



Mainstreaming energy efficiency finance in banks

Industrial energy efficiency lending provides an opportunity for banks to significantly increase revenues from their existing customer base, while improving those customers' profitability and competitiveness. These FAQs lay out a few relatively simple steps that a bank can take to create a lucrative new business and, at the same time, reduce their overall lending risk.

What is “mainstreaming energy efficiency finance”?

“Mainstreaming energy efficiency finance” involves bringing energy efficiency considerations into banks' standard industrial lending practices – through procedural, personnel and organizational changes.

The goal is to efficiently integrate technical and financial advisory services that are relevant to industrial energy efficiency into the lending process for plant expansions and improvements, as well as for dedicated energy efficiency projects.

Why would my bank want to mainstream energy efficiency finance?

1. To increase revenues

- The European Bank for Reconstruction and Development (EBRD) has found that every euro they spend on assessing industrial energy efficiency projects resulted in €1,000 of new investment in energy efficiency.
- More than 26 percent of the €8.8 billion that the EBRD lent in 2012 was for energy efficiency (EE) or renewable energy (RE) projects, and for EE and RE components within larger projects.
- The International Finance Corporation (IFC) – the private enterprise arm of the World Bank Group – expanded its US\$20 million clean energy lending facility to US\$125 million, with a complementary advisory services project offering industrial clients audits co-funded by donors.

- Average loan sizes increase by 15–20 percent when energy efficiency projects are incorporated.
 - Lending for EE projects reduces banks' risk, as these projects increase borrowers' free cash to repay all loans and reduce their exposure to energy price volatility.¹
2. **To improve relationships with your industrial and commercial customers** by increasing their profitability, improving their cash flow, reducing their exposure to fluctuations in energy prices, increasing their competitiveness and helping them meet both environmental and regulatory requirements. EE projects also often have positive organization-wide, run-on effects. Clients looking to expand or improve their operations are not likely to be seeking EE financing specifically, but working with them to put EE and RE considerations on their radar has huge benefits for both the lender and borrower.
 3. **To build a positive brand** through the promotion of green transactions in your community.
 4. **To satisfy regulators and other government agencies** that your bank is committed to cleaner energy and to addressing climate change.

¹ Oxford Energy Associates report to EBRD, *Scaling-up Financing of Energy Efficiency through Provision of Targeted Risk Management Products*, 2011.

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We're bankers. How are we supposed to keep track of all our industrial customers' energy efficient technology?

You don't have to. Bankers need only to grasp the basic principles of energy efficiency – that is, investment in EE reduces a clients' electrical and thermal energy use enough for the savings to justify the investment. These EE savings can be monetized and treated exactly like any other assured income stream, whether it is for loan analysis or repayment. Bankers shouldn't need more than one short session based around case studies to learn the approach. The real challenge is technical, not financial. The bank needs to engage qualified technical staff to authoritatively confirm – for both the bank and the borrower – that proposed technology investments will produce the projected savings.

How do I start such a program in my bank?

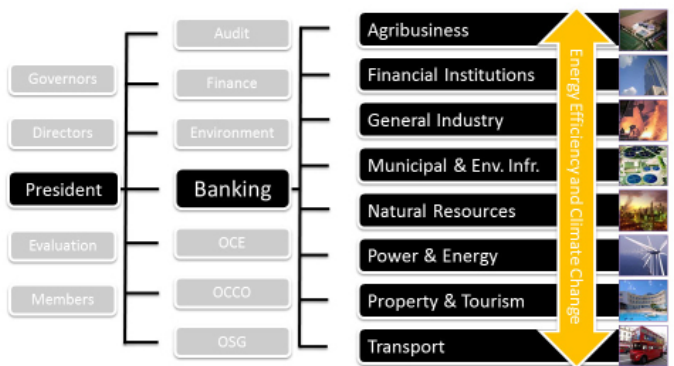
1. High-level commitment is needed from bank management to implement the required actions.

- Identify a senior bank executive to champion the program. The executive must have some EE banking experience, but his/her primary functions are to explain EE finance to other bankers and to oversee the implementation of the following necessary steps.
- Engage an energy efficiency engineer with enough EE experience and financial savvy to help structure EE project finance, to review loan applications for EE potential, and to match clients with outside EE auditors and contractors.
- The in-house EE champion should work with the EE engineer to arrange training sessions to explain EE finance to fellow bankers and assure that EE assessments are completed at the same time as other loan due diligence.
- Identify and engage authoritative technical support for EE evaluations, training and audits.
- Develop an EE rating system and integrate it into the bank's project database.
- Make modifications to bank operating procedures to integrate EE assessment into loan evaluations. For example, at EBRD, project documents sent to the Credit Committee for review include a specially-developed energy efficiency template that is filled in by an EBRD engineer.

