

# Nuclear KTN

Power Generation in the UK  
post 2020

15<sup>th</sup> March 2011

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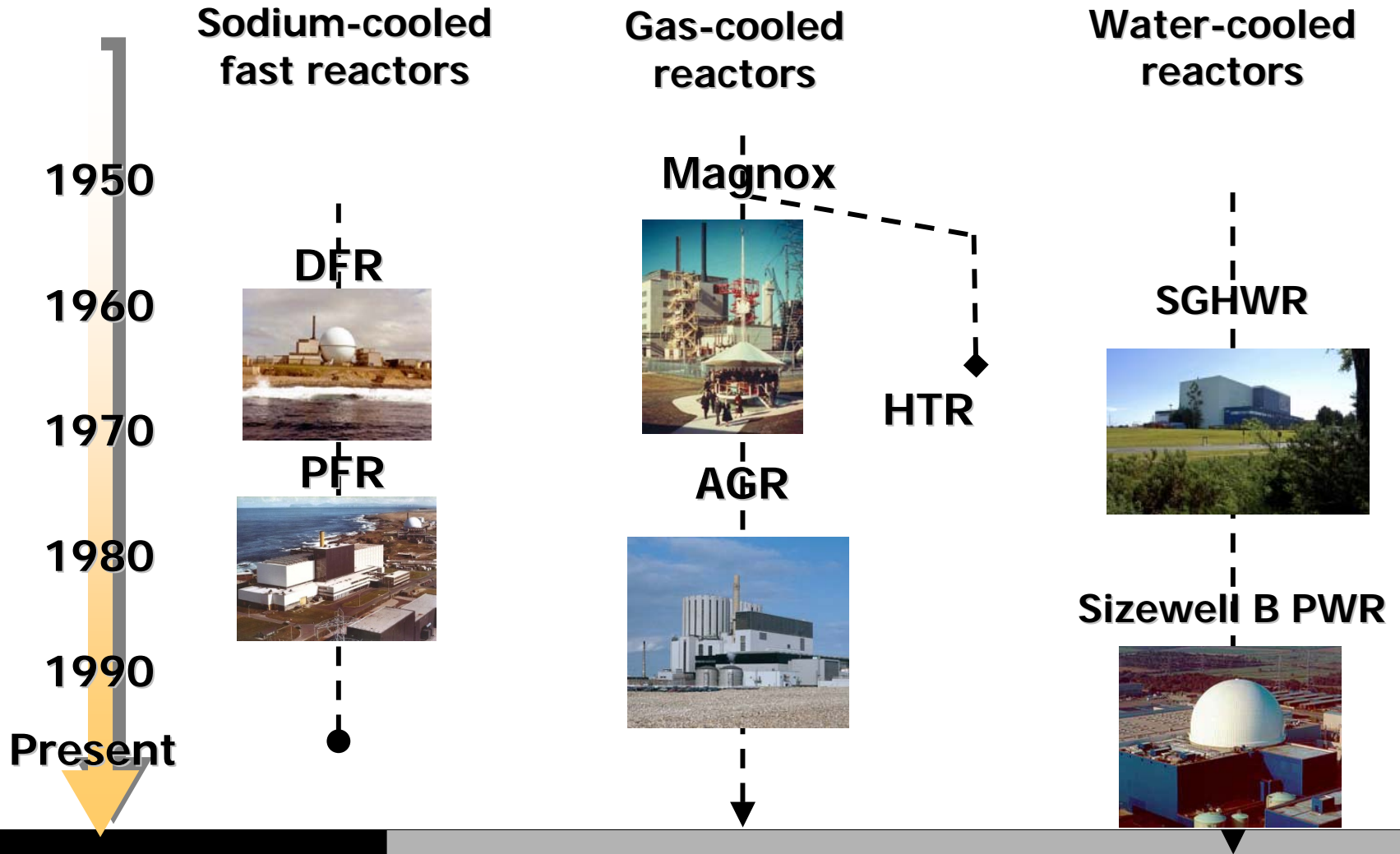


# Objective of this Presentation

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- The role R&D and innovation plays
- Illustrate the extensive R&D capability within the UK
- Ability to independent & authoritative
- The UK's R&D capability is a marketable product in its own right

