



**MEETING DATE:** 7<sup>th</sup> October 2010

**LOCATION:** ERP HQ, 58 Prince's Gate, London SW7 2PG

**ATTENDEES:**

**Chair:**

Nick Winser                      National Grid

**Members:**

|                |                                |
|----------------|--------------------------------|
| Peter Bance    | Ceres Power                    |
| David Clarke   | ETI                            |
| Brian Collins  | DfT                            |
| Paul Golby     | E.ON                           |
| Mike Farley    | Doosan Power Systems           |
| Paul Lewis     | Scottish Enterprise            |
| John Loughhead | UKERC                          |
| David MacKay   | DECC                           |
| Graeme Sweeney | Shell                          |
| Jeremy Watson  | Communities & Local Government |
| Alison Wall    | EPSRC                          |

**Non-Members:**

|               |                            |
|---------------|----------------------------|
| Sue Armfield  | BIS                        |
| Kersti Berge  | Ofgem                      |
| Charles Carey | Scottish & Southern Energy |
| Michael Rea   | Carbon Trust               |
| Bob Sorrell   | BP                         |
| Allan Jones   | E.ON                       |
| Graeme Tubb   | SEEDA                      |

**Secretariat /Analysis Team:**

|                    |                   |
|--------------------|-------------------|
| Ian Welch          | National Grid     |
| Farida Isroliwala  | DECC              |
| Richard Heap       | ERP Analysis Team |
| Jonathan Radcliffe | ERP Analysis Team |
| Mark Workman       | ERP Analysis Team |

**Apologies/Not present:**

|                   |                            |
|-------------------|----------------------------|
| Pam Alexander     | SEEDA                      |
| Neil Bentley      | CBI                        |
| Alistair Buchanan | Ofgem                      |
| Tom Delay         | Carbon Trust               |
| David Eyton       | BP                         |
| Iain Gray         | TSB                        |
| Sue Ion           | RAE                        |
| Ron Loveland      | Welsh Assembly Government  |
| Ian Marchant      | Scottish & Southern Energy |
| John Miles        | Arup                       |
| Jonathan Mills    | HMT                        |
| Philip Sharman    | Alstom Power               |
| Adrian Smith      | BIS                        |



## **1 Chair's introduction**

Nick Winser welcomed the members to the meeting, noted the apologies.

Paul Golby is standing down from ERP and will be replaced by Allan Jones. Nick thanked Paul for his significant contribution to ERP and welcomed Allan Jones.

To note the nuclear report had been published on the ERP website.

The July minutes were noted and approved.

## **2 Draft report on Bioenergy - Graeme Sweeney / Mark Workman**

Graeme Sweeney, as sponsor of the project, thanked Mark Workman on the work leading to a draft report. The project aimed to review bioenergy technologies, and the context of international activity, so that the UK can understand its role in assisting innovation and the developing value in the sector. Graeme noted that, in his view, biomass and bioenergy will be of strategic importance to the UK and international energy mix for 2050 and this project highlights issues that need to be addressed to achieve this.

This work is a fact-based review, based on 50 interviews with significant players in the field and therefore represents the view of the bioenergy community. This is the first part of the report that focuses on the research gaps in bioenergy assessment, feedstock production and the organization of UK bioenergy innovation landscape; the second part, which is still underway, will detail the bioenergy conversion processes and uses as well as describing work taking place nationally.

Mark Workman then presented an overview of the report highlighting the following points:

- (1) Bioenergy currently contributes <1.2% of global primary energy, compared to the 13% from traditional biomass (dung, wood, charcoal) used by 2.6 billion people for cooking and heat.
- (2) Projections of global biomass potential for 2050 vary from <50 to >1000 EJ/yr. The uncertainty is due to the lack of reliable information on land availability and quality and on regional yields. Data availability on costs is also uncertain across the regions, particularly for harvesting, collection and transportation. Greater data resolution is needed to derive accurate sustainably produced biomass cost curves globally; this might be facilitated by case studies.
- (3) However, technology development is essential and it is felt that despite the need for more data, enough is already known to allow policy to be made that can push forward the improvements.
- (4) A number of recommendations were made with regards to feedstock production research:
  - a. Improve global data sets: Producing sustainable feedstocks is a priority but it affects a number of complex sustainability issues such as indirect land use change, food vs fuel, soil degradation, water consumption, biodiversity and social sustainability. Their impacts are extremely difficult to measure, with baseline datasets highly uncertain and a lack of consensus on how to address them. International collaboration is needed to improve global data sets due to their wide scope and complexity.
  - b. Enhancing existing feedstocks: Plant breeding, gene manipulation and utilising more of the plant can be used to enhance yields and productivity. However, there is a lack of consensus as to where to focus work. The UK has a leading capability in this area, but the EU moratorium on GM crops hinders the ability for the UK to lead in this space.



