



Agenda: BF2RA Technical Session

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

14:45– Integrity of Coated Ferritic Alloys under High Temperature Creep and Fatigue, Thomas Hoey, University of Nottingham

15:10– Biomass Exacerbated Cyclic Oxidation of Steels in Steam (BECOSS), Rebecca Mobbs, University of Birmingham

15:35– Biomass Co-firing to Improve the Burn-out of Unreactive Coals in Pulverised Coal Combustion, Christopher Bridge, University of Nottingham

16:00– Modelling of Biomass Milling, Gary Newbolt, University of Nottingham

16:25 – Additives to Mitigate against Slagging and Fouling in Biomass Combustion – Addition of Coal PFA, Lee Roberts, University of Leeds

16:50– Close of Session followed by Poster session and refreshments

BF2RA will be awarding a cash prize for the best presentation

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

Greg Kelsall, BF2RA Chairman

**BF2RA Research Event/ Energy Science
Lecture**

University of Leeds, 20 September 2016



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

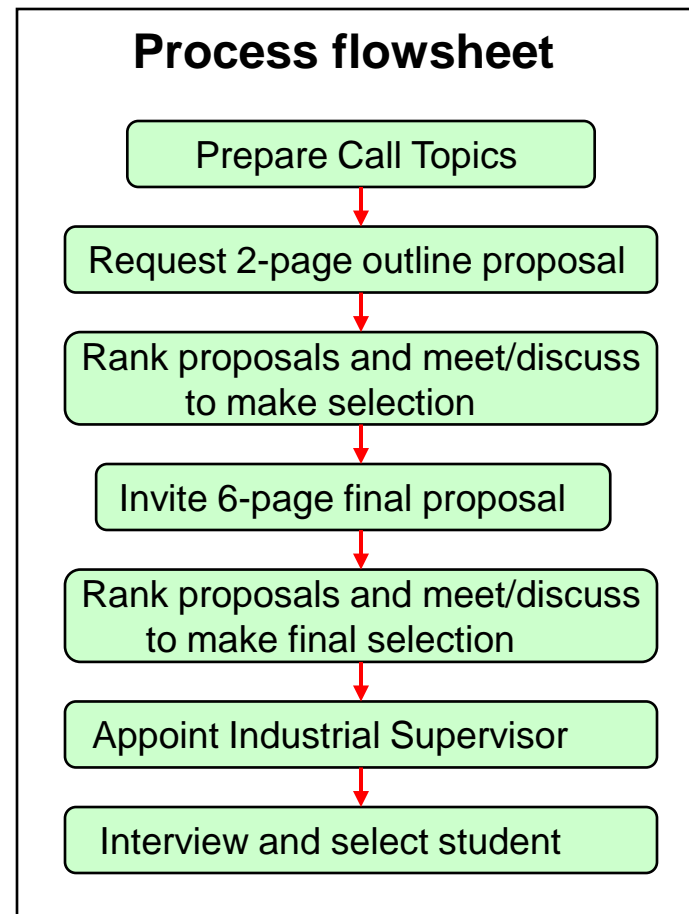

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ENERGY

BF2RA Membership Levels

- Current annual membership subscriptions are shown below. These subscriptions 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



Priority Research Themes

For 2016, there was a targeted call for proposals against 3 specific topics to widen the project portfolio

- Energy Storage
- Improved Performance of Large Plant
- Asset Management including Intelligent Control

6 proposals were submitted and 2 are under final review for 2016/17 starts

6. 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

= show today

6. BF2RA's project portfolio- new projects

2015 start projects:-

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

2016 start projects:-

- 21. The Performance of High Chromium Creep Strength Enhanced Ferritic Steels- University of Loughborough
- 26. Proposal under final review
- 27. Proposal under final review

= completed

= show today

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 to date with BCURA grant/ sponsorships/ BF2RA
 - Sponsors for this year are BF2RA, IEA Clean Coal Centre, APGTF and CRF



For further information about BF2RA please:-

- visit: - www.bf2ra.org

or

- email: - technical@bf2ra.org





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