"The Development of Nuclear Energy Policy in the UK"

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First Secretary (Nuclear), British Embassy Tokyo

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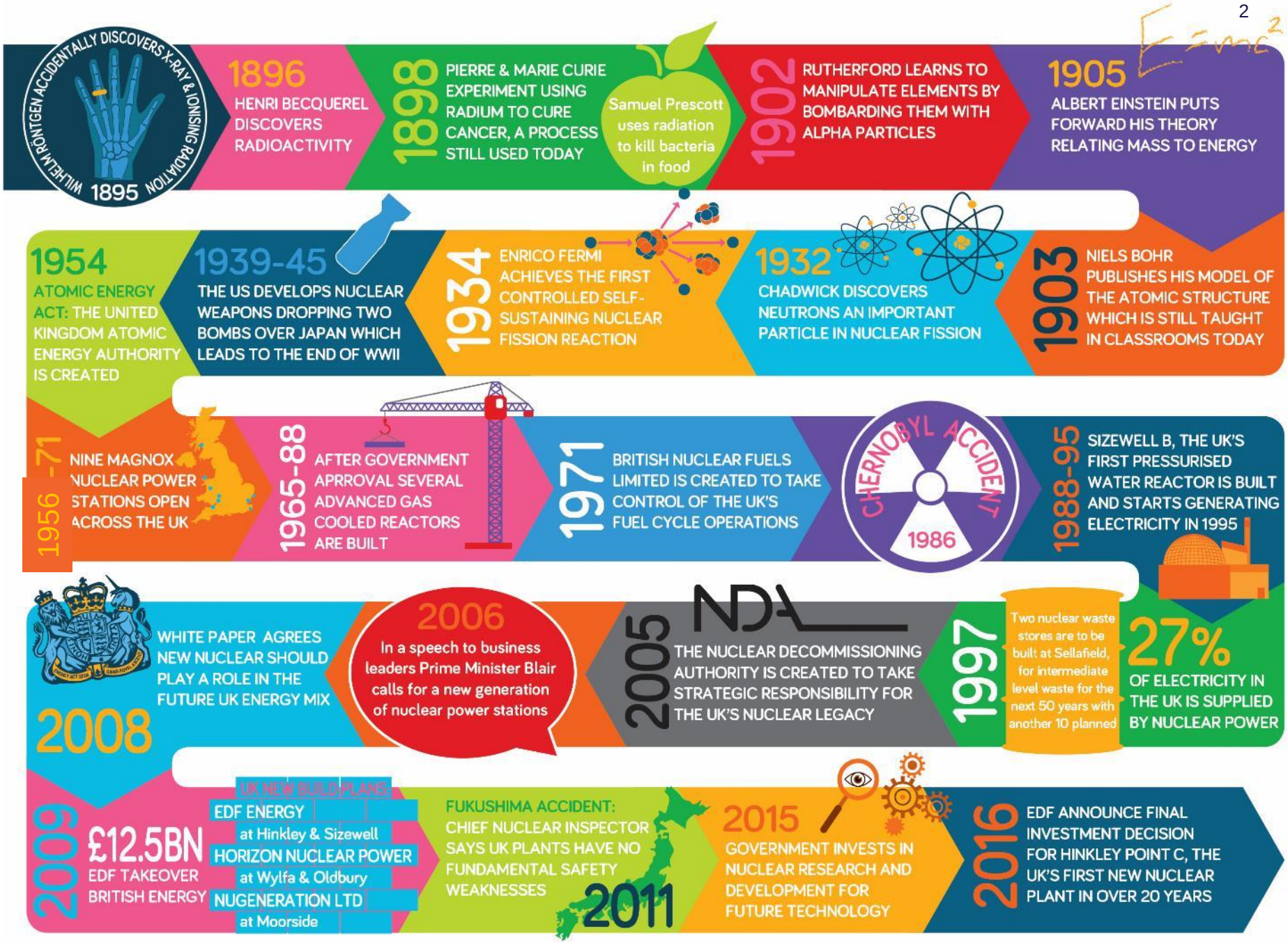
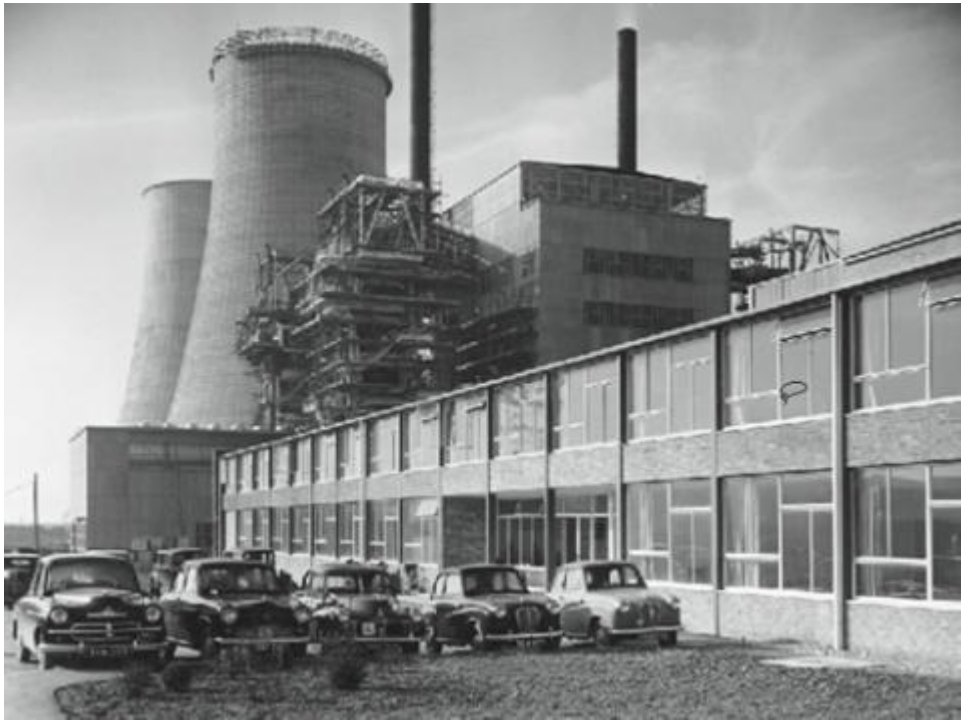


