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## Abbreviations

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<th>Description</th>
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<tbody>
<tr>
<td>BAT</td>
<td>Best Available Technology</td>
</tr>
<tr>
<td>BEERECL</td>
<td>Bulgaria Energy Efficiency and Renewable Energy Credit Line</td>
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<tr>
<td>CCGT</td>
<td>Combined Cycle Gas Turbine</td>
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<td>CCS</td>
<td>Carbon Capture and Storage</td>
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<td>CDM</td>
<td>Clean Development Mechanism (under the Kyoto Protocol)</td>
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<td>CHP</td>
<td>Combined Heat and Power</td>
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<td>CIS</td>
<td>Commonwealth of Independent States</td>
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<tr>
<td>CO2</td>
<td>Carbon Dioxide</td>
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<td>COO</td>
<td>Countries of Operations</td>
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<td>DAC</td>
<td>Development Assistance Committee (OECD)</td>
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<td>EC</td>
<td>European Commission</td>
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<td>EIA</td>
<td>Environmental Impact Assessment</td>
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<td>ESAP</td>
<td>Environmental and Social Action Plan</td>
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<td>ESD</td>
<td>Environmental and Sustainability department (EBRD)</td>
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<td>ESIA</td>
<td>Environmental and Social Impact Assessment</td>
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<tr>
<td>ESP</td>
<td>Electrostatic Precipitator</td>
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<td>ETCs</td>
<td>Early Transition Countries</td>
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<td>EU</td>
<td>European Union</td>
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<tr>
<td>EvD</td>
<td>Evaluation department (EBRD)</td>
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<td>FGD</td>
<td>Flue Gas Desulphurisation</td>
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<td>FYR</td>
<td>Former Yugoslav Republic</td>
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<td>HPP</td>
<td>Hydro Power Plant</td>
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<td>IFI</td>
<td>International Finance Institution</td>
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<td>IPO</td>
<td>Initial Public Offering</td>
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<td>LLD</td>
<td>Lessons Learned Database (EBRD)</td>
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<td>LTP</td>
<td>Legal Transition Programme (EBRD)</td>
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<td>MCCF</td>
<td>Multilateral Carbon Credit Fund (EBRD)</td>
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<td>MCFF</td>
<td>Medium Sized Co-financing Facility (EBRD)</td>
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<tr>
<td>MEI</td>
<td>Municipal and Environmental Infrastructure (EBRD)</td>
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<td>MENA</td>
<td>Middle East and North Africa</td>
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<tr>
<td>MoU</td>
<td>Memorandum of Understanding</td>
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<td>MW</td>
<td>Mega Watt</td>
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<td>NGO</td>
<td>Non-Governmental Organisation</td>
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<td>NST</td>
<td>Nuclear Safety Team (EBRD)</td>
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<td>OCE</td>
<td>Office of the Chief Economist (EBRD)</td>
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<td>OCGT</td>
<td>Open Cycle Gas Turbine</td>
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## Defined terms

### The Bank
The European Bank for Reconstruction and Development

### The Evaluation team
Staff of the Evaluation department and the independent sector consultants who jointly carried out the sector review

### The P&E banking team
Staff of the Power and Energy team and other respective departments within the Bank responsible for the operations in the sector

<table>
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<tr>
<th>Abbreviation</th>
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<tr>
<td>OGC</td>
<td>Office of the General Counsel (EBRD)</td>
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<td>OL</td>
<td>Operation Leader</td>
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<td>OPER</td>
<td>Operational Performance Evaluation Review</td>
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<td>PES</td>
<td>Power and Energy Sector</td>
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<td>P&amp;E</td>
<td>Power and Energy</td>
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<tr>
<td>PPA</td>
<td>Power Purchase Agreement</td>
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<tr>
<td>PSD</td>
<td>Project Summary Document (EBRD)</td>
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<td>RO</td>
<td>Resident Office (EBRD)</td>
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<tr>
<td>SCADA</td>
<td>Supervisory Control and Data Acquisition</td>
</tr>
<tr>
<td>SEA</td>
<td>Strategic Environmental Assessment</td>
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<tr>
<td>SEI</td>
<td>Sustainability Energy Initiative (EBRD)</td>
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<tr>
<td>TA</td>
<td>Technical Assistance</td>
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<tr>
<td>TC</td>
<td>Technical Cooperation</td>
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<tr>
<td>TI</td>
<td>Transition Impact</td>
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<tr>
<td>WeBSEDFF</td>
<td>Western Balkans Sustainable Energy Direct Financing Facility (EBRD)</td>
</tr>
<tr>
<td>XMR</td>
<td>Expanded Monitoring Report</td>
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<td>XMRA</td>
<td>XMR Assessment</td>
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Executive summary

This report provides the findings and recommendations from an independent evaluation of the implementation of a part of the EBRD’s Energy Operations Policy of 2006 (the “Policy”) covering the power and energy sector (the “PES”) during 2003-10 (the “evaluation period”).

The overall performance of the Bank in the PES is rated Successful, while transition impact (TI) and sustainability are rated Good to Excellent. Compared with 1992-2002, the volume of the Bank’s operations in the PES nearly tripled to €4.2 billion, and the number of projects grew by over 70 per cent. The share of private sector projects in the total portfolio tripled to 62 per cent, while renewable energy sub-sector projects also posted significant growth. The number of operations in the early transition countries (ETCs) grew, but their share in the total portfolio contracted from a 25 to 18 per cent.

An analysis of the operational priorities relevant to the PES set out in the Policy was conducted against the Bank’s seven transition impact indicators. The analysis reveals the Policy’s High relevance as the TI objectives were frequently referred to. The relevance of the Bank’s PES projects is also rated High, while the Policy’s relevance to host countries’ priorities is rated Medium.

The effectiveness of Policy implementation through P&E team operations is rated Good to Excellent. Given the challenges of this sensitive sector, this rating is very positive. However, persistent delays in the implementation of a relatively large number of projects remain a concern and indicate room for improvement in terms of planning and implementation.

The efficiency of Policy implementation, investments and operations is rated Good. Feedback from stakeholders on the Bank’s PES operations in various countries has been generally very positive, and the Bank acted as a mediator in several cases where disagreements arose between private investors and regulators or governments.

Transition impact and sustainability is rated Good to Excellent. Bank-financed projects have had a particularly strong demonstration effect in terms of innovative project structure, application of new technologies and improvement of corporate governance standards.

The Bank’s participation has been valued by private investors, providing confidence and mitigating political risks (perceived as higher in the PES than in other sectors). Wider policy dialogue activities have helped several countries with unbundling, commercialisation and/or privatisation of companies active in the PES. In other cases, the Bank supported market liberalisation, as well as legal or tariff reforms. Ad hoc, narrowly focused, project-related policy dialogue worked relatively well in several countries. However in most cases the effectiveness of such dialogue could be increased by adopting a more structured, programmatic approach.

Findings/lessons from past evaluations of PES projects are presented in Annex 3. Key findings are listed below, followed by the Evaluation team’s recommendations.
Findings

− The limited capacity of governmental institutions needs to be addressed (e.g. through training, consultant support) before embarking on major reform in the energy sector, particularly involving complex privatisation tenders.

− In the politically sensitive energy sector, the Bank is sometimes challenged by unfulfilled reform-related covenants. The repetition of such covenants in subsequent loan agreements (related to follow up projects with state-owned clients) might be acceptable, given evidence that the client has started to implement at least some elements of the reform plan, even if on a slow, step-by-step basis. Repetition of unfulfilled covenants from earlier projects without evidence of commitment and some progress is highly likely to be unsuccessful.

− The tariff methodology, ensuring gradual progress towards full cost recovery, must be adopted prior to the privatisation of electricity distribution companies. Otherwise, serious bidders are unlikely to participate in such privatisation. If required, tariff increases must be supplemented by the establishment of a well-targeted subsidy system for the most vulnerable groups of the society.

− While operational efficiency improvement projects may be adequate to address a particular utility’s problems, they are rarely effective in promoting sector-wide reforms. The preparation of energy investment operations should start from a more holistic, sector-oriented, rather than a narrow, utility-focused, project approach.

− It is critical that privatisation agreements specify measurable performance benchmarks to be achieved by the investors in the agreed time frame. Such benchmarks should be linked to tariff increases, motivating the investors and preventing future disputes.

− Although many investors in the energy sector see the EBRD’s financing as an important political risk mitigating factor, they often consider the Bank’s debt financing as sufficiently effective to achieve it. Having the Bank as a shareholder in the privatised company (even as minority, passive, purely financial one) might sometimes be seen by some clients as a factor limiting decision-making flexibility.

− Pre-privatisation financing, under which the Bank’s sovereign loan disbursements (designated to be ultimately converted into EBRD’s shares in the privatised company) are linked to the achievement of specific milestones by the government, is an effective instrument supporting privatisation. Opportunities for replicating this approach should be explored, however bearing in mind the requirement to ensure adequate incentives and sufficient time to negotiate shareholders’ agreement.

− When a country joins the EU, there are still potential risks to the reform process in the sensitive sectors such as energy; the leverage of international organisations reduces, while the motivation for progressing reform drops significantly. At such a time, it is important that the EBRD steps up its focus on policy dialogue and in co-operation with other IFIs, supports the completion of the transition process.
Recommendations on Policy (Strategy) formulation

- The current Energy Operations Policy (2006) covers a broad spectrum of sectors and issues, applicable to several banking teams. Such an approach may be justified as it enables the Bank to take a comprehensive view of all issues related to energy. However, it forces generalisation and blurs lines of responsibility among different teams. It is therefore recommended that the Bank considers developing a specific Power and Energy Sector Strategy (the “Strategy”), in addition to the overarching, general Energy Operations Policy.

- The new Strategy should set more specific operational directions and targets for different industry sub-sectors. Moreover, PES-specific transition impact objectives should be developed for different countries as a tool for the Strategy implementation. This would make the Strategy easier to monitor and evaluate its implementation.

- The financing of coal-fired power plants presents a particular challenge to the Bank, therefore it deserves special attention (possibly including specific guidelines) in the Strategy. Studies of alternative types of plants, incorporation of emission control measures and the use of clean coal technology, might be considered as pre-requisites for the Bank’s involvement in such projects.

- Given the determination of several countries in recent years to develop new nuclear power facilities, it is recommended that the EBRD’s top management considers consulting with the key shareholders on whether the Bank’s current policy of non-engagement in new nuclear power project should be sustained or relaxed.

Recommendations on Policy (or a new Strategy) implementation

- The Bank should consider developing and adopting a PES country-specific “Integrated Approach” for several key countries of operation (already used in Ukraine). Such a strategic approach would involve wider planning in countries, taking into account high profile issues such as climate change, energy security, regional cooperation and environmental protection. It would ensure improved synergies (for example, grid enhancement would enable the development of renewable energy), increased leverage in pursuing sector reforms (as the Bank’s “reform leverage” through a single project has been sometimes insufficient), and more focused policy dialogue, better coordinated with various stakeholders.

- In relation to the above point, it is recommended that the Bank considers replacing its current ad hoc approach to policy dialogue, with more structured policy dialogue plans for selected countries of operation. This would enable the Bank to take a more comprehensive view and to better structure and prioritise its policy dialogue activities, as well as increase their effectiveness to ensure the recommended reforms are actually implemented. This wider policy dialogue should also help the Bank to better prioritise and target its TCs, such as affordability analysis in support of tariff reform.
− Policy dialogue activities are time-consuming and more resources are needed for the Bank to have a wider impact, but it is particularly recommended that the Bank considers developing a system of targets for bankers, which include policy dialogue activities, as well as clear incentives for meeting these targets. As an alternative, creation of a dedicated Policy Dialogue Coordinator’s position in the P&E Team could be considered. The task of such a Coordinator would be exclusively to pursue policy issues with governments and key stakeholders, ensuring the sector reforms agenda is kept in focus.

− The new Policy (or Strategy) should better define the role of the OCE Energy Economists participating in the policy dialogue effort. If it is agreed that the Energy Economists are to play a more pro-active role in this area, their work should be better integrated with that of the P&E Team bankers.

− Many of the Bank’s teams find the work of the Legal Transition Team (whose role is to promote legal reforms in the countries of operation) very useful in leveraging their own policy dialogue efforts. So far, the P&E Team has only sparsely used the LTP’s support and it is recommended that the P&E Team considers intensifying such cooperation. The Bank’s focus on energy and climate change could warrant the addition of energy market regulation to the core areas designated for the LTP’s intervention, as well as strengthening the LTP’s resources dedicated to this area.

− The P&E Team should step up cooperation with the Bank’s country teams and the Manufacturing and Services team, which could result in the identification of more industrial power projects (there are already examples of such successful cooperation, e.g. in respect of Saturn Biomass project in Poland).

− To address persistent delays in the implementation of a large number of the PES’ projects, it is recommended that the Bank adopts more realistic implementation planning and better cost estimation, assessing more critically the capacity of local borrower/partner institutions. The Bank should streamline and improve its support to strengthen the borrowers’ implementation capacity in this area. Reinforcing the P&E Team’s own resources in the area of procurement could also yield better results in terms of project planning and implementation.
1 Introduction

1.1 Background, objectives and scope of the sector review

Due to its priority status on today’s international agenda (for example, climate change, energy security and depletion of resources), the power and energy sector (PES) is one of the most important and most challenging sectors in which the EBRD operates. Therefore the Bank’s performance in this sector is critically important for the development of the countries of operations (COO) and also for the perception of the Bank by the international community and its shareholders. Moreover, as a sector that is highly political, socially important and environmentally sensitive, the PES is often a fine “lens” through which the EBRD’s overall activities are seen by the governments of its countries of operations, Non-Governmental Organisations (NGOs) and the wider public. In 2012 the Bank intends to update its Energy Operations Policy, approved in July 2006 (the “Policy”), which covers several industry sectors, including the PES (Box 1.1).

This report contains the findings of an independent evaluation of the implementation of a part of the EBRD’s Energy Operations Policy covering power and energy sector during 2003-10 (the “evaluation period”). This includes an assessment of the applicability and comprehensiveness of the Policy, and an evaluation of the Bank's performance against the Policy’s objectives.


The Energy Operations Policy approved in 2006 is the fourth policy guiding the Bank’s activities in this sector. The previous policies were approved in 1992, 1995 and 2000. As well as the PES, the Policy covers natural resources, district heating, nuclear safety and energy efficiency. However, this sector evaluation covers only the power generation, transmission and distribution projects (as well as related technical cooperation projects), implemented by the Bank’s Power and Energy team (the “P&E team”). The following are the core priorities in the Policy, which are directly related to the PES, are primarily the responsibility of the P&E team, and are the focus of much of this sector evaluation:

- reform of energy markets in terms of commercialisation, restructuring, unbundling, regulation, competition and private sector participation, in order to improve the investment climate
- promoting cross-border and regional cooperation, competition and energy trade
- strengthening corporate governance, transparency and business conduct
- promoting energy security by improving energy efficiency and expanding sources of supply
- promoting renewable energy
- promoting environmentally sustainable development (for example, environmental upgrades in power generation, reduction in greenhouse gases and so on).
1.2 Sector evaluation methodology

Due to the absence of a representative sample of Operation Performance Evaluation Reviews (OPERs) and Expanded Monitoring Report Assessments (XMRAs) completed for PES in the countries other than Russia during the evaluation period (only four available) and taking into account the P&E team’s comments on the 2005 PES evaluation (see Box 1.2), the Evaluation team decided to conduct Sample Project Evaluations (also referred to as “limited evaluations”) of a new, representative sample of relatively recent PES projects in several countries.

Five evaluation focus countries were selected in central Europe and the Baltic states, south-eastern Europe, and eastern Europe and the Caucasus, covering various stages of transition among the Bank’s COO’s. Relatively detailed assessment of 24 projects (30 per cent of the total signed by the Bank in PES in the focus countries during the evaluation period was performed. Such assessments were completed through site visits and/or client/stakeholder interviews. Rating of each project’s overall performance, as well as its performance in five key categories: (i) achievement of objectives, (ii) transition impact (TI) and sustainability, (iii) environmental and social impact, (iv) sound banking and financial performance, and (v) Bank handling. Due to the less in-depth review of the 24 projects during limited evaluations than is usually the case with OPER-type evaluations, the ratings of “+”, “+/-” and “-” were assigned to measure projects’ impact or performance in each of the five categories.

Box 1.2: Key points from the power and energy sector evaluation 2005

The 2005 PES evaluation was based exclusively on the findings from previous project evaluations (OPERs or XMRAs). This limited the evaluation to a sample of 21 projects. Nineteen of the 21 projects evaluated were signed before 2000, which prompted P&E team’s comments that the evaluated sample was relatively old. Moreover, at this time many of the Bank’s PES projects were in early transition countries (ETCs) and the majority were with the state sector. Overall sector performance was rated as Partly Successful. This evaluation made the following main recommendations:

− the Bank should continue focusing on project opportunities in early and intermediate transition countries, but where possible with private sector (or non-sovereign) clients
− the Bank should diversify the power generation portfolio, including more emphasis on clean technologies and renewable energy in advanced transition countries
− the EBRD should take more of a country-wide strategic perspective, rather than appraising each project opportunity on its own merit. This required more policy dialogue, technical cooperation (TC), and increased collaboration with IFIs/donors in each country.

1.3 Report structure

The structure of this report follows the Organisation for Economic Co-operation and Development–Development Assistance Committee (OECD-DAC) evaluation approach. Section 2 provides a summary analysis of the P&E team’s portfolio, while the following sections contain an assessment of the relevance of the Policy and PES projects, the Bank’s effectiveness and efficiency in their implementation, as well as the extent of transition impact and sustainability. The final section presents the conclusions, key findings and the
recommendations for the policy and its implementation. Four appendices provide substantially more details on key issues discussed.

2 The Bank’s activities in the power and energy sector

2.1 Investment portfolio

In the period from 1992 to 2010 the P&E team signed 125 projects, with a total volume of EBRD financing of €5.73 billion. The previous sector evaluation covered projects signed up to 2003, and the analysis of the portfolio indicates several important developments since that time, including:

− a 71 per cent increase in the number of projects signed in the evaluation period as compared with those signed before 2003 (that is, 79 and 46 projects respectively)
− the average project size has increased by 60 per cent, from €33 million before 2003 to €53 million during the evaluation period
− the total volume of EBRD financing signed grew by 270 per cent (from €1.52 billion before 2003 to €4.21 billion in the evaluation period). As a result, projects signed during the evaluation period represented 73 per cent of the total volume signed in the sector since 1992.

Figure 2.1: Number of projects signed in the power and energy sector per year and per sub-sector
Figure 2.2 illustrates the significant increase in volume since the start of 2003. It indicates that the largest amount of financing (48 per cent of the total) is in the electric power generation sub-sector (which excludes renewable power generation). The sector evaluation in 2005 recommended that the Bank should increase its activity in the renewable energy sub-sector. Before 2003 the Bank signed only one project that was categorised as renewable power, while during the evaluation period, 19 were signed, 11 of which were for onshore wind farms, seven for hydro plants and one for a biomass power plant at an industrial facility. The average size of renewable power projects is relatively small, at €29 million compared with an average size of €72 million for other electric power generation projects signed since 2003.

The Policy does state that the Bank would place more emphasis on equity projects in the PES. To this effect the Bank has more than quadrupled the number of equity transactions in this sector, signing 17 of them, compared to only four completed before 2003.

The following additional points are relevant to the analysis of the Bank’s activities in the different sub-sectors:

- a significant proportion (about 50 per cent) of the renewable energy projects are in European Union (EU) countries, reflecting the fact that in many of the less-advanced countries more work is needed to develop the investment framework for renewable power
- five of the renewable energy projects are in ETCs, but these are small in size (three of the five are less than €1 million in volume)
- eighteen of the 51 projects in the electric power generation sub-sector are related to combined heat and power (CHP) plants
- the Bank has carried out only one project in the nuclear power sub-sector (outside of the Nuclear Safety Account).

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1 In the Bank’s earlier years of operation, several hydropower projects and one geothermal project were signed, but only one of these was categorised as renewable power at the time.
Several countries in the region have very high energy intensity. It should be pointed out that the Bank is carrying out many energy efficiency projects, although they were covered by a separate evaluation in 2010 on the EBRD’s Sustainable Environmental Initiative.

One of the recommendations of the previous sector evaluation in 2005 was that the Bank should be carrying out more projects with private sector clients. Figure 2.3 indicates an increase in projects with the private sector from only 24 per cent before 2003 to 62 per cent of the total portfolio signed in the evaluation period.

