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**Global Energy Efficiency 21. Co-operation between the
United Nations Regional Commissions on energy efficiency
for climate change mitigation**

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Global Energy Efficiency 21

**Co-operation between the United Nations Regional Commissions
on energy efficiency for climate change mitigation**

presented at COP-16, 29 November – 10 December 2010, Cancun, Mexico



Background

The Global Energy Efficiency 21 (GEE21) Project was launched at the Conference of Parties (COP-14) in Poznan in December 2008, following a mandate by the Committee on Sustainable Energy of the United Nations Economic Commission for Europe (UNECE). It stemmed from UN calls for inter-regional cooperation and a system-wide approach to the issues of energy and climate change.

GEE21, led by UNECE and jointly implemented by the other UN Regional Commissions (RCs)¹, the United Nations Department of Economic and Social Affairs (UNDESA) and the United Nations Industrial Development Organization (UNIDO), is aimed at developing a **systematic exchange of experience** on capacity building, policy reforms and investment project finance among countries of all regions of the world through the five RCs in order to promote self-financing energy efficiency improvements that raise economic productivity, diminish fuel poverty and reduce environmental air pollution and greenhouse gas emissions. In particular, the project is designed to transfer the valuable experience of UNECE and its member countries to the other regions of the world through their RCs. It is executed with support of the UNECE regular budget, including resources from the strengthening of the development pillar, and extra-budgetary funds from the Russian Federation.

¹ UN Economic Commission for Asia and the Pacific (ESCAP), UN Economic Commission for Latin America and the Caribbean (ECLAC), UN Economic Commission for Africa (ECA), UN Economic and Social Commission for Western Asia (ESCWA).

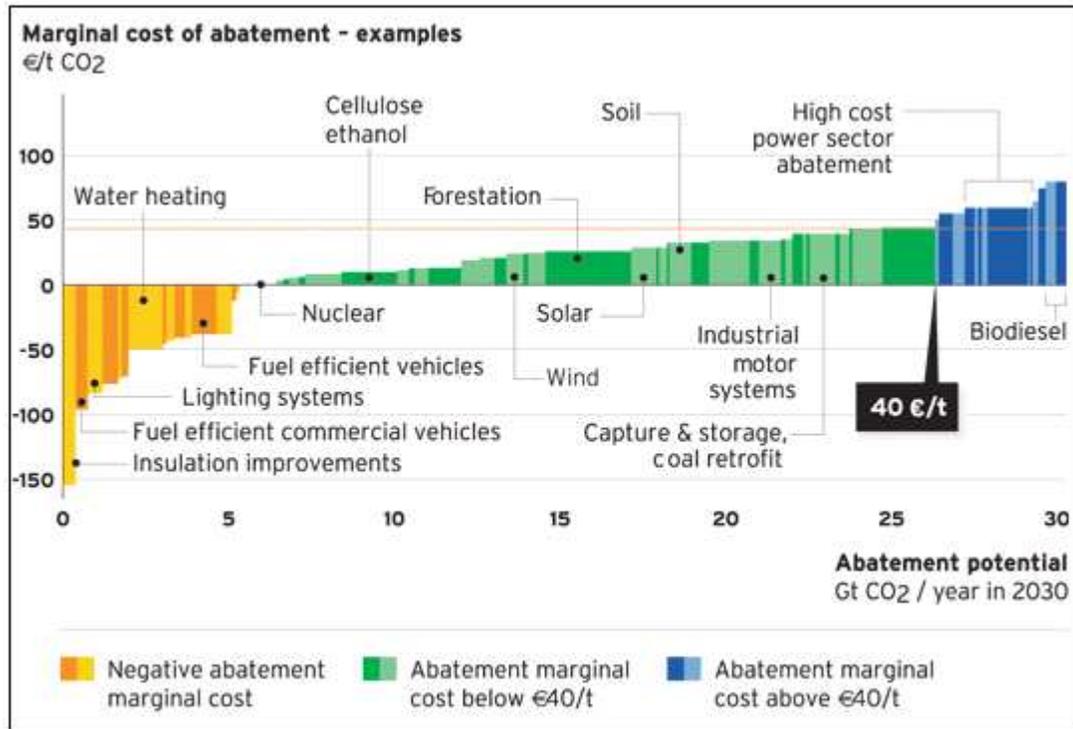
« GEE21 aims at developing a systematic exchange of experience on capacity building, policy reforms and investment project finance »

The role of energy efficiency: a win-win solution

A global consensus seems to be emerging that energy efficiency (EE) is the most effective method of mitigating climate change. Numerous economic analyses have demonstrated that EE measures will not cost the global economy very much. EE investment can yield positive returns if the calculation includes long-term energy savings and reduced investment costs in installed capacity by all private and public economic actors.

Furthermore, EE provides a **win-win solution** not only for **climate change mitigation** but also for **energy security enhancement, sustainable development promotion and poverty reduction**. Indeed, unlike other mitigation strategies, EE reduces emissions while diminishing energy costs and natural resource depletion. The efficient use of energy can be used as a milestone for a wider strategy on the achievement of the Millennium Development Goals (MDGs) and the objectives of the World Summit on Sustainable Development (WSSD), so that the perennial strain among development, population and resources is finally broken, or at least loosened.

Figure 1: Global abatement cost curve



Source: McKinsey-Vattenfall

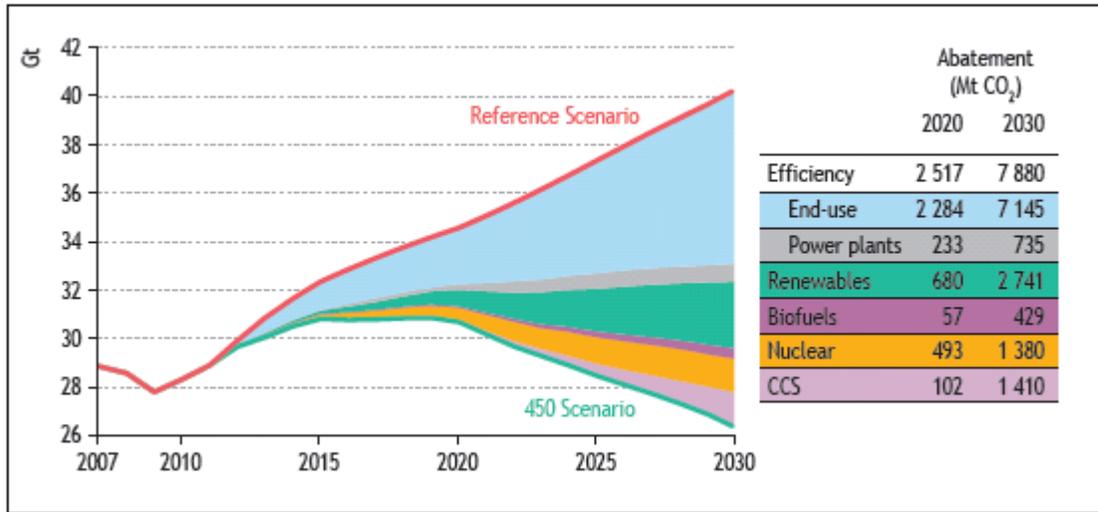
In light of this, EE is rightfully seen as the prime driver of emission reduction by the International Energy Agency (IEA), covering almost 60% of total CO₂ abatement by 2030² in its “450 Scenario”³.

« EE provides a win-win solution not only for climate change mitigation but also for energy security enhancement, sustainable development promotion and poverty reduction »

² IEA, 2009:211.

³ This scenario reflects the energy policy changes of a stabilization of CO₂ in the atmosphere at 450ppm CO₂-eq. This level offers around a 50% probability of keeping the global temperature increase below 2°C, that is, a temperature regarded by many (including the IPCC and the G20) as likely to avoid the worst effects of climate change.

Figure 2: World energy-related CO2 emission savings by policy measure in the 450 Scenario



Source: International Energy Agency

The kick-off of GEE21: from Geneva to Cancun

The First meeting of the GEE21 Project took place in Geneva on 4 June 2009 in the context of the Twentieth session of the Steering Committee of the Energy Efficiency 21 Programme and saw the participation of UN officials and intergovernmental representatives from all five RCs. On that occasion, the Group of Experts on Global Energy Efficiency, responsible for the implementation of the project, was created and later approved by the UNECE Committee on Sustainable Energy. Members of the Group of Experts comprise representatives of other United Nations agencies, international organizations and institutions promoting energy efficiency at the national, regional and global levels, including, *inter alia*: UN-Energy, United Nations Development Programme (UNDP), United Nations Environment Programme (UNEP), United Nations Industrial Development

Organization (UNIDO), International Energy Agency (IEA), Global Environment Facility (GEF), international financial institutions and supporting institutions of the Energy Efficiency 21 Programme, including the United Nations Foundation (UNF), UNEP/GEF, Fonds Français pour l'Environnement Mondial (FFEM, French GEF), the European Business Congress E.V. (EBC) and other stakeholders.

The first collaborative outcome of GEE21 was the publication “**Financing Global Climate Change Mitigation**” (The ECE Energy Series No. 37, ECE/ENERGY/81). Relying on substantial contributions from all five RCs under the coordination of the UNECE Secretariat, the volume was showcased at a RCs’ joint side event at COP-15 in Copenhagen and published by UNECE under the auspices of UN-Energy. It includes:

- a) a wide-ranging **review of 22 selected EE financing mechanisms** from countries and institutions in all regions of the world (see Annex);
- b) an assessment of the relevance of the carbon market for EE financing;
- c) a discussion of the purposes and sources of capacity building and technical assistance (TA) for EE financing;
- d) a collection of existing EE programmes, sources of financing and national legislative frameworks;
- e) five overviews of the energy situation and climate for EE investment in each region provided by the respective RC.

The analysis contained in “Financing Global Climate Change Mitigation” allowed for preliminary conclusions on:

- a) the importance of raising **awareness** about the potential of EE improvements and of disseminating the **skills** necessary for its delivery;
- b) the crucial role of **policy reforms** to create the enabling institutional environment where EE improvements can be realized, measured and priced;
- c) the necessity of a **global carbon regime** that provides strong incentives for lower energy consumption levels and makes the appropriate knowledge, technology and financing available to all countries⁴.

« The analysis contained in “Financing Global Climate Change Mitigation” allowed for preliminary conclusions on the importance of raising awareness and disseminating skills, the crucial role of policy reforms to create enabling environments, and the necessity of a global carbon regime »

Existing synergies and beyond: Programme of Work 2010-2011

The cooperative analytical effort among the five RCs also allowed for a preliminary assessment of the areas of work in which each RC has expertise. Its results are summarized in the table below. As expected the situation is widely differentiated and leaves room for synergies and the transfer of positive experiences with due adaptation to local conditions.

⁴ UNECE, 2010:123-124.

Table 1: Energy Efficiency Programmes of the UN Regional Commissions in Relation to the UNECE Technical Assistance Activities

Technical Assistance Activities	ECE	ESCAP	ESCWA	ECA	ECLAC
Objective One: Capacity Building for the Development of Energy Efficiency Investment Projects					
a. Information campaigns, energy manager briefing sessions	●	●	●	●	●
b. Training courses financial engineering & business planning	●				
c. Business development workshops on project preparation	●	●	●		
Objective Two: Assistance to Participating Governments with the Introduction of Energy Policy Reforms					
a. Regional policy analysis of energy policy reforms	●	●		●	●
b. Case studies of energy efficiency policy reforms	●	●		●	●
c. Senior policy maker seminars	●	●		●	
Objective Three: Financing Bankable Projects to Reduce CO2 Emissions					
a. Local commercial banks	●				
b. International Financial Institutions	●				
c. Public Private Partnership (PPP) Dedicated Funds	●				

These findings were presented and shared with the Group of Experts on Global Energy Efficiency 21, which met for its First session on 10 June 2009. The Group of Experts subsequently adopted the Programme of Work for 2010-2011 (ECE/ENERGY/WP.4/GE.2/2010/4) proposed by the UNECE Secretariat, which is comprised of four elements:

1. **Establish a network of elected officers of intergovernmental bodies** working on energy efficiency and climate change and the respective secretariats of the five United Nations Regional Commissions
2. **Review the energy efficiency and climate change work programmes** with respect to capacity building, energy policy reforms and investment project finance
3. **Determine common priorities and synergies** of the member states and

the work programmes they pursue through their United Nations intergovernmental bodies among the five Regional Commissions

4. **Develop a Global Strategy** for the adoption of Regional Commissions' work programmes to promote self-financing energy efficiency improvements to raise economic productivity, diminish fuel poverty and reduce environmental air pollution and greenhouse gas emissions

In light of these elements, the network established with the Group of Experts was strengthened through the election on a rotating basis of a Bureau composed of one Chairperson and four Vice-Chairpersons to follow more closely the developments of the project. The Extended Bureau met in Geneva on 18-19 October 2010 and agreed to pool each region's expertise and set up a **Task Force**. The work of this Task Force will

be assisted by a Consultant and is intended to lead to the formulation of the “**Global Strategy for EE Market Formation**”. A draft Global Strategy will be elaborated and presented to the Group of Experts during its Second meeting, scheduled for April 2011.

GEE21 and UN-Energy

GEE21 frames its activities in the context of UN-Energy, the United Nations’ interagency mechanism on energy. Created in April 2004 as a response to the World Summit on Sustainable Development (WSSD) in Johannesburg, UN-Energy aims to promote **system-wide collaboration in the area of energy** with a coherent and consistent approach to make up for the absence of a single entity in the UN system charged with primary responsibility for energy matters. Since August 2007, the group is chaired by Mr. Kandeh Yumkella, Director-General of UNIDO. UN-Energy is organized in three clusters, notably Access to Energy Services, Promotion of Energy Efficiency and Renewable Energy Activities. Its membership is comprised of over 20 UN agencies and programmes, including the five RCs, UNDESA, UNIDO, UNEP, UNDP, IAEA, FAO, UNESCO, UNCTAD and the World Bank.

« The multi-agency and system-wide approach of GEE21 makes the project a natural partner of UN-Energy »

UN-Energy focuses on substantive and collaborative actions both in regard to policy development and implementation in the area of energy as well as in maintaining an overview of major ongoing energy initiatives within the UN system at the global, regional, sub-regional and national levels⁵. In the EE cluster, UN-Energy has carried out a wide-ranging mapping and classification of EE projects promoted and implemented by its members and a collection of all relevant UN publications⁶. The cluster is currently undergoing a process of identification of potential synergies and formulation of a workplan. In 2008, UNIDO and IAEA jointly introduced a proposal to develop and disseminate a modeling tool that can enhance the assessment of the cost effectiveness of energy efficiency measures. The two agencies have formed a project team and have invited the World Bank as well as other UN and non-UN partners to join and support this initiative.

GEE21, given its multi-agency nature and its commitment to a system-wide approach to transfer knowledge and expertise avoiding duplication, is a **natural partner of UN-Energy**. An inter-regional approach would indeed enable to optimize the use of resources, create synergies and build partnerships among national, regional and international experts. GEE21 will at the same time draw on UN-Energy’s useful activity and contribute to the latter’s good outcome with a continuous and

⁵ UN-Energy website (<http://esa.un.org/un-energy/>).

⁶ UN-Energy, 2010; an alternative mapping is also available for consultation at: <http://esa.un.org/un-energy/mapping/Energy%20Efficiency%20Activities%20mapping.htm>.

systematic exchange of views and practices on capacity building, policy reforms and investment project finance for EE market formation. The ongoing collaborative process among the five RCs established in the context of GEE21 can indeed serve as a model for broader synergies among other selected UN-Energy members. On the other hand, some positive experiences of other UN agencies and programmes in this domain can be transferred through UN-Energy to GEE21 for consideration and possible replication. For instance, the decade-long experience of UNIDO-led **Industrial Energy Efficiency (IEE)** project⁷ and other successful programmes deserve to be closely studied.

The successful development of GEE21 will also significantly contribute to one of the two Key Goals proposed by the **Secretary General's Advisory Group on Energy and Climate Change (AGECC)**, which is calling for a **reduction in global energy intensity by 40% over the next 20 years**. The AGECC, which has presented its recommendations at the "Energy for Development Day" in New York (jointly organized with UN-Energy on 28 April 2010), highlighted the need for developed and developing countries alike to build and strengthen their capacity to implement effective regulations and policies, market-based mechanisms, business models and investment tools with regard to efficient energy use. Achieving this goal will

⁷ IEE promoted technical assistance supporting the adoption of Energy Management Standards and related complementary policy measures as well as delivering tailor-made training and tools focusing on industrial energy system optimization (UN-Energy, 2010:119).

require the international community to harmonize technical standards for key energy-consuming products and equipments, accelerate the transfer of know-how and good practices, and catalyze increased private capital flows into EE investments⁸.

In the framework of UN-Energy, UNECE, the other RCs, UN-DESA and UN-Energy/UNIDO have applied for funding under the **UN Development Account** to execute the activities of GEE21 and strengthen the capacities of developing countries and countries with economies in transition to attract investment in energy efficiency and renewable energy projects as means of sustainable development and climate change mitigation.

Towards a Global Strategy for EE market formation

In April 2011, the Task Force will present a draft "**Global Strategy for Energy Efficiency Market Formation**" to the Group of Experts on Global Energy Efficiency 21. The draft will be further developed into a Global Strategy that will then guide the work of UNECE and the other GEE21 implementing agencies.

Preliminary discussions about the Global Strategy have been undertaken at the First meeting of the Group of Experts on 10 June 2010 (where a Conference Room Paper on this topic was circulated) and at the Extended Bureau meeting on 18-19 October 2010. Further, the study "Financing Global Climate Change Mitigation" has allowed a first

⁸ AGECC, 2010:9.

assessment of the situation and the needs in each region.

The Global Strategy will take a comprehensive approach towards EE improvements, not focusing on a specific sector but rather favouring the **emergence of self-sustained markets driven by demand and supply**. All constituencies of GEE21 agree that, at present, there are several **barriers to overcome** in order to establish such markets in all regions of the world. The existence of a market where EE services are provided and traded is dependent upon the existence of suppliers and buyers for these services, as well as an environment where these services can be effectively priced. The table below shows the nature of these barriers and possible ways to overcome them.

« The Global Strategy for Energy Efficiency Market Formation will favour the emergence of self-sustained markets driven by demand and supply »

« All constituencies of GEE21 agree that there are several barriers to overcome in order to establish such markets in all Regions »

Table 2: Barriers to self-sustained EE markets

Nature of the barrier	Measures to overcome it
a) Supply of energy efficiency services	
Unavailability of capital to kick off programme or set up ESCOs	Dedicated equity or quasi-equity funds, partial loan guarantees, new funding institutions or funding windows
Lack of adequate technology	Technical assistance, technology transfer
Lack of engineering & project management skills	Technical assistance, training
Lack of banking skills	Technical assistance, training, partial loan guarantees, bypass of local banks
b) Demand for energy efficiency services	
Lack of awareness of EE benefits	Campaigning, enhanced communication (especially on-line), free energy audits
Unavailability of capital to pay for EE improvements	State or DFI-funded credit lines to local banks, micro-finance, partial loan-guarantees
Lack of measurability of EE gains	Introduction of standards, (free) energy audits
c) Enabling environment	
Absence of pricing policies reflecting true costs of energy and rewarding energy savings	Tariff reform. If not possible, investment subsidies or concessional funding
High transaction costs for project preparation and management	Technical assistance, creation of specialized ESCOs, investment subsidies

Source: based on UNECE, 2010:10-11.

GEE21 aims at the formulation of a holistic approach to overcome these barriers that includes knowledge sharing and capacity building measures, policy reforms and investment project finance. However, each of these barriers presents different features and peculiarities in each region of the world and significant differences may exist within the same region (especially in the UNECE and ECA regions). Further, in line with the approach proposed by UN-Energy, any action to overcome these barriers should take into consideration existing national and international programmes to **avoid unnecessary overlaps and duplication** that misallocate scarce resources.

« GEE21 aims at the formulation of a holistic approach to overcome barriers to energy efficiency market formation avoiding unnecessary overlapping and duplication among different programmes »

In light of this, it has been agreed that an effective Global Strategy will take action in the following directions:

1. **Compile a detailed inventory⁹** of existing and planned EE policies and programmes in each region

⁹ As a basis for the development of this inventory, the UNECE Secretariat sent the project documents of the FEEI Project (see below) to the members of the Group of Experts. These documents include a list of bankable investment project proposals worth USD15 million.

2. **Identify global, regional and country-specific barriers to EE market formation** and mechanisms to overcome them
3. **Identify prospective projects** and prepare adequate project pipelines
4. **Finance concrete projects**, according to financial availability

With regard to regional specificities, discussions and presentations by the Group of Experts and Bureau members, as well as the findings of Global Climate Change Mitigation, have highlighted the following points:

- a) The *UNECE region* is home to the largest and most developed EE markets and the UNECE Secretariat, together with several other regional organizations, possesses **extensive experience** in promoting EE improvements. In particular, the ongoing process of reducing Europe's east-west "energy divide" through intergovernmental co-operation, capacity building, policy reforms and private sector involvement provides valuable insights for adaptation of existing policies and programmes in different contexts;
- b) The *ESCAP region* is in need of decisive EE improvements to guarantee the sustainability of the economic growth of some of its largest members. Given the **strong political will** shown by some countries and the numerous existing national and intergovernmental programmes, the region is well-placed to benefit for a more systematic cooperation on EE;

- c) The *ECLAC region*, in spite of its relatively advanced legislative frameworks, has still inadequate markets for the independent provision of EE improvements. However, **ongoing governmental involvement** and recent action by the ECLAC Secretariat on various international cooperation initiatives make the region an important player within GEE21;
- d) The *ECA region* is still lagging behind in terms of regulatory frameworks and EE delivery but it holds enormous potential. Notably, EE is widely regarded as the **most effective tool to provide sustained energy access** to its 600 million people still without electricity¹⁰ while decarbonizing an energy supply based on biomass, coal and hydrocarbons. The extremely differentiated situation among its members and between rural and urban areas in some countries calls for a particularly accurate analysis of local contexts;
- e) The *ESCWA region* is home to some of the largest producers and exporters of oil and gas, but contributes to only 3.44% of world's total CO₂ emissions from fuel combustion¹¹. Nevertheless, the region has to undertake substantial **revision of its pricing policies** to create the conditions for EE improvements. Budget constraints, resource conservation concerns, as well as the awareness of the global negative impact of climate change, are however increasing the level of interest in EE.

The Task Force will elaborate on this material, focusing in particular on each region's largest CO₂ emitters. Over half of global CO₂ emissions come from only twenty countries and it is important for a successful outcome of the Global Strategy to analyze their policies and their needs. Furthermore, UNECE experience with investment project finance proved that fund managers need larger markets with numerous investment opportunities to attract interest from an adequate number of investors.

The UNECE experience: The FEEI Project and the planned Investment Fund

A contribution to GEE21 and its Global Strategy may come from the experience and achievements of the UNECE **Financing Energy Efficiency and Renewable Energy Investments for Climate Change Mitigation (FEEI)** Project. The FEEI project, which started in 2008 under the umbrella of the Energy Efficiency 21 (EE21) Programme, is aimed at promoting an investment climate 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 of the 12 participating countries.¹² Three operational objectives have been identified:

¹² Participating countries are Albania, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Kazakhstan, Republic of Moldova, Romania, Russian Federation, Serbia, the former Yugoslav Republic of Macedonia, and Ukraine.

¹⁰ IEA, 2009:132.

¹¹ IEA, 2010:44-45.

1. **Identify and develop investment projects 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.
2. **Strengthen energy efficiency and renewable energy policies in the participating countries,** assisting municipal authorities and national administrations to introduce the economic, institutional and regulatory reforms needed to support investments in energy efficiency and renewable energy projects.
3. **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.

The implementation of the project is the direct responsibility of the Group of Experts on Energy Efficiency Investments for Climate Change Mitigation, comprising **National Coordinators (NCs)** and representatives of the **National Participating Institutions (NPIs)** appointed by the Governments of the 12 participating countries. The Group of Experts also includes representatives from the UNECE Secretariat, UNEP, the co-financing partners United Nations Foundation (UNF), United Nations Fund for International Partnerships (UNFIP), Global Environmental Facility (GEF), Fonds Français pour l'Environnement Mondiale (FFEM), and European

Business Congress (EBC), as well as representatives of international financial institutions active in the region. Each supporting institution participates in the Group of Experts to provide institutional oversight, monitoring and evaluation of project activities.

« FEEI has taken action along the three parallel tracks of capacity building and knowledge dissemination, policy reforms and investment project finance »

In its three years of operation, following the creation of a network of experts (NPIs and NCs), the FEEI Project has taken action along three parallel and complementary tracks to produce the following outcomes:

a) Capacity building and knowledge dissemination

EnEffect (Bulgaria), which was awarded a 36-month contract for the “Development of a Website and Internet Communications Network of Energy Efficiency Managers in Eastern Europe”, has developed a project **website** and a **blog**, which are fully functional and regularly updated. The national websites for each participating country have been developed by the NPIs in coordination with EnEffect. **On-line material on project development** is available and **training** for local teams has been provided and will continue. Capacity building workshops, as well as targeted assistance for policy-makers and project

developers, has begun and it will continue in 2010-2011. This activity is based on the “Business Development Course Programme” available in the FEEI Project publication “Investor Interest and Capacity Building Needs”, issued in 2009.

b) Policy reforms

Pöyry Energy Consulting AG (Switzerland), working under the terms of a 12-month contract, collected and analyzed **economic and energy policy data** from the 12 participating countries in close cooperation with the NCs and the NPIs, also undertaking missions to the participating countries. The contractor also identified specific policy, regulatory and institutional **bottlenecks to energy efficiency market formation** and conducted a study on how policy reforms could remove these obstacles making energy efficiency and renewable energy projects bankable. The results of the analysis were presented in the “**Regional Analysis of Policy Reforms to Promote Energy Efficiency and Renewable Energy Investments**”¹³, which also contained case studies on how particular policy reforms (economic, financial, pricing, institutional or comparatively simple administrative reforms) can transform economically attractive and pre-feasibility study business plans into bankable projects. The study also presented the potential for replication of case studies in other participating countries. A very important goal of the report, which was finalized in April 2010 and is available on the UNECE website, was to provide

¹³ Available at:
http://www.unece.org/energy/se/pdfs/eneff/eneff_pub/EE21_FEEI_RegAnl_Final_Report.pdf

recommendations addressed to policymakers in participating countries in order to develop and implement policy reforms that will support market formation and foster a favourable climate for energy efficiency and renewable energy investments. The discussion on policy reforms is ongoing. It was an important part of the **International Energy Efficiency Forum** and the **Workshop on Investments in Energy Efficiency and Renewable Energy Projects** in Astana, Kazakhstan on 28-30 September 2010¹⁴. Senior policymakers presented first results of the implementation of the recommendations of the Regional Analysis at the second **Seminar on Policy Reforms to Promote Energy Efficiency and Renewable Energy Investments** during the Sixteenth session of the Group of Experts on Energy Efficiency Investments for Climate Change Mitigation in Geneva on 20-22 October 2010.

c) Investment project finance

In cooperation with Conning Asset Management Limited (United Kingdom), **Investment Fund Designer** contractor for the FEEI Project, the project selection criteria and project developer profile were elaborated. The indicative project pipeline for the future investment fund is currently being developed both by Conning and the NPIs. Visits to the participating countries by Conning have confirmed a strong interest in the planned fund and its support mechanism.

¹⁴ Additional information can be found at:
http://www.unece.org/energy/se/pdfs/eneff/AstanaEEForum_Sept10/ECE_ENERGY_WP4_GE1_2010_9WorkshopForum_final.pdf

These activities are expected to lead to the establishment of a **public-private partnership (PPP)** investment fund for energy efficiency and renewable energy projects in South-Eastern Europe, Eastern Europe and Central Asia. Conning has already experience of establishing a similar fund under the auspices of UNECE for the 27 countries of the European Union. The €354 million European Clean Energy Fund (ECEP) was set up in 2007 and is currently over 90% invested. The new fund will function on commercial terms, thus fostering market formation and demonstrating that financing energy efficiency and renewable energy projects in the region can become business-as-usual. An important milestone in the process of launching the investment fund was the identification by Conning of the London-based NBGI Private Equity as the candidate lead investor and investment fund manager for the future fund¹⁵.

« FEEI activities are expected to lead to the establishment of a public-private partnership (PPP) investment fund for energy efficiency and renewable energy projects in South-Eastern Europe, Eastern Europe and Central Asia »

¹⁵ Additional information on the Investment Fund can be found at:
http://www.unece.org/energy/se/pp/adhoc/EE21_16_AHGE_Oct10/3_VanderBourg.pdf.

Conclusion: Scaling-up Energy Efficiency

While the ultimate solution to climate change mitigation has to come from the negotiation of a legally-binding global carbon abatement regime within the United Nations Framework Convention on Climate Change (UNFCCC), the UN-system has to act immediately to provide mechanisms for the immediate effective execution of the targets countries will agree upon. The biggest challenge will be the leveraging of the necessary investment needs for climate change mitigation, estimated by several agencies to amount to anywhere between \$200 billion and \$3,000 billion per annum to 2050¹⁶.

« GEE21 aims to make a significant impact and lead UN efforts towards climate change mitigation and CO₂ emission abatement »

UNECE, along with the other RCs, UNDESA and UNIDO, is at the forefront of this process with a project focused on the most cost-effective mitigation tool, a system-wide global approach and the involvement of much-needed private capital through public-private partnerships (PPPs). Strong of these features, GEE21 aims to **make a significant impact and lead UN efforts towards climate change mitigation and CO₂ emission abatement.**

¹⁶ UNECE, 2010:4-5.

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Annex: Summary table on reviewed financing mechanisms

Country	Name - Start date	Type DL CL PRG	Amount	DFI: MDB BDB NDB	Participating Financiers Public PEF PEF CFI	Eligible sectors EE RE	Main investment criteria	Concessional and/or investment grants, source of funding	TA, nature, source of funding	Implementation Status ES REC CO2S	Website/Contact details
Global - Debt											
	WB Group										
	Clean Technology Fund (2008)			WB							http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/ENVIRONMENT/EXTCC/0,,contentMDK:22106164~menuPK:5927542~pagePK:210058~piPK:210062~theSitePK:407864,00.html
	GEF (1991)										www.gefweb.org
Global - Equity											
	PEF										www.fecleanenergy.com/
Global - Guarantees											
	Development Credit Authority (DCA) (1999)	PRG		USAID			Up to 50% of net loss on principal			>200 guarantees, \$1.6bn in 60 countries	www.usaid.gov/our_work/economic_growth_and_trade/development_credit/index.html
Africa											
Tunisia	Prosol Solar Water Heating Loan Programme ()										
Tunisia		CL to CFI		BDB: AFD							

Country	Name - Start date	Type DL CL PRG	Amount	DFI: MDB BDB NDB	Participating Financiers Public PEF PEF CFI	Eligible sectors EE RE	Main investment criteria	Concessional and/or investment grants, source of funding	TA, nature, source of funding	Implementation Status ES REC CO2S	Website/Contact details
Asia and Pacific (includes Turkey and Central Asia) - Debt											
India				IREDA							
Thailand				Government of Thailand, Department of Energy Development and Promotion (DEDP)							http://www.dede.go.th/dede/fileadmin/uploads/pictures_eng/pdf/ Household_Credit_Loan_Project.pdf
Thailand	Revolving Fund (2003)	CL to CFIs AT ZERO INTEREST RATE	\$50m	Government of Thailand, Department of Energy Development and Promotion (DEDP)	11 CFIs: Bangkok Bank (BBL) Bank of Ayudhya (BAY) Bank Thai (BT) Thai Military Bank (TMB) Siam City Bank (SCIB) Siam Commercial Bank (SCB) Thai Farmers Bank (TFB) EximBank (Exim) Krung Thai Bank (KTB) SME Bank (SME) UOB	EE and RE in industry and buildings ESCOs	max 1.25m per project each individual EE measure should have a	Fixed rate maximum of 4%		207 projects for \$293 m as of April 2008	BoonrodSajjakulnukit Ph D boonrod_s@dede.go.th Tel. 662 225 7324 Fax. 662 224 0914 http://www.bcse.org.au/docs/International/REEEP/Thailand's%20EE%20Revolving%20Fund%20-%20A%20Case%20Study_final%20version.pdf
	CF			RDB: ADB			simple payback period no longer than seven years				www.adb.org/Documents/Others/Asia-Pacific-Carbon-Fund.pdf

Country	Name - Start date	Type DL CL PRG	Amount	DFI: MDB BDB NDB	Participating Financiers Public PEF PEF CFI	Eligible sectors EE RE	Main investment criteria	Concessional and/or investment grants, source of funding	TA, nature, source of funding	Implementation Status ES REC CO2S	Website/Contact details
Asia and Pacific (includes Turkey and Central Asia) - Equity											
	MAP Clean Energy Fund, China Environment Fund III, GEF South Asia Clean Energy Fund, Asian Clean Energy Fund, China Clean Energy Capital Fund	PEF		ADB							
	Fegace Asia Sub-fund LP	PEF	\$200m	ADB - FE Clean Energy							
Asia and Pacific (includes Turkey and Central Asia) - Risk Sharing											
China	China Utility-based EE Programme (CHUEE) (2006)			IFC-GEF		EE			Yes		www.ifc.org/chuee chuee@ifc.org
	Asia-Pacific Carbon Fund (APCF) (2006)			ADB							www.adb.org/Documents/Others/Asia-Pacific-Carbon-Fund.pdf
Western Asia											
Egypt			50% financing for CFL		Public	EE					
Jordan	Jordan REEF (2006)					EE, RE		AFD, FFEM, WB, GEF, EU			
Latin America and the Carribean - Debt											
Chile	-2005	CL to CFI		CORFO					Yes		

Country	Name - Start date	Type DL CL PRG	Amount	DFI: MDB BDB NDB	Participating Financiers Public PEF PEF CFI	Eligible sectors EE RE	Main investment criteria	Concessional and/or investment grants, source of funding	TA, nature, source of funding	Implementation Status ES REC CO2S	Website/Contact details
Central America	CAREC	Facility providing quasi-equity finance	\$20m	IADB, E+Co		EE, RE	\$500k to \$3m per project				www.eandcocapital.com/en_usa/carec.html
Europe - Equity											
Developing countries	Global Energy Efficiency and Renewable Energy Fund (GEEREF) (2007)		€110 mln		European Commission (EC)	EE, RE		Patient capital (public funds are subordinated to private investor's funds)		€22 mln invested in two funds in sub-Saharan and southern Africa, and Asia	www.eif.org/about/geeref.htm
Central Europe, Baltic, SE Europe	EnerCap Power Fund LP (2007)	PEF	€100m	EBRD, EIB	PEF	RE, waste to energy, cogeneration		No	No		www.enercap.com/
France	Fidem (2003)	Fund providing mezzanine financing to project companies	€45m	ADEME, the French public EE agency invested 15m in Fideme as junior investor						Fully invested 27 RE projects > 300 MW	http://cib.natixis.com/fideme/doc.aspx?filename=pdf%5Cen%5Cplaq%20FIDEME_vgb.pdf
Europe - Debt											
Bulgaria	Bulgaria EE and RE Credit Line (2004)	CL to CFI	€100m?	MDB: EBRD	7 commercial banks: Bulgarian Post Bank (BPB) DSK United Bulgarian Bank (UBB) Piraeus Raiffeisen Bank Union Bank Unicredit Bulbank	EE & RE EE: private projects industry	No max size, but investment grant is based on loan amount capped at between €500k-2000k depending on banks	Yes, Grants EE: 15% of loan amount RE: 20% paid on completion verified by independent expert	Yes, Project preparation support DAI Europe (formerly Bannock Consulting) and EnCon Services	80% disbursed [140] projects financed ES: RECY: CO2S:	www.beerecl.com

Country	Name - Start date	Type DL CL PRG	Amount	DFI: MDB BDB NDB	Participating Financiers Public PEF PEF CFI	Eligible sectors EE RE	Main investment criteria	Concessional and/or investment grants, source of funding	TA, nature, source of funding	Implementation Status ES REC CO2S	Website/Contact details
Bulgaria	BgEEF (2006)			MDB: IBRD				Yes, GEF			http://www.bgeef.com/display.aspx
Bulgaria	Bulgaria ESCO Fund (2008)	DL		EBRD		EE					www.eesf.biz
Slovakia	Sovseff (2008)	CL to CFI		MDB: EBRD		EE					www.sovseff.ev
Europe - Guarantee											
Hungary	HEECP			MDB: IFC				Yes, GEF			
Europe - Carbon Funds											
	MCCF			EBRD-EIB							