

Leadership in the **nuclear** industry

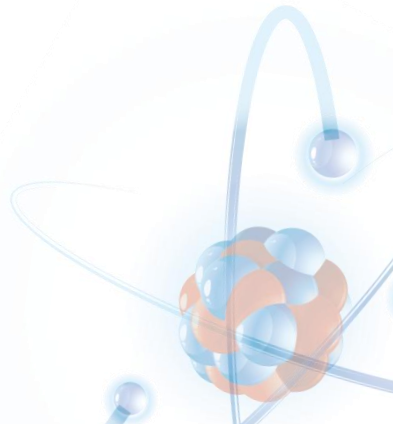
How the past has shaped us and the future challenges

28th February 2013

Plan Design Enable

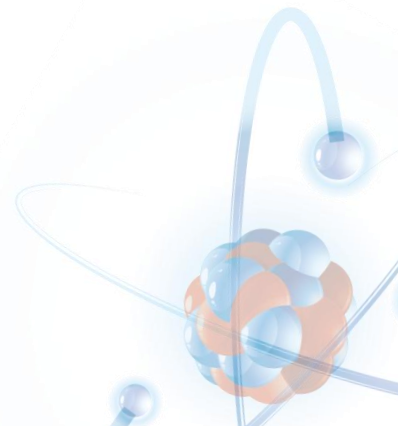
Andrew McFarlane

Technical Director, Nuclear
Atkins



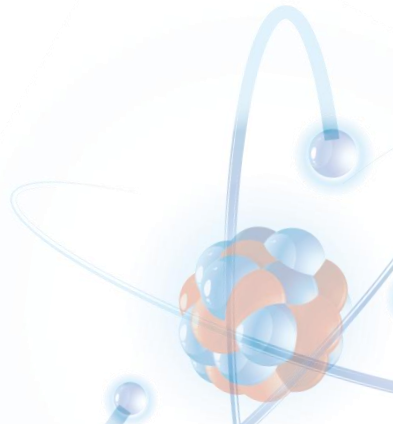
Objective

To provide an industry and practical perspective of some of the historical issues which have shaped the nuclear industry we have today and their implications for the future and for your role as future industry leaders



What are we talking about

1. The UK industry: Key events that have shaped us
2. Being shaped by the past: The effect
3. The future: The renaissance
4. Natural selection & survival of the fittest



Part 1

The UK industry:

Key events that have shaped us

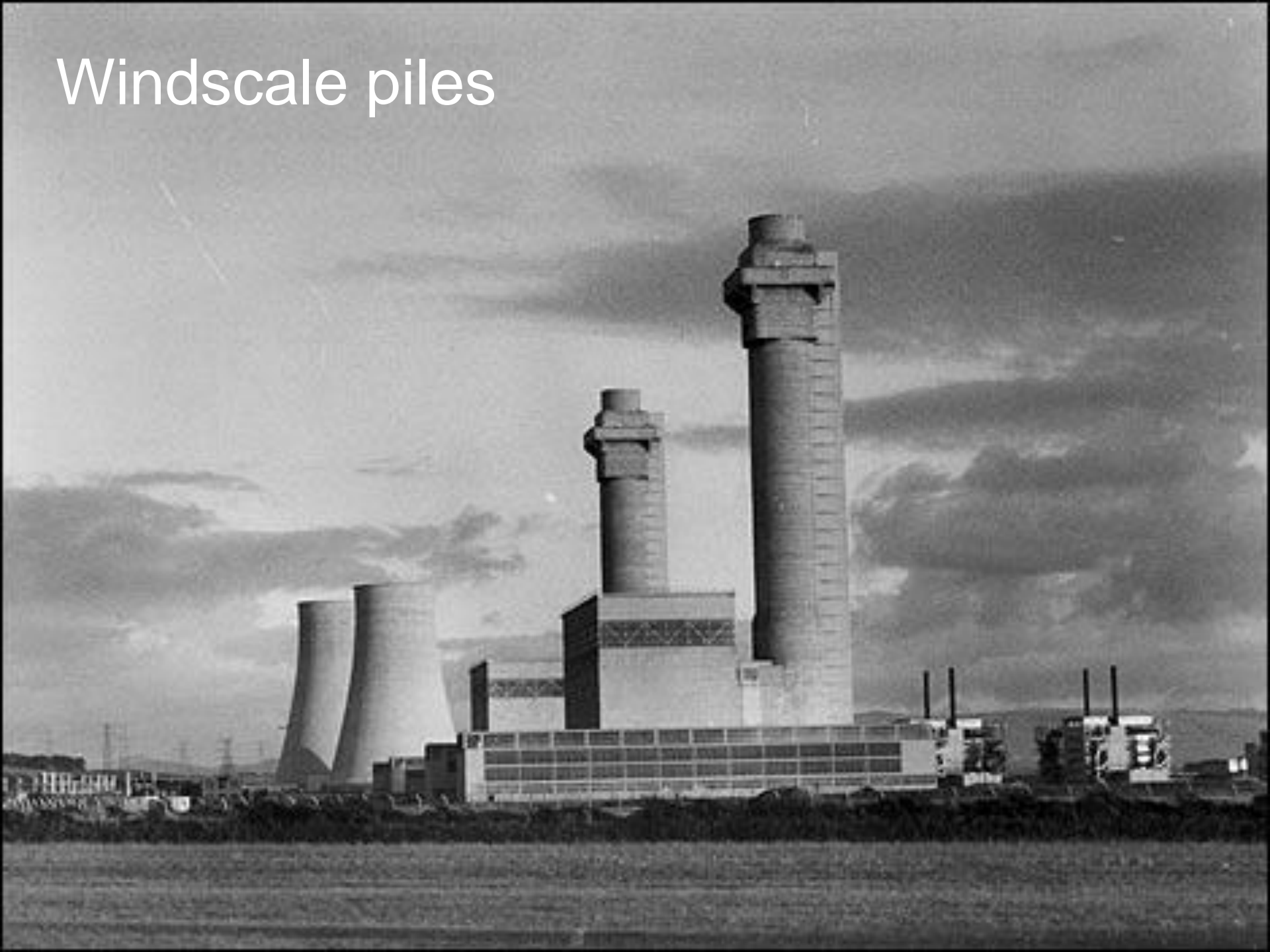


ENOLA
GAY

82

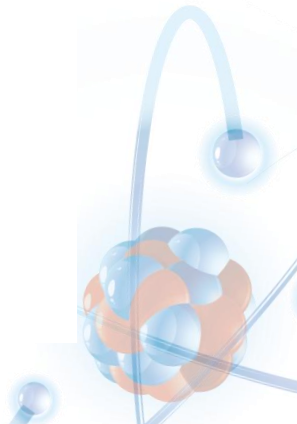
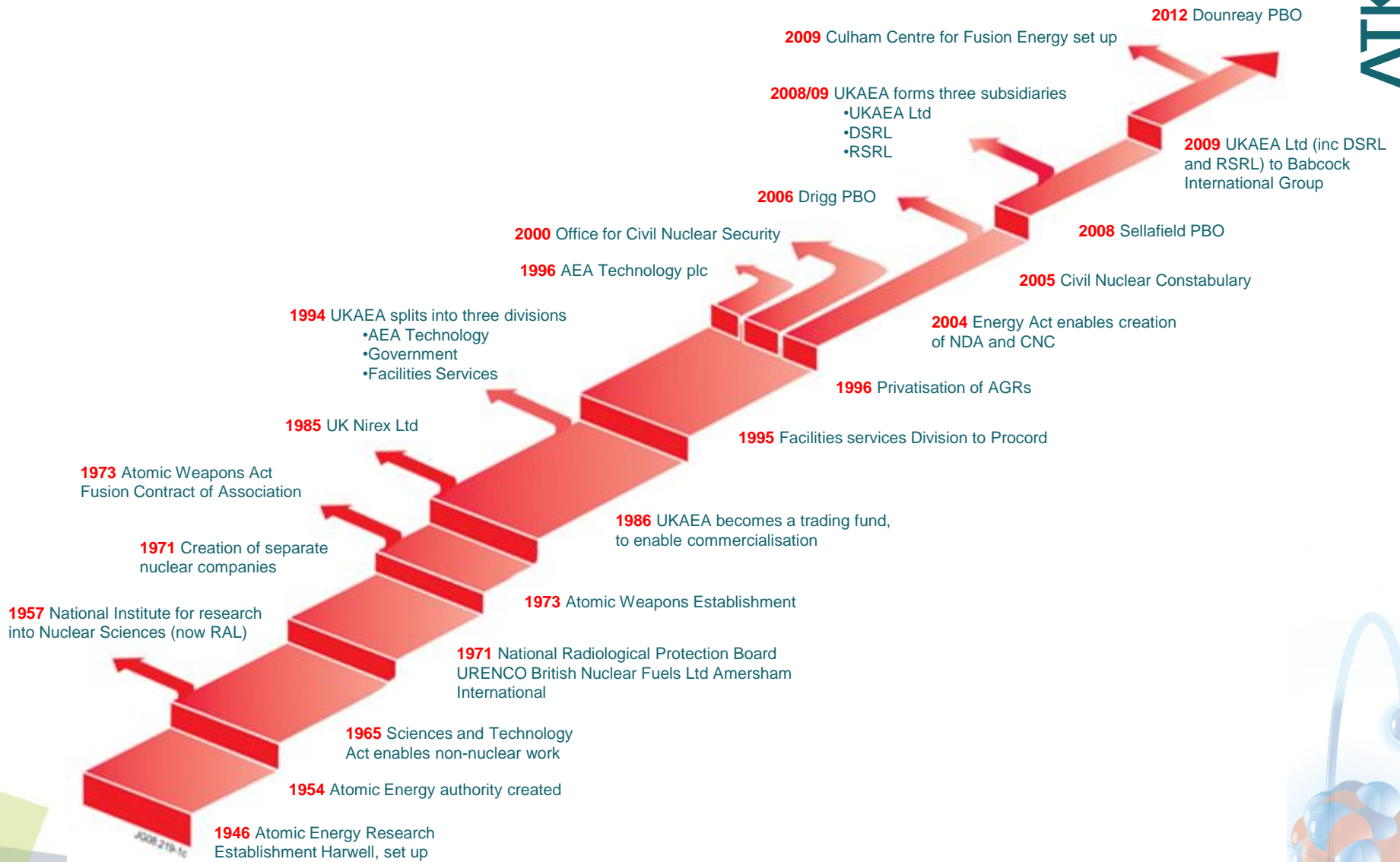
W-32

