



Government  
Office for Science

# Nuclear R&D in the UK: evidence and drivers for change

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Nuclear Academics' Meeting, Birmingham, 18 September 2013

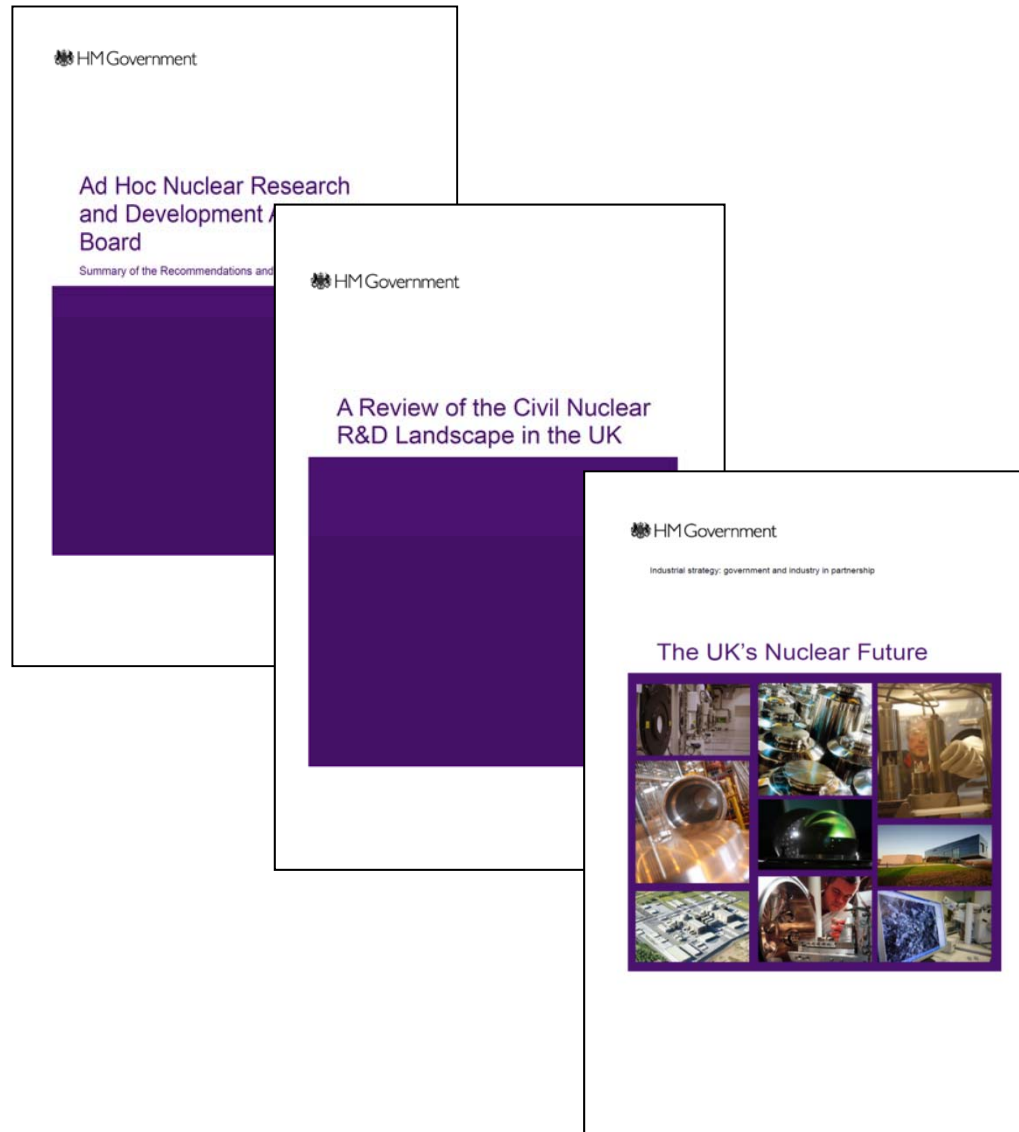


# Evidence and drivers for change

**A review of the  
evidence**

**Recommendations  
for the future**

**What's happening?**



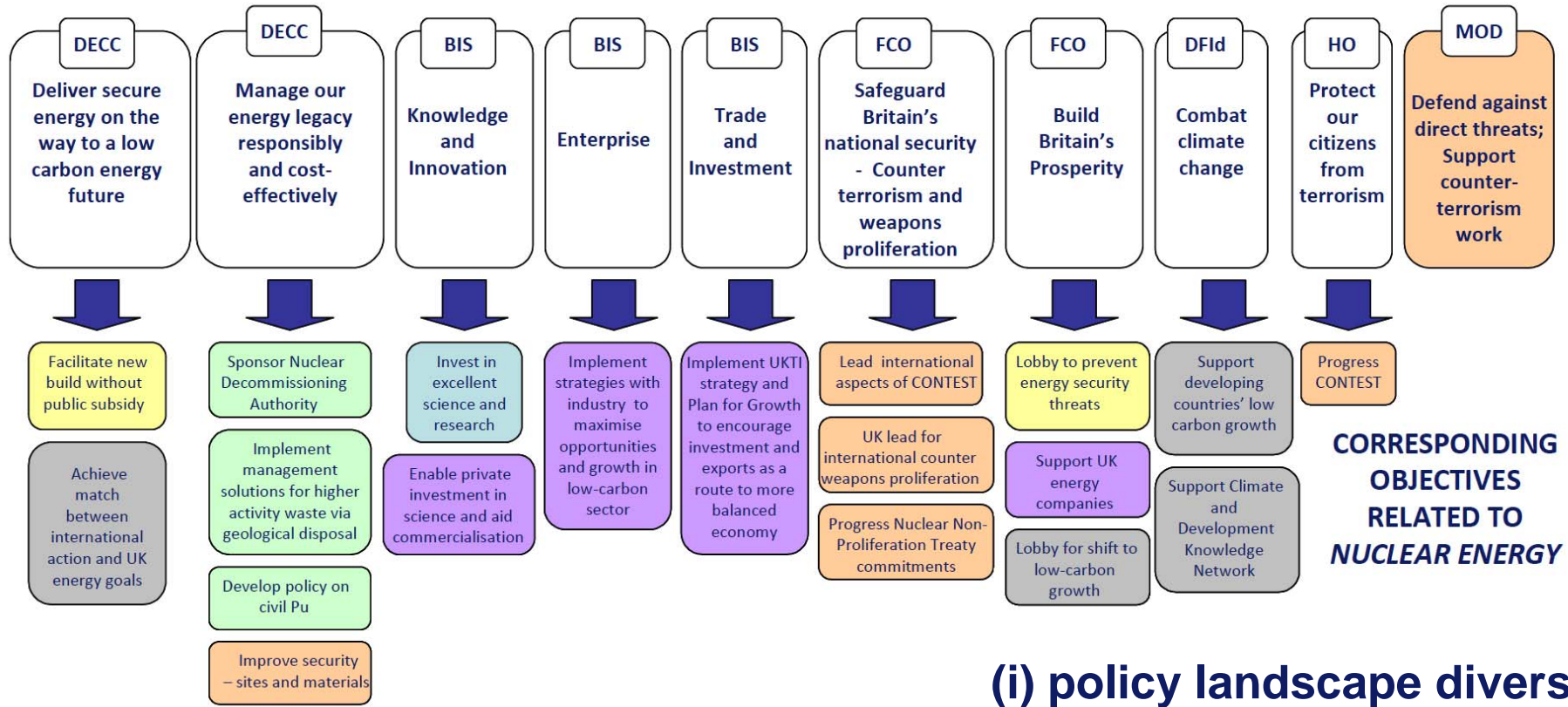


## Review - objectives

- (i) paint a detailed picture of existing R&D capability**
  - (ii) assess current mechanisms for coordination**
  - (iii) extent of funding and flows of funding**
  - (iv) national and international collaboration**
- provide a baseline for future development**



# Review - policy and strategy



(i) policy landscape diverse

(ii) long-term energy strategy?

(iii) jobs and growth?



