Oil & Gas Authority

OGUK Exploration Conference 2021

UKCS Exploration

Trends, Activity & Outlook

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26 May 2021

Key Messages

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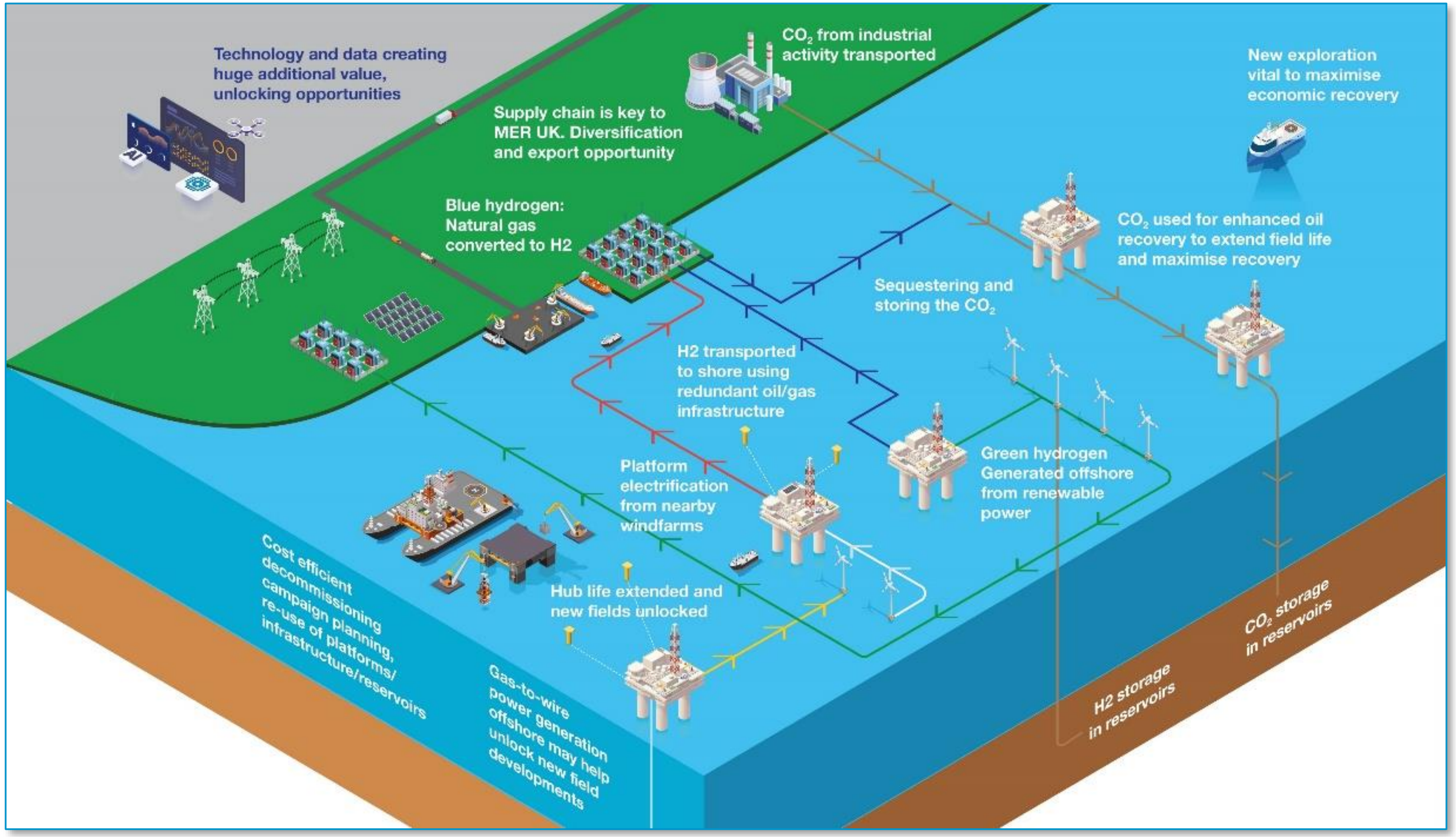
On the pathway to net zero emissions, oil and gas will continue to play an important role.

Pause in Licensing Rounds, with future rounds to pass climate compatibility test.

Supportive approach by OGA throughout 2020 to assist Covid-related work programme delays.

Overall exploration delivery falls short of expectations, but there are **notable successes.**

Flexible, but **Robust Regulation** combined with **Stewardship** are improving activity levels.



