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IMPLEMENTATION COMPLETION AND RESULTS REPORT
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ON A

GRANT FROM THE GLOBAL ENVIRONMENT FACILITY TRUST FUND

IN THE AMOUNT OF US$ 11 MILLION

TO THE

REPUBLIC OF POLAND

FOR AN

ENERGY EFFICIENCY PROJECT

April 22, 2013

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

CURRENCY EQUIVALENTS
(Exchange Rate Effective December 2012)

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PLN 1.00 = US$ 0.3134
US$ 1.00 = 3.191 PLN

FISCAL YEAR
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ABBREVIATIONS AND ACRONYMS

BGK	Bank Gospodarstwa Krajowego
CAS	Country Assistance Strategy
CGF	Capital Grant Facility
CO_2	Carbon Dioxide
CPS	Country Partnership Strategy
DPL	Development Policy Loan
EA	Environmental Assessment
EE	Energy Efficiency
EMF	Environmental Management Framework
EPC	Energy Performance Contract
ESCO	Energy Service Company
EU	European Union
GEF	Global Environment Facility
GEO	Global Environment Objective
GFA	Guarantee Framework Agreement
GWh	Giga Watt hours
IBRD	International Bank for Reconstruction and Development
ISR	Implementation Status and Results Report
M&E	Monitoring and Evaluation
KFPK	Krajowy Fundusz Poreczen Kredytowych (National Credit Guarantee Fund)
koe	Kilogram of oil equivalent
MoE	Ministry of Economy
MPEC	Miejskie Przedsiebiorstwo Energetyki Cieplnej (Municipal District Heating Company in Krakow)
MWh	Mega Watt hours
PAD	Project Appraisal Document
PGF	Partial Guarantee Facility
PMU	Project Management Unit
PPP	Purchasing Power Parity
POE ESCO	Przedsiębiorstwo Oszczędzania Energii Energy Service Company
TA	Technical Assistance
TJ	Tera Joules
TM	Thermo-Modernization

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POLAND
ENERGY EFFICIENCY PROJECT

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1. Project Context, Global Environment Objectives and Design

1.1 Context at Appraisal (November 2003)

At appraisal, Poland's energy use and CO_2 emissions per US$ GDP exceeded the average level of the European Union (EU) by 35 and 273 percent respectively.[1] The high CO_2 intensity mainly reflected the strong coal dominance in the energy sector. In 2003, the residential buildings sector was the largest energy consumer and accounted for more than one third of the final energy consumption in Poland.[2] While the energy intensity in the residential sector had declined at an average rate of 5.3 percent per year in 1997- 2003, the energy savings potential in buildings remained significant. Annual costs of heat losses in housing were estimated to amount to more than US$ 1.75 billion, resulting in a total market for energy efficient building insulation of about US$ 12 billion. Based on average heating costs at project appraisal, total potential heat savings were estimated at 223 petajoules with associated CO_2 emission reductions of 13 million tons per year.

The Energy Law (adopted in 1997) *inter alia* called for energy security, rationalizing the use of fuels and energy, promoting competition, protecting the environment and ensuring consumer choice. The Government of Poland had started to implement several programs and policies since the early 1990s, which helped the country to reduce its energy intensity by more than 40 percent. The most relevant initiatives included: (i) major reforms in energy pricing since 1991, which resulted in a gradual phase-out of consumer subsidies and convergence towards levelized energy costs; (ii) a government subsidized thermo-modernization loan program ('the TM Program'), launched in 1996, which supported energy efficiency (EE) investments for heating systems and building envelopes with, initially, a 25 percent subsidy; and (iii) tighter enforcement of environmental standards to improve air quality and related higher environmental user charges and penalties.

Barriers to Energy Efficiency. The appraisal concluded that despite these considerable improvements, the buildings sector remained an underserved market for EE investments due to a number of market barriers:

- *Insufficient access to commercial EE financing* for up-front investment costs. Commercial banks were not familiar with technical and financial aspects of EE projects and perceived EE improvements as high risk investments requiring high collaterals from building owners. As a result, commercial banks were reluctant to provide longer-term financing for EE investments.
- *High transaction costs*. EE projects were relatively small and dispersed, resulting in high transaction costs for lenders and end-users, and there were too few Energy Service Companies (ESCOs) operating in Poland to help aggregate dispersed EE projects.
- *Inadequate information*. Building owners, residents and local banks lacked information and experience about the financing aspects of EE investments, including the use of energy savings to finance building retrofits.

[1] Poland's energy intensity in 2003 was at 189 kg of oil equivalent (koe) per US$ 1000 of GDP (at constant 2005 PPP) compared to 140 koe/ US$1000 in the EU; Poland's CO_2 intensity in 2003 was at 1.68 kg CO_2 per US$ 2000 of GDP (at constant 2005 PPP) compared 0.45 in the EU; World Development Indicators, World Bank, 2013.

[2] Ministry of Economy, National Energy Efficiency Action Plan, 2007.

Rationale for World Bank assistance. The GEF Project supported the 2002 Country Assistance Strategy (CAS) objective of enhancing private sector-led growth and job creation by: (i) establishing financing mechanisms and incentives to improve the availability of local private sector financing for EE; (ii) stimulate end-user demand for EE; and (iii) supporting global environmental benefits through reduced energy intensity in the buildings sector. The environmental benefits and removal of EE market barriers targeted by the Project also supported the achievement of EU accession standards and were consistent with the objectives of the GEF Operational Program 5 – Removal of Barriers to Energy Efficiency and Energy Conservation. The GEF Project also complemented the World Bank Krakow Energy Efficiency Project (P065059), which helped to establish an Energy Service Company (POE ESCO) in Krakow to provide EE services on a commercial basis.

1.2 Original Global Environment Objectives (GEO) and Key Indicators

The objective of the Project was to increase public and private sector investments in EE in buildings. The Project aimed to achieve this by:

(i) Overcoming the risk barriers in the financial markets inhibiting commercial bank participation in EE project financing;

(ii) Demonstrating the feasibility of packaged investments in higher-cost EE measures in buildings and increasing acceptance of Energy Performance Contract (EPC) mechanisms in Poland; and

(iii) Stimulating the demand for EE services in the buildings sector and increasing awareness and capacity of commercial banks to originate and implement loan transactions for EE investments.

Key outcome level indicators in accordance with the Project Appraisal Document (PAD) included:

- Number of transactions relating to EE projects/ ESCOs in the Polish market;
- Volume of debt financing relating to EE projects/ESCOs in the Polish market;
- Number of EE/ESCO projects larger than US$ 250,000;
- Number of in-country commercial business that can provide EE services to target market.

1.3 Revised GEO and Key Indicators, and reasons/justification

The GEO and the key associated outcome indicators were not revised. However, output indicators were partially revised at a restructuring in April 2011.

1.4 Main Beneficiaries

The primary target group included owners and occupants of different types of buildings (e.g. housing cooperatives, businesses, and public services facilities such as schools, hospitals and governments). The main benefits expected from EE improvements included: (i) improved living and working conditions in the targeted buildings by improved indoor comfort levels (e.g. better lighting and heating, improved indoor air quality, etc.); and (ii) energy cost savings.

Other expected beneficiaries from the anticipated increase in demand for EE services, goods and works included building industry associations, building design professionals, manufacturers of building equipment and materials, building retrofit contractors, energy service companies, financial organizations serving the building industry and building code officials and inspectors.

Stakeholders, other than the implementing agency, expected to benefit from technical assistance activities included POE ESCO, local banks, and municipalities.

1.5 Original Components

The Project was financed by a GEF Grant of US$ 11 million and consisted of three components:

***Component 1 - Partial Guarantee Facility for EE project financing (US$ 5.7 million)*:** A Partial Guarantee Facility (PGF) was established with GEF funds and designed as a risk-sharing mechanism to provide commercial banks partial coverage of risk exposures against loans made for EE projects in buildings throughout Poland. The guarantee coverage was set at 50-70 percent of loan principal on a first loss basis and was arranged through commercial banks that concluded Guarantee Framework Agreements (GFA) with the Bank Gospodarstwa Krajowego (BGK), the implementing agency for the Project. The facility targeted the national buildings sector in general, and focused on multi-family (including cooperative) housing, schools, hospitals, as well as ESCOs using performance contracting as financing structure. The PGF was expected to leverage about US$ 39 million in debt financing for 390 EE projects.

The PGF aimed to incentivize private sector investments in EE in buildings by addressing prevailing risk barriers in the financial market, including in particular the reluctance of commercial banks to provide long-term financing for EE, the lack of adequate collaterals among borrowers and the high risk perception for EE loans.

Component 2 - Capital Grant Facility (US$ 2 million): The Capital Grant Facility (CGF) supported POE ESCO[3] investments in bundled EE projects in buildings in the Krakow region, which included high-cost measures with a payback higher than 10 years.[4] The CGF provided 30 percent grants for EE projects larger than US$ 250,000. The CGF was expected to leverage US$ 6.67 million, including US$ 4 million in commercial and POE ESCO financing and US$ 670,000 co-financing by clients.

The component aimed to: (i) reduce the up-front costs of high-cost EE measures; (ii) demonstrate the commercial viability of bundling high-cost measures with lower cost measures; and (iii) support POE ESCO in increasing acceptance of the EPC models for buildings in the Krakow region.

Component 3 – Technical Assistance (US$ 3.3 million): The technical assistance (TA) provided under the Project focused on supporting EE barrier removal activities, including: support for the deployment of the guarantee mechanism and capacity building of BGK for administering the guarantee facility; support to POE ESCO in the development of the performance contracting model in the Krakow region and to build its pipeline of potential investments; provision of training to local banks; activities to increase awareness and demand for EE investments among building owners, including municipalities; and collection of project monitoring data and broad dissemination of results.

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[3] POE ESCO was established under the Krakow Energy Efficiency Project as a subsidiary of MPEC, the municipal district heating company in Krakow.

[4] A large share of the identified EE savings potential was expected to result from high-cost measures. However, given their higher payback period, these investments were considered to be less attractive to invest in. This explained the need for support from the Project.

1.6 Revised Components

In April 2011, the Project was restructured without changes to the GEO and key outcome targets. The main reason for revising the PGF component was its limited progress towards achieving the GEO. Notably, there had been virtually no demand from participating banks for partial credit guarantees and by 2011 only one guarantee transaction supporting a loan of US$ 180,000 had taken place. This corresponded to less than one percent of the expected output. After several unsuccessful attempts to stimulate demand for the PGF, the World Bank Team concluded that the partial guarantees offered under the GEF project were not an appropriate mechanism to overcome risk barriers for EE investments in buildings. Factors affecting lack of progress under the PGF component are further explained in Section 2.2 below.

Revised Partial Guarantee Facility Component. Uncommitted funds under the PGF (US$ 5.65 million) were returned to the Bank and then used to fund a new Thermo-Modernization (TM) Investments Component. The PGF continued but the funds available were reduced to US$ 50,000 to only cover BGK's liabilities related to the one guarantee that had been approved since the Project became effective in March 2005. [5]

New Thermo-Modernization (TM) Investments Component. A new TM Investments Component was established with funds reallocated from the PGF and the TA Component (totaling US$ 5.8 million). The component used the existing delivery mechanism of the national TM Fund, which provided up to 20 percent TM Bonus (subsidy) for commercial EE loans in residential buildings[6] financed by selected partner banks. The TM Investments Component was expected to leverage US$ 58.5 million investments in EE.

The other components (CGF and TA) were not revised, except for minor changes related to the scope and allocated funds (further details are provided in Section 1.7 below).

1.7 Other significant changes

In addition to the above referenced revised components, the following changes were made:

Expanding scope of TA Component. As part of the restructuring in April 2011, the scope of the TA Component was expanded to include activities for EE barrier removal at the national level. This created synergy with the preparation of an EE and Renewable Energy Development Policy Loan (DPL) for Poland. [7]

Extension of closing date. Following Bank management approval, the closing date was extended three times: (i) in May 2011, the Project was extended from June 30, 2011 to August 31, 2011; (ii) in August 2011 (when the April 2011 restructuring became effective), it was extended until

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[5] These funds had been disbursed to the Guarantee Facility Account in BGK upon signing of GFAs with Participating Banks. Uncommitted funds were returned to the World Bank/GEF and re-disbursed for the TM Investments Component under the amended Grant Agreement. This explains the Project's unusual disbursement pattern.

[6] TM Bonuses were provided for improvements in residential buildings, non-commercial buildings, public buildings, local heating networks and local heating sources. Only EE Bonuses for residential buildings were supported by the GEF grant.

[7] Approved by the Bank on June 7, 2011 and effective on July 5, 2011.

June 31, 2012; and (iii) in May 2012, the closing date was extended until October 31, 2012. The first extension was necessary to provide sufficient time for the Government to countersign the Grant Agreement Amendment necessary for the restructuring mentioned in Section 1.6 above. The second and third extensions were necessary to allow enough time to implement the restructured components and complete remaining TA activities.

Reallocation of funds. In April 2011, in accordance with the restructured components, US$ 5.8 million was reallocated to the TM Investments Component from the PGF (US$ 5.65 million) and the TA Component (US$ 0.15 million). Additional funds were also reallocated to the supply and installation of equipment category and the works category due to exchange rate fluctuations, which affected costs under the POE ESCO Component. In May 2012, additional funds were reallocated, including: reallocating US$ 200,000 from the consultant's service category to the goods category because the main part of one of the TA activities consisted in the purchase of software;[8] reallocating the remaining uncommitted funds from the consultant's services category to the TM Investments Component to finance additional TM investments; and small adjustments related to supply and installation of equipment, goods and works categories.

Changes in the procurement methods and disbursement arrangements. In August 2005, the procurement threshold for commercial practices under Component 2 was increased from US$ 350,000 to US$ 750,000 in order to harmonize the threshold between the Krakow EE Project and the GEF Project, and the Service Delivery Contractors method was included to hire Energy Auditors. In April 2011, two additional procurement methods were included under the consultant services to allow adequate sourcing of planned TA activities: (i) the Quality Based Selection; and (ii) the Single Source Selection.

