CO-PRODUCTION BIOFUELS

Integrated Biomass Utilisation for Production of Biofuels

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BIO-ENERGY
ENLARGED PERSPECTIVES

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Co-production Biofuels

- Budget: 13,6 mio €, EC-contribution: 6,45 mio €
- Contractors
  - Elsam A/S, DK
  - EHN Energia Hidroeléctrica de Navarra SA, E
  - CEFIB (Royal Veterinary and Agricultural University and Risoe National Laboratory),DK
  - TMO Biotec Ltd. UK
  - Sicco K/S, DK
- Duration: 40 month

Objectives

- Develop a cost and energy effective production system for bioethanol and electricity based on Integrated Biomass Utilisation Systems (IBUS)
  - Combining utilisation of lignocellulosic biomass with conventional Sugar/starch feedstocks for ethanol production at a power plant.

Objectives - details

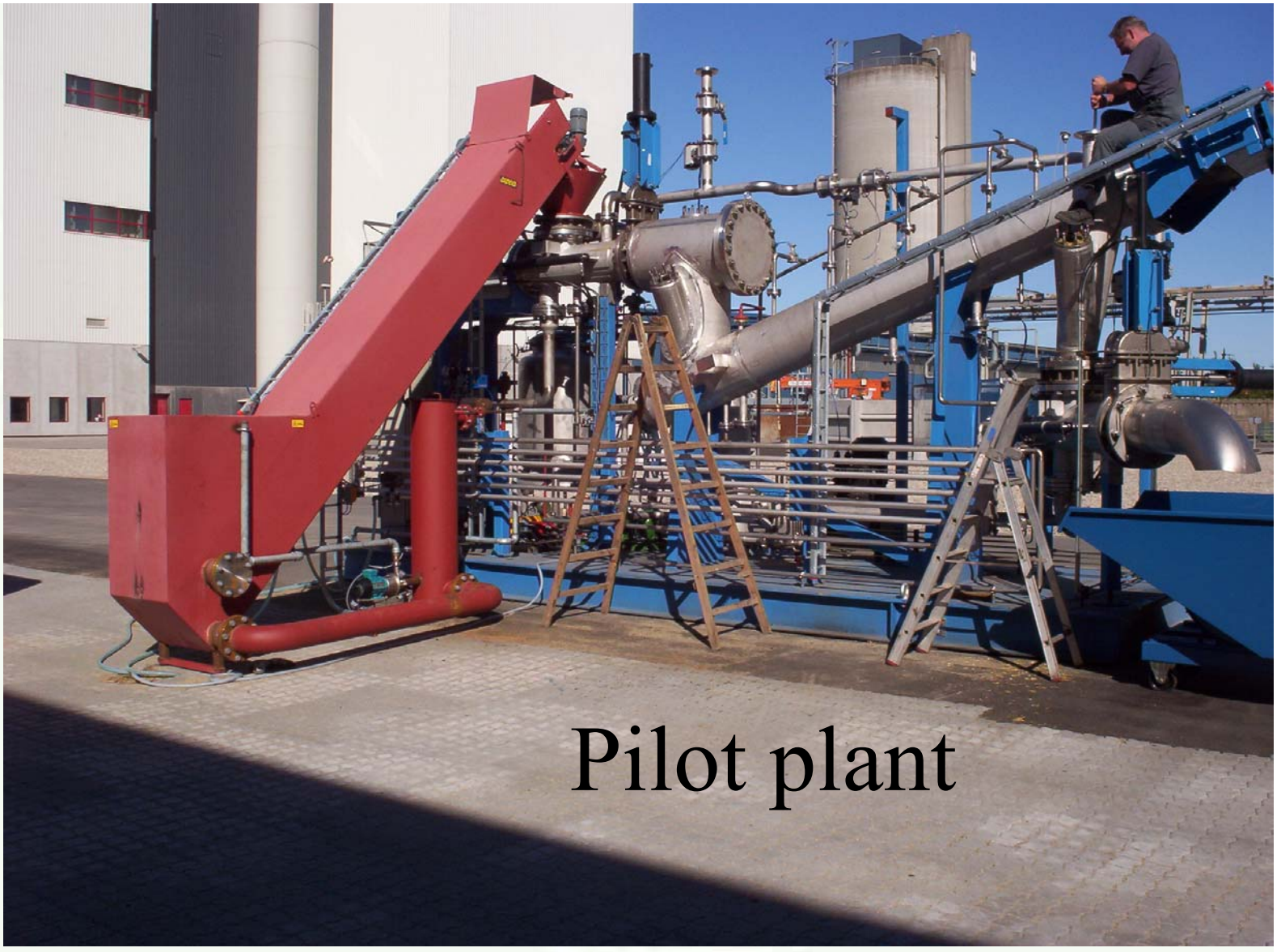
- Reduce cost for transferring straw and grain (whole crop) from field to processing plant
- Demonstrate utilisation of MSW in the IBUS concept
- Develop new pretreatment technology for lignocellulosic biomass
- Develop continuous thermophilic ethanol fermentation and recovery process for mixtures of C5 and C6 sugars
- Reduce cost of saccharification of pretreated cellulose
- Feasibility studies on different combinations of feedstocks

