



North Sea  
Transition  
Authority

# Overview

## 2025









# Contents

---

Introduction from the Chief Executive	5	UK upstream oil and gas GHG emissions	28
Our role	6	OGA Plan	30
North Sea transition – UK's growth opportunity	7	Electrification	31
CCS – UK opportunity	10	Exercising our powers	34
Carbon storage projects	12	Significance of the supply chain	36
Hydrogen	14	Energy Pathfinder	37
Integrated energy hubs	15	Measuring success	38
Decommissioning	16	10 years of NSTA	39
Data and digital capabilities...	18	Experienced leadership	40
... a catalyst for the transition	19	Who does what in government?	42
Helping meet demand	22	North Sea Transition Forum and Steering Group	44
Domestic production must become cleaner	23	Task Forces	45
Optimising existing assets	24	Interactive energy map for the UKCS	46

# Introduction from the Chief Executive

---

*The UK's North Sea energy industry is an amazing success story. Following the award of the first oil and gas licence 60 years ago, the sector has been integral to keeping the lights on and homes heated nationwide. It has employed hundreds of thousands of skilled men and women and contributed billions of pounds to the economy.*

**Stuart Payne**, NSTA Chief Executive

---



Now we are at the start of an exciting new chapter devoted to the vital energy transition, which integrates the North Sea's carbon capture, hydrogen, wind and oil and gas resources. The climate crisis demands that the transition happens at pace and, if we get it right, this chapter can truly be the best and cleanest yet.

The NSTA will be at the forefront. We recently awarded the UK's first ever permit for carbon storage to the Northern Endurance project, kickstarting a multibillion pound industry which is poised to create tens of thousands of jobs and drive the UK to net zero. For many years reaching this milestone was an ambition. Collaborating with industry, government and other regulators, the NSTA has helped turn this into a reality.

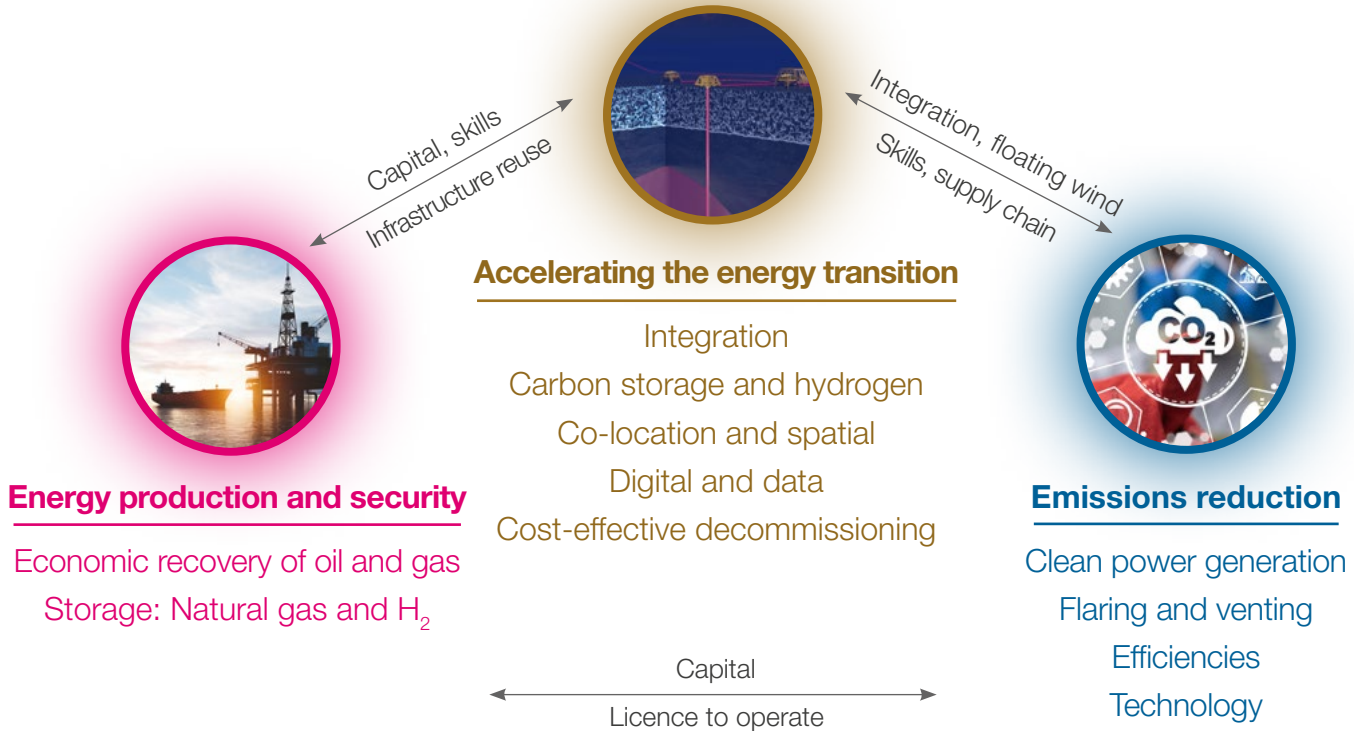
We are determined to propel many more CCS projects forward in the coming years.

In this new chapter, the sector will play a pivotal role. Oil and gas will continue to be part of the energy mix for decades as we transition, and domestic production can and must keep getting cleaner. The world-class supply chain, with its track record of tackling some of the most complex engineering challenges on earth, will be crucial in delivering decarbonised production and the CCS, hydrogen and floating wind projects the country needs.

The North Sea has played a major role in the world's energy mix for decades. Its global leadership of the energy transition has only just begun.

# Our role

The NSTA regulates and influences the oil, gas, offshore hydrogen and carbon storage industries. We work with government, industry and other regulators to achieve our three main objectives.



# North Sea transition – UK's growth opportunity

The North Sea has the resources, infrastructure and industrial capability to deliver an orderly energy transition. By harnessing these assets, the UK can benefit from a new economic success story.

## Industrial potential

**£170bn**  
expenditure  
to 2030

<b>£85bn</b> Oil and gas <sup>1</sup>	<b>£7bn</b> CCS <sup>2</sup>
<b>£76bn</b> Offshore wind <sup>2</sup>	<b>£4bn</b> Hydrogen <sup>2</sup>