2. Create a dedicated EE team.

Once you're satisfied that mainstreaming energy efficiency finance is good business, the next step is to establish a dedicated EE unit. During the pilot program, the EE champion should start directing conversations about where an EE unit should be placed in the bank. As figure 1 below shows, at EBRD, the Energy Efficiency and Climate Change Unit is a distinct team but it cuts across all banking departments. It does not do transactions on its own, but supports other teams' transactions whenever a project can save energy or reduce GHG emissions. The IFC has also set up a Climate Business Group with a focus on climate change that similarly cuts across different investment sectors.

FIGURE 1: EBRD organizational structure, the role of the energy efficiency and climate change team



EBRD: SEI Overview PPT – June 2012

How is a loan application treated once the mainstreaming energy efficiency finance program is in place?

The specific steps will be determined by your existing procedures. The objective is to integrate EE finance seamlessly into your current operations. For general guidance, the EBRD procedures are outlined below.

The energy efficiency questionnaire

When the EBRD receives an industrial or commercial loan application,² an on-staff energy efficiency engineer reviews it.³ If the loan appears to have significant EE potential, the engineer advises the banker responsible for the loan that he is sending out an energy efficiency questionnaire to the company.

² The exceptions are applications for debt restructuring, merchant acquisition and similar loans.

³ EBRD's Energy Efficiency and Climate Change Team receives loan applications through a variety of channels, including through an EBRD banker, through regular review of loan applications, or directly from the applicant.

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The questionnaire asks for:

- **Plant data:** year of construction, area, covered area, time of operation (daily, monthly, annually)
- **Outputs:** volumes and prices for products, by-products and waste (disposal costs) over five years
- **Inputs:** volumes and prices of raw materials, electricity and fuels, water and steam over five years
- **Annual trends:** month-by-month production, heat and thermal consumption, and load history
- **Investment program:** description, rationale, capital, operating expenses and benefits for current and contemplated investments.

You can view the full questionnaire here: www.iipnetwork.org/ebrd_energyusequestionnaire

Best reference technology

When the EBRD engineer receives the completed questionnaire, he/she consults the EU Best Available Techniques Reference Documents (BREF) documents for the client's industrial sector (<http://eippcb.jrc.ec.europa.eu/reference>). This helps him/her make a preliminary comparison of the plant's current equipment, processes and performance to industry best practice. It also helps him/her to identify what energy efficiency improvements could be made. The engineer then prepares a communication to the client requesting – on behalf of himself/herself and the banker – a full-day meeting with the company's technical and financial decision-makers to understand the strategic priorities of the plant management and enumerating a number of subject areas to be covered in the discussion. The visit includes a plant tour so that the engineer can further evaluate the preliminary energy efficiency options identified.

Agreement on EE measures to be assessed in funding decisions

Following initial discussions and the plant tour, the EBRD team presents a menu of EE investment options⁴ that are technically feasible, financially attractive and consistent with the company's strategy. After EBRD and the company sign off on a loan mandate letter (see next section) EBRD may offer technical assistance to specify precisely the recommended technologies, their costs and associated energy savings. Depending on the sophistication of the company's five-year investment plan, a loan offer might consist of a full-blown EE investment audit (the most common

outcome),⁵ selected feasibility studies⁶ or a due diligence review of the company's investment plan against industry benchmarks and best practices. If the company does not have prior experience with EE projects, EBRD may offer to help the company deploy an energy management system (EnMS)⁷ and financing for monitoring equipment to establish an energy-use baseline and for analytical software and training to identify and prioritize energy efficiency investment opportunities.

Concept review and loan mandate letter

The engineer prepares the EE measures template to be included in the loan concept document, which is then presented to the EBRD credit committee. This will include information on the client, the industry and the client's position within it, the loan amount, how the proceeds will be used, financial analysis and projected profits. If the loan committee approves, a loan mandate letter is issued, which allows the agreed upon energy efficiency assessments to begin once it is signed by the client.

The energy audit

When the agreement includes an energy audit, the EBRD staff engineer drafts a terms of reference (TOR) document, which specifies an audit team for the facility. This team is drawn from a range of disciplines: an expert in the sponsor's industrial process, an energy expert, an environmental expert, a regulatory expert, and a carbon finance expert, with a mixture within the team of local and international specialists. The audit takes place over two months. It starts with the company responding to a very detailed questionnaire on energy mass balance, energy use and energy and equipment suppliers. With those answers in hand, the audit team does a first-hand, on-site assessment over 2–3 days. This is done in collaboration with the client and assesses the equipment and operations. Auditors then go over the questionnaire answers with the client and gather additional data. A few weeks later, the auditors will turn in a report to the EBRD engineer that recommends energy efficiency measures to be adopted, and specifies their costs and associated energy savings, IRRs,⁸ suppliers, and required environmental and regulatory permitting as well as sources of complementary financing. The EBRD engineer then reviews and edits the report and presents it to the company for their agreement. The measures – which may include EnMS training and hardware finance – are then included in the final

⁵ This usually involves defining the scope, tasks, deliverables and timeframe.

⁶ Typically, this is the case for an SME that has no clear strategy.

⁷ In addition to promoting awareness of actual energy use and providing a baseline for evaluation of changes affecting new energy use, implementation of EnMS facilitates the annual energy efficiency report that the client must provide to EBRD.

