



Final

Advanced Biofuels and the Development of a Bio-based Economy

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Regional Cooperation for European Integration - A Bridge between Macroregions



TOP PRIORITY: BUILDING POLITICAL & PUBLIC AWARENESS

- **Steve Jobs:** *the best way to create development and value in the 21st century is to connect creativity with technology... the **market** will do the rest!* His passion for perfection and his determined drive did revolutionize at least seven industries: computing, music, phone, tablet, digital publishing, retail stores
- **Energy market** is totally different: mature, very complex, with enormous financial resources/investments, and related interests...Therefore the context is different, but Jobs's motto stands: **Think differently!** By thinking differently **we** may contribute to **progressively** change energy supply and environmental trends, and to make it happen faster!
- The **ethical dilemma** of the past, **Food & Feed versus Biofuels** (first generation) is now finally and definitely behind us: **but** there is still a great need for political and public awareness building (verified through CEI action!)
- **Advanced biofuels** will not impact on agricultural prices, their economic viability and environmental sustainability are no longer under discussion. They are the **next big thing**: because of their extraordinary **quantitative impact** they will be the prime element of the evolution towards a new Bio-based Economy

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BIOFUELS FOR AN ECO-FRIENDLY ENERGY STRATEGY

- **Energy** is top priority for **CEI** and **Advanced Biofuels** are the most attractive option for any eco-friendly energy strategy: they also address **priorities** in Science, Innovation, Environment, Agriculture (same overall priority mantras repeated in Brussels...)
- In fact, **Advanced Biofuels** are the best equation **combining**:
 - Energy requirements (reducing dependence on fossil fuel imports)
 - Environmental protection (reducing CO2 emissions)
 - Rural development and food security
 - Far-reaching global market opportunities (to sell new technologies)
- **Advanced Biofuels** are efficiently produced from **different feedstock**, without competing with food or cash crops for fertile land and water, and reducing global greenhouse gas emission in the process. Examples of such feedstock (for which more efficient technology is expected very soon...):
 - Crop residues, plentiful where there is an agricultural production
 - Residues from sustainably harvested forests and undergrowth
 - Algae or other spontaneous vegetation
 - Municipal solid waste (where separate collection is efficient)

PARAMETERS GIVEN TO BLOOMBERG FOR THE REPORT

- CEI Member Countries have large agriculture and forestry sectors: promoting advanced biofuels is a natural priority for CEI. In 2012, CEI commissioned to **Bloomberg** a Report on Advanced Biofuels as a most relevant aspect for a Bio-based Economy in today's reality.
- The Report is based on a **very conservative approach**, considering the long-term projection (until 2030):
 - **Only** agricultural waste as feedstock (no forestry residues, no algae, urban waste)
 - **Only** existing conversion technology (despite breakthroughs are expected soon) related to different feedstock
 - **No change** in current land-use patterns

The resulting **residue potential scenario** as highlighted in the Bloomberg Report refers only to what today farmers consider "waste", i.e. not used for soil improvement and animal breeding. **Conclusions are already striking ...** What outcome if, on the contrary, we envisaged to exploit the **full potential of a Bio-based Economy?**

EXPECTED OUTCOMES ACCORDING TO BLOOMBERG

Potential benefits of Advanced Biofuels in the CEI region according to the **residue potential scenario** which considers only agricultural waste as feedstock (for which cost-efficient technology is available), converting all agricultural residue ready available (i.e.17% average):

- **Job creation**, 580.000 man-years of employment in the years 2012-2030 and up to **36.000 permanent jobs** predominantly in **rural areas** (collecting and transporting residue and operating bio-refineries)
- **Innovation and economic growth**, with an ethanol potential in 2030 of 30 billion litres per year, requiring a total **investment of €40 billion** in 2012-2030 for a total **revenue of +/- €260 billion** in 2012-2050
- **Energy security**, moving from high dependence on foreign oil towards greater fuel self-sufficiency for transport
- **Environmental protection** through a reduction of CO2 emissions (around 40%) by replacing 61% of fossil gasoline in 2030 with next generation ethanol converted from agriculture residue.

NOT ONLY BIOFUELS: A NEW CHEMICAL INDUSTRY

- The development of Advanced Biofuels is complemented by that of bio-refinery, i.e. production of added value biochemical materials, which will be the basis for a **new chemical industry**
- Today chemical industry heavily depends on by-products of oil refinery: by-products of Advanced Biofuels will bring a **revolution** which also will require more R&D efforts and will imply new opportunities for the side production of bio-refineries
- The prospects of **additional income for farmers** will entail a consistent **rural development** and a consequent **environmental protection** (without requiring additional investment). This must be **another crucial element** in the evaluation of a strategic choice in favour of Advanced Biofuels

On the basis of the Bloomberg Report, one should consider the further impact of **new technologies**. How about full exploitation of different feedstock? How about other high added value by-products? In other words:

- **What multiplier effect** is to be expected from these developments, for the whole of Europe and for the whole potential of a new Bio-based Energy?
- A Public-Private Partnership is being established to support the development of a Bio-based Economy in Europe. In the next EU financial cycle over 4 billion EUR will be made available jointly by European industries and by the EC: **CEI is ready to be the focal point for its Member Countries** and for the markets they represent.

Increased use of biomass will create a new industry

- Enhancing political and **public awareness** through direct contacts with governments, public institutions, scientific and business communities at all levels, and participation in specific seminars, conferences, events, etc.
- Establishing CEI Secretariat as the focal point for Member Countries vs European Commission, Pan-European sectoral organisations, major players of the relevant **public-private-partnership** to be established soon
- Participating with a prominent role in three dedicated 7th FP projects with prime partnerships in high level consortia:
 - S2BIOM, on cost efficient supply chain for optimized use of biomass
 - EBTP-SABS, on support of European biofuels technology platform
 - DR-INCO.NET, promoting research networks in the Danube Region
- More projects in the pipeline for the next EC financial cycle 2014-2020 (Horizon 2020 and other Programmes): positive outcome expected in view of CEI successful record in managing EU (co)funded projects.

**Stronger cooperation in Europe is needed: this OSCE Forum provides an opportunity to call on International Organizations for a new initiative to jointly promote Advanced Biofuels with their respective constituencies, working on: comparative efficiency and cost effectiveness vs. other renewable sources, regulatory framework, taxation, incentives, etc...
Still a lot to be done, but the final targets deserve it!**

THANK YOU FOR YOUR ATTENTION

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Bloomberg Report: www.cei.int/Bloomberg