Health and Safety Executive

HSE

Symposium on Current and Future Challenges for Nuclear Regulators: Brugg, 20th January 2011

# Nuclear Regulators & Regulation: Fit for the future?

By

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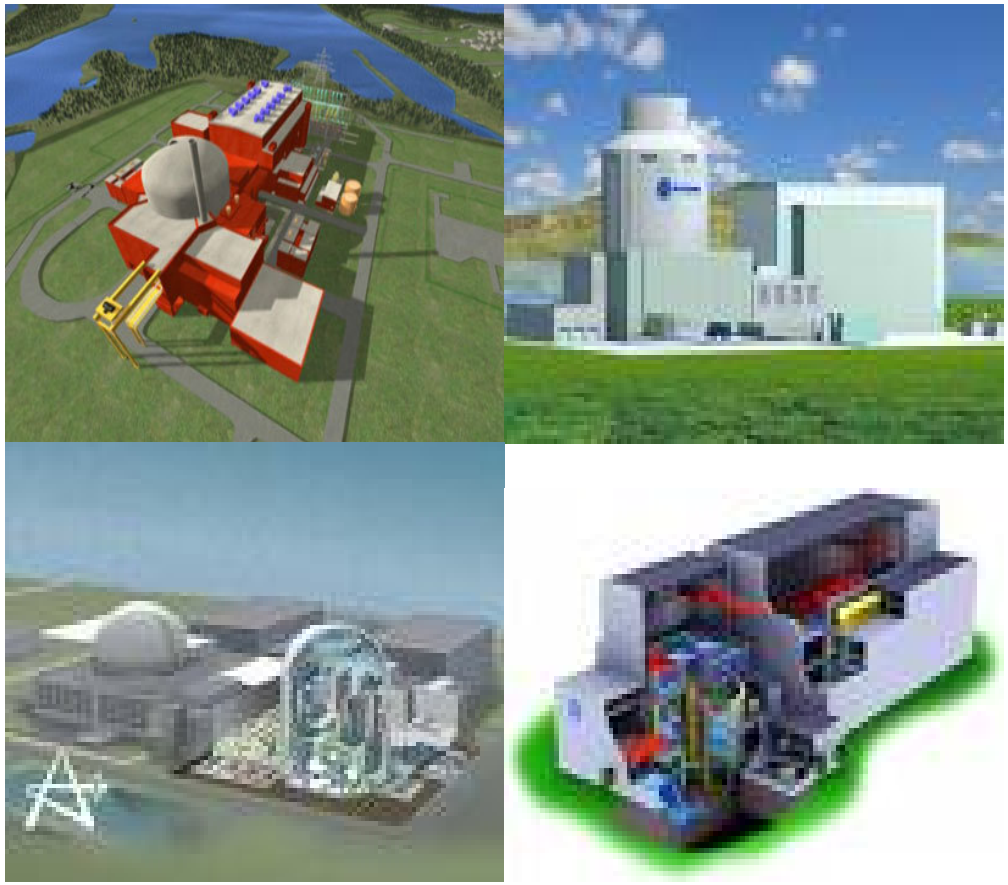
# Nuclear Hazards are unique (1) – getting it wrong leads to wide spread long lived potential consequences

# Nuclear Hazards are unique (2) - Nuclear Security and Safeguards

# Nuclear Hazards are unique (3) – Public Concern

# Nuclear Hazards are Unique (4) – but controllable



Need:

- Excellence in design, supply, construction and operation
- Uniquely high standards but only where appropriate
- Strong independent effective transparent regulation

# Society Only Tolerates Nuclear Industry on basis of:

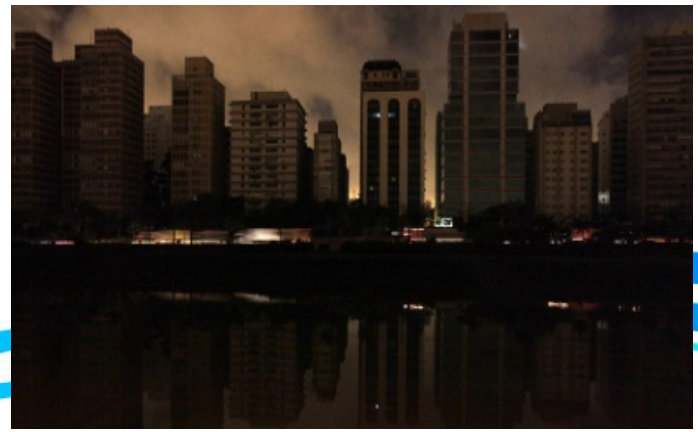
- Demonstrable low residual risk

- Strong independent effective transparent regulation – never more important

Massive change is happening and flux increases - are we fit for the future?

