

# OIL & GAS DECOMMISSIONING

## ONSHORE INFRASTRUCTURE AND SUPPLY CHAIN

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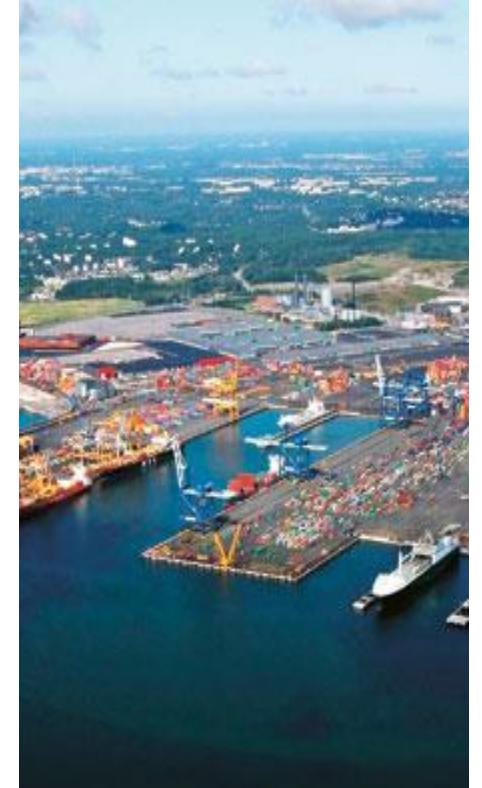


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2. The decommissioning process, the role of the onshore supply chain
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# 1.0 RAMBOLL

- Engineering & Environmental Consultancy focused on sustainability
- 300 offices in 35 countries
- 13,000 employees
- Oil & Gas
- Ports, Marine & Energy Infrastructure
  - Port infrastructure design
  - Port master planning
- Environment and Health
  - Comparative Assessment
  - Environmental Impact Assessments
  - Waste management



