Sustainability Certification of Bioethanol Production Facilities

Brussels, February 2011
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Abengoa is an **international company** that applies **innovative technology solutions** to sustainable development in the **energy** and **environment sectors**, generating electricity from the sun, producing biofuels, desalinating sea water and recycling industrial waste.
Objectives of Abengoa

Abengoa focuses its growth on the creation of new technologies that contribute to sustainable development:

- Generating energy from renewable resources
- Recycling industrial waste, and generating and managing water
- Developing information systems which aid in managing existing infrastructures more efficiently
- Creating environmentally-friendly infrastructure
- Promoting new avenues of development and innovation

And to achieve this:

- We invest in research, development and innovation (R&D&i)
- We expand those technologies with the greatest potential
- We develop the necessary talent by attracting and retaining the very best people
- We allocate financial and human resources to promoting socially responsible policies that contribute to social and human progress
With biomass ... we produce ecological biofuels, renewable energy, sugar, and animal feed

Leaders in the development of second-generation technologies for obtaining bioethanol from biomass

A global leader, and the only bioethanol producer with a presence in the three key geographical locations: U.S., Europe and Brazil

Capacity totaling more than 2,500 ML of bioethanol under operation using diverse raw materials

530 ML under construction in Europe and the U.S., 480 of which will go into operation in 2010

Two cogenerations under construction at the Brazilian plants, each with a capacity totaling 70 MW, entering operation in April 2010

An ambitious research program: research grants from the DoE and the European Union. R&D investment in 2009 totaling 24 M€
It is Abengoa Bioenergy mission and ultimate goal to fulfill this vision through development of leading-edge manufacturing technologies and the implementation of best-class operational performance.

- Starch conversion to bioethanol
- Co-products utilization
- Biomass enzymatic hydrolysis
- Thermochemical conversion of biomass
- CO₂ capture with microalgae
- Integrated biorefinery
We have defined an iterative process in which the continuous improvement and external drivers spark the process off.

The process is split in several tasks; responsible for each task has been defined.

The management of the Sustainability objectives is achieved through well established Plans and procedures.

The vision development and objectives achievement is being key towards the sector leading; our vision goes behind any external driving.
“To be recognized as a world leader:

- In the production and commercialization of bioethanol from bio-renewable resources
- In research and development, known for technological innovation in the conversion of biomass to bioethanol”

For that:

- Abengoa Bioenergy has been fully involved and is member of the ISCC Association – first operative certification system for biofuel in Europe and binding in German market
- Abengoa Bioenergy has develop its own Voluntary Scheme (called RBSA scheme) going beyond simple national transposition accomplishment, and enhancing development of innovative IT systems

Plans and procedures according to Sustainability Model have been defined for both initiatives
Accomplishing with legal requirements in Germany -> ISCC system

From 2008 to 2009
Attendance to seminars and Workshops during development phase

June 2009
Collaboration in pilot project, carried out over a real supply chain involving corn producers in Hungary with destination Ecocarburantes Españoles

January 2010
Adhesion to ISCC system Association, election as Board Member
### Accomplishing with legal requirements in Germany -> ISCC system (II)

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>January 2010</td>
<td>ISCC First Certification System preliminary approved by BLE for German Bioordinance – confirmation later</td>
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<tr>
<td>April 2010</td>
<td>Internal auditing and preparation on ISCC adjustment of existing systems</td>
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<tr>
<td>September 2010</td>
<td>Abengoa Bioenergy France and Abengoa Bioenergy Netherlands, certified by SGS on ISCC system</td>
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A recognised Voluntary Scheme must, irrespective of National Regulation, be acknowledged by all Member States (EU 27) as means of proof for compliance.

Abengoa Bioenergy has reinforced existing sustainability systems and developed our own Certification System -> RBSA scheme

Anticipate actions to comply with regulation in Europe -> RBSA scheme

Previous innovative IT solutions for GHG, Mass Balance and Land Use accomplishment enhanced for easing burden on supply chain.

Stricter requirements always with high level of external guarantees, through:
- Certification bodies
- Auditing according ISAE 3000 for IT systems
Anticipate actions to comply with regulation in Europe -> RBSA scheme (II)
After RED criteria entrance into force, some challenges appear

Voluntary Schemes (VS)
Recognition between VS and National implementations is obliged but:
- Language?
- Obstacle to commerce?
  - Acceptance of VS’s documents and anything more?
  - Excess of bureaucracy and over control?

GHG data calculation
Voluntary Schemes have more demanding and uniform level in their approval process. And what about the rest?

Miscellaneous
Wastes and residues? ILUC? Fossil fuel comparator? Reporting obligations?
Additional binding requirements in RED? CAP developments could not integrate RED criteria? Other uses of biomass do not need certification? Book & Claim? Double counting of 2G biofuels -> benefit or damage? Customs?