Sustainable Energy Initiative

Scaling-up finance for climate change mitigation

December 2009

The EBRD's Sustainable Energy Initiative (SEI) was launched in 2006 to address the twin challenges of energy efficiency and climate change in its region – which is one of the most energy intensive in the world.

SEI market segments include:

- large scale industrial energy efficiency
- sustainable energy financing facilities through financial intermediaries
- power sector energy efficiency
- renewable energy
- municipal infrastructure energy efficiency, including district heating and public transport network rehabilitation and
- carbon market support.

Strategic approach and objectives

Building on the record and experience established over the SEI Phase 1 (2006-08), the following objectives to scale up energy efficiency and renewable energy financing for SEI Phase 2 over the period 2009-11 have been approved:

- investment target within a range of €3 to 5 billion within a total project value range of €9 to 15 billion
- a TC funding target of €100 million
- an investment grant/concessional finance target of €250 million
- set a physical carbon reduction target estimated within a range of 25 to 35 million tons of CO_2 per annum.

Driven by demand and by evolving global priorities, the following additional areas are being developed during Phase 2:

- buildings energy efficiency
- stationary use of biomass
- climate change mitigation in natural resources sectors
- transport energy efficiency, and
- climate change adaptation.

The Bank has also been expanding its policy dialogue activity under SEI, including the signing of Sustainable Energy Action Plans with the Governments of Bulgaria, Kazakhstan, Ukraine and most recently Russia.

SEI results by sector

Category	Cumulative SEI Results Phase 1 2006-2008		SEI Phase 2 Results Ytd (Nov 09)	
	Signed (€ million)	Number of projects	Signed (€ million)	Number of projects
SEI 1 Industrial Energy Efficiency	679	56	267	17
SEI 2 Sustainable Energy Credit Lines	362	31	108	8
SEI 3 Cleaner Energy Production	1,010	19	565	10
SEI 4 Renewable Energy	227	14	124	4
SEI 5 Municipal Infrastructure Energy Efficiency	388	46	79	13
Total	2,666	166	1,143	52

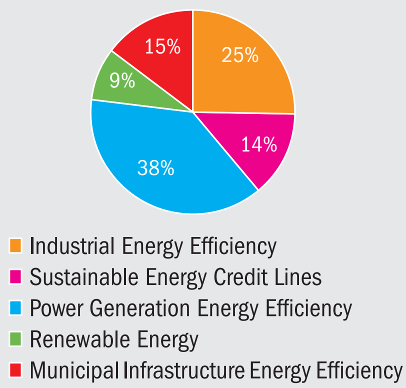
At a glance

- financed over 200 SEI projects in 27 countries
- SEI investment totalling €3.8 billion since 2006
- total project value of €18 billion
- integrates long-term funding, technical assistance and grants
- leverages scarce public sector resources
- 64 per cent of projects in the private sector
- SEI financing accounted for 20 per cent of the EBRD's total investment in 2008

Impact

- 24 million tonnes of annual CO_2 reduction, equivalent to the annual emissions of Croatia
- Annual energy-savings of over 8 million tonnes of oil equivalent (toe), about three times the energy consumption of Albania.
- SEI Phase 1 results were 77 per cent above the original target of €1.5 billion

SEI phase 1 results



SEI project highlights

Astarta - Ukrainian sugar producer
Producing sugar requires a lot of energy – more than in almost any other food production process. EBRD signed a loan with Astarta, one of Ukraine's leading sugar producers, amounting to US$ 20 million. About US$ 15 million is being used to introduce energy efficiency improvements at each of the company's five sugar plants. Astarta will purchase and install equipment that will improve productivity whilst consuming less energy. US$ 5 million will be invested in Astarta's sugar beet farming operation. This loan has been complemented by an energy audit arranged by the EBRD. Energy savings are estimated to be as high as 25-30 per cent with carbon emission reduction in the period 2008-2012 estimated at over 300 kton CO_2. Moreover, the EBRD-EIB Multilateral Carbon Credit Fund has signed a contract for the purchase of carbon credits under the Kyoto Protocol Joint Implementation (JI) mechanism. This is the first JI transaction in the Ukrainian agribusiness sector and will have a strong demonstration effect.

Rotor Wind Farm – Turkey
The EBRD signed its first transaction in Turkey in May 2009 after starting operations in the country in October 2008. The Bank will lend €45 million (total project value €209 million) for the financing of Rotor Wind Farm, a 135 MW wind farm being developed by Zorlu Enerji. Upon completion, this will be the largest wind farm in Turkey. The project builds on the experience the Bank has in financing wind farms. Currently, 40 out of 54 turbines have been erected. The project had 15 turbines (37.5MW of capacity) commissioned, connected to the grid and producing electricity, thus generating the first early (pre-completion) revenue during September 2009. The project remains on track to be completed by January 2010.

Ukraine Energy Efficiency Programme (UKEEP)
The €150 million Ukraine Energy Efficiency Programme, has already supported investment in 39 profitable industrial projects that save energy equivalent to the average electricity consumption of almost 500,000 European Union households, avoiding emissions equivalent to the average annual emissions of more than 200,000 cars.

