

Emerging Low Level Waste Strategy

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Date: 22 April 2009

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Strategic Mandate by Government

- Policy requires NDA to publish a UK LLW Strategy and Management Plan for integrating LLW management throughout the UK
- Policy framework introduced a *more flexible and fit-for-purpose approach for LLW management centred around the application of the waste hierarchy*
- NDA drafting the UK Nuclear Industry LLW Strategy *in parallel with*
- DECC drafting of Non-nuclear Industry LLW strategy

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Partnership with LLWR National LLW Strategy Team

- Partnership implemented as part of successful contract award at the LLW Repository
- Purpose is to establish a UK-wide integrated National LLW programme to:
 - Drive technical innovation
 - Obtain substantial overall cost savings
 - Promote waste disposition acceleration
- Develop and implement a National LLW Strategy

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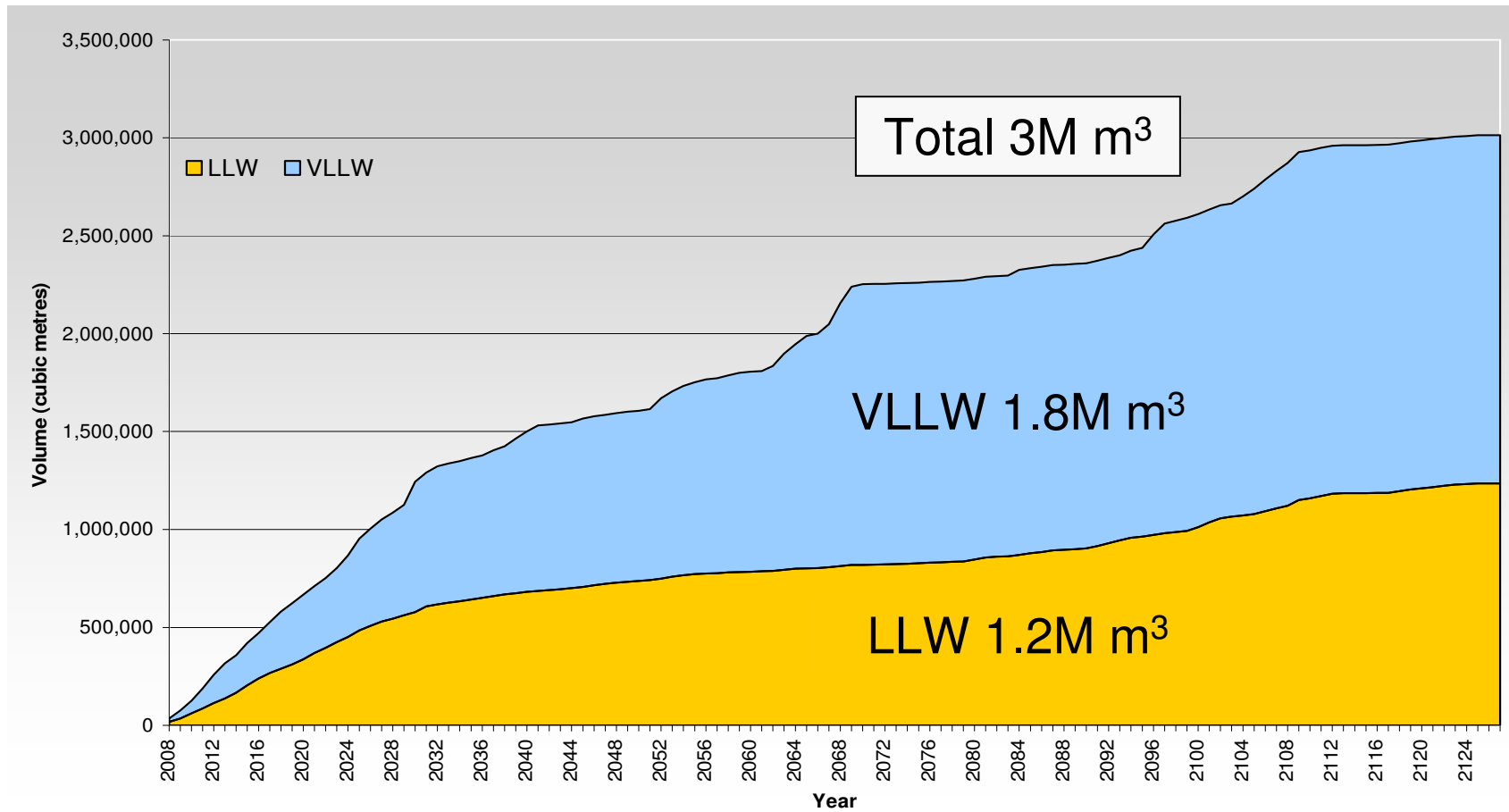


Opportunity for the Management of LLW

- Strategic Review performed to assess the current NDA LLW management programme
 - 3 million cubic metres of LLW projected over >100 years
 - £9.9 billion estimated programme liability
- Key questions:
 - How best to optimise the existing assets in NDA
 - The extent to which alternative LLW disposal options might be employed
 - If, and at what time, a replacement or replacement/s for LLWR may be required
- Business-as-Usual is not sustainable

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Raw Volumes of LLW and VLLW



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Input to the Strategy Development process

- **Key Technical Reports and Strategies**
 - NDA Strategy
 - Strategic and Site BPEO and Risk Assessments
 - Strategic Environmental Assessment
 - LLW Strategic Review
 - Topical Strategies for LLW Management;
 - LLWR Operational Strategy
- **Strategic Technical Briefs**
 - 23 diverse LLW position papers and technical analyses
- **Life Time Plans and Integrated Waste Strategies**
- **Stakeholder interactions**