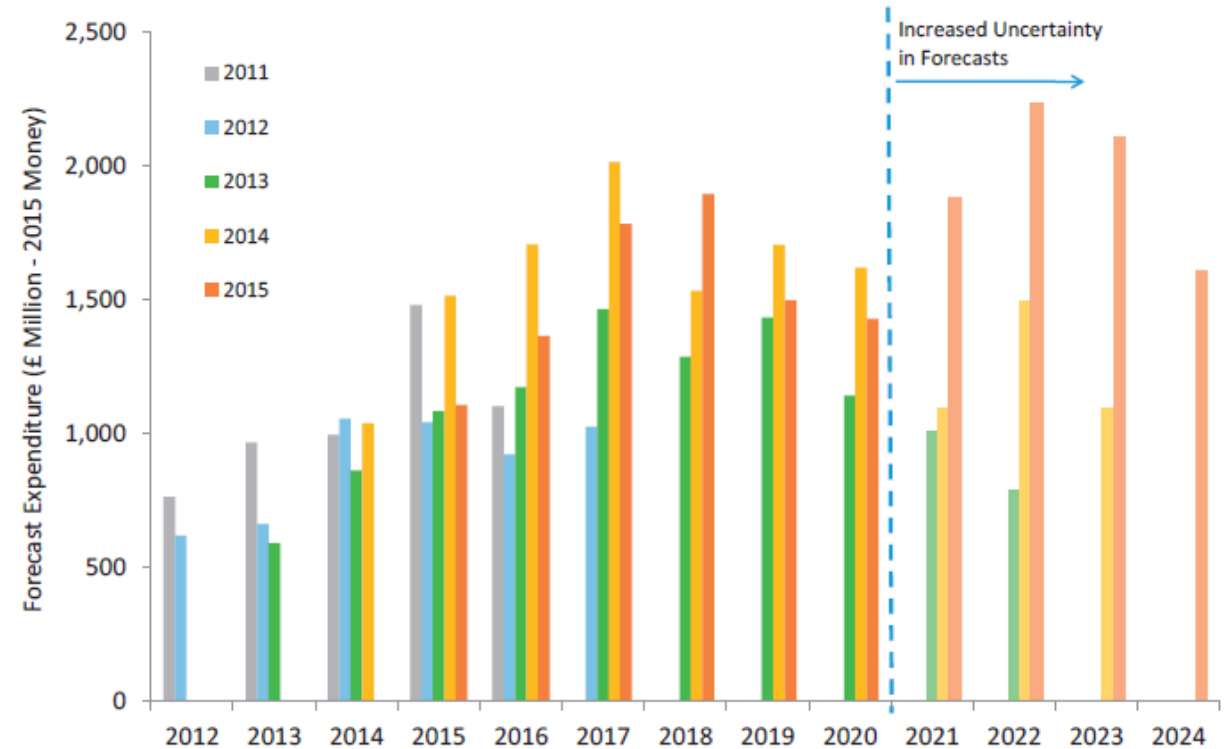
# 1.1 THE OPPORTUNITY

Offshore decommissioning activity in the UKCS is predicted to increase significantly.

There are various forecasts with figures estimating the value of decommissioning activity of over >£46Bn in the coming decades.

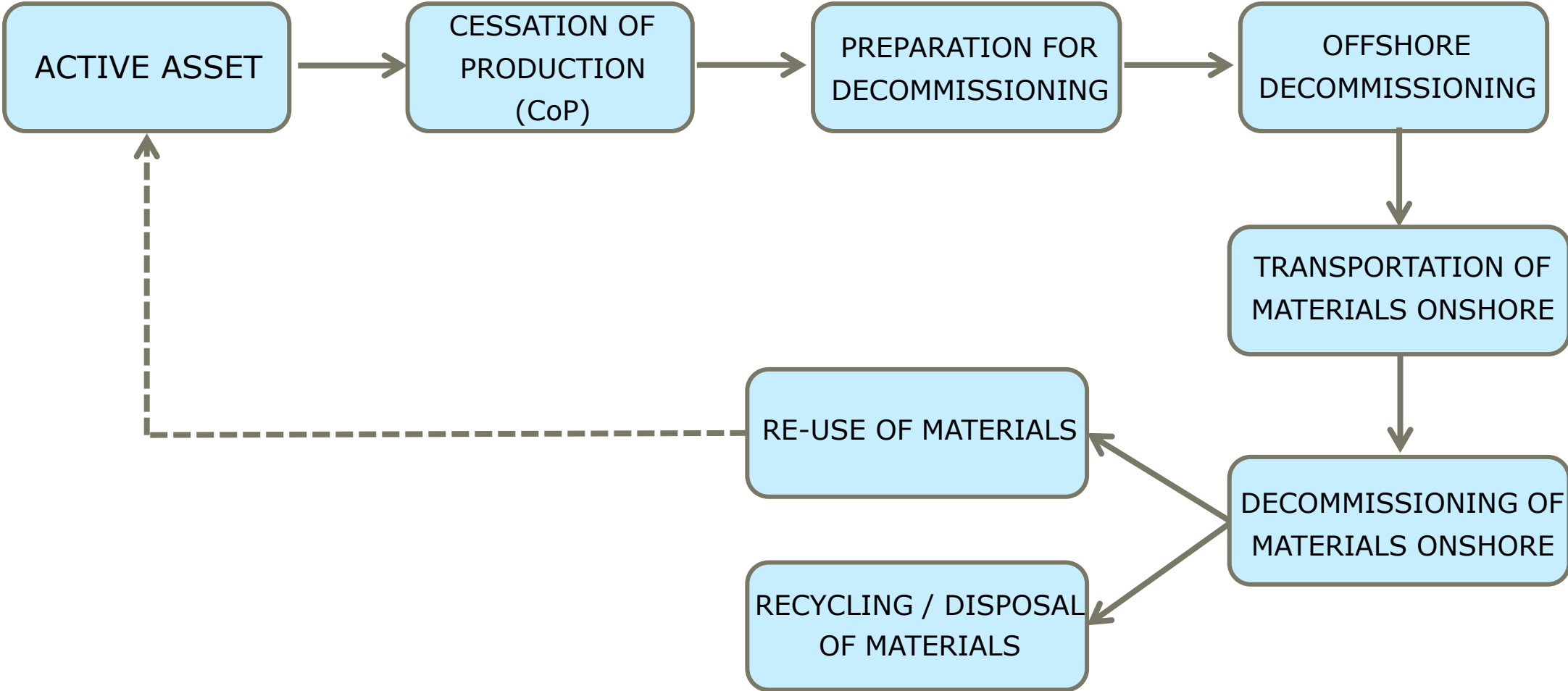
However from our previous research the onshore spend of a decommissioning project is approximately 2–4% of the total project budget.

