Where finance and green technology meet

ENERGYNOMICS CAMPAIGN:
'ENERGY EFFICIENCY FOR BIG RESULTS'

Timişoara, Romania - 22 May 2018

TRACTEBEL



Green Economy Financing Facility

Developed by:



Supported by:





_

The EBRD Green Economy Financing Facility



- 1 Green Economy Transition (GET)
- 2 Green Economy Financing Facility
- 3 GEFFs in Romania 2008-2018
 - The new residential GEFF in Romania
 - 5 Questions?

The EBRD Green Economy Financing Facility



- 1 Green Economy Transition (GET)
- 2 Green Economy Financing Facility
- 3 GEFFs in Romania 2008-2018
 - The new residential GEFF in Romania
- 5 Questions?



1. GREEN ECONOMY TRANSITION

Context: EBRD's G.E.T. approach

- The EBRD has adopted a sequence of cross-sectoral strategies to mainstream green financing operations.
- The 'GET approach' goes beyond EBRD's Sustainable Energy and Sustainable Resource initiatives which supported energy efficiency and renewable energy investment.
- GET involves not only energy efficiency and renewabes, but also water efficiency, climate change resilience, waste minimisation, materials efficiency, pollution control and environmental improvement.
- GET emphasises innovation and uses capacitybuilding, policy dialogue, multiple delivery channels.

G.E.T.

Green Economy Transition approach from 2016



S.E.I.
Sustainable Energy Initiative
from 2006

The EBRD Green Economy Financing Facility



- 1 Green Economy Transition (GET)
- 2 Green Economy Financing Facility
- 3 GEFFs in Romania 2008-2018
 - The new residential GEFF in Romania
 - 5 Questions?



- A financing initiative in Albania, Armenia, Azerbaijan, Belarus, Bosnia-Herzegovina, Bulgaria, Croatia, Egypt, FYR Macedonia, Georgia, Hungary, Kazakhstan, Kosovo, Kyrgyz Republic, Moldova, Mongolia, Montenegro, Morocco, Poland, Romania, Russia, Serbia, Slovak Republic, Tajikistan, Turkey and Ukraine.
- Transition from the Sustainable Energy Finance Facility (**SEFF**) to Green Economy Financing Facility under the new GET approach.
- Combines technical knowledge with finance to help clients invest in high performing technologies.
- Impact (so far) of almost 4.2 billion EUR of EBRD GEFF financing:
 - More than 129,000 clients of more than 130 local financial institutions...
 - ...avoid more than seven million tonnes of CO₂ emissions per year.









EBRD SEFF developed projects with different looks, websites and procedures...

... tailored to local market conditions





















































(

2. GREEN ECONOMY FINANCING FACILITY

EBRD SEFF developed projects with different looks, websites and procedures...

... tailored to local market conditions... including three facilities in Romania



















































EBRD GEFF brings a single look, a single website and standard procedures...

... while maintaining flexibility to tailor facilities to local country conditions















































