

Document of
The World Bank

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IMPLEMENTATION COMPLETION AND RESULTS REPORT
(TF-50705)

ON A

GLOBAL ENVIRONMENT FACILITY TRUST FUND GRANT

IN THE AMOUNT OF US\$ 10 MILLION

TO

ROMANIA

FOR AN

ENERGY EFFICIENCY PROJECT

April 24, 2009

Sustainable Development Department
Central Europe and the Baltics Country Unit
Europe and Central Asia Region

CURRENCY EQUIVALENTS
(Exchange Rate Effective November 10, 2008)
Currency Unit = Romanian New Lei (RON)
RON 1.00 = US\$ 0.34059
US\$ 1.00 = RON 2.93

FISCAL YEAR (FY)
January 1 – December 31

ABBREVIATIONS AND ACRONYMS

BCR	-	Commercial Bank of Romania
BOA	-	Board of Administration
CAS	-	Country Assistance Strategy
DO	-	Development Objective
EBRD	-	European Bank for Reconstruction and Development
EE	-	Energy Efficiency
EEFF	-	Energy Efficiency Finance Facility
EU	-	European Union
ESCO	-	Energy Service Company
FM	-	Fund Manager
FREE	-	Romanian Energy Efficiency Fund
GEO	-	Global Environment Objective
GDP	-	Gross Domestic Product
GEF	-	Global Environment Facility
GHG	-	Green House Gas
GOR	-	Government of Romania
IAS	-	International Accounting Standards
IC	-	Investment Committee
IRR	-	Internal Rate of Return
ISR	-	Implementation Status Report
IT	-	Information Technology
LIBOR	-	London Interbank Offered Rate
M&E	-	Monitoring and Evaluation
MTR	-	Mid Term Review
PAD	-	Project Appraisal Document
PDO	-	Project Development Objective
QPR	-	Quarterly Progress Report
TA	-	Technical Assistance
UK	-	United Kingdom
UNDP	-	United Nations Development Program

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ROMANIA
Romania Energy Efficiency Project

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MAP

A. Basic Information			
Country:	Romania	Project Name:	Energy Efficiency GEF Project
Project ID:	P068062	L/C/TF Number(s):	TF-50705
ICR Date:	04/24/2009	ICR Type:	Core ICR
Lending Instrument:	SIL	Borrower:	GOVERNMENT OF ROMANIA
Original Total Commitment:	USD 10.0M	Disbursed Amount:	USD 9.7M
Environmental Category: F		Global Focal Area: C	
Implementing Agencies: Romania Energy Efficiency Fund			
Cofinanciers and Other External Partners:			

B. Key Dates				
Process	Date	Process	Original Date	Revised / Actual Date(s)
Concept Review:	09/05/2000	Effectiveness:	11/01/2002	02/13/2003
Appraisal:	02/21/2002	Restructuring(s):		
Approval:	09/19/2002	Mid-term Review:	09/30/2005	02/21/2006
		Closing:	12/31/2007	06/30/2008

C. Ratings Summary	
C.1 Performance Rating by ICR	
Outcomes:	Satisfactory
Risk to Global Environment Outcome	Moderate
Bank Performance:	Satisfactory
Borrower Performance:	Satisfactory

C.2 Detailed Ratings of Bank and Borrower Performance			
Bank	Ratings	Borrower	Ratings
Quality at Entry:	Satisfactory	Government:	Satisfactory
Quality of Supervision:	Satisfactory	Implementing Agency/Agencies:	Satisfactory
Overall Bank Performance:	Satisfactory	Overall Borrower Performance:	Satisfactory

C.3 Quality at Entry and Implementation Performance Indicators			
Implementation Performance	Indicators	QAG Assessments (if any)	Rating
Potential Problem Project	No	Quality at Entry	None

at any time (Yes/No):		(QEA):	
Problem Project at any time (Yes/No):	No	Quality of Supervision (QSA):	None
GEO rating before Closing/Inactive status	Satisfactory		

D. Sector and Theme Codes

	Original	Actual
Sector Code (as % of total Bank financing)		
General finance sector	10	10
General industry and trade sector	90	90
Theme Code (Primary/Secondary)		
Climate change	Primary	Primary
Other financial and private sector development	Primary	Primary
Pollution management and environmental health	Primary	Primary
Technology diffusion	Secondary	Secondary

E. Bank Staff

Positions	At ICR	At Approval
Vice President:	Shigeo Katsu	Johannes F. Linn
Country Director:	Orsalia Kalantzopoulos	Andrew N. Vorkink
Sector Manager:	Ranjit J. Lamech	Hinderikus Busz
Project Team Leader:	Varadarajan Atur	Varadarajan Atur
ICR Team Leader:	Varadarajan Atur	
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F. Results Framework Analysis

Global Environment Objectives (GEO) and Key Indicators(as approved)

The development objective of the GEF project is to enable companies in the industrial sector and other energy consumers to adopt and utilize energy-efficient technologies, financed under commercial criteria by the Romanian Energy Efficiency Fund (FREE) and cofinanciers. This would put the economy onto a sustainable path of lower energy intensity and green house gas (GHG) emissions.

The global environment objective of the project is to improve the knowledge and the availability of mechanisms necessary for financiers and energy consumers to fund viable energy efficiency projects by removing barriers and lowering transaction costs.

Revised Global Environment Objectives (as approved by original approving authority) and Key Indicators and reasons/justifications

The objectives were not revised.

(a) GEO Indicator(s)

Indicator	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
Indicator 1 :	Tons of Green House Gas (CO2) reduction from EE investments facilitated by FREE			
Value (quantitative or Qualitative)	0	1.7 million tons over lifetime of investments		0.123 million achieved from 12 completed projects by end-2007 and 1.1 million tons estimated over lifetime of these investments
Date achieved	02/13/2003	12/31/2029		06/30/2008
Comments (incl. % achievement)	By end-2008, 16 projects were completed, from which 2.18 million tons cumulative CO2 reduction estimated over lifetime of the investments. Target fully achieved.			

(b) Intermediate Outcome Indicator(s)

Indicator	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
Indicator 1 :	Direct FREE financing of Energy Efficiency projects			
Value (quantitative or	\$0	US\$39.4 million (after 8 years of		11.4 million after 5 years of operation

Qualitative)		operation of FREE)		
Date achieved	02/13/2003	02/14/2011		06/30/2008
Comments (incl. % achievement)	Would need new capital to reach the target value by 2011, which is unlikely at this time. Target partly achieved.			
Indicator 2 :	Clients' and other cofinancing for EE projects supported by FREE.			
Value (quantitative or Qualitative)	\$0	US\$21.3 million after 8 years of FREE operation		US\$22.65 million by close of project
Date achieved	02/13/2003	02/14/2011		06/30/2008
Comments (incl. % achievement)	Fully achieved			
Indicator 3 :	Self financing of FREE (%)			
Value (quantitative or Qualitative)	0% for first 3 years (2003-2005) (costs fully financed by GEF TA)	100 % of operating and fund management costs from own revenues		115% by close of project
Date achieved	02/13/2003	06/30/2008		06/30/2008
Comments (incl. % achievement)	Fully achieved			

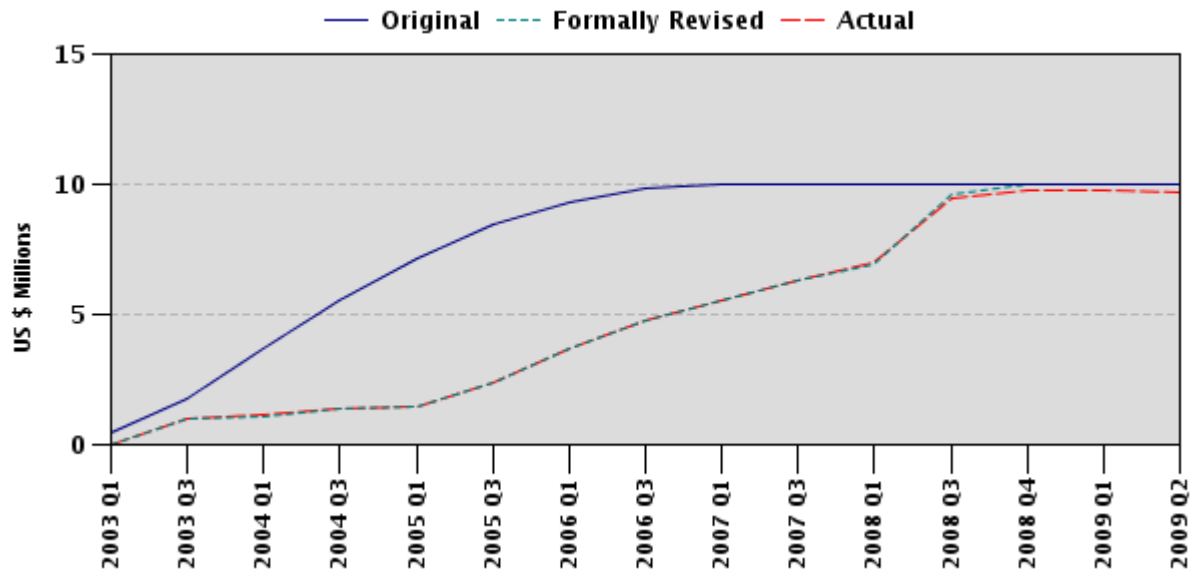
G. Ratings of Project Performance in ISRs

