

**Energy Research Partnership**  
Notes of 2<sup>nd</sup> October 2009 meeting



<b>MEETING DATE:</b>	2 <sup>nd</sup> October 2009	
<b>LOCATION:</b>	Royal Academy of Engineering, 3 Carlton House Terrace, London	
<b>CHAIR:</b>	Nick Winser, National Grid	
<b>ATTENDEES:</b>		
<b>Members:</b>	Alistair Buchanan	Ofgem
	Brian Collins	DfT, BIS
	Tom Delay	Carbon Trust
	Mike Farley	Doosan Babcock
	Sue Ion	Royal Academy of Engineering
	Turlogh O'Brien	Arup
	David MacKay	DECC
	Graeme Sweeney	Shell
<b>Non Members :</b>	Paul Arwas	Carbon Trust
	Charles Carey	Scottish and Southern Energy
	Mike Colechin	E.ON
	Jeanie Cruickshank	DECC
	Graeme Cuthbert	DECC
	Karl Cunion	DCLG
	David Delpy	EPSRC
	Andrew Haslett	ETI
	Rhian Kelly	CBI
	Fraser MacDonald	HMT
	Carolyn Reeve	BIS
	James Sheward	Ceres Power
	Bob Sorrell	BP
	Jo Thorpe	GO-Science
	Graham Tubb	SEEDA
<b>Secretariat / Analysis Team:</b>	Ian Welch	National Grid
	Farida Isroliwala	DECC
	Richard Heap	ERP Analysis Team
	Jonathan Radcliffe	ERP Analysis Team
	Charlotte Ramsay	ERP Analysis Team
<b>Apologies/ Not present:</b>	Pam Alexander	SEEDA
	Peter Bance	Ceres Power
	Neil Bentley	CBI
	David Clarke	ETI
	David Eyton	BP
	Paul Golby	E.ON UK
	Iain Gray	TSB
	Paul Lewis	Scottish Enterprise
	John Loughhead	UKERC
	Ron Loveland	Welsh Assembly Government
	Ian Marchant	Scottish and Southern
	Siobhan Peters	HMT

Approved

Philip Sharman	Alstom
Joe Greenwell	Premier Automotive Group
Jonathan Brearley	DECC
Adrian Smith	BIS
Alison Wall	EPSRC

### **1. Chair's Introduction**

Nick Winsor introduced the session. He noted that Willy Rickett (DECC) had stood down from his post as ERP co-chair and he thanked Willy, in his absence, for his contribution as ERP public sector co-chair.

Nick then welcomed David MacKay, DECC's Chief Scientific Advisor (CSA) and as new ERP public sector Co-chair. David MacKay introduced himself and stated how he was looking forward to working with the ERP. He saw the 2050 CO2 emissions reductions targets as the most pressing aspect of his role and was aware of the difficulty in producing a roadmap where policy can match targets. He was looking for support from ERP to help provide industrial, engineering and scientific knowledge to build a strong and shared plan of action.

Nick Winsor also welcomed Phillip Sharman as the new ERP member from Alstom and thanked exiting member Martin Nesbit (DECC) for his contributions to ERP.

The Chair noted that there were a large number of apologies and alternates at the meeting and now that David MacKay was in place there would be a review of the membership as outlined at the July 2009 Plenary meeting.

Nick recapped on the ERP meeting with David Kidney on 15<sup>th</sup> July 2009.

The minutes of 26 June meeting were agreed.

### **2. Project initiation Presentations**

Nick recalled the work programme process:

- Short initiation paper to discuss project and agree to proceed with.
- Project work by ERP Analysis Team with engagement of members.
- Detailed discussion of substantive report at plenary meeting to finalise and agree outcomes.

The final step would be publication and dissemination of the work to reach the right audience.

Richard Heap presented three new project proposals, details of which were made available with the pre-meeting papers:

#### **2.1 Carbon Capture and Storage**

The proposal formalises the terms of reference and timing for the ERP activity that was established following the January 2009 plenary item on CCS. This project will review existing activity, set out the organisational landscape and identify UK strengths in CCS technology. It will focus on the UK contribution to global activity in CCS and highlight how UK activity complements other (international) initiatives including opportunities for collaboration and knowledge sharing.

#### **Comments**

It was noted that the project is also consulting a wider group of stakeholders for contribution and not exclusive to ERP members. It was also highlighted the Project Team should keep in touch with the DECC policy team as the project develops to maintain relevance.

There was concern that, although the UK has been working hard, CCS activity was not moving fast enough within the UK, compared to internationally. The emphasis of the project should try and address where the UK and the EU have strengths, and to recognise where other countries will take the lead. Public sector intelligence (such as embassies) was identified as an additional resource for understanding the UK RD&D policy stance on CCS vis-a-vis other countries.

