



The UK Nuclear Industry Experience

Chris Savage

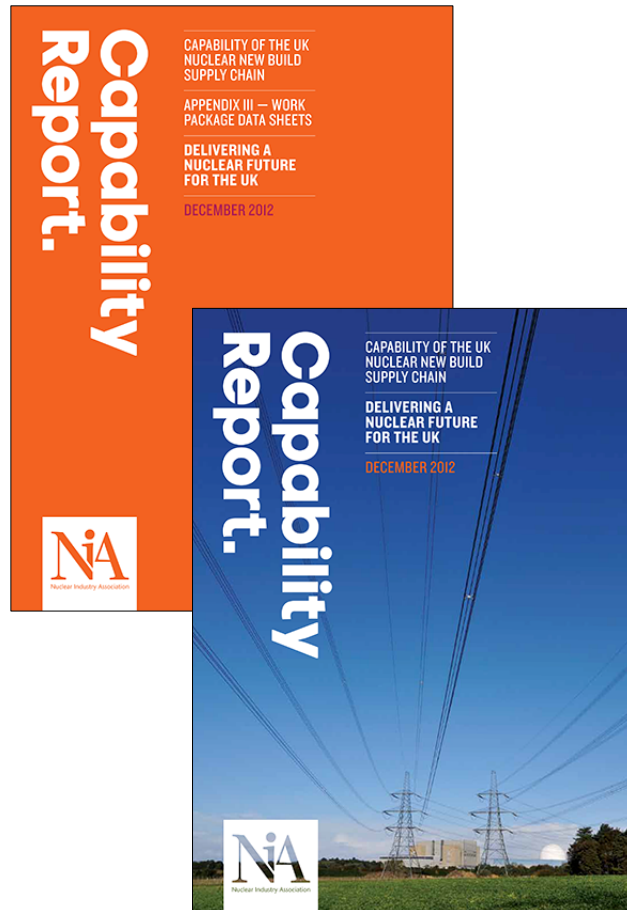
Nuclear Industry Association

April 2013



NIA – UK Capability Report

Published December 2012



VISIT
[NIAUK.ORG/
UK-CAPABILITY](http://NIAUK.ORG/UK-CAPABILITY)



Industry Capabilities: Plant and Equipment Manufacture and Installation 1

Reactor Pressure Vessel					
RPV Internals					
Reactor Integrated Head Package					
Steam Generator					
Pressuriser					
Control Rods Drive Mechanism (CRDM)					
Reactor Containment Liner/Vessel					
Primary Circuit Auxiliaries					
Tanks, Vessels, Heat Exchangers*					
Reactor Coolant Loop Pumps					
Pumps & Valves					
Mechanical Equipment Modules					
Reactor Polar Crane					
Cranes (Excluding Polar)					
Primary Loop Pipework					
Safety Related Pipework					
* May be less capacity for safety related tanks etc	Major Companies	Support Companies	Skills	Experience	Facilities