Source: Nuclear Industry Association

Calder Hall, where it all started



Tokai-1

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UK Nuclear Industry – The Future

- New Build is the future
- Operating is the future
- Decommissioning is the future

Energy Policy Drivers

- UK remains committed to the Paris Agreement which calls on countries to keep global temperature rises below 2C.

- UK own legally binding commitment to reduce carbon emissions by 80% by 2050 compared with 1990 levels.

Climate Change Act 2008

CHAPTER 27

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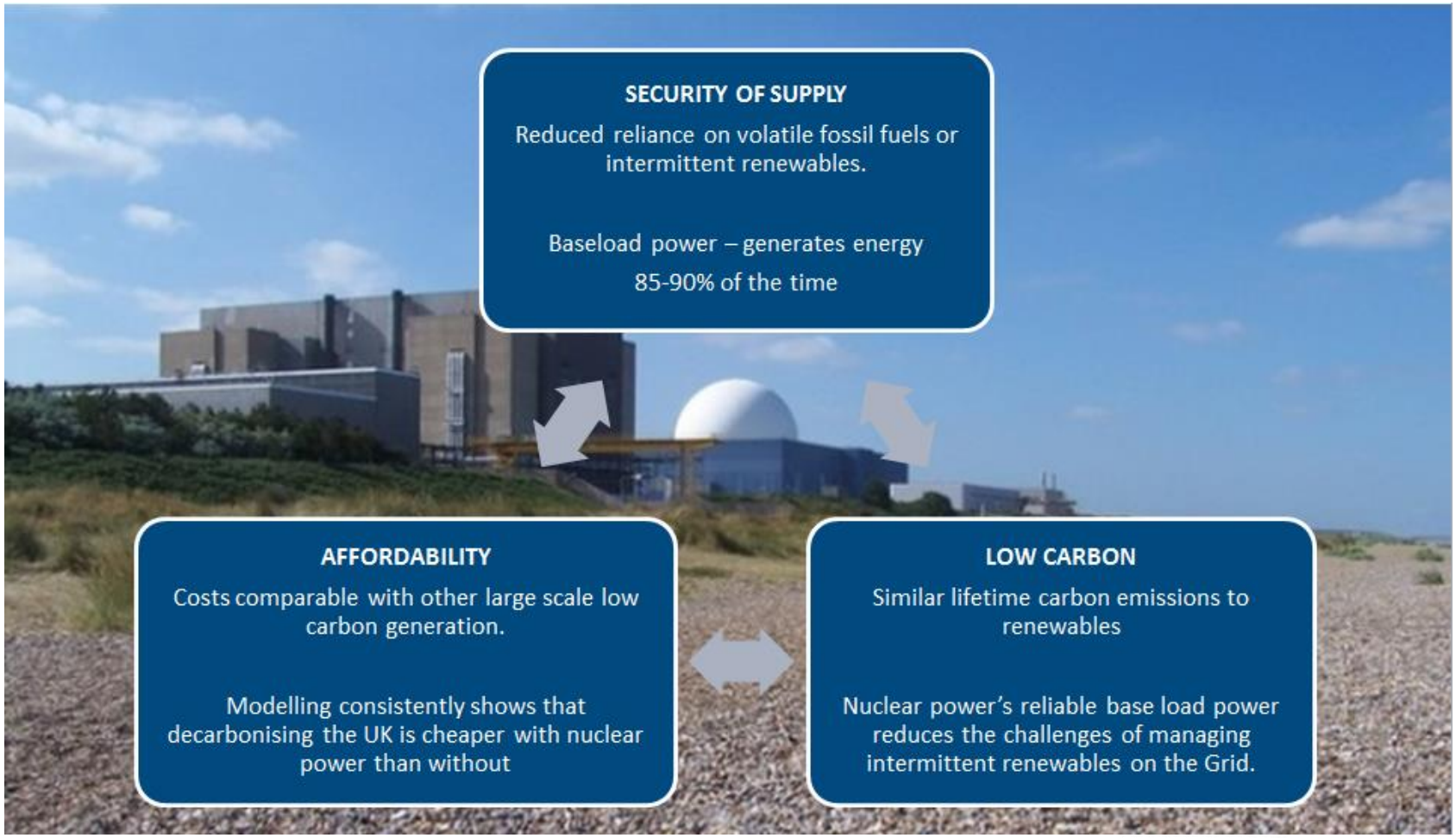
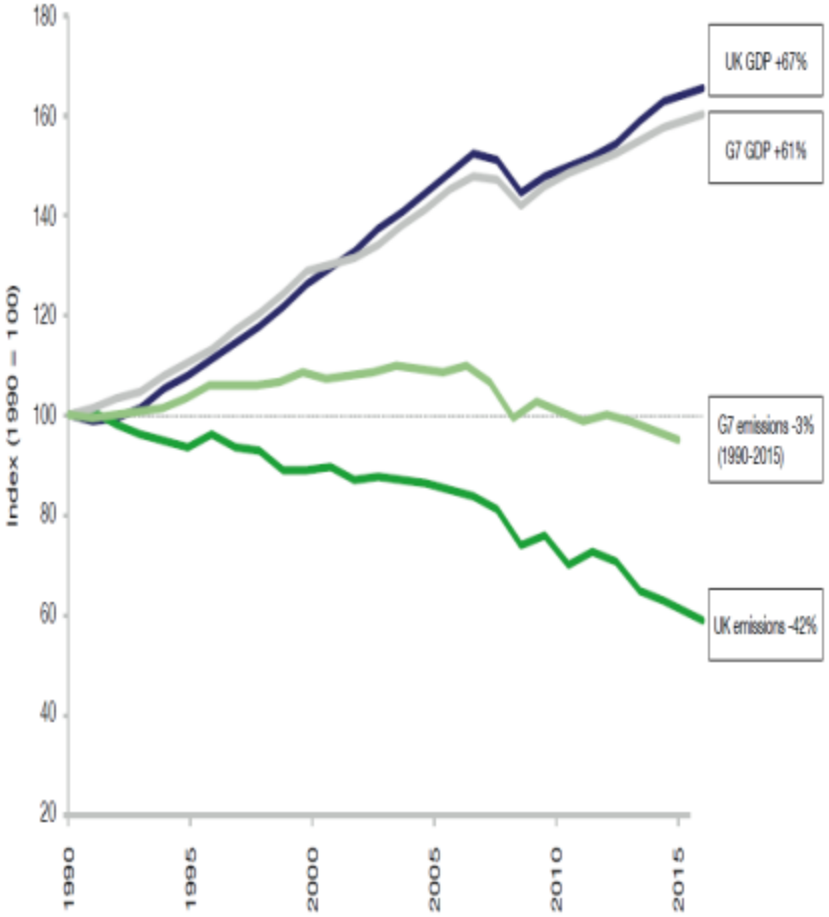
Nuclear Energy Policy Drivers



