1. Country and Sector Background

Until mid-2008 Ukraine showed strong economic growth and had an active banking sector, but signs of overheating became increasingly apparent. Growth over 2001-2008 was 7.5 percent, among the highest in Europe. Greater amounts of inflows, mainly through bank borrowing abroad, flowed into the country and together with strong improvements in terms of trade (due to high steel prices), fueled domestic demand. With a pre-crisis fixed exchange rate and pro-cyclical fiscal policies, buoyant international liquidity translated into higher inflation and growing current account deficits.

The global economic and financial crisis hit Ukraine particularly hard given its pre-existing macroeconomic imbalances, structural weaknesses, and policy shortcomings. By the fourth quarter of 2008, capital inflows came to an abrupt stop, the terms of trade reversed as steel prices plummeted and export markets shut down. The crisis accentuated the vulnerabilities of the banking sector, leading to a systemic liquidity and solvency crisis, including the leakage of deposits. GDP contracted by 15 percent in 2009, with fixed investments falling by 46 percent. The crisis also highlighted Ukraine’s structural weaknesses, including the lack of export diversification, its poor investment climate, and large structural fiscal pressures.

As a result of the financial crisis, bank lending has come to a standstill, postponing necessary investment finance in the economy. During the crisis, tightening liquidity and increasing credit risks resulted in ceasing of bank lending to the economy and households. Economic recession, growing unemployment, UAH depreciation pushed a 9-fold increase in nonperforming loans (NPLs). The banking sector has stabilized in 2010 in line with the overall
economic recovery, but lending activities remain limited. Banks’ loan portfolio decreased by 5.9 percent in 2009 and continued to shrink in the first half of 2010, while deposits have resumed growth. Therefore, the economy continues to suffer from the absence of vital credit financing.

**Ukraine is among the most energy intensive economies in the world.** Ukraine’s energy intensity\(^1\) exceeds that of Germany by a factor of 3.7 (0.45 kg of oil equivalent in Ukraine vs. 0.12 kg in Germany). Part of its energy efficiency problem is structural: Ukraine was an important source of heavy equipment in the former Soviet Union. Nearly 20 years later, most of these assets are using the same technology. As a result, the Ukrainian industrial sector is labor and energy intensive, made viable in the past by low cost energy and labor. Similarly, district heating was designed based on low-cost energy. The district heating systems are inefficient, but have been reliable: boilers with limited metering and temperature controls are common in the supply system while most customers have no metering or temperature controls. With no controls and costing based on the size of consumer apartments, there is no incentive to avoid wasting energy at the consumer end.

**The Government of Ukraine (GoU) has made it a strategic priority to reduce Ukraine’s energy intensity.** In 1996, the GoU developed an Energy Efficiency Program, where it outlined its strategy of decreasing energy consumption in industrial, energy and housing. However, the 1996 Energy Efficiency Program was not strictly enforced as it was not accompanied by an enforceable energy efficiency action plan. In its 2006 Energy Strategy looking out until 2030, the GoU set a target of improving Ukraine’s energy intensity by 50% by 2030. In 2010, the National Agency of Ukraine for the Effective Use of Energy Resources (NAER) developed a Targeted Energy Efficiency Program, which was approved by the Cabinet of Ministers. The Program sets a target of decreasing energy intensity of Ukraine’s economy by 20% by year 2015. NAER is following this up with the preparation of a complementary National Energy Efficiency Action Plan (NEEAP). The NEEAP is designed to identify energy efficiency investments, barriers to implementation and agencies responsible for implementation.

**The industrial sector, particularly heavy industry, is expected to be one of the primary sources of energy savings.** Roughly 41% of all Ukrainian steel (15.3 million tons) is produced using open hearth technology which has been replaced in nearly every country in the world except for Russia which is in the process of replacing these assets. Blast furnaces or electric arc furnace technology would reduce energy consumption per unit of output by more than four-fold. Other sectors such as the chemical, agricultural and food production sectors are equally estimated to have significant energy savings potential.

**The heating needs in Ukraine are also expected to be a considerable source of energy savings at the municipal level.** Building energy efficiency is estimated to be about 2-3 times worse than in Western Europe. The demand-side issues are exacerbated by supply-side energy losses, with pipeline losses nearly double that of Western European practices; and existing boilers are about 20% less efficient than new boilers. Issues that need to be addressed to correct these problems are complex, both from a social and political perspective. Heating prices

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\(^1\) Energy intensity is measured herein as kilogram of oil equivalent of energy use per constant PPP GDP. Energy use refers to use of primary energy before transformation to other end-use fuels. PPP GDP is gross domestic product converted to 2005 constant international dollars using purchasing power parity rates.
are typically less than half of comparators elsewhere as price setting is politicized. As a result of low prices, district heating systems have not been modernized. The Government has taken the first steps at depoliticizing price setting for district heating by transferring the responsibility for setting district heating prices to the National Energy Regulatory Council (NERC) as of mid-2010.

