

# Operation Performance Evaluation Review

## Energy Efficiency and Renewable Energy Credit Line (EERECL)

## Residential Energy Efficiency Credit Line (REECL)

## Bulgaria

(A technical Cooperation Operation)

April 2008

Evaluation Department  
(EvD)



**European Bank**  
for Reconstruction and Development

## **TECHNICAL COOPERATION OPERATION PERFORMANCE EVALUATION REVIEW (OPER)**

### **PREFACE**

The subject of this Operation Performance Evaluation Review (OPER) is the technical cooperation (TC) operation: Bulgarian Energy Efficiency and Renewable Energy Credit Line (EERECL) and Residential Energy Efficiency Credit Line (REECL) for which the Kozloduy International Decommissioning and Support Fund (KIDSF) provided funds of approximately €2.1 million and the United Kingdom Fund (UKF) committed €20,892.

The operation leaders (OLs) of the above TC were Jan-Willem Van de Ven and Serge Gas in the launch phase and, subsequently, Stefania Racolta and Richard Jones for the EERECL and the REECL respectively. The operation team and other relevant Bank staff commented on an early draft. The basic data sheet on page iv of this report and the standard project completion report (PCR) in Appendix 5 is complementary to this OPER. They are designed to be read conjointly. Appendix 5 includes the PCR for the first TC component (UKF-2004-10-11). The other components related to the KIDSF are currently only subject to donor progress reports.

The evaluation was carried out by Nicolas Mathieu, Senior Economist of the Evaluation Department. Information on the operation was obtained from relevant teams and departments of the Bank and its files as well as from external sector and industry sources. Fieldwork was carried out in October 2007. EvD would like to take this opportunity to thank those who contributed to the production of this report.

#### **Post-evaluation selection and process**

Selection of an operation for post-evaluation by EvD uses the following criteria:

- relevance to the Bank's likely future operations
- lessons-learned potential
- size of the Bank's investment commitment/exposure
- balance among countries of operation
- balance among sectors and types of operations
- relative priority of investment operation OPERs within EvD's overall work programme priorities and resources.

The Bank's post-evaluation process is described in Chapter 8 of the Operations Manual. The responsible OL first writes a TC PCR. The PCR report serves a self-evaluation function and establishes the basic facts and lessons from the operation's implementation outcome and future prospects. EvD's independent evaluation follows, using the PCR as one of several inputs

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## ABBREVIATIONS

<b>AMTS</b>	Administration, marketing and technical services
<b>APR</b>	Annual percentage rate
<b>CVR</b>	Completion validation review
<b>ECO</b>	Energy conservation opportunities
<b>EE</b>	Energy efficiency
<b>EERECL</b>	Energy efficiency and renewable energy credit line
<b>EEA</b>	Energy Efficiency Agency
<b>EU</b>	European Union
<b>IEA</b>	International Energy Agency
<b>IEE</b>	Independent energy expert
<b>IFRS</b>	International Financial Reporting Standards
<b>IMF</b>	International Monetary Fund
<b>KIDSF</b>	Kozloduy International Decommissioning and Support Fund
<b>KNPP</b>	Kozloduy Nuclear Power Plant
<b>koe</b>	Kilogram of oil equivalent
<b>kWh</b>	Kilowatt hour
<b>MEER</b>	Ministry of Energy and Energy Resources
<b>MWh</b>	Megawatt hour
<b>OECD</b>	Organisation for Economic Cooperation and Development
<b>PB</b>	Participating bank
<b>PCR</b>	Project completion report
<b>RE</b>	Renewable energy
<b>REECL</b>	Residential Energy Efficiency Credit Line
<b>REUP</b>	Rational Energy Utilisation Plans
<b>SERC</b>	State Energy Regulatory Commission
<b>SME</b>	Small and medium-sized enterprise
<b>TC</b>	Technical cooperation
<b>TPES</b>	Total primary energy supply

## **DEFINED TERMS**

<b>the Bank</b>	European Bank for Reconstruction and Development
<b>the client:</b>	The Bulgarian participating banks (PBs)
<b>the OPER team</b>	Staff of the Evaluation Department who carried out the post-evaluation
<b>the operation team</b>	The staff in the Banking department and other respective departments within the Bank responsible for the operation appraisal, negotiation and monitoring, including the PCR
<b>the TC project</b>	The overall objective of the TC was to assist end borrowers in identifying and preparing energy savings and renewable energy projects that would be eligible for support from the Kozloduy International Decommissioning and Support Fund.

## BASIC DATA SHEET

**Operation Codes:** 35556, 34815, 35902  
**Location:** Bulgaria  
**Operation:** Energy Efficiency and Renewable Energy Credit Line (EERECL) and Residential Energy Efficiency Credit Line (REECL)  
**Sector:** Depository Credit (Banks)  
**Type:** Technical cooperation  
**Facilitators:** United Kingdom Fund (UKF) and the Kozloduy International Decommissioning and Support Fund (KIDSF)  
**Bank Units:** Energy Efficiency and Climate Change and Financial Institutions

### A. Funding

	TC commitment		Total amount committed (€)
	Number	Title	
TC1	UKF -2004-10-11	Market support	20,892
TC2	KIDS-2004-06-01	Rational energy utilisation plans	1,111,836
TC3	KIDS-2004-06-02	Independent energy engineer	155,704
TC4	KIDS-2004-02-01	Rational energy utilisation plans	27,040
TC5	KIDS-2006-05-02	Independent energy engineer	94,296
TC6	KIDS-2005-05-01	Administrative and technical support	681,100