Clean Growth Strategy: increased economic growth and decreased emissions

UK and G7 economic growth and emissions reductions



Source: UNFCCC; World Bank; BEIS

The Clean Growth Strategy

Leading the way to a low carbon future

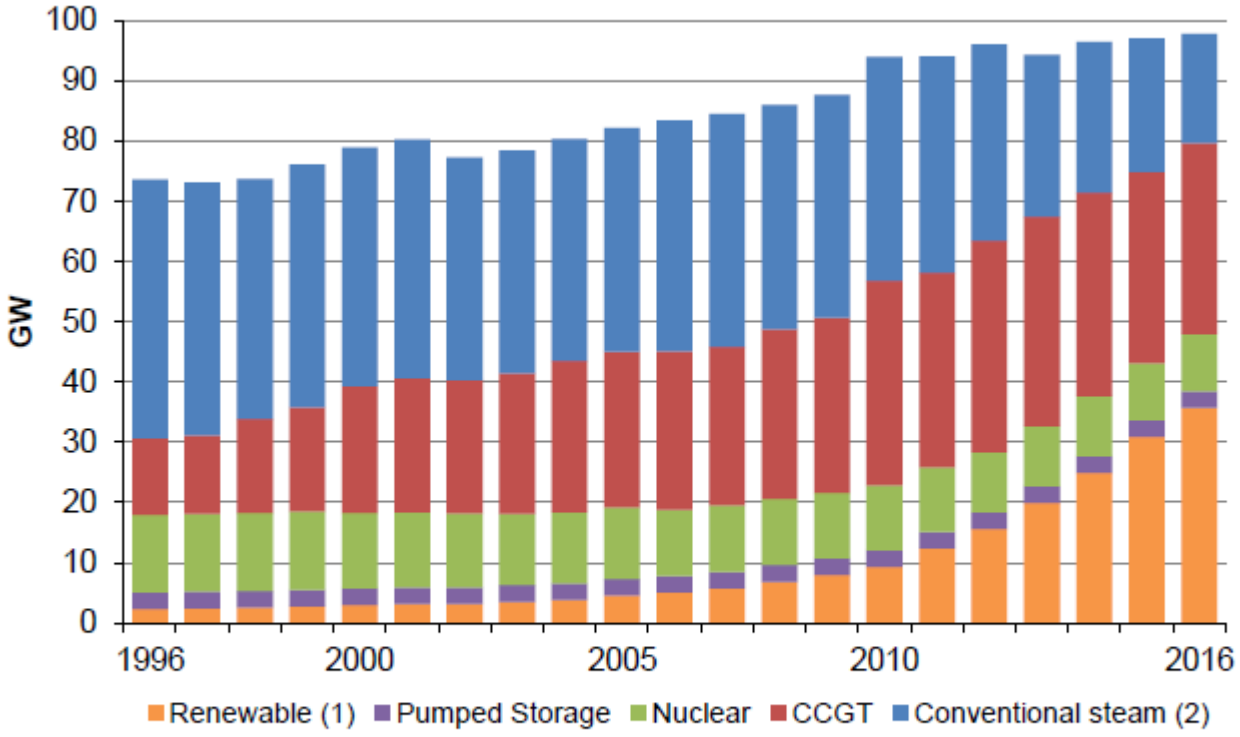
HM Government

Major commitments include:

- Progress discussions with **nuclear** developers to secure a competitive price for future projects
- £557m for further **renewables** subsidies
- £1bn to support the take-up of **ultra low emission vehicles**
- £3.6bn to improve household **energy efficiency**
- £4.5bn on low carbon **heat** technologies in homes and businesses