About 30% of Naftogaz’ (the national gas company of Ukraine) compressor plants are operating beyond their design life: this out-of-date technology is operating at roughly 25% efficiency, well below that of replacement compressors of 36-40%. Naftogaz has approached the donor community to help finance the modernization of these assets which could decrease compressor gas consumption by upwards of 30%, decreasing gas demand by about 2 billion cubic meters (bcm) per year, about 7% of annual gas imports. This issue will be addressed under a feasibility study which is expected to start in early 2011, to support implementation from 2012-2016. A pilot project is being prepared. As a result, it is likely that gas prices will need to be adjusted upwards to enable Naftogaz to financially support what is expected to be a multi-billion Euro investment requirement.

A lack of funds for maintenance and investments negatively affected efficiency of power system facilities which are deteriorating at an increasing pace. The decapitalization is particularly pronounced in thermal power companies (TPPs), which are facing a lack of working capital. Much of their equipment is operating well beyond its normal life-time and requires modernization or replacement; many of the plants operate at efficiencies of about 30%, well below the 55% expected efficiency of a state-of-the-art Combined Cycle Gas Turbine plant. The Government currently plans that much of the power plant modernization will be the responsibility of the private sector after the next steps in its privatization program take place.

Energy Efficiency Issues

Many industries don’t invest in energy efficiency. Ukraine’s heavy industry sector has had many natural advantages from which to build on: availability of iron ore nearby; low labor costs; and low energy. However, these comparative advantages are changing rapidly: although labor costs remain low, so is productivity with many steel mills employing thousands of more people per ton of production than in other countries; energy costs have accelerated rapidly in the past four years, rising nearly four-fold; and the asset base is old and in need of replacement, requiring considerable new investments. The problem has been made more complex in the past two years as the fiscal/economic crisis has made unemployment more acute as well as funding for new investments scarce. Lending of IFI loans through FIs has also come with its own constraints, including: restricting focus to export industries; focusing on Small and Medium Enterprises only; and limiting resource flows to specific sectors.

Energy efficiency improvements in District heating (DH) in Ukraine remains a difficult problem because of the low prices and the socio-political problems that revolve around heat supply to buildings. In parallel, the Government is addressing the policy reform agenda, starting with the depoliticization of DH prices. USAID-funded consultant are working in 34 cities, of which 7 are fast-tracked, to prepare district heating projects. However, the credit-worthiness of potential borrowers remains a problem that is expected to be addressed as this
project develops, using grant funds from CTF. It is expected that pilot projects will be identified for implementation under this project that could be scaled-up at a later date.

2. Objectives

22. The project development objective is to contribute to improved energy efficiency by industrial and commercial companies, municipalities, municipally-owned enterprises and Energy Service Companies by facilitating sustainable financial intermediation for the financing of energy efficiency investments.

3. Rationale for Bank Involvement

The Bank has supported Ukraine in its efforts to reform and restructure its energy sector through policy dialogue, technical assistance and financing of adjustment and investment projects since the early 1990s. As a result of continuous involvement, the Bank has developed deep country and sector knowledge that puts the Bank in a strong position to further support energy sector reforms and development. Ukraine requires coordinating and adapting financial support, policy advice and technical assistance to a rapidly changing economic and political environment which is complicated by volatile energy imports issues.

In 2007, the Cabinet of Ministers adopted the Action Plan for Energy Sector Reform and Development, which became the cornerstone for Ukraine’s Energy Sector Reform and Development Program. The Program placed its focus on: (1) ensuring security of energy supply; (2) reducing the cost of energy supply; (3) modernizing assets and improving energy efficiency; (4) decreasing dependence on imported gas; and (5) harmonizing the energy sector of Ukraine with the EU market. The GoU requested the Bank’s support for the Program’s implementation, particularly through investment lending. As a response to the GoU’s request, support to the energy sector in the 2008-2011 Country Partnership Strategy (CPS) was designed in alignment with the above five priorities. The proposed Project will deepen the Bank’s existing involvement in the sector and help the GoU address the first four of the above priorities.

