

# Energy Research Partnership

Notes of 20<sup>th</sup> April 2010 meeting



**MEETING DATE:** 20<sup>th</sup> April 2010

**LOCATION:** 58 Princes Gate, ERP HQ, London

**CHAIR:** Nick Winser, National Grid

**ATTENDEES:**

**Members:**

Peter Bance	Ceres Power
Paul Golby	E.ON UK
Sue Ion	Royal Academy of Engineering
John Loughhead	UKERC
Ron Loveland	Welsh Assembly Government
John Miles	Arup
Graeme Sweeney	Shell

**Non-Members:**

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Charles Carey	Scottish and Southern Energy
Mark Cox	Ofgem
Jeanie Cruikshank	DECC
Chris Franklin	NERC (Research Councils)
Andrew Haslett	ETI
Gardiner Hill	BP
Filomena LaPorta	TSB
Michael Rea	Carbon Trust
David Senior	DECC
Bob Sorrell	BP
Graham Tubb	SEEDA
Matt White	DfT
Sam White	BIS

**Secretariat /**

**Analysis Team:**

Ian Welch	National Grid
Farida Isroliwala	DECC
Sarah Scrase-Field	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
Jonathan Brearley	DECC
Alistair Buchanan	Ofgem
David Clarke	ETI
Brian Collins	DfT / BIS
Tom Delay	Carbon Trust
David Eyton	BP
Mike Farley	Doosan Power Systems
Iain Gray	TSB
Paul Lewis	Scottish Enterprise
David MacKay	DECC
Ian Marchant	Scottish and Southern Energy
Jonathan Mills	HMT
Philip Sharman	Alstom
Adrian Smith	BIS

Alison Wall  
Jeremy Watson

EPRSC  
DCLG

## **1 Chair's introduction**

Nick Winsor welcomed the members to the meeting, and noted apologies and absences due to current flight disruptions (from the volcanic eruption in Iceland which had closed UK airspace). Nick thanked Turlogh O'Brien, who has retired from Arup, for his contributions to ERP and welcomed his replacement John Miles.

The meeting was informed that because of 'purdah', due to the pending general election, the public sector members would be attending the plenary meeting in listening mode without being able to make any contributions relating to potential government policy.

The minutes of the previous meeting 19<sup>th</sup> January 2010 were approved.

Nick welcomed Mark Workman to the ERP Analysis Team and also Ilaria Longo as the new ERP Administrator.

Nick gave an update on the Energy Innovation Milestones to 2050 report saying that he is very proud of this achievement. He informed members of the meeting held with David Kidney who was extremely appreciative of its content. Jonathan Radcliffe said that a follow up event is being planned after ERP's next meeting on 7 July in collaboration with UKERC. This will be a good opportunity to engage with the wider stakeholders' community. Invitations will be sent out shortly.

## **2 Report on nuclear fission**

Nick invited Sue Ion (RAE) to present the findings from this report.

Sue highlighted that the present report is only a draft and needs refining and additional input from the Research Councils. The study was kicked off by ERP to better understand the global landscape of nuclear fission R&D. Sue described the current situation in the UK where all but one of the existing reactors are expected to close by 2025. 16GW of new capacity are planned. There is no cap beyond that, except limits on currently approved sites. Globally the renaissance in nuclear energy over the past 5 years has seen a significant increase in the number of planned power plants, as well as in countries looking to deploy reactors for the first time.

The presentation included a brief overview of reactor types (thermal and fast reactor) and development, of Generation I, II and III, with a timeline for the development of new Generation III+ and IV technologies. Scenarios for UK nuclear deployment show a wide range of capacity by 2050 – mostly above current levels. Delivering on these futures raises a number of issues, namely flexibility, waste, non-proliferation, new materials, demand beyond 2050 and the potential global market for UK expertise, skills and supply chain. Flexible nuclear plant is used in France although it cannot deliver very short term changes. Waste is still an issue, but new reactors will produce less per unit energy output. The UK has set out its ambitions on non-proliferation issues, but it is not well supported financially. Considerable work is being undertaken globally to develop new materials important for new high temperature reactors. Globally there will be increasing demand for nuclear reactors and UK expertise and supply chain, such as Amec and Doosan are prominent in supporting their deployment and development.

Sue also spoke about the R&D activity and the coordinated research work and the research councils in Europe and internationally. In the UK the 'Letter of Agreement' Group provide valuable strategic advice on R&D. The Research Councils have a number of programmes ongoing. In 2009 the TSB commissioned a study into global opportunities for the UK to check if there were any immediate issues it was missing. The report identified

several opportunities, to which the TSB has responded by announcing it will launch a call to pick up on some of these. The UK has also invested in supply chain development through the Advanced Manufacturing Research Centre and the Sheffield Forgemasters.

