Inbicon demonstration plant

Michael Persson, VP Finance & Corporate Affairs Inbicon (subsidiary of DONG Energy)

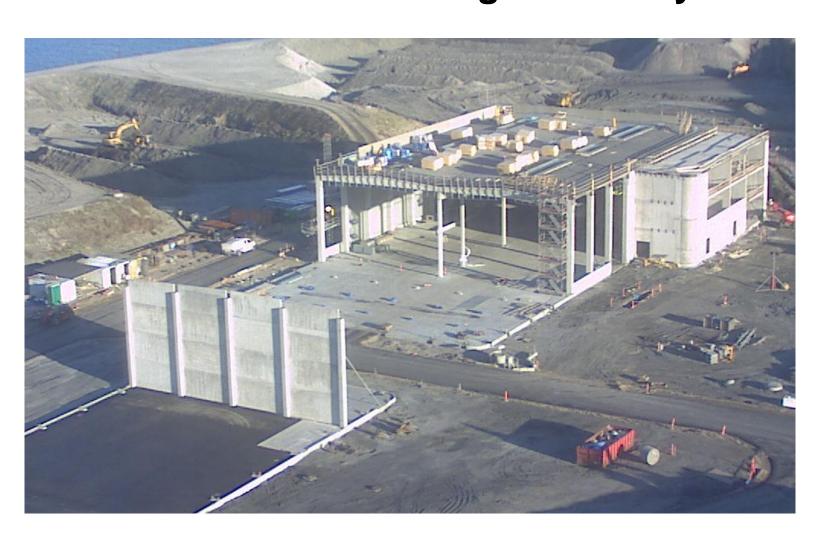
European Biofuels Technology Platform 3rd Stakeholder Plenary Meeting Brussels, April 14, 2010



Inbicon Biomass Refinery™ Agenda

- Demonstration plant in Kalundborg, DK
- Technology
- Commercialisation
- EU funding

Inbicon Biomass Refinery™ Demo Plant in Kalundborg 7. January 2009



Inbicon Biomass Refinery™ Demonstration Plant in Kalundborg NOW



Inbicon Biomass Refinery™ Inauguration in November 2009













Inbicon's proven technology:

Demonstration Plant 2010 – 100 T/day

Input: 30,000 t wheat straw

Output: 5.4 mill. I ethanol 13,100 t lignin pellets 11,250 t C5-molasses

Enzyme suppliers: Danisco Genencor Novozymes

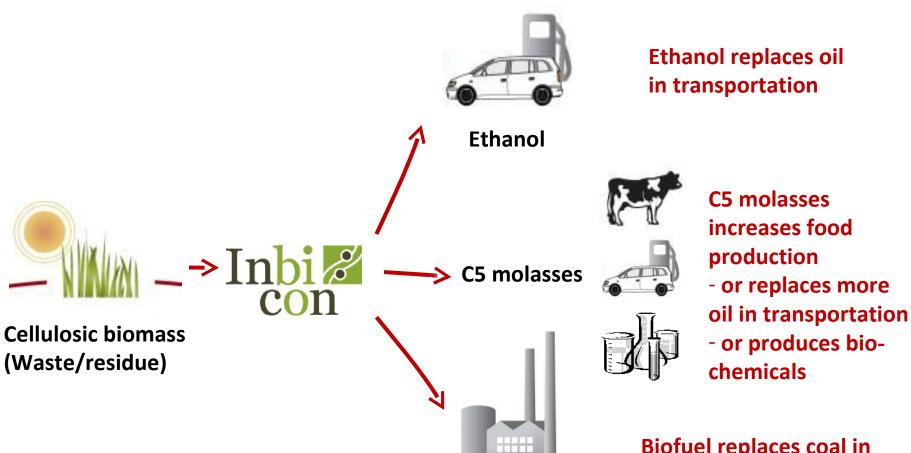
Investment: €53 mill., incl. €10 mill. DK gov't support



