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DECC Nuclear R&D Activities

UK Nuclear Academics Conference
Leeds, 2nd September 2014

Nuclear Strategy – NIRAB and NIRO

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- The Nuclear Industrial Strategy (NIS) was published at the end of March 2013, included actions to develop, maintain and coordinate the UK Nuclear R&D.

- This included the creation of an independent, Nuclear Innovation & Research Advisory Board (NIRAB). This Board is supported by an expert secretariat, the Nuclear Innovation Research Office (NIRO), hosted within the National Nuclear Laboratory.

- The NIRAB first met at the beginning of 2014 and is tasked with providing information and advice to Government and other public sector funding bodies on the priorities for UK nuclear innovation and research together with options for better coordinating the UK nuclear Research landscape.

Nuclear Strategy – NIRAB and NIRO

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- NIRAB Members are:
  - Invited, by Ministerial decision, for a term of up to three years.
  - Appointed as individuals on their ability to provide credible, authoritative and expert advice across a number of sectors related to UK nuclear R&D.
  - Expected to represent the interests of their sectors rather than their employer.

- The NIRAB are tasked to produce an annual report to Ministers, setting out gaps in the UK's research landscape, priorities for public sector spending in these areas and opportunities for better coordination. The first annual report is expected at the beginning of 2015.

Investment in research

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- In December 2013 DECC announced additional capital investment into nuclear R&D. Including:
  - £1 million for a third phase of NNUF
  - £13 million into a joint DECC / TSB / NDA programme on nuclear innovation technologies. Divided into two workstreams:
    - £10 m for collaborative R&D (including product manufacturing or process development).
    - £3 m for feasibility studies of proposed technologies.
  - £2.6 million to support the development of a UK nuclear R&D programme

Investment in research –

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- £8 m investment to develop a Nuclear Fuel Centre of Excellence.

- Hosted by Manchester University (Dalton Nuclear Institute) and NNL Cumbria and Preston sites.
  - Refinement of current fuel designs.
  - Development of new fuels for advanced / future reactor systems.

- NNL Central Labs:
  - Continued commissioning of NNL plutonium labs (“Phase 2”)
  - £5m to start commissioning NNL hot lab suite (“Phase 3”)

Small Modular Reactors

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- Growing interest in the potential

- DECC has commissioned a study into small modular reactors to examine:
  - Current state of development
  - Advantages they may offer
  - Opportunities for the UK in the field

- ETI is developing complementary studies

JHR – UK Steering and Progress

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- DECC invested in membership of the JHR consortium for the UK in March 2013 – this has since been ratified by other consortium members.
- Establishes membership of steering board and rights to reactor time.
- NNL acts as flag holder for UK pool of user, which is being established – interest from UK Govt Departments; National Labs; industry; key UK nuclear universities & NARMC
- Pool operates through a governance board, which is being established. 11 members from above groupings plus ONR. Halden involvement being used as a model.

JHR – UK involvement in project

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- UK provided support for maintaining separate Fuels and Materials working group.

- Research opportunities are forseen. CEA offered 2 post-doc opportunities at Saclay, but UK has been unable to take these up due to lack of interest.

  - Main problem appears to be CEA suggested areas of work.
  - We are discussing how to explore other topics with CEA more oriented on UK post-doc activity.

EURATOM Horizon 2020

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- EURATOM Horizon 2020 2014-16 work programme agreed.

- New in H2020 vs. FP7 are:
  - A programme for actions co-funded by non-EU institutions, which includes actions under the European Joint Programme. Commission is limited to a 33% contribution.
  - Research and innovation actions, as opposed to just innovation actions that demonstrate or prototype new products:

- A key element of project eligibility would be “critical mass” (sic) – demonstrated by “sufficient activity” in an area of technology or research to offer significant economies of scale to H2020 investment.

EURATOM Horizon 2020 – Key workstreams of UK interest

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- **NFRP 1 – Improved safety design and operation of fission reactors.** Safety development is focused on development of safety current systems (Gen 1-3) and investigation of the inherent safety in future systems (Gen 3+ and beyond). The aim is to press for harmonisation of safety approaches.
- **NFRP 2 – Development of a tool for rapid source term identification of a nuclear accident.** Tool needs to be developed for all reactor types currently in the EU.
- **NRFP 4 – EU concerted level research on radioactive waste management.** Safe disposal of waste that cannot be classified as anything other than waste (by the national authorities).
- **NFRP 6 – 2014: Supporting the implementation of the first-of-the-kind geological repositories**
- **NFRP 7 – Integrating radiation research in the EU.** There is a particular focus on research into the effects and mechanisms of low radiation doses. This extends to radioecology and emergency response planning.
- **NFRP 12 – 2015: Past and recent history of nuclear energy by developments and interaction with society**

EURATOM Horizon 2020 – Cataloguing research

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- Options for better mapping nuclear research activities in Member States – Energy Research Knowledge Centre

- Online, searchable database of actors, programmes and projects from across the EU and beyond. The goal is that the ERKC should become the leading web portal on energy research in the EU. The information and analysis performed within ERKC support SETIS in monitoring progress towards the objectives of the SET Plan.

- The ERKC contract will run until September 2014, after which JRC/SETIS will fully take over the ERKC portal and ensure continuation of the related tasks.

- While most FP7 fission projects are included in the ERKC database, there is currently limited information available about programmes and projects carried out at national level. In the above-described context, it would seem relevant to consider a more extensive use of ERKC.

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Thank you for your attention