# Context – The Global Scene

- **Climate Change and Energy Security** moving to top of Political Agenda
- Over 60 nations with no NPPs asking IAEA for assistance to develop Nuclear Power capability
- Nuclear Power capability predictions (OECD's NEA):
  - June 2008 439 reactors operating – 372 GW
  - Potential need for new build of 23 to 54 reactors worldwide a year between 2030 and 2050
- Use of nuclear energy in other areas – isotopes, small reactors for electricity/desalination/transport/ …
- Nuclear Fuel Cycle & Waste Management
- Supply chains are longer more complex and less robust than during earlier new build programmes



# Context - The changing European Scene

- Over 140 reactors spread over 15 member states - generate about a 1/3 of all electricity energy in EU
- EC actively promoting further use of nuclear energy for electricity but issues remain - confidence in decommissioning and waste management
- But some loss of confidence in new build - problems with supply and construction leading to delays and cost escalation, and regulatory Issues


Source – European Nuclear Society (June 2010 operating and under construction)

# Context – The UK Scene

- Decline of UK nuclear industry 2000 – 2008
- But Switch round in Government Policy – Energy White Paper January 2008
- Potential of up to £60b investment in nuclear new build – 10 reactors in operation by 2025?
- Planned NDA spend – Over £70b
- Investment in keeping the existing NPPs running
- Planned spend £2.65b over 3 years in MOD – rate similar to reactor build
- Continuing new build of Submarines and improved refuelling facilities
- Social/Political/Industrial/Economic Environment – **Massive Change & Flux**


**Nuclear Sites in Great Britain**

# Do we have an effective International Regulatory Response?

- **Global approach**
  - IAEA Safety Standards (accumulation of 50 years of worldwide experience)
  - IAEA International Peer Reviews of national nuclear regulatory systems
  - OECD's NEA central role in promoting good practice of nuclear regulation, levering research and unbiased data and opinion
  - Regulatory Co-ordination Forum
  - Multinational Design Evaluation Programme
- **European**
  - EC Nuclear Safety Directive in place
  - EC Waste Directive in preparation
  - ENSREG/WENRA

# The Global Scene – The Challenges

- **Nuclear Safety**
- **Waste Management and Disposal**
- **Non-proliferation and security**
- **Building the capacity:**
  - IAEA advice – around 10 years to build the administrative and industrial infrastructure
  - Building the people and supply base
- **Nuclear Energy and Society**

➢ **Impact on existing regulatory resources and approaches**

➢ **Independence and capacity of nuclear regulatory resources**

# UK Regulatory Response to Shift In UK/European/Global Environment:

**Nuclear Regulatory Framework remains the same:**

- **Goal setting** (But accelerating move to security goal setting regime)
- **Flexible** (variety of sizes, types of nuclear activities)
- **Firm basis:** (takes account of IAEA standards, International Conventions and good practice)
- **Proportionate** (Regulatory requirements/interest depends on significance)

**BUT …**

# UK Regulatory Response to Shift In UK/European/Global Environment:

- **Changing How it is Delivered**:

➔ **Building on the last successful 50 years to create a forward looking integrated World Leading Nuclear Regulatory body fit for the next 50 years**

➔ **More outcome focused, dynamic, responsive, integrated, transparent/open and accountable, <u>obviously independent</u>, nuclear regulation**

# Changing the UK Nuclear Safety Regulatory Body – NII into Office for Nuclear Regulation

## *Vision: a world leading integrated nuclear regulatory body fit for future*

- An **Integrated** Nuclear Regulator – Safety/Security/Safeguards/ ….
- Clear **Common Purpose**
- A new approach and focus - Built on **Outcomes** not just processes
- Impact or **leverage** of our approach - Influencing as well as Regulating
- **Listening and Responding** to Stakeholder concerns
- Preparing for **Nuclear New Build** taking account of a changing society – earning trust and confidence
- Securing the **Enablers** to be always fit for the future

# An Integrated Nuclear Regulator

**Safety** | **Security** | **Safeguards**



Same **Purpose** – Securing Protection

Same **Principles** to Achieve Protection – multiple barriers, diversity, etc

Same **Processes** – Assessment, Permissioning, Inspection, Enforcement, Influence

