

ERP Plenary meeting – Minutes

MEETING DATE: Monday 11 July 2016, 15:00 – 17:15

LOCATION: The Royal Society of Chemistry, London

ATTENDEES:

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|---------------------|----------------------|------------------------------|
| Chair: | John Loughhead | DECC & ERP Co-chair |
| Members: | Ian Funnell | ABB |
| | Martin Grant | Atkins |
| | Bob Sorrell | BP |
| | Tom Delay | Carbon Trust |
| | David Ball | Drax |
| | Kathryn Magnay | EPSRC |
| | Philip Sellwood | EST |
| | Derek Grieve | GE |
| | Masao Chaki | Hitachi |
| | Keith MacLean | Co-Chair |
| | Rob Saunders | Innovate UK |
| | Peter Bance | Origami Energy Ltd |
| | Nick Winser | Royal Academy of Engineering |
| | Maggie McGinlay | Scottish Enterprise |
| | Angus Gillespie | Shell |
| | Ali Naini | Turquoise |
| | Prof Julian Allwood | University of Cambridge |
| | Ron Loveland | Welsh Government |
| Alternate Members: | Neil Ebenezer | DfT |
| | Jon Fenn | National Grid |
| | Tim Curtis | Ricardo |
| | Andy Bullock | GE |
| Observers: | Andrew Wright | Ofgem |
| | Chris Stark | Scottish Government |
| Invited to present: | Paul Durrant | DECC |
| | Frank Martin | DECC |
| | Graham Allardice | DECC |
| | Amy Jenkins | DECC |
| Invited: | Karen Goonan | DfT |
| | David Butler | Scottish Enterprise |
| Secretariat: | Farida Isroliwala | DECC |
| | Samuel Stephens | Atkins |
| ERP Analysis Team: | Andy Boston | ERP |
| | Mark Workman | ERP |
| | Simon Cran-McGreehin | ERP |
| | Richard Heap | ERP |
| | Helen Thomas | ERP |
| | Mathilde Bourgeois | ERP |

1. Chair's introduction

Written apologies were acknowledged: John Miles – Arup, Carl Arntzen – Bosch, Phil Blythe – DfT (with Neil Ebenezer in attendance), David Clarke – ETI, Duncan McLaren – Friends of the Earth Scotland, David Wright – National Grid (with Jon Fenn in attendance), Neville Jackson – Ricardo (with Tim Curtis in attendance), Marta Smart – SSE, and Jim Watson – UKERC.

The following were welcomed: Ian Funnell (main member representative for ABB): invited guest presenters Paul Durrant, Frank Martin, Graham Allardice and Amy Jenkins from DECC; and invited members' colleagues Karen Goonan of DfT and Andy Bullock of GE; and David Butler of Scottish Enterprise as member of the Barriers to Energy Storage Steering Group and observer at the meeting.

The chair also welcomed new industry Secretariat Samuel Stephens from Atkins and noted that Martin Grant from Atkins would be taking over as Industry Co-chair after the October Plenary.

The minutes of the April 2016 meeting were approved with no amendments from members.

The key objectives of the plenary meeting were outlined as follows:

- I. Project review of Energy Storage Project.
- II. Presentations from Paul Durrant (DECC) on “The Energy Innovation Board – Role for ERP” and Frank Martin (DECC) on “5th Carbon Budget – Engaging with External Stakeholders”.
- III. Consider and discuss options for ERP Resourcing and next Consortium Agreement
- IV. Consider and discuss a new ERP project.

2. Energy Storage Project

John Loughhead introduced the session, advising that a full report would be published in October 2016. Project Steering Group Chair, Peter Bance (Origami), was called on to introduce the session.

Peter highlighted the objectives of the agenda item were for members to provide any comments relating to course correction of the project work and/or more specific feedback on conclusions and recommendations so far. He stated the purpose of the project was to identify barriers and provide recommendations that could help to provide clarity for the energy storage supply chain. He clarified the project scope covered system-wide energy storage (including thermal, gas, hydrogen, transport) without a technical ‘deep-dive’ into each technology. The work focused on storage assets that were networked (as opposed to battery storage in mobile phones, for example).