OGA & Industry have an important role to play in **Leading the Energy Transition**

The Energy Transition

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The role of oil and gas in the energy transition includes:

Maintaining secure energy supply

Lowering production emissions

Diversification opportunities and anchoring skills in UK

Infrastructure reuse

Supporting windpower expansion

Strong supply chain, exporting globally

Unlocking hydrogen opportunities

Expertise, infrastructure and capital to progress CCS

Forecasts show oil and gas will remain important part of the energy mix for foreseeable future

The world is changing

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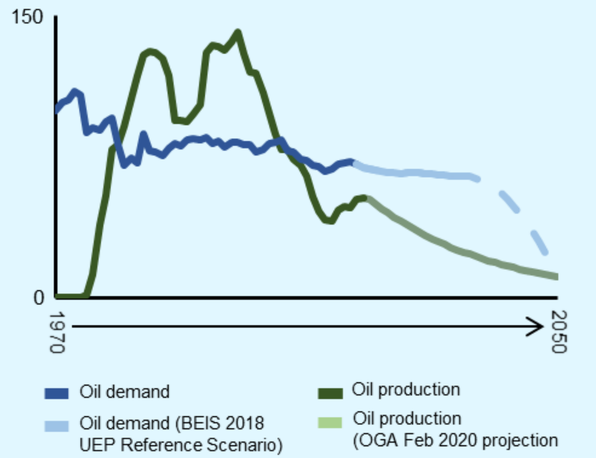
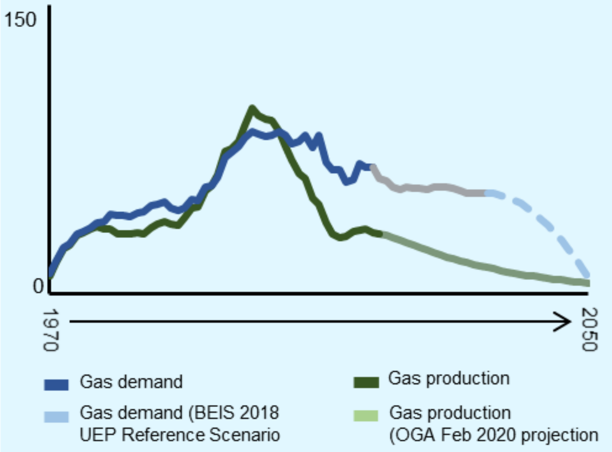
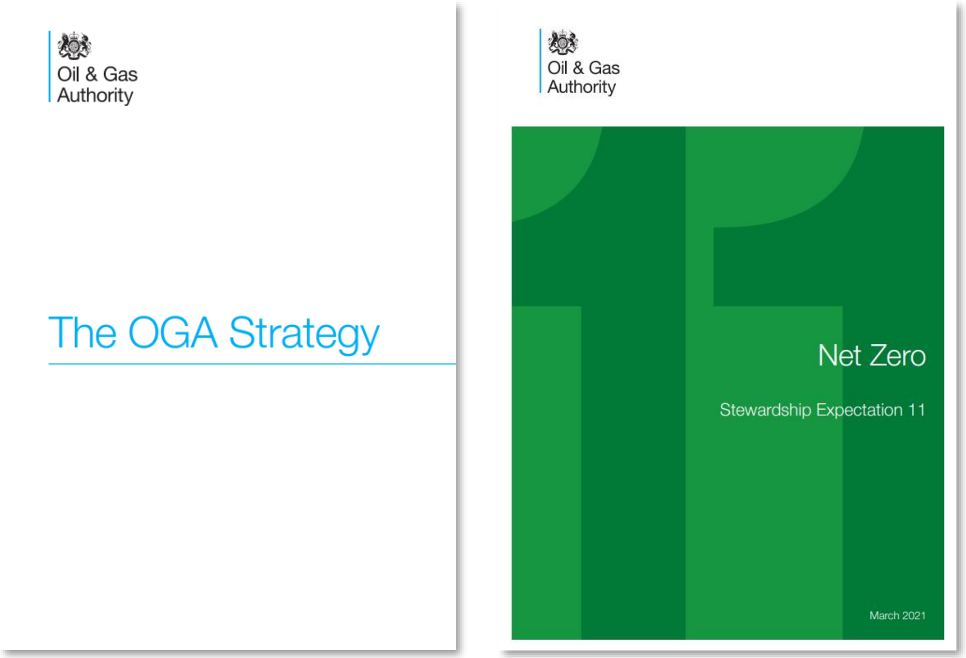
UK Oil demand and production