In Europe, Euratom is preparing FP8, but struggling to agree new programmes. Agreement requires consensus, leading to FP7 being loaded towards waste and decommissioning. It is hoped that FP8 programmes will include advanced reactor research. The US have a number of nuclear fission programmes. The Next Generation Nuclear Programme is a public-private venture, with collaboration with France, to deliver high temperature reactors by early 2020s. There are potentially some good opportunities for the UK to collaborate. China, India and Russia also have advanced reactor programmes which could offer opportunities for UK collaboration.

Concluding points were:

- The UK is not currently involved in global Generation IV R&D programmes.
- Generation IV research would benefit the new build programme.
- The UK has globally recognized expertise but we should decide how to address that and put it to use.
- A key issue is that the UK has no long term plan for how nuclear should develop. A roadmap is therefore needed to set out what the R&D needs are and to provide clarity with regards to international engagement programmes.
- The UK's nuclear fission R&D base should be enhanced and better coordinated.

### **Discussion**

Nick stated that the UK involvement should be appropriate to the challenges ahead but we need to better understand the role of nuclear in the longer term. In discussion reaction was generally very positive, with the following points raised:

- There was some concern that the report had not given a socio-economic context, noting that public acceptance was a big issue along with concerns about terrorism and environmental impacts including waste management. Fast breeder reactors were a sensitive issue, with the findings of the MIT report on the issue referred to.
- However, others questioned if ERP was the right forum to cover socio-economics or whether it was better done by others, such as UKERC.
- More information was needed on the costs of R&D.
- It was noted that South Africa had stopped R&D into Pebble Bed reactors, reportedly not because of public opposition but because they recognised they did not have the resource to be the global leader on it.
- The report needed to balance the technology drivers with the socio-economic issues. It was noted that to gain public confidence DECC had been supporting the Nuclear Non-Proliferation Treaty (NPT) and progress in waste management, including setting up a Directorate of Nuclear Security.
- The public debate should be across all forms of generation and the implications to the system of one option not being available.
- Timeframes for new build were likely to slip and this would affect resource needs in terms of skills availability and supply chain investment.
- Several people noted the need to identify what the UK's ambition was for nuclear energy and the R&D to support it, including what areas R&D should focus on. It was noted that it was not clear where the gaps are and suggested that the report needs to set out the choices, to provide a basis for taking this forward. Improving flexibility of generation was noted as being a priority for R&D.
- How a roadmap could be developed was explored, but acknowledged that it would be a difficult task to go beyond 2025, although the long timeframes meant it would have some value. It was noted that the report should also consider supply chain development - a business case of the options would be valuable.

- The report could set-out UK capability as well as understanding what UK needs to do to be an informed customer, although caution was raised that this was too wide for the report.

Sue Ion responded that not having a roadmap or a vision of the future for nuclear energy was a gap, and that having >16GW of capacity required a different R&D focus to having just 16GW. Uncertainty about involvement in international programmes also affects ambitions.

She noted that TSB had already reviewed business opportunities and Cogent had just issued its latest skills review.

Sue also questioned if ETI should fund R&D to fill the gaps. It was responded that it was not clear where the gaps were but that needed to be discussed at ETI.

Nick concluded that the report should recommend that a roadmap was needed and that this needed to be government led. However, it should also set out where the gaps are in all scenarios that will need to be addressed with or without a roadmap. These included flexibility, dealing with waste and UK capability gaps in differing nuclear scenarios. Other issues, such as socio-economic concerns, need to be noted but ruled out of the reports remit. This would be a valuable contribution from ERP, but that it should then step back from the issue.

#### **Action**

- Conclusions and recommendations from the nuclear discussion at the plenary meeting to be captured and reviewed, in consultation with members, and brought back to ERP in July 2010.

### **3 International engagement**

John Loughhead gave an update on ERP's international engagement project. At the last meeting it had been decided to use an existing body - the Energy Generation and Supply KTN - to deliver the actions agreed, rather than set up a new forum. The KTN had organised a workshop in March, but this had had limited success in identifying how and in which areas the UK should engage in international activities. A report of the meeting, with conclusions or recommendations for next steps had not yet been produced. He noted that further work would be needed to begin to identify the UK strengths.

With regards to the European Energy Research Alliance (EERA) he made the point about the importance of having a UK representative at meetings to develop the work programmes. Awareness of international collaboration was low in the UK research community and this needed to be developed. To these ends, UKERC had set up an 'international' area on their website. As part of this, all UK-based researchers could register and access EERA documents.

Jeanie Cruickshank echoed disappointment at the lack of guidance on UK priorities for European Industrial Initiatives (EIs) that came from the workshop. As such, UK had registered an interest in all topics. The EIs will be launched at a conference in Madrid at the start of June, but there are still questions over funding.