The EBRD has signed a significant proportion of projects in ETCs, Russia and other Commonwealth of Independent States (CIS) countries, where operations may be perceived as being more challenging. The number of operations in the ETCs grew in the evaluation period from 12 to 22, however its share of the total portfolio decreased from 26 per cent to 18 per cent. This is partly because advanced countries needed ongoing support during the financial crisis, but particularly because the Bank has stepped up activities in the renewable energy sector, for which development has been driven by the renewable energy and emission reduction commitments of EU member countries. Figure 2.4 illustrates the geographical spread of the Bank’s PES projects.
Although precise data on foreign direct investment (FDI) in the PES in most countries of operations are not available,\(^3\) it is estimated that the Bank has played a prominent role in financing sector investments in the region. For example, in Georgia approximately 20 per cent of FDIs in the energy sector since 2007 have been financed by the Bank.\(^4\) This proportion is probably lower in large countries such as Russia or Kazakhstan, however there is evidence that the Bank’s financing there has also played a catalytic role. A more extensive analysis of the Bank’s PES portfolio is provided in Annex 1.

### 3 Relevance

The evaluation of the Bank’s performance in PES was based on four key criteria, which follow the OECD-DAC approach. Relevance has been defined as the degree to which:

(i) the Policy addresses the Bank’s sector reform mandate

(ii) the PES projects addresses the different TI categories

(iii) the needs of host countries in the sector are met by the Policy

(iv) the PES projects are additional.

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\(^2\) Key to country groups: EU 2004 (Czech Rep, Estonia, Hungary, Latvia, Lithuania, Poland, Slovak Republic, Slovenia). EU 2007 (Bulgaria, Romania). SE Europe (Albania, Bosnia, Croatia, FYR Macedonia, Montenegro, Serbia, Turkey). Other CIS (Belarus, Kazakhstan, Turkmenistan, Ukraine). ETCs (Armenia, Azerbaijan, Georgia, Kyrgyz Republic, Moldova, Mongolia, Tajikistan, Uzbekistan).  

\(^3\) Most countries publish statistical data on “Water and Energy Sector” FDIs, making it difficult to separate PES investments.  

\(^4\) National Statistics Office of Georgia.
3.1 Energy Operations Policy objectives and the EBRD’s mandate

As indicated in Box 1.1, the Policy provides the Bank’s sector-wide operational approach, which in addition to the PES covers natural resources, energy efficiency and nuclear safety. In total, the Policy outlines operational approaches for 14 sub-sectors. These sub-sectors are inter-related and four of them are specific to the PES:

- renewable energy
- fossil-fuel-based power generation
- power transmission and system and market operations
- power and gas distribution.

Some of the other 10 sub-sectors are important to the PES, such as energy efficiency and nuclear safety, but these are mainly covered by teams other than the P&E team.

An analysis of the operational priorities relevant to the PES set out in the Energy Operations Policy of 2006 (as well as the Policy of 2000 covering part of the evaluation period) was conducted against the seven transition impact indicators used within the Bank. The analysis reveals the Policy’s high relevance, as demonstrated in Annex 2. The TI objectives are frequently referred to in both the 2000 and 2006 Policies, therefore the “relevance” criterion is regarded as High.

3.2 Power and energy operations and the Energy Operations Policy objectives

Figure 3.1 demonstrates the relevance of the Bank’s PES projects vis-a-vis the Policy and provides an analysis of the extent to which the PES-specific objectives of the Policy have been taken into account at individual project formulation level\(^5\) (based on 24 Sample Project Evaluations). It demonstrates that the objective of promoting energy security by improving energy efficiency and expanding sources of supply has appeared most frequently (as one of the objectives of 13 projects), followed closely by strengthening of corporate governance, transparency and business conduct, as well as the objective of promoting environmentally sustainable development (both appearing as objectives in 12 projects – half of the sample reviewed). The least targeted objective was the promotion of regional cooperation, competition and energy trade, which featured as objective of only four projects.

\(^5\) For clarification, this section deals with project formulation; achievement aspects are discussed in Section 4.2.
Overall relevance of the Bank's PES projects vis-a-vis the Policy is rated as *High*.

### 3.3 The Energy Operations Policy and the priorities of host countries

The Bank's operating approach is primarily project-based and essentially demand- and opportunity-driven. The Energy Operations Policy is not country-specific, but sets a general operational framework, while the PES-related sections in the Country Strategies are more descriptive of the Bank's priorities in a given country. They are often conceived based on the pipeline of projects expected to be implemented in the given country in the coming years. Although such an approach might be adequate for some sectors, the PES projects are best considered in the wider context, spanning national and often regional priorities, because of the complexity of the sector, the interdependence of its sub-sectors, as well as environmental and social sensitivities. In recent years the Bank has made a concerted effort to better understand the PES priorities in its countries of operations in order to respond better to them when selecting projects. Furthermore, as the PES strategies in some countries were lacking or inadequate, the Bank helped such countries with the development or fine-tuning of their strategies.

To clearly define the priorities for future cooperation and ensure that such priorities include national PES priorities, since 2009 the Bank has started to develop and sign Memoranda of Understanding or Sustainable Energy Action Plans with the governments of the COOs in respect of the PES. These Memoranda of Understanding and Sustainable Energy Action Plans contain a blueprint for the Bank’s cooperation with the country’s government in PES and list priorities for future cooperation, including sector reforms, financing needs and the requirements for TC support. These priorities for action were consistent with the Bank's PES priorities contained in the Policy.
The Memoranda of Understanding signed with one country incorporated the so-called “integrated approach”, a set of directions that placed the Bank’s planned activities in the context of its overall needs in the PES. Development of an “integrated approach” requires thorough sector analysis and is time-consuming, and its application has therefore not been universally embraced by the project-focused EBRD throughout all its countries.

However, such an approach produces very clear benefits, including: (i) improved synergies (for example, grid enhancement would enable the development of renewable energy), (ii) increased leverage in pursuing sector reforms (for example, the Bank’s leverage through a single project might be sometimes insufficient to provide an incentive for such reforms), and (iii) more focused policy dialogue, better coordinated with various stakeholders. It is therefore recommended that the P&E team considers developing “integrated approaches” for other countries.  

Notwithstanding the Bank’s attempts to take a more strategic approach in some countries, during interviews conducted by the Evaluation team several government representatives responsible for energy policy indicated some frustration with the Bank’s inability to support certain projects of priority for their governments. In particular, in some countries these priorities include the replacement of old nuclear reactors or the construction of new nuclear plants.

Current Policy proscribes involvement in nuclear energy projects, with the exception of nuclear safety improvement projects. So far only one project has been completed and another one (financing of safety improvements at several nuclear power plants) is under preparation. The issue is sensitive and it is clear that views differ widely across the Bank’s shareholders. Consultations with a representative cross-section of shareholders could help illuminate alternative ways forward. Relevance of the Bank’s Policy against the priorities of the host countries is rated as Medium.

3.4 Additionality

Based on findings that emerged during the evaluation, the following points provide an overview of the Bank’s additionality:

- The EBRD’s participation in PES projects provides strong confidence to investors, which is particularly important in such a highly political sector (Box 3.1 gives an example).

- Although the Bank does not necessarily offer the best price financing (for example, compared with the European Investment Bank (EIB)), in many cases clients selected the EBRD (or co-financing by both IFIs) because it is perceived that the Bank’s more hands-on involvement in projects better mitigates the risk of political interference.

- The type of long-term finance provided by the EBRD, most suitable for financing of long-depreciating power infrastructure, is often not available through commercial Banks.

- During the evaluation period the EBRD mobilised €12.8 billion of external co-financing for its PES projects, either through syndication, parallel loans or equity co-investments. The Bank’s external financing
mobilisation ratio for PES projects (aggregate for all projects signed during the evaluation period) was 1:3, which compares favourably with the EBRD’s overall mobilisation ratio for all projects at the level of 1:1.5 (2010). Syndication with commercial banks in the PES amounted to €1.36 billion, while another €1.7 billion was provided through parallel loans. Moreover, other IFIs contributed €2.56 billion debt and €25 billion equity co-financing, while the balance was filled by the sponsors’ equity.

Box 3.1: Case study on additionality – a coal-fired power station

- The EBRD signed a loan to finance a new unit at a coal-fired power station. This replaced two old units that were obsolete and highly polluting. The project supported one of the first privatisations in the power sector in that country, and represented the first stage in a modernisation programme to ensure compliance with EU environmental standards.
- The project has been highly successful and was completed on time with only minor problems during the commissioning stage. The plant has very modern technology, including high standards of environmental protection.
- At the time of project implementation, the government was introducing EU policy on energy market liberalisation, which required the cancellation of long-term off-take agreements. This was causing significant uncertainty related to the risks of potential investment in the sector.
- The fact that the EBRD was willing to provide financing, at a time of significant regulatory risk, provided additional confidence to the commercial banks involved in the project. The client stated that the EBRD involvement was essential to the participation of the commercial banks, as well as to ensuring fair compensation, paid by the government to the power generators who had to cancel long-term contracts.

3.5 Overall assessment of the Bank’s relevance in the PES

The Policy is rated to have High relevance in respect to meeting the Bank’s sector reform mandate, as are the Bank’s PES projects in addressing priorities set in the Policy.

The relevance of the Bank’s PES projects in addressing priorities of the COO energy needs is rated Medium (due to the absence of a provision enabling the Bank to finance nuclear power plants, which constitute a priority for many governments).

Although the Policy outlines relatively clearly the challenges across the sub-sectors that it covers and sets general principles for the Bank’s operations, the sections relevant to the PES are short and unspecific.

Although the section on renewable energy does provide some clear directions, the section on fossil-fuel power generation should be more specific, particularly on aspects such as the priority fuel types upon which the Bank should concentrate its support (see Box 3.2).

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8 Mobilisation ratio 1.5 means that for every euro invested by the EBRD, the Bank mobilised an additional €1.5 from other sources.
9 Ratings categories for relevance are: High, Medium, Low.
Box 3.2: Fossil-fuel-based power generation

- The Policy states that the Bank will continue to introduce advanced technology for increased efficiency and reduced emissions, and monitor development of “clean-coal technologies”.

- The Policy indicates that replacing power plants with new technology is likely to be more efficient than upgrading them, and that fuels can be switched to less carbon-intensive alternatives such as natural gas.

- The Policy is not specific on the Bank’s direction in relation to coal-fired power plants. Ultimately, the decision on whether to finance coal-fired generation projects is likely to be taken on a case-by-case basis, particularly related to whether a plant should be rehabilitated or a new replacement plant built.

- Given the issue of climate change and international and national policies in this area, the Bank could examine a more specific and clearer direction on this issue.

- In particular, the Policy could be more specific on the prerequisites for the Bank’s financing of coal-fired plants, which could include the assessment of alternatives and the benefits of a newly built plant against rehabilitation of an older plant, particularly in terms of efficiency.

- Given that the region has major gas resources and gas-fired plants have much lower carbon emissions than coal-fired, the Policy could be more specific on whether the Bank will encourage more focus on gas-fired plants, taking into account the security of fuel supply.

This relates to a wider point of the Policy’s “evaluability”, that the implementation of the Policy is difficult to monitor and evaluate because it is so general, the directions are not very specific, and the objectives and targets are unclear. Therefore although having an overall Energy Operation Policy has a clear merit and should be continued, the Bank should consider developing a Power and Energy Sector Strategy (the “Strategy”) and possibly separate operating strategies for other sector teams currently “bundled” into the Policy, for example Extractive Industries or Energy Efficiency. Defining sector strategies in such a way that they are related to the responsibilities of the banking teams would have the following benefits:

- It would help the banking teams to focus better on the implementation of the EBRD’s mandate and the objectives of the sector strategy.

- It would help the Bank to make clearer to stakeholders its directions in the sectors covered by the existing Policy.

- It would improve the sector operations’ monitoring and evaluability.
4 Effectiveness

4.1 The context of the Bank’s operations in the PES

It is important to put the evaluation of the effectiveness of the Bank’s operations into the context of the major challenges of the power and energy sector, in particular:

- The sector is politically sensitive. The head of one of the EBRD’s clients in the electricity distribution sector noted: “It is perceived that success in the power and energy business depends 90 per cent on politics and 10 per cent on commercial aspects. In my experience so far it is 100 per cent politics.”

- In many countries, long-standing and major uncertainties in relation to government policy and legislation hold back investments in the sector.

- In particular, tariff levels present a challenge and in many countries are still set at levels that are lower than costs. The sector has traditionally had high subsidies and the phasing out of these subsidies has been slow. Uneconomic tariff levels, and the uncertain process around their establishment, discourage energy efficiency and new investments.

- Although domestic electricity tariffs are slowly converging to international levels, large differences still exist between countries. In many countries affordability is a major obstacle to tariff cross-subsidy elimination and residential tariff adjustment to levels reflecting full cost recovery.

- In several countries the Bank is unable to do business with many of the companies and operators involved in the sector because of integrity concerns.

- Many state sector organisations, including ministries and utilities, lack sufficient capacity to carry out project planning and procurement activities. Retention of well-educated, experienced staff on public sector salaries is another huge problem for many public institutions in the PES.

4.2 Project performance

4.2.1 Overview of PES project evaluations

The EBRD’s Evaluation department (EvD) has so far evaluated 29 per cent of the 125 projects in the PES in the form of OPERs or XMRAs. However, only 13 per cent of the projects signed since 2003 have been evaluated so far, mainly because evaluations are not carried out until projects have been completed. Table 4.1 provides a summary of the project evaluations, and indicates that over 60 per cent of projects have high ratings on overall performance (Successful or Highly Successful) and transition impact (Good or Excellent).
### Table 4.1: Summary of the project evaluations by sub-sector in power and energy

<table>
<thead>
<tr>
<th>Sub-sector</th>
<th>Projects signed</th>
<th>OPERs</th>
<th>XMRAs</th>
<th>% of projects evaluated</th>
<th>Overall performance(^\text{10}) (per cent of projects evaluated as Successful or Highly Successful)</th>
<th>Transition impact(^\text{11}) (per cent of projects evaluated as Good or Excellent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electric Power Generation</td>
<td>51</td>
<td>9</td>
<td>13</td>
<td>43</td>
<td>55</td>
<td>59</td>
</tr>
<tr>
<td>Electric Power Transmission</td>
<td>25</td>
<td>3</td>
<td>4</td>
<td>28</td>
<td>71</td>
<td>71</td>
</tr>
<tr>
<td>Electric Power Distribution</td>
<td>25</td>
<td>4</td>
<td>2</td>
<td>24</td>
<td>67</td>
<td>67</td>
</tr>
<tr>
<td>Natural Gas Distribution</td>
<td>4</td>
<td>0</td>
<td>1</td>
<td>25</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Renewable Power</td>
<td>20</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Total</td>
<td>125</td>
<td>16</td>
<td>20</td>
<td>29</td>
<td>61</td>
<td>64</td>
</tr>
</tbody>
</table>

The following additional findings from the analysis of project evaluations should be noted:

- Overall, there has been a significant improvement in the success of projects since 2003. Fifty per cent of the evaluations for projects that were signed before 2003 gave an overall performance rating of *Successful* or *Highly Successful*, increasing to 90 per cent of evaluations of projects signed from 2003 onwards.

- All the projects that have been evaluated in the EU (2004) countries had an overall performance rating of *Successful* or *Highly Successful*.

- Projects in ETCs and other CIS countries have been less successful. Only 14 per cent of projects in ETCs have had a transition impact rating of *Good* or *Excellent*.

- There is no major difference in the success of projects in different sub-sectors, although projects in the Electric Power Generation sector have generally had less success and less transition impact than other sectors.

As part of the current sector evaluation, Sample Project Evaluations (also referred to as “limited evaluations”) were performed on the sample of 24 projects during evaluation missions to the focus countries, often including project site visits (more information about this methodology is presented in Annex Four. In terms of the “achievement of objectives” the 24 projects produced the results summarised in Figure 4.1 below.

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\(^{10}\) Ratings categories for overall performance are: Highly Successful, Successful, Partly Successful, Unsuccessful.

\(^{11}\) Ratings categories for transition impact: Excellent, Good, Satisfactory, Marginal, Unsatisfactory, Negative.
4.2.2 Other specific points on PES project performance

Based on the limited evaluation of 24 projects and the desk review of documentation related to 46 further projects (see Annex 4 for methodology description), the following additional points were noted in relation to effectiveness of the PES projects:

- In virtually all cases reviewed, the investments carried out with EBRD financing have resulted in better electricity services, more reliable generation or supply, improved efficiency of power generation or transmission and reduced losses.

- Out of the 24 projects for which Sample Projects Evaluations were carried out, 50 per cent have had delays of more than six months compared with their original implementation plans presented in the Board Reports. These delays have been for various reasons, the following being of particular note:

  **Procurement issues:**

  - Several projects have been delayed because procurement has taken longer than expected. This is often because of a combination of a lack of capacity in the client organisation to carry out the tendering process, an initial lack of understanding of the EBRD procurement procedures, and/or technical issues stemming from the tender specifications.

  - The delays in procurement include problems with tendering for consultants to work on planning and procurement tasks under TC projects (more details on TC are covered in Section 5 on Efficiency).

  - In some cases the differences in procurement rules of various IFIs have delayed co-financed projects, although the Bank has been taking steps to separate project components into packages applicable to individual IFIs.

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12 Due to the less in-depth review of the 24 projects during limited evaluations than is usually the case with OPER-type evaluations, the ratings of “+”, “+/-” and “-” were assigned to measure projects’ impact or performance in each of the five categories.
Technical issues:

- In several cases rehabilitation projects have taken longer than expected. This is often because the actual work required can be difficult to identify until the contractor can start to properly investigate the state of the plant.

- Some transmission projects have been delayed because of difficulties with the design of the route of the transmission lines, for example because of objections from local communities and problems with the purchase of land.

Political issues:

- Some delays are completely out of the Bank's control, such as delays due to the conflict; and some projects are delayed through political interference at a local level, where the local authorities take a long time to grant approval. It should be noted that many projects are on track, despite some being implemented under difficult political or physical circumstances, such as a power distribution reconstruction project, the nuclear safety investment and a transmission project.

- Out of the sample of 20 long-running projects subject to Sample Project Evaluations, 35 per cent have experienced cost-overruns, mainly because of incorrect cost estimation related to complex technological solutions.

- The Bank has financed several wind power farms in recent years. One of the common specific lessons has been the need for transmission networks to be upgraded to cope with the intermittent power produced from new wind farms (such upgrades ideally to happen prior to or in parallel with the wind farm construction projects). This inter-dependence does not just cover the nearby part of the grid to which the power plant is connected, but can require widespread transmission upgrades. One client at a wind farm stated that if there are high winds then the transmission grid is affected as far away as a neighbouring country.

4.3 Overall assessment of effectiveness

The effectiveness of the implementation of the policy, investments and operations in the power and energy sector is rated as Good to Excellent. Given the formidable challenges presented by this highly political sector, the Bank's achievement is very significant. However, the persistence of delays in implementing a large number of this sector's projects (and in some cases substantial cost overruns) remains a concern.

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13 The Bank’s Procurement department has been working with the other IFIs on harmonisation of the procurement procedures to streamline the public procurement process. The most practical result of these efforts has been an agreement by all IFIs on one Standard Tender Document, to be used by the clients, regardless of the financing institution.

14 Out of 24 projects subject to Sample Evaluations, 20 could be categorised as “long-running” (completed or nearly completed), while four are still being implemented.

15 Ratings categories for effectiveness are: Excellent, Good, Satisfactory, Marginal, Unsatisfactory, Highly Unsatisfactory.

16 Recently the Bank’s Procurement department undertook a number of initiatives that should help address this issue, for example a dedicated TC “Institutional Capacity Building and Client Training in Procurement”, as well as “Client Risk Based
5 Efficiency

This category assesses:

- the Bank’s approaches to the structuring of projects
- the Bank’s handling of the development, implementation and monitoring of projects
- the financial performance of the projects
- the implementation of wider aspects of the Policy, particularly related to policy dialogue activities.

5.1 Overview of approaches to project structuring

The analysis of project documentation and client interviews demonstrates that the EBRD has largely taken appropriate measures to properly mitigate the various risks to which PES projects have been exposed. Box 5.1 provides some examples.

**Box 5.1: Examples of the EBRD structuring projects to mitigate PES-specific risks**

- Including as a condition precedent to the first disbursement the requirement that a long-term Power Purchase Agreement (PPA) is signed for the off-take of electricity at an agreed price, for example in a wind farm project.
- Ensuring that a connection agreement between renewable power generators and the local transmission/distribution company is in place (particularly where there was uncertainty as to the responsible party). For example, at a wind farm, the client signed an agreement with PSE, the national grid operator, as well as a cooperation agreement with the electricity distribution company.
- Requiring direct agreements between the client/developer and other stakeholders, as needed, such as with a local municipality (for example, in the case of small hydro plants).
- Including a loan condition on the signing of international agreements, such as between the neighbouring country transmission companies as a condition of financing a transmission project.
- Innovative approach to motivating the government to implement actions as preconditions to privatisation of the electricity distribution (Pre-privatisation Project (Box 6.2)).
- Setting up a series of projects with disbursements on later projects conditional on satisfactory completion of the preceding phases.