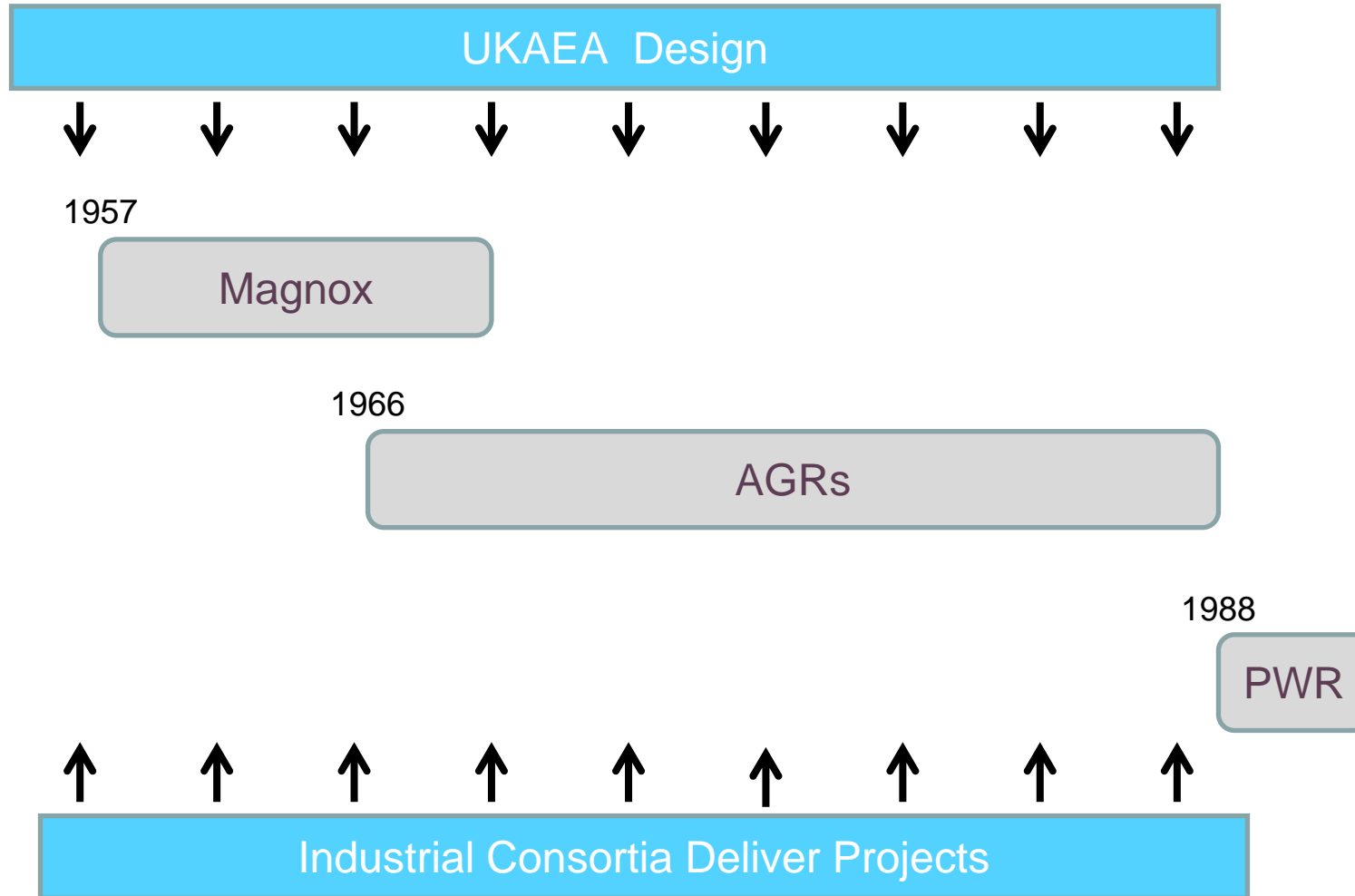
Industry Capabilities: Plant and Equipment Manufacture and Installation 2

Non-Safety Related Pipework					
Safety Related EC&I					
Non-safety Related EC&I					
HVAC					
Nuclear Island Installation					
Turbine/Generators					
Emergency Diesels					
Transmission & Distribution					
Radwaste Plant					
Water Treatment Package					
General Site Electrics					
Security Equipment					
Forgings (Excluding Ultra-large)					
Mechanical Installation					
Electrical Installation					
	Major Companies	Support Companies	Skills	Experience	Facilities

