

A risk-informed approach to decommissioning and remediation

International Forum on Decommissioning of Fukushima Dai-ichi NPS, 10-11 April 2016



UK civil nuclear legacy



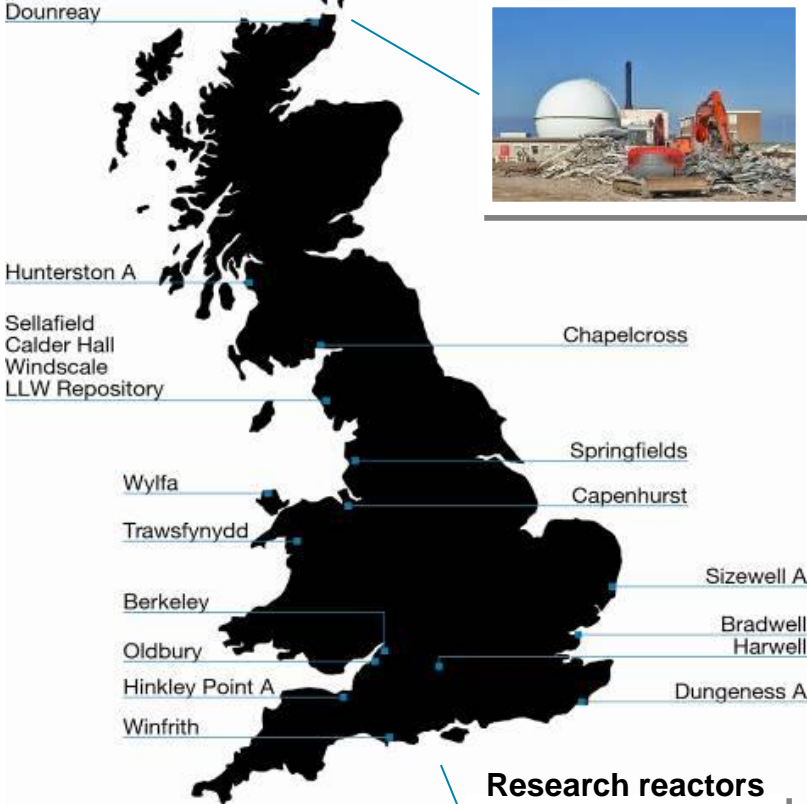
Sellafield



Magnox power reactors



Dounreay



Research reactors

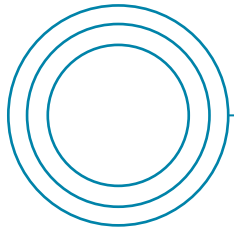


Prioritisation and the Value Framework

- Priority of a decommissioning and remediation project depends on the risk it is addressing and the value it delivers
- Value Framework allows us to compare value of different options

Health and Safety	Risk to human health during decommissioning
Risk / hazard reduction	Risk to human health once decommissioning is complete
Security	Impact on security of materials and associated records
Environment	Impact of discharges and activities on environment Use of raw materials including water and energy
Socioeconomic impact	Impact on employment, infrastructure and wellbeing of community
Finance	Lifecycle cost (capital cost, maintenance cost) and return on spend
Enabling the mission	Impact on delivery of wider mission, e.g. setting precedents, building capability, testing technologies

Risk to people and environment



INCREASING **RISK** TO PEOPLE AND THE ENVIRONMENT

Intolerable

- Risk is the overriding factor in decision-making
- Urgent action is required

Tolerable

- Risk and hazard reduction are key considerations
- Options appraisal considers a broad range of factors

