA
Maximum amount	150,000,000 AMD	150,000,000 AMD	150,000,000 AMD - If Implemented by Contractor 110,000,000 AMD -Without Contractor	150,000,000 AMD – If Implemented by Contractor 110,000,000 AMD - Without Contractor
Maximum period	3 years, up to 6 months grace period	3 years, up to 6 months grace period	3 years, up to 6 months grace period	3 years, up to 6 months grace period
Interest rate	12%, of which 10% is subsidized, 12% is subsidized for a particular group of borrowers	12%, of which 10% is subsidized, 12% is subsidized for a particular group of borrowers	12%, of which 10% is subsidized, 12% is subsidized for a particular group of borrowers	Subsidized Nominal 2 %, Subsidized Actual 2,02 % For some groups subsidized conditions are more favorable
Collateral	Real Estate, Fixed Assets, Third Party Guarantees, Inventory	Movables, real estate, agricultural machinery, equipment, gold, other pledges, guarantees from individuals or legal persons	Movables, real estate, agricultural machinery, equipment	Movables, real estate, government and corporate securities
Requirement for additional guarantee	May be required	-	-	-

## Subsidized Loans for Implementation of Anti-hail Nets in the agriculture

	ArmSwissBank	ACBA-CREDIT AGRICOLE BANK	DICA
<b>Maximum amount</b>	85,000,000 AMD	85,000,000 AMD	85,000,000 AMD If Implemented by Contractor 68,000,000 AMD - Without Contractor
<b>Maximum period</b>	7 years, up to 12 months grace period	7 years, up to 12 months grace period	7 years, up to 12 months grace period
<b>Interest rate</b>	12%, of which 10% is subsidized, 12% subsidized for particular group of borrower	12%, of which 10% is subsidized, 12% subsidized for particular group of borrower	Subsidized Nominal 2 %, Subsidized Actual 2,02 % For some groups subsidized conditions are more favorable
<b>Collateral</b>	Real Estate, Fixed Assets, Third Party Guarantees, Inventory	Movables, real estate, agricultural machinery, equipment, gold, other pledges, guarantees from individuals or legal persons	Real estate, movables, government and corporate securities
<b>Requirement for additional guarantee</b>	May be required	-	-

## Subsidized Loans for Establishing Intensive Fruit, Berry Gardens and Vineyards Cultivated by Use of Modern Technologies

	ArmSwissBank	ACBA-CREDIT AGRICOLE BANK	Converse Bank	DICA
<b>Maximum amount</b>	248,000,000 AMD	248,000,000 AMD	248,000,000 AMD - If Implemented by Contractor 198,000,000 AMD - Without Contractor	248,000,000 AMD - If Implemented by Contractor 198,000,000 AMD - Without Contractor
<b>Maximum period</b>	8 years, up to 5 years grace period	8 years, up to 5 years grace period	8 years, up to 5 years grace period	8 years, up to 5 years grace period
<b>Interest rate</b>	12%, of which 10% is subsidized, 12% subsidized for particular group of borrower	12%, of which 10% is subsidized, 12% subsidized for particular group of borrower	12%, of which 10% is subsidized, 12% is subsidized for a particular group of borrower, 10% of which is subsidized	Subsidy Nominal 2%, Actual 2.02% Subsidizing conditions are more favorable for a particular group of borrower
<b>Collateral</b>	Real Estate, Fixed Assets, Third Party Guarantees, Inventory.	Movables, real estate, agricultural machinery, equipment, gold, other pledges, guarantees from individuals or legal persons	Movable, real estate, agricultural machinery, equipment	Real estate, movables, government and corporate securities
<b>Requirement for additional guarantee</b>	May be required	-	-	-