# UK experience of different systems

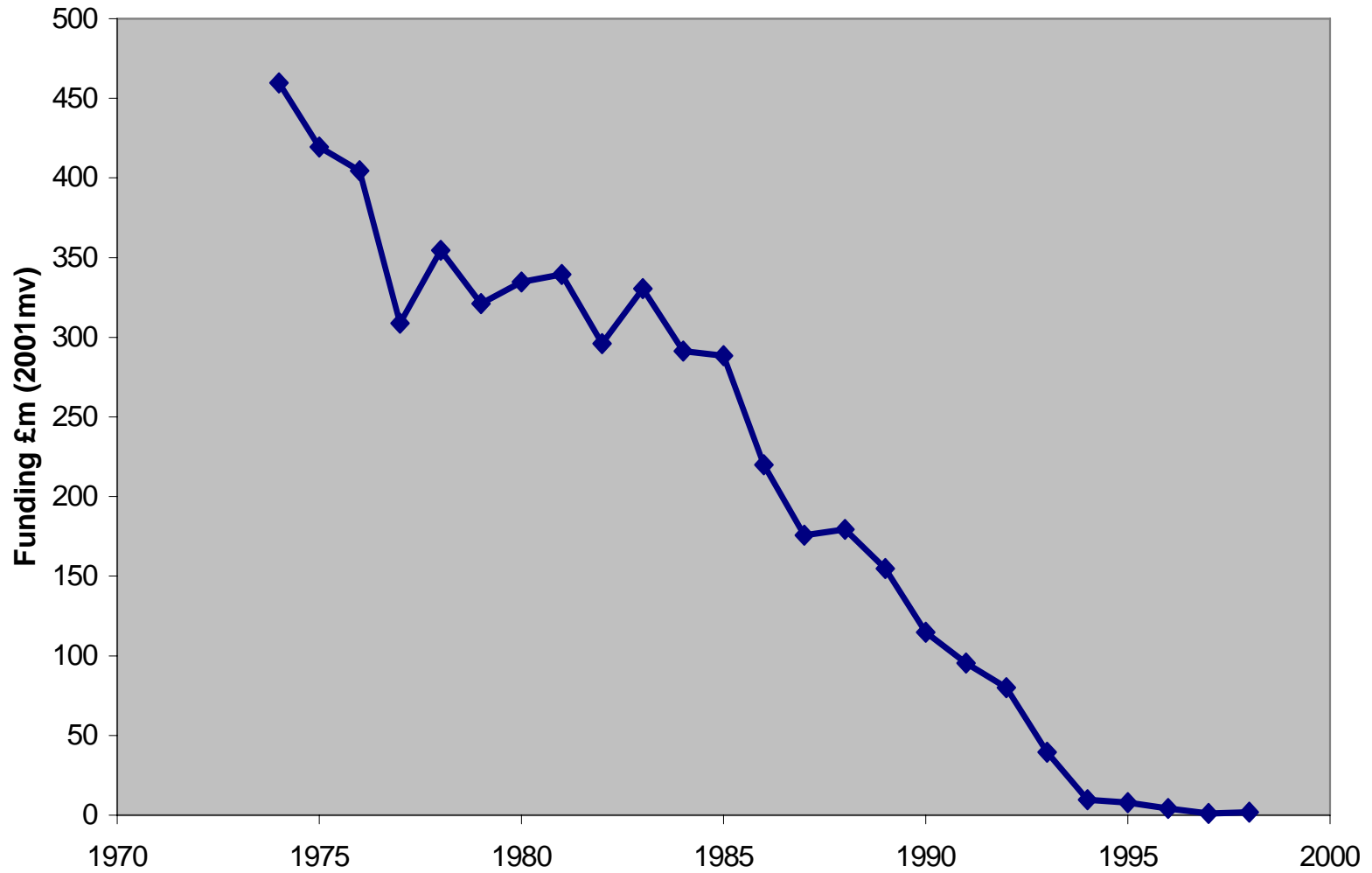


# Global Nuclear Programme

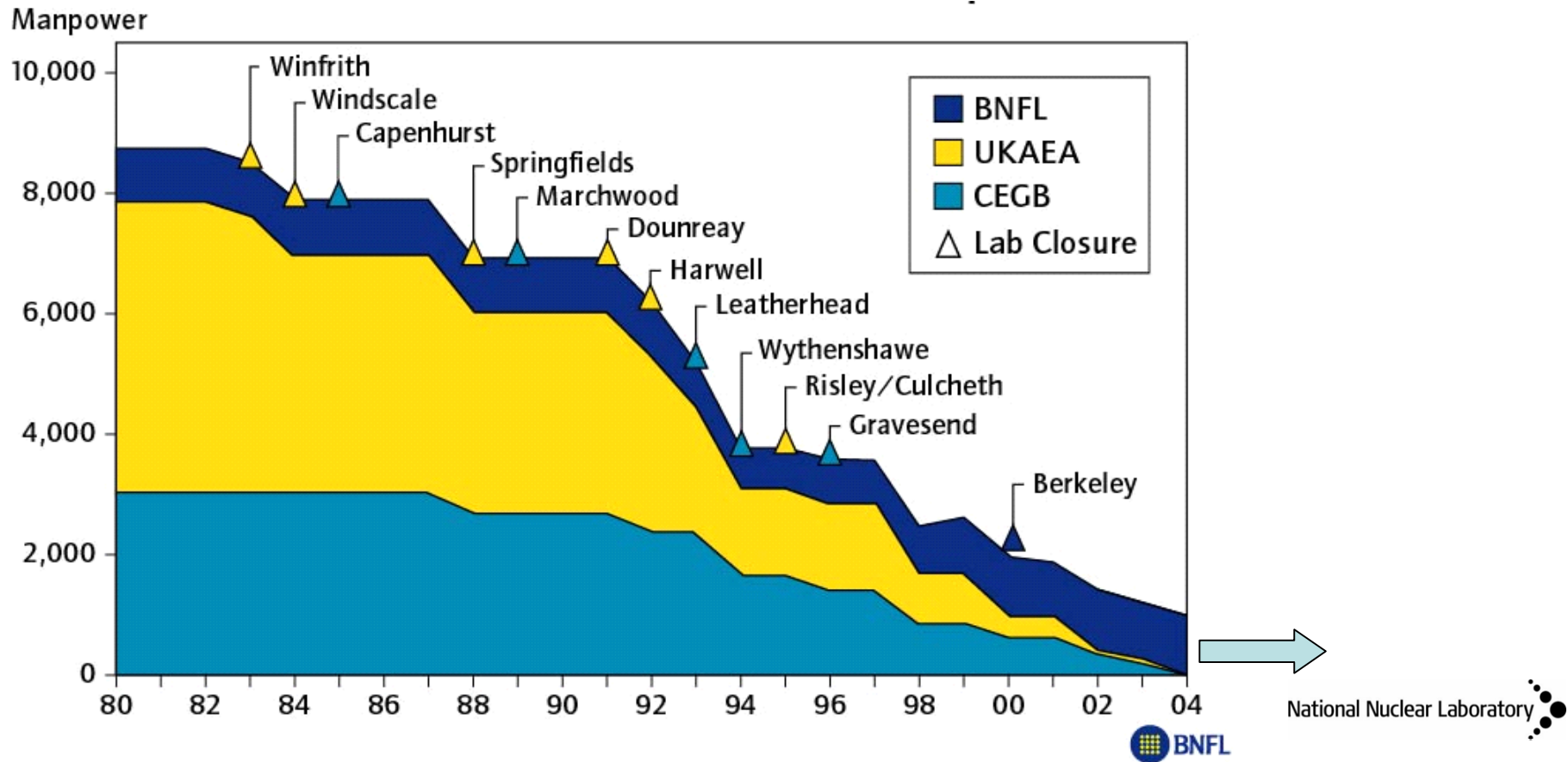
- Continued operation of existing reactors
- Legacy waste management / decommissioning
- New nuclear build
- Geological disposal
- Plutonium stockpile disposition
- Naval propulsion support programme
- Advanced reactor (Gen IV) and fuel cycle development
- Space Power systems
- Security, non-proliferation & safeguards
- Deterrent technologies
- Nuclear Fusion



# UK Public Sector Fission R&D Funding



# UK Nuclear R&D Manpower



# Why Carry Out Technical Development / R&D ?

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- Underpins safety case for operations
- Mitigation of technical risk and uncertainty
- Innovation to reduce cost, improve safety, accelerate programmes
- New products to support the industry
- Maintain critical capability

# Technology Readiness Levels

## Basic Technology

Academia

- Fundamental Science
- Exploratory Research

## Technology Development & Demonstration

National Laboratories

- Applied R&D
- Testing & Prototyping

## Launch and Operation

Industry

- Commercial Deployment
- Application

TRL1    TRL2    TRL3    TRL4    TRL5    TRL6    TRL7    TRL8    TRL9

Technology Readiness Level



Research

Development

Deployment





# Collaboration

MANCHESTER  
1824



Sellafield Ltd

**Battelle**

*The Business of Innovation*



LANCASTER  
UNIVERSITY



Imperial College  
London



The  
University  
Of  
Sheffield.