One of the difficulties regularly experienced by the EBRD in project planning relates to the amount of “leverage” required to ensure implementation of covenants, for example related to sector policy reforms and/or
the implementation of recommendations from TC projects (Section 5.3), a particular challenge with private clients.

The leverage challenge arises in a different way when the Bank undertakes follow-on projects with a state-owned client, which did not fulfil the conditions contained in agreements for the first project. For example, since 2005 the Bank has signed three projects with a state-owned national transmission company, with several similar loan/guarantee covenants related to its commercialisation repeated in each of them. The Bank's persistence in this case is commendable; however its approach is yet to yield results (due to political sensitivity, the government is not yet prepared to support in full such commercialisation). In cases like these, setting a pre-requisite for the Bank's further involvement (for example, completion by the client of at least small, specific actions, leading to the fulfilment of the covenants) may be a more effective way forward with the clients who previously failed to comply with difficult but important reform covenants.

The Bank has had similar difficulties with repeating/extending agreed action plans with a state-owned power company for the power sector reconstruction project and the distribution rehabilitation project; and with a transmission company, with which the Bank has signed several projects. The Policy does highlight the different types of financial instruments that the EBRD utilises in projects, including different guarantee mechanisms and types of security. In the PES the Bank has been planning projects with an overall movement away from sovereign guarantees or corporate guarantees towards project finance and equity. Box 5.2 provides some examples of specific financial instruments used by the P&E team.

5.2 Bank handling

Most feedback from clients and other stakeholders on their work with the P&E team has been very positive. The team are clearly in regular communication with clients, particularly the bankers based in the Resident Offices.

The review of the Monitoring Reports for PES projects generally indicates a high quality of such reports, with all financial details and relevant TI-related and implementation-related information. Crisis situations have generally been reported to the management in a timely manner and decisive actions taken to resolve them.

Analysis of all 36 project evaluations (OPERS/XMRAs) carried out in the sector so far (10 on projects signed during the evaluation period) indicates significant improvement in Bank handling, with 72 per cent of all projects rated as Good or Excellent (Table 5.1).

18 The only less positive comments from the clients related to extended gap in the policy dialogue in one country, which took place following the departure of the RO Head and appointment of a new Head/Country Director.
Table 5.1: Rating on Bank handling for evaluated projects (OPERs/XMRAs) in the PES\textsuperscript{19}

<table>
<thead>
<tr>
<th>Bank handling</th>
<th>Total</th>
<th>Before 2003</th>
<th>Since 2003</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Good</td>
<td>23</td>
<td>17</td>
<td>6</td>
</tr>
<tr>
<td>Satisfactory</td>
<td>8</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>Marginal</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Unsatisfactory</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Highly Unsatisfactory</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

The feedback during the evaluation also indicated that several projects and clients have benefited from the Bank playing a mediating role during disputes between stakeholders, for example, the Bank has:

- acted as mediator in the disagreements between an electricity distribution company and a government
- intervened in several disputes between the sponsor and the regulator for a gas distribution project
- been in dialogue with the consultants and the client for a power transmission substations rehabilitation project to help to resolve disputes
- carried out dialogue with one of the electricity distribution companies and the regulator during serious ongoing disputes
- been closely monitoring the dispute between the client and the contractor for a project, so that the risks to the Bank can be mitigated and in case there are opportunities for the Bank to help in resolution.

Technical cooperation has been extensively utilised for due diligence, engineering advice, feasibility studies, Environmental and Social Impact Assessments (ESIAs) and so on, primarily benefiting the public projects.

As it is important that these TCs are set up and procured as quickly as possible to maintain momentum with project preparation, the Bank has successfully used framework contracts to streamline this process (more on TCs is provided in Section 5.3.2).

The Policy (or a new Strategy) might benefit from a more strategic approach by the P&E team. Examples of aspects on which wider strategic thinking related to projects may be applied include:

- more thorough assessment of the advantages and limitations of the development of new thermal power plants compared to rehabilitation of existing plants
- clearer direction in respect of which type of fuel generation plants the Bank should support as a priority. For example, the benefits of gas-fired plant over coal plant, depending on security of fuel sources
- a continued focus on the upgrade of transmission networks in order to facilitate renewable energy projects (for example, wind farms, as the Bank has been doing to a certain extent in Poland)
- stepping up the strategic thinking on opportunities related to regional power systems and cooperation between countries

\textsuperscript{19} Ratings categories for Bank Handling: Excellent, Good, Satisfactory, Marginal, Unsatisfactory, Highly Unsatisfactory.
more proactive targeting of specific areas of opportunities for projects, such as the switch from industrial power plants to biomass.

Figure 5.1: Bank handling from Sample Project Evaluations

5.2.2 Financial performance

By a range of metrics, the Bank’s financial performance in the sector has been significantly improving.

Rate of Return for projects signed from 2003-10

The Bank maintains detailed project financial data, but does not officially calculate and report results on a sector portfolio basis. Based on EvD’s calculations performed for all completed and active debt projects signed during the evaluation period (and after adjustment for provisions)\(^{20}\) their Net IRR amounts to 3.9 per cent.

The figure before provisions is 4.9 per cent. This compares to 2-3 per cent (before provisions) for debt projects signed before 2003 from a similar analysis carried out as part of the previous PES Review (2005).

Seventeen of the 79 projects signed during the evaluation period involve equity. The Net IRR for exited equity projects was 4.9 per cent. Although many of the active equity operations are performing well, there are three large equity impairments, totalling an estimated loss of €177 million. Net Internal Rate of Return (IRR) for all equity projects (completed and active) was -8.2 per cent. Excluding these three projects, the estimated Net IRR for all equity projects\(^{21}\) amounted to 8.5 per cent.

Financial performance rated in OPERs/XMRAs

For the evaluated projects in the power and energy sector, financial performance since 2003 has significantly improved, as indicated in Table 5.2. Since 2003, 70 per cent of projects evaluated have had a financial performance rating of Good or Excellent, and none of the projects have had a financial performance of less than satisfactory.

\(^{20}\) The IRR on debt operations takes account of interest receipts and fees, direct costs, capital disbursements and repayments. Debt operations have been adjusted for specific and general loan loss provisions.

\(^{21}\) The IRR on equity investments takes account of realised gains and dividends, assumed equity cost of funds of around 5 per cent until 2009 and 2.5 per cent thereafter, direct costs, capital flows (equity subscriptions and repayments), impairment losses and unrealised gains and losses based on the EBRD’s fair value estimates at December 2010.
Table 5.2: Rating on Financial Performance of PES evaluated projects (OPERs/XMRAs)\(^{22}\)

<table>
<thead>
<tr>
<th>Financial Performance</th>
<th>Total</th>
<th>Before 2003</th>
<th>Since 2003</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>6</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Good</td>
<td>12</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>Satisfactory</td>
<td>10</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>Marginal</td>
<td>5</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Unsatisfactory</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Highly Unsatisfactory</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>36</td>
<td>26</td>
<td>10</td>
</tr>
</tbody>
</table>

Results from the EBRD Profit and Loss statements

A separate comparison can also be made of the financial results from the P&E team, compared to the EBRD’s overall results (taken from the Profit and Loss statements for EBRD projects). This comparison demonstrates the stronger performance of the P&E team, which exceeded the Bank’s results in both years in all asset categories with an exception of the returns on equity in 2010, which were virtually in line with that of the Bank (Table 5.3). Ratings of Sound Banking/Financial Performance from the Sample Projects Evaluations confirm the Bank’s strong performance (see Figure 5.2 below).

Table 5.3: Overview of results from EBRD Profit and Loss statements 2009-10 (in %)

<table>
<thead>
<tr>
<th></th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Return on total average assets</strong>(^{23})</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P&amp;E team</td>
<td>0.40</td>
<td>7.60</td>
</tr>
<tr>
<td>Bank-wide</td>
<td>-4.00</td>
<td>6.70</td>
</tr>
<tr>
<td><strong>Return on average debt assets</strong>(^{24})</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P&amp;E team</td>
<td>3.46</td>
<td>3.36</td>
</tr>
<tr>
<td>Bank-wide</td>
<td>1.39</td>
<td>3.01</td>
</tr>
<tr>
<td><strong>Return on average equity assets</strong>(^{25})</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P&amp;E team</td>
<td>-6.50</td>
<td>17.50</td>
</tr>
<tr>
<td>Bank-wide</td>
<td>-10.70</td>
<td>17.60</td>
</tr>
</tbody>
</table>

---

\(^{22}\) Ratings categories for Financial Performance: Excellent, Good, Satisfactory, Marginal, Unsatisfactory, Highly Unsatisfactory.

\(^{23}\) Return on total average assets – contribution after debt-specific impairment and fair value movements divided by total average operating assets.

\(^{24}\) Return on average debt assets – contribution after debt-specific impairment and after fair value movements divided by average debt operating assets.

\(^{25}\) Return on average equity assets – net equity contribution divided by average equity operating assets.
5.3  Efficiency of the implementation of wider aspects of the Policy

5.3.1  Policy dialogue

The EBRD’s activities on policy dialogue are a major challenge in the PES in most countries of operations, but are a critical element of the implementation of the Bank’s Policy. The Bank has had several notable successes in policy dialogue, including the examples below:

− In one country, during the earlier stages of sector reform, a TC operation was very successful in supporting the privatisation of the electricity distribution sub-sector, culminating in the privatisation of three regional companies to major international operators.

− The Bank’s policy dialogue has supported the privatisation process in several countries. In one, following the Bank-supported sector reforms (see Box 6.2) electricity distribution was privatised. In another, the EBRD’s equity investment in one of the country’s four large energy groups supported the first major privatisation effort in the sector.

− The Bank worked to ensure fair compensation for energy generators after their long-term off-take contracts were cancelled as part of energy market liberalisation. This benefited newly privatised major electricity generators.

− The EBRD has carried out wider policy dialogue activities to advise governments on legislation, tariff policy or regulatory matters.

− The EBRD co-chaired an international Task Force on the PES, which influenced the government to focus on tariff collection, which was 8 per cent at that time (when the sector was almost at financial collapse), and which increased close to 100 per cent by 2004.

However, there have been cases where the Bank could have focused on more specific areas of policy dialogue (for example in one country where transition objectives were poorly defined for some projects).

In a country of south-eastern Europe, one of the main findings of the mission for the sector evaluation was that the investment framework there has actually become more uncertain since accession to the EU, and that there would have been benefits if the Bank had continued its policy dialogue activities since that time (Box 5.2). The
Bank has found some similar issues in another country in the same region, where privatisation in the sector has suffered from national strategy changes and long delays.

Box 5.2: Overview of the slowdown in PES reform in a country since EU accession

The country case study provided some interesting findings in relation to the sustainability of sector reform following accession to the EU, which had been the major driver for reform. In the lead up to accession the country set up a regulator, unbundled the sector, harmonised its legislation, and privatised electricity distribution and much of power generation. The EBRD played a major part through a range of investments, the focus on policy dialogue and TC activities on the development of the legal framework, unbundling, commercialisation and the privatisation of state-owned companies.

However, after joining the EU, the momentum was lost and unfinished reforms in the PES came to a standstill. Government policy in the sector is now uncertain, the low tariffs remain a critical issue (below EU average), and the reported lack of independence of the regulator is a major concern. This is affecting the investment climate and reducing the confidence of private investors. There have been many disputes between private companies and the regulator, and some private operators are considering their exit options.

In line with the priorities set in the Policy, the Bank focused on the private sector and stopped working with the state-owned companies, particularly in the EU countries. However as a result of this change the effectiveness of its policy dialogue with the government has weakened.

This experience demonstrates that, after a country joins the EU, there are still potential risks to the reform process. The interest and pressure from international organisations (including the EC and the EBRD) reduces and the motivation for progressing reform drops significantly. At such a time, it is important that the EBRD steps up its focus on policy dialogue, in cooperation with other IFIs and donors. Despite its strategy to focus on early transition countries, the EBRD should recognise that there still remain some important policy areas in more advanced countries.

5.3.2 Technical cooperation (TC)

The Bank implemented 108 TCs for €25.4 million in the PES during the evaluation period, which represented 3.5 per cent of the Bank’s total TC commitments made during that period.26 The number and focus of TC operations has varied in different countries, with early/intermediate transition countries receiving nearly 60 per cent of the total.

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26 Based on the value of the Bank’s total TC commitments during 2003-10 of €727.5 million.
Most PES TC (over 80 per cent) was closely related to the preparation or implementation of banking operations and comprised due diligence, engineering advice, feasibility studies, ESIAs, procurement expertise and so on. Figure 5.4 below presents the number and nature of PES TC projects.

In some countries the Bank supported its policy dialogue with policy-related TCs. Not all of these activities brought the desired result. For example, in one country, while the Bank has carried out a large number of TC projects, many have not resulted in the expected reforms due to political opposition. In another country in the Caucasus, the Bank has taken a much more targeted approach, supporting the government only in specific areas, such as improving the tariff-setting methodology and strengthening the legal framework related to transmission. This approach appears to have been more successful.
EvD completed two OPERs on PES-related TCs, which were implemented during the evaluation period. The two TC operations have been rated respectively Highly Successful and Partly Successful (primarily because the recommendations stemming from this TC were ignored by the government). Both evaluations highlighted the key importance of a favourable regulatory environment for the success of any operations in this sector.

The Bank continues to find that TC projects are more successful when the recipients hold “ownership”. This is relatively easy to achieve in respect of project development or implementation-related TCs. Policy-related TCs are successful particularly when the government institutions responsible for the reforms are already determined to carry them out, but need an independent professional opinion or more detailed analysis of alternative solutions to convince the opposition about its rationale. This is a common finding in the EvD’s Lessons Learned Database (Annex 3).

One of the major challenges for the Bank is to ensure that recommendations from TC projects on policy aspects are actually implemented. In some cases the Bank has not had sufficient “leverage” to ensure the implementation of such recommendations. As the Bank moves towards having a higher proportion of private sector projects in its portfolio in many countries, the Bank’s leverage reduces in relation to ensuring the implementation of policy actions by governments. Historically, the Bank’s TCs had to be closely related to banking operations, limiting opportunities to target policy-related issues independently of banking operations.

This policy has been relaxed in recent years, particularly following the establishment of the Bank Shareholders’ Fund. As Figure 5.4 demonstrates, the proportion of policy-related TCs in the PES increased substantially in 2010 (to approximately 40 per cent of the total). Continuation of this trend, combined with careful preparation and concentrated targeting of policy-related TCs, should eventually help in achieving transition objectives. The opportunity to use more funds for policy-related TCs also demonstrates the need for better planned and more structured policy dialogue (as discussed below).

5.3.3 Strategic approach to policy dialogue

One of the findings from the Sample Projects Evaluations was that the P&E team might benefit from a more structured policy dialogue plan, at least for selected countries where its usual project-related, ad-hoc policy dialogue has not been fully successful. This has been recommended in the past for other sectors, but is particularly important for the PES, where policy-related distortions and obstacles can be deeply entrenched.

The Bank has recognised this need in Ukraine, where it has developed an “integrated approach” (Box 5.3). Although good timing is important in linking policy dialogue activities to government priorities, and policy dialogue plans must therefore be flexible, the Bank’s activities in other key countries would benefit from a long-term integrated strategy similar to that prepared for Ukraine. This would also help the Bank to define transition objectives related to projects.

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27 An integrated approach was also developed for Russia’s power generation sub-sector.
28 It is recognised that an integrated approach is best suited for larger countries, with complex PES. The preparation of new integrated approach papers should be facilitated by the annual Assessment of Transition Challenges, an OCE publication, which already identifies country-specific sectoral TI objectives.
5.3.4 **Resources for policy dialogue**

Policy dialogue requires significant time and resources. The most effective combination is likely to be a mix of different but well-coordinated activities, targeting institutions and decision makers at various levels. Regular communication between senior representatives of the Bank and key government counterparts on critical issues is of particular importance.

However this needs to be backed up by frequent communication and advice from the Resident Office, the bankers working on specific projects and visiting OCE specialists. Active participation in donor and IFI-led, reform support-oriented bodies can also increase the Bank’s leverage. However, the most effective approach proves to be building incentives into a pre-agreed set of banking projects, especially high-profile projects, which can yield not only economic but also social and political benefits.

There are mixed opinions in the Bank as to how to make policy dialogue more effective. One option could be the creation of specific policy dialogue responsibilities in the banking team (for example, Policy Dialogue Coordinator), working with the relevant specialists in OCE. The P&E team did employ a former Minister of Energy from one of COOs until a few years ago in a role specific to policy dialogue; however, this role was not continued. This experience could also offer interesting lessons to the P&E team, for example that this is a sensitive position and although former political affiliations to a specific party in a specific country might present an advantage in certain situations, they could also be an impediment to the effective discharge of such a person’s assignments when the political landscape changes. Thus the selection of an appropriate, politically neutral candidate, with diplomatic skills, for such a position would be of key importance.

The Bank’s Office of the General Counsel (OGC) manages the Legal Transition Programme (LTP), whose objective is to support reforms in the Bank’s COO through legal advice, drafting new regulatory or legislative proposals and training of law practitioners. The LTP is focused on eight priority legal areas, two of which are directly relevant to PES, that is, infrastructure regulations and concessions/PPPs regulations, while others are highly relevant to the PES (corporate governance, procurement, secured transactions). The LTP has successfully supported the introduction of new legislation in relation to several infrastructure sectors, primarily telecommunication.

However, so far the P&E team has used the LTP only sparsely to leverage its policy dialogue. As the Bank is focusing more and more on energy-related projects and reforms, the LTP might consider strengthening its resources/expertise in the area of energy regulations, to play a more prominent role in supporting the P&E team’s policy dialogue efforts.

The OCE specialists’ role in respect of policy dialogue in the PES deserves clarification and better definition. So far, this role has been primarily diagnostic and supportive of the activities led by the P&E team (although OCE specialists did play a more active, “front-line” role in several projects aiming to further PES reforms). However, P&E bankers suggest that OCE specialists could have played a more proactive and prominent role in the Bank’s policy dialogue efforts. One reason that this has been limited so far is that until recently OCE dedicated relatively few resources to energy-related issues. Combining the function of a primarily...
Environmental Economist with that of an Energy Economist has also proved to be an imperfect solution. In early 2011 OCE realised that given the complexity and extent of the issues faced by different countries in the energy sector, and in response to the Bank’s increasing focus on energy, it needs to strengthen the resources and expertise it dedicates to the energy sector.

Three experienced economists with a strong energy sector background were hired and early feedback on their input has been positive. However, it is still unclear to what extent and in what circumstances OCE specialists should engage in PES-related policy dialogue.

When considering future Policy (or Strategy), the P&E team should take this opportunity to better define the role of other Bank’s units and programmes and integrate them into its policy dialogue plans in order to leverage its own efforts in this important area.

5.3.5 Targets and incentives for policy dialogue

The EBRD’s banking teams have targets and incentives to sign a high volume of projects, but their targets are not linked to policy dialogue activities. This means that policy dialogue tends to be given a lower priority, particularly when it is not related specifically to projects. Given the importance of policy dialogue to the implementation of the Bank’s Policy for the sector, there would be strong benefits in introducing a system of incentives for bankers to carry out policy dialogue (and/or for a Policy Dialogue Coordinator, if such a position is created). This would need to be inter-linked to the more structured plans for policy dialogue discussed above.

5.3.6 Cooperation with other IFIs/donors

Close cooperation between IFIs and donors is particularly important in countries where there are many players and many technical assistance activities in the sector. The assessment in focus countries (which included meetings with the EU, the World Bank, EIB, KfW and USAID representatives in most countries) demonstrated that the Bank has generally had good cooperation with IFIs/donors on policy dialogue activities, ensuring a consistent approach and avoiding overlapping work. This is sometimes through participation in working groups, as well as regular direct communication with other IFIs and active donors.

It is important that IFIs/donors work together to ensure messages are consistent and to encourage governments to push forward with reform. Donor coordination groups can sometimes lose focus and momentum after a change in government, and the EBRD in coordination with other IFIs should ensure that this does not occur at such an important time for policy dialogue.

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30 The “score card” (which contains criteria for a banking team’s performance evaluation at the end of each year) does include transition impact ratings awarded to newly signed projects by OCE. Such ratings are given based on anticipated impact, which often includes policy dialogue and/or furthering of sector reforms in the course of a project. This provides some incentive to make an effort towards including such objectives as part of the project. However incentives to achieve set objectives are weak and actual outcomes of these efforts are not taken into account when compiling the score card.

31 Coordination with other IFIs has been facilitated by the development and implementation of joint projects in many countries.
5.4 EBRD resources and internal operations

The P&E team has assigned a number of its bankers to Resident Offices, ensuring closer client relations and better market monitoring. The current project portfolio and the pipeline are generally strong in these countries, where feedback on bank handling has been particularly good.

The implementation of the Policy will be enhanced if the team continues this approach in Resident Offices where there are sufficient potential projects and policy dialogue activities. In addition, the portfolio would benefit from increased linkages and communication with other banking teams, particularly Country teams and the Manufacturing and Services team, which could result in the identification of more opportunities for industrial power plant financing. There are already successful examples of such cooperation (see Box 6.5).