Windscale piles



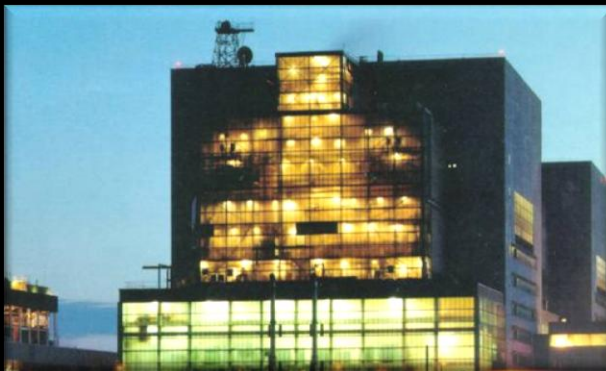
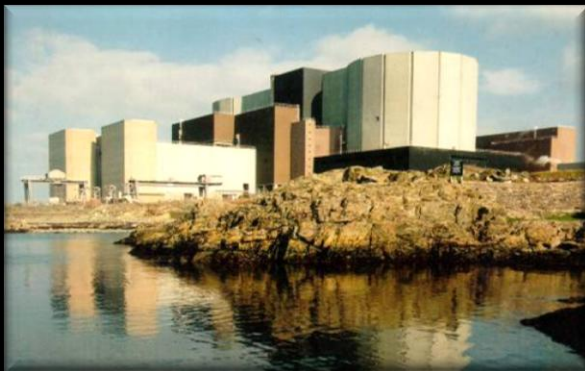
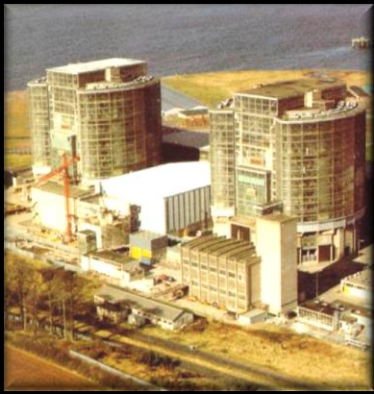


History of the UK industry





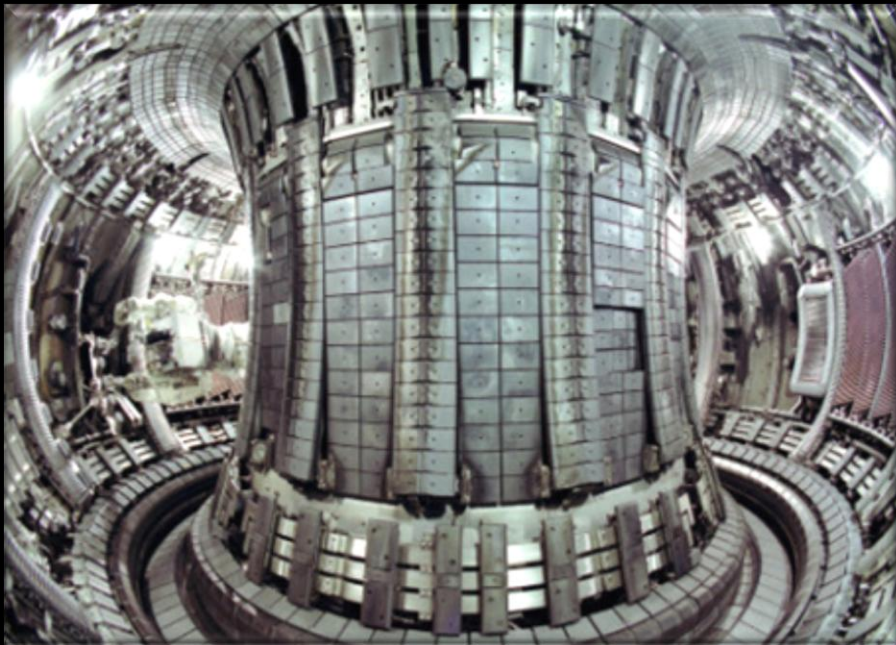
The Magnox programme



The AGR programme

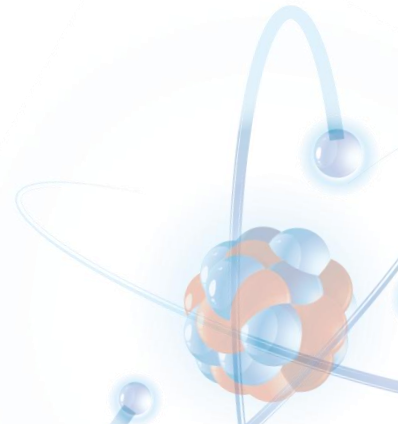


Other programmes



What did it all mean?

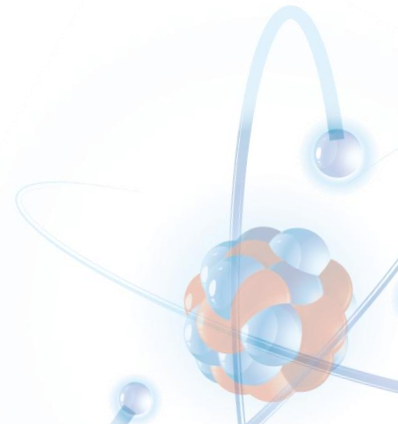
- **The UK had established a role as a leading nuclear nation**
- **Significant skills, knowledge and established supply chain**
- **Technical work was respected and revered around the world**
- **Ability to compete at the highest level**



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BUT, THERE WERE ALSO A FEW ISSUES...





