

SUPERGEN Bioenergy II

Tony Bridgwater, Aston University

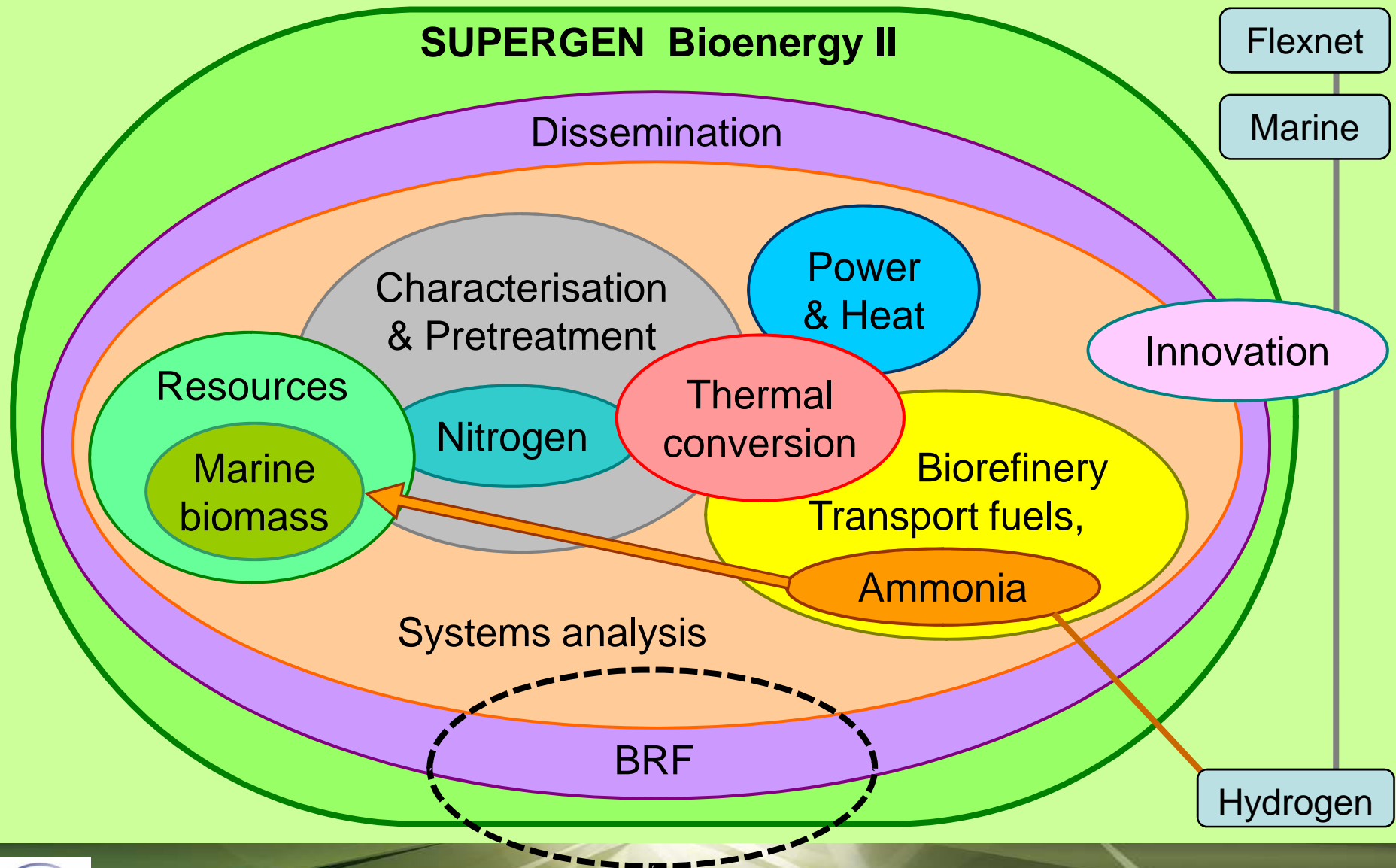


Bioenergy Research Forum
21 November 2007

SUPERGEN Bioenergy

- This is one of 13 Research Council initiatives to develop a robust research base in renewable energy in the UK.
- The first phase of 4 years finished in May 2007 when we started this second phase that will finish in May 2011.
- There are 14 academic partners and 11 industrial partners in a project costing £6.3 million
- We are investigating all aspects of bioenergy and biofuel systems from growing biomass, through thermal conversion to production of power, heat, transport fuels and biorefineries.

