

NIRAB Meeting Minutes

Thursday 3rd February 2022. Virtual on MS Teams

Attendees

NIRAB Members: Francis Livens (Chair), Kirsty Armer, Alyson Armett, Maggie Brown, Gordon Bryan, Gregg Butler, Alun Ellis, Kirsty Gogan, Martin Goodfellow, Malcolm Joyce, Mike Lewis, Edoardo Patelli, Amanda Quadling, Fiona Rayment, John Stairmand

BEIS: Professor Paul Monks (CSA), Ian Johnson (SICE), Lindsay Jamieson (Nuclear Directorate), Lewis Mortimer (ND)

NIRO: Robert Alford, Clare Bayley, Sasha Davies, Dave Graham, Jeff Holliday, Jacob Home, Dan Mathers, Aiden Peakman, Lucy Platts, Greg Black, Nick Underwood

Observers: David Smeatham (ONR), Ian Streatfield (EA)

Apologies: Matthew Billson (BEIS), Si Dilks (SICE), Jane Nicholson (EPSRC), Rear Admiral Tim Hodgson (MoD), James Wiseman (NIRO), Greg Evans (NIRO),

1. Update from Chair, Professor Francis Livens

The Chair welcomed observers from the Office for Nuclear Regulation and the Environment Agency. Observers from EPSRC and MoD have been invited to join, however are unable to make this meeting and send apologies.

Near-term objectives were outlined: to start to get some understanding of critical areas for delivery of HTGR demonstrator, and to formulate of early advice to BEIS in the next 4-6 weeks; and to formulate a more longer-term work programme.

Minutes from previous meeting on 6th December 2021 are agreed formally.

2. BEIS update

BEIS gave an update on the Low Cost Nuclear SMR Programme which continues to ramp up mobilisation. Rolls Royce (RR) are involved in an ambitious recruitment campaign. BEIS offered a presentation from RR on the Low Cost Nuclear programme which members agree would be beneficial, particularly to discuss areas of innovation and thoughts on programme acceleration.

On the AMR programme, further information on government policy will be published imminently, and it is expected that this will ramp up in the Spring.



3. Introductory discussion with regulators

EA and ONR provided an overview of their ongoing work on regulating AMRs and innovation. ONR and EA work together very collaboratively. An overview of where their duties lie, and where there are synergies/overlap was provided.

Areas of development include:

- The BEIS AMR competition (2017). ONR / EA provided support to BEIS on the feasibility and development programme. They evaluated safety and security reports for eight designs of advanced reactor concepts to develop regulatory capability and capacity, review guidance and processes to ensure they are fully compatible with the regulation of novel designs, engage with regulators internationally, and engage with industry.
- SMR programme. Regulator involvement through industry engagement events to convey regulatory expectations.
- Fusion. Regulators have been working with BEIS supporting on the green paper on regulation for fusion. Regulators are upskilling in this area. HSE / EA currently regulate fusion R&D including the Culham Centre for Fusion Energy. HSE / EA are reviewing existing regulatory guidance for application to proposals for fusion power stations.
- Funding from BEIS has enabled the upskilling of regulators which has been beneficial.
- ONR/EA currently looking at the approach for regulating an AMR demonstrator.

4. NIRO updates

Use case for AMRs

An overview of the work that NIRO have been progressing on Use Case for AMRs was provided. 14% of UK CO₂ emissions are associated with industry. ~70% of heat demand is at temperatures below 500°C, however the landscape for heat may change over time.

It was noted that the contribution that nuclear can make to decarbonisation is poorly understood outside of the sector and lacks awareness. The current assumption is that renewables will support hydrogen production. As part of the Net-Zero framework BEIS are looking at how we deliver a systems approach. There is potential for nuclear heat, even at low temperatures.

Siting of new nuclear on existing and new sites is a key enabler. UK should consider matching output to centres of demand.

Outline timeline for delivery of a demonstrator

NIRO gave an overview of the current process and steps needed to permission, license, and construct a nuclear power plant. As part of the work programme NIRAB will consider



where innovation can be introduced to reduce the timeline, to include financial, commercial and contracting models, skills and capability gaps.

NIRAB suggest that in order to make a contribution to net zero by 2050 the demonstrator would need to be close to a First of a Kind (FOAK), and ongoing enabling activities to go from FOAK to a commercial reactor and a fleet.

Review of the Nuclear Innovation Programme

NIRO proposed a framework for NIRAB review of the BEIS funded Nuclear Innovation Programme (NIP), from 2016-2021. NIRAB agree that we need to be clear on what the measure of success measure is, the value to HMG, to supply chain, to other sectors, and to get a range of view to input, including those of industry and supply chain.

From a BEIS perspective, the review should consider the original intention of the NIP as outlined in the 2012 House of Lords report and whether it reached objectives.

5. NIRAB work programme

Three areas of focus emerging and it is proposed that working groups are set up for the following areas: Delivery R&I, Use Case R&I, and Technology R&I. This is structure for early advice, but may be revised for the longer-term work programme.

It is the intention to send early advice to BEIS in these areas by the end of March. Working groups will consider what early advice should be given in these areas, for discussion at the NIRAB meeting on 3rd March.

6. AOB

a. Next meetings

- 3rd March 2022 will be a monthly meeting held on MS Teams
- 4th April to be a quarterly meeting (full day) to be held in person (with option to join virtually).