TOP SECRET

**SOUTH WEST AGAINST NUCLEAR
AND BRISTOL AGAINST THE ARMS TRADE
PRESENT**

A DOCUMENTARY FILM

WINDSCALE
Britain's Biggest
Nuclear Disaster

Wed
27 JULY

7pm

The Smiling Chair

40 Stokes Croft

Three mile island

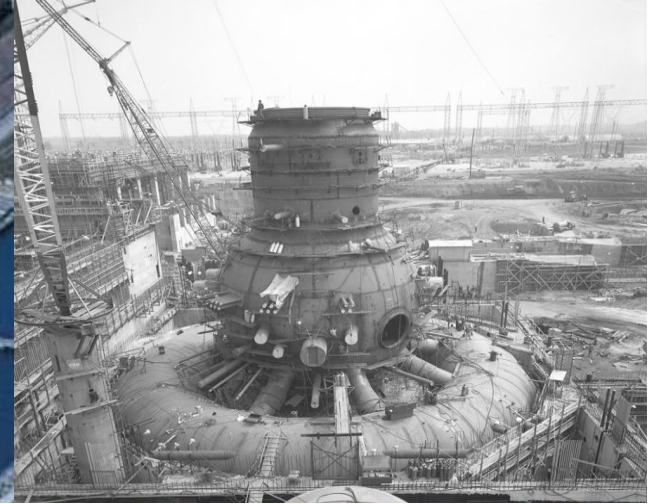
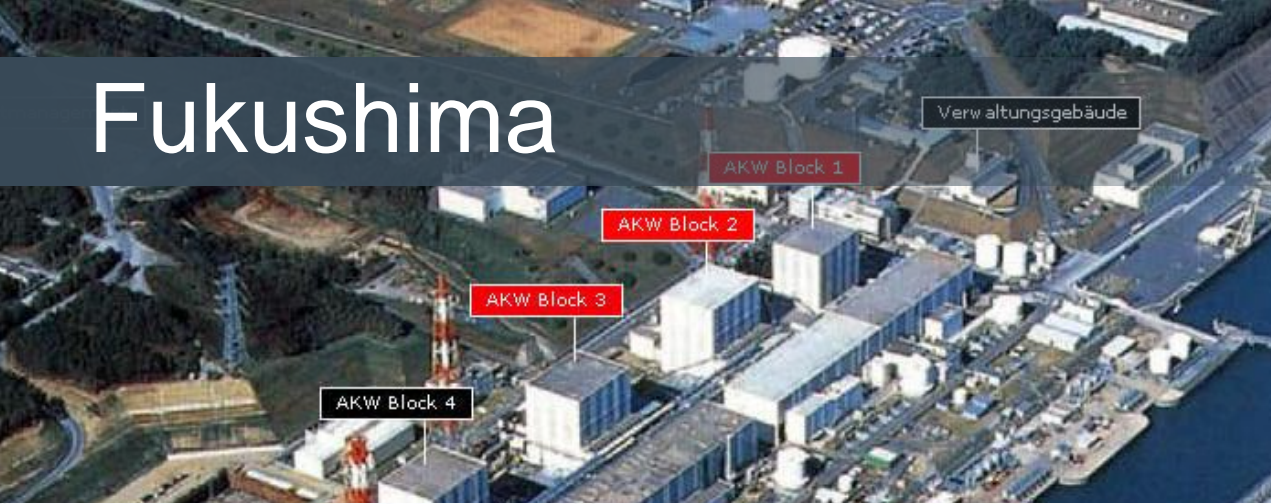


Chernobyl

Chernobyl

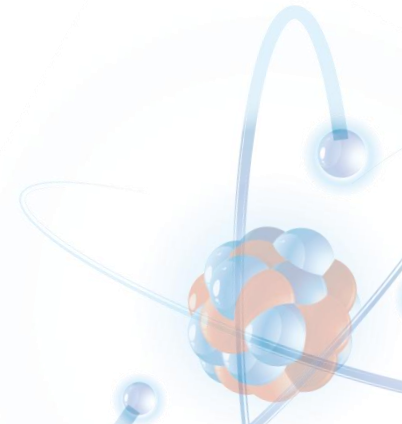


Fukushima



Key issues in late '90s

- 1998 Dounreay incident – first ever DIRECTION, effectively closing site.
- Sellafield MOX incident
- Perception of loss of controlling mind / intelligent customer / corporate memory & (in)ability to operate in accordance with site licence.
- Focus on power operation and reprocessing services through to a 180° switch to decommissioning.
- Requirement for long term strategies for wastes, uranium and plutonium.
- Break up of key industry players



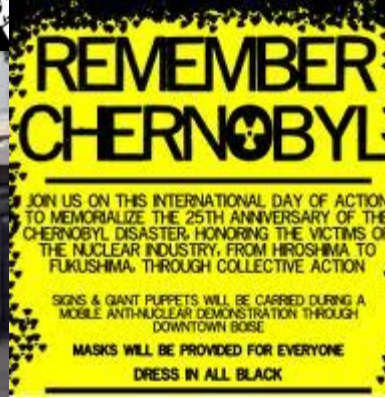
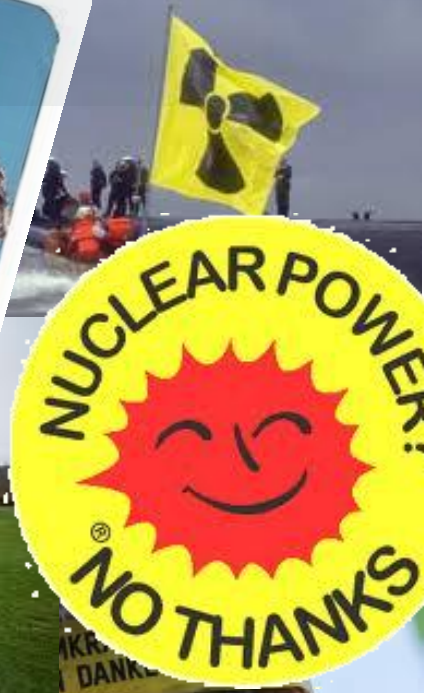
Part 2

Being shaped by the past:

The effect



Years of public opinion

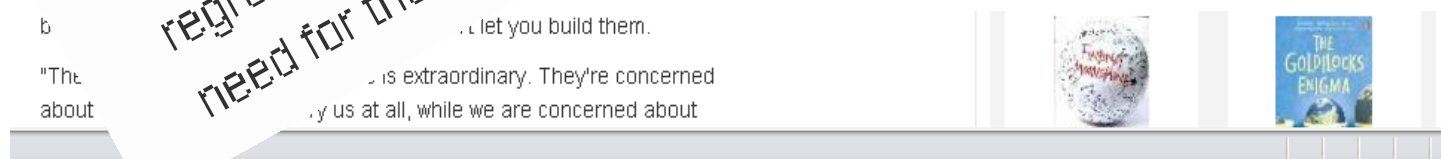
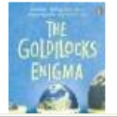


Together with his counterparts in the nuclear industry, he was caught up in the culture of secrecy which had led to a drastic lack of confidence in what he had done in the nuclear industries, halting nuclear reprocessing in the UK. He demonstrated in his report the need for the industry to be reprocessed after a lengthy inquiry. In 1976 the industry was rocked by the report on nuclear power for the Royal Commission on Environmental Pollution. Chaired by Sir Brian (later Lord) Flowers, a distinguished nuclear physicist, it warned that the dangers in building nuclear power stations had not been properly disclosed and the problems of disposing of spent nuclear fuel unresolved. Hill called it "a bad and silly report" and he regretted not refuting it more strongly. But it helped convince him of the need for the industry to explain itself.

"The industry is extraordinary. They're concerned about us at all, while we are concerned about them," he said.

"Let you build them."

"The industry is extraordinary. They're concerned about us at all, while we are concerned about them."



Industry behaviours

Distorting behaviours

The nuclear industry

Extroversion

Introversion

Entrepreneurial spirit

Conservatism &
bureaucracy

Radical approaches

Political sensitivity

Open to new ideas

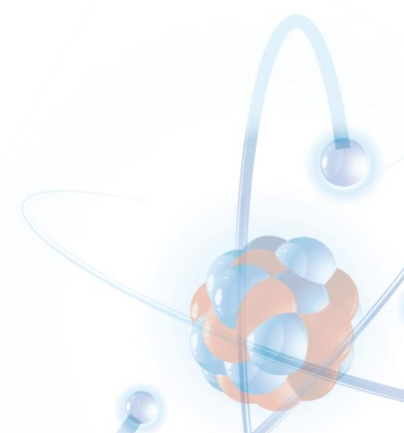
Technically excellent, but ‘
not invented here’

Trusted

Mutual exclusivity & ‘seen it
all before’