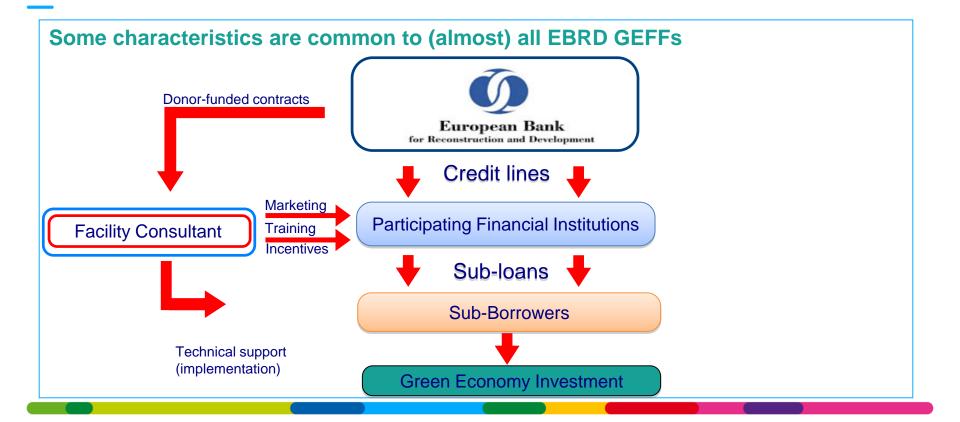




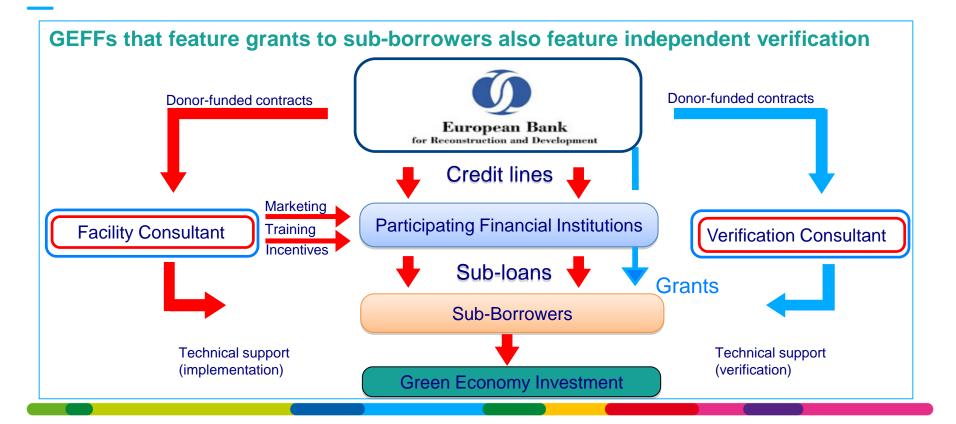












The EBRD Green Economy Financing Facility



- 1 Green Economy Transition (GET)
- 2 Green Economy Financing Facility
- 3 GEFFs in Romania 2008-2018
 - The new residential GEFF in Romania
- 5 Questions?





EBRD GEFFs have financed sustainable energy investments in Romania since 2008

Energy Efficiency

Renewable Energy



Do more with less



Capture renewable energy resources from the sun, soil, wind, water or earth





Tractebel Engineering has worked with EBRD on GEFFs in Romania for 10 years....



6 partner banks

BCR, BRD, Banca Transilvania, CEC Bank OTP Raiffeisen

129

industrial investments totaling

111 MEŬR



1 partner bank

3
municipal investments
totaling
10 MEUR



4 partner banks

BCR BRD Banca Transilvania, UniCredit

341

SME investments, totaling **68** MEUR

And now...





Tractebel is again helping EBRD to roll out financing for energy efficiency in Romania...



6 partner banks
BCR, BRD, Banca Transilvania,
CEC Bank OTP Raiffeisen
129
industrial investments

totaling

111 MEUR



1 partner bank

3 municipal investments totaling **10** MEUR



4 partner banks

BCR BRD

Banca Transilvania, UniCredit

341 SME investments, totaling 68 MEUR



2 partner banks
Banca Transilvania, UniCredit

A recent 100 MEUR residential framework

... but it is the first time we have worked together on the household sector





The first GEFF in Romania was the EU EBRD Energy Efficiency Finance Facility (EEFF) for private sector industrial companies:

- Loans up to 2.5 MEUR per company from participating banks
- Free (EU financed) technical consultancy from Tractebel Engineering
- EU grants of 15% of the loan value (max. 375,000 Euro each)

Results

129 investments totaling 111 million Euro



The first GEFF in Romania.



Donor support from the European Union





The EU EBRD Municipal Fund for Energy Efficiency (MFFEE) financed streetlighting.

- An experimental GEFF with 10 million Euro, one participating bank.
- Loans of up to 5 million Euro per investment
- Free (EU financed) technical consultancy from Tractebel Engineering
- EU grants (to the municipality) of 20% of the loan value

Results

Three public lighting investments totaling 10 million Euro



MFFEE used private sector ESCO financing for public sector energy efficiency



Donor support from the European Union





The EU EBRD Romania Sustainable Energy Finance Facility (RoSEFF) financed SMEs

- Loans to a wide range of private sector SMEs through four participating financial institutions.
- Free (EU financed) technical consultancy from Tractebel Engineering
- EU grants of 10% or 15% of the loan value
- Fast-track technical eligibility for small, simple projects using a Technology Selector (list of eligible measures and equipment)

Results

• 341 investments totaling 69 million Euro



RoSEFF financed small and medium sized enterprises.