# Review – coordination

- (i) coordination between research performers**
- (ii) between research funders?**
- (iii) inside government?**





# Review – financial resources

2010-2011 (Government expenditure)

**(i) £66m**

**(ii) low compared to international benchmarks**

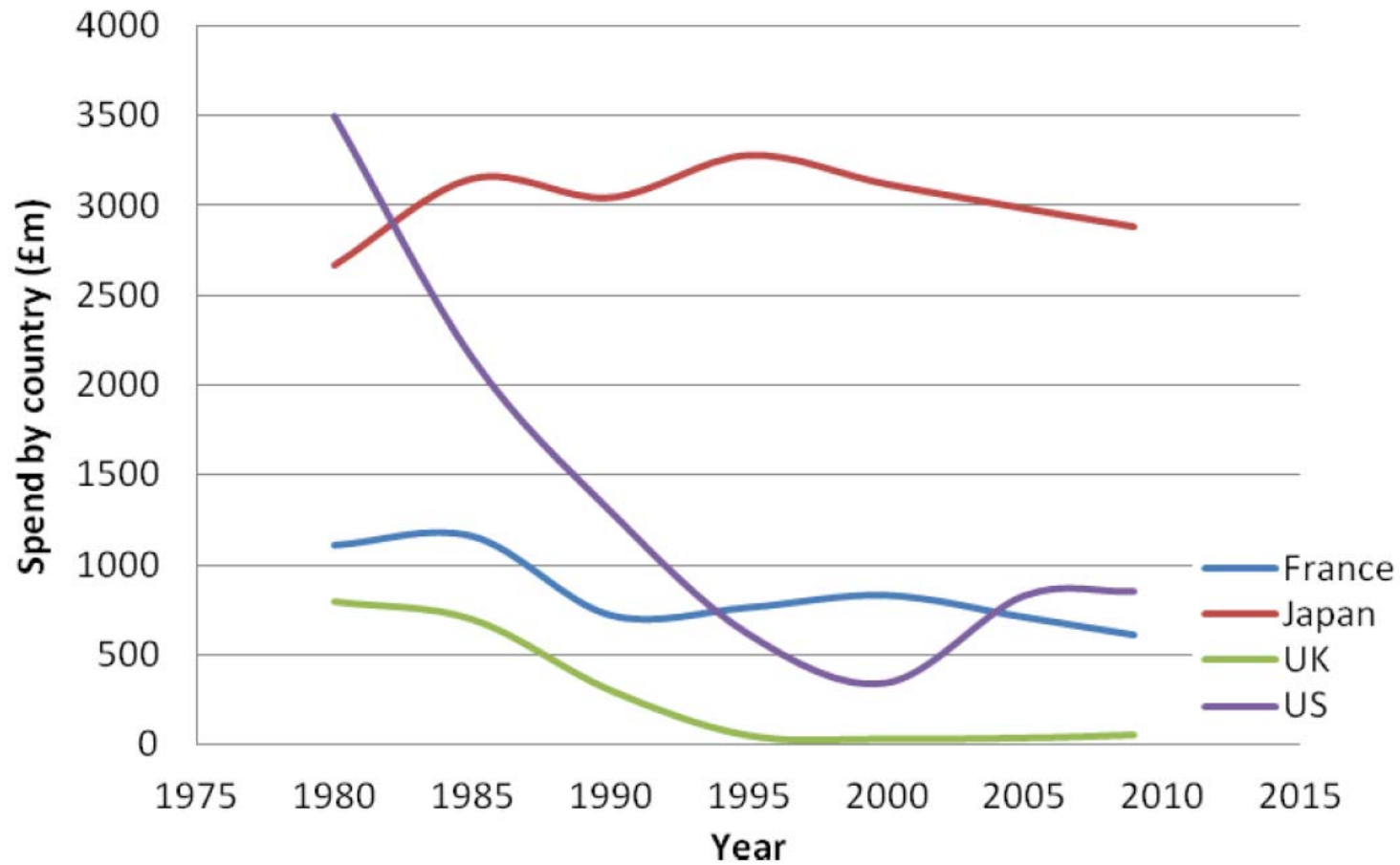
**(iii) the past, the present and the long-term future**

<b>Total fission (£29m)</b>	Total BIS (£18.1m)	EPSRC (11.7m) STFC (2.6m) NERC (£1.8m) TSB (£2.0m)
	Total DECC (£10.9m)	NDA (£10.9m)
<b>Total fusion (£33m)</b>	Total BIS (33.0m)	EPSRC (£33.0m)
<b>Total other (4m)</b>	Total DH (£3.7m)	HPA (£1.0m) FSA (£2.7m)
	Total DEFRA (0.3m)	EA (0.3m)

also consider SLCs (£121m), EU (£47m), HEFCE (?)