Clustering of demonstration projects was highlighted as crucial to the success of any demonstration projects to ensure integration of the entire capture and storage chain and to drive down costs and improve deployment rates. Both UK Government and European Commission funded projects need to be focussed in this way to be successful.

CO2 storage was identified as an ongoing concern: it was noted that there was limited work in the UK in this area in either R&D projects or characterisation of the UK resource. The ERP project should include this as part of the remit.

**ACTION:**

- Analysis team to circulate the ERP industry members response to the DECC framework consultation on CCS.
- Project approved and due to report back ~April 2010.

**2.2 Cross sector engagement in energy R&D**

This proposed new project was responding to points raised in the June 2009 meeting. It has three objectives:

- To facilitate members' understanding of the ongoing energy innovation landscape reviews underway in the public sector
- To explore interactions between the private sector, academia and public-sector funding programmes for early-stage and applied energy related R&D
- To better characterise the level of investment in innovation within the low carbon sector and the rationale & drivers for that investment.

**Comments**

It was acknowledged that the current reviews were looking at public sector, so the project should focus on a better understanding of the private sector role and engagement. It would be interesting but challenging to involve smaller, earlier stage companies who would be recipients of private equity. There was also interest in understanding how universities and industry interact outside of Research Council funded activity.

The project was highlighted as an opportunity to use ERP's strengths in the private sector to understand how the private and public sectors can work together. It was noted that many of the bigger players in the industry are also beneficiaries of R&D from others in the private sector supply chain. The discussion should include these parties.

**ACTION:**

- Discussion forum to be held on 2<sup>nd</sup> November 2-5pm at 58 Prince's Gate, London – to get industry feedback on the EPSRC SUPERGEN programme and establish a wider discussion on industry engagement with academia and research councils.
- Project approved and due to report back ~June 2010.

### **2.3 Nuclear Fission**

This is a new project to identify major issues, technical challenges and mapping of RD&D support for nuclear energy technologies in UK and globally. In particular, to describe what role the UK has to play in developing new technologies and what are requirements to allow effective deployment of new nuclear generation.

#### **Comments**

Since the project was first discussed, the Nuclear Centre of Excellence (NCE) has been created. The ERP project could overlap with the role of the NCE and so the Analysis Team should engage with NCE to ensure that work was not duplicated. It was felt that it would be useful to have a RD&D nuclear landscape. The project should also try to understand the UK role in a global context, providing a summary of the timetable of activity in the near other countries such as China and India are also moving ahead quickly.

#### **ACTION:**

- Analysis team to make links with the Nuclear Centre of Excellence Steering Group
- Members with an interest in participating in this project should contact the Analysis Team.
- Project approved and due to report back ~April 2010.

### **3. Progress on 'Innovation Milestones to 2050' project**

Charlotte Ramsay updated members on the progress of the project and provided a summary of the 2050 workshop on 28<sup>th</sup> September. The project is due to report in draft at the plenary meeting in January.

The project aims to contribute towards the development of an energy system roadmap to 2050, by setting out a shared understanding of the innovation milestones required to reach the 80% emissions reduction targets. The project will also feed into DECC's roadmap to 2050, outlined in the the UK Transition Plan. The Analysis Team have undertaken a meta-analysis of a wide range of public and private sector energy scenarios for 2050 – to explore where they agree or diverge and where critical decision points will be.

The initial findings from this work were presented at a workshop on 28<sup>th</sup> September. The aims of which were to bring together the people who the Analysis Team had been consulting with individually; to facilitate networking between the public and private sector; to validate initial findings and discussions; to begin discussing key technologies for the 2050 milestones.

Presentations from the 28<sup>th</sup> September workshop and details of the day will be made available on the ERP website.

#### **Comments**

David MacKay was invited to comment on the workshop. He felt the workshop had been very interesting, with clear areas of consensus. He emphasised the importance of having roadmaps to 2050, setting out realistic timetables and based on a numerical analysis (but challenging outputs based on scenario modelling). He proposed that the roadmaps should explore a number of possible outcomes, such as if CCS does not prove successful and that they need to provide clarity about the scale of electrification and the implications of including transport and heat. Storage also needs to be addressed as increasing amounts of renewable are added.

Other comments noted that the project needs to put the 80% target in context and whether it is a low carbon or zero carbon outcome. The implications of the trajectory and cumulative emissions also need to be understood, rather than just focus on those in 2050

The international dimension of the technology developments should be an important consideration. The example of transport was given, where most of the developments are happening outside of the UK. Marine and aviation should not be neglected, where the challenges may be greater than for motor vehicles.

Heat as an energy vector should also be considered as there is a consensus to reduce heat demand in buildings but the storage and use of heat is not clearly addressed in the discussion.

