




The Biomass and Fossil Fuel Research Alliance (BF2RA) – Overview of Project Portfolio

Greg Kelsall, BF2RA Chairman

13th Annual APGTF Workshop: "Carbon Capture and Storage – a Showcase of UK Research and Development

London, 20 February 2013






BF2RA – What is it?

- BF2RA was formed in late 2009. It is a not for profit company that is limited by guarantee
- Membership is open to both the private and public sector
- Members currently include those from the electricity supply industry, equipment manufacture, fuel user and research sectors
- The objectives of BF2RA are to promote research into issues related to biomass and fossil fuels
- BF2RA also organises the annual Coal Science Lecture

Funding

- Typically up to £40k per successful project with balance funding coming from academic institution, other third party and/or UK Research Council
- Typically fund 3-4 year PhD projects but can be shorter duration RA projects in well justified cases

Priority Research Themes

- Reduction of carbon emissions from fossil fuel based systems is an over-arching requirement that runs through the following priority themes in the BF2RA Calls for Proposals:-
  - Utilisation of fossil fuel and biomass
  - Materials development
  - Advanced cycles for fossil fuel/biomass utilisation and issues relating to performance
  - Control of emissions and products arising from fossil fuel and biomass utilisation

Research Councils UK Energy For a Low Carbon Future

BF2RA's project portfolio

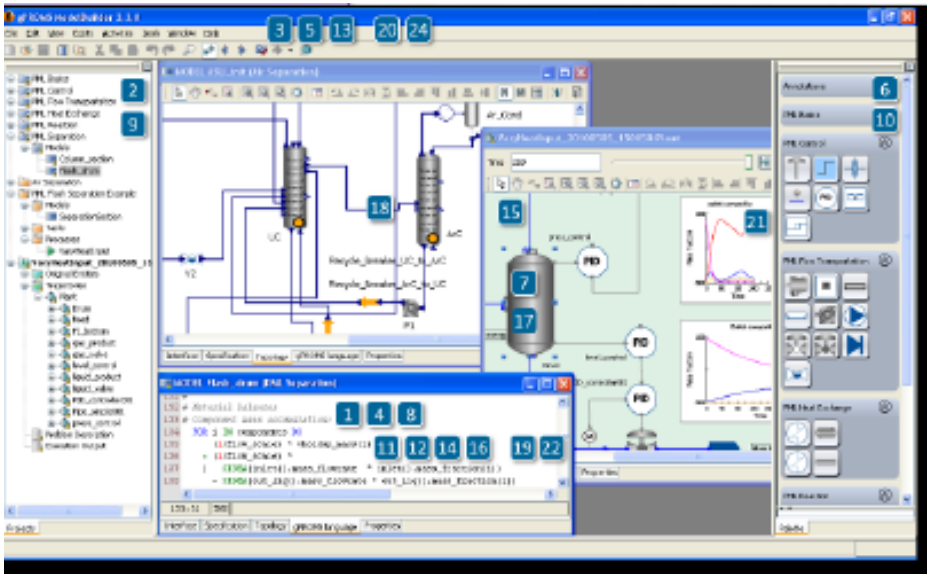
Twelve research projects are currently underway:-

1. Dynamic modelling and simulation of supercritical coal-fired power plant with CO2 capture ability - University of Hull
2. Intelligent flame detection incorporating burner condition monitoring and on-line fuel tracking – University of Kent
3. Impact of biomass torrefaction on combustion behaviour in co-firing – University of Nottingham
4. Avoiding sintering of coal-fired shallow fluidised beds – University of Nottingham
5. Milling and conveyance of biomass – University of Nottingham
6. A new classification system for biomass and waste materials – University of Nottingham
7. Reduction of agglomeration in fluidised beds – Universities of Sheffield and Leeds
8. Modelling of power plant alloys – University of Nottingham
9. Development of a novel feeding system for use with high pressure combustion and gasification systems – University of Sheffield
10. Low Temperature Ignition of Biomass – University of Leeds
11. Novel Coatings for Biomass Firing – University of Cranfield
12. Coated Ferritic Alloys – University of Nottingham