No.	Date ISR Archived	GEO	IP	Actual Disbursements (USD millions)
1	11/26/2002	Satisfactory	Satisfactory	0.00
2	06/03/2003	Satisfactory	Satisfactory	1.00
3	07/18/2003	Satisfactory	Satisfactory	1.00
4	12/12/2003	Satisfactory	Satisfactory	1.18
5	03/16/2004	Satisfactory	Satisfactory	1.35
6	11/23/2004	Satisfactory	Satisfactory	1.72
7	05/23/2005	Satisfactory	Moderately Satisfactory	2.38
8	04/28/2006	Satisfactory	Moderately Satisfactory	4.78
9	05/20/2007	Satisfactory	Moderately Satisfactory	6.58
10	06/28/2007	Satisfactory	Satisfactory	6.78
11	03/31/2008	Satisfactory	Satisfactory	9.48
12	06/24/2008	Satisfactory	Satisfactory	9.73

H. Restructuring (if any)

Not Applicable

I. Disbursement Profile



1. PROJECT CONTEXT, DEVELOPMENT OBJECTIVES AND DESIGN

(this section is descriptive, taken from other documents, e.g., PAD/ISR, not evaluative)

1.1 Context at Appraisal

(brief summary of country and sector background, rationale for Bank assistance)

Country and Sector Background: At appraisal in 2002, Romania's energy intensity (total primary energy supply per 1000 US\$ of Gross Domestic Product (GDP) and Green House Gas (GHG) intensity (CO2 emissions per 1000 US\$ of GDP) were among the highest in the region and were about five to ten times higher than in United Kingdom (UK), France, Germany, or United States¹. Inefficient energy utilization existed in all sectors of the economy, notably in the industrial sector, which accounted for over 60 percent of energy consumption but only 33 percent of GDP. In large part, such high intensity in Romania was due to aging equipment and antiquated technologies, and was an impediment to improving the competitiveness of Romanian industry.

Financing for energy efficiency (EE) was lacking mostly due to various barriers, including: (i) high transaction costs of identifying, developing and financing energy efficiency projects; (ii) high perceived risk of financing energy efficiency projects; and (iii) lack of financial and technical skills necessary to successfully develop energy efficiency projects. In addition, the prevailing Romanian market for corporate lending was not competitive, and there was no competition for clients, as demand for corporate loans was much greater than supply. Most lending was concentrated towards a few blue-chip clients and 85 percent of the lending of most of the Romanian-based foreign banks was directed to foreign-owned companies. As a consequence, financing was not available or too expensive for most credit-worthy smaller firms in the Romanian market. Available lending mainly consisted of working capital loans with a one year or less maturity and required full or even over-collateralized security. These loans were only available to established firms, potential exporters and/or Romanian subsidiaries of foreign companies.

Project finance was still nascent in Romania, but was expected to grow as the economy moved towards a more market-based structure. Project finance was available from foreign banks operating in Romania for projects that offered risk cover at high premiums. The few companies that had carried out some profitable and short-term energy efficiency investments primarily used their own internal funds. There was minimal interest by the local banks in extending new lines of credit to businesses for any project-based lending, especially for a specialized product such as energy efficiency which was unfamiliar to the banks as it produced improvements in an enterprise's bottom line (i.e., profitability) as opposed to top line revenue enhancements.

Despite the large potential for financially viable energy efficiency investments in Romania, only a few of those investments were actually being undertaken. Essentially, the market was not functioning in this area. Although there were numerous donor-funded technical assistance and technical demonstration projects to improve energy efficiency, these had achieved few results in terms of increasing investments on the ground.

¹ Based on 1999 data from the International Energy Agency, <http://www.iea.org/statist/keyworld/keystats.html>

Rationale for Bank assistance: The project supported the Country Assistance Strategy² (CAS) objectives of: (i) promoting economic growth through enterprise sector reform, particularly better utilization of energy resources, and (ii) protecting and sustainably developing environmental resources. The project aimed to contribute to Objective (i) by providing seed capital to a market-oriented financial facility that would offer financing for commercially attractive energy efficiency projects which would reduce production costs and improve competitiveness. The host enterprises targeted would be primarily in the private sector which experienced difficulties to access Romanian financial markets and faced very stiff collateral requirements. This new facility would fill a financing gap by originating transactions not pursued by the Romanian financial sector by combining expertise in energy efficiency analysis, structured finance and credit analysis, and by attracting commercial co-financing. The project addressed Objective (ii) by financing investments that would reduce energy consumption, and thereby contribute to reduction in air pollution and green house gas emissions. The environmental goals addressed by the project were closely linked to the European Union (EU) accession standards, which were also set as an important development benchmark in the CAS.

The involvement of the Bank and Global Environment Facility (GEF) in the project was regarded as essential in providing much needed capital for energy efficiency financing through a new mechanism while demonstrating the financial viability of lending for this type of investment. Energy efficiency efforts were at an impasse, and frustration was high among Romanian stakeholders. The lack of an integrated, coherent government policy and leadership had resulted in marginalization of energy efficiency proponents as opposed to a productive team effort. In December 2000, the Parliament had enacted an energy efficiency law that confirmed that efficient use of energy was an integral part of national energy policy, conforming to the Energy Charter Treaty and the principles of sustainable development. However, the energy efficiency law, by itself, was not expected to change energy efficiency investment activities in Romania dramatically, since any funding sources proposed in the law were at best uncertain.

The Bank's stature in Romania and its expertise in financing innovative energy efficiency projects worldwide were considered as essential to make a tangible difference and moving the Romania EE market. The prevailing situation in Romania provided an excellent case for a GEF contingent financing investment operation: there was both a strong need for a GEF catalytic role, and the operation of the Fund provided exceptionally high leverage for GEF funds. GEF-led participation was critical for the project; without GEF's involvement in capitalizing the Fund and supporting initial project and institution development, there was no question that neither the Fund nor the project could succeed in a reasonable time frame. Perceived high risks and transaction costs involved in supporting energy efficiency investments within the prevailing undeveloped market continued to cause lenders to pursue other opportunities and agendas. With GEF support to establish the Romanian Energy Efficiency Fund (FREE), both the demonstration value of profitable projects and the institutional means to attain them were expected to expand domestic financial institutional involvement in this market, both through increasing cooperation with FREE in formal co-financing arrangements, and indirectly by demonstrating the financial viability of EE lending as a financial product.

² Document number: 221 80-RO Date of latest CAS discussion: June 19, 2001

1.2 Original Global Environment Objectives (GEO) and Key Indicators (as approved)

The Development objective of the GEF project was to enable companies in the industrial sector and other energy consumers to adopt and utilize energy efficient technologies, financed under commercial criteria by the Romanian Energy Efficiency Fund and cofinanciers. This would help put the economy onto a sustainable path of lower energy intensity and green house gas emissions.

The Global Environment Objective (GEO) of the project was to improve the knowledge and the availability of mechanisms necessary for financiers and energy consumers to fund viable energy efficiency projects by removing barriers and lowering transaction costs.

Key performance indicators:

- Number of energy efficiency projects and associated investment volume with commercial banks participating in financing with FREE
- Gradual reduction of GHG emissions from participating industries and other clients
- Number of projects identified and presented for funding
- Ratings of understanding by end users and energy efficiency experts trained by FREE of successful, financially attractive energy efficiency measures

1.3 Revised GEO (as approved by original approving authority) and Key Indicators, and reasons/justification

The objective was not revised.

1.4 Main Beneficiaries

(original and revised, briefly describe the "primary target group" identified in the PAD and as captured in the GEO, as well as any other individuals and organizations expected to benefit from the project)

The project beneficiaries were the clients of the Fund who would implement measures to reduce energy consumption, Energy Service Companies (ESCO) who served them and suppliers of EE equipment who would benefit from increased sales. In the first phase of the project, FREE clients would be companies in the industrial and commercial sectors, which would also benefit from greater productivity and improved competitiveness.

In the second phase of the project it was expected that the building and public sectors would be ready to apply for commercial credit and finance projects that would benefit also the general population by reducing the cost of basic infrastructure services and improving comfort. The Fund Manager (FM) as well as co-financiers would participate in the successful Fund operation through higher earnings.

1.5 Original Components (as approved)

The project consisted of two components as follows:

Component 1: Investment Financing (US\$8 million)

Loans for Investments: Loans would be made on a commercial basis to creditworthy customers from the FREE that would revolve with interest and principal payments flowing back into it for

additional loans. Borrowers with good growth prospects would be targeted and their positive cash flows generated by investments in energy savings would be used to repay the loans.

In the first phase, the Fund would focus primarily on financing projects within restructured and/or privatized industries that could establish basic creditworthiness. Eligible projects would be limited to those meeting criteria to minimize risk and maximize the potential for success. Guidelines for eligible projects are summarized as follows:

- The projects and/or the Fund's financial support were expected to be in the range of US\$100,000 to US\$1,000,000.
- A well diversified portfolio of projects to assure a balanced risk-return to the Fund.
- Projects to have a relatively short payback time (generally under three to four years).
- At least 50 percent of each project's benefits to come from energy savings (e.g., process or capacity improvements that have ancillary energy savings benefits are not eligible)
- The technology must be well proven in the proposed application to avoid technological risk.

