

TRACTEBEL Engineering
GDF SUEZ



Hotels – Cogeneration – Trigeneration – and the EU EBRD Energy Efficiency Finance Facility

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The EEFF is not designed for hotels...

A “fast track” grant-supported energy efficiency credit line, featuring:

- Loans – of up to 2.5 million Euros per *industrial* company, through:



- Free (EU financed) technical consultancy from Tractebel Engineering
- EU grants of 15% of the loan value (max. 375,000 Euro each)

... but EEFF rules are permissive for cogeneration

Although hotels are not considered to be 'industrial'...

- 'Industrial sector' (according to EEFF rules) means manufacturing and primary industries
- 'Service sectors' – including hotels – are not eligible to use the EEFF

... the EU has indicated that it likes combined heat and power (CHP)

- as energy savings are usually very substantial indeed with this technology...
- and the EEFF rules allow for case-by-case exemptions 'on the basis of energy to be saved'

So a hotel who wants to generate its own power, heat and cooling...

- ...is likely to be considered sufficiently 'industrial' to be financed using the EEFF

Why would a hotel want CHP?

CHP involves...

- Generating your own electricity – not buying it from the grid
- Heating and hot water for the hotel (and swimming pool, if applicable) from exhaust gases
- Cooling is also possible (tri-generation)

The performance of CHP investments can be very attractive...

- Economics typically much better than using conventional power/heat/cooling solutions
- Environmental impact (GHG emissions) typically much lower than conventional solutions

... and if you use the EEFF to finance the investment...

- Free technical consultancy from Tractebel Engineering... and a 15% EU grant



CHP may be financed directly using the EEFF...

EEFF credits (loans) of up to 100%

- From BCR, BRD, Banca Transilvania or CEC Bank

EU financed technical consultancy from Tractebel Engineering

+15% EU grants



... or third party financing using the EEFF is another option

An Energy Service Company (ESCO) could work with a hotel

- ESCO borrows using the EEFF and invests in CHP at the hotel (the hotel pays nothing)
- Hotel (not the ESCO!) receives the 15% EU grant
- Hotel buys, heat, cooling and power from ESCO for x years (typically 8 to 13 years)
- Then ESCO transfers the plant to the hotel for 1 Leu

In this case:

- The ESCO borrows...
- ... but the hotel receives the EU grant!

Benefits - 'win-win-win'

- For the hotel – no investment, cheap heat, power and cooling, an EU grant now, a plant in x years
- For the ESCO – recovers capital, interest and makes a profit over x years.
- For the environment – CO₂ emissions reductions.



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Other EEFF rules you should know about...

Borrowers must be creditworthy to use the EEFF

- BCR, BRD, BT or CEC Bank's lending rules will apply

May not receive another EU grant for the same investment

- Another EU grant for the same company is OK, though

The investment must perform well (technically and economically)

- At least 20% specific energy savings and At least 10% IRR
- The free study from Tractebel Engineering will show the energy savings and IRR



Seven steps - how a hotel can may use the EEFF to finance a CHP investment

1. Discuss with Tractebel Engineering to check that your CHP idea is eligible
(For hotels – which are not 'industrial' we will contact EBRD for a case-by-case exemption)
2. Discuss with BCR, BRD, BT or CEC Bank and sign a Letter of Engagement
3. Tractebel Engineering prepares a consulting study to support your investment
4. The hotel signs a loan agreement with BCR, BRD, BT or CEC Bank
5. The hotel uses the loan to make the energy efficiency investment.
6. Independent consultants MWH verify that the investment has taken place
7. EBRD pays the 15% grant into your bank account, in Euros



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FAQs ABOUT THE EEFF

Where does the money come from?

- 80 million Euro in loans available from EBRD through BCR, BRD, BT and CEC
- 12 million Euro in grants available from the EU through EBRD

What are the interest rates and other lending conditions?

- Ask BCR, BRD, BT or CEC Bank!
- Bank logos at www.eeff.ro link to the EEFF pages of their websites

Is EEFF difficult, bureaucratic and time-consuming to access?

- No! It is simple, straightforward and rapid!

Are the services of Tractebel Engineering and MWH free?

- Yes – the technical consultancy is financed by the EU through EBRD.



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36 investments with a combined value of almost 30 million Euro are under-way or complete...



'Real life' examples of heat and power investments financed using the EEFF...



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Borzești, Bacău

Combined Heat and Power was a solution for this large chemicals plant

Chimcomplex - an SCR company - is a major chemicals plant... and a major energy consumer

The company

- replaced grid-based power and a conventional steam boiler...
- ... with a cogeneration unit and a heat recovery boiler

This was a major energy efficiency investment

- costing around 10 million Euro...
- ... and bringing energy savings of approximately 30%.