### B. Procurement

	<u>Mode</u>	<u>Sources by country</u>
<b>Consultant services</b> TC1 to TC6	Selection from shortlist	United Kingdom, Ireland

### C. Visits

<u>Type of visit</u>	<u>No. of visits</u>	<u>Person-days</u>
EvD/OPER	1	4

## 1. Introduction

### Sector background

Early in this decade, Bulgaria's energy consumption in terms of energy intensity was higher than the Organisation for Economic Cooperation and Development (OECD) average and clearly above ratios observed in Poland and Romania.<sup>1</sup> This is still the case today.<sup>2</sup> Energy conservation investments in Bulgaria have been too small and hampered by market imperfections.

The European Commission (EC) had called for the development of a broad-based energy efficiency (EE) programme as a matter of strategic priority for European Union (EU) entry. In 2003 the State Energy Regulatory Commission (SERC), Bulgaria's independent regulator, increased electricity prices by 15 per cent. The energy law prescribed that prices should recover operational costs and allow for justified returns on capital. The overall strategy has been in line with the European energy market but 2003 prices were still below the EU average of 0.1034 €/kWh for household consumers and 0.0647 €/kWh for industrial consumers.<sup>3</sup>

Furthermore, a new Energy Act was passed by parliament in November 2003, designed to comply with the EU Energy Chapter. Public and private players' basic rights, requirements and obligations were defined with regard to industry consumption, combustion processes, building standards and household appliances. The Act obliged energy consumers with a total annual energy consumption of above 40,000 MWh to undertake energy audits and develop energy saving programmes. The Act also supported the development of renewable energy (RE) and linked the sector to the European Union targets to achieve an 8 to 10 per cent share of total energy production by 2020.<sup>4</sup>

### Bank's involvement

The Bank's involvement in the technical cooperation (TC) to support energy savings in Bulgaria is directly linked to the two credit lines, the Energy Efficiency and Renewable Energy Credit Line (EERECL) and the Residential Energy Efficiency Credit Line (REECL) and the grant from the Kozloduy International Decommissioning Support Fund (KIDSF).

The Bulgarian EERECL was to support industrial EE and small renewable projects in the private sector and thus help Bulgaria achieve its strategic objectives as outlined in the 2003 energy law. The facility was to:

- demonstrate the benefits of rational energy use
- build expertise among participating banks (PBs) and sub-borrowers

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<sup>1</sup> Bulgaria's primary energy input breaks down as follows: Hard fuels (40 per cent), liquid fuels (37 per cent), natural gas (12 per cent), nuclear (9 per cent) and hydro energy (2 per cent). Approximately 70 per cent of primary energy resources are imported. The ratio of primary energy in kilogram of oil equivalent (koe) to output is a key component of the competitiveness of the economy. Bulgaria's energy intensity at 1.6 koe/\$ (2.5 koe/€) in 2003 was more than seven times the OECD average of 0.227 koe/\$ (0.3 koe/€). In Poland the corresponding ratio was 2.6 times more efficient at 0.610 koe/\$ (1 koe/€) and in Romania 1.7 times more efficient at 0.955 koe/\$ (1.5 koe/€).

<sup>2</sup> The ratio of total primary energy supply (TPES) per thousand US dollars of gross domestic product (GDP), using purchasing power parities for the year 2000, was 0.32 in Bulgaria compared with 0.15 for OECD Europe in 2005.

<sup>3</sup> In July 2003 household consumers were paying 0,050 €/kWh for up to 75 kW per month and enterprises 0.053 kWh for medium voltage.

<sup>4</sup> Penalties were levied on those companies that failed to observe the mandatory quotas for generation from renewable energy sources. The Act obliged transmission and distribution companies to connect and purchase electricity from small-scale renewable energy producers at preferential prices, proposed by the regulator and approved by the government.

- increase financial intermediation targeted at energy utilisation.<sup>5</sup>

The project would subsequently assist in alleviating the loss of the relatively cheap power supply from the Kozloduy Nuclear Power Plant (KNPP). The EERECL was introduced in 2004 and included six banks with a total EBRD commitment of €50 million. An EERECL extension was approved by the Board in 2006 for €55 million which was committed to seven banks.

The other project was to establish an REECL with Bulgarian banks for EE projects in the residential sector. In 2005 EBRD approved a residential EE framework for Bulgaria of up to €50 million. Six banks signed agreements with the EBRD in 2005 and 2006 under this framework for a total of €45 million.

### ***The grant***

The credit lines were complemented by a grant from KIDSF.<sup>6</sup> The grant financed incentives to sub-borrowers and performance fees as well as technical assistance (see Table 1). Linking the grant to the project was considered to be a pilot initiative for possible replication in other countries where there are plans to decommission nuclear power plants or where rational energy utilisation remains an issue. The United Kingdom also provided a grant for the marketing support of the REECL (see Table 1).

### ***The technical cooperation***

The grant administration has made €25.2 million available for EERECL and €14.6 million to support the REECL under the condition that that individual sub-loans meet the objectives of the KIDSF grant. For EERECL the amount of €11.7 million was allocated to the provision of incentives and €3.5 million to the TC. As of January 2008, about €2 million of TC funds have been committed and €1.7 million disbursed (see Table 1 below).

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<sup>5</sup> Including small and medium-sized enterprises.

