

1. Sustainable Energy in the SEE Countries: Central European Initiative Activities and Projects

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2. The CEI Programmatic Guide-Lines

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- **Promotion & development of energy efficiency and stability of energy supply are the CEI top priorities for member states from Central and Eastern Europe**
 - **Our efforts are focused on the development of the Renewable Energies in the CEI Region**
 - **We are presenting obtained results and expected follow-on.**

3. Energy security and Renewable Sources

- **“Territory” is a unique richness in many CEI Member Countries**
- **Renewable Energies Resources (RES) strictly depends on the territory characteristics**
- **How can it contribute to the energy demand?**
 - **by offering a significant amount of renewable domestic fuels which can partially substitute the fossil fuel request,**
 - **complying with economic and environmental boundary conditions.**
- **CEI Plan of Action considers more general RES approach**

However, a clear priority is development of biomass based flues cause in Western Balkans and East European Countries presents a high potentiality in row material availability and required technologies

4. Biomass based R&D: the CEI criteria

The CEI promotional effort has been focused according to two reference **pre-conditions**:

- 1 – The use of biomass by – products (poor or negative commercial value) for energy purposes
2. – The use of already available technologies with minimal investment in technological adaptation

Condition n° 1 calls for a strict selection of the raw materials to be processed for energetic use. Neither feed nor food materials for energy generation are considered. CEI as non supporter of bio-diesel production.

Condition n° 2 suggests selection of well proven processes. An example: to adopt combustion based process.

5. Biomass based RES reference frame

In coherence with the above recorded conditions, following materials and related technologies are proposed by CEI to its Member Countries:

1. Direct combustions of **by-products** obtained by either agro-productions (such as different straws typologies) or wood/forestry maintenance related activities (waste materials from wood industry included).
2. Combustion of **bio-gas** obtained through anaerobic processes to be activated on both animal and vegetables productions.
3. Thermo-valorisation of specific biological plants, so called "**energy plants**" to be grown in residual lands which cannot be proposed for feed/food agro-activities.

For the time being the CEI efforts have been mainly focused on the line n° 1.

6. CEI Energy Efficiency related activities (1)

CEI is suggesting to its Member States, particularly those from Balkans and Easter European sub- regions, a clear line of development:

- **The co-generation approach**

even when heat availability represents a top priority for the beneficiary Institutions.

It is recognised a strong importance to the demonstration of both the technical feasibility and the economic interest of generating “green electricity” by high efficient thermo-dynamical cycles.

7. CEI Energy Efficiency related activities (2)

Even if co-generation represents a clear commitment of the CEI , at least three other activities deserve to be recalled here:

1. **Energy saving and rational use of energy in the civil sector,**
thermal conditioning of public/private buildings.
activities – mainly implemented by Austria - favouring focused R&D
and industrial networking.
2. **Geothermal water utilisation** for generating useful energy by using the
“heat-pump technology”.
BiH and Serbia showed a major interest due to wide presence of
underground waters (10-30m deep) & (temp. range 40-60 °C).
3. **R&D activities on low-cost solar cells** have been promoted in
Macedonia through the CEI “Know-how Exchange Programme (KEP)”
collaboration between the University of Skopje and the Italian CNR.

8. The BIOM-ADRIA Programme

BIOM-ADRIA Programme represents by far the most important CEI effort in the line of the Sustainable Development, with a direct focus to the RES promotion in selected CEI Countries, Balkan and East Europe sub-regions:

Three main steps of the programme:

1. The **BIOM-ADRIA 1 Project** - a general feasibility study completed in the period April 2007- July 2008 financed by EU INTERREG IIIA Programme.
2. The **BIOM-ADRIA 2 Project**, a “demonstration phase” under implementation, - construction of one (ore more) prototype Plant(s) for co-generating power by using biomass sub-products obtained from either agriculture productions or forestry maintenance /wood industry residues .
3. The **BIOM-ADRIA 3 Project** - the medium term objective of the BIOM-ADRIA Programme - foresees the construction of a significant number of biomass fed Plants to be considered as an unique contribution to a territory distributed, RES based energy generation.

9. The BIOM-ADRIA 2 Project (1)

- On the basis of the results obtained by BIOM-ADRIA 1- CEI decided to commit itself to the second step , namely Demonstration Phase,.
- Serbia was indicated as a reference Country, having expertise in biomass related technology in applied research and industrial expertise.
- CEI – coherently with its nature of Regional Institution - dedicates a strong attention to the diffusion of the obtained/expected results within all the interested CEI Member Countries.
- Since September 2008, the CEI activities have been focused to assure:
 - a) The proper networking among the different Serbian Institutions: Local Administration, Public Utility Co., R&D institute, Agro -Industry;
 - b) The support to finding the suitable financing institutions: EBRD credit lines

10. The BIOM-ADRIA Project (2)

In parallel, the CEI assured professional and financial support in order of

0.5 millions € , for:

- Biomass fuel cycle applied research. Activities focused to the fuel cycle optimisation in terms of raw material conditioning, logistic aspects and combustion process characteristics. The CEI investment is of 110,000 €
- Technical Assistance (Plant specifications, financial engineering, Business Plans drafting,...). Same commitment is expected after the positive conclusion of the EBRD and Serbian Institutions. A total CEI contribution of 370,000€ to be offered by the "Trust Fund" open by the Italian Government at the EBRD (London).
- Institutional networking and diffusion of the BIOM-ADRIA 2 Project results within the CEI Member Countries, with a specific focus to the Western Balkans sub-region. Related investment of 30,000 € refers to the period January 2009- March 2010

11. The BIOM-ADRIA Project (3)

- CEI resources represent an added value to the foreseen investment that calls for the direct responsibility of the local (Serbian Institutions)
- Figures reported under the Table shown in the next slide refer to the use of biomass by-products obtained from the agro-production of PKB - the biggest agro-industry in Serbia (22,000 ha of cultivated lands) - which is located nearby the City of Belgrade that can guarantee the continuous supply of fuel materials for the Plant.

12. The BIOM-ADRIA Project (4)



The BIOM-ADRIA 2 concept refers to a highly flexible energy co-generative system that can be tailored to the specific requirements.

Main technical and economical data are given here below:

- Total thermal power at the furnace level, MW: 2.0 – 4.0
- Useful thermal power after generation losses, MW : 1.6 – 3.2
- Thermal power for district heating system, final users (*), MW: 1.3 - 2.7
- Gross electric capacity (ORC subsystem), kWe: 250 – 425
- Energy system related investments (**), millions €: 2.4 - 3.1
- Energy distribution infrastructures investment (***), millions €: 1.8 – 2.0

-(*) Corresponding heated surfaces are of 27,000 an 45,000 m², respect.

-(**) Required back up systems and technical documentation included

-(***) Strongly depending on the local environment

13. The BIOM-ADRIA Project (5)

The BIOM-ADRIA 2 Project is now entering the decisional phase showing:

1. The strong **interest declared by the Serbian Government**, the full coherence of BIOM-ADRIA 2 Project with the 5-years (2009-2013) National Plan for the Technological Development in Serbia.
2. The **intention of other public Institutions** within both Serbia (**Pozarevac City** and **Branicevo Region**) and nearby Countries (**Bosnia-Herzegovina, City of Banja Luka**) to consider the BIOM-ADRIA 2 concept as a first reference for their RES related developments, with a specific focus to the District Heating requests.
3. The step taken by **Albania** with the Project Proposal **BIOM-ALBA** (a joint venture between the Tirana and Bologna Universities), to be considered as a direct BIOM-ADRIA spin off. Here again the CEI support has been assured by a contribution of our KEP (Know-how Exchange Programme).

14. Other Sustainable Energy related activities supported by the CEI (1)

- **“Trust Fund” of the Italian Government at the EBRD** is a promotional reference for the Sustainable Energy related activities. It sponsors technical co-operation in line with the Bank’s selective approach (conducting regional energy audits, fostering the process of the industry’s de-monopolization, market structuring/improving. All this having well in mind the on-going processes of privatization and the tariff reform trends.
- RES and EE related development activities are a top priority, calling for a focused uses of our resources, including our specific tools:
 1. KEP,
 2. the CEI special Fund for Climate and Environment Protection,
 3. the CEI Co-operation Fund
 4. Co-operation Activities dedicated Fund

15. Other sustainable Energy related activities supported by the CEI (2)

- “Technical Co-operation (TC) Projects” funded by the “Trust Fund”
- In the last 6 years a number of EE related TC Projects have been funded with a total of about 1.2 millions € (480,000 € in the period January 2008-June 2009).
- Energy management training, programmatic assessments on sustainable energy, market analyses and relate modeling among the treated tasks.
- Most TC were implemented on a typical regional frame, however in a few cases attention has been focused to specific Countries (Albania, Slovak Republic and Ukraine). In those cases the TC Projects have been implemented under a strict co-ordination with the KEP (seen as typical bi-lateral promotional tool).
- “CEI Future Events in Energy” :
 - a) the Meeting jointly organized by the Austrian Energy Agency and the Albanian National Agency for Energy (2007)
 - b) the St.Polten (south Austria) meeting on EE in the buildings (2008).

16. General Conclusions (1)

- CEI commitment on the Sustainable Development is a top priority of our Plans of Action
- Significant human and financial resources have been and will be dedicated to this objective, with a specific focus to the RES development and the EE promotion.
- Careful attention has been addressed to identify specific objectives, to selecting the most promising perspectives on a short-medium term basis. This is the case of the RES promotion, we are implementing with a specific reference to biomasses and - even in a medium term perspective - to the low enthalpy geothermal waters.
- Both these developments strictly refers to the territory related resources and - at the same time- can be implemented on the basis of proven - even modern - technologies.

17. General Conclusion (2)

- CEI Member Countries (not yet within the EU) belonging to our top priority areas: Western Balkans and Eastern Europe sub-regions.
- We in the CEI, do believe that our programmatic choices could offer to our priority Member Countries the proper reference for counting on a territory-distributed, sustainable energy generation related policy, to be implemented with the concrete possibility of achieving important results in a few years since now.

18. Thank you for your attention

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