

## Minutes

### NIRAB Ninth meeting

12th January 2016, 11:00-15:00

The Royal Academy of Engineering, London

#### Attendees:

##### MEMBERS

Dame Sue Ion	Chair		
Tim Abram	University of Manchester	Bill Lee	Imperial College
Martin O'Brien (on behalf of Steve Cowley)	CCFE	John Molyneux (on behalf of Paul Stein)	Rolls-Royce
Andrew Carlick	DBD Ltd	John Lillington	AMEC Foster Wheeler
Richard Clegg	Lloyd's Register	Andrew Sherry	NNL
Mick Gornall	Springfields Ltd	Neil Thomson	EDF Energy
Paul Harding	URENCO	Mike Tynan	NAMRC
Neil Hyatt	Sheffield University	Laurence Williams	CORWM
Malcolm Joyce	Lancaster University	Peter Wylie	Sellafield Ltd

##### OBSERVERS

Derek Allen	Innovate UK	Robin Grimes	FCO
Neil Bateman	EPSRC	John Loughhead	DECC
John Donald	ONR	Darrell Morris	NDA

##### OFFICIALS

Rob Arnold	DECC	Craig Lucas	DECC
Si Dilks	DECC	Robert Moore	HM Treasury
Jack Kelly	DECC	Rupert Wilmouth	GO-Science
Daniel Leary	GO-Science		

##### SECRETARIAT

Andrew Brown	NIRO	Andrew Howarth	NIRO
Gordon Bryan	NIRO	Simon White	NIRO

#### Apologies:

##### MEMBERS

Steve Cowley	CCFE
Paul Stein	Rolls-Royce

##### OBSERVERS

Sir Mark Walport	GO-Science
Melanie Brownridge	NDA
Tim Dafforn	BIS
David Senior	ONR

## Agenda Item 1 – Welcome and Introductions

The Chair opened the ninth meeting of NIRAB by welcoming members and observers. The draft minutes from the last meeting (NIRAB-92-1) were agreed.

## Agenda Item 2 – Actions from previous NIRAB meetings

The actions from the last meeting were reviewed using the NIRAB action tracker (NIRAB-24-8).

Actions 8.1, 8.2 and 8.4 were all completed before the meeting.

*Action 6.1 Update the reactors and fuel roadmap to take on board NIRAB member comments – A new draft of the roadmap was distributed to members for discussion under agenda item 7. [Action complete].*

*Action 7.1 DECC to identify any outputs from the SMR TEA that flag up the need for any research on public acceptance. The TEA is due to be completed at the end of March 2016 at which point DECC will discuss the outputs with NIRAB. [Action open].*

*Action 8.3 Research Councils and Innovate UK to ensure Sir Henry Royce Institute (SHRI) includes NIRAB priorities when developing its scope. NIRAB's recommendations are being used by the nuclear theme leads to ensure that the SHRI is aligned with national priorities. [Action complete].*

*Action 8.5 Members to read the draft NIRAB Annual Report and come to the January meeting prepared for a detailed discussion of the report. To be discussed under agenda item 6. [Action complete].*

## Agenda Item 3 – Government's 2015 Spending Review

As part of the spending review the Government committed to invest at least £250 million through DECC over the next five years in an ambitious nuclear research and development programme that will revive the UK's nuclear expertise, position the UK as a global leader in innovative nuclear technologies and include a competition to identify the best value small modular reactor design for the UK. This level of spending is consistent with the recent commitment to double low carbon energy innovation spending by 2021 made at the United Nations Climate Change Conference 2015 (COP21) in Paris-Le Bourget on 30 November 2015 when the UK became one of 20 countries to launch Mission Innovation. DECC's Energy Innovation budget has effectively doubled over the Spending Review period to approximately £500m, half of which is set aside for nuclear R&D. The 2016/17 and 2017/18 energy innovation budgets will be a little lower than that for 2015/16 but annual budgets will increase significantly and progressively in the three years beginning 2018/19. This funding has been allocated based on a case which projects the industrial benefits of investment. The research programme will need to be developed with this objective in mind. The Energy Innovation budget is a capital budget however recent changes to European accounting standards allow R&D programmes to be classified as capital. There remains some uncertainty over when Treasury will ratify this change for use across Government in time for the start of the 2016/17 financial year. Government officials are currently evaluating technical governance options for the delivery of publically funded innovation programmes. It is expected that there will be further announcements with more detail once the evaluation process is completed later in the year.

The Research Councils received a good settlement in the spending review. The allocation of funding between the different research councils and programmes has not yet been made, but it is expected that the energy and nuclear programmes will remain steady.

The Nuclear Decommissioning Authority (NDA) will be provided with £11 billion over five years to continue its vital work cleaning up historic nuclear sites. The NDA's draft business plan maintains the

strategy of having Site Licence Companies (SLCs) undertake project specific R&D whilst the NDA will maintain a small research programme to investigate strategic issues and solutions.

Innovate UK is yet to receive its formal settlement but is expecting levels to be consistent with previous years. A significant change for Innovate UK projects is that some support will now be provided in the form of loans rather than the current system which is predominantly based on grants.

The Board welcomed the Government's commitment to nuclear R&D and acknowledged that the success of any programme will be determined by practical outcomes which might include, but not limited to the following:

- The UK having the capability to deliver a First of a Kind (FOAK) SMR in the 2020s and a UK consortium is actively engaged in the design and construction of a FOAK SMR.
- The UK manufacturing base delivering a wider range of components for new build programmes both in the UK and internationally.
- Fuel manufacturing capabilities having been secured and the UK playing a key role in manufacturing Accident Tolerant Fuel test pins.
- The reprocessing skill base having been secured and the UK leading the development of a proliferation resistant flowsheet.
- The UK being acknowledged as a partner of choice in international collaborations, securing significant gearing on UK R&D budgets.

