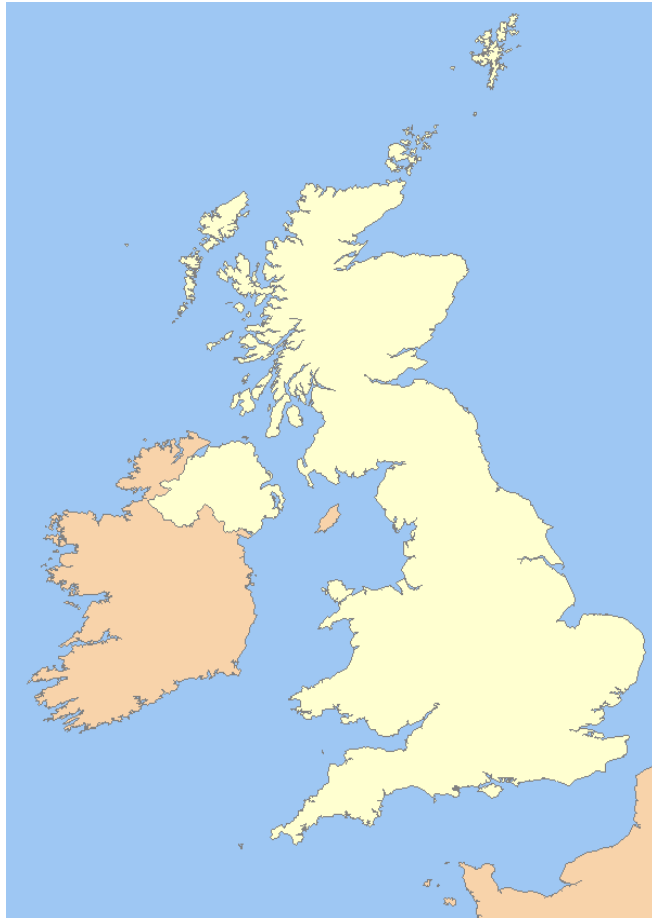


CONVENTION ON NUCLEAR SAFETY



**The United Kingdom of
Great Britain and Northern
Ireland**

**NATIONAL REPORT
PRESENTATION**

for the

Fifth Review Meeting

April 2010, Vienna

CONVENTION ON NUCLEAR SAFETY



**Presented
by
Dr Mike Weightman
HM Chief Inspector of
Nuclear Installations
United Kingdom**

Presentation Structure

1. Early take on the implications for the UK of the accident at Fukushima
2. Summary of the UK nuclear programme
3. Significant developments since 2008 CNS Review Meeting
4. Follow-up on issues identified at the 2008 CNS Review Meeting
5. Questions raised by peer review of UK national report
6. Current challenges
7. Potential areas of good practice
8. Planned measures to improve safety
9. Concluding remarks

1. Early take on the implications for the UK of the accident at Fukushima

- On 12 March 2011, the Secretary of State for Energy and Climate Change, requested HM Chief Inspector of Nuclear Installations, to produce a report on the implications for the UK nuclear industry of the accident that took place at the Fukushima Dai-ichi nuclear power station in Japan
- The purpose of the report is to identify any lessons to be learnt
- The Secretary of State asked for an interim report by the middle of May 2011, with a final report in September

Implications for UK of accident at Fukushima

Recognising that the situation at Fukushima is changing daily, the report will be:

- comprehensive and wide in scope;
- based on firm evidence and facts using the best independent scientific and technical advice available;
- informed by stakeholders with access to relevant information; and
- produced in an open and transparent way

Implications for UK of accident at Fukushima

The report will give a background on nuclear power technology and the approach to nuclear safety and security regulation in the UK, internationally and in Japan

Regarding events in Japan the report will give:

- a high-level description of the nuclear power station at Fukushima;
- design provisions at Fukushima for resilience against natural hazards;
- the events at site, including timeline and impact and actions taken to protect people;
- key on-site factors, including operator actions, contributing to the events; and
- key off-site factors, including emergency response provisions, affecting the control and mitigation of events

Implications for UK of accident at Fukushima

Regarding lessons for the UK, the report will provide:

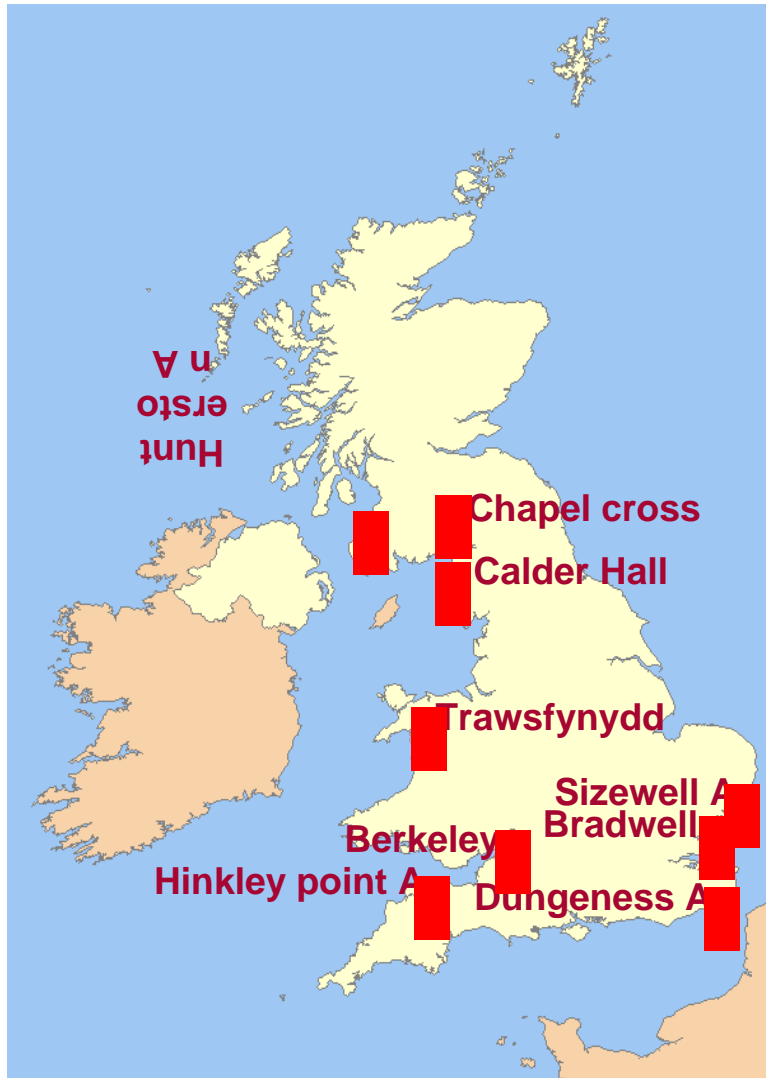
- a comparison of UK nuclear power station designs with those at Fukushima;
- natural hazards and other potential threats to UK nuclear facilities;
- potential lessons for the UK; and
- any recommendations regarding the lessons learnt

The Chief Inspector is setting up an independent expert technical advisory panel to assist in the report

