

Managing Risk and Financing for Energy Efficiency and Renewable Energy Resources

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Presentation Outline

- Sustainable Energy at the EBRD
- Barriers/risks for SE projects
- EBRD approach and products
- New directions



EBRD Sustainable Energy Initiative (SEI) - Overview

EBRD countries of operations use up to 7 times more energy to produce each unit of GDP than Western Europe and produce disproportionately high levels of GHG

The EBRD launched in 2006 the SEI with the objective to:

- Double investments in sustainable energy to € 1.5 B in 2006-08
- Achieve diversification across SEI sectoral areas and ensure appropriate geographic distribution of SEI activities
- Strengthen organisation: scale up delivery + “mainstream” climate in the Bank’s operations

SEI responds to specific needs of the energy transition in the EBRD CoO and addresses the international agenda for IFIs to scale-up climate change mitigation investment

Results of SEI phase 1 - 2006-2008 :

- SEI investments reached € 2.66 B exceeding original three-year target by 77% through 166 projects
- Total project value reached € 14 B although not all directly linked to SEI
- Impact: 21 M tonCO₂ annual emission reductions (= GHG emissions of Croatia) and > 8 M toe in annual energy savings



SEI 2006-08 - Impact by sector

SEI by sector	Signed SEI (€ M)	share	Net CO ₂ saving (ktonCO ₂ /y)	share
Demand Side EE + Transport	1,223	46%	5,940	28%
Renewable Energy	277	10%	1,353	6%
Supply Side EE	1,165	44%	14,074	66%
Grand Total	2,665	100%	21,366	100%



EBRD - Energy Efficiency and Climate Change Team

- Identifying and defining SE projects and project components:
 - Joint marketing with other banking departments
 - Systematic screening of Bank pipeline
 - Provide free-of-charge (donor funded) energy audits and management advice with the assistance of EE consultants
- Structuring and implementing wholesale financing products, e.g. credit lines
 - Market analysis (e.g., market demand study)
 - Engaging and supervising energy efficiency experts
- Policy dialogue to enhance regulatory framework (e.g. RE) and to strengthen policy framework (e.g. EE)
- Carbon finance (origination and definition of emission reduction projects and purchase of carbon credits through Bank-managed funds)
- Sourcing donor funds



SEI Highlights

SEI has impacted all areas of the Bank's operations:

- Projects range from a Bulgarian family that insulated and triple-glazed their apartment for € 5,000 to the largest energy saving project to date in the Russian steel industry for € 600 M
- SEI instruments have not only saved energy, but allowed companies to become more competitive, e.g. new heating systems improved factory environment allowing the company to get ISO 9001 quality certification and add a third shift per day
- SEI is not just focussed on the demand side
- In the power sector, reduction of energy intensity in generation and distribution has reduced losses and improved service levels
- Rehabilitation of district heating has replaced oversized and leaking pipes and equipment, reducing losses and improving services



Barriers/risks to SE investments for enterprises

- Competition for scarce financial resources: tendency to focus on core business and short term objectives (expansion investments are usually more attractive than cost-reduction investments to management and shareholders)
- Energy bill as a proportion of cost base may not be high enough for efficiency improvements to be a priority
- Company planning may not take into account future tariff increases or environmental obligations (e.g., on energy-related pollution)
- Information gap: lack of dedicated in-house energy management expertise to assess and promote SE projects; uncertainty and lack of information about available options and their financial reward
- High capital intensity of SE investments (especially RE): gearing constraints
- Lack of enabling regulatory environment



Barriers/risks to SE investments for households

- High capital intensity of SE investments (long return); EE investments often made at the time of general renovation
- Lack of enabling regulatory environment (e.g., ownership of common parts; regulation on housing associations; O&M procedures; EE standards)
- Information gap: low awareness about the technologies available and benefits of SE projects; lack of dedicated skills
- Affordability
- Agency problem (e.g., related to lack of metering)
- Limited/uncompetitive market for SE technologies
- Competition of advanced SE technologies with cheaper sub-optimal solutions



