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# Future of Process Safety Management in Decommissioning

Guidance for the way ahead

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# When it goes wrong

## Didcot A Power Station Collapse, UK. February 2016

- Four workers killed.
- Structure collapsed part-way through demolition.
- Ongoing Police and HSE joint investigation:
  - › corporate manslaughter.
  - › gross negligence manslaughter.
  - › health and safety offences.



*Image provided by PA*



# Introduction

- **Facilities possess** considerable **process hazard** potential once **operations cease**.
- **Managing process hazards focused** on **new development projects** and existing **operations**.
- **Not** always apparent in **decommissioning projects**.
- **Future decommissioning** activity is forecast to significantly **increase**.

# Background

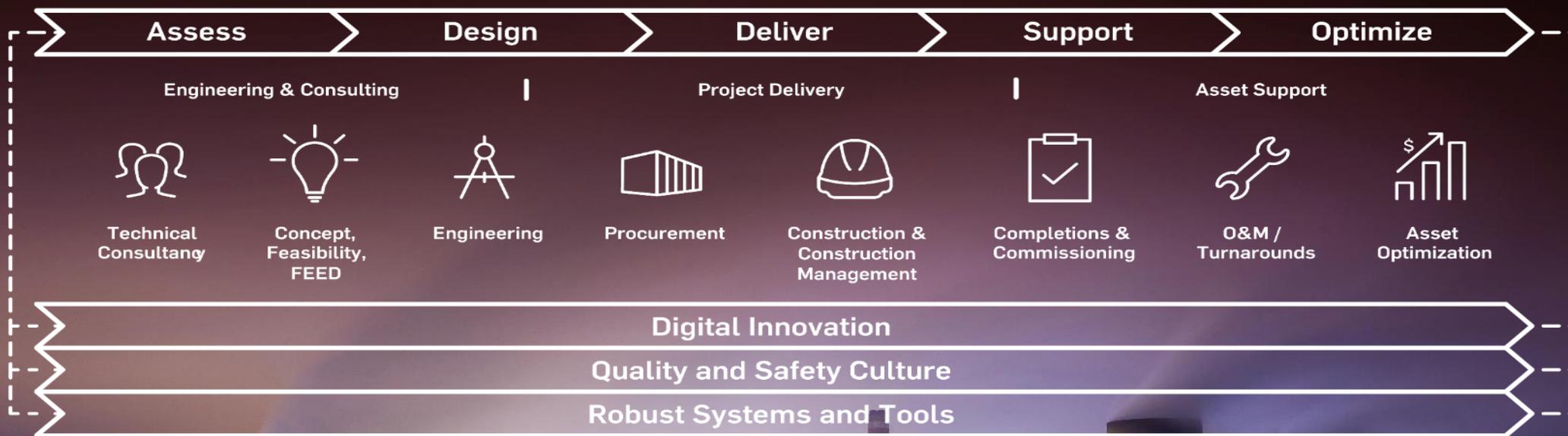
- **Atkins** commissioned to **develop guidance** for **managing process safety** during **decommissioning** of facilities in **high hazard energy sector** industries.
- **Offshore, Onshore** Oil and Gas, Petrochemical, Thermal Power Generation.
- **Written** by Atkins with **cross industry input** from **industry specialists, Regulators, Operators** and **Supply Chain**.



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# Comprehensive end-to-end capabilities



## Two key definitions

### Process safety

*“ a blend of **engineering and management skills** focused on **preventing catastrophic accidents and near misses**, particularly **structural collapse, explosions, fire and toxic releases** associate with **loss of containment of energy or dangerous substances** such as chemicals and petroleum products....”*

### Decommissioning

*“ includes all the activities related to taking equipment out of service: isolating; cleaning; disconnecting; dismantling; removing; demolishing; and disposal. **It does not include mothballing or reusing.**”*



# Increase in decommissioning activity and fundamental issues

Future decommissioning activity in energy sector forecasted to significantly increase

- **Inefficient** plant.
- **Legislation** and Government **Policy**.
- **End of operational** Life.
- Industry **economics**.

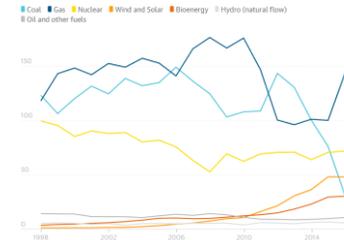


Increases demand on **all organisations** within the energy sector.

**Our key objectives** - decommission **safely** and meet Regulatory **requirements**.

## Fundamental issues

- **“What is there”** rather than “what will be there”.
- **Liability** management.
- Deliver at **lowest** possible **cost**.
- **Conflict** between **lowest cost** and ensuring appropriate **standards of safety**.



# Guidance Development

Focus on common core issues and address 6 areas:

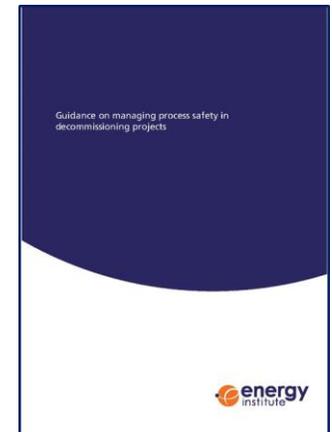
1. Project management.
2. Stages of a decommissioning project.
3. Communication with stakeholders.
4. Interaction with regulators and compliance with legislation and industry/company standards.
5. Determining and managing the hazard profile.
6. Managing people.

Provide guidance generally within the energy sector, with more specific guidance for:

- Offshore oil and gas.
- Onshore oil and gas and petrochemicals.
- Thermal power generation.