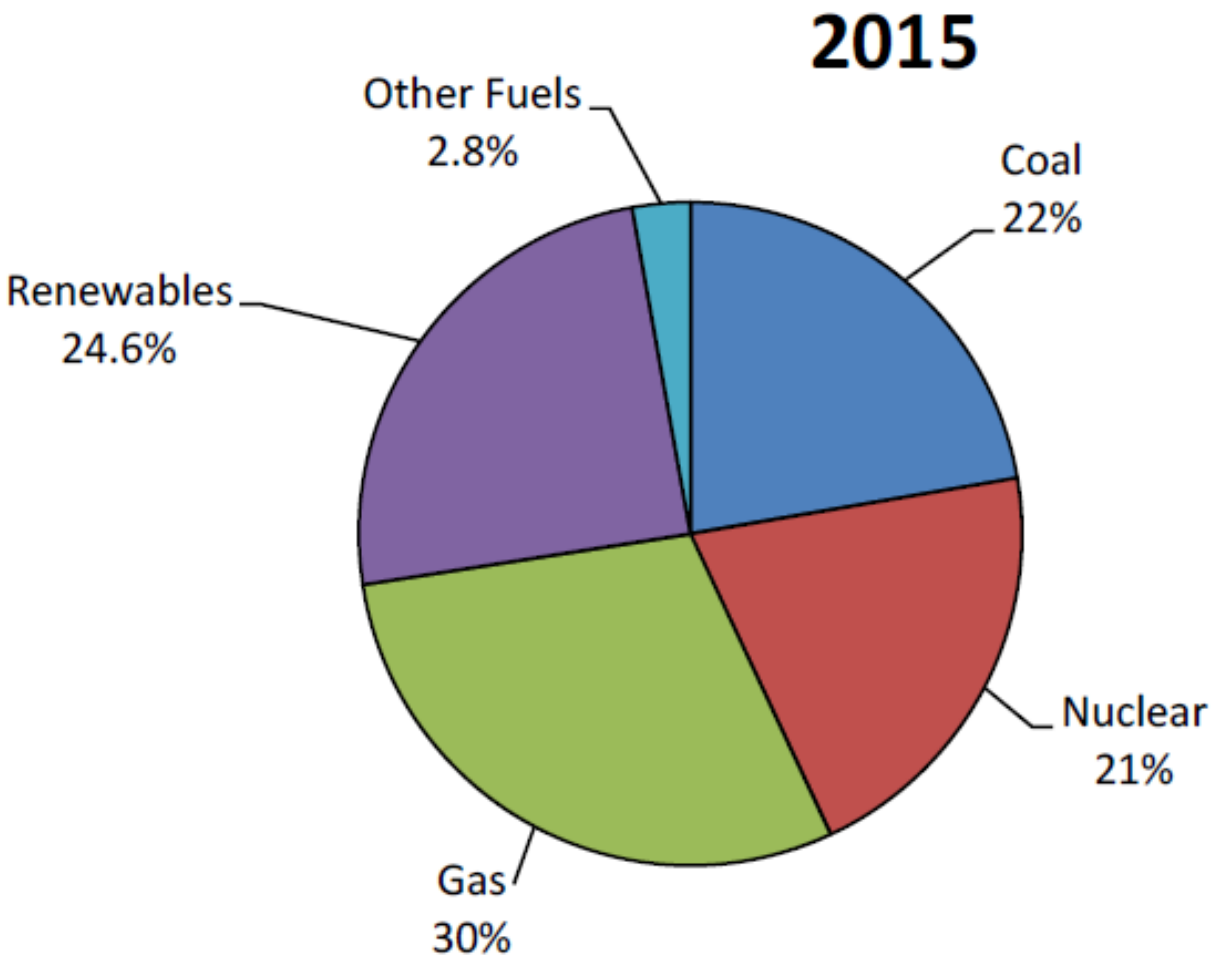
Building our Industrial Strategy

Electricity capacity, 1996 to 2016



(1) Renewable capacity is on an Installed Capacity basis. Data for other fuels/technologies relates to Declared Net Capacity from 1996 to 2005, data for 2006 onwards is transmission entry capacity (TEC)
(2) Includes coal, non-CCGT gas, oil and mixed/dual fired. Does not include thermal renewables.