**200,000+**  
Good, skilled jobs<sup>2</sup>



Existing **world class energy supply chain**  
from oil and gas sector

## Infrastructure



**100+**  
pipelines with  
repurposing  
potential



**250+**  
subsea  
installations



**Integration**  
of multiple  
energy systems

## Natural resources



up to **78GT**  
of CO<sub>2</sub> storage  
potential<sup>4</sup>



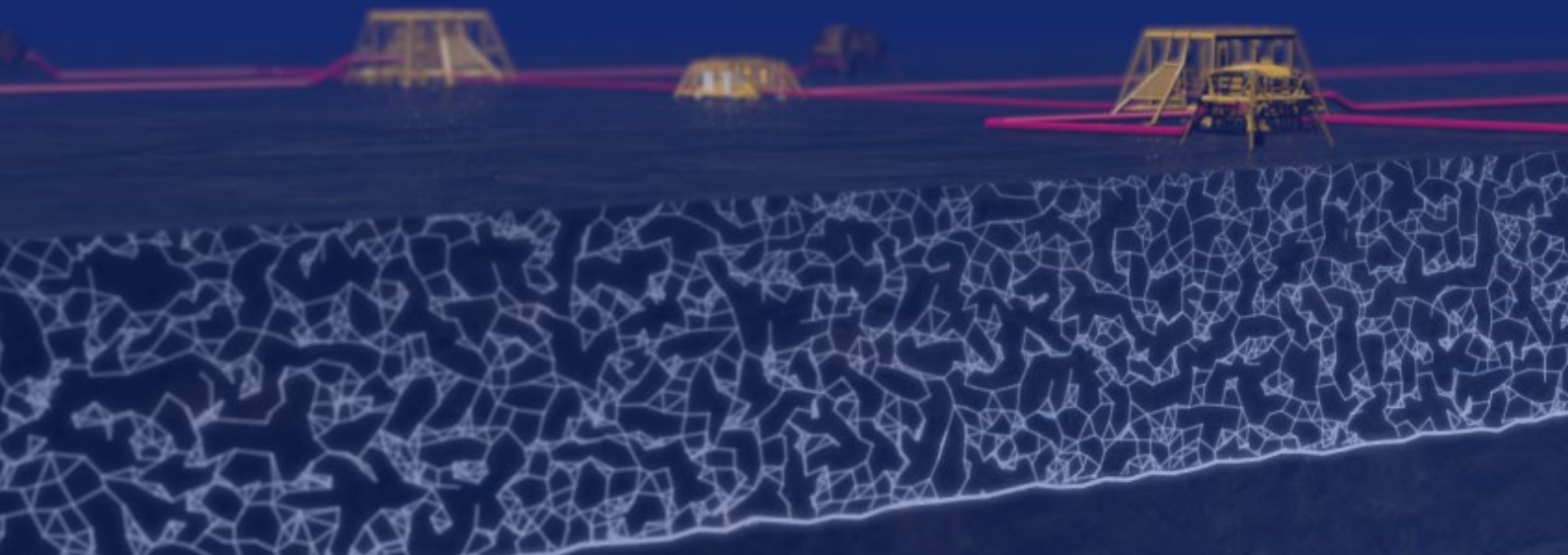
**3.75bn**  
barrels of oil and  
gas remain to be  
produced <sup>1</sup>



**50GW**  
fixed and floating  
offshore wind<sup>3</sup>

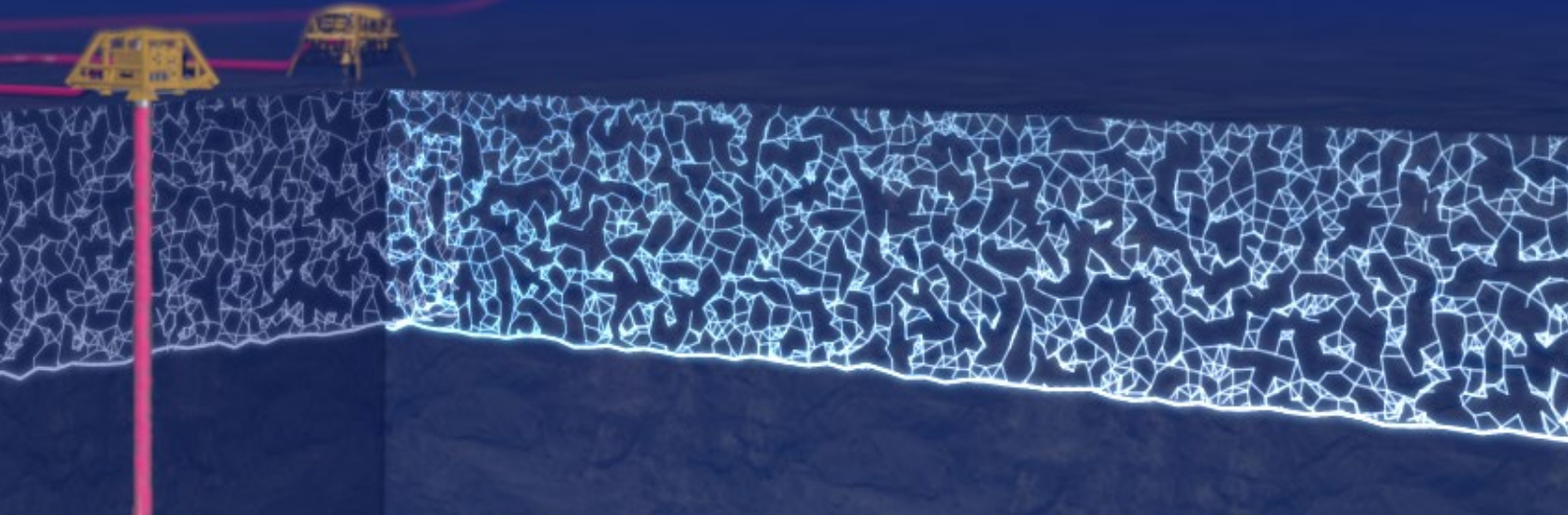
Sources: <sup>1</sup> – NSTA <sup>2</sup> – OEUK <sup>3</sup> – UK Government target <sup>4</sup> – ETI, BGS, et al. UK Storage Appraisal Project (2011)

# Accelerating the energy transition





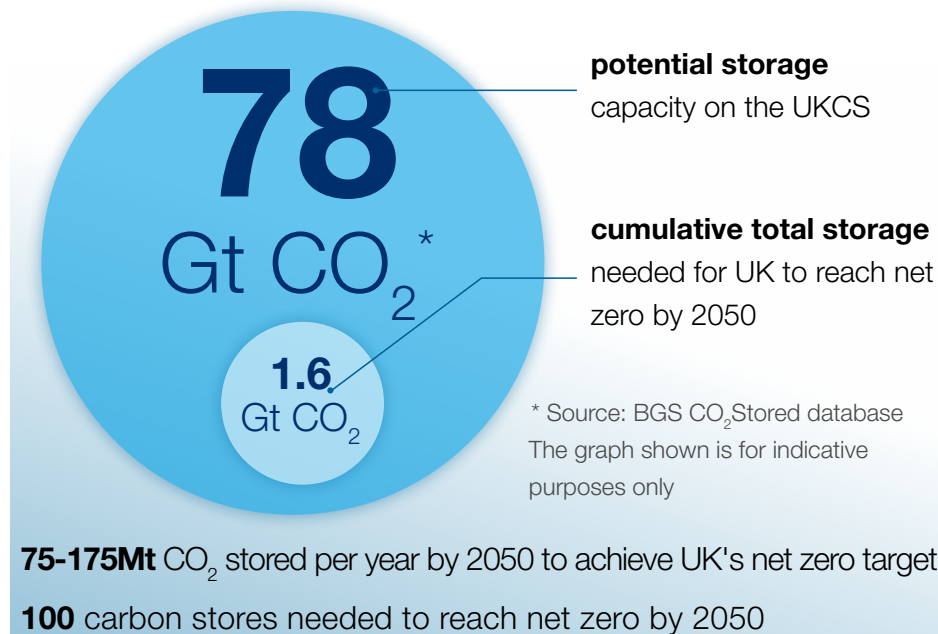
NSTA analysis shows the UK Continental Shelf can make a major contribution to net zero. Oil and gas infrastructure and capabilities can also be leveraged for CCS, offshore wind deployment, and hydrogen transport and storage.