⁸ The figures used by the EBRD for financial analysis, such as cash flows and IRRs are all calculated pre-tax, since the incidence of taxes often cannot be determined without understanding client tax strategy and various national tax regimes.

⁴ An additional consideration is which investments may be desirable to assure compliance with both new and foreseeable regulatory requirements.

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presentation of the loan transaction to the credit committee, with precise loan figures and a final loan structure that takes into account projected energy savings and other factors. After the EE assessment, the loan is registered on EBRD's 0-3 EE scale, which ranks loans from the least to the most EE potential and tracks the amount of EE financing and expected savings in the project database.

Energy management systems (EnMS)

If a company has no EE investment strategy, the TOR may include measures to help the company develop a strategy and, in particular, become compliant with the international standards organization's requirements for voluntary energy management systems (ISO 50001). EBRD may offer specific assistance for establishing energy use baselines, reviewing industry best practices and benchmarks, determining energy savings targets, developing an energy savings plan, specifying the energy monitoring equipment required and the software needed to analyze and report on use. These costs will be reflected in the report presented to EBRD's Credit Committee. How these energy efficiency measures are implemented is tracked through required annual monitoring reports.

What are the costs to the bank?

Setting up a team

As noted above, an EE team requires at least two full-time employees to integrate EE into operations - a banker to set up the operation, and an energy efficiency engineer. The banker needs requisite IEE financing experience and the dynamism to spearhead internal changes. Both should be able to communicate effectively with other bankers. The banker will have to relinquish his/her regular duties in the short to medium term, so costs may be incurred in finding someone to pick up the workload. Hiring a finance-savvy EE engineer will be an additional cost, unless there is already one on staff.

Energy audits

Energy audits may cost around US\$5,000 for an energy screening survey to upwards of US\$100,000 for a full-scale major industrial plant audit. The degree to which spending on energy assessment leverages much larger investments in energy efficiency (1000€ in investment for 1€ in assessment) has created significant interest among government programs in supporting EE audits. This can enable bankers to fully or partially underwrite audit costs while establishing the EE business. Longer term, the return on investment from auditing should help clients be amenable to rolling the costs

into project finance.

Can you give us an example of a transaction?

Below is an example of the EBRD loan process for a cement plant in Kazakhstan.

The evaluation process

- Reviewed priorities and CAPEX plans of the company
- Filled out initial EBRD energy efficiency questionnaire
- Site visit by EBRD engineer to discuss priority EE projects
- Identified areas for technical support (energy audit, energy management system, alternative fuels, carbon finance, etc.)
- Following the signing of mandate letter with EBRD, administered energy audit and other technical support (free of charge for the client)
- Priority EE projects included in EBRD financing.

Potential projects identified

- Switch from "wet" to "dry" process
- Use alternative fuels/alternative raw materials
- Scenario analysis against the EU-ETS Phase III benchmarking
- Modernization of energy supply and distribution systems
- Process integration and optimization, and heat recovery
- Modernization of boilers and heat distribution networks
- Replacement of electric motors, compressed air systems and installation of variable-speed drives
- On-site heat and power generation and waste utilization
- Modernization and replacement of energy-intensive process equipment (furnaces, ovens, presses, etc.)
- Building insulation and energy efficient lighting
- Implementation of an energy management system:
 - Metering
 - Monitoring processes, workshops, norms and target setting.

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TABLE 1: Post-audit options

Project	Investment cost (thousand €)	IRR (%)	Payback (years)
Refurbishment of dry line	20,000	16	5.6
Replacement of mono-burner with multi-channel burner for kiln	198	89	1.1
Installation of dip tubes in line pre-heater cyclones	460	28	3.5
Replacement of coal-mill bag filter system	204	87	1.1
Energy management system	150	49	2
Boiler and heating distribution network replacement	70	15	6

Acknowledgments

IIP would like to thank Dr. Josué Tanaka for sharing his strategic vision and for his support for this paper, Peter Hobson and Jacquelin Ligot for their hands-on experience, Dimitri Koufos for a wealth of operational detail, Sabin Stanesco for his statistics, Jacquelin, Dimitri and Sabin for their close readings of the text, and each of them for their patience. Any errors are the sole responsibility of the author.

Relevant resources

You can find more relevant information and resources on Industrial Efficiency Finance Database: www.iipnetwork.org/databases/finance.

Our website also offers a rich range of resources on energy efficiency and industrial productivity: www.iipnetwork.org

About the Institute for Industrial Productivity (IIP)

IIP is a non-profit organization that provides companies and governments with information about energy efficiency best practices. It maintains a network of policy, technology and finance experts that compile and share best practices, tools and information to help boost government and industry efforts to reduce industrial energy intensity and greenhouse gas (GHG) emissions while improving productivity.

Contact us

If you have questions on mainstreaming energy efficiency finance, or want to learn how IIP can help you set up EE operations in your bank, please contact us: info@iipnetwork.org