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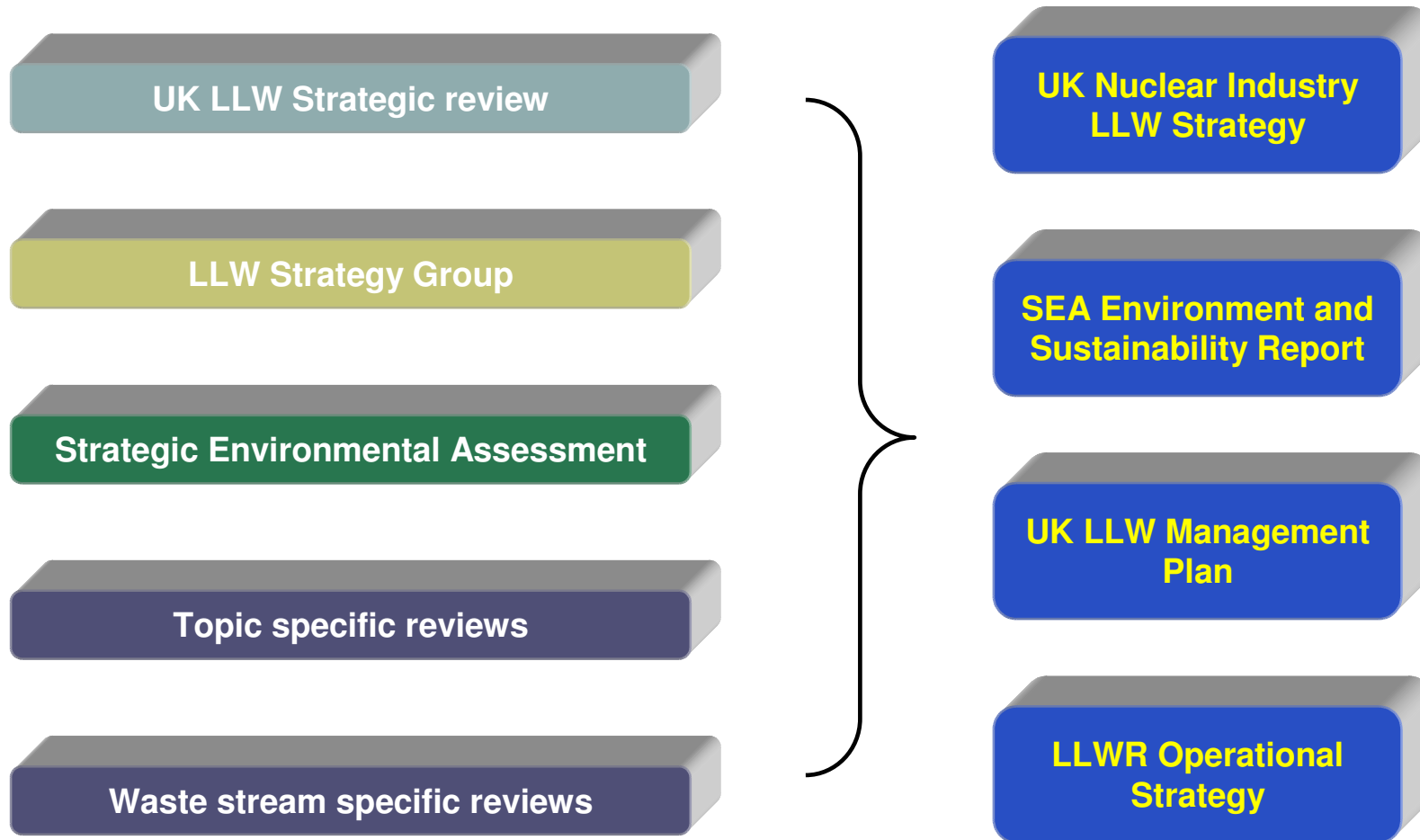
LLW Strategy Group

- Enable those people who implement LLW strategy to contribute to its development
- Enable participants to provide information to their sites
- Develop a UK wide integrated approach to the management of LLW
- Develop a level of “buy-in” to the strategy
- Facilitate implementation of strategy

- Not, however, the decision-making body

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LLW strategy development inputs



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...so, what's the strategy going to say?

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Strategic Vision

- Protect human health and the environment
- Facilitate ongoing hazard reduction and decommissioning
- Provide continued capability and capacity for the management and disposal of LLW in the UK
- Provide a framework for development and implementation of LLW management plans
- Consider impacts of waste management options on a national scale
- Provide strategic value and balance for LLW Management
 - Minimise the environmental and social impacts
 - Provide the most advantageous use of the current repository

