

Legal and Regulatory Frameworks for Decommissioning and Waste Management

Jonathan leech
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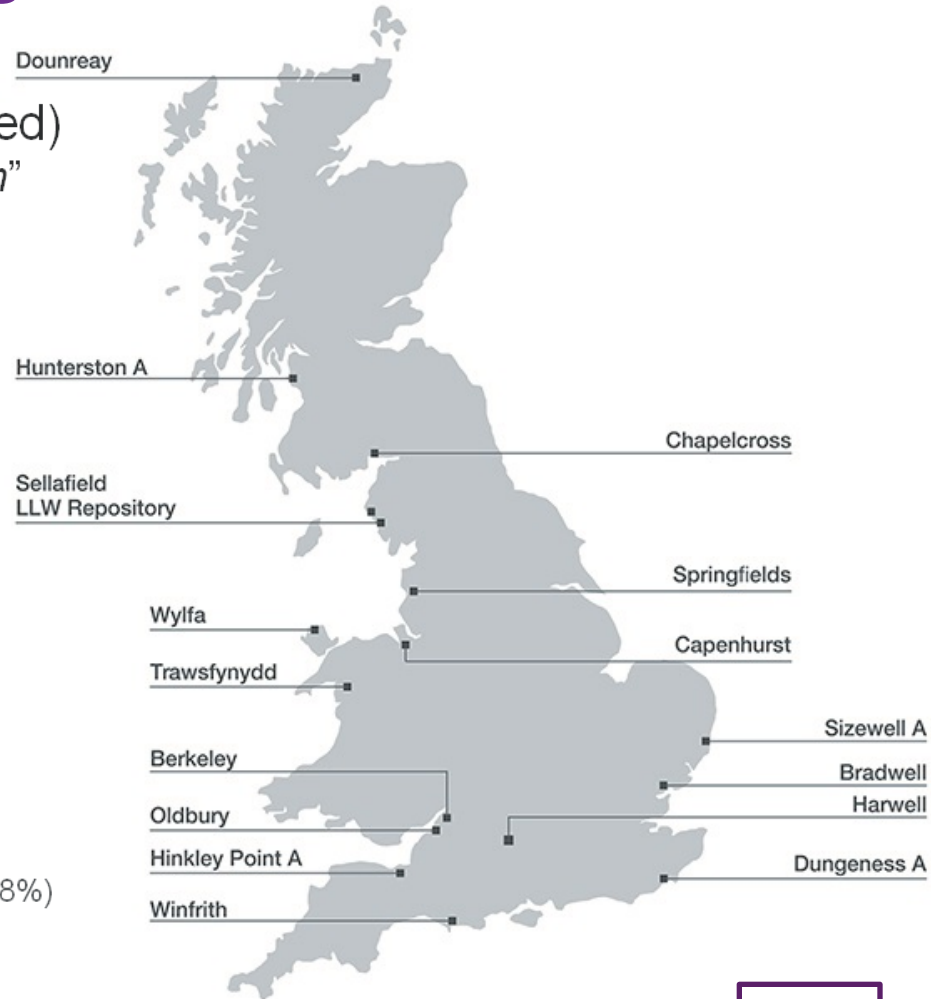
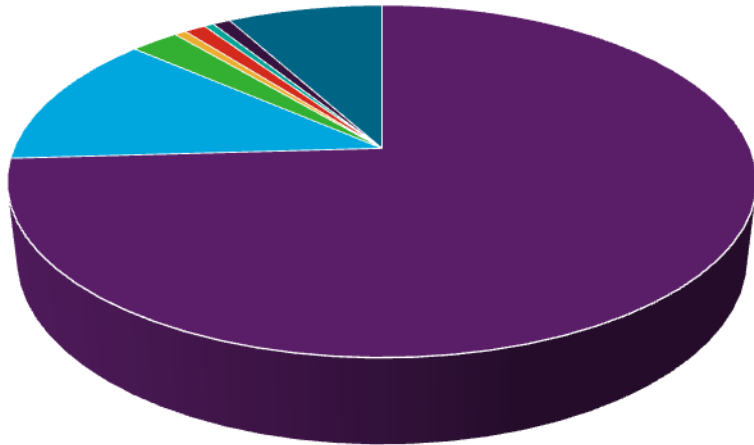
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Legal and Regulatory Frameworks for Decommissioning and Waste Management

- Structures for decommissioning / waste management
 - Responsibility / funding / strategy
 - UK and other national examples
- International capability
 - Liability and compliance risks
 - International availability of waste treatment facilities

UK legacy nuclear liabilities

Nuclear Provision: £115 billion (undiscounted)
“somewhere between £90 billion and £220 billion”



2015



2135

“120 years or so ...”

UK strategy

Sites	Funder	Estimate
Legacy sites (NDA estate)	State (via NDA)	£115 billion
Advanced Gas Cooled Reactors / Sizewell B	Nuclear Liabilities Fund (with state guarantee)	£19.1 billion
New build	Operators (via segregated fund)	?

Nuclear Decommissioning Authority

Dept. of Energy & Climate Change (DECC)



Principal function

Securing operation, decommissioning and clean-up of designated sites / operation of designated waste facilities

Supplementary functions

- Research
- Distributing information
- Education and training
- Supporting socio-economic activities and environmental benefits
- Providing advice