2. Summary of the UK nuclear programme

UK Nuclear Programme

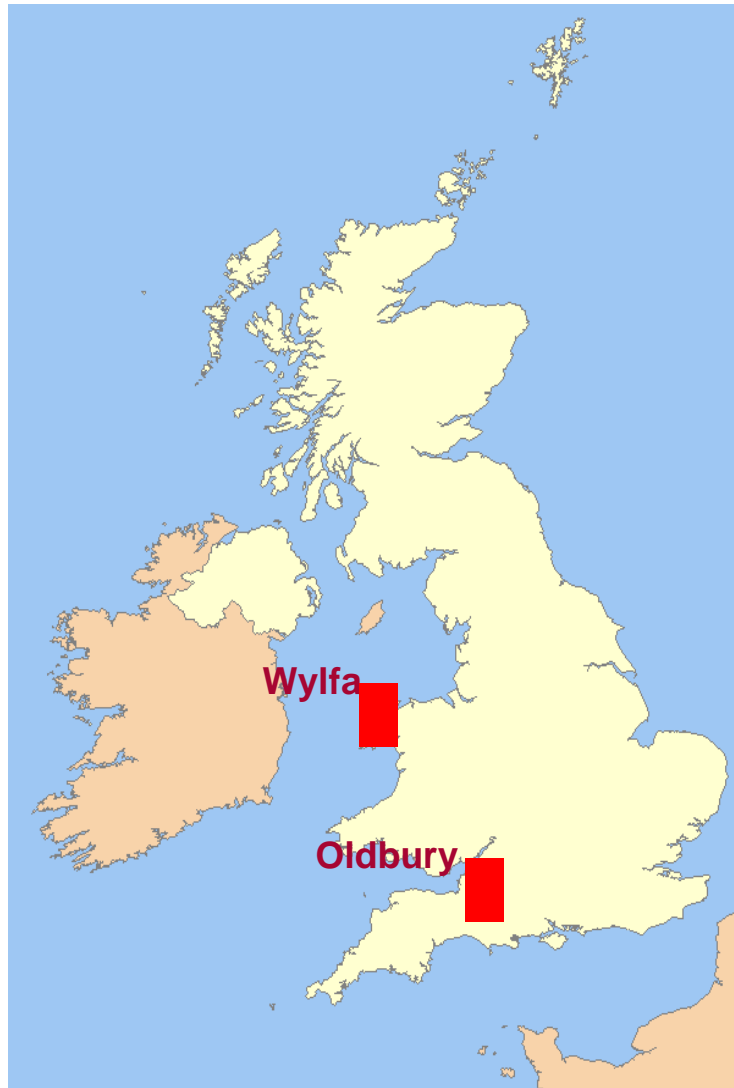
Magnox reactors with steel pressure vessels



- Gas-cooled, graphite moderated
- Natural uranium fuel clad in Magnesium alloy
- Steel pressure vessels
- 22 Reactors built 1956 - 1966.
- 60 – 400 Mw
- All now permanently closed

UK Nuclear Programme

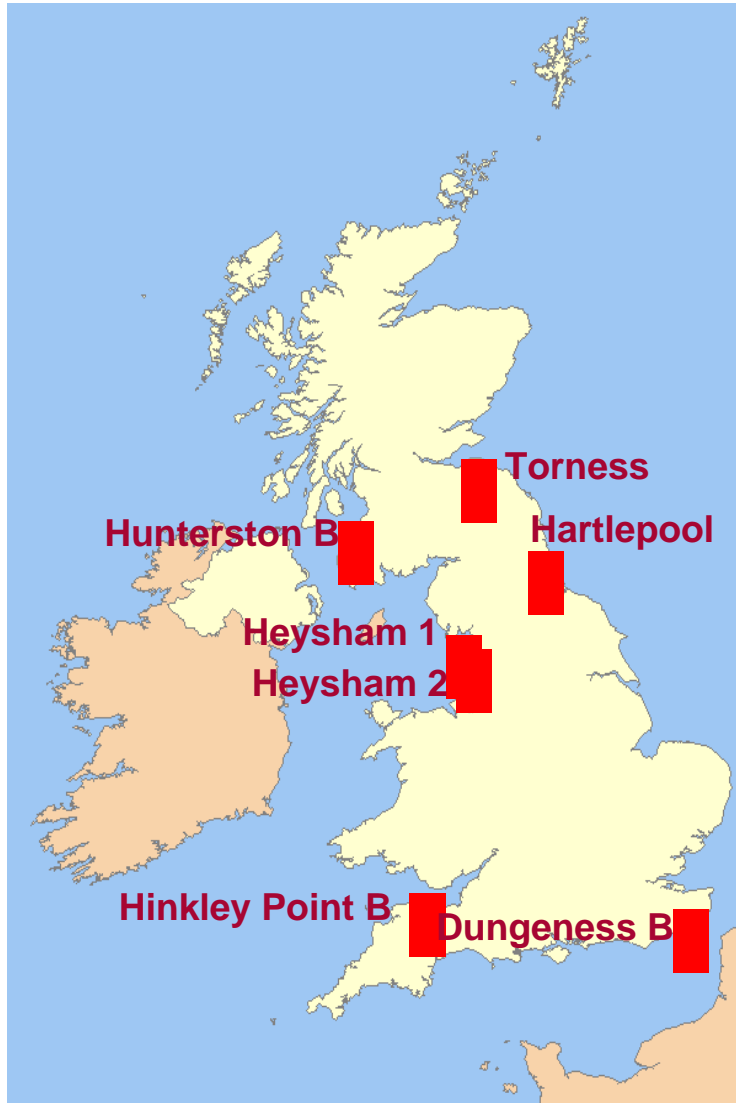
Magnox reactors with Concrete Pressure vessels



- Second stage of Magnox programme
- Pre-stressed concrete pressure vessels
- Four reactors built 1968 -1971
- Total capacity 1.4 Gw
- Still operational

UK Nuclear Programme

Advanced Gas-cooled reactors (AGRs)



- Gas-cooled, graphite moderated
- Enriched Uranium oxide fuel
- Clad in stainless steel
- 14 reactors on 7 sites 1976 - 88
- Installed capacity 9Gw
- All operational

UK Nuclear Programme

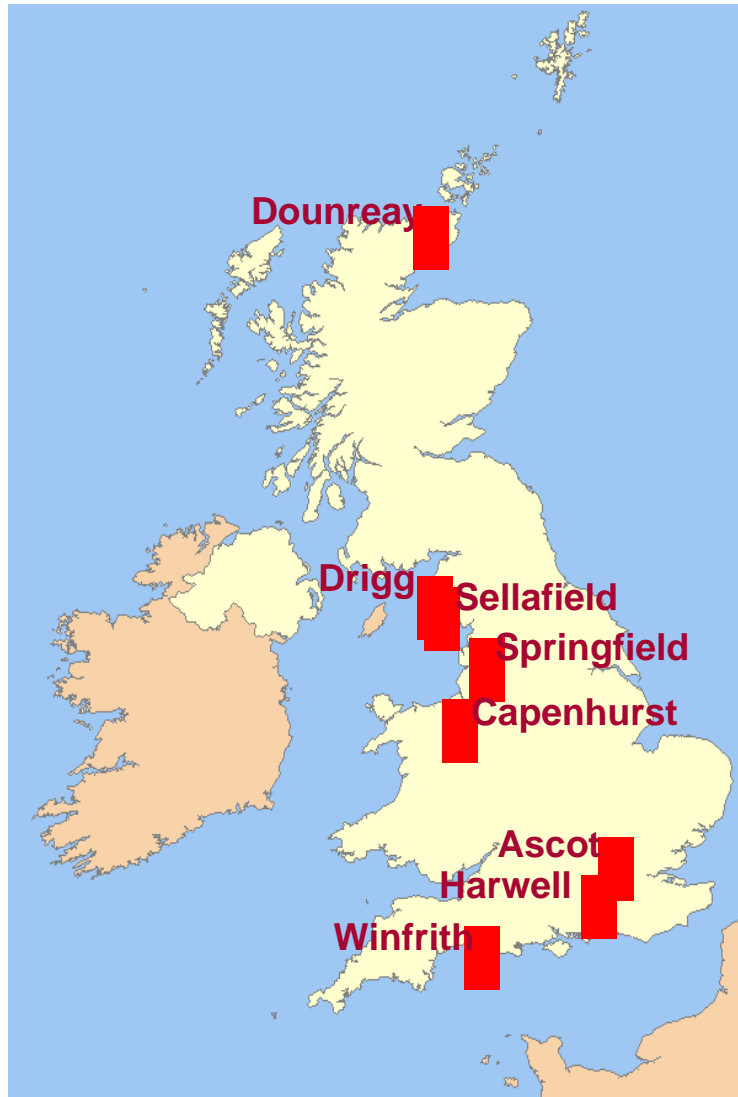
Pressurised Water Reactor



- 1995 - PWR at Sizewell B operational
- UK's only PWR
- Last Reactor to be built in UK
- Output 1.1 Gw