The main energy efficiency technologies that met these criteria were burners and boilers, variable speed drives, condensers for power factor improvement, compressors, controls, and steam traps.

Component 2: Technical Assistance (US\$2 million)

This component covered three broad areas:

- Capacity building, including activities in initial project development, workshops and seminars for partners and clients, training for fund manager and partners in energy efficiency financing techniques, and monitoring and evaluation (estimated cost US\$500,000).
- Fund management, including retainer fees of the Fund Manager for the first three years (estimated cost US\$900,000).
- FREE administration, including its set-up and running costs during the first four years (estimated cost US\$600,000).

1.6 Revised Components

The components were not revised.

1.7 Other significant changes

(in design, scope and scale, implementation arrangements and schedule, and funding allocations)

There were no changes to project design, scope, scale, implementing arrangements, and funding allocations during implementation. More local expertise was sought in the Fund Manager team after difficulties in the early stages of implementation. The project closing date was extended by six months from December 31, 2007 to June 30, 2008 to disburse sub-loans previously committed.

2. KEY FACTORS AFFECTING IMPLEMENTATION AND OUTCOMES

2.1 Project Preparation, Design and Quality at Entry

(including whether lessons of earlier operations were taken into account, risks and their mitigations identified, and adequacy of participatory processes, as applicable)

During preparation, project design took into account lessons learned from Energy Efficiency Fund experience worldwide. The design considered risk factors and adopted appropriate measures to mitigate all major risks identified at appraisal. The project provided a participatory framework involving stakeholders and direct beneficiaries in the decision-making processes. Considering the substantial risk of the project for implementation and possible shortcomings in progress and/or results, the design included an exit strategy to allow for earlier closing of the project.

Lessons of earlier operations taken into account.

- Maximize the transparency of procedures; minimize government interference in financing decisions. Establish and operate the Fund as a business, not a technology deployment system; profit-making should be an objective of the Fund.
- Use existing market players (i.e., banks) for functions (e.g., collections) where possible. Ensure high-quality financial, technical-and economic appraisals. Due diligence must be performed by professional staff with incentives for good performance. Ensure adequate pre-finance technical assistance to potential clients.
- The financing institution must be proactive in the development of a project pipeline. Marketing, particularly to senior management, is a critical step in the success of a Fund. Use third parties such as ESCOs or industrial associations to market and develop projects for the Fund, thus avoiding high transaction costs.
- Focus on short term loans for projects with high rates of return. Avoid placing funds in a few large loans; spread the risk through many projects. Fund financing should cover only a portion of the project costs; the borrower should have equity in the project. Lend only to credit-worthy clients; establish high credit-worthiness criteria, which are rigorously enforced. Full collection of interest and principal repayment is an overriding concern.
- Small projects have high transaction costs. They need to be packaged by partners such as ESCOs, or very simple mechanisms have to be designed to avoid costly audits and feasibility studies, such as a list of standard energy efficiency measures.
- Monitor thoroughly to ensure the funds are spent on the project, the project is implemented properly and operated as designed; monitoring provides an early warning for any problems.

These lessons were reflected in the institutional design of FREE (e.g. the structure of the Board with majority private sector members), its operations (e.g. attracting qualified staff at competitive salaries), Fund Manager contract (e.g. retainer plus performance based fee structure, including penalties for defaults). The then ongoing UNDP GEF TA project aimed at identifying potential EE projects and clients, assisting with feasibility studies, etc., complemented the GEF project design in pre-finance TA aspects. The final project design: (i) involved a bold new approach for demonstrating viability of commercial financing for EE project through a public-private-partnership structure; and (ii) adopted commercial funds practice of using a FM under a

performance based contract. On both these accounts, the project was setting a new track for EE project financing.

Risks and Risk Mitigation Measures. Overall, the project risk was considered substantial and rated accordingly. The table below shows the risks identified in the Project Appraisal Document (PAD) and provides an assessment for future projects based on implementation experience.

Risk	Risk Rating	Assessment of Risk
Projected energy savings and improved cash flows do not materialize	Substantial	In most cases, energy savings and cash flows were higher than estimated at appraisal. This risk is <u>“Modest”</u> .
Fund clients do not repay loans	Substantial	There were no defaults in repayment of loans to FREE. This risk is <u>“Modest”</u> .
Energy consumers are unwilling to borrow for EE investments	Substantial	Industries and commercial enterprises are quite willing to borrow at commercial rates; technical assistance and support is essential to induce them. This risk is <u>“Modest”</u> .
Energy price signals do not encourage end user interest in implementing energy efficiency measures	Modest	Energy prices are an important factor in end user interest. This risk is <u>“Modest”</u> .
Effective Fund Manager cannot be secured and retained	Modest	This risk is <u>“modest”</u> and bidding and evaluation must be carefully designed to ensure balanced between fixed fee and performance based payments in contracts.
FREE overhead costs surpass critical limit	Modest	Capping and careful monitoring is essential. The risk is <u>“Modest”</u> .
Adequate cofinancing cannot be secured	Modest	This is <u>“Substantial”</u> risk in unproven markets and requires sustained efforts.
Failure of early projects does not demonstrate viability	Modest	Early successes are essential to demonstration projects. This risk is <u>“Modest”</u>
Overall Rating	Substantial	The overall risk can be lowered to “Modest” for future projects

Adequacy of participatory processes.

Project identification and preparation included wide consultation and high-level participation among stakeholders, whose support and commitment were central to the successful project outcome.

- Industrial companies and their associations that were potential Fund clients.
- Manufacturers, contractors, service providers such as ESCOs, research institutes and engineering and consulting companies, and associations as Fund partners and allies.
- Financial sector, particularly banks, but also leasing companies as potential Fund partners and cofinanciers.
- Environmental stakeholders, interested in global issues, including UNDP-GEF team and the Romanian Energy Conservation Agency.

High-level management and energy managers of industrial sector companies identified as primary targets for financing energy efficiency investments, were consulted during the market assessment. However, this had been on a rather general level with the purpose of informing project design, rather than developing a project pipeline. Outreach activities also targeted potential Fund partners for project identification and preparation, including associations of industrial, small and medium-sized enterprises, manufacturers and suppliers of energy efficiency appliances, sectoral research institutes, and energy service companies, among others. This broad-based participation and public involvement was intensified during the later stages of project preparation. In November 2001, a workshop and investor conference was held which assembled all project stakeholders to further familiarize them with FREE.

2.2 Implementation

(including any project changes/restructuring, mid-term review, Project at Risk status, and actions taken, as applicable)

The project experienced considerable difficulties during the early stages from 2002-2004. The Fund Manager team was strong and had international experience, but the learning curve was steeper than expected for FREE executives, the Board of Administration and investment committee, and turnover of key officials exacerbated these difficulties. This slow start caused significant concerns of performance among decision makers, which was also accentuated by similar experience with failures of earlier EE projects. In mid-2004 the FM contract was revised to enlist more local expertise to improve interactions with potential clients and generate a more robust business plan. These changes brought some rapid successes – nine loan contracts committing US\$3.35 million within 18 months.

In January-February 2006 the Bank conducted a Midterm Review (MTR), which highlighted (i) an urgent need to realign expenses and revenues to improve self-financing prospects and (ii) further strengthen FM function with substantially more local specialists to ensure outreach to Romanian enterprises and improve project benefits. These recommendations were quickly implemented by the FREE executive and the Board and produced substantial increases in new projects and financial support from FREE. A new FM was contracted. In addition, the Board relaxed its approach to collateralization of loans, and streamlined operating procedures based on MTR recommendations. By mid-2007, the US\$8.0 million GEF investment financing grant was fully committed for 18 projects. The self-financing ratio continued to improve and first surpassed 100 percent in 2007, and there were no defaults or even late payments on loans.

Factors outside government control or implementation agency

When project implementation began, the Romanian economy was just starting to reap the benefits of prior economic reforms, creating a dramatically different investment climate than existed during project design. Declining inflation and interest rates, reduced internal government indebtedness, and successful restructuring of the banking sector and growing competition among banks led to substantial growth in lending to the private sector including medium and long-term loans that increased overall access to credit, and created high levels of competition for FREE. As a new market participant, the Fund was initially poorly positioned to compete in this changed environment.

Factors subject to government control or implementation agency

Although the FM had a strong team of financial experts and foreign energy efficiency specialists, development of business and marketing plans and finalization of FREE procedures took longer than expected. In a rapidly changing economic environment, the original FM struggled to identify potential projects, resulting in a very slow start for the Fund. Of the 58 companies with projects in the indicative pipeline identified during project preparation, only two actually signed financing agreements with FREE. The first project was not signed until September 2004, about 18 months after the FM had started work. Consequently, internal lending targets per the agreed upon business plan were not achieved. FREE controlled its operating costs tightly and revised business plans through continual monitoring.