NIRAB members provided comments on an initial list of priority R&D activities for the 2016/2017 financial year that had been prepared by NIRO. The priorities were given in the context of coordination of publically funded nuclear R&D during this period, including the work of Innovate UK, NDA and the Research Councils. Following comments received at the meeting NIRO will revise the list of priority items and communicate them to DECC.

#### **Agenda Item 4 – Progress against Nuclear Industrial Strategy**

Since the last meeting, NIRO has conducted one-on-one interviews with the majority of NIRAB members to seek their views on the current nuclear R&D landscape and progress against the objectives set out in the Nuclear Industrial Strategy.

The members agreed that high level objectives of the NIS remain appropriate and that recent Government interest in SMRs and investment in capital equipment have been particular highlights. Areas of weakness to date have been: the lack of progress in securing R&D programme funding, the lack of clarity on Government policy on SMRs, the number of organisations attempting to co-ordinate nuclear research and the lack of clarity on which Government department leads on nuclear R&D.

These views have been used to inform the recommendations recorded in the 2015 NIRAB Annual Report.

#### **Agenda Item 5 – International Collaboration**

NIRAB Member's views on international research collaborations were tabled at the meeting. NIRAB was in agreement that there is a need for a clear international strategy that can open up vitally important international opportunities. The Board was also in agreement that it is important to have clear objectives before entering into any international collaboration initiatives.

An update was provided by NNL on progress in developing the Joint Research and Innovation Centre (JRIC) with China. It was highlighted that one of the aims of the centre is to develop IP which can be jointly exploited. NIRAB advised that IP arising from the JRIC represents an opportunity, but care needs to be exercised to ensure that the value of extant background IP is properly understood and arrangements put in place to ensure that it is either protected or released in a controlled manner

reflecting its value. Such IP issues will need to be considered on a case by case basis by the JRIC's management and governance structure. The Board supported the principle of the JRIC sponsoring research which would enhance commercial opportunities for UK companies.

Bill Lee sponsored a briefing by Imperial College on an emerging proposal being developed in conjunction with Hitachi to establish a Boiling Water Reactor research hub in the UK. NIRAB noted that this proposal is well aligned with at least one significant extant NIRAB recommendation, but that the alignment could be improved if a capability addressed both PWR and BWR technologies.

### **Agenda Item 6 – 2015 NIRAB Annual Report**

Members provided a series of detailed comments on the first draft of the 2015 NIRAB Annual Report. These comments will be used by NIRO to revise the draft document for publication in late February or early March.

### **Agenda Item 7 – UK Nuclear Innovation and Research Roadmap**

A draft version of the NIRAB Nuclear R&D Roadmap document was presented and discussed. This document describes in detail where NIRAB sees the direction of travel for nuclear technologies in the UK. It is focussed on identifying the research required to fill the gaps in the current UK R&D landscape, particularly in respect of future systems and fuel cycles. It was agreed that the document needs to do more to set the context for the recommendations and that the title should be revised. A further draft will be circulated to members with the aim of publication alongside the 2015 NIRAB Annual Report.

### **Agenda Item 8 – National Nuclear Users Facility (NNUF) Update**

NIRAB were informed that the existing NNUF equipment is operating well, with the most recent usage statistics submitted to Government in November showing a high equipment utilisation. The NNUF Working Group is developing proposals for a second phase of NNUF funding by determining a prioritised list of nuclear research facilities. A business case to support this next phase will be submitted by EPSRC shortly and, if successful, capital spending is expected to commence in 2018.

### **Agenda Item 9 – Sir Henry Royce Institute (SHRI) Update**

An update was given on the establishment of the SHRI. Progress has been made in defining the governance structure for the commissioning stage. A community workshop was held in January 2016 to discuss the institute's key research themes, an event that was attended by over 400 delegates. The institute's work is expected to formally start in April 2016, with a target for operational readiness of August 2019.

### **Agenda Item 10 – NIRAB Chair/NIRO Additional Notable Activities**

Notable NIRAB chair and NIRO stakeholder meetings were distributed to the board.

### **Agenda Item 11 – AOB**

1. NDA informed the group that they are carrying out a public consultation on their draft strategy and business plan. The consultation is open until 15 February 2016, after which the views will be considered and the NDA will finalise both documents, subject to UK and Scottish Government approval.
2. A Government-wide consultation is underway to gather views on how well Government departments and their associated regulatory regimes are prepared for innovation. ONR have

requested the views of the nuclear industry and other key stakeholders on the regulatory element of DECC's innovation plan. The consultation is open ONR's website until 31 January 2016.

3. Attendees were made aware of a forthcoming Innovate UK event to showcase current and completed Innovate UK projects to be held on 14 March 2016 in Manchester.
4. The Chair reminded members that NIRAB is a temporary three year advisory board which is due to expire at the end of the 2016. Members were asked to consider advice for Government on the requirements and priorities for a post-NIRAB advisory structure.

**Action 9.1 NIRO to gather the views of NIRAB members on a post-NIRAB advisory structure.**

### **Agenda Item 12 – Summary of Actions and Next Steps**

A summary of the actions arising from the meeting was given.

#### **Date of Next Meeting**

The next meeting is scheduled for 22<sup>nd</sup> March 2016.