**ACTION:**

- A draft report with findings and recommendations will be presented for discussion at the plenary meeting in January 2010. This will include discussing implications of the work for prioritisation of RD&D activity in the UK

**4. Report back: Prioritising technologies in a global context**

Jeanie Cruickshank introduced the item, identifying that recent European Commission initiatives illustrate the need for a coordinated approach to energy innovation in the international arena. Part of this process will be to understand which technology areas are priorities for the UK to develop domestically and/or in collaboration with others in Europe and Internationally. Action Plans which set out a “Vision” for specific technology families will be developed and agreed with industry. These will be more than a roadmap as they will outline the actions required by both industry and the public sector to facilitate the development of the technology. The Government is piloting two action plans, working with the sector to develop a Marine Action Plan and a Hydrogen and Fuel Cell Action Plan.

The Carbon Trust's review provides a framework for prioritising technologies in the UK, with the International Engagement work giving further insights into the opportunities for UK engagement and interaction globally.

Paul Arwas presented the findings from the Carbon Trust's recent report “Focus for success: A new approach to commercialisation of low carbon technologies”. The report explores the questions: why should the UK innovate low carbon technologies? How should the innovation system adapt to meet this challenge? And why is innovation beneficial for the UK?

A series of “deep dives” provided a “bottom-up” picture of the commercialisation potential (benefits and costs) of six low carbon technologies. This approach provides a framework for the evaluation of low carbon technologies in a UK context – assessing their contribution to key metrics such as UK CO<sub>2</sub> reduction and net contribution to the UK economy.

The key conclusions from the work were:

- There is a need to customise the support for individual technology families (there are few generic actions that will assist all technologies).
- Carbon price alone is not sufficient to bring forward new technologies
- To be successful in meeting CO<sub>2</sub> reduction targets and building the UK green energy economy we must move away from a technology neutral approach.
- The UK should implement a framework for prioritising low carbon technologies co-ordinating innovation activities so that joined up support is provided.

Carbon Trust is exploring next steps with stakeholders. Work on 2050 scenarios would help

Jonathan Radcliffe reported back on the International Engagement project. The work was initiated by Nick Otter (Alstom) at the October 2008 plenary with the aims:

- to take a strategic view of where international energy innovation fits;
- to sign post potential priority areas;
- to inform different players and encourage a co-ordinated UK approach to ensure added value.

The conclusion was that the UK should take a more strategic approach to engagement in international activities, with three practical measures:

1. prioritising technology areas, using ERP's technologies matrix and other assessments;
2. influencing the development of mechanisms for engagement, potentially through ERP; and
3. better coordinating public and private sector activities, with ERP providing a network through which this could be achieved.

A mapping of international activities has been undertaken which will allow companies and organisations to target their involvement. This will be published on the ERP website.

Following the ERP plenary meeting, a discussion hosted by DECC would be held examining the European Commission technology roadmaps for the Strategic Energy Technologies (SET) Plan.

### **Comments**

In discussion the following points were made:

- Members were keen to understand what other (competitor) countries are doing in the area of low carbon technology innovation. Getting access to intelligence from e.g. the FCO networks could be a useful source of information for ERP.
- It was noted that the UK is in strong position for offshore wind. Spending money in RD&D has a spin off effect on capturing manufacturing. But there was a need to understand, what is the capacity for wind technologies globally and for Britain as an exporter?
- The assumptions were based upon international competitors and a potential range of outcomes. Success depends upon the success of technologies and policy.
- A separate discussion on wave as a larger resource potential is needed.
- It would be helpful if the uncertainties in the figures which made up the net economic benefit were presented
- It was felt that it was critical for the UK to have a more strategic approach, bringing in public and private sector, on how it interacts and engages with the broader international community and activities as the ERP did not have the capacity to do all of this.
- The project on international engagement seemed to be rather broad. Conclusions, could be braver and the recommendations to policy makers need to be developed for a final report which can be communicate to, and shared with, the broader community.

### **ACTION:**

- Analysis Team to draft a final report on International Engagement in the light of the plenary discussion.

### **4. Chair's Closing Remarks - Nick Winser.**

Approved

There will be a meeting with David Kidney in November on the innovations to the 2050 milestone. The planned date is 26<sup>th</sup> November at 11.30am, an invitation will be circulated soon.

The next plenary meeting will be on the 19<sup>th</sup> January and will cover the Innovation Milestones to 2050' project in more depth.

The plenary meeting on 20<sup>th</sup> April will report the Nuclear Fission and CCS projects. It was suggested that this meeting might be longer than usual to cover these topics in detail. The plenary meeting in July 7<sup>th</sup> will report back on RD&D engagement.