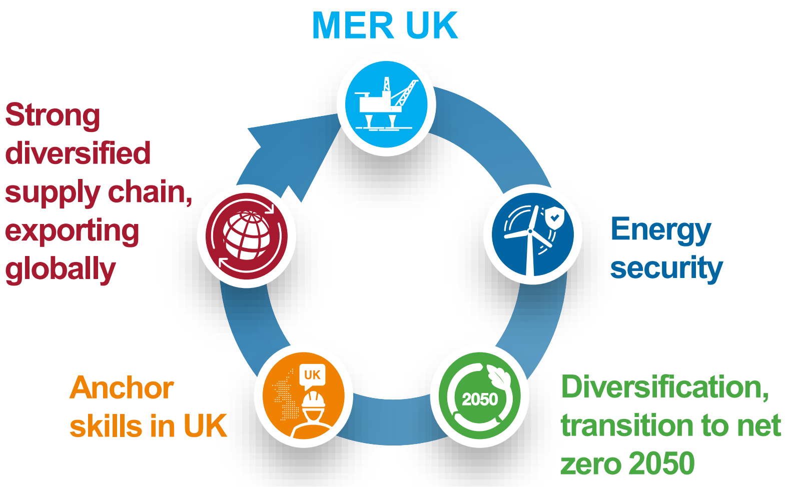


UK Gas demand and production



…and the policy landscape is evolving rapidly too





The OGA is also supporting the transition to net zero

Revised OGA Strategy

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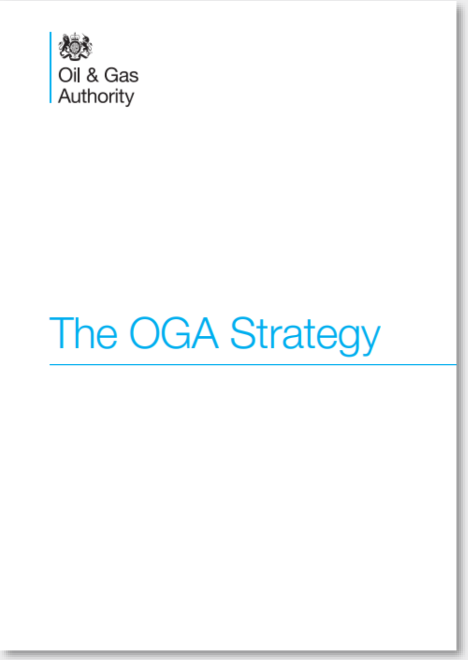
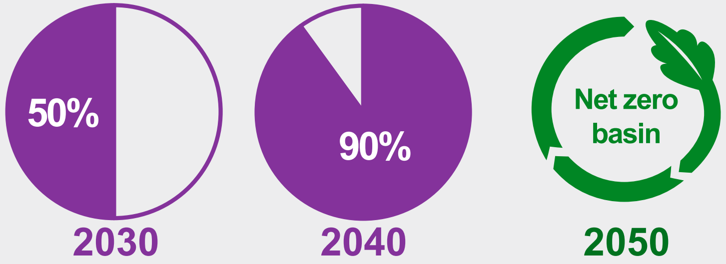


Industry commitment to reducing upstream GHG emissions



Requirement to take account of net zero considerations

New supporting obligations on CCS and collaboration

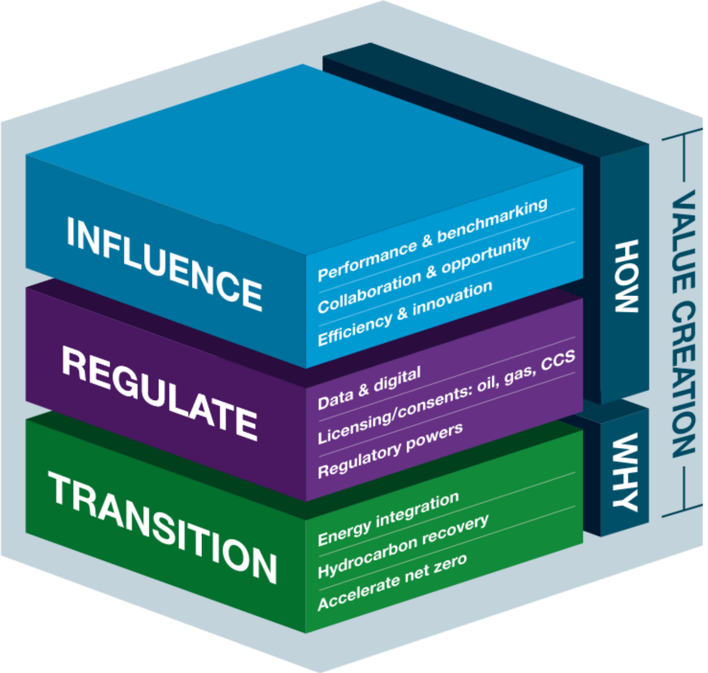
New approach to carbon economics

GHG target is an OGA KPI

New guidance and net zero Stewardship Expectation (SE11)

Role of the OGA

OGA One Team, MER UK & Net Zero



Revised OGA Strategy came into force 11 February 2021

Net Zero Stewardship Expectation (SE11)

