International Association of Oil & Gas Producers

Economic Considerations Integral to Decision Making

Economic Aspects for Balanced Decision making - Context

OSPAR 98/3:

- **Technical feasibility** – *the degree of difficulty and practicality of removal, taking into account engineering limits and methods available.*
- **Environmental impact** – *the potential effects on the marine environment of removal compared with leaving wholly or partly in place.*
- **Economic aspects** – *the proportionality of costs and benefits, noting that economics alone cannot justify derogation.*
- **The interests of other users of the sea** – *the implications for navigation, fishing, shipping, and other legitimate maritime activities*
- **Safety** – *the risks to personnel involved in removal operations and to other users of the sea thereafter.*

IMO Specific guidelines for assessment of platforms or other man-made structures at sea

*"The **comparative risk assessment** should…take into account factors such as the following:*

1. *Potential environmental impact, including cumulative and future impact and benefits*
2. *Impact on human health and safety*
3. *Technical and practical feasibility*
4. *Economic considerations*
5. *Potential impact on other users and society*
6. *Potential effects of the environment on a disposed platform or other man-made structure at sea"*

IOGP Economics of Decommissioning Decision-Making Study

- **Why This Study Was Needed**
  - Economic impacts often underrepresented in decommissioning decision frameworks.
  - Significant cost implications for governments, operators, and supply chains.
- **Scope & Methodology**
  - Focus: Fixed offshore structures Steel Piled Jackets (SPJs) and Concrete Gravity-Based Structures (CGBSs). This presentation will focus mainly on SPJs
  - Regions: UK and Norwegian Continental Shelves.
  - Data: Industry workshops, expert interviews.
  - Metrics: Unit costs, contractor types, tax domicile, fiscal regimes.
  - Model: Assessed direct (contractor spend) and indirect (employment, supply chain) effects.
  - Scenarios: Compared full vs partial removal.

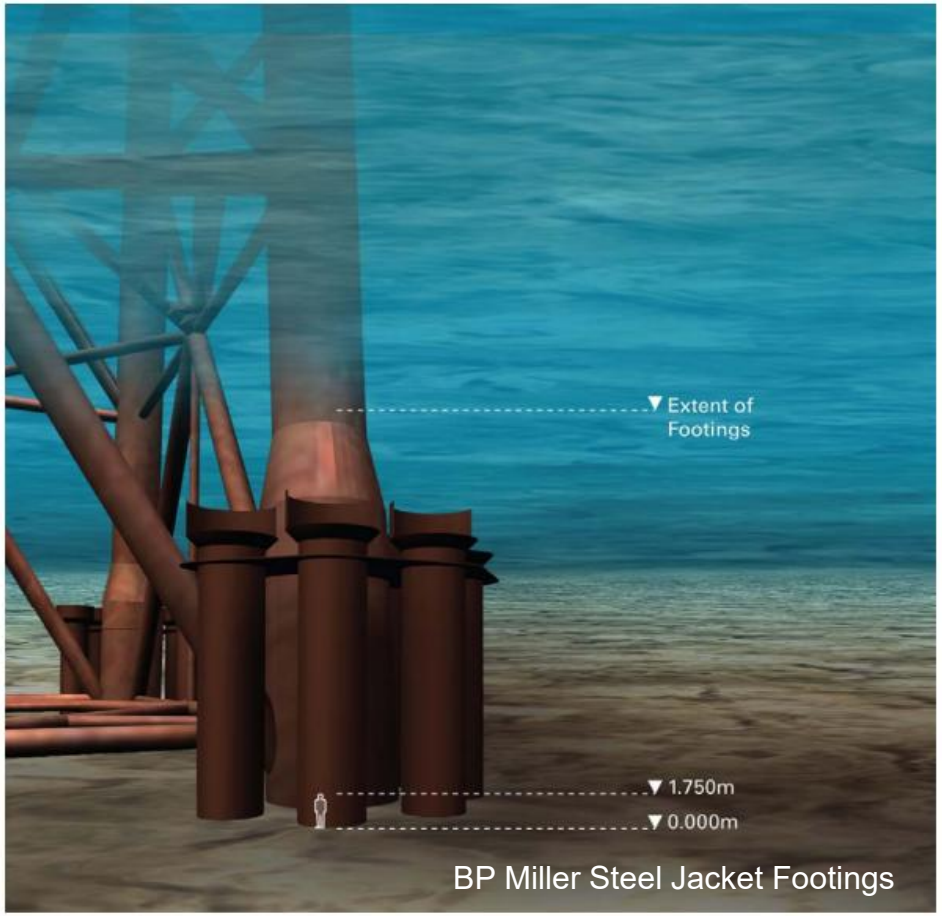
This study enhances understanding of economic aspects, it does not place economics as the primary decision-making factor.