As well as considering the potential creation of a position dedicated to policy dialogue, the P&E team might consider a role for an in-house engineering/procurement specialist to facilitate the technical appraisal, procurement and implementation of projects. Streamlining the contracting of engineers through framework TC contracts might be an alternative approach. Currently the P&E team uses only framework contracts related to renewable energy projects, managed by the E2C2 team.

Despite several innovative and successful projects, which could be models for similar operations in less advanced countries, the P&E team has not developed many marketing/case study materials on good practice. Such materials could raise the profile of the team’s successes with various stakeholders and could help the team to expand its business. In addition, country case studies and Sample Projects Evaluations have shown that the sharing of experience and lessons on projects and policy dialogue is useful between countries. Such country case studies could be used by the Bank in future. For example, a case study demonstrating the benefits of the independent regulator to a country in eastern Europe could be presented in other countries where such independence is in question. The case for sharing information on best practice could be even stronger when the Bank expands its operations to northern Mediterranean region.

5.5 Overall assessment of efficiency

The efficiency of the implementation of the Policy, investments and operations in the PES is rated as Good.\textsuperscript{32} Feedback from stakeholders and project evaluations on Bank handling has been generally very positive. Overall, the financial performance of most projects has been above the Bank’s average. In addition, although the Bank’s policy dialogue activities could be stepped up in some countries, there are several good examples of success with policy dialogue and TC projects so far. Nevertheless, the P&E team would benefit from:

\begin{itemize}
  \item a more structured policy dialogue plan for the sector in the main countries where an \textit{ad hoc} approach has brought few or mixed results
  \item intensification of the focus on policy dialogue activities, more effective use of existing Bank-wide resources and consideration to increasing the P&E team’s own resources dedicated to policy dialogue
  \item re-examining the existing system of incentives for the bankers to stimulate greater creativity and focus on policy dialogue activities
\end{itemize}

\textsuperscript{32} Ratings categories for efficiency are: Excellent, Good, Satisfactory, Marginal, Unsatisfactory, Highly Unsatisfactory.
more intensive involvement of the LTP programme in the regulatory reform of the PES in selected COOs

closer cooperation with the country teams and Manufacturing and Services team, to help identify industrial power generation projects.

6 Transition impact and sustainability

6.1 Transition impact

6.1.1 Overview on transition impact

The Bank’s financing, the policy dialogue and TC projects have been supporting sector reforms in terms of development of legal frameworks, tariff policies and structural reforms (unbundling, commercialisation, and privatisation) in line with the transition directions of the Policy and targeting the transition gaps identified in each country by OCE and published in the Assessments of Transition Challenges.\(^\text{33}\)

The transition impact ratings from past OPERs/XMRAs are provided in Table 4.1, and demonstrate that the transition impact of 64 per cent of all projects evaluated was Good or Excellent. In addition, the results from the Sample Projects Evaluations were strong, as indicated in Figure 6.1 below.

Figure 6.1: Rating of transition impact from the Sample Projects Evaluations

6.1.2 Strengthening investment frameworks

A government’s tariff policy is one of the key risks for most investors in the PES. For example, the perception is that there are high risks related to tariffs in some countries, with both low tariff levels and potential for government interference constraining investments.

The EBRD has carried out at least 30 TC projects focused on the wider aspects of reform, such as tariff reform, development of legislation, and regulatory capacity building. The lack of regulator independence in relation to setting tariffs has been raised by nearly all investors interviewed in the focus countries. This aspect is difficult for the Bank to influence. However, this issue has been sometimes seen by the investors as

\(^{33}\) The latest Assessment of Transition Challenges at the time of this report was dated 25 June 2009 (CS/FO/09-11).
secondary, as long as the government’s long-term PES policy is clear. For example, although the regulator in one country does not necessarily have strong independence, the consistent policy of the government and the setting of tariff levels to cover full costs, have provided a more stable investment framework than in many countries (see Box 6.1).

Box 6.1: Example of stable policy providing confidence to investors

Since the Rose Revolution in late 2003, the Government of Georgia has been implementing a clear and stable energy sector policy. This included raising the tariff levels in one step by 30 per cent in 2006, so that they largely covered full costs. The feedback from the investors is that, despite the recent conflict with Russia and risks related to the breakaway regions of Georgia, the certainty over tariff levels in the long term has provided them with confidence, as well as the fact that the Government has been sticking to its policy. The EBRD has been supporting the Government (including the regulator) through advice on policy and through targeted TC projects. However, Georgia is also an example of a country in which the EBRD should continue to work closely with the Government as there is still much to do on sector reform, particularly in planning future tariff levels and ensuring continued regional cooperation.

6.1.3 Demonstration effects

The EBRD’s activities in the PES have provided a strong demonstration to potential investors within markets that carry significant risks. In one country, loans to two companies were highlighted in project evaluations for having strong demonstration effects in terms of supporting restructuring and unbundling, as well as improving business conduct. The value of the EBRD’s pioneering operations is particularly high in terms of demonstration of investments in sub-sectors that are relatively new in the region, such as wind farms and small hydropower plants. There is evidence that the Bank-supported projects in these sub-sectors (which were among the first in renewable energy projects in these countries) were followed by substantial new investments. As a result, installed wind power capacity in two countries at the end of 2010 was 375 MW and 1,107 MW respectively.\(^{34}\) Other positive demonstration effects include implementation of new technologies, such as run-of-river small hydro plants, and Supervisory Control and Data Acquisition (SCADA) supervision and data control systems in distribution networks. The potential demonstration effects might be further enhanced if the Bank were to initiate activities to facilitate demonstration, such as organising sector conferences, seminars and study tours, and preparing marketing case study materials (as mentioned in Section 5.4).

6.1.4 Privatisation

One aspect of transition on which the EBRD has been strong is the support of privatisation processes through policy dialogue and TC projects, as well as the provision of financing. In five Focus Counties, the Bank provided approximately €350 million in support of privatisation processes in the PES during the evaluation period. For example:

- thermal power generation
- electricity distribution
- natural gas distribution.

\(^{34}\) European Wind Energy Association, 2010 European statistics.
Moreover, extensive TC support was provided in the early stages of reform and the planning of electricity distribution privatisation in Bulgaria and FYR Macedonia.

**Box 6.2: Case study on the innovative structuring of a project through seven milestones in the privatisation process**

A pre-privatisation share purchase project offers valuable lessons for driving forward the privatisation process, which might be applicable in other countries. It was one of the most innovative projects implemented by the P&E team, and its transition impact was strong.

The Bank structured the project for an electricity distribution company with seven specific milestones in the privatisation process (presented in the diagram on the right). Gradual disbursements of the Bank's loan to the government depended on the achievement of agreed milestones in the privatisation process. This financing was effectively an “advanced payment” for the Bank's equity share in the privatised company. It was structured as the Bank's rights to convert its financing (a temporary sovereign loan) into shares in the privatised company, subject to the selection of the preferred strategic investor and the Bank's signing of the shareholders' agreement with such an investor.

Although the conversion of the Bank's financing into shares in the privatised company did not materialise and the funds had to be repaid by the government (see findings in Section 2, Annex 3), the financing did provide an incentive for the government to proceed with the privatisation, which was completed successfully.

### 6.1.5 Competition and market expansion

The EBRD’s activities have also brought benefits in driving competition and market expansion in the PES. The application of the EBRD’s procurement procedures has created some initial difficulties for some clients, but they enhanced competition and transparency. For example, their adoption in one country before it was unbundled had a positive impact on competition. The Bank has also encouraged the development of the renewable energy sub-sector, which in most countries is regulated (through fixed feed-in tariffs). Although due to such regulation wind and hydro energy projects do not stimulate competition, in practice such projects compete with each other for connection to the distribution grid, or in some cases with conventional energy producers for take off of energy produced.

The Bank stimulated energy market expansion by encouraging governments to make the required upgrades to transmission and distribution networks. The Bank has also supported these upgrades by incorporating appropriate provisions in its projects with distribution companies (for example, on one project the client was
required to spend at least 25 per cent of the budget on transmission upgrades and connections for renewable plants).

Another aspect of the transition impact of the Bank’s operations has been the promotion of regional markets and cross-border cooperation, for example through investments in transmission interconnections, as well as investments in networks to integrate with the EU energy market.

6.1.6 Ongoing transition impact

Despite substantial progress on the sector reforms achieved with the Bank’s support in many countries, these reforms are not complete, as demonstrated by the latest Assessment of Transition Challenges (2009) published by OCE. This applies not just to ETCs and Russia, but also to some advanced countries (see Box 6.3).

Box 6.3: Potential opportunities for the Bank to achieve strong transition impact in the medium term in the power and energy sector in a country of eastern Europe

When considering the Bank’s future strategy (including graduation), the Bank should take into account that there are likely to be ongoing opportunities to achieve strong transition impact through targeted investments and policy dialogue in the power and energy sector in the medium term. Specific opportunities could include:

- Support to the ongoing privatisation of electricity generation and distribution. Following many years of delays and political rumbling, this process has slowly started in recent years and its successful completion will require the support and advice of institutions like the EBRD.

- Demonstration effect of innovative gas-fired power plants, fuelled with shale gas, for which major-scale exploration is ongoing.

- Demonstration effect of small/mid-scale industrial electricity and heat generation plants, fuelled by biomass, including agricultural biomass (driven by the expiration of the EU moratorium on clean fuel in 2016). Such plants are still rare in the country, while their benefits deserve wider demonstration.

- Competition and market expansion through the support of large transmission cross-border projects, contributing to the country’s section of the inter-connection of electricity systems of the countries in the region, which has strategic importance for Europe’s energy security.

- Demonstration effect related to selective financing of innovative clean-coal technologies applicable to thermal generation power plants, preferably post-privatisation. Coal will remain a country of operations main fuel for electricity generation, and many obsolete and heavily polluting units will need to be replaced. The Bank’s financing of cutting-edge, clean-coal technologies will enable the country to make a technological leap forward in this respect and comply with the EU legislation.

- Support in clarifying and transferring best-working models of renewable energy regulation and legislation.
6.2 Sustainability

Sustainability is critical in the power and energy sector. Out of the 36 projects in the sector for which project evaluations (OPERs/XMRAs) have been carried out, 69 per cent achieved an environmental performance rating$^{35}$ of Good or Excellent, and 61 per cent achieved an environmental change$^{36}$ of Substantial or Outstanding. The ratings from the 24 Sample Projects Evaluations carried out as part of this sector evaluation are presented in Figure 6.2 below.

Figure 6.2: Rating of environmental and social impact from Sample Projects Evaluations

6.2.1 Fuel sources for power generation

The Policy stipulates the Bank's support for diversification of energy sources. The type of fuel used in power generation is a high-profile topic because of climate change, natural resource depletion, energy security, and the recent events at the nuclear plant in Japan. Figure 6.3 provides an indicative summary of the types of fuel used in power generation plants related to the EBRD's investments. It demonstrates that the volume of investments in gas-fired plants is higher than that in coal-fired, and a significant proportion of the investments are now in renewable energy generation plants. In south-eastern Europe, for example, the EBRD's investments in renewable energy are helping one country to start increasing and diversifying its power generation. At present, it generates 70 per cent of its power from coal-fired plants and 25 per cent of electricity is imported.

Although the Bank is clear on its policy to invest in renewable energy, its policy related to thermal power plants could be much clearer in direction. Decisions on funding thermal power plants should be taken on a case-by-case basis, depending on a number of factors, but a more strategic approach would be appropriate. For example, gas-fired plants are quicker to construct and their operation produces much lower quantities of greenhouse gas emissions than coal-fired plants.

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$^{35}$ Rating categories for environmental performance: Excellent, Good, Satisfactory, Marginal, Unsatisfactory, Highly Unsatisfactory.

$^{36}$ Rating categories for environmental change: Outstanding, Substantial, Some, None/Negative.
In Section 5, the point was made that the EBRD’s operations in the sector would benefit from a more strategic and long-term approach in selected countries, with a mix of investments, policy dialogue and TC projects. Plans to target particular types of power generation projects could fit within that approach, taking into account various local factors. For example, in a country of Central Asia the EBRD has been supporting the government through well-targeted TC and several banking operations, culminating with the signing of the Sustainable Energy Action Plan (see Box 6.4).

Box 6.4: Strategic analysis and planning for operations in the PES in a country in Central Asia

The Bank carried out a TC project that included forecasts of the future electricity demand and the mix of plant types that would be optimal to satisfy such demand. The forecasts took into account existing policies, fuel sources and energy security. This will be useful for the government in planning the development of power generation and for the Bank in identifying potential areas of investments. It is an example of the type of strategic analysis and planning that would benefit the Bank’s operations and impact in other countries.

The Bank has also recently signed a Sustainable Energy Action Plan with the government on sector reform, including, for example, an agreement on the set up of an independent regulator. If the actions in the Sustainable Energy Action Plan are implemented (which is uncertain at present), it will improve the framework for investments, and the Bank could forecast many more opportunities in the sector. So far the Bank has signed similar Sustainable Energy Action Plans/Memoranda of Understanding with two other governments.

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37 The analysis is indicative because several projects cover a mix of different plant types and/or fuel types.
6.2.2 Environmental protection

Many environmental impacts of Bank operations in the PES can be positive, such as the rehabilitation and upgrade of power plants with technologies that greatly reduce emissions. In accordance with its Environmental and Social Policy (2003 and 2008), the Bank requires the plants it finances to be designed according to EU standards (for example, the Large Combustion Plant Directive, IPPC Directive and recently the Industrial Emissions Directive).

However, for the upgrading of some large plants, achieving EU standards is a major challenge and very expensive, so a phased approach is more feasible. This often restricts the Bank’s investments because the achievement of EU standards might only be possible in phase 2 or 3 of an upgrade programme, and therefore the Bank would not be involved in the first phase, even though the environmental improvements could be substantial. The Bank might consider a more flexible approach under which funding could be approved in certain cases where there is high confidence that subsequent phases of the upgrade programme would be implemented, and the facility would therefore go on to achieve EU standards.

Box 6.5: Case study on an industrial power project in central Europe

The project is a large power project with an industrial client, involving a loan towards an investment programme to construct a new biomass-fired combined heat and power (CHP) boiler. The client is a special-purpose vehicle that was set up to supply energy to a paper producer, which decided to outsource its energy production. The original investments financed by the EBRD are largely complete. The biomass boiler then became operational.

The project involved the use of modern technology, including for control of emissions. The use of biomass has benefits related to greenhouse gas emissions, and the project has benefited from the green certificates system because the paper plant sells green certificates on the power exchange system. About half of the biomass needs are covered by waste from the paper production, and the remainder is sourced externally. The operator is very experienced in sourcing biomass, which is important because the security of biomass supply is critical to such projects.

There is major potential in the future for biomass plants in the country to serve some of the energy needs at industrial sites. Many industrial plants are burning coal for their power, and after 2016 they will be required to pay for green certificates or to switch to cleaner fuel. The project would be an excellent demonstration project and the EBRD should facilitate demonstration activities to other potential investors in the future.

6.2.3 Social aspects

One of the main potential social aspects of the EBRD’s operations in the PES relates to possible resettlement and compensation in large transmission line projects. For example, there have been some difficulties with land acquisition and routing of transmission lines in projects in two countries, where the local population protested against high voltage lines crossing above their homes.
As mentioned in Section 6.1, tariff levels are central to the development and reform of the sector, and critical to sustainable investments. Many governments are concerned about increasing tariffs for political reasons. The issue of affordability is often raised. Typical average salaries in the region are as low as €200-300/month in countries like this and these are the countries where the Bank’s PES projects have faced the most serious difficulties, precisely for the reason of low tariffs due to low affordability for the majority of their population. However, although the Bank has carried out affordability analysis specific to some of its projects, and a regional study on affordability in south-eastern Europe in the early 2000s, generally governments (or regulators) have not carried out detailed affordability analyses. This could be a useful area on which to focus future TC studies, and the results would support governments in planning the necessary increases in tariffs and in improving their strategies for subsidising low-income families (in many countries subsidies are over-complicated and badly targeted, as they also apply to some well-off families).

Heating is another social issue in much of the region, because of the long cold winters in many countries. About 35 per cent of the Bank’s power generation projects have involved some form of combined heat and power plant, and it is important that the Bank continues to look for such opportunities.

6.2.5 Stakeholder consultation and dialogue

There has been positive feedback from several clients in relation to the EBRD’s advice and support on stakeholder consultation and dialogue in PES. Stakeholder engagement plans have been developed for many projects. For example, there were strong protests from local communities in one country related to the route of the transmission line, and the EBRD helped the client to carry out proper dialogue and consultation with the local communities and NGOs, which resulted in a change to the route being agreed. The clients for two wind projects in central Europe also gave positive feedback on the Bank’s help in resolving stakeholder/location issues with the local municipalities.

6.3 Overall assessment of transition impact and sustainability

The overall transition impact and sustainability of implementation of the EBRD’s projects in the PES is rated as Good to Excellent. As indicated in Section 4.2, 64 per cent of all projects that have been evaluated achieved a transition impact rating of Good or Excellent (the result is 90 per cent for evaluations of projects signed since 2003). Out of the 24 Sample Projects Evaluations, 46 per cent achieved a “+” TI rating and 50 per cent achieved a “+” Environmental and Social Impact rating. In particular, the EBRD-financed projects had strong demonstration effects in terms of innovative project structures, application of new technologies and improvement of corporate governance.

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38 About 20 per cent of the projects that were subject to Sample Project Evaluations had Stakeholder Engagement Plans developed; and about 50 per cent had public consultation as part of the ESIA process, in line with the Bank’s requirements related to public disclosure.
39 Ratings categories for transition impact and sustainability are: Excellent, Good, Satisfactory, Marginal, Unsatisfactory, Negative.
7. Conclusions and recommendations

7.1 Conclusions

The overall performance of the Bank’s activities in the power and energy sector is rated as Successful. This rating is based on:

(i) A relatively detailed and recent review of 24 projects in the focus countries (representing 30 per cent of the total number of projects signed in the PES during the evaluation period), including site visits and client interviews. The overall rating of the Bank’s PES operations in each of the focus countries is presented in Table 7.1, while Figure 7.1 illustrates the overall performance rating of 24 projects reviewed during Sample Projects Evaluations. It shows that 18 of the 24 projects (75 per cent) have been, or are likely to be, Successful or Highly Successful.

Table 7.1: Overall performance ratings in PES by country from Sample Projects Evaluations

<table>
<thead>
<tr>
<th>Country</th>
<th>Overall performance rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 South-eastern Europe</td>
<td>Partly Successful</td>
</tr>
<tr>
<td>2 South-eastern Europe</td>
<td>Successful</td>
</tr>
<tr>
<td>3 Central Europe</td>
<td>Successful</td>
</tr>
<tr>
<td>4 Eastern Europe and Caucasus</td>
<td>Partly Successful to Successful</td>
</tr>
<tr>
<td>5 Eastern Europe and Caucasus</td>
<td>Highly Successful</td>
</tr>
</tbody>
</table>

(ii) An assessment of an additional sample of the Bank’s 46 projects signed in the PES, including desk studies and taking into account the results of previous country-level evaluations (Russia).

Ratings categories for overall performance are: Highly Successful, Successful, Partly Successful, Unsuccessful.

Some of the reviewed projects were signed before 2003.
Table 7.2 gives a summary of the evaluation ratings from this review, using the OECD-DAC criteria.

### Table 7.2: Overall ratings from sector review of the EBRD’s operations in the PES

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relevance</td>
<td>High</td>
</tr>
<tr>
<td>Effectiveness</td>
<td>Good to Excellent</td>
</tr>
<tr>
<td>Efficiency</td>
<td>Good</td>
</tr>
<tr>
<td>Transition impact and sustainability</td>
<td>Good to Excellent</td>
</tr>
<tr>
<td>Overall performance</td>
<td>Successful</td>
</tr>
</tbody>
</table>

The activities and results of the P&E team have greatly improved since the previous sector evaluation, published in 2005, which gave an overall rating of *Partly Successful*. That previous evaluation covered projects signed up to 2003.

Moving forward, the EBRD now has a major opportunity in the power and energy sector to lead the way among IFIs in the region in driving forward further transition through a strategic mix of financing, policy dialogue and TC. Moreover, many of the lessons identified during this evaluation might be applicable to the Bank’s future operations in the PES in the Middle East and North Africa (MENA) region. These lessons have been summarised in Annex 3.

Case studies of six countries contain findings, identified during the Sample Projects Evaluations, as well as the desk study of projects in Central Asia. Some of these findings are country or project specific, while many might be applicable to any PES projects in the region. The most important of them, which might have a more universal application to most of the PES projects, are presented below:

### 7.1 Findings

- The limited capacity of governmental institutions needs to be addressed (e.g. through training, consultant support) before embarking on major reform in the energy sector, particularly involving complex privatisation tenders.