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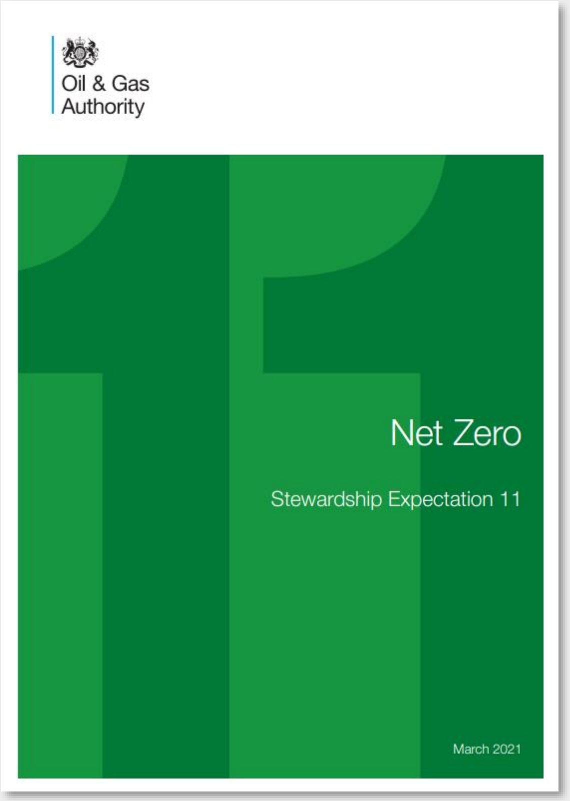

The Oil and Gas Authority ("OGA") expects the Upstream Oil and Gas Industry ("Industry") to reduce, as far as reasonable in the circumstances, Greenhouse Gas ("GHG") emissions from all aspects of their upstream operations.

- **Creating a culture of GHG emissions reduction** within the UKCS
- **Ensuring that GHG emissions reduction is considered throughout industry lifecycle activities**,
- **Collaboration between all relevant parties** (including with the renewables sector)

Exploration and Appraisal Phase

D.1 **At licence application stage**, provide an indicative evaluation of the GHG emissions impact of the work programme and project lifecycle

D.2 Assess the emissions of all GHGs from proposed activities and options and **seek opportunities to collaborate with other licensees to reduce the GHG emissions of activities** such as shared seismic surveys, shared drilling programmes (e.g. minimising mobilisations and demobilisations)

D.3 **Fully consider acquiring information which could enable future energy projects** such as CCS, hydrogen, windfarms

D.4 Evaluate the opportunity to incorporate in **well design** and plugging and abandonment ("P&A") **the potential for their reuse**

D.5 **Well tests, Extended Well Tests** and well clean-ups be designed to achieve their goals whilst appropriately reducing GHG emissions (e.g. optimal duration, reduced flaring/venting)

COVID-19 Crisis Response

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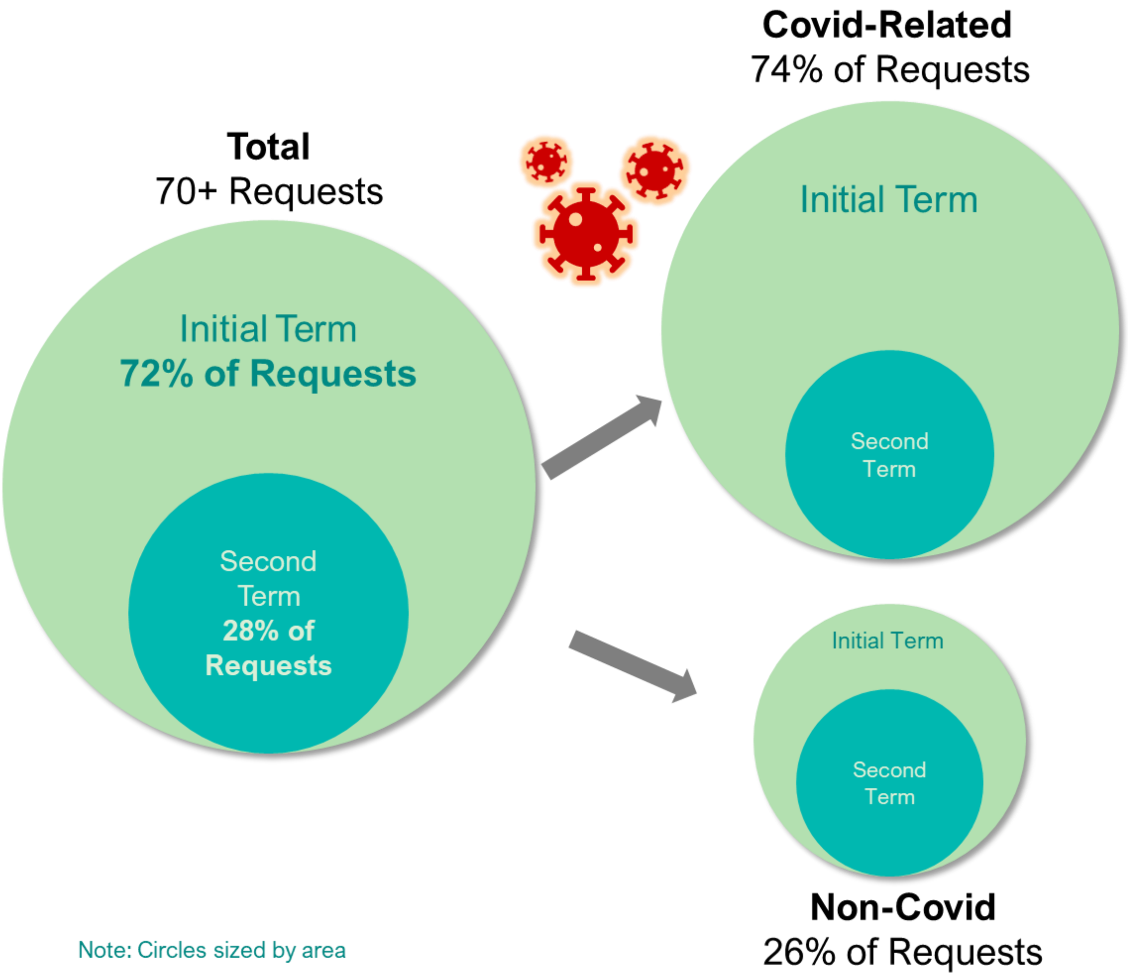