Based on the restructured Project, a new special category (Category 8) for the TM Investments Component was created in April 2011 in order to reimburse the TM Fund for Bonuses paid to Partner Banks. The funds were disbursed on a quarterly basis to the TM Fund account at BGK against proof of payment of Bonuses from BGK to the Partner Banks. In order to ensure continuity of the TM Program, the grant retroactively financed expenditures paid from January 1, 2011 until the countersigning of the restructured Grant Agreement Amendment on August 29, 2011, up to a limit of 20 percent (or US$ 1.16) of the grant amount for the TM Investments Component. Retroactive reimbursements followed the same disbursement requirements as outlined above.

2. Key Factors Affecting Implementation and Outcomes

2.1 Project Preparation, Design and Quality at Entry

Soundness of Background Analysis. The Project was prepared in conjunction with the IBRD-financed Krakow EE Project (US$ 15 million) [9] in 1999-2002 and benefitted from the analysis and preparatory work carried out under the IBRD project, as well as a GEF preparation grant. In particular, different alternatives were considered for the design of the Project components[10] and

[8] The establishment of a National Registry of Energy Performance Certificates for Buildings required the procurement of software for the Registry.

[9] P065059; approved on May 9, 2001, effective on July 9, 2002.

[10] Alternatives considered included: a line-of-credit operation, guarantee mechanism limited to POE ESCO operations, subsidy to end users for installation of specific measures or to secure financing.

studies were carried out to inform the operating modalities of the Partial Guarantee Component and the Capital Grant Facility respectively. Surveys further substantiated the prevalence of financial market barriers for EE lending and helped to identify interested commercial banks in using the guarantee mechanism as credit enhancement for EE investments. However, there was a considerable time gap[11] between the start of preparatory work and Project effectiveness, which impacted the relevance of some of the background analysis.

Assessment of Project Design. *At appraisal*, the GEO and key outcomes were relevant for Poland's energy sector. The design was based on innovative market-mechanisms and concepts for increasing EE investments through risk mitigation instruments and performance contracting, which, at the time of Project design, were not widely used outside Northern America and Western Europe. Important efforts were made to incorporate lessons learned from national and international experience gained in EE projects. Specifically, the design of the PGF incorporated key lessons from IFC's experience with risk mitigation instruments and leveraging GEF funds in Hungary. The guarantee facility also took into account national experiences and aimed to leverage synergies with the TM Program and the national guarantee fund, the Krajowy Fundusz Poreczen Kredytowych (KFPK) [12] by: (i) using similar application procedures; (ii) targeting commercial banks participating in the TM and/or the KFPK programs; (iii) building on the experience of BGK as implementing agency of the programs; and (iv) ensuring complementarity by offering a market-based product for reaching out to new market segments in the residential and public buildings sector.

The preparation and design of the Capital Grant Facility was informed by lessons learned in demand-side management programs in North America and Europe, as well as from technical advice provided by international ESCO experts under the Krakow EE Project. The experience from Northern America indicated that ESCOs can play a key role as project aggregators and financiers to bundle projects and reduce transaction costs, in particular in the public sector. The inclusion of a partial grant element was adequate, in particular to demonstrate: (i) the viability of high-cost measures (e.g. windows and insulation), despite longer paybacks and higher up-front costs; and (ii) the performance contracting model, which was not widely used and known in Poland.

At restructuring, the choice of using the existing delivery mechanism of the TM Program to design the TM Investments Component was well conceived for the following reasons: (i) while the TM Program proved to be highly successful, severe budget constraints in the wake of the economic crisis prevented the Government from allocating budget resources in 2010. In conjunction with insufficient allocations expected in 2011, this situation risked to create substantial market insecurities for EE investments. The total volume of EE investment applications submitted and 'on hold' in 2010 were estimated at over US$ 50 million; and (iii) using the existing delivery mechanism of the TM Program allowed the Project to tap into an existing pipeline of economically and financially viable EE investments and improve the progress towards achieving the GEO within the remaining timeframe until completion. However, the TM Investments Component did not address systemic risk barriers or lead to a transition towards

[11] Project preparation started in early 1999 jointly with the Krakow EE Project, while the Project became effective in 2005.

[12] The KFPK was a Government-funded guarantee program, established in 1996 and managed by BGK, which at the time of appraisal was focused on providing guarantees for commercial loans to SMEs for a broad range of capital investments, including purchase of equipment and materials.

market-based models for EE financing, which was deemed difficult due to the prevalence of grant funded support to EE at the time.

Adequacy of Client Commitment at Entry. At the time of appraisal, the Project benefitted from top-level support from the Ministry of Economy (MoE), as well as strong commitment from MPEC, the owner of POE ESCO. Notably, MPEC provided a financial safety net to POE ESCO by keeping its balance sheet associated with MPEC and providing guarantees to POE ESCO, which facilitated its access to commercial financing.

Assessment of Risks. The Project was considered a moderate risk operation. Most of the identified risks turned out to be lower than expected due an increase of available EE financing with relaxed collateral requirements. As a result, the guarantees, potential risks and associated mitigation measures were less relevant or redundant. However, the risk assessment framework failed to recognize the risks of a lack of demand for guarantees, which impacted the Project's ability to meet its objective and intended outcomes. The risk assessment framework also fell short in identifying risks occurring from subsidized government and donor-driven EE programs, which accentuated the lack of demand for market-based guarantee instruments without subsidies for beneficiaries. This was despite the fact that some of the competing government programs and the impact of various subsidy mechanisms on market demand were highlighted in the PAD. The lack of demand for guarantees offered under the PGF was ultimately addressed by restructuring the Project.

2.2 Implementation

Implementation of the Partial Guarantee Facility. The PGF made only very limited progress towards achieving the GEO and intended outcomes in 2004-2011: the three participating banks had generated only one loan transaction (US$ 180,000) using the guarantee facility. This was significantly below the target values set at 390 transactions supporting a total loan volume of US$ 39 million. Key factors affecting the lack of progress in implementing the PGF included the following market changes:

Increasing availability of commercial EE financing with relaxed collateral requirements in the residential sector. The relevance of guarantees as risk-mitigation instruments to leverage commercial financing significantly decreased during implementation due to the following developments in the residential buildings market:

- Real estate prices had more than doubled between 2004 and 2007, which significantly increased the collateral base of home owners;
- Commercial banks were less reluctant and risk averse to lend to condominiums and housing cooperatives due to the improved collateral base and refined methods to determine creditworthiness of clients in the buildings market;
- Due to a number of changes, [13] the popularity of the TM Program significantly increased after 2003, with the number of loan/bonus applications increasing from an average of 370 per year in 1999-2003 to 2,700 applications per year in 2004-2009. The volume of debt financing provided under the TM Program increased from US$ 210 million to more than US$ 2 billion in 2011. Residential sector applications accounted for more than 90 percent in that period.

[13] In line with suggestions provided by the World Bank the following adjustments were made to the TM Program in 2003: application procedures were simplified, subsidy payments were provided upon project implementation, administrative fees were reduced and promotional activities were significantly scaled up.

Increased competition from programs offering subsidies. The Project faced strong competition from subsidized programs, primarily financed from EU funded programs or local environmental funds, such as: (i) the National Fund for Environmental Protection and Water Management, which *inter alia* provided soft loans and grants for EE in the residential and public sector at the national, regional and municipal level; (ii) the EcoFund Foundation, providing 10-15 percent grants for EE in the private and public sector, including heat insulation in buildings; (iii) the EU Cohesion Funds available for EE and RE (about Euro 54 million), which became available after Poland's accession to the EU in 2004 and supported projects with up to 85 percent subsidies; and (iv) the EU Guarantee Fund, providing guarantees for projects, including EE, co-financed from EU subsides. As a result, the Polish market became strongly conditioned by the possibility to obtain financing on concessional terms. The availability of significant grant funding volumes represented a key barrier for stimulating demand for more market-based financing products, including guarantee instruments for EE investments.

Furthermore, the scope of the KFPK was expanded from initially targeting SMEs to cover all market segments, including in particular residential buildings. Given the well-established network of the KFPK, operating through 27 participating banks, simpler applications procedures and less stringent reporting requirements, the KFPK appeared to adequately cover any remaining market demand for guarantees to finance EE projects. Although application procedures and GFAs were simplified under the PGF, these changes were not able to stimulate the demand for guarantees under the GEF facility.

A mid-term review was conducted in August 2007, which emphasized the lack of progress in implementing the PGF and identified remedial actions to improve progress towards achieving the GEO. In order to address the lack of demand for the GEF guarantee, two options were pursued: (i) refocus the PGF on the institutional buildings segment, especially hospitals, where guarantees were still considered to be relevant credit enhancements due to the prevailing barriers in accessing commercial financing. This included in particular insufficient collaterals and high (perceived) risks, as demonstrated by the reluctance of the KFPK and municipal owners to provide guarantees to hospitals for EE loans; and (ii) restructure the PGF into a line-of-credit for EE in public buildings in low-income municipalities.[14] In both cases, scoping studies were conducted, a potential project pipeline identified and preliminary agreements reached. However, the refocusing of the PGF on hospitals, discussed in 2007-2008, failed when the financial crisis changed priorities of the involved banks and increased their risk aversion.[15] The line-of-credit option, discussed in 2009-2010, eventually failed because the involved banks required a substantial grant/concessional element in order to be competitive vis-à-vis the many subsidized schemes (see examples referenced above), which was found not to be in compliance with the World Bank requirements for financial intermediary lending (OP 8.30).

Preparation of a US$ 1.11 billion EE and Renewable Energy Development Policy Loan (DPL). In 2009-10 it started to become apparent that the policy framework for EE was inadequate and that this was a contributing factor to the lack of market-driven/non-subsidized EE investments. Initially, the Bank had informed the Government in April 2010 about its decision to close the

[14] This option was considered based on an official request from the Government (letter dated April 29, 2009).

[15] With the onset of the financial crisis, banks that earlier indicated that the PGF would enable them to finance EE in hospitals changed their position so that they would only provide financing if offered full guarantees, a notion that was rejected due to the moral hazard.

Project early and to cancel the remaining Grant funds of about US$ 5 million. At that time, the Project had been rated moderately unsatisfactory over the past 3 years and actual disbursement (where the disbursement into the Guarantee Facility Account did not count unless the funds were committed on a loan) stood at around 32 percent. However, as the Bank and the Government agreed to start preparation for a US$ 1.1 billion DPL focusing on EE, [16] this offered new synergies for the GEF Project and influenced the decision of the Government and Bank management to proceed with a restructuring despite the two failed attempts mentioned above

Implementation of the Capital Grant Facility. The CGF was fully disbursed by end 2008 and supported implementation of 32 EE projects in public buildings with a total investment value of US$ 8.67 million using simplified EPC-models with guaranteed savings (see Section 3.2). Implementation progress under the CGF was facilitated by a two-year school rehabilitation program of the City of Krakow. In the context of this program, POE ESCO upgraded 29 schools in Krakow with the use of GEF funds. The school rehabilitation program was a positive factor in supporting consistent outputs under the CGF with original target values and demonstrating simplified EPC models. However, it also revealed that POE ESCO operated on a rather limited market segment with the achievement of the GEO being dependent on the size of work commissioned by the City of Krakow and POE's success in bidding for it. The following other key factors affected implementation of the Capital Grant Facility:

Competition with subsidies EE programs in the public buildings sector. Similar to the PGF, POE ESCO was facing strong competition from highly subsidized EE Programs.[17] While the partial GEF grant helped POE ESCO to compete with these programs and stimulate the interest for bundled EE project, the subsidized programs negatively affected the interest of potential clients for EPC-mechanisms and limited opportunities to replicate the model.[18]

Lack of a conducive framework for ESCOs to operate in. The ESCO model faced a number of barriers during implementation: (i) public procurement rules, along with the lack of recognition of the ESCO model in the Polish law, were impeding the use of EPCs in the public sector; (ii) Polish public budget rules are based on a three-year cycle, which created challenges related to the 'ownership' of energy savings for repayment purposes as well as EE incentives for public facilities; and (iii) the revised public finance act hampered the conclusion of EPCs, since they risked to be included in the public debt ceiling despite guaranteed energy savings. These challenges affecting ESCOs were confirmed in several studies, which indicated that the number of ESCO projects started decreasing in the early 2000s due to the competition from subsidized EE programs as well as unfavorable legislative provisions that discouraged local governments from implementing EPCs.[19]

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[16] The Concept Review Meeting for the DPL was held in December 2010 and the Decision Meeting on March 2011.

[17] For instance, public buildings were also eligible under the TM Program, the National Fund for Environmental Protection, the EcoFund and the Norwegian Fund for EE and Renewable Energy (Euro 75 million), all providing grant support and/or soft loans to public sector buildings; ESCOs were not eligible for some of these programs.

[18] Energy Service Companies Market in Europe, Status Report 2007 and 2012, JRC Science and Technical Report European Commission.

[19] Institute of Environmental Economics, ESCO Market in Poland – current state and development perspectives, Inception Report, 2012; Market analysis of ESCO-type Services (in Poland), Jaakko Pöyry Group, 2006.

Implementation of the TM Investments Component. Implementation of the component started in August 2011 (after the April restructuring became effective) and supported within 14 months 445 EE projects in multi-family buildings with a total investment volume of about US$ 49 million. The speed of implementation of the TM Investments Component was affected by the backlog in applications for EE investments under the government-driven TM Program, as explained in Section 2.1. Due to the sharp tightening of fiscal conditions in the wake of the economic crisis, the Government did not allocate any budget for the TM Program in 2010 in order to concentrate on more pressing fiscal needs. As a result, participating banks stopped application procedures for new projects and several hundred submitted projects were put on hold creating uncertainties in the market for EE investments. Accordingly, the TM Investments Component was able to tap into an existing pipeline of bankable EE investment projects, use the delivery mechanism of the TM Program and help to avoid further bottlenecks by retroactively financing EE investments of about US$ 7 million (US$ 1.16 million in grants).

