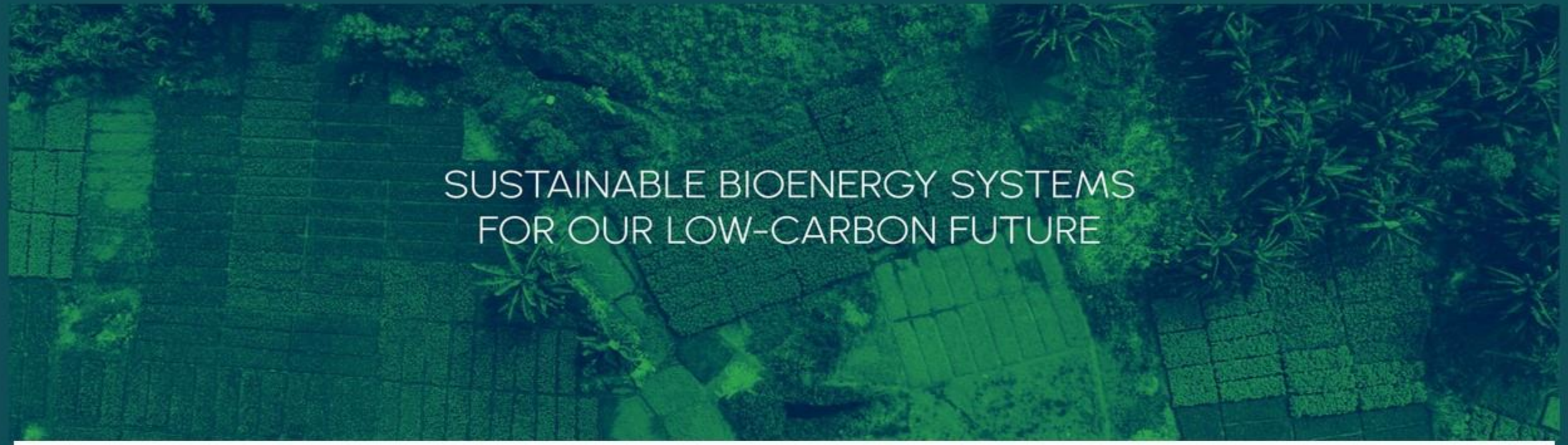

Industry Stakeholder Consultation Event

25 January 2023, Birmingham

Supergen Bioenergy

SUSTAINABLE BIOENERGY SYSTEMS FOR OUR LOW-CARBON FUTURE

UKRI Biotechnology and Biological Sciences Research Council

UKRI Engineering and Physical Sciences Research Council

Agenda

11.00am Welcome and Introductions *(start of online session)*

Overview of current Supergen Bioenergy Hub status/position

UKRI Call for Proposals

Supergen Bioenergy Hub draft framework and consultation process

(close of online session)