Note: Circles sized by area

- **OGA has supported industry through Regulatory Easement** in response to Covid-19 Pandemic and Low Oil Price Crisis.
- **Unprecedented Burden** of licensing requests (extensions/amendments) from industry, *particularly Initial Term Licences*.
- **Returning to business-as-usual**, but continued flexibility available where required.

Planned E&A Wells delayed by 1 year 9 months on average (UKSS Data)

UKCS current context

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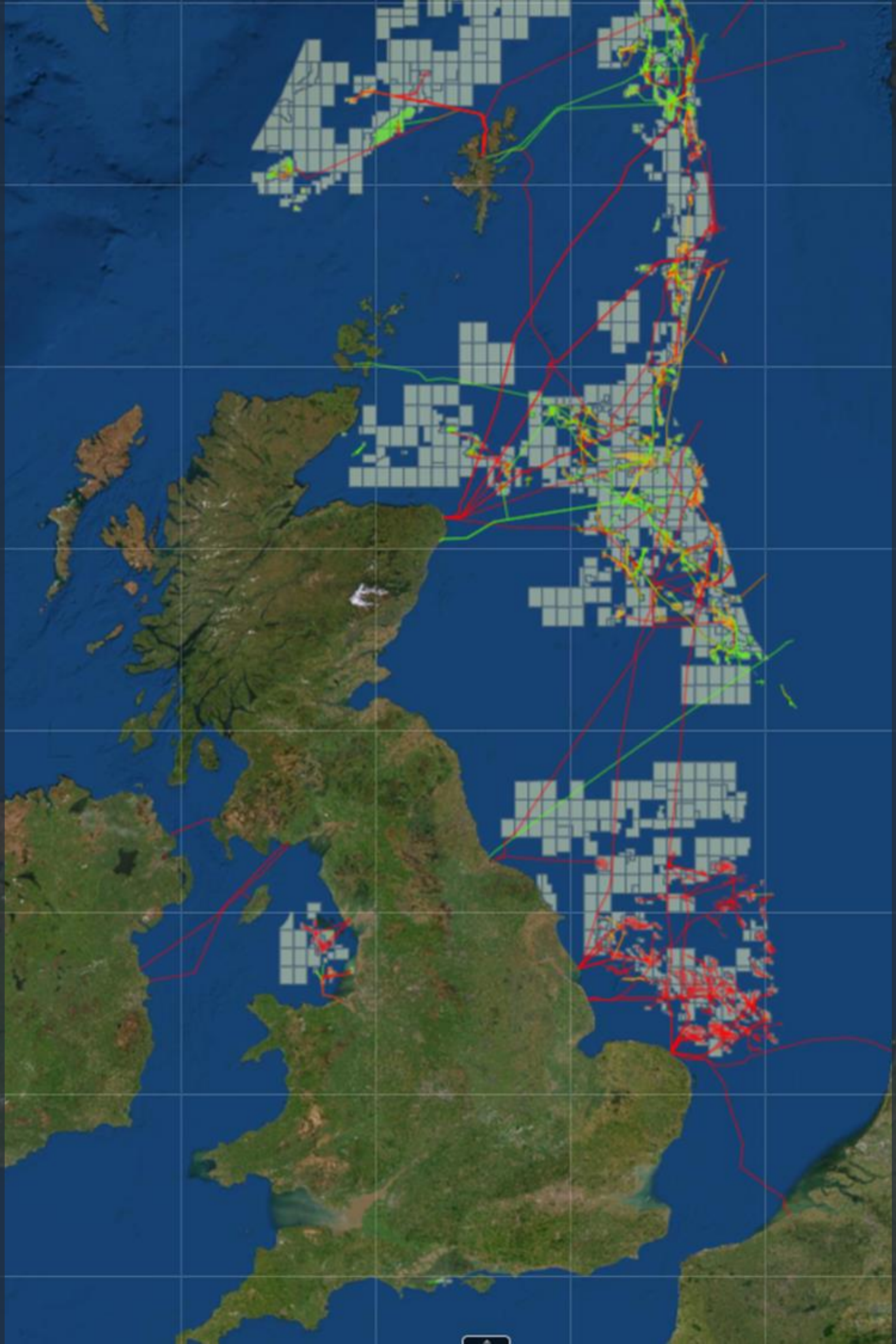
44bn
Barrels of oil and gas produced to date

