

# Green Energy Special Fund



**European Bank**  
for Reconstruction and Development

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**The EBRD's Sustainable Energy Initiative (SEI) was launched in 2006 to meet the needs of energy transition in the Bank's countries of operations, and to contribute to the reduction of the high energy intensity of the region. Since then the Bank has been successful in implementing a wide range of financing instruments to promote energy efficiency and in developing renewable energy through leveraging its own resources with both public and private sources of financing.**

The launch of SEI Phase 2, in May 2009, was aimed at further "mainstreaming" sustainable energy investment within the Bank. The EBRD aims to continue to provide carefully designed, integrated packages of loans, technical assistance and investment grants, and to use new approaches to finance climate change adaptation and mitigation.

Within this context, the municipal and environmental infrastructure (MEI) sector, alongside other Banking departments, has been increasing its efforts to introduce highly energy-efficient, green technology components within standard loan-financing terms. However, the Bank has had to compromise, as municipal clients tend to adopt standard, less energy-efficient products, due to the high initial capital expenditure requirements associated with advanced technology, as well as the current budgetary challenges affecting many of the Bank's countries of operations. If municipalities are not supported, they may continue to upgrade infrastructure with cheaper – rather than least-cost – solutions, locking themselves into these investments over long time horizons.

The Bank created the Green Energy Special Fund (GESF) in March 2011 to address the affordability gap which hinders clients in choosing the most advanced, highly efficient technologies in investments financed by the Bank. Country energy policies, both in Europe and internationally, often include some form of subsidised financing, in order to create a viable platform for the acceptance and

mainstreaming of "best available technologies". The GESF is providing the Bank with the means to considerably expand its climate change mitigation investments and to develop appropriate competencies in adaptation. The GESF is therefore fully in harmony with Bank policies, including SEI Phase 2.

## Application of GESF funds

The application of GESF funding is generally open, and is not tied to a particular technology, product or sector. The following green energy components are examples of technologies that could be financed.

**Light-emitting diode (LED) street lights:** These latest generation lights are around 75 per cent more energy efficient than the most typical metal halide street lighting technology found today in the Bank's countries of operations, and around 50 per cent more efficient than standard high-pressure sodium (HPS) lighting found in installations dating from the 1990s. In addition, LED has a useable life three to four times longer than HPS, and carries far lower maintenance costs. However, as with other emerging technologies, the initial capital outlay is still relatively high – about three times higher than HPS. Consequently, GESF subsidised financing can help lower the still high capital expenditure barrier by applying long-term, subsidised financing to accelerate the implementation of this important efficiency improvement in lighting technology for streets and roads.

**Solar technology:** "third-generation solar" demonstrates an increased energy conversion rate over earlier technology, and has introduced the ability, through nanotechnology, to make photovoltaic sheets that are thin and flexible. While these photovoltaic sheets are not yet commercially available, the concept of buildings and vehicle fleets clad in "solar paint" is projected in the medium term. In addition, bacterial-based solar technology would provide even greater efficiencies.

**Energy Management Systems ("EnMS"):** These systems provide for electronic metering units at the consumer level, integrated with a cable data collection system and a central PC unit equipped with the required software for monitoring wastewater operations. EnMS enables a company to achieve more accurate information about energy losses (where and why such losses occur) and therefore to constantly improve its energy efficiency performance.

**Biomass boilers to generate heat:** The use of biomass in heating systems is beneficial because it uses fuel in the form of pellets (from forest, wood processing or municipal waste), wood chips, straw, and other vegetative matter to produce heat and electricity that ultimately has less impact on the environment than fossil fuels. This type of energy production has a more limited long-term effect on the environment because the carbon in biomass is part of the natural carbon cycle; the carbon in fossil fuels is not, and fossil fuels permanently adds this "new" carbon to the environment when burned for fuel. However, biomass-fuelled plants require capital expenditure that is typically two to three times higher than that required for fossil fuel plants, making it an expensive alternative despite the benefits.