Policy implementation / advice

Parent Body Organisations

Sellafield Ltd

LLW Repository Ltd

Magnox Ltd

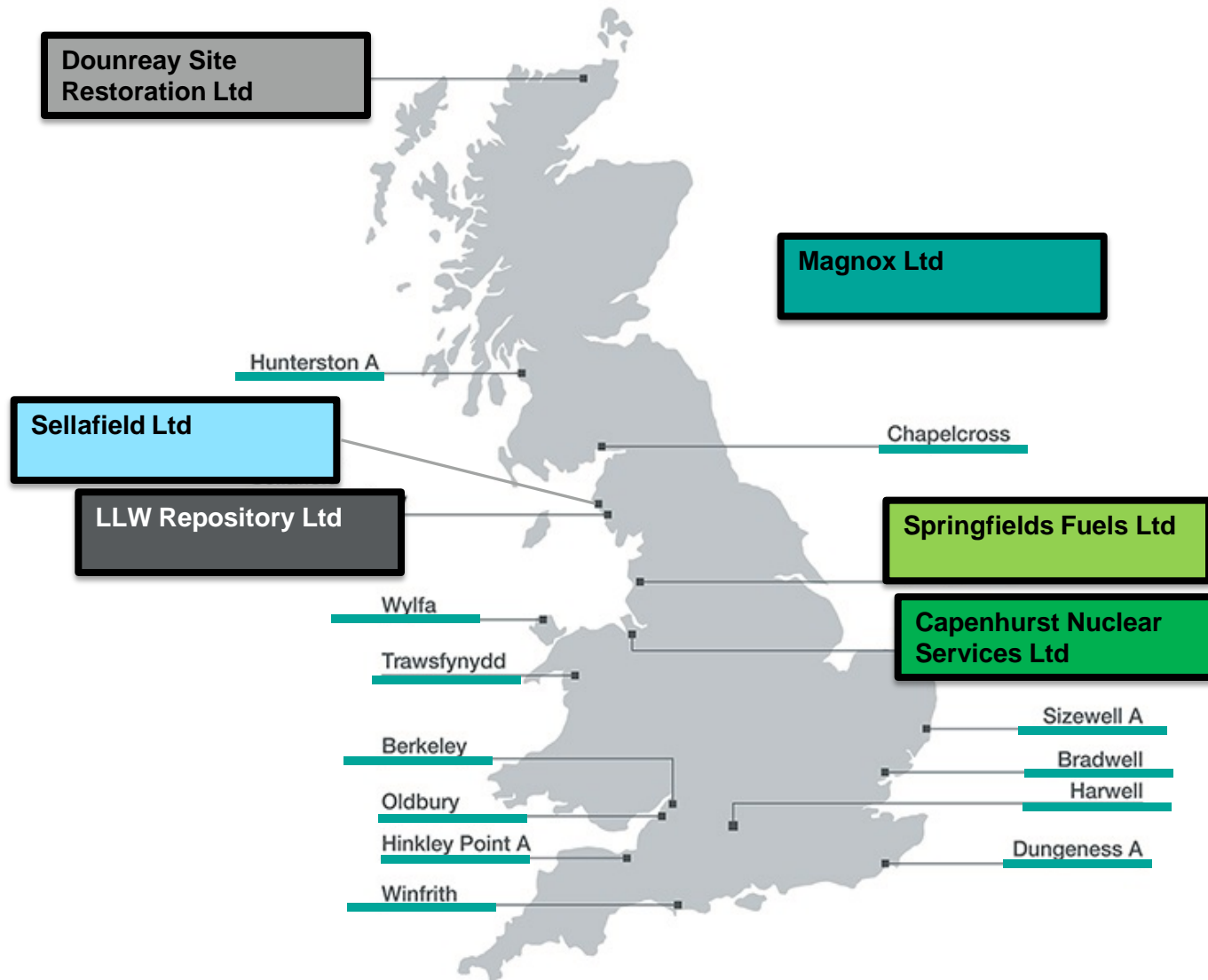
Dounreay Site Restoration Ltd

Capenhurst Nuclear Services Ltd

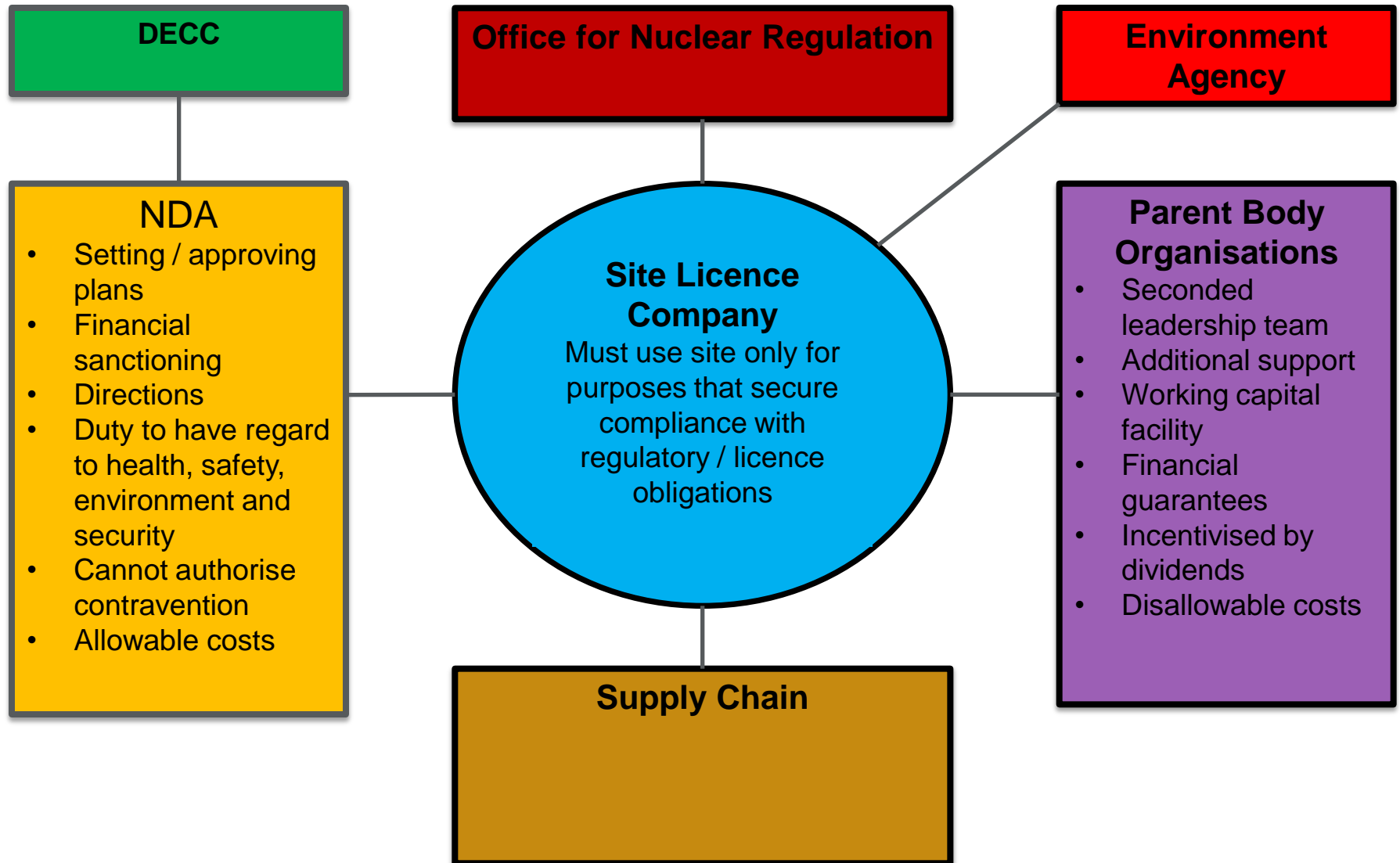
Springfields Fuels Ltd

Supply chain

NDA site licence companies / designated sites

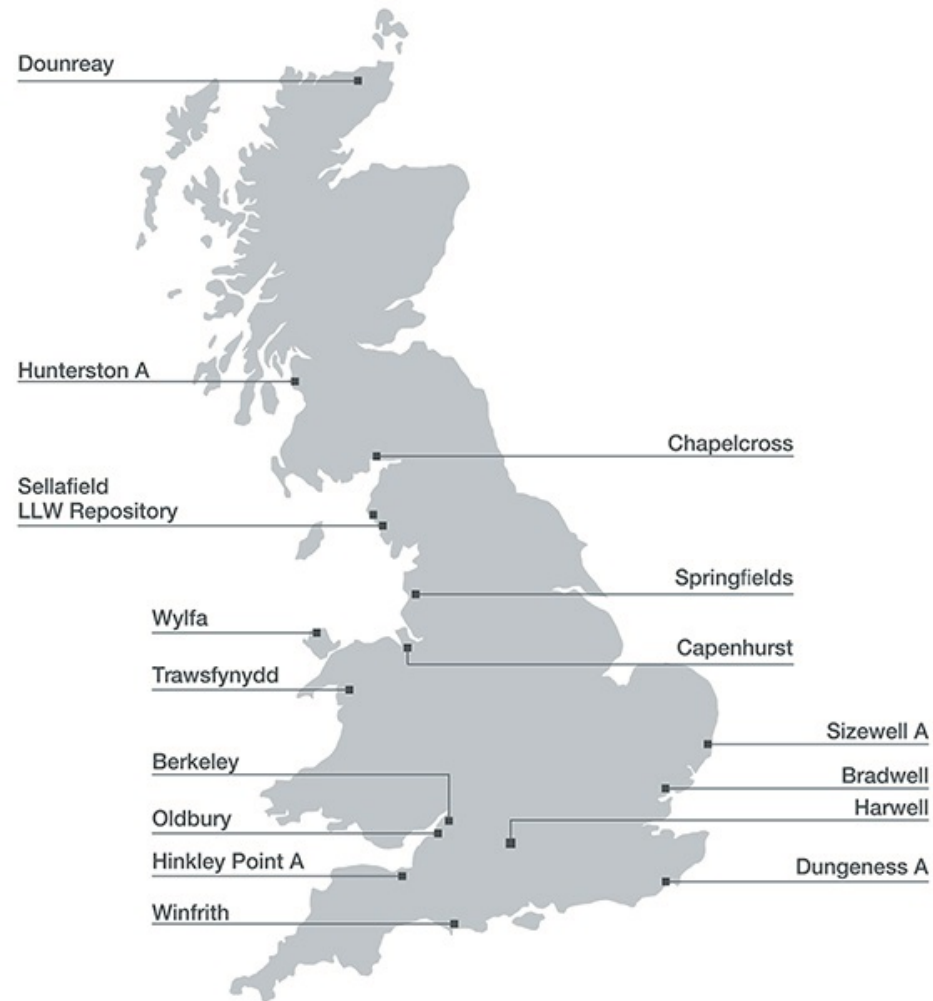
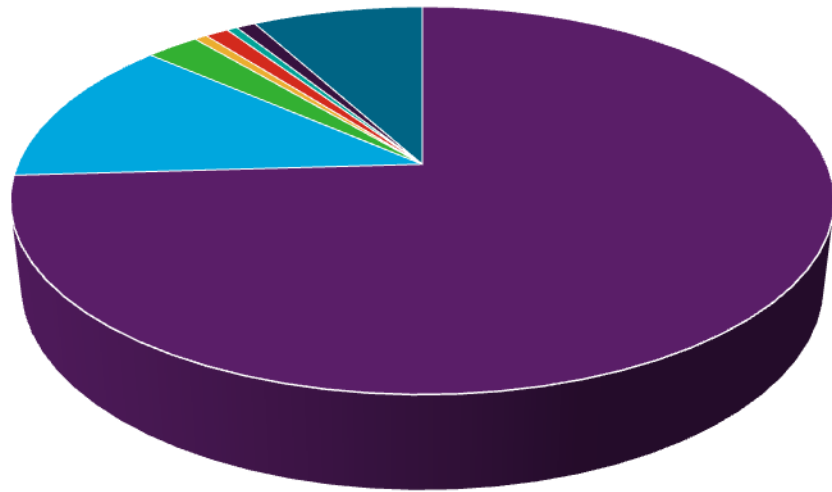


NDA - control not regulation



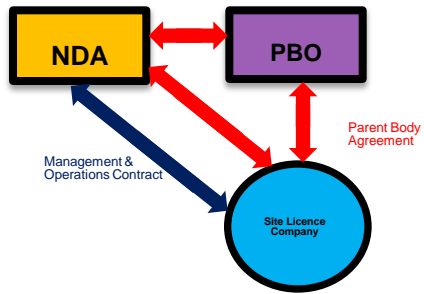
NDA annual funding spending (2015/16)

- £3.31 bn budget
 - £2.09 bn DECC funding
 - £1.22 bn commercial revenue
- No segregated fund

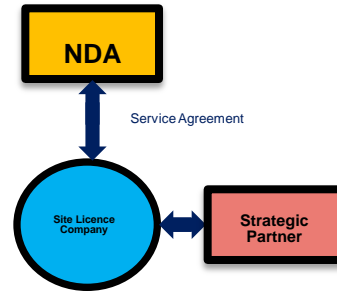


- Sellafield (74%)
- Dounreay (2.5%)
- Harwell & Winfrith (1.1%)
- Capenhurst (0.9%)
- Magnox (12.3%)
- LLWR (0.6%)
- Springfields (0.5%)
- Geological Disposal Facility (8%)

