



New Nuclear Build – New Regulatory Approach

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Lead New Nuclear Build

Environment Agency

World Nuclear New Build Congress

London, September 2014

The Environment Agency

- ⇒ Formed in 1996 by the Environment Act 1995
- ⇒ Non-departmental public body
- ⇒ Defra sponsoring department
- ⇒ Brought together a large number of organisations
- ⇒ England and, at time, Wales (SEPA, NIEA)
- ⇒ (Natural Resources Wales formed in 2013)
- ⇒ 10500 employees
- ⇒ >£1bn budget
- ⇒ Principal independent environmental regulator for nuclear sites in England
- ⇒ Working closely with the Office for Nuclear Regulation on nuclear licensed sites.



Environment Agency Vision

Our aim



**A better place
for people
and wildlife**

Roles

Environmental
Regulator



Environmental
Adviser



Environmental
Operator



Functions

- ➔ Pollution control functions
- ➔ Flood and coastal risk management
- ➔ Conservation and recreation
- ➔ Navigation
- ➔ Fisheries
- ➔ Water resources
- ➔ Climate change

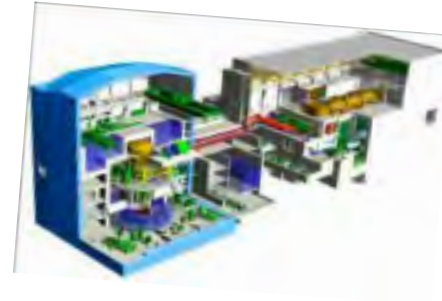
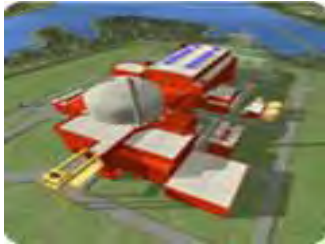


New Nuclear Build - Government's Facilitative Actions ~ 2008

- ➔ Electricity market – ETS
- ➔ Planning reform
 - ➔ Strategic siting strategic environmental assessment
 - ➔ National Policy Statement
- ➔ Regulatory Justification
- ➔ Decommissioning and waste management programme and funding
- ➔ **Regulators' (EA & ONR) approach – introduction of Generic Design**



Approach to Regulating New Nuclear Build – What's required for new nuclear build?



Design

Phase 1

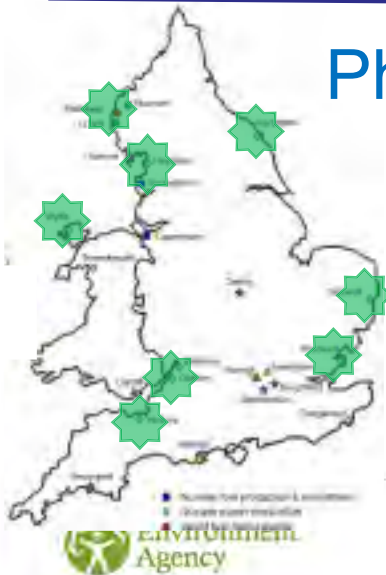
Generic Design Assessment

Phase 2

Site Specific Assessment

Site

Organisation



Phase 2 - Site Specific Assessment

Site Specific Design



Site Specific Characteristics



Site Specific Organisation



EA & ONR - GDA's Objectives

- ➔ Engaging early – maximising influence
- ➔ Identify and resolve key issues before build – reducing cost and time risks
- ➔ Integration of Safety, Security, Environment
- ➔ Simplifying site specific phase & standardising plants
- ➔ Licensing/permitting programme in line with investment decisions – enabling not blocking
- ➔ Openness, transparency and public input building public confidence
- ➔ Regulators working together – clarifying expectations, providing consistency



Ease of changing layout part-way through the design process ?

