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INNOVATIONS IN SUBSEA LASER CUTTING

Craig Baxter

Decommissioning Technical Manager

SCALE OF THE CHALLENGE

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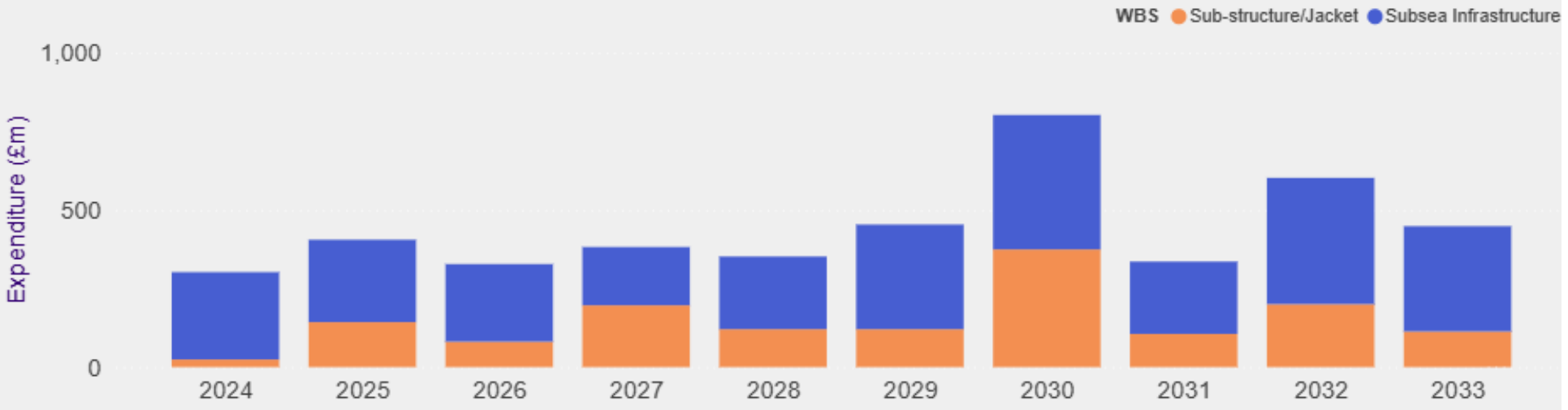
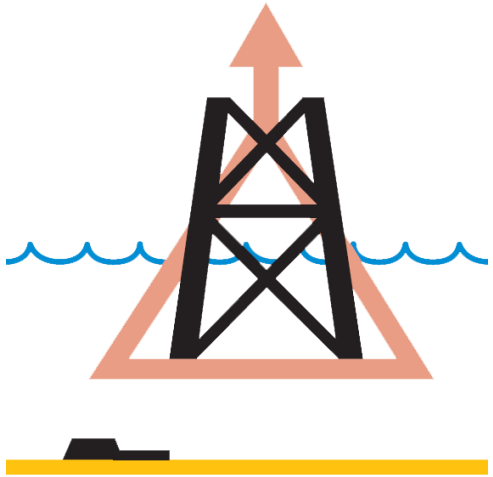


Year	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	TOTAL
Substructure / Jacket	24	143	81	197	121	121	374	106	200	113	**1480**
Subsea Infrastructure	278	262	246	185	231	333	427	230	401	335	**2928**
TOTAL	**302**	**405**	**327**	**382**	**352**	**454**	**801**	**336**	**601**	**448**	**4408**



Source:https://oeuk.org.uk

STEPPING UP TO THE CHALLENGE

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- 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?