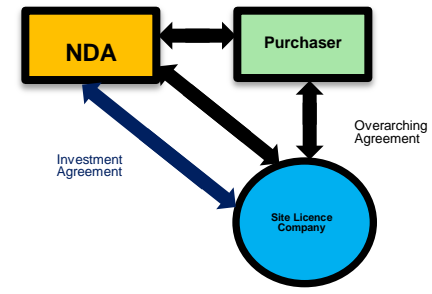
PBO model

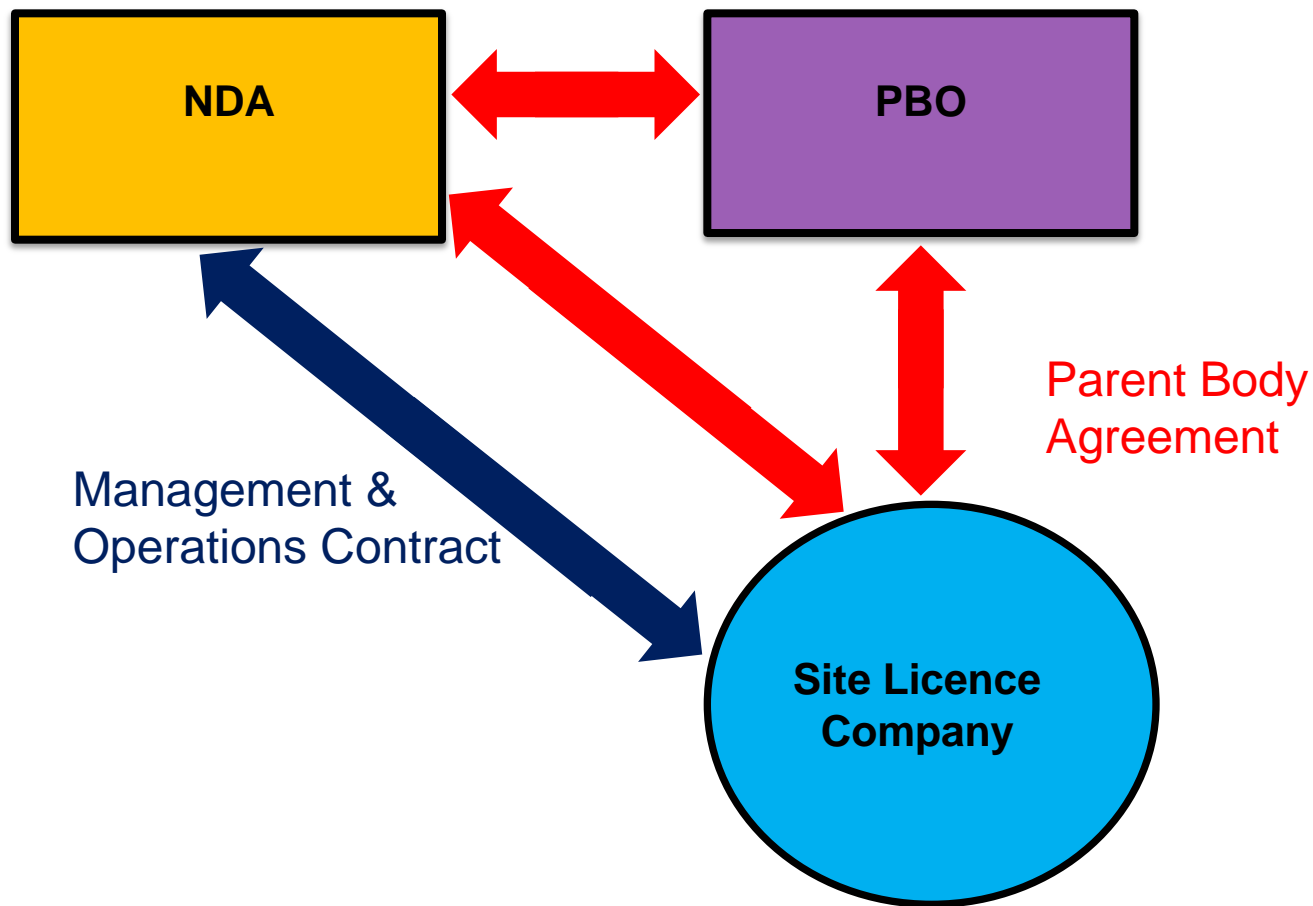


Market Enhanced SLC



Asset sale

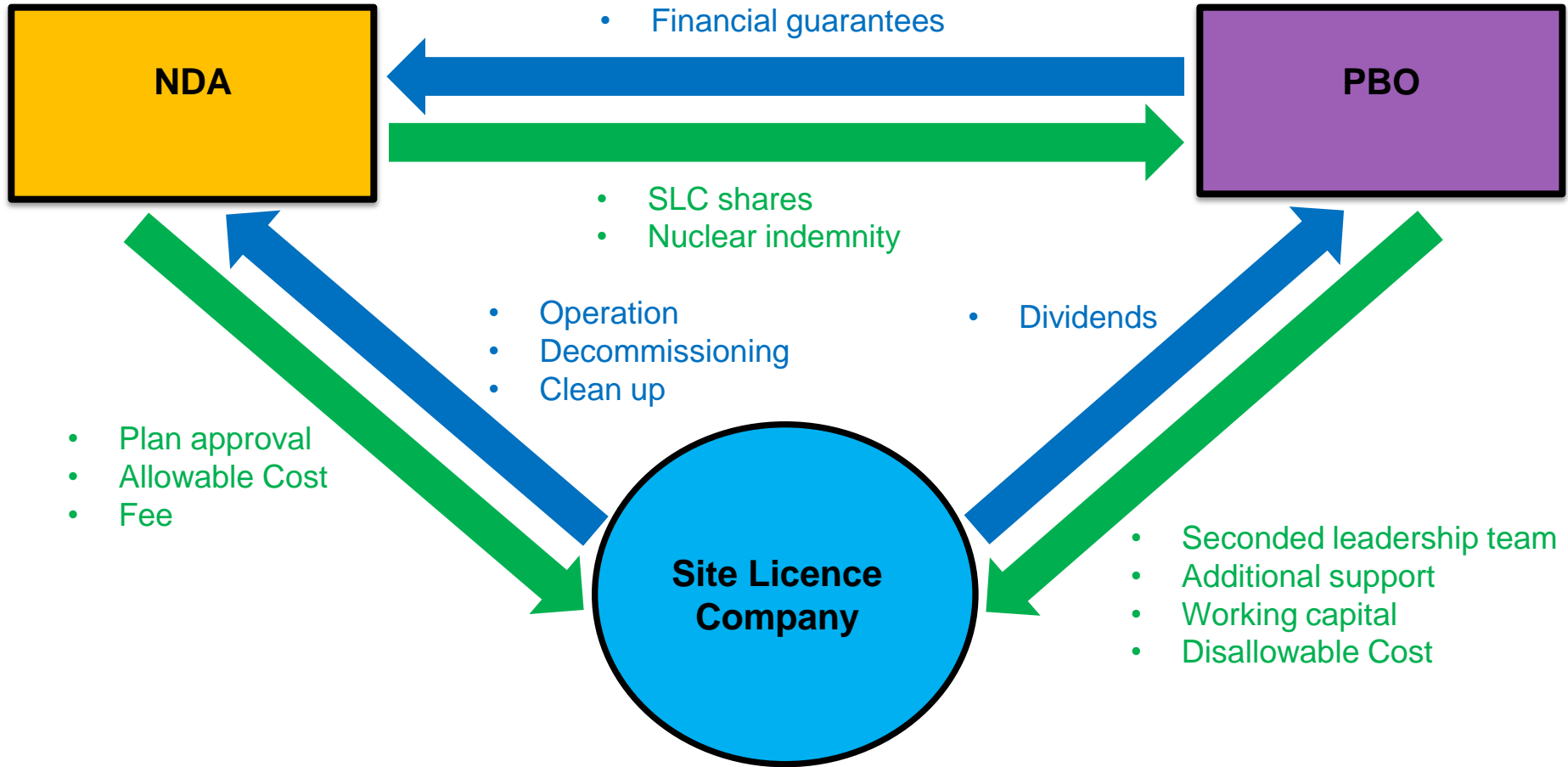


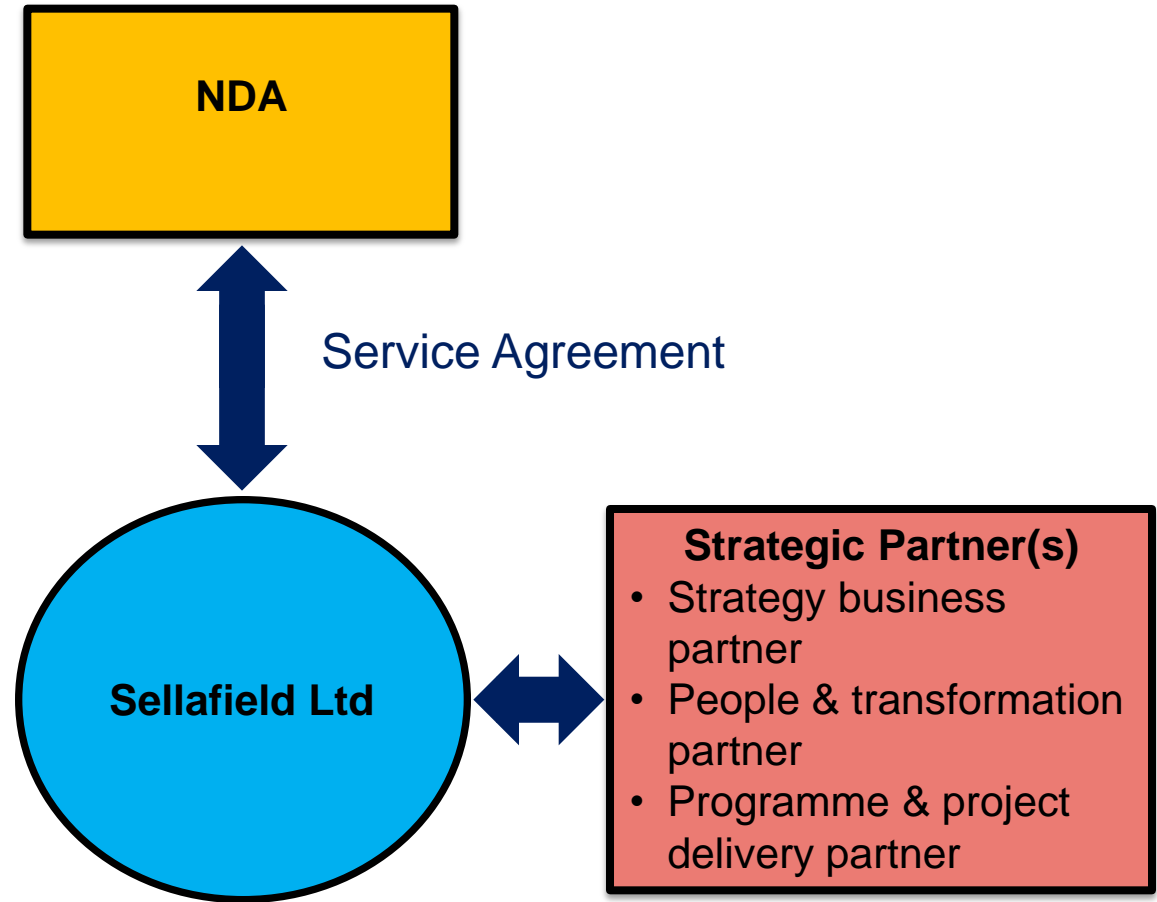


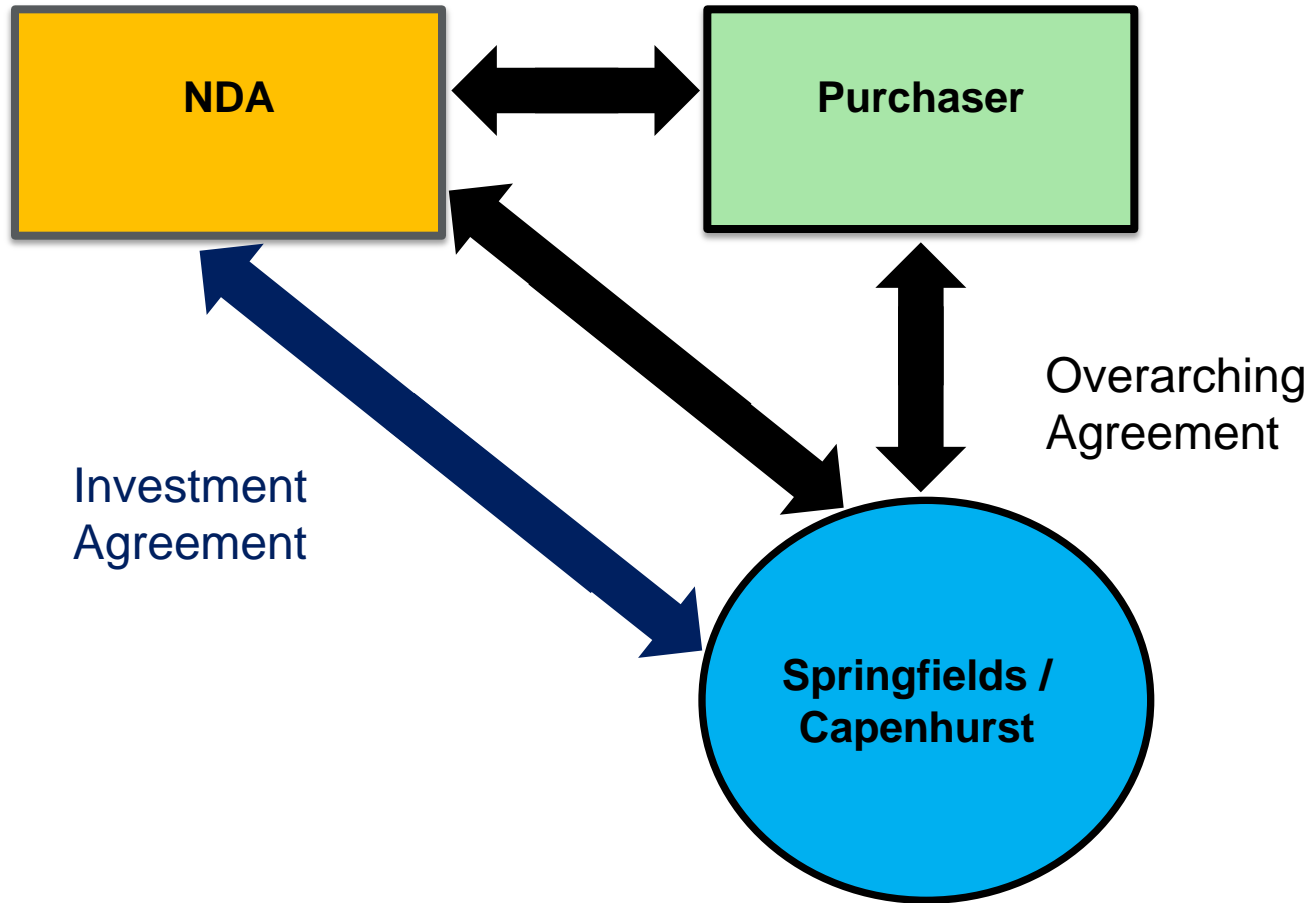
PBO model