Barriers/risks to SE financing for local banks

- Uncertainties about market demand from companies and individuals for EE financing
- Additional costs resulting from Central Bank reserve requirements on external borrowing in certain countries
- Lack of technical expertise for appraisal and risk assessment; lack of information and misconceptions about the technical risks and financial benefits of energy conservation and SE in general
- No specific marketing of financing for such activities
- Tenors longer than those of normal business lending may be necessary for financing



Case Study: Astarta (Ukraine)

- €14.2 M loan with €10.7 M for EE components to leading sugar producer to introduce EE improvements at each of the company's five sugar plants (e.g., new drying equipment, new concentrators, upgrade of heat supply systems, etc.)
- Energy savings estimated at 25-30% with GHG emission reduction >300 kton CO₂ (over 2008-12)
- Technical assistance (funded by the Central European Initiative):
 - Two Energy Audits
 - Energy Management Training
- Carbon Finance: signing of the first carbon transaction in the agribusiness sector in Ukraine under the EBRD/EIB MCCF



Case Study – Kazakhstan Policy Dialogue

In June 2008, a Sustainable Energy Action Plan (SEAP) for Kazakhstan was signed between the Bank and the Kazakh Government

Objective: Assist Gov. of Kazakhstan in reducing energy intensity of economy by:

- Improving framework of energy legislation and regulation
- Supporting investments in power generation, T&D, industrial EE and RE

SEAP Priority Activities include:

- Draft laws review and improvements
- Strengthening of regulatory agencies and specialized bodies
- Tariff levels, metering and methodology improvements
- Focusing on priority investments and financing

Expected outcomes:

- Link top priority policy objectives of Gov. of Kazakhstan to EBRD financing instruments
- Creating an enabling environment in which related investments can achieve maximum impact



Sustainable Energy Financing Facilities (SEFFs)

- Credit lines through partner banks for on-lending to investments in EE in the industrial sector, RE and residential EE
- Donor funded technical assistance from specialised consultants to Sub- borrowers and Participating Banks
- Incentive payments paid to Participating Banks and completion fees paid to Sub-borrowers upon successful implementation of eligible investments
- Successful track record: SEFFs are currently at the implementation stage in Bulgaria (industry and residential); Ukraine (industry); Georgia (industry and residential); Romania (industry); Slovakia (industry and housing associations) Kazakhstan (industry), and Western Balkans (industry and public buildings)

