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Energy Efficiency (EE) and Renewable Energies (RE)
The Central European Initiative (CEI) Activities

G. Cicognani, CEI Expert for S&T

The CEI contribution to the Sustainable Development Strategies

- The Central European Initiative recognises a clear priority to the promotional activities in the field of the Sustainable Development, to be implemented for the benefit of its Member Countries.
- The programmatic lines of Energy Efficiency (EE) and Renewable Energies (RE) should be considered of a major importance in the CEI Plan of Action.
- The EE programmatic line is mainly implemented through Technical Co-operations supported by the Trust Fund provided by the Italian Government at the EBRD, while the RE development basically counts on both CEI promotional funds and “ad hoc” financial supports to be directly negotiated between Project promoters and the other International financial Institutions like the EBRD.

EE activities funded by the CEI Trust Fund at the EBRD

- Technical co-operation Projects should be regarded as important tools that allow proper knowledge diffusion in the CEI region, often standing as the backbone of large investment Projects. They cover a number of areas, i.e. EE related feasibility studies, environmental engineering, capacity building, pre-loan audits, management training.
- In the period 2005-2008 about € 1.16 million have been allocated by the CEI for EE Projects, out of which € 0.43 million in the year 2008.
- The outcome of the 2008 effort should be recognised of a major importance, considering that the CEI activities promoted EBRD investments for about € 87 million

**Energy Audits Programme
funded by the CEI Trust Fund at the EBRD**

- Without entering into too many details – which can be achieved by a direct access to the specific CEI documents - at least one significant CEI contribution deserves to be recalled here: the promotion of the “Energy Audits” carried out in a comprehensive regional frame.
- Energy saving opportunities, Energy Efficiency related investments and market evaluation, Energy Management training are examples of subjects that have been considered for the benefit of the CEI Member Countries, with a specific focus to those belonging to the Western Balkans and the Eastern European sub-regions.
- Main objective of this Programme is to demonstrate to both public and private operators the convenience to invest significant human and financial resources in the Energy sector, in a more efficient use of Energy resources in particular.

Promotion of Renewable Energy Sources (RES) Development

- The CEI is fully committed to favour the development of RES in the Member Countries by the implementation of both promotional and design related activities focused to those RES that appear to be of a major importance for the CEI Member Countries which don't belong to the EU. On the basis of the available S&T expertise and taking into account the characteristics of the considered European sub-regions, the proper use of biomasses appears to be by far the more appealing programmatic line to be followed.
- A second boundary condition has been taken into account by the CEI: the energetic use of biomasses should be restricted to by-products with a low, or even negative, commercial value. In particular no "food-feed" materials are considered. Our basic idea is to transform into useful energy the chemical energy available in different waste materials

From agriculture wastes to useful heat and electric power

- The transfer of the chemical energy of waste biomasses into useful energy can be obtained by using at least two technological processes, namely:
 1. The thermodynamic process (direct combustion, gasification, pyrolysis) applied to the by-products coming from both agriculture activities and wood/forestry maintenance.
 2. The biochemical process, in particular the anaerobic digestion of wastes coming from different animal/agriculture wastes (biogas).
- Here again the CEI decided to focus on the agricultural by-products, considering that energy obtained from both wood based materials (wastes from wood industry included) and biogas can already count on rather well developed technology, This is not the case of the agriculture by-products that call for further technological efforts.

- Since the year 2006, on the basis of the adopted programmatic criteria, the CEI decided to promote the so called BIOM-ADRIA Programme, the general objective of which was to propose a territory distributed energy co-generation just by using by-products coming from the huge agricultural productions, such as straws of wheat, corn, soya, sun flowers, vineyards... In case of success of this Programme an important RES could have been proposed for many Countries in the above recorded European sub-region, in the respect of the boundary conditions coming from economy, technology and environment protection related boundary conditions.
- Programme implementation foresees three consecutive steps:
 - The feasibility phase: Project BIOM-ADRIA 1
 - The demonstration phase: Project BIOM-ADRIA 2
 - The commercial phase: Project BIOM-ADRIA 3

BIOM-ADRIA 1 Project general objectives

General objectives of the BIOM-ADRIA 1 Project, implemented within the EU Adriatic New Neighbourhood Programme (April 2007 – July 2008) were:

- Favouring sustainable development policies in the CEI Countries, in the Western Balkan sub-region more specifically
- Promoting the professional growth of both local S&T Institutions and Enterprises (mainly SMEs)
- Enhancing a proper inter-Institutional co-operation
- Completing a comprehensive feasibility study of the energy system as a whole (thus including the plant itself, fuel cycle and infrastructures), as well as the related financial engineering

BIOM-ADRIA 1 Project specific objectives

Those objectives have been pursued through a number of coordinated activities focused on:

- The demonstration of the technical feasibility and the economic advantage of a biomass based, territory diffused renewable energy generation
- The preliminary design of both a first-of-a kind, biomass fed, co-generative power plant and the related fuel-cycle.
- Broader diffusion of the obtained results within the CEI Member Countries

BIOM-ADRIA 1 Project strength points

At least three specific starting conditions deserve to be recalled as a basis for the Project success:

- The unique expertise gained in Italy by the Emilia-Romagna Region on the biomass technology development for energy generation;
- The experience already available in Serbia in the use of biomasses for thermal energy generation;
- The clear priority recognised by the CEI to the sustainable development policies support.