The FM contract was revised in mid-2004, and local specialists were recruited. The full time presence in the field and increased local knowledge produced more business, although still below original targets. Nine loan contracts for US\$3.35 million were signed between September 2004 and January 2006. The new fund manager contract changed the compensation to a lower fixed fee and a higher performance-based remuneration. FREE and Government also acted quickly to implement MTR recommendations, which helped the project's eventual turnaround and substantial success.

2.3 Monitoring and Evaluation (M&E) Design, Implementation and Utilization

M&E Design. The project design included indicators to assess progress in meeting the project implementation targets and objective, and FREE had adequate methods for collecting these data. Project monitoring and evaluation activities were to be carried out under the responsibility of FREE, which would submit Quarterly Progress Reports (QPRs) to the Bank within 45 days of the end of each quarter. Project monitoring would focus on a set of key financial, technical, and institutional data to ensure that the project would meet its objectives. The financial information required reflected key issues that needed to be addressed to ensure that FREE achieved its self-financing status within a set period. The technical indicators focused on the implementation of energy efficiency projects and the extent to which they could be used for dissemination of best practices.

M&E Implementation. FREE regularly collected data according to the indicators developed during project preparation, including energy savings and CO2 emissions for each of the subproject. These data were closely monitored and the actual figures were compared with the target values. FREE prepared QPRs on every project and these reports were submitted to the Bank every three months, and Environmental Reports were submitted annually. Financial Monitoring Reports (FMRs) were prepared by FREE regularly.

M&E Utilization. M&E information from QPRs provided feedback to FREE and the Bank on issues on project implementation and project outcomes, which helped FREE, the government and the Bank focus on resolving outstanding issues and contributed to successful achievement of the Global Environment Objective (GEO). The M&E information helped FREE redesign product offerings, for example by adjusting interest rates and expanding upper limits for loan size, and was also used to develop success stories for FREE outreach activities, which according to FREE, were the most useful outreach tools to attract new clients.

2.4 Safeguard and Fiduciary Compliance

(focusing on issues and their resolution, as applicable)

There were no deviations or waivers from the Bank safeguards and fiduciary policies and procedures during project implementation. Romanian regulations required projects to have licenses, permits and environmental clearances, and the Fund Manager verified and monitored these through the financing contract. FREE prepared annual reports on environmental supervision.

2.5 Post-completion Operation/Next Phase

(including transition arrangement to post-completion operation of investments financed by present operation, Operation & Maintenance arrangements, sustaining reforms and institutional capacity, and next phase/follow-up operation, if applicable)

As a demonstration project for barrier removal, one of the key outcomes expected was increased financial sector interest in lending for EE projects. By 2007, the FREE's healthy portfolio of EE projects developed through a commercial approach was highlighted as an important factor by several commercial banks who had began lending for EE projects. The EBRD returned to the sector with another credit line (the Energy Efficiency Financing Facility, Euro 95 million, co-financed with the EU) which is being implemented with the participation of several leading local commercial banks (CEC Bank, Transylvania Bank, Commercial Bank of Romania, Romanian Bank for Development and Societe Generale) and the IFC is also planning to enter this market. Substantial funds from the EU Structural Funds are also anticipated by the market for financial support for EE projects. Some of these banks have asked FREE to provide guarantee for their lending to EE projects. FREE is examining this proposal which would require amendment to its legal framework and operating policies. The Commercial Bank of Romania (BCR) proposed in 2007, and again renewed its interest recently, to discuss new business initiatives with FREE, including proposals for acquiring its portfolio and institutional expertise for entering the EE financing market.

Despite this growing interest for lending, commercial banks and project sponsors have continued to express the strong need for pre-financing TA support, which was provided by FREE and the Fund Manager as part of pipeline / business development. Commercial banks' insistence on high and often liquid collateral has discouraged FREE clients to use the funds offered; at the same time, commercial banks seem reluctant to lend to certain EE markets – specifically residential, public buildings and municipal sectors - where the potential for energy savings and financial needs are large. The commercial banks' ability to sustain or expand lending to EE projects may also be affected by the extent and duration of the prevailing financial crisis. Given this large untapped market for energy efficiency and the GOR policy commitments to reduce energy intensity of the economy, there is a clear value added for utilizing the existing structure, expertise, and track record of FREE to facilitate future larger scale investments in energy efficiency in Romania.

Accordingly and encouraged by the project's successful impacts, the Government authorized FREE to continue its activities through reuse of repaid funds for new projects. The government has also indicated that FREE would be a window to facilitate access to EU assistance for energy efficiency. Since FREE already has a functioning institutional and operational setup with adequate M&E system, it is well positioned to continue its mandate for some more time. However, FREE can only continue to finance expenditures within the amount of its income from the project portfolio and the current level of support for new business development activities is low. FREE's income from its activities is quite modest and the repayments will allow only small amounts in new lending every year (about US\$2.5 to US\$3.0 million). Without new funds and renewed business development activity, FREE's sustainability is uncertain at this time. Also, in order for FREE to expand its activities and meet the Government's expectations for facilitating access to EU Structural funds, additional funds should be mobilized to focus more on TA as may

be demanded and also for scaling up financing for projects. Some grant funding from the EU is deemed likely and could be used for technical assistance to scale up energy efficiency. Government's timely decision concerning recapitalization of FREE should determine its sustainability and its scope of activities.

It will be important to make an evaluation three or four years after project closing, on how well the continuing EE agenda has been served by the FREE, and whether and how FREE accessed EU structural funds and supported commercial banks for EE financing in a demand driven manner.

3. ASSESSMENT OF OUTCOMES

3.1 Relevance of Objectives, Design and Implementation

(to current country and global priorities, and Bank assistance strategy)

The project's GEO remain relevant and important to Romania's current development priorities. It is timely and appropriate to the current needs of the country's energy sector, as Romania, a new EU member, aims to comply with the EU obligations to fully integrate global environmental issues into its national policies. As energy efficiency has become a central part of climate change, the Bank has also recognized energy efficiency as an important area that needs to be scaled up in Romania.

3.2 Achievement of Project Development Objectives

(including brief discussion of causal linkages between outputs and outcomes, with details on outputs in Annex 2)

Satisfactory. The project was successful in achieving its GEO. The project was a catalyst to undertake important pioneering work, overcome barriers and respond to Romania's enormous energy efficiency needs. The project enabled FREE to support EE projects on a commercial basis in several sectors and to provide an important model for the expansion of Romania's EE financing market.

The project has clearly demonstrated the viability of commercial financing for EE investments, and one important outcome is that several commercial banks are now interested in lending for EE projects. Major outcomes and achievements are as follows:

- FREE signed 20 loan contracts of which 18 proceeded to implementation with a commitment of US\$11.4 million from the fund, for a total investment of US\$34.19 million. Three commercial banks offered a total of US\$18.2 million for four large projects – about US\$14.2 million by BCR for three projects, about US\$3.0 million by CEC Bank for one project jointly with BCR and about US\$1.0 million by Transylvania Bank for the fourth project. But during implementation, only one client used about US\$8.6 million from BCR and the balance funding of US\$9.6 million were unused by the clients citing reasons of high collateral requirements. Thus FREE's clients contributed own resources of about US\$14.2 million.
- By June 2008, 12 projects were completed with an average payback period of 3.5 years, and saved about 123,458 cumulative tons of CO₂ for the period 2003-2007. Actual savings as reported by FREE have exceeded estimated savings presented in sub-project

appraisal by over 60% through 2007. The GHG reductions resulting from these completed investments cumulated over their lifetimes at current levels of energy savings is estimated to be 1.1 million tons of CO₂e.

- By end-2008, 4 more projects had been completed, resulting in cumulative CO₂ savings of 183,237 tons. The GHG reductions resulting from these 16 completed projects cumulated over their lifetime is estimated to be 2.18 million tons of CO₂e.
- FREE disbursed over US\$9.73 million from the GEF grant, including 100 percent of the US\$8 million GEF allocation for investment financing. FREE also used a part of the repayments in the revolving fund for additional loan commitments. All loans are being repaid punctually, without any late payments or defaults.

Project Portfolio

- More than 60 percent of the total investment size is covered by commercial bank co-financing.
- Twelve projects were private sector, or 83 percent of loan value and 93 percent of overall investment facilitated by FREE; the balance was public sector.
- Technologies include replacing old energy generation equipment (boilers, CHP, hydro, geothermal) and modernizing process industry equipment and public lighting (4 projects).
- The industrial sector accounted for more than 86 percent of total investment.
- After five years of operation, FREE has leveraged US\$34.19 million, and operating at the same rate, FREE could reach US\$55 million after eight years of operation.
- Estimated energy savings by end-2007 were 36,533 toe (tons of oil equivalent) from the completed projects.
- After five years of operation FREE has officially recorded 100 requests for financing; financing requests of about US\$51 million for investments amounting to US\$144.75 million.

Commercial Co-financing

FREE collaborated with several banks on project co-financing and the experience so far is encouraging. Banks were reassured about the commercial viability of lending for EE given the example of FREE's successful Romanian EE loan portfolio.