UKEEP results so far:
- Financially intermediated through four participating banks
- 39 sub-projects approved totalling €73 million
- Energy savings: 1.9 GWh/year
- Emission reduction 450k tCO_2/year

Bulgarian Energy Efficiency and Renewable Energy Credit Line (BEERECL)
The €155 million BEERECL facility aims to support investments in small-scale energy efficiency and renewable energy projects that mitigate the closure of the Kozloduy Nuclear Power Plant by either reducing energy demand or by replacing lost capacity with green energy supply.

BEERCL results so far:
- Financially intermediated through eight participating banks
- 134 sub-projects approved totalling €89.8 million
- Energy savings: 905 GWh/year
- Emission reduction 576k tCO2/year
- Renewable energy capacity of 65MWe added

Russia Sustainable Energy Financing Facility (RuSEFF)
The new €200 million Russian Sustainable Energy Financing Facility, supports Russian industry and commercial enterprises that wish to invest in energy efficiency or renewable energy projects. Loans of up to €5 million are available through local banks to finance the sustainable energy component of eligible projects.

Garadagh
The EBRD signed a €20 million senior loan to Garadagh, Azerbaijan's largest cement producer majority owned by Holcim Ltd., in 2009. In order to capture market growth in Azerbaijan and to ensure local competitiveness as well as environmental compliance with Holcim Group standards, Holcim has decided to replace wet cement production technology at Garadagh cement plant with dry technology, with capacity increase from 1.3 million to 1.7 million tonnes of cement annually. As a result, energy consumption for clinker production will be reduced by about 50 per cent.

The specific net CO_2 emissions for the increased capacity in Garadagh are estimated at less than 600 kg CO_2/tonne cement. The project has also been structured to meet the European Union Integrated Pollution and Prevention "IPPC" Directive and the IFC EHS Guidelines for Cement Manufacture, as it will include appropriate dust and NO_x abatement measures, meeting both Azerbaijan's and EU environmental standards.

Serbia railways
A €100 million loan was provided to Serbian Railways (ZS) in 2009 for the financing of up to 30 two/three car sets of Electrical Multiple Units (EMUs) for use on the main inter-city services. These will replace an ageing passenger fleet with new EMUs which will improve service frequencies and quality and, in turn, free up locomotives for the freight business. The project will result annually in primary energy savings exceeding 400 GWh and carbon emission reductions of more than 100,000 tCO_2e as a consequence of substitution of current (energy inefficient) locomotives as well as from shifting passengers and freight from the road.

SEI carbon finance

SEI promotes and facilitates the development of the carbon market in the EBRD countries of operations through the management of two carbon funds. Key activities include carbon fund management, technical assistance for projects to qualify under CDM and JI and policy dialogue to enable an operational regulations for carbon credits generation and transfers.

The first carbon fund EBRD established is the €23 million Netherlands Carbon Fund, which has completed its purchases. The €190 million Multilateral Carbon Credit Fund (MCCF) is jointly managed with the European Investment Bank, and is purchasing carbon credits for six sovereign and five private participants. Carbon fund results to date include:

- 12 Emission Reduction Purchase Agreements (ERPAs) signed for a volume of 6.7 million carbon credits
- key host countries are Bulgaria, Romania, Ukraine and Russia
- key technologies are the emission reduction projects are renewable energy (hydro), energy efficiency in industry and power and avoided gas flaring projects, and
- two UNFCCC registered projects, being the Sreden Iskar Cascade HPP Portfolio Project in Bulgaria and the Jradzor Small Hydroelectric CDM project in Armenia.

EBRD is also active with the MCCF in the development of Green Investment Schemes (GIS), whereby an eligible country of operation sells surplus Assigned Amount Units (AAUs) to a buyer, and whereby such sale proceeds are used to co-finance climate change mitigation projects. In November 2009, MCCF facilitated Poland's first sale of AAUs for €25 million linked to a Green Investment Scheme.

Leveraging resources

Given the constraints on public funds, leveraging private sector funding is a priority. The SEI has been successful in achieving this, accounting for the largest share of overall SEI project value.

Examples	EBRD finance	Total finance (incl. external)	Technical assistance investment grant	Finance leverage	Grant leverage
Industrial Energy Efficiency					
Russia Steel Manufacturing	150	714	0.03	x 4.7	x 23.8k
Power Energy Efficiency					
Kazakhstan	46	304	0.03	x 6.6	x 10.1k
Municipal Energy Efficiency					
Romania District Heating	10	18.6	0.3	x 1.8	x 62
Private District Heating	12.5	40		x 3.2	
Renewable Energy Fund	25	220		x 8.8	
Armenia Renewable Energy	5	16.5	2.2	x 3.3	x 8
Energy Efficiency Credit Lines					
Ukraine Industrial Energy Efficiency	55.5	141	2	x 2.5	x 70.5
Bulgaria Multitarget Energy Efficiency	90	145	17.7	x 1.6	x 8
Slovakia Housing Energy Efficiency	38	38	9	x 1.0	x 4

SEI capacity building activities

Sustainable Energy Financing Facilities

The transfer of specific skills to the local market is one of the long-lasting benefits of the EBRD's Sustainable Energy Financing Facilities (SEFFs). In addition to the economic and environmental benefits of the investments themselves, local bank staff become familiar with the particulars of sustainable energy investments and in which business sectors to find them, prospective borrowers learn why sustainable energy projects make good business sense and how to finance them.

