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Steering Committee of the Energy Efficiency 21 Project
Sixteenth session, 29 June -1 July 2005
(Item 5 of the provisional agenda)

# UNF/UNFIP ENERGY EFFICIENCY INVESTMENT PROJECT DEVELOPMENT FOR CLIMATE CHANGE MITIGATION

Note by the secretariat

During its fifteenth session in May 2004, the Steering Committee "welcomed the decision of the Advisory Board of the United Nations Fund for International Partnerships (UNFIP) to recommend the project proposal 'Financing Energy Efficiency Investments for Climate Change Mitigation' for funding to the United Nations Foundation (UNF) for consideration during its June 2004 Board Meeting" (ENERGY/WP.4/2004/4). The following proposal for a new phase of the Energy Efficiency 21 Project (EE21), submitted by the UNECE on "Financing Energy Efficiency and Renewable Energy Investments for Climate Change Mitigation", was approved for funding by the UNFIP Advisory Board and the UNF Board of Directors during their May/June 2004 meetings.

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| **Project Title:** | Financing Energy Efficiency and Renewable Energy Investments for Climate Change Mitigation |
| **Duration:** | 3 years |
| **Requesting Agency:** | Economic Commission for Europe, Energy Efficiency 21 Project |
| **UN Agencies:** | ESCAP, UNDP-GEF, UN Resident Coordinators; the project will be implemented in coordination with relevant UNFCCC activities |
| **Geographical Location:** | Selected countries in south-eastern Europe, eastern Europe and the Commonwealth of Independent States (CIS) |

**National Counterpart Institutions:** Municipal authorities, Ministries of Energy and Environment, Energy Conservation Agencies

**Cooperation in Associated Agencies**: French Global Environment Facility (FFEM), Swiss Reinsurance Company (Swiss Re); Conning Asset Management; TCW Energy and Infrastructure Group; Commonwealth Bank of Australia (CBA); Caisse des Dépôts de Consignations Group (CDC) IXIS; Energy and Communications Solutions LLC.

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| **Project Budget/Cost:** | $ 6 million |
| **PUNF/UNFIP Funding:** | $ 2 million |
| **Proposed Co-financing:** | $ 4 million 1:2 matching funds with UNF/UNFIP |

**Brief Description:** The project is to assist south-east European, east European and CIS countries to enhance their energy efficiency, diminish fuel poverty arising from economic transition and meet international environmental treaty obligations under the UNFCCC and the UNECE. It is to accelerate and extend the impact of an earlier UNF supported project (ECE-CIS-99-043) that successfully leveraged $25 million of financing for energy efficiency investments in East European hospitals, municipal lighting and district heating systems. It will provide a pipeline of new and existing projects to dedicated public private partnership investment funds that can provide up to $500 million of debt, equity or both to project sponsors. It will establish an expanded and enhanced network of selected municipalities linked by advanced Internet communications with international partners for value added information transfers on policy reforms, financing and energy management. It will provide case study investment projects in renewable energy technologies, electric power and clean coal technologies.

The project will (a) develop the skills of the private and public sectors at the local level to identify, develop and implement energy efficiency and renewable energy investment projects; (b) provide assistance to municipal authorities and national administrations to introduce economic, institutional and regulatory reforms needed to support these investment projects; and (c) provide opportunities for banks and commercial companies to invest in these projects through professionally managed investment funds established within the framework of the project. It will reduce project finance transaction costs by developing multilingual on-line criteria, templates and UNECE standards for energy efficiency investment project development. This innovative project aims to promote a self-sustaining investment environment for cost-effective energy efficiency projects for carbon emissions trading under the UNFCCC Kyoto Protocol and with voluntary schemes for “carbon neutral” business.

**Background and Analysis:**

**Problem Statement and Justification**: Eastern Europe and the CIS suffer from severe economic and environmental problems caused by their inefficient and polluting energy systems. At the same time, some of the best opportunities for reducing global greenhouse gas (GHG) emissions will come from investments to improve energy efficiency in these countries. While the east European economies are three to ten times more energy intensive than the western market economies, energy efficiency has been declining in Eastern Europe and the CIS since economic transition began. Efficient and reliable energy systems are essential for managing economic transition, enhancing environmental conditions and ensuring energy security.

This project addresses energy efficiency and renewable energy investment project development and finance in industrial, residential and commercial sectors. The energy consumed by these services and systems is generally the responsibility of municipalities, local authorities or local utilities that receive direct or indirect state subsidies. While city administrations, local authorities and businesses have an incentive to invest in energy efficiency; they have inadequate experience in pursuing such measures and a crucial lack of access to capital. In addition, because of subsidies, lack of adequate metering and controls for actual energy use, consumers themselves have little incentive to invest in energy savings and no capacity to introduce change.

