

Public Perception and SMRs

UK in SMR; SMR in UK

Manchester Conference Centre • 25 September 2014



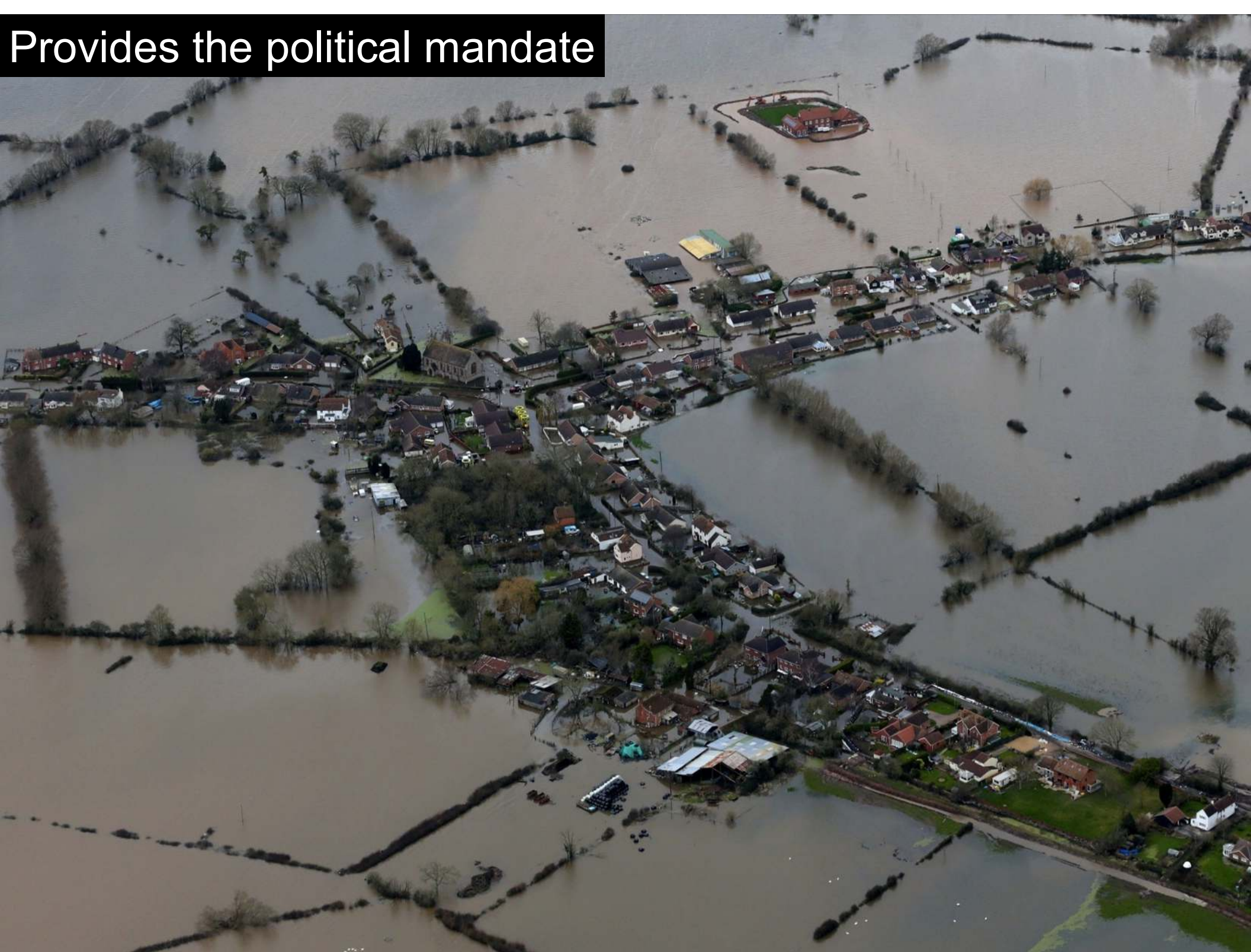
Professor Andrew Sherry FREng
Director of the Dalton Nuclear Institute