Hinkley Point



Flamanville

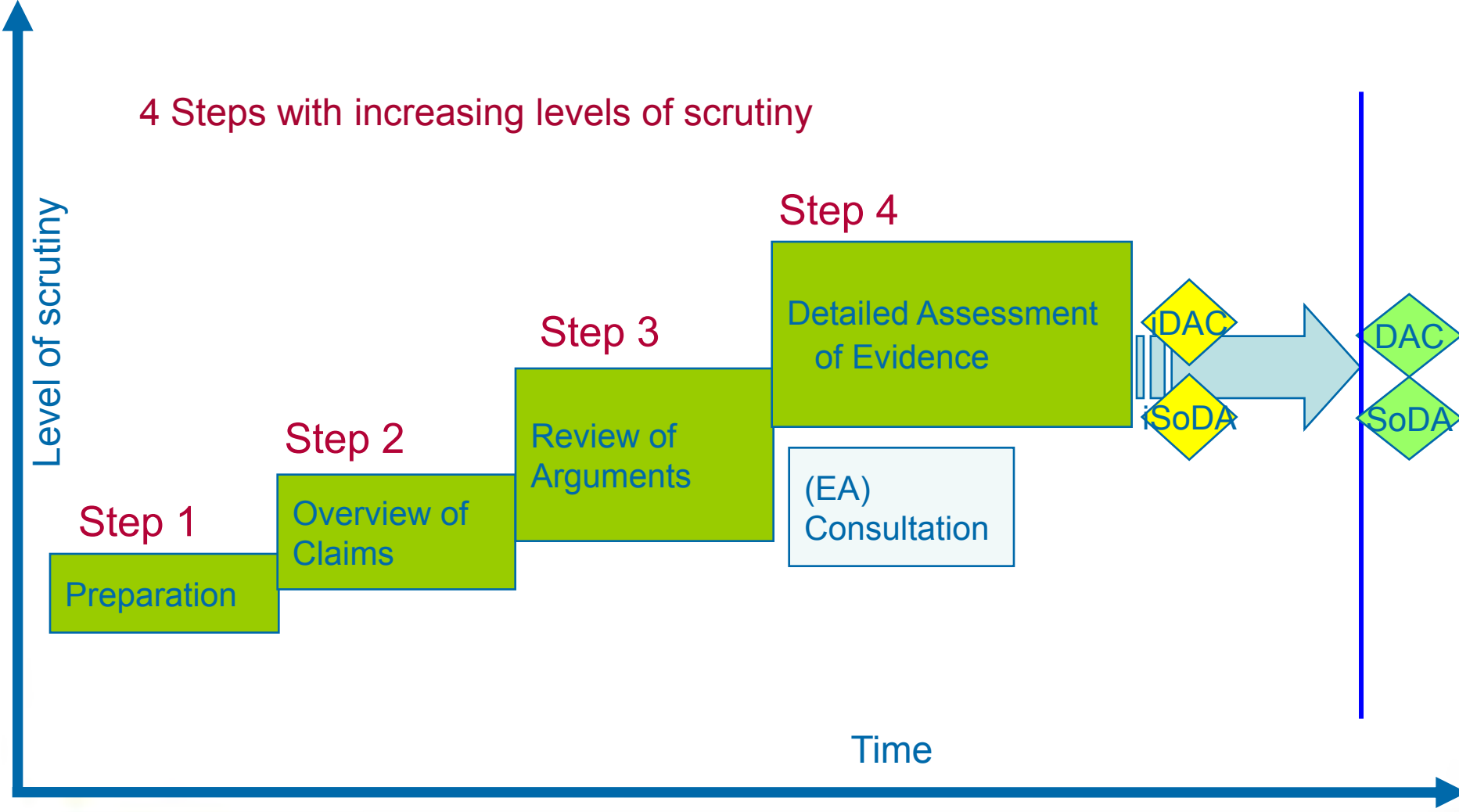