Market Enhanced SLC

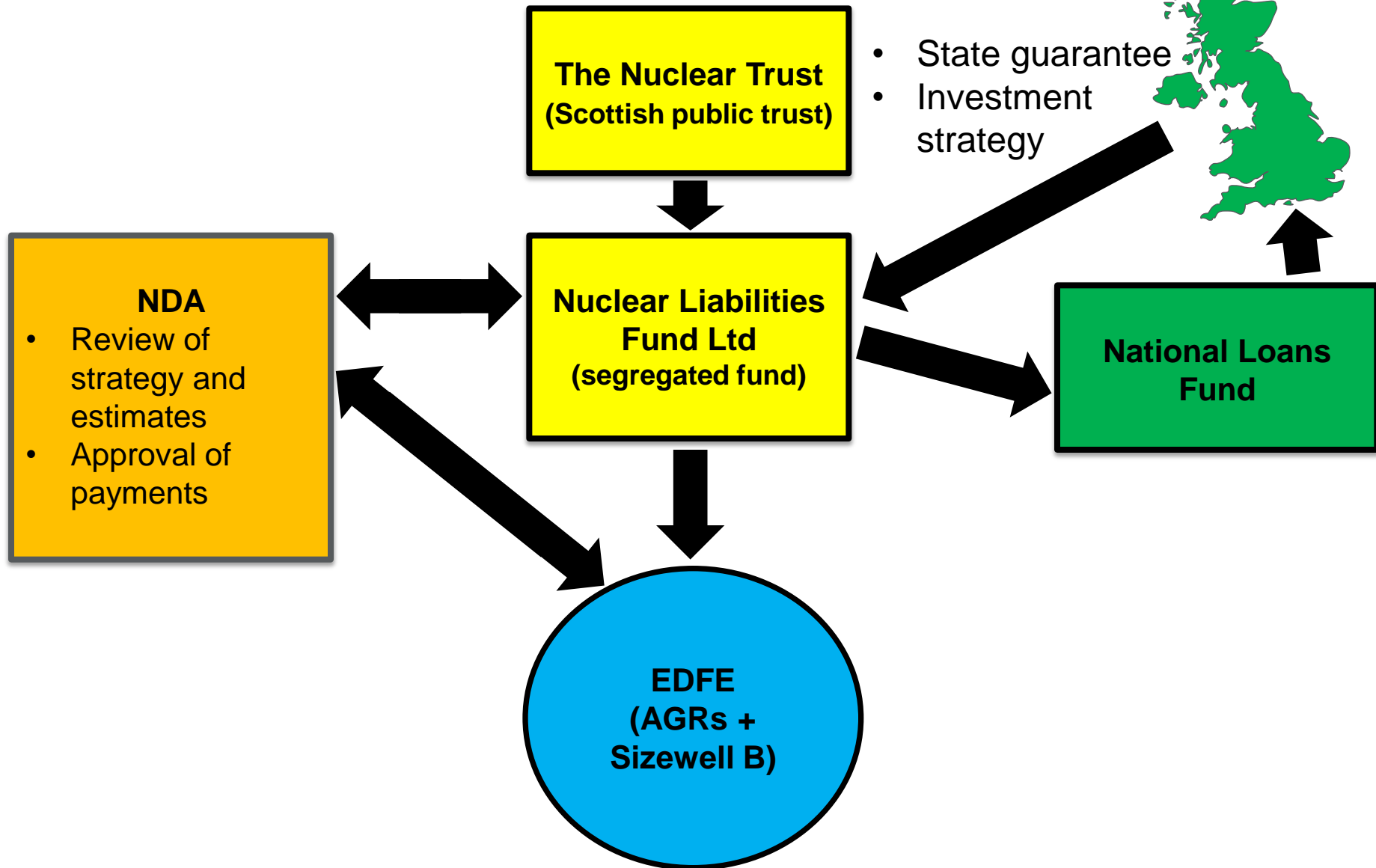
Asset sale







Nuclear Liabilities Fund



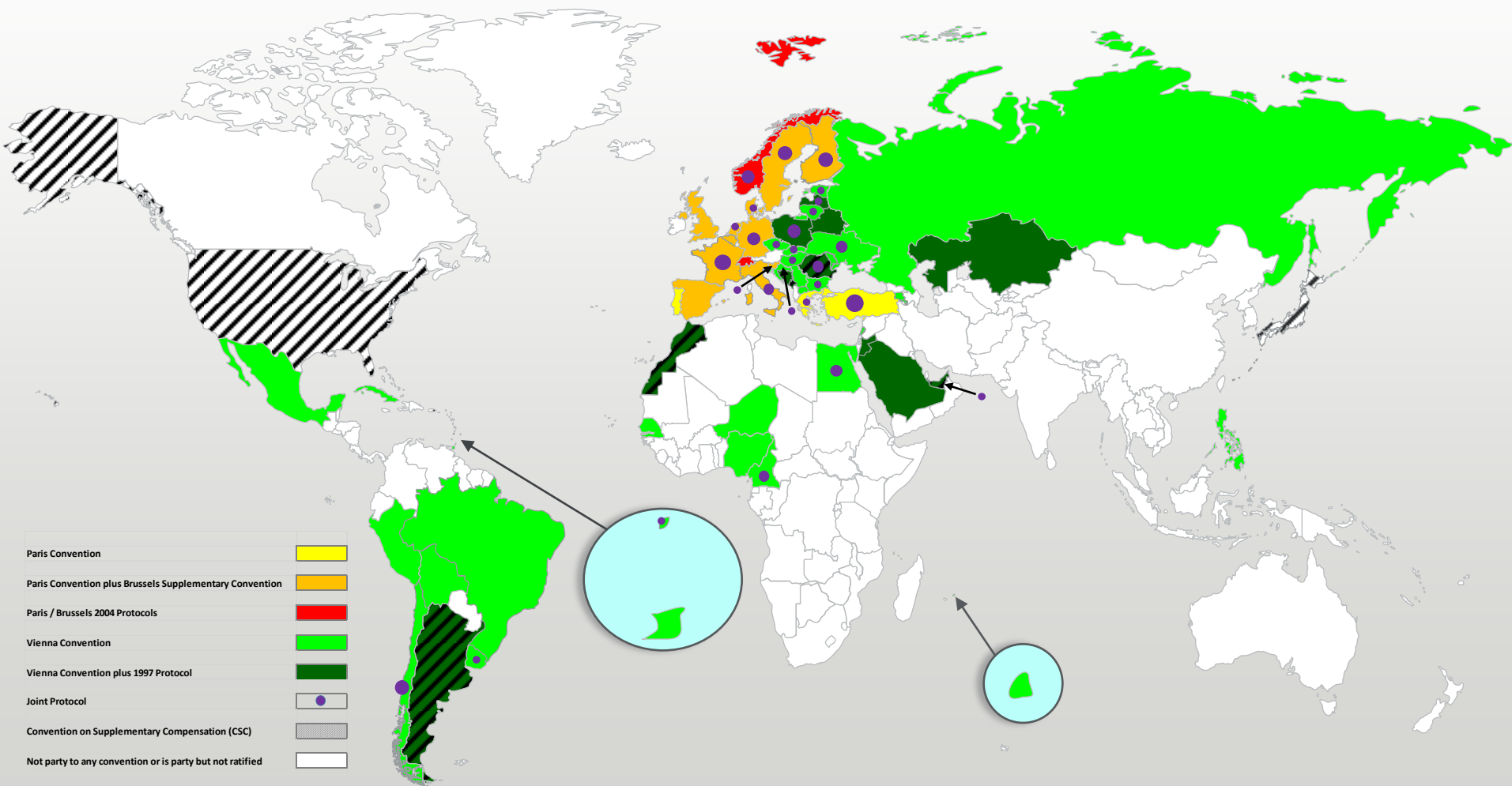
Comparison with other approaches

- Substitution for existing segregated funds?
- Application to private sector liabilities?
- Strategic and financial control
 - NDA (UK)
 - AECL (Canada)
- Contrast operational roles (e.g. EWN / ENRESA / Sogin)
- Benefits?
 - Control / security of funds
 - Strategic oversight
 - Alignment of performance risks and benefits
 - Collaboration