- c. Integrated thinking along and across bioenergy chains: Modifying one aspect in the bioenergy supply chain can have knock-on implications elsewhere such as changes in agricultural routines and ease of process conversion, which in turn affects the economics, sustainability, reliability, carbon intensity.
  - d. Broadening of feedstocks: Developing crops that avoid conflict with food and land use change, such as waste, agricultural residues and algae, could reduce sustainability impacts. It is estimated these could supply 100 to 1000 EJ/yr.
- (5) Awareness is rising of the strategic importance of biomass / bioenergy in the attainment of the UK 2050 energy and emission targets (*e.g.* DECC 2050 Pathways Work). However, with regards to the UK Bioenergy RDD&D landscape there is a very real possibility that the lack of coherence in the components involved in the UK bioenergy sector will result in a missed opportunity to develop and deploy a robust and internationally competitive UK bioenergy sector. To this end, it is recommended that:
- a. The UK develop a long term strategic vision of the role of biomass in the energy system to 2050;
  - b. The delivery of the strategic vision be owned by a single government department; and
  - c. There is improved coordination between the Research Councils involved in bioenergy research, and the research should be more market-orientated. In addition, the members of the Low Carbon Innovation Group should work strategically on the development of bioenergy across TRLs.
  - d. Consideration must be given as to the effect of centralisation of the RDAs roles on bioenergy developments, with their awareness of local issues.

Graeme summed-up by noting that the UK is strong at bioenergy fundamentals, but needs to become more organized to create a competitive advantage and work out the pragmatics of how we can deliver co-ordinated activity. To be in this position the bioenergy agenda needs a vision, it has to be owned by someone who needs to be in charge of budgets and accountable for the delivery of the objectives which should be market-orientated.

He proposed that ERP convene a bioenergy landscape workshop including government departments.

Graeme also proposed that ERP consider a potential new project looking at resource scarcity and sustainability issues, building on the issues raised in the bioenergy report.

### **Discussion**

Nick Winser congratulated Graeme and Mark on a solid piece of work. There was general support from members in discussion, with the following specific points being made:

- With six government departments working on bioenergy there was a need for one department to co-ordinate and take the leadership role. The coordination of the research requirements is starting to happen through the CSAs which will assist in the stimulation of discussion.
- The DECC 2050 Pathways was a useful tool to assess where the UK focus might be for biomass / bioenergy RDD&D.
- The need for systematic collection of sustainability information was advocated. It was noted that Defra and the Renewable Fuels Agency have undertaken much work in the space and should be consulted - especially RFA's work on ILUC.
- The report showed US corn yields increasing 8 fold in 20 years, though this was an increase in corn rather than the entire plant. Critical analysis of realistic algae yields was also encouraged.



- On transformation technologies there is a need to consider two categories: those that require the transformation of the biomass into a fuel that is useable in conventional systems, and those that have adapted the systems to utilise the fuel produced by biomass.
- There is a need for more clarity about where the UK is strong and can make a contribution, and for greater specificity on the areas where likely progress is to be made.

Nick addressed the proposed next steps for the project. For the proposed new project, Graeme and Mark stated that the degree of scrutiny to which bioenergy feedstocks had been subjected in the sustainability debate, and the suggested extent of the issues, needed to be applied to other energy technologies.

In discussion the following points were made:

- Much sustainability research is already ongoing and it was questioned whether this should be a priority for ERP.
- Though much sustainability work is being undertaken, the development of a system map would be of great use to the research space and be in keeping with the mandate of ERP.
- ETI is committing a substantial amount of resources in this space (which could be shared with ERP) and only scratching the surface. It was important to take a systems perspective to make the work feasible for the ERP.
- Timing of the workshop should be considered in the light of any other activities so that it has an impact.
- Summary of key messages from the report could be a valuable to input into policy thinking which could be communicated via a letter to relevant departments.

### ***Actions***

1. The report should incorporate the inputs made with regards the UK strengths in bioenergy work, relative to that being undertaken internationally and where the UK should focus and the value that would be gained by doing so.
2. The timing and scope of the workshop and scarcity project should be refined in discussion with Members with a view to making progress over the next quarter. The report will be finalised in January.
3. Further comments and feedbacks from Members should be addressed to Graeme and Mark.