**The present situation**: as a Benchmark at the outset of the project, progress in economic transition has been uneven across central and eastern Europe, but reforms in some countries make certain energy efficient and renewable energy technologies and related services begin to appear to be commercially attractive. Large investors and significant international companies would be more inclined to enter this market in the region if large and reasonably homogeneous markets existed across countries. Commercial banks and private sector investors would be more prepared to invest in the region if acceptable investment vehicles were established for the region or existing investment funds could be more readily accessed. Even under existing economic conditions, commercial grade energy efficiency projects are beginning to emerge in some countries. Some commercial banks have been successful in financing projects in these sectors since 1991 in central Europe. International financial institutions have set up loan guarantee programmes, lines of credit and investment funds. At least one such fund did not actually finance any investments due to the lack of viable energy efficiency and renewable energy projects. Nevertheless, the international financial institutions have made both debt and equity investments in projects within selected countries. But private investors and commercial banks have not yet committed themselves to significant financing of projects even in these sectors because of inadequate investment vehicles, apparent lack of market size, lack of bankable projects, and the transaction barriers cited above.

**Significant Results and Lessons Learned:** during the three-year period 2000-2003 the Energy Efficiency 21 project promoted energy efficiency market formation and investment project development to reduce GHG emissions in economies in transition with the support of the United Nations Foundation and co-financing partners (www.ee-21.net). To launch this project, the UNF provided $500,000 in grants assistance and $750,000 in the form of a challenge grant. UNECE was able to achieve the match, yielding immediate leverage for the UNF investment. This total investment of $2 million has returned significantly leveraged benefits, producing $60 million of energy efficiency investment project proposals.

The last phase of the project has produced significant outputs and important lessons have been learned which can serve as a foundation for further work. Some results include:

- 30 pre-feasibility business plans for $60 million of energy efficiency investment project proposals with a total investment requirement of $30 million, which would produce an estimated 368,000 tonnes of carbon emissions reductions per year;
- $9.7 million financing approved by the World Bank and other investors for projects in Belarus and the Russian Federation amounting to an estimated 49,000 tonnes of carbon emissions avoided per year;
- $15 million financing for energy efficiency investments in the Russian healthcare sector under negotiation with the City of Moscow and EBRD;
- An extensive network of energy efficiency officials, experts, business and financial counterparts in 24 participating countries linked by website www.ee-21.net;
- An interactive website usage pattern with a daily average of 40 visitors consulting some 300 files rising to a peak of 600 files consulted daily during project meetings extending participation via the Internet;
- Some 150 experts trained in business planning and financial engineering for the development of energy efficiency investment projects;
- A set of financial engineering training courses led by experts trained in earlier courses who have successfully attracted financing to energy efficiency investment projects they developed;
- Carbon emissions trading techniques and work methods published as the Carbon Emissions Trading Handbook, a CD-Rom based e-Book with United Nations Television (UNTV) video footage, emissions reduction calculation software, training course slide presentations animated with video of instructors, case studies and reference materials;
- A prototype training course on financing energy efficiency investment projects through carbon trading primarily led by the CD-Rom e-Book Carbon Emission Trading Handbook in which most of the training was provided by recorded lectures and software on the e-Book;
- Guidance for investors in preparation as a Financing Energy Efficiency and Climate Change Mitigation CD-Rom e-Book describing the business and investment climate in selected east European countries and the experience of multilateral institutions in promoting energy efficiency in economies in transition.

**Telling the United Nations Story**: as part of its market formation activities, the UNECE project has worked extensively with United Nations Television that filmed and broadcast a four-minute video about the project on CNN World Report in May 1999 based on an energy efficiency demonstration zone in Gabrovo, Bulgaria. This four-minute video clip shows the harsh effects of a typical wintertime fuel crisis in Eastern Europe and how the UNECE project addresses the problem, including the energy efficiency retrofit of a hospital heating system. A second UNTV video "Carbon Emissions Trading from Energy Efficiency Investments", filmed in Geneva, Moscow and New York, was disseminated in November 2002 to CNN, EuroNews and EuroVision. It has since been translated into French and broadcast on Swiss television programme Place des Nations in 2003. UNTV provided additional video footage for a UNDP-GEF film on the results achieved in a demonstration zone in Gabrovo during 2004.The e5 European Business Council for Sustainable Energy conferred the 2003 "Climate is Business e-WARD 2003" for the public sector to the UNECE Energy Efficiency 21 Project on 11 December 2003 during the Ninth Conference of Parties (COP9) of the United Nations Framework Convention on Climate Change held in Milan, Italy. The e5 European Business

Council for Sustainable Energy represents 120 companies for the renewables, energy efficiency, gas, telecommunications and public transport sectors.