SUPERGEN Bioenergy Structure



SUPERGEN Bioenergy Partners

ACADEMIC

- Aston
- Cranfield
- Forest Research
- Imperial College
- IGER
- Leeds
- Manchester
- Policy Studies Institute
- Rothamsted Research
- Sheffield

ASSOCIATE PARTNERS

- Irish Seaweed Centre, Oxford, SAMS, Ulster

INDUSTRY

- Alstom
- AMEC
- Bical
- BIFFA
- Biomass Engineering
- BP
- Coppice Resources
- E.On
- Johnson Matthey
- RWE
- Rural Generation



Theme leaders and mentors

Theme	Theme leader	Industrial mentor(s)
1. Resources (including Marine)	Ian Shield, Rothamsted Research (Jenny Jones)	Bical, Coppice Resources, Biffa, Rural Generation
2. Characterisation (including Nitrogen)	Jenny Jones, Leeds (Alan Williams)	Bical, Biffa Coppice Resources,
3. Conversion	<u>Joint:</u> M Pourkashanian, Leeds; N Simms, Cranfield; T Bridgwater, Aston	Alstom, Biffa Biomass Engineering
4. Power & heat	Jim Swithenbank, Sheffield	AMEC, E.On, RWE
5. Transport fuels, biorefinery, ammonia	Tony Bridgwater, Aston	AMEC, BP, Johnson Matthey
6. Systems	Patricia Thornley, Manchester	AMEC, BP
7. Innovation	Paul Ekins, PSI	Biffa, BP, E.On
8. Dissemination	Emma Wylde, Aston	All

Theme 4 – Heat and Power

This Theme focuses on the technologies underpinning the practical recovery of heat and power from biomass and Solid Recovered Fuels (SRF) to attain efficient utilisation at domestic, commercial and industrial scales.

Objectives

- To develop design tools based on numerical models of the underlying physico-chemical processes.
- To investigate the important and relatively unexplored topic of co-firing biomass and processed waste materials in other than large power station boilers
- To develop technologies needed for efficient application of biomass for large and small-scale heating systems.

Bioenergy Research Forum

Aims

- Improve links between industry and academia
- Bring together the bioenergy community to aid and encourage communication
- Provide a forum for sharing information
- Promote bioenergy



Bioenergy Research Forum

- BRF events planned every 6-9 months
- Each meeting will be themed to a specific bioenergy topic
- Site visits are incorporated where possible
- Attendance has steadily increased from 45 to over 100
- Received very good feedback from attendees

Your suggestions for future topics, locations and site visits are welcome

News and Information

- Promote and support UK bioenergy
- Contains news and articles from our partners and other organisations, mostly in the UK
- Approximately 2000 copies distributed - copies are available on request
- Electronic news

Bioenergy News Bulletin
SUPERGEN Bioenergy
"Advancing UK Bioenergy"



- Website - www.supergen-bioenergy.net

BRITISH BIO-ENERGY NEWS 

Issue 6 June 2007

British Bioenergy News
This newsletter contributes to a forum for information and views on bioenergy activities throughout the UK.
www.supergen-bioenergy.net

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Using Willow Short Rotation Coppice for Biomass Production
The Agronomy Institute at Orléans College, University of Highlands and Islands has been investigating the feasibility of using willow SRC as a source of renewable wood fuel for heat since 2002. The Institute is a crop-based research centre focusing on the development of northern temperate crops and plant products.
FULL ARTICLE ON PAGES 8-9

Anaerobic Digestion of wastes
Background
The unique ability of Anaerobic Digestion (AD) to provide both a treatment method for organic wastes and a source of renewable energy is acknowledged in the ECFA Waste Strategy 2007, published 17th April 2007. The strategy refers to the benefits of AD for treating waste streams, especially in the food and drink and farming sectors.
FULL ARTICLE ON PAGE 18

Biomass co-firing at coal fired power stations
Introduction
Co-firing biomass at coal fired power stations is an efficient way to reduce a significant fraction of the fossil fuel used for electricity generation in a short time perspective and at a cost that is competitive to most other alternatives. There are many practical, legal, commercial and safety aspects that have to be considered.
FULL ARTICLE ON PAGES 10-13

Utilising electrolytic hydrogen for enhanced fuel production from biomass
Biomass is a promising CO₂-neutral carbon source for fuel products but is deficient in hydrogen for the purpose of liquid fuel synthesis. Hydrogen is the fuel that is most readily made from renewable power, but it is also a challenge to store, transport or distribute on a large scale. By supplementing synthesis gas for liquid synthesis with additional hydrogen from electrolysis, processes can be designed to enhance production of liquid fuels from renewable electricity and improve the efficiency of conversion of biomass to fuels.
FULL ARTICLE ON PAGES 22-25

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