# Review – financial resources





# Review – human resources

**(i) 1887 FTE**

**(ii) 1260 in national labs, 394 in industry and 233 in universities**

**(iii) the past, the present and the long-term future**





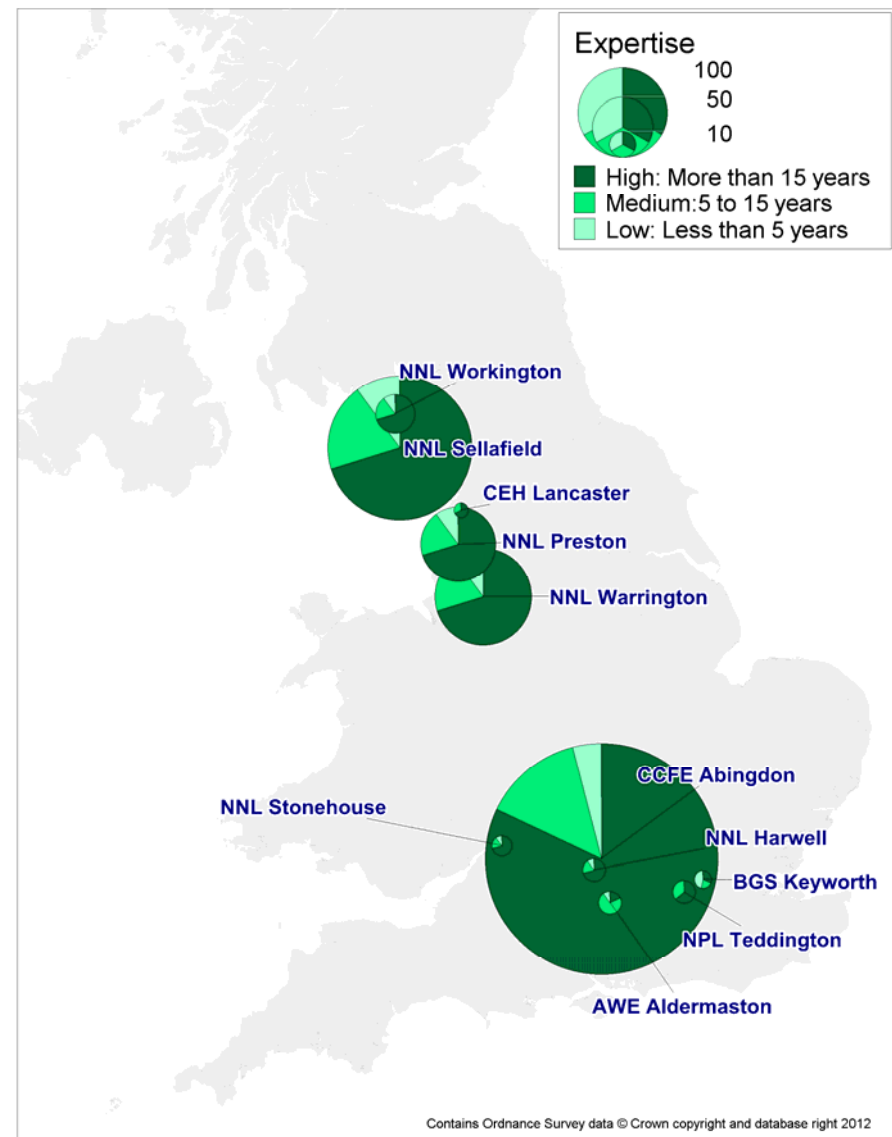


# Review – human resources

(i) national labs

(ii) CCFE and NNL dominate

(iii) fusion more than 50%



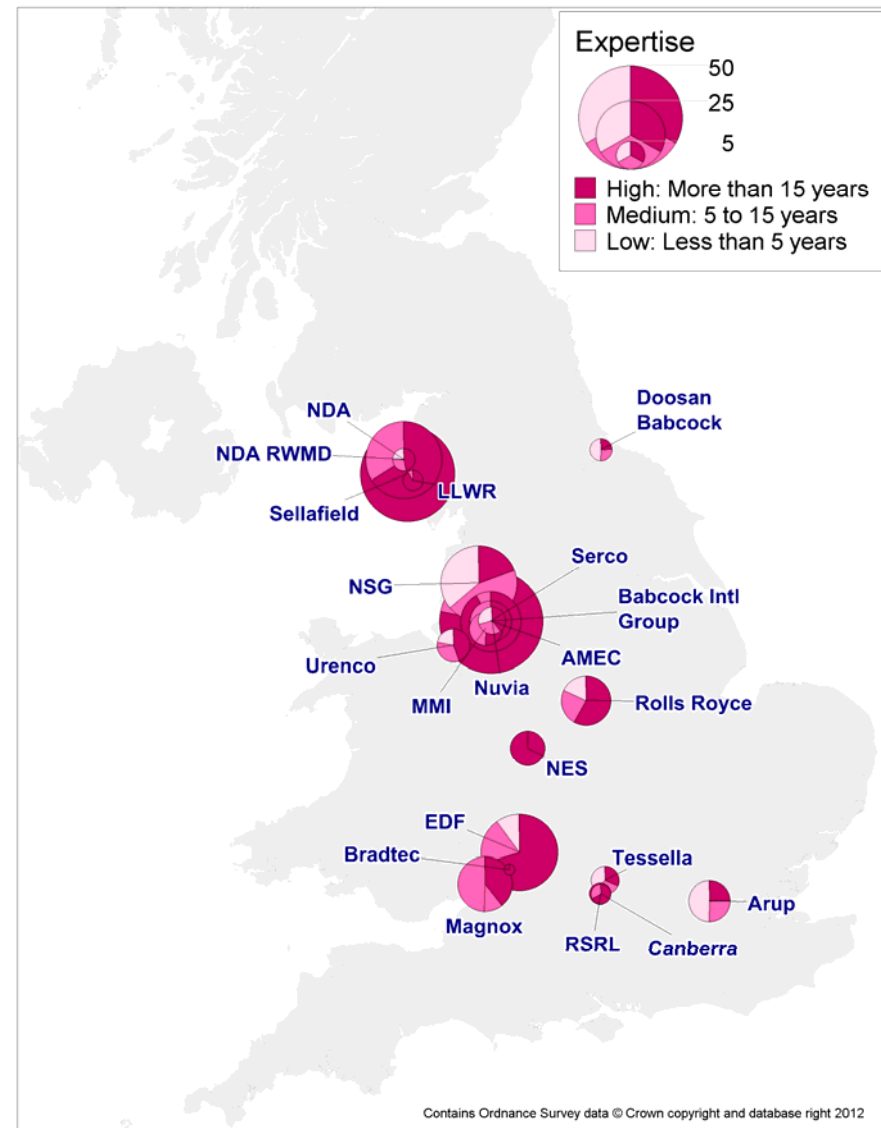


# Review – human resources

**(i) industry**

**(ii) waste more than 40%**

**(iii) little focus on fusion**



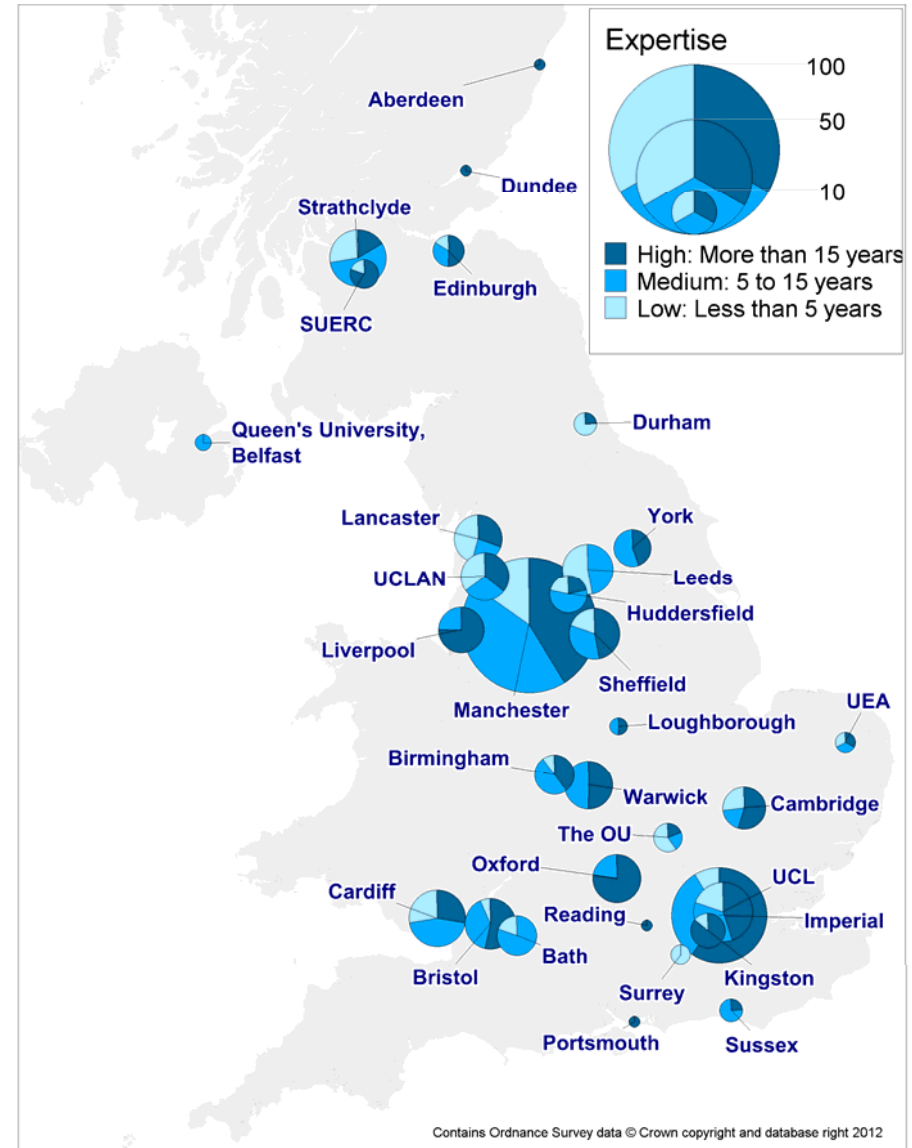