# CCS – UK opportunity

Carbon capture and storage (CCS) will play a crucial role in the transition to net zero, preventing hundreds of millions of tonnes of CO<sub>2</sub> from entering the atmosphere.

## UKCS potential



**£21.7bn** of funding  
available over 25 years for  
Track 1 clusters

**£5bn** per year to UK  
economy by 2050\*\*

**50,000** good, skilled jobs  
supported as industry  
matures\*\*

\*\* Source: UK government

# CCS – UK opportunity

---

The NSTA is playing a significant role in ensuring the UK's carbon capture and storage sector reaches its full potential.

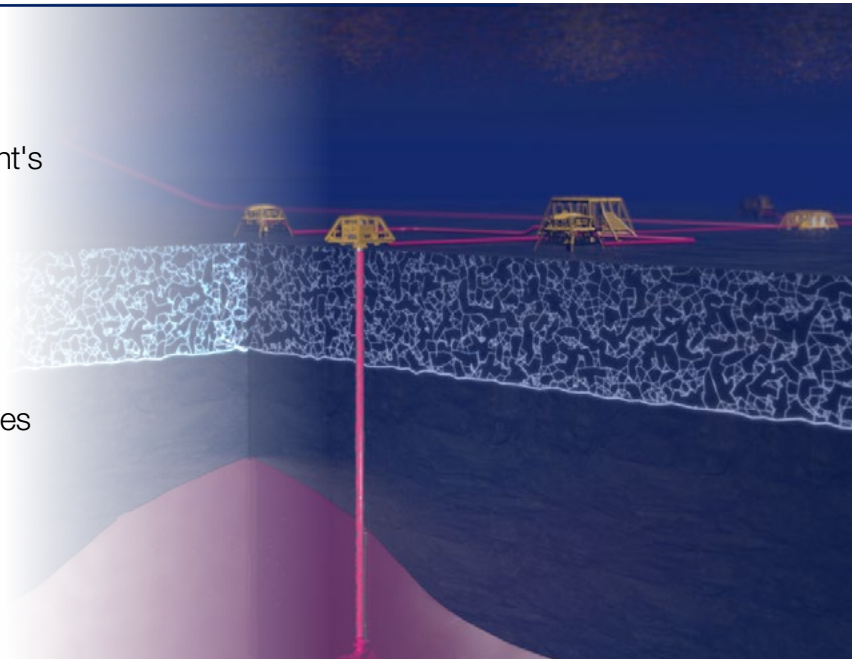
---

## Progress

---

As of February 2025, the NSTA:

- has awarded the UK's first carbon storage permit as part of the government's Track 1 cluster programme
- has issued the UK's first extended well consent for a carbon dioxide injection test
- is stewarding 27 carbon storage licences
- has run the world's first ever large-scale carbon storage licensing round, awarding 21 licences



# Carbon storage projects

In late 2024, the NSTA awarded the permit for the UK's first ever carbon storage project to the Northern Endurance Partnership, a hugely significant step on the journey to net zero.

## NEP project: key information

- Permit paves way to first injection from as early as 2027
- Store to take in CO<sub>2</sub> from industries in Teesside and Humberside
- Up to 100M tonnes of CO<sub>2</sub> to be stored over 25 years – equivalent to taking 58.8m cars off the road for a year
- Unlocks £4bn worth of contracts
- Will be first of many UK CCS schemes

## The Endurance store located off north-east coast of England





# Carbon storage projects

There are three further CCS projects in the government's Track 1 and 2 cluster programmes. The NSTA is preparing to make a decision on the award of a second storage permit in 2025.

## Track 1 – HyNet

- CO<sub>2</sub> from industries in north-west England and Wales
- Storage in depleted reservoirs in the Liverpool Bay Area
- Repurposed and new-build sections of pipeline
- More than **100Mt** to be injected over 25 years



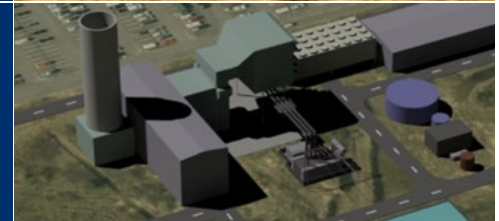
## Track 2 – Acorn, Scottish Cluster

- Emissions from St Fergus, Peterhead, Central Scotland and imports
- CO<sub>2</sub> transported 102km to depleted reservoir, re-using Goldeneye pipeline



## Track 2 – Viking

- CO<sub>2</sub> from industries at Immingham, surrounding area, imports
- New onshore pipeline and existing subsea pipeline to be used
- Storage in depleted gas reservoirs



# Hydrogen

Hydrogen can be a key enabler to the energy transition, complementing offshore wind scale up and electrification and providing flexible back-up to intermittent power sources.

## Our role

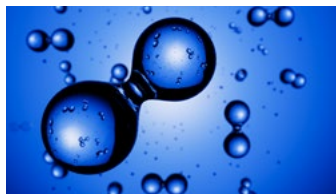
The NSTA is responsible for the **licensing and consenting** of **offshore hydrogen pipelines** and **offshore hydrogen storage**.

## Government production ambitions

**10GW** hydrogen by 2030:

- **4GW Low carbon**
- **6GW Electrolytic**

## UKCS potential



## Production

**Low carbon** – hydrogen hubs, offshore carbon storage and natural gas feedstock.

**Electrolytic** – coastal location, offshore wind capacity.

## Infrastructure

Existing pipelines, terminals and skills base can be repurposed, saving capital costs and time on permitting.