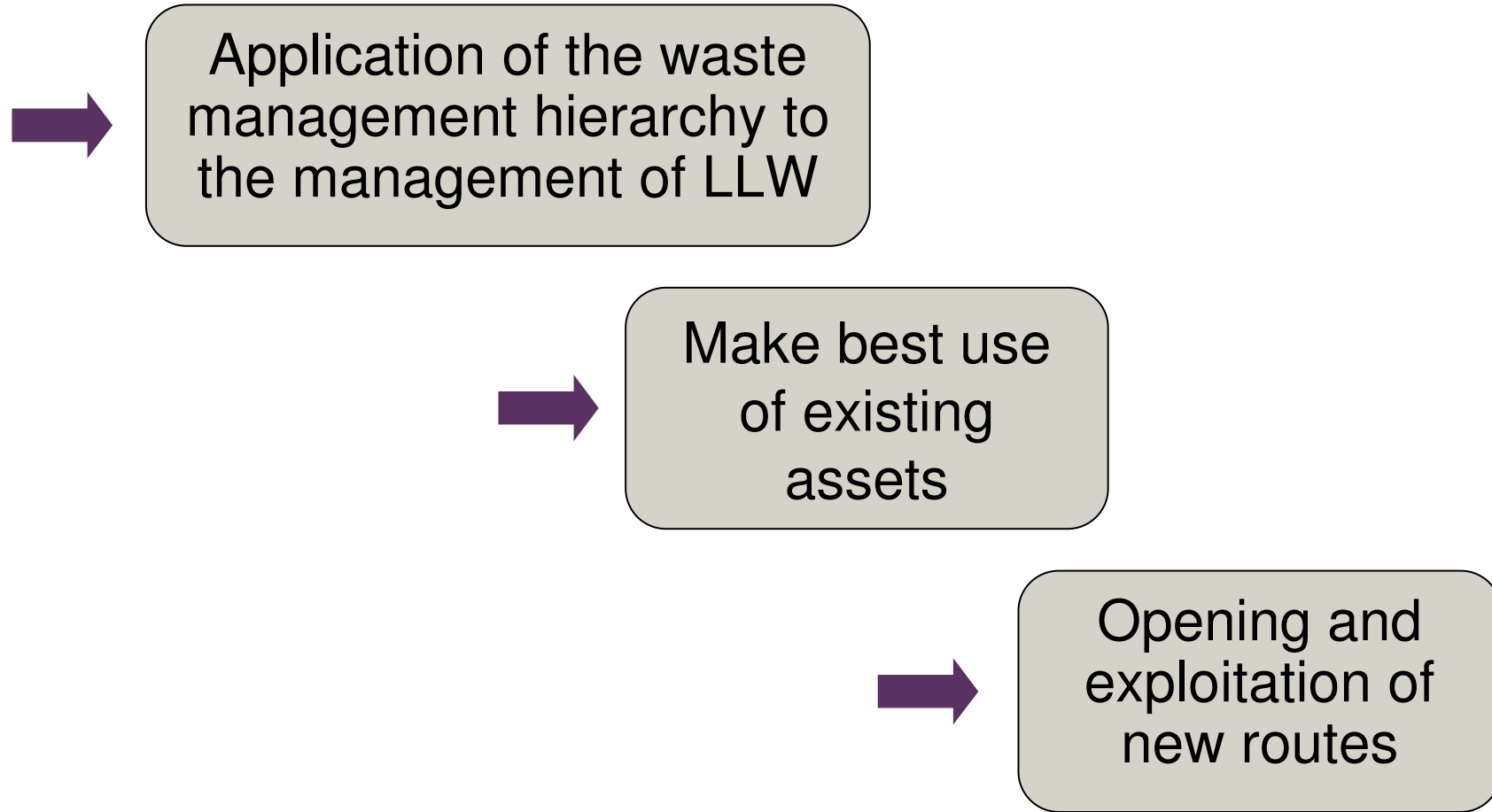
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Environmental and Strategic Principles

- **Health, safety, security, and environment**
- **Waste characterisation and segregation**
- **Effective risk-based and proportionate regulation**
- **Flexibility and fit-for-purpose solutions**
- **Sound business cases and robust decision making**
- **Availability of waste routes critical**
- **Stakeholder and community engagement vital to new routes**
- **NDA waste management facilities available on suitable commercial terms**
- **Integrated waste management – important strategic interfaces**

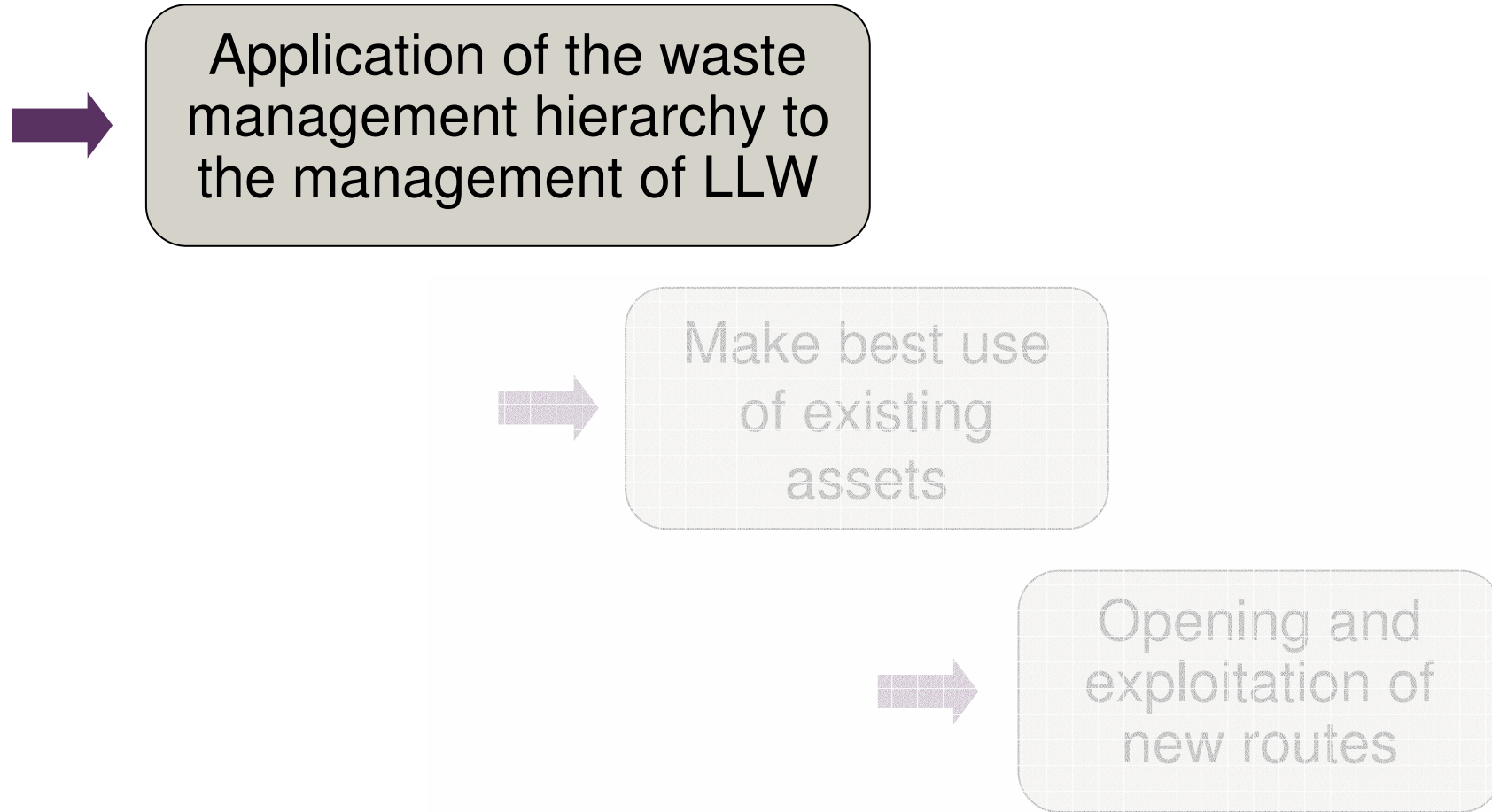
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Three Strategic Themes