Public Perception & SMRs

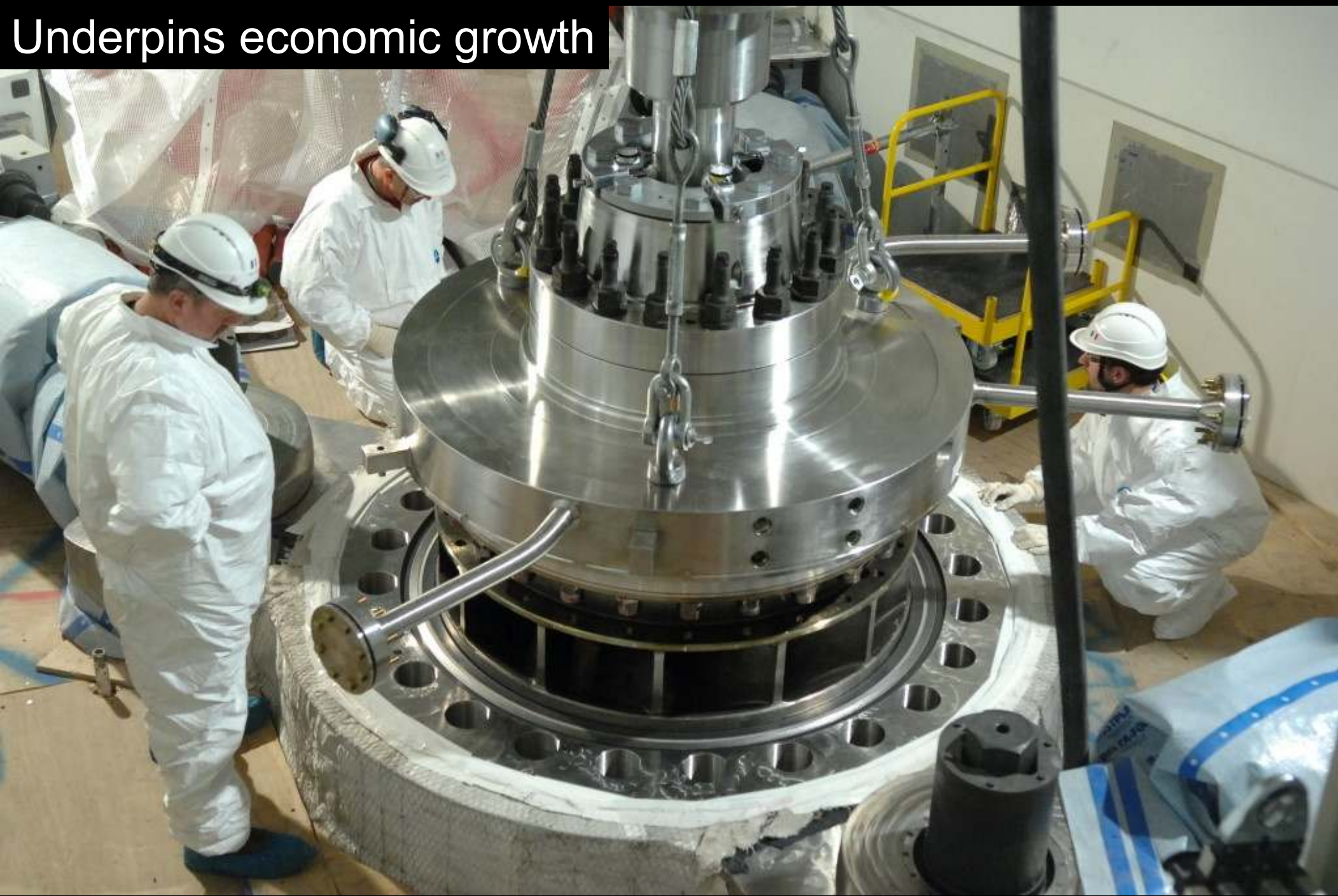
1. Why public engagement on nuclear energy?
2. What is the public perception of nuclear energy?
3. How can public engagement be effective?
4. Next steps

Why public engagement
on nuclear energy?