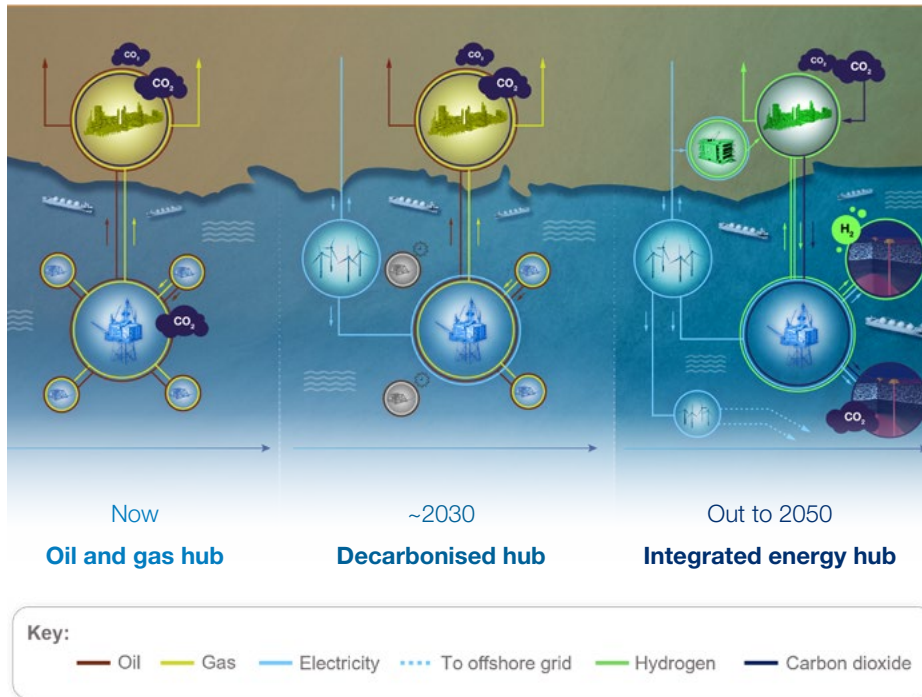
## Storage

Short, medium and long duration will be required, including in offshore reservoirs.



# Integrated energy hubs

The North Sea has abundant wind, carbon storage and hydrogen resources. Integrating these assets, including with repurposed oil and gas infrastructure, will help them reach their full potential.



## Now – Oil and gas hub

Producing oil and gas with offshore emissions from gas/diesel-powered equipment.

## ~2030 – Decarbonised hub

Tied into grid and offshore wind, minimising offshore emissions and enabling floating wind.

## Out to 2050 – Integrated energy hub

Repurposing and linking oil and gas, carbon storage, hydrogen and wind operations to maximise their potential.

# Decommissioning

Decommissioning is an obligation to licensees and a big opportunity for the UK supply chain. Minimising costs will save money for taxpayers. The NSTA provides tools, data and guidance to support industry.

## Context

**£40bn**

estimated **total cost** to decommission the North Sea,  
in constant 2021 prices

**£20bn**

half the total spend is forecast in the **next decade**

**1,500+**

current estimated number of **wells required** to be **plugged**  
and **abandoned** by 2030

**9,000km**

**total length** of existing oil and gas pipelines  
with **repurposing potential**

## NSTA role

- **Deliver cost-effective decommissioning**  
– saving money for taxpayers and industry
- **Stewardship** and **guidance** to operators
- **Consultee** for OPRED on Decommissioning Programmes
- **Regulator** for **well decommissioning**



# Decommissioning

*"We're constantly looking at how we can make best use of the data we collect, and our regulatory powers, to provide transparency and unlock opportunities to make decommissioning cost-effective as a key enabler to the energy transition."*

**Alastair Bisset**, Head of Decommissioning



## Visibility of decom portfolios

Our new data visibility dashboard showcases upcoming decom work-schedules, giving confidence to the supply chain.



**Decommissioning  
data visibility  
dashboard**



## A new TWIST

The Tree and Wellhead Information for Subsea Tooling database gives vital insights to make decommissioning more cost-efficient.



**The Tree and Wellhead  
Information for  
Subsea Tooling**



## Effective planning for P&A

The NSTA aims to identify campaign opportunities and scheduling efficiencies to help drive down costs.



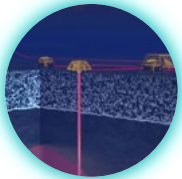
# Data and digital capabilities...

The NSTA is making more data available to more people than ever before through our Digital Energy Platform, which boasts an impressive and growing array of award-winning tools.

## Data powered transition



**1 petabyte** of free geoscience and engineering data



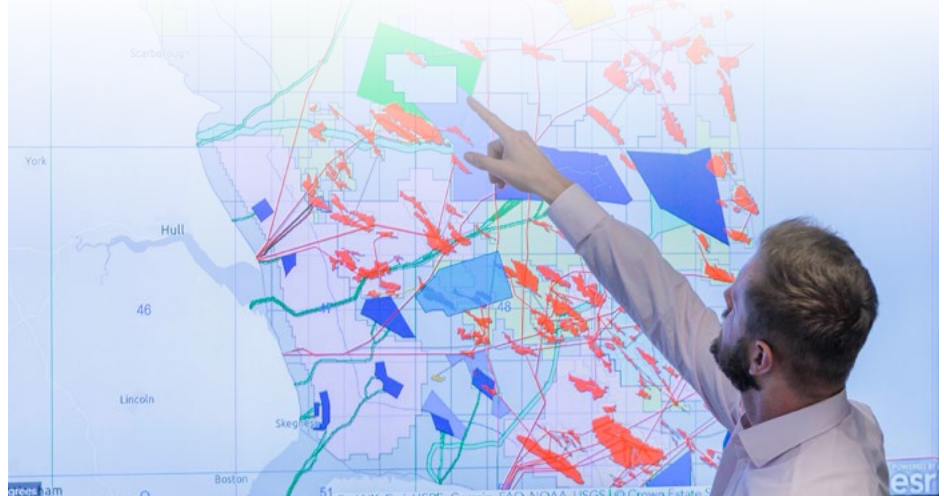
Carbon storage exploration



Offshore wind project siting

## Spatial mapping tools

Our spatial and subsurface mapping tools are being used to accommodate and integrate a range of technologies offshore – such as carbon storage, hydrogen, wind and oil and gas – and unlock the value of data.



# ... a catalyst for the transition

*Innovative use of data is playing a vital role in accelerating the North Sea's energy transition to net zero. We continuously explore new ways to share valuable data which facilitates better decision-making and supports the delivery of a holistic, interconnected energy system.*

**Nic Granger**, Chief Information and Financial Officer



## Interactive dashboards

Emissions performance, production efficiency, pipeline consents – just three examples of a suite of 30+ online tools provided by the NSTA. The NSTA is making it easier to benchmark performance, identify opportunities and get business done.



## Digital leadership

The NSTA chairs the Offshore Energy Digital Strategy Group, convening government and industry to deliver data solutions for the sector.