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Three Strategic Themes



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Application of the Waste Management Hierarchy

- Waste avoidance and characterisation

- **Waste avoidance**

- Good practice, contaminated land planning, decommissioning planning, decontamination, R&D

- **Characterisation**

- NICOP on Clearance and Exemption, R&D, good practice, standard approaches

- **Sort and segregate**

- Good practice, incentivise (inc. pricing at LLWR), assistance to consignors ~ new containers

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Application of the Waste Management Hierarchy - Minimise, Re-use, and Recycle

- **Compaction**
 - Continued use of compaction, optimised packaging ~ example: Type-0075 containers
- **Reuse of appropriate material for landfill / landscaping**
 - Seek opportunities for reuse, clarify regulatory requirements
- **Decay storage**
 - Consideration of decay storage on a case-by-case basis
- **Re-use and recycling**
 - Maximise opportunities for re-use and recycling of materials; identifying end users for soil, rubble and demolition materials

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Application of the Waste Management Hierarchy

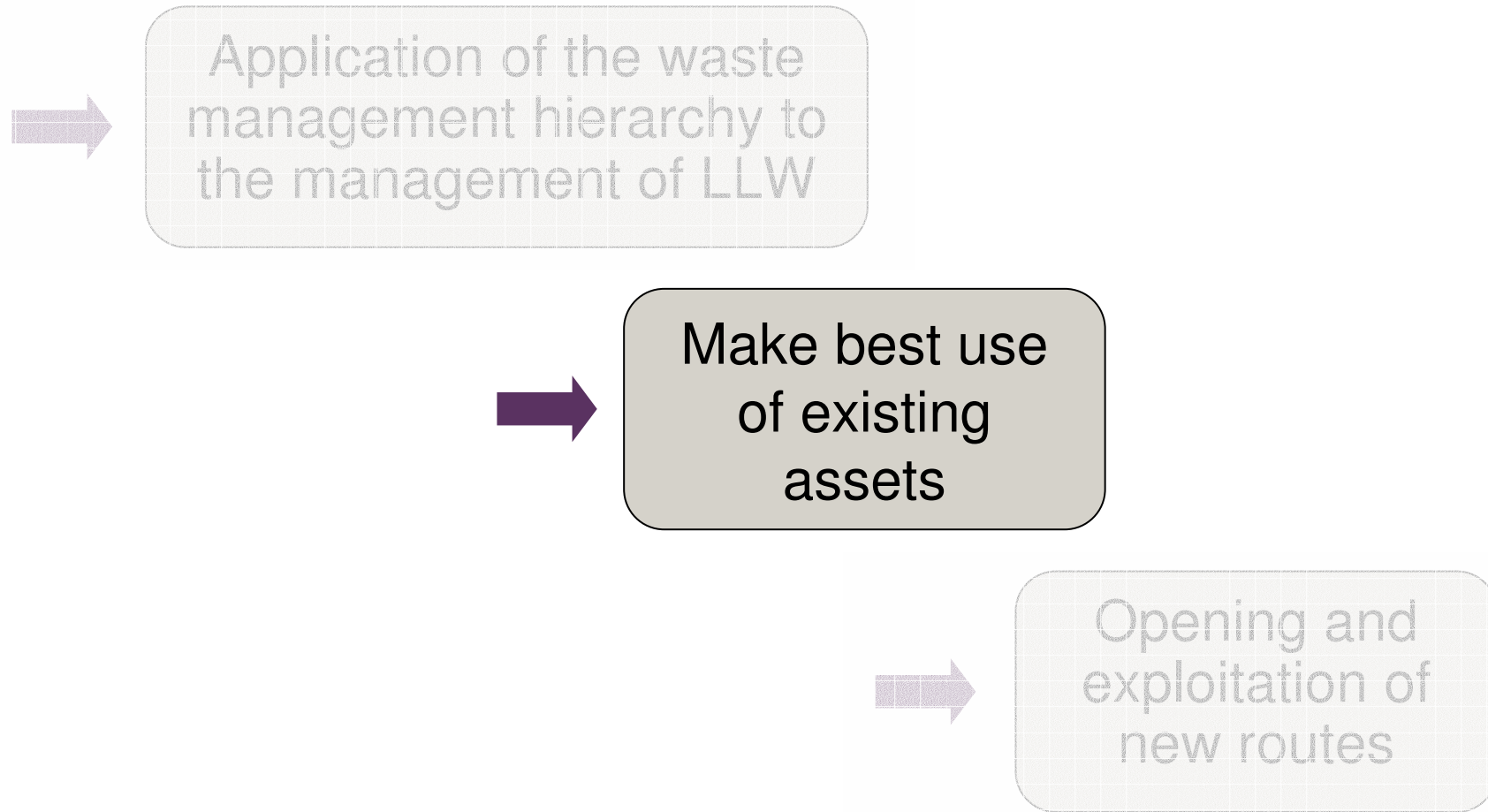
- Treatment

“Candidate materials should be cleaned, treated, recycled and exempted before disposal decisions are made”

- **Metal decontamination/melting and incineration**
 - Will not actively pursue energy recovery due to complexity
- **Market driven**
 - Supply chain investment; stable competitive market; centralised LLWR procurement services; flexibility needed before disposal
- **Existing NDA site waste infrastructure**
 - Must demonstrate value for money
- **Asbestos disposal at most environmentally optimal route**
 - Treatment not yet demonstrated as best option

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Make Best Use of Existing Assets

- **Optimised use of LLWR**

- Only appropriate wastes consigned for disposal requiring engineered multi-barrier containment and meeting Conditions for Acceptance
- Co-mingling of exempt and VLLW in containers intended for the LLWR shall be avoided as practicable