- Several local banks (notably BCR, Alpha Bank, CEC Bank) have expressed interest in establishing and/or strengthening future relationships with FREE as a strategic entry point into the EE lending market. While some TA support would be useful in this private sector integration, it is also necessary for banks to examine and adopt BCR's approach. Also, Alpha Bank has expressed interest in collaborating with the FREE to target marketing efforts to SMEs for EE loans. Most banks however worked directly with project sponsors who are their clients, but high collateral requirement continues to be a barrier for their success.
- While other commercial banks in Romania are also interested in the EE lending market, they are not yet ready to fully enter on their own given the work required to design new EE products, implement new procedures and market the new loans to their targeted

customer classes. The average size of EE loans (which is typically less than \$1 million) makes this a less attractive option to some banks compared with alternative options.

3.3 Efficiency

(Net Present Value/Economic Rate of Return, cost effectiveness, e.g., unit rate norms, least cost, and comparisons; and Financial Rate of Return)

The project achieved its goals efficiently based on outcome per GEF dollar invested. Loan repayments from implemented EE FREE loans are being returned to the fund, and are available for a new round of clean energy investments. The project had no defaults, so the final cost of the project, referred to as the final contingent grant amount, is only the time value of money for the invested GEF funds less the net returns from fees and spreads on recovered loans. The final net asset value of FREE is US\$8.71 million, slightly higher than its initial capitalization from the GEF grant on a nominal basis, meaning that the final GEF contingent grant amount is negative US\$0.71 million, and the net project cost to GEF including the TA component (US\$1.71 million disbursed) is US\$1.0 million. This investment of GEF funds is estimated to produce CO₂ reductions of an estimated 1.1 million tons over the lifetime of the 12 completed projects at close of project in June 2008. The final mitigation cost of GEF \$ per total ton of CO₂ avoided is \$0.91/ton (i.e. \$1.0 million/1.1 million tons), which compares quite favorably to similar GEF EE projects. Taking the 16 completed projects by end-2008, the final mitigation cost of GEF \$ per ton of CO₂ avoided would be \$0.45/ton (i.e. \$1.0 million/2.18 million tons). Therefore, for additional projects completed, the final mitigation cost effectiveness improves further, due to the multiplier effect of the reuse of funds from the revolving fund.

Sub-project internal rates of return (IRRs) were quite attractive to the borrowing enterprises, ranging from 11-69 percent, with several projects demonstrating financial rates of return in excess of 100 percent. Almost all projects experienced higher financial returns than estimated at appraisal due to better than expected energy savings performance combined with higher than projected energy costs.

3.4 Justification of Overall Outcome Rating

(combining relevance, achievement of GEOs, and efficiency)

Based on the above discussion, the overall outcome is rated as Satisfactory.

3.5 Overarching Themes, Other Outcomes and Impacts

(if any, where not previously covered or to amplify discussion above)

(a) Poverty Impacts, Gender Aspects, and Social Development

N/A

(b) Institutional Change/Strengthening

(particularly with reference to impacts on longer-term capacity and institutional development)

The key impacts were the following:

- The project was instrumental in demonstrating a public-private-partnership (PPP) mechanism for commercial financing of energy efficiency in Romania. FREE successfully fostered cooperation and coordination among EE stakeholders, and as a market oriented entity, attracted highly skilled professionals and other specialists.
- The project also demonstrated the feasibility of managing public funds on a commercial basis through a Board comprising public and private sector representatives. The project fostered public and private sector collaboration, including with commercial banks.
- The project raised awareness and interest of local banks for EE financing.

(c) Other Unintended Outcomes and Impacts (positive or negative)

None

3.6 Summary of Findings of Beneficiary Survey and/or Stakeholder Workshops

(optional for Core ICR, required for ILI, details in annexes)

N/A

4. ASSESSMENT OF RISK TO DEVELOPMENT OUTCOME

Ratings: Moderate

Of the 18 sub-projects financed by the Fund before close of project, 16 have already been completed and the remaining 2 are expected to be commissioned by mid-2009. All commissioned projects are delivering energy savings and cost reductions to host enterprises, in most cases higher than expected. Sub-project financial rates of return are generally high, based on actual cost and savings data. The enterprises have an adequate incentive to ensure appropriate operations and maintenance of these sub-projects. The project's experience and lessons would help to deal with the large and untapped potential for EE and Romania's policy commitments (e.g. EU's 20-20 targets). As noted before (sec 2.5), mobilizing new capital would be an important challenge for FREE and hence for Government.

5. ASSESSMENT OF BANK AND BORROWER PERFORMANCE

(relating to design, implementation and outcome issues)

5.1 Bank Performance

(a) Bank Performance in Ensuring Quality at Entry

(i.e., performance through lending phase)

Rating: ***Satisfactory***.

Bank performance in the identification, preparation, and appraisal of the project was satisfactory. During preparation and appraisal, the Bank took into account the adequacy of project design and all technical, financial, economic and institutional aspects, including procurement and financial management. Major risk factors and lessons learned from Energy Efficiency Fund experience worldwide were considered and incorporated in project design. In particular, experience from projects and efforts in Romania were carefully examined for lessons and guidance; these included the EBRD credit line that had closed without success, the Romanian-American Enterprise Fund

which attempted unsuccessfully to launch a EE guarantee mechanism, the Romanian Energy Conservation Agency which had inadequate resources and was unable to attract EE technical and financial specialists, the UNDP GEF TA project which was unable to identify financing for its clients.

Project preparation was carried out with an adequate number of specialists who provided the technical skill mix necessary to prepare a good project design. This was especially important given the innovative nature of the project, risks of the operation and the institutional building challenges. In consultation with experts in the Bank, the IFC, the GEF and private sector, the project team ensured quality input to the design of the project. While the project experienced some difficulties in the initial stages, the project design was assessed to be quite sound and appropriate at MTR and at close of project, as borne out by the project results.

The Bank and GEF provided adequate resources in terms of staff weeks and dollar amount to ensure quality preparation and appraisal work. The project was consistent with the CAS and government priorities in the sector at the time. The Bank had a consistently good working relationship with the Borrower during preparation and appraisal.

(b) Quality of Supervision

(including of fiduciary and safeguards policies)

Rating: *Satisfactory*.

The Bank's performance during the implementation of the project was satisfactory. Sufficient budget and staff resources were allocated, and the project was adequately and intensively supervised, and closely monitored, especially with the help of locally based staff. The team provided adequate attention and support to officials in FREE and the Board of Directors in the initial years as they were adjusting to their new tasks and challenges. The team carried out five field supervision missions over 18 months during 2003-04 when continual monitoring and adjustments to business plan and fund manager role were tackled. The Bank's timely MTR in January-February 2006 assessed progress on project components, the implementation issues being faced and the actions to be taken to ensure the successful completion of the project. The Bank was instrumental in encouraging the FREE and the Board to adopt streamlined procedures and strengthen the project with local skills.

The task team prepared Aides-Memoire regularly and discussed with the government, the FREE executive and its Board the implementation issues and recommended prompt corrective actions. The Implementation Status Reports (ISRs) realistically rated the performance of the project both in terms of achievement of development objectives and project implementation, as also judged by the responsiveness and actions of the client officials to steer the project toward improving performance. The task team also monitored safeguard and fiduciary compliances.

One important aspect of the Bank's performance and contribution was the continuity of the Task Team, including the TTL and other key sector specialists, from project inception through completion. This continuity engendered consistency, depth and follow-up in the dialogue with the government and provided expertise to help the government analyze issues and implement actions as they emerged during supervision.

(c) Justification of Rating for Overall Bank Performance

Rating: *Satisfactory*.

The Bank was instrumental in promoting this new concept to the Romanian authorities and consistently assured them of the need to address barriers to energy efficiency, even if previous attempts had failed or yielded poor results. The Bank was well aware of the risks of an experimental project and positioned itself well with support from GEF to undertake this demonstration project. The Bank ensured timely actions to address the project's needs, especially during implementation difficulties, supported FREE and the government to achieve successful results. Based on the Bank's consistent performance during the lending and supervision phases as discussed above, overall Bank performance is rated as Satisfactory.

5.2 Borrower Performance

(a) Government Performance

Rating: *Satisfactory*.

The Government of Romania initially demonstrated commitment to the project by acknowledging that it must improve energy efficiency to reduce the energy intensity of the economy, protect the environment and contribute to sustainable development. In October 1999, the Cabinet of Ministers and the Prime Minister asked the Bank to support preparation of a GEF-funded EE project. The GEF Focal Point in the Ministry of Environment requested a PDF-B grant and execution of the grant by the Bank. This high level endorsement led to the creation of a Working Group with participants from the key public agencies involved and from the private sector. Until the establishment of FREE, the Working Group met regularly to support national consensus building, review project preparation progress, provide comments and guidance on specific terms of reference for consultants, review their recommendations, and ensure finalization of outputs acceptable to the Working Group and the Bank.

The government maintained consistent commitment throughout project implementation. For example, the government that came to office in January 2001 collaborated with the project preparation team to structure FREE and facilitated its establishment through an Emergency Ordinance, approved by the cabinet in October 2001. Likewise, at the MTR, the government renewed its commitment and opted to continue the project during implementation, rather than prematurely canceling because of weak initial performance.

The government was keen to operate the project as a private/commercial operation, and decided to use the fund as a pilot to test out the commercial operation. Government officials worked closely with the Bank's project team on a continual basis throughout implementation.

(b) Implementing Agency or Agencies Performance

Rating: *Satisfactory*.