Figure 2: Comparison of the Annual Forecast Decommissioning Expenditure



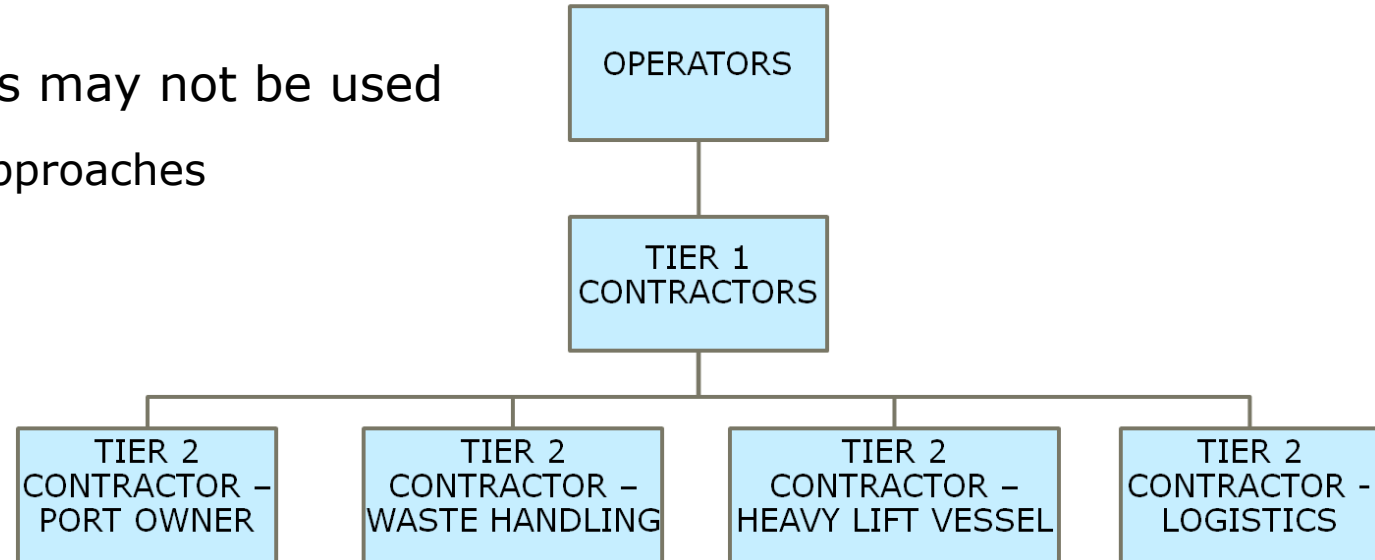
Source: Oil & Gas UK

# 2.0 THE DECOMMISSIONING PROCESS...SIMPLIFIED



## 2.1 EARLY ENGAGEMENT

- Onshore supply chain should aim for early project engagement
- 'Standard' E&P contracting approaches may not be used
  - Opportunity around new contracting approaches
  - Transition to practice
- Supply chain integration generates:
  - Predictability
  - Health & Safety
  - Lessons learnt and long term improvements
  - Cost savings



## 2.2 THE ONSHORE SUPPLY CHAIN - OUTLINED

- The onshore supply chain is focused on processing the materials onshore in a safe and efficient manner using an environmentally responsible process.
1. Physical infrastructure: ports/harbours
  2. Project management teams including logistics
  3. Decommissioning teams and specialist environmental contractors
  4. Waste processing facilities for recycling, disposal or re-use





## 2.3 MATERIAL PROCESSING

- Target specific material weights and dimensions
  - Piece small
  - Piece large
  - Heavy/single lift
  - Re-float and tow
- Evaluate existing onshore infrastructure and target specific decommissioning projects
- Hybrid decommissioning approaches are also being used and partnerships should be considered
- Ports can use publically available information or information from their contacts to establish how a project may be decommissioned.