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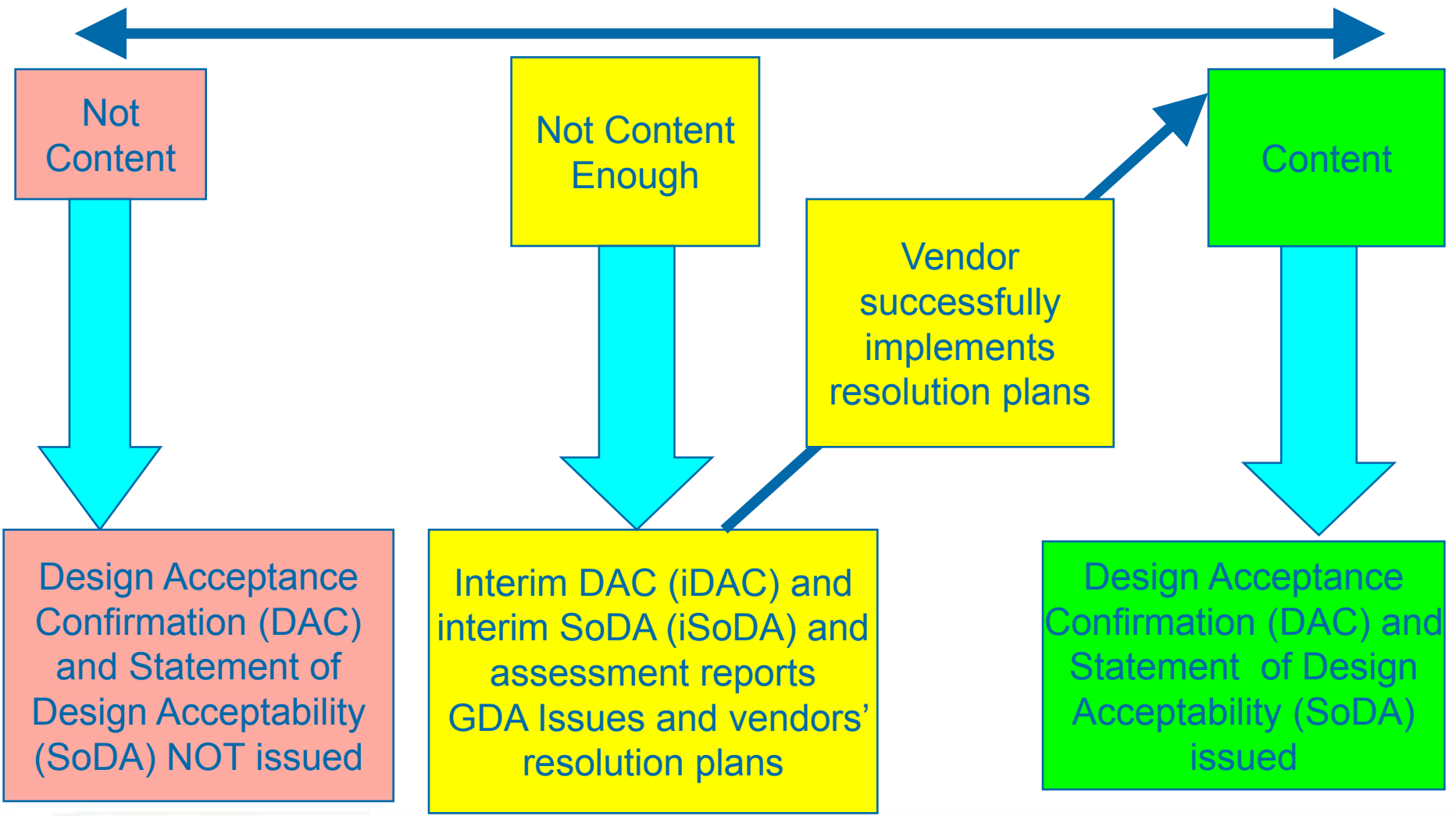