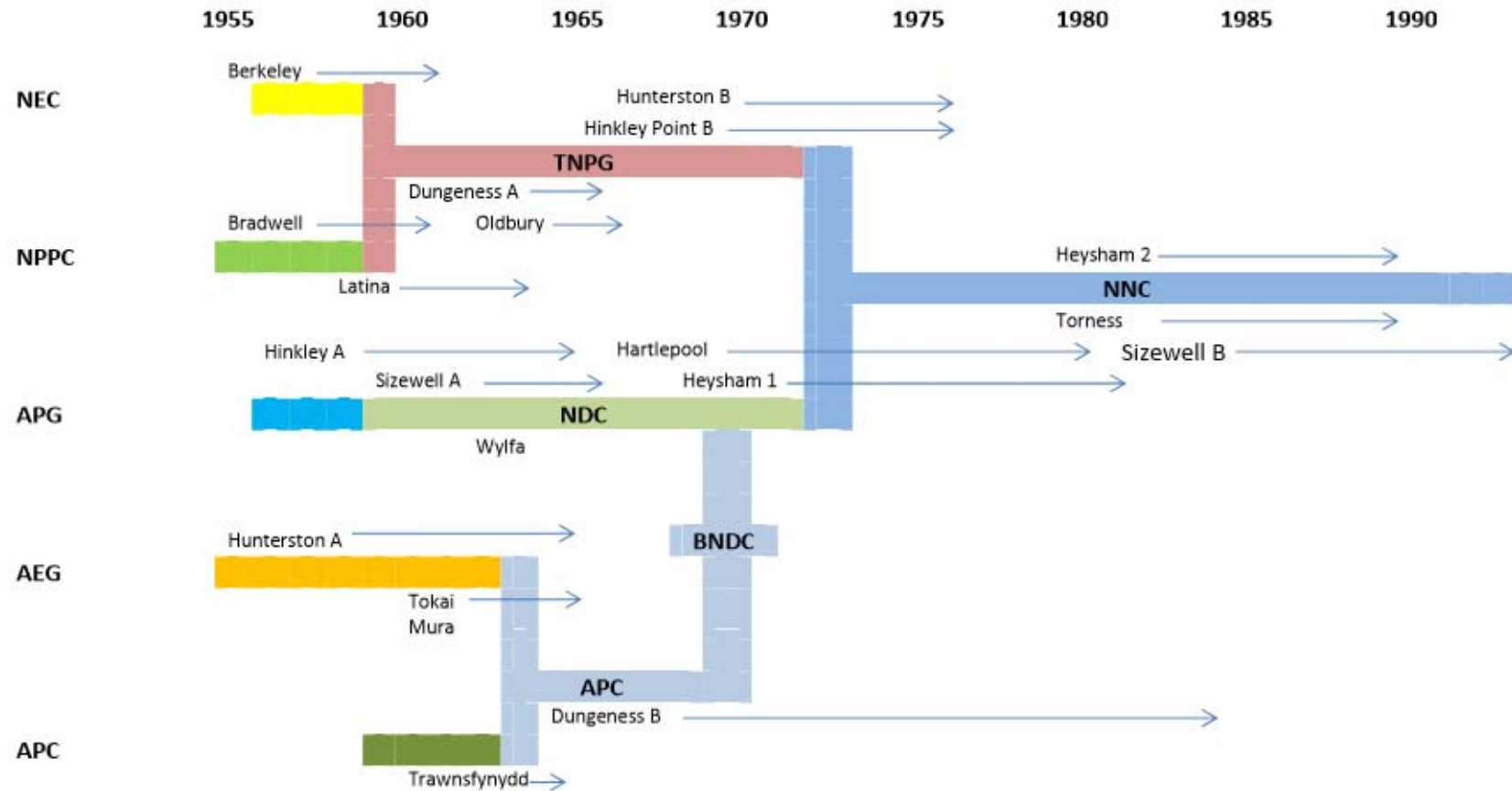
Industry Capabilities: Programme Management and Technical Support Services

Programme Management	Major Companies	Support Companies	Skills	Experience
Project Management Services	Major Companies	Support Companies	Skills	Experience
Architect Engineer	Major Companies	Support Companies	Skills	Experience
Safety & Site Licensing	Major Companies	Support Companies	Skills	Experience
Consents & Planning	Major Companies	Support Companies	Skills	Experience
Technical Support	Major Companies	Support Companies	Skills	Experience
Commercial Support	Major Companies	Support Companies	Skills	Experience