The Bank has assigned a high priority to supporting energy efficiency projects in Ukraine. The decrease in energy consumption will contribute to addressing the fiscal deficit by lowering the cost for imported fuel. Increase in energy efficiency of its industries will not only contribute to increasing its competitiveness and resilience in an economic downturn by decreasing their operating expenses, but will lead to sustainable growth opportunities for the economy as a whole. Furthermore, energy efficiency options have been identified as the highest priority investment to enable the reduction of local, regional and global (Greenhouse gases) pollution.

The Bank is also well-positioned to help support the reform program through linkages between its macroeconomic program supported by DPLs and microeconomic support provided by SILs and FILs. The energy sector’s impacts are sufficiently large to have a notable effect on the fiscal deficit and are thus being addressed through a series of Development Policy Loans. The Bank is coordinating this effort with its partner agencies: with the IMF regarding the fiscal impacts; and with EBRD, IFC and bilateral donors regarding sectoral reforms. The Bank is also coordinating its activities with the European Community, particularly in areas in which the GoU
has committed to move towards adopting EU practices. Projects like this proposed Energy Efficiency Project help provide the linkage between supporting financing in existing markets and extending the supply of finance to new markets such as energy efficiency projects through technical assistance and policy reforms. During project implementation the Bank will work closely with UkrEximBank to help it move into new markets, facilitating this with support through changes in the policy agenda through Development Policy Loans.

4. Description

The funds will be utilized by UkrEximBank to directly finance eligible sub-projects in the industrial and municipal sector and provide subsidiary loans to other “participating banks” (PBs) for energy efficiency sub-projects, with a guarantee by the GoU. The Financial Intermediation approach was chosen to support a sustainable method of financing energy efficiency projects which are typically profitable and therefore lend themselves to commercial finance practices.

The proposed financing supports the GoU’s strategy in scaling up investments in energy efficiency with the intention to encourage the Borrower (UkrEximBank) to finance projects in the range of US$1-30 million in energy efficiency investment sub-projects. The main target sector for this component will be energy-intensive industries, such as metals, chemicals, and building materials; the Project will also provide funding to eligible projects in other sectors, including buildings and municipally-owned enterprises. These investments would help mitigate the large and increased financing gap for energy efficiency financing stemming from increased energy prices in general, particularly natural gas price increases.

The current pipeline of projects provided by UkrEximBank indicates potential energy efficiency investment over US$400 million. The types of energy efficiency investment sub-projects fall into six broad categories: (i) modernization of inefficient and obsolete equipment/facilities; (ii) installation of highly energy-efficient industrial equipment and processes for new production capacities whose current energy use considerably exceeds current best practices; (iii) utilization of waste gas and heat and excess pressure from industrial processes; (iv) improvement of industrial systems which involves a suite of measures to increase energy efficiency; (v) energy loss reduction in municipally-owned utilities (largely focusing on district heating); and (vi) energy loss reduction in buildings.

5. Financing

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<th>Source: International Bank for Reconstruction and Development</th>
<th>($m.)</th>
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<td>Total</td>
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6. Implementation

UkrEximBank is the borrower for the IBRD funds under the proposed Project. It will borrow from the Bank, and the Government of Ukraine will provide the loan guarantee to the Bank. UkrEximBank will also have a Project Implementation Unit (PIU) within their organization as
the implementing agency for the Project, responsible for assessing, monitoring and reporting on all activities under the project implementation. A financial assessment of UkrEximBank and its suitability for the proposed Project is described in Annex 9.1.

UkrEximBank have gathered sufficient knowledge and experience with managing operations through earlier World Bank projects and an EBRD line of credit for energy efficiency. They have adequate experience in financing energy efficiency and UkrEximBank has also experience in on-lending operations to Participating Banks through the EDP 2 wholesale credit line. As a result, they have suitable levels of staff with requisite qualifications and experience: these staff will continue to market the new facility, appraise and evaluate project proposals, and monitor implementation.

7. Sustainability

Financial sustainability is a primary objective of project design. Energy efficiency investments are generally economically viable with short payback periods. However, financial viability is less certain and requires a good understanding of local conditions. Investments that have been satisfactorily implemented elsewhere have reduced costs by enough to enable full repayment of the loan proceeds immediately after project completion. Environmental sustainability is addressed as part of the eligibility criteria under the project selection process. Institutional sustainability will be ensured by: (a) UkrEximBank’s capacity to assess, disburse and supervise credit while being complaint with safeguard policies, developed through Export Development Project (EDP) 1 and EDP 2 as well as EBRD energy efficiency loan to SMEs; and (b) institutional capacity and processes within the PBs to identify and promote energy efficiency investments.

The project is designed to ensure development and expansion of financing source for energy efficiency investments by ensuring that interest rates are not subsidized to avoid discouraging entrants of new participants in the market.