The BIOM-ADRIA 1 Project Team

According to that, the selected Institutions for the Project implementation have been:

- Emilia-Romagna Region, Project Lead Partner, with the technical support of ASTER (Bologna)
- University of Bologna (Agriculture Faculty)
- CENTURIA-RIT (Romagna Innovation and Technology)
- VINCA Institute (Belgrade)
- SEEA, Serbian EE Agency (Belgrade)
- CEI Executive Secretariat (Trieste)

A further possibility

As it was clearly stated, the basic BIOM-ADRIA 1 proposal is to demonstrate the possibility of transforming agriculture by-products with a small or even negative commercial value into useful energy.

The only exception can be referred to the cultivation of short life-cycle plants – the so called Energy Plants - to be specifically used for energy purposes, thus offering an economic interest of using low-value lands without other practicable perspectives.

From BIOM-ADRIA 1 to BIOM-ADRIA 2

The BIOM-ADRIA 1 Project foresees the combined generation of thermal energy (hot water) and electric power.

Even if heat production has been indicated by the final users (in this case the City of Belgrade) as a priority, “green electricity” generation has been also considered as an important objective of the BIOM-ADRIA Project 1, at least at demonstration level.

Same criteria have been adopted for the implementation of the second step of the Programme, the Project BIOM-ADRIA 2

BIOM-ADRIA 2 Project status

On the basis of the achieved results, the BIOM-ADRIA 2 Project has been started since September 2008. Main objectives are:

-The assessment of a comprehensive Business Plan, including a proper financial engineering to be prepared under a strict contact with the EBRD officials. This work will be concluded within June 2009 and formally submitted to the EBRD as the starting point of the negotiate between the Bank and the committed Serbian Institutions (City of Belgrade and its main Utility, the Beogradske Elektrane), aiming to define the conditions to be respected for obtaining the credit line necessary for covering a substantial part of the required investment (in the order of 5 millions €, infrastructures for the generated energy distribution included)

- Outline of the applied research activities that will assure a higher flexibility to the agriculture by-products fuel cycle. Those activities will start soon on the basis of a direct agreement between CEI and VINCA

Conclusions (1)

1. The BIOM-ADRIA 1 Project properly met the expected objectives
2. As one of the main output of the Project, the technical reference frame for the BIOM-ADRIA 2 Plant realisation has been clearly defined and all the needed preparatory activities practically concluded.
3. The negotiate with the EBRD will start in a few weeks since now, aiming to define the conditions to be respected for the access to the financial facilities which will allow to cover a substantial part of the required investment.

Conclusions (2)

- BIOM-ADRIA 1 and BIOM-ADRIA 2 should be considered as a unique, self-standing initiative the success of which will represent the necessary condition for launching a territory-distributed energy co-generation in Western Balkans and Eastern European regions.
- Should this Initiative be properly implemented, on the basis of the gained expertise, a few tens of co-generating plants fed with agriculture by-products could be proposed in this part of Europe since the year 2011, as a unique contribution to a “domestic fuel” based Territory Sustainable Development policy.
- We, in the CEI, indicate this expected follow-on as “BIOM-ADRIA 3 Project”, namely the third step of the BIOM-ADRIA Programme that, as a whole, should be considered as one of the most important results obtained by the CEI in its 20 years of life



CEI Events focusing on EE and RES

- CEI Cooperation Activities, which are small-scale multilateral projects, usually taking the form of seminars, workshops, training courses and similar events co-financed by the CEI up to 50%
- CEI Summit Economic Forum, annual flagship business event representing a platform where feasible business ideas can be discussed, investment opportunities examined, trade partnerships established. Taking place in the country holding the CEI Presidency usually dedicate one, two sessions to EE and RES. This year it will take place on 12 November in Bucharest, Romania.



Thank you for your attention

CONTACTS:

Gianfranco Cicognani

CEI Expert for Science and Technology

Via Genova, 9 – 34121 Trieste (Italy)

Tel: +39 040 7786730; +39 335 8121795

Fax: +39 040 7786766

E-mail: g.cico@cei-es.org

Elisabetta Dovier

Executive Officer

E-mail: dovier@cei-es.org