11.30 **Workshop session**

12.30 **Lunch and networking**

13.30 **Continuation of Workshop session**

2.30pm Feedback of discussion points

Next steps

3.00pm Close

Supergen Bioenergy

UKRI Biotechnology and Biological Sciences Research Council

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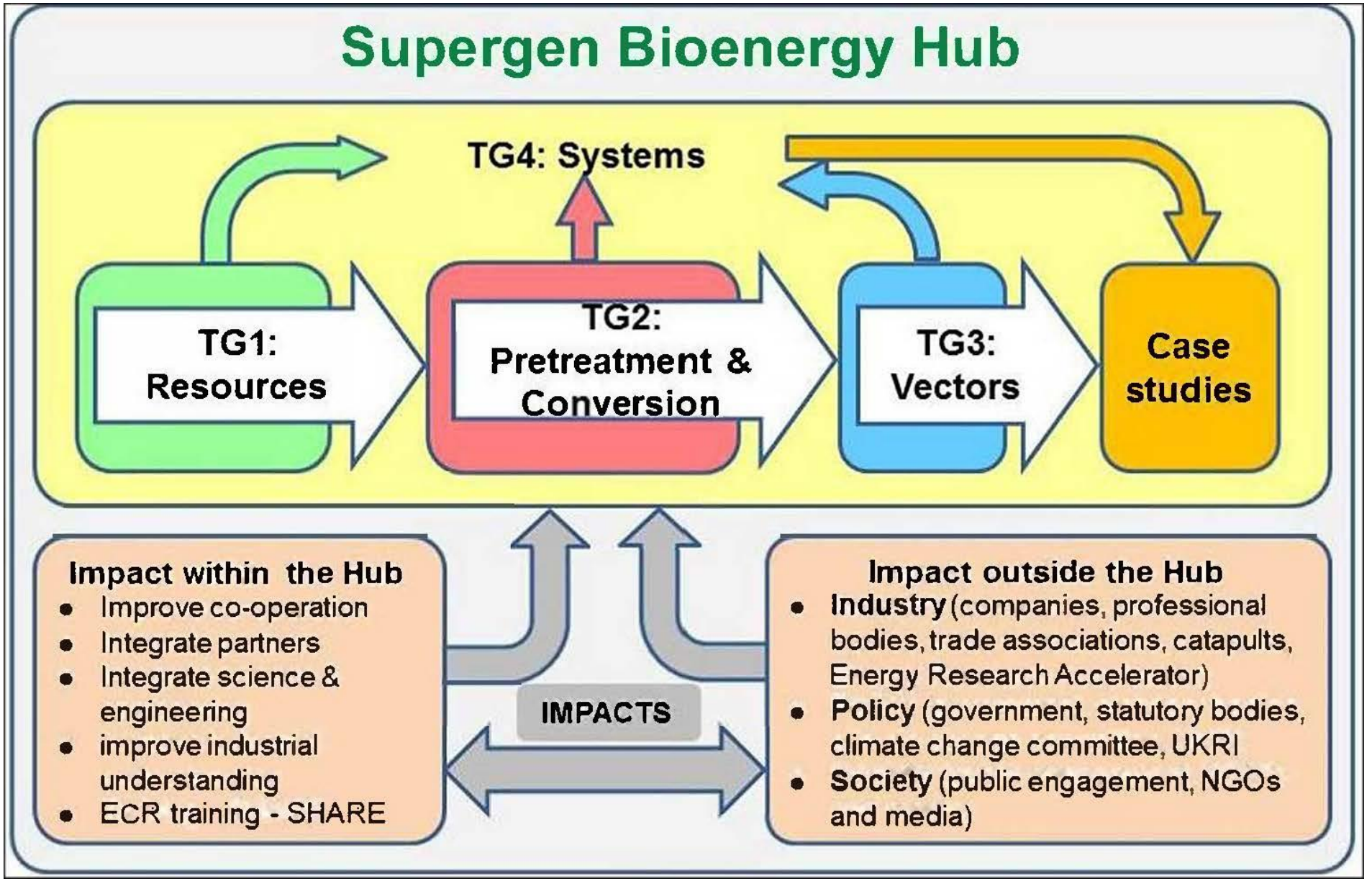

Supergen Bioenergy Hub
TG4: Systems
TG1: Resources
TG2: Pretreatment & Conversion
TG3: Vectors
Case studies
Impact within the Hub
Improve co-operation
Integrate partners
Integrate science & engineering
improve industrial understanding
ECR training - SHARE
IMPACTS
Impact outside the Hub
Industry (companies, professional bodies, trade associations, catapults, Energy Research Accelerator)
Policy (government, statutory bodies, climate change committee, UKRI
Society (public engagement, NGOs and media)

Partners

- Academic partners
- Industrial partners
- Policy partners

Current status

- TG1 (resources): options for UK feedstock production: marginal land; opportunity mapping; land suitability, barriers and support tools to bridge the gap between national scale targets and field scale decisions
- TG2 (pre-treatment and conversion): lignin bio-oil; H_2 production from cellulose and lignin; bleached fibres for paper additives; sugars for renewable transport fuel; ionic liquids, ball-milling, pyrolysis, fermentation, photocatalysis, potassium, ash, aromatics.
- TG3 (vectors): SAF, hydrogen, bio-methane, LPG
- TG4 (Systems): BSIM biomass sustainability model; GHG calculations; bioenergy pathway analysis; policy positioning

UKRI Call for Proposal

Title: Impact focussed Supergen Hubs in bioenergy, networks and ORE

https://www.ukri.org/opportunity/impact-focussed-supergen-hubs-in-bioenergy-networks-and-ore/

Total fund: £17,500,000

Up to £5 million for bioenergy

Closing date: 23 March 2023

The proposal has a focus on:

- impact (in all its forms)
- demonstrable contributions to how the UK will meet net zero
- leverage

Supergen Bioenergy

UKRI Biotechnology and Biological Sciences Research Council

UKRI Engineering and Physical Sciences Research Council

UKRI Call for Proposal (2)

Impact

- The hub must demonstrate progression from the previous Supergen hub, to focus on accelerating the impact of current generation technologies and solutions over the course of the investment

Knowledge transfer

- The hub must ensure knowledge transfer and the exploitation of intellectual property. This strategy should refer to, and take account of, the existing national landscape, published roadmaps and other official documents.