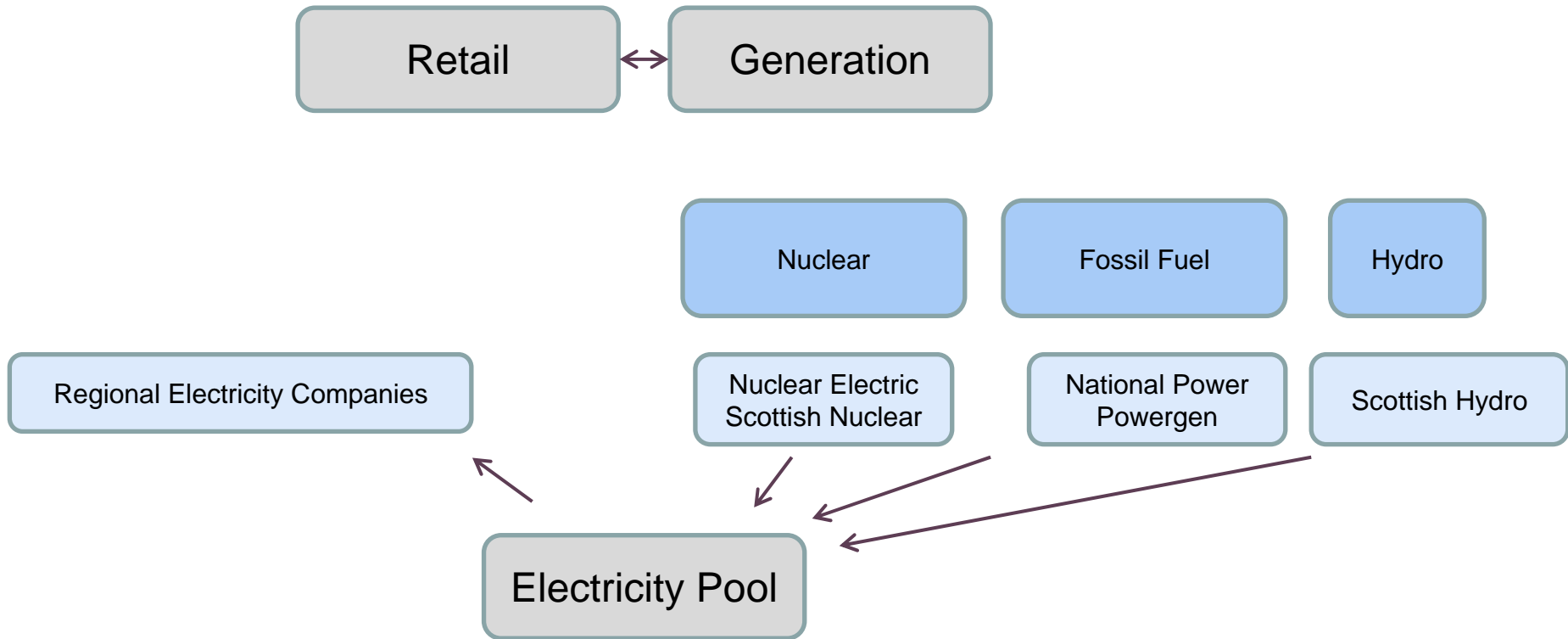
Development of UK Nuclear



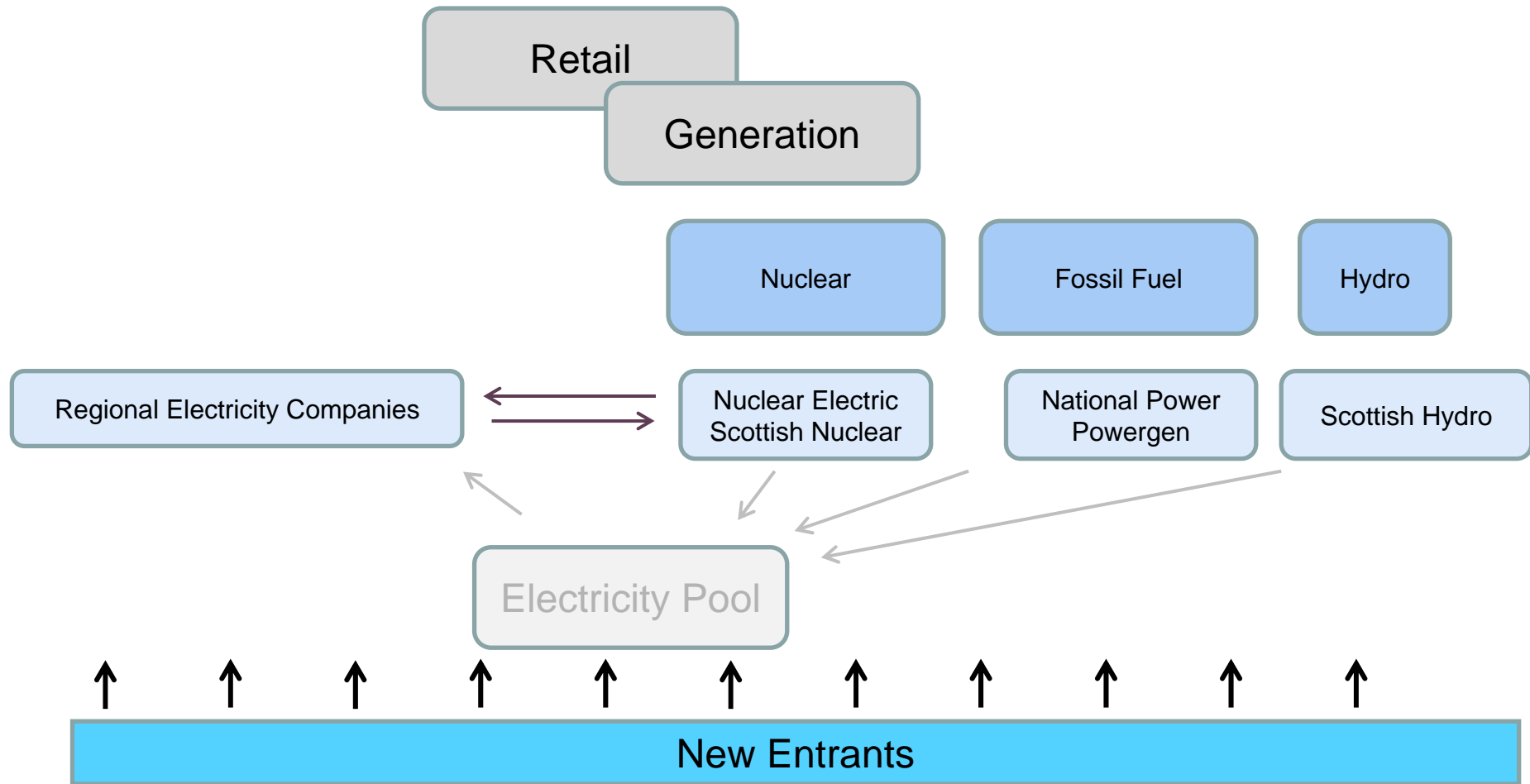
Industrial Consortia and Projects



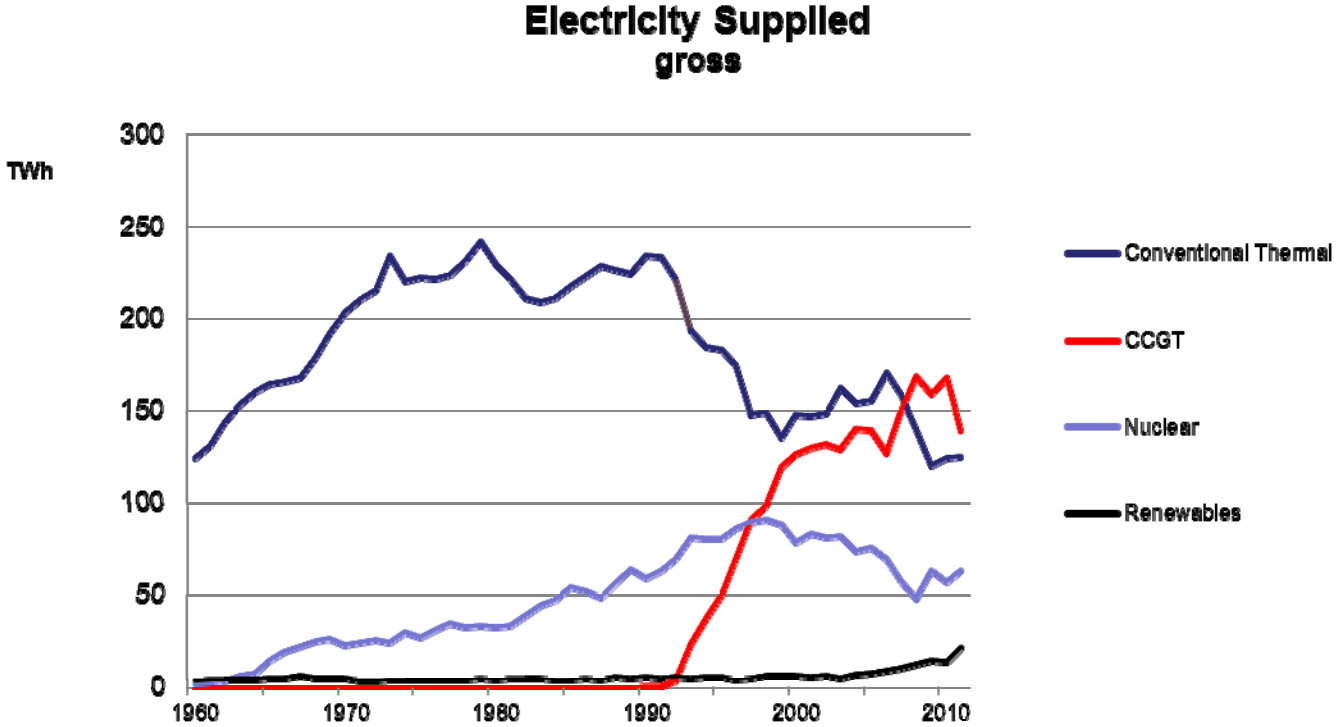
Privatisation of Electricity



Privatisation of Electricity



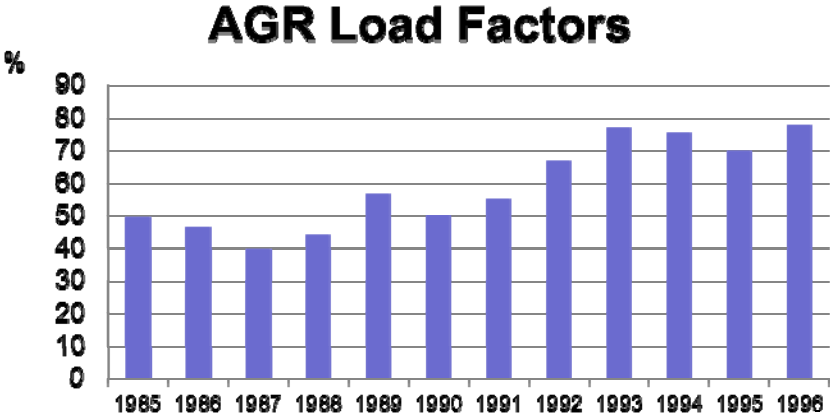
The Dash for Gas



