



The
Oil & Gas
Technology
Centre

Your Innovation Partner

Collaboration and Innovation in Decommissioning

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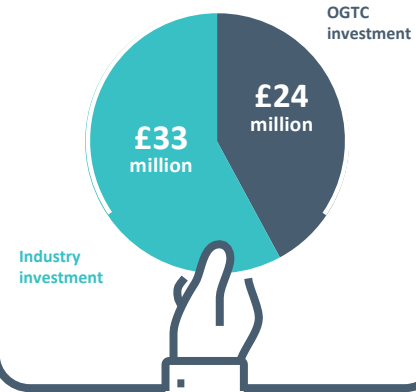
12th September 2018



Strong performance

£57m invested

Co-investing in industry-led projects to develop and deploy new technologies.



50+ Planned for 2018

Working with industry partners to test and trial new technologies in an operational environment.

Non-intrusive inspection techniques could deliver annual savings of £244m

£244m

7 Asset integrity



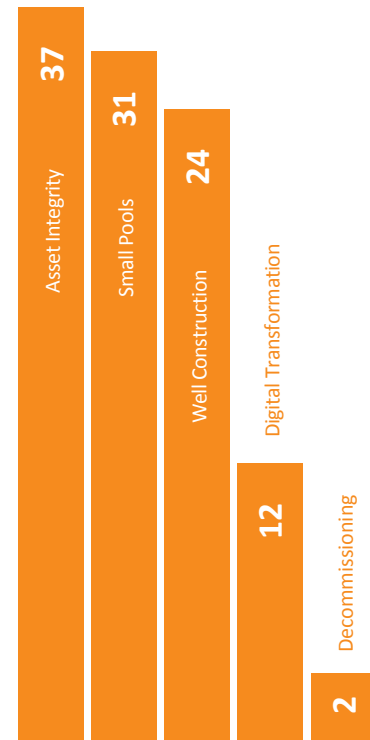
3 Well Construction

Thermite well plugging and abandonment technology could deliver annual savings of £100m

£100m

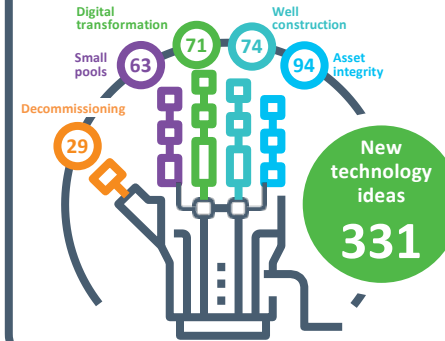
106 Approved Projects

Delivering technology project to fix today, maximise recovery and transform tomorrow



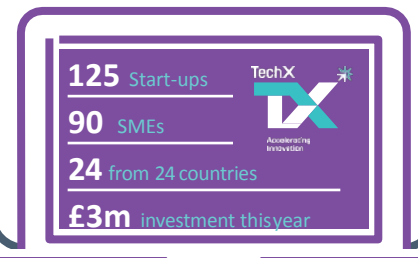
Calls for Ideas

Generating new technology ideas from inside and outside the industry to tackle key challenges.



215 TechX applications

Accelerating innovation by helping a new generation of entrepreneurs take their technologies to market – faster.



94 memberships

Bringing together operating, supply chain and technology companies to drive innovative new solutions.



Government Industry Schools Community



10,700 visitors

Creating a culture of innovation in the region through exciting events and workshops.