The UK Electricity Mix

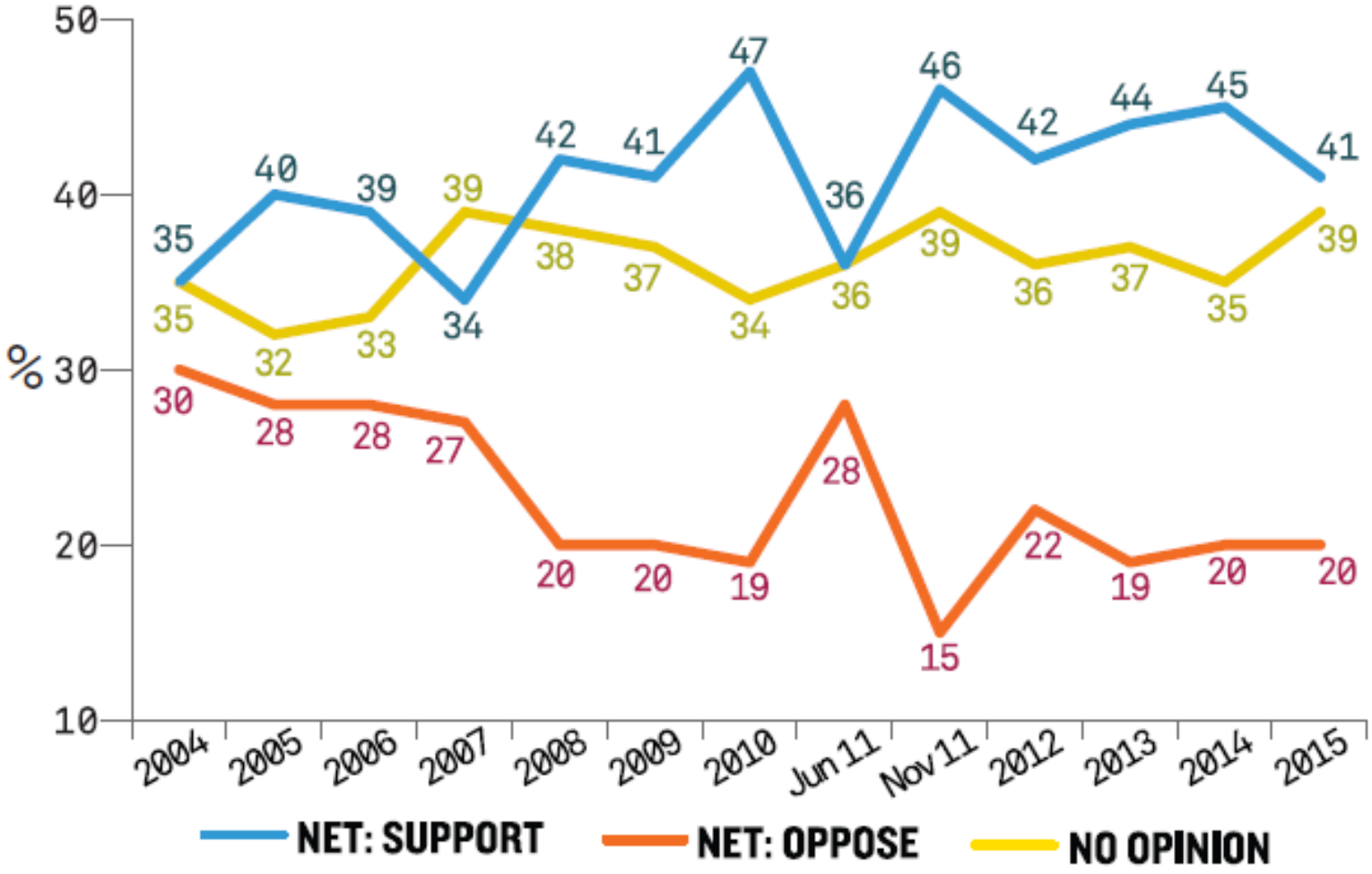


Nuclear Power in the UK – Operating Stations

Advanced Gas-Cooled Power Stations (7)		
Dungeness B	1983	2028
Hartlepool	1983	2024
Heysham 1	1983	2024
Heysham 2	1988	2030
Hinkley Point B	1976	2023
Hunterston B	1976	2023
Torness	1988	2030
Pressurised Water Reactors (1)		
Sizewell B	1995	2035