Intended to support those with:

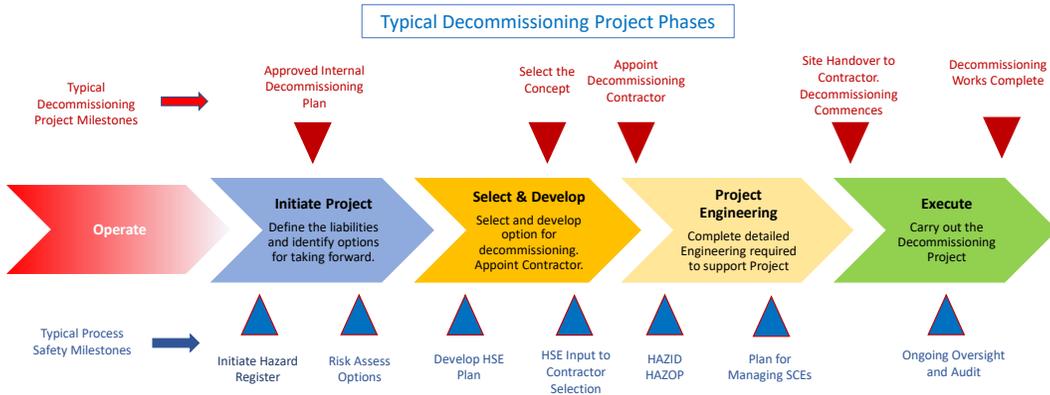
- Direct and indirect responsibilities for managing process safety.
- Wider health and safety responsibilities on a decommissioning project.



# Focus Area 1 Project Management

## Comparison of development and decommissioning project authorisation

## High level Objectives



- Set out the end objective.
- Fully understand the condition of the facility.
- Develop project plan that allows for effective HS&E management.
- Identify options for decommissioning and carry out an initial assessment.



# Main Process Safety objectives



Identify **legislative** requirements and **company standards/ requirements**.



Early **dialogue** with **regulator(s)** and other key **stakeholders**.



Identify **feasible options** that can achieve **ALARP**.



**Understand** key **risk** drivers to be **managed** as the decommissioning **project progresses**.

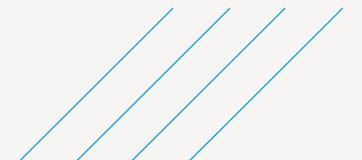


Develop a **preliminary** hazard **management strategy** for **future** phases with **focus** on managing **process safety**.

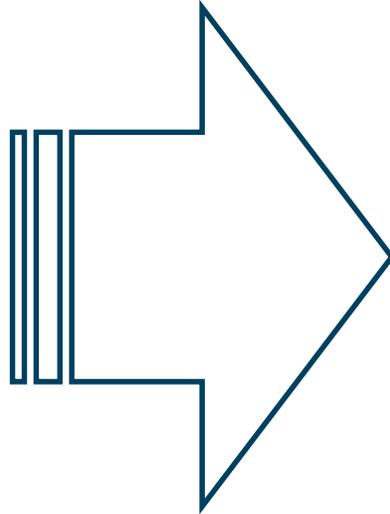
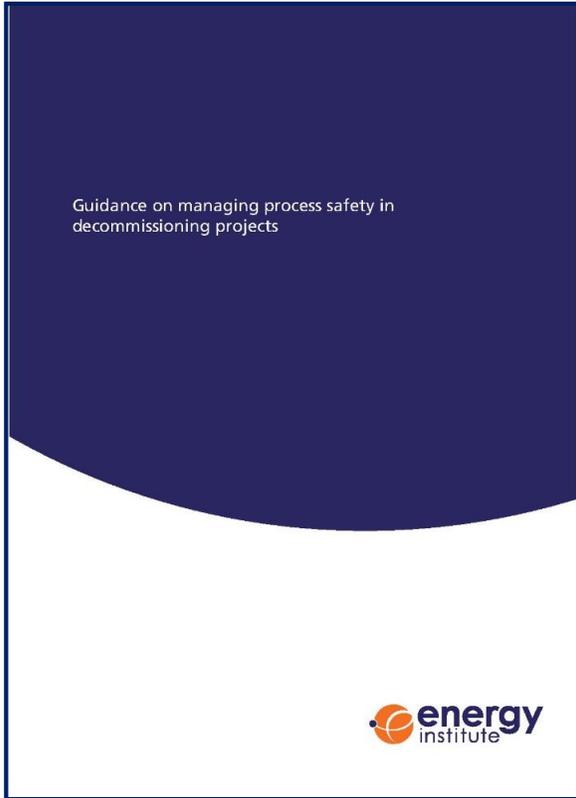


# Specific Process Safety Tasks

- Facility status and description
- Identify regulatory requirements
- Identification and assessment of options
- Early identification of hazards and hazard register
- Hazardous inventories defined
- Coarse risk assessment
- Verification of information
- Identify requirement for additional work
- Identification of main interfaces
- Input to contracting strategy
- Project HS&E plan



# Some Key Messages



In terms of **managing the full extent** of the **decommissioning project**, it can be **beneficial to think** in terms broadly **similar to stages** as for a **development project**.



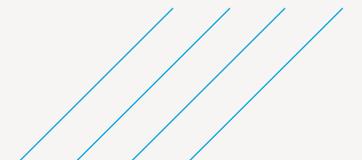
**Plan early** – effectively a **regulatory requirement** now (in the UK offshore).



Need to **demonstrate** that **viable options** have been considered and that **MAH can be managed** for the **selected option**.



**Accurate information** is essential – can be an issue for **older facilities** or where there has been multiple **changes of ownership**.



Thank you for listening

