



Agenda: BF2RA Technical Session

14:30 - An Overview of the Biomass and Fossil Fuel Alliance, Greg Kelsall, Chairman, BF2RA

14:45 – Modelling and Operational Analysis of Supercritical Coal-fired Power Plant Integrated with Post Combustion CO₂ Capture under UK Grid Code Requirement, Akeem Olalaye, University of Hull (presentation by Prof Meihong Wang)

15:15 – Utilisation of Fossil Fuel and Biomass – Fuel Preparation and Transport, Orla Williams, University of Nottingham

15:45 – A New Classification System for Biomass and Waste Materials for their use in Combustion, Philip Jenkinson, University of Nottingham

16:15 – Modelling Chemical and Micro-structural Evolution at Dissimilar Metal Welds, John Clark, University of Nottingham

16:45 – Development of Novel Coatings to resist Fireside Corrosion in Biomass-fired Power Plant, Dominika Orlicka, Cranfield University (presentation by Dr Joy Sumner)

17:15 – Close of Session

The British Flame Research Committee will be awarding a cash prize for the best presentation

Posters of ongoing BF2RA research projects displayed in the meeting room from 14:15

An Overview of the Biomass and Fossil Fuel Research Alliance (BF2RA)

Greg Kelsall, BF2RA Chairman

**BF2RA Research Event/ Energy Science
Lecture**

ICAEW, 06 October 2015



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 Energy Science Lecture



**Comprises 6 “world class” energy, equipment supplier
and coal utilisation companies**

ALSTOM

 **BRITISH SUGAR**

DOOSAN

 **drax**

EPRI | **ELECTRIC POWER
RESEARCH INSTITUTE**

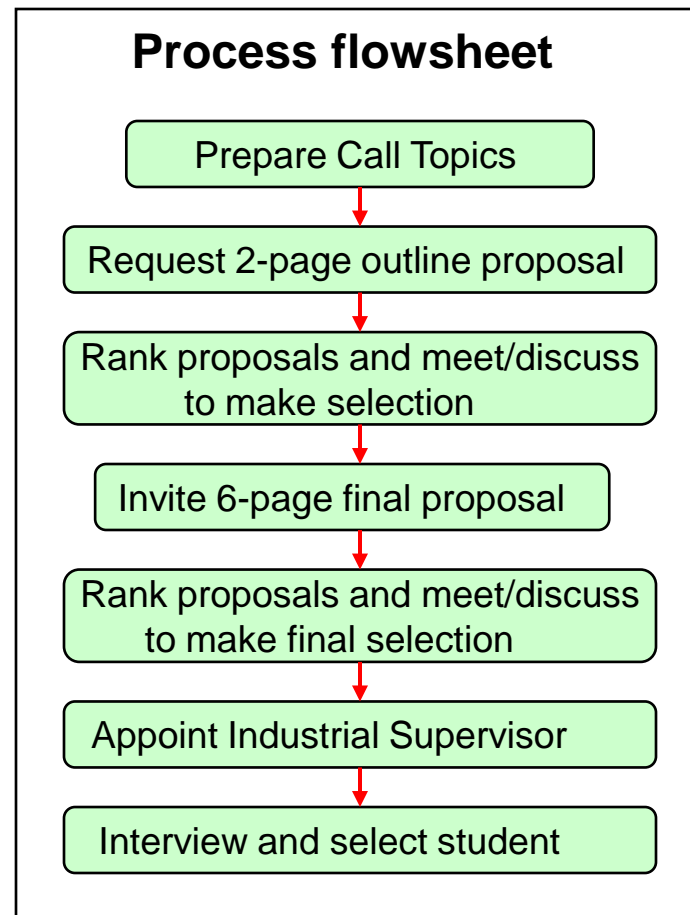

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ENERGY

BF2RA Membership Levels

- The annual membership subscription for 2015 is as shown below. This subscription may be varied in subsequent years subject to the agreement of the Membership of BF2RA
 - Tier 1 (Fuel / major equipment suppliers/ power generators) £25,000
 - Tier 2 (Users, consultants) £12,500
 - Tier 3 (R&D/ government organisations) £18,000

BF2RA Funding Model/ Call Process

- 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



Total time for process~ 9 months

Priority Research Themes

For 2016, there will not be a 'wide' Open Call as in previous years. Instead, bids will be invited against 1-2 specific topics to widen the project portfolio

- To be communicated via BF2RA website and email

BF2RA's project portfolio

1. Dynamic modelling of supercritical coal-fired power plant with CO2 capture ability - University of Hull
2. Intelligent flame detection with burner condition monitoring/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
8. Modelling of power plant alloys - University of Nottingham
9. Novel feeding system for use with high pressure combustion/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
14. Biomass Exacerbated Cyclic Oxidation of Steels in Steam (BECOSS)- University of Birmingham
15. Biomass cofiring with low volatile matter coals- University of Nottingham
16. Modelling milling of biomass - University of Nottingham
17. Modelling Fireside Corrosion- University of Cranfield
18. Assessment of Spontaneous Combustion Risk- University of Leeds
19. Slagging and Fouling Prediction- University of Nottingham
20. Small Specimen Creep Test- University of Nottingham

= completed

BF2RA's project portfolio- new projects

5 research projects selected for 2015 starts:-

21. Additives to mitigate against slagging and fouling in biomass combustion: addition of coal pfa- University of Leeds
22. Rapid fuel evaluation to detect blending, contamination, and predict ash bridging, NOx, SOx and ESP performance– University of Nottingham
23. Investigating the potential of co-milling biomass PFA with coal to reduce NOx emissions- University of Leeds
24. The Performance of High Chromium Creep Strength Enhanced Ferritic Steels- University of Loughborough
25. Advanced Flame Monitoring and Emission Prediction through Digital Imaging and Spectrometry- University of Kent

BF2RA Summary

- World class research portfolio with good funding leverage
 - Around £3m equivalent programme (at full economic cost)
- Provides Industrial Supervisors for all BF2RA projects
- Defines the scope of the open call and detail of invited projects
- Additionally organises the annual Energy Science Lecture
 - Funded with BCURA grant/ sponsorships/ BF2RA



For further information about BF2RA please:-

- visit: - www.bf2ra.org

or

- email: - technical@bf2ra.org





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