# Review – human resources

(i) academia

(ii) Manchester and Imperial

(iii) greater degree of “junior”  
staff





# Review – facilities

**(i) limited facilities for handling highly active materials**

**(ii) limited facilities for irradiating materials**



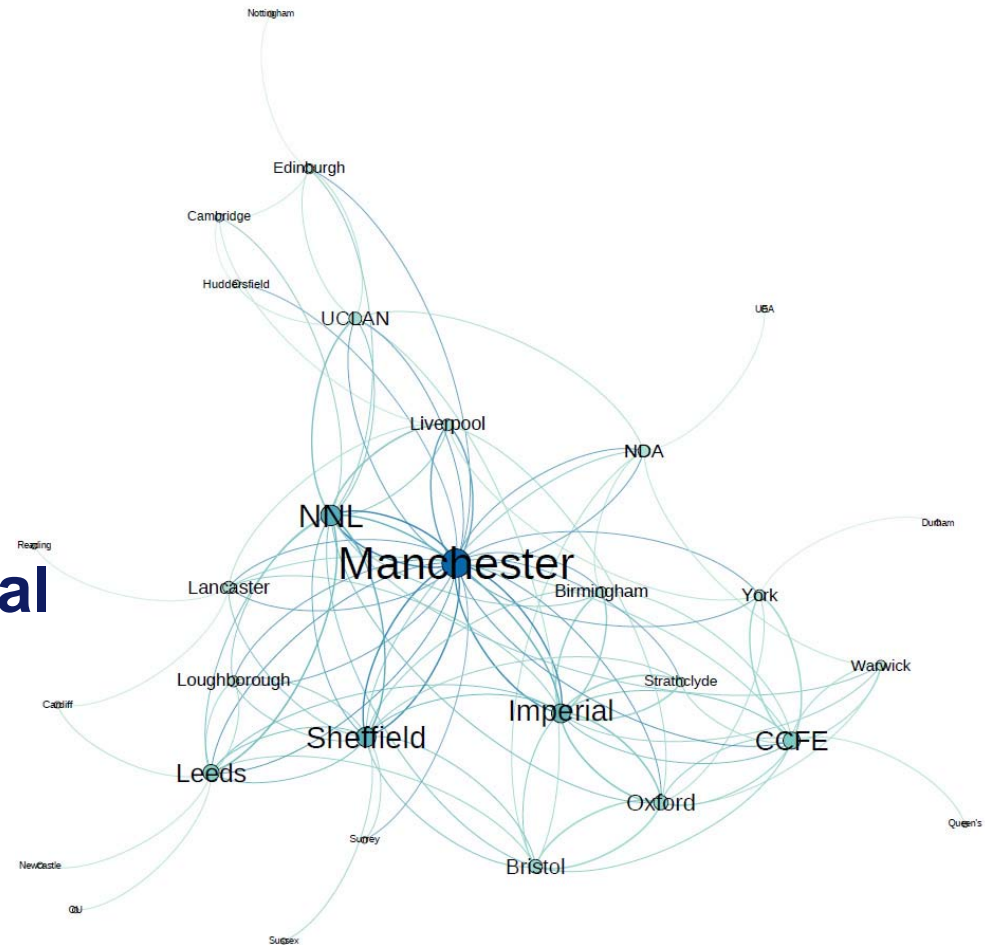


# Review – collaboration

**(i) some good links**

**(ii) fusion an international effort**

**(iii) strategy for international engagement?**



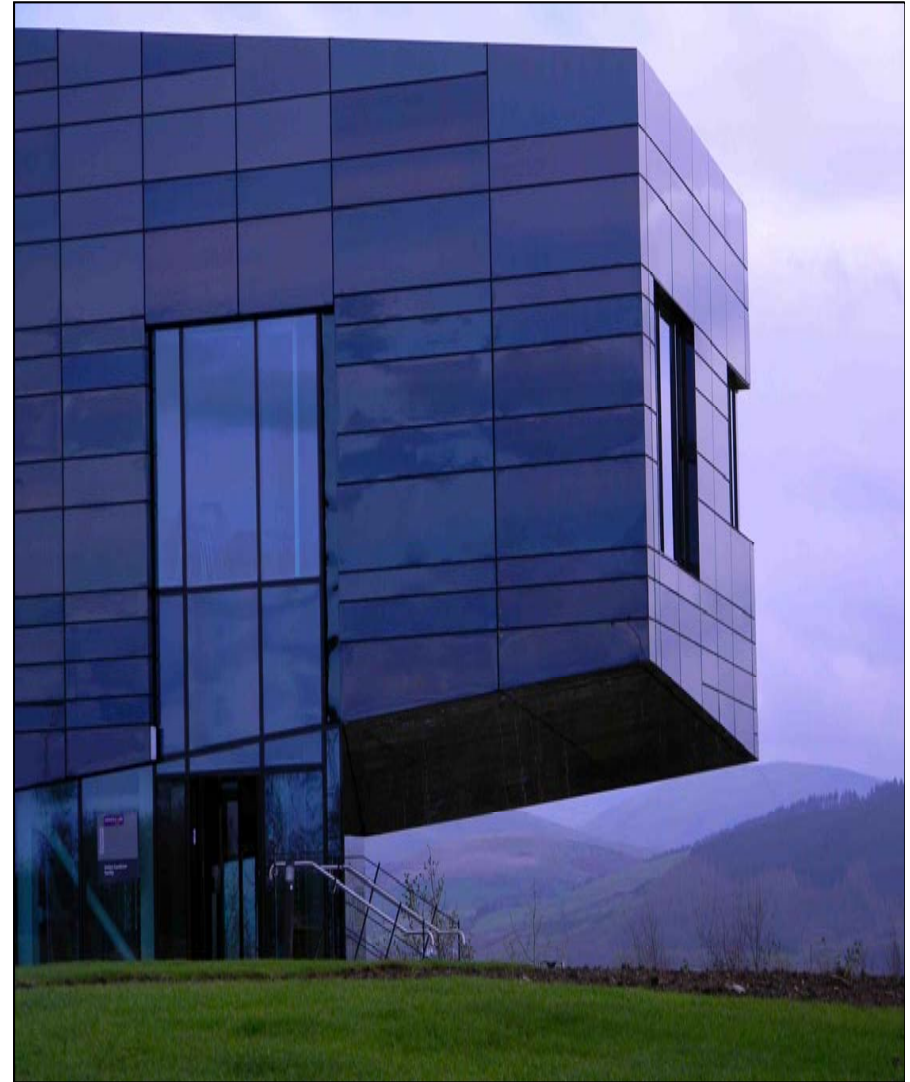