Description of work

- WP1: Pre-treatment investigations
- WP2: Development of ethanol-tolerant, productive thermophilic micro-organism
- WP3: Design and construction of 100 kg/h and 1000 kg/h pilot plant
- WP4: Feasibility study, molasses+MSW based
- WP5: Feasibility study, whole crop based
- WP6: ICT system for end-users

Work done so far

- Pilot plant 100 kg/h designed and constructed to be tested during this autumn
- Test of MSW separation equipment
- First version of feasibility study
- Lab scale pretreatment trials


Pilot plant

Pilot plant - objective

- Continuous pressurized pretreatment (key component – Particle pump). Max data

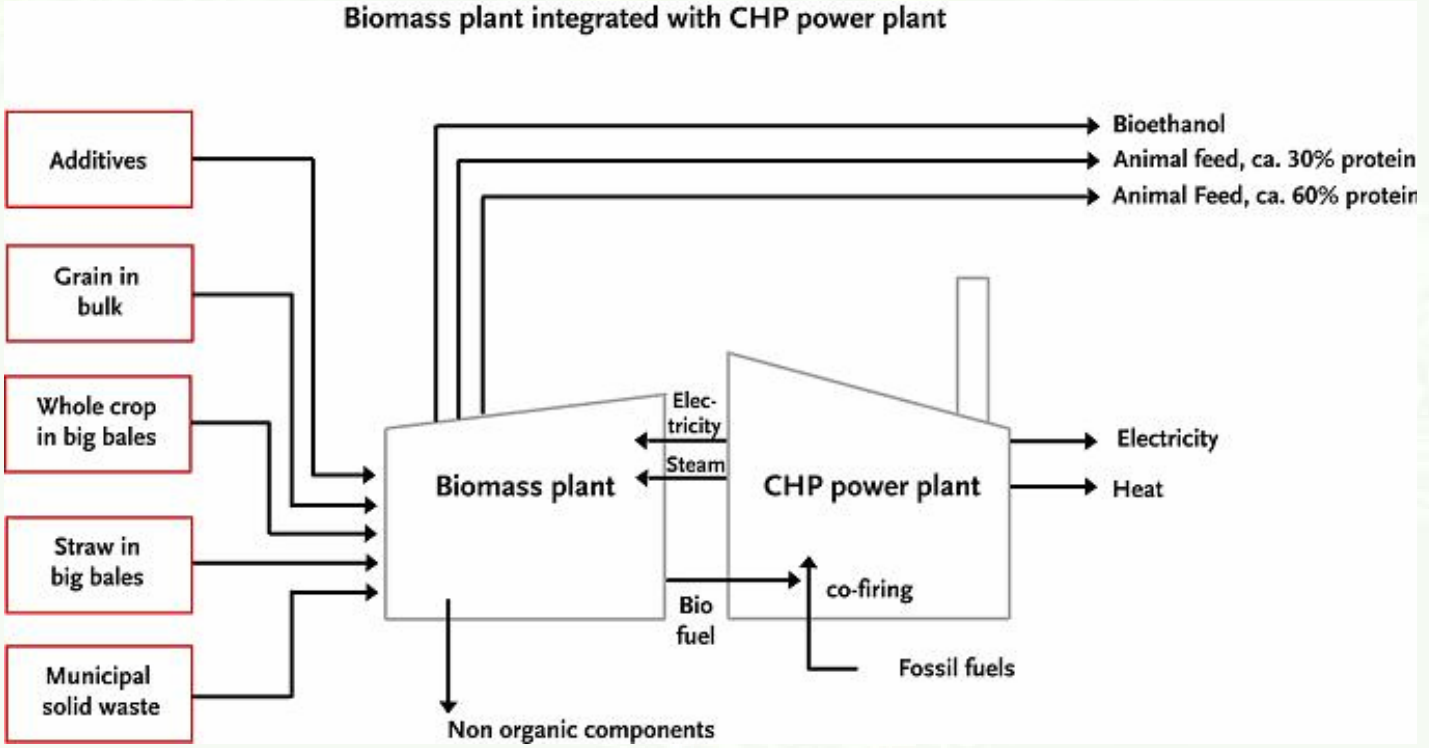
  30 bar/240^{o}C
- Verification of technology
- Trials with different raw materials
- Provision of design data for full scale plants