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- 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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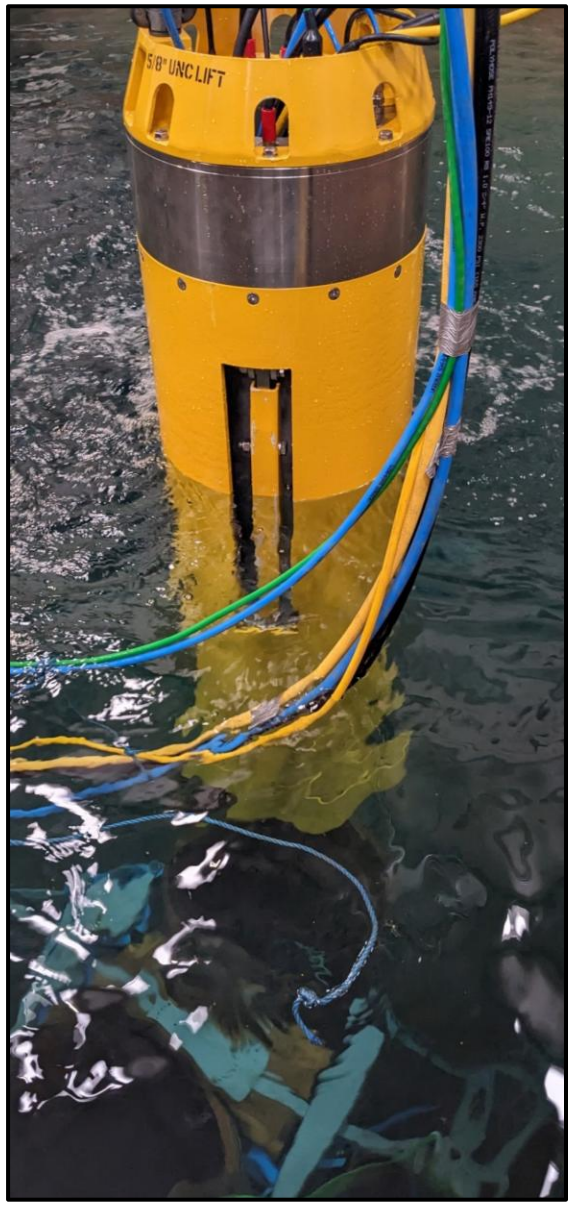

LASER PILE CUTTING TRIALS

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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

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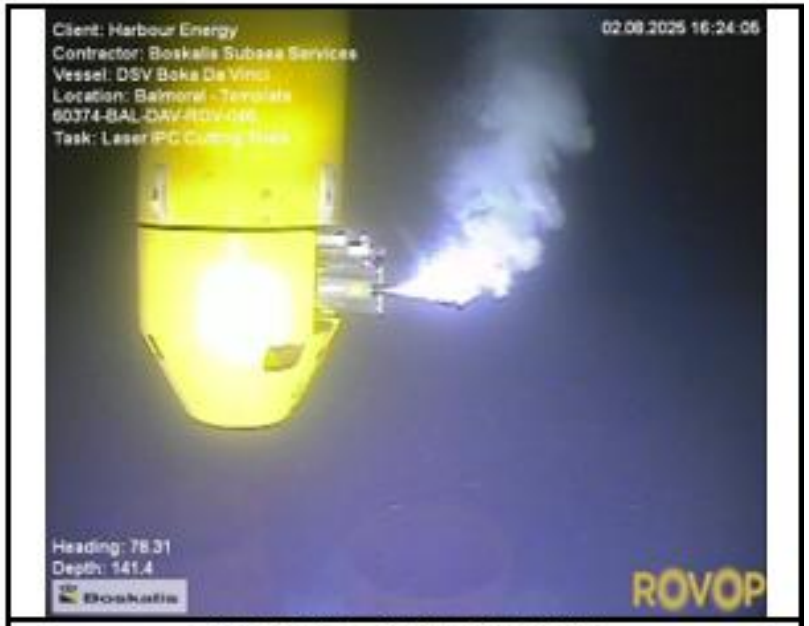
60374-BAL-DAV-STILL-312
Over-boarding Laser IPC Tool