## Review – conclusions

**(i) strategy evolving to adapt to the new policy priorities**

**(ii) R&D landscape evolving to adapt to the new policy priorities**

**(iii) funding is an issue**





## Advisory Board – background

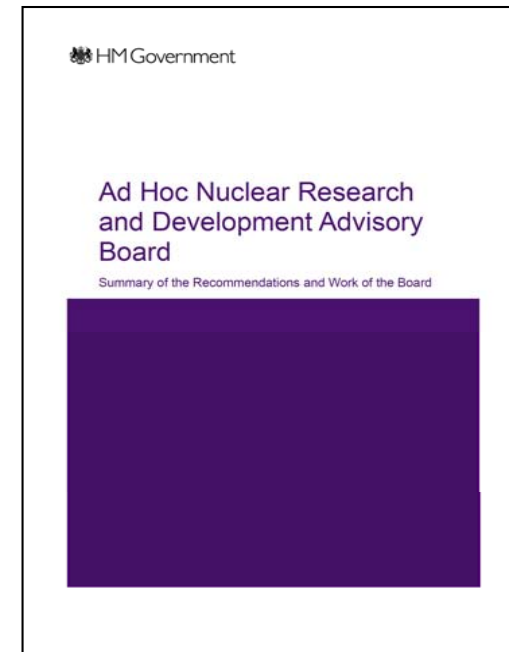
- (i) ad hoc (nine months)**
- (ii) broad membership**
- (iii) chaired by GCSA**
- (iv) reported December 2012**





## Advisory Board – recommendations (i)

- **future scenarios mean that we must keep technological options open – new R&D programme needed**