## 3.0 ONSHORE SUPPLY CHAIN

- Location/Accessibility
  - Transit costs
- Physical infrastructure
  - Quay/dock capacity
  - Physical containment for contamination prevention
  - Cranes and plant equipment
- Operational teams
  - Appropriate skills for decommissioning onshore
- Material recycling and disposal facilities
  - Transporting the waste to a dedicated facility inland or in a different country



**Location and Accessibility**



**Infrastructure**



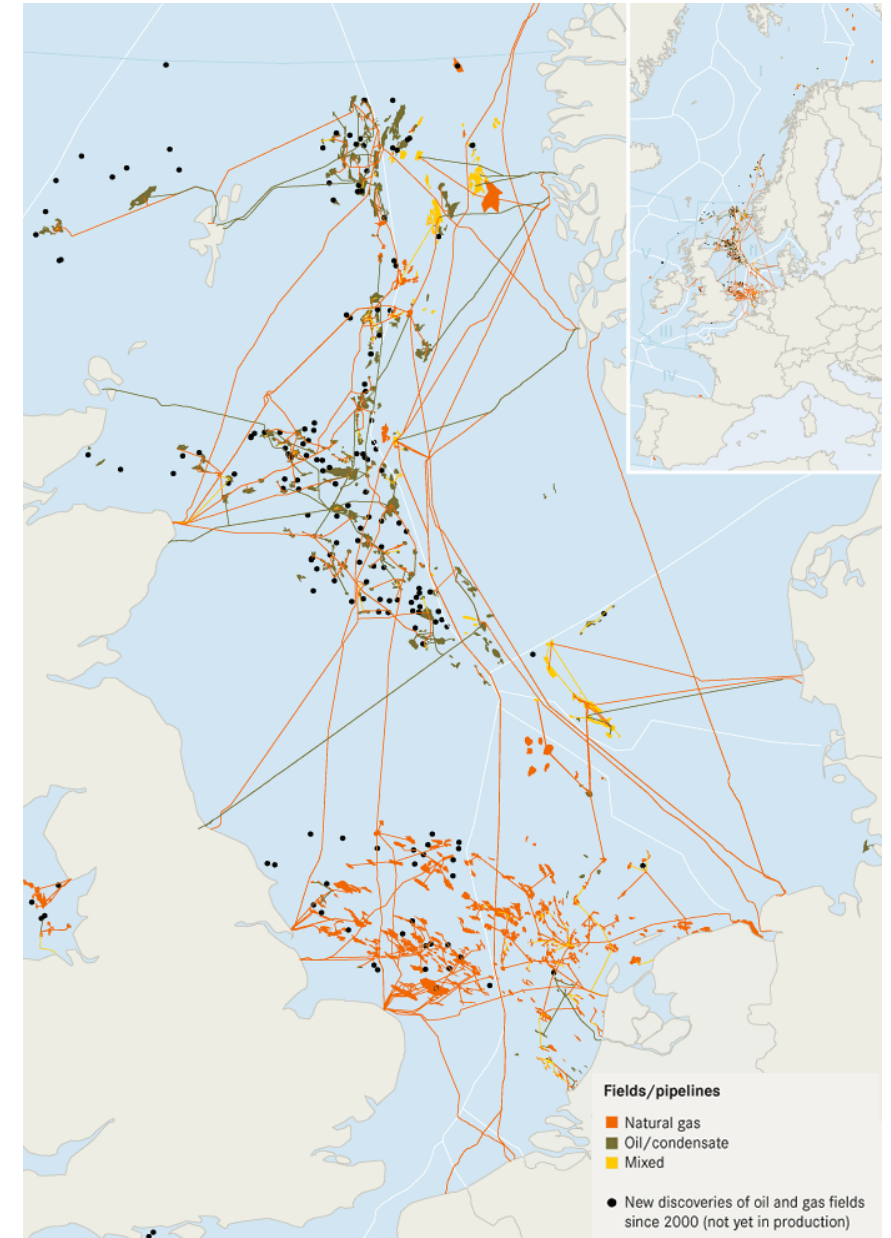
**Operational**



**Site Services**

## 3.1 LOCATION AND ACCESSIBILITY

- Location
  - Shortest distance between offshore asset and onshore facility does not always dictate where onshore activities take place.
- Accessibility
  - From water:
    - Approach channel depth
    - Quay depth/length/capacity
  - From land:
    - Road/rail links for transportation of waste
    - Proximity to waste processing facilities