Portfolio Flags (2009-2012). Given lack of progress towards achieving the GEO, overall implementation progress was rated moderately unsatisfactory in 2007-2009 and unsatisfactory in 2010. In consequence, the Project was flagged in the country records (2009-2012) and as long term risk (2011-2012).

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

M&E Design. The M&E framework was designed to focus on the achievements of project output progress and included a total of 22 output and 4 outcome indicators (Annex 3 of the PAD). There were several inconsistencies in the scope, number and target values of indicators within the PAD as well as between the PAD and the Supplemental Letter. The outcome indicators were not all clearly defined, some lacked baselines and not all could be clearly attributed to targeted outputs under the Project. The Results framework was strengthened after the restructuring and selected output indicators for the TM Investments Component were clearer defined.

M&E Implementation. An international M&E consultant was contracted in 2006 but due to quality issues their contract was terminated in 2008. As a result, there were some inconsistencies in reporting related to outcome and output targets. In anticipation of the restructuring, a local consultant was contracted in 2010 with a focus on outcome indicators and the new TM Investments Component, which helped to address main gaps in M&E implementation.

M&E Utilization. Output indicators of the PGF Component were used to emphasize the poor performance and need to restructure the Project. However, given the obvious lack of progress under the PGF, M&E utilization remained limited.

2.4 Safeguard and Fiduciary Compliance

***Safeguards*.** In accordance with World Bank policy on Environmental Assessment (EA), the Project was rated Category B. There were no major adverse environmental issues associated with the Project, as it specifically targeted EE improvements that resulted in reduced energy consumption and CO_2 emissions. POE ESCO and participating banks under the guarantee facility were responsible for screening sub-projects and to ensure that they complied with the Bank's EA and applicable regulations in Poland. During restructuring, the EMF was updated to include EE investments supported under the TM Investments Component, which were limited to EA Category C. There were no major safeguard issues during implementation and the impact of construction activities were found to be minor (e.g. dust and noise) and short-lived.

Financial Management. The overall financial management rating for the Project was satisfactory. After a long preparatory and start-up period, including phases of organizational and managerial changes with adverse impacts on project implementation and financial management, BGK recruited highly qualified staff and reorganized the Project Management Unit (PMU). As a result, the PMU became more effective and financial management capacity significantly increased. Project financial monitoring reports generated by the IT system were submitted on a timely basis and were acceptable. Annual audits of the project financial management statements were received in due time and contained clean opinion with no accountability or internal control issues. The World Bank implementation and support review resulted in satisfactory ratings and recommendations were addressed.

Procurement. The overall rating of procurement during the Project cycle was satisfactory. The overall risk for procurement was rated high at appraisal due to lack of experience of BGK. Procurement by BGK faced some initial delays in terms of contracting, however, all planned studies were commissioned and during the last part of implementation procurement went smoothly. While there were several procurement staff changes in BGK over the course of the project, they did not hamper Project implementation, since the replacements had sufficient qualifications. The procurement capacity of POE ESCO, a subsidiary of MPEC Krakow, was rated high due to procurement capacity already developed during the Krakow EE Project. The procurement of sub-projects for EE measures under the CGF followed Commercial Practices and did not face major difficulties. Even though the Project was restructured, the procurement arrangements remained the same with some minor changes introduced to reflect the project's specific needs.

2.5 Post-completion Operation/Next Phase

The post-completion activities of the project are related to: (i) national level EE activities; and (ii) continuation of POE ESCO activities.

At the ***national level***, the TM Program will continue to be instrumental in meeting the national energy savings target of 9 percent by 2016, with an expected contribution of 8,121 GWh.[20] Furthermore, the GEF TM Investments Component successfully demonstrated a new model for using extra-budgetary resources for funding and sustaining TM Bonuses. According to information from MoE/BGK, this model can be copied in the next budget cycle of EU Structural Funds transfers, where such funds could be used to continue and expand the TM Program.

According to written commitments from the MoE, interest earnings accumulated on the PGF account (about US$ 760,000) will be earmarked for support of educational campaigns for EE. As funds become de-committed from the remaining guarantee under the reserve account (about US$ 50,000) these will also be transferred from BGK to the MoE to support additional climate change activities.

Continuation of POE ESCO activities. MPEC is committed to continue operating POE ESCO as a subsidiary, in particular as it allows the company to support its clients in improving EE while mitigating the impact of heat demand reductions on its core business. However, POE ESCO has yet to demonstrate a viable business model for EE services, which is able to survive in a market environment that is: (i) conditioned on receiving grant subsidies; and (ii) not yet conducive for

[20] National EE Action Plan 2011.

public procurement using EPC and turnkey services. Provisions under the EU Directive, targeting increased use and removal of barriers for EPC in the public buildings segment, annual renovation objectives and the establishment of a white certificate scheme are expected to help create a more favorable environment for ESCOs in the future.

3. Assessment of Outcomes

3.1 Relevance of Objectives, Design and Implementation

Rating: *Satisfactory*

Global Environment Objective. The GEO remains *highly relevant* to Poland's economic development and priorities in the energy sector, as reflected in the 'Energy Policy of Poland until 2030' (adopted on November 10, 2009). Improving EE is identified as one of the key priorities to achieve the targeted zero-energy economic growth until 2030 and reduce the energy intensity of Poland's economy to the EU-15 level. More specifically, the long term energy strategy recognizes EE as a key area to: (i) meet the EU climate change targets; (ii) achieve the national energy savings target of 9 percent by 2016; [21] (iii) enhance energy security; (iv) avoid pollutant emissions; and (v) stimulate investments in modern energy-savings technologies and products to enhance innovation in the Polish economy. [22] Similarly, the GEO remains *highly relevant* and consistent with the current Country Partnership Strategy (CPS) 2009-2013 by contributing to: (i) growth and competitiveness of the economy through targeting the increase in private sector investments; and (ii) global and regional public goods by supporting climate change mitigation through EE improvements. This also mirrors the relevance of the Project for global priorities on climate change mitigation and environmental sustainability. Finally, the GEO remains closely aligned with GEF's Strategic Priorities for the Climate Change Focal Area.

Design and implementation. The project design and implementation (after restructuring) remains *relevant* to the current energy sector needs. Specifically, the TM Program continues to be the key vehicle in improving EE in residential buildings, while the relevance of EPC mechanisms for public buildings is expected to increase in the future *inter alia* due to the strengthened obligations under the new EU Directive on EE (2012/27/EU), to be transposed into national law by 2014 and requiring member states to encourage the use of EPCs in the public sector. While the relevance of a guarantee instrument to encourage private sector investments in EE turned out to be *negligible*, this was addressed during implementation by restructuring the Project.

3.2 Achievement of Global Environmental Objectives

Rating: *Moderately Unsatisfactory*

The achievement of the GEO to increase public and private sector investments in EE in buildings is assessed based on the three expected outcomes as defined at Project approval.

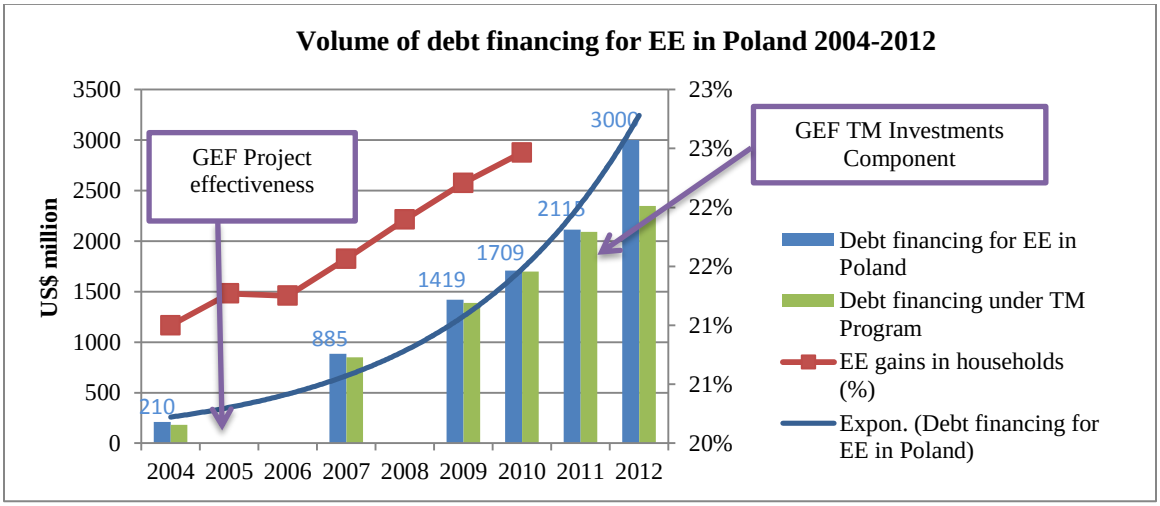
Outcome 1: Overcoming the risk barriers in the financial markets inhibiting commercial bank participation in EE project financing. The 14-fold increase in commercial lending for EE between 2004 and 2012 indicates that commercial bank participation in EE project financing has

[21] First and Second National Energy Efficiency Action Plans in 2007 and 2011 respectively.

[22] Ministry of Economy, Energy Policy of Poland until 2030, Warsaw, November 2009;

been successfully stimulated during Project implementation. Total EE lending in Poland exceeded the expected outcome target by more than US$ 900 million.

Figure 1: Volume of debt financing for EE in Poland 2004-2012[23]



Source: GEF M&E Report, June 2012; Odysee database;

The GEF Project directly leveraged US$ 43.8 million in debt financing[24] and about US$ 3.39 million co-financing from beneficiaries. Total EE investments supported under the GEF Project amounted to US$ 57.8 million. While these achievements are close to the expected output targets (see Annex 2), the overall increase in debt financing in Poland has not been achieved by overcoming the original risk barriers the GEF Project aimed to address through its guarantee instrument. The contribution of external factors was more relevant in incentivizing commercial bank participation, as demonstrated by: (i) changing market conditions in the housing sector which resulted in increased availability of financing and a general reduction of collateral requirements for building owners and cooperatives, as explained in Section 2.2; and (ii) the scaling-up and success of the TM Program, which was the key driver in increasing the volume of debt financing for EE in Poland, as illustrated in Graph 1 above.

After the Project was restructured in 2011 to take the changed market circumstances into account, the TM Investments Component aimed to gap fiscal constraints, which were expected to cause significant market insecurities for EE investments in the residential buildings sector (see further explanations in Section 2.1 and 2.2). Notably, the component helped to avoid delays in implementing 445 EE projects in the residential sector and leveraged US$ 43 million in debt financing. Reportedly, the GEF contribution helped to sustain a stable and predictable investment environment for residential housing owners and participating banks under the TM Program in 2011-2012. However, there is no breakdown of additional data available to demonstrate the exact impact of the contribution and the TM Investments Component did not stimulate a transition towards more market-based models for EE financing.

[23] Based on the final M&E Report; data for 2005, 2006 and 2008 were not available. The total volume of debt financing in 2012 is based on the last Implementation Status and Results Report.

[24] Excluding financing provided under the Krakow EE Project.

Outcome 2: Demonstrating the feasibility of packaged investments in higher-cost EE measures in buildings and increasing acceptance of energy performance contracting mechanisms in Poland. The total number of EE projects larger than US$ 250,000 in Poland increased from 151 Projects in 2004 to 1,830 Projects in 2012. The 12-fold increase indicates that the *feasibility of packaged investments in higher-cost EE measures* has been successfully demonstrated in the Polish market.

At the Project level, POE ESCO was successful in demonstrating the feasibility of packaged investments in the public buildings sector by: (i) implementing 32 Projects, which all involved 30-70 percent high cost measures with an average payback above 10 years; (ii) no significant delays in identifying and contracting bundled EE projects; and (iii) substantial equity contributions of US$ 3.39 million by buildings owners, which was 5-times higher than expected at appraisal. The 40 percent equity contribution of total investments demonstrates the demand for bundled EE projects. Under the TM Investments Component, an additional 26 Projects were supported with investment volumes exceeding US$ 250,000. However, given POE ESCO's limited geographical scope of operation and the lack of disaggregated data for Krakow, it is not possible to demonstrate a causal linkage between the GEF Project and regional or national outcome levels.

Increasing the acceptance of EPC mechanisms in Poland. At the national level, the number of in-country commercial businesses that provide EE services increased from 452 companies in 2004 to about 1,415 companies in 2012. The number of ESCOs remained relatively small and is estimated to 3-29 companies, depending on the source of information and definition of ESCOs. The total annual value of ESCO projects implemented throughout Poland is estimated at Euro 5-10 million. In the public sector, the annual volume of EPC projects is estimated to have decreased since the Project appraisal due to: (i) unfavorable legislative provisions with few public tenders for EPC (see further explanations in Section 2.2);[25] and (ii) the fact that, at the time of appraisal, most of the EPC projects in the public sector were concentrated on street lighting with shorter payback periods and simpler contracting and implementation arrangements compared to building retrofits. In conclusion, the acceptance of EPC mechanisms in Poland has remained below expectations compared to the potential market size and the development in other EU member states.

At the Project level, POE ESCO was successful in implementing 32 GEF supported EE projects based on simplified EPC models[26] using the 'deemed savings' approach, i.e. the contracts were based on pre-determined savings estimates. When measured, actual savings almost always exceeded estimates, which has helped to build confidence in EPC for beneficiaries. As a result, POE ESCO helped to increase awareness of EPC mechanisms by: (i) successfully implementing EPCs outside the street lighting segment as one of the very few companies;[27] and (ii)

[25] Institute of Environmental Economics, ESCO market in Poland, current state and development perspectives, Inception Report, March 2012; Bellona Europa, Recommendations on shaping ESCOs' development in Poland.