Donor support from the European Union



The new residential GEFF in Romania features

- Concessional financing from Taiwan ICDF for EBRD loans to Banca Transilvania and UniCredit
- GEF financing for consultancy by Tractebel Engineering
- There are **no grants** for end users (unlike previous GEFFs)

Eligible investments include

- Pre-approved measures that meet defined performance standards from an online GEFF Technology Selector
- Assessed investments with a free Assessment (report) that demonstrates technical eligibility.





GEFF finances investments that improve energy efficiency, water efficiency or use renewable energy in households.





Donor support from Taiwan ICDF and the Global Environment facility



GEFFs finance robust investments by robust investors

- Sub-borrowers (investors) must be creditworthy
- Investments must be energy efficiency or renewable energy
- Specific rules vary from GEFF-to-GEFF

Investments must be green economy investments

- Either: Assessed individually to bring minimum 20% specific energy savings;
- Or: Selected from a database of eligible technologies that meet defined energy performance standards.



Companies make green economy investments for commercial reasons; households for **lifestyle**, comfort and financial savings.



GEFFs have wide geographical outreach

- The Facility
 Consultant trains
 local PFI branches in
 how to recognise and
 act upon energy
 efficiency lending
 opportunities...
- ... so outreach is as wide as the branch networks of the local banks





GEFFs help investors to afford better technologies



Production lines



Automation



Compressors



CNC machines



Lifting



Lighting



Cogeneration



Motors



Vehicles



Shaping



Solar



Biomass/biogas



Hydroelectricy



Insulation



Combustion



Heat recovery



Cooling/chilling

and more...



GEFFs have financed energy efficiency in a very wide range of sectors



Metalworking



Wood sector



Hydroelectricity



Plastics



Housing



Public lighting



Retail



Agriculture



Automotive



Hotels



Printing



Civil engineering



Textiles



Machine building



Food and drinks



Baking



Paper

and more...

G

3. GEFFS IN ROMANIA 2008-2018

GEFFs raise awareness

- Online and offline publications
- Short movies
- Technical case studies
- Awards events
- Public events
- A technical Help Desk
- Training
- Site visits
- ... and much more....





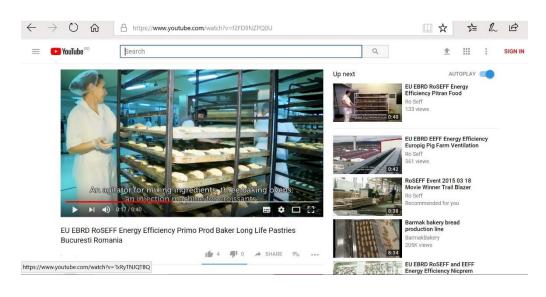
Targeted information for specialist audiences highlight benefits of investing in energy efficiency and renewable energy.

Œ

3. GEFFS IN ROMANIA 2008-2018

GEFFs raise awareness

- Online and Offline publications
- Short movies
- Technical case studies
- Awards events
- Public events
- A technical Help Desk
- Training
- Site visits
- ... and much more....

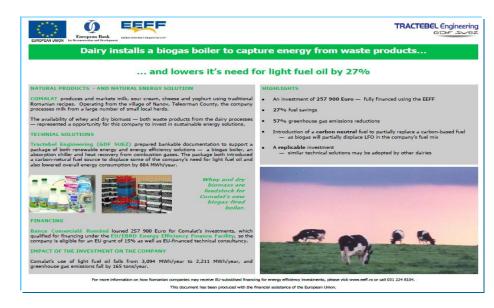


More than 70 EEFF and RoSEFF clips about successful investments may be found on YouTube



GEFFs raise awareness

- Online and Offline publications
- Short movies
- Technical case studies
- Awards events
- Public events
- A technical Help Desk
- Training
- Site visits
- ... and much more....



Interesting and replicable investments are typically written up as case studies

G

3. GEFFS IN ROMANIA 2008-2018

GEFFs raise awareness

- Online and Offline publications
- Short movies
- Technical case studies
- Awards events
- Public events
- A technical Help Desk
- Training
- Site visits
- ... and much more....