FREE was very committed throughout the project to expand commercial energy efficiency financing despite a slow start and several set-backs. As a public-private organization and a lending institution, FREE constantly engaged potential beneficiaries and other stakeholders, notably the banking sector, energy efficiency specialists and private and public associations. The members of the BOA met regularly and contributed to the progress of the project. The majority private sector Board included two representatives from the public sector - the Ministry of Economy, represented by ARCE and the Ministry of Environment as focal point for GEF – and five members representing the Romanian Association of Bankers, Romanian Business Association, Association of Producers of Electrical Appliances, and well known financial and environmental experts. The proceedings of the BOA and rotation of chair were smooth.

The project financial management arrangements continued to be satisfactory and control procedures were in place. The accounting software used by the FREE had adequate security levels and was used to prepare the quarterly FMRs of the project. The FMRs presented the information required in sufficient detail. The FREE also prepared monthly reports required by its BOA and some periodic reports requested by the Ministry of Economy and Finance (MEF). The FREE had adequate internal controls for the project, including regular reconciliation of bank accounts, adequate segregation of duties and monthly reconciliation of the Bank's disbursement summaries with project accounting records.

The FREE used a comprehensive set of accounting policies and internal control procedures in accordance with the Romanian legislation and the project financial management manual. There were several layers of control related to the approval of each contract and then of each invoice and payments. The contracts were reviewed internally by the various FREE experts, from the technical, economic and procurement angles. Once the contracts were signed for an approved activity, the FREE financial manager started monitoring the payment schedule, while the other experts monitored the technical implementation. The project continued to have adequate fund flow and disbursement arrangements. The FREE Executive Director prepared a revised project plan yearly, in consultation with the financial manager and based also on the information provided by the FM through the Business Plan. The plan was updated on a regular basis following the developments in project implementation and in consultation with the Bank.

(c) Justification of Rating for Overall Borrower Performance

Rating: *Satisfactory*.

The main reasons for the project's success are credited to the continual support of the Government and the persevering commitment of the FREE. The difficulties from changes to members of the Board and some turnover in the staff of FREE were overcome with dedication and efforts, as was seen in many Board meetings. The successful efforts are also borne out by the interest of commercial banks to collaborate and expand their business relationship with FREE. Accordingly, the overall performance of the Borrower and implementing agency is rated as satisfactory.

6. LESSONS LEARNED

(both project-specific and of wide general application)

- Based on the experience gained from this project as well as from the UNDP GEF project and the EBRD project, the project level transaction costs are still high and clients require considerable pre-investment TA support (feasibility studies, structuring finance and finding attractive financing, etc.) before large scale EE implementation is possible. Local knowledge and skills contribute to success more cost effectively.
- A strong and reliable pipeline of initial projects is essential to ensure early success of this type of project.
- The original Fund Manager contract structure should have been weighted more towards performance instead of retainer part; adding flexibility in the contract structure to adjust the fixed and performance fee would be desirable and avoids costly repeat procurement. Knowledge of local industry and market is very important to ensure success.
- For small demonstration projects such as this one, the institutional design of FREE was overly complex, but at the same time, the fiduciary controls and checks and balances are attractive features for scaling up with both public and private capital.

7. COMMENTS ON ISSUES RAISED BY BORROWER/IMPLEMENTING AGENCIES/PARTNERS

(a) Borrower/implementing agencies

The government's and FREE's comments are included in Annex 7.

(b) Cofinanciers

Specific cofinanciers were not identified at appraisal, but project sponsors were expected to mobilize financing to cover the part of their investment not financed by FREE. In the case of small size projects, FREE's clients used their own resources and in relatively larger size projects, the clients elected to work with their banks. The banks also chose to work directly with project sponsors – their clients – instead of with FREE, reportedly because of differences in business practices and collateral requirements. Overall, clients and commercial banks financed 66.6% of the US\$34.2 million total investments for 18 projects - a two-to-one leveraging of FREE's funds.

BCR turned out to be a significant financier working directly with FREE's clients. BCR has also shown interest to expand its EE lending and has proposed to develop business arrangements with FREE. BCR's comments are included in Annex 8.

(c) Other partners and stakeholders

(e.g. NGOs/private sector/civil society)

NA

ANNEX 1. PROJECT COSTS AND FINANCING

(a) Project Cost by Component (in USD Million equivalent)

Components	Appraisal Estimate (USD millions)	Actual/Latest Estimate (USD millions)	Percentage of Appraisal
INVESTMENT FINANCING	32.00	34.20	107
TECHNICAL ASSISTANCE: CAPACITY BUILDING FUND MANAGEMENT FREE ADMINISTRATION	2.00	1.714	86
Fund Manager	0.9	0.855	95
FREE	0.6	0.562	94
Capacity Building	0.5	0.343	69
Total Baseline Cost	34.00	35.914	106
Physical Contingencies	0.00		
Price Contingencies	0.00		
Total Project Costs			
Project Preparation Facility (PPF)	0.32	0.32	100
Front-end fee IBRD	0.00		
Total Financing Required	34.32	36.234	106

(b) Financing

Source of Funds	Type of Cofinancing	Appraisal Estimate (USD millions)	Actual/Latest Estimate (USD millions)	Percentage of Appraisal
Borrower / FREE a/		0.0	3.431	
Global Environment Facility (GEF)		10.32	10.034	97
Borrowing Country's Fin. Intermediary/ies		13.00	8.570	66
Sub-borrower(s)		11.00	14.199	129

a/: Reuse of GEF funds by FREE

ANNEX 2. OUTPUTS BY COMPONENT

Component 1: Investment Financing

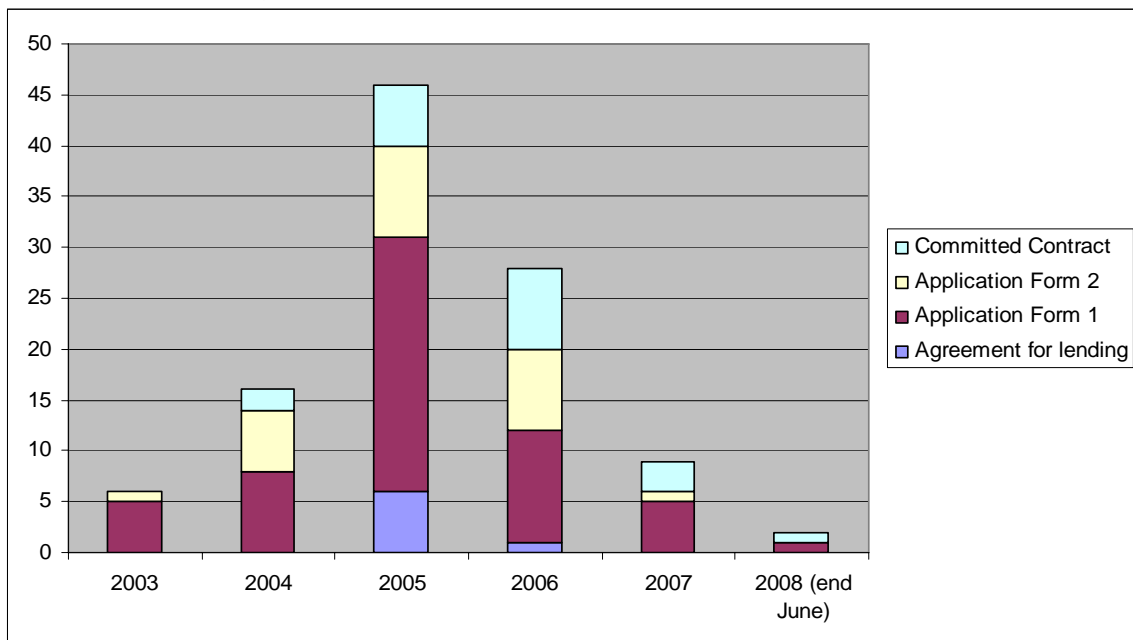
FREE signed 18 loan contracts for US\$11.4 million (US\$8 million from original GEF grant and \$3.4 million from repaid funds) for a total investment (including co-financing) of US\$34.2 million in energy efficiency projects by close of Project. The co-financing figures include end-user equity contribution of US\$14.2 million and co-financing of one large project by BCR for US\$8.6 million.

The 18 projects have an average payback period of 3.6 years. The 12 completed projects have avoided over 123,458 cumulative tons of CO₂ for the period 2003-2007 and about 36,533 toe in energy savings. Actual (measured) savings as reported by FREE have exceeded estimated savings presented in sub-project appraisal by over 60% through June 2008. The cumulative GHG reduction resulting from implementation of these investments over their lifetimes at current levels of energy savings is estimated to be about 1.1 million tons of CO₂. By end-2008, four more projects were completed and the resulting cumulative GHG reduction is estimated to be 2.18 million tons.

As of June 30, 2008, FREE disbursed US\$9.71 million, including 100 percent of the US\$8.0 million GEF allocation for investment financing. All loans are being repaid in a timely fashion, without any late payments or defaults.

While the average loan value is US\$ 608,000, two thirds of the projects are below this value. Twelve of the 18 projects were implemented in the private sector, encompassing 83 percent of loan value and 93 percent of overall investment facilitated by FREE; the remainder was in the public sector. Technologies include a wide range: replacement of old energy generation equipment (boilers, CHP, hydro, geothermal), modernization of technological equipment in process industries, public lighting (4 projects).