- **R&D can also support commercial success at home and overseas**
- **new coordination mechanism, new advisory body with external secretariat**
- **access to facilities at home and overseas**
- **development of NNL**

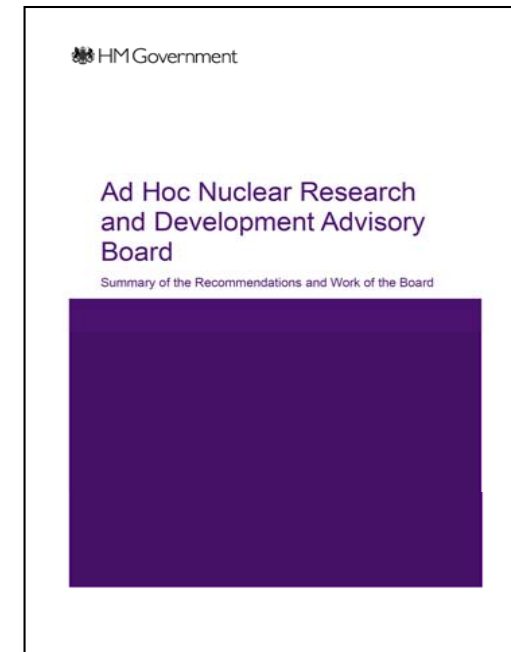






## Advisory Board – recommendations (ii)

- international strategy
- skills strategy
- clear plan on reprocessing
- clear plan on fuel production
- R&D for geological disposal
- UK's world-leading position on fusion to be maintained





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## What's happening? (i)

- NNUF
- JHR
- TSB



Technology Strategy Board  
Driving Innovation

“a positive story about the  
direction of travel”





## What's happening? (ii)

➤ **Nuclear Innovation and Research Advisory Board (NIRAB)**



➤ **Nuclear Innovation and Research Office (NIRO)**





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<https://www.gov.uk/government/organisations/department-for-business-innovation-skills/series/nuclear-industrial-strategy>

