Where finance and green technology meet

Energynomics Workshop: "Energy Efficiency - On-Going Projects and New Ideas"

Constanța, Romania 3rd April 2019

> **TRACTEBEL** engie



Green Economy Financing Facility

Developed by:



Supported by:





The EBRD Green Economy Financing Facility



1 Green Economy Financing Facility

2 GEFFs in Romania 2008-2019

3 The current residential GEFF in Romania

4 Questions?

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Context: EBRD's Green Economy Transition 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 capacity-building, policy dialogue, multiple delivery channels.

G.E.T.

Green Economy Transition approach from 2016



S.E.I.
Sustainable Energy Initiative from 2006

- 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 of EBRD GEFF financing:
 - 129,000 clients of 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

























































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







































23 October 2018









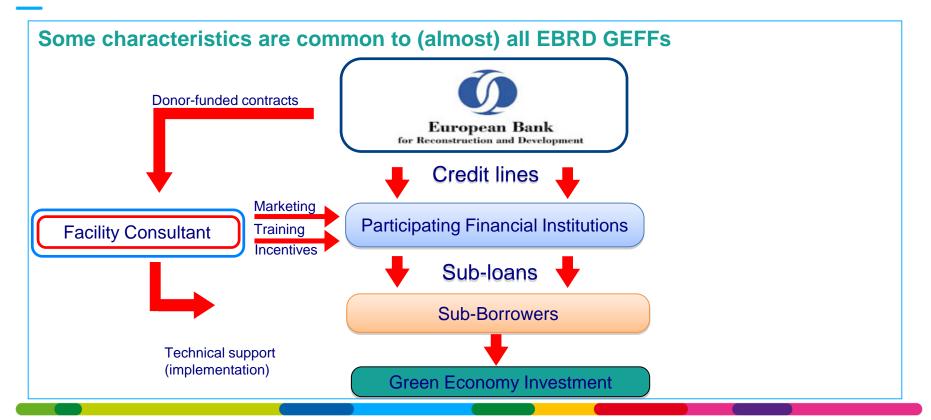




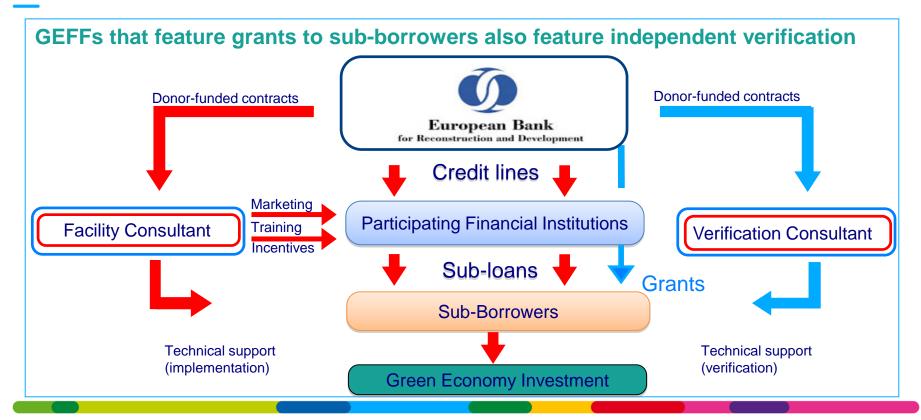












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Tractebel Engineering has worked with EBRD on GEFFs in Romania for 10 years....



6 partner banks

BCR, BRD, Banca Transilvania, CEC Bank OTP Raiffeisen

129

industrial investments
111 MEUR

Supported by:





1 partner bank
BRD

3
municipal investments
10 MEUR

Supported by:





4 partner banks

BCR BRD Banca Transilvania, UniCredit

341

SME investments, 68 MEUR

Supported by:



And now...



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



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68 MEUR





2 partner banks

Banca Transilvania, UniCredit

100 MEUR

Residential and
Energy Saving
Solutions Technology
framework,
Supported by:







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.



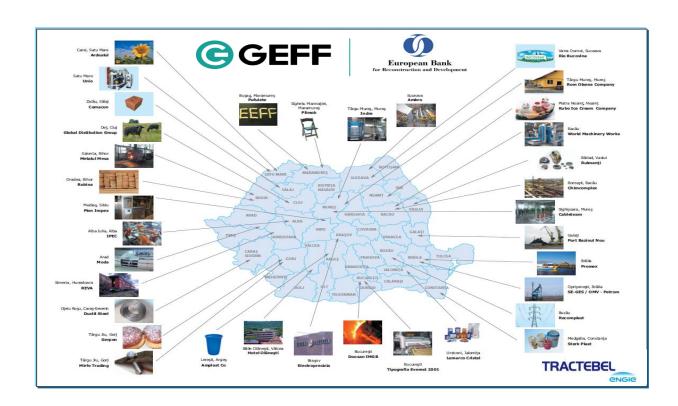
Companies make green economy investments for commercial reasons; households for **lifestyle**, comfort and financial savings.

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2. **GEFFS IN ROMANIA 2008-2019**

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



Households



Wood sector



Hydroelectricity



Plastics



Housing



Public lighting



Retail



Agriculture



Automotive



Hotels



Printing



Metalworking



Textiles



Baking



Machine building



Paper



Food and drinks

and more...

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2. **GEFFS IN ROMANIA 2008-2019**

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.