Figure: FREE Pipeline and Loan Contracts, 2003-2008



Component 2: Technical Assistance

Capacity Building: The first category of TA was originally designed for tasks directed mostly towards potential clients and partners of FREE to enable the development of successful investment projects and strengthen the necessary partners of the fund in providing essential services and generate and disseminate information to potential financiers and borrowers about the benefits to be achieved with energy efficiency investments.

Project development: Three projects were financed with project development support from the UNDP GEF project.

Workshops/Seminars: Training and education for FREE partners and clients, outreach activities and materials, development of materials for success stories:

(i) Awareness raising activities (workshops, seminars and others). Over the period 2003 - 2008, the Fund Manager and FREE staff participated in 108 national and international events. For the events organized on the premises of FREE in the period of 2005 - 2006 in Bucharest and in other parts of Romania, about 244 companies attended. The events focused on the private sector and industry, but a small number of public utility companies also attended.

(ii) Promotion materials & advertisements. Between 2005 - 2008, the Fund Manager and FREE staff participated in 75 press events which concentrated heavily on press articles in the national and local press in the 2005/06 period.

FREE has developed a website in Romanian and English languages (www.free.org.ro). It was initially launched in May 2003 and reengineered in June 2005. A considerable amount of information has been posted on the website but the most valuable information was provided by the 18 energy efficiency case studies published for every financing contract concluded. Since May 2006, a website reconfiguration of lending information provides quicker assistance to potential clients.

(iii) Other means of information produced by FREE include brochures and flyers with FREE's lending conditions that were transmitted or handed over to potential clients and event attendants.

Technical capacity building and development of alternative deal structures for energy efficiency investment for both the Fund Manager and selected partners such as ESCOs and Business Advisory Centers: The only funds spent in this category were used for accounting training of FREE staff which enabled them to switch to IAS.

ANNEX 3. ECONOMIC, FINANCIAL AND INCREMENTAL COST ANALYSIS

Financial Analysis: At appraisal, the financial IRRs for the 18 sub-projects which received loans from FREE were estimated to be in the range of 15% to 87%. At project completion, analysis was undertaken for 12³ of the completed projects for which updated data was available. More than half of the analyzed projects had financial IRRs which were higher than those estimated at appraisal, some very substantially. Major reasons for this improvement in performance included better than expected results in energy savings and higher than projected energy input costs (especially oil and gas). The project IRRs did experience some negative impacts from currency fluctuations, as most loans were made in dollars but energy input costs of the end users are obviously paid in ROL. The comparison of IIRs for the projects in FREE's portfolio are as follows:

Project	Client	IRR at Appraisal	IRR at Completion
1	UNIO I	38	69
2	TRANSGEX	40	36
3	CET IASI	16	15
4	ULEROM VASLUI	23	103
5	SOMES DEJ	60	109
6	CL ROVINARI	17	31
7	CL DOROHOI	29	20
8	CL BRAN	32	33
9	UNIO II	87	187
10	ARC DOROHOI	60	53
11	CL PECICA	30	11
12	RAFINARIA STEAUA ROMANA	49	324
	RAFINARIA STEAUA ROMANA	53	NA
13	COUNTY HOSPITAL ORADEA	17	17
14	OMINPEX HARTIA BUSTENI	22	22
15	ENEAS BUCURESTI	44	44
16	CHIMCOMPLEX BORZESTI	33	33
17	A6 IMPEX SA DEJ	19	19
18	3FAN CONSTRUCT SRL SANTIMBRU	15	15

Note: Projects 14 and 18 ongoing; all others completed

Key Assumptions

Discount rate of 12%	Energy cost escalation of 5% per year
Current level of achieved energy savings will continue for project economic lifetime	Potential increased O&M costs/additional investment not included in IRR calculations
Future exchange rate ROL/\$ is constant	Initial project costs and savings of appraisal documents utilized where actual updates are not available

³ Financial IRRs are based upon appraisal values for projects 13-18 as actual energy savings data is currently unavailable.

For the entire project portfolio of FREE, the financial IRR is estimated at 22%. This includes, as in the table above 12 projects with actual energy savings data and the remaining six projects with IRRs as estimated in the feasibility studies. For the 12 projects already implemented the portfolio IRR reaches 45%.

Incremental cost analysis

The project achieved its goals efficiently based on outcome per GEF dollar invested. Loan repayments from implemented EE FREE loans are being returned to the fund, and are available for a new round of clean energy investments. The project had no defaults, so the final cost of the project, referred to as the final contingent grant amount, is only the time value of money for the invested GEF funds less the net returns from fees and spreads on recovered loans. The final net asset value of FREE is US\$8.71 million, slightly higher than its initial capitalization from the GEF grant on a nominal basis, meaning that the final GEF contingent grant amount is negative US\$0.71 million, and the net project cost to GEF including the TA component (US\$1.71 million disbursed) is US\$1.0 million. This investment of GEF funds is estimated to produce CO₂ reductions of an estimated 1.1 million tons over the lifetime of the 12 completed projects at close of project in June 2008. The final mitigation cost of GEF \$ per total ton of CO₂ avoided is \$0.91/ton (i.e. \$1.0 million/1.1 million tons), which compares quite favorably to similar GEF EE projects. Taking the 16 completed projects by end-2008, the final mitigation cost of GEF \$ per ton of CO₂ avoided would be \$0.45/ton (i.e. \$1.0 million/2.18 million tons). Therefore, for additional projects completed, the final mitigation cost effectiveness improves further, due to the multiplier effect of the reuse of funds from the revolving fund.

Sub-project internal rates of return (IRRs) were quite attractive to the borrowing enterprises, ranging from 11-69 percent, with several projects demonstrating financial rates of return in excess of 100 percent. Almost all projects experienced higher financial returns than estimated at appraisal due to better than expected energy savings performance combined with higher than projected energy costs.

ANNEX 4. BANK LENDING AND IMPLEMENTATION SUPPORT/SUPERVISION PROCESSES

(a) Task Team members

Names	Title	Unit	Responsibility/ Specialty
Lending			
Varadarajan Atur	Task Team Leader	AFTEG	
Robert Taylor	Lead Energy Specialist	EASEG	Thematic Leader
Anke Meyer	Consultant	ECSSD	Energy Efficiency
Doina Visa	Sr. Operations Officer	ECSSD	Operations
Bernard Baratz	Principal Environmental Specialist	ECSSD	Environment
Irina Kichigina	Legal Counsel	LEGEC	
Nightingale Rubuka-Ngaiza	Legal Counsel		
Bogdan Constantinescu	Financial Management Specialist	ECSPS	
Leonod Vanian	Procurement Accredited Specialist	ECSPS	Fund Management
Nicholay Chistyakov	Sr. Disbursement Officer	LOA	
Jeremy Levin	Alternative Energy Specialist	ASTE	Finance
Rozena Serrano	Program Assistant	ECSIE	
Supervision/ICR			
Varadarajan Atur	Task Team Leader	AFTEG	
Carmen Elena Arhip	Operations Officer	ECSIE	Operations
Ahmet Gokce	Senior Procurement Specialist	ECSPS	
Peter Johansen	Sr Energy Spec.	ECSSD	MTR Guide
Violeta Kogalniceanu	Consultant	ECSIE	Institutional
Jeremy Levin	Sr Technical Spec.	SASDI	Finance
Peggy Janice Masterson	Operations Officer	ECSSD	Operations
Anke S. Meyer	Consultant	ECSSD	Energy Efficiency
Ireneusz M. Smolewski	Senior Procurement Specialist	ECSPS	
Leonid Vanian	Sr Procurement Spec.	ECSPS	
Doina Visa	Senior Operations Officer	ECSSD	Operations
Sati Achath	Consultant	ECSSD	
Rozena Serrano	Program Assistant	ECSSD	

(b) Staff Time and Cost

Stage of Project Cycle	Staff Time and Cost (Bank Budget Only)	
	No. of staff weeks	USD Thousands (including travel and consultant costs)
Lending		
FY00		81.30
FY01		87.44
FY02		82.13
FY03		18.04
FY04		0.00
FY05		0.00
FY06		0.00
FY07		0.00
FY08		0.00
Total:		268.91
Supervision/ICR		
FY00		0.02
FY01		0.00
FY02		0.00
FY03		47.49
FY04		59.06
FY05		46.29
FY06		76.02
FY07		59.17
FY08		87.93
FY09		51.76
Total:		427.74

ANNEX 5. BENEFICIARY SURVEY RESULTS

(if any)

NA

ANNEX 6. STAKEHOLDER WORKSHOP REPORT AND RESULTS

(if any)

NA

ANNEX 7. SUMMARY OF BORROWER'S ICR AND/OR COMMENTS ON DRAFT ICR

Provided by Ministry of Finance (via EM) for the Government

Relevance of the Project

The GEF EE project's have supported the development objectives of promoting economic growth through enterprise sector reform, particularly better utilisation of energy resources, and protecting and sustainability developing environmental resources. The projects have addressed the objective by financing investments that have reduced energy consumption, and thereby contribute to reduction in air pollution and green house gas emission. The environmental goals addressed by the project are closely linked to the EU accession standards, which are also set as an important development benchmark in the IBRD CAS.