Broadly Acceptable

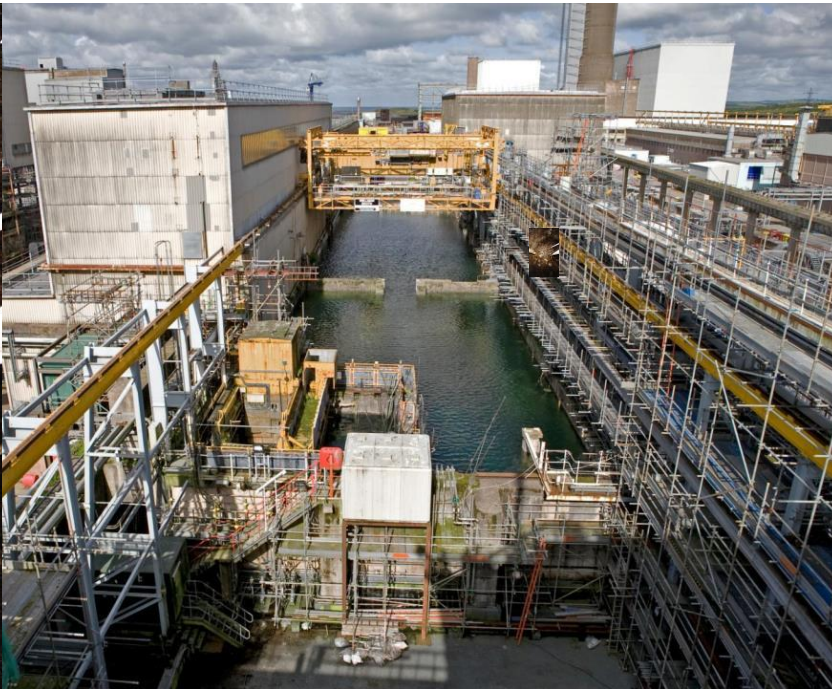
- Driver is mission completion
- Options appraisal balances a broad range of factors

INCREASING **FLEXIBILITY** OVER TIMING OF REMEDIAL ACTIONS

- Prioritisation influenced strongly by level of risk to people and environment:
 - *“Where risks are intolerable we will take urgent action to reduce them”*
 - *“We will act proportionately to ensure that the net level of risk does not increase in the long term”*
 - *“Where the risk is less significant, prioritisation takes greater account of other factors in our Value Framework”*

Safety and Environmental Detriment

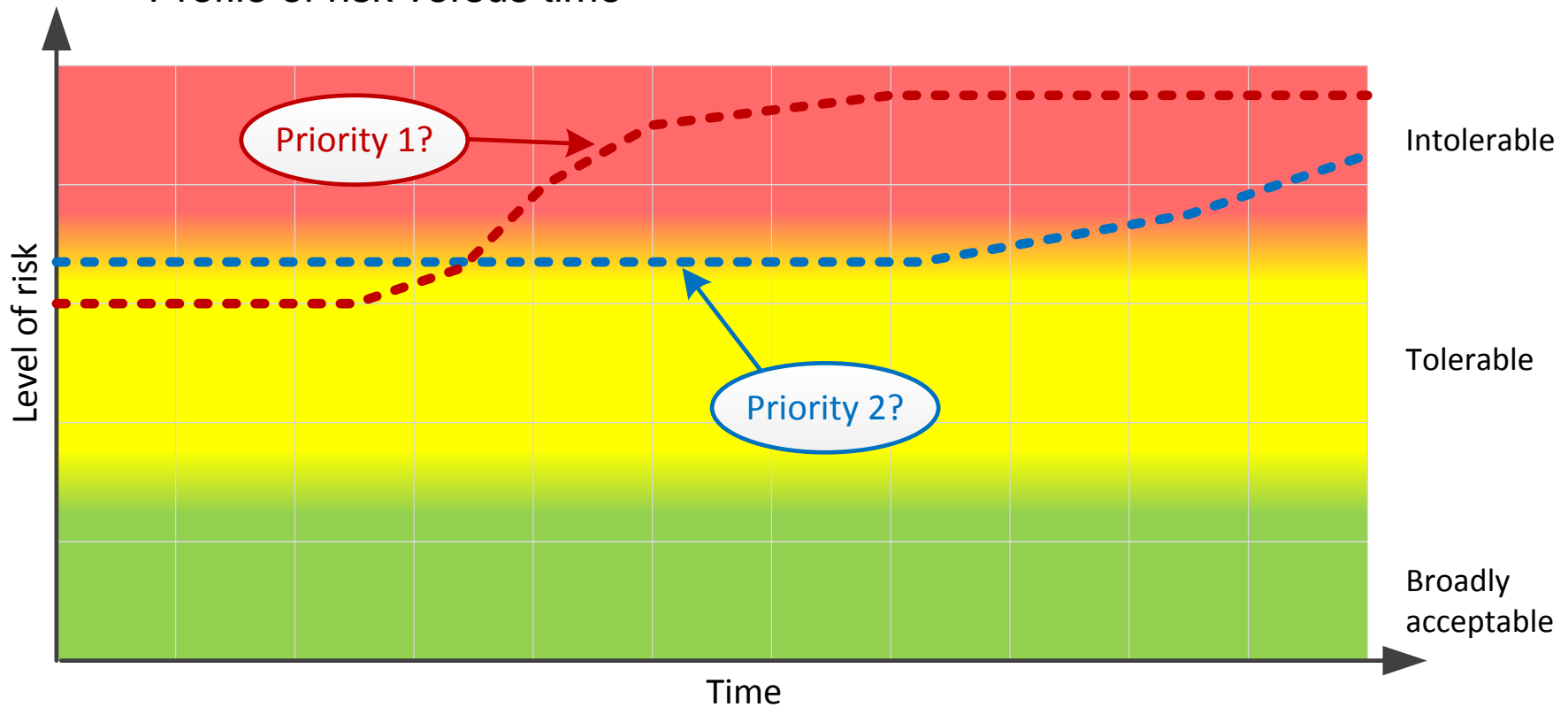
- Safety and Environmental Detriment (SED) measure was developed to allow comparison of hazard posed by facilities across entire NDA estate