**Leveraging Project Results and for Greater Impact:** this initial United Nations Foundation-supported project has produced significant results and lessons learned that can now be leveraged to take the original $500,000 grant from individual pilot projects, through a demonstration scale-up, to a truly sustainable and market-based model, financing energy efficiency and renewable energy investments with very significant environmental, economic and local air quality benefits. In his 2003 report to the Steering Committee, the Monitoring and Evaluation Adviser to the Project, Mr. Glen Skovholt, concluded that the project has leveraged significant budgetary resources because of the co-financing offered by the UN Foundation and established key partnerships in the public and private sector. These will be necessary to identify and develop bankable investment projects, which offer genuine reductions in GHG emissions. The project provides demonstrable local examples of how such energy efficiency investments can be developed in the countries that could benefit most from financing mechanisms designed for carbon trading (see Monitoring and Evaluation page 8). Recent experience shows that it is possible to identify, develop and finance energy efficiency investment projects in Eastern Europe. But once the pre-feasibility study business plans have been prepared, finding finance for each project is a time-consuming and expensive process. Linking an investment project pipeline to pre-approved funds would be the best, possibly the only, way to make significant progress in this field. A new project would leverage UN Foundation and co-financing partner support for developing projects and for setting up financing mechanisms into a series of energy efficiency investments. In addition, the fund or financing mechanism itself could also be repeated at much lower cost if it is proven successful. At present financing energy efficiency in Eastern Europe is a niche industry. Projects have high internal rates of return (IRR), but do not capture the attention of investors or commercial banks because most projects are small and unfamiliar to local lending institutions. Even high IRRs cannot compensate for the high transaction costs banks incur to analyse small projects and to establish political, financial and institutional support for them.

**Dedicated Financing Mechanism:** the solution is to develop dedicated financing mechanisms or investment funds under a public-private partnership to provide senior debt, guarantees and/or equity to Special Purpose Vehicles such as Energy Service Companies (ESCO) or directly to local banks or project sponsors. The proposed investment Funds would not be part of the UNECE. Instead they would be dedicated instruments aligned with the UNECE that would target projects in the present UNECE pipeline and those to be developed in the new three-year phase of Energy Efficiency 21 (2003-2006). The Energy Efficiency 21 Project and the investment fund managers could also consider additional projects for financing from other sources as long as they were located in targeted countries and met the selection criteria jointly approved

**Project objectives:**

The project has three **immediate objectives** to produce measurable results during the next three years. Project participants implementing the outputs quantified in the following section will meet these objectives. The funding required would come from co-financing partners and UNFIP/UNF.

**Objective One:** **Identify and develop investment projects** in 20 locations in the private and public sectors at the local level: identify, develop, finance and implement demand side and

supply side energy efficiency and renewable energy projects that meet environmental, health and institutional reform priorities.
Funding request: Total: $ 2,000,000 Co-financing: $ 1,000,000 UNF/UNFIP: $ 1,000,000

**Objective Two: Strengthen energy efficiency and renewable energy policies** in the participating countries, assisting municipal authorities and national administrations to introduce economic, institutional and regulatory reforms needed to support investments in energy efficiency and renewable energy projects.
Funding request: Total: $ 1,500,000 Co-financing: $ 1,000,000 UNF/UNFIP: $ 500,000

**Objective Three: Promote opportunities for banks and commercial companies to invest** in energy efficiency and renewable energy projects through the development of new public private partnership investment funds or financing mechanisms by professional fund management teams.
Funding request: Total: $ 2,500,000 Co-financing: $ 2,000,000 UNF/UNFIP: $ 500,000

The **longer-term objective** is to promote an investment environment, in which self-sustaining energy efficiency and renewable energy projects can be identified, developed, financed and implemented by local teams in municipalities, factories and energy utilities. The intention is to replicate successful measures nationally, in southeastern Europe, Eastern Europe and CIS countries once proven on a limited scale.

**Outputs:**

Under each of the three goals, outputs expected to be produced by the project are quantified below, together with the UNF/UNFIP funding requirements for each activity in US dollars.

**Objective One: Identify and develop investment projects**

| Quantified Outputs | UNF/UNFIP Funding |
|---|---|
| **1.1 A network of energy efficiency managers in participating countries:** Two local teams in selected municipalities in each of 10 countries trained and linked by Internet for communications, information transfer and distance learning through activities including the following:<br>-Develop terms of reference for local municipal teams,<br>-Establish Internet home page for each team, software project identification,<br>-Develop on-line training for local teams communications and software use. | 200,000 |
| **1.2 Trained experts in project development, finance, business planning:** 200 city energy managers, commercial bank managers and experts trained during 6 training courses of 3 sessions each including Internet assisted learning:<br>-Prepare a project development curriculum with local teams, fund managers,<br>-Hold 2 training courses per year in 2 locations in participating countries,<br>-Link training course materials, filmed instruction to Internet dissemination. | 600,000 |

**1.3 Investment project pipeline:** financial and technical clearance by expert teams of 100 demand side and supply side investment project business plans from (a) project training courses; (b) National Participating Institutions; (c) investment fund managers; and (d) UNECE Ad Hoc Groups of Experts on Electric Power and on Coal in Sustainable Development and the EE21 experts on renewable energy for submission to investment funds for financing (see 3.1 below):
-Prepare investment project selection criteria with fund managers,
-Assess technical, economic, financial feasibility of projects,
-Revise projects with fund managers, advise on related policy reforms. 200,000

**Total UNF/UNFIP Funding request:** 1,000,000

During the last three years, some 150 energy efficiency managers have been trained in courses on business planning and financial engineering under the Energy Efficiency 21 Project. These training courses have established a level of expertise that will be developed more deeply and applied more broadly during the next phase. Recent experience has shown that trainees from earlier courses can serve as trainers subsequently. For example, the energy efficiency experts trained in EE21 financial engineering courses from Nizhny Novgorod (Russian Federation) that developed and successfully obtained financing from the World Bank for energy efficiency projects, served as trainers for EE21 courses given in Kazakstan during 2001-2002.