A positive start... still lots to do

Delivering innovation



Asset Integrity



Wells



Marginal Developments



Decommissioning



Digital Transformation

Benefits

Project matched funding

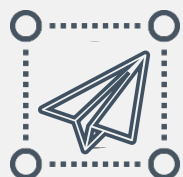
Portfolio and directed projects

Calls for Ideas

Offshore field trials

Focused on industry-led challenges

Project Overview

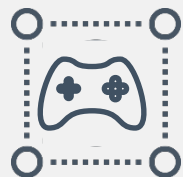


Optimised Design (4)

- **Neodrill** – CANductor (feasibility)
- **RotoJar** – Rotary camjar
- **RED Co.** – Resonance enhanced drilling
- **Adrok** – ADR virtual Borehole

Completed:

- **Neodrill** – CANductor (field trial)



Flawless Delivery (5)

- **Raptor** – Acoustic telemetry
- **Aberdeen University** – Artificial Intelligence in Well Design
- **DeltaTek** – Articulock Phase 2
- **Intelligent Drilling Tools** – Downhole E-Activation
- **DeltaTek** - Seacure

Completed:

DeltaTek– Articulock Phase 1

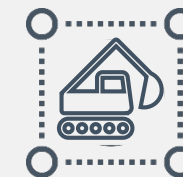


Maximising Recovery (4)

- **Well-Sense** – Fibre, field trial
- **Tendeka** – PulseEight wireless valve, field trial
- **Sola Sense** – DAS/DTS Analysis
- **Pragma** – Variable In-Flow Control Valve

Completed:

- **Tendeka** – PulseEight wireless telemetry, field trial

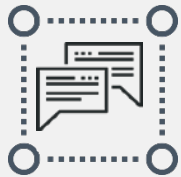


Optimal Abandonment (10)

- **BiSN** – Metal alloy plug field trial
- **Interwell** – Thermite plug field trial
- **Sudelac** – tubing former
- **SPEX** – Casing removal
- **RGU** – Decom simulator
- **Aubin** – Alternative barrier field trial
- **Heriot Watt** – Prediction of flow
- **BHGE** – Thru tubing inspection system
- **University of Strathclyde** – Biogrout
- **BiSN** – Metal alloy material characterisation

Completed:

- **Oilfield Innovations** – Tubing compaction

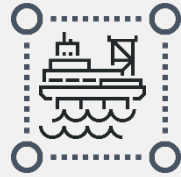


Knowledge Exchange

Themes

- **Decom data**
- **Circular economy and reuse**
- Campaign and portfolio approach
- Salvage and decom synergies
- Reference case estimate
- Lessons from other regions

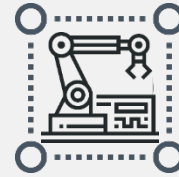
SNS Hackathon
UK / Norway Hackathon



Removal Readiness

Themes

- **Cleanliness**
- **Drill cuttings sampling**
- **Life support solutions**
- Survey technologies
- Post COP cost optimisation
- Environmental assessment
- **Wet storage**
- **Power solutions and emissions reduction**
- Mothballing fluid
- Pipeline and cell cleaning – bugs and nanobots



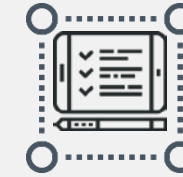
Innovative Removal (2)

Themes

- **Cranes and lifting**
- Deck space solutions
- Alternative lifting
- Conductor removal

Live projects

- **Ardent** – Jacket buoyancy recovery
- **Proserv** – Subsea Laser cutting



Residual Liability (1)












Themes

- **Wet storage**
- **Seabed clearance**
- Remote monitoring and data gathering
- Salvage and decom synergies
- Reference case estimate

Completed projects

- **3sci** – C-Beaver accelerated corrosion

Decommissioning projects

 <p>C-Beaver Accelerated Corrosion</p>	 <p>Ardent Jacket Buoyancy Recovery</p>	 <p>BiSN – Material Qualification</p>	 <p>RGU – Decom Simulator</p>	 <p>Interwell – Thermite Trial</p>	 <p>SPEX – Rocket Fuel</p>	 <p>BiSN Well Lok Field Trial</p> <p>Aubin - XClude</p>	 <p>Premier Oil – OPT intelligent autonomous system to provide power & comms</p>
 <p>Oilfield Technology – Tubing compaction</p>	 <p>Subsea Laser Cutting</p>	 <p>BHGE – Nxis Thru Tubing Logging</p>	<p>HWU – Flow Prediction for P&A</p>	<p>U of Strathclyde – BioGrout Barrier</p>	<p>Sudelac – Tubing Former</p>		