<sup>6</sup> KIDSF was established by the EBRD in May 2002 to assist with the closure of the oldest, first generation Soviet-designed blocks of the KNPP in Bulgaria (see [www.ebrd.com/enviro/nuclear/new/sofia.pdf](http://www.ebrd.com/enviro/nuclear/new/sofia.pdf)).

**Table 1: EBRD TC programme – commitments and disbursements**

Lending programme	TC label and donor	TC ref. name and donor	TC objective	Commitment amount (€)	Approval date	Disbursement (€ as of 01/08)
REECL	TC1 United Kingdom	UKF 2004 10-11	Marketing support	20,892	06/10/04	20,892
EERECL 1 and EERECL 2	TC2 Kozloduy International Decommissioning Support Fund <sup>i</sup>	KIDS 2004 06-01	Rational energy utilisation plans	1,111,836	16/06/04	998,633
	TC3 Same donor as above	KIDS 2004 06-02	Independent energy engineer	155,704	16/06/04	53,350
	TC4 Same donor as above	KIDS 2006 02-01	Rational energy utilisation plans	27,040	08/02/06	12,548
	TC5 Same donor as above	KIDS 2006 05-02	Independent energy engineer	94,296	24/05/06	28,370
REECL	TC6 Same donor as above	KIDS - 2005 05-01	Technical and marketing support	681,100	18/05/05	598,003

Note: (i) Contributors to the KIDSF are the European Union, Austria, Belgium, Denmark, France, Greece, Ireland, Spain, Switzerland, the Netherlands and the United Kingdom.

## 2. Project rationale

The TC was designed to reduce obstacles in the energy sector in Bulgaria and facilitate the innovative character of the EERECL and REECL initiatives. The main obstacles faced by the banks, the enterprises and the households were the following:

### *Barriers to financing by banks*

- Lack of technical expertise for appraisal and risk assessment.
- Lack of information and misconceptions about the technical risks and financial benefits of energy conservation.
- No specific marketing of financing for such activities.
- Additional costs in appraisal/consideration and monitoring.
- Tenors longer than those of normal business lending may be necessary for financing; this is due to real and perceived barriers that prevent sub-borrowers from pursuing EE and because of the specific requirement of RE projects that are affected by market risk and tariff levels.

### *Barriers for enterprises*

- There is a tendency to focus on core business and short-term objectives. Expansion investments are more attractive to both, shareholders and management (in terms of incentives), than cost-reduction investments.

- Energy bills as a proportion of cost base may not be high enough to make efficiency improvements a priority. There sometimes is a lack of sufficient capital planning tools to adequately prioritise investments in light of capital constraints.
- Company planning may not take into account future tariff increases (which are already planned by the government as reactors one to four of the KNPP are decommissioned) or environmental obligations (for example, concerning energy-related pollution).
- There is no dedicated in-house energy management expertise to assess and promote such projects. There is also uncertainty and lack of information about available options and their financial reward. In addition, responsibilities for energy expenditures and conservation are separated.
- Energy tariffs are still low. Even where tariffs are increasing, the commitment to full cost recovery is uncertain, and many business sponsors do not yet react to it.
- Regulatory and legal impediments or rules do not provide the full incentives for energy efficiency or energy from renewable sources. In many countries incentives exist in the form of tax schemes, free energy audits, guarantee schemes or preferential feed-in tariffs for renewable energy, which are not available or do not provide the appropriate incentives or are not well known in Bulgaria.

### ***Barriers for households***

- EE awareness among consumers is weak and does not translate into a market. Therefore the residential sector only provides a limited contribution to national energy savings. Awareness is just starting to increase, mainly as a result of tariff rises. However, even with the increases, it takes some time for customers to react and to receive the message regarding the nature of EE measures and the related benefits.
- Energy conservation investments at the household level are typically hampered by a number of market imperfections that give rise to an “efficiency gap”, a discrepancy between the best available solution and the one implemented.
- Most consumers have limited debt capacity and will tend to focus on more appealing purchases than double-glazing and insulation and would be more inclined to purchase cheaper, less efficient boilers than consider the life cycle benefits of more efficient equipment.

## **3. Achievement of objectives**

### ***3.1 Objectives***

The overall objective of the TC was to assist end-borrowers in identifying energy savings and RE sub-projects that would be eligible for support from the KIDSF. The consultant’s services were centred around three main tasks:

- marketing of the facility and development of a pipeline for industrial EE, RE and housing associations sub-projects
- preparation of sub-projects for the end-borrowers and PBs (energy audits and rational energy utilisation plans, REUPs)

- administration, verification and monitoring of the facility.

### **3.1.1 Household energy credit lines (REECL)**

#### ***TC1: Marketing services***

This comprised preparatory work for a credit line dedicated to residential EE. Since it was a new product, a market study was proposed to identify the needs and priorities to improve EE in Bulgarian houses as well as to determine implementing banks and sub-borrowers. The marketing study was to include EE equipment norms and standards for households.

#### ***TC6: The AMTS consultant***

The objective was to provide administration, technical, and marketing services (AMTS) that would:

- ensure there are clearly defined technical criteria under which PBs make loans that are consistently applied and updated
- market the facility so that potential sub-borrowers are informed of the benefits of EE and are aware of the financing/incentives available under the REECL
- establish an efficient tracking, monitoring and reporting system to ensure accurate data and the use of standard forms by the PBs, sub-borrowers and the EBRD
- ensure that grant funding is applied consistently in line with the eligibility criteria and that this is supported with an appropriate level of validation in order to avoid misuse of the loan proceeds and grant.