An EEFF credit of 2.5 million from BCR helped finance this company



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Chitila, Ifov

This bakery invested nothing for this tri-generation plant!

SE-GES – and ESCO – provides energy services to Spicul – a bakery

- investor - SE-GES (Romanian American Enterprise Fund).
- beneficiary – Spicul Bakery.
- technical solution – Jenbacher 1 MWe tri-generation unit

The bakery lowers power, heat and cooling costs... without investing a penny!

1 MEUR of the investment from BRD Group Société Générale using the EEFF

- energy savings – approx. 3,500 MWh/year.
- financial savings from Day 1 – for no investment by Spicul
- GHG emissions reductions – approx. 700 t/CO₂e/year

The EU grant will go to the bakery!



Oprışenești, Braila

This plant took only three months to move from 'idea' to 'online'

OMV–Petrom and SE-GES signed a Build-Own-Operate-Transfer agreement in December 2009

- OMV-Petrom is South-East Europe's largest oil and gas producer
- SE-GES finances, develops, installs and maintains cogeneration plants for industrial companies

An innovative project was designed and executed very rapidly – online by February 2010

- producing electricity for use by Petrom using high-sulphur well gas

Energy and environmental benefits are impressive

- Primary energy savings - 38,143 MWh/year
- greenhouse gas emissions savings - 54,986 t/CO₂/year

The investment was financed by SE-GES using

- its own financial resources; and
- a 1.1 million Euro EEFF credit from BRD Société Générale.



So – for CHP only - hotels can join a wide range of sectors who may use the EEFF

Metals

Machine building

Oil-and-gas

Ceramics

Plastics

Chemicals

Textiles

Food and drink

Furniture

Heavy industry

Agriculture

Light industry

Hotels



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'Real life' examples of investments financed with the EEFF – from various sectors...



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Metals sector

State-of-the-art furnace yields hot energy savings

Ductil Steel, who manufactures steel wire in Oțelu Roșu, introduced:

- an energy-efficient electric arc furnace...
- ...with a continuous optimised shaft...
- bringing 44% specific energy savings

EEFF credit of 2.5 million Euro from BT helped this 12 million Euro investment

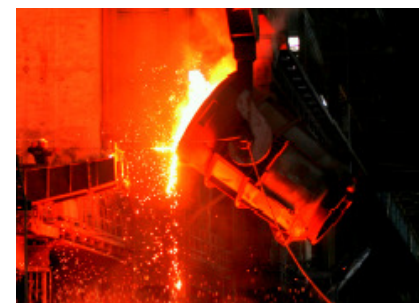


Forge melts down its energy bills

Doosan IMGB is Romania's largest forging and casting company

- replaced steam boilers and rehabilitated three ovens
- introduced an Energy Management System
- ... bringing 1.5 million Euro/year in energy savings

Financed using an EEFF credit of 2.5 million Euro from BCR



Plastics sector

Energy-efficient extruders

Indra of Târgu Mureş, who manufactures plastic foils:

- replaced one of its five extruders..
- ...lowering specific energy consumption by 42%

EEFF credit of 360,000 Euro from BCR towards this 400,000 Euro investment



Energy-efficient moulding machines

Sterk Plast of Constanţa, who manufactures household plastic items:

- bought an injection moulding machine and blow moulding machine
- payback – less than two years.
- monthly energy savings more than costs of servicing the loan

Financed using an EEFF credit of 345,000 Euro from Banca Transilvania



Textiles sector

Energy efficiency is always in fashion

Moda, Arad – made four types of investments

- replaced the electrical and ventilation systems
- replaced a textile cutting machine
- replaced compressors and pumps
- modernised a steam and hot water boilers
- achieving 35% energy savings

Financed with an EEFF credit of 294,000 Euro from BRD



Material cost savings for a dry cleaner

Prod Cresus, Bacau

- manufacturer clothes and runs a dry cleaning service
- replaced a steam boiler and a dry cleaning machine...
- found 31% energy savings

EEFF credit of 42,500 Euro from CEC Bank



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Food sector

Sweet energy savings...

Lemarco Cristal of Urziceni, Ialomița – a sugar processor – invested in:

- a steam plant, a conveyor system, a packaging plant...
- a water system a compressed air system, capacitors
- ... bringing 37% energy savings

EEFF credit of 1.3 million Euro from BCR

Crunchy energy savings!

Pufulete of Bușag, Maramureș – produces corn puffs coated with oil and salt

- retired two older extrusion machines
- bought a new, larger, more energy-efficient model...
- ... so energy use 'per corn puff' fell by 44%

EEFF credit of 180,000 Euro from BRD Société Générale



Wood processing

Sanding, milling, mortising and more...