Demonstration supported with €9.1 mill by EU 7th FP under Kacelle project

Inbicon Biomass Refinery™

Our Goal is Optimal Use of Biomass



Lignin biofuel

Biofuel replaces coal in power and heat generation

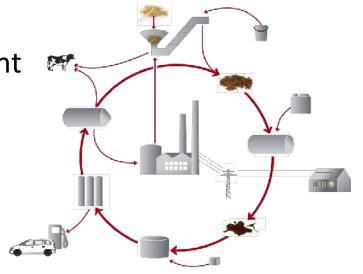
Inbicon Biomass Refinery™

Multiple Feedstocks Tested, Wheat Straw Optimised

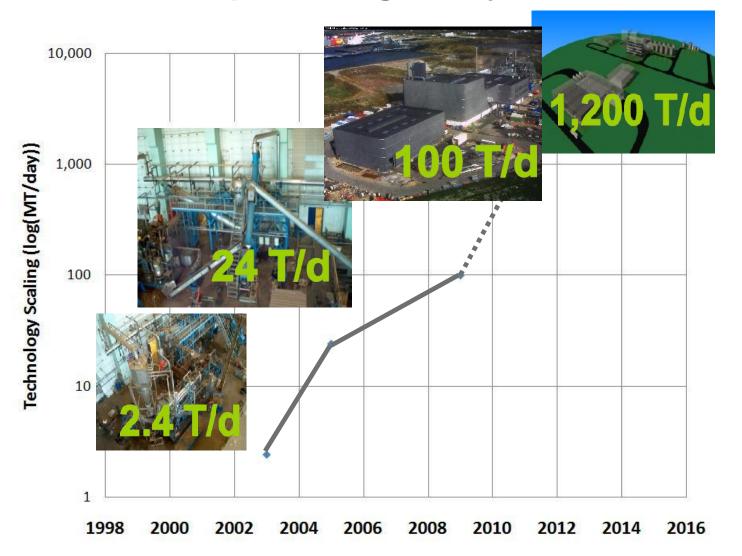


Inbicon Biomass Refinery™ Advantages of the Technology

- Simple process → based on only water, enzymes and yeast
- High dry matter in all process streams
 - → saves water and energy
- Low enzyme consumption
- Integration advantages with power plant
- Integrated contamination control
- CO2 reduction of 85%



Inbicon's proven technology: Gradual Up-Scaling – Key to Success





Inbicon Biomass Refinery M Global project developments



Inbicon's proven technology: How did it all start?

Late 90'ies: First ideas of combining ethanol and power production

2002-06: EU-project (IBUS)

2003: First pilot plant

2005: Second pilot plant

2007: Inbicon A/S established - DONG Energy 100 % owner

2009: Opening of demonstration plant

2010: First license contract

Approx. 60 employees



Inbicon Biomass Refinery™

Success story in EU funding projects

10 X multiplication effect of original EU investment:

Initial technology project:
"Co-production biofuels",
budget €13.5m, EU
contribution (FP5): €6.5m



Demonstration plant: Budget €40m, Danish gov't support €10m



Total project expenditure till end of 2009: +/- €65m

New projects based on the initial project:

HYPE

Develop consolidated and more costeffective bioprocessing, budget €5.4m, EU contribution €3.6m

Renescience

Pre-treatment of waste with enzymes for introduction in pressurised gasifiers, budget €7.3 million, contribution from Danish sources approx. €3.8m

2nd generation biofuel for cars of the future

Comparison of pretreatment technologies, budget €5.6m, DK gov't contribution approx. €2.8m

Biomass for biofuel and bioethanol on pilot scale

Optimisation, budget €1m, contribution from Danish sources approx. €0.8m

Kacelle

Demonstration and optimisation of the Kalundborg demonstration plant

FP7 contribution:

€9 m



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Making ethanol work for the world™

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