Phase 1 - Generic Design Assessment: Structure

4 Steps with increasing levels of scrutiny



Phase 1 - Generic Design Assessment: Outcomes

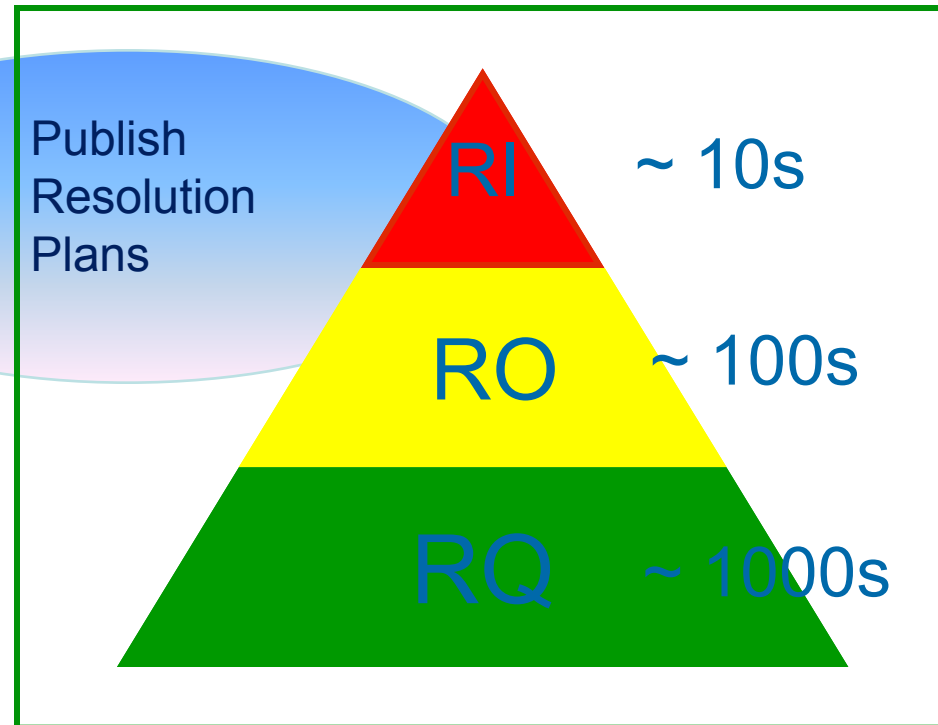


Phase 1 - Generic Design Assessment: Raising Issues

Regulatory Issue (RI) – used when we have a significant concern that, if unresolved, would prevent issue of a DAC or SoDA