Economics of Decommissioning Decision-Making IOGP Study Findings

- **Economic Impact Overlooked**
  - Often excluded from Comparative Assessment (CA)
  - Commonly misrepresented as “cost avoidance to oil companies”
- **Taxpayer Burden**
  - Significant UK taxpayer impacts from “clean seabed” choices
  - Influenced by parties (e.g., OSPAR consultees) who bear no cost
- **Limited UK Economic Benefit**
  - Low UK content in removal services
  - Minimal UK employment and economic gains
- **Need for Comparative Analysis**
  - Choices (e.g., full vs partial removal) should be weighed against alternative uses of UK taxpayer funds

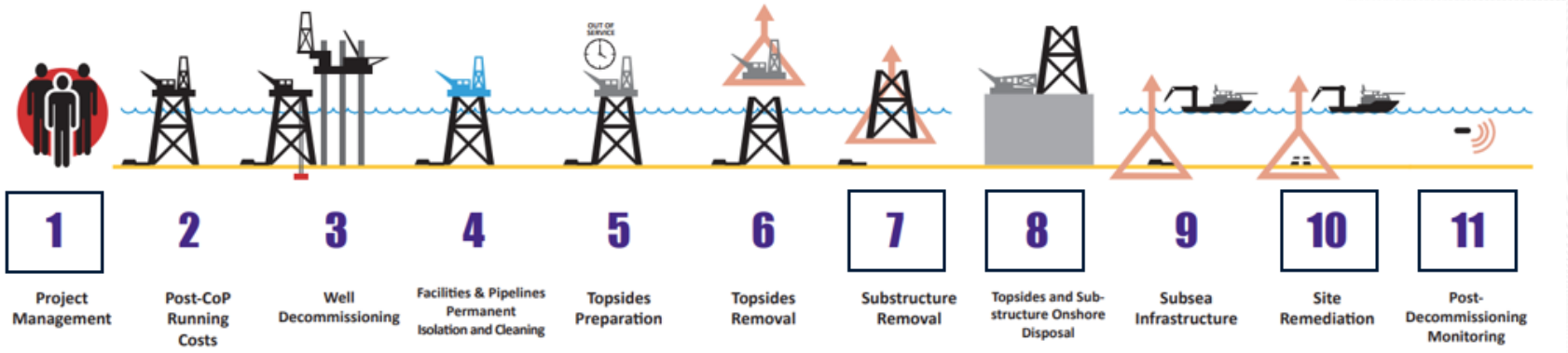
Jacket Options

1. Full removal where the substructure is cut at or below the seabed and returned to shore for reuse, recycling, or disposal.
2. Partial removal (OSPAR derogation) where the substructure is cut above the jacket footings and the remainder decommissioned in situ.