In order to avoid market distortion and to ensure that the sub-borrowers will gain appropriate returns from investments made under this loan, UkrEximBank will follow their pricing policies in line with the market rates, for direct lending of IBRD funds in both foreign and local currency. As a full service commercial bank, UkrEximBank already prices its loans comparable to the market level. UkrEximBank will continue to implement the same approach in the ongoing projects as it has under existing Bank projects: the significant advantage they derive from the Bank loan is the long-term funding that will allow them to provide long-term financing without taking on significant maturity mismatch. UkrEximBank also has extensive capacity and experience in managing foreign exchange risk and is able to effectively manage this risk.

Another aspect that is important in ensuring sustainability will be the continued availability of adequate resources and skilled staff in UkrEximBank. The technical and operational risks associated with energy efficiency investments require that the financial institutions have a strong technical capacity to appropriately identify, appraise and monitor the projects, since this is still a new area for Ukrainian FIs. UkrEximBank has an established Energy Efficiency unit that has been evaluating energy efficiently projects under an EBRD loan that targets small and medium
enterprises. The unit has qualified staff to look at technical aspects of potential energy efficiency investments. For technical issues that are outside of their staff’s capacity, UkrEximBank outsources these tasks to specialists.

8. Lessons Learned from Past Operations in the Country/Sector

The following lessons were drawn upon in the design of the proposed project:

- Energy efficiency programs should be commercially-oriented, demand-driven, and flexible in order to help create sustained shifts in the market and adjust based on changing market conditions and implementation realities. Project design options included direct lending to entities with a Government guarantee, lending through the Government or Government-owned agencies or through a financial intermediary. This project is designed to be implemented by a Financial Intermediary, UkrEximBank, to ensure that it meets all of the criteria outlined above. International experience (see below) indicates that the use of financial intermediary as a delivery mechanism for energy efficiency investment yields moderate results.

- Select a strong Executing Agency who know their markets well and have a good grasp of project financing issues. Project implementation in Ukraine has been weak, with disbursement rates among the lowest in the Bank client countries. However, UEB-implemented projects have been among the most successful among the projects undertaken to date.

- Achieve a balance between policy framework, institutional arrangements, training, and implementation effectiveness. The primary driving force to provide incentives for energy efficiency is pricing, which is being addressed under the Bank’s series of DPLs and IMF program. Institutional reform and governance of the policy agenda is being addressed by NAER, for whom broad-based technical assistance is being supported by the EU and a proposed $1 million grant from the CTF.

- Focus programs to deliver real energy savings quickly (within 1-2 years) to build program credibility and learn from early implementation. A pipeline of projects has been prepared and three projects reviewed in detail prior to appraisal, two of which meet the agreed criteria. These projects are expected to be implemented in the first year of project implementation.

9. Safeguard Policies (including public consultation)

   Environmental Assessment policies (OP/BP 4.01) will apply to the Project, including sub-projects. The possibility that other World Bank safeguard policies might apply to sub-projects, along with other relevant environmental issues of sub-borrowers and their sub-projects will be addressed through the sub-loan environmental eligibility assessment. World Bank staff will continue to supervise adherence to Bank and Ukrainian requirements. It is not anticipated that the sub-projects under the Project will trigger OP 4.12 (Involuntary Resettlement) and OP 7.50 (International Waterways). An Environmental Assessment Framework Document (EAF)
was made available by UEB for public discussion. The English language version of the EAF and the Minutes of the public consultation meeting were disclosed at the Infoshop on October 28, 2010

Sub-project investments supported by the project involve modifications or system improvements within existing facilities. Sub-projects which could necessitate land acquisition are not anticipated. In the unlikely event that a sub-project that requires land acquisition is proposed for financing, it must be documented that land acquisition was made on a willing seller – willing buyer basis and that the land purchased did not require the displacement of encroachers or informal land users. Sub-project investments which necessitate land acquisition leading to involuntary resettlement will not be financed under this project. Similarly, sub-projects for which technical success is linked to other interventions or investments which do require involuntary resettlement will not be supported by the project

10. List of Factual Technical Documents

n/a

11. Contact point
Contact: Gary Stuggins
Title: Lead Energy Economist
Tel: (202) 473-2607
Fax: 
Email: Gstuggins@worldbank.org

12. For more information contact:
The InfoShop
The World Bank
1818 H Street, NW
Washington, D.C. 20433
Telephone: (202) 458-4500
Fax: (202) 522-1500
Email: pic@worldbank.org
Web: http://www.worldbank.org/infoshop