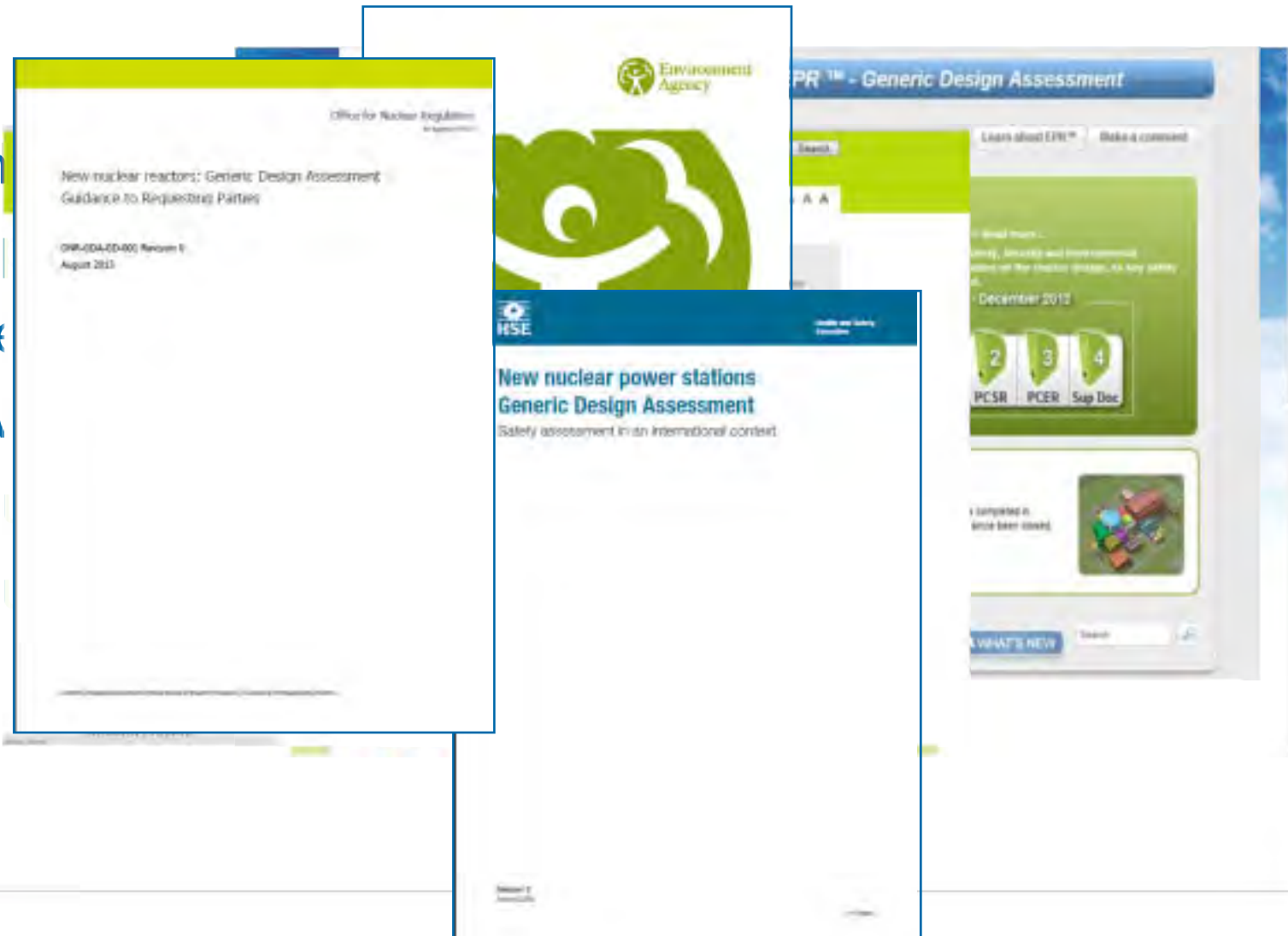
Regulatory Observation (RO) – used when we have a potential concern, require further analysis etc

Regulatory Query (RQ) – used when we seek to clarify our understanding, request a reference, etc



Openness, Transparency, Engagement (1)

- ➔ Public consultation
- ➔ The GDA process
- ➔ Openness
 - RP views
 - Regulatory process
 - Regulatory decisions



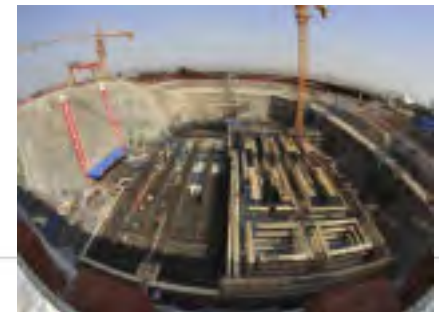
Openness, Transparency, Engagement (2)



- High standards of:
 - Transparency:
 - ROs and RIs and resolution plans published
 - Regulators' assessment reports published
 - Quarterly Progress Reports & Metrics
- Public engagement
 - RP comment process
 - EA consultation
 - Seminars, site stakeholder meetings, newsletters...

GDA experience (1)

- ⇒ Began GDA on 4 designs August 2007; 2 designs withdrew
- ⇒ Completed 4 step assessment of 2 designs mid-2011
- ⇒ 6 month delay to take account of Fukushima
- ⇒ December 2011: iDAC and iSoDA issued for UK EPR™ and AP1000®
- ⇒ GDA Issues (to be resolved before start of nuclear island construction)
 - ⇒ UK EPR™ – 31 GDA Issues; AP1000® – 51 GDA Issues
- ⇒ Assessment findings:
 - ⇒ UK EPR™ ~ 480; AP 1000® ~ 580



GDA Experience (2)

- December 2012: **UK EPR™** DAC & SODA issued – valid 10 years
- 31 GDA issues ~ 500 documents provided in response – all issues closed
- 82 design changes identified
- ~ 700 Assessment findings for operator



AP1000®

- Westinghouse decision not to close out GDA Issues pending customer
- No progress December 2011 – August 2014
- Toshiba purchased 60% stake in NuGen
- September 2012 - remobilising Westinghouse and regulators' teams.