UK Nuclear Programme

Nuclear facilities not covered by CNS



UK also has:

- Fuel manufacturing facilities
- Fuel reprocessing facilities
- Radioactive waste storage
- Research facilities

UK Nuclear Programme

New Build NPP



- In 2007 UK government recognised that nuclear power has a significant role in meeting the UK's future energy needs
- Government started process of consultation on new-build
- Regulators' assessment of potential new reactor designs commenced (Generic Design Assessment)

UK Nuclear Programme

Implications of UK's programme on compliance with the Convention

- UK has a range of reactor types and ages
- UK is embarking on a new build programme
- UK has a wide range of nuclear facilities not covered by this Convention
- In order to comply with national and international safety expectations, such a diverse programme requires a safety infrastructure that is underpinned by a legal framework and effective regulation

UK Nuclear Programme

Law and Regulation – UK Approach (1)



- Sets out health and safety framework for all places of employment
- Sets out employers responsibilities
- Enables the employment of inspectors to enforce compliance and gives them powers
- Set up the Health and Safety Executive (HSE)
- HSE regulates health and safety in all places of work including nuclear sites

UK Nuclear Programme

Law and Regulation (2) – UK Approach



- Nuclear operators must have licence for each installation
- Sets out the responsibilities of licence holders
- Establishes structure of licensing system
- Sets out insurance requirements
- Became a Statutory Provision of the Health and Safety at Work Act in 1974

UK Nuclear Programme

Law and Regulation – UK Approach (3)



- Site licences granted only to corporate bodies by HSE
- Licence brings nuclear site operators into a more rigorous safety regime than possible under Health and Safety at Work Act
- Licence in force throughout the lifetime of a nuclear site
- Granting of a licence does not infer that a plant can operate
- Control of activities exercised using the site licence conditions

UK Nuclear Programme

Law and Regulation – UK Approach (4)



- Regulatory control exercised through 36 standard conditions attached to the licence
- Licence conditions are goal setting
- Some conditions require licensees to make arrangements to comply
- Compliance with conditions and arrangements is mandatory
- Licence conditions give regulator enforcement powers in addition to those in the Health and Safety at Work Act

UK Nuclear Programme

Law and Regulation – UK Approach (5)

The Regulatory Body

- Up until 1 April 2011, the UK the nuclear safety regulator was the Nuclear Division (ND) of the Health and Safety Executive (HSE)
- As of 1 April 2011, the nuclear safety regulator is the Office for Nuclear Regulation (ONR) an Agency of HSE

UK Nuclear Programme

Law and Regulation – UK Approach (6)

The Regulatory Body

- ONR's function is to:
 - Assess safety documentation
 - Issue Licences and other permissions
 - Inspect compliance with the law
 - Enforce compliance with the law
- ONR currently has 402 staff of which 218 are professionally qualified nuclear inspectors

UK Nuclear Programme

Law and Regulation – UK Approach (7)

The Regulatory Body

- In England and Wales environmental legislation is regulated by the Environment Agency
- In Scotland environmental legislation is regulated by the Scottish Environment Protection Agency
- Close liaison between ONR and the environment regulators

3. Significant developments since the 2008 Convention Review Meeting

Significant developments since 2008 Convention

Political and Organisational issues

- European Union Nuclear Safety Directive
 - UK in final stages of transposition into UK law
- Changes to Licensee Organisations
 - EDF purchase of British Energy
 - Magnox Electric was split into two companies, Magnox North and Magnox South
 - In 2011 these two companies were re-amalgamated into a single company
- Creation of Department of Energy and Climate Change
 - Office for Nuclear Development

Significant developments since 2008 Convention

New Build NPP - Summary of Position at 2008 Convention

- In July 2007, HSE started the Generic Design Assessment (GDA) of four potential reactor designs.
- In 2008, UK Government White Paper concluded:
 - *“it is in the public interest to give energy companies the option of investing in new nuclear power stations”*
 - there should be a review of the regulatory regime to see if there are further efficiency gains to be made
 - *“Government will need to be satisfied that effective arrangements exist, or will exist, to manage and dispose of the waste they will produce”*

Significant developments since 2008 Convention

New Build NPP – Current UK Government position

Government Policy on new build

- Policy not substantially changed since General Election in May 2010
- 2010 Government Energy Statement said
 - nuclear power is a proven technology and part of a low carbon future
 - new build can go ahead
- Government is committed to removing obstacles to investment in nuclear power

Significant developments since 2008 Convention

New Build NPP – Government actions since 2008

Planning Reform

- Planning Act 2008 designed to streamline the planning process.
- Act set up Infrastructure Planning Commission (IPC) to assess applications and make decisions
- Following the 2010 General Election the coalition Government has signalled its intention to abolish the IPC and replace it with a new body that will hear planning applications
- Final decisions will be made by Ministers
- The new process requires legislation

Significant developments since 2008 Convention

New Build NPP – Government actions since 2008

National policy statements

- National policy statements (NPS) provide a basis for infrastructure planning decisions
- Key to new-build NPP is the Nuclear National Policy Statement
- First Nuclear NPS published in 2009
- It was redrafted to take on board outcome of consultation
- Consultation on new Nuclear NPS finished in January 2011
- Awaiting Government response

Significant developments since 2008 Convention

New Build NPP – Government actions since 2008

Justification of new build

- Justification of new NPP required by Euratom Directive
- In October 2010 Secretary of State for Energy and Climate Change published decisions justifying:
 - Westinghouse's AP1000
 - Areva's EPR