[26] Traditionally, ECPs are characterized by the following attributes: (i) design, engineering, construction, commissioning, performance measurement and verifications; (ii) arranging financing, often with a link between EPC compensation and performance; (iii) performance guarantees, based on the level of energy or energy cost savings for the entire project; and (iv) risk-taking of technical, financial, construction, and performance risks; World Bank, 2012.

[27] A report concluded in 2006 cited POE ESCO as one of the only two companies developing EPC projects in an active way (Market analysis of ESCO-type Services, Jaakko Pöyry Group, 2006).

demonstrating a simplified EPC model for public buildings, which helped to reduce transaction costs and was used as a basis for EE projects in *voidowship* beyond *Malapolskie* (the region around Krakow). However, overall POE ESCO's EPC business was dependent on the GEF grants as primary driver for sales and when the support ended, no new sources of concessional funding were ready to plug the gap.

Outcome 3: Stimulating the demand for EE services in the buildings sector and increasing awareness and capacity of commercial banks to originate and implement loan transactions for EE investments. The number of EE projects implemented in Poland has increased by more than 8 times from 3,195 projects in 2004 to 28,115 projects in 2011. Again, the TM Program was the main driver in stimulating the demand for EE services in the buildings sector.[28] The number of projects financed under the TM Program accounted between 84 percent (2011) and almost 100 percent (2009) of total transactions in the residential sector. The growth in the volume of debt financing for EE projects (figure 1 above) also indicates an increase in awareness and capacity of commercial banks to originate and implement loan transactions for EE investments.

The Project supported implementation of a total of 478 EE projects, including 32 projects based on EPC, provided capacity development and awareness raising to commercial banks and provided technical assistance in support of EE financing. Whereas the guarantee facility failed to stimulate demand for EE services, the substantial trainings provided to participating bank has increased their capacity and awareness in implementing loan transactions for EE and thereby has helped the market tap into a demand for EE services stimulated through the TM Program.

3.3 Efficiency

Rating: *Moderately Unsatisfactory*

At appraisal, an incremental cost analysis was carried out to assess the incremental costs per unit of energy saving and CO_2 abatement associated with the GEF project. At project completion, the same analysis was carried out based on the actual project costs and outcomes. Moreover, to better understand the economic and financial returns of the EE investments supported by the project, a benefit-cost analysis was carried out at project completion to assess the payback period and the economic internal rate of return (EIRR) of the EE investments. For the POE ESCO component financed by the Capital Grant Facility, the financial internal rate of return (FIRR) has also been estimated.

Over the eight year of implementation, the Project supported 478 EE projects valued at US$ 57.8 million. Annual energy savings generated amount to about 68.4 GWh year and CO_2 emissions were reduced by 26,226 t per year (see Annex 3).

The ***Incremental Cost Analysis*** indicates project-related costs of CO_2 abatement of US$ 27.96 per tCO_2 compared with an estimated US$ 8 per tCO_2 at appraisal (at zero percent discount rate). Based on a discount rate of 10 percent, the cost of CO_2 abatements increases to US$ 55.14 per tCO_2 compared with US$ 15.78 per tCO_2 based on appraisal-stage assumptions.

[28] In addition to involvement through one of the participating banks, applicants were also required to carry out an energy audit prior to submitting the application.

Leveraging and Replication. The GEF fund of US$ 11 million leveraged an additional US$ 46.8 million, translating to a leverage ratio of about 1-to-4.3, compared with an estimated 1-to-10.7 at appraisal. The difference is primarily due to the considerable scale-down of the guarantee facility (from US$ 5.7 million to US$ 50,000) and the redirection of the reserve funds to TM investments.

The ***Benefit-Cost Analysis*** indicates economic payback periods of 18.18 year at completion compared with 5.56 years estimated at appraisal due to the type of investments supported, which included a much higher proportion of window replacements and other high-pay-back measures than assumed at appraisal.[29] Accordingly, annual energy cost savings amounted to US$ 3.2 million compared with an estimated US$ 11.6 million per year at appraisal. EIRR were analyzed at the project and component level. Overall, the EIRR of the project is estimated at 0.2 percent. Further details of the analysis are provided in the table below and Annex 3.

Table 1: Results of the Benefit Cost Analysis

Component	***Economic Payback Period (years)***		***EIRR***		***FIRR***	
	Appraisal	Completion	Appraisal	Completion	Appraisal	Completion
Partial Risk Guarantee	5.19		22.6%			
TM Investments		18.22		0.2%		
POE ESCO	9.09	17.68	4.8%	0.6%		4.5%
Total	**5.56**	**18.18**	**20.7%**	**0.2%**		

On the balance the efficiency is rated *moderately unsatisfactory* due to the lower than targeted EIRR and pay-back periods. However, the lower investment *efficiency* is mostly due to a conscious choice of including higher pay-back time measures in the investment packages in order to achieve higher *effectiveness* in terms of savings achieved in each individual building. It is also worth noting that although falling short of the stated targets the results achieved by this project including the resulting abatement cost of $28 per tCO_2 are quite acceptable compared to other EE in buildings projects in Poland and the ECA region.

3.4 Justification of Overall Outcome Rating

Rating: *Moderately Unsatisfactory*

The Project objective and implementation remain relevant to the national and sector priorities in Poland. Based on above explanations, the Project was moderately unsatisfactory in achieving the GEO and expected outcomes. While all the outcome targets had been achieved, the measurable contribution of the GEF Project remained limited, and 5 out of 7 Project-specific outputs were below their original/ revised target values. The slow and limited progress in achieving the GEO is also mirrored in the moderately unsatisfactory rating of project performance between 2007 and 2011. Combined with the moderately unsatisfactory efficiency of the Project the Overall Outcome is therefore rated as *Moderately Unsatisfactory*.

[29] Even though this meant lower profitability it was more in line with the stated objective of supporting "higher-cost EE measures in buildings" and the pay-back times are in general acceptable for building components with technical lifetime extending far beyond the 15 years horizon used in the analysis.

3.5 Overarching Themes, Other Outcomes and Impacts

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

The energy cost reductions have a direct impact on the affordability of energy services for end-users, which were either public facilities or multi-family buildings. The support for EE retrofits in the 32 public buildings (mostly schools) also provided social benefits in addition to the energy-cost reduction benefits. These include improved working conditions due to comfortable indoor temperatures during the winter season (in some cases classroom temperatures before the retrofits were 16-17^{o} C during the coldest months), as well as more aesthetic buildings with improved functionality.

(b) Institutional Change/Strengthening

The Project strengthened POE ESCO's operation in the Krakow region, as the GEF grant helped the company to compete with subsidized EE programs in the public sector. However, POE ESCO has yet to develop sustainable non-grant funded methods of developing and financing turnkey energy retrofits in the long term. BGK has also gained important EE expertise, which can be utilized in any future expansion of the TM Program, e.g. regarding the possible use of EU Structural Funds to support EE retrofits in buildings.

(c) Other Unintended Outcomes and Impacts

Not applicable

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

Not applicable

4. Assessment of Risk to Development Outcome

Rating: *Moderate*

Sustainability of EE measures implemented. The energy savings from the EE measures in buildings financed by the project are expected to be sustained for the technical/economic lifetime of the retrofitted component (more than 15 years). The measurement and verification activities conducted by POE ESCO upon implementation of the EE measures demonstrated that actual savings were achieved and exceeded deemed savings.

Continuation of the TM Program. The TM Act (adopted in November 2008) does not provide for a specific timeline for the TM Program. However, given the national energy savings target of 9 percent by 2016, including a substantial contribution expected from the TM Program and taking into account the reinforced requirements for EE in the buildings sector, the TM Program is expected to continue at least until 2016.

Continuation of POE ESCO MPEC is committed to continue operating POE ESCO as a subsidiary. Recently, ESCO-type pilot programs in public buildings and EE project based on Public-Private Partnerships, which are repaid from energy savings, slowly started increasing in several municipalities (e.g. in Radzionkow, Czestochowa and Bytom). While these developments along with the provisions of the new EU Directive (see Section 2.5) create new opportunities for

POE ESCO, the company has yet to demonstrate a sustainable business model for EE services without GEF grant incentives. Alternatively, if concessional/grant funding for ESCOs and/or EPC-models become available from EU Structural Funds, as expected by POE ESCO and other EE experts, this would significantly increase the EPC business in Poland.

5. Assessment of Bank and Borrower Performance

5.1 Bank

(a) Bank Performance in Ensuring Quality at Entry

Rating: *Moderately Satisfactory*

The Bank's performance in the identification, preparation, and appraisal of the Project was moderately satisfactory. During preparation, the Bank took into account the adequacy of Project design and all major relevant aspects, such as technical, financial, economic, institutional and fiduciary arrangements. The Project was highly innovative in its design and was among the first World Bank projects piloting guarantee instruments and EPCs mechanisms to improve EE in the buildings sector. The design of these cutting edge instruments were backed up with thorough preparatory work and incorporated lessons learned from other projects. In addition, a number of alternatives were considered during preparation. However, given the novelty of the EE guarantee instrument as well as the time gap between start of preparatory work and Project appraisal (see Section 2.1), the risk assessment and quality at entry would have benefitted from: (i) updated market surveys reconfirming interest for guarantee instruments; and (ii) a ready pipeline of updated and bankable EE projects. In addition, the PAD and the supplemental letter presented a monitoring and evaluation framework that contained many inconsistencies. The Task Team could have done a better job in identifying fewer, more meaningful and consistent performance indicators.

(b) Quality of Supervision

Rating: *Moderately Unsatisfactory*

The Bank's performance during the implementation of the Project was moderately unsatisfactory. The Task Team conducted regular implementation support missions, including thorough supervision of fiduciary and safeguard aspects. Implementation Status and Results Reports (ISR) highlighted key issues arising during implementation, and realistically rated the performance of the project both in terms of achievement of development objectives and project implementation. Remedial actions were identified and included in the Aide-Memoires and/or annual ISRs. The Bank Team had a flexible approach and applied innovative and creative thinking to tackle the implementation constraints.

However, the supervision team mostly consisted of two experts to cover both the broad energy sector issues as well as specific EE, financial and institutional issues, which may raise the question if the team was equipped with sufficient resources to react quickly and effectively to the challenges experienced during Project implementation. In retrospect, the Bank team should have responded earlier to the failure of the Guarantee Component and the need to adapt to the changes in the EE market that became apparent during the first two years of implementation. The PGF was rated moderately unsatisfactory one year after the Project became effective and was

subsequently downgraded to unsatisfactory during the following 3.5 years until restructuring in 2011. There was also a certain equivocation as to whether to continue or close the project before the restructuring finally took place. While the Bank eventually concluded that the Project's value for the preparation of the US$ 1.1 billion DPL on EE outweighed its poor performance, these deliberations further delayed responsiveness of the Bank. In addition, some of the key remedial actions identified in ISRs (e.g. revolving audit fund, intermediate facilitator platform on performance basis) ended up being implemented with significant delays or not at all - without this being properly explained in Project Aide-Memoires and ISRs. The Project would have also benefited from updating and ensuring consistency of the M&E framework at Mid-term review and/or restructuring to address the data availability gaps and inconsistencies.

(c) Justification of Rating for Overall Bank Performance

Rating: *Moderately Unsatisfactory*

The design was innovative but the choice of a guarantee instruments should have been better vetted with participating banks and an updated project pipeline should have been established. During implementation, the Bank repeatedly showed flexibility and willingness to make adjustments (and restructure) either based on evidence on the ground, or in response to the client's requests and the broader energy sector dialogue. However, the lack of progress towards the achievement of the GEO was ultimately only addressed six years after the Project became effective. On balance, overall Bank performance is considered moderately unsatisfactory.

5.2 Recipient

(a) Government Performance

Rating: *Moderately Satisfactory*

Overall, the Government confirmed its commitment to EE in buildings by sustaining the TM Program and by continuing the gradual increase of energy tariffs, which enhanced the commercial viability of EE projects. During implementation, the Government also helped to foster progress towards the GEO by: (i) strengthening the legal and regulatory environment for EE in buildings in accordance with the relevant EU Directives; and (ii) adopting a number of key strategies and policies on EE, including the national EE Action Plans in 2007 and 2011 as well as the 'Energy Policy of Poland until 2030', which recognized EE as a key priority in the energy sector. However, the Project would have benefitted from a more specific and consistent policy support at Government level for promoting ESCO business models, stronger leadership for EE in the public sector and the timely adoption of the EE Law to build a comprehensive legal and regulatory framework for EE.

(b) Implementing Agency or Agencies Performance

Rating: *Moderately Satisfactory*

The performance of the implementing agency, BGK, followed a learning curve during Project implementation. During the first years of implementation, BGK faced significant challenges due to the lack of experience with implementing World Bank Projects, organizational and managerial changes, and the lack of progress under the guarantee component. BGK concentrated on the administration and negotiation of GFAs, but it did not show active leadership in addressing the low deal flow generation under the guarantee component by making use of the significant TA

resources, and implementing remedial actions. Specifically, the mid-term review in 2007 concluded that interactions and targeted support to commercial banks for deal origination were limited and not sufficient to address poor performance of the guarantee component. Performance of BGK started to improve considerably after 2010. After some initial difficulties explained in Section 2.3, compliance with Bank safeguard and fiduciary requirements also increased during project implementation.

POE ESCO, responsible for implementing the Capital Grant Facility, operated in a difficult environment for ESCOs as evidenced by the decreasing number of active ESCOs during the first years of implementation and the limited increase of number of ESCOs and turnovers thereafter. Despite a non-conducive policy framework, POE ESCO and its owner, MPEC, showed tenacity and commitment to demonstrating the potential for EPC concepts in Poland. However, POE ESCO was operating on a relatively narrow market segment with strong dependency on a single client (Krakow City Government) and GEF grant contributions. It did not manage to produce a fully sustainable ESCO with a strong business plan, independent from GEF grant support.

(c) Justification of Rating for Overall Borrower Performance

Rating: *Moderately Satisfactory*

Based on the explanations above, the rating for overall recipient performance is moderately satisfactory.