BP Miller Steel Jacket Footings

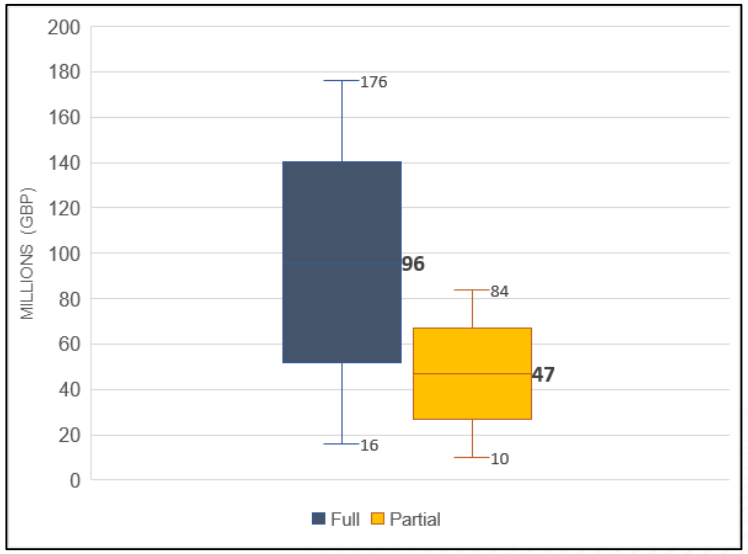
Cost Estimating

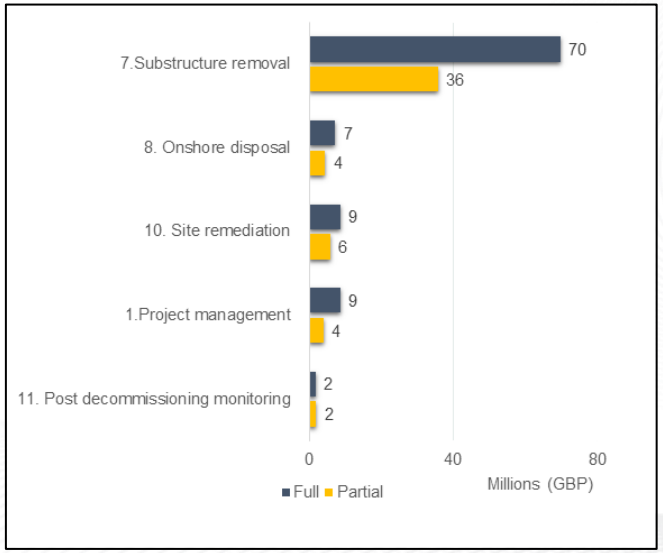


Elements of the Decommissioning WBS

- Estimates developed by experienced industry experts in series of workshops
  - This included *Low, Most Likely* and *Upper* estimates to represent the basin wide candidates. For example:
  - Substructure removal days range from 15 to 80 days (most likely 60 days).
  - Semi submersible crane vessel day rate was varied from £650k/day to £1.5M per day (*Most Likely* £900k/day)
- Specific cases not discussed.
- All data that could be obtained and “reasonableness” verified from publicly available sources.