- **Early Contingency planning**

- Replacement national repositories
- Integration with deep geological repository and new nuclear build programmes and strategies

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Make Best Use of Existing Assets

- **Optimised Waste Packaging**
 - New packages for enhanced transportation and disposal
 - Centralised through LLWR to improved integration
- **Improved Waste Inventory**
 - LLWR will compile best available information on LLW Inventory
 - Support to national capacity planning and future business cases

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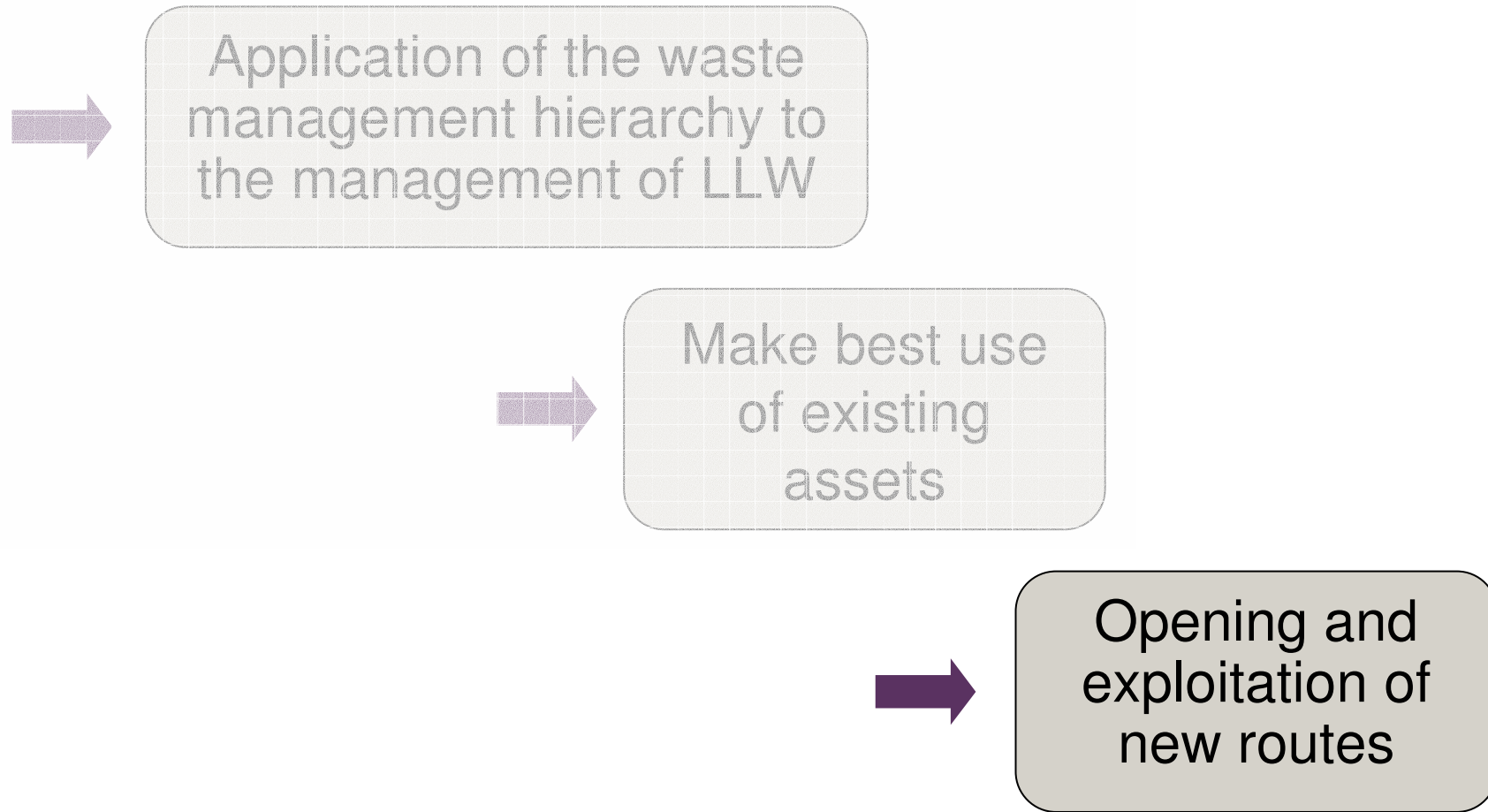
Make Best Use of Existing Assets

- **Improved Methods of Transport**

- Coordination through LLWR, Consignors, and treatment and disposal facilities in the UK and overseas
- Centralised through LLWR to improved integration
- LLWR to prepare transport strategy with preference for use of rail infrastructure where practicable and cost effective

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Opening and Exploitation of New Routes

- **LLWR**
 - New waste services for all consignors to use
- **Disposal**
 - Final unretrievable disposal is the end point for all LLW
 - Options to be considered on a case-by-case basis
- **VLLW disposal and controlled burial**
 - Disposal capacity needed in near term
 - Supply chain to be utilised in developing new routes for consignors
- **Dounreay LLW facility**
 - Development of new LLW disposal facility
 - Need to ensure optimised waste management and best use

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Opening and Exploitation of New Routes