320+
installations

7,800+
Wells drilled

20,000+
kilometres of pipelines



~75%
UK energy consumption from oil and gas

£360bn
Total upstream tax paid

269,000
UK jobs supported

UK

Decommissioning cost estimate

2017: £60bn

2020: £48bn

78 $GtCO_2$
potential storage capacity

CO_2

Exploration & Appraisal Activity

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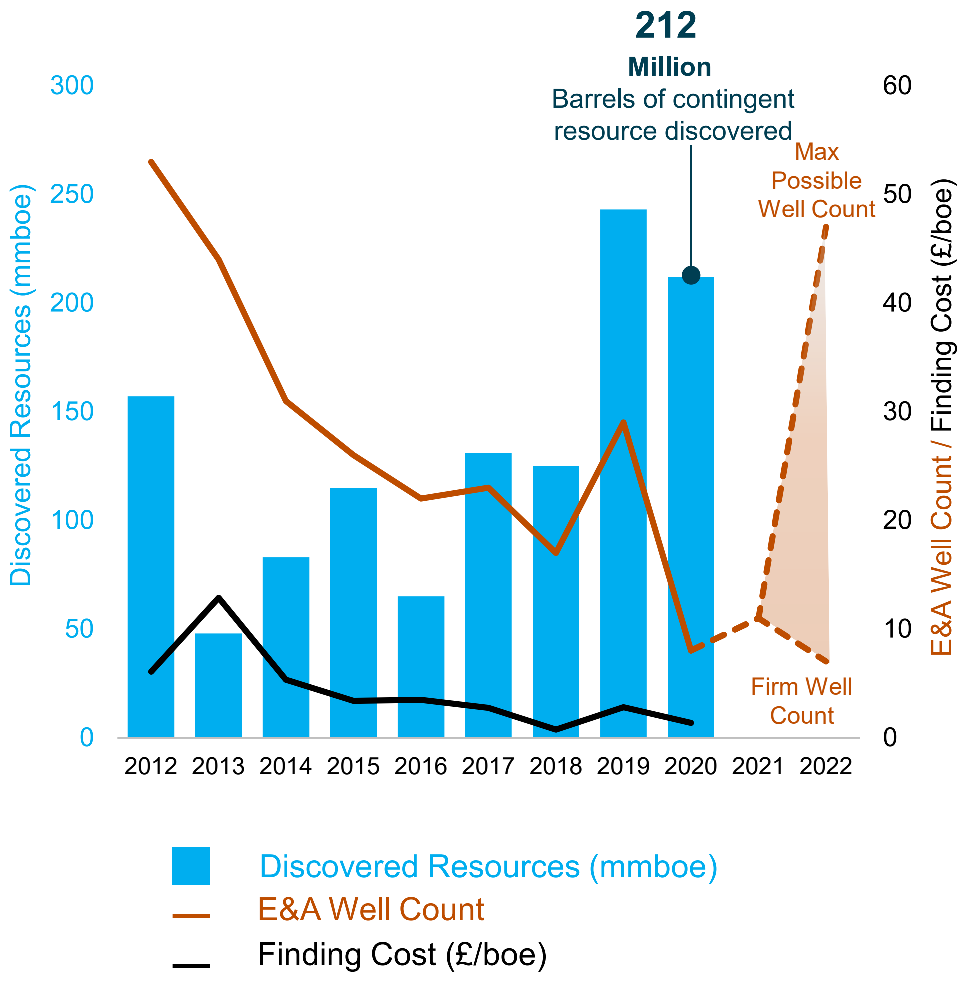
Exploration & Appraisal Trends