The next phase of the project will use this type of experience to amplify the impact of recent results in six ways. The training courses and network development will be oriented to:

- Promote the skills of recently trained experts to serve as trainers for experts from their own and neighbouring countries;
- Increase the coverage of training and capacity building to include more municipalities in additional participating countries;
- Identify and train experts to work directly with the fund managers of the investment funds and financing mechanisms related to the EE21 project;
- Use new training tools such as the CD-Rom e-Book Carbon Emission Trading Handbook in which most of the training on financing energy efficiency projects from carbon trading is provided by recorded lectures and software on the e-Book;
- Develop training courses that deal with a wider range of climate change mitigation technologies including renewable sources of energy, energy efficiency, clean coal and coal mine methane abatement;
- Increase the delivery methods for finding projects from the training courses to include the National Participating Institutions, investment fund managers and UNECE Ad Hoc Group of Experts on Electric Power, on Coal in Sustainable Development and the new activity of EE21 experts on renewable energy.

**Objective Two: Strengthen energy efficiency and renewable energy policies**

| Quantified Outputs | UNF/UNFIP Funding |
|---|---|
| **2.1 Economic, Institutional and Regulatory Reforms:** A broad analysis of policy reforms needed to promote energy efficiency and renewable energy investments, and reduce fuel poverty, including 10 case studies of individual projects or classes of projects based on 3 workshops with international and local experts through the following activities:<br>-Review the key energy sector accomplishments of economic transition and identify new reforms required to introduce market based energy systems,<br>-Select specific policy "bottlenecks" to energy efficiency, renewables projects,<br>- Identify sets of bankable investment projects that require the selected reforms. | 200,000 |
| **2.2 Energy Efficiency Seminars:** Three seminars for senior decision-makers from participating countries to examine policy reforms and to promote a sound business environment based on the analysis and project case studies (2.1 above):<br>-Select key policy makers from countries featured in case studies,<br>-Develop Russian-English presentations on reforms linked to projects,<br>-Hold one seminar per year, publishing proceedings and reform proposals. | 150,000 |
| **2.3 Policy Advisory Services:** At least 15 special missions by international experts to advise city administrations, local authorities and national ministries on reforms to support energy efficiency investment projects:<br>-Working with fund managers, identify key reforms urgently needed,<br>-Convene consultation of policy makers with fund managers, local teams;<br>-Provide macro scale assessment of policy reforms on energy sector, environment, GHG emissions reductions. | 150,000 |
| **Total UNF/UNFIP Funding request:** | 500,000 |

During the last phase of the EE21 Project, a series of studies have been produced on policy reforms needed to promote market formation and support energy efficiency investment project development including:

- Guide for the Promotion of Energy Conservation Regulations in Economies in Transition (ECE Energy Series 16, 2000)
- Energy Efficiency and Energy Security in the CIS (ECE Energy Series 17, 2001)
- East West Energy Efficiency Standards and Labels (ECE Energy Series 18, 2001 CD-Rom e-Book)
- New Energy Security Threats (ECE Energy Series 19, 2003 CD-Rom)
- Carbon Emissions Trading Handbook (ECE Energy Series 20, 2003 CD-Rom e-Book)
- Reforming Energy Pricing and Subsidies (ECE Energy Series 21, 2003)
- Experience of International Organizations in Promoting Energy Efficiency in Belarus (ECE Energy Series 22, 2004), Bulgaria (ECE Energy Series 23, 2004), Kazakhstan (ECE Energy Series 24, 2004), Russian Federation (ECE Energy Series 25, 2004), Ukraine (ECE Energy Series 26, 2004)

- Energy Efficiency Polices and Measures in Europe (ECE Energy Series 27, 2004 CD-Rom)
- Financing Energy Efficiency and Climate Change: A guide for Investors in Belarus, Bulgaria, Kazakhstan, Russian Federation and Ukraine (ECE Energy Series 28, 2004 CD-Rom).

A wide range of techniques has been used to produce these studies: negotiations through multilateral expert groups; mixed national and international expert teams; international consultant and contractor reports and surveys, seminars and symposia. The next phase of the project will use these printed and electronic publications to inform experts, policy makers within city administrations, local authorities, energy utilities and national ministries about the policy reforms needed to introduce energy efficiency and renewable energy investments. This aspect continues the broad policy reform and market formation activities of the first phase. New studies will be undertaken but with an important difference. A new broad analysis linked to case studies will be directly related to a series of specific investment project proposals. The specificity of the studies in the new phase provides the value added in which policy makers at different levels can be shown what direct social, environmental and financial benefits will be forthcoming from a specific project or series of projects given that particular policy reforms are made. These may be economic, financial, energy pricing and tariff structure, institutional or comparatively simple administrative reforms. But they are often necessary changes for economically attractive and pre-feasibility study business plans to become bankable projects which can be financed even under the most favourable conditions established within the EE21 Project investment funds and financing mechanisms.