Strong influx of skills

Ageing demographics



THE TIMES

Skills shortage threatens Britain's nuclear drive

22nd July 2008

Ministers pore over incentives to save growth of green energy

27th March 2009

Skills crisis looming in UK nuclear industry

5th November 2007

Utilities fear for future as engineers head into retirement

10th April 2007

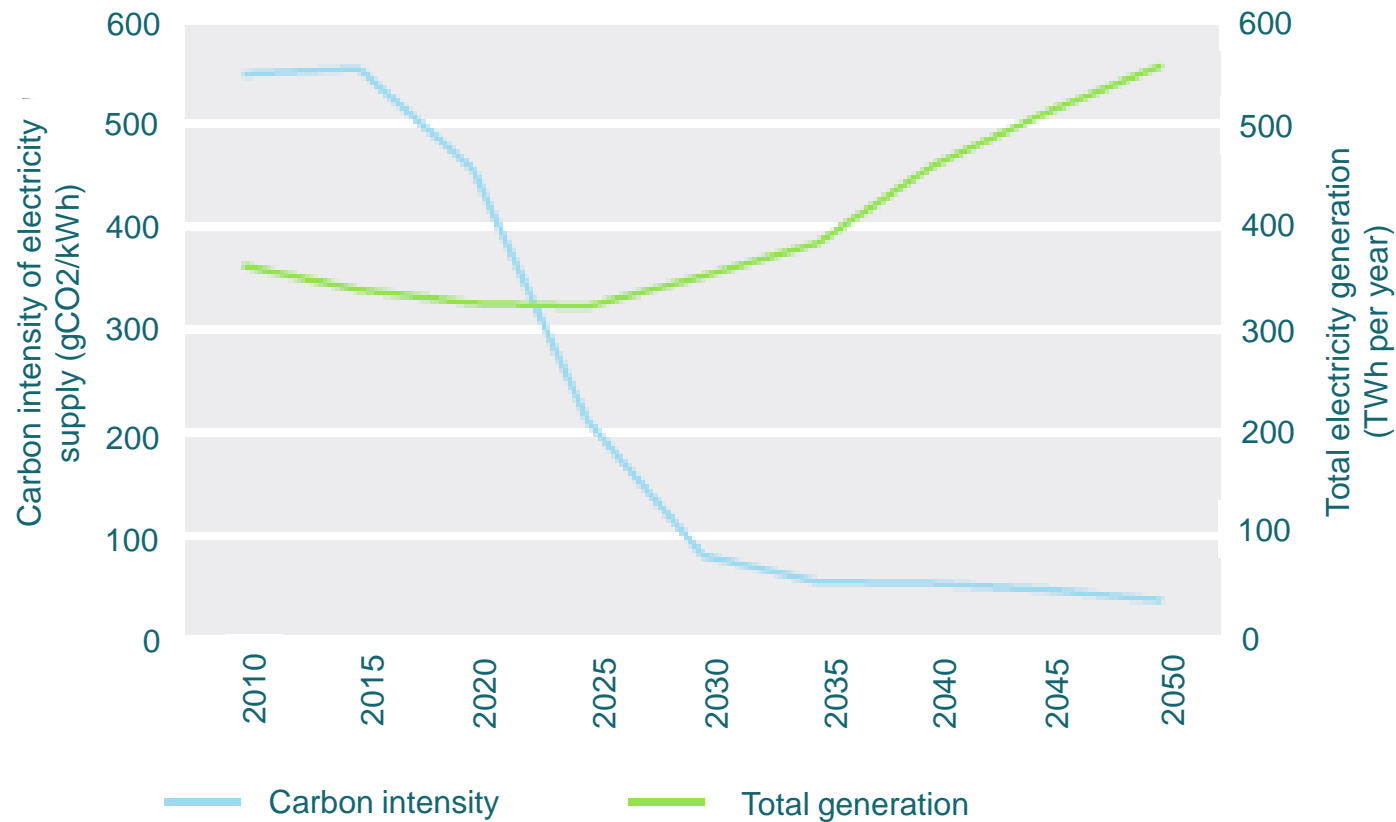
Part 3

The future:

The renaissance

Tomorrow's world (UK)

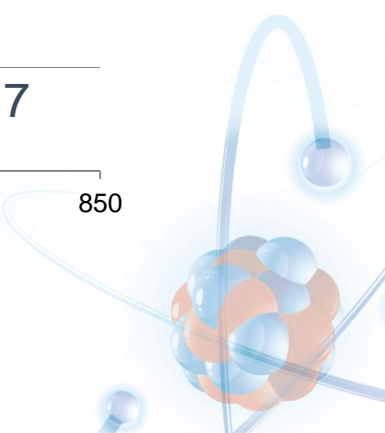
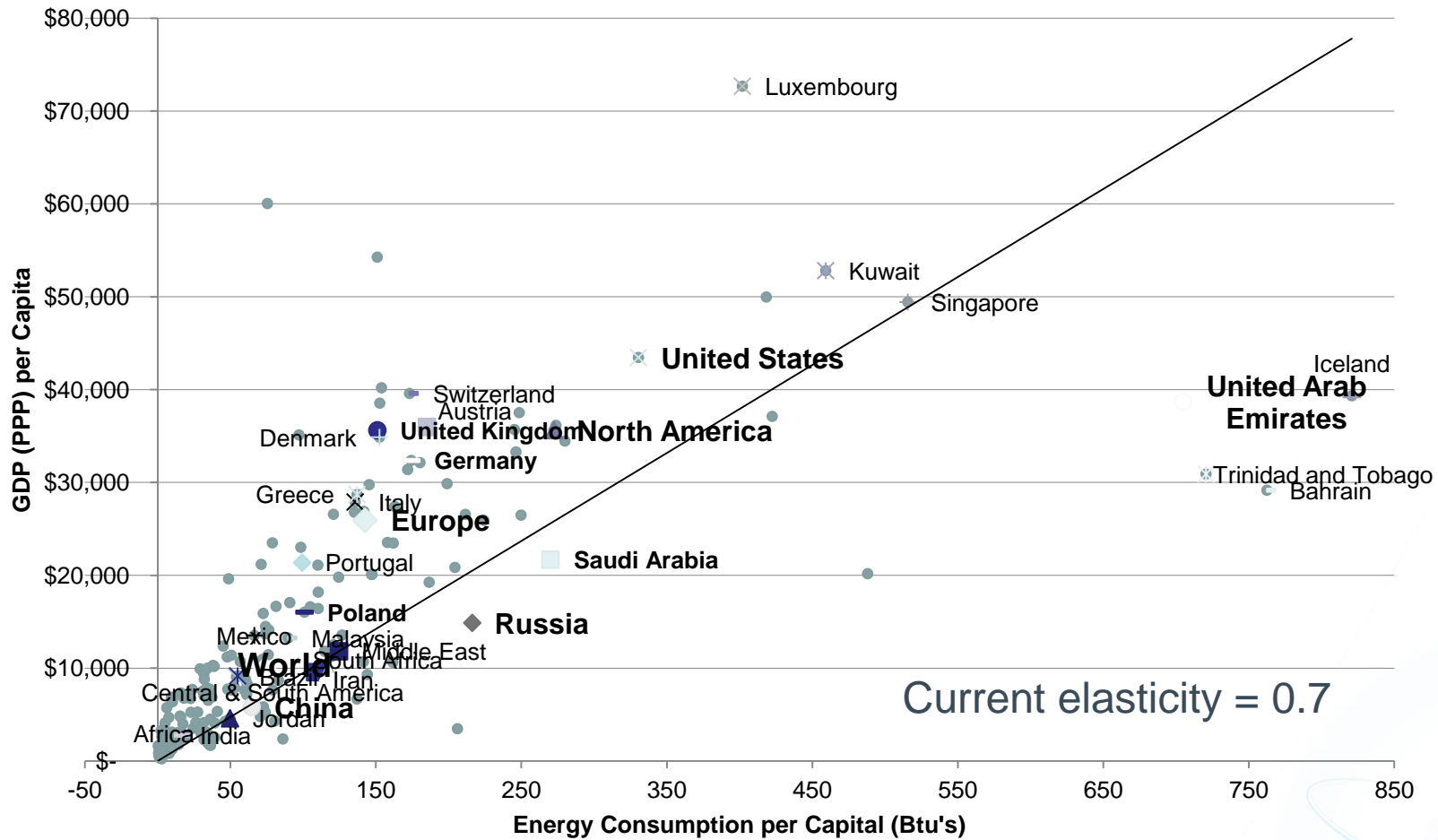
Declining carbon intensity and increasing generation of electricity to 2050



Source: CCC based on AEA (2008) MARKAL-MED model runs of long term carbon reduction targets in the UK