Reducing the cost of decommissioning by at least 35%



National Decommissioning Centre

September 2018

Strong partnership



Unlocking the full potential of the UKCS,
anchoring the supply chain in North East
Scotland and creating a culture of
innovation in the region

Transforming the world with greater
knowledge and learning...moving
forward with wonderful education and
great research



#ABZdeal

Unique collaboration between industry and academia

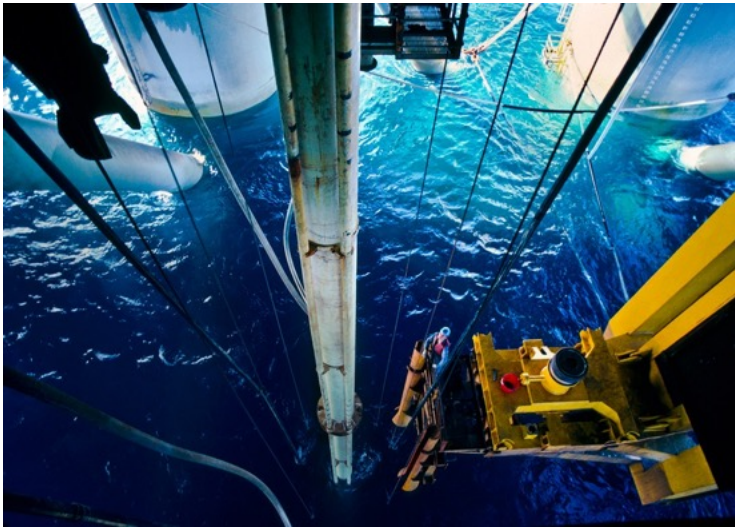
Our facilities



Dedicated facilities close to Aberdeen

Our focus areas

Current challenges



- Facilities clean up and disposal
- Well plugging and abandonment
- Skills and capability development

Future challenges



- Design for reuse
- Innovative materials
- Next generation decommissioning

Thought leadership



- Basin wide impact studies
- Workscope challenge
- Use and reuse of UKCS facilities

Industry-led projects tackling current and future challenges

Hub and spoke model



Connecting

Port clusters, R&D institutions and innovation centres across the UK



Multiplying

The capability of universities and other organisations, such as the UK Catapults



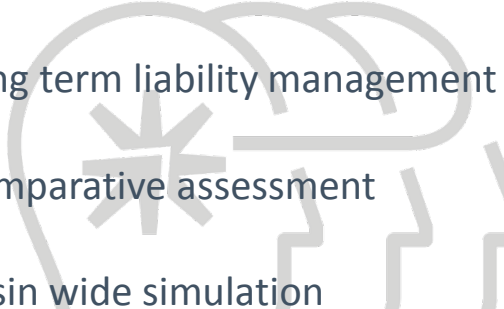
Developing

A world-class supply chain that delivers for the UK and internationally

Connecting industry and academia across the UK

Research Programme


Mature Basin Management

- * Business models
 - * Long term liability management
 - * Comparative assessment
 - * Basin wide simulation
- 

Well Abandonment

- * Barrier Verification
 - * Abandonment landscape & mitigation / assessment of flow zones
 - * Alternative barrier materials
 - * Designing for decom
- 

Late Life and Decommissioning

- * Basin wide, optimal decom
 - * Capability – alternative removal
 - * Decision making in decom
 - * Removal & dismantling
 - * Insitu decom
 - * Environmental science
- 

Work with us

You need to have...



Challenges



Solutions



Ideas



Trials

... and an appetite to get involved.

Together we can transform the UKCS