Provides the political mandate



Underpins economic growth



Underpins future skills development



Political mandate



Economic growth



Future skills



PWR SMRs

CAP-100

CAREM

FLEXBLUE

KLT-40S

mPower

NuScale

SMART

SMR-160

W-SMR

Public Engagement

Public perception of nuclear energy

Past Images (circa 1950s)

“The Future is Safe”



“It’s Our Friend Mr Atom”

Changing Attitudes to Nuclear Power

- **The 1980s saw very high levels of opposition to nuclear power.**
- **The associations with atomic weapons, radioactive waste, contamination, cancer & accidents such as Chernobyl and Three Mile Island lead to unique worries about nuclear power (Slovic *et al.* 1980).**



ERNEST RUTHERFORD

(1871-1937)

NOBEL LAUREATE

LED THIS LABORATORY 1907-1919
HEREIN DISCOVERED THE NUCLEAR
ATOM, SPLIT THE ATOM, AND
INITIATED THE FIELD OF
NUCLEAR PHYSICS

115



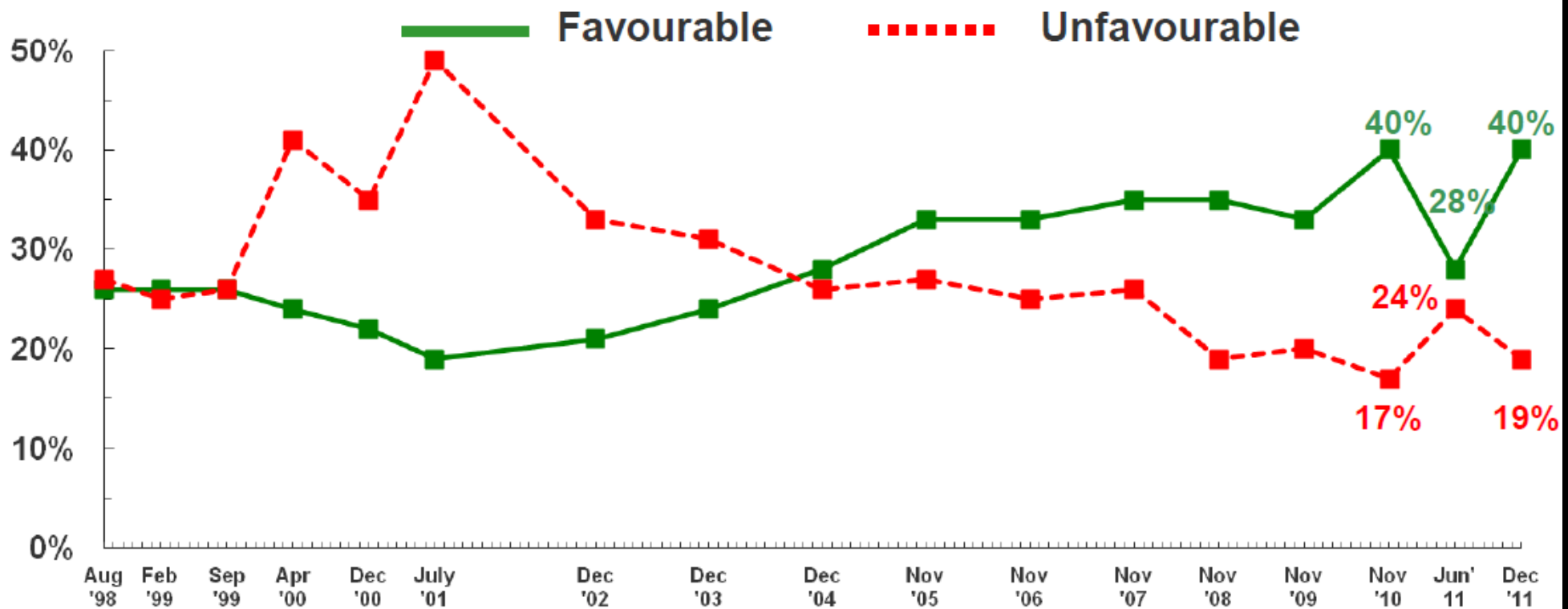
MANCHESTER

THE WORLD'S FIRST CITY
TO BE DECLARED A
NUCLEAR FREE ZONE
(5TH NOVEMBER
1980)

British Attitudes

Trend shows favourable opinion back to highest ever, though unfavourable opinion still above baseline

Q How favourable or unfavourable are your overall opinions or impressions of the nuclear industry/nuclear energy?