**Objective Three: Promote opportunities for commercial banks and companies to invest**

| **Quantified Outputs** | **UNF/UNFIP Funding** |
|---|---|
| **3.1 Energy Efficiency Investment Funds:** Establishment of three public private partnership investment funds and one financing mechanism for voluntary "carbon neutral" schemes for businesses to provide $500 million of debt, equity or both to project sponsors (see 1.3 above) by providing assistance to fund managers through the:<br>-**Steering Committee** by reducing transactions costs in adopting standardized project preparation procedures and assigning the EE21 logo to funds or financing mechanisms that reduce GHG emissions<br>-**UNECE secretariat** by identifying sources of funding and finance and serving on fund management advisory boards<br>-**National Participating Institutions** by identifying and developing their own projects proposals and providing guidance to governments on policy reforms | 200,000 |

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|---|---|
| **3.2 Investment Project Development Standards:** identification of energy efficiency investment project selection criteria; preparation of multilingual (English, French, Russian) terms, definitions, units of measurement and templates suitable for UNECE standards available through Internet applications<br>-Develop draft terms of standards through a small working group to review all existing standards with the participation of relevant international partners<br>-Prepare software applications and a prototype Internet application<br>-Seek adoption of the standards by the UNECE and if appropriate by ECOSOC | 150,000 |
| **3.3 Investment Project Pipeline Inventory:** standard presentation of energy efficiency renewable energy investments developed within the framework of the project with details of total project cost, investment requirements, internal rates of return and $CO_2$ emissions reductions.<br>-Develop a software package for listing all key data allowing for the "bundling" of small energy efficiency and renewable energy projects<br>-Disseminate the software package to local teams and fund managers<br>-Provide access to investment project pipeline inventory on Internet on a subscription basis to fund management teams and other sources of financing.? | 150,000 |
| **Total UNF/UNFIP Funding request:** | 500,000 |

**Beneficiaries**

The **primary beneficiaries** of the project are the energy managers in municipalities, utilities and industries who will benefit from enhanced skills; city administrations and municipal authorities will have lower fuel bills and additional purchasing power for other priorities; tenants and households will have a cleaner environment and lower fuel bills; local commercial bank managers will benefit from increased capacities to evaluate investment project proposals; national ministries and administrations will have additional support for implementing energy efficiency strategies from local experience; parliamentarians will benefit from targeted information on how other south-east European, east European and CIS countries have developed energy conservation laws, standards and regulations. Based on a series of successfully financed investments by the project's investment funds, national and international companies and banks will be more inclined to enter new markets for energy efficiency products, services and investments three to five years earlier than they otherwise would.

The **indirect beneficiaries** include a wide range of consumers, groups and agencies in south-eastern Europe, eastern Europe and the CIS which should experience financial and non-financial benefits over the life of the project and beyond from the implementation of the project, dissemination and replication of the successful experience of project outputs. These groups include: industrial and commercial sector consumers, households and apartment building occupants, city administrations, municipal energy management teams, hospital and health care managers, energy saving fund managers of city and regional administrations, district heating utility managers, commercial banks, investment project managers, national ministries, non-governmental organizations.

These **groups have been consulted** on the orientation of the project through meetings of the UNECE Energy Efficiency 21 Project, most recently during the Steering Committee session held in May 2003 and a meeting of the Bureau in December 2003. Local communities in east European cities have repeatedly expressed the need for enhanced communications, skills and policy reforms to develop and implement energy efficiency investment projects. Representatives of these groups have also expressed the need for this work to the UNECE Committee on Sustainable Energy, UNECE Committee on Environmental Policy, UNDP and GEF consultative meetings, the Environment for Europe process, the Commonwealth of Independent States Inter-State Economic Committee and other international meetings.

**Monitoring and Evaluation**

The project will be subject to reporting, monitoring and evaluation consistent with Article IX of the Memorandum of Understanding between the United Nations Fund for International Partnerships and the United Nations Economic Commission for Europe. The project will also have a Monitoring and Evaluation Adviser to assist all parties in implementation of the project and report to UNF/UNFIP. The Monitoring and Evaluation Adviser will be nominated by the Executing Agency and confirmed by UNF/UNFIP. In January 2000 the Steering Committee of the Energy Efficiency 21 Project elected a Monitoring and Evaluation Adviser for the initial UNF supported project – Mr. Glen Skovholt, a former Vice-President of Honeywell Inc. He has served in this capacity during the last three years making repeated field review missions, verbal assessments and written annual reports to the Steering Committee (ENERGY/WP.4/2001/4 and ENERGY/WP.4/2003/6) and to United Nations Foundation officers. In order to provide continuity between the two stages of this project, Mr. Skovholt has offered to continue in his role as Monitoring and Evaluation Adviser upon the nomination of the Executing Agency and confirmation by UNF/UNFIP. There will also be a separate mid-term independent project review by an external consultant. In addition to these project monitoring and evaluation activities, non-governmental organizations with a history of evaluating assistance programmes in the energy efficiency field in Eastern Europe will be enlisted to monitor the project and provide feedback.