Wealth = Energy consumption



ITER Fusion Reactor

Cadarache, South France



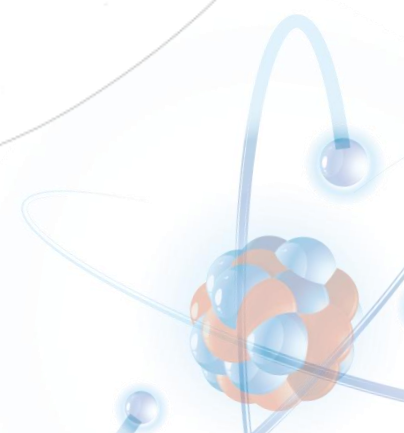
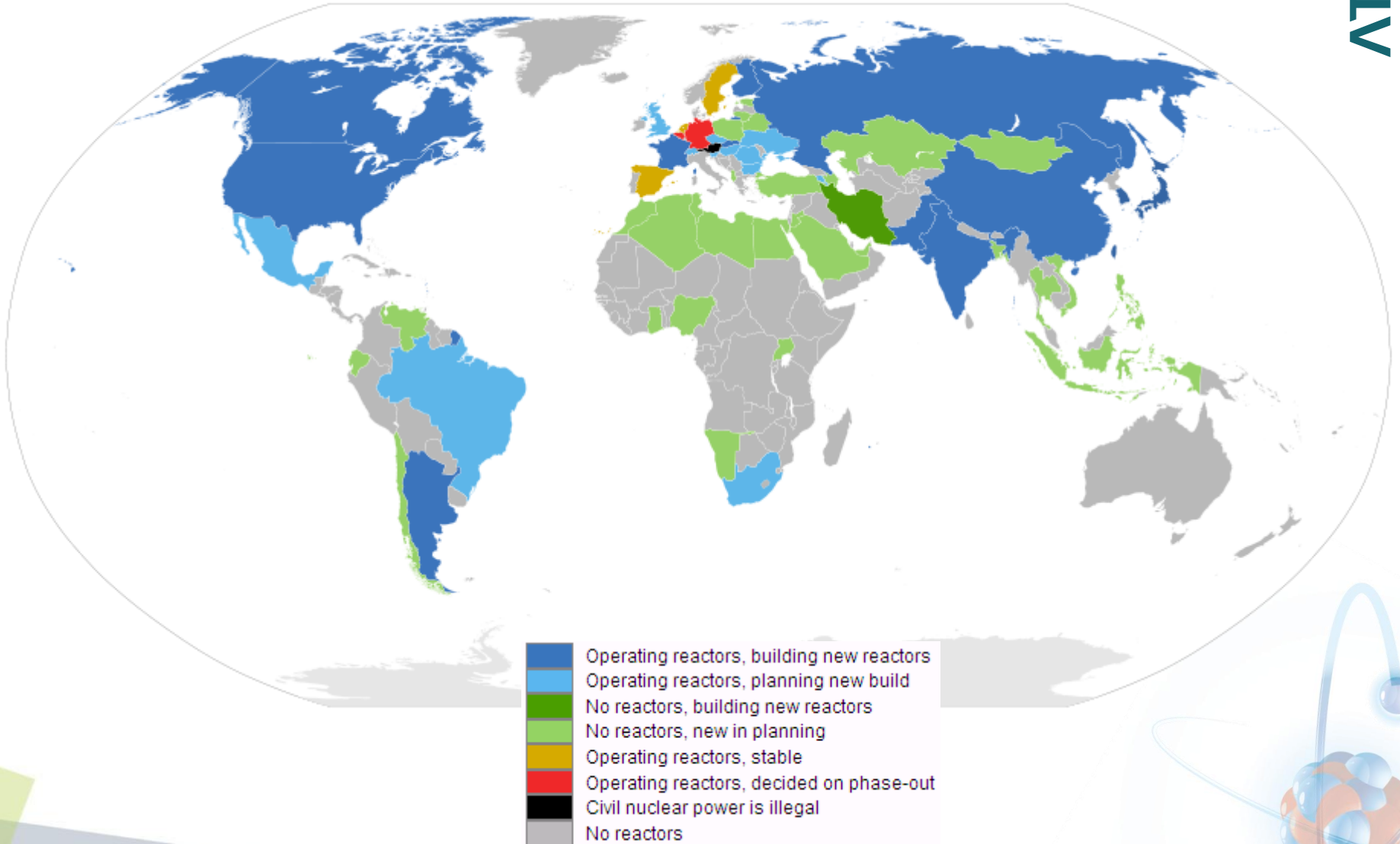
Architect Engineer
Scheme and detailed design
Contract management
Supervision of construction

titit

Part 4

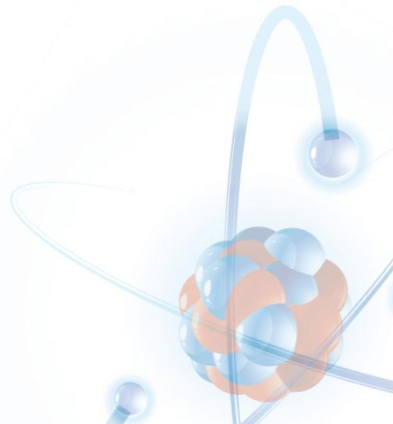
Natural selection and survival of the fittest

A global industry



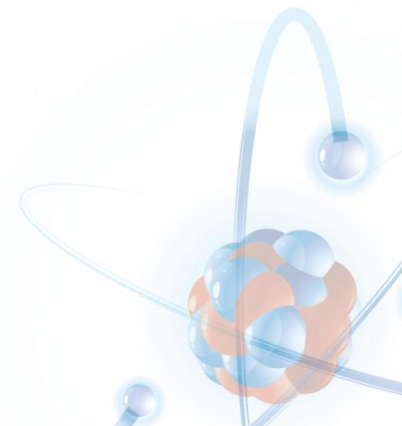
The leadership challenges

- The right people...
- With the right motivation...
- Doing the right things...
- In the right way