Steel Piled Jacket



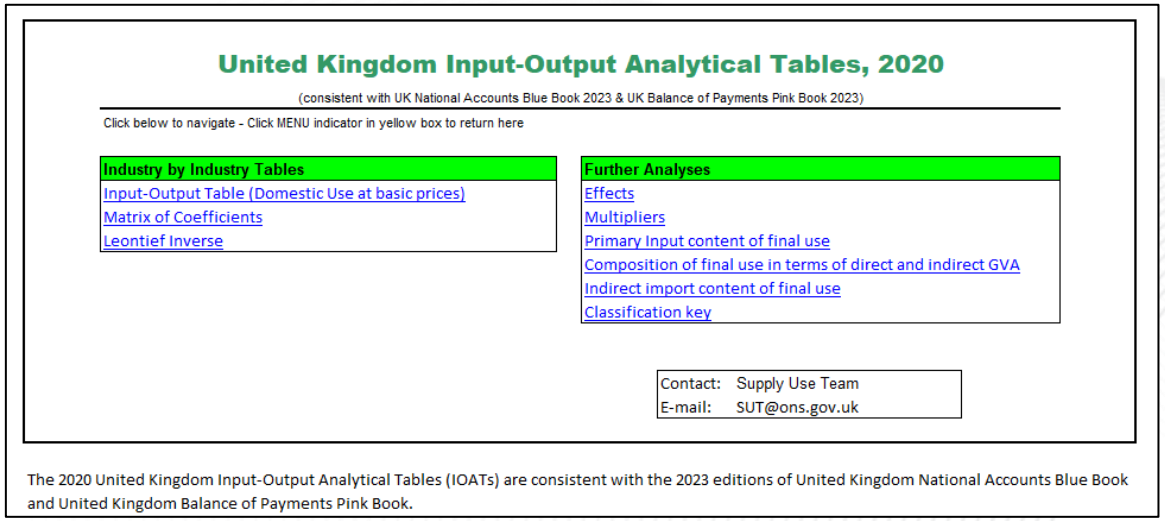


- Full Removal of a typical jacket increases median cost by £50M vs leaving footings in place
- Heavy Lift costs account for more than 80% jacket removal cost

Modelling Method

Economic Model developed by the Consultancy using ONS factors and data. Considers

1. Location of companies providing services (UK and non-UK)
2. Owner costs
3. Tax reliefs
4. Direct, indirect and induced economic impacts



United Kingdom Input-Output Analytical Tables, 2020

(consistent with UK National Accounts Blue Book 2023 & UK Balance of Payments Pink Book 2023)

Click below to navigate - Click MENU indicator in yellow box to return here

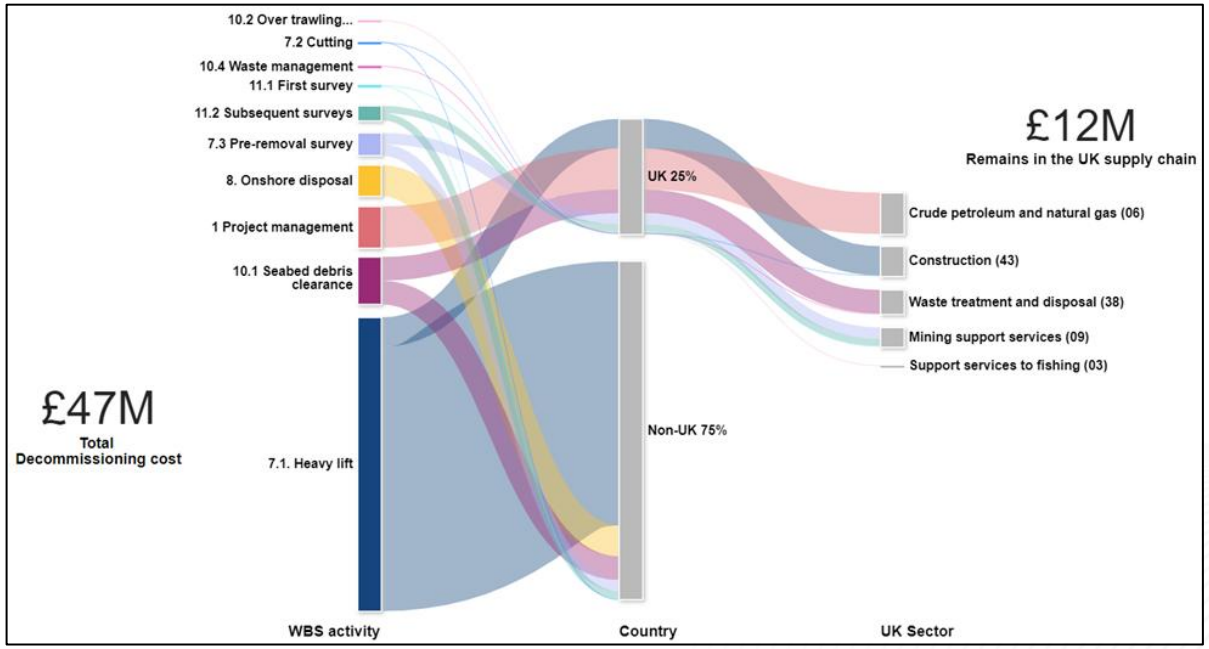
Industry by Industry Tables
Input-Output Table (Domestic Use at basic prices)
Matrix of Coefficients
Leontief Inverse