Significant developments since 2008 Convention

New Build NPP –Government actions since 2008

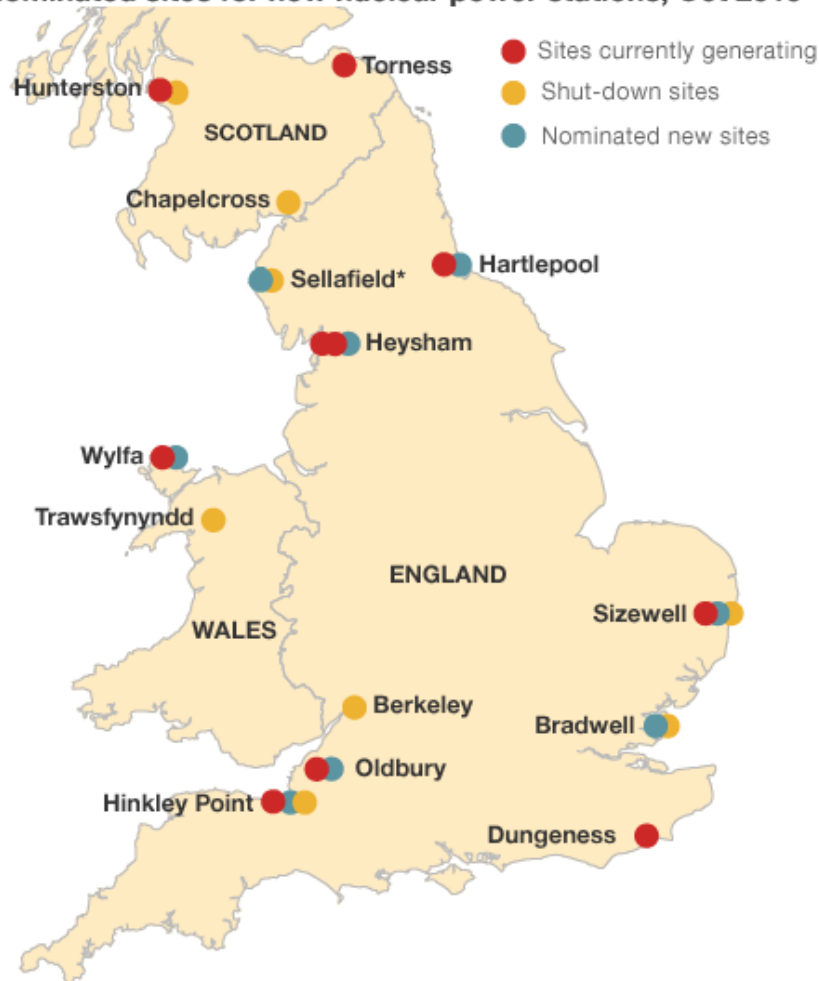
Potential sites for new build

- Strategic Siting Assessment (SSA) process examines suitability of sites
- Intended to reduce uncertainty for developers
- Eleven sites originally nominated but later reduced to eight
- These sites were identified in the draft Nuclear Policy Statement mentioned earlier
- Sites are shown on the following map

Significant developments since 2008 Convention

New Build NPP –Government actions since 2008

Nominated sites for new nuclear power stations, Oct 2010



*Shut-down site known as Calder Hall

Significant developments since 2008 Convention

New Build NPP – Government actions since 2008

Potential licensees for new build

- Three companies or consortia have signalled their wish to build NPP in UK
 - EDF Energy
 - RWE/E.ON
 - GDF SUEZ, Iberdola SA, Scottish and Southern Energy
- All have identified or purchased specific sites
- At present none has put in a formal licence application

Significant developments since 2008 Convention

New Build NPP – Government actions since 2008

Waste management

- In 2006, Independent Committee on Radioactive Waste Management (CoRWM) recommended:
 - ultimate geological disposal
 - interim secure and safe storage
- In 2008 Government set out framework to implement recommendations
- On basis of this, Government considers effective arrangements will be in place to manage waste from new build NPP
- Policy has been subject of Public Consultation

Significant developments since 2008 Convention

New Build NPP – Government actions since 2008

Two other areas of government activity will be addressed under follow -up actions from the 2008 Convention Review Meeting:

- Skill base
- Supply Chain

Significant developments since 2008 Convention

Regulation of New Build NPP – Licensing

Licensing Strategy

- Guidance prepared by HSE for Applicants
- Licence application will include:
 - Safety Management prospectus
 - Demonstration of adequate knowledge of safety case
 - How it is intended to comply with licence conditions
 - How information transferred from plant vendor to licensee
 - Sufficient safety case information to enable a licence decision to be made
- Licence does not in itself allow activities on site
- Licensee will subsequently seek Consent under a licence condition to commence construction of plant
- Construction application accompanied by PCSR

Significant developments since 2008 Convention

Regulation of New Build NPP – Licensing NNB Genco

- NNB Genco is a consortium of EDF and Centrica
- NNB plan to build at Hinkley Point (HPC) and at Sizewell (SZC)
- ONR and NNB have appointed dedicated licensing staff
- Pre-licensing dialogue in process aimed at NNB developing its organisational arrangements
- In April 2010 draft licence application with early draft of site specific PCSR (for HPC)
- Prelicensing interventions by ONR starting July 2011
- Anticipate granting site licence for HPC in July 2012 and consent to start construction in October 2012

Significant developments since 2008 Convention

Regulation of New Build NPP – Licensing Horizon

- Horizon is a consortium of E.ON UK and RWE
- NNB plan to build at Wylfa (Anglesey) and at Oldbury
- Horizon yet to select reactor design but expects to do this in April 2011
- ONR and NNB have appointed dedicated licensing staff
- Pre-licensing dialogue in process
- Site licence application due expected in June 2012
- Prelicensing interventions by ONR starting June 2012
- Anticipate granting site licence for Wylfa (Anglesey) site in September 2013 and to start construction in July 2016

Significant developments since 2008 Convention

Regulation of New Build – Generic Design Assessment

Generic Design Assessment (GDA) process

- Process developed by HSE and Environment Agency
- GDA not required by law
- Does not address specific site related matters
- Initially four applications for GDA:
 - Atomic Energy of Canada Ltd Candu reactor - the ACR1000;
 - EDF/Areva Pressurised Water Reactor (PWR) - the EPR;
 - GE-Hitachi Boiling Water reactor - the GE ESBWR;
 - and the Toshiba/Westinghouse PWR - the AP1000.
- AECL and GE-Hitachi withdrew from the process in the early stages

Significant developments since 2008 Convention

Regulation of New Build – Generic Design Assessment

GDA progress

- Now in the fourth and final stage – detailed assessment
- Expect to complete on Schedule in June 2011
- So far have not identified any “showstoppers” but it is likely that Observations may result in design changes
- Some issues are likely to be outstanding in June but safety related construction will not start until all issues cleared
- Will take account of the outcome of the Chief Inspector's report into the safety implications for UK nuclear facilities of the accident in Japan

Significant developments since 2008 Convention

Regulation of New Build – Generic Design Assessment

GDA management of issues

- System in place for communication between the Regulators and Requesting Parties
- Issues arising can be seen on the HSE new-build website.
- In the UK national report to the Convention we identified two outstanding regulatory issues concerning:
 - C&I on the Areva EPR
 - Civil engineering issue on the Westinghouse AP1000
- The Areva issue is cleared and Westinghouse have provided more information which is being reviewed

Significant developments since 2008 Convention

Regulation of New Build – Generic Design Assessment

GDA staffing

- 72 staff of ONR dedicated to the GDA work including 35 inspectors
- International collaboration has been invaluable in enabling the work to progress to time

Significant developments since 2008 Convention

Regulation of New Build – Generic Design Assessment

GDA openness and transparency

- HSE new build website gives full information on the progress of GDA
- Includes all assessment reports, progress reports and outstanding issues
- Also links to the website of the Requesting Parties where design details can be seen

Significant developments since 2008 Convention

Changes to the Nuclear Regulatory Authority (1)

- 2008 Nuclear White paper announce review of UK nuclear regulation
- Dr Tim Stone appointed to carry out review
- Stone's report recommended:
 - ND should be structured to give it financial and organisational flexibility
 - Cost recovery arrangements should be amended
 - ND should have a new governing body
- Key to all recommendations was to facilitate recruitment of qualified and experienced staff

Significant developments since 2008 Convention

Changes to the Nuclear Regulatory Authority (2)

- Recommendations accepted by Government
- Arrangements put in place to implement Stone's recommendations
- Early success was additional ND office in South West UK an area with significant nuclear industry
- UK Treasury (finance ministry) agreed interim salary increases for Nuclear Inspectors
- Both these steps considerably increased recruitment success

Significant developments since 2008 Convention

Changes to the Nuclear Regulatory Authority (3)

- Steps taken to create a new body with financial and organisational flexibility envisaged in Stone's recommendations
- This had two areas of work:
 - development of legislation (Legislative Reform Order) to create the new body
 - preparation to ensure that the new body had the necessary infrastructure
- New body would be a Statutory Corporation and have the name "Office for Nuclear Regulation"
- In addition programme started to improve way ND (ONR) works (the Transformation Programme)