# Energy production and security





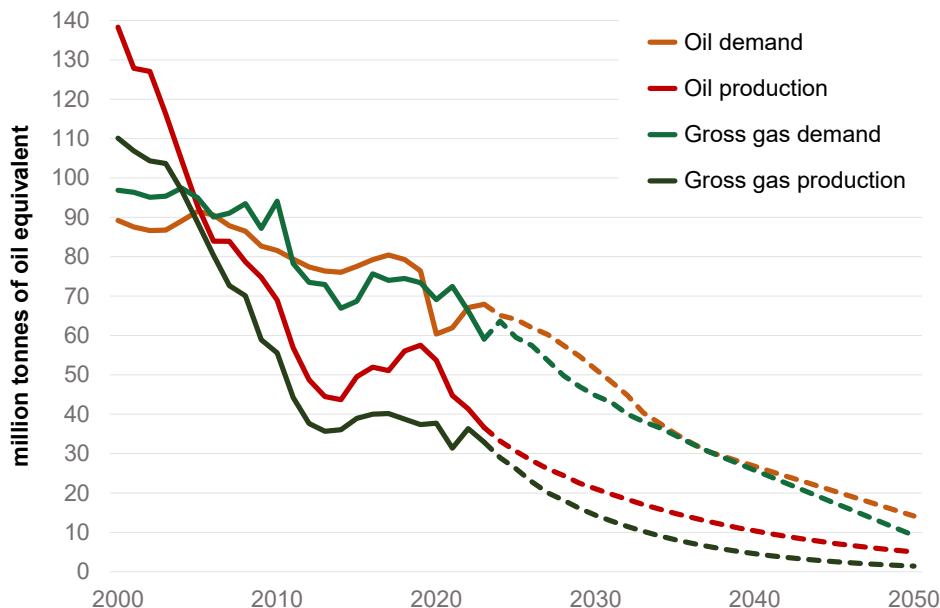
The North Sea has been helping to provide light and warmth for UK homes and industry for more than 50 years and will continue to be an essential resource for supporting UK energy security for many years to come.



# Helping meet demand

Oil and gas currently meet three quarters of UK energy demand and will play an important role in the energy mix for years to come. Though it is declining, domestic production reduces our reliance on imports.

## DESNZ Net Zero Strategy demand and production projections



Domestic gas production equated to **around half** of UK demand in 2024.

UK to be a **net importer** of oil and gas out to 2050.

Carbon intensity of producing gas domestically is **on average almost four times lower** compared with importing LNG.

# Domestic production must become cleaner

Operators must stay focused on cutting production emissions to safeguard public confidence in the industry. Domestic production can only be justified if it continues to get cleaner.

## Net zero regulation and influencing



### Annual Consents Exercise:

- Strict **limits** for **flaring** and **venting** – new digital system
- Breaches of limits can result in sanctions, including **fin**es
- **Production limits** agreed



### OGA Plan:

- Sets out **requirements** for industry to meet the net zero obligation in our strategy
- **Builds on** and **consolidates guidance** on flaring and venting and Stewardship Expectation 11: Net Zero

### ESG:

- Robust and transparent ESG reporting key to **continued investment**
- The NSTA highlights **good practice** in licensees' ESG disclosures



# Optimising existing assets

NSTA analysis shows there is an opportunity to secure cheaper, easier and cleaner production by restarting production from existing wells which have been shut-in or are underperforming.

## Focus on well intervention

Well intervention accounts for **7% of total UKCS production**. There is a big opportunity to maximise existing assets with an increase in intervention activity.

**30%** of the UKCS's active well stock is shut in

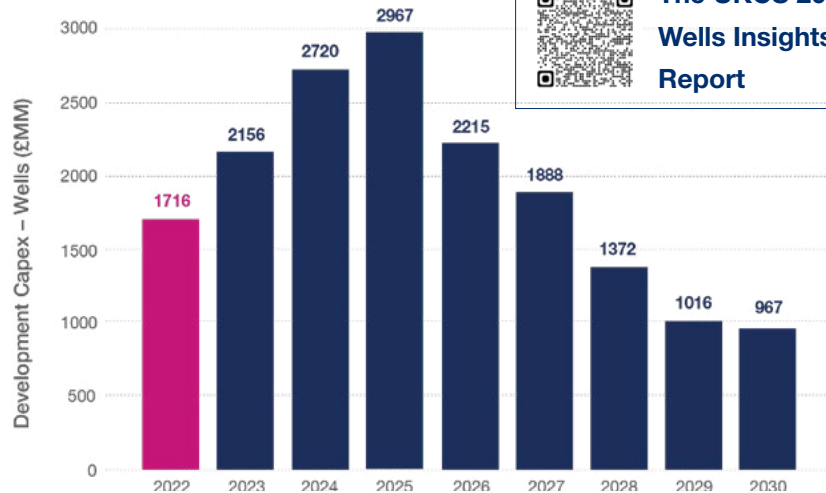
**20mmboe** of production potential from restoring approx. **200** shut-in wells

**£12** – estimated cost per barrel of intervention work

## Development drilling in decline

Infill drilling on existing licences can yield additional production, but NSTA forecasts show a decrease in spend out to 2030.

Spend category: ■ Actual ■ Forecast



**The UKCS 2024  
Wells Insights  
Report**





# Optimising existing assets

*The UKCS is home to more than 280 fields producing around 1 million barrels of oil and gas equivalent per day – a significant contribution to the nation's energy position. Operators must continue to manage these assets efficiently, ensuring economic recovery.*

**Tom Wheeler**, Director of Operations



## Asset Stewardship

- NSTA **Stewardship Expectations** promote best practice and set high operational standards, optimising efficiency
- **Annual survey** data used to **benchmark** operators' performance across key metrics, e.g. production efficiency
- Operators' performance is reviewed and improvements discussed



## Technology

Operators safeguard existing production using innovative tools which simplify and lower the costs of inspecting, monitoring and maintaining their infrastructure – NSTA raises awareness of these offerings through its reports.



**NSTA Technology  
Survey & Insights  
Report 2024**



# Emissions reduction



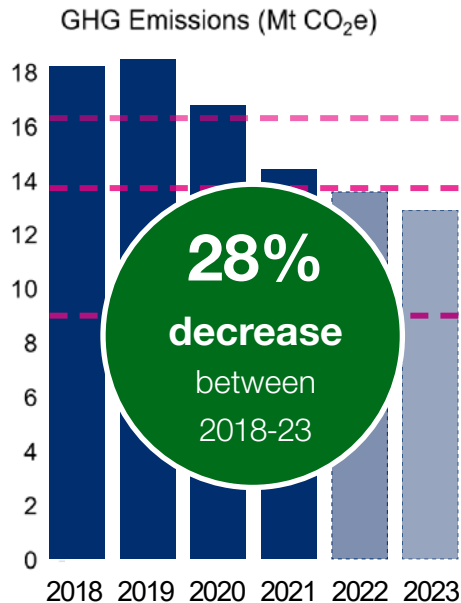
The NSTA is fully committed to enabling the achievement of the UK government's commitment to reach net zero emissions by 2050.