# The common purpose of the integrated nuclear regulator

## To Secure the Protection of People and Society

From the hazards of the nuclear industry

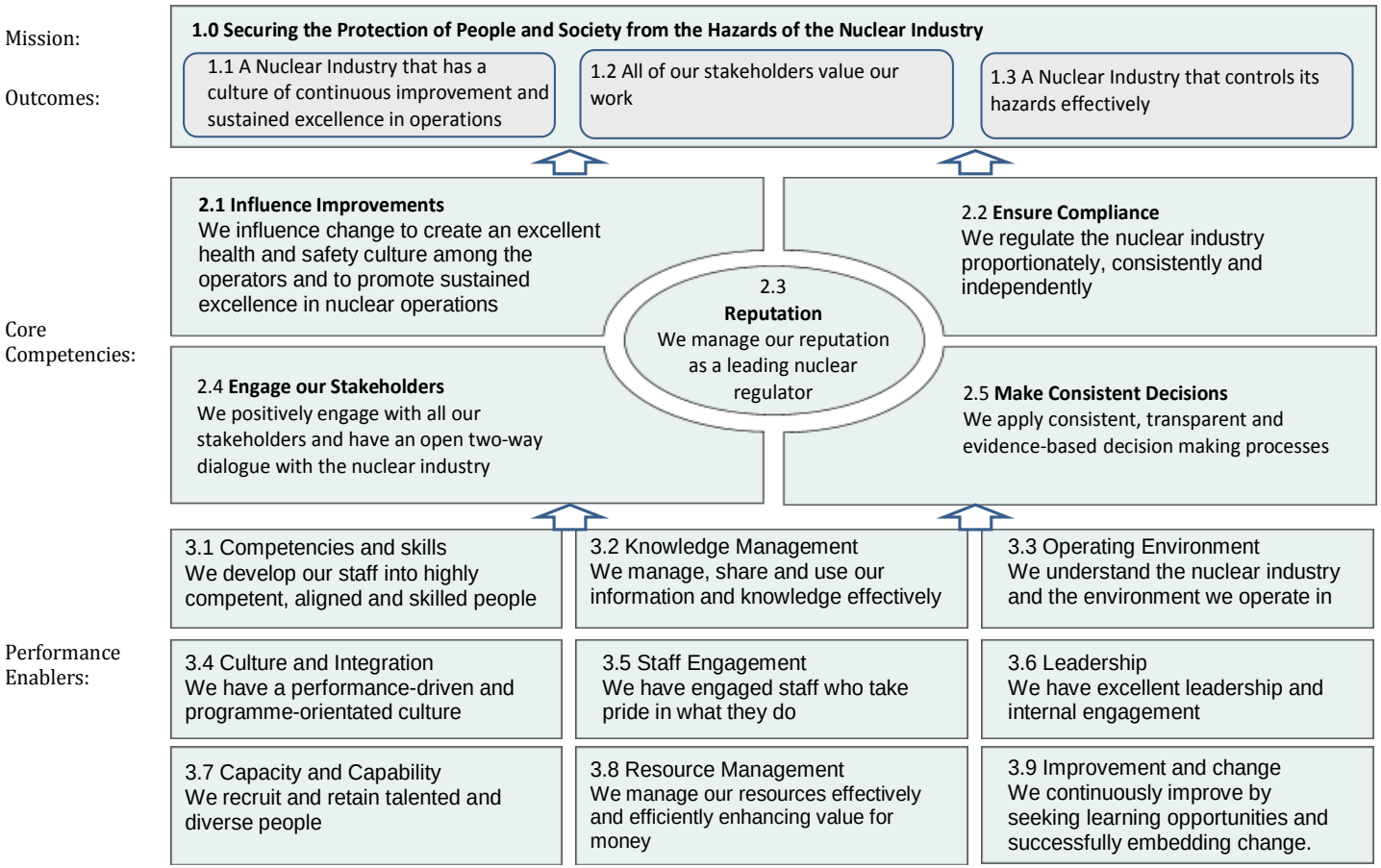
# Protecting Society …

Protecting Society is a simple statement but a complex idea …

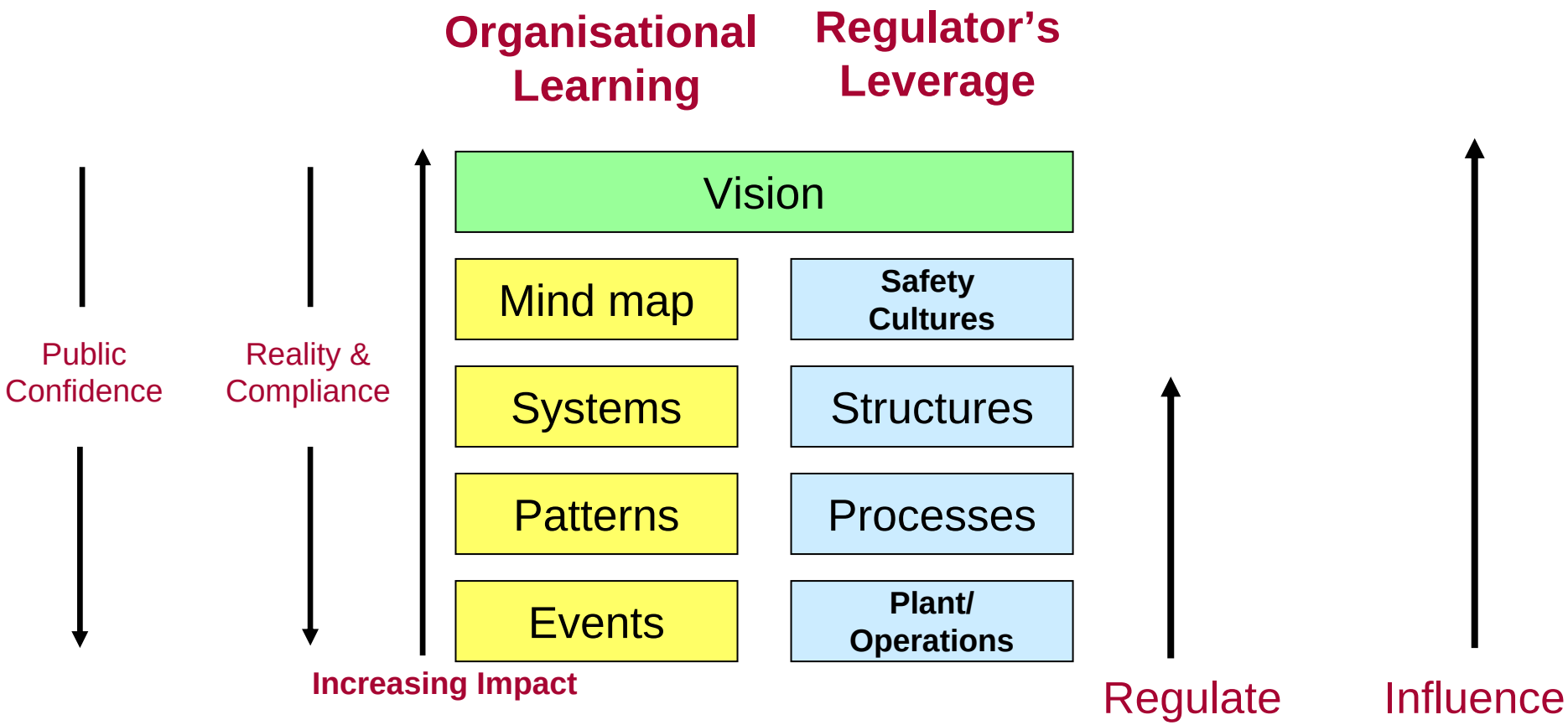
- Not just the simple accumulation of harm to individuals as in mathematical treatments of societal risk
- Its also about protecting the very Fabric of Society which binds us together
- Needs judgement on balance of further reduction in risk against reduction in benefits to society

# Regulatory Philosophy: Outcome Focused – only 3

## Plan-on-a-Page



# Outcome Focused – Delivered through optimum regulatory leverage: Influence as well as Regulation




**Regulators influence safety culture for better or worse, whether they intend to or not and it can have far greater impact – need to with others.**

# Building on the Strength of Influence:

- Joint Interface protocol with CEOs in industry in operation (2008)
  - Common Vision: **Sustained Operational Excellence**
  - Common Behaviours (Clear Expectations, No surprises, Co-ordinated plans)
  - Already paying dividends in more effective and efficient regulation