- In the politically sensitive energy sector, the Bank is sometimes challenged by unfulfilled reform-related covenants. The repetition of such covenants in subsequent loan agreements (related to follow up projects with state-owned clients) might be acceptable, given evidence that the client has started to implement at least some elements of the reform plan, even if on a slow, step-by-step basis. Repetition of unfulfilled covenants from earlier projects without evidence of commitment and some progress is highly likely to be unsuccessful.

- The tariff methodology, ensuring gradual progress towards full cost recovery, must be adopted prior to the privatisation of electricity distribution companies. Otherwise, serious bidders are unlikely to participate in such privatisation. Tariff increases must be supplemented by the establishment of a well targeted subsidy system for the most vulnerable groups of the society.
While operational efficiency improvement projects may be adequate to address a particular utility's problems, they are rarely effective in promoting sector-wide reforms. The preparation of energy investment operations should start from a more holistic, sector-oriented, rather than a narrow, utility-focused, project approach.

It is critical that privatisation agreements specify measurable performance benchmarks to be achieved by the investors in the agreed time frame. Such benchmarks should be linked to tariff increases, motivating the investors and preventing future disputes.

Although many investors in the energy sector see the EBRD’s financing as an important political risk mitigating factor, they often consider the Bank’s debt financing as sufficiently effective to achieve it. Having the Bank as a shareholder in the privatised company (even as minority, passive, purely financial one) might sometimes be seen by some clients as a factor limiting decision-making flexibility.

Pre-privatisation financing, under which the Bank’s sovereign loan disbursements (designed to be ultimately converted into EBRD’s shares in the privatised company) are linked to the achievement of specific milestones by the government, is an effective instrument to support privatisation. Opportunities for replicating this approach should be explored, while bearing in mind the requirement to allow adequate incentives and sufficient time to negotiate shareholders’ agreement.

When a country joins the EU, there are still potential risks to the reform process in the sensitive sectors, such as energy; the leverage of international organisations reduces, while the motivation for progressing reform drops significantly. At such a time, it is important that the EBRD steps up its focus on policy dialogue and in co-operation with other IFIs, support the completion of the transition process.

Based on the positive findings from the sector evaluation, there is no need for major changes to the overall principles of the components of the Policy that are related to the PES. These overall principles are relevant to the EBRD’s mandate on transition and largely to the priorities of the countries of operation. Several key recommendations for the future policy formulation as well as its implementation are summarised below:

### 7.3 Recommendations on Policy formulation

The current Energy Operations Policy (2006) covers a broad spectrum of sectors and issues, applicable to several banking teams. Such an approach may be justified as it enables the Bank to take a comprehensive view of all issues related to energy. However, it forces generalisation and blurs lines of responsibility among different teams. It is therefore recommended that the Bank considers developing a specific Power and Energy Sector Strategy, in addition to the overarching, general Energy Operations Policy.

The new Strategy should set more specific operational directions and targets for industry sub-sectors. Moreover, PES-specific transition impact objectives should be developed for different
countries as a tool for the Strategy implementation. This would make it easier to monitor and evaluate the Strategy implementation. For example:

- Supporting countries in planning their PES strategies for investment in priority infrastructure needs, for example through TC studies on planning the future mix of power generation plants and the necessary investments.
- The need for detailed strategic assessments on a case-by-case basis on the relative feasibility of the rehabilitation of power generation plants compared to replacement by new plants.
- The need for detailed strategic assessments of the type of fuel used in thermal power generation plants, taking into account security of fuel sources, emissions of greenhouse gases, environmental protection, etc.
- Wider planning of the necessary upgrades to power transmission and distribution networks, which are required to accommodate the intermittent electricity generation from renewable power plants, such as wind plants.
- Identifying and targeting specific areas of opportunity for the Bank’s investments, such as the upgrade of industrial power plants and their switch to biomass, utilising linkages between banking teams.
- Stepping up the strategic planning related to regional cooperation to enhance regional energy markets and improve energy security.

The financing of coal-fired power plants presents a particular challenge to the Bank, therefore it deserves special attention (possibly including specific guidelines) in the Strategy. Studies of alternative types of plants, incorporation of emission control measures and the use of clean coal technology, might be considered as pre-requisites for the Bank’s involvement in such projects.

Given the determination of several countries in recent years to develop new nuclear power facilities, it is recommended that the EBRD’s top management considers consulting with the key shareholders on whether the Bank’s current policy of non-engagement in new nuclear power project should be sustained or relaxed.

7.4 Recommendations on Policy (or new Strategy) implementation

- The Bank should consider developing and adopting a PES country-specific “Integrated Approach” for several key countries of operation (already used in Ukraine). Such a strategic approach would involve wider planning in countries, taking into account high profile issues such as climate change, energy security, regional cooperation and environmental protection. It would ensure improved synergies (for example, grid enhancement would enable the development of renewable energy), increased leverage in pursuing sector reforms (as the Bank’s “reform leverage” through a single

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42 Such integrated approach papers should draw on the country and sector specific transition objectives already identified in the annual Assessments of Transition Challenges published by OCE.
project has been sometimes insufficient), and more focused policy dialogue, better coordinated with various stakeholders.

− In relation to the above point, it the recommendation that the Bank considers replacing its current ad hoc approach to policy dialogue, with more structured policy dialogue plans for selected countries of operation. This would enable the Bank to take a more comprehensive view and to better structure and prioritise its policy dialogue activities, as well as increase their effectiveness to ensure the recommended reforms are actually implemented. This wider policy dialogue should also help the Bank to better prioritise and target its TCs, such as affordability analysis in support of tariff reform.

− Policy dialogue activities are time-consuming, and more resources are needed for the Bank to have a wider impact, but it is particularly recommended that the Bank considers developing a system of targets for bankers, which include policy dialogue activities, as well as clear incentives for meeting these targets. As an alternative, the creation of a dedicated Policy Dialogue Coordinator’s position in the P&E Team could be considered. The task of such a Coordinator would be exclusively to pursue policy issues with governments and key stakeholders, ensuring the sector reforms agenda is kept in focus.

− The new Policy (or Strategy) should better define the role of the OCE Energy Economists, participating in the policy dialogue effort. If it is agreed that the Energy Economists are to play a more prominent and pro-active role in this area, their work should be better integrated with that of the P&E Team bankers.

− Many of the Bank’s teams find the work of the Legal Transition Team, (whose role is to promote legal reforms in the countries of operation) very useful in leveraging their own policy dialogue efforts. So far the P&E Team has only sparsely used the LTP’s support and it is recommended that the P&E Team considers intensifying such cooperation. The Bank’s focus on energy and climate change could warrant the addition of energy market regulation to the core areas designated for the LTP’s intervention, as well as strengthening the LTP’s resources dedicated to this area.

− The P&E Team should step up cooperation with the Bank’s country teams and the Manufacturing and Services team, which could result in the identification of more industrial power generation projects (there are already examples of such successful cooperation, e.g. in respect of Saturn Biomass project in Poland).

− To address persistent delays in the implementation of a large number of the PES’ projects, it is recommended that the Bank adopts more realistic implementation planning and better cost estimation, assessing more critically the capacity of local borrower/partner institutions. The Bank should streamline and improve its support to strengthening the borrowers’ implementation capacity in this area. Reinforcing the P&E Team’s one resources in the area of procurement could also yield better results in terms of project planning and implementation.

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43 The Bank’s Procurement Department has recently introduced a number of initiatives, which should help address these issues, e.g. a dedicated TC “Institutional Capacity Building and Client Training Programme in Procurement”, as well as “the Client Risk Based Assessment in procurement”.
Annex 1: Portfolio analysis

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1. Overview of portfolio ..........................................................2
2. Historical trends in projects in the power and energy sector ...............2
3. Analysis of the portfolio in different sub-sectors ..................................4
4. Project size ..............................................................................7
5. Analysis of the portfolio in different countries of operations ...............8
6. Analysis of the portfolio in different groups of countries ....................10
1. **Overview of portfolio**

Table 1: Overview of the Bank’s PES portfolio

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of projects signed</td>
<td>46</td>
<td>79</td>
<td>125</td>
</tr>
<tr>
<td>Total EBRD financing (€ million)</td>
<td>1,527</td>
<td>4,213</td>
<td>5,740</td>
</tr>
<tr>
<td>Average size of EBRD’s financing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(€ million)</td>
<td>33.2</td>
<td>11.3</td>
<td>45.9</td>
</tr>
<tr>
<td>Number of projects in private sector</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 projects with private sector</td>
<td>49 projects with private sector</td>
<td>60 projects with private sector</td>
<td>(24%) (62%) (48%)</td>
</tr>
<tr>
<td>35 with state sector</td>
<td>30 with state sector</td>
<td>65 with state sector</td>
<td>(76%) (38%) (52%)</td>
</tr>
<tr>
<td>Financial instruments</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>42 debt projects (91%)</td>
<td>62 debt projects (78%)</td>
<td>104 debt projects (83%)</td>
<td></td>
</tr>
<tr>
<td>4 equity projects (9%)</td>
<td>15 equity projects (19%)</td>
<td>19 equity projects (15%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 debt plus equity (3%)</td>
<td>2 debt plus equity (2%)</td>
<td></td>
</tr>
</tbody>
</table>

- The project portfolio in the power and energy sector covers 125 projects, of which 79 projects (63 per cent) have been signed since 2003.
- The total volume of the portfolio up to the end of 2010 was €5,740 million, of which €4,213 million (73 per cent) was signed since 2003. There has been a major increase in projects signed in the sector since 2003, particularly in 2009 and 2010.
- The average size of the EBRD’s financing has increased from €33.2 million for projects signed before 2003 to €53.3 million for projects signed from 2003.
- The proportion of private sector clients has been increasing. Before 2003, only 24 per cent of projects were with the private sector, whereas 62 per cent of the projects signed from 2003 to 2010 are with the private sector.
- The proportion of equity projects has increased (as might be expected as the proportion of private sector projects has increased).

2. **Historical trends in projects in the power and energy sector**

- The graphs below illustrate the major increase in activity by the EBRD in the power and energy sector in 2009 and 2010.
- The volume of projects signed in the sector in 2009 was €852 million, which represented nearly 11 per cent of the total volume of all EBRD projects signed in 2009. The volume of projects further increased in the power and energy sector in 2010 to €1,134 million.
Special Study

Power and Energy Sector Review

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3. Analysis of the portfolio in different sub-sectors

- The highest proportion of projects is in the Electric Power Generation sub-sector.
- There has been a major increase in Renewable Power projects. Only one project was signed before 2003, but 19 Renewable Power projects have been signed from 2003 to 2010.
- There has also been a significant increase in the number of Electric Power Distribution projects.
- There were no projects in the Natural Gas Distribution sub-sector before 2005, but four projects have been signed between 2005 and 2010.
- The Renewable Power sub-sector has had a major contribution to the increase in projects in 2009 and 2010. The growth in total volume in 2008, 2009 and 2010 is particularly from large projects in the Electric Power Generation sub-sector, as well as some large projects in the Electric Power Transmission and Distribution sub-sectors.

Table 2: Number of projects in different sub-sectors

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Electric Power Generation</td>
<td>24</td>
<td>27</td>
<td>51</td>
</tr>
<tr>
<td>Electric Power Transmission</td>
<td>13</td>
<td>12</td>
<td>25</td>
</tr>
<tr>
<td>Electric Power Distribution</td>
<td>8</td>
<td>17</td>
<td>25</td>
</tr>
<tr>
<td>Natural Gas Distribution</td>
<td>0</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Renewable Power</td>
<td>1</td>
<td>19</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td>46</td>
<td>79</td>
<td>125</td>
</tr>
</tbody>
</table>
Table 3: Volume of the EBRD's financing in different power and energy sub-sectors

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Electric Power Generation</td>
<td>807</td>
<td>1,937</td>
<td>2,745</td>
</tr>
<tr>
<td>Electric Power Transmission</td>
<td>482</td>
<td>831</td>
<td>1,312</td>
</tr>
<tr>
<td>Electric Power Distribution</td>
<td>181</td>
<td>743</td>
<td>924</td>
</tr>
<tr>
<td>Natural Gas Distribution</td>
<td>0</td>
<td>155</td>
<td>155</td>
</tr>
<tr>
<td>Renewable Power</td>
<td>56</td>
<td>548</td>
<td>604</td>
</tr>
<tr>
<td>Total</td>
<td><strong>1,527</strong></td>
<td><strong>4,213</strong></td>
<td><strong>5,740</strong></td>
</tr>
</tbody>
</table>
4. Project size

- The average project size in the sector portfolio is €45.9 million for all projects signed from 1992 to 2010.
- The average project size has been increasing. The average size of the 46 projects signed from 1992 to 2002 was €33.2 million, and the average size of the 79 projects signed from 2003 to 2010 was €53.3 million.
- The largest project was a loan for €200 million for a gas-fired power plant in Romania, signed in 2009. In total, 12 of the 125 projects in the portfolio have a volume greater than €100 million. Eleven of these 12 largest projects were signed between 2003 and 2010.
- The smallest project in the portfolio was the €78,000 MCFF renewable project in Georgia signed in 2006.
- The larger projects are mainly in the Electric Power Generation and Electric Power Transmission sub-sectors, in which several projects of size greater than €100 million have been signed in 2008, 2009 and 2010.
- The Renewable Power sub-sector has several of the smaller projects. This sub-sector has the lowest average project size (€30 million), but five of the 20 projects are each less than €2 million in size.
5. Analysis of the portfolio in different countries of operations

− The EBRD has the most power and energy sector projects in Russia (18 projects), which have a large average size of €73 million.
− There are also a large number of projects in the EU (2007) countries, with 10 projects in Bulgaria and 10 in Romania.
− Poland (nine projects), Kazakhstan (eight) and Ukraine (six) have had significant EBRD activity in this sector. There are significant numbers of projects in Georgia (seven projects) and Albania (six projects), and many of these projects are smaller in size than for typical projects in the portfolio.
− Several countries of operations have had a small number of projects. Fifteen countries have had between one and three projects (excluding regional projects) and there have been no projects signed in three countries.
Table 5: Number and volume of the Bank’s PES projects by country

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Regional projects</td>
<td>3</td>
<td>49</td>
</tr>
<tr>
<td>Albania</td>
<td>6</td>
<td>111</td>
</tr>
<tr>
<td>Armenia</td>
<td>4</td>
<td>91</td>
</tr>
<tr>
<td>Azerbaijan</td>
<td>3</td>
<td>210</td>
</tr>
<tr>
<td>Belarus</td>
<td>1</td>
<td>30</td>
</tr>
<tr>
<td>Bosnia and Herzegovina</td>
<td>4</td>
<td>137</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>10</td>
<td>438</td>
</tr>
<tr>
<td>Croatia</td>
<td>1</td>
<td>32</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Estonia</td>
<td>3</td>
<td>44</td>
</tr>
<tr>
<td>Georgia</td>
<td>7</td>
<td>191</td>
</tr>
<tr>
<td>Hungary</td>
<td>1</td>
<td>50</td>
</tr>
<tr>
<td>Kazakhstan</td>
<td>8</td>
<td>340</td>
</tr>
<tr>
<td>Kyrgyz Republic</td>
<td>3</td>
<td>46</td>
</tr>
<tr>
<td>Latvia</td>
<td>3</td>
<td>128</td>
</tr>
<tr>
<td>Lithuania</td>
<td>2</td>
<td>103</td>
</tr>
<tr>
<td>FYR Macedonia</td>
<td>5</td>
<td>115</td>
</tr>
<tr>
<td>Moldova</td>
<td>3</td>
<td>32</td>
</tr>
<tr>
<td>Mongolia</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Montenegro</td>
<td>1</td>
<td>35</td>
</tr>
<tr>
<td>Poland</td>
<td>9</td>
<td>453</td>
</tr>
<tr>
<td>Romania</td>
<td>10</td>
<td>527</td>
</tr>
<tr>
<td>Russian Federation</td>
<td>18</td>
<td>1,312</td>
</tr>
<tr>
<td>Serbia</td>
<td>5</td>
<td>222</td>
</tr>
<tr>
<td>Slovak Republic</td>
<td>3</td>
<td>271</td>
</tr>
<tr>
<td>Slovenia</td>
<td>1</td>
<td>65</td>
</tr>
<tr>
<td>Tajikistan</td>
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<td>0</td>
</tr>
<tr>
<td>Turkey</td>
<td>3</td>
<td>182</td>
</tr>
<tr>
<td>Turkmenistan</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Ukraine</td>
<td>6</td>
<td>504</td>
</tr>
<tr>
<td>Uzbekistan</td>
<td>1</td>
<td>21</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>125</strong></td>
<td><strong>5,740</strong></td>
</tr>
</tbody>
</table>
Table 6: Number of the PES projects signed (1992-2010) by county and by sub-Sector

<table>
<thead>
<tr>
<th>Country</th>
<th>Electric Power Generation</th>
<th>Electric Power Transmission</th>
<th>Electric Power Distribution</th>
<th>Natural Gas Distribution</th>
<th>Renewable Power</th>
<th>Total number of projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albania</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Armenia</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Azerbaijan</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Belarus</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Bosnia and Herzegovina</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>Croatia</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Estonia</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Georgia</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Hungary</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Kazakhstan</td>
<td>4</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>Kyrgyz Republic</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Latvia</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Lithuania</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>FYR Macedonia</td>
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<td>2</td>
<td>0</td>
<td>1</td>
<td>5</td>
</tr>
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<td>Moldova</td>
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<tr>
<td>Russian Federation</td>
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<td>3</td>
<td>1</td>
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<td>18</td>
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<tr>
<td>Serbia</td>
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<tr>
<td>Tajikistan</td>
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</tr>
<tr>
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<td>0</td>
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<td>1</td>
<td>1</td>
<td>3</td>
</tr>
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<td>Turkmenistan</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Ukraine</td>
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<td>3</td>
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<td>0</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Uzbekistan</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>51</strong></td>
<td><strong>25</strong></td>
<td><strong>25</strong></td>
<td><strong>4</strong></td>
<td><strong>20</strong></td>
<td><strong>125</strong></td>
</tr>
</tbody>
</table>

6. Analysis of the portfolio in different groups of countries

- The proportion of projects in EU countries has increased. Of projects signed before 2003, 28 per cent were in EU countries, but the proportion signed from 2003 to 2010 in EU countries is 37 per cent.
- Similarly, the proportion of projects signed in Russia has grown from 9 per cent before 2003 to 18 per cent from 2003 to 2010.
- There is still much activity in ETCs, and 10 projects have been signed in these countries since the start of 2003. However, the proportion of the total projects signed in ETCs has decreased from 26 per cent of the portfolio before 2003 to 13 per cent of the portfolio from 2003 to 2010.
Thirteen of the 20 projects in the Renewable Power Sector are in EU countries or south-eastern Europe. Five renewable power projects are in ETCs, although three of these five projects are less than €1 million.

The average size of power and energy projects in Russia is €73 million, and in EU countries the average size is about €50 million. In ETCs, the average size is €26 million.