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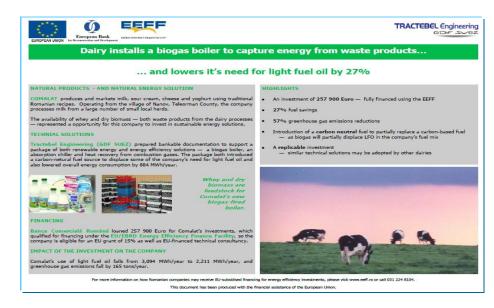


There are many GEFF clips online about successful investments in energy efficiency and renewable energy, include this clip about an energy-efficient home mortgage in Cluj-Napoca



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Interesting and replicable investments are typically written up as case studies



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



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

(3)

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Contact
GEFF Help Desk
Tel. 031 22 48 104



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'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.



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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

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3. THE CURRENT RESIDENTIAL GEFF IN ROMANIA

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> 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

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





GEFF is has progressing well to wards its €100 million target

Key dates and lending statistics

- June 27th 2017 Official GEFF launch
- €75 million of EBRD lending to Banca Transylvania and UniCredit Bank
 - of which €58 million has already be credited to 1,700 Romanian households
 - (updated to 28.2.2019 so probably closer to €65 million by now)
- +€10 million of EBRD lending to UniCredit Consumer Financing for a product to be launched soon
- <u>+€15 million</u> to be loaned by EBRD to an (undefined) participating financial institution this year
- =€100 million target



The residential GEFF in Romania features

- Concessional financing from Taiwan ICDF for EBRD loans to Banca Transilvania and UniCredit (UCB & UCF)
- GEFF 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

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3. THE CURRENT RESIDENTIAL GEFF IN ROMANIA

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 (PV, 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







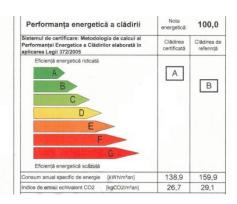
GEFF home mortgages

- 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.

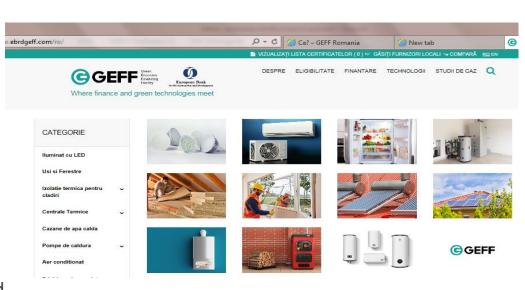


The GEFF **Technology Selector**

- 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**



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.
- News! Since 1.3.2019, you can sell your surplus power!
- GEFF Eligibility rules:
 - Equipment: PV panels electrical efficiency ≥14% and the rest of the 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-and-above eligible equipment costs are eligible costs



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



3. THE CURRENT RESIDENTIAL GEFF IN ROMANIA

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 wellinsulated 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





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+++



3. THE CURRENT RESIDENTIAL GEFF IN ROMANIA

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



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

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3. THE CURRENT RESIDENTIAL GEFF IN ROMANIA

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'

GEFF Technology Selector



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).

TABLE OF ELIGIBLE TECHNOLOGIES	Please tick intended	ľ
with GEFF minimum performance standard and oligible costs		I
Air conditioners with energy label A++ or A+++		Т
Refrigerators with energy label A++ or A+++		Т
Freezors with energy label A++ or A+++		т
Fridge Inserers with energy label A++ or A+++		т
Hot water cylinders with energy label A or B		۰
 May include up to 10% for deliverylinstallation costs. 		ш
LED lighting meaning bulbs with 2 80 lumers/Watt		Т
 May include up to 20% for auxiliaries and installation costs. 		L
Sealed double-glazed or triple-glazed windows/doors with U-Value c1.3 Wiln ² K.		ı
 May include up to 15% for transport/installation costs. 		L
Building insulation with see below for defined technical standards*		Ι
 May include up to 50% for auxiliary materials, transport, scaffolding hire, labour costs. 		L
Biomass boilers with thermal efficiency 2 85%		П
 May include up to 10% for transport/installation costs. 		┺
Gas boilers with condensing models only		ш
 May include up to 10% for transport/installation costs. 		╄
Heat pumps with minimum performance COP 4.3		ш
 May include cost of heat pump plus up to 50% for auxiliary materials, transport and labour. 		L
Solar PV with minimum electrical efficiency 14%		ш
 May include costs of panels, inveriors, casies, connection boxes, and auxiliaries plus up to 15% for transport and installation costs. 		ı
Solar hot water systems with Solar Keymark label		т
 May include solar collectors and entire hot water audior heating system plus up to 15% for transport and installation costs. 		l
Energy controls		Γ
Energy Management Systems		Т
Container small waste-water-treatment plants		Т
Rainwater harvesting		Т
Water re-use and recycling (Water re-use systems, Water treatment sets)		T
Water demand reduction (water meters, water saving taps, water pressure reducers)		
lower and the same R-Value can be achieved. Soft insulation (n conductivity A.s. 0.040 Witner, Minimum eligible trickness 5 cm.	olis) with thermal	

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





Using credit cards for items on the Technology Selector

- BT ran a one-month GEFF pilot with eMAG only for A++ and A+++ refrigerators, freezers and air conditioners.
- Pilot led to 149 transactions totalling more than 50,000 Euro.
- This model works very well, so has been running again from September 2018 for a wider range of energy-efficiency and renewable energy products.
- 18 months' interest-free credit encourages households to choose greener products over ordinary products.
- A non-bureaucratic way to deliver green economy financing within an existing product... so no separate application is needed



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

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