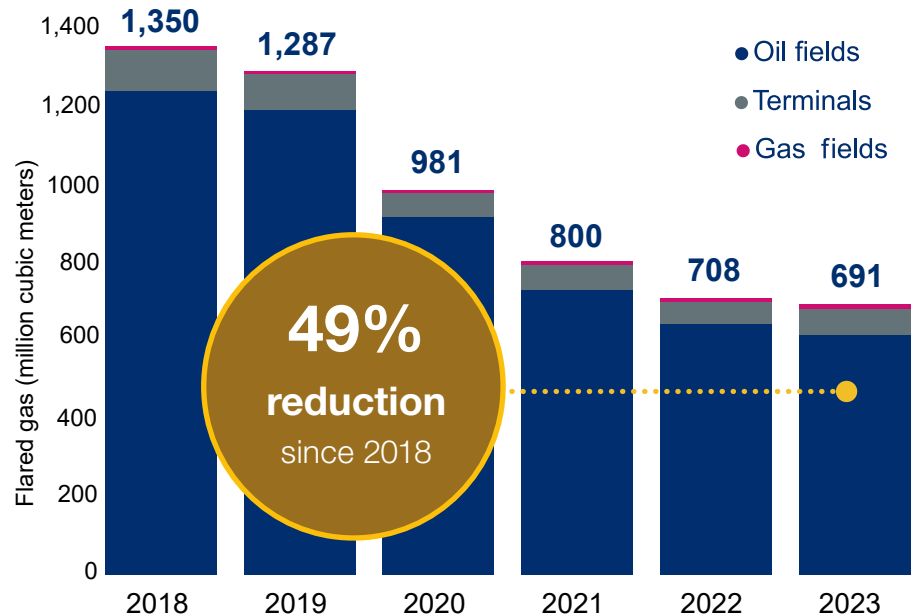
# UK upstream oil and gas GHG emissions

North Sea industry has pledged to reduce its emissions 90% by 2040, on the way to net zero by 2050. While progress has been made, oil and gas production operations still make up 3% of UK emissions.

## GHG emissions reduction



## Declining gas flaring





# UK upstream oil and gas GHG emissions

*Our annual Emissions Monitoring Report shines a light on industry performance and keeps track of progress against emissions reduction targets.  
It's an important tool for focusing attention on the pace of progress.*

**Niki Obiwulu**, Analysis and Insights Manager



## Emissions reductions

**50%** of reductions achieved from 2018-23 were due to active measures



## Upstream GHG footprint



Average emissions intensity for offshore assets was

**24 kgCO<sub>2</sub>e/boe** in 2023.

## UK-international gas comparison – average carbon intensity\*



Domestic

Less than half



Pipeline (Norway)

Almost 4x



LNG

Carbon intensity of producing gas domestically is **on average almost four times** lower compared with importing LNG.

\*All units, reported in 2022, are kg CO<sub>2</sub>/boe

# OGA Plan

The OGA Plan gives operators certainty on emissions reduction requirements and helps them make long-term plans for emissions reductions, putting them on the pathway to net zero.

## The Plan calls for concerted action across four areas

### Investment and efficiency

- Investment in **greenhouse gas emissions reduction** should be made by industry
- Includes **investment in specific technology** to improve efficiency and reduce emissions

### Electrification and low carbon power

- Power generation is **largest contributor** to oil and gas production emissions
- **Electrification required for existing assets**, where it is reasonable to do so, with other low carbon power options also considered

### Inventory

- More focus on **planned decommissioning**
- Scrutiny of **high emissions intensity assets**

### Flaring and venting

- Flaring and venting account for **a fifth** of production emissions
- Operators must deliver **continuous improvements** in flaring and venting
- **Zero routine flaring** and venting for all by 2030



# Electrification

---

As fuel combustion for power generation accounts for four-fifths of UKCS production emissions, electrification of offshore platforms can deliver the deepest cuts. Progress is being made.

---

## Potential benefits

- 17 MtCO<sub>2</sub>e of emissions reductions from 2030 to 2050 in mid-case scenario
- Reduce volume of gas combusted in turbines used for offshore power generation, aiding energy security

## Milestones reached in second half of 2024

### Green Volt

- Floating wind farm to provide clean power to installations in the Outer Moray Firth
- Contract for Difference awarded in Sept 2024
- Phase 1 FEED contracts placed in Dec 2024

### Culzean

- Single-floating wind turbine to cut Culzean platform emissions by 20%
- Pilot project sanctioned by TotalEnergies in Aug 2024





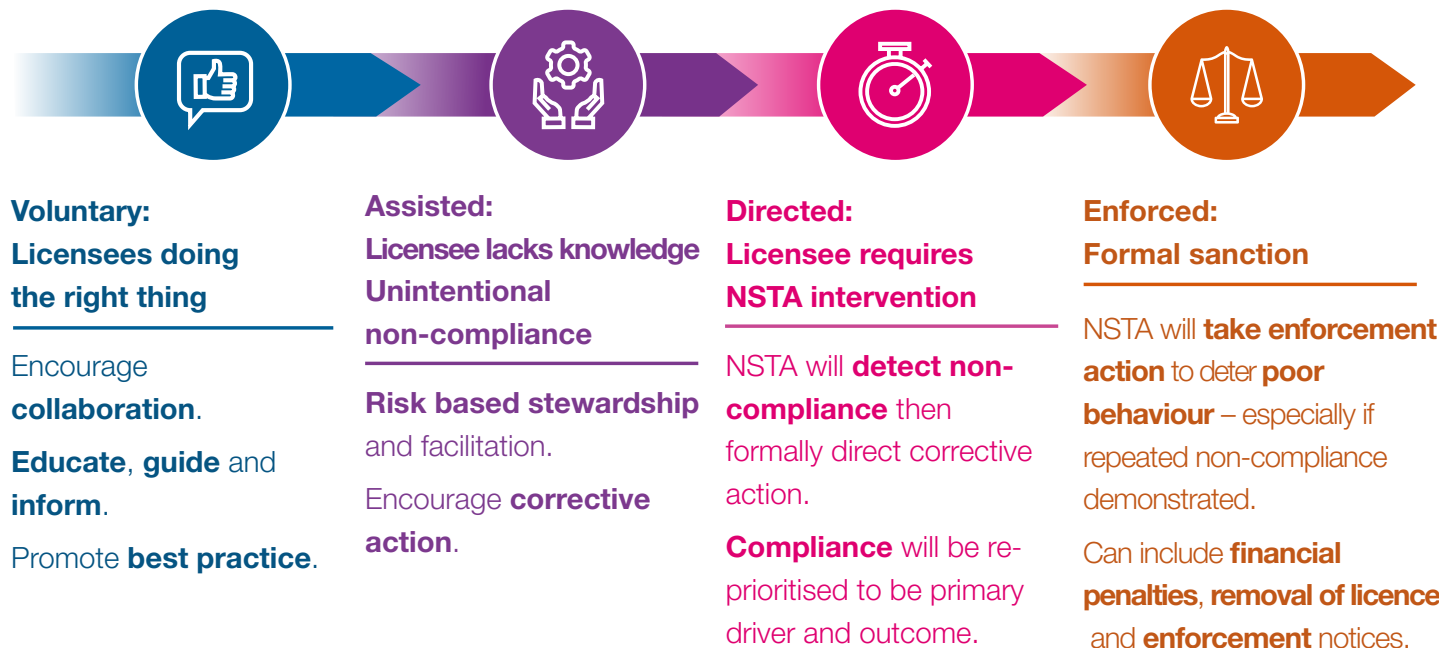




# Exercising our powers

Regulatory compliance is essential for a level playing field and for industry to maintain its social licence to operate. The NSTA takes a tiered approach to ensure operators meet their obligations.