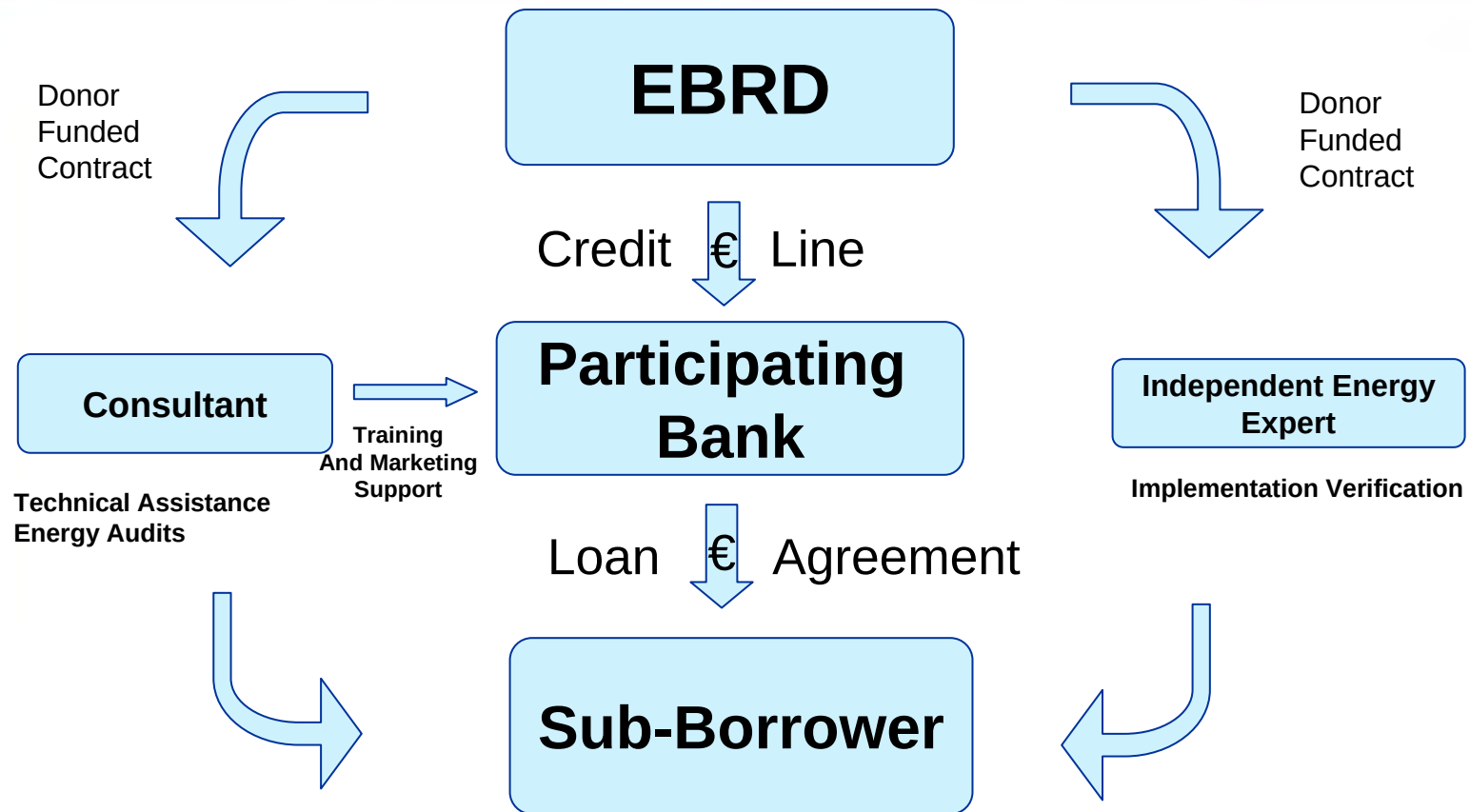


SEFFs - Eligibility Criteria

- For Financial Intermediaries
 - Subject to the usual EBRD due diligence
- For Sub-borrowers
 - Private industrial enterprises, individuals, housing associations
 - Subject to credit approval in line with the Participating Bank's credit process
 - No gambling, real estate, banking, insurance or the manufacture and trade in arms etc.
- For Investments (Sub-projects)
 - Reduction in energy consumption / improvement of energy performance
 - Industrial investments up to € 2.5 M
 - Compliance with national environmental policies
 - Minimum investment Internal Rate of Return (IRR)



SEFFs - Structure



** Incentive payments paid upon completion of investments to Participating Banks and Sub-borrowers*



SEFFs - Technical Assistance

- **Project Consultant**

Consultancy firm working with the Participating Banks and Sub-borrowers to identify eligible sub-projects, perform Energy Audits, draft Rational Energy Utilization Plans (REUPs), prepare loan applications, undertake marketing activities and ensure optimal uptake and utilisation of the facility

- **Independent Energy Expert**

Consultancy firm to conduct completion validation reviews for each sub-project to ensure that they met the eligibility criteria



SEFFs - Incentive Payments

- **For Sub-borrowers**

Fees paid to sub-borrowers upon successful completion of eligible investments

- **For Participating Banks**

Fees paid to participating banks based on disbursed and outstanding amounts of eligible sub-loans as an incentive to roll-out the facility and to compensate for additional monitoring & reporting requirements. Fees will payable upon disbursement of Sub-loans but will be subject to completion of eligible Sub-projects financed with SEFF loan proceeds.



SEFFs - Existing Frameworks

Framework	Eligible country	Board approval date	Framework amount	Type of eligible projects*
Bulgaria Energy Efficiency and Renewable Energy Credit Line (BEERECL)	Bulgaria	27/01/2004	€155 million	IEE, RE
Residential Energy Efficiency Credit Line (REECL)	Bulgaria	17/05/2005	€50 million	REE
Ukraine Energy Efficiency Programme (UKEEP)	Ukraine	18/10/2006	€150 million	IEE, RE
Caucasus Energy Efficiency Programme (CEEP)	Georgia, (Armenia), (Azerbaijan)	24/07/2007	\$60 million	IEE, REE, RE
Slovakia Sustainable Energy Finance Facility Framework (SLOVSEFF)	Slovakia	23/10/2007	€60 million	IEE, REE, RE
EU Energy Efficiency Finance Facility (EUEEFF)	Bulgaria, Romania	03/12/2007	€100 million	IEE
EU/EBRD Western Balkans Sustainable Energy Credit Line Facility (WeBSECLF)	Bosnia & Herzegovina, FYR Macedonia, Montenegro, Serbia	25/11/2008	€60 million	IEE, RE
Kazakhstan Sustainable Energy Financing Facility (KAZSEFF)	Kazakhstan	10/12/2008	\$75 million	IEE, RE