Significant developments since 2008 Convention

Changes to the Nuclear Regulatory Authority (4)

- In April 2009 Transition programme set up to develop infrastructure for new body
- Most work led by temporary staff with specific expertise
- Consultation carried out with third parties out regarding the new body
- In March 2010 the Government published the draft “Legislative Reform (Office for Nuclear Regulation) Order”
- Was not laid before Parliament because of pending General Election
- Transition work suspended pending new Government declaring its approach

Significant developments since 2008 Convention

Changes to the Nuclear Regulatory Authority (5)

In February 2011 a Ministerial statement announced that:

- Government intends to bring forward legislation to create a new body outside of HSE
- The Office for Nuclear Regulation (ONR) would be a new independent nuclear safety regulator
- Pending the legislation took steps to establish the ONR as a non statutory body (an Agency of HSE)

This came into force on 1 April 2011

Significant developments since 2008 Convention

IRRS mission (1)

- At the 2008 Convention Review Meeting UK reported on an IRRS mission carried out in 2006
- This mission was targeted towards regulation of new reactors and its outcome provided valuable information for the Stone Review
- Second mission in October 2009 the purpose of which was to:
 - follow up 2006 Mission
 - look at regulation of existing NPP and fuel cycle facilities (inspection, enforcement and emergency preparedness)

Significant developments since 2008 Convention

IRRS mission (2)

The IRRS team concluded that:

- the recommendations from the 2006 mission had been addressed systematically
- the self assessment for the 2009 mission identified issues that were being systematically addressed
- The IRRS team identified a number of recommendations and suggestions as well as areas of good practice
- Findings are being taken forward as part of the Transformation programme
- The IAEA Deputy Director General recognised that the UK Government intends ONR to be a world class regulator

Significant developments since 2008 Convention

Significant events at NPPs

At the 2008 Convention Review Meeting, UK reported three main areas that were attracting regulatory attention:

AGR boiler tubes at Hinkley Point B and Hunterston B

Inspections in 2008 and 2008 enabled a case to be made to increase operating load from 70% to 80%

- Position under control

AGR boiler closure units at Heysham 1 and Hartlepool

Engineering modifications and inspections enabled reactors to start-up in early 2009

- Position under control

Graphite integrity particularly at the Magnox stations

Graphite is the object of regular inspection

- Position under control

Significant developments since 2008 Convention

Significant events at NPPs

- There have been no significant events at UK NPPs that have challenged safety since the 2008 Convention Review Meeting
- However, recent events in Japan have lead to a Government request to the Chief Inspector to report on lessons learned for UK's NPPs (mentioned earlier)

4. Follow-up on issues from the 2008 Convention Review Meeting

Follow-up on issues from the 2008 Convention

Generic items identified in the President's Report

- At the 2008 Convention Review Meeting the President identified a number of issue of generic interest. These included:
 - Openness and transparency
 - Regulatory independence
 - Assessment of safety culture
 - Operational feedback
 - Maintaining staffing levels and competencies
 - Use of PSA as a basis for risk-based decision making
 - Progress with periodic safety reviews
- These are all addressed in the UK National report or elsewhere in this presentation

Follow-up on issues from the 2008 Convention

Challenges identified in the 2008 Rapporteur's Report

- Timely implementation of new build strategy
- Ensuring supply chain for new build
- Implementation of decommissioning plans
- Regulating ageing reactors
- Development of performance indicators
- Threat of loss of industrial infrastructure including human skills
- Loss of corporate knowledge particularly in the regulatory body
- Consider effects of climate change (e.g. sea level changes)

Follow-up on issues from the 2008 Convention

Challenges identified in the 2008 Rapporteur's Report

Implementing new-build strategy and ensuring supply chain

- Both items are largely commercial issues but there are clear safety implications
- Important to ensure that measures are in place to regulate new build safety
 - GDA and licensing strategy are in place
 - good liaison between regulator, government and prospective licensees
- All components must meet stringent safety standards
- Government taking steps that supply chain is not a barrier to construction of new build NPP
- Supply chain also has safety implications for existing plant

Follow-up on issues from the 2008 Convention

Challenges identified in the 2008 Rapporteur's Report

Implementing of Decommissioning Plans

- This is largely a matter for the Joint Convention and not within the scope of the CNS
- Whilst operational, NPPs make financial provision for decommissioning and make decommissioning plans

Follow-up on issues from the 2008 Convention

Challenges identified in the 2008 Rapporteur's Report

Regulating ageing reactors (1)

- PSRs are the principal tool for regulating ageing reactors
- PSRs carried out every 10 years to:
 - Ensure, as a minimum, original safety standards are maintained
 - Review against latest safety standards
 - Make all reasonably practicable improvements
- PSRs also look forward 10 years to identify potential ageing issues

Follow-up on issues from the 2008 Convention

Challenges identified in the 2008 Rapporteur's Report

Regulating ageing reactors (2)

- When a 10 year safety case cannot be made with confidence then intermediate examination may be required
- Example of this are the examinations on the AGR boiler tubes and the Magnox Graphite moderator. Both these are ageing issues
- Licensees also have ageing management programmes that are monitored by ONR inspectors
- Statutory maintenance, inspection and testing of safety related plant and components are integral parts of ageing management

Follow-up on issues from the 2008 Convention

Challenges identified in the 2008 Rapporteur's Report

Performance indicators (1) (licensees)

- SPIs for licensees based on IAEA TECDOC 1141 with additional factors for leadership and management
- Licensees involved in identifying and agreeing suitable metrics with ONR
- Aim is that the SPI project will be part of “normal business” in 2011
- Licensees SPIs to be used by ONR as one input to targeting and prioritising regulatory interventions

Follow-up on issues from the 2008 Convention

Challenges identified in the 2008 Rapporteur's Report

Performance indicators (2) (regulators)

- Decided not possible to adapt licensee indicators for ONR
- Needed indicators that are understood by stakeholders and also useful for ONR management
- Key questions are:
 - Are our decisions balanced and consistent?
 - How well to we communicate decisions and reasons for them?
 - To what extent do stakeholders respect our decisions?
- Decided not to measure everything objectively
- Using qualitative and quantitative information

Follow-up on issues from the 2008 Convention

Challenges identified in the 2008 Rapporteur's Report

Performance indicators (3) (regulators)

- To answer the above key questions ONR propose to collect the following information:
 - % of assessment reports and project assessment reports that are “right first time” at peer review
 - % of report published to agreed deadlines
 - stakeholder feedback
 - expert judgement from management teams
- Details are still being developed
- Totality of information will provide ONR management with key information that will enable improvements to be identified

Follow-up on issues from the 2008 Convention

Challenges identified in the 2008 Rapporteur's Report

Loss of industrial infrastructure including human skill base

- Nuclear sector currently employs 44000 people
- New build will require additional 1000 skilled apprenticeships and 1000 graduates
- Government working with National Skills Academy
- New National Nuclear Laboratory
- Universities are responding to need for graduates
- Maintaining skill base will remain a challenge as new build develops

Follow-up on issues from the 2008 Convention

Challenges identified in the 2008 Rapporteur's Report

Loss of corporate knowledge in the regulatory body

- Comprehensive training programmes for new inspectors training programmes for new inspectors
- Mentoring by senior inspectors
- Project in place to interview older inspectors to add knowledge to the corporate body

Follow-up on issues from the 2008 Convention

Challenges identified in the 2008 Rapporteur's Report

Consider effects of climate change (e.g. sea level changes)