Gala Awards events recognise companies who chose to prioritise sustainable energy investments



GEFFs raise awareness

- Online and Offline publications
- Short movies
- Technical case studies
- Awards events
- Public events
- A technical Help Desk
- Training
- Site visits
- ... and much more....



Launch of the new residential GEFF in Romania, June 27th 2017



GEFFs raise awareness

- Online and Offline publications
- Short movies
- Technical case studies
- Awards events
- Public events
- A technical Help Desk
- Training
- Site visits
- ... and much more....



Contact
GEFF Help Desk
Tel. 031 22 48 104

G

3. GEFFS IN ROMANIA 2008-2015

GEFFs raise awareness

- Online and Offline publications
- Short movies
- Technical case studies
- Awards events
- Public events
- A technical Help Desk
- Training
- Site visits
- ... and much more....

'Financing Sustainable Energy'

1. Why Sustainable Energy?

- O What is Energy Efficiency? What is Renewable Energy?
- Why banks and their clients need to understand sustainable energy

2. Typical Energy Efficiency Investments

- Industry Machines/Production Combustion Cooling Processes
 Buildings Energy Management Systems CHP Heat Pumps
- 3. Typical Renewable Energy Investments
- o Renewable Heat: Solar Biomass Biogas Biofuels Geothermal
- Renewable Electricity: Wind PV Hydro Bio RES-E Economics

4. Economics of Sustainable Energy

- Cash Flow DCF NPV Payback IRR Sensitivity Analysis
- o Balance Sheet Financing Project Financing Third Party Financing

5. Subsidies for Sustainable Energy

- Green Certificates White Certificates EU ETS Structural Funds
- Cogeneration Bonus Casa Verde Other/future subsidies

Training bankers is a core GEFF activity.



GEFFs raise awareness

- Online and Offline publications
- Short movies
- Technical case studies
- Awards events
- Public events
- A technical Help Desk
- Training
- Site visits
- ... and much more....



Specialist engineers from Tractebel Engineering visit sub-borrowers to identify technically and financially sound energy-saving opportunities.



GEFFs are streamlined

- Well-designed systems
- Rapid technical approval

Investment proposals move fast

- Simple online procedures for standard investments.
- Rapid, effective, free technical consultancy for complex projects

Independent verification

For investments with EU grants



Investors do not want to wait – so rapid response and lightweight procedures are integral features of GEFFs

The EBRD Green Economy Financing Facility



- 1 Green Economy Transition (GET)
- 2 Green Economy Financing Facility
- 3 GEFFs in Romania 2008-2018
 - 4 The new residential GEFF in Romania
- 5 Questions?







4. THE NEW RESIDENTIAL GEFF IN ROMANIA

Tractebel is again helping EBRD to roll out financing for energy efficiency in Romania...



6 partner banks

BCR, BRD, Banca Transilvania,
CEC Bank OTP Raiffeisen

129

industrial investments

totaling

111 MEUR



1 partner bank
BRD

3
municipal investments
totaling
10 MEUR



4 partner banks

BCR BRD

Banca Transilvania, UniCredit

341
SME investments, totaling
68 MEUR

... and now...





4. THE NEW RESIDENTIAL GEFF IN ROMANIA

Tractebel is again helping EBRD to roll out financing for energy efficiency in Romania...



6 partner banks

BCR, BRD, Banca Transilvania,
CEC Bank OTP Raiffeisen

129

industrial investments

totaling

111 MEUR



1 partner bank

3 municipal investments totaling **10** MEUR



4 partner banks

BCR BRD

Banca Transilvania, UniCredit

341 SME investments, totaling 68 MEUR



2 partner banks
Banca Transilvania, UniCredit

A recent 100 MEUR residential framework

... but it is the first time we have worked together on the household sector

4. THE NEW RESIDENTIAL GEFF IN ROMANIA

The latest GEFF was launched in Romania on 27th June 2017

A 100 MEUR EBRD financing framework for the household sector





Donors

- TaiwanICDF provides concessional financing through EBRD
- Global Environment Facility (GEF) finances consultant support





Participating Financial Institutions (PFIs)

- Banca Transilvania with 40 MEUR
- UniCredit Bank and UniCredit Consumer Financing with 45 MEUR





Facility Consultant (FC)

Tractebel Engineering consortium – technical consultants





EBRD designed GEFF to be flexible, enabling PFIs to choose how to bring green energy investments to into households

- Credits of up to 100,000 Euro for physical persons for eligible green economy investments in the home; and
- Credits of up to 5 million Euro for multi-household buildings and for businesses who supply households with green economy goods and services.