Contribution to net zero targets

- The hubs are expected to demonstrate how their activities will contribute to securing net zero greenhouse gas emissions in the UK by 2050 and global decarbonisation efforts, encompassing decarbonisation (including materials, chemicals, embodied carbon) as well as energy generation.

Visible research leadership

- The hub must be credible and able to act as the international face of the community, feeding into and helping to respond to as-yet unadopted challenges and strategies. They should be a centre of collaboration.

UKRI Hub expectations

- This hub will provide a focus for the UK research community, working in close partnership with businesses, governments, and administrations throughout the UK to accelerate the impact of current generation bioenergy technologies and solutions.

- The Supergen Bioenergy 2023 hub will be co-funded by EPSRC and BBSRC, to increase the hub's potential and gain additionality from combining engineering, technological, biological and biotechnological research outputs. We would also expect the new bioenergy hub to consider social and environmental aspects.

- Continuing support in this area will ensure that bioenergy has a role to play in replacing fossil fuels to meet net zero targets. Research will continue to address important sustainability issues including crop yields, water dependence and the availability of land for energy and food crops.

- The successful translation of research underpinning the production of advanced fuels will help the UK meet its commitments for reaching net zero by 2050. The commercialisation of advanced fuels should encourage increased sustainability, energy security and economic growth. The hub will look to develop solutions and pathways for the forthcoming UK bioenergy strategy.

Research challenges

1. New **feedstocks,** sustainability and impacts
2. Land use, **ecosystem services** and life cycle assessment
3. **Biomass to hydrogen pathways:** including gasification, photocatalysis and fermentation
4. **Biomaterials, chemicals and products:** leveraging biomass for very significant reductions in carbon intensity
5. **Biorefineries:** engineering practicalities; hydrogen and ammonia; biorefinery engineering vision; energy and carbon balances
6. Reducing **costs** and increasing **efficiency**
7. **Scale-up** of process and technologies to deployable scales
8. **Carbon value chains:** integrity, viability and bankability of carbon reductions from biomass over life cycle
9. **Bioenergy integration** in transport, water treatment, heat, CCS
10. **Energy transitions:** more finely characterized and realistic appraisal than current energy systems models
11. **Opportunities and challenges** e.g. policy, social acceptability, financial, perceptions of relevant actors, trade-offs and decision-making processes

Questions?

11.30-12.00: Table Session 1: What has worked?

i. What has worked well in the past? Experiences of working with academia, policy and industry? Examples, best practice and challenges. What were the factors that made this successful? (pink post-it note) – 5 mins