As expressed by the energy efficiency law, the national energy efficiency policy is based on the following principles: reduce barriers to promote energy efficiency, promote financing mechanisms, educate energy consumers in more efficient use of energy, promote cooperation between producers, distributors and users of energy, and promote private sector energy service companies.

By endorsing energy efficiency, Government of Romania seeks to decrease the energy intensity of the Romanian economy, introduce new technologies and new energy sources and reduce the environmental impact of energy production, transport, distribution and consumption.

The GEF EE project's remains relevant and important to Romania's current development priorities. Romania has to comply with the EU policies in the energy sector as a member of EU. FREE is included in the EE strategy of Romania aiming to play an important role in helping Romanian institutions to reduce the energy consumption.

The project has demonstrated the viability of commercial financing for EE investments, encouraging the banks to get involved in this type of business. BCR Erste has been the first bank which co-finances projects with FREE, but several commercial banks are now interested in lending for EE projects and use the EBRD credit line (BCR Erste, CEC Bank, Transilvania Bank, and BRD Societe Generale).

Performance of FREE

FREE has concluded 18 contracts for US\$11.4 million. Despite of the slow start at the project closing in June 2008, FREE had disbursed 100 percent of the US\$ 8 million GEF allocation for investment financing and started to revolve GEF funds. There are not late payments or defaults for any projects. The FREE clients are both industrial companies and municipalities.

FREE is currently self sustaining, but the funds to be lend should be increased in order to become a viable partner for the big banks.

FREE has demonstrated that the PPP projects could be successfully implemented in Romania, and both the public and private interests achieved (win-win project).

Performance of Romanian Government

Ministry of Economy and Ministry of Environment have had permanent representatives in the FREE Board of Administration. Ministry of Economy through ARCE has constantly supported FREE establishment and its operation.

Ministry of Finance has been timely informed on the project issues, and actively contributed together with the World Bank team to take the necessary steps to efficiency use the GEF funds.

Performance of the World Bank

The collaboration with the World Bank team was good. Permanent consultations took place in the early stages for project design and the project start-up till the moment when FREE showed that they found the right approach for development. The World Bank team timely supervised the project, and clear and professional Aide-Memoires were prepared.

Conclusions

Overall the project has been successful and its experience and lessons learned would help Romanian Government to meet its obligation to the EU 2020 targets.

It would have been useful if more funds would have been allocated for a strong public campaign to increase the awareness of public on the efficient use of the energy and on the benefits brought by the projects financed by FREE.

Provided by Romania Energy Efficiency Fund (via EM)

In relation with what was initially considered for the Fund design, the following comments about the Fund past and further operation are to be presented.

The Bank Project Team has rigorously assisted the Fund Board of Administration and Executive during the implementation of GEF/IBRD Project. Compared with the initially expected Project outcomes, the present results are motivating everyone to accept that the Board of Administration, the Bank Project Team and the Fund Executive have had a successful common achievement.

The expected Project outcomes indicators were the volume increase of commercially financed investment in energy efficiency, the reduction in energy consumption and energy bills from commercially financed investments, the increase of financial sector institutions engaged in energy efficiency financing and their lending activity and a strong level of energy efficiency investments by end users, financed from external sources.

Conceived to support the development and implementation of commercially viable energy efficiency investments, the Fund still remains the unique specialized source of finance in the field. The Fund has succeeded to demonstrate that energy efficiency projects can be financed on a strictly commercial basis.

The Romanian Energy Efficiency Fund is currently a non - profit revolving financial institution, and active in the field of commercial financing from more than 5 years. The Fund' portfolio presently includes over 100 clients like private companies, local municipalities and public institutions. The success rate in committing contracts is currently 20%.

The Fund has reached its goal in reducing greenhouse gas emissions without public subsidy, through the development of a self-sustaining, market-based mechanism. The Fund made profit by providing investment financing to clients on commercial terms and the Fund self financing ratio presently stands at 152% and the Fund is revolving.

The private sector and industrial companies were initially considered targets for the Fund financing. The Fund project portfolio is presently dominated by large projects in the private sector. More than 91% from the total investment size of the Fund project portfolio is in private sector. More than 86% from the total investment size is in the industry.

The Fund was expected to use the competitive banking sector as a partner rather than a rival. More than half from the total investment size is presently covered by commercial co-financing from banks.

Presently, the Fund seems to be a reference and an attractive potential partner for the Romanian industrial sector but for municipal sector, too. In this context the Romanian Government continues to examine opportunities to find support for further business development of the Fund.

The major objective of further Fund operation consists in the volume increase of commercial financing provided as financial intermediary and to probably cover a share of about 3% from the relevant market.

The Fund's strategic goal is to "switch" from providing energy efficiency financing to providing and facilitating energy efficiency financing. The Fund should consolidate its key role of a market-oriented financial mechanism and continue to operate using the concept of loan repayments from the energy savings based financial benefits. As long as this concept will continue to be client attractive, the need for a significant increase in the amount of investment directed towards energy efficiency measures is unquestionable.

ANNEX 8. COMMENTS OF COFINANCIERS AND OTHER PARTNERS/STAKEHOLDERS

Specific cofinanciers were not identified at appraisal, but project sponsors were expected to mobilize financing to cover the part of their investment not financed by FREE. In the case of small size projects, FREE's clients used their own sources and in relatively larger size projects, the clients elected to work with their banks. The banks also chose to work directly with project sponsors – their clients – instead of with FREE, reportedly because of differences in business practices and collateral requirements. Overall, clients and commercial banks financed 66.6% of the US\$34.2 million total investments for 18 projects - a two-to-one leveraging of FREE's funds.

Commercial banks' interest was seen by end-2006, when FREE had successfully lent to nearly 12 projects of relatively small size, which were performing well. Four large projects attracted funding interest from three commercial banks totaling about US\$18.2 million. BCR offered US\$14.2 million to three projects (Omimpex, Chimcomplex and A6Impex); CEC Bank offered US\$3.0 million to Chimcomplex and Transylvania Bank offered US\$1 million to 3Fan Construct. However, during implementation of the projects, only A6Impex utilized US\$8.6 million offered by BCR, while the clients of other three projects elected to use own funds. The main reason cited by the clients for not utilizing commercial bank funds was the high and liquid collateral demanded by banks to use their funds, whereas FREE accepted equipment purchased by clients under the project as sufficient collateral. Thus BCR turned out to be a significant financier working directly with FREE's clients. BCR has also shown interest to expand its EE lending and has proposed to develop business arrangements with FREE.

BCR's comments are as below (Florin Pogonaru for BCR):

- The global end result of FREE's activity is a favorable one - considering the number of successful deals, the excellent default rate of financed transactions, the sustainability ratio, its co-financing capability and overall achieved reduction in energy consumption and GHG emissions;
- The configuration of FREE was conceived initially in a less satisfactory fashion mainly as regards the lenient description of the Fund Manager's role which allowed its less performing work(i.e. remuneration not related decisively on deal number, or other benchmarks linked to performance) ; only after correction of this situation led to a further favorable trajectory of FREE's performance.
- Keeping FREE strictly as a public financing facility is detrimental in respect to its future capability to properly fund EE projects in Romania primarily due to its limited financing capacity.

FREE also reported that other banks such as Alpha Bank, CEC Bank, Reifaissen Bank, etc., have generally expressed desire to collaborate with FREE, but have preferred to work directly with FREE's clients as noted above. Alpha Bank had once proposed to promote co-branding of their EE lending working with FREE, but subsequently indicated that FREE's capital base as too small for that strategy. FREE also reports that there is general interest among banks to have FREE guarantee banks' lending to EE projects for a fee, which will be a new product for FREE and requires modifications to its legal framework. FREE also conveyed that commercial banks' ability to expand EE lending may be significantly affected by the current global financial crisis, and also by the expectation of many project sponsors that grant funding would be available for EE projects from EU Structural Funds.

ANNEX 9. LIST OF SUPPORTING DOCUMENTS

- 1) Project Appraisal Document, Romania Energy Efficiency Project, August 27, 2002.
- 2) ISRs
- 3) Quarterly Progress Reports, FREE.
- 4) The Romanian Energy Efficiency Fund - Mid-term Evaluation. Consultant Report to FREE by Ian Smith and Sorin Patrascoiu. October 2005.
- 5) Government of Romania. National Strategy for Energy Efficiency 2003.
- 6) Government of Romania. First National Action Plan for Energy Efficiency 2007 – 2010

ANNEX 10. ADDITIONAL INFORMATION FOR GEF PURPOSES

Financial Planning: GEF Grant and Co-financing*

Co financing (Type/Source)	GEF Grant (mill US\$)		Beneficiaries (mill US\$)		Co-financiers (mill US\$)		Total (mill US\$)	
	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual
- Grants	2	1.714					2	1.714
- Loans					13	8.6	13	8.6
- Credits								
- Equity investments			11	14.2			11	14.2
- In-kind support								
- Other = contingent grant	8	8					8	8
Totals	10	9.714	11	14.2	13	8.6	34	32.514

* Bank and Government contributions were zero, planned as well as actual