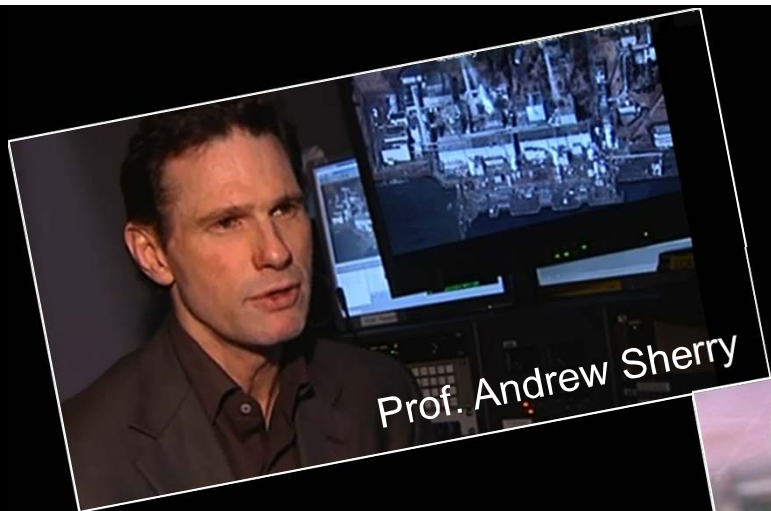
Science Media Centre

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Fiona Fox



Prof. Andrew Sherry



Prof. Robin Grimkes



Prof. Paddy Regan & Prof. Gerry Thomas



Prof. Francis Livens



Dr. Malcolm Grimston



Professor Martin Freer
Director, Birmingham Centre for Nuclear Education and Research
Prof. Martin Freer