- The NDA is delighted to be working with the NDF and TEPCO to modify the SED measure to suit Fukushima Dai-ichi

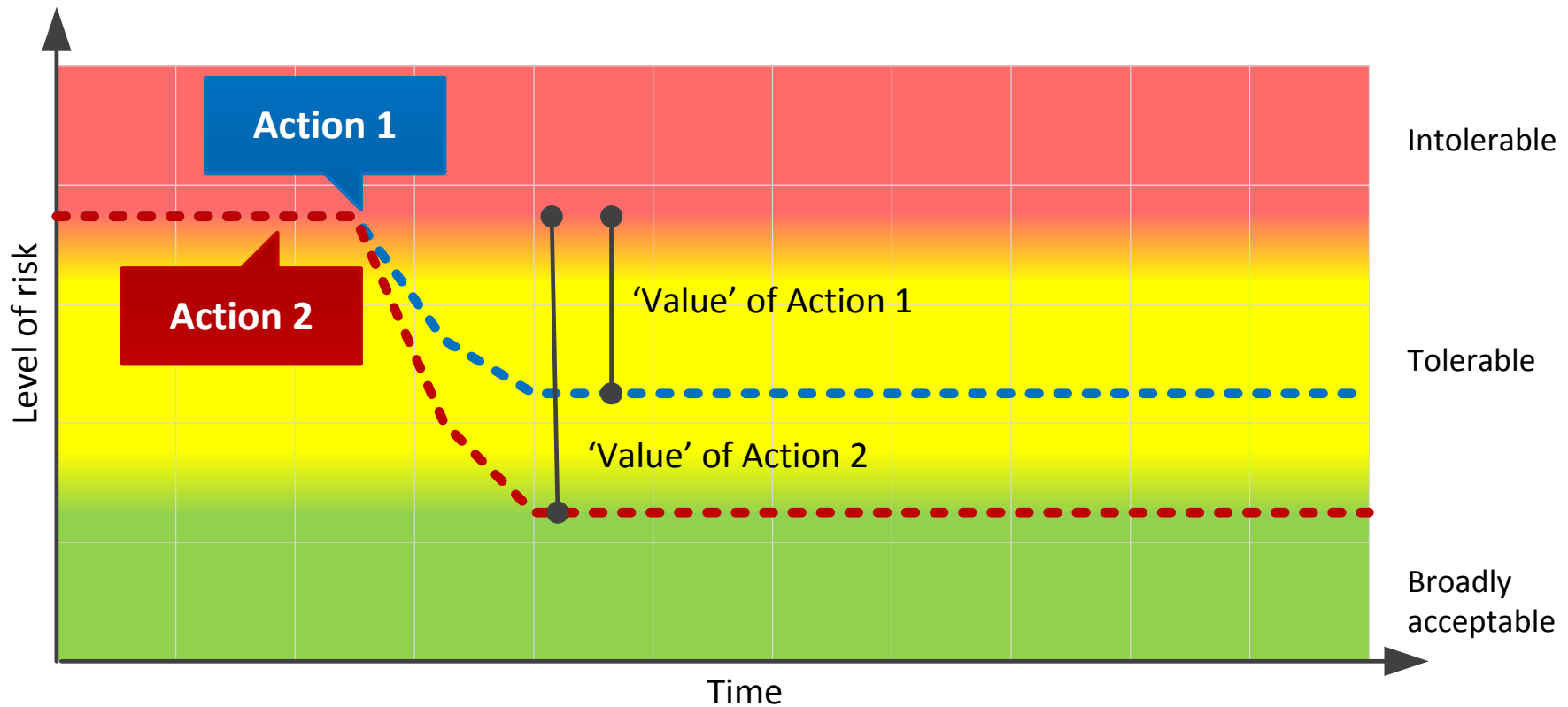
Risk profiles and informing prioritisation