Incentives funded by KIDSF to sub-borrowers would be estimated on a monthly basis. Tracking the PBs and the consultant and reporting on the implementation of sub-projects would support this task.<sup>7</sup> The PB would then draw the estimated amount from the EBRD and credit the account of the sub-borrower once the validation is completed.

### **3.1.2 Enterprises energy credit lines (EERECL)**

#### ***TC2 and TC4: The REUP consultant***

Sub-borrowers were to be assisted by the consultant in developing REUPs. The function of the REUP was to help

- make a complete and technically adequate presentation of the proposed investments
- better formulate loan applications
- ensure cost effectiveness through measures consistent with KIDSF criteria (see Box 1).

The PBs were to benefit from the REUPs in their appraisal of loan applications as they included technical project elements with which they were often unfamiliar.

#### **Box 1: Content of a REUP**

The REUP is a critical element for receiving EERECL debt financing. The REUP is a business plan that presents the structure of the investment and helps the PB assess cost effectiveness, identify appropriate measures and ensure consistency with KIDSF criteria. The REUP should have the following structure, which will be developed by the

<sup>7</sup> Sub-borrowers would receive a completion fee after installing specified EE equipment/systems. The eligible measures were being established upfront. The incentive payments due to the sub-borrowers were to be paid out by the PBs after a validation process by the AMTS consultant to confirm that the funds have been used as intended. Due to the variety of stakeholders (several PBs and many sub-borrowers) the consultant were to be engaged by the EBRD and would have a permanent base in Bulgaria.

consultant (project team) in cooperation with a project sponsor (prospective borrower). It will then be submitted to one of the PBs.

- Executive summary.
- Project sponsor (borrower).
- Project background activity based schedule.
- Completion validation review (CVR) check-list.
- Financing plan summary of project cash flow analysis.
- Other project benefits.
- Recommendations on other key areas where EE can be improved.
- Compliance with national environment, health and safety standards.

A marketing and outreach campaign was to inform potential sub-borrowers about the facility.<sup>8</sup> In addition, planned information dissemination activities related to the facility were to inform a wide range of stakeholders on the benefits of rational energy utilisation.

### ***TC3 and TC5: The independent energy expert (IEE)***

The IEE was to ensure that the facility's objectives were met by checking and confirming that sub-projects have been completed in accordance with the REUP. The validation by the IEE of successful project implementation in accordance with the objectives of the facility was required for releasing payment of completion incentives and administration fees.<sup>9</sup> Both consultants were selected and supervised by the EBRD with input from the Ministry of Energy and Energy Resources (MEER). Given the nature of the project (that is, encouraging rational energy utilisation by providing incentives), reimbursement of the TC was not proposed.

## ***3.2 Achievement of objectives***

Achievements of TC objectives have been closely related to changes in market trends in energy savings that have impacted the two credit lines.

### ***3.2.1 Market trends***

***REECL:*** The market for residential EE improvement has been expanding. Households could have applied for other types of loans but prefer to receive one from the REECL because of the grant content. A PB has suggested that the grant incentive should be kept at least for the next few years. The programme that ends in August should be renewed. The bank noted that suppliers could have been more proactive in promoting equipment and financing with the client. About 10 to 12 large suppliers have branch offices in more than 10 cities.

***EERECL:*** In one PB most of the TC support has been channelled to renewables. The bank did reach its 50 per cent quota on renewables and was left with the 50 per cent EE improvement quotas yet to be achieved. In retrospect, the €2 million limit is too low and should have been €3 or €4 million. The PB in this case lends to corporations with a €1 million turnover that can absorb more projects. For another PB, there was less demand for EE improvements than for RE projects.

The client's equipment often appeared to be too obsolete for improvements. Greenfield investments were needed. The clients could borrow without a grant, but a grant provides

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<sup>8</sup> Good information is key to maintaining a level playing field among eligible companies.

<sup>9</sup> A certificate is issued in which the IEE confirms that first, the project has been completed substantially in line with the REUP, and secondly, that it is in line with the eligibility criteria of the EERECL. The IEE also confirms that the project is either an energy efficiency project or a renewable energy project.

additional incentives for investments. Another PB has been receiving many financing requests from the renewable side but its quota was also rapidly achieved.

Sector-wide, there is a higher proportion of RE in the portfolio/pipeline as a consequence of an increased appetite for such investments from the sub-borrowers as well as the PBs. The credit line was initially available for EE and RE investments without any restriction on utilisation. However, when the extension of the credit line was approved in 2006, a 50 per cent cap on RE was introduced in the loan agreements with the banks with a view to ensuring a more balanced utilisation of the credit line.

High incentive rates (relative to those available for EE projects) and the development of a legislative and regulatory framework further supporting renewable energy, have also contributed to a shift in demand towards further RE projects. Most of the banks have almost completely utilised their share of the credit line available for RE and are now focusing intensely on disbursing funds to EE projects.

The Bulgarian authorities have recently stressed the heightened prioritisation of energy efficiency in the country. Additional grant resources were requested and allocated from KIDSF to support the increase of the incentives for EE from 7.5 per cent to 15 per cent and thus encourage a stronger uptake of the facility on the EE side.