**Flue gas condensation:** Flue gases that are produced in boilers fired with natural gas or biomass contain a significant amount of steam (water). If those gases are cooled they release low temperature heat from the resulting condensation of water, which can be recovered and used for purposes such as municipal heating. The condensation of water releases more than 2 gigajoules

(560 kWh) per tonne of condensed water. This heat generation process is very efficient. With a typical boiler efficiency of 90 per cent, the efficiency gain of the flue gas condensation may be up to 6 per cent, making this heat generation process operate at close to 100 per cent efficiency.

## Main terms and conditions:

The GESF only provides subsidised loans. It is not a grant facility.

Financing is untied, to allow for open and competitive tendering.

Projects that are to be financed with GESF funds are decided by the Bank and are structured as a parallel loan to a standard EBRD transaction, where the GESF loan component will normally be up to one-third of the amount of the regular EBRD financing. The GESF loan is channelled solely towards financing the costs of the green energy component.

Projects must have positive transition impact and promote best available and energy-efficient technology.

### Investment criteria:

- ▶ potential for energy savings
- ▶ cost-effectiveness
- ▶ demonstration potential
- ▶ implementation potential
- ▶ financial sustainability
- ▶ risk management
- ▶ mitigation of market distortions
- ▶ compliance with environmental standards, policy and law.

### Beneficiaries:

- ▶ central governments, local governments, utility companies and private companies as part of public-private partnership/private finance initiative schemes
- ▶ all EBRD countries of operations
- ▶ small and medium-sized municipalities and early transition countries.

### Financing terms:

- ▶ subsidised interest rates proportional to estimated output (that is, environmental benefits) and relative to a reference market rate (that is, the EBRD rate) for the project – (see GESF Pricing Methodology, below)
- ▶ loan tenure not exceeding the expected lifetime or period of usage of the asset
- ▶ grace period not exceeding the planned implementation period of the asset.

### GESF Pricing Methodology:

- ▶ Subsidised interest rate relative to a reference market rate, where the net present value of the accumulated interest rate subsidy shall be equal to or less than the estimated value of monetised environmental benefits
- ▶ Estimated monetised environmental benefits = accumulated energy savings converted into carbon equivalents multiplied by €22/tCO<sub>2</sub>eq (that is, the internationally accepted shadow price for carbon)
- ▶ Net present value of the interest rate subsidies will be calculated based on a 5 per cent (social) discount rate
- ▶ GESF interest rates, once calculated, will be fixed for the lifetime of the loan
- ▶ GESF interest rates will not be offered below 3 per cent.

## Contacts

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## Contribution to GESF by TaiwanICDF

The International Cooperation Development Fund (TaiwanICDF) made a contribution to the GESF of US\$ 80 million, in May 2011, which is available for disbursement under the GESF for 10 years. During this period, any suitable projects identified by the Bank could be considered for financing by the EBRD and the GESF, and using the resources provided by TaiwanICDF (subject to the specific preferential funding terms under the TaiwanICDF contribution).

The application of TaiwanICDF funds is preferentially applied to the following of the countries where the Bank invests Albania, Armenia, Azerbaijan, Bosnia and Herzegovina, Bulgaria, Croatia, Egypt, FYR Macedonia, Georgia, Hungary, Jordan, Kazakhstan, Kyrgyz Republic, Moldova, Mongolia, Morocco, Poland, Romania, Russia, Serbia, Slovenia, Tajikistan, Tunisia, Turkey, Turkmenistan and Ukraine. However, other countries may be considered for funding, case-by-case.

The first project under GESF that was co-financed with TaiwanICDF was in Chisinau, Moldova, and signed in December 2011. The Chisinau Road project includes a GESF contribution of €1.4 million to finance the upgrade of the city's street lighting, alongside EBRD investments supporting the rehabilitation of selected street and footpath networks and the establishment of on-street parking facilities.

A further co-financed project, in Valcea, Romania, was signed in October 2012. GESF financing is supporting SC Apavil SA Ramnicu Valcea, the water utility operating in Valcea County, with the implementation of sustainable energy components including the introduction of small hydropower turbines inside the main lines of the water network, and the introduction of a modern Energy Management System. Both components are expected to substantially improve the operational efficiency of the company through reduced energy costs, and will support the environmental sustainability of the service.