6. Lessons Learned

Innovative instruments should be kept simple with low transaction costs. In a market environment that is not familiar with innovative instruments, such as ESCOs and EPCs, it is can be easier to start with simple ESCO-type models to get initial market traction. POE ESCO offered simple contracts, including guaranteed 'deemed savings' to public building institutions, which helped to reduce transaction costs and started building awareness among targeted public institutions.

ESCOs need financial safety net in start-up phase. A financial safety net provided by a parent utility can substantially facilitate access to commercial financing by a start-up ESCO and mitigate risk aversion of new clients. For instance, guarantees provided using the balance sheet of its owner, MPEC, were key for POE ESCO in accessing financing from commercial banks.

Strong project pipeline is essential. When introducing new market-based instruments, such as guarantees, it is critical to have a strong, readily available pipeline of bankable EE projects in order to reconfirm existing market demand for the product, allow a quick start and early dissemination of success stories and address capacity constraints from financial intermediaries early on and in a targeted manner.

Active government and state institution role needed for an enabling ESCO environment. The state institutions have a leadership role to play in order to tap the benefits ESCOs can offer, including project aggregations, reduction of transaction costs, turnkey services and off-budget project financing; firstly, at the state level, a conducive policy and regulatory framework is key to stimulating a competitive market of energy service providers and to encouraging public bids based on ESCO-type contracts; secondly, at municipal level, bundling different EE sub-projects

and allowing for simple energy savings performance elements can be a key element to foster EPC implementation at a certain scale compared to dispersed and/or single EPC type projects. The bundled implementation of the Krakow school program was one of the first larger EPC-models implemented in the public buildings sector in Poland.

Guarantee instruments often not critical for EE lending to happen. The performance of a guarantee mechanism is strongly dependent on prevailing conditions in the credit market. While the guarantee instrument aims to enhance lending to underserved market segments due to high risk perceptions, lack of creditworthiness remains a key constraint to open access to a new client base. The failed attempts to refocus the PCG into higher risk segments demonstrated that commercial banks often require similar collaterals for guarantees as for loans, *inter alia* due to the high transactions costs involved in calling guarantees and recovery at default. Thus, while guarantees may be used as an additional safety layer for already creditworthy clients, they are not perceived as a critical mean to tap into a new client base where commercial banks had previous concerns related to collaterals.

7. Comments on Issues Raised by Borrower/Implementing Agencies/Partners

(a) Borrower/implementing agencies

The Bank largely concurs with issues raised by MOE, BGK and other ministries in their evaluation, which is presented unedited in Annex 7. BGK highlights as one of the reasons for low demand for guarantees the lack of an external agent system for project development as well as the need to include performance based elements for participating banks. Such elements were proposed and discussed with BGK during implementation but by that time it had already become clear that even such enhancements would have a limited effect on the demand for guarantees and the guarantee component was dropped rather than further enhanced. The Bank also notes some minor inconsistencies in numbers used in the implementing agencies' assessment compared to M&E reports provided.

(b) Cofinanciers

Not applicable

(c) Other partners and stakeholders

Not applicable

Annex 1. Project Costs and Financing

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

Components	Appraisal Estimate (USD millions)	Actual/Latest Estimate (USD millions)	Percentage of Appraisal
Partial Risk Guarantee	5,700,000	50,000	1%
TM Investments	-	6,650,000	-
Capital Grant Facility	2,000,000	2,050,000	103%
Technical Assistance	3,300,000	2,250,000	68%
Total	**11,000,000**	**11,000,000**	100%

(b) Financing

Source of Funds	Appraisal Estimate (USD millions)	Actual/Latest Estimate (USD millions)	Percentage of Appraisal
Global Environment Facility (GEF)	11.00	11.00	100%
Financial intermediaries and private investors	53.50[30]	46.80	87%
Total	**64.5**	**57.8**	**90%**

[30] This number used in the data sheet of the PAD and the financial analysis section was found to be inconsistent with target values defined in the main text of the PAD and the results framework.

Annex 2. Outputs by Component

Outputs	Original Target Value 10/31/2012	Actual	Achieve-ment in %	Comment
Partial Guarantee Facility				The facility was restructured in 2011 and uncommitted funds (US$ 5.65 million) were reallocated
Number of guarantees	390	1	0.3%	The guarantee issued by the facility will expire on 28 February 2018
Number of GFA signed	4	3	75%	BGK had signed 3 GFAs with local commercial banks
Loan volume supported by guarantees (US$)	39,000,000	180,000	0.5%	The guarantee facility supported one loan transaction
Total investments supported by guarantees (US$)	48,800,000	180,000	0.4%	The guarantee facility supported one loan transaction without co-financing
Cumulative thermal energy savings (GJ/year)*	927,172	n/a	< 1%	Energy savings from the one investment supported by the guarantee facility were not measured
Cumulative electrical energy savings* (MWh/year)	50,000	n/a	< 1%	Energy savings from the one investment supported by the guarantee facility were not measured
Cumulative emission reductions (tCO_2)	110,183	n/a	< 1%	Emission reductions resulting from the one investment supported by the guarantee were not measured
TM Investments Component				The Component was created in 2011 following the restructuring
Number of EE projects supported	n/a	445	n/a	At restructuring, no target value for the number of projects was defined
Total investments leveraged by Component (US$ million)	58.5	49	84%	At restructuring, an average subsidy of 10% of the total investment per loan was assumed, while the actual average subsidy was higher (13-20%)
Total loans supported by the Component (US$ million)	n/a	43	n/a	The Component leveraged US$ 43 million loans to residential clients
Cumulative energy savings (GWh/year)*	68	58	85%	Energy savings were smaller than expected due to lower investments compared to the target value
Cumulative emission	26	22	85%	Emission reductions were smaller than expected due to the lower value

Outputs	Original Target Value 10/31/2012	Actual	Achieve-ment in %	Comment
reductions (1000 tCO_2/year)*				for energy savings compared to the target value
Capital Grant Facility				The Component was implemented by POE ESCO and fully disbursed by end 2008
Number of EE projects implemented	n/a	32	n/a	POE ESCO implemented 32 EE Projects, including schools, public hospitals, and municipal buildings
Number of EPC implemented	n/a	32	n/a	All projects implemented included a simplified form of EPC with deemed savings
Total investments leveraged	6.67	8.67	130%	POE ESCO provided a 30% grant for implementation of high-cost measures; all projects were < US$ 250,000
Total co-financing by buildings owners	0.67	3.39	506%	The original target was exceeded by more than 5 times
Cumulative energy savings (GWh/year)*	42	10.6	25%	Energy savings were lower than expected at appraisal due to the increase in investment costs, US$ depreciation and higher average payback times; the target value was revised at restructuring to 13.8 GWh/year
Cumulative emission reductions (1000 tCO_2/year)	11.6	3.95	34%	Emission reductions were smaller than expected due to smaller energy savings

Technical Assistance	
Output	**Number**
Energy Audits and Weatherization	6
Marketing Programs	5
Trainings	11
Monitoring and evaluation reports	3
National level EE Studies (Macroeconomic Assessment and Fiscal Implication of EE Policies for Poland; Home Area Networks within Smart Grids)	2
Support BGK (Specialists, advisors, financial audits, management fee and office equipment)	n/a

* Calculated on a cumulative basis per year during Project implementation period (i.e. not including savings over the lifetime of the measures)

Annex 3. Economic and Financial Analysis

At appraisal, an incremental cost analysis was carried out to assess the incremental costs per unit of energy saving and CO_2 abatement associated with the GEF project. At project completion, the same analysis was carried out based on the actual project costs and outcomes. Moreover, to better understand the economic and financial returns of the EE investments supported by the project, a benefit-cost analysis was carried out at project completion to assess the payback period and the economic internal rate of return (EIRR) of the EE investments. For the POE ESCO component financed by the Capital Grant Facility, the financial internal rate of return (FIRR) has also been estimated.

Summary of Key Assumptions and Changes

GEF incremental costs and allocation. While the overall GEF contribution remained unchanged at US$ 11 million, its allocation across various project components has changed substantially due to project restructuring: (i) the guarantee facility was scaled down considerably from US$5.7 million to US$0.05 million; (ii) the technical assistance component was also scaled down from US$3.3 million to US$ 2.25 million; (iii) the POE ESCO component financed by the Capital Grant Facility remained at the planned scale; and (iv) the remaining GEF fund of US$6.65 million was redirected to TM investments. Table A3-1 provides a detailed breakdown of the GEF fund allocation at project appraisal and completion:

Table A3-1 Incremental cost of the GEF Activities (US$)

Component	*Appraisal*	*Completion*
Partial Risk Guarantee	5,700,000	50,000
TM Investments	-	6,650,000
Capital Grant Facility	2,000,000	2,050,000
Technical Assistance	3,300,000	2,250,000
Total	**11,000,000**	**11,000,000**

Investment Levels

A baseline investment was estimated for building EE in Poland at appraisal. At project completion, the baseline was not reassessed because the analysis focused primarily on assessing the incremental impacts of the GEF project.

Incremental investments. At completion, a total of US$57.8 million[31] had been invested in building EE as a result of the GEF project, compared with an estimated US$55.5 million at appraisal.[32] Of the total investments, approximately US$49 million was on TM investments, and the remaining US$8.67 million by POE ESCO.

[31] Difference to table A3-2 is explained by rounding of numbers.

[32] US$ 53.5 million were assumed to be catalyzed if the US$ 2 million grant funds for POE ESCO are deducted (Annex 9 of the PAD refers therefore to US$ 53.5 million).

Table A3-2 Total investments (US$ million) leveraged

	Appraisal	*Completion*
Partial Risk Guarantee	51.2[33]	0.18
TM Investments	-	49.00
Capital Grant Facility – POE ESCO	6.7	8.67
Total	**55.50**	**57.85**

Energy Savings and CO_2 Abatement

TM Investment Component. The BGK database on the TM Program does not record energy savings and emissions reductions achieved. The M&E Consultant hired for the GEF Project used 150 sample audits in order to estimate the total energy savings and emission reductions from EE investments supported by the GEF TM Investments Component. The following key parameters were used for the estimates:

- Based on the investments costs, the final energy savings were estimated using average investment cost per MWh energy savings per year (PLN 2,554/MWh per year);
- Emission reductions were calculated based on the energy audits and using specific calorific values and corresponding CO_2 emission factors for different fuels/ energy sources; the values used[34] were very similar to the key data values used at appraisal; final emission reductions were estimated based on the average investment cost per $MgCO_2$ per year (PLN 6,637/ $MgCO_2$ per year);

POE ESCOs calculated 'deemed' energy savings before project implementation, verified actual savings on an annual basis, and adjusted them for the heating degree days. The data used for this analysis are based on POE ESCO's reports and include the following key parameters:

- Energy savings were calculated based on the values for 2011,[35] adjusted for the heating degree days;
- Emission reductions were calculated based on the key data values used at appraisal for heat-only-boilers in the Krakow region based on end-use consumption (tCO_2/GJ) at 0.104.

Table A3-3 provides a detailed summary of the estimated annual energy savings and CO_2 abatement estimated at appraisal and completion.

[33] Including US$48.8 million in project direct costs and US$2.4 million in estimated guarantee loss claims.

[34] CO2 emission factors used were: power plants and CHP plants based on hard coal – 94.58 kg/GJ; heat plants based on hard coal – 94.82 kg/GJ; local boilers based on hard coal – 92.71; lignite – 107.54 kg/GJ;

[35] The energy savings achieved in 2011 are very close to the average annual savings for the implementation period of the projects (2006-2011), adjusted for the initial time to full implementation of individual EE measures; therefore, 2011 data were used as a proxy; estimated energy savings only included thermal and electricity saving projects, with thermal savings accounting for almost 100 percent; as a result, one project implemented by POE ESCO resulting in 126,957 m3 gas savings in 2008-2011 was not included in the analysis.

Table A3-3: Annual energy savings (GWh/year) and CO_2 abatement (tCO_2/year)

Component	*Thermal Savings*[36] *(GWh/year)*		*CO_2 emission reductions (tCO_2/year)*	
	Appraisal	Completion	Appraisal	Completion
Partial Risk Guarantee	257.4		83,627	
TM Investments	-	57.9		22,275
POE ESCO	35.2	10.6	8,000	3,951
Total	**292.6**	**68.4**	**91,627**	**26,226**

Unit cost of heat energy. At project completion, the economic cost of thermal energy supply was estimated at around 4.65 US cents per kWh at the end user level, compared with an estimated 3.97[37] US cents at appraisal. An annual increase of 2 percent in the cost of thermal energy supply in real terms is assumed to reflect the upward pressure on the cost of coal-based energy production in Poland due to EU policies. In 2012, the weighted average thermal tariff was at around 6.05 US cents per kWh. Thermal tariff is assumed to remain flat in real terms over the life of the project.

Global environmental benefit of GHG emissions reduction is taken into account in the economic analysis at a conservative value of US$10 per ton of CO_2.

A project life-cycle of 15 years was assumed for the outputs at completion without differentiation between electric and thermal savings, as around 99 percent of the total savings were thermal energy savings. At appraisal, the project life-cycles for thermal and electric savings were differentiated and assumed at 15 and 8 years respectively. .

Economic opportunity cost of capital (EOCK). The benefit-cost analysis carried out at project completion assumed an EOCK of 10 percent.

Economic discount rate of energy savings and CO_2 abatements. The incremental cost analysis at appraisal used a simple summation the annual energy savings and CO_2 abatements over the time life of the project as the proxies for the lifetime impact of the project. This approach results in overestimations of the lifetime energy savings and CO_2 abatements, and consequently, underestimations of the incremental costs. A modified and improved approach applies a discount rate to the future energy savings and CO_2 abatements. For the discounted approach, a discount rate of 10 percent was assumed for energy savings and CO_2 abatements.

Results of the Incremental Cost Analysis

To allow comparability of the analytical results at appraisal and completion, incremental costs were estimated based on both the non-discounted and discounted estimates of the lifetime CO_2 abatement values.