The progress of project operations will be reported and reviewed by the Steering Committee of the Energy Efficiency 21 Project at its annual sessions. The schedule for project reviews, reporting and evaluation in relation to project milestones will be included in the project work plan and timetable. The Evaluation Reports of the Energy Efficiency 21 Project (see Monitoring and Evaluation Adviser above) will be used as background documents for assessing the project and for incorporating relevant past experience in the evaluation findings. External evaluators from data developed by the project can calculate the achievement of impact. The data from the investment projects developed under the Energy Efficiency 21 Project (2003-2006) provide benchmarks for $CO_2$, NOx and $SO_2$ emissions. The potential for reducing such emissions can be calculated for each investment project proposal developed within the framework of project operations.

**Project Strategy and Implementation Arrangements**

During the last three years, the United Nations Foundation supported Energy Efficiency 21 Project has met its **original criteria for success**. It has resulted in a pipeline of investment projects established in participating countries from a functioning network of municipal energy management teams trained in business planning and financial engineering to develop bankable

projects. The positive experiences in implementing sustainable energy policies throughout the region have been disseminated more fully to Eastern Europe and the CIS. The project has been replicable as new bankable projects continue to emerge from the investment project pipeline. These energy efficiency projects will be sustainable in the longer term, since they will continue to achieve energy savings long after the loans are repaid.

The next phase of Energy Efficiency 21 will go from one-off demonstrations to the production of many energy efficiency and renewable energy investment projects. It will address two of the priorities outlined in the UNF Interim Programme Framework of Sustainable Energy and Climate Change. In particular, planned project activities relate to the following Programme Focal Areas:

**Focal Area 1:** *Develop and demonstrate sustainable and commercial approaches to deliver community based renewable energy services*

- Develop innovative financing mechanisms and build capacities of local financial institutions
- Build capacities of governments to improve rural renewable energy policies
- Engage the private sector and build long-term public private partnerships
- Build partnerships and leverage additional financing from other funding sources

**Focal Area 2:** *Improve energy efficiency in the industrial, residential and commercial sectors through market oriented polices and programmes*

- Promote Market Mechanisms to increase energy efficiency in the industrial sector
- Develop financial intermediation mechanisms for energy efficiency investments

Linking a project pipeline to the Energy Efficiency 21 Project investment funds and financing mechanism will repeatedly produce investment projects and meet UNF Programme Framework criteria. The proposed funds will not be managed by the UNECE. Instead they will be dedicated financial instruments targeted on projects in the present UNECE pipeline and on projects to be developed in the next three-year phase of Energy Efficiency 21. The funds will be structured, raised, managed and serviced by Swiss Reinsurance Company (Swiss Re); Conning Asset Management; TCW Energy and Infrastructure Group; Commonwealth Bank of Australia (CBA); Caisse de Dépôts de Cosignations Group-(CDC) IXIS; and Energy and Communications Solutions LLC. A range of investment projects will be considered including demand side and supply side, energy efficiency, renewable energy, electric power, clean coal technology and other GHG emissions reduction techniques such as coal mine methane abatement. Additional projects could also be considered for financing from other sources as long as they come from participating countries and meet the criteria approved in the Energy Efficiency 21 Project and by the fund managers. These projects may be identified or developed by the fund managers, National Participating Institutions in the economies in transition, other multilateral and bilateral programmes and by the UNECE intergovernmental bodies including the Ad Hoc Group of Experts on Electric Power, Ad Hoc Group of Experts on Coal in Sustainable Development, and the UNECE Energy Efficiency 21 Project experts on renewable energy sources. More specifically, the financing mechanisms will comprise public and private sector equity and be managed by experienced fund managers from large financial institutions using existing fund management products for a new purpose. Some public sector resources or grants may be used to provide a risk reduction buffer for private sector investors. The funds will focus on projects that meet criteria established both by the UNECE and the fund managers. Projects with high IRRs and an acceptable level of risk will be a priority for the fund managers. The UNECE may target

projects that reduce GHG emissions, have low transaction costs and that can be replicated or bundled together. Reconciling these criteria in a continuous project selection process will require close cooperation between the UNECE and the fund managers, which is why new financing mechanisms are needed rather than adding on new criteria to an existing fund.

**Process for Repeated Investments**

The financing mechanisms and pipeline of bankable projects will be designed to have standardized procedures to produce replicable transactions. Individual investment projects will be sustainable after the completion of the project since they will continue to achieve savings after the loans have been repaid. The UNECE already provides international standards for electronic trade transactions and could do the same for energy efficiency investments for greenhouse gas emissions abatement. A significant part of investments will be loan guarantees accorded to local commercial banks. This institution building formula will enable local financial partners to gain experience with the analyses and procedures for financing energy efficiency investments so that such loans can be repeatedly handled with growing confidence. This will help to ensure the long-term sustainability of the project.