Table 7: Number of projects signed in different country groups (1992-2010)

<table>
<thead>
<tr>
<th></th>
<th>Electric Power Generation</th>
<th>Electric Power Transmission</th>
<th>Electric Power Distribution</th>
<th>Natural Gas Distribution</th>
<th>Renewable Power</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regional</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>3</td>
</tr>
<tr>
<td>EU 2004</td>
<td>9</td>
<td>0</td>
<td>6</td>
<td>0</td>
<td>7</td>
<td>22</td>
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<tr>
<td>EU 2007</td>
<td>7</td>
<td>5</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>20</td>
</tr>
<tr>
<td>SE Europe</td>
<td>4</td>
<td>7</td>
<td>10</td>
<td>1</td>
<td>3</td>
<td>25</td>
</tr>
<tr>
<td>Russia</td>
<td>13</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>18</td>
</tr>
<tr>
<td>Other NIS</td>
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<td>7</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>15</td>
</tr>
<tr>
<td>ETCs</td>
<td>8</td>
<td>3</td>
<td>6</td>
<td>0</td>
<td>5</td>
<td>22</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>51</strong></td>
<td><strong>25</strong></td>
<td><strong>25</strong></td>
<td><strong>4</strong></td>
<td><strong>20</strong></td>
<td><strong>125</strong></td>
</tr>
</tbody>
</table>
Table 8: Volume of projects in different country groups (£ million) (1992-2010)

<table>
<thead>
<tr>
<th>Region</th>
<th>Electric Power Generation</th>
<th>Electric Power Transmission</th>
<th>Electric Power Distribution</th>
<th>Natural Gas Distribution</th>
<th>Renewable Power</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regional</td>
<td>24</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>25</td>
<td>49</td>
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<tr>
<td>EU 2004</td>
<td>535</td>
<td>0</td>
<td>327</td>
<td>0</td>
<td>251</td>
<td>1,114</td>
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<tr>
<td>EU 2007</td>
<td>497</td>
<td>175</td>
<td>44</td>
<td>92</td>
<td>157</td>
<td>966</td>
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<tr>
<td>SE Europe</td>
<td>85</td>
<td>287</td>
<td>348</td>
<td>63</td>
<td>52</td>
<td>835</td>
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<tr>
<td>SE Europe</td>
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<td>152</td>
<td>89</td>
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<td>56</td>
<td>1,312</td>
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<td>Russia</td>
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<td>574</td>
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<td>Other CIS</td>
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<td>125</td>
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<td>0</td>
<td>62</td>
<td>591</td>
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<tr>
<td>ETCs</td>
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<td>125</td>
<td>115</td>
<td>0</td>
<td>62</td>
<td>591</td>
</tr>
<tr>
<td>Total</td>
<td>2,745</td>
<td>1,312</td>
<td>924</td>
<td>155</td>
<td>604</td>
<td>5,740</td>
</tr>
</tbody>
</table>

Table 9: Number of projects in different country groups (2003-2010)

<table>
<thead>
<tr>
<th>Region</th>
<th>Electric Power Generation</th>
<th>Electric Power Transmission</th>
<th>Electric Power Distribution</th>
<th>Natural Gas Distribution</th>
<th>Renewable Power</th>
<th>Total</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regional</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1%</td>
</tr>
<tr>
<td>EU 2004</td>
<td>5</td>
<td>0</td>
<td>3</td>
<td>7</td>
<td>15</td>
<td>19%</td>
<td></td>
</tr>
<tr>
<td>EU 2007</td>
<td>5</td>
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<td>2</td>
<td>3</td>
<td>3</td>
<td>14%</td>
<td></td>
</tr>
<tr>
<td>SE Europe</td>
<td>1</td>
<td>2</td>
<td>8</td>
<td>1</td>
<td>3</td>
<td>15%</td>
<td></td>
</tr>
<tr>
<td>Russia</td>
<td>10</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>14%</td>
<td></td>
</tr>
<tr>
<td>Other CIS</td>
<td>4</td>
<td>6</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td>13%</td>
<td></td>
</tr>
<tr>
<td>ETCs</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>4</td>
<td>13%</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>27</td>
<td>12</td>
<td>17</td>
<td>4</td>
<td>19</td>
<td>79%</td>
<td>100%</td>
</tr>
</tbody>
</table>
Key to both tables:
EU 2004 (Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovak Republic, Slovenia)
EU 2007 (Bulgaria, Romania)
SE Europe (Albania, Bosnia, Croatia, FYR Macedonia, Montenegro, Serbia, Turkey)
Other CIS (Belarus, Kazakhstan, Turkmenistan, Ukraine)
ETCs (Armenia, Azerbaijan, Georgia, Kyrgyz Republic, Moldova, Mongolia, Tajikistan, Uzbekistan)

Key
EU 2004 (Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovak Republic, Slovenia)
EU 2007 (Bulgaria, Romania)
SE Europe (Albania, Bosnia, Croatia, FYR Macedonia, Montenegro, Serbia, Turkey)
Other CIS (Belarus, Kazakhstan, Turkmenistan, Ukraine)
ETCs (Armenia, Azerbaijan, Georgia, Kyrgyz Republic, Moldova, Mongolia, Tajikistan, Uzbekistan)
Key
EU 2004 (Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovak Republic, Slovenia)
EU 2007 (Bulgaria, Romania)
SE Europe (Albania, Bosnia, Croatia, FYR Macedonia, Montenegro, Serbia, Turkey)
Other CIS (Belarus, Kazakhstan, Turkmenistan, Ukraine)
ETCs (Armenia, Azerbaijan, Georgia, Kyrgyz Republic, Moldova, Mongolia, Tajikistan, Uzbekistan)

<table>
<thead>
<tr>
<th>Transition categories</th>
<th>Policy objectives</th>
</tr>
</thead>
</table>
| **TI indicator: 1. Competition** | 1.1 commercialisation, unbundling, regulatory reform and privatisation of energy generation and distribution companies;  
1.2 promoting energy trade liberalisation on the national level (where technically feasible) in generation, transportation and distribution of energy, as well as between different fuels;  
1.3 promoting regional/international energy trade (in electricity and gas) to increase competition and diversify supply channels. |
| **TI indicator: 2. Market expansion** | 2.1 promoting private sector involvement in the energy sector to meet financing requirements for large investments (needed to comply with EU environmental standards and replace old, inefficient generation, transmission and distribution infrastructure);  
2.2 improvement in the reliability of energy supply and quality of service;  
2.3 reduction of electricity tariff cross-subsidisation;  
2.4 promoting private sector participation in the energy markets through non-financial means, balancing the interests of public/government and private investors (for example, through strengthening procurement and contracting);  
2.5 in sub-sectors with natural monopolies (for example, transmission): assistance in commercialisation, including private participation;  
2.6 promoting regional co-operation and expansion of regional markets. |
| **TI indicator: 3. Private ownership** | 3.1 private sector participation in service provision, often building on earlier EBRD involvement in the commercialisation/unbundling of energy companies. |
| **TI indicator: 4. Frameworks for markets** | 4.1 tariff reforms as loan covenants; linked to commercialisation/unbundling programmes to ensure simultaneous efficiency improvements and tariffs increases;  
4.2 reduction of cross-subsidisation through increases to household tariffs;  
4.3 support to established regulatory bodies and legal frameworks, as well as provision of technical assistance for the establishment of effective (independent, transparent, accountable) regulatory bodies;  
4.4 assume part of the political and regulatory risk, building on a strong relationships with governments. |
| **TI indicator: 5. Skills transfer** | 5.1 competitive tendering to ensure that the best technical and commercially viable proposals are chosen;  
5.2 institutional development programmes (particularly for the regulators) with possibility for training by international experts. |
| **TI indicator: 6. Demonstration effects** | 6.1 creation of replicable practices and processes to strengthen sector reform and encourage investments;  
6.2 promoting renewable energy technologies, and other advanced technologies;  
6.3 promoting energy efficiency in the power generation, transmission and distribution, including a focus on financing loss-reduction measures;  
6.4 improving nuclear safety, while not providing financing for new reactors, support to operating facilities in relation to safety improvements, decommissioning or waste/spent fuel management. |
| **TI indicator: 7. New standards for business conduct** | 7.1 review of governance arrangements at energy enterprises and improvement as part of loan covenants (covering financial reporting, transparency, treatment of minority shareholders, environmental management, social aspects, stakeholder consultation and so on). |

### Three transition categories

### Seven transition indicators/21 policy objectives
Annex 3: Analysis of lessons

1. Introduction ....................................................................................................................... 2
2. Key common points on lessons ................................................................. 3
3. Summary of lessons ............................................................................................. 5
4. Lessons from OPERs ......................................................................................... 12
1 Introduction

This document contains the results of an assessment of the lessons learned from project evaluations in the power and energy sector by the EBRD’s Evaluation Department (EvD). The assessment has been carried out as part of a Special Study on the power and energy sector review. The assessment covers lessons from project evaluations that were carried out from 2003 to 2010.

Overview of project evaluations in the power and energy sector (2003-10)

The number of lessons in the lessons learned database from different types of project evaluations carried out from 2003 to 2010 in the power and energy sector can be summarised as:

- A total of 12 Operational Performance Evaluation Reviews (OPERs) of investment projects in the sector have been carried out, generating 57 lessons. The approach for OPERs includes an evaluation visit to the project.
- In addition, two OPERs have been carried out of technical co-operation (TC) projects related to the power and energy sector, and these generated eight lessons in the database.
- As well as the lessons from OPERs, 27 lessons learned were highlighted in Expanded Monitoring Report Assessments (XMRA) from 10 projects in the sector. XMRA involves a detailed desk-based document review by the Evaluation department.
- It should be noted that no evaluations have yet been carried out for projects in the renewable energy sub-sector, which is therefore not covered by the lessons in this document.

The project titles and countries for the OPERs and XMRA are listed in Box 1 below. Section 2 of this document provides the key common points from the analysis of the lessons learned database.

Several common themes in lessons have been identified from the analysis. These common themes relate to:
A summary of the common lessons under these themes has been developed in the table in Section 3 of this document. The numbers in the table correspond to the numbering of the original lessons learned, which are provided in Sections 4, 5 and 6 for Investment OPERs, XMRAs and TC OPERs respectively.

2. **Key common points on lessons**

Many of the lessons in the database relate to project planning, loan conditions and sector reform (including privatisation). There are several lessons related to policy dialogue and technical cooperation (TC) in the database, including the need for cooperation with IFIs on these activities. In several cases the lessons emphasise particular risks in early transition countries (ETCs).

The database has much fewer lessons than expected on environmental aspects, considering the EBRD's activities in the power and energy sector are likely to have had significant positive environmental impact.

The main common points from the review of the lessons learned database for the power and energy sector are:

− **Simple approach** – The EBRD needs to keep its approach in the sector simple and realistic, especially in ETCs. For example, key performance indicators and targets for projects should be simple and focus on the priorities, and there is usually no need for large numbers of targets. Project implementation should be planned with clear phases and milestones. In particular, loan conditions related to wider transition in the sector should be kept realistic.

− **Sector reform** – A common point in the lessons learned database is that sector reform, including the development of the regulatory framework, tariff reform and privatisation, is essential to the success of investments in the power and energy sector in many countries of operations. Sector reform is a complex and ongoing process that takes time and needs constant attention by the Bank through policy dialogue, particularly in ETCs.

− **Tariff reform** – There are political and social constraints to commercialisation and tariff increases. Targets on tariff reform must be realistic and phased implementation is often more appropriate. Monitoring and ongoing policy dialogue are very important for projects that depend on government decisions, such as tariff reform.
− **Privatisation** – It is important to establish the core components of the institutional framework before privatisation policies are implemented. Where the institutional framework is not yet ready for private sector operations, the financing of state-owned enterprises may prove a better approach than trying to support private sector companies.

− **Refurbishment projects** – Refurbishment projects are generally more complex than greenfield projects, and therefore carry more risks, for example related to potential delays and unforeseen costs. Monitoring is particularly important for refurbishment projects.

− **Ensure strong capacity of the sponsor** – The capacity and commitment of sponsors are important, including their experience in the country of operations. Due diligence should assess sponsor capacity, including the capacity of the actual management team responsible for the project.

− **New technology** – There are several points in the lessons learned database related to the use of new technology in projects, and the need for careful planning and monitoring to manage the additional risks, especially in ETCs. Due diligence activities need to assess the strength of suppliers of new technology, and it is important that expert advisors on technology should be selected carefully, and often a second opinion should be obtained. There should be a particularly careful approach to tendering and selection for contractors for installation of new technology, and there is often a lack of local experience in tendering, implementation, monitoring and so on. For projects with new technology and unproven operations, it is better to plan them to be smaller in size.

− **Policy dialogue** – In order to promote sector reform, it is important to start policy dialogue activities early and continue to pay constant attention to these activities, especially for aspects such as tariff reform, strengthening the regulatory framework, and privatisation. The Resident Offices of the EBRD have a major role in policy dialogue activities.

− **Technical cooperation** – TC activities cover the planning of investment projects as well as wider sector reform. A mix of international and local experts in TC project teams can often be the most cost-effective approach. The appointment of a lenders’ engineer has been useful for many projects, although it is beneficial to involve the engineer at an early stage in project definition and design. Stakeholders should be consulted during the design of a TC project so that it addresses their priority needs and to ensure that the TC is set up in the context of the planned reform.

− **Cooperation with IFIs** – The importance of cooperation with other IFIs on policy dialogue and TC activities is highlighted at several points in the lessons learned database.
3. Summary of lessons

<table>
<thead>
<tr>
<th>Theme: Project planning and due diligence</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lesson reference numbers</strong></td>
</tr>
<tr>
<td>OPER 2, 6, 8, 10, 12, 16, 17, 18, 26, 33, 34, 35, 38, 41, 44, 46, 52</td>
</tr>
<tr>
<td>XMRA 1, 3, 7, 9, 22</td>
</tr>
<tr>
<td><strong>Summary of lessons</strong></td>
</tr>
<tr>
<td>Action plans, targets and milestones in projects should be planned to realistic timescales. Regular revision of targets and milestones is not good practice as it reduces the commitment of clients to implementation and can impact commitment to loan covenants.</td>
</tr>
<tr>
<td>It is important to keep the setting of targets simple and there is no need for a large number of targets in project design. Key performance indicators developed in the project design should focus on priority financial aspects, particularly in ETCs, such as cash revenue collection. Technical experts should be responsible for development of performance indicators.</td>
</tr>
<tr>
<td>EBRD investments in the public sector are often a small part of major investment programmes in power and energy, and could have a relatively small impact. Project planning should start from a sector-wide approach and be part of a long-term investment strategy. It is important to clearly define wider project objectives and project rationale during planning and in the Board Report.</td>
</tr>
<tr>
<td>Assessment of the risks related to regulatory and political aspects is needed during planning. For example, in the retail electricity supply sector political and social interests often over-ride economic and commercial reasoning.</td>
</tr>
<tr>
<td>Ring-fencing components to try and simplify a large, complex project will not necessarily reduce the risks of delays if components are inter-related, for example in large transmission projects.</td>
</tr>
<tr>
<td>Due diligence should include an assessment of the experience of the sponsor in the local conditions and business environment. It must cover the assessment of the experience and expertise of the specific management team at the sponsor that will actually be in charge of the project, rather than just assessing the experience of the sponsor.</td>
</tr>
<tr>
<td>For projects with new technology, the due diligence process should assess the strength of potential suppliers.</td>
</tr>
<tr>
<td>Due diligence should involve local experts when local aspects are important to the feasibility of a project (for example, availability of local fuel sources).</td>
</tr>
</tbody>
</table>
Refurbishment investments at existing plants often have unforeseen costs and budgets should take this into account by including standby financing.

The project planning activities should also identify political constraints to sector reform and potential difficulties in policy dialogue.

For transmission projects, expansion needs of existing systems should be included in planning, as well as upgrade works on existing systems.

The Bank (or lenders') engineers should be involved at an early stage in project definition and design, particularly for upgrade and rehabilitation of old plants.

### Loan conditions

**OPER 2, 8, 13, 37, 39, 48, 49, 50, 52**

Transition and sector-wide loan conditions must be realistic, especially in early transition countries. This will also minimise the need to process numerous waivers. TC projects can be useful to support clients in achieving covenants.

Covenants related to commercialisation of a company need to be specific, for example related to organisational and management changes, and the reduction in government influence.

A Memorandum of Understanding (MoU) can also be a useful tool to secure wider restructuring and commercialisation steps linked to a specific upgrading project, with covenants that require restructuring as in the MoU.

For complex projects in particular (for example, rehabilitation of brownfield sites), the Bank should require in the loan conditions the comprehensive reporting of information by the client.

It is difficult to link loan disbursements to specific investment milestones/targets in terms of practicality and monitoring. Related to this, it is difficult to set up projects so that loan disbursements are direct to suppliers and contractors.

Defining the physical implementation of investments into clear phases with milestones is an opportunity to link physical implementation with restructuring covenants. This will create more leverage for both physical and structural implementation.

Financial conditions for loans that are guaranteed by the government can provide leverage for policy dialogue activities on transition.

For pilot projects, conditions should include criteria and milestones for continued Bank support.
There are regulatory and political risks for implementation of projects that depend on specific government decisions. For example, there are risks that changes in government sector policy will affect the underlying assumptions of projects that have a long timescale. These aspects therefore need attention during monitoring.

Investments and ongoing upgrade of distribution systems are important to provide a reliable supply of electricity and to be competitive. Maintaining the technical standard of physical assets and planning replacements in advance are important.

Monitoring the technical implementation and financial situation of borrowers is particularly important for complex rehabilitation projects.

In cases where there are many funding organisations for projects, there are additional risks that one of these organisations will pull out and cause a financing shortfall, although the fact that there are many funding organisations means that there is more potential for opportunities for one of the organisations to cover the gap.

There can be major benefits to international procurement rules as these enhance transparency, generate cost savings and facilitate fair competition. This could be a catalyst to encourage clients to change procurement approaches for other contracts.

Timely provision of TC to clients for supervision and guidance during procurement is important, as many clients will not be familiar with the type of procurement procedures required.
New technology

The Bank’s Policy includes the promotion of advanced technology in projects. The inclusion of new technology in a project can be expensive, and must have a strong economic and financial justification.

New technology also presents risks in terms of potential lack of experience in tendering, implementation, monitoring, and so on. For projects with new technology and unproven operations, it is better to plan them to be smaller in size.

In planning projects with new technology, there is a risk that experts will recommend a type of technology to enhance their own interests, without properly taking into account the most feasible approach for the project. The experts should be carefully selected.

Rehabilitation projects with the fitting of new technology at existing plants can often be much more complex than greenfield replacement projects, and require careful planning.

When a rapidly developing technology is to be used, it is important to assess whether there will be risks in getting ongoing technical support during operation.

Sector reform

The development and strengthening of the regulatory framework is essential to the success of many projects. It is a complex and ongoing process that takes time and needs constant attention by the Bank, particularly in ETCs.

Commercialisation and privatisation require a functional market framework, otherwise competition is unfair.

Timescales in plans for sector reform should be realistic and include contingencies for delays.

Although sector reform is a core policy direction of the EBRD, the decision on funding of sovereign projects should be first based on the project benefits, credit risks, sound banking principles, and so on; and only then on potential conditions for policy changes and sector reform.

Although a strong institutional and regulatory framework is important, it cannot be relied upon unless it will be properly implemented and enforced.

Unbundling of a beneficiary might mean that the borrower becomes less creditworthy, and this should be taken into account when planning projects.

The independence of the regulator can be enhanced through transparent procedures for appointing senior officials to the institution.
### Tariffs and affordability

OPER 38, 43, 45, 53

XMRA 2, 26

A good understanding of tariff policy will be important to equity investors and lenders. Political and social interests often present risks to commercialisation and tariff increases. Targets on tariff reform must be realistic and phased implementation is often more appropriate.

Revenues from tariffs must be used to address financial priorities.

Bank interventions must be continuous during appraisal and monitoring in relation to securing and maintaining tariff increases.

Subsidies from the government or international agencies can soften the impact of full cost recovery on the poorer part of the population.

### Privatisation

OPER 21, 23, 24, 42, 55

XMRA 3, 24

TC 4, 5

It is important to establish the core components of the institutional framework before privatisation policies are implemented. A particular example is the need for a strong independent regulator. Important aspects also include the government commitment to the privatisation process, tariff reform, strong sponsors committed to investments, and so on.

Where the institutional framework is not yet ready for private sector operations, the financing of state-owned enterprises may prove a better approach than trying to support private sector companies.

Policy dialogue activities should be initiated very early in the privatisation process.

When the EBRD is involved in the first rounds of privatisation, the risks of a change in political direction can be reduced by developing a long-term plan for future rounds of privatisation.

During the planning of privatisation, policies on various aspects (for example, dividends) should be agreed between stakeholders.

Detailed due diligence of the company to be privatised is particularly important.

Privatisation is a process for which lessons from experience in the power and energy sector in other countries can be particularly valuable.
**Policy dialogue**

Sector development needs continuous attention through policy dialogue over a long time period, particularly related to tariff reform and privatisation. Resident Offices of the Bank should play a key role. It is important during investment planning to identify the key political decisions that will affect the success of the investments, and to focus policy dialogue on these points.

Following the completion of TC projects that recommend steps to reforms, it is essential for the Bank to follow up these TC operations with ongoing policy dialogue.

**Cooperation with IFIs**

Coordination with IFIs is particularly important on sector reform, including the planning and implementation of TC projects that focus on sector reform.

**Technical cooperation (TC)**

TC projects have a significant role in policy dialogue activities related to facilitating sector reform in the power and energy sector, such as strengthening the sector regulator. For TC projects to strengthen a client organisation, it is difficult for a TC project to guarantee commercial changes in a client (even in a management contract). Instead, TC tends to provide sound management and operational assistance to a client.

TC projects should be designed and adjusted to be useful for each different stage of the investment project, and the timescales planned to be relevant to the projects stages.

The use of local experts can have strong benefits in due diligence and implementation through their local knowledge and experience. A mix of international and local consultants can be beneficial. Local consultants can be more cost effective.

The design of project-related TC should include activities on wider sector reform and not just focus on the specific project.

Stakeholders should be consulted during the design of a TC project so that it addresses their priority needs and to ensure that the TC is set up in the context of the planned reform.

Where possible, the planning of TC objectives and targets should focus on actual on-the-ground changes/outputs, rather than consultancy reports.
It is important to have flexibility in TC projects so that activities can change if needed to take account of changes in the sector framework or unforeseen constraints to implementation of the TC project.

The use of the same consultants for design, procurement and implementation has benefits in terms of continuity, but there is often a need for a second opinion.

Even where a TC project is unsuccessful, the information obtained by the consultants during the project could be useful for identification of future financing opportunities for the EBRD.