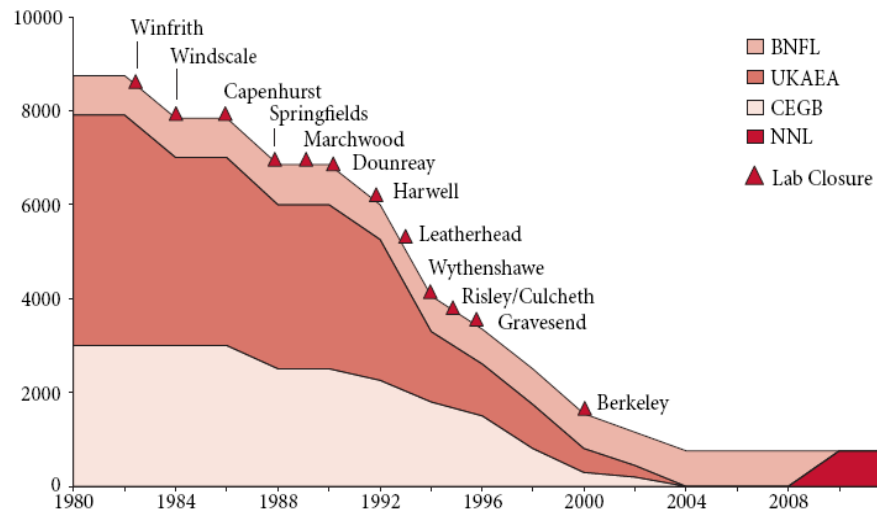
The Road to Privatisation of Nuclear

Productivity in the run up to Privatisation					
	1992	1993	1994	1995	1996
Operating costs, p/KWh	3.3	2.8	2.5	2.4	2.5
Output per employee, GWh	5.0	6.3	7.3	8.0	9.4

Source: British Energy Prospectus 1996



Abandonment of PWR Programme



British Energy in the Private Sector

- Diversification
 - *Retail supply*
 - *Coal fired generation*
 - *Overseas*
- Financial crisis and rescue



British Energy performance					
	1999/2000	2000/1	2001/2	2002/3	2003/4
Operating profit/loss	£430m	£230m	-£281m	-£3,899m	£340m
Electricity price (pence per kWh)	2.6p	2.3p	2.0p	1.8p	1.7p