PFIs have chosen to focus on physical persons

- Home mortgages for energy-efficient homes;
- Consumer loans for green economy products;
- Credit card payments for green economy products from selected retailers who partner with PFIs;

What are eligible household investments?



- 1. Energy-efficient homes
- 2. Home renovation products
- 3. Energy or water-saving home products (boilers, fridges...)
- 4. Home renewables (solar systems, biomass boilers...)





There are two procedures... fast and very fast!

GEFF Assessment

A (free) GEFF report from Tractebel Engineering that confirms technical eligibility to be financed using GEFF





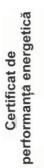


GEFF home mortgages

- New and recent homes with an EPC (Energy Performance Certificate) of 'A' or 'upper B' are technically eligible for GEFF.
- Older homes and major renovation projects may be eligible if the FC can demonstrate that 20% energy savings will be achieved.

Every GEFF home mortgage receives a (free) Assessment

- Standard mortgages for dwellings that already have an eligible EPC receive a simplified Assessment within two days. (We also check that various EBRD financing rules satisfied).
- Non-standard mortgages receive a full Assessment which takes a little longer. (e.g. for older homes, or refurbishments, or new home under construction that don't have an EPC yet).





New and recent homes with an EPC rating of A or 'upper-B' are **technically eligible** to be financed using GEFF.

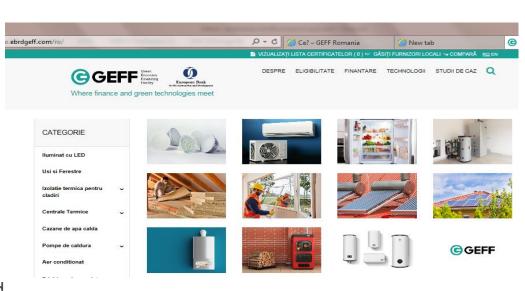


The GEFF **Technology Selector**

- An online list of high-performing household technologies
- Pre-approved to be financed using GEFF
 no technical Assessment is required

The Technology Selector is an open list

- Home lighting, heating, air conditioning, refrigeration, windows, insulation, more...
- All models meet clearly defined, published technical performance standards.
- Adding equipment to the list is free...



Click 'Technology Selector' at www.ebrdgeff.com/romania



The GEFF **Technology Selector includes**



Lighting improvements are simple way to save energy in the home

- LED lighting come in a wide range of 'warm' and 'cold' colours
- **Controls** like presence sensors, day-night controls; and even smartphone apps. can control lighting levels and lower costs.
- Typical energy savings: up to 80% if replace conventional lighting.
- GEFF eligibility rule:
 - **Equipment**: LED lamps rated ≥ 80 lumens/Watt
 - Other: auxiliary/installation costs up to 20%



LED lighting rated ≥ 80 lumens/Watt





A cool home can be achieved in several ways

- Shade south-facing windows;
- Insulate to keep air-conditioned rooms cool in summer (and heated rooms warm in winter).
- Select an energy-efficient air conditioner model;
- Make sure it is **correctly sized** for the space
- Typical energy savings: Replacing an old air conditioner with a new, correctly-sized energy-efficient model can cut your cooling bills by 45% - or more if combined with shading and insulation.
- **GEFF eligibility rule**: Energy Label **A++** or **A+++**



Air conditioners with Energy Label A++ or A+++



Did you know that your fridge uses more electricity than your washing machine?