- **Proposals for Onsite Disposal**

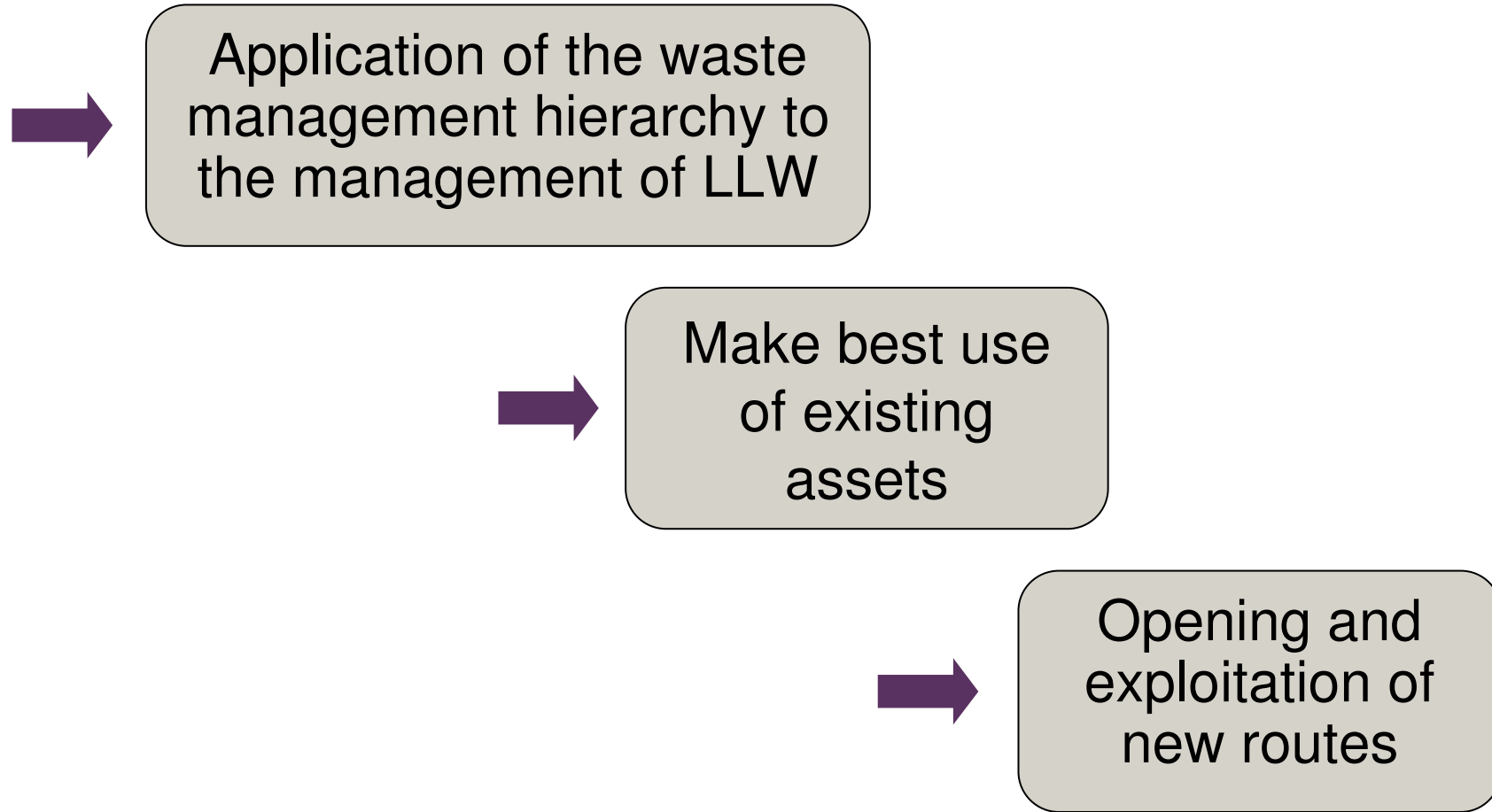
- Needs robust Business Case on a case-by-case basis
- Evaluate alternative options
- Consider Long term impacts (de-licensing, end state, end use)
- Consider future uses of the site (NDA property strategy)
- Integrate with Environmental Safety Case
- Need objectivity in locating waste management operations
- Incorporate Stakeholder interests, including public acceptability and supply chain involvement

- **Evaluating preferred solution(s)**

- Onsite Disposal vs. Controlled Diversion to alternative routes

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Three Strategic Themes



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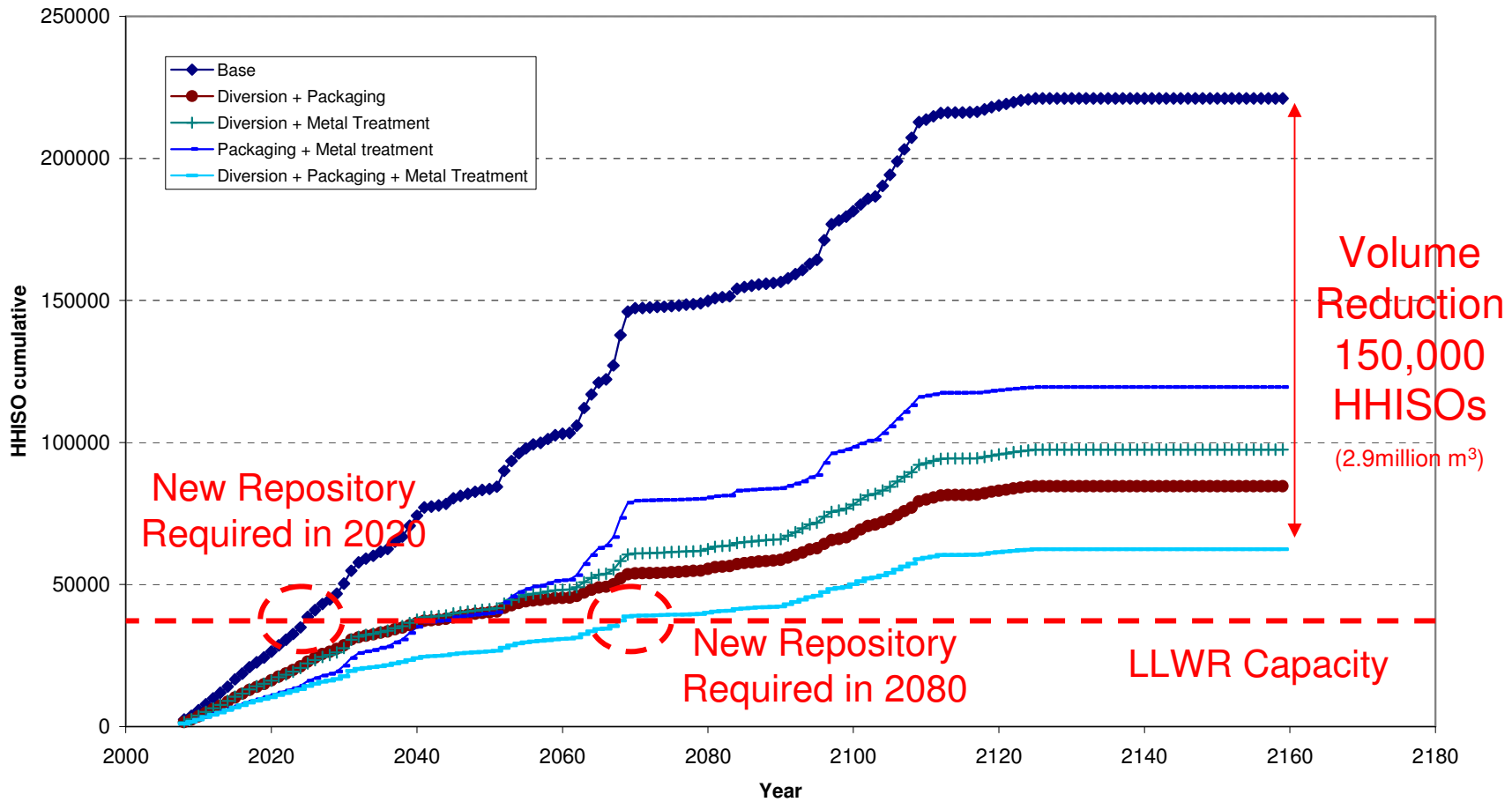
Key Strategic Aims