## 3.3 OPERATIONAL AND SITE SERVICES

- Project management
- Health, Safety and Environment
- Logistics
- Layout for optimal material receipt and processing
- Material inventory
- Partner with onshore decommissioning specialists
- Knowledge and experience of materials and connections with recycling facilities



## 3.4 ENVIRONMENTAL REGULATORY COMPLIANCE

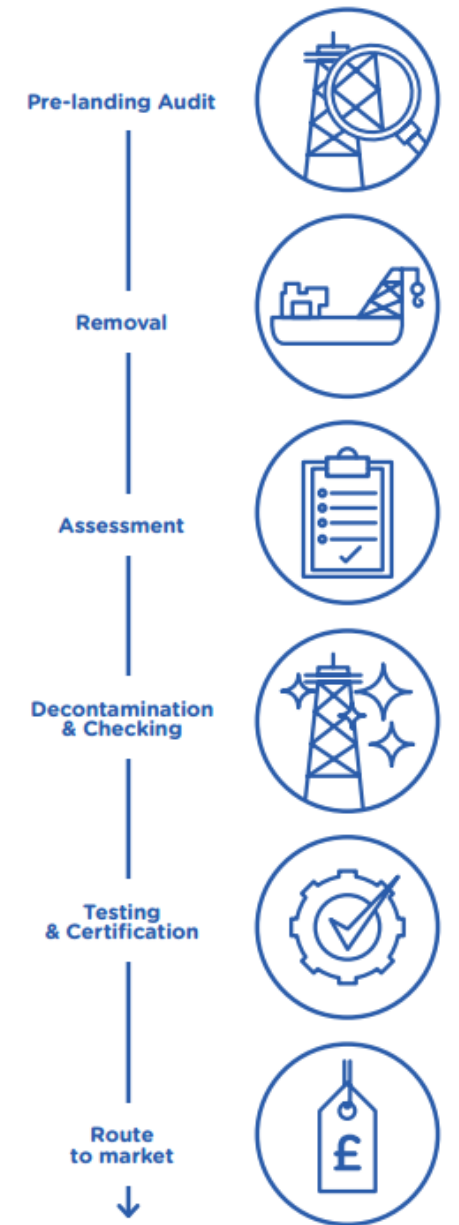
- Materials management in accordance with the waste hierarchy
- Understanding of waste type (e.g. special/hazardous, non-hazardous)
- Duty of Care – operators and licence holders need clarity and assurance down the chain
- Registrations/licences for waste carriers (offshore to onshore and onward transport)
- Transboundary waste shipments
- Waste management licences for storage and treatment
- End of waste scenario: certainty of reuse and suitability for that use





## 4.0 FURTHER ONSHORE SUPPLY CHAIN

- Collaboration with onshore recycling facilities, equipment refurbishment contractors and waste disposal facilities
- Develop a clear process for handling the material inventory
- Re-use and/or refurbish parts – potential to feed into the Oil & Gas UK ETF *Inventory Rationalisation* project
- Documentation and auditing of the material routes





## 5.0 CONCLUSIONS

1. There is a long term opportunity for the onshore supply chain from decommissioning
2. However ports/harbours and the onshore supply chain should develop a balanced and flexible approach which could include;
  - Decommissioning, O&G support, renewables, cruise, leisure, ro-ro etc.
3. Establish a core project management team when targeting decommissioning projects
4. Develop relationships and engage early in bids and client requirements
5. If investment is considered:
  - Identify which port parameters are “easier” (from a cost/technical perspective) to overcome in terms of improving a port’s capability
  - Identify the port parameters that could require significant investment

**THANK YOU**