### ***3.2.2 TC achievements for household energy credit lines (REECL)***

#### ***TC1: Marketing***

A close and continuous relationship was established with the consultant. This assisted in focusing on the team's main subjects of interest and on the construction of the scheme. Due to the novelty and innovativeness of this project, such guidance was deemed the best possible manner of engagement.

Two PBs greatly benefited from the findings of the large 2005 household survey and their subsequent promotion by two press conferences. The PBs launched television announcements on the basis of advertising clips that the TC had financed. The PBs also tried to independently keep in contact with a number of suppliers, but the outcome was not quite satisfactory. Another PB was keen to further develop good relations with consultants as the collaboration had been good, with no delays in consultant delivery.

The consulting firm responsible for the TC linked to the REECL noted that the 2005 market study was adequate in identifying consumer trends in energy savings but was less clear in listing the barriers to be removed in order to reach this potential market. The consultants had to cope with this deficiency.

#### ***TC6: ATMS***

The consultant's pro-active attitude has clearly added value to the scheme. One PB viewed the consultants' main contributions to the project development in the approval of the equipment and to maintenance of a database on the clients' characteristics, the specifications of equipment and the advancement of the projects. Only a few projects were declined for this component of the credit line.

With the full support of the consultants and with substantial experience in consumer lending, the PB has been able to deliver the loans relatively fast (one month delivery time on average).

Another PB focused on the key steps of the loan processing.<sup>10</sup> While it acknowledged that the processing of the application should not last more than four months, the PB had some difficulties in meeting this requirement.

The consulting firm that handled the REECL TC focused on:

- training loan officers to help them better align the existing bank procedures with the requirements of the credit line
- checking the technical validity of the investment proposals
- detecting and stopping attempts of fraud or corruption
- establishing a black list of suppliers who cheat on the quality of equipment delivered
- holding a list of fair prices and related quality.

The consultants noted that the processing of the loan was greatly facilitated when done electronically instead of paper, the former requiring that all bank branches involved had to be equipped with a computer.

### ***3.2.3 TC achievements for the enterprise energy credit lines (EERECL)***

REUP and IEE consultants were selected in a competitive two-stage process that anticipated an extension of the assignment. Due to the variety of stakeholders (several PBs and many sub-borrowers), the consultants were engaged by the EBRD. MEER was involved in monitoring the assignment to ensure consistency with the Bulgarian energy strategy. The utilisation of the TC budget was slower than expected due to initial delays in implementing the programme and the long-lasting implementation of sub-projects.<sup>11</sup>

#### ***TC2 and TC4: The REUP consultant***

The REUP consultants made good progress in implementing the assignment. They continued to work in cooperation with the PBs to market the facility and held several workshops with branch managers to introduce the procedures for project identification and evaluation under the facility.<sup>12</sup>

In general, the consultant's performance in relation to pipeline development was good, although it became clear that closer monitoring of the consultant's performance was needed, especially as some of the interpretations provided in the TOR had not been consulted with the Bank in advance.

Issues were resolved in a professional manner and the TOR in the consulting contract were amended to include a clause that would prevent a conflict of interest. The TC demonstrates that dedicated assistance for business plans and loan applications to industrial companies and project developers increases the involvement of local banks and the number of EE and RE projects.

A PB recalled that the consulting firm was initially subject to a high turnover of personnel, and new consultants did not react fast enough at times.<sup>13</sup> Nevertheless, the communication with

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<sup>10</sup> Households get a quotation on equipment and apply to the Bank. Then they apply for grant eligibility through the consultant.

<sup>11</sup> It was anticipated that the initial budget of €1.2 million which covered the first €50 million of loans would be extended by an additional €1.4 million to cover the framework extension.

<sup>12</sup> Over the course of the assignment the team has been supplemented with experts in wind power and environmental specialists as different needs were identified.

<sup>13</sup> The consulting firm indicated that they tried to keep a consistent proportion of short-term consultants but felt that it was time to increase the proportion of long-term consultants to respond to the growing demand of REUPs.

consultants improved over time. Internet access was very useful for the client to ascertain eligibility criteria. Consultants were helpful in providing additional information. Consultation on eligibility was done separately for EE and RE improvements.

Another bank felt that there were good complementarities with the consultant. The REUP was focusing on the project's technical aspects and financial viability while the PB focused on client solvency and security. The PB was then using the REUP analysis to strengthen its own project analysis. This PB had no problems with REUP delivery delays and validations and saw this as the outcome of maintaining a good business relationship with the consultants.

Another PB recalled that the consultant's REUP review and processing took a maximum of one month. However, there were cases where the bank had to wait for three months, especially in the summer season. Similarly, the independent expert evaluation should take about one month but the PB noted that, instead, it took twice that time.<sup>14</sup>

The consultants handling the EERECL TC observed that the technical component for the REUP took more time to prepare than the financial component. The client did not always know exactly what he wanted and prices were difficult to obtain. The investment location was to be subject to an energy audit and an environmental check.

The borrower did not always communicate the technical parameters on time (that is, the type of machines he wanted). Data on contract with the supplier were often considered confidential. The borrower also changed plans along the way. Financial data were easier to obtain as the client was more familiar with them and accustomed to communicating them to banks. Usually it took four to five weeks to complete an REUP but could take longer due to the above-mentioned factors.

Attempts were made to inform client's suppliers of the existence of the credit line and the related subsidy so that they could inform their clients. But it does not appear that this additional effort significantly improved the size of the client base. Training loan officers to handle these new types of credits was not done in a formal way.