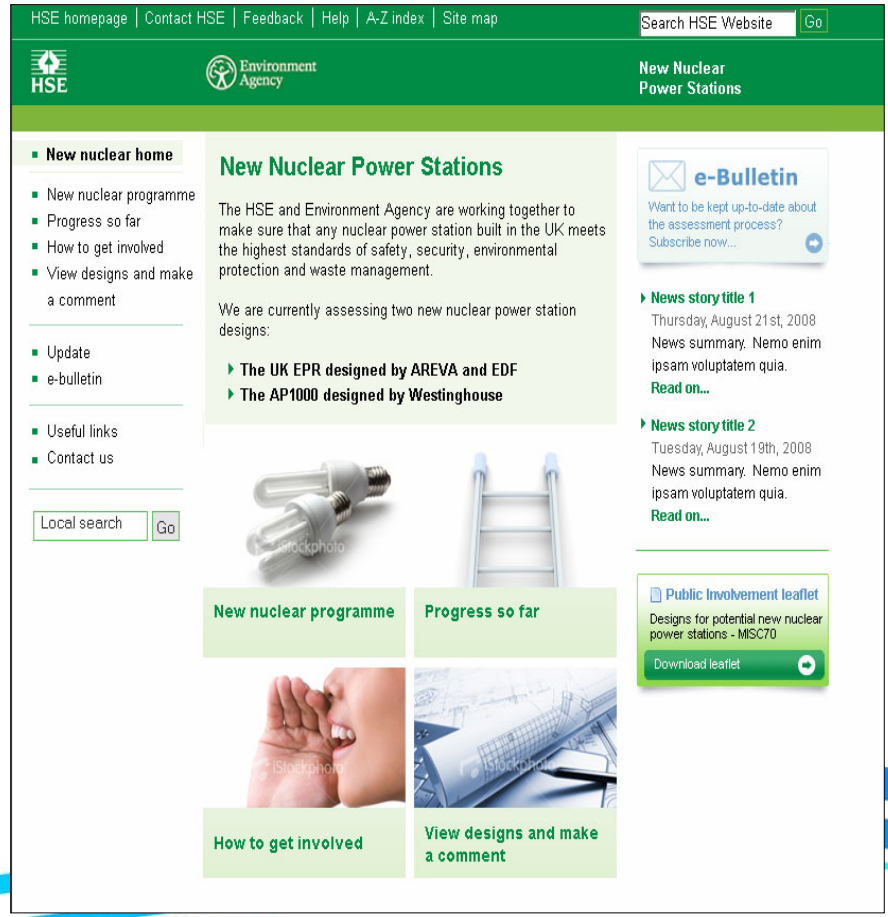
- Spreading the lessons from **leadership failures** in major event (nuclear and non-nuclear)
  - NII Safety Assessment Principles include L&MFS
  - Guidance and Training for all inspectors
  - Discussions with Boards of Licensees

# Openness and Transparency

- Engagement with **all** stakeholders - Listening to Their Feedback and needs
- Communicating **Effectively**
- **Earning** Respect, Trust & Confidence of **All** our Stakeholders
- Concepts of **“client management” and communications** as integral part of delivery programmes

# Implications for New Build: Response to changed context - Generic Design Assessment

- Proposed in 2005/6
- Now being delivered
- Open and Transparent
- Some of the benefits:
  - Maximise regulatory effectiveness
  - Minimise regulatory uncertainty
  - Fleet approach: do it once, do it right
  - Earn public trust and confidence in nuclear regulation



# Securing the **Enablers** to be always fit for the future

1. Structural/Organisational:
   - Flexibility (eg pay & resources)
   - Control of destiny
   - Greater Independence

2. Cultural: open to
   - Challenge
   - Outward looking
   - Accountability
   - Change
   - New ways of working
   - Continuous Improvement

1. Transition to Office of Nuclear Regulation outside HSE

2. Transformation to outcome focused, programme delivery not functional organised

# Summary: Responding to the rapidly changing world

**Need** to change how we **deliver** nuclear regulation to match:

- Society's expectations – openness, transparency, accountability, responsiveness
- Global Industrial structure, business, players, etc is changing
- Increasing pace of change in Industry
- Information & Technology explosion
- Governments' dramatically changing nuclear policy
- Rapidly expanding nuclear industry – new players
- Skill shortage and loss of expertise and experience

# Summary: Responding to the rapidly changing world - NII Journey of Change

- **Vision:**
  - World Leading Regulatory Body Fit for the Future
- **Mission/Purpose:**
  - Secure the Protection of People and Society from the hazards of the nuclear industry
- **Regulatory Philosophy:**
  - Outcome focused, goal setting, influence and regulation (leverage), integrated, open/transparent and accountable
- **Transformation/Transition to ONR:**
  - building on the past to be better able to face the future

# Summary: Global Regulatory Response to the rapidly changing world

- **Change is the only constant**
- **Challenges and opportunities**
- **Darwinian –** We must adapt to survive be effective & excel
- **Need continuous improvement in nuclear regulation** – learning and working together
- **Need to work together collaboratively**
  – maximise the benefits of international organisations
- **Need to maintain diversity and challenge**
- **Need to be & be seen to be Independent - Guarding Against Political or Commercial Capture**