GDA Experience (3): Hitachi-GE UK ABWR

- ⇒ Hitachi purchased HORIZON in 2012
- ⇒ Plan to build UK ABWRs on two sites – Wylfa and Oldbury
- ⇒ Ministerial request January 2013 for EA and ONR to begin GDA on ABWR
- ⇒ Formal charging agreements signed end March 2013.
- ⇒ Preparatory step completed December 2013.
- ⇒ Initial high level assessment (Step 2) began Jan 2014 – conclusions published August 2014
 - ⇒ “at this stage, we have not identified any fundamental safety, security or environmental issues that would mean that the UK ABWR is unacceptable for use in the UK”.
- ⇒ Detailed assessment beginning now.



Photos courtesy of Hitachi-GE

Nuclear Energy, Ltd

Environmental Permitting for New Nuclear Build

- Radioactive discharges
- Cooling water
- Abstraction
- Combustion plant
- Flood/Coastal risks
- Conventional waste
- Other discharges
- COMAH (with ONR)



Hinkley Point C Environmental Permitting

Flood Defence

Cooling, Process &
Surface Water
Discharge

COMAH

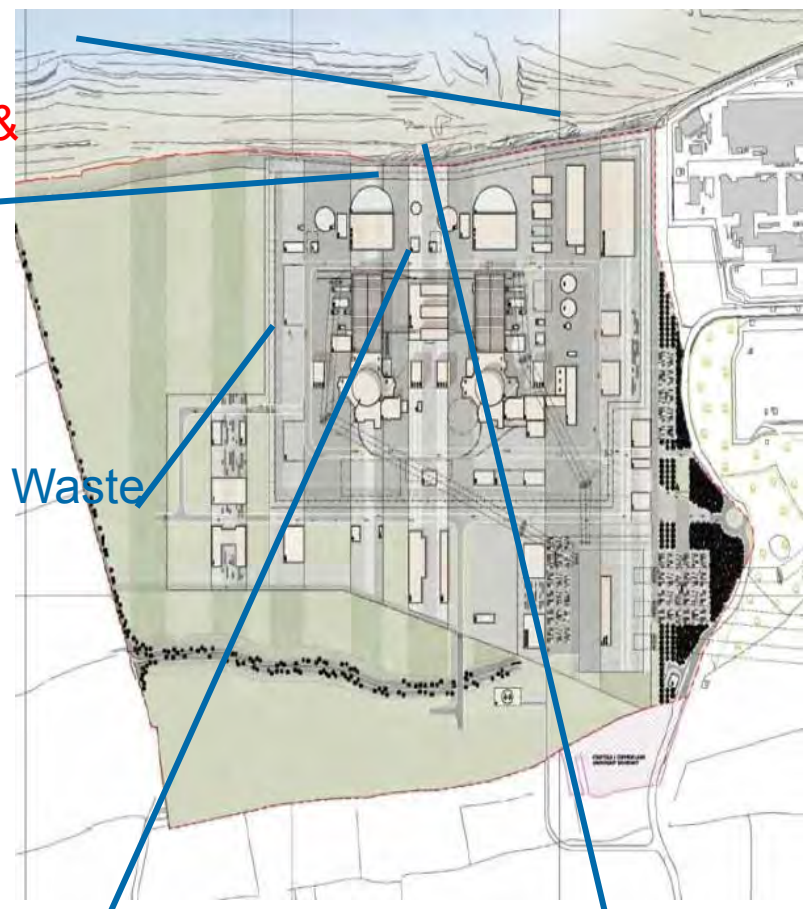
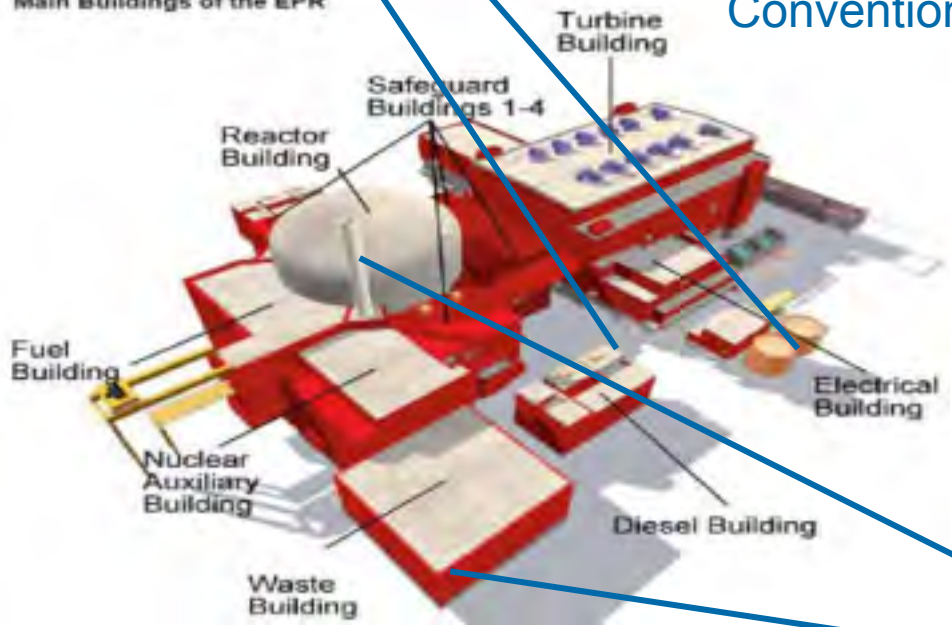
Combustion