There was no earmarked budget for this. Rather, the process took the form of roundtable discussions consisting of consultants and loan officers. At the same time, it was acknowledged that the scope of work of the project consultant contained full provision for training. Budget for this, although not earmarked, was also provided.

### ***TC3 and TC5: The IEE consultant***

The number of completion reviews was low in the first two years of project implementation due to the time drift between identification, due diligence, loan signing, loan disbursement and project completion. However, the number has grown from 23 in July 2006 to 60 in October 2007.<sup>15</sup>

The validation reassured the participants in the Kozloduy Decommission Fund that the grant funds were used appropriately. The validation was done when the project was completely finished. The independent expert checked the specificities of the equipment from a field visit

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<sup>14</sup> The EBRD Energy Efficiency team explained that according to procedures, verification occurs within one month from the moment the notification of "ready for validation" is received by the IEE. In exceptional cases, the IEE must request permission from the EBRD for a longer period. This has not happened very often and the audit trail can support this.

<sup>15</sup> As of October 2007, 60 projects were verified and completion fees were either paid or in the process of being paid. Minor issues were reported earlier on hydro projects, mostly related to the environmental impact, but the EBRD has subsequently agreed with the PBs to tighten the environmental requirements

against the criteria indicated in the REUP. The consultant used internal knowledge and local tests of equipment.

Requests for validation were usually returned within four weeks, in line with the procedure. Requests were often grouped by three or four and handled in a series of field visits. This is why some borrowers, whose validation has been delayed, felt that the processing of their request was taking longer than they expected.

As of October 2007, the PBs have signed loans in the amount of €8.5 million to finance 99 projects worth of €10 million.<sup>16</sup> The pipeline shows another €6.8 million worth of projects currently under consideration by the PBs, €4.4 million where REUPs are under preparation by the project consultants and €2.4 million in various stages of the pipeline.

### ***TC marketing component***

One PB felt that the consultants did not provide enough support to them for marketing or information dissemination on EE improvements. Another PB noted that it had no marketing budget of its own. It benefited from the consultant for the preparation of the first promotional event.

Later the consultants contacted the PB to offer help on marketing EE improvements, but the PB did not follow up. Similarly, another PB handled most of the marketing on its own, focusing on existing clients first. It wanted to increase EE awareness among them at the time they were presenting a new project. Other potential clients contacted the PB once they heard about the grant programme from another source.

Another PB had a large base of actual and corporate clients. There was no need to undertake strong marketing in this area. Clients could use the PB's web site and apply. Yet another PB expressed its satisfaction with the consultant support, which included

- one press conference
- several bank/enterprise awareness meetings
- training courses to loan officers
- publications and prospectus.

The PB also independently developed its marketing activities through its own bank branches and provided more training.

The consulting firm handling the EERECL TC had received a separate marketing budget to organise workshops for enterprises and banks, aiming to raise awareness of the new programme and its benefits. Other marketing efforts were financed from the REUP budget when the client, to whom REUP support was provided, did make a loan application as a result of marketing activities carried out by the consultant.

Only recently, in 2007, when it became necessary to promote EE more intensively, was a small portion of the REUP budget systematically allocated to new marketing activities. It allowed a consultant to meet PBs and enterprises two days per month to promote EE operations.

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<sup>16</sup> The completion of these projects is estimated to lead to significant energy savings (781,907MWh/year electricity saved) and CO<sub>2</sub> emissions reductions (484,932 tonnes CO<sub>2</sub>-equivalent/year).

The feedback received by the evaluation mission from the enterprises that benefited from the TC was very positive. Taken as a whole, the TC objectives for both REECL and EERECL were fully achieved.

#### **4. Overall assessment**

The TC helped overcome market imperfections in the energy service market of a country with very high energy intensity (for example, risk perceptions both at the level of sub-borrowers and banks). Financial incentives and technical assistance were used to stimulate EE and RE on-lending to Bulgarian firms. Following a slow start, implementation has accelerated. There were 99 projects financed as of October 2007.

The PBs have developed the necessary skills to assess energy projects and intend to (or are about to) integrate the financing into their corporate product lines. Furthermore, at least some of the PBs have internalised the costs associated with the administration of the facility. Hence, energy lending may continue in the future in the absence of EERECL. Grant financing may decrease over successive programmes as the regulatory mechanisms that lead to sustainable market-based solutions in Bulgaria are expanding.

Firms are increasingly aware of energy issues in the context of increased competition, domestically and abroad. Also, demand and awareness for energy financing is growing. Therefore the project is well on track to achieve its objectives and risks are reduced to Medium. The overall performance of the TC is rated “Successful”.

#### **5. Transition impact and additionality**

##### ***5.1 Impact at corporate level***

###### ***5.1.1 Skills transfer***

###### ***TC for EERECL***

There are currently seven PBs in the facility. Six were taken up in 2004 and one in 2006. The PBs now have developed appropriate skills for appraising energy loans and are able to spot the key issues in loan applications, although they remain dependent on external technical support for carrying out energy audits and identifying energy savings measures in projects.

Two PBs appeared to have the staff and resources in place to on-lend the amount committed and one PB is looking for an extension. One PB seems to somewhat lag behind in terms of skill transfer. Overall, the transition impact at the corporate level is rated “Good”.