Moreover local engineers become aware of the best practice investment opportunities and where to identify them. As a result of regular exposure to international experts, this additional capacity builds up from both formal training and on-the-job learning by doing. The project development and implementation legacy that remains will facilitate the financing of future sustainable energy investment opportunities.

Ukraine Carbon Market Facilitation Programme

The main objective of the Ukraine Carbon Market Facilitation Programme (UCMFP), funded by the Government of Spain, is to support the development of a well functioning carbon market in Ukraine. Activities include, amongst others, forecasting Ukraine's greenhouse gas emissions and reduction potential, examining the potential to develop a pilot Green Investment Scheme transaction, development of the institutional and legal framework for Ukraine to effectively participate in the carbon markets. This programme also includes the development of operational rules and procedures in the form of guidance manuals and valuation and determination tools.

Through engaging an international team of experts with a strong local counterpart, the UCMFP is able to share and implement best international practices, tailor-made to the local context. The programme covers the entire range from analysis to implementation, including the development of draft legal orders to enable such. The programme started in March 2009 and runs for a period of 18 months until September 2010.

IEA Energy Efficiency Governance

The aim of this assignment is to help governments to maximize the potential of energy efficiency, which is widely accepted as providing the cheapest solutions to greenhouse gas mitigation, energy security and development needs. But capturing the benefits of energy efficiency is proving difficult. To be more effective, the complete economic system and governance framework need to be addressed. To date, much attention has been focused on establishing the correct market mechanisms to stimulate energy efficiency investments but little work has gone into understanding the governance arrangements necessary for achieving energy efficiency improvements.

The IEA Energy Efficiency Governance project will address this gap by assisting the development of institutions similar to the Carbon Trust in the UK or Enova in Norway. The IEA and the EBRD have now started the first phase of this project by gathering the relevant information for energy efficiency practioners and governmental officials. This information will help them to establish the most effective energy efficiency institutional structures at national and local levels and allocate appropriate resources for energy efficiency investments. The Swiss government has contributed €115,000 from its EBRD Swiss Technical Cooperation Fund to cover part of the costs of the project.

Energy Efficiency Management Systems

In 2009 the EBRD initiated a programme to support companies implementing integrated Energy Efficiency Management Systems (EEMS). Internally generated resources (from the EBRD Shareholder Special Fund 2008) for €4.5 million will be used for co-financing up to 50 per cent of the purchase of equipment/ instrumentation and the cost of installation related to EEMS in selected sectors.

The beneficiaries of the programme will be some 10-15 companies in selected EBRD's countries of operations (Ukraine and other ODA countries) in sectors (such as food processing, commercial building, heat supply systems) where the envisaged introduction of EEMS can maximise the demonstration effect and catalyse the development of new markets for providers of energy efficient technologies.

Various studies suggest that the economic market potential for energy efficiency in the EBRD region ranges between 20-40 per cent (at current energy prices). Despite this economic potential, a wide range of information gaps, market failures, and policy imperfections still hold back investments, providing the ground for the EBRD to become involved by blending its financing with technical assistance for demonstration and pilot projects. The introduction of EEMS as a part of a comprehensive energy efficiency strategy will help addressing these issues. To date six sub-projects have qualified under the programme which is expected to be fully committed by 2010.

SEI donor funds

SEI donor fund mobilisation: the original target over three years was €100 million. Three years after its launch, this target was significantly exceeded with the mobilisation of €97 million for technical cooperation (TC) and €121 million for investment grants. Five multi-donor funds and 22 bilateral donors contributed to Phase 1 of the SEI providing €218 million in technical assistance and grant co-financing.

High donor mobilisation and funding have been a major determinant of SEI over-performance. With Phase 1 donor funding mobilisation over double the original target. In addition total project value, although not all linked to specific SEI activity, was close to treble the original estimate. The contribution of donors to SEI Phase 1 is strongly acknowledged.

SEI Partnerships: To tackle the barriers to sustainable energy development, especially demand side energy efficiency, substantial funds for technical assistance and grant co-financing are needed. Donor funds in the area of sustainable energy used by the Bank include: technical co-operation (TC) funding for feasibility studies and energy audits; and investment grants, where donor funds are utilised to provide an incentive to borrowers and banks to overcome specific market barriers.

Investment grants will be even more important in the current crisis context if the shift to a lower carbon economy is to be accelerated. A strong partnership has been established and continues to be built to enable the EBRD to access these funds. The initial funding base of the SEI during Phase 1 was provided by bilateral donors and mainly the EU. This has been expanded to include the Global Environment Facility (GEF) and the Climate Investment Funds (CIFs). The SEI partnership with donors is built on strong mutual benefits.

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