Plimob - Sighetu Marmăției, Maramureș – a furniture manufacture:

- invested in new sanding, milling, mortising machines,
- fully-automated robotic varnishing in an electrostratic field
- replaced an exhaust installation, modernised an assembly line
- the result: 36% energy savings, payback in 4 years

Financed with an EEFF credit of 738,000 Euro from BRD Société Générale

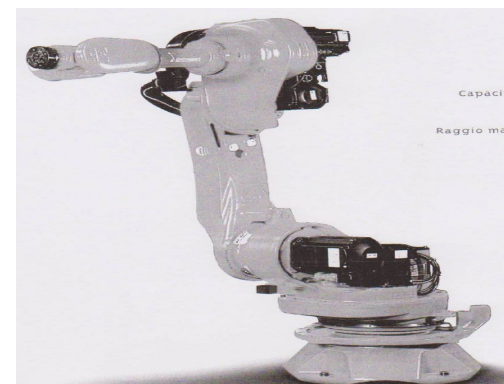


An energy-saving robotic polishing line

Smart Impex of Moftinu Mare, Maramureș – a coffin maker – invested in:

- two polishing lines (robotic polisher pictured), a finishing line
- a panel gluing press and production streamlining
- the result: specific energy savings of 63%

Financed using an EEFF credit of 269,000 Euro from CEC Bank



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Heavy industry

47% energy savings 'on track'

REVA Simeria – who builds and repairs railway rolling stock:

- replaced a steam boiler and two forge stoves
- recovered heat from its compressed air production facility
- rehabilitated its compressed air networks
- insulated its production hall

EEFF credit of 280,000 Euro from BCR

25% energy savings 'dredged up'

Promex, Brăila – a metallurgical company

- produces castings, turned and forged parts and makes earth-moving, road, construction and naval equipment
- modernised a heat treatment furnace and a lathe

EEFF credit of 473,000 Euro from BCR



Agricultural sector

Blooming energy savings

Fresh Flowers of Lehliu Gară, Calarași – is Romania's largest tulip grower

- replaced the greenhouse heating system
- built a better-insulated cold storage unit
- achieved 28% energy savings

Financed using an EEFF credit of 160,000 Euro from Banca Transilvania



Carbon-neutral technical solution

Ardeal of Carei, Satu Mare refines edible oils and animal feed meal

- replaced two old steam boilers...
- ... with a new sunflower seed shell-fired steam boiler
- achieved 17% energy savings

Financed using an EEFF credit of 740,000 Euro from BRD Société Générale



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Examples of technologies being financed using the EEFF...

Replacing equipment

Boilers

New technologies

Compressors

Heat recovery

Machines

Cooling

Building insulation

Replacing production lines

Lighting

Automation

Cogeneration

Relocation

Energy management systems

Trigeneration

Ovens

... and more



Relocation – an opportunity to become more energy-efficient

Compressors manufacture relocates

Timpuri Noi relocated to Jilava on the outskirts of Bucharest, and:

- insulated its new production hall; replaced older equipment;
- installed a modern heating system and solar-assisted hot water
- The result: 52% energy savings

Investment of almost 2.5 million Euro using an EEFF credit from BCR



Bakery relocates and uses an ESCO

Spicul bakery relocated from Bucharest to Chitila, Ilfov and signed...

- a Build-Own-Operate-Transfer agreement with SE-GES
- who installed a Jenbacher 1 MWe tri-generation unit
- so bakery lowers power, heat and cooling costs... without investing

SE-GES financing included a 1 million Euro EEFF credit from BRD



Replacing equipment

Energy *inefficiency* – is like throwing away money!

Amplast of Lerești, Argeș, who makes throw-away plastic packaging

- replaced five smaller thermoforming machines...
- ... with two larger thermoforming machines
- achieving 79% specific energy savings

Financed using an EEFF credit of approx. 1 million Euro from BCR

Energy *efficiency* – is like printing money!

Mega Press Holding – a large printing house and media group

- retired three rotary printing presses...
- and introduced a single larger rotary printing press
- which brought 59% energy savings

Financing – a EEFF credit of 2.45 million Euro from BRD Société Générale



New technologies

A hot way to save energy

Metalul Mesa of Salonta, who makes forged steel parts and specialist tools

- installed an inductive heating technology...
... to replace old, inefficient gas furnaces like this one
- and replaced old air compressors with a single new compressor
- achieving energy savings of more than 70%

Financed with an EEFF credit of 86,000 Euro from BCR



A cool way to save energy

Kubo Ice Cream Company, who makes 'Amicci' Ice Cream

- retired a freon-based cooling system...
- ... and introduced an ammonia-based cooling system
- yielding both environmental benefits and energy savings

EEFF credit of approx 1.1 million Euro from BRD Société Générale



Heat recovery

Waste heat to steam...