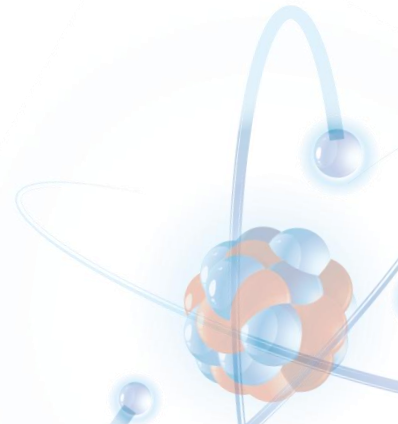
The leadership challenges

- **The right people...**
 - Creating a pipeline of skills
 - Making engineering 'sexy' again
 - Culturally aware
- **With the right motivation...**
 - Creating a community where people want to work
 - Herzberg motivators – work diet
- **Doing the right things...**
 - Encourage an entrepreneurial outlook despite conservatism
 - Innovative... 'no-one ever got fired for buying IBM'
- **In the right way...**
 - International outlook
 - Openness and trust

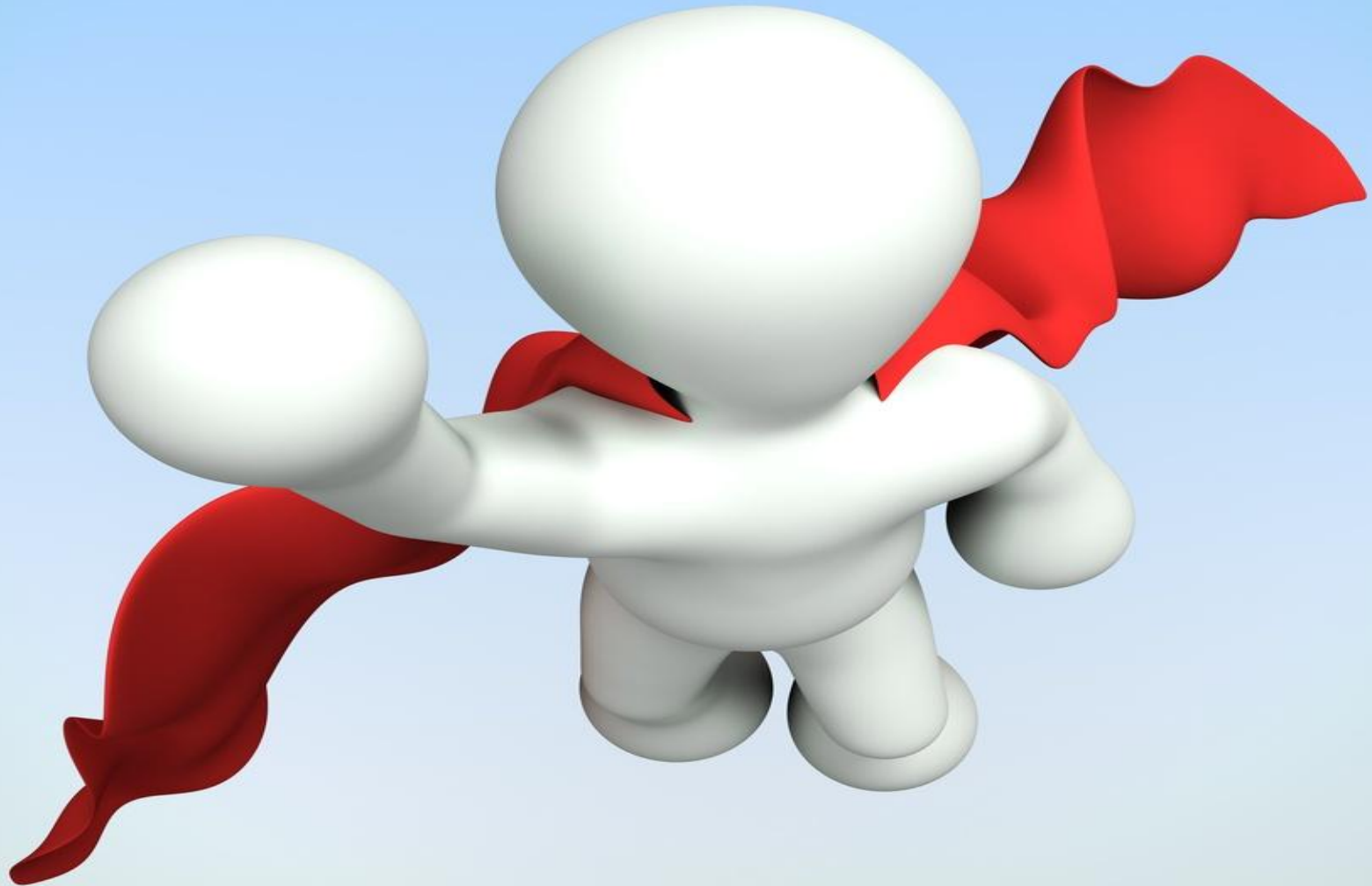


How does it all impact you

- You need to achieve and develop technical, engineering & operational excellence.
- Communicate – with the team and the public
- You need to build and motivate a diverse team
- You need to be mobile, internationally competitive, culturally aware & politically aware.
- Competition is wide & you need to understand the implications at partner, competitor, supplier and client level.
- Hold no fears & give it a go. You are a change agent.



Self fulfilment



Questions

