



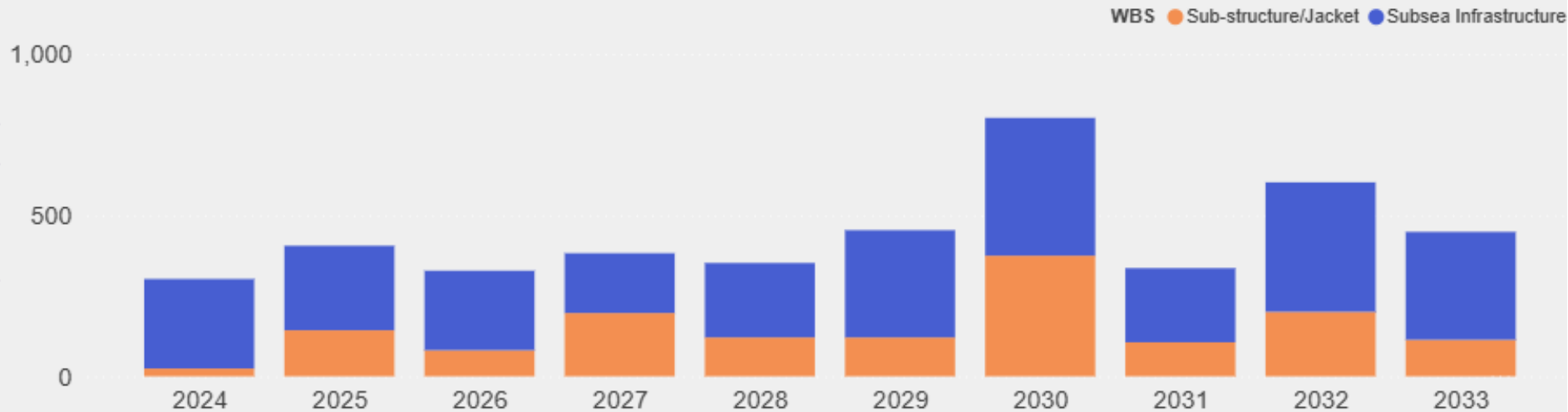
INNOVATIONS IN SUBSEA LASER CUTTING

Craig Baxter

Decommissioning Technical Manager

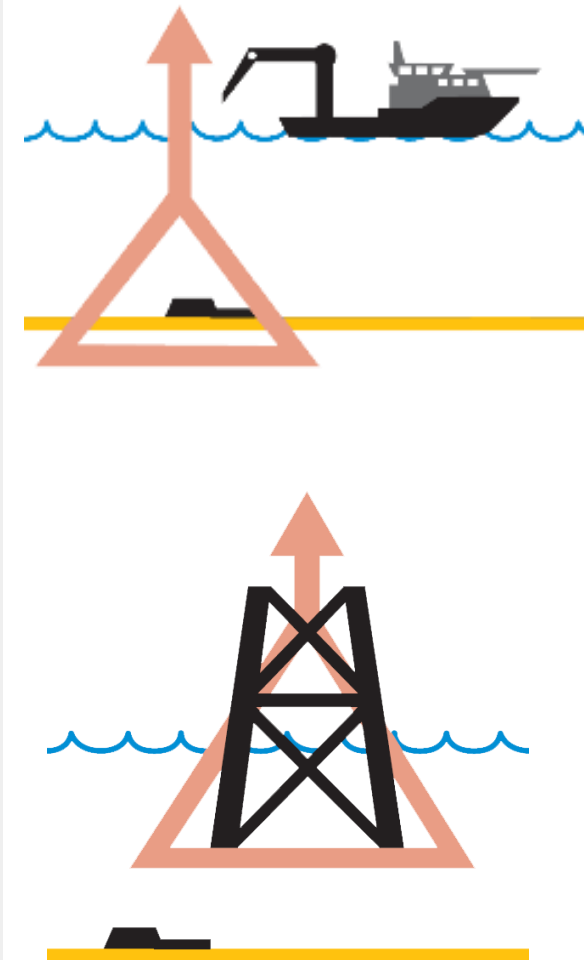


SCALE OF THE CHALLENGE



Year	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	TOTAL
Substructure / Jacket	24	143	81	197	121	121	374	106	200	113	1480
Subsea Infrastructure	278	262	246	185	231	333	427	230	401	335	2928
TOTAL	302	405	327	382	352	454	801	336	601	448	4408

Source: <https://oeuk.org.uk>



STEPPING UP TO THE CHALLENGE

- Improved cutting efficiency
 - Faster with less consumables
- Reduced carbon emissions
 - Less kit to mobilise and cutting quicker
- Flexible deployment method
 - Suited to ROV fly to place tooling and robotics
- Smaller deck space than abrasives
 - Allowing the use of smaller vessels or,
 - More equipment recovery to deck



WHAT CUTTING SCOPES DOES IT SUIT?