**BAE SYSTEMS**



National Physical Laboratory

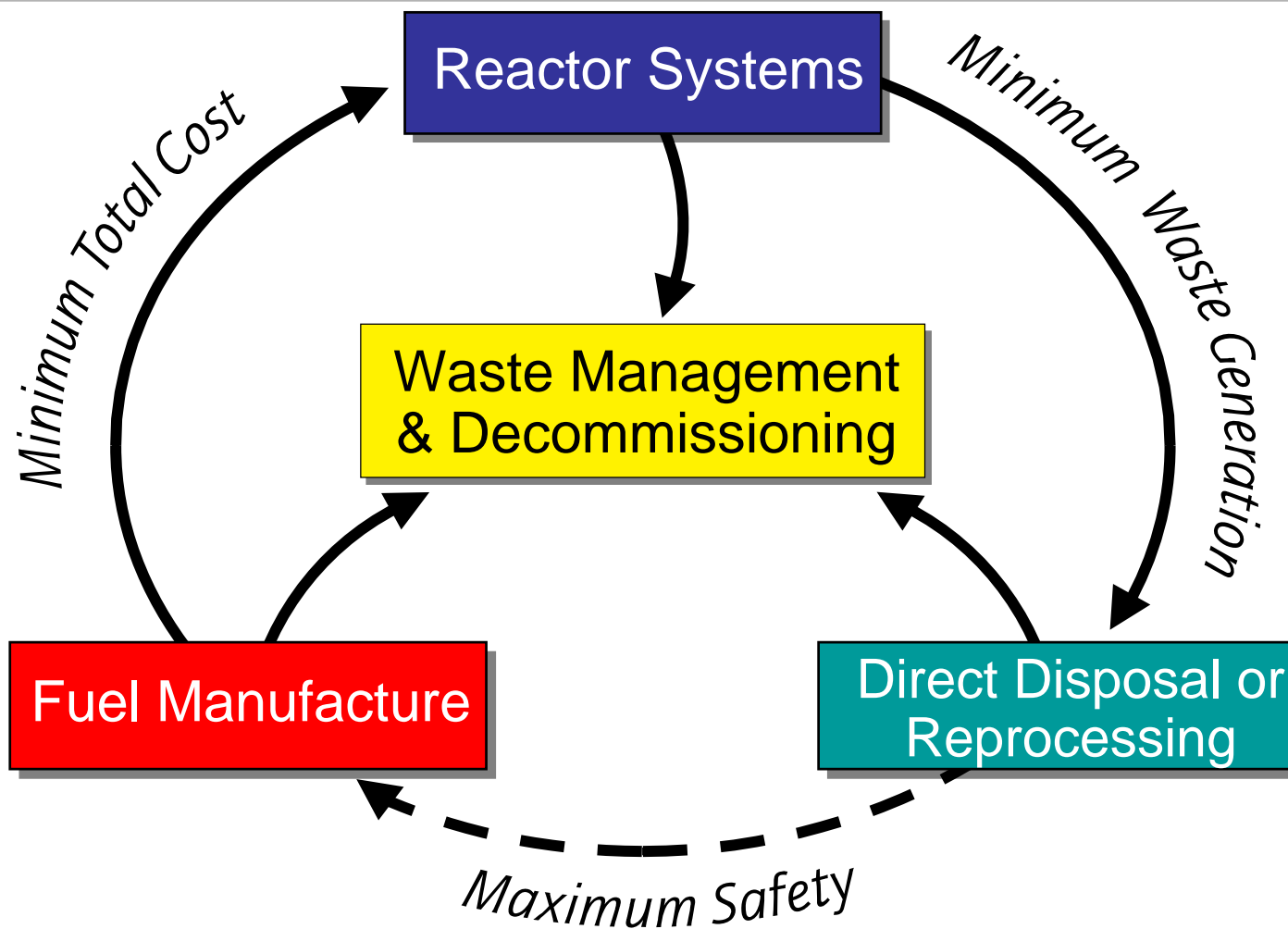


**Pacific Northwest**  
NATIONAL LABORATORY

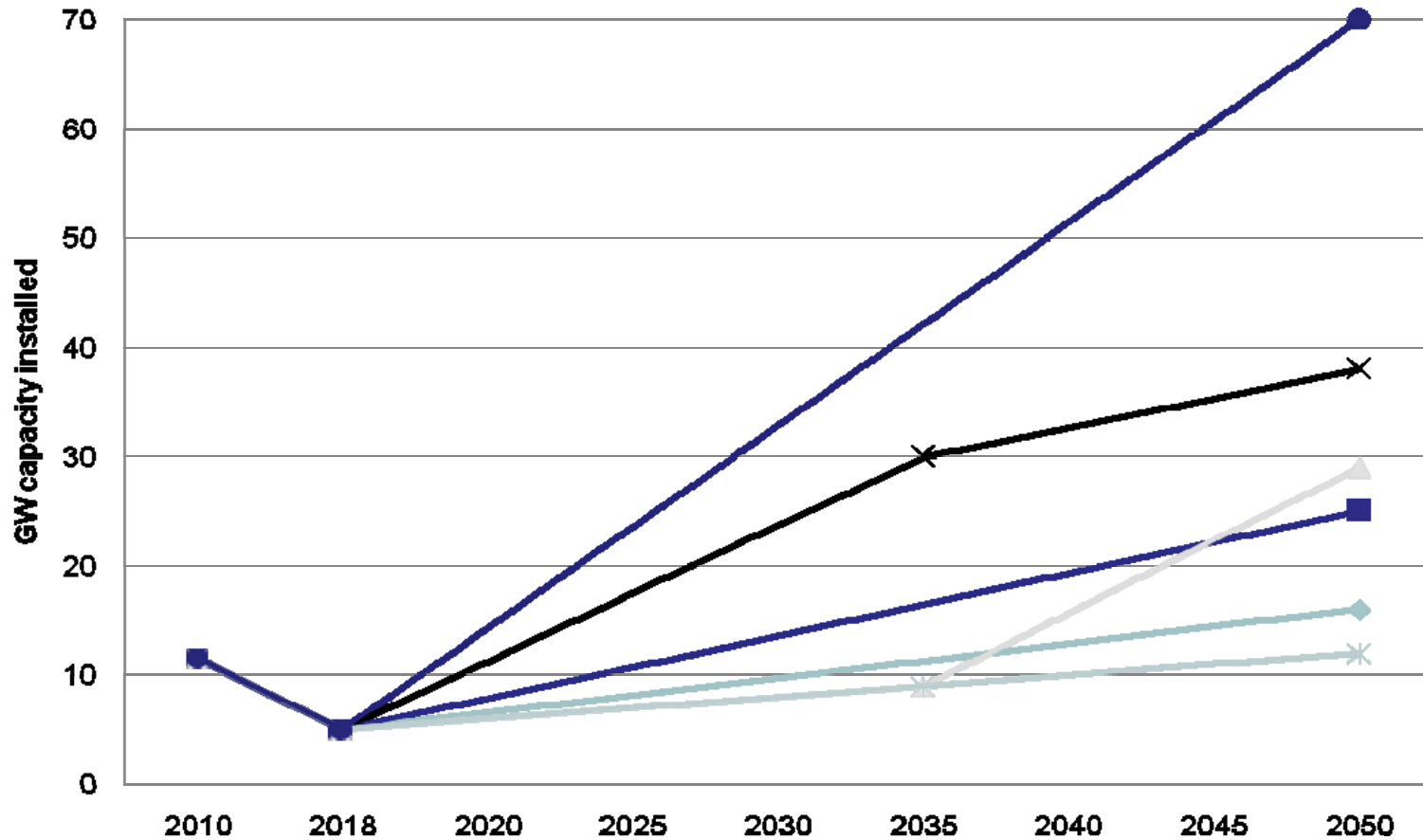
National Nuclear Laboratory



# Fuel Cycle: Holistic Approach



# Scenarios for UK deployment



# Conclusions

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- Independent and authoritative
- Extensive know-how
- Support to other countries. R&D is a marketable product in its own right