- *Based on the simple summation (discount rate = 0%),* the incremental global benefits attributed to the Project are 393,397 tons of avoided CO_2 emissions compared with 1,374,411 tons estimated at appraisal. The total cost of the GEF Project was

[36] Estimates of energy savings at appraisal included both thermal and electricity savings. At project completion, only thermal savings was measured because electricity savings turned out to be negligible. To ensure the comparability of the results, only thermal savings were considered in the analysis.

[37] Calculated based on the information provided in the PAD.

US$ 11,000,000. Therefore, the GEF project-related cost of CO_2 abatement is about US$ 27.96 per tCO_2 compared with an estimated US$ 8.00 per tCO_2 at appraisal.

- *Based on the discount method and a discount rate of 10 percent*, the incremental global benefits attributed to the Project are 199,481 tons of avoided CO_2 emissions compared with 696,925 tons based on appraisal-stage assumptions. The total cost of the GEF Project remained at US$ 11,000,000. The GEF project-related cost of CO_2 abatement is about US$ 55.14 per tCO_2 compared with US$ 15.78 per tCO_2 based on appraisal-stage assumptions.

Table A3-4 provides a summary of the estimated incremental costs under both approaches.

Table A3-4: Incremental costs (US$ per tCO_2)

Component	*Discount rate = 0%*		*Discount rate = 10%*	
	Appraisal	Completion	Appraisal	Completion
Total	**8.00**	**27.96**	**15.78**	**55.14**

Leveraging and Replication

The GEF fund of US$11 million is leveraging an additional US$46.8 million, translating to a leverage ratio of about 1-to-4.3, compared with an estimated 1-to-10.7 at appraisal. The difference is primarily due to the considerable scale-down of the guarantee facility and the redirection of the reserve fund to TM investments.

Results of the Benefit Cost Analysis (BCA)

A BCA was carried out at project completion to assess the overall impact of the EE investments associated with GEF Project.

- *Economic payback periods* were calculated using the upfront investment costs divided by the economic value of the annual energy savings. At the project level, the payback period was estimated at 18.18 years at completion compared with 5.56 years based on appraisal-stage assumptions. The difference is primarily due to the type of investments supported, which included a much higher proportion of high pay-back measures (such as replacing windows) and fewer low pay-back measures (such as boiler replacements and fuel switch) than assumed at appraisal. This has resulted in considerably lower energy savings realized at project completion, at about US$3.2 million per year compared with an estimated US$11.6 million per year at appraisal.

  EIRRs were estimated at the project and component levels. Based on appraisal-stage assumptions, the project associated EE investments would yield an EIRR of 20.7 percent. The investments associated with the guarantee facilities would yield an average EIRR of 22.6 percent while POE ESCO investments would yield an average EIRR of 4.8 percent. At project completion, the EIRR of the project was estimated at around a 0.2 percent with the TM investment and POE ESCO components yield a 0.2 percent and 0.6 percent, respectively.

- *FIRR.* Based on the average tariff of heat energy paid by the ESCOs in 2012, and assuming that the tariff will grow at the rate of inflation (3.2 per cent in 2012), the EE investments by POE ESCOs are expected to yield an average FIRR of 4.5 percent over the lifetime of the project.

Table A3-5: Results of the BCA

Component	*Economic Payback Period (years)*		*EIRR(including global environmental benefit)*		*FIRR*	
	Appraisal	Completion	Appraisal	Completion	Appraisal	Completion
Partial Risk Guarantee	5.19		22.6%			
TM Investments		18.22		0.2%		
POE ESCO	9.09	17.68	4.8%	0.6%		4.5%
Total	**5.56**	**18.18**	**20.7%**	**0.2%**		

Annex 4. Bank Lending and Implementation Support/Supervision Processes

(a) Task Team members

Names	Title	Unit	Responsibility/ Specialty
Lending			
Rachid Benmessaoud	Country Director	SACPK	Task Team Leader
Peter Johansen	Senior Energy Specialist	EASWE	Task Team Leader
Iwona Warzecha	Sr Financial Management Specialist	ECSO3	Financial Management
Elzbieta Sieminska	Lead Procurement Specialist	AFTPE	Procurement
Frederic Renner	Consultant		Guarantee Facility
Supervision/ICR			
Peter Johansen	Senior Energy Specialist	EASWE	Task Team Leader
Angelica A. Fernandes	Consultant		Procurement Specialist
Sophie Marie-Odile Jablonski	Junior Professional Associate	MNSIF - HIS	Capacity Building
Ryszard Malarski	Consultant		Energy Expert
Roman Palac	Operations Analyst	SEGOM	TTL support
Claudia Ines Vasquez Suarez	Young Professional	YPP	Economist
Xiaoping Wang	Senior Energy Specialist	SEGES	Monitoring and Evaluation
Iwona Warzecha	Sr Financial Management Specialist	ECSO3	Financial Management

(b) Staff Time and Cost

Stage of Project Cycle	Staff Time and Cost (Bank Budget Only)	
	No. of staff weeks	USD Thousands (including travel and consultant costs)
Lending		
FY00	4.20	92.28
FY01	7.68	29.94
FY02	11.42	34.65
FY03	11.18	71.14
FY04	6.69	45.34

Supervision/ICR		
FY05	12.38	62.12
FY06	21.97	69.20
FY07	12.57	41.15
FY08	10.58	74.35
FY09	7.99	62.24
FY10	10.90	81.24
FY11	10.95	62.61
FY12	12.58	90.63
FY13	2.58	22.44
Total	143.67	611.32

Annex 5. Beneficiary Survey Results

Not applicable

Annex 6. Stakeholder Workshop Report and Results

Not applicable

Annex 7. Summary of Borrower's ICR and/or Comments on Draft ICR

BGK input to the Implementation Completion Report

In 2004 Poland received a grant from the Global Environment Facility of USD 11 m. for an Energy Efficiency Project. The GEF Energy Efficiency Project in Poland had the objective to increase public and private sector investments in energy efficiency in buildings in the territory of Poland. Bank Gospodarstwa Krajowego (BGK) managed the project on a mandate from the Grant recipient the Ministry of Economy (MoE).

A major part of the Project resources was designated to provide partial guarantees for the loans awarded for energy efficiency investments implementation. Due to the low demand for partial guarantees from the energy efficiency market, the World Bank (WB) in agreement with the MoE, decided to restructure the Project.

As a result of two restructurings carried out in 2011 and 2012, Project resources uncommitted under the Partial Credit Guarantee Facility have been reallocated to the new Thermo-Modernization Grant Facility (TM Grant Facility, TM Grants) to be used for purposes of the provision of the Thermo-Modernization and Refurbishment Fund (TM Fund).

The Project was closed on 31st October 2012 and the descriptive evaluation of its results is presented below.

Partial Credit Guarantee Facility

The Partial Credit Guarantee Facility was established with GEF funds as a risk-sharing mechanism providing commercial banks partial coverage of risk exposure against loans made for energy efficiency projects for buildings throughout Poland. It was chosen as an appropriate mechanism to overcome financial barriers in the Polish market for energy efficiency in buildings such as the reluctance of commercial banks to provide long-term financing, lack of adequate security among borrowers and perception of high risk by lenders. The amount allocated originally under the Partial Credit Guarantee Facility to bring more commercial financing into the market was USD 5.7 m.

The Guarantee Facility was anticipated to leverage USD 39 m. in total investment by commercial banks participating in the program, for approximately 390 projects ranging in size from USD 0.025 m. to USD 0.5 m. In practice, only one partial guarantee in the amount of ca. USD 0.06 m. was granted under the Project, supporting the investment financed with the loan of ca. USD 0.18 m.

Under this component of the Project, BGK concluded three Guarantee Framework Agreements with three Participating Banks. These agreements – due to low demand from participating banks – were all terminated by November 2009.

As a result of the Project restructuring carried out in 2011, the funds available under this component of the Project were reduced to USD 0.05 m. to secure BGK's liability established in

connection with the one guarantee that has been awarded under the Project. The only awarded partial guarantee will expire on 28 February 2018.

As the amount remaining at the Guarantee Account for the date of the Project closing was significantly exceeding (interest accrued on the Partial Guarantee Account) the amount allocated under this component, the surplus in the amount of ca. PLN 2.4 m. was transferred to the MoE to cover the costs of educational campaign on rational use of energy and public sector exemplary role in the area of energy efficiency according to the Directive 2012/27/EU on energy efficiency.

The probable reasons for the low utilization of the Partial Guarantee Facility can be ascribed to the:

1) late product introduction in relation to changing market conditions – the agreements with participating banks were signed in the years 2005-2008, whereas already in 2007, the National Loan Guarantee Fund (*Krajowy Fundusz Poręczeń Kredytowych* - KFPK) was widely available in Poland covering the need for guarantees to the blockhouse market (at that time twenty seven banks cooperated with KFPK on the basis of the framework agreements signed).
2) low competitiveness in comparison to the similar products then functioning on the Polish market. One of the strongest competitors was established as a governmental fund by the act on loan guarantees. The KFPK's offer attractiveness resulted from: less reporting requirements, lower price, higher amount of collateral, applicability to all types of projects (offer applicable for all market segments), no access limitations for specific types of beneficiaries. One of the biggest competitors was also the European Union Guarantee Fund located in BGK, providing warranties and guarantees to entrepreneurs implementing in the territory of Poland projects co-financed from the EU funds.
3) changes in the market conditions since the Project origination. The increasing competitiveness in the banking sector led to the increase in availability of energy efficiency financing and to the provision of loans without collaterals or with simplified securities. Therefore, the increasing competitiveness of the KFPK was achieved by on-going amendments of the procedures to changing market requirements – there were many changes as a reaction to market demands.
4) restrictive procedures (i.e. reporting requirements), lack of qualified personnel in cooperating banks, necessity of implementation of special motivation system for the banks staff and for external agents, for example for energy auditors. The scale of the project comparing to requirements necessary to be fulfilled was too small for the participating banks (low expected profit comparing to expensive implementation of complicated procedures).

Capital Grant Facility

The Capital Grant Facility was intended to demonstrate the commercial viability and increase the acceptance of bundling high-cost measures with lower cost measures. The Capital Grant was also supposed to help POE ESCO to demonstrate the performance contracting model for buildings in

the Krakow region, thus increasing acceptance of this financial model, which is little known and used in Poland.

It was established to support investments of USD 6.67 m. in bundled EE projects in the Krakow region consisting of between 30% and 75 % investment in high cost measures (with paybacks in excess of 10 years). The Capital Grant Facility provided partial grants equivalent to 30 percent of total project cost to POE ESCO. The flat cost-sharing structure required that higher-payback projects (over 10 years) include some portion of end-user co-financing in order to make the project economically attractive for ESCO and lenders. Local Banks and POE ESCO contributed ca. USD 4 m. of this investment, and client co-financing is expected to equal USD 67 m. of total project cost of the packaged investment.

POE ESCO was originally allocated with the Capital Grant Facility in the amount of USD 2.0 m. to cover the costs of implementation of the energy efficiency investments. However, due to the fact that the expenses incurred by POE ESCO in PLN amounted to USD equivalent of USD 2,047,139.10, as a result of the restructuring carried out in 2011, the amount allocated under the Capital Grant Facility was increased to USD 2.1 m. This allocation was reduced to USD 2.05 m. as a result of the second Project restructuring executed in 2012.

In reality, the total value of the ESCO Project (PLN 25,495,585.50) exceeded the planned volume of investment support. The Grant in the amount of USD 2.05 m. supported investments implemented in public schools, public health care units and other public and municipal buildings.

Evaluation of Project implementation aspects prepared by POE ESCO

(i) Assessment of the operation's objective, design, implementation, and operational experience; Assessment of the outcome of the operation against the agreed objectives

The objectives were to be achieved by:

1. Removal of the risk barriers on financial markets discouraging commercial banks to participate in the financing of energy efficiency projects.

   It is difficult to assess whether we managed to remove the risk barriers in financial markets discouraging banks to finance energy efficiency projects. The fact is that after utilization of the WB grant, the POE ESCO is successfully implementing energy efficiency projects both for the customers from public and private sector co-financed with multi-purpose credit lines from commercial banks (Deutsche Bank and Nordea Bank Poland SA). The DB PBC credit line volume is PLN 6.5 m., of which up to 90% may be used as a long-term financing (up to 6-7 years). The involvement of the DB PBC bank in the financing of the projects will exceed the amount of PLN 4 m. by the end of the year 2012. A condition of this funding is, however, a provision of a guarantee given by the *Miejske Przedsiębiorstwo Energetyki Cieplnej* (Urban Entity of Thermal Power S.A. – MPEC) - the owner of the POE ESCO.

   In the case of Nordea Bank credit line, the exposure is lower. Currently, the contract with guarantee provided by MPEC for multitasking line with a value of PLN 0.4 m.

is being prepared for signature. Last year Nordea granted the loan of PLN 0.6 m. with no guarantee from MPEC.

2. Demonstration of the feasibility of bundled investments in more expensive energy-saving measures in buildings, as well as increase in acceptance of service contracting mechanisms to ensure the increase of the energy efficiency of buildings and facilities.

   The project was a success not yet repeated on such a scale. The POE ESCO's experience in the implementation of the project was used by followers. The project implemented in Public-Private Partnership formula in Radzionków (Silesian voiwodship) on five educational buildings drew from the experience of the GEF Project within the scope of methodology of settlement of energy savings, beneficiaries motivating and funding. Several other cities are implementing the pilot projects (from over a dozen buildings in Częstochowa, Silesian voiwodship) or very large projects (couple tens of buildings in Bytom, the Lower Silesia voiwodship) financed from savings (unfortunately limited to the active management of energy by low cost resources - advanced automation and monitoring). A very large project of energy efficiency improvement using EPC is being prepared also in Wrocław, the Lower Silesia voiwodship.

   By the year 2010, several dozens of procurement proceedings were conducted for street lighting improvements financed by contractors and repaid from savings (the POE ESCO was selected as a contractor and completed 3 of the assignments). Among the procurements there were the proceedings using elements of contractors off-balance sheet financing through the use of factoring.