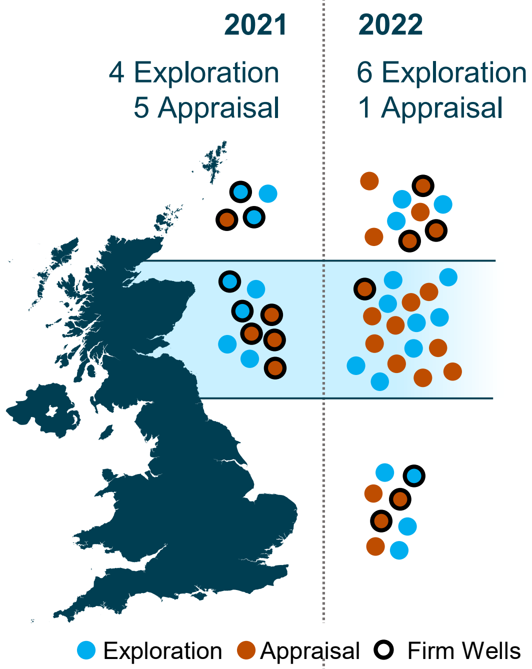
Exploration in 2020

16 Planned Targets

7 Drilled Targets

5 Discoveries

E&A Firm Well Look Ahead

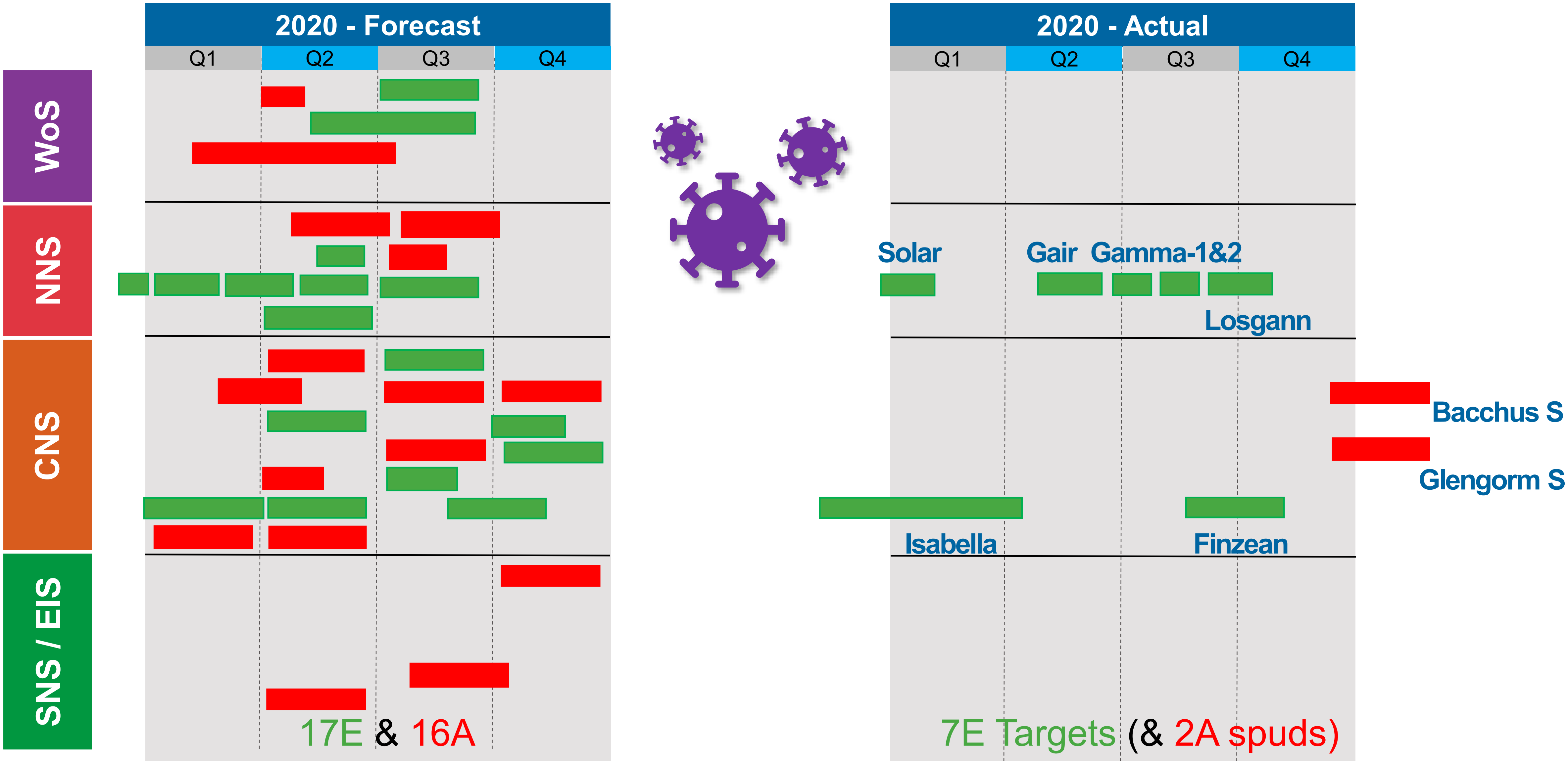


Key Messages

- Planned activity was hit by pandemic in 2020
- 71% Technical Success Rate
- Finding costs remain competitive at £1.35/boe
- Similar activity levels forecast for 2021
- Wide range of potential activity levels in 2022
- >500 mmboe discovered in last 3 years

Over half a billion barrels found in the last 3 years of UKCS exploration

Forecast and actual E&A activity in 2020



Covid Impact. Multiple wells deferred. Success from reduced programme.