Dr. Mark Wenman

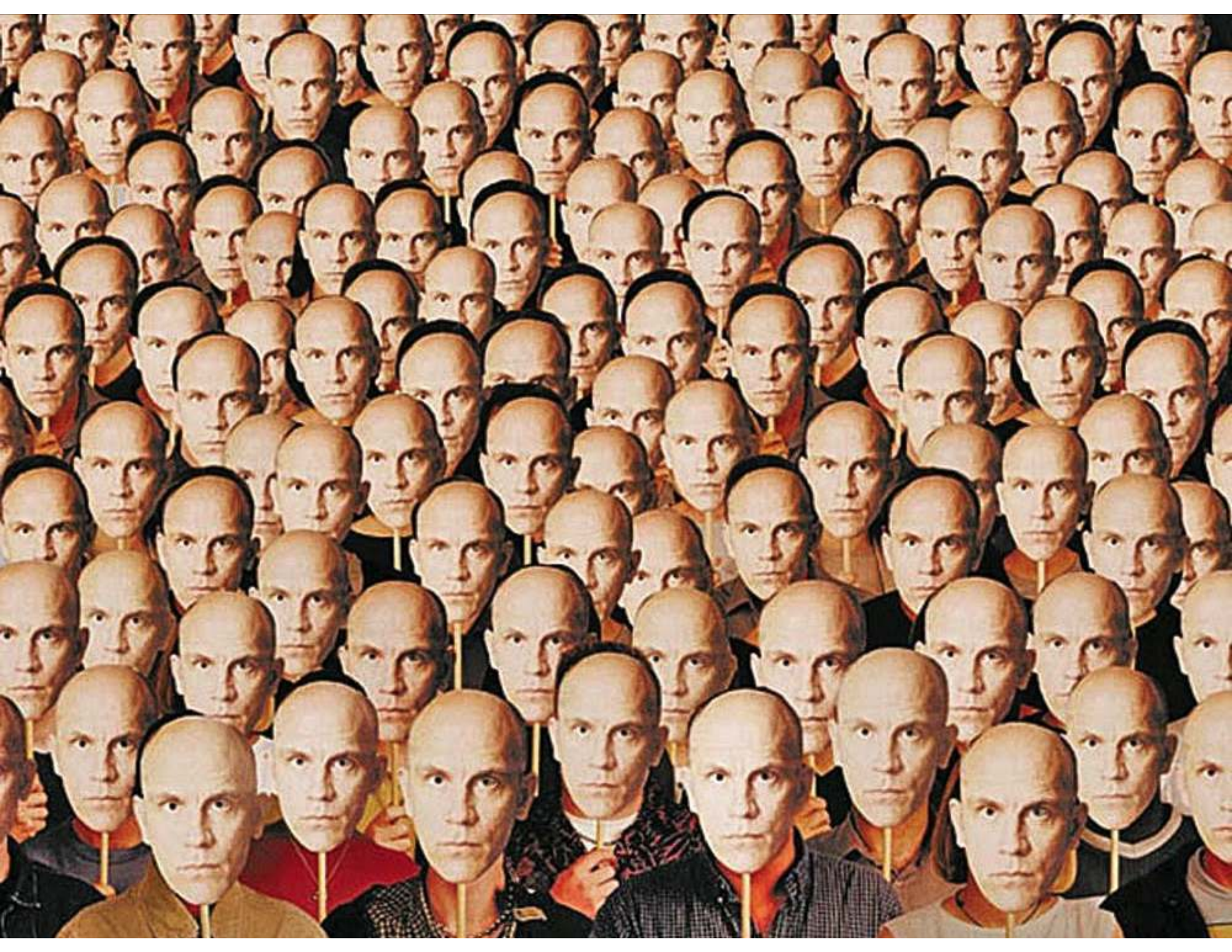


Professor Neil Hyatt
Nuclear chemist
Prof. Neil Hyatt

Public attitudes to nuclear energy are complex and change with time and events. Public engagement must be dynamic and responsive.



How can public engagement
be effective?