Helen Thomas (ERP Analysis Team) presented the key aspects of the project so far:

- System-wide energy storage already exists, largely as fossil fuels, but this is changing;
- Energy storage is complex to assess with a range of characteristics, options and applications.
- System challenges are greater at the long duration, higher capacity end of the scale but at that scale there are *fewer* storage solutions;
- Alternative solutions (e.g. DSR, Interconnection, Active Network Management, cross-sector hydrogen solutions etc.) can offer some of the same services as storage, but the benefits of these are currently hard to assess.
- Three main themes of barriers have emerged throughout the project process:
 1. Valuing System Services
 2. Promoting a level-playing field
 3. Clarifying the role of system-wide energy storage

- Related to these themes – there are five key messages that have also come to light:
 1. **Value and identify levels** of key system services that are required with associated metrics and mechanisms.
 2. **Assign a dedicated independent body** with responsibility for designing, advising on, and considering storage as one of a number of options for providing system services such as flexibility, resilience and security, from a whole-system perspective.
 3. **Adapt existing regulatory frameworks to enable a level-playing field** for all solutions including storage.
 4. **Create conditions of greater certainty for investors** by better indicating the market size, placing a value on system services, and shifting away from valuing assets only to also valuing services that assets provide.
 5. **Address regulatory rules that result in heavy risk**, such as temporarily halting of revenues for renewable generation during assessment of retrofitted storage.

The impact of the work so far was briefly covered with a main impact being to help inform and act as a sounding-board for DECC and Ofgem's Call for Evidence on Smart Energy. Helen Thomas proposed continued work in areas of: future market potential for storage; costs & business cases; more focus on thermal, transport & hydrogen storage; and solutions to barriers raised so far.

Members provided comments and feedback, including:

- It is recognised that, more generally, energy market arrangements could be improved in various aspects, and so it would be helpful if the project could separate out specific energy storage issues from more generic issues.
- Long-term financial uncertainty around the business case is a generic issue for risk capital, but greater certainty for storage would be welcomed, e.g. how customers could hedge long-term storage investments.
- The emphasis on a level-playing field was welcomed, but it was acknowledged that this could be difficult to achieve (because energy markets are determined by the technology landscape of the time, and because storage has such a broad range of options and applications) so some dedicated treatment might be needed.
- The Future Power System Architecture (FPSE) project commissioned by DECC is initiating work on what is required of a future energy system, focused on power albeit with some cross-sector considerations.
- An independent dedicated body (which would not necessarily be regulatory) would work on whole system design for system services, rather than on storage alone. Improvements to regulations for storage would best be undertaken by existing bodies (DECC, NG, Ofgem), albeit with a need for improved clarity of their roles.
- A slightly improved sense of scale of storage is needed for the various storage options and applications available; logarithmic scales on charts can mask the scale, whereas a linear scale would emphasise the lack of long duration/high capacity solutions.
- We should be open minded to alternative forms of storage, for example thermal mass as a form of storage, both heat and cooling, but also interconnection into other nations' storage, such as Norwegian Hydro or Icelandic Geothermal (ABB). However, the UK should not succumb to 'techno-optimism' with PHES being the current benchmark (UoC).
- Recommendations should distinguish between electrical or heat storage, and should be clear about what we wanted to achieve, identifying who should do what, and to whom.

Action: Helen Thomas to make contact with Innovate UK regarding business models for storage.

3. ERP's Role – Advisory Challenge Role

The Chair introduced and welcomed Paul Durrant (DECC) and Graham Allardice (DECC). The Chair noted that Member discussion of this item will be taken together with the next agenda item.

Paul Durrant noted the objective of the item was to discuss how the new Energy Innovation Board (EIB) might access an expertise and a challenge function, through the ERP membership

Graham Allardice (DECC) highlighted:

- EIB's purpose is to ensure energy innovation supports government policy priorities, ensures value for money, helps leverage private sector investment and leads to accelerating the commercialisation of new technologies and systems.
- EIB's membership is purposefully small with DECC and BIS, (now both joined in BEIS), DfID, DfT, Innovate UK, RCs, and Ofgem as core members. Up to 3 independent board members will bring external input and necessary expertise.
- In addition, an external advisory function to enable external organisations to engage with the EIB would help add capacity and effectiveness to the Board's work and provide challenge and advice. ERP members would be well placed to provide this sort of function.
- In addition to its existing activities, the ERP could take on some specific tasks, such as:
 - Offering standing support for EIB to review plans and supporting documents. ERP convening groups of members and collating their input. DECC could fund up to one full-time equivalent (FTE) to support this additional work.
 - Deep-dive functions into specific areas using ERP project expertise and Member input. DECC could fund up to one FTE for this additional work.