##### ***5.2 Impact at sector and national levels***

###### ***5.2.1 Competition***

###### ***TC for EERECL***

The PBs saw the strategic importance of the progressive removal of market barriers to lending in the EE sector, and they wanted to be involved. The participation in EERECL was seen as an excellent promotion of the PBs’ corporate products. Nevertheless, several PBs mentioned that uncertainties about the future remain (for example, related to regulation of renewables). It is clear, however, that the PBs will try to maintain their capacity to finance energy projects as

opportunities arise.

### **5.2.2 Market expansion**

#### ***TCI: Marketing services***

The assignment has shown that some incentives had to be set up to overcome the barriers to the development of the residential EE market. In addition, the TC, through assessing the full market potential attached to the project, had a decisive impact on the size of the project. Knowledge and awareness were developed and helped to define the target of the credit line, allowing for a quick uptake of the facility.

### **5.2.3 Frameworks for markets**

#### ***Status of energy policy reforms***

The electricity market is now liberalised, but only 15 per cent have changed suppliers so far. MEER is currently working on a secondary legislation to make alternative suppliers more attractive to customers. Electricity prices have not been increased in recent years. They are still low compared with prices in other European countries.

Nevertheless, prices are more in line with European average when weighted by household income. A household spends about 13 per cent of its disposable income on electricity. The real income of households has remained constant over the last few years. Recent policy initiatives in energy savings include the preparation of legislation for energy suppliers, the availability of additional financial resources for EE improvements in municipal buildings and new measures of the EU EE programmes.

#### ***Supporting role of Ministry of Energy (MER) in the project***

The role of MEER is to help ensure compliance with energy policy priorities. When it became increasingly evident that the quota for the renewables in the credit line was being rapidly reached, MEER contacted the EBRD in May 2007 to recommend an increase in the subsidy attached to projects for EE improvements. As a result, the grant was increased from 7 to 15 per cent. The EBRD was aware of the issue but needed the formal support of MER to trigger such a significant change in the loan documents, which is to help replace capacity either with renewables or with EE.

### **5.2.4 Potential demonstration effects**

#### ***TCI: Marketing services***

Following the market study, a new credit line for residential EE has been launched with the support of the KIDSF. After the final report of January 2005, a new scheme was launched in June 2005: a €50 million credit line with a €10 million grant to provide 30,000 sub-loans dedicated to EE in the residential sector. This very innovative scheme is now to be replicated in other countries of operation. The project's impact therefore reaches beyond Bulgaria.

#### ***TC for EERECL: Awareness through marketing campaigns***

EE awareness among Bulgarian companies is increasing, partly because of increasing energy costs but also due to increasing competitive pressure. In the meantime, more banks are aware of this product and competition for financing energy projects is increasing. More recently, price competition is complemented with various other *non-price competition elements*, such as processing times for applications. The EERECL consulting firm is active in promoting the facility in Bulgaria, attending industry fairs and delivering presentations to industrial clients.

### **5.3 Transition risks**

The main transition risk lies in the sustainability of the programme without subsidies. Firms will sooner or later be forced to invest in EE projects to reduce fines and certain production costs, but, for the reasons outlined earlier, awareness and action is limited given the scale of the problem. By then, sub-borrowers will be more aware of the benefits of rational energy utilisation and PBs are expected to have acquired skills in financing these kinds of projects while also having become more comfortable with this type of risk.

While the *realised* transition impact at the sector level has been rated “Good” so far, the *remaining potential* for transition is more promising and therefore rated Excellent. When considering the combined results of the various components at corporate and sector levels as well as the risks, the overall transition impact of the programme is rated “Good”.

### **5.4 Additionality**

#### ***REECL***

The additionality of this operation relied on the limited sources available for medium to long-term lending to households interested in carrying out residential EE energy projects. It was also determined by the need to substantially reduce the barriers to financing by local banks: the absence of technical expertise for appraisal, the lack of information about the technical risks and financial benefits of energy conservation and the additional costs in the loan appraisal process. In addition, the EBRD was in a position to share its experience in the area of the EE and nuclear safety sectors and to enhance the policy dialogue with the Ministry of Energy and the KIDSF donors in Bulgaria.

#### ***EERECL***

Additionality was achieved by combining financing and financial support into a package that promotes and accelerates investments in rational energy utilisation. There are no other investors that can combine the Bank’s relationship with Bulgarian banks, its EE mandate and its nuclear safety role into a commercial financing scheme such as the one proposed by the facility. There is now a track record of having implemented such a programme and of ensuring that the objectives are being met so that the grant funding is only utilised on a success basis.

Additionality is rated as “Verified in All Respects”.

### **5.5 Environment**

Increased efficiency in heat generation, reduction of heat transmission losses and improved efficiency in the use of heat and energy is leading to a reduction of air pollutants (for example, sulphur dioxide, SO<sub>2</sub>, nitrogen oxide, NO<sub>x</sub>, and carbon dioxide, CO<sub>2</sub>, particles) from heat and electricity generation. This is a clear and quantifiable environmental benefit in energy saving which is tracked. The PBs also submit an annual environmental report to the EBRD.

#### ***REECL***

A verification process relying on an independent expert (AMTS consultant) ensures that only the selected equipment or measures qualify for incentives. Reporting on energy savings and environmental benefits is provided by the AMTS consultant and the PBs.