Estimated decommissioning dates – subject to approval and life extensions

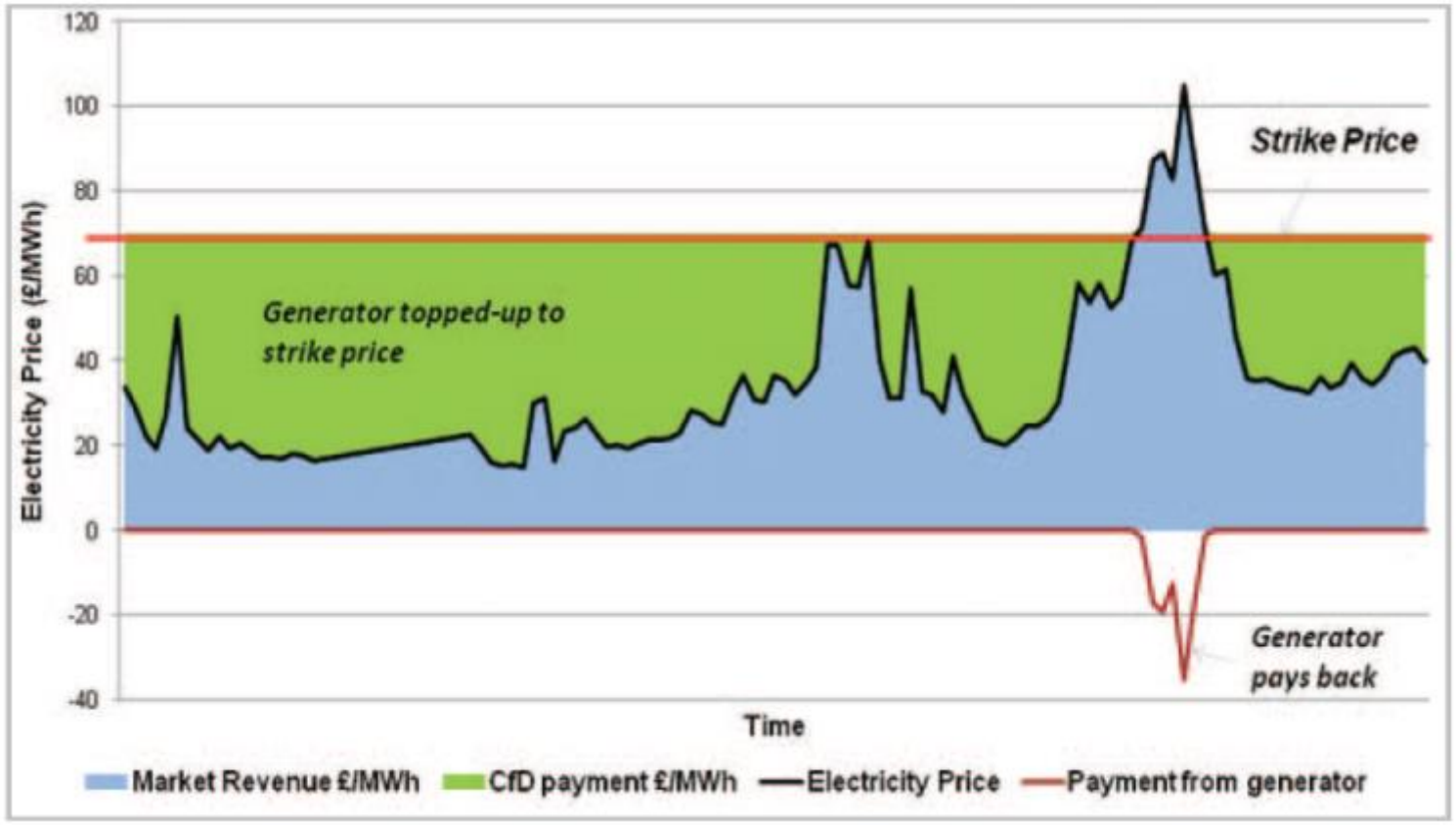
More people in the UK support new build than oppose



New Nuclear

- The UK currently has 8 nuclear power stations across the UK comprising 15 individual reactors (19% of the UK electricity).
- Without new nuclear build, the share of nuclear generation could dip to 3% in 2030.
- Hinkley Point C – 7% of UK's generation needs
- Wylfa/Oldbury
- Moorside
- Sizewell
- Bradwell

Electricity Market Reform (EMR) – Contract for Difference



Small Modular Reactors

- SMRs present an opportunity for the UK supply chain and ***could*** reduce the cost of energy through modularisation and lower financing costs.
- Government have been exploring this potential through the **SMR Competition** and studies such as the **Techno-Economic Assessment**.
- Wide range of technologies, at different levels of maturity and market readiness; suggesting that a **multi-track** approach to SMR policy is needed.
- We are making targeted investments, including **£7m** to develop capability of nuclear regulators to support and assess advanced nuclear technologies.
- Government working with industry to explore role that emerging nuclear technologies could have in UK. **Announcement on next steps for SMRs soon**.

Nuclear Power in the UK – Decommissioning Stations

Magnox Power Stations (11)

Wylfa	1971	2015	(44 years)
Bradwell			(40 years)
Chapelcross			(45 years)
Dungeness A			(41 years)
Hunterston A			(25 years)
Hinkley Point A			(35 years)
Calder Hall			(47 years)
Trawsfynndd			(26 years)
Berkeley			(27 years)
Oldbury	1967	2012	(45 years)
Sizewell A	1966	2006	(40 years)