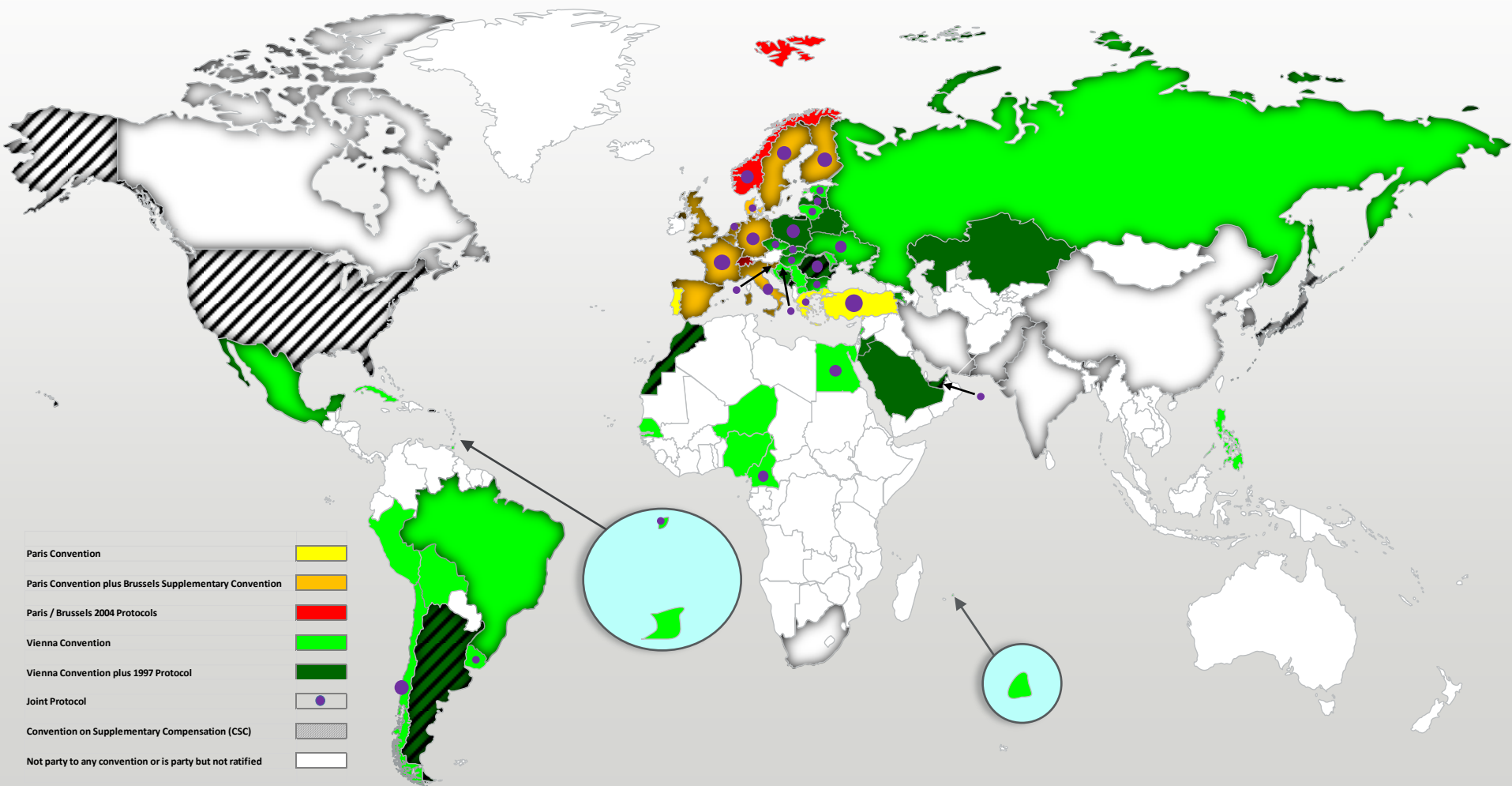
International availability of capability and facilities

- Mobility of capability
- Managing nuclear liability risks
- Cross border waste treatment options

Geographic extent of nuclear liabilities conventions



Geographic extent of nuclear liabilities conventions



Paris / Brussels liabilities for materials in transit

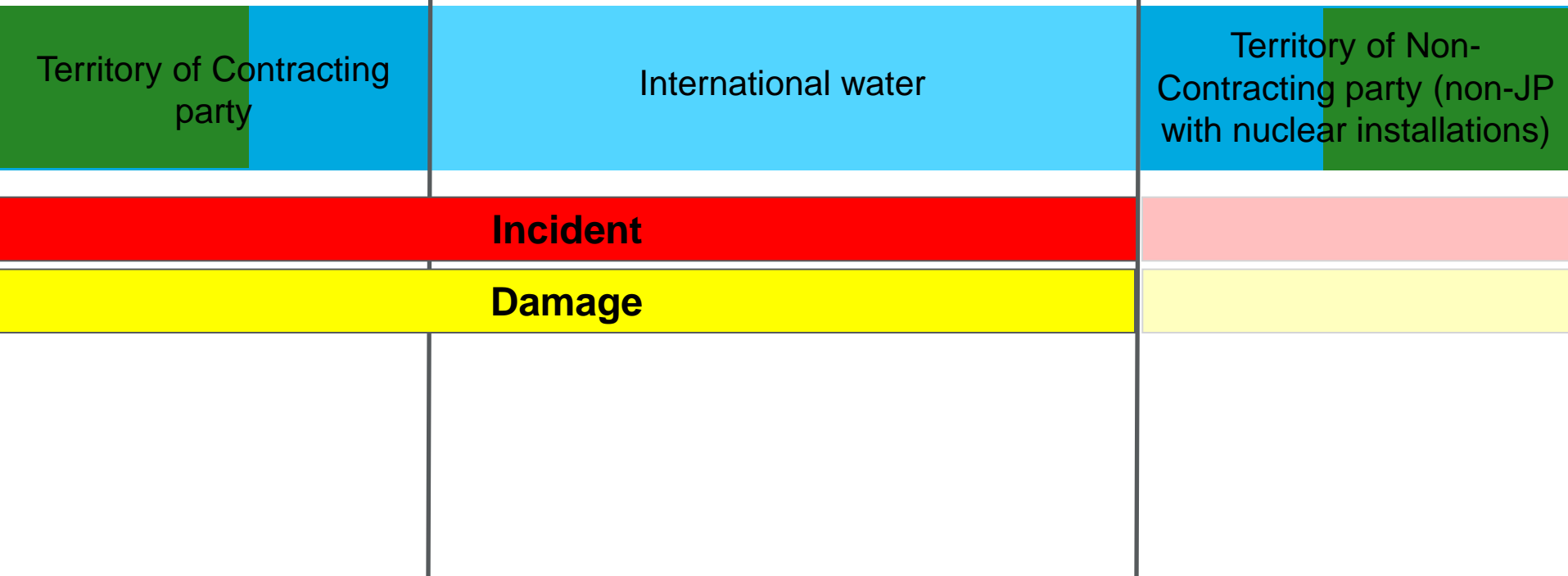
		Pre 2004 Protocols	
		Incident	<ul style="list-style-type: none"> • Contracting party • Joint protocol
		Damage	<ul style="list-style-type: none"> • Contracting party • Joint protocol
Territory of Contracting party		International water	
			<ul style="list-style-type: none"> • Contracting party • Joint protocol • No nuclear installations • Reciprocal benefits / identical principles
Damage		Ship registered in ...	
		Incident	
		Post 2004 Protocols	

Paris / Brussels liabilities for out-bound materials

Pre 2004 Protocols

Operator liable if incident occurs before:

- another operator assumes liability by contract
- another operator has taken charge
- nuclear substances unloaded from means of transport by which have arrived in territory of a non-Contracting State
- Nuclear substances enter territory of non-contracting state (subject to extension under national law)



Paris / Brussels liabilities for out-bound materials

Post 2004 Protocols

Operator liable if incident occurs before:

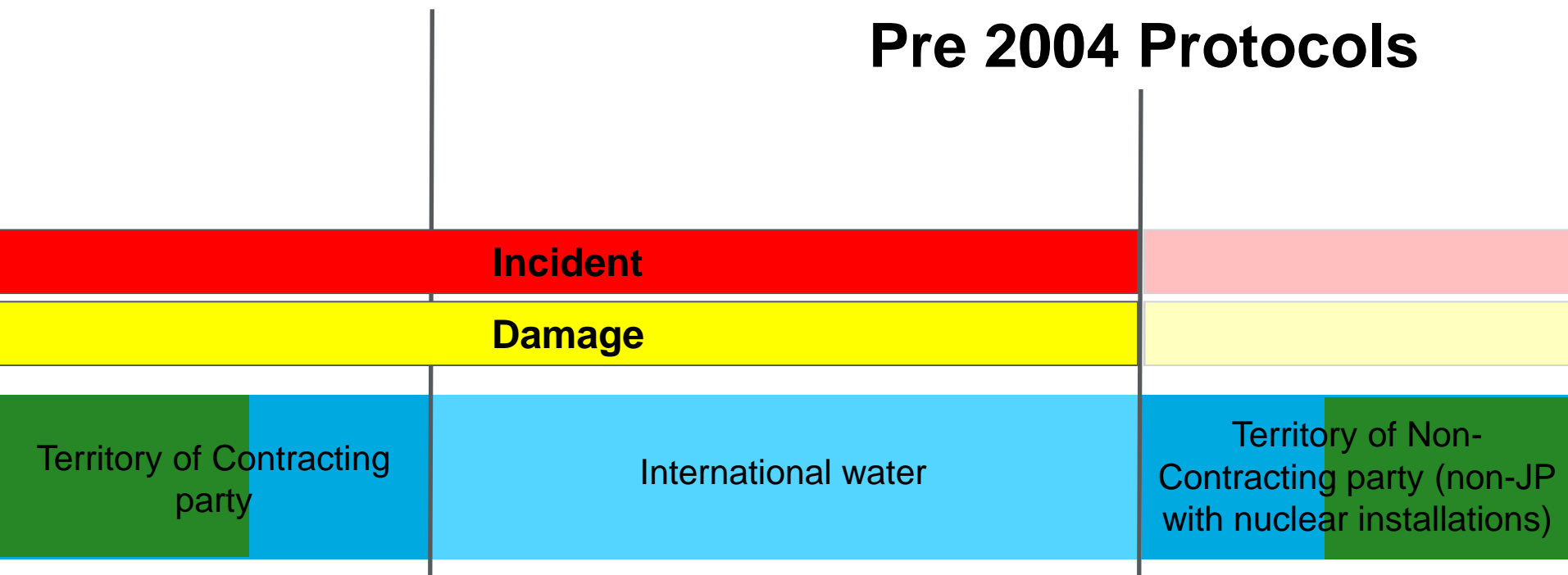
- another operator assumes liability by contract
- another operator has taken charge
- nuclear substances unloaded from means of transport by which have arrived in territory of a non-Contracting State
- ~~Nuclear substances enter territory of non-contracting state (subject to extension under national law)~~

Liability transfer requires "direct economic interest"



Paris / Brussels liabilities for in-bound materials

Pre 2004 Protocols

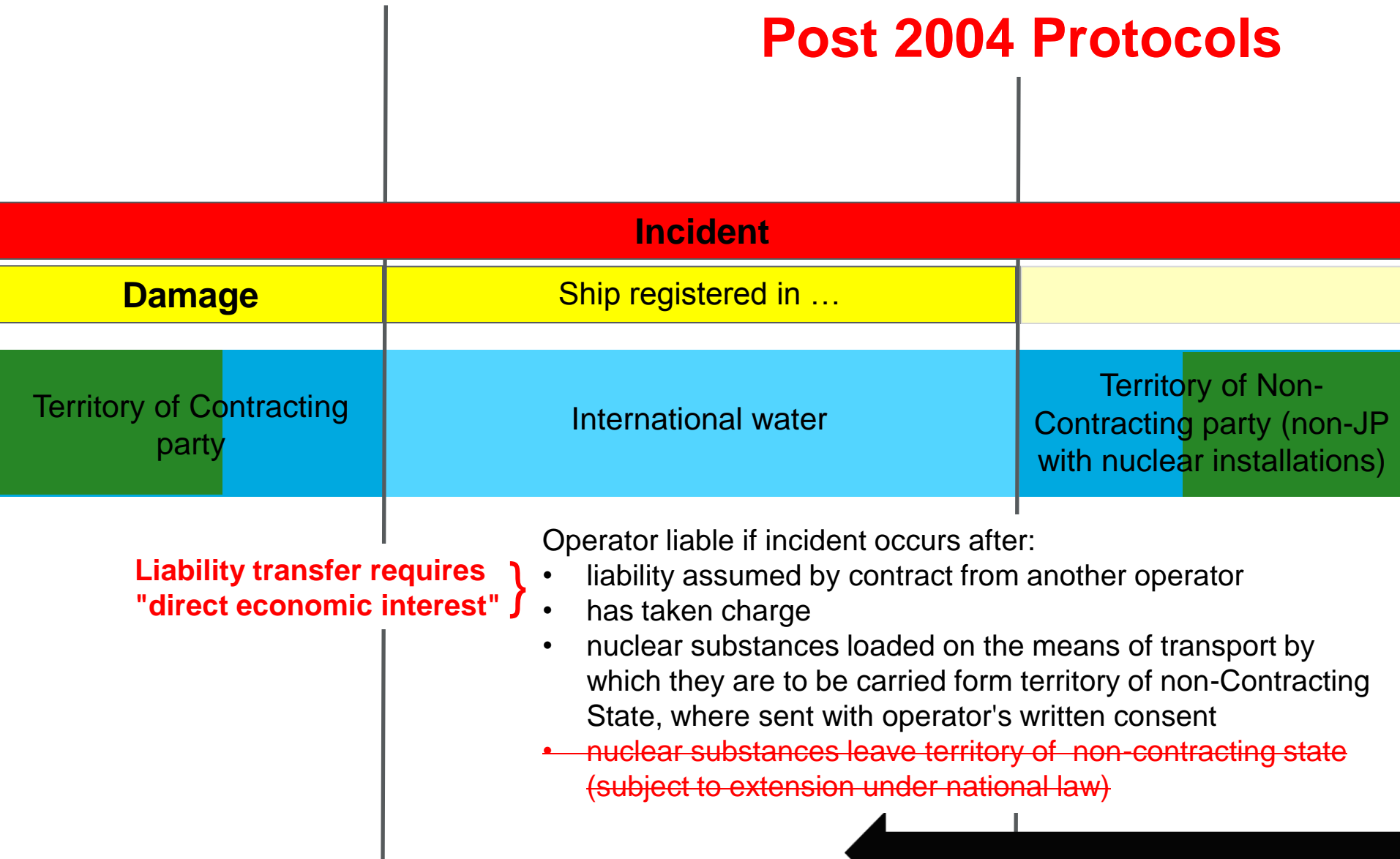


Operator liable if incident occurs after:

- liability assumed by contract from another operator
- has taken charge
- nuclear substances loaded on the means of transport by which they are to be carried from territory of non-Contracting State, where sent with operator's written consent
- nuclear substances leave territory of non-contracting state (subject to extension under national law)

Paris / Brussels liabilities for in-bound materials

Post 2004 Protocols



Cross border waste management options

- Assessment of practicable options
 - Best Available Technique (BAT) / optimal treatment and disposal routes
 - Limited relevance of proximity - radiological risk?
 - Compliance with EU procurement (where relevant)
- Compliance and liability risks
 - Import / export licencing
 - Environmental risks in destination state
 - Return shipping costs
- Public / political pressures

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