Morecambe Net Zero (MNZ)

OEUK SHARE FAIR
20th March 2024

Matt Browell-Hook
Energy Transition Director

Spirit Energy

- One of Europe's top independent oil and gas operators
- Operations in the UK and the Netherlands
- UK operational for 30+ years
- Future looking organisation into the Energy Transition with the MNZ

FORMED IN
2017

593
EMPLOYEES

19
PRODUCING FIELD INTERESTS

30+
YEARS OF PRODUCTION

THE SPIRIT WAY | IT'S WHAT I STAND FOR

Our Journey

1974

600ft column of gas discovered in the East Irish Sea leading to the discovery of one of the largest gas fields in the UK.

This was the creation of Centrica Energy's Morecambe Hub field with the first field being named South Morecambe. Over the next few years more discoveries were made.

1976

North Morecambe field was discovered.

1985

South Morecambe field production began

1994

North Morecambe field production began

2009

An additional field named Rhyl was discovered, which would later be tied into Morecambe.

2010

January 2010 marked 25 years since gas began to flow from our South Morecambe field.

2016

Barrow Terminal Optimisation Project allowed South Morecambe gas to be optimised through the existing North Morecambe terminal.

2017

Spirit Energy was formed. Combining Centrica's E&P business with Bayerngas Norge AS, Spirit Energy starts trading as an independent oil and gas operator.

2021

Spirit Energy began to develop a strategy to support the UK's demand for a greener future

2022

Morecambe Net Zero (MNZ) was created

2023

Spirit Energy are awarded a carbon storage licence from the North Sea Transition Authority (NSTA).

MNZ

Storage at scale by 2030

Scale
One gigaton of CO_2 storage capacity

Geology
Well characterised natural gas reservoir with proven seal

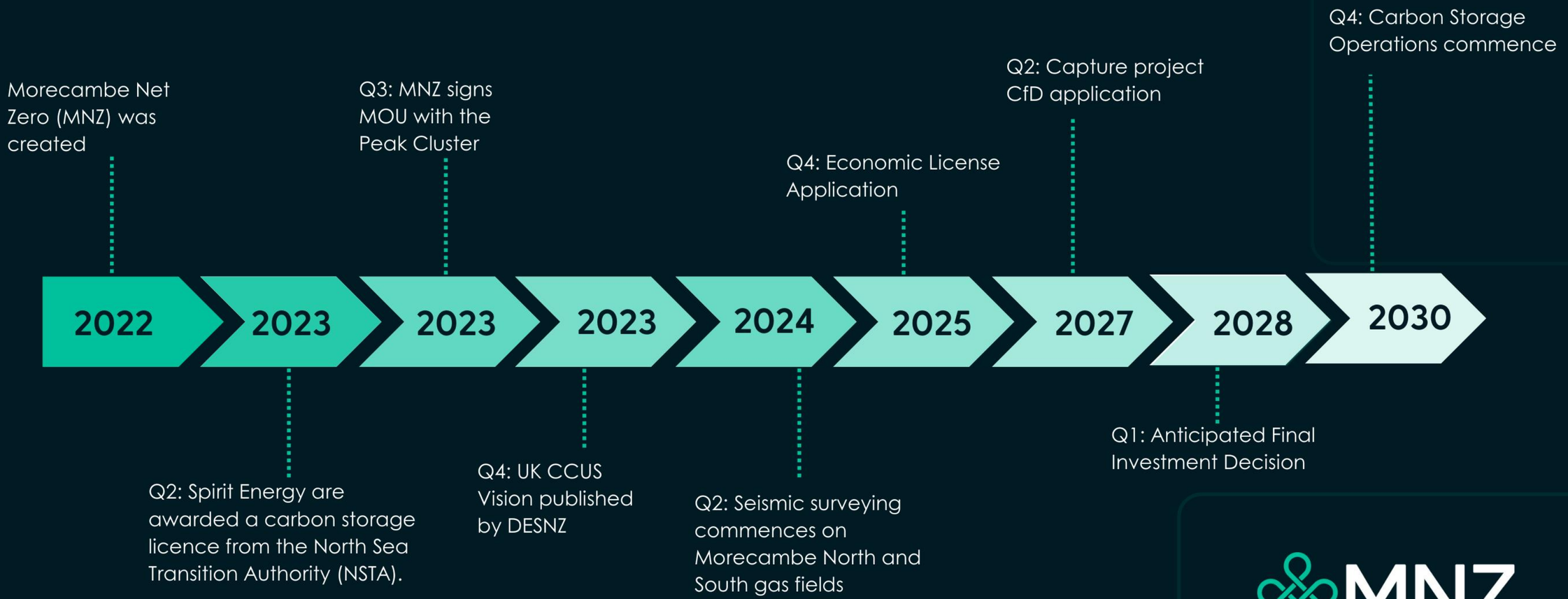
Location
Ideally placed to serve the Peak Cluster, North West, South Wales and Ireland