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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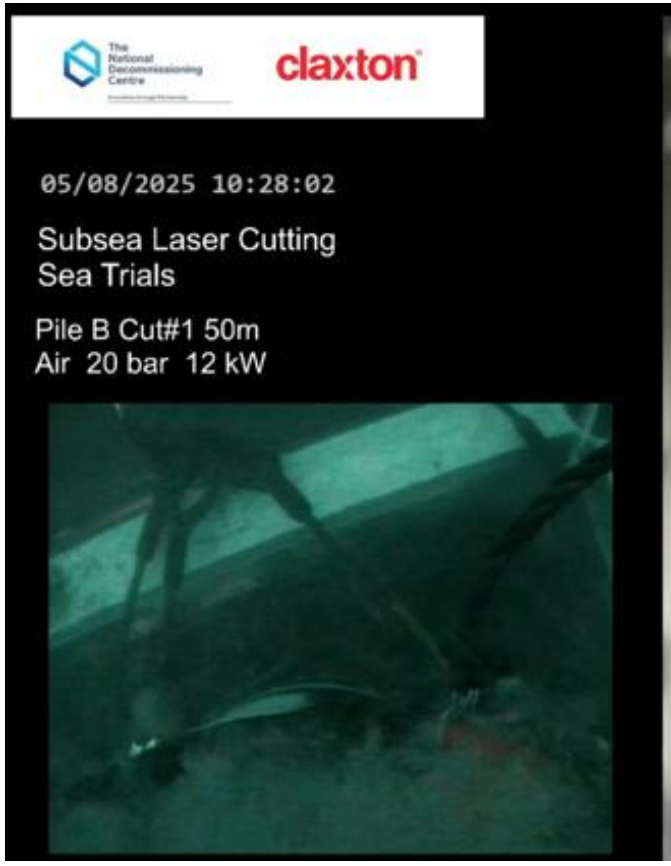
ROV Footage



Claxton IPC Cut Verification shroud

2 second penetration time

Conservative cutting speed of 100mm/min

COMMERCIALISATION PLAN

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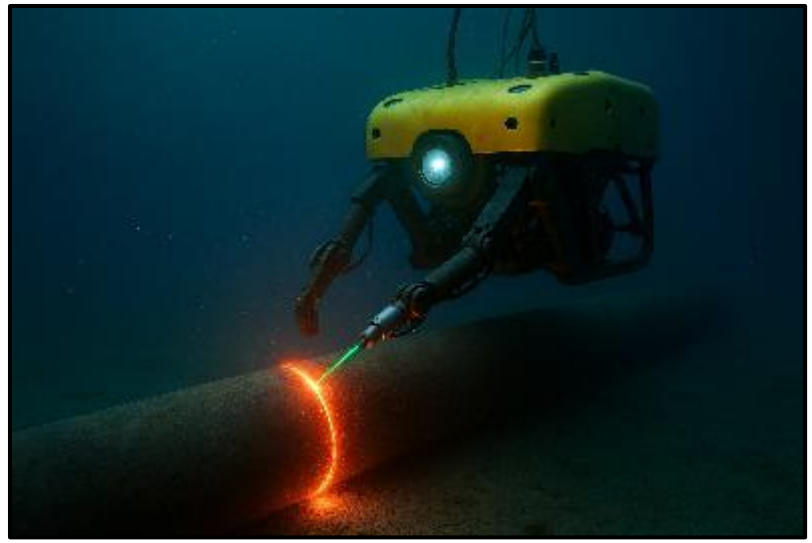
- Commercial opportunities
  - Development of commercial model to TRL9
- Partnership opportunities
  - Obscure cutting challenges
  - Novel deployment methods (e.g. ROV manip)
  - Beyond oil and gas decommissioning (OWF decom, life extension, IRM, Salvage)
  - Onshore mock-up of cut targets and in tank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



ACKNOWLEDGEMENTS

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Acteon

The National Decommissioning Centre
Innovation through Partnership

1495 UNIVERSITY OF ABERDEEN

Harbour Energy

enQuest

Boskalis

UKRI Innovate UK


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Thank You
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