Dynamic Modelling of Power Systems with CO2 Capture Capability

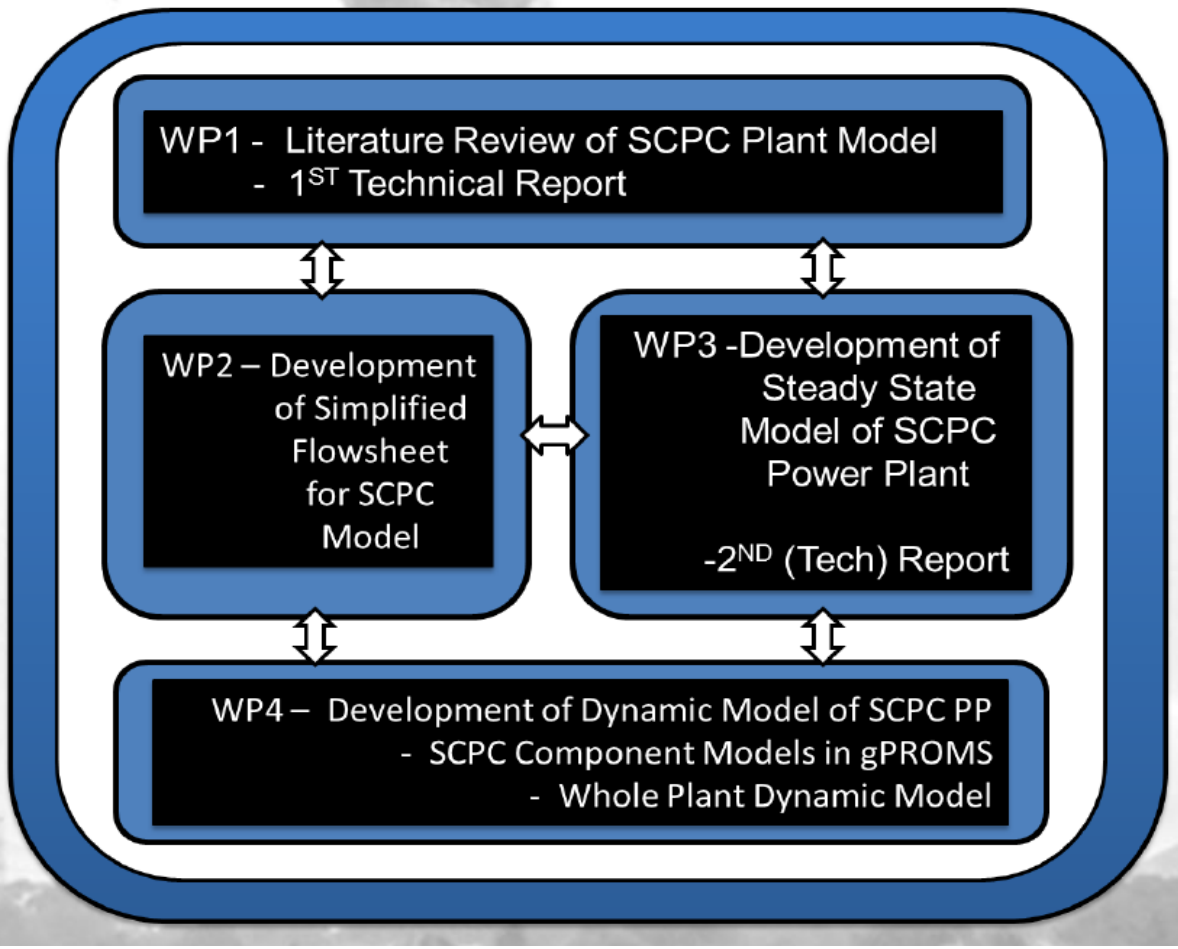
Aim : To develop a dynamic model for a supercritical coal-fired (SCPC) power plant and to explore whether such a supercritical plant with CO2 post combustion capture ability can satisfy the UK grid requirements

- Steady state modelling and validation of supercritical coal-fired power plant in Aspen Plus®
- Dynamic modelling, and validation using gPROMS®. gPROMS®



Dynamic Modelling of Power Systems with CO2 Capture Capability

Progress to date:



BF2RA Value to Members

- World class research with good funding leverage
  - Gearing ratio of typically 15:1 for Tier 1 and 30:1 for Tier 2
- Full access to 6 monthly progress reports and final reports via ‘member only’ area of BF2RA web-site
- Full access to attend any project progress meeting
- Provide Industrial Supervisor for project of particular interest
- Shape the scope of the open call and detail of invited projects
- Member of the BF2RA ‘Club’
  - Better understanding of supplier/customer research interests
  - Collective view often better than the individual company view
- Select speaker for annual Coal Science Lecture (London)
  - Primarily funded with BCURA grant + sponsorships
  - 2012 lecture published in Energy World






For further information about BF2RA please:-

- visit: - www.bf2ra.org

or

- email: - technical@bf2ra.org

Thank you