**Modality and Institutional Arrangements**

In operational terms at UNECE, an evaluation of all UNECE activities undertaken in 1996-1997 preceded the development of a Plan of Action on the restructuring of the UNECE programme of work and its intergovernmental bodies. The Plan of Action established three priority areas for future work forming the core competencies of UNECE in the energy field: sustainable energy policy, energy efficiency, and natural gas. Energy Efficiency 21 was ranked highly in the evaluation by most UNECE member countries. The UNECE is committed as an institution to assisting member States to implement the provisions of its Convention on Long- range Transboundary Air Pollution, which include measures to improve energy efficiency.

Project implementation arrangements will be under the auspices of the UNECE Steering Committee of the Energy Efficiency 21 Project. Decision-making and guidance of the project will be in line with the participation and procedures of the EE21 Project Plan 2003-2006. Energy Efficiency 21 ensures coordination with other programmes and development efforts through the annual session of its Steering Committee, which is composed of representatives of governments, business and finance from 32 UNECE member States in Eastern Europe, the CIS, Western Europe and North America. The EE21 Project includes the participation and advice of bilateral agencies, international organizations and international financial institutions such as the European Commission SAVE Programme, PHARE, TACIS, USDoE, USAID, EBRD, World Bank, IFC, UNDP-GEF, UN FCCC, International Energy Agency OECD, the Inter-State Economic Committee of the Commonwealth of Independent States and European Energy Charter. Non-governmental organizations taking part in Project activities include the Alliance to Save Energy, World Energy Council, Black Sea Economic Cooperation, and the Vienna International Council. The project will be executed under the auspices of the UNECE Committee on Sustainable Energy. The execution of the project will be under the purview of the Executive Secretary of UNECE. The Director of the Industrial Restructuring, Energy and Enterprise Development (IREED) Division will be responsible for the implementation of project activities while daily operations will be the responsibility of the Project Manager. The Project Secretariat within the IREED Division of the UNECE secretariat will implement the project. The proposed project delivery systems will be through the network of National Participating Institutions to accelerate

progress by working with local project sponsors to prepare bankable projects for both private and public sector entities. Bankable projects will be developed to address beneficiary country needs in accordance with UNF/UNFIP priority themes, for example:

- **Environment**, climate change and sustainable energy issues will be addressed by projects which reduce airborne transboundary pollutants SOx, NOx, particulates and $CO_2$ for local populations and in other countries;
- **Child** health will be advanced by improving the efficiency of hospitals and other child health care facilities to produce budget savings and additional purchasing power to expand facilities or provide enhanced health care products and services;
- **Preventive health** will be advanced by projects that use innovative approaches to improving energy efficiency involving public awareness campaigns, by reducing energy costs and improving the health conditions in public housing;
- **Gender equity** will be enhanced by the women in city administrations, energy management teams and local commercial banks who are direct beneficiaries of training courses in financial engineering and business planning for the preparation of investment projects.

An Internet electronic communications network will service the network of National Participating Institutions with actual or remote Websites for each counterpart. Distance learning for training courses by the Internet will increase the delivery of specialized technical, financial and policy information. These communications will facilitate contact with the teams of international experts and the fund managers. The teams will assist participating municipalities in developing energy efficiency projects, advise on related policy reforms needed to support them and seek finance for proposed investments. In support of policy reforms, the project will analyse the potential of energy efficiency and renewable energy based on three workshops with international and local experts. This analysis will be reinforced by ten case studies of the reforms needed for specific investments or class of projects and will form the basis of three policy seminars with senior officials, parliamentarians and national administrations for each participating country. The seminars, enhanced by Internet live video conferencing; will be held to promote the conclusions and recommendations to direct and remote audiences. Project finance will be assured by three investment funds and one financing mechanism managed by professional fund managers from significant financial institutions. The proposed funds and fund managers are as follows:

- Swiss Reinsurance (Swiss Re) Greenhouse Gas Risk Solutions, Conning Asset Management and TCW Energy and Infrastructure Group. Size of Fund: $250 million.
- Swiss Re and Commonwealth Bank (CBA): A financing mechanism for GHG emissions reductions by creating ‘carbon neutral companies’ through structuring, certifying and marketing voluntary schemes to businesses.
- CDC IXIS and European bank consortium consisting of Caisse de Dépôts de Cosignations (CDC) IXIS Financial Engineering; Caisse d’Epargne (French National Savings Bank), Group San Paolo IMI, Bayerische Landesbank, Calxa Geral de Depositos: Size of Fund: € 300 million.
- Energy and Communications Solutions LLC: Size of Fund: US$ 250 million minimum; $500 realistic maximum fund.