- Safety and environmental excellence
- Continued capability and capacity for the management and disposal of LLW
- Facilitate continued hazard reduction and decommissioning
- Best use of the UK Low Level Waste Repository
- Provide best value

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What could be achieved....



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...what does this mean in practice?

(Strategy implementation)

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Strategy Implementation

- In order to maximise benefits, the strategy must be collectively and consistently implemented
- Step-change improvement in LLW management practices and contribute significant long-term savings of over £1 billion
 - Reduce the LLW baseline costs
 - Extend the life of LLWR
 - Achieve significant environmental and sustainability benefits

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Strategy Implementation

- **Lots of good work already being done**
- Driving the right behaviours and working with others
 - How it all fits together
 - Influencing
 - What we can and can't do...
- National LLW Management Plan
 - The detailed initiatives that help us implement this strategy
- Operational strategy for LLWR

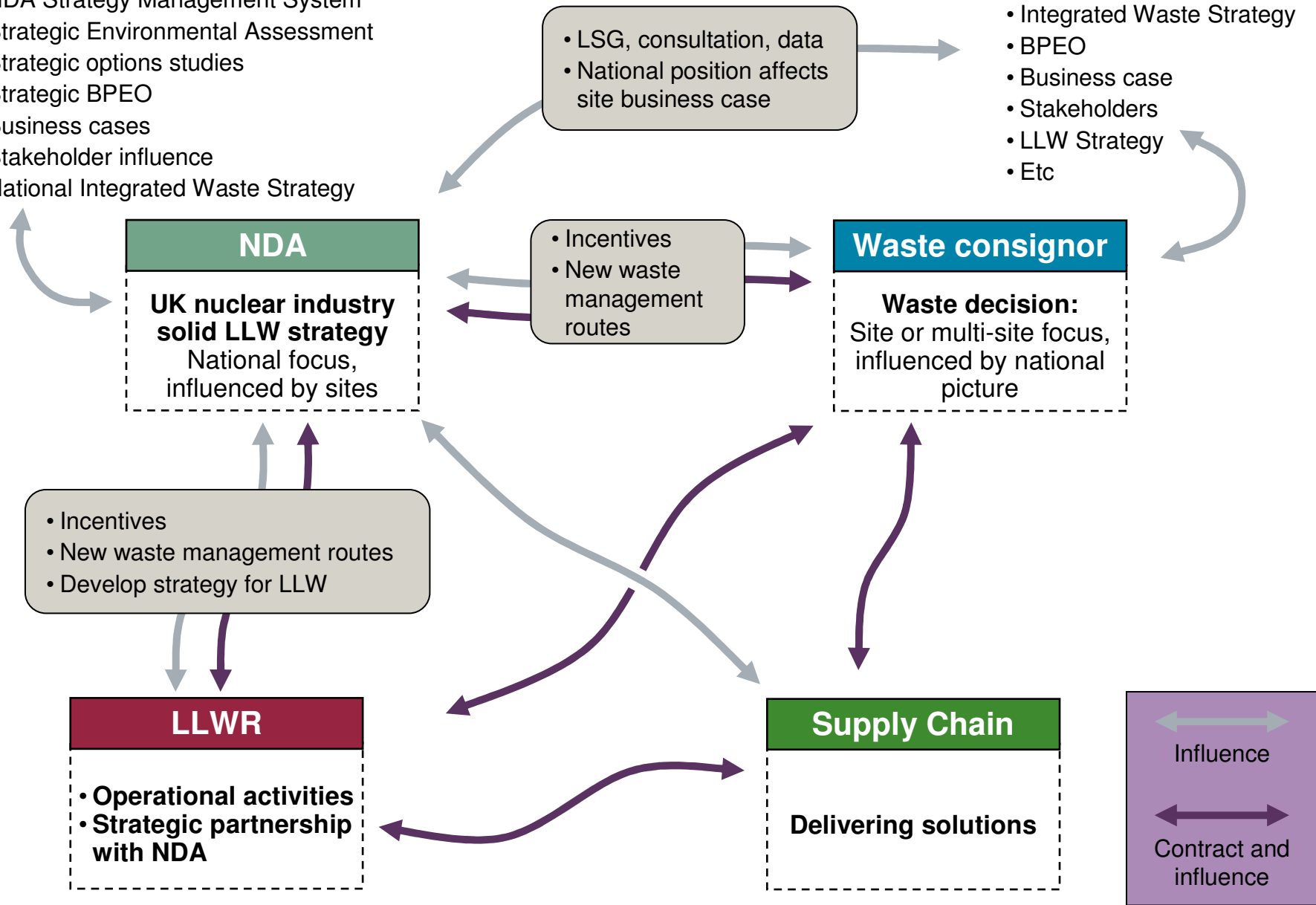
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Underpinning