### Resources in the EBRD

**OPER 6**

Stand-alone projects with discrete contracts are much less complex to implement than large projects with inter-related components. Large complex projects require much input from a lender’s engineer because the Bank has not got the resources to manage the projects.

**XMRA 12, 20**

It is important and useful for dedicated personnel in Resident Offices to have regular interaction with the clients, especially in remote regions.

The Bank’s Resident Offices also play an important role in policy dialogue, which needs to involve regular interactions for sector reform issues.

### Transparency

**OPER 36, 52**

Strengthened financial accounting and reporting are important aspects of projects in terms of transparency and monitoring.

**XMRA 25**

Some projects have complex ownership and business structures, involving remote outside sponsors, offshore entities, and so on. It is essential that there is transparent reporting and disclosure of information so that the project structures are understood by local stakeholders.

Government grants and subsidies should be openly reported in the accounts of state-owned institutions.

### Equity funds

**OPER 25**

Planning of regional initiatives on energy efficiency under equity funds needs to be realistic about coverage.

**XMRA 14, 15, 16**

In planning equity funds, a clear assessment of the relevance and effectiveness of investing through the fund should be carried out, including an assessment of the potential return to the Bank. The exit options should also be considered.
The Bank’s environmental mandate and requirements should be introduced to a client at an early stage in planning.

During due diligence, environmental performance should be assessed of all individual plants of a company, rather than just looking at the aggregated environmental data for the company overall.

There is a risk to the credibility of the Bank if its additionality compared to commercial banks is over-sold during financial restructuring.

The following table presents the 57 lessons in the database from the 12 investment OPERs. The left column indicates the common theme(s) to which a lesson is related in the table in Section 3 above. Although most lessons relate to a common theme, some lessons are very specific and have not been included in the table above.

**4. Lessons from OPERs**

For projects with extended gestation periods, the validity of assumed policy framework conditions need constant monitoring. In highly dynamic markets, policy framework conditions are often subjected to changes that may be conducive to, or undermine, project concepts that have evolved over extended periods. Therefore, prior to advancing for project approval the continuous validity of key underlying assumptions, notably of the guiding policy framework, need to be reassessed.
| Project planning and due diligence | OPER 2. | Transition impact conditionality should be commensurate with what can reasonably be expected from the client’s performance in light of market imperfections and volatile policy frameworks. Conditionalities that are at odds with the potential for transmission impacts (notably when it is intended to beef up the transition-related objectives of a project) locks in expectations that are difficult to meet and may become an impediment to project implementation in the event of non-compliance. Also, it tends to suggest the prevalence of project risks in excess of what is a realistic chance of pure financial loss. Therefore, transition impact conditionality should be in tune with what is practicable by taking account of potential constraints to success, and it should allow for the option to renegotiate inferred TC agreements that over time prove to serve no useful purpose. |
| Loan conditions | OPER 3. | Electricity sector progress is not a simple linear development and needs constant attention and leveraging of the EBRD’s exposure at a high level. The EBRD has engaged early on in the electricity sector reform in Russia and may need to review how its relatively large sector and country exposure can facilitate a leveraging of its special status in Russia in the context of a sector dialogue with the highest levels. This may require a new focus of TC operations in preparation of more fine-tuned policy dialogue based on recent positive and negative sector trends. While Bank debt and equity investments in the Russian electricity sector have risen sharply, TC operations should also be used more to contribute to sector transition issues. |
| Technical cooperation | OPER 4. | Capacity market issues could develop into serious pitfalls for continued reform progress and should be addressed directly via TC operations. The EBRD cannot expect automatic solutions via project impact and sponsor activities. As the IFI with the largest exposure in the electricity sector, it is possible to focus on issues affecting all generators and contribute to solutions in the spirit of the reform focus. |
| Policy dialogue | OPER 5. | The Bank should use its influence to broker optimal outcomes with regard to important electricity sector framework issues. The Bank should take a more proactive role in crucial areas that may affect the economics of all generators. The Bank should continue to identify the key political decisions that drive the value of strategic investments supported by the Bank and engage at an early stage with the government and industry representatives in a policy dialogue that supports the balanced and open discussions and timely making of these decisions. |
The Bank has limited capabilities to manage complex projects with interdependent components financed by different donors/IFI, especially when the client lacks experience and the operation takes place in a difficult political and institutional environment. In the case of the reconstruction loan, the Bank took considerable implementation risks by launching a complex project with multi-party involvement. Unsurprisingly, it encountered implementation problems that could only be contained with the heavy and costly support of the lender’s engineer by stepping beyond its normal remit and becoming a de facto part of the PMU structure (Section 3.2.7). In fact, increased reliance on the lender’s engineer was the only feasible remedy since the Bank has neither the mandate nor the means to heavy-handedly manage project implementation. The positive aspect of this failure was, however, that the Bank rapidly learned the lesson: it financed the follow-on project in the distribution sector on a stand-alone basis and implemented the investment through single-responsibility contracts for discrete (regionally distinct) packages, which eased project implementation and, as a consequence, considerably reduced the need for engineering support and supervision.

Fundamental changes in the business conduct of a utility can hardly be brought about by a TC operation implemented through management contract. The idea that vesting a TC operation with co-management responsibilities would be an effective means for achieving a company turnaround is mistaken. Co-management is not feasible without a strategic alliance between companies/partners, based on common goals and the sharing of resources as well as risks. A TC operation, even when it is embedded in a management contract, does not meet these criteria and, thus, cannot be expected to lock in profound changes in how a business is run, especially when such changes require investment support. At best, a TC operation may provide sound managerial and operational assistance accepted by the client. But it cannot substitute for a true co-management or concession contract involving the mutually agreed transfer of business rights and risks to an outsider.
Perpetual action planning signals the loss of hope. Action Plans make sense if they represent the commitment of the client/borrower to necessary changes in performance and the agreed targets are attainable. In such cases they can even play the role of covenants. However, the effectiveness of this instrument will be jeopardised if the response to missed targets results in a proliferation of action plans with repeated (down) adjustments of targets. In the case of Albania, power sector action planning has become a ritual defying the lack of progress made; it can almost be considered a sign of despondency that has been descending on the donor community. The only alternative left is that the pending take-over of KESH’s distribution business by a strategic investor will be carried out successfully, thus easing the need for Action Plans.

Evolution and application of a new regulatory framework for the National Electricity Grid is a complex process in most countries and needs constant attention and support. The introduction of the fairly complex new legislatory framework is at first sight very impressive. However, identified shortcomings will need to be addressed in the Russian electricity sector. The regulator should also evolve to some degree of independence from the Ministry of Power and Energy.

Selection criteria for defining project scope in view of achieving the project objectives should be clearly presented in the Board Report. The selection of project components should be explained in some detail in the Board Report, especially in public sector projects where the Bank project only has a small impact on the overall annual investment programme as in the case of a National Grid Company. The definition of clear project objectives and relevant project components for achieving such objectives is important for the ex post evaluation process.

In a large electricity sector reform undertaking, it is important to present the Bank’s effort in the context of the overall TC activities by IFIs and bilateral donors. The fit, direction and size of the Bank’s TC effort attached to an electricity sector operation should be presented in the context of an overview and assessment of past, present and future efforts in the same sector by other IFIs and bilateral agencies. This would facilitate the assessment of the potential impact and coordination of the Bank TC with other multilateral agencies.
**Project planning and due diligence**

OPER 12. The Bank focus of upgrading facilities in a National Grid Company should also address important transmission planning issues and include elements for enhancing such areas. The Bank's project design with an emphasis on infrastructure upgrades should also address vital expansion planning system upgrades in order to achieve efficiency gains on a larger scale and not only related to the two transformer stations financed by the project loan operation.

**Loan conditions**

OPER 13. The Bank should demonstrate a clearer linkage to sector policy dialogue in the design and structuring of a project operation. The project design may need to consider a better balance between providing budgetary financing for a government-owned company in the electricity sector and the efforts towards transition progress which may be linked through conditionality in disbursements or via conditionality in the design of a longer term TC operation which would complement the financing of infrastructure solutions.

**Technical cooperation**

**New technology**

OPER 14. Financing and dealing with a pilot project with new technology. A technologically challenging project requires a constant and pragmatic approach during implementation. Also, a project with an unproven operational track should ideally be small in size. A larger project could face political interference or economic pressure, which could divert it off track. A failure of a new technology project could have a grave consequence to the sector and associated industries, even psychologically, turning hopes and aspirations into a sense of loss, and increasing the hesitation about the technological advancement. In this project, the Bank and the borrower took a significant technological risk due to the unprecedented use of developing technology. Although locally produced raw material was the key for the operations, the difficulty of its handling was underestimated. Lacking the experience of the project technology, the project counterpart did not play an important role in the tender preparation. Neither the international consultants for tender preparation nor the contractor were willing to involve the local expert in the design for the project equipment. Due to the accident and the re-construction of the equipment, the project is not yet complete even as the final repayment approaches.
| Technical cooperation | OPER 15. Importance of various expert viewpoints for a new technology project. In the case of a large utility, it is often preferable to hire the same international consultants to work continuously from the project design, through tender preparation and support, and on to procurement and implementation. However, this could make the whole course of the project biased by the opinions of the consultants. Conflict of interest should be a prime concern in the consultant selection process and proved in most cases to be disadvantageous. Design and technology choices tend to become limited, and price negotiations sub-standard if the consultants are biased. This finding is supported by the Bank’s ‘Summary of lessons learned’ under Advisers and Procurement from the Special Study ‘Power Sector Review’, March 2005. In this new technology project, the first-time borrower power company and the project management unit were unable to fully assess the quality of suppliers due to their unfamiliarity with the applicable technology. The implementation support consultants exerted strong influence on the bid evaluation and the Bank had to commission another expert to review the design and bidder’s technical capabilities again. Obtaining expert views from different parties at an early stage could have prevented an excessive bias toward a certain technology solution. |
| Project planning and due diligence | OPER 16. Involvement of local intelligence during technical due diligence for a technology project. Despite the pilot nature of the project, which used locally available fuel and new technology equipment, technical due diligence was inadequate. A technical feasibility of using local fuel was underestimated at appraisal. Involving local experts, practitioners and academics in such a specific area at the project inception could have mitigated technical risks. This is, in particular, relevant during the preparation of technical specification for tender as this could help in the selection of the most technically responsive bidder. |
Relevance of venturing on a new technology with public funding. An unsuccessful outcome of a sovereign-guaranteed large utility project with a biased rationale for financing is undesirable for two reasons: firstly, sourcing public funds at a multilateral development bank and, secondly, using a sovereign-guaranteed loan for the state-owned utility. At the project screening stage, the project stakeholders should be guided for the best interest of the project beneficiaries and the project rationale should be properly scrutinised. In this project, the government and ministry were compelled to use the new technology in order to improve the balance of payments. The consultants promoted the new technology to enlarge their businesses. The manufacturers were eager to win the high-profile contract in order to capture the market. The project rationale could be biased, being subject to various interferences. At the inception, all stakeholders were enthusiastic about this project. However, when the project’s success became uncertain, accountability diminished.

Extra care should be taken during the tender evaluation for technologically developing project equipment. When technology is still being developed in the industry, each bidder could bid on commercially untested elements, which makes the project equipment unique and the bidder’s products exclusive. This will increase the technological risks and the risks associated with the contractor’s capacity to provide constant performance and continuous support to the project owner. This element has to be carefully assessed during the procurement process and risk mitigating measures must be in place. It is essential during due diligence and as part of a procurement process to assess the strength of technology suppliers.

It is difficult to ensure technical support from a technology supplier for a foreseeable period when the technology is rapidly developing. In this project, the Western contractor of the project equipment underwent industry restructuring in its home country and then ceased manufacturing. This caused weakening accountability and their technical support to the borrower faded during equipment installation. The project will bear significant technical risks until and even after completion.
The market mechanism can be fully functional when forward and backward industries are equivalently reformed at the coordinated pace, thereby creating the framework for the market liberalisation. In this project, the commercialisation and privatisation of coal-fired power generators is bottlenecked by the slowly reformed coal sector. The state-owned borrower power generator still has to struggle in the disadvantageous competition under the command-and-control in the slowly reformed sector, while the privately owned competitor largely benefits from the autonomy in the partially deregulated market. The issues are politicised and hinder a move toward a fully competitive market. This project suggested that commercialisation and privatisation without the functional market framework could increase the unfair competition.

Where a government is committed to eventual majority privatisation but only willing or able to commit to a minority first-round privatisation, a clear path towards further privatisation rounds may reduce the risk of subsequent disruption resulting from a political change. While the risks of change of political direction cannot be avoided, preparation for future rounds of privatisation such as timetabling, enabling legislation, valuation formulae for further share sales or agreeing trigger criteria for further privatisation should be at an advanced stage of preparation prior to launch of the first round so as to minimise the time delay between first and subsequent rounds and establish transparency over a future path of action.

While it is very difficult to prevent a government interfering in nominally independent regulatory structures if it so wishes, there are possible approaches that can help reduce the ease with which a government can intervene in the sector via the regulator. These include establishing as part of the sector reform process arm's length and transparent procedures, possibly protected by legislation, for appointing senior officials to the regulatory institutions. Similarly, ongoing support with implementation assistance TC may help strengthen regulatory institutions and better equip them to withstand external political pressure.

There should be clear agreement between the strategic investors and government over investment and dividend policy prior to privatisation. Agreeing a policy basis for areas of potential conflict between stakeholders should be completed before privatisation and agreement established for the frequency and method of review.
**Privatisation** OPER 24. Successful transition outcomes in a partial privatisation situation are possible but require several key elements to be in place. These include a well-defined and independent regulatory structure at outset, political will to respect the new structure and institutions in the sector, strong sponsors experienced in similar markets and committed to clear business and investment plans and appropriate corporate governance arrangements between the Supervisory and Management Boards. Establishing these elements prior to the initial privatisation enhances prospects of meeting key stakeholder expectations and establishing a foundation for future majority privatisation.

**Equity funds** OPER 25. Tailoring the portage structure to include the possibility, albeit remote, of a market exit at a premium can be a valuable enhancement to the financial structuring. The inclusion of a market exit in some circumstances provided the possibility (but not in any way the certainty) of an enhanced return for the risks carried by the Bank and is consistent with a sound banking approach.

**Project planning and due diligence** OPER 26. The completion risks involved in the financing of large-scale investments in the refurbishment and modernisation of a complex infrastructure are difficult to control and mitigate. The co-financing of distinct components that appear to be easily manageable from a procurement and implementation perspective does not reduce the probability of project delays when the project is composed of a variety of inter-related investments. Ring fencing of co-financed components of a complex investment programme fails to contain completion risks. Reducing the scale of a project may reduce the damage in case of unexpected delays. For the project at issue, however, a piecemeal implementation of the modernisation programme was not advisable because the main perceived benefits of the project depended on the rehabilitation of the entire transmission system.

**Sector reform** OPER 27. The Bank should not overstretch the leverage of sovereign guarantees to prescribe broad sector and policy reforms. The Bank’s focus should be on commercial lending to private sector projects with intrinsic transition impacts. The decision to resort to sovereign guarantees should be based on a sound assessment of project benefits and credit risks, but not be driven by the security needs of co-financiers or by the desire to covenant far-reaching policy changes. When recourse is made to sovereign guarantees on the basis of sound banking principles, there is no need to vindicate the lending operation or the co-financing arrangement through sovereign commitments to bold policy changes.
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<tr>
<td>New technology</td>
<td>Careful benefit estimates are imperative when the economic and financial viability of large-scale investment operations rests on critical impacts that are difficult to predict and verify. If the case made for a sizeable investment with a large share of sophisticated and particularly expensive components is not convincing on economic and financial grounds, doubts might be cast on the rationale and the objectives of the project. Therefore, the Bank should ensure due diligence in the assessment of the impacts that are crucial for the justification of large-scale investment programmes, notably in the case when vast sums are spent on elaborate equipment.</td>
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<td>Procurement</td>
<td>Enforcement of new procurement rules can act as a catalyst for change. The Bank’s request to change the procurement rules related to a specific investment (operation) may bring together considerable improvements in the whole procurement system for a large infrastructure client (in this case, a utility). Internationally accepted procurement rules will increase the transparency and usually result in significant cost savings. Such procurement rules will also promote fair competition between the equipment, services and works suppliers.</td>
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<td>Sector reform</td>
<td>A realistic timeline for sector reform needs to include time for setbacks and delays. Complex sector reforms usually experience significant delays when compared with the initial plans. When setting the objectives for the Bank’s influence on the sector reforms, a realistic estimation of the potential impact of the allocated resources should be undertaken. Total commitments to the sector over a longer period of time may enhance the effectiveness of a professional sector dialogue with the government in tandem with other IFIs.</td>
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<td>Policy dialogue</td>
<td>The importance of actively pursuing the Bank’s environmental mandate even in adverse situations. The Bank as opinion leader should stretch the envelope and push for the adaptation of innovative features in accordance with the Bank’s environmental mandate. By nurturing seeds at the right time, the company’s Carbon Fund was able to pick up speed and correspond to the directives of its Board rather swiftly. In this case, the Bank first had to demonstrate intellectual leadership and convince the borrower. As a result, the Bank has gained good visibility and reputation.</td>
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Sector reform OPER 32. Taking appropriate securities in a reform process where the creditworthiness of the remaining entity may change. Carrying out Bank operations in infrastructure companies being restructured incorporates the danger that as a result of (successful) restructuring the borrower may become less creditworthy due to the unbundling of the beneficiary. It is therefore important that adequate security structures are found that can be isolated regardless of the outcome of the restructuring progress. Of particular importance may be revenue streams from creditworthy third parties over a period of time.

Project planning and due diligence OPER 33. Appropriate classification of projects for improved accountability analysis. Projects are classified at the outset in order to be able to later analyse the Bank's portfolio by different criteria for accountability purposes and so on. The range of SIC codes needs to include fairly detailed categories, including integrated utilities and their components. Furthermore, the system should allow for the fact that different sub-components may be attributed to different SIC codes.

Project planning and due diligence OPER 34. The preparation of energy investment operations should start from a more holistic, sector-oriented, rather than narrowly focused, project approach. The Bank has a transition mandate, therefore investment appraisal at entry should examine wider ranging choices that go beyond the repair and life-extension of worn-out and dilapidated facilities. At a minimum, refurbishment investments should be assessed as part of a longer term least-cost investment strategy. If financing constraints such as lack of funds/co-finance, market risks or the borrower's limited credit strength and debt service capacity require a departure from the least-cost investment path, project appraisal should ensure that the truncated programme qualifies as an economically sound second-best solution.

Project planning and due diligence OPER 35. Transition impacts are highly sensitive to sponsor performance. Therefore due diligence in sponsor selection is a matter of utmost concern. Close scrutiny is required to ascertain that sponsors have a sound business rationale, pursue a viable strategy with a credible long-term commitment, have an excellent track record demonstrating the capability to undertake the venture, are familiar with the local conditions and business environment and have a full understanding of the risks involved in the undertaking. When there is no convincing proof of high-level sponsor expertise, commitment and ability to deal over a long time frame, the Bank should refrain from entering into partnerships.
Ensuring transparency and integrity of ownership and business structures is essential. Projects that are embedded in complex ownership and business structures involving remote outside sponsors, offshore entities and novel contractual arrangements may adversely affect the business and investment climate in an early transition stage country, notably when local authorities and institutions are not prepared to cope with such structures. Business arrangements fail to be viable if accountants, tax authorities and regulatory agencies do not understand them or have no confidence in them. Clarity, transparency and disclosure are essential to establish faith in the integrity of contracts, commitments and numbers. Reporting on project-related transactions should be clean and focused, and deals and agreements should reflect and convey legitimate business interests. While the Bank is not in a position to enforce these standards, it should take care that projects selected for transition lending are built on credible and acceptable business schemes and contractual arrangements, with an appropriate exposure of sponsors/owners.

Appropriation of corporate loan disbursements (against specific investment targets) is difficult to monitor, thus implying uncontrollable risks. The Bank has little means to ensure that a long-term loan providing business finance (corporate loan) is used in accordance with a predetermined spending pattern; nor does it make much sense to attach spending strings to funds that the Bank, applying sound banking principles, is willing to lend as corporate finance in the first place. In the case at issue it was also clear at the outset that the investment programme defining the financing needs of the borrower contained only a small portion of expenditures qualifying as capital formation and that it would have been impracticable to structure the loan disbursements as direct payments to suppliers and contractors. Hence the Bank took the risk that the loan was used for other purposes than those the Bank had in mind.
Political and regulatory risks need thorough analysis, provisioning and monitoring. Lack of attention paid to deficiencies in the regulatory framework and disregard of political peril besetting energy sector operations exposes energy sector projects to considerable financial risks that are difficult to manage. The risks are particularly high in the areas of heat and retail electricity supply where social concerns and political interests tend to override economic and commercial reasoning. Therefore, the Bank should conduct a sober assessment of whether it is opportune to support low-revenue business initiatives in an unfavourable or commercially hazardous political and regulatory environment, taking also into consideration the market and technology risk that the thermodynamic advantages of CHP schemes do not necessarily translate in cost advantages. Bank lending on commercial terms may not be suited for companies operating in a distorted business environment.