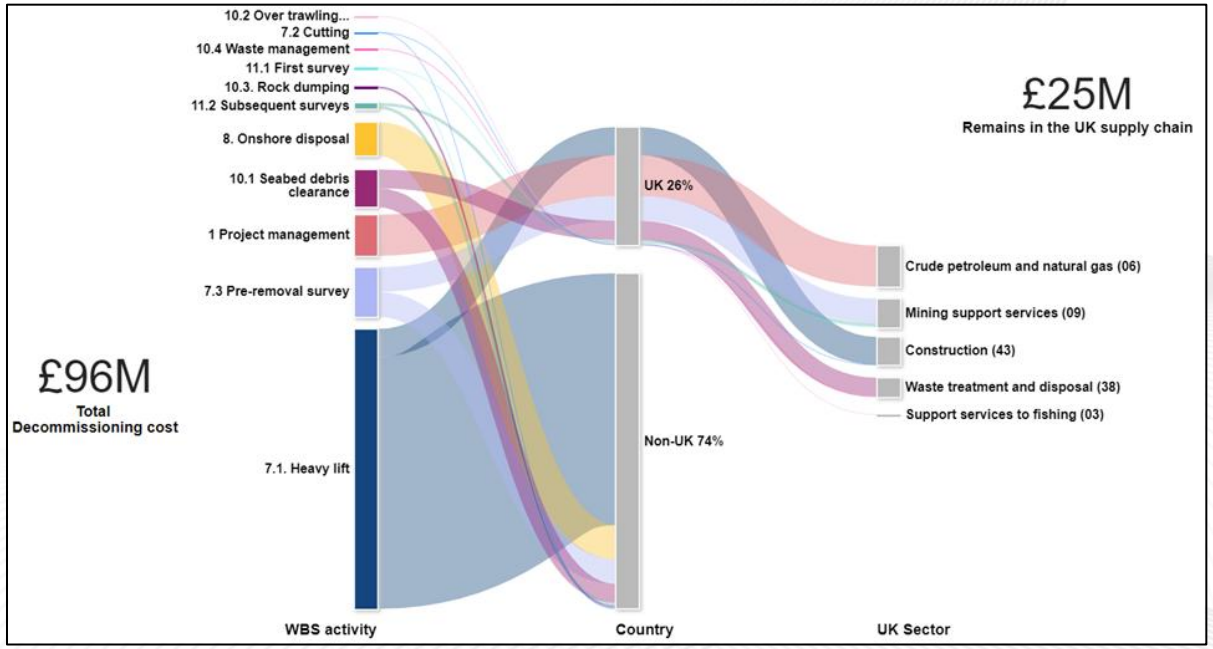
Further Analyses
Effects
Multipliers
Primary Input content of final use
Composition of final use in terms of direct and indirect GVA
Indirect import content of final use
Classification key

Contact: Supply Use Team
E-mail: SUT@ons.gov.uk

The 2020 United Kingdom Input-Output Analytical Tables (IOATs) are consistent with the 2023 editions of United Kingdom National Accounts Blue Book and United Kingdom Balance of Payments Pink Book.