Conventional Waste

Abstraction

Radioactive Discharges &
Disposals

Main Buildings of the EPR



HPC – Operational Environmental Permits

- Early engagement with NNB began in June 2009
- Applications in July and September 2011 for operational environmental permits for
 - Cooling water
 - Combustion plant
 - Radioactive discharges and waste disposal
- Consultation on applications Autumn 2011
- Consultation on proposed decisions Summer 2012
- Permits granted March 2013

HPC – other permits include:

- Nuclear Site Licence
- Construction water discharge EP
- Development Consent Order



Planning and Permitting Interface

- National Policy Statements – sets relationship
- Taking a consistent approach
- Improved approach to planning response



Macoma
Balthica



Figure 5.1.2 Location of Cornbech Wharf development works (outlined in red) in relation to the Severn Estuary designated area



Hinkley Point C Appropriate Assessment for related Environment Agency permissions

Revised Final Version: March 2013



Who's involved?

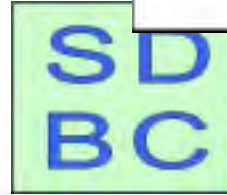
SOMERSET



County Council



Llywodraeth Cynulliad Cymru
Welsh Assembly Government



The power of action.



FOOD STANDARDS AGENCY

YMAISYNNI MŵL
ANGLESEY ENERGY ISLAND



SUEZ



The Planning Inspectorate



Department for TRANSPORT



marine management organisation



NU'GEN

HORIZON

NUCLEAR POWER



Proud of our past. Energised for our future.



defra
Department for Environment
Food and Rural Affairs

anglianwater



As the Nuclear Regulators, we are

- **Independent of Government and Industry**
- **Injecting robust, independent, technical expert scrutiny**
- **Acting in an Open and Transparent way**
- **Ensuring people, society and the environment are protected from the hazards of nuclear activity**
- **Enabling, BUT it must be safe, secure and environmentally acceptable**