3. Stimulation of the demand for services in energy savings in the building sector, as well as increase of awareness and opportunities for commercial banks to initiate and provide loans for the financing of energy efficient investments.

   Until recently, commercial banks approached with caution to financing companies using the ESCO formula. To date, there are problems with factoring of long-term receivables. Similar situation occurs with insuring receivables with maturity date longer than 12 months.

   The good practices and results of the Project implementation, however, allowed the POE ESCO to involve the EBRD, the KAPE (Polish National Energy Conservation Agency), the NFOŚiGW (National Fund for Environmental Protection and Water Management) and the MoE into the issues of program activity. Therefore, it is expected that interesting programs supporting ESCO formula development should be implemented shortly.

(ii) Evaluation of the POE ESCO's own performance during the preparation and implementation of the operation, with special emphasis on lessons learned that may be helpful in the future

The construction works under the project were completed on all 32 sites. The experiences in drafting the EPC contracts was also used in other projects. The important positive element of the program were clear rules on the eligibility of objects to be supported with grant resources and smooth cooperation with BGK in this area.

Among the negative experiences, which could be improved the following has to be pointed out:

- Grant allocation in a currency other than the currency of contracts complicating settlement and generating currency exchange differences.
- Within the EPC contracts, the ESCO customer should always have big part in the so-called extra-savings (exceeding the guaranteed savings). It has been observed that customers who have to transfer all extra-savings to the contractor are less motivated to save from those with whom the contractor has to share.
- Technological part should allow ESCO on-line monitoring of energy use (annual reporting makes possible loss report coming too late to react). During the implementation of the programme technologies enabling such management were expensive, while today it is no longer the case.

(iii) Evaluation of the performance of the MoE, WB and BGK during the preparation and implementation of the programme, including the effectiveness of their relationships, with special emphasis on lessons learned

The POE ESCO had limited contact with the MoE, so it is difficult to issue an assessment of this institution. Undoubtedly, there have been delays in payment to the POE ESCO contractors and this was the area for improvement. The MoE also disappointed in being passive in the removal of barriers for ESCO formula in Poland – the National Energy Efficiency Action Plan for Poland prepared in 2007 based activities in the field of energy efficiency on ESCO formula, however, there were no actions in the wake of this.

The WB undoubtedly played a key role in the project. The acceptance of the various construction tasks worked well and it certainly is thanks to Peter Johansen, who promptly wrote back to any correspondence in this regard. Unfortunately, that did not happen in the use of the Technical Assistance component. Each conference, training, study tour, preparation of expert opinions and studies required numerous and burdensome substantiations (despite the fact that they resulted in 100% from the objectives of the project). For this reason, most of these funds have not been spent. From POE ESCO's perspective, part of the GEF funds could have been allocated to build the project of promoting ESCO services in Poland, to start the facilitator service, to remove legal barriers to the development of this formula. Such activities are currently conducted by the POE ESCO and KAPE and the Institute of Environmental Economics in Krakow (NGO) using its own resources as well as the European Climate Foundation, the EBRD and the NFOŚiGW.

The BGK very well filled the assigned functions in the use of Capital Grant and Technical Assistance resources. Contact with BGK employees was current, they served with the advice and support, carried out monitoring and inspections were factual and substantive in nature. Small delays were caused by frequent changes in project management. Some personal differences in co-operation with the WB were also noticed.

The loan guarantee program, the terms of which were not accepted by the market, missed the target.

All parties should praise a moderate system of reporting and a small burden of such reporting to the ESCO.

TM Grant Facility

The TM Grant Facility was established from the uncommitted funds reallocated from the Partial Credit Guarantee Facility (ca. USD 5.65 m.) and other unutilized funds of the Project. The TM Grant Facility reimbursed the TM Fund for thermo-modernization bonuses (TM Bonuses) paid, using the TM Fund's existing delivery mechanisms. The component allowed to support eligible thermo-modernization investments (TM investments) in residential buildings for which TM bonuses were disbursed by the TM Fund in the period between 1 January 2012 until 30 June 2012.

The component was expected to leverage ca. USD 36.5 m. in total investment by commercial banks cooperating with BGK under TM Fund programme, for approximately 360 Projects ranging in size from USD 30,000 to USD 400,000.

The first Project restructuring assuming provision of the TM Fund with uncommitted resources of the Partial Guarantee Facility came in force on 18th July 2011. The amount allocated under the new component amounted to USD 5.8 m. The amount was completely disbursed to the TM Fund in the 4th quarter of 2011 supporting 390 TM investments with the total investment value of USD 43 m.

On 4th June 2012 the WB issued the restructuring letter increasing the amount of resources available under the TM Grant Facility from USD 5.8 m. to USD 6.65 m. The additional provision of the TM Fund with the amount of USD 0.85 m. followed in October 2012 and allowed to support 55 TM investments with the total investment value exceeding USD 6 m.

To summarize, under the TM Grant Facility the TM Fund was provided with the total amount of USD 6.65 m., making the PLN provision exceeding PLN 21 m. Thanks to this provision, 445 TM investments with the total value exceeding USD 49 m. were supported. The projects supported by the TM Grant ranged in size from USD 7,000 to USD 1,430,000.

Evaluation of restructuring implementation by BGK:

(i) Assessment of the operation's objective, design, implementation, and operational experience

The objective was to establish an instrument that would allow the utilization of the Project funds unutilized due to low demand for partial guarantees in accordance with the GEF Project objectives.

The provision of the TM Fund operated by BGK since 1999 with the goal to support investors carrying thermo-modernization projects financed from the commercial loans was agreed as the best solution to increase energy efficiency in buildings.

The TM Fund has been operating under the Act on Support of Thermo-modernization and Renovation Investments of 21 November 2008 to provide state financial aid to investors carrying out TM investments, where such investments are financed through commercial loans from certain commercial banks. The aid to investors is provided in the form of a TM Bonus disbursed by the TM Fund, payable in the amount of up to 20% of the contracted loan designated for partial repayment of the thermo-modernization loan.

Despite the fact that the TM Fund proved to be a very popular instrument, it was not subsided by the State in the year 2010. Therefore, when the restructuring works aiming to create a new component allowing the TM Fund's provision with GEF resources were undertaken (September 2010), the volume of registered applications for TM bonuses that could not be proceeded due to the lack of funds amounted to PLN 19 m. and it was estimated that by the end of the year the volume of the applications expecting TM Fund provision will reach PLN 25 m.

From a perspective of time and considering the fact that although the support granted under the TM Fund's activities is persistently popular, the draft State budget for 2013 assumes the provision for the TM Fund in the amount of only PLN 20 m., the objective of the TM Fund's provision with GEF resources proves to be even more reasonable.

BGK assesses the process of preparation and implementation of the restructuring assumptions as successful. In reference to the preparation of the restructuring, the most difficult issue was the agreement of the environmental requirements for investments supported under TM Grant Facility. However, considering the fact that the Restructuring Paper was approved six months after the objective of the TM Fund's provision with GEF resources was elaborated, we can assess the restructuring process as effective.

(ii) Assessment of the outcome of the operation against the agreed objectives

The reallocation of GEF funds to the TM Grant Facility operating to reimburse the TM Fund for TM Bonuses paid by the TM Fund, allowed to effectively support investments resulting in energy savings and CO2 emission reductions.

The component was expected to leverage ca. USD 36.5 m. in total investment by commercial banks cooperating with BGK under TM Fund programme, for approximately 360 Projects ranging in size from USD 30,000 to USD 400,000. Factually, the component leveraged ca. USD 49 m. investments, for 445 projects ranging in size from USD 7,000 to USD 1,430,000. The outcome of the TM Fund's provision can be assessed as successful.

(iii) *Evaluation of the borrower's own performance during the preparation and implementation of the operation, with special emphasis on lessons learned that may be helpful in the future*
The MoE's engagement and cooperation on restructuring issues is assessed by BGK as satisfactory. Also, BGK is of the opinion that the PMU applied due care in order to utilize GEF Project resources in due time and effective manner.

(iv) *Evaluation of the performance of the Bank, any co-financiers, or of other partners during the preparation and implementation of the operation, including the effectiveness of their relationships, with special emphasis on lessons learned*
The cooperation of BGK with the WB ensured efficient operation of the Project. The WB representatives offered support without undue delays and provided necessary guidance.

Technical Assistance

Technical Assistance (TA) was provided for several barrier removal activities, including: support for the deployment of the guarantee mechanism and building the capacity of BGK, to administer the guarantee; support to the POE ESCO in the development of the performance contracting model in the Krakow region and to build its pipeline of potential investments; provision of training to local banks; activities to increase awareness and demand for efficiency investments among building owners including municipalities; and collection of project monitoring data and broad dissemination of results. The component was also designed to finance several studies linked to barrier removal for EE investments on a national level.

The purpose of the TA funds had to be adjusted to factual demands of the Grant Recipient within the scope of energy efficiency improvement when it appeared that the partial guarantees are not popular and TA funds shall be utilized to support measures different than the deployment of the guarantee mechanism. The MoE in agreement with the WB decided that TA funds will be partially utilized to finance several studies and assignments not related to the implementation of the Project, but being of key importance to the increase of energy efficiency in Poland:

1) In January 2012 MoE confirmed that BGK can start procurement procedure to purchase the study *Macroeconomic Assessment and Fiscal Implication of Energy Efficiency Policies for Poland* for the benefit of the Ministry of Finance (MoF).
The study assigned under the SSS procurement procedure to *Instytut Badań Strukturalnych* (IBS) consisted in preparation of an analysis making a continuation and expansion of the analytical framework developed for the purpose of *Poland County Economic Memorandum* (Poland CEM) titled *Transition to a Low-Emissions Economy in Poland*, in particular on the dynamic macroeconomic modeling work set out in the CEM report.

   Under the Poland CEM, for the purpose of ex ante assessment of macroeconomic and fiscal implications of GHG mitigation policies for Poland 2020/2030, a suite of analytical tools for Poland were developed, building on work on GHG mitigation and low carbon growth in other countries. First, a bottom-up technical model helped identify cost-effective mitigation measures. This part of the analysis was performed, being partially financed by the WB, by McKinsey & Company. The results of the bottom-up sectoral analysis were presented in a

widely acknowledged report *Assessment of GHG mitigation opportunities in Poland by 2030*. Next, a large scale, multi-sector dynamic stochastic general equilibrium (DSGE) model, the MEMO model, developed at IBS, focused on sectoral mitigation packages (groups of numerous specific carbon mitigation interventions), and was linked with the bottom up analysis. In addition, a multi-sector, multi-country computable general equilibrium model focused on the EU policy implementation was developed by Loch Alpine Inc. Both models yielded a series of insights on how Poland might best move towards a lower carbon future.

The analytic work conducted under the *Macroeconomic Assessment* assignment was a follow-up work to the analysis performed by the IBS for the purpose of the Poland CEM. It included both the improvement and expansion of the methodology (eg. through adoption of longer time horizon), and provided new insights on the macroeconomic and sectoral implications related to the implementation of energy efficiency agenda in Poland.

2) In February 2012, the MoE confirmed in its letter to the WB that it plans to finance the study on *Home Area Networks (HANs) within Smart Grids* for the benefit of Energy Regulatory Office (ERO).

The study assigned under the SBCQ procurement procedure to *A.T. Kearney Sp. z o.o.* (ATK) included preparation of a concept of providing electricity end-users (especially households) with equipment allowing for effective management of electricity use and - in the case of prosumers - with electricity generation.

Under the assignment, the consultant was expected to propose the equipment designed to achieve HANs working on the basis of data transferred from Advanced Metering Infrastructure (AMI) to the end user's meter (price signals and Demand Side Response (DSM) signals and commands). The solution was to equip the end-user with the ability to:

a) Individually determine the level of user sensitivity to energy price increases (e.g., the price level at which consumption reduction should activated);

b) Determine the hierarchy of electricity controls (the sequence of consumption limitations in response to the price signal and/or DSM signals);

c) Provide system overrides for those users who would not be willing to get involved; and

d) Equip communications to facilitate HANs to help customers execute choices.

The purpose was to analyze the potential impact of equipment designed to achieve HANs to:

a) Improve demand responsiveness to price information, thus improving price flexibility of electricity demand;
b) Improve the access of distributed generation to the National Power System, especially small distributed generation (units with a capacity equivalent to 1 MW or less),

especially in consideration of distributed dispatching to enable balancing under normal and islanding conditions;

c) Include distributed demand responsiveness with particular focus on peak periods and how DSM mechanisms could help decrease costs;

d) Launch economic mechanisms to provide incentives for end-use energy efficiency investments.

The task was carried out in the form of four thematic reports (analysis of technical, economic, social and legal issues associated with the implementation of HANs within Smart Grids, drawing on international experiences and local conditions) and a summary report pulling together the conclusions and suggestions arising from the thematic reports.

Evaluation of assignment implementation provided by ERO

(i) Assessment of the report's objective, design, implementation, and operational experience

Main goals of the report preparation was to analyze potential influence of components making up the structure of HAN on:

a) disclosure of the actual price flexibility of demand for electricity,

b) the opening of the National Electroenergetic System (*Krajowy System Elektroenergetyczny* - KSE) on distributed generation, in particular generation of diffuse (units with power up to 1 MW or less), including the possibility of balancing energy in normal working conditions and the working conditions of the so-called „energetic island",

c) enabling of distributed reception, currently responsible for the shaping of peak traffic, to the DSM mechanisms,

d) introduction of economic mechanisms encouraging the improvement of energy efficiency by energy final users.

Report assumptions anticipated that created system should be customer friendly, that is:

- will be easy to understand, easy to use and effective in the development of consumer behavior in line with the public objectives; and
- will not create additional financial burden (more than absolutely necessary minimum); one of the methods of meeting this condition is the optimal use of the existing infrastructure, designed also to meet other needs, which is already in the possession of the end user.