- Has been and will continue to be addressed in Periodic Safety Reviews for existing plant
 - part of review of external hazards
- Remedial action will be taken when need identified
- For new plant the issue is addressed in pre-construction safety reports

Follow-up on issues from the 2008 Convention

Planned measures to improve safety identified in the Rapporteur's Report

- Review regulatory arrangements to further improve efficiency and transparency
 - move towards an outcome driven regulatory approach
- Plans to reduce the number of events at NPP by 7.5% by 2011
- Human resource enhancement

Follow-up on issues from the 2008 Convention

Planned measures to improve safety identified in the Rapporteur's Report

Review of Regulatory Arrangements (1)

- 2008 White Paper announced a review of regulation
- A related component of this is a review of working methods – known as Transformation
- In 2009 Transformation Programme established with three workstreams:
 - regulatory effectiveness
 - organisational effectiveness
 - openness and transparency
- Review used information from
 - international best practice (IRRS)
 - stakeholder feed back
 - internal feedback

Follow-up on issues from the 2008 Convention

Planned measures to improve safety identified in the Rapporteur's Report

Review of Regulatory Arrangements (2)

Progress to date

- Improved Business management system (BMS)
- Monthly performance reviews with all divisions
- Revised Regulatory Nuclear Interface Protocol – interface with licensees
- Since April 2010 Executive Summaries of Project Assessment Reports placed on website
- Full Project Assessment Reports placed on web from April 2011
- Warrants only issued to new inspectors if they satisfy new competence requirements
- Target is to become ISO9001 accredited

Follow-up on issues from the 2008 Convention

Planned measures to improve safety identified in the Rapporteur's Report

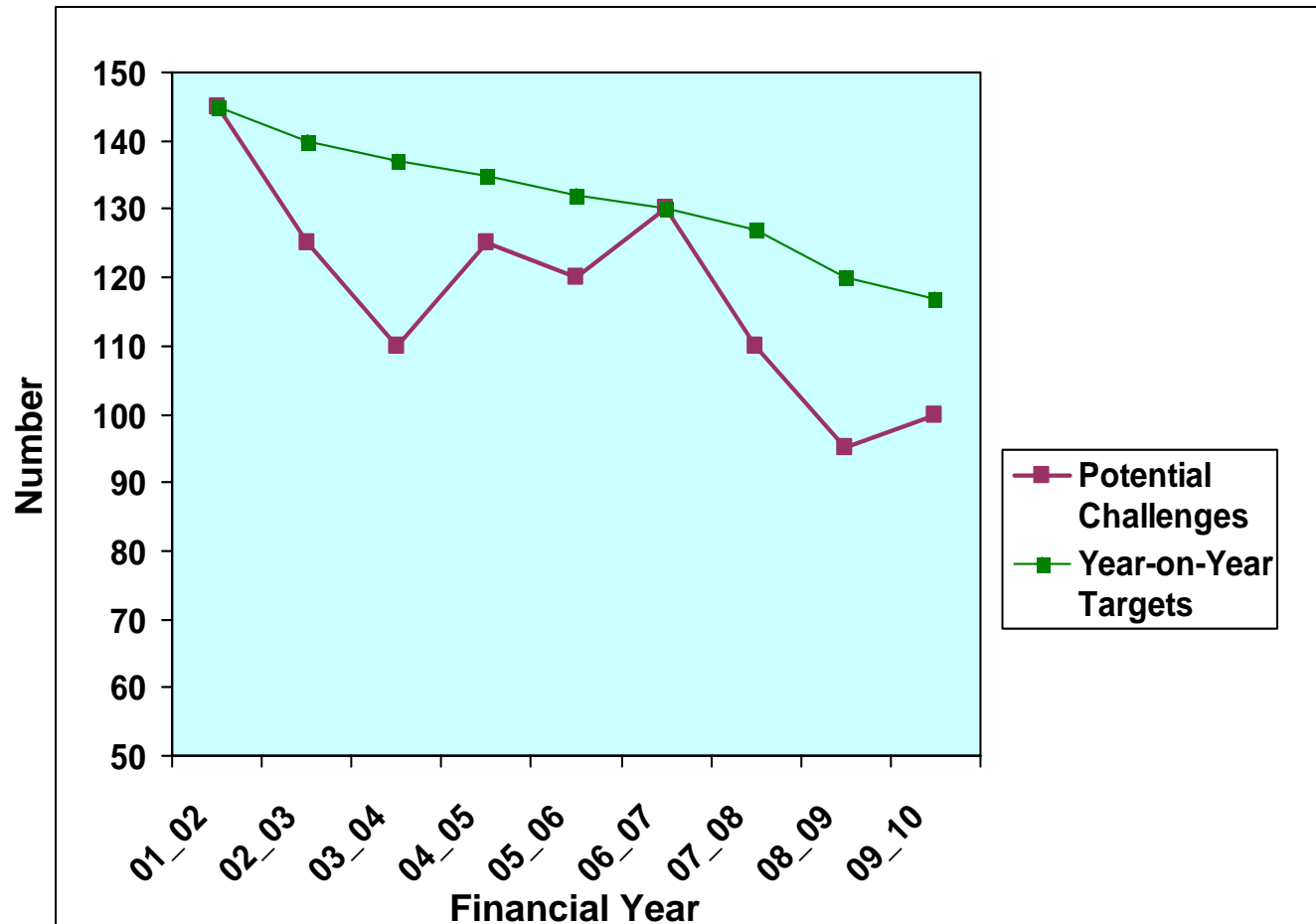
Reduction in number of events at NPPs

- This target has been modified from a reduction of 7.5% over ten year period to 2011 to 20% over the same period
- Progress is shown on next slide

Follow-up on issues from the 2008 Convention

Planned measures to improve safety identified in the Rapporteur's Report

Reduction in number of events at NPPs



Follow-up on issues from the 2008 Convention

Planned measures to improve safety identified in the Rapporteur's Report

Human Resource enhancement (regulator)

- Stone review (addressed earlier) identified actions to assist recruitment
- Early success was additional office in South West UK an area with significant nuclear industry
- At the same time, UK Treasury (finance ministry) agreed interim salary increases for nuclear inspectors
- Both steps considerably increased recruitment success
- Currently 402 staff in post, of which 218 are nuclear inspectors (165 nuclear inspectors at the 2008 CNS)
- Latest recruitment for nuclear inspectors has resulted in 18 more acceptances and these will be in post shortly