The importance of linking project implementation stages with restructuring covenants of a power company. It would be worthwhile to interlink, through clearly defined benchmarks, the two mentioned activities, physical and structural, to keep up the pressure on both. For that reason it may be useful to split up the refurbishment work into “closed” phases with clear intermediate milestones, for example:

- engineering and preparation of procurement
- dismantling of existing equipment
- procurement and delivery of equipment
- installation and commissioning

Thus it could be possible to come to a concurrent execution of the different activities (physical and company structure).

Adequate investment levels in plants are essential to maintain reliable supply and competitiveness. In order to be competitive in an open market for electrical power, it is of utmost interest to have a reliable and safe production and distribution system. Keeping up the technical standard of physical assets and planning replacements ahead of time are tasks of high importance. As this project has demonstrated, the local technical expertise is able to implement replacements successfully and within a tight timetable once the financing is secured and available.
Project planning and due diligence

OPER 41. Monitoring the compliance of the work with the targets set. As part of the refurbishment project procedure a target setting should take place. Clear and measurable goals should be defined and means be determined to verify how and when the achievement of those targets should be measured and registered. Payment of instalments or release of additional services to the project should be linked to the positive outcome of the performance monitoring.

Privatisation

OPER 42. Successful restructuring will also depend on early definition of free market elements and appointment of a strong independent regulator. The lack of clear market regulations regarding major open issues is the most critical hurdle for a successful introduction of the privatisation into the Russian energy market. As long as the government has not established the corresponding rules and firm market conditions are not given, it will not be possible to execute an adequate due diligence of any “privatised” company. Until this is clarified, an investor will not be able to decide in favour of a possible engagement in such a company on the basis of hard facts.

Tariffs and affordability

OPER 43. Profitability levels must be attractive to domestic and international investors. Medium- and long-term expected return on equity will influence both equity investors and lenders. Besides the ongoing restructuring efforts, it will be important to have a better understanding of electricity and heating tariff increases, which will need to be affordable to users and attractive to investors. The assessment of the maintenance and replacement investment requirements will also play a significant role.

Project planning and due diligence

OPER 44. Due diligence must go into the details of which expertise will be put in charge of the project and the adequacy of past experience within the sponsor’s group with the challenges of the project. It is not sufficient to rely on a sponsor’s track record and committed support. Individual expertise and performance history must match the specific requirements of a project in terms of sector as well as international experience for each key position of the management team. This is made more difficult in hardship assignments, which are not sought after by large numbers of suitable candidates.
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<td><strong>Tariffs and affordability</strong></td>
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<td>The transition to market economy may be best achieved through phasing in price rises into a socially acceptable tariff structure. As demonstrated in this project, this was partly realised through the company deferring the implementation of the full tariff structure as approved at the time of privatisation. It could be conceivable that the burden of deferring tariff increases is not borne entirely by the private sector operator if subsidies from the government or international agencies aimed at the most vulnerable population soften the impact of true costing. This would relieve the project from the stigma of unfairness of market economy during such transition period while not taxing private investment for past leniency in energy pricing.</td>
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| **Project planning and due diligence**  | **OPER 45.**  |
| In countries of operations where economic decisions are often distorted by cronyism and nepotism, policy dialogue by either the Bank or a foreign strategic sponsor is very challenging. The Bank is therefore less likely to succeed in such a context. This should be identified at the time of project approval and given due consideration in the risk to transition impact analysis. |

| **Sector reform**  | **OPER 46.**  |
| Institutional framework may not be relied upon until it is actually tested. The Bank should be aware that the existence of legislation and the appointment of bodies in charge of implementation do not warrant smooth implementation. The strategic investor cannot be expected to make up for governmental deficiencies in setting up and enforcing appropriate regulations. The strategic investor should in turn be able to rely on the government to protect the integrity of its employees and assets. |

| **Loan conditions**  | **OPER 47.**  |
| Importance of optimal level and structure of TC support. Investment operations justified on account of potential transition effects should be bundled with sufficient TC resources for initiating and sustaining the desired reform process and for assisting the client in designing and implementing the necessary steps of transition, notably in cases where transition implies a turnaround. TC should facilitate achieving covenant compliance. This is particularly important in low transition countries. |

| **Technical cooperation**  |
| Loan conditions  | **OPER 48.**  |
| Sequencing and conditioning of future Bank involvement. Pilot projects should include criteria for Bank support to subsequent projects. It is of particular importance to define reasonable and effective transition milestones that must be reached for continued Bank support. |
Loan conditions OPER 49. Creating the necessary framework for meaningful corporatisation covenants. When the Bank covenants the corporatisation of a public enterprise, it should make sure that this step yields the desired results, that is, the withdrawal of the government from the company’s business and improved corporate governance and performance. As a minimum, care should be taken that appropriate framework conditions are in place, or the ground is prepared, for inducing effective changes in organisation and company management.

Sector reform OPER 50. Crucial link with sector reform and IFI coordination in order to ensure project success. In early transition countries, the link with sector reform is crucial for project success. Furthermore the reforms must be underpinned by coordination and support from other international partners. The cooperation should be based upon the comparative advantages of each member. For example, the Bank should seek in some cases supplementary efforts by the World Bank in the areas of essential sector and regulatory reforms. Other bilateral agencies may also be able to provide complementary TCs.

Cooperation with IFIs

Project planning and due diligence OPER 51. Shaping operational financial covenants for utilities. Financial covenants should be operational and proportionate to the conditions under which a business is run. The targets should be set at levels that can be reached (taking account of binding and not so binding constraints) and against which realistic performance improvements can be measured. In low transition countries, the focus should be on selected indicators of financial strength in cutting-edge areas (for example, cash revenue collection and self-financing capability); a plethora of targets is not opportune. Financial targets geared towards high standards prevailing in competitive markets make little sense if a supportive incentive framework is missing. Moreover, the Bank should ensure that an appropriate financial accounting and reporting system is established and performance monitoring draws on transparent and reasonably accurate financial data.

Loans conditions

Transparency

Tariffs and affordability OPER 52. Tariff covenants should address financial needs. Tariff covenants and supporting TCs should address financial needs and help allocate expenditures among customers and electric loads in an efficient way. Least-cost expansion planning and estimation of Long Run Marginal Costs (LRMC) are different issues that should only be raised through covenants if they rank high on the agenda of reforms with large transition effects (which is often not the case).
Rehabilitation projects covering only a small part of the company need careful evaluation and planning, in particular in infrastructure projects. Integration of new equipment and its operation into existing (out-of-date) facilities is a complex task and involves greater technical and operational risks than greenfield projects (replacements). Therefore, rehabilitation projects require careful planning and should support the process of introducing new technologies and changes in plant management with adequate resources.

Appropriate transfer of international privatisation experience. Careful evaluation of the most appropriate instruments towards more efficiency in infrastructure service provision in a low transition economy should consider recent experience with IPPs. The global craze for IPPs in the period 1990-97 has considerably cooled down due to mixed results in the UK, the US and other countries. Application of a timeline approach could be considered. This is also illustrated by a corresponding reduced international equity investor appetite for such projects. The Bank should design a respective policy on the development of the power and energy sector in low transition country environment.

Timely availability of procurement TC is important. The Bank must ensure that sufficient guidance is provided and efficient supervisory capacity is in place during the procurement process, notably when the client is not familiar with the Bank's procurement rules. Essential safeguards are an accurate and transparent specification of minimum criteria and a close surveillance over the tendering and bid evaluation process.

Constraints of narrow project approach for TC versus a required wider sector approach. The TC focus on a project should not be oblivious to the sector requirements. While the Bank’s project approach may facilitate continued engagement with the authorities, there is a risk that lagging sector reform hampers progress on the project level. Effective coordination with all IFIs is particularly important in cases where a major sector reform is imperative.

5. Lessons learned from XMRAs

The following table presents the 27 lessons in the database from the 10 XMRAs carried out on natural resources projects. The left column indicates the common theme to which a lesson is related in the summary table in Section 3.
Identification of transition benchmarks related to technical indicators of a project should be verified by technical experts as part of the technical due diligence. At the time of project approval it was estimated by the technical consultant that as a result of new line commissioning, technical losses in the entire KEGOC’s transmission system will reduce to 4.5 per cent by 2008. According to KEGOC, since the commissioning of the new North-South transmission line in Q3 2009 and until May 2010 technical losses in the new line were 4.33 per cent. For the overall system losses reduction, the impact of the North-South line was less pronounced, even if the project improved reliability of the whole system, minimising the number of unplanned outages.

Tariff setting: continuous Bank intervention during project appraisal and monitoring is required to secure and maintain adequate tariffs. Such an intervening role requires specific understanding of the industry and the regulatory issues and the commitment of substantial resources from the Bank.

To mitigate systemic risks attachment to a privatisation process in the utilities sector, the Bank should start the policy dialogue with the government early in the process to determine very clearly the conditions under which the privatisation will be implemented and to correctly identify highly reliable sponsors. In addition, the project team should do a thorough due diligence on the company to be privatised and perform a valuation of the company based on comparative transactions in the region, EBITDA multiple, price per customer and discounted cash flow and verify that the sponsor utility price is in the expected range of prices in the region.

Loan agreement covenants should be drafted with a longer term view of the company’s own corporate and strategic development as well as sector-wide processes to avoid technical breaches and minimise the need to process numerous waivers.

Planning the scope of a TC at approval. When drafting the terms of reference for TC studies, a wide consultation process with major stakeholders should be warranted to keep the study in the context of the reform and to better address their needs through a possibly more comprehensive TC package.
Environment XMRA 6. Assessing environmental compliance for projects with multiple site implementation. When the Bank’s requirements are against EU or local standards, the client should provide environmental data for each of its plants rather than for the company as a whole.

Project planning and due diligence XMRA 7. Importance of selection of appropriate lender’s engineer for initial project review and monitoring. The Bank’s engineers and consultants should be involved in an early stage of project definition and review design and cost estimates to avoid later surprises. This is especially important for upgrading projects in the context of old power plants, where some of the old equipment needs to be utilised and where traditional suppliers may need to be considered (brownfield environment).

Loan conditions XMRA 8. MOUs as useful tools to secure company-wide restructuring steps and commitments while financing a specific upgrading project. The Bank has found that MOUs with the borrower, in this case power companies, can help define and agree certain restructuring principles in the company in order to secure implementation of country-wide restructuring plans of the sector. Conditionality of the loan documentation to achieve restructuring as per MOU while financing a specific investment project of the borrower can provide a useful tool. (Lenenergo/TGK-1, Russian Federation, XMR Assessment 2007)

Project planning and due diligence XMRA 9. Budget the refurbishing work of an existing power plant. Refurbishing works carries significant completion risk and in many cases a single price turnkey engineering procurement and construction contract may not be the most appropriate contractual arrangement between the contractor and the owner of the project. It may require a significant amount of standby financing to be in place to cover such unforeseen works.

Loan conditions XMRA 10. Monitoring the technical and financial situation of the borrower. In order to be able to detect any potential delays or funding shortfall for the completion of complex brownfield projects, it is important for the Bank to maintain a comprehensive and efficient monitoring procedure, including appropriate covenants and information undertakings by the client.
Cooperation with IFIs  XMRA 11.  Bank policy dialogue: great benefits from coordination with other IFIs. Coordinated approach between IFIs on assisting sector reforms greatly increased the chances of reforms being implemented. In this particular case the WB, EU and EBRD were active in the joint policy dialogue, the WB financed operation committee infrastructure, and the EU assisted through the country’s desire to join the union. The successful implementation of the reforms had a positive effect on the financial performance of the company.

Policy dialogue  XMRA 12.  Bank project dialogue: the key role of Resident Offices. Ongoing project dialogue is made easier by a strong sector team presence in the Resident Offices (RO). In this project, it helped to ensure that a follow-up project was signed in 2004.

Resources in the EBRD

Sector reform  XMRA 13.  Timely implementation of regulatory framework is determinant for project success. A year after the project began all contracts for the rehabilitation components of the project were completed. A road map for the energy sector in the country of operations was agreed with the EU Commission and approved by the government. The new tariff methodology was implemented in the same year and has been adhered to since then. The New Energy Law was approved by the Parliament and published in two years later. Therefore the project implementation period matched the schedule of reforms of the regulatory framework and greatly benefited from it.

Equity funds  XMRA 14.  Realistic view is necessary with regard to the targeted regional expansion for a relatively small size of project. At appraisal, the Bank was ambitious about the regional coverage of the Fund. Due to difficulty in starting up energy efficiency ventures in any targeted country, the project resulted in the much smaller number of the countries.
Equity funds XMRA 15. **Relevance and effectiveness of the Fund’s investment in an intermediate financing vehicle needs to be carefully examined as opposed to investment in individual enterprises.** The Fund Manager is allowed to exercise significant discretion in selecting the investees, although subject to the Bank’s approval. When the Fund invests in an intermediate financing vehicle, like a fund, the Bank should pay extra care to make sure of the operation cycle, distribution policy and the investment availability period of such intermediate vehicle, particularly as to how and when to channel the return to the Bank’s investee fund. If the intermediate vehicle directs the received dividends from the enterprises to its own working capital, therefore no distribution to the Fund, no return to the Bank would be expected and the viability of the Bank’s investment would be jeopardised. It would therefore be more efficient and effective if the Fund directly invests in such enterprises.

Equity funds XMRA 16. **Clear vision of the return to the Bank should be provided at appraisal.** The view of the Bank’s financial gain on this transaction seemed weak. The appraisal board document did not indicate the return to the Bank’s investment in the Fund, while the return of the Fund’s individual investment was set as a target. The project suggests that the return to the Bank as an investor is of equivalent importance to the performance of the Fund and to the performance of sub-projects.

Project implementation XMRA 17. **Regulatory risks in energy efficiency field can affect the fund performance in a sensitive manner.** In the case of this evaluation, the government turned down applications to seek carbon credit, increased the efficiency level for an engine entitled for high electricity prices and raised tax on electricity sales. These affected adversely the return to the Bank in an unexpected manner.

Additionality XMRA 18. **Overselling of the Bank’s additionality in financial restructurings.** When faced with a financial restructuring, the Bank needs to carefully assess its additionality. This is particularly the case when the borrower’s financial condition has improved, which translates into stronger appetite from the commercial banking sector and more favourable terms and conditions. Where the Bank’s presence remains desirable, as it generally adds comfort to other stakeholders, but may not be indispensable, it is preferable for the team to state so, while seeking design and functioning add ons to further justify an on-going relationship with its client. Over selling carries the risk of jeopardising the credibility of the statement.
### New technology
**XMRA 19.** Complex generation technologies and new IPP framework. A combination of risks associated with new generation technologies (for example, geothermal) with an attempt to create the framework for IPPs in a frontier region demonstrates the significant preparation work required on the sector reform side. Also a minimum size of a local market is required to be able to have a true regional market.

### Resources in the EBRD
**XMRA 20.** Dedicated RO project team advantages. Especially in remote regions, it is very beneficial to have a dedicated team at the RO to ensure regular interaction with the client.

### Technical cooperation
**XMRA 21.** TC timing and scope. TC operations can facilitate the transfer of know-how and initiate the familiarisation with new contractual arrangements. Their scope should be carefully adjusted to the requirements of each stage of project development.

### Project planning and due diligence
**XMRA 22.** Development of a project with various shareholders. In cases where several companies are shareholders and contribute to the project implementation, there can be a certain vulnerability of the project company to financing shortfall risks. The positive side of this coin is that other shareholders can step in and make up for this shortfall and increase their own equity stake without having to go back to the equity markets.

### Technical cooperation
**XMRA 23.** Focus and delivery of TCs. Technical cooperation needs to be timed properly and should be focused on the relevant project issues/aspects. Formulation of drawdown covenants should be defined carefully based on TC recommendations and a phased implementation of a project in different stages (to the extent that is possible and cost effective).

### Privatisation
**XMRA 24.** Importance of existence of legal framework and sector reform prior to starting privatisation programmes. It is essential to achieve an acceptable level of legal framework and sector reform prior to starting privatisation programmes. The Bank is in a position to assist governments, through policy dialogue and direct advice, in this respect. It must identify the channels through which its leverage may be optimised. The financing of state-owned enterprises with a government guarantee may prove to be a better conduit than financing privatised companies in an environment not yet suitable to private sector operations.
Transparency  XMRA 25. Keeping track of government grants and subsidies in public sector operations. In early transition situations, government grants and subsidies must be clearly stated and reported in state-owned corporations financial accounts. This would at least put an end to the non-transparent practice of receivable and payable offsets among such state-owned entities, which is tantamount to a barter type economy.

Tariffs and affordability  XMRA 26. Realistic target price for liberalisation. It is pointless to set unrealistic targets for price liberalisation of the energy sector when they are likely to be politically untenable. Proper assessment of the socially acceptable price increases is all the more critical that enforcement through tariff collection is a condition precedent to achieving such targets.

Loan conditions  XMRA 27. Use of financial covenants as leverage in government-guaranteed projects. Financial covenants in a loan agreement are typically used to protect the Bank as soon as early signs of credit deterioration appear. When such a facility is unconditionally government guaranteed, the purpose of such covenants shifts towards providing leverage through policy dialogue. They remain of critical importance as the best conduit for the Bank to monitor and enforce key conditions to achieving transition impact.
Annex 4: Evaluation methodology

So far, a total of 36 project evaluations have been carried out by EvD on the PES projects. However only 10 of these evaluations were for projects signed in the Evaluation period (four OPERs and six XMRAs). The projects signed before 2003 were covered by the previous sector evaluation (Box 1.2 in the main report). Moreover, 10 of the 36 evaluations were for projects in Russia and the results of these evaluations have already been captured by the country-level evaluation of the Bank’s performance in the PES in Russia, published by EvD in 2010.

Therefore due to the absence of a representative sample of OPERs and XMRAs completed for the PES projects in the countries other than Russia during the evaluation period (only four available) and taking into account the P&E team's comments on the 2005 PES evaluation (see Box 1.2 in the main report), the Evaluation team decided to conduct Sample Project Evaluations (also referred to as "limited evaluations") of a new, representative sample of relatively recent PES projects in several countries. This, combined with desk studies of an additional sample of 46 PES projects signed during the evaluation period in other countries, would provide a sufficiently large sample on which the EvD team could base its assessment of the Bank's performance in the sector, identify key findings and formulate recommendations. Subsequently the following steps were taken:

- Visits to five evaluation focus countries and relatively detailed assessment of 24 projects (30 per cent of total signed by the Bank in PES during the evaluation period). Such assessments were completed through site visits and/or client/stakeholder interviews. Rating of each project's overall performance, as well as its performance in five key categories: (i) achievement of objectives, (ii) transition impact and sustainability, (iii) environmental and social impact, (iv) sound banking and financial performance, and (v) Bank handling. Due to the less in-depth review of the 24 projects than is usually the case with OPER-type evaluations, the ratings of "+", "+/-" and "-" were assigned for each of the five categories.

- Development of country case studies for the Focus Countries (presented in Appendix 3), with comments on the most critical issues facing each country’s PES, rating of the Bank’s overall performance in the PES in each country, as well as its relevance, effectiveness, efficiency, and transition impact and sustainability. Finally, country/project-specific findings/lessons and recommendations were compiled for every country case study.

- Desk review of an additional six projects signed in Central Asia during the evaluation period and the preparation of a country case study (also in Appendix 3).

- The sector evaluation took into account the conclusions from the country-level evaluation of the Bank's PES operations in Russia (2010), which covered 10 operations (eight with OPERs or XMRAs) out of 18 signed by the Bank in the PES in Russia, most of them during the evaluation period. The current sector review also included a desk review of 15 of the Russian projects in order to compare and double check the findings of the country-level evaluation of the PES in Russia of 2010.
results from OPERs/XMRAs completed on projects signed during the evaluation period have been taken into account during this sector review.

In total 70 projects were reviewed, which represents 88 per cent of the 79 projects signed by the Bank in the PES during the evaluation period and 56 per cent of all 125 projects signed since 1993.

In addition, this review takes into account the conclusions from the recent sector evaluations for the Sustainable Environmental Initiative (SEI) (2010), which covers the Bank’s main activities in energy efficiency and climate change; Municipal and Environmental Infrastructure (MEI) (2009), which includes district heating; and Extractive Industries (2011), which among other issues covered the extraction of fuels used in the power sector (gas, oil and thermal coal).

A detailed review of the relevant lessons in the EvD’s lessons learned database was also carried out for projects evaluated by EvD since 2003. This covered approximately 90 lessons.

The Evaluation team carried out widespread consultations within the Bank through interviews with teams in the Resident Offices in particular, and also with the P&E team in London, OCE, Credit, Environmental and Social Department, the Energy Efficiency and Climate Change team, as well as Nuclear Safety team.