- Prioritisation is informed by:
 - Level of risk at a point in time
 - Profile of risk versus time



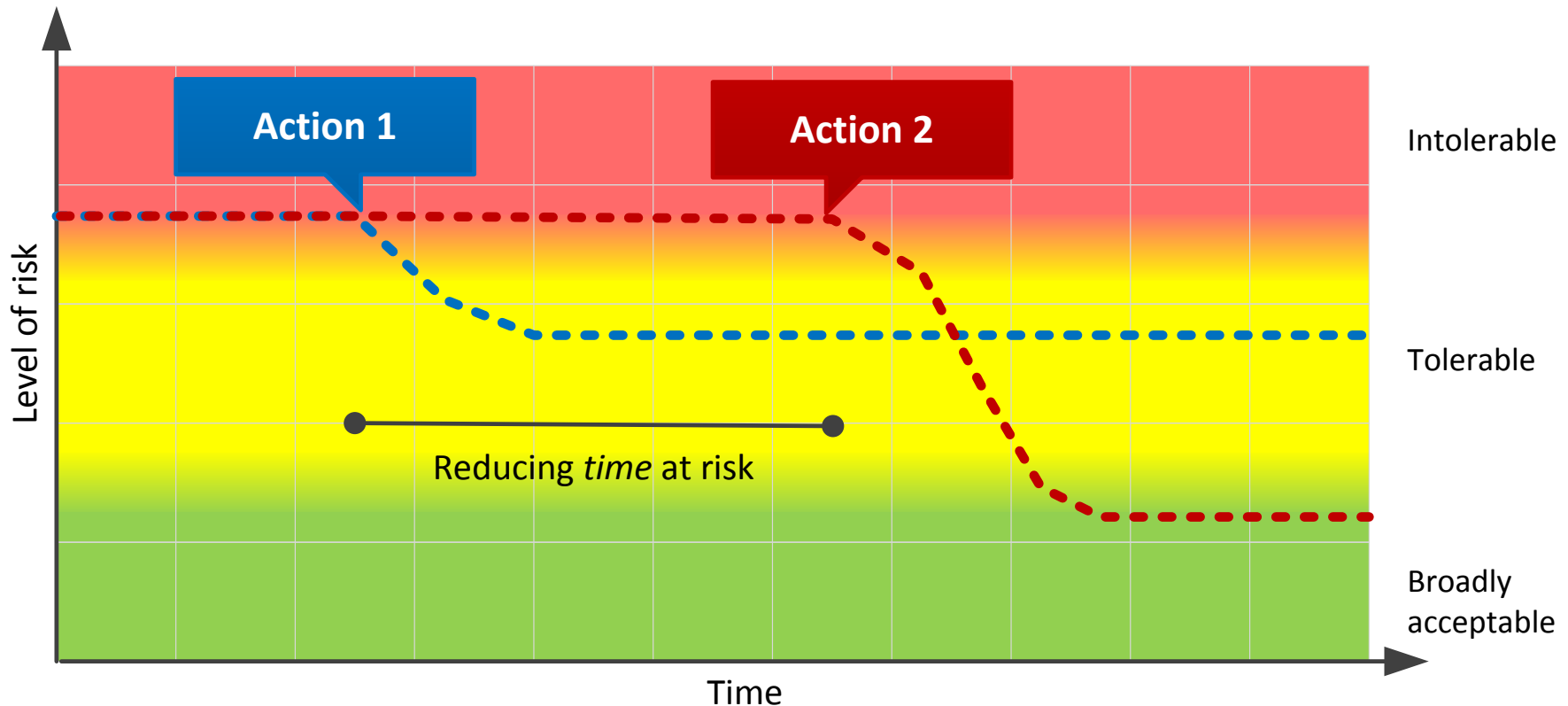
Demonstrating the 'value' of action

- Understanding the 'value' of different actions informs decision-making



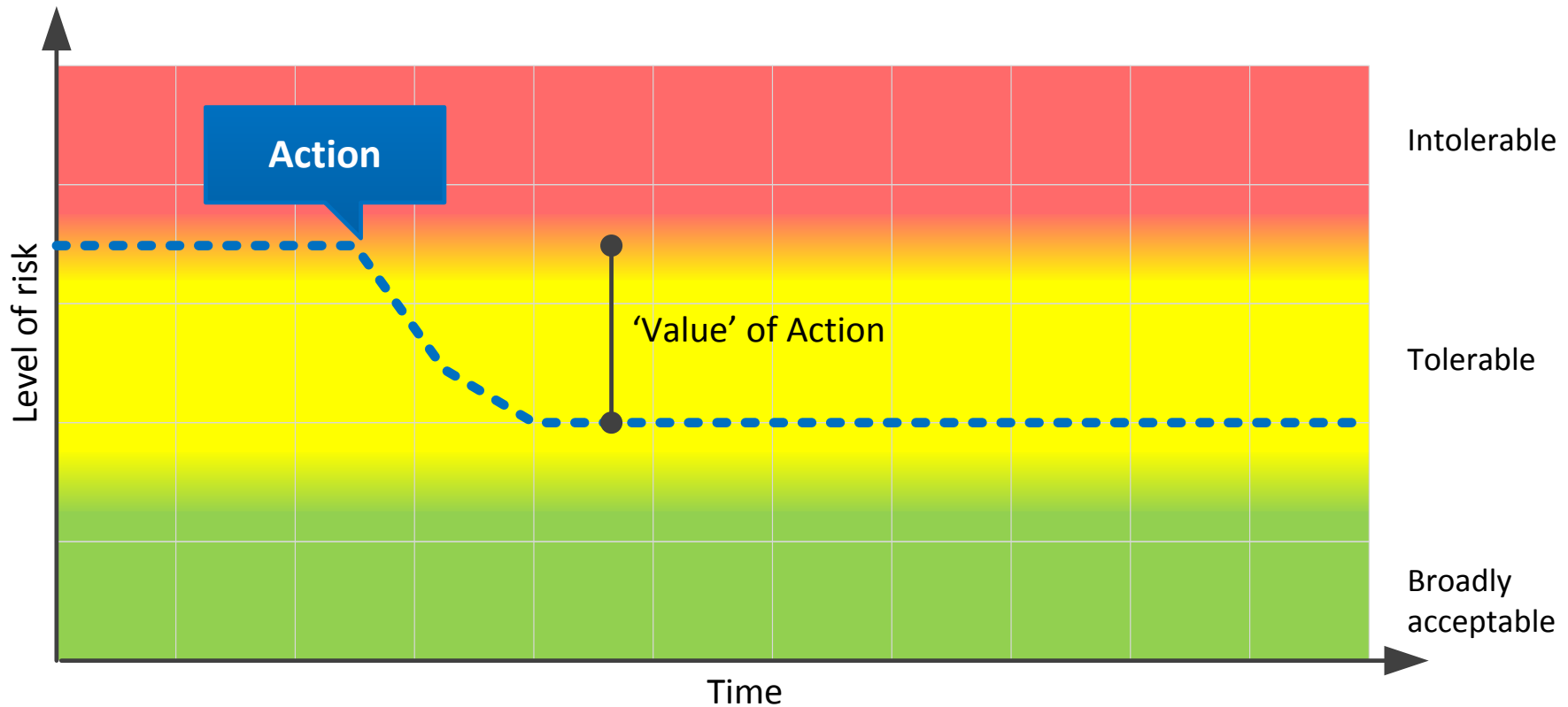
Demonstrating 'value' of interim solutions

- May choose to deliver a project that offers less risk reduction because it reduces the time at risk
 - “Where risks are intolerable we will take urgent action to reduce them”



Demonstrating Value for Money

- Does the 'value' of an action justify the impact on other elements of the Value Framework (impact on environment, finance, etc.)?



Value takes many forms

- When risks are tolerable or broadly acceptable, there are other reasons for progressing with decommissioning



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