MSW separation equipment

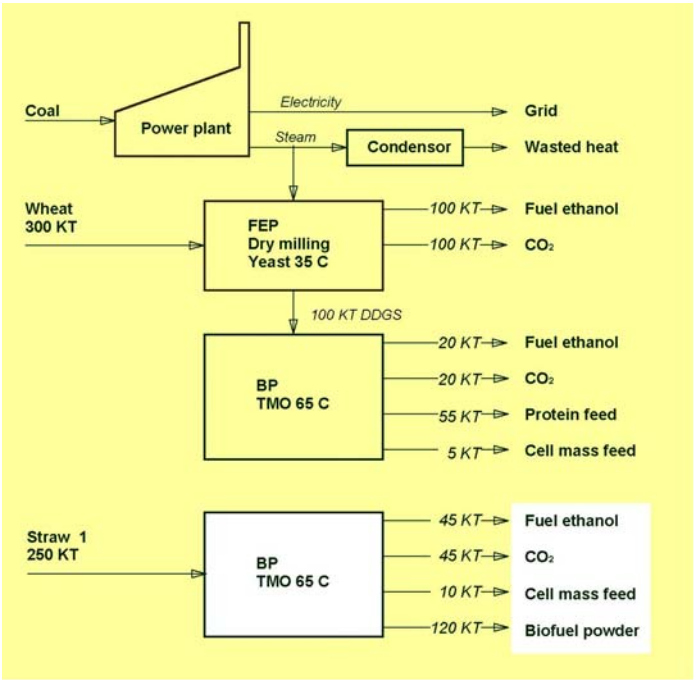
Work plan 2004

- Design and construction of 1000 kg/h pilot plant
- Feasibility studies
- Continued development of thermophilic microorganism
- Pretreatment trials on 100 kg/h pilot plant

IBUS koncept



Perspective



- Benefits:
- 100 % utilisation of whole crop
- Very high energy efficiency
- Very high reduction of CO_2 emission
- No waste water
- No air pollution
- Very good alternative to set-aside land
- Step-wise implementation

Result

- The project Co-Production Biofuels shall provide reliable data for potential investors to decide upon full scale projects based on integrated utilisation of lignocellulosic raw materials and conventional feedstocks

END

WWW:IBUsystem.info