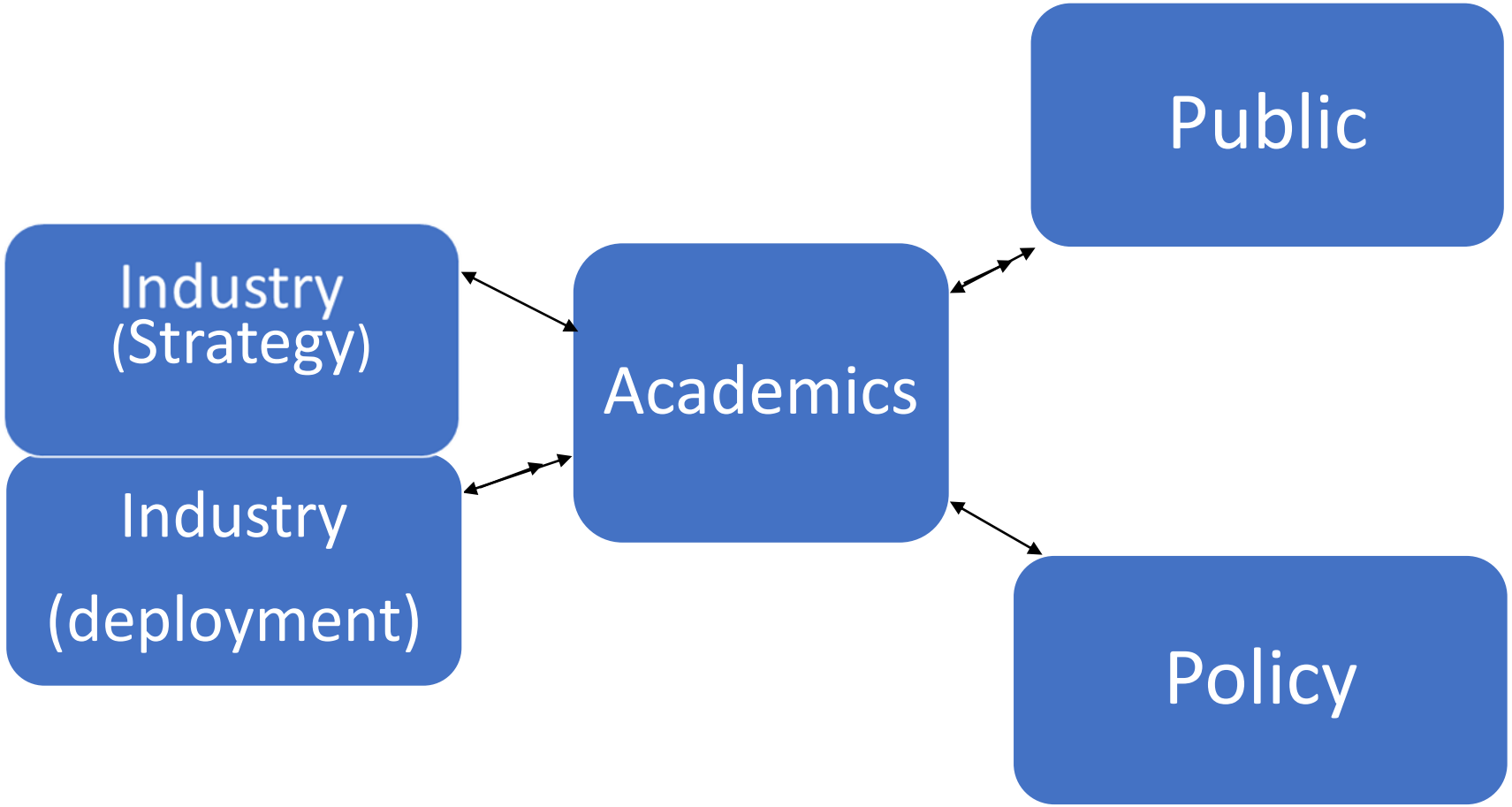
ii. What has not worked so well? Experience of not being able to access help, getting help that was inappropriate or beneath your expectations. What were the underpinning issues that caused the problem and what could have prevented them? (yellow post-it note) – 5 mins

iii. Table discussion: What are the key factors (a) driving and (b) impeding successful collaboration between industry and academia? - 20 mins

Aims/Objectives/Outcomes

- Independent academic voice for strategic priorities
- Making “common” academic knowledge available
- Delivering flexible academic support for specific deployment
- Increasing public awareness and understanding

Bioenergy research context



Delivery of research in a contested space

- Provide strategic independent evidence (sustainability)
- Support deployment

- **Tensions: a hub of 2 parts???**

- Is this division realistic? Can we categorize academic/industry collaborations and information exchanges in this way?

12.00 -12.30: Table Session 2: What does the sector need?

- What topics are important to have in the “independent advice” stream?
- What skills/disciplines are needed to support that portion of the hub?
- What skills/disciplines are needed to support the practical deployment and scale-up of technologies/projects?

Lunch

- 12.30 – 13.30

13.30-14.00: Table Session 3: Project Ideas

1. Which 3 areas (1-11) do you think are most relevant to delivering impact from bioenergy and bioproducts in the UK from 2023 to 2027?
2. Are there other areas you think are important that are not listed here?

3. What project specific support do you need from academics to support deployment? (individual process)

- Subjects / disciplines

14.00-14.15: Table session 4a: Facilities (scale-up and testing)

- What facilities does the sector need to move forward confidently?
- How do you need to access these: do national scale-up /testing facilities make sense?
- If so what needs testing to what scale?
- What staffing of such facilities is needed (contract rental? Commissioned testing? Reporting and analysis? Modelling and interpretation?
- Mobilisation time-scales

14.15-14.30: Table session 4b: Mechanisms to date

- Central hub funding
- Project funding
- Flexible funding
- Secondment funding
- Travel bursaries

- What funding/operational mechanisms do you think could be useful for the project-based work?

Next Steps

1. Think about your company's needs
2. Decide how you want to get involved e.g. :
   i. Specifying a project for collaborative funding;
   ii. Advisory board for common knowledge;
   iii. Reviewing proposals;
   iv. Hosting or undertaking a secondment;
   v. Other suggestions.
3. Get in touch by responding to our follow-up email

Questions?

Thank you and keep in touch!