NDA Estate

Dounreay Site Restoration Ltd

Sellafield Ltd

Magnox

Research Sites Restoration Ltd

Springfields Fuels Ltd

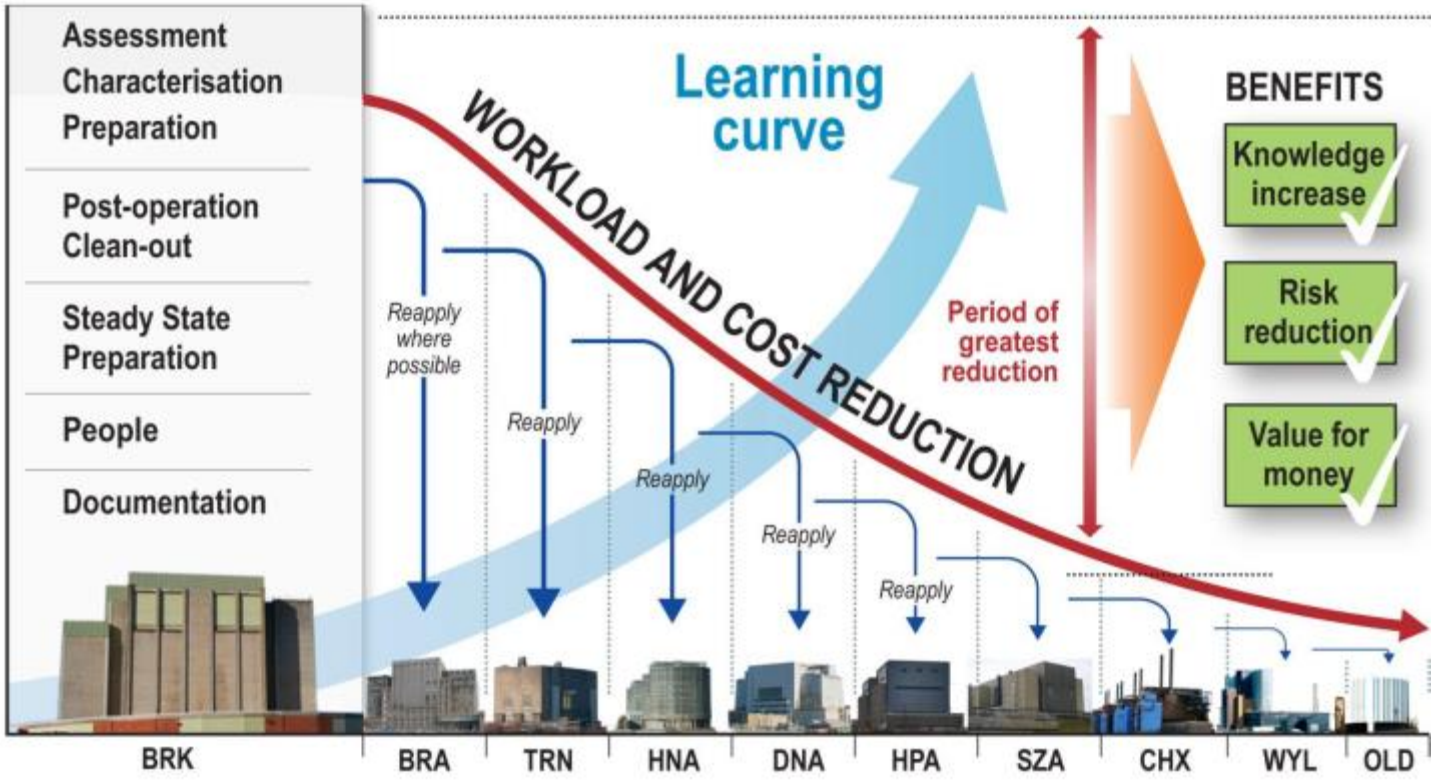
LLWR Ltd

CNS
CAPENHURST NUCLEAR SERVICES

UK Decommissioning Experience: Demonstrable Progress

Sometimes a ‘Skyline Change’ is necessary to demonstrate progress.

UK Programme Approach to Decommissioning of a Reactor Fleet



- Appropriate project management arrangements
  - Decommissioning project management isn't the same as construction project management

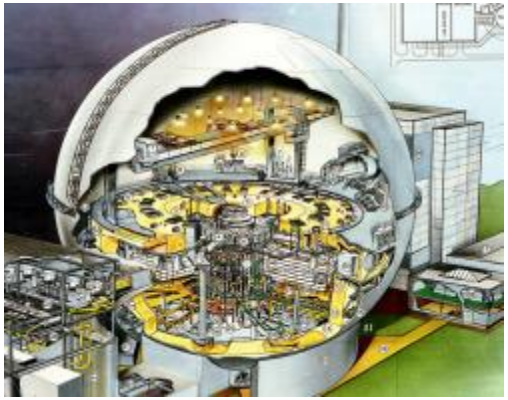
- Appropriate Waste Management
  - A lot of the cost is in waste management

Reducing Decommissioning Costs

- **Appropriate project management arrangements**
  - Decommissioning project management isn't the same as construction project management

- **Appropriate Waste Management**
  - A lot of the cost is in waste management

Dounreay



The Importance of Nuclear Communities

Scrabster Harbour

The National Nuclear Archive

UK-Japan Collaboration on Decommissioning

Cricket in Fukushima Prefecture

Summary

- Nuclear Energy is very much part of the future policy for the UK
- Decommissioning, Operations and New Build are all part of the future of the industry
- The challenges of decommissioning are not just technical, and tackling them successfully can significantly reduce the costs
- The UK has 8 proposed sites for new nuclear build, with proposals for build on 5 of them