- Surprising, but true (in most homes) as your refrigerator consumes electricity 24 hours-a-day, 365 days-a-year. It is one of the biggest energy consumers in our homes.
- Typical energy savings:
 - Replacing a quite modern A+ model with an A+++ model can almost half your electricity use.
 - Replacing a 10-15 year old fridge with a new, A+++ model can bring up to 70% electricity savings.
- GEFF eligibility rule: Energy Label A++ or A+++



Fridges and freezers with Energy Label
A++ or A+++



Heat pumps are not a solution for everyone, but can be a good alternative to electric heating and cooling

- The ground beneath our homes and gardens always stays at a roughly constant temperature. A heat pump system uses this for both winter heating and summer cooling.
- A well-designed system to replace conventional electric heating and air conditioning may be a viable household investment.
- Typical energy savings: in an ideal application up to 80%.
- GEFF Eligibility rules:
 - Equipment: Coefficient of Performance ≥ CoP 4.3
 - Other: Auxiliary/installation costs up to 50%



Ground or water-source heat pumps ≥ CoP 4.3



Insulation for your home is a 'lifestyle' investment that:

- Thermal insulation saves money on heating and cooling your home;
- Keeps you warm in winter and cool in summer; and
- Improves the looks and value of your home

Walls, basements, roofs, windows, doors

- Typical energy savings: insulating the building envelope can lower heating and cooling costs by more than 30%.
- **GEFF eligibility rules**: **Equipment** rules for insulation are a bit long and technical for this presentation, so please see website. **Other** eligible auxiliary/ installation costs are **50**% for insulation and **15**% for sealed double-or-triple glazed **windows and doors**.



Thermal insulation of walls, roofs, basements



Sealed glazing U-Value ≤1.3 W/m²K





Hot water for your family doesn't need to be expensive!

- Washing represents a substantial part of household energy costs.
 A solar-assisted hot water system pre-heats water entering the hot water system, which lowers use of gas, fuel or electricity.
- **Vacuum tubes** are a better technology than **flat plates**. A well-insulated hot water cylinder maximises energy cost savings.
- Typical energy savings 65% (more in summer, less in winter).
- GEFF eligibility rules:
 - Equipment –the entire system providing that solar collectors have a Solar Keymark (or are ≥ 75% efficient)
 - Other: installation: labour costs up to a ceiling of 15%

GEFF Technology Selector



Solar collectors with this Solar Keymark are GEFF compatible





A photovoltaic (PV) system installed on the roof of your home converts sunlight into free electricity!

- Typical energy savings: A PV system offsets your electricity consumption 1:1, so every 1 kWh that you generate at home is 1 kWh that you don't need to buy from your electricity supplier.
- GEFF Eligibility rules:
 - Equipment: PV panels electrical efficiency ≥14% and the rest of the solar system including inverters, cables, connection boxes and auxiliary equipment are considered to be eligible costs
 - Other: installation costs up to a ceiling of 15% over-andabove eligible equipment costs are eligible costs



If PV panels are ≥14% efficient, the entire system is GEFF- compatible



Condensing gas boilers are smart!

- An old-fashioned conventional gas boiler pumps hot exhaust gases out of your home through the flue. A condensing gas boiler captures the heat before it pumps out the exhaust gases. The heat is redirected back where it belongs - into your home. The result: more heat for less money.
- Typical energy savings: changing an old boiler for a condensing model can lower natural gas consumption by up to 20%.
- GEFF eligibility Rules:
 - Equipment: only condensing models
 - Other: installation costs of up to 10% over-and-above the cost of the eligible boiler.



Only condensing gas boilers are GEFF-compatible



Biomass appliances

- Biomass boilers and stoves typically use low cost wooden logs and briquettes. Pellets boilers are a more expensive but more convenient solution as a pellets boiler can 'feed itself' with fuel.
- Typical energy savings: Replacing an old biomass boiler with a sophisticated modern model can lower fuel consumption by 20%.
- GEFF eligibility rules:
 - Equipment that achieves a thermal efficiency ≥ 85%.
 - Other: Delivery and installation up to 10%



Wood is the most popular biomass fuel.



Hot water cylinders

- A well-insulated hot-water cylinder (tank) is a simple, effective way to save money
- Avoid re-heating water that you already heated.
- All non-instantaneous hot water systems (that pre-heat and store water) can benefit from this technical solution
- **Typical energy savings** Replacing an old, poorly-insulated tank with a well-insulated one can lower costs by **up to 50%**.
- GEFF eligibility rules: Energy label 'A' or 'B'



Insulated hot water cylinders with energy labels 'A' or 'B'



Is it better to use a personal loan or a credit card to buy from the Technology Selector?