5. Response to Questions on the 5th UK Report

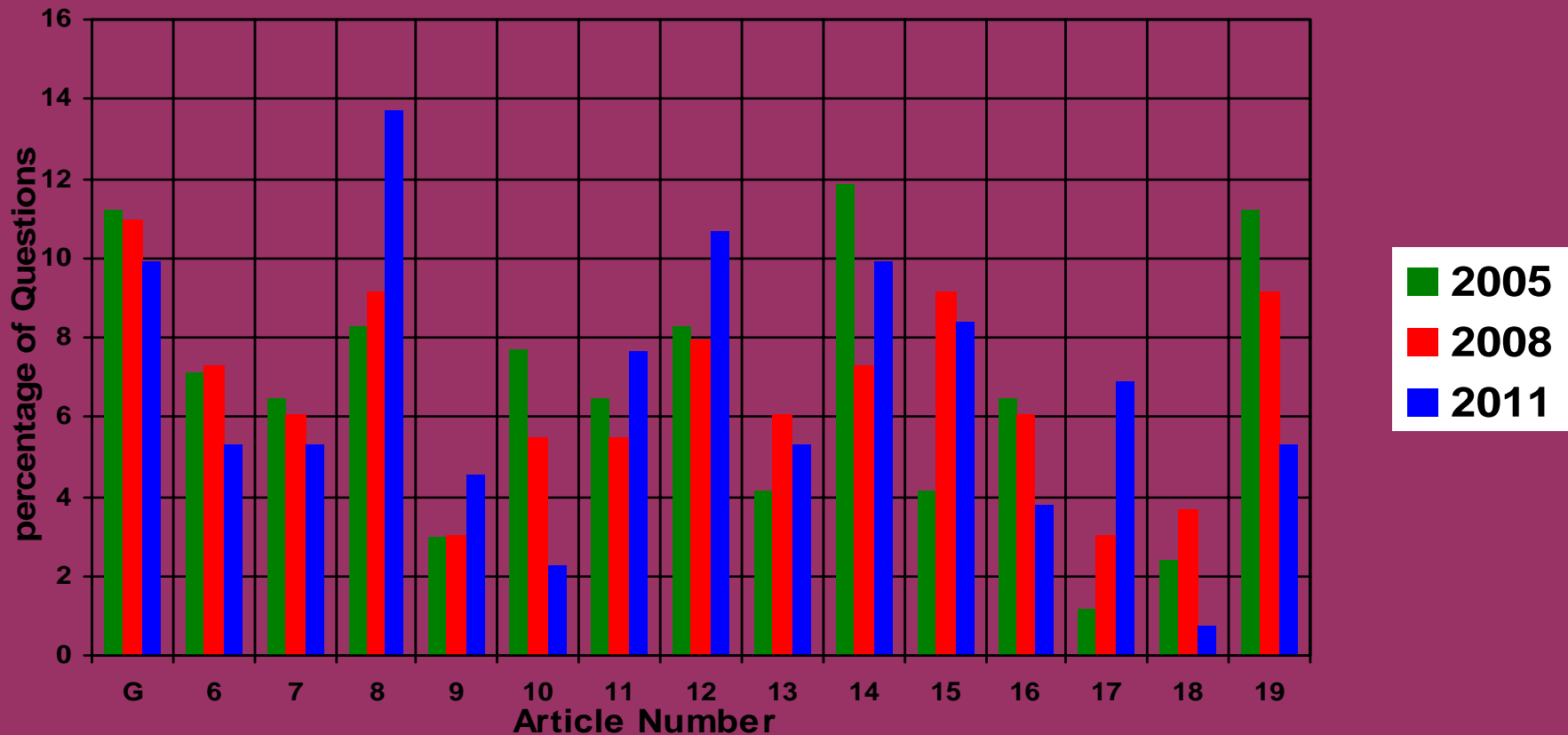
Response to Questions on the 5th UK Report

Analysis of Questions Received

- UK received 131 questions from 21 countries
- Distribution broadly similar to previous CNS reviews
- But probably increased interest in Article 8 (Regulatory Body) and in Article 17 (Siting) reflecting changes and new build

Response to Questions on the 5th UK Report

Analysis of Questions Received



Response to Questions on the 5th UK Report

Analysis of Questions Received

- Main areas of interest are:
 - General Issues
 - Regulatory Body (Article 8)
 - Resources (Article 11)
 - Human Factors (Article 12)
 - Assessment of Safety (Article 14)
 - Radiation Protection (Article 15)
 - Siting (Article 17)
- For each Article, I will address in detail some of the key topics identified by the questions to supplement the information in the UK National Report

Response to Questions on the 5th UK Report

General Questions

- Covered a wide range of topics
- Most referred to new-build (licensing and GDA) and changes to the regulatory body
- These were addressed elsewhere in this presentation

Response to Questions on the 5th UK Report

Article 6 Existing Nuclear Installations

Several questions on Periodic Safety Reviews (PSRs)

- PSRs carried out every 10 years to :
 - Ensure original safety standard is maintained
 - Review against modern standards
 - Make any reasonably practicable improvements
- Ageing management is included in a PSR
- Since 2008 CNS Review Meeting PSRs completed at Heysham1 /Hartlepool and Heysham2/Torness
- Severe accident analyses are carried out during a PSR

Response to Questions on the 5th UK Report

Article 6 Existing Nuclear Installations

What are requirements for lifetime extension?

- There is no time limit to site licence
- Operational activities require an adequate safety case at all times
- If no adequate safety case then no operation

Response to Questions on the 5th UK Report

Article 7 Legislative and Regulatory Framework

Technical Safety Regulations

- UK has no plans to develop technical safety regulations
- The nuclear site licence conditions together with Safety Assessment Principles and Technical Assessment Guides give sufficient scope to establish technical safety standards
- System provides great flexibility and enable new safety requirements to be implemented quickly

Response to Questions on the 5th UK Report

Article 8 The Regulatory Body

- Several questions on Safety Performance Indicators and Knowledge Management
- These issues already covered

Response to Questions on the 5th UK Report

Article 8 The Regulatory Body

Cost recovery from licensees

- Implication of the question is that this could prejudice regulatory independence?
- Licensees cannot dictate the work of the regulator
- Costs on a licensee are proportional to the amount of regulatory time on that licensee
- Therefore the better they perform, the less regulatory intervention and lower costs

Response to Questions on the 5th UK Report

Article 8 The Regulatory Body

Regulator's staffing

- This is to clarify an answer to a written question regarding staffing of SEPA, EA and ND (now ONR)
- There are currently:
 - 218 nuclear inspectors
 - 45 Environment Agency technical staff
 - 14 Scottish Environment Protection Agency technical staff

Response to Questions on the 5th UK Report

Article 9 The Responsibility of the license Holder

Questions referred to the authority of a Site Director and adequacy of the licensee' safety management

- The Site Director is responsible for safety on the site
- He/She can delegate tasks to staff on the site
- Centrally based staff cannot order changes to the plant without consulting the Station Director
- Regulator will assess licensee competence in accordance with HSE Safety Assessment Principles

Response to Questions on the 5th UK Report

Article 9 The Responsibility of the license Holder

Question asked about influence of Site Stakeholder Groups

- The site stakeholder groups do not directly influence activities on site although member can express opinions
- It is not a decision making body
- Its prime purpose is to communicate and disseminate information

Response to Questions on the 5th UK Report

Article 11 – Financial and Human Resources

Questions asked about enhancing the skills base

- Already addressed in presentation
- But will remain a challenge for the future

Response to Questions on the 5th UK Report

Article 11 – Financial and Human Resources

Question asked about Impact of Government austerity measures on ND (now ONR) and NDA

- Austerity measures have not had direct adverse impacts on the financial resources of the UK's nuclear regulator
- There has been greater oversight of expenditure, to ensure value for money. This has
 - delayed the placing of technical support contracts,
 - Delayed the recruitment programme
 - reduced the reliance on interim managers and consultants on organisational development programmes

Response to Questions on the 5th UK Report

Article 12 – Human Factors

Questions asked about human intervention in case of severe accidents

- Expect licensees to demonstrate that claims on operators are understood and justified
- Where operator actions are needed over a long period regulator expects additional prompts in place to provide confidence in operator response. These could be:
 - Alarms
 - Procedures
 - Personnel changes

Response to Questions on the 5th UK Report

Article 13 – Quality Assurance

Question asked about continual improvement of licensee management system

The continual improvement processes normally contain the following steps:

- identify the performance deficiency
- identify the root cause, or causes, of the performance deficiency
- develop options to eliminate the root cause or causes
- select the optimum option
- plan for the deployment of this option, including the allocation of necessary resources
- implement the plan
- monitor subsequent performance and evaluate the effectiveness of the improvement action