Diversity
Transport by pipeline, ship and rail

Infrastructure
Re-use of natural gas pipelines and onshore gas terminal

Socioeconomic benefit
Just transition, investment, and levelling up

The MNZ Timeline...



MNZ

Peak Cluster Partnership

Peak Cluster will play a vital role in decarbonising nationally essential industries, safeguarding UK jobs and accelerating the UK's transition to net zero greenhouse gas emissions.

- Peak Cluster is an innovative collaboration to capture, transport and permanently store carbon dioxide (CO2) emissions from neighbouring industries and across Derbyshire, Staffordshire and Cheshire.
- The cement and lime industry plays a vital role in global society, creating the foundations for everyday life, therefore it needs to decarbonise
- Cut over 4 million tonnes of CO2 emissions from 2030
- Decarbonsie over 40% of the UK's cement and lime production, enabling a route to net exporter for the UK

MNZ

PEAK CLUSTER

AGGREGATE INDUSTRIES

BREEDON

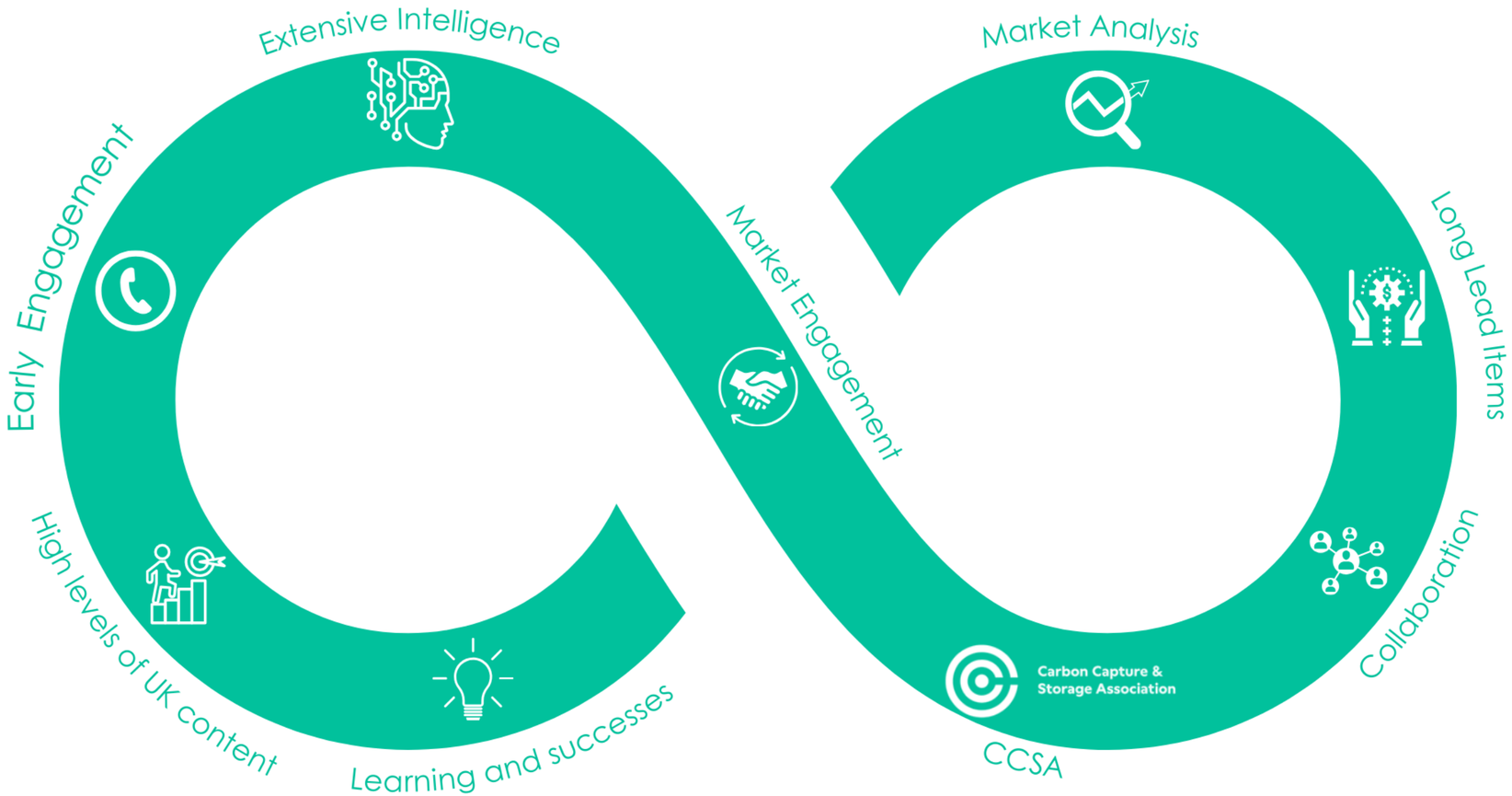
Lhoist

LOSTOCK SUSTAINABLE ENERGY PLANT

PROGRESSIVE ENERGY

TARMAC A CRH COMPANY

Supply chain strategy

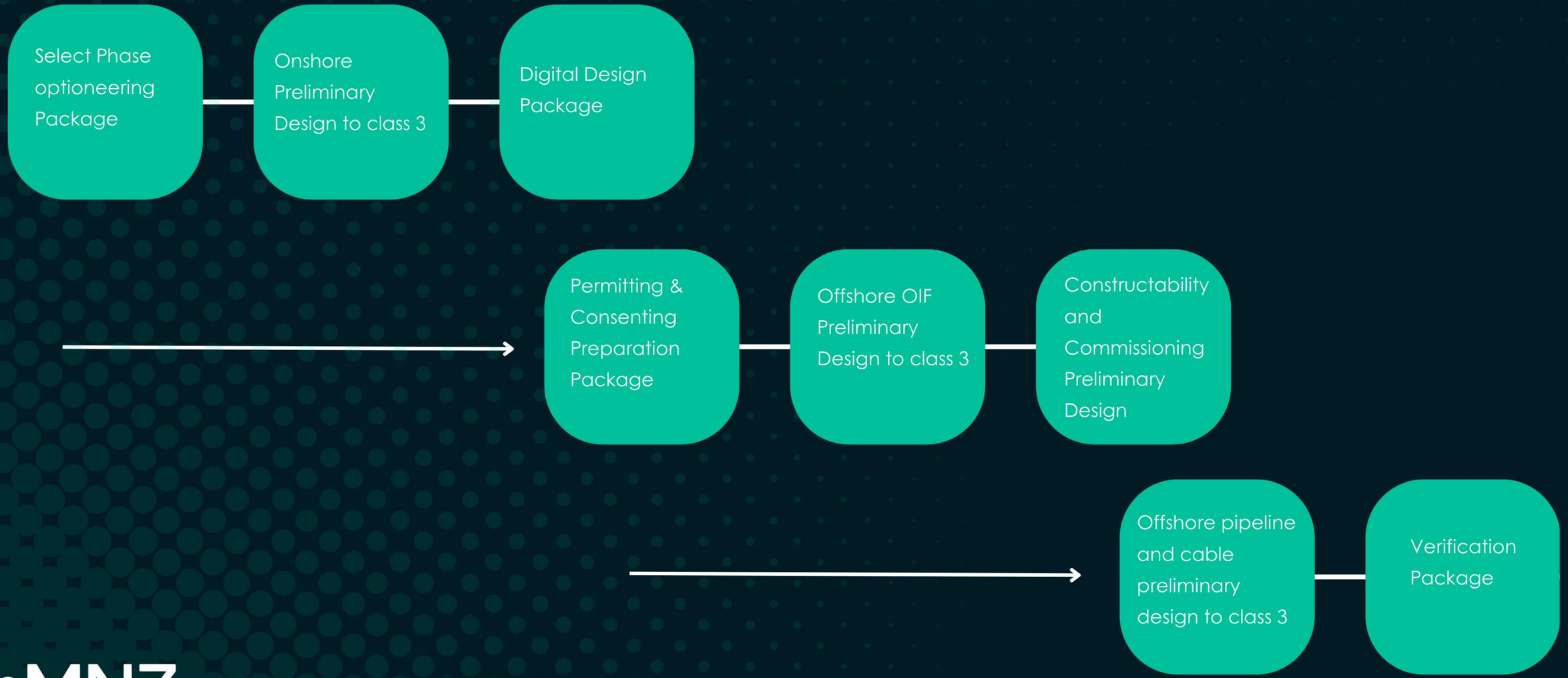


How we do business

Work to date

Optional	Completed	To be completed 2024 existing	To be completed 2024 New