Distrustful Engager

Indifferent

Disengaged Sceptic

Late Adopter

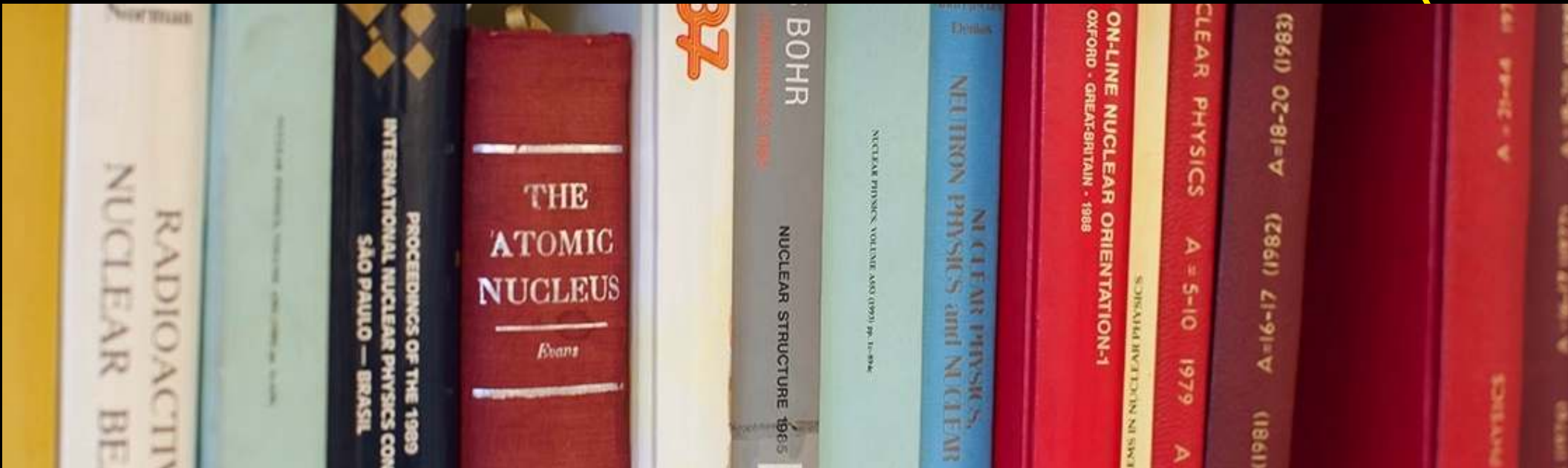
Concerned

Confident Engager



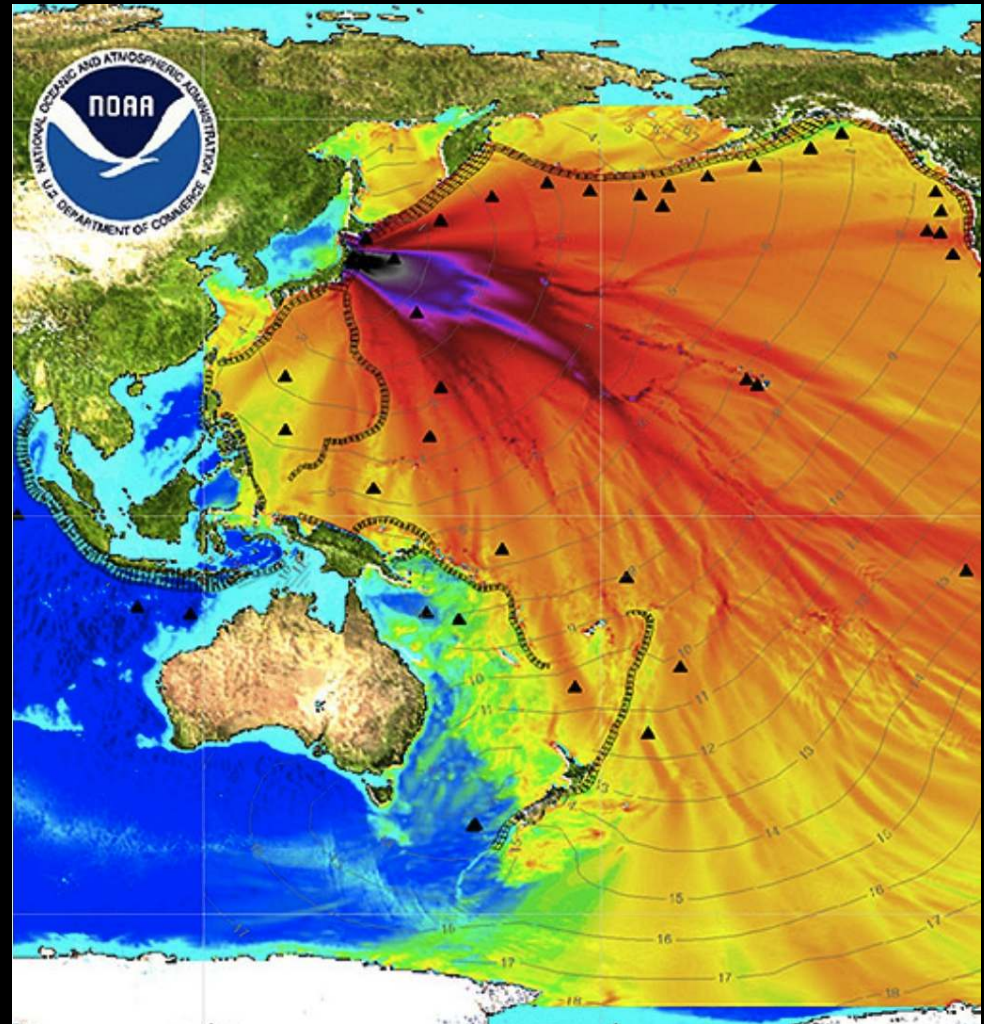
Principle 1: Clarity

- Build an appreciation for basic scientific principles
- De-mystify nuclear as part of a low carbon energy mix
- Understand and address misconceptions using very basic science



Principle 2: Trust

- Recognise the need to build trust in public engagement
- The public are bombarded with 'facts' about nuclear energy
- Data are used and mis-used to send a message
- So who do the public trust?