Steel Piled Jacket Options- UK vs. Non-UK Sector



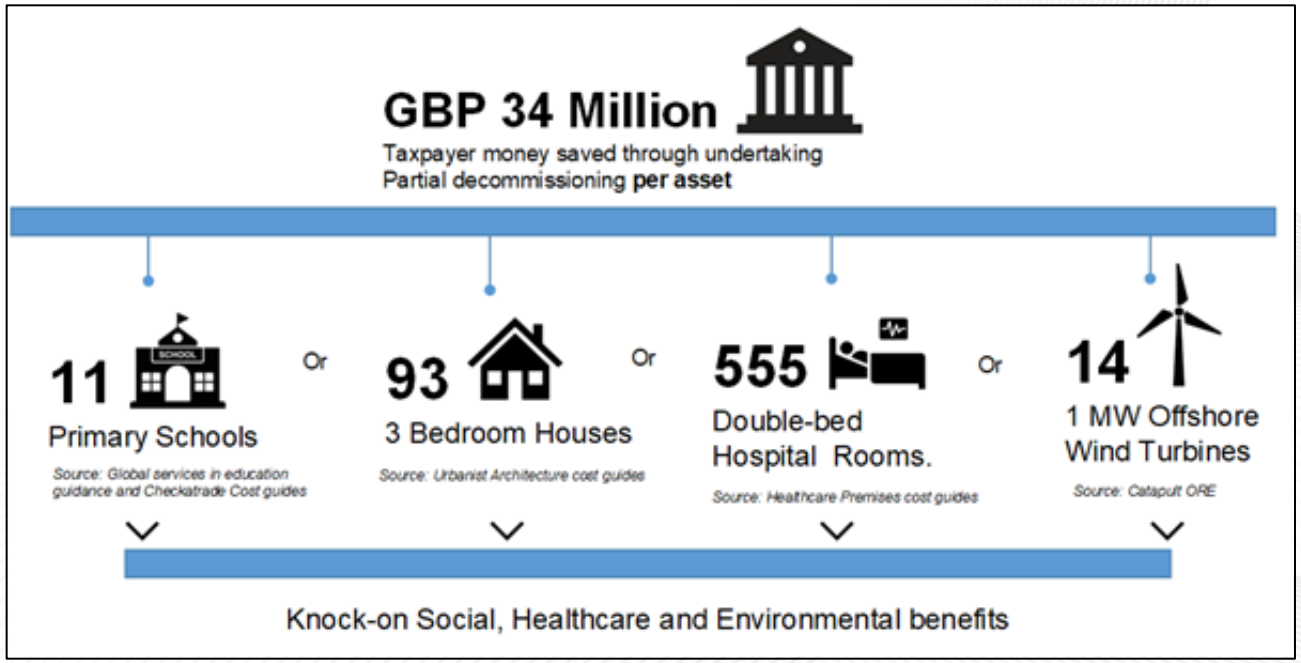


- Removal cost is dominated by non-UK sourced heavy lift services reflecting no UK market capability
- Full removal increases cost by ~ 100%

Full Jacket Removal: Alternative UK Taxpayer Investments

	Steel piled jackets		Concrete gravity base structures		
	Full Removal	Partial Removal	Legs down: return to shore	Legs down: place on seabed	Legs up
Estimated cost for generic case	96	47	114	78	8
Owner burden (30%)	29	14	34	23	2
UK Treasury burden (70%)	67	33	80	55	6
Reduction in UK Treasury burden from SPJ full removal or CGBS return to shore	n/a	**- 34**	n/a	**-25**	**- 74**

Table 1 Estimated cost burden for decommissioning options (GBP millions, net present value in 2024 prices)



- Potential alternatives to removal of the footings of one steel piled jacket
- The amount more than double for a typical CGBS leg removal

Basin Wide Impact

- There are an estimated 23 derogation candidate CGBS structures and 29 derogation candidate steel piled jackets in the UKCS
- Decisions regarding OSPAR derogation provisions will have UK economic effects of around £1.4 billion pounds. An evaluation of Norwegian Continental Shelf indicated similar effects.
- **Does removal of redundant oil and gas infrastructure, which delivers little, if any, demonstratble environmental benefit, compete favourably with alternative public investments and how is this factored into balanced assessments?**

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