Clarification was sought over the involvement of Devolved Administrations. It was noted that EIB core members had UK-wide remits. Ad hoc membership of the Board would be offered to other Government organisations as required. The Chair added that EIB was partly due to ERP recommendations a couple of years ago, to DECC, HMT and No.10 about the need for stronger central co-ordination. It was noted that the EIB would consider the external advisory function at its next meeting in October.

4. Fifth Carbon Budget – Engaging with External Stakeholders

The Chair introduced and welcomed Frank Martin (DECC) and Amy Jenkins (DECC), who presented on 'Fifth Carbon Budget – Engaging with External Stakeholders'.

Amy and Frank gave an overview of the Fifth Carbon Budget and the need for input into the emission reduction plan. Key points included:

- The focus across government is now developing our emissions reduction plan;
- The scale of this challenge was emphasised by Committee on Climate Change's recent 2016 Progress Report;
- The emissions reduction plan addresses how to decarbonise all sectors out to 2032 but also 2050 but there are particular challenges in the field of heat/buildings and transport;
- Exploring new proposals & scenarios for what different versions of meeting the Fifth Carbon Budget might look like;
- Learnt lessons from previous policies (say on buildings) that we need to be sensitive to the range of barriers;

- A shared challenge: industry and business need to have the confidence to invest and innovate.

Frank Martin (FM) concluded that it was important for external stakeholders to be engaged in the process:

- Commencing an engagement strategy to ensure that HMG brings in outside thinking to inform the emissions reduction plan.
- Working closely with organisations from across the energy sector to identify new policy ideas and quality assure existing ones:
 - Inviting groups to put forward high level policy suggestions by completing a short template in advance of meetings;
 - Holding workshops with existing decarbonisation forums and convening new taskforces on heat and energy efficiency.
- Bringing in experts from across government, including BIS, CLG, Defra, DfT and HMT.
- Use this process as a catalyst to grow the community of interested parties to inform the UK's decarbonisation progress.

FM invited the membership to consider if the ERP would be willing to play a challenge role in the emissions reduction plan process. This would involve quality assuring policy suggestions and offering up their wider expertise as the plan develops.

There was an action for ERP to provide a proposal of this challenge role to DECC by end of this month (July), but the governmental reorganisation which immediately followed this meeting put that on hold.

5. ERP Resourcing and Consortium Agreement

The Chair called on Andy Boston (ERP) to present key points of possible options open to ERP. Andy thanked the small team of members who were helping shape the future of ERP. He explained that they were keen that the future shape of ERP and the work plan were driven fundamentally by the need to address climate change by transforming the energy system. ERP's activities should centre on the need for innovation to meet the energy trilemma objectives during our transition to a low carbon economy and work would be carried out with impartiality and transparency. Andy recognised that ERP would have a dual role, firstly to run a programme as directed by members, similar to the current research, but may include some shorter projects. Secondly it would provide the challenge role to EIB, which could be a mixture of standing support (seeking member views, convening groups, reviewing documents) and occasional deep dives into a particular technology area. He also noted the desire of some members that ERP could also provide a challenge to them upon request. The member-led programme of work would be paid for by the members' contributions, there would be five bands for private members based on global turnover and one for public sector bodies. EIB challenge activity would be funded through a separate arrangement with DECC.

To allow time for the new arrangements to be put in place, Andy proposed a six month extension to the current Consortium Agreement with fees calculated on a pro-rata basis. This would need to be signed by the end of September (to retain current analysis team), with the new agreement (to start July 2017) signed by the end of March. A separate agreement with DECC, to cover EIB activity could be put in place as early as January.

In summary the EIB challenge work would enhance the recognition of ERP and its impact whilst giving an opportunity for members to work more closely with government. For EIB, ERP provided a

recognised brand that was already well connected with a broad spectrum of energy innovation actors, and could provide the challenge role without the need to create a new organisation.