## Our approach



# Exercising our powers

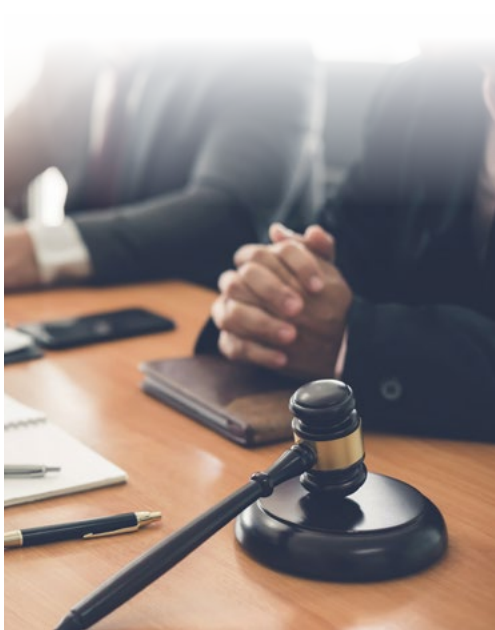
---

As the North Sea matures, the NSTA is increasing its focus on compliance with flaring and venting consents and well decommissioning obligations.

---

## Enforcement Successes

---



In November 2024, the NSTA issued its **highest fine to date**, of **£350,000**, for unreasonable behaviour that led to a production shutdown.

In 2024, the NSTA imposed **four financial penalties**, received 10 referrals and opened **eight investigations**, including a first ever into missed well decommissioning deadlines. Six matters were closed with no further action.

Since the beginning of 2021, the NSTA has issued fines totalling **£1.4m**, including **£825,000** for flaring and venting breaches.

From 1 January 2025, **£500,000** is the new starting point for considering fines for flaring and venting breaches.

# Significance of the supply chain

The NSTA is spearheading efforts to ensure the supply chain plays a full and leading role in the energy transition by highlighting contracting opportunities and promoting fairness and collaboration.

## **Local content**

The NSTA promotes and monitor levels of local content in all decarbonisation projects including decommissioning.

## **200,000 estimated jobs**

supported by the UK's offshore sector. Offshore supply chain to play instrumental role in energy transition. (source OEUK)

## **Supply Chain Action Plans**

New digital tool provides insights into contracting strategies. 26 SCAPs received in 2024 for CCS, H<sub>2</sub>, electrification and decom projects valued at £4.6bn.

## **Stewardship Expectation 12**

The NSTA expects licensees to collaborate with the supply chain to provide early visibility of upcoming opportunities. Operators benchmarked on their treatment of suppliers.

## **Outreach and engagement**

The NSTA creates opportunities for the supply chain at events year-round, bringing industry together to build a competitive service sector.





# Energy Pathfinder

*"Pathfinder made its name with the oil and gas industry but has been refocused and expanded to cover all emerging energy and decarbonisation sectors. It is fast becoming the premier energy transition tool for suppliers."*

**Bill Cattanach**, Head of Supply Chain



Scan to see  
how it works



- ◆ **Free, one-stop-shop providing visibility** of **contracting opportunities** for the supply chain across the **energy production** and **decarbonisation sectors**
- ◆ Contains information on more than **160 projects**, including **oil** and **gas**, **emissions reduction**, **decommissioning**, **CCS**, **hydrogen** and **wind power**
- ◆ **1,700 subscribers** for monthly Pathfinder updates
- ◆ Allowing operators and developers to **highlight challenges** and **seek solutions** from the service sector
- ◆ Details of which Tier 1 supplier has won a contract **helps smaller suppliers bid** for **sub-contracts**
- ◆ **Forward work plans** provide details of upcoming tenders for operations and maintenance contracts

# Measuring success

---

The NSTA has worked closely with industry to unlock 197 success stories between February 2021 and November 2024, and 637 since our inception\*.

---



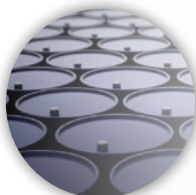
**3.7 MtCO<sub>2</sub>e**

lifetime emissions  
prevented



**£531M**

cost mitigated



**552 mmboe**

tripartite barrels



**£356M**

decom cost savings



**£4.3 bn**

value of investments



**433 days**

time saved to industry  
(fast tracked consents days)

\* revised Strategy came into force Feb 2021

# 10 years of NSTA

The NSTA's purpose has continuously evolved and developed since our launch in 2015 following the Wood Review, which called for an independent regulator to maximise the North Sea's potential.



# Experienced leadership

---

## Board of Directors

---



**Liz Ditchburn**

Chair of the NSTA



**Stuart Payne**

Chief Executive



**Dr Sarah Deasley**

Non-Executive Director



**Iain Lanaghan**

Non-Executive  
Director



**Dr Russell Richardson**

General Counsel and  
Company Secretary



**Nic Granger**

Chief Information  
and Financial Officer



**Sara Vaughan**

Non-Executive  
Director



**Fiona Mettam**

Shareholder  
Director



**Vicky Dawe**

Shareholder  
Director



**Malcolm Brown**

Non-Executive  
Director



# Experienced leadership

---

## Leadership Team

---



**Stuart Payne**

Chief Executive



**Hedvig Ljungerud**

Director of Strategy



**Andy Brooks**

Director of New Ventures



**Dr Russell Richardson**

General Counsel and  
Company Secretary



**Nic Granger**

Chief Information  
and Financial Officer



**Pauline Innes**

Director of Supply Chain  
and Decommissioning



**Tom Wheeler**

Director of Operations



**Jane de Lozey**

Director of Regulation



**Suzanne Lilley**

Head of Human  
Resources

# Who does what in government?

---

<b>Energy transition including:</b>	
Carbon storage and offshore hydrogen transportation and storage licensing and permitting authority	<b>NSTA</b>
UK energy policy, including CCS, hydrogen, renewable energy, legislation	<b>DESNZ</b>
Seabed leasing	<b>The Crown Estate</b> (England and Wales), <b>Crown Estate Scotland</b>
Marine leasing	<b>Marine Management Organisation (England), Scottish Government, Natural Resources Wales</b>
Offshore transmission, economic regulator for CCS	<b>OFGEM</b>

<b>Oil and gas policy including:</b>	
Overall oil and gas policy, legislation	<b>DESNZ</b>
Offshore decommissioning	<b>DESNZ – OPRED, NSTA, HMT</b>
Fiscal and taxation	<b>HMT</b> (NSTA providing expertise and evidence)
Supply chain and business impact	<b>DESNZ and NSTA</b>
Environment	<b>DESNZ – OPRED</b>
International relations and trade	<b>DESNZ, DBT, NSTA, FCDO</b>