Personal loans

Advantage for the customer: may buy eligible technologies from any retailer.

but

Slightly more bureaucratic than a typical loan – an additional form to complete

VS.

Credit cards

Advantage for the customer: no forms to complete (zero bureaucracy!)

but

Only possible at defined retailers with partnership agreements with a PFI.

Procedure a personal loan for items from the Technology Selector

- Borrower must complete and sign a short, simple form, with:
 - A table of eligible equipment with check boxes for what will be acquired with the loan and in what proportion (fridge? solar? insulation? etc).
 - A declaration: "I intend to use the credit to buy energy efficiency, renewable energy and/or water saving technologies for which GEFF Eligibility Certificates are shown in the Technology Selector at www.ebrdgeff.com/romania".
 - This data is required so stakeholders know how GEFF financing is used
- The form is additional to the PFI's normal loan application procedures.
 - Includes clear explanatory notes (for the customer and the loan officer).

	Please tick intended	Cost as 1
with GEFF minimum performance standard and oligible costs		
Air conditioners with energy label A++ or A+++		
Refrigerators with energy label A++ or A+++		
Freezons with energy label A++ or A+++		
Fridge freezers with energy lated &++ or &+++		
Hot water cylinders with energy label A or B - May include up to 10% for deliverylinstallation costs.		
LED lighting meaning bulbs with 2 80 lumens/Watt - May include up to 20% for auxiliaries and installation costs.		
Sealed double-glazed or triple-glazed windows/doors with U-Value s1.3 WinPK.		
 May include up to 15% for transport/installation cods. Building insulation with see below for defined technical standards* 		
 May include up to 50% for auxiliary materials, transport, scaffolding hire, labour costs. 		
Biomass boilers with thermal efficiency 2 85%		
 May include up to 10% for transport/installation costs. 		_
Gas boilers with condensing models only		1
May include up to 10% for transport/installation costs. Heat pumps with minimum performance COP 4.3		_
 May include cost of heat pump plus up to 50% for auditory materials, transport and labour. 		
Solar PV with minimum electrical efficiency 14%		
 May include costs of panels, inverters, cables, connection boxes, and auxiliaries plus up to 15% for transport and installation costs. 		
Selar hot water systems with Solar Keymark label		
 May include solar collectors and entire hot water and/or heating system plus up to 15% for transport and installation costs. 		
Energy controls		
Energy Management Systems		
Container small waste-water-treatment plants		
Rainwater harvesting		_
Water re-use and recycling (Water re-use systems, Water treatment sets)		
Water demand reduction (water meters, water saving taps, water pressure reducers)		

CEEE

The GEFF form has two sides of clear, information and 'check boxes'



Using credit cards for items on the Technology Selector

- BT set up successful one-month GEFF pilot with eMAG for A++ and A+++ refrigerators, freezers and air conditioners.
- Household customers who used a BT StarCard received a 50 RON eMAG voucher and 10 months interest-free credit.
- Promotion started on day of the official GEFF launch, 27.6.2017 and led to 149 transactions totalling more than 50,000 Euro.
- This model works very well, so may be extended
- A non-bureaucratic way to deliver green economy financing within an existing product... so no separate application is needed.
- Interest-free credit makes energy-saving products affordable.



Romania is the first GEFF to successfully use credit cards to finance green economy investments.



Apply to use the GEFF at Banca Transilvania or UniCredit branches, or online



www.ebrdgeff.com/romania

links to EBRD GEFF product pages of Participating Financial Institutions







www.unicredit.ro

www.ucfin.ro

The EBRD Green Economy Financing Facility



- 1 Green Economy Transition (GET)
- 2 Green Economy Financing Facility
- 3 GEFFs in Romania 2008-2018
 - The new residential GEFF in Romania
- 5 Questions?



GEFF Help Desk 021 224 8104

romania@ebrdgeff.com

www.ebrdgeff.com/romania

TRACTEBEL



Green Economy Financing Facility

Developed by:



for Reconstruction and Development

Supported by:



