

International Conference and Training Seminar

'Business Planning of Energy Efficiency and Renewable Energy Projects'

Kyiv, 27-28 April 2011

Information Report



Achieving environmental protection and energy efficiency goals, leading to CO₂ emissions reduction is critical for Ukraine and other countries of Eastern Europe. To attain long-term improvements, an increasing number of energy efficiency and renewable energy projects should be developed and financed. Due to rising costs of energy and increasing environmental concerns, the demand for such projects is growing and they are becoming more attractive for investments. International organizations and financial institutions show their increasing willingness to finance such projects.

These issues have been on the agenda in many countries of Western Europe for several decades and a lot of experience and knowledge have been gained. This experience can be applicable in Ukraine and other Eastern European countries. International cooperation and capacity building are needed to promote development and financing of projects based on modern energy technologies.

The International Conference was organized 28 April 2011 to bring together project developers and financiers and to establish dialogue among various stakeholders interested in energy efficiency and renewable energy projects. Package of real projects, for which project documentation was developed under the framework of the Norwegian-Ukrainian climate co-operation, was presented.

Why Business Planning for Energy Efficiency and Renewable Energy projects?

Various types of energy efficiency, renewable energy and environmental projects are leading to significant reduction of greenhouse gases (GHG) emissions. Due to improved institutional conditions such projects now often provide reasonable return to investments, but high upfront capital costs often represent a barrier to these projects. For the Ukrainian project developers, implementation of the projects often represents a possibility of obtaining soft loans from international organizations and additional carbon revenue, thus improving project's economic feasibility.

However, the solutions are often complex, where the substantial investments should be carefully planned taking into account technical, economic and institutional aspects. Given these challenges and limited local experience and understanding of international standards for energy efficiency and renewable energy project development, banks and other financial organizations have been selective in their investment strategies. Therefore a good quality Business Plan is one of the most essential documents for obtaining access to financing. In addition, PIN is often required if carbon financing is desired.

Collaborative effort by Norsk Energi, UNECE and several local partners

The conference was jointly organized by the Norwegian Association of Energy Suppliers and Users (Norsk Energi) and the United Nations Economic Commission for Europe (UNECE), two international organizations working on various aspects of capacity building for renewable energy and energy efficiency projects development in Ukraine and other countries of South-Eastern and Eastern Europe and Central Asia.

Norsk Energi carries out the “Business Planning of Climate Projects” Programme in Ukraine, financed by the Norwegian Ministry of Foreign Affairs. The programme is aimed at developing local skills and experiences with real projects development. It combines training workshops and development of specific business plans for renewable energy and energy efficiency projects with significant potential for GHG emissions.



The participants were welcomed by Olav Berstad, Ambassador of Norway

UNECE is implementing the “Financing Energy Efficiency and Renewable Energy Investments for Climate Change Mitigation” (FEEI) Project in 12 countries of South-Eastern and Eastern Europe and Central Asia¹. Development of a pipeline of energy efficiency and renewable energy projects that are commercially viable and have a potential to be financed is among the goals of the FEEI Project. Another objective of the Project is establishing of a public-private partnership investment fund, which will provide market-based equity and mezzanine financing for such projects. To achieve these objectives, UNECE has begun a training programme for project developers and owners of the participating countries in business planning tools and methods.

Ukrainian organizers were ARENA-ECO, Clean Technologies Centre and Sumy State University.

Over 80 participants at the Conference and Seminar

More than 80 participants from Ukrainian Government, industry, consulting companies, business sector, banking and financing community, and media were present. Representatives from most of the

¹ Albania, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, the former Yugoslav Republic of Macedonia, Kazakhstan, Republic of Moldova, Romania, Russian Federation, Serbia, and Ukraine

international organizations and institutions working in this field in Ukraine also took part. The Conference was also attended by financiers and experts from Norway, Russian Federation, and United Kingdom.

Development of Framework Conditions – outlook by the Ukrainian Authorities

Mariya Malaya, Deputy Head of the National Agency for Rational Energy Use of Ukraine has underlined the importance of energy efficiency and renewable energy improvements in Ukraine. Current investment climate for such projects undergoes positive developments through introduction of preferential feed-in tariffs and reduced taxation for renewable energy and energy efficiency projects.

The Norwegian-Ukrainian Co-operation on Climate Mitigation



Mariya Malaya, Deputy Head of National Agency for Rational Energy Use of Ukraine



Hans Borchsenius, Head of International Department, the Norwegian Association of Energy Suppliers and Users

The climate change issues have been receiving close attention in Norway for several decades and a lot of experience has been gained in policy making and practical projects' implementation. In his welcome speech, H.E. Olav Berstad, Ambassador of Norway to Ukraine has described the vision of his country on climate change issues and targets set by the government for CO₂ emissions reduction. Hans Borschenius, a representative of Norsk Energi provided an overview of objectives, policy framework and main activities of the Norwegian Government to promote energy efficiency and renewable energy.

Experience, methods and technologies developed in Norway have been successfully tested in Eastern Europe. To promote climate change mitigation in Ukraine, the Norwegian Ministry of Foreign Affairs began supporting a capacity building programme for CO₂ emissions reduction projects in 2009. The Norwegian programme is interactive, combining Training and Capacity Building in three main areas: (1) modern energy technologies; (2) development of business plans; and (3) obtaining carbon financing. As part of the training, participants have developed real projects, tailored to terms of the financing facilities and carbon credits buyers. Norsk Energi and its local partners provided methodological assistance and follow-up for specific projects, transfer of modern Scandinavian knowledge on energy efficiency and renewable energy, assistance in CO₂ calculations, preparation of business plans and assistance in arranging financing.

A variety of projects developed through the assistance by the Norwegian programme

The result of this work, which took almost a year, is a documentation developed for 13 large projects, distributed geographically all over Ukraine. Five main energy efficiency and renewable energy technologies

covered by the Norwegian programme:

- Energy efficiency projects in the heat production facilities
- Fuel switch to biomass and municipal waste
- Waste-to-heat projects, including biogas
- Waste heat recovery
- Small hydropower and wind power projects



Sergei Shevchenko and Dmitry Perepadya presenting, respectively, a range of biomass conversion and waste-to-energy project proposals

Representatives of the projects, mainly project developers and owners, made presentations of their own projects and project documentation prepared at the International Conference geared towards financial institutions that may have interest in providing financing for such projects.

Name of the project	Investment, thousand Euros	Payback, years	CO ₂ reduction, t CO ₂ e/year
LFG capture and CHP production on the landfill №2, Zaporozhye	1 810	2.3	44 800
Construction of an integrated waste treatment complex at Smela, Cherkassy region	27 850	6.8	40 000
Wood pellets production project in Mizhgirya district, Transcarpathian region	447	1.83	-
Landfill flare gas capture at a landfill of Sumy	620	-	8 000
Biogas plant at pig farm OOO «Agrofirma LAN», Charkov region	3 388	4.1	8 000
Biogas plant at pig farm OOO «Zorya», Dnepropetrovsk region	1 740	2.5	4 000
50 MW wind farm construction in Globino, Poltava region	50 000	8	90 000
Recovery of waste heat and construction of 5 MW CHP facility at Kiev Incineration	Phase 1 - 1 000 Phase 2 - 2 500	Phase 1 - 1.5 Phase 2 - 4.5	Phase 1 - 60 000 Phase 2 - 32 000
Landfill gas capture, Khmelnytsky	1 500	-	30 000
Construction of 1 MW small hydropower plant in Zhytomir	1 000	2.5	4 000
Conversion to biomass of the 6 MW combined heat and power plant, Vasytkov, Kiev region	3 804	1.5	65 000
LFG capture and CHP production on the Kulebovka landfill Dnepropetrovsk	1 100	2.7	20 000
Conversion of CHP from natural gas to biomass, Achtyrka	3 800	1.5	65 000
Construction of a 6 MW CHP fueled by chicken manure, Nikopol, Dnepropetrovsk region	10 000	2.5	48 000

New financial mechanism under development by UNECE

Although project owners are willing to develop and implement these projects, financing has been and still is a challenge. While newly established facilities for loan and carbon financing have made now more funds available for projects implementation in Ukraine, the initial capital is almost always lacking. Given this challenge, UNECE is implementing the FEEI Project, which anticipates establishing a Euro 250 million public-private partnership investment fund. This fund will target the projects in the 12 FEEI countries in South-Eastern and Eastern Europe and Central Asia, including Ukraine.

Deltcho Vitchev, Renaissance Finance International, speaking on behalf of Conning Asset Management Limited, a company contracted to design the investment fund, presented a vision on how the fund will be working and what are the main conditions and criteria for the projects to be eligible and have a potential for getting financing from this facility. The future fund anticipates providing equity and mezzanine financing to the projects on commercial terms at the prevailing market rates. A supporting structure of the fund will aim at assisting projects to receive 100% financing for their implementation. The FEEI Project's goal is to launch the fund in 2011.



Oleg Dzioubinski presented the UNECE FEEI Project at the Conference. On 27 April, Deltcho Vitchev, Renaissance Finance International, conducted an interactive training session and distributed Business Planning Course materials.

Training Seminar on Business Planning for the FEEI Project participants

On 27 April, more than 20 project developers and owners from Belarus, Republic of Moldova, Russian Federation, and Ukraine (four of the 12 FEEI Project countries) participated in the training seminar on business planning conducted by Deltcho Vitchev.

Participants had an opportunity for individual consultations on preparation of project proposals, which were held on 28 and 29 April. They also attended the Conference on 28 April, which was important for them to acquire experience in developing and implementing energy efficiency and renewable energy projects.

Broad Forum of Financiers

The Conference gathered a broad forum of financiers. Ivan Zyuzin from Fjord Capital shared the experience of his equity fund in clean energy financing. One of his important concerns was that investors need a clear vision over the exit strategy, i.e. how to sell the projects, in which they have invested in Ukraine. Vasyi

Vasilchenko from NEFCO provided an overview of financial instruments NEFCO offers to SMEs and institutional sector in Ukraine. Nadia Ryazanova from IFC presented its Resource Efficiency Programme available now for Ukraine. Dmytriy Glazkov from the World Bank described the energy efficiency programme for municipalities in Ukraine. Matias Jönsson and Valentin Diduk presented EBRD programmes for promoting energy efficiency projects (UKEEP) and renewable energy (USELF) in Ukraine. Alexei Sankovsky from ICF International analyzed opportunities and challenges with carbon financing in Ukraine.

Project developers and owners expressed their appreciation to what had been presented by financiers and to the fact that there was such a broad representation of the financing sector at the Conference. They confirmed that these presentations provided insight on various financing options for the energy efficiency and renewable energy projects in Ukraine.

Monitoring and Verification of Project's Results

Once the energy efficiency projects are developed, financed and implemented, it is important that their results are measured in order to verify the initial assumptions on energy saving potential. This procedure is particularly important for the Energy Service Companies (ESCOs) where investors are specifically interested in the project performance.

The International Performance Measurement and Verification Protocol (IPMVP) provides a reliable mechanism for Measurement and Verification (M&V). Jalel Chabchoub, a representative of the Efficiency Valuation Organization (EVO) provided an overview of IPMVP and its value for both project owners and financing organizations. Application of the IPMVP principles when planning energy efficiency projects may reduce investors' risks and uncertainties when implementing projects in Ukraine and other countries.



Jalel Chabchoub from EVO presenting IPMVP

Conclusions and Recommendations

The feedback from the participants of the International Conference and Training Seminar was very positive and confirmed that the Norwegian Capacity Building programme and UNECE FEEI Project are needed, timely and welcomed in Ukraine.

In addition, bringing together project owners and developers, financiers and government officials turned out to be very useful. Several of the presented projects have received positive feedback from financiers and they will be closely followed up in the coming future.

The project developers and owners from Belarus, Republic of Moldova, Russian Federation, and Ukraine, who participated in the training organized within the framework of the UNECE FEEI Project got an opportunity to improve their project development skills, to meet a broad range of financiers at a relatively early stage of project development, to acquire knowledge on international standards for market-standard project documentation, and to learn first-hand from projects developed in the framework of the Norwegian Capacity Building Programme.



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More information

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