### **3 International engagement – John Loughhead / Jonathan Radcliffe**

John Loughhead, as sponsor of the project, noted that this has been pushed forward by Jonathan Radcliffe along with Jeanie Cruickshank from DECC. John described progress in two areas:

On the assessment of UK engagement in international activities: the Energy Generation and Supply KTN 'delivery partners' had surveyed the energy community over the summer. Initial conclusions covered technology areas in which the UK should lead international efforts, and those in which it should play an active collaborative role. The potential of better international engagement to improve UK capability was acknowledged, but there were financial and institutional barriers to achieving this.

Some further work on the KTN responses would be needed to ensure robust conclusions. Nuclear was not covered by the KTN, so an assessment of capability will be drawn from ERP report.

The second item was the meeting on European Industrial Initiatives (EII): ERP organised with DECC the meeting for industry, academia and Government to ensure the UK is



appropriately engaged as the EILs develop. The meeting was well-attended and constructive, with the proceedings available at [www.energyresearchpartnership.org.uk/eii](http://www.energyresearchpartnership.org.uk/eii).

The EILs will be important mechanisms for undertaking large-scale demonstration projects and early involvement in their development is necessary to make sure that UK priorities fall within scope. To this end, the potential of EILs should be communicated to companies and organisations, and there should be continuing dialogue between organisations in the UK which are involved in different EILs. John noted that there was also room to improve the engagement with EILs by both DECC and BIS, as both departments have a stake in the outcomes.

### ***Discussion***

In discussion the following points were made:

- Work of the Low-Carbon Construction IGT and the Energy Efficient Buildings PPP was flagged-up as being able to provide useful input to the project.
- ERP should go beyond providing 'data', to 'information' and guidance. Examining the opportunities in specific areas and opening channels for engagement would help de-risk any activities.
- Other governments are proactive in getting organizations working together, whereas in the UK we rely on communication or co-ordination. The UK should move towards a more proactive approach.

Nick summed-up noting a sense of frustration at the UK's approach. He said that ERP should be more ambitious in its role, and revisit the possibility of establishing an 'international forum' where UK organisations can take an active role in planning their engagement.

### ***Action***

The remit for the international engagement project should be drafted to be more ambitious and to find a way to change the current system.

## **4 Project Initiation – Richard Heap**

Richard Heap outlined the proposed scope of a new ERP project on Industrial efficiency and emissions. This proposal came out of recommendations from the July Plenary meeting and follows conclusions from ERP's work on milestones to 2050.

There was general agreement that the project should proceed. In the discussion it was noted that this was a complex issue and the project needed to consider the whole area, beyond the examples given in the paper. It was emphasised that the recommendations should comment on the policy consequences. The work of EPSRC in this area was also flagged-up,

David MacKay drew attention to Technology Innovation Needs Assessments (TINAs) work now being undertaken by DECC. DECC is working with others to collate and strengthen its understanding of the innovation needs of key low carbon technologies and were pleased that ERP was engaging in that process. DECC would like to share some interim outputs of that work with ERP in due course and get its feedback and insights. DECC will provide more detail in the coming months.

### ***Action***

Members interested in being on the Steering Group for the project to contact Richard Heap.



## **5 Preparation for meeting Greg Barker on 14 October – Nick Winser**

There was discussion on the points to address at the meeting with the Minister, these included:

- Whether the Green Deal would achieve the intended level of ambition.
- Policy and funding should focus on technologies that will make a significant difference to meeting our energy goals.
- Support should be tailored according to the maturity of the technology. Public-private partnerships will be critical and Green Investment Bank could have a role to play.
- ERP's report 'Energy Innovation Milestones to 2050' provided an opening to many of these issues and would be a good starting point for discussion.

### ***Action***

Richard Heap to synthesize the debate and redraft the brief.

[Post-meeting note: the meeting with Greg Barker was subsequently postponed by the Minister.]

## **6 Consortium Agreement extension – Ian Welch**

Following discussion at the July meeting, the draft addendum to the Consortium Agreement was circulated to members for comment. Ian reported that some comments on the proposed changes to the Consortium Agreement had been received. A question was raised as to whether the Terms of Reference for ERP had been altered. Those that provided comments would be contacted and then an integrated version would be circulated. These are the final stages, with the intention of reaching agreement and collecting signatures by NLT the end of November.

### ***Action***

Revised paper describing changes to the Consortium Agreement to be circulated for agreement by Members.

## **7 ERP review 2008 - 2010**

### ***Action***

Members were asked to feed any comments on the draft 'ERP Review 2008 – 2010' ASAP so that it could be presented to the Minister at the meeting on 14<sup>th</sup> October.

## **8 Chair's Closing Remarks**

The Chair closed the meeting.

### **A.O.B.**

None

### **Date of next meeting**

The next meeting is on the 20<sup>th</sup> January 2011, 10 a.m. - 12 noon, and will be held at Westminster Conference Centre, BIS, 1 Victoria Street London SW1H 0ET.