- Acquired by EdF 2009

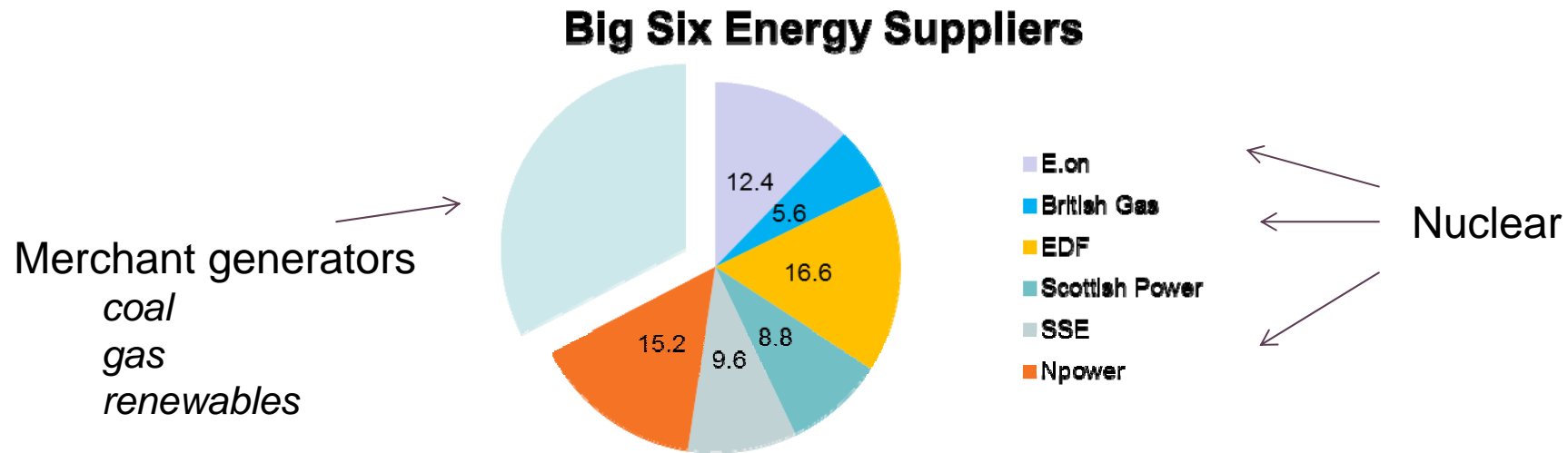


Growth & Restructuring of BNFL

- Fuel reprocessing & manufacture
- Generation
- Decommissioning
- 2003 review
 - *Decommissioning transferred to NDA 2005*
 - *Westinghouse sold to Toshiba 2006*
 - *Transfer of shares in Urenco 2008*



Electricity Market Structure Today



Decommissioning – A Success Story

- Liabilities Management Fund 2001
- Nuclear Decommissioning Authority 2005
 - *Magnox sites*
 - *UKAEA sites*
 - *BNFL fuel facilities*
- Sites managed by contractors through Site Licence Companies