#### **Discussion**

There was discussion on the extent to which ERP should be addressing whether the bodies were in place to identify priorities for the UK or if ERP should be recommending what the priorities are.

John Loughhead responded noting that it was more an issue of identifying priority areas and the level of engagement that UK should have, such as CCS as a priority and this is

how the UK should engage. This will require further engagement with the relevant research communities to create a robust evidence base to support the recommendations.

There was a comment that the remit should be wider than R&D, noting that the EII's focus is on demonstration activities.

#### **Action**

- Process to continue with conclusions being brought back to ERP when available.

#### **4 ERP forward strategy**

Jonathan Radcliffe presented a proposed project plan for ERP's future work, noting the ERP ambition of covering technologies and cross-cutting issues. He highlighted that the plan had been informed by the findings in the Energy Innovation Milestones to 2050 report, and from discussions at the last Plenary meeting in January. The proposed plan set out work for the next 12 months, including new projects on bioenergy and energy storage, with suggestions for further projects starting later in the year on scarcity of resources and the role of hydrogen in the energy system. The plan also includes ongoing activity including follow up and dissemination of previous reports. Members were invited to comment on the plan.

Following discussion, it was agreed that the Analysis Team would produce a paper for the next meeting which set out specifically the technologies and issues from the Milestones report, and proposed follow-up activity by ERP.

Jonathan noted that DECC had launched the 'Meeting the low carbon skills challenge: Low Carbon Skills Strategy Consultation'. He invited comments from members as to whether ERP should submit a response, given its past work in the area. Nick Winser advised that this should be a narrow piece or not at all, based on ERP's past work, noting that industry will sort the skills issue if it knows what it needs to deliver.

#### **Energy Storage project proposal**

Jonathan then presented the scope of the energy storage project, highlighting that this will look at all forms of storage including electricity and heat, central and distributed.

Comments emphasised that it was crucial to distinguish what technology was being used and where it was used in the system, for example, centralised or decentralised. The importance of understanding implications for networks was also crucial. Charles Carey suggested that the project should consider the economics of storage, which have been a barrier to its development, although Nick Winser suggested that the report could draw on existing studies. John Loughhead noted that there was probably considerable commercial data available if confidentiality could be secured.

There was agreement that this was an important area for ERP to address. Members were invited to indicate interest in being on the working group. There was interest from National Grid, Arup, BP, E.ON, SSE, Welsh Assembly Govt, Ceres Power, Sue Ion, Carbon Trust, UKERC.

#### **Bioenergy project proposal**

Mark Workman presented an outline of the bio-energy project proposal noting the scale and context of the issue.

Comments highlighted the potential breadth of the scope. It was acknowledged that supply issues would make it huge, but land use constraints must be noted. The study must consider feedstock and pre-processing technologies, as well as differentiating between transport types. Plant transformation is an important factor, and the study must be wide ranging when considering the options and potential business models.

Nick Winser noted that the working group would be important to steer the project (noting concerns about potential member biases) and invited interest. Members who signalled an interest were: RCs, SEEDA, National Grid, BP, Shell.

### ***Consortium Agreement update and Membership Review***

Ian Welch presented a paper on the Consortium Agreement and progress on membership review. He noted that the Members had been consulted about ERP last year and that most of the recommendations had been acted on. A review of membership had been postponed until David MacKay's appointment. This was now underway and should be ready in time for the renewal of the Consortium Agreement in February 2011.

The proposal that had been put forward was for discussion by Members. The first part of the proposal was to strengthen attendance at the Plenary meetings, which were a core part of ERP. Some areas had been identified that ERP was weak on and needed to be filled, which could lead to a small increase in numbers attending. It will be important to maintain the seniority of participation and therefore alternates should be referred to the co-chairs for approval. In addition, the working groups for each project should be strengthened to increase Membership participation. These would be 'sponsored' by at least one Member. The third part of the proposal was to ease some of the management burden from Plenary meetings, by enhancing the co-chair's meetings. All decisions would still come to Plenary, but would take less time up in the Plenary meetings. The co-chairs' meetings would consist of the two co-chairs, two Members (on rotation) and one or two project sponsors. Nick Winser emphasised that this is an issue that the co-chairs had been deliberating over for some time.

Comments on the paper noted that it needs to restate ERP's objectives at the beginning.

### ***Actions***

- Working Groups for bioenergy and energy storage projects to be convened.
- Comments on a one to one basis between now and next meeting are sought on the Membership Review. Recommendations will be discussed at the next Plenary meeting in July.

## **5 Chair's Closing Remarks**

The Chair closed the meeting and announced that the Committee on Climate Change workshop on effectiveness of low-carbon RDD&D funding would start at 12.30.

## **6 Date of next meeting**

The next meeting is on the 7th July, 10 a.m. – 12 noon, and will be held at the BIS conference centre, 1 Victoria Street.