- Strategic Review, Topical Strategies
- NDA Strategy Management System
- Strategic Environmental Assessment
- Strategic options studies
- Strategic BPEO
- Business cases
- Stakeholder influence
- National Integrated Waste Strategy

Decision making

- Integrated Waste Strategy
- BPEO
- Business case
- Stakeholders
- LLW Strategy
- Etc

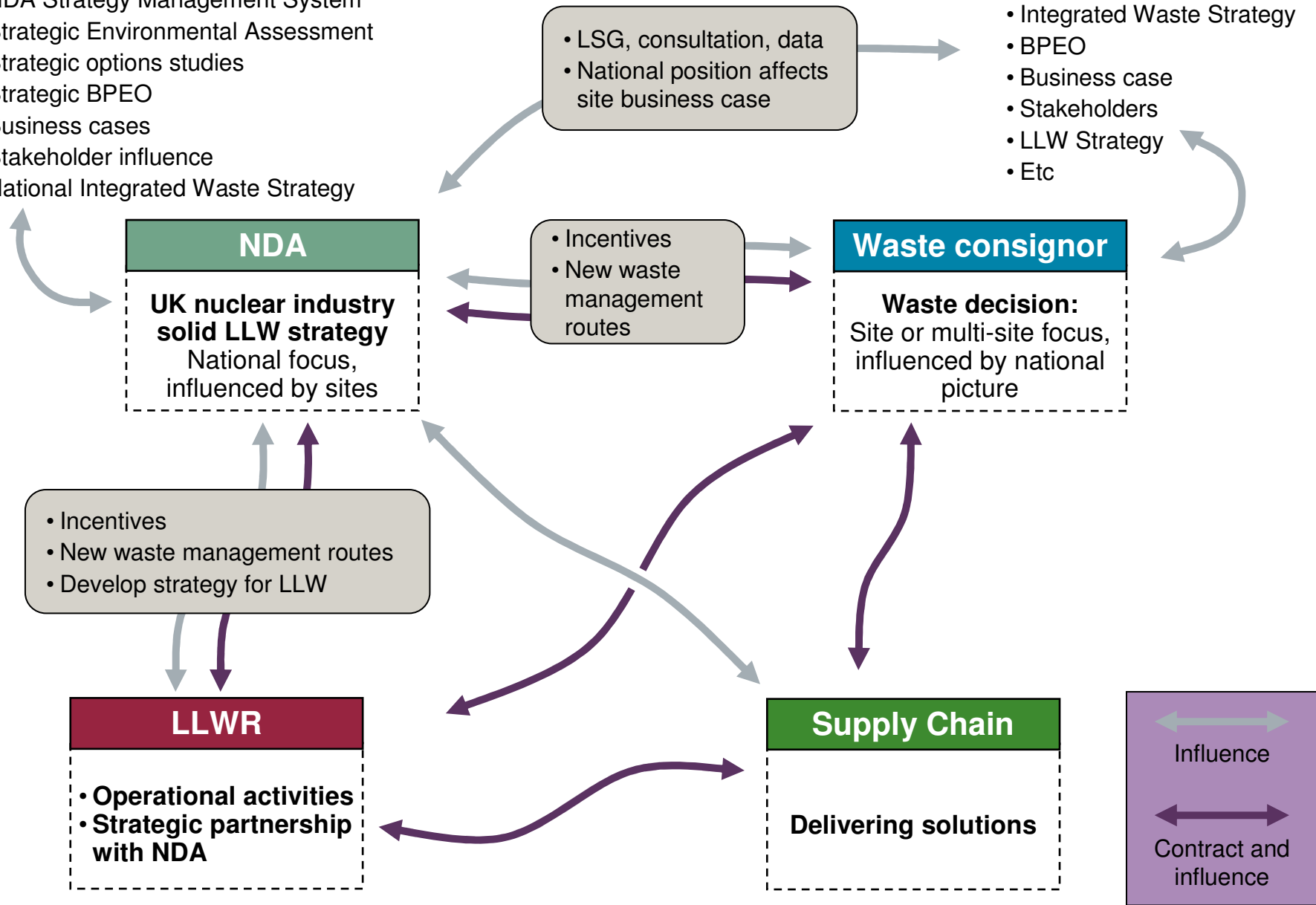


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Decision making

- Integrated Waste Strategy
- BPEO
- Business case
- Stakeholders
- LLW Strategy
- Etc



National LLW Management Plan

- Draft National LLW Management Plan will initiate implementation of strategy innovations
- Developed by LLWR and issued to NDA on 17 February 2009
- Consulted at National LLW Strategy Group
- Focus on:
 - Implementation of the waste hierarchy
 - Long-term sustainability
 - Use of good practice and innovative technology
- Available on LLWR website (www.llwrsite.com)

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National LLW Management Plan

- Addresses synergies on a national, regional, and multi-site scale through 54 initiatives:
 - Identifies future investment issues for new or modified waste management facilities, assets, and infrastructure
 - Risk mitigation strategies
 - Integration of research and development activities
- Each initiative:
 - Method of implementation
 - Schedule and key deliverables
 - Potential cost/benefit and importance to strategy
- Updated on an annual basis for informing the SLC lifetime planning process and other non-NDA waste programmes

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Near Term Deliverables

Deliverable	Target Date	Lead
LLW Strategic Review	January	LLWR
Draft National LLW Management Plan	February	LLWR
Draft UK Nuclear Industry Solid LLW Strategy	May	NDA
SEA Environment and Sustainability Report for consultation	May	NDA
Final UK Nuclear Industry Solid LLW Strategy Approval	~ December	NDA
SEA Post Adoption Statement	~ December	NDA

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Longer-Term Expectations

- UK LLW Strategy is intended to be flexible and dynamic
- Give clear strategic direction for delivery
 - Maximum synergies across the UK
 - Optimum flexibility
 - Alignment for NDA sites via Site Strategic Specifications
- Allows for proportionality, affordability, and balance
- Update National Strategic Reviews every 2 years
- Update National LLW Management Plan annually
- Policy  Strategy  Site Plans

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