Above mentioned goals and assumptions related both to individual consumers in households and to SME sector.

In ERO opinion, during the preparation of the report the consultant showed a professional approach manifested by a wide knowledge of the discussed topics.

(ii) Assessment of the outcome of the operation against the agreed objectives

The cooperation on the report has allowed ERO, in addition to meeting the above mentioned goals, primarily to expand knowledge of global experience in the field of HAN, to learn about positive as well as negative examples of HAN implementation, to learn about current level of knowledge about HAN in Poland among consumers, to discover potential price flexibility of the demand and also allowed to make decisions on key solutions for HAN infrastructure and its links with AMI.

The report will be primarily used as a support for the ERO in the formation of a regulatory approach encouraging the development of Intelligent Network in Poland. The report will be the basic document useful in the preparation of the next step expected by the ERO President that is the development and the publication of the position of the ERO President on requirements for HAN and on the requirements for the communications system in the metering device necessary to communicate with HAN. These positions will be subsequent documents created by the ERO President aimed at guiding the development of the Intelligent Network in Poland.

(iii) Evaluation of the ATK performance during the preparation of report, with special emphasis on lessons learned that may be helpful in the future

In ERO's opinion, the tasks carried out by the ATK were done in an efficient and professional way. The consultant also conducted necessary consultations beyond the specified schedule necessary to complete the work on the report. At the same time, it should be noted, that the method of procurement ensured fast and efficient selection of the consultant that showed the utmost care in the preparation of assignment implementation offer. We have to emphasize that the proposed and carried out by the consultant form of workshops, in particular the selection of the participants in terms of business profile allowed us to develop constructive proposals carefully considered by the consultant in the final version of the report.

(iv) Evaluation of the performance of the MoE, the WB and BGK during the assignment of the report, including the effectiveness of their relationships, with special emphasis on lessons learned

In ERO's opinion the cooperation between all parties taking part in the assignment the performance of the report run smoothly and efficiently. The cooperation with the WB based on the active participation in specifying the scope of the assignment (ToR). Our cooperation with BGK during project realization run without any reservations.

3) In the letter to the WB sent in February 2012, the MoE confirmed also that it plans to finance the purchase of IT application for buildings and energy certificates register for the Ministry of Transport Construction and Maritime Economy (MoT) under the TA

component. Due to the fact that the purchase of IT application could be performed only under the *Goods* category of expenditures, the restructuring carried out in 2012 resulted in the increase of resources made available under the *Goods* category under *Project Management* expenditures in order to be utilized for the purpose of IT application purchase.

The IT application assigned under the NCB procurement procedure to *Pentacomp Systemy Informatyczne Sp. z o.o.* (Pentacomp) included development of a central system for recording and monitoring the energy performance of buildings certificates system in Poland and the condition of public buildings with regard to energy efficiency. The system will be used to manipulate data and perform functions such as performance reporting, analysis, collation, and mining data based on specified criteria in order to efficiently supervise buildings energy consumption.

Under the assignment, Pentacomp developed the internet-based knowledge-sharing system, drawing on commercially available software recommended and provided to the MoT. The system consists of five clear and user-friendly registries: 1) a registry of persons authorized to issue energy performance of buildings certificates, 2) a registry of persons who have lost the authority to issue energy performance of buildings certificates, 3) a registry of energy performance of buildings certificates flexible to the extent enabling accommodation current and future legal requirements in this regard, 4) a registry recording the results of the inspection of boilers, hot water systems and forced air heating/cooling systems, and 5) a registry of all public buildings.

Evaluation of assignment implementation provided by the MoT

The contract for the provision of services involving the design, creation, installation, commissioning and implementation of Registry System (RS) for the MoT was realized between June 28th and September 14th 2012 by Pentacomp Systemy Informatyczne S.A. The RS will be maintained as an IT application covering the following lists:

- publicly available list of persons entitled to issue energy efficiency certificates, including those who are entitled to control the heating and air conditioning systems,
- list of energy efficiency certificates by which it will be possible to provide an independent control system for energy efficiency certificates,
- list of control protocols of heating and air conditioning systems, so that it will be possible to provide an independent control system on the checks of heating and air conditioning systems,
- publicly available registry of buildings used by public authorities.

The main objective of the creation of the above mentioned RS is the implementation of the provisions of art. 18 of the EU Directive on the Energy Efficiency of Buildings. The RS will allow to control the introduced documents such as energy efficiency certificates and protocols on the checks, will provide public access to regularly updated lists of persons entitled to issue energy efficiency certificates and protocols of the checks on heating and air conditioning systems. The RS is a necessary tool for conducting the above control

system referred to in art. 18 of the above mentioned Directive, based on the contained in it checks and protocols concerning significant proportion of all certificates, thereby minimizing the number of people needed for its operation and maintenance. As a result of the work carried out, the product desired by the MoT has been achieved.

In accordance with the provisions of the draft guidelines for the Law of Energy Efficiency of Buildings it is anticipated that the above mentioned RS will be based on the provisions of the Law of Energy Efficiency of Buildings and its provision for mandatory use by authorized persons will come into force by the date of entry into force of the Law of Energy Efficiency of Buildings. The *vacatio legis* period of approximately 6 months will be provided within the Law.

Pentacomp Systemy Informatyczne S.A. has proved to be punctual and reliable with the execution of the particular stages of work.

The MoT is positively assessing the cooperation with the parties involved in the project, both during the preparatory work, the implementation and the acceptance of separate stages of the project, as well as at the final acceptance. Special attention has to be paid to commitment, flexibility and good communication between the project partners at all stages of its implementation.

During the restructuring process, the amount allocated under TA Component to support POE ESCO also had to be reduced to the amount factually utilized by the POE ESCO. The POE ESCO assesses the TA utilization as unsatisfactory and claims that low utilization should be attributed to the discouraging, complicated and long-lasting approval procedures.

BGK assesses the utilization of TA resources as successful. The WB procurement procedures which are much more flexible than Polish Public Procurement Law provisions proven to be very effective in engaging professional consultants that executed assigned tasks in a timely manner, with due care and using their best professional knowledge and experience.

The IT application provided to the MoT under NCB procurement procedure will make a central platform for the exchange of information on energy consumption in buildings based on energy performance certificates. This will allow to undertake a number of actions improving energy intensity in the area of energy consumption in the construction sector, responsible for about 30% of total energy consumption. Consequently, the RS will be used to effectively reduce energy consumption in one of the most energy-intensive sector of economy in accordance with the National Energy Efficiency Action Plan developed by the Government of Poland to meet significant obligations related to energy efficiency in the near to medium term arising from Poland's membership in the EU.

The *HANs within Smart Grids* analysis prepared for the benefit of ERO under SBCQ procurement procedure, will support the power sector to meet the energy efficiency targets through preparation of solutions (with a particular emphasis on Smart Grids) and policies facilitating improved information flows to customers to enable them to better tailor the supply of energy and end-user controls, to meet their needs and willingness to pay for reliability tailored to their needs. Proper

information, measurement and controls is planned to be provided to all end users, including the most dispersed users in the service sector (SME) and in households, who – taking advantage of a dynamically growing assortment of micro-generation options – will increasingly assume a dual role of energy consumers and producers, i.e. prosumers. These tasks are expected to be implemented by Smart Grid infrastructure, the solutions of which were assessed under the *HANs within Smart Grids* analysis.

The *Macroeconomic Assessment and Fiscal Implication of Energy Efficiency Policies for Poland* prepared for the benefit of the MoF under SSS procurement procedure will facilitate to the Government the assessment and policy-making within the scope of introduction of policies aiming at preserving natural environment and abate negative externalities (such as CO2).

GEF Project assessment provided by the MoE

In the MoE opinion, the Project implementation enabled to achieve the Project objective which was to increase the public and private sector investments in energy efficiency of buildings.

Although the initial phase of the Project implementation was not going according to the plan, the efficient restructuring process put in place in 2011 allowed for proficient and consistent with the Project objective use of the full amount of the GEF grant awarded to Poland.

The Project restructuring was necessary, among the others due to the changes that have occurred in the availability of energy efficiency financing mechanisms. This is because additional opportunities for funding of thermo-modernization projects has become possible (i.e. not only TM Fund, but also from the State Guarantee Fund and EU funds). Consequently, it may, to some extent, affect the demand for support in the form of Partial Loan Guarantee Programme.

The provision of the TM Fund with unutilized resources of the Partial Guarantee Facility was in line with the Project objectives and in the assessment of the MoE, was the most optimal solution, which could be adopted in the contemporary situation, in particular taking into account the need to achieve the Project objectives within the short period remaining for the Project restructuring.

The TM Fund is the main mechanism of energy efficiency support and the first provision of the TM Fund by financial means other than funds subsided from the state budget, may be a good practice in the field of supplying the TM Fund also with off-budgetary funds. Especially in the context of limited budgetary resources allocated to support energy efficiency activities, such a solution seems to be more and more necessary.

From the experiences of the project transformation following conclusions were drawn:

- projects concluded in Poland on the basis of international agreements, in particular long-term projects during implementation of which i.e. socio-economic conditions can change, should in appropriate situations be able to restructure without the need for implementation of an international treaty revision procedure under the Act on International Agreements of May 17, 2000,

- the execution of the above mentioned international treaty revision procedure is time-consuming and, therefore, may in some cases limit the ability to restructure the project and thus affect the lower level of implementation of the project,

- as a good practice, it would take to add to international agreements a clause about the possibility to restructure projects in exceptional circumstances.

The implementation of the Capital Grant Facility component and the Technical Assistance component in the MoE opinion proceeded as expected. The Capital Grant has enabled POE ESCO to carry out demonstration projects in the field of thermo-modernization in the Małopolska Voivodship. The experience of using elements of financial incentives should, in the MoE opinion, be useful for POE ESCO and encourage this entity to participate in other instruments of supporting energy efficiency, such as energy efficiency certificates system, which will be launched in 2013 under the Energy Efficiency Law of May 10, 2011.

The results of the tasks carried out within the scope of Technical Assistance component, in particular the establishment of the register of buildings and energy efficiency certificates, as well as conducting the analysis on smart grids and smart meters should also contribute to a better implementation of EU law in the field of energy efficiency in buildings. In particular, the preparation of the central register of buildings is an important and crucial aspect that will allow for ongoing monitoring of the level of energy demand in the Polish construction industry.

The MoE is positively assessing effectiveness of the cooperation between all parties involved in the Project, especially BGK's commitment in Project realization in the last, most difficult phase of the Project's life.

The good cooperation with representatives of the WB as well as the effort they made to extend the closing date of the Project, has enabled the successful completion of the restructuring process of the Project.

It has to be said that the Project realization made possible to achieve the development goal of the Project and will contribute to fulfilling the goals of energy efficiency under the Directive 2004/32/UE *on energy end-use and energy services* and objectives of *Polish Energy Policy until 2030.*

Description of the proposed arrangements for future operation of similar projects – BGK recommendations

1) Withdrawal applications currency. In the case of *direct payments*, *withdrawal applications* should be submitted to the WB and disbursed to the beneficiary in a currency in which the expenditures were factually incurred. The USD equivalent should be calculated by the WB using the currency rate of the date of the disbursement made by the WB.

   In the case of the TM Grant Facility disbursements, the applications for withdrawal were agreed to be submitted in USD although the TM Bonuses were disbursed by the TM Fund in PLN. In fact, the PMU had to calculate each of the 445 refinanced TM Bonuses separately from PLN to USD using the currency rate for the date of the disbursement of

each TM Bonus by the TM Fund. This led to the situation in which the TM Fund provided the lists of TM Bonuses to be refinanced summing up to the total amounts of PLN and then, received the PLN amount different than requested to be refinanced. This resulted not only from the fact that the requested amount was calculated from PLN to USD at the stage of the preparation of the application for withdrawal, but also from the fact that the USD amount stated in the application for withdrawal had to be recalculated back to PLN when disbursed to the TM Fund in USD. In this case, also PLN disbursement would be recommended.

2) Eligible expenditures. According to the procedure of withdrawal of the proceeds of the GEF Trust Fund Grant provided in the Global Environment Facility Trust Fund Grant Agreement, the proportion of eligible expenditures for local consulting firms and local individual consultants has been limited to 83,5% of expenditures. This limit was made on the assumption that VAT tax is not eligible to be financed under Grant proceeds. To better utilize available funds, this assumption shall be accompanied by the assumption that in the case of expenditure exempted from VAT, 100% of expenditures shall be eligible to be financed under the Grant proceeds.

The limit of 83,5% not accompanied by the possibility to fund 100% when exempted from VAT, had the following disadvantages to the PMU:

- although all of the contracts concluded with consultants/goods providers were registered as services/goods purchased for non-returnable foreign resources and, therefore, were exempted from VAT, the PMU could only utilize 83,5% of the allocated amount;

- the PMU could not fully utilize the procurement limits (although procured goods/services were exempted from VAT, the amounts available to purchase procured goods/services were lower than allocated).

Annex 8. Comments of Cofinanciers and Other Partners/Stakeholders

Not applicable

Annex 9. List of Supporting Documents

- Project Appraisal Document (September 17, 2004)
- Restructuring Papers
- Project Implementation Plan
- Aide Memoires and Implementation Status Results Reports
- Financial Monitoring Reports
- Legal documents, including GEF Trust Fund Grant Agreement, Project Agreement and Supplemental Letter
- Official correspondence
- Implementation Completion and Results Report, Krakow Energy Efficiency Project
- M&E Reports
- Ministry of the Economy, National Energy Efficiency Action Plan, 2007, 2011
- JRC Science and Technical Report European Commission, Energy Service Companies Market in Europe, Status Report 2007 and 2012
- Institute of Environmental Economics, ESCO Market in Poland, Inception Report 2012
- Jaakko Poyry Group, Market analysis of ESCO-type Service, 2006
- Ministry of Economy, Energy Policy of Poland until 2030, Warsaw, November 2009
- Bellona Europa, Recommendations on shaping ESCOs' development in Poland

MAP

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