Each emitter (3): Storage and interface study	**Cluster Wide** Concept Basis of Design (incl. fluid spec, CO2 composition, limitations and design life) Summary (end to end incl. emitters) Integrated flow assurance and reservoir/ modelling Operation studies Socio-economic study Communications (Hanbury and branding) Decision Framing Carbon Accounting Environmental screening Leak dispersion modelling	**Cost model development** CO2 Specification study Economic assessments Peer reviews IPA reviews	2024 Communications 2024 Legal support 2024 Memberships & Sponsorship 2024 Software
Each port: Port capacity and modification study (civils) Port capacity and modification study (process) Navigation feasibility study	**Shipping** Ship model developed Shipping studies (including design, manning, mooring/offloading & alternative transport conditions) for Class 4 estimate	MAH HSE Study in flight PEL / Peak Cluster Screening study	Injection facilities Dense Phase (North Reservoir) Concepts and associated engineering
Hydrogen Interface Facility configuration – pre-FEED interface study for H2	**Peak Cluster pipeline** Pre-FEED studies	**Port Topsides** Topsides interface study Facility configuration pre-FEED study for CO2 reception, storage and process Formal safety assessments programmes, process safety plans, risk assessments and health/safety registers	Port Expansion RIBA Stage 1 – incl. Environmental surveys & Water bird surveys
Risk assess LCO2 transportation through populated areas Review CO2 capture facilities, site process modifications and loading/unloading facilities for rail/road transport	**Port Civils – *ABP SCOPE*** Port Expansion Study (Feasibility)	**Onshore Pipeline** Pipeline routing and pre-FEED studies	Real estate study review for land options
PL144, PL1945 or new pipeline evaluation	**Rail Transport** Class 4 Cost Estimate	**Terminal** Facility configuration pre-FEED study for CO2 process, conditioning & export compression Review risks and mitigation measures (e.g. distance between hazardous inventories) for NMT	
	Injection facilities Gas Phase (SMR) Concept and pre-FEED facility configuration for UK compliant Injection Facilities Heat integration and vaporisation requirements	**Subsurface** Early Risk Assessment / containment risk Reservoir modelling Seismic survey Injectivity study Monitoring studies (gravity, passive seismic)	
	Electrical cable routing study and power studies	**Wells** Well integrity Platform / well locations Drillability Well design monitoring studies (well based)	
		OIF Class 4 by difference shipping scenario	