Rulmenți of Bârlad – a manufacturer of bearings and bearing elements

- who already had energy-efficient combined heat and power (CHP)...
- ... became even more energy efficient - by installing a recuperating boiler to produce saturated steam from CHP combustion gases
- Energy savings: 20% - 59% (depending on the steam demand)

Financed with an EEFF credit of 360,000 Euro from BCR



Waste heat to hot water...

Cableteam of Sighișoara – a cable manufacturer:

- fed heat recovered from an air compressor to the hot water system...
- ...and modernised a wiredrawing machine
- 43% energy savings pay for the investment in less than three years

Financed with an EEFF credit of 90,000 Euro from BCR



Machines

Energy bills cut (and rolled and pressed)

Recomplast of Buzău, who makes parts for the power network, invested in:

- oxy-fuel and plasma cutter; screw-thread rolling machine;
- an automatic press with mechanical feeding line;
- medium frequency inductive heating system

Financed using EEFF credits totaling around 200,000 Euro from BCR

Boring machine brings interesting energy savings!

Mirfo of Târgu Jiu manufactures machine tools and welded sub-assemblies

- modernised a boring machine and two overhead cranes
- and introduced an innovative natural daylighting system (pictured)
- Result: 39% energy savings, health and productivity benefits

EEFF credit of 329,000 Euro from BT towards this 411,000 investment



Building insulation

Lower heating costs...

World Machinery Works (WMW) is a machine builder, operating from Bacau

- modernised its heating system and insulated the production building
- saving energy and improving comfort levels for the workforce

Financed with an EEFF credit of 400,000 Euro from CEC Bank

... and a cosy workforce

Rom Olsena Company of Târgu Mureş manufactures nails and wire

- transformed a draughty old industrial hall into this modern-looking unit
- insulated roof, windows and doors – installed a modern boiler
- achieved 48% energy savings

Financed with an EEFF credit of 61,000 Euro from CEC Bank



Self-generation of heat and power

Combined heat and power investment brings 30% energy savings

Chimcomplex of Onești, Bacău – is a major chemicals plant

- Replaced grid-based power and a conventional steam boiler...
- ... with a cogeneration unit and a heat recovery boiler

This 10 million Euro investment included a 2.5 Euro EEFF credit from BCR

Power investment saves 55,000 tons of CO₂/year

OMV–Petrom’s site at Opreșenești, Braila has high-sulphur well gas

- The ESCO SE-GES installed a power plant to use the gas...
- ... make electricity to help meet OMV-Petrom’s power needs

SE-GES financing included a 1.1 million Euro EEFF credit from BRD

The EU has indicated that CHP is a priority – so may allow EEFF financing for investments of > 2.5 MEUR and for non-industrial sectors such as hotels.



Automation

A simple-and-effective way to bake some energy savings

Pion of Mediaș, Sibiu bakes cakes, pastries, cookies, sweets and wafers

- replaced a conventional wafer baking line with an automatic one...
- lowering energy consumption per wafer by 64%

Financed using a 239,000 Euro EEFF credit from CEC Bank



Robots save energy in Alba Iulia

IPEC of Alba Iulia manufacturers household porcelain articles for IKEA

- introduced two new glazing lines (with robotics)
- replaced an oven replacing two presses
- Production capacity up 60%; specific energy consumption down 55%

Financed using a two million Euro EEFF credit from BCR



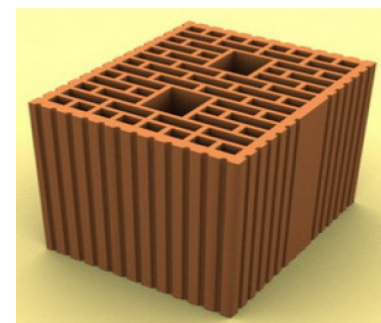
Updating production lines

Energy efficiency – an investment as solid as a...

Cemacon, Zalău, one of Romania's largest brick makers

- replaced an old ceramic block production line with a new one..
- ... including a tunnel kiln and a tunnel dryer
- lowering energy use per block
- 12.7 million Euro (of 28.4 million) was energy-efficiency related

Of which maximum EEFF credit of 2.5 million Euro financed by BCR



A sparkling example of energy efficiency

Rio Bucovina of Vatra Dornei is a producer of table mineral water

- Modernized a bottling line
- Replaced an ozone generator
- Lowered energy and environmental emissions by 22%

Financed with a 342,000 Euro EEFF credit from BRD Société Générale



If YOU would like to apply for a loan, free technical consultancy and an EU grant...

- Contact the EEFF team at Tractebel Engineering...
 - EEFF Helpline - 031 224 8104, eeff@eeff.ro
- ... or visit us online
 - www.eeff.ro
- ... or contact any participating bank



QUESTIONS?



Thank you for your attention

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