Each of the proposals would be suitable to provide financing for energy efficiency; renewable energy and other energy related investment projects designed to reduce environmental pollution

and GHG emissions. Each of them can be used to deliver GHG reductions either under voluntary schemes or in relation to the UNFCCC Kyoto Protocol. Some of the fund management teams are prepared to serve as fund managers and investors providing equity from their own sources. All of the fund managers are prepared to seek public and private sector investors to participate in the funds they propose based on the initial expressions of interest they have already received from potential investors. The fund managers could establish an energy service company (ESCO) and/or operate through ESCOs located in the region.

**Project Budget**

The project will be organized by the UNECE secretariat while some services will be provided under contract to UNECE or through grants made by the UNECE Grants Committee. The project will be supported partly by the regular budget of the UNECE and by an extra budgetary trust fund based on financial contributions from the United Nations Foundation and matching funds from government departments, commercial companies and the financial community. It will have a Project Manager supported by the UNECE regular budget, an investment fund adviser and renewable energy adviser supported by extra budgetary resources. The regular budget will provide for offices, conference services, translation and interpretation, documents distribution, telecommunications and basic computer equipment. The engagement of personnel and procurement of supplies, services or equipment from the trust fund will be subject to the regulations, rules, policies and procedures of the United Nations Organization. The Energy Efficiency 21 Project team will include the following posts: Project Manager (P-4) Regular Budget; Energy Economist (P-4) ½ time Regular Budget; Regional Adviser on Energy (L-5) ¼ time Regular Budget; Monitoring and Evaluation Adviser, Investment Fund Adviser, Energy Policy Adviser, Secretary (G-5) ½ time Regular Budget. The proposed budget by Objective and Activity for the UNF/UNFIP and co-financing partners is given below.

| **Category** | **Co-Financing Inputs** | **UNF/UNFIP Inputs** | **Total Inputs** (US dollars) |
|---|---|---|---|
| **Objective One: Identify & Develop Projects** | 1,000,000 | 1,000,000 | 2,000,000 |
| 1.1 Network of EE and RE Managers | 300,000 | 200,000 | 500,000 |
| 1.2 Trained Experts in Project Finance | 400,000 | 600,000 | 1,000,000 |
| 1.3 Investment Project Pipeline | 300,000 | 200,000 | 500,000 |
| **Objective Two: Strengthen Energy Policies** | 1,000,000 | 500,000 | 1,500,000 |
| 2.1 Economic, Institutional, Regulation Reforms | 300,000 | 200,000 | 500,000 |
| 2.2 Energy Efficiency Seminars | 300,000 | 150,000 | 450,000 |
| 2.3 Policy Advisory Services | 400,000 | 150,000 | 550,000 |
| **Objective Three: Promote Opportunities to Invest** | 2,000,000 | 500,000 | 2,500,000 |
| 3.1 Energy Efficiency Investment Funds | 1,800,000 | 200,000 | 2,000,000 |
| 3.2 Investment Project Development Standards | 100,000 | 150,000 | 250,000 |

| | | | |
|---|---|---|---|
| 3.3 Investment Project Pipeline Inventory | 100,000 | 150,000 | 250,000 |
| **Total** | 4,000,000 | 2,000,000 | 6,000,000 |

Some of the activities of the Energy Efficiency 21 Project will be implemented through grants authorized by the UNECE Grants Committee comprising representatives of the UNECE and the Legal Affairs Officer of the United Nations Office at Geneva. Grants are generally accorded with reference to the Project Document and agreements with co-financing partner institutions prior to the approval of matching grant funding. The budget proposed for the project by item of expenditure is given below.

| | **Category** | **Co-Financing Inputs** | **UNF/UNFIP Inputs** | **Total Inputs** (US dollars) |
|---|---|---|---|---|
| 1. | Personnel and travel | 1,000,000 | 500,000 | 1,500,000 |
| 2. | Sub-contracts (training, financial services, investment project evaluation) | 2,000,000 | 500,000 | 2,500,000 |
| 3. | Training (municipal energy managers) | 900,000 | 850,000 | 1,750,000 |
| 4. | Equipment (electronic network and communications) | 50,000 | 100,000 | 150,000 |
| 5. | Miscellaneous | 50,000 | 50,000 | 100,000 |
| **Total** | | 4,000,000 | 2,000,000 | 6,000,000 |

**Prospects of Additional Funding**

The total value of the technical assistance component of the Energy Efficiency 21 Project is $6 million over three years based on the UNF funding of $2 million 1:2 matching grant and $4 million co-financing partners support. Other donors and supporting institutions that have indicated their willingness to participate in this project with grants or as co-financing partners include: UNDP Global Environment Facility (UNDP-GEF), European Business Congress (EBC), French Ministry of Foreign Affairs – French Global Environment Facility (FFEM), US Environment Protection Agency, Norwegian Ministry of Foreign Affairs – Vekst Foundation, US Department of Energy, the Italian Ministry of Foreign Affairs and the Italian Ministry of Finance and Economy. Letters of intent have been requested from each co-financing partner and are submitted with the present proposal to the UNFIP and UNF.

**For further information:**

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