Nuclear New Build Programme



EDF Energy UK

2 x 1600 MW EPRs for Hinkley
2 x 1600 MW EPRs for Sizewell
4 operating by 2025

Horizon Nuclear Power Ltd

Hitachi owned
6000 MW operating by 2025
at Wylfa and Oldbury
ABWR technology

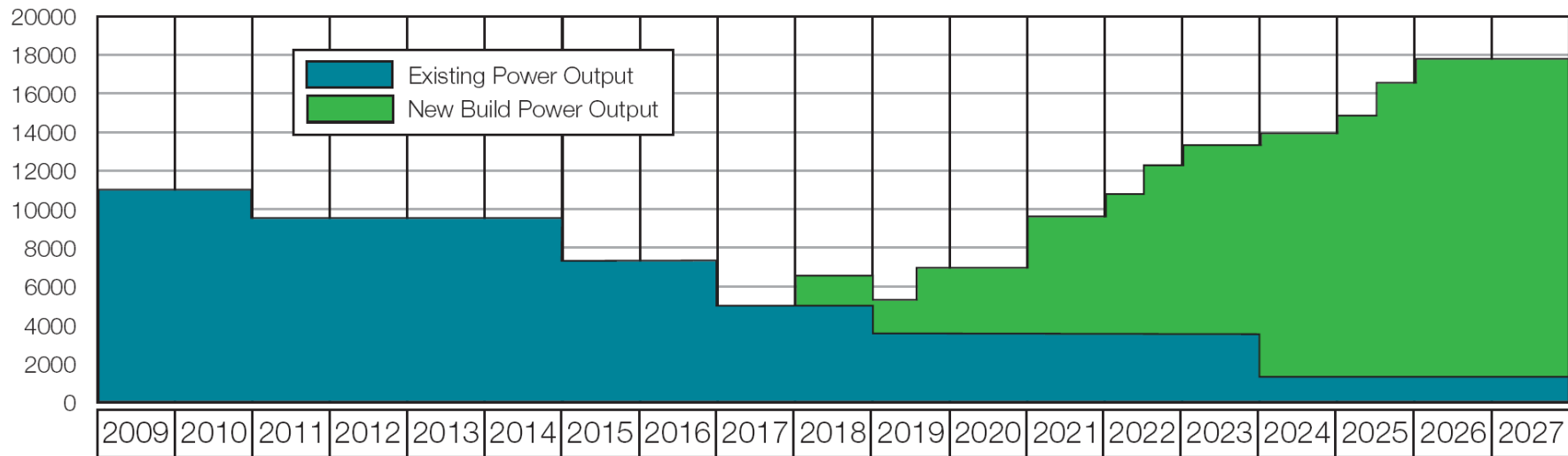


NuGeneration Ltd

(Iberdrola/GDF Suez Joint Venture)
Up to 3600MW operating by 2023 at Moorside
Technology to be decided

Nuclear Generation Capacity Profile

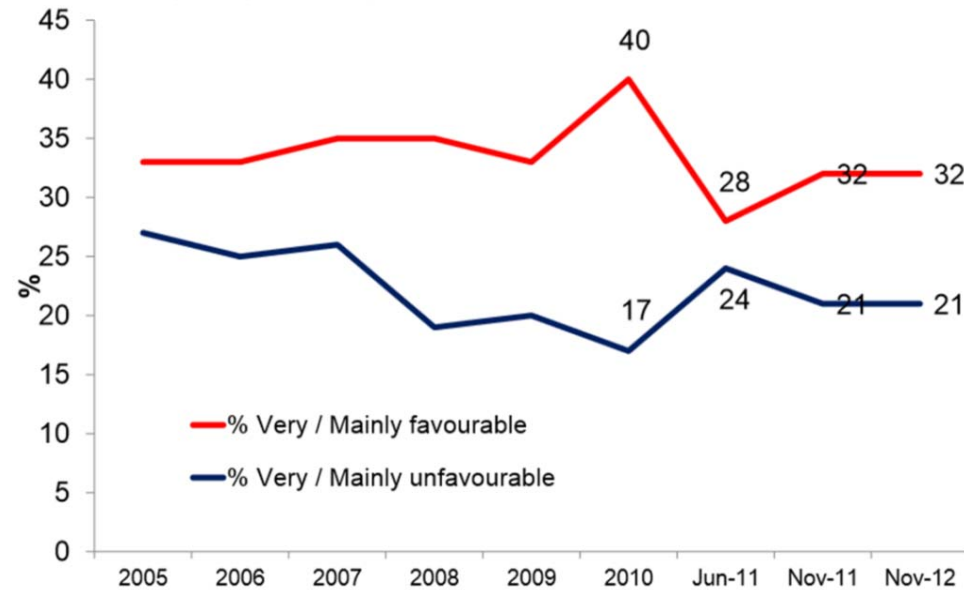
Power Output Forecast (12 units)



Political Support for Nuclear

- Cross-party political support
- Support from Business and Unions

How favourable or unfavourable is your opinion or impression of the nuclear energy industry? (% Very / Mainly favourable; % Very / Mainly unfavourable)



Conclusions

- ❑ The abandonment of the UK PWR programme was the consequence of privatisation and market conditions at that time.
- ❑ It is important to maintain cross-party and stakeholder support for nuclear power.
- ❑ The UK has built up a successful decommissioning programme and an experienced supply chain to deliver it.
- ❑ In the UK new build market UK companies are open to partnership opportunities with Japanese companies.



Nuclear Industry Association

NIAUK.ORG

NUCLEARSUPPLYCHAIN.COM