Response to Questions on the 5th UK Report

Article 14 – Assessment and Verification of Safety

Question asked about consistency of regulation across site and licensees

- Safety Assessment Principle (SAPs) and Technical Assessment Guides (TAGs) provide basis for technical judgments
- HSE document “reducing risk protecting people” provides framework for consistency and proportionality
- Auditing helps consistency
- ONR moving towards publishing all its project report which should help consistency

Response to Questions on the 5th UK Report

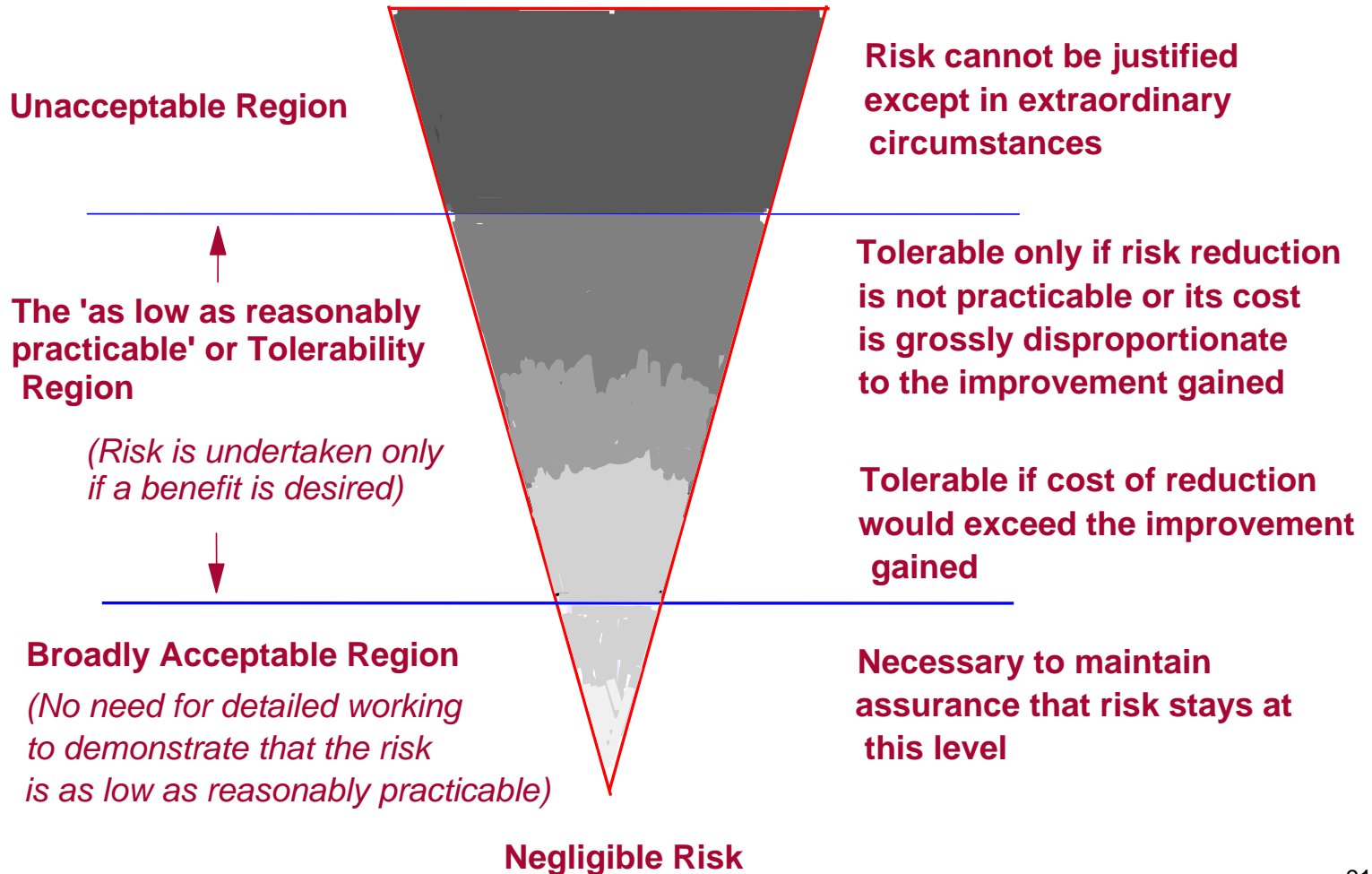
Article 14 – Assessment and Verification of Safety

Question asked about ALARP and older plant

- It is the duty of licensees to do all that is reasonably practicable to minimise risks
- ONR assessors will make judgment on whether licensee proposals are adequate
- What is ALARP for a new plant will not necessarily be ALARP for an old plant
- But there are minimum safety requirements
- Explained on following slide

Response to Questions on the 5th UK Report

Tolerability of Risk



Response to Questions on the 5th UK Report

Article 16 – Emergency Preparedness

Question asked about Detailed Emergency Planning Zones

- The Detailed Emergency Planning Zones (DEPZ) range from 1 – 3.5 km from NPP sites
- The size depends on the potential risk posed by a particular NPP
- Emergency planning zones are extendable in case of severe accidents

Response to Questions on the 5th UK Report

Article 17 – Siting

Question asked about Strategic Siting Assessment (SSA)

- SSA is a process to evaluate sites against specific criteria (safety, environmental, sociological)
- Sites nominated by third parties
- Process carried out by government with advice from other organisations and agencies
- Potential sites were listed in draft Nuclear National Policy Statements (addressed earlier)
- Policy Statements were subject to public consultation
- SSA is a high level assessment to facilitate planning. It does not take account of developer proposals

Response to Questions on the 5th UK Report

Article 18 – Design

Question asked about external hazards (specifically aircraft crash)

- External hazard analysis includes aircraft crash
- Details are in HSE Safety Assessment Principles (SAPs)
- Regarding intentional aircraft crash SAPs say:
*Terrorist or other malicious acts are assessed as external hazards.
The dutyholder should demonstrate that an effective process has
been applied to identify all types of external hazard relevant to a
particular site*

Response to Questions on the 5th UK Report

Article 19 – Operation

Question asked about event reporting

- UK incident and event reporting set out in legislation
- ONR provides dedicated UK national coordinators for international reporting (INES, IRS, FINAS)
- IRS co-ordinator meets with licensees to screen events
- Screening criteria are published by IAEA
- Lessons learned are included in each report
- In three year period 2007-2009, 36 events submitted to IRS by UK coordinator

6. Current Challenges

Current Challenges

- Continue to focus attention on skills availability
- Availability of supply chains for new and existing plant
- Need for a properly resources, skilled and expert integrated nuclear regulator
- Extended operation of ageing reactors
- Implications for UK NPP following accident in Japan
- Openness and transparency

7. Potential Areas of Good practice

Potential Areas of Good practice

- Regulation of new build NPP
- National initiatives for maintaining and expanding skills in the nuclear sector
- Government intention to create ONR as a separate legal entity

8. Planned measures to improve safety

Planned Measures to Improve Safety

- Transformation programme for regulatory body to seek further effectiveness, openness, transparency and accountability
- Learning lessons from accident in Japan
- ONR Re-organisation and pushing forward 'Plan on a Page'

9. Concluding Remarks

Concluding Remarks

- UK is in compliance with requirements of the Convention on Nuclear Safety
- Time of change – must maintain vigilance to protect public and society
- Striving for continuous improvement in nuclear safety and its regulation

Concluding Remarks

Thank you very much for your kind attention. I shall be pleased to answer any questions you may have

Colleagues from the UK Delegation will assist my replies

CONVENTION ON NUCLEAR SAFETY



**The United Kingdom of
Great Britain and Northern
Ireland**

**NATIONAL REPORT
PRESENTATION**

for the

Fifth Review Meeting

April 2010, Vienna