* Industrial Energy Efficiency (IEE), Residential Energy Efficiency (REE) and Renewable Energy (RE)



Case Study: Bulgaria Energy Efficiency and Renewable Energy Credit Line (BEERECL)

- EBRD Credit Line - EUR 155 M
 - Financially intermediated by 8 local Bulgarian banks
- KIDSF Grant Support (over 95% EU contribution) – EUR 35,2 M
 - Technical Assistance - EUR 13.5 M
 - Incentives to Sub-Borrowers and Banks - EUR 21.7 M

Results to date

- | | |
|--|-------------------------------|
| • Number of sub-loans: | 121 (60% RE) |
| • Total disbursements: | EUR 83 M |
| • Average size of sub-loans: | EUR 680 k |
| • Electricity equiv. saved: | 870 GWh/year |
| • CO ₂ emissions reduction: | 550 ktonCO ₂ /year |



Case Study: Slovak SEFF

- €60 M of EBRD loans to local banks for on-lending to enterprises (EE in industry and RE) and housing associations (residential EE):
 - 4 participating banks
 - Portfolio of projects € 34 M with pipeline of € 20 M (under preparation)
 - 208 residential EE projects
 - 17 industrial EE and RE projects
- **Estimated Impact:**
 - ~11,000 standard flats refurbished and 33,000 people benefiting from lower energy bills and better thermal comfort
 - Avg energy savings: 30%. Cost savings = 1 extra month of pension per year
 - Annual savings: 130 GWh (primary energy); > 25 ktonCO₂
- **Grant Support** from Bohunice International Decommissioning and Support Fund (BIDSF) of €15 M: technical assistance (€ 2.5 M), incentives to sub-borrowers (€ 10 M) and participating local banks (€ 2.5 M)



Case Study: UKEEP (Ukraine)

UKEEP: Credit line for Private sector investment in EE and RE projects

- Initial Framework amount €100 M (increased to €150 M)
- Technical Assistance funds provided by Sweden and Austria for Programme implementation (project identification and preparation)

Results:

- 4 participating banks
- 39 sub-projects approved totalling € 73 M
- Energy savings: 1.9 GWh/year
- Emission reductions: 450k tonCO₂/year



SEI Phase 2

SEI Phase 2: launched at EBRD Annual Meeting in May 2009. Objectives:

- SEI financing target: € 3÷ 5 B (total project value: of € 9÷15 B)
- Carbon emissions reduction range: 25÷30 M tonCO₂/annum
- Technical assistance grant funding: €100 M; investment grant funding: € 250 M

SEI PHASE 2 DIRECTIONS: MORE OF THE SAME

Building on existing SEI areas; further scaling up investment within 5 core activities:

- Industrial EE
- Sustainable energy financing facility
- EE and reduction of carbon intensity in power sector
- Financing of RE development
- Municipal Infrastructure EE



SEI Phase 2: New Directions

New priority directions under SEI Phase 2 (driven by demand and evolving global priorities):

- **Building EE:** dedicated financing schemes to pursue the vast opportunities in this field (buildings use 40% of final energy consumption in the region)
- **RE, focus on biomass:** developing programmes aimed at creating markets for biomass suppliers and for penetration of biomass technologies
- **Climate Mitigation in Natural Resources**
- **Transport:** development of urban public transport network, opportunities across integrated transport infrastructures (e.g. railway operators); traffic management system
- **Adaptation:** including adaptation in the risk assessment of projects and developing specific project activities
- **Carbon Markets:** technical assistance to promote carbon market developments, management of carbon funds and Green Investment Schemes



Thank you

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