#### ***EERECL***

The PBs required that companies financed through this credit line comply with national requirements for environment, health and safety. This was confirmed to the PBs by the consultant who covered this issue as part of the validation of each project. In addition, during implementation a new set of

EBRD procedures for hydro sub-projects was prepared and implemented with all PBs. Twelve reviews of mini-hydro projects were made by the consultant. All these projects have been approved by the Environment Department. In addition, a wind energy expert reviewed all related REUPs and provided an independent assessment on the technical and financial viability of the projects.

## **6. Bank handling**

Regarding EERECL, the Bank ensured that the project sponsors (borrowers) for EE or small renewable projects would fully benefit from the consultant assistance and report to the donor.<sup>17</sup> The project team helped with the development of business plans (REUPs) and other loan documentation required by PBs. More specifically, the project team provided the following services:

- presenting the EERECL facility to project sponsors, including the benefits and procedures
- determining project eligibility and helping to restructure the project, when applicable, to meet eligibility requirements
- checking project's creditworthiness, screened by the PB
- performing an energy audit and cash flow analysis
- in cooperation with the project sponsor, developing the project business plan (REUP) and helping with its submission to one of the PBs
- monitoring project implementation
- helping with the completion validation review request.

These services were provided to the satisfaction the PBs. Overall the Bank performance is rated as "Good".

## **7. Key issues and lessons learned**

### ***7.1 Improvements in marketing***

The 2005 REECL market study was adequate for identifying consumer trends in energy savings but was less clear in listing the barriers to be removed in order to reach this potential market. The consultants had to understand all aspects of the market beyond what the study provided.

In addition, the consulting firm handling the EERECL TC received a separate budget for marketing in order to organise workshops with enterprises and PBs. All the other marketing efforts to help PBs increase their customer base were occasionally financed from the REUP budget. Later, as it became necessary to intensify the promotion of EE, a small portion of the REUP budget was systematically allocated to new marketing activities.

#### ***Lesson: Marketing of energy efficiency facilities by financial institutions***

A piecemeal approach to marketing is not so beneficial when new financing products are launched on a large scale in each of the PBs to stimulate energy savings. There should be room for the identification and implementation of a thorough marketing strategy with adequate budget

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<sup>17</sup> References to the donors were made during the information dissemination workshops, in press statements and on the web site ([www.beerecl.com](http://www.beerecl.com)).

support.

## **7.2 Better support to project processing**

The consultants handling the EERECL TC observed that the technical component for the REUP took more time to prepare than the financial component. It should have taken four to five weeks to prepare an REUP. Some PBs complained that it took longer on several occasions due to a large variety of factors (see paragraph 3.2.3). Likewise, a few PBs did not understand that project validation work could take up to one month and were expecting to receive it faster.

### ***Lesson: Provide adequate information to the client during project preparation***

When a new lending procedure takes longer than expected because a subsidy is attached, the interested parties should be clearly and fully briefed of all normal procedural delays of a loan application and project validation.

Where possible, they should also know the risk of additional delays attached to a particular application in advance as well as the causes of unexpected delays during the processing. This in turn requires better communication among the parties. As a result of improved communication, the few causes of delays could be identified and then reduced.

## **7.3 Further strengthening the prevention of fraud and corruption in retail lending (REECL)**

Unfortunately, as for any financial transaction involving subsidies, there is some room for deliberate fraud or corruption. A multi-point control framework is already in place in order to prevent this in the REECL, which involves:

- the PBs normal screening processes for retail loans, which in themselves are designed to protect the PBs from unscrupulous borrowers who may have no intention to repay the borrowed funds
- the consulting firm's up-front validation of eligibility with respect to both the borrower and the proposed investment, which is supported by quotations for eligible equipment
- the consulting firm's desk-based ex-post validation of supporting documentation (invoices, receipts for payment and so on) for all grant applications prior to the consulting firm's authorisation to the PBs to release the grant payment
- the ex-post on-the-spot physical check by the consulting firm of the eligibility of a minimum of 10 per cent of sub-projects prior to sending authorisation to the PBs to release the grant payment.<sup>18</sup>

This is, however, a heavy burden for the main reviewer, (the consulting firm), to assume that the loan (and grant) application sequentially goes through several operators before final approval.

### ***Lesson: Preventing fraud and corruption on retail lending could be further strengthened by effectively involving more persons at different stages***

- Carefully timed independent spot enquiries by the PBs and/or Bank staff could help prevent even more fraud or corruption for this type of line of credit. The findings of the enquiries should be systematically recorded.

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<sup>18</sup> In 2007, 7,755 borrowers entered the REECL database, while 1,027 spot-checks were carried out throughout Bulgaria. The major locations include: Sofia, Plovdiv, Varna, Burgas, Russe, Pazardjik, St Zagora, Sliven, Asenovgrad, Stamboliiski, Septemvri, Jambol, Haskovo, Dimitrograd, Kardjali, Pernik, Razgrad, Dobrich, Silistra and Velingrad.

- The PBs should be fully aware of the complete range of fraud and corruption issues attached to lending with subsidies and the corresponding prevention and control requirements attached to EBRD credit lines.
- While it is acknowledged that the consultants have considerable technical expertise and provide very valuable inputs, Bank staff should involve other stakeholders in the process when appropriate, for example, auditors from the PBs. Adequate budget resources in the EBRD and in the PBs should be properly allocated to prevention and controls.
- In addition to the standard training on integrity in EBRD operations, Bank staff dealing with lines of credits involving subsidies on purchased equipment could receive additional training on the particular aspects of fraud and corruption attached to disbursement of subsidies.