- Single wall subsea cutting applications
 - Jacket members
 - Piles

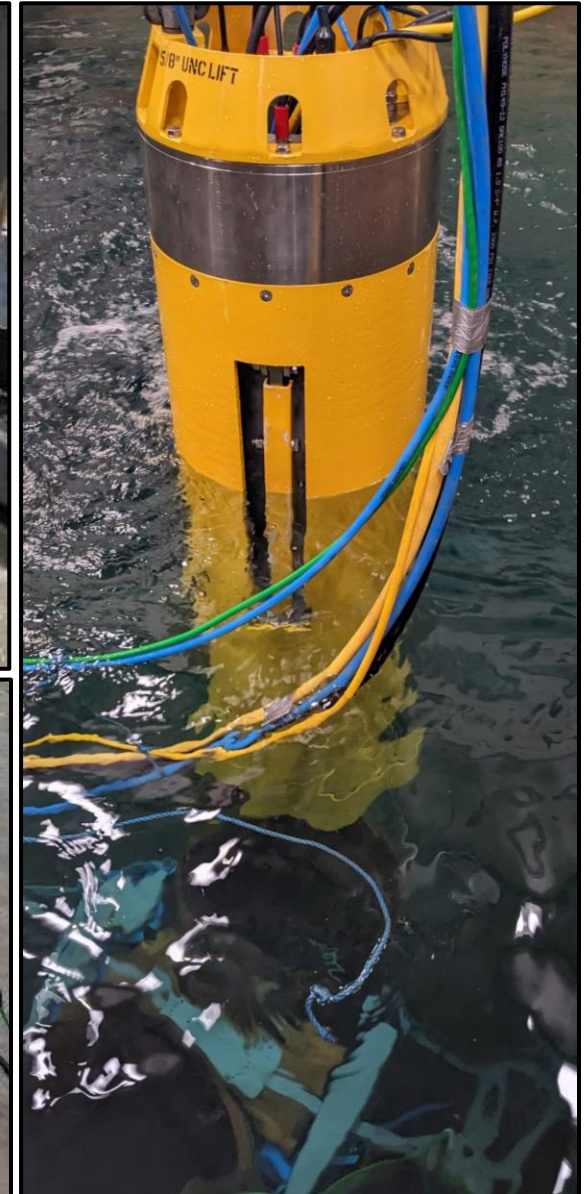
- Large structures
 - Suction piles
 - Storage tanks,
 - Access, drainage or lifting holes
 - OWF Monopiles

- Difficult to access locations such as inside jacket structures



LASER PILE CUTTING TOOL FAT

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LASER PILE CUTTING TRIALS

Decommissioned 24"
Manifold Piles cut
during tank trials



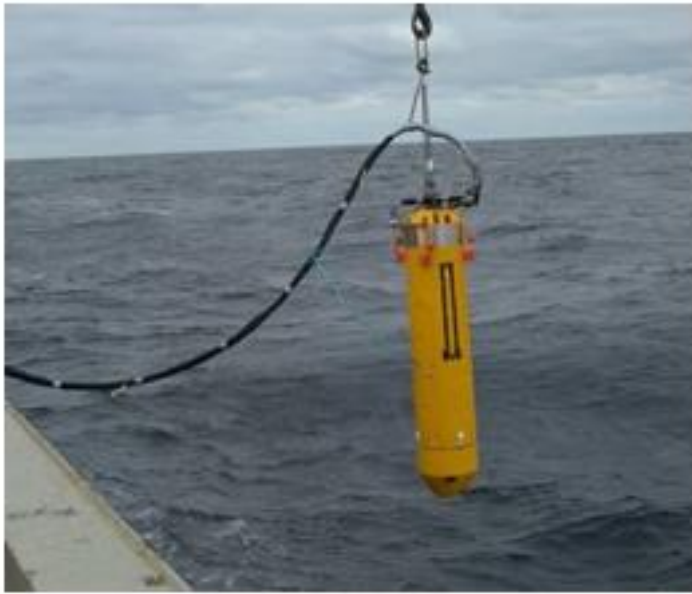
Repeated 360
degrees cutting at
20mm height
spacing



Cut verification shroud camera footage



OFFSHORE CUTTING TRIALS - 50MSW



60374-BAL-DAV-STILL-312
Over-boarding Laser IPC Tool



60374-BAL-DAV-STILL-309
Function Checks - Laser Head Extended



Overboarding/Mid water function testing/Landing in above mudline pile

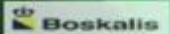
OFFSHORE CUTTING TRIALS - 50MSW

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Client: Harbour Energy
Contractor: Boskalis Subsea Services
Vessel: DSV Boka Da Vinci
Location: Aberdeen 50m
60374-BAL-DAV-ROV-048
Task: IPC Laser cutting trials

05.08.2025 10:21:38

Heading: 347.72
Depth: 47.8



ROVOP

60374-BAL-DAV-STILL-319
Laser full penetration

ROV Footage



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05/08/2025 10:28:02

Subsea Laser Cutting
Sea Trials

Pile B Cut#1 50m
Air 20 bar 12 kW



Claxton IPC Cut Verification shroud

2 second penetration time
Conservative cutting speed of 100mm/min

COMMERCIALISATION PLAN

- Commercial opportunities
 - Development of commercial model to TRL9
- Partnership opportunities
 - Obscure cutting challenges
 - Novel deployment methods (e.g. ROV manip)
 - Beyond oil and gas decommissioning (OWF decom, life extension, IRM, Salvage)
 - Onshore mock-up of cut targets and in tank cutting trials



ACKNOWLEDGEMENTS

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 **Acteon**

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National
Decommissioning
Centre**
Innovation through Partnership

1495
 **UNIVERSITY OF
ABERDEEN**

 **Harbour
Energy**

 **enQuest**

 **Boskalis**

 **Innovate
UK**



The background image shows an offshore oil rig at sunset. The sky is a mix of orange, red, and purple. In the foreground, two workers in red safety suits and green hard hats are standing on a platform. One worker's suit has the word "claxton" on the back. The rig's complex structure of pipes and metal is visible in the background.

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cutting through complexity

Thank You

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