Future work scopes



How to get in touch

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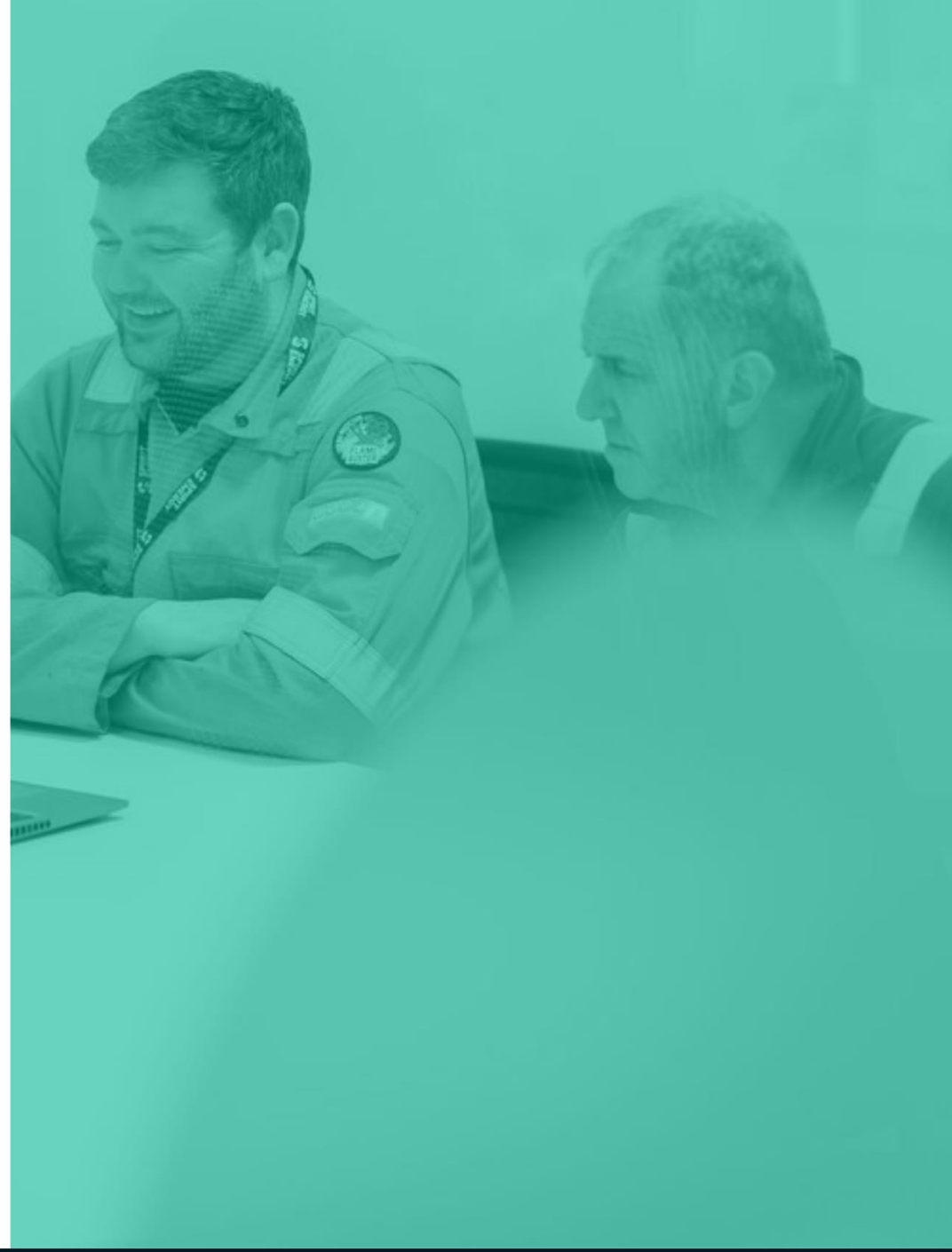

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Thank you