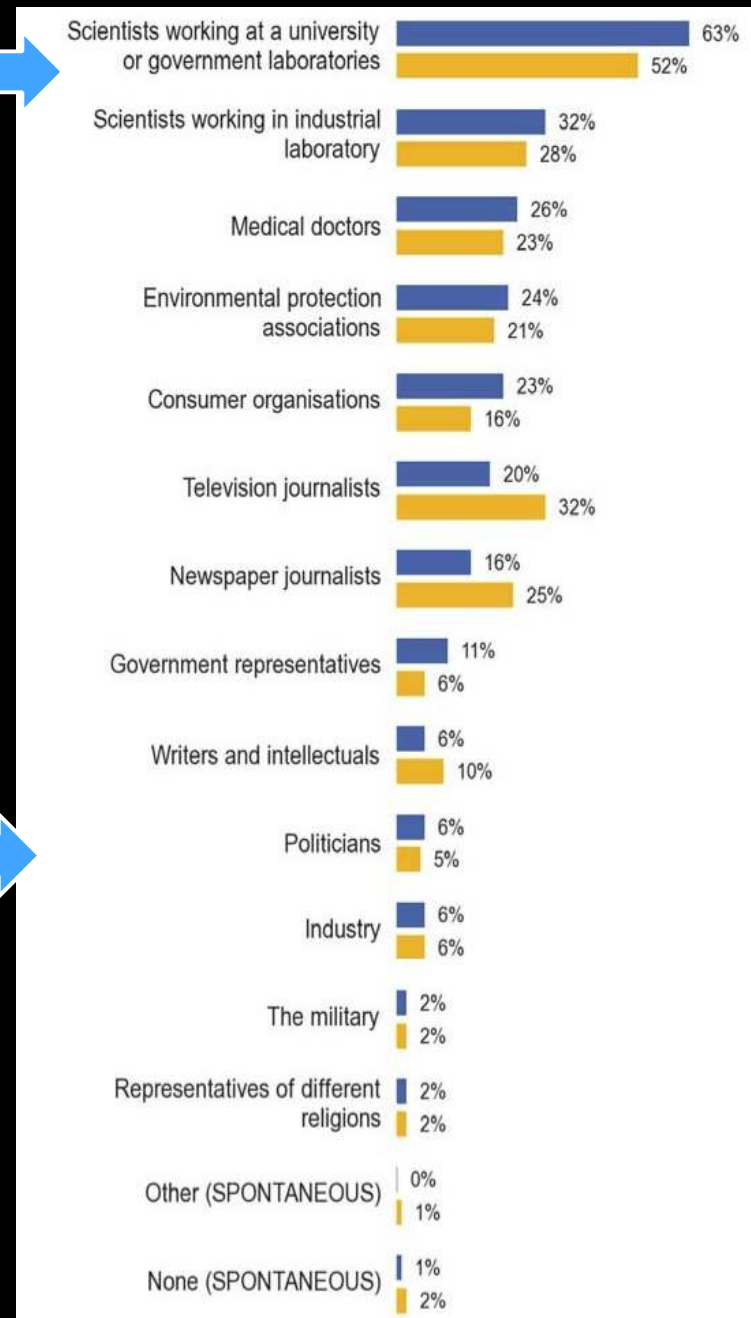


Principle 2: Trust

Scientists working in university,
government laboratories

Best qualified to explain the impact
of science and technological
developments on society ?

Politicians
Industry
Military
Religions



Principle 3: Dialogue

- Recognise that communication is a two-way engagement
- Create opportunities for a two-way dialogue
- Ensure listening is part of the process



Principle 4: Consultation

- Recognise the value of public consultation in nuclear business
- Build stakeholder groups that:
 - Enhance communications between the industry and local stakeholders
 - Give an opportunity for questioning industry and regulators.
 - Allow stakeholders the opportunity to comment on and influence strategies and plans



Next Steps

Government



- ▶ Nuclear industrial strategy: the UK's nuclear future
- ▶ Nuclear Industry Council
- ▶ Map of nuclear power stations in the UK
- ▶ Decommissioning and clean-up of nuclear sites
- ▶ Civil nuclear power in the UK: investment opportunities
- ▶ Directory of UK decommissioning technologies and capabilities
- ▶ Nuclear Industrial Vision Statement
- ▶ Long-term Nuclear Energy Strategy
- ▶ UK nuclear sector
- ▶ Site map
- ▶ Glossary
- ▶ Document library
- ▶ Strategy
- ▶ Harnessing Sellafield's contribution to the regional and national economy

Research and development



- ▶ Science and technology
- ▶ Nuclear reactor simulator
- ▶ Energy Top Trumps



- ▶ Fusion
- ▶ Nuclear fission
- ▶ UK new build plans
- ▶ UK capabilities
- ▶ Decommissioning
- ▶ Resources
- ▶ Ask nuclear

Overseas examples of best practice



- ▶ The Canadian Nuclear Fact Book 2013
- ▶ Future of Energy campaign



- ▶ Nuclear forum
- ▶ Interactive portals

Societies & professional bodies



- ▶ What is nuclear power?
- ▶ Outlook for nuclear over the next 50 years
- ▶ Nuclear power: a low carbon option
- ▶ When did Britain last build a nuclear power station?
- ▶ What is nuclear decommissioning?
- ▶ Nuclear engineering subject guide
- ▶ How does a nuclear reactor work?
- ▶ What waste does nuclear power produce?
- ▶ Nuclear power stations
- ▶ What nations are building nuclear power stations and why?
- ▶ Nuclear Career Guide
- ▶ Nuclear Reactor Simulator
- ▶ Introduction to the nuclear industry
- ▶ Nuclear Future (magazine)
- ▶ Nuclear Special Interest Group
- ▶ Nuclear Quality Knowledge



- ▶ Nuclear Industry Group
- ▶ Nuclear Physics Group
- ▶ Working in physics: A fresh look at nuclear