# Who does what in government?

Exploration and production including:	
Offshore, onshore, gas storage and gas unloading licensing Field development plan consents Offshore pipeline works authorisation Infrastructure Commercial matters and changes of control Flaring and venting consents Metering and allocation Production outages Offshore decom efficiency, costs, technology Supply chain action plans Effective net zero assessment Emissions benchmarking	<b>NSTA</b>
Offshore decom programme approval, execution and monitoring	<b>DESNZ – OPRED</b>
Offshore environmental management and inspection	<b>DESNZ – OPRED</b>
Health and safety management	<b>HSE</b>
Environmental aspects of onshore regulations	<b>Environment Agency (England)</b>

## Key:

**DESNZ:** Department for Energy Security and Net Zero, **OFGEM:** The Office of Gas and Electricity Markets, **HMT:** His Majesty's Treasury, **DBT:** Department for Business and Trade, **FCDO:** Foreign, Commonwealth and Development Office **OPRED:** Offshore Petroleum Regulator for Environment and Decommissioning, **HSE:** Health and Safety Executive

# North Sea Transition Forum and Steering Group

---

## The North Sea Transition Forum

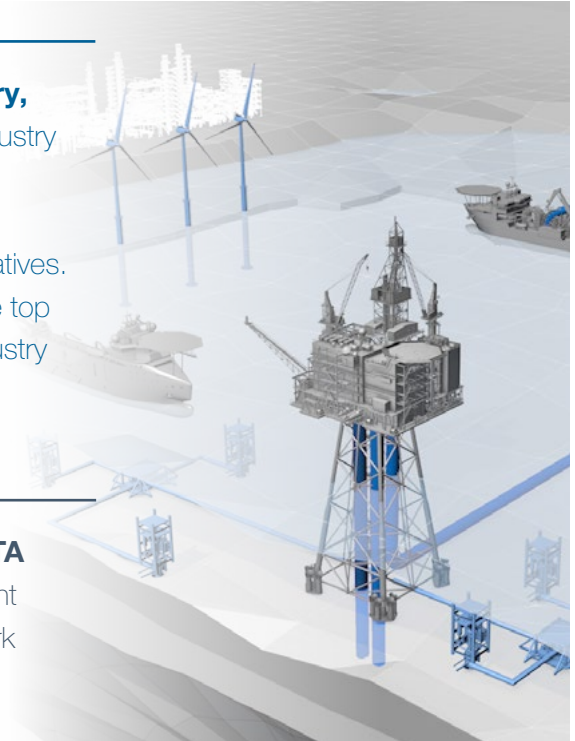
---

**The North Sea Transition Forum** is the **tripartite body (industry, government and regulators)** which provides government and industry leadership for the offshore oil and gas industry. It is attended by **ministers and officials** from the UK and Scottish governments, trade unions, regulators and senior industry representatives. It provides **strategic direction** to the offshore sector and sits at the top of a governance structure, including a steering group and seven industry task forces.

## The North Sea Transition Steering Group

---

The North Sea Transition Steering Group is **co-chaired by the NSTA chief executive** and a senior industry representative. It has oversight of the task forces, ensuring there is no duplication or gaps in the work being undertaken by the task forces.





# Task Forces

---

There are seven taskforces beneath the Forum and Steering Group. Each is co-chaired by a senior NSTA and industry representative and has members from across industry, trade associations and government. They play a key role in driving innovation and improvements across the offshore sector.

---



# Interactive energy map for the UKCS

---

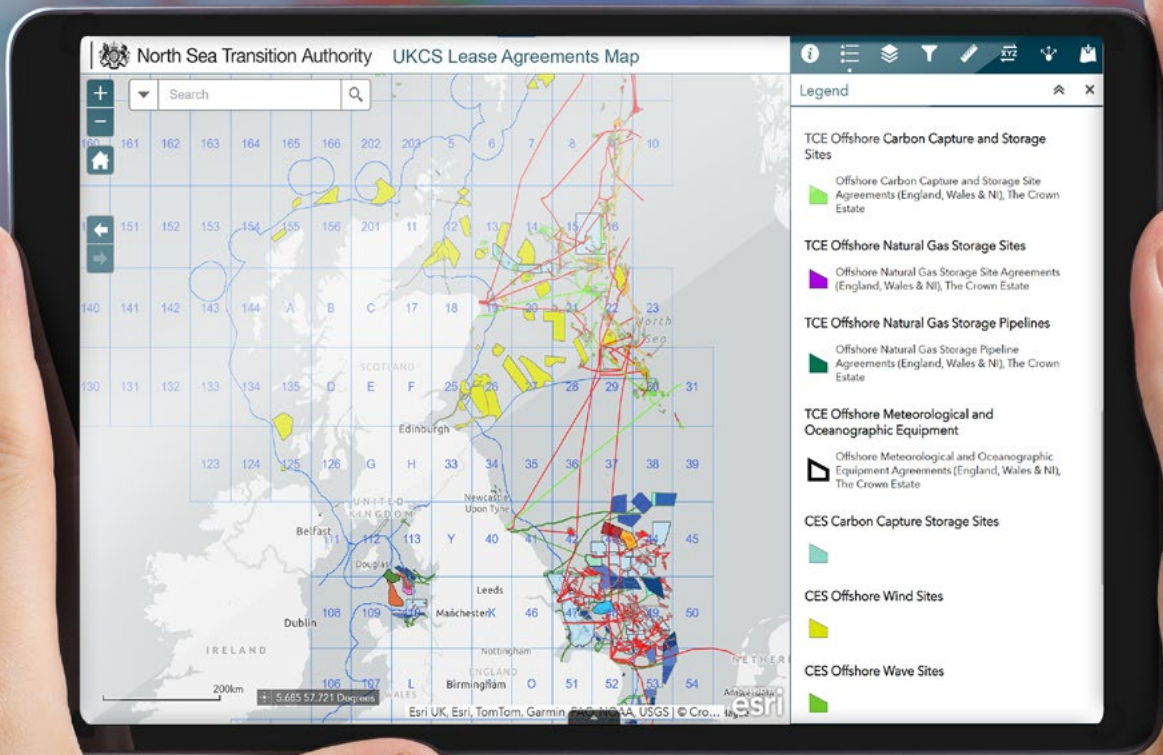
The NSTA has worked with The Crown Estate (TCE) and Crown Estate Scotland (CES) to create the app, which, at launch, listed more than 60 in-construction or active wind, wave and tidal sites on the UKCS as well as recently awarded CCS licences and 489 petroleum licences.

The application is automatically updated as each organisation logs new information and is the first time that the locations of all oil and gas and renewables sites have been presented together.

The application shows the proximity of existing oil and gas infrastructure to wind farms, electrical cables and CCS sites, which will assist in gauging the potential for reuse when decommissioning assessments are being made. It has also provided valuable information in prioritising areas for seismic shooting before a wind farm development is built.

**Scan to see how it works:**







# North Sea Transition Authority

Copyright © North Sea Transition Authority 2025

The North Sea Transition Authority is the business name for the Oil and Gas Authority, a limited company registered in England and Wales with registered number 09666504 and VAT registered number 249433979. Our registered office is at Sanctuary Buildings, 20 Great Smith Street, London, SW1P 2BT.

[www.nstauthority.co.uk](http://www.nstauthority.co.uk)