Members provided the following comments and questions:

- Several Members expressed their support for this potential new role for ERP, noting it would increase impact.
- ERP's governance structure needs to ensure it remains a challenge and not a confirmation function for any advisory role it undertakes. It was clarified that the proposed EIB's funding for ERP could include staff time, workshop facilities or external technical input to gather members' or sector views.
- It was questioned whether ERP could be totally transparent given its members interests. In response it was noted that EIB was looking at cohesion and consistency of programmes, which meant this shouldn't be a problem.
- ERP has to safeguard its impact and ensure that the new key customer did not take over from member led work. For example would the EIB funding of two full time staff reduce staffing for members' work?
- This could be a good opportunity to look at how ERP might do things differently: how we do projects and decide on work.
- Clarification was sought over ETI/ESC analytical function relative to ETI (or ESC in future).
- It was asked if ERP's membership should be broadened to reflect EIB's increasing breadth.
- The need to have SME representation on ERP was highlighted.
- Clarification was sought over EIB's scope especially with Devolved Administrations. Paul Durrant explained that the rationale behind EIB was to forge stronger relationships between programmes, however they had to recognise political difference between administrations.
- The challenge function to the carbon budget was questioned as ERP only meets quarterly. Frank Martin suggested an ERP sub-group could be formed.
- The impact of Brexit on the consortium agreement was raised. The response noted it would not be known until the new PM is in place, but ERP's primary purpose was still relevant. It was added that EIB and ERP would need to have answers on Brexit impact on R&D, which may mean EIB needs more input from ERP. Members were reminded that the 5th carbon budget was UK-led and not EU-led.
- It was asked who would oversee and review of the agreement between the ERP and the EIB, to ensure ERP's role remained as an independent challenge function. A mechanism to resolve the question will be sought, and reference was made to previous examples such as the terms of reference of the Renewables Advisory Board.
- Clarification was sought over Membership fees for the CA extension, and risk if members dropped out. Andy Boston noted rates would not change, and finances were robust even if a few members dropped out.
- It was queried why the fees might increase, despite extra funding from DECC. It was advised that ERP had been operating a deliberate deficit to use up surplus. From 2017 rent will be charged for office space, and fees have never been adjusted for inflation. Furthermore it was clarified the proposed additional funding from DECC would be to cover new activity for the EIB. Members' subscriptions will need to continue to resource the ERP core work programme.
- It was suggested that business planning was needed to determine the right resourcing for ERP.

John Loughhead observed a general feeling of support for the proposals. He noted the ethos of the forum / steering groups was unique so ERP was listened to. ERP is alone in synthesising analysis and obtaining critique using its broad membership, thus not duplicating any strategy function at Energy Systems Catapult. He acknowledged the need to consider EIB links to Devolved Administrations, and

that EIB transparency and the new contract were linked. He understood that ERP members agreed in principle to the six month extension, but would have to be formally confirmed by email. The Chair then concluded the session by thanking all contributions made.

Action: ERP to communicate by email with each member on the basis of this agreement in principle, after talks with Imperial College, with extension letter attached.

6. New ERP Projects

The Chair introduced the session by calling on Andy Boston (ERP) to present suggestions made by a group of members who volunteered to meet and define next projects. As well as ensuring ERP work was driven by the need for innovation to transform the energy system (see above), the group also used three simple questions to determine the need for a project: Is it needed? Can we do it? Is no-one else doing it? An area that passed these tests (and was also a key member interest) was heat. There are three main options for reducing emissions from heating – decarbonisation of the gas grid (e.g. hydrogen or synthetic-methane from biomass with CCS), district heating and electrification – and a number of niche options, but the holistic picture is at best patchy. Neither the top-down issues around infrastructure and primary energy, nor the bottom-up house-by-house analysis and logistics of change have been adequately tackled. This project would aim to bring this all together, identifying constraints, upstream implications and engineering challenges of each. A PID would be presented at the October plenary. A number of members had expressed interested already but any further expressions of interest should be made to the Analysis Team.

In the absence of any comments or questions, the chair stated that there appeared to be agreement and advised to give a thorough thought to the scope as there was already significant work being carried out in this area.

Action: ERP to produce a PID to be introduced at next plenary

7. AOB

Details of the next plenary meeting were provided as: Tuesday 11 October 2016, 09:45 – 13:00 (incl. lunch), to be held at Coin Street Neighbourhood Centre, 108 Stamford Street, London, South Bank SE1 9NH. This meeting will be followed by a post-plenary session, details of which will be communicated closer to the date.

Members were invited to enjoy the Annual drinks reception & dinner with additional guests, and the meeting was brought to a close.