- ▶ Nuclear factsheet
- ▶ Nuclear research
- ▶ Science career pathways
- ▶ Career pathway tool
- ▶ Nuclear careers
- ▶ Nuclear island
- ▶ Course finder
- ▶ e-learning portal
- ▶ Frequently asked questions
- ▶ Job portal

Electricity grid statistics



- ▶ GridWatch: An independent website providing statistical data on UK energy production and consumption
- ▶ Ecotricity: Provides live data of carbon and energy content of the UK electricity grid
- ▶ GridCarbon: iPad/iPhone app tracking the carbon intensity of the UK electricity

Reactors



- ▶ Boiling Water Reactor (UK ABWR)
- ▶ Hitachi-GE Nuclear Energy, Ltd.
- ▶ AREVA
- ▶ European Pressurised Reactor (EPR)
- ▶ Virtual Tour (enrichment factory)
- ▶ Richie Enrichment
- ▶ Nuclear fuel supply chain
- ▶ Powerful facts

Decommissioning, waste processing and management



- ▶ Sellafield site activities diagram
- ▶ Achievements
- ▶ Risk & Hazard reduction
- ▶ Spent fuel management
- ▶ Nuclear materials
- ▶ Decommissioning
- ▶ Waste management
- ▶ Infrastructure
- ▶ Functions
- ▶ End States
- ▶ Our sites (useful infographics)
- ▶ Our work programmes
- ▶ Our phases of work
- ▶ Nuclear fuel
- ▶ Waste
- ▶ Decommissioning
- ▶ Site closure
- ▶ Particle clean-up
- ▶ Safety and environment
- ▶ Dounreay TV



- ▶ National waste programme

Trade Unions



- ▶ Energy and nuclear
- ▶ Nuclear
- ▶ Energy briefing

New nuclear build



- ▶ Our nuclear power stations
- ▶ EDF Energy's Nuclear power stations
- ▶ Hinkley Point C
- ▶ Nuclear generation
- ▶ Nuclear generation visitor centres
- ▶ New nuclear
- ▶ Inside a nuclear power station
- ▶ EDF Energy's nuclear plans
- ▶ The future of nuclear energy
- ▶ Nuclear Waste
- ▶ Hinkley Point C, An Opportunity to Power the Future (Feb 2013)
- ▶ Nuclear power facts
- ▶ Wylfa - About our site
- ▶ Oldbury - About our site
- ▶ Our plans
- ▶ Frequently Asked Questions (FAQ's)



Industry supporting bodies



- ▶ re:generation
- ▶ Jobs Map
- ▶ The people behind the power
- ▶ Facts & information
- ▶ Capability Report
- ▶ Essential Guide
- ▶ Industry Link(magazine)
- ▶ SC@nuclear
- ▶ Nuclear Basics
- ▶ Information Library
- ▶ Nuclear power in the United Kingdom



- ▶ Nuclear overview
- ▶ Nuclear decommissioning overview
- ▶ Public opinion
- ▶ Dispelling myths and misinformation
- ▶ Video corner
- ▶ EU policy

Examples of Public Engagement Programmes in Nuclear Energy

Communications Steering Group



Principles of Public Engagement

- Clarity
 - Communication charter
 - Trust
- Dialogue
- Consultation

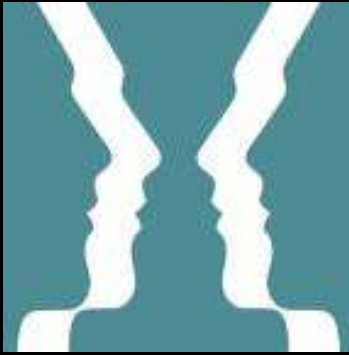
Director

Manager

Workforce



Strategic Nuclear Narrative



Integrate and commission research



Summary

1. Public engagement on nuclear energy underpins:
 - The political mandate to deliver low carbon energy
 - The economic growth from nuclear energy
 - The new skills needed for the future
2. Public attitudes to nuclear energy are complex and change with time and events. Public engagement must be dynamic and responsive.
3. Public engagement on nuclear energy benefit from four principles:
 - Clarity
 - Dialogue
 - Trust
 - Consultation
4. Next Steps:
 - Communications Steering Group
 - Nuclear Narrative
 - Charter on public engagement
 - Integrated Research