Covid impact on planned 2020 E&A drilling activity

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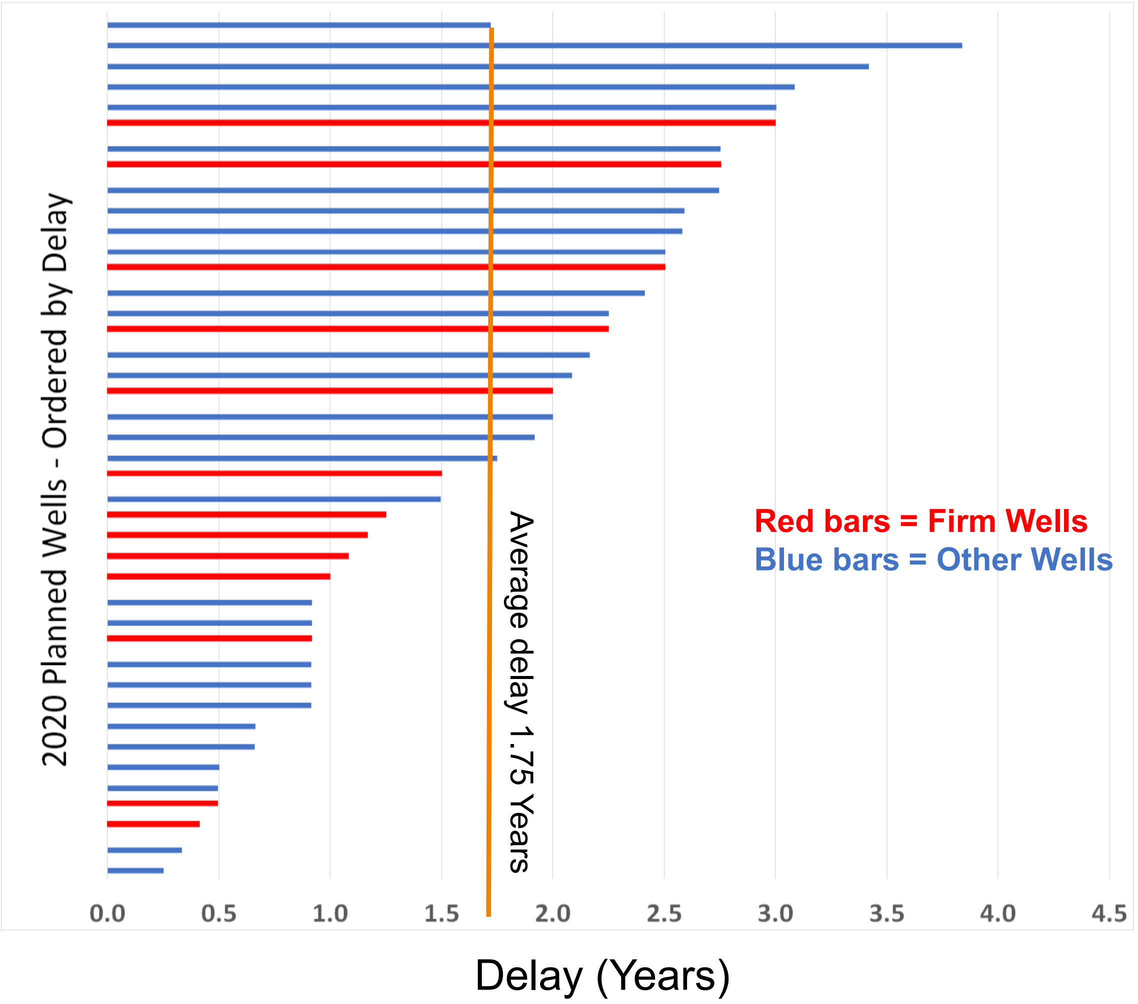

Key Messages

Stewardship Survey data used to measure changes to plans

Feb. 2020 to Feb. 2021 = 1.75 years average delay

Previous year delay was 0.26 years

18 months of additional delay related to Covid-19 impact

Bow wave of activity pushed into 2022 and 2023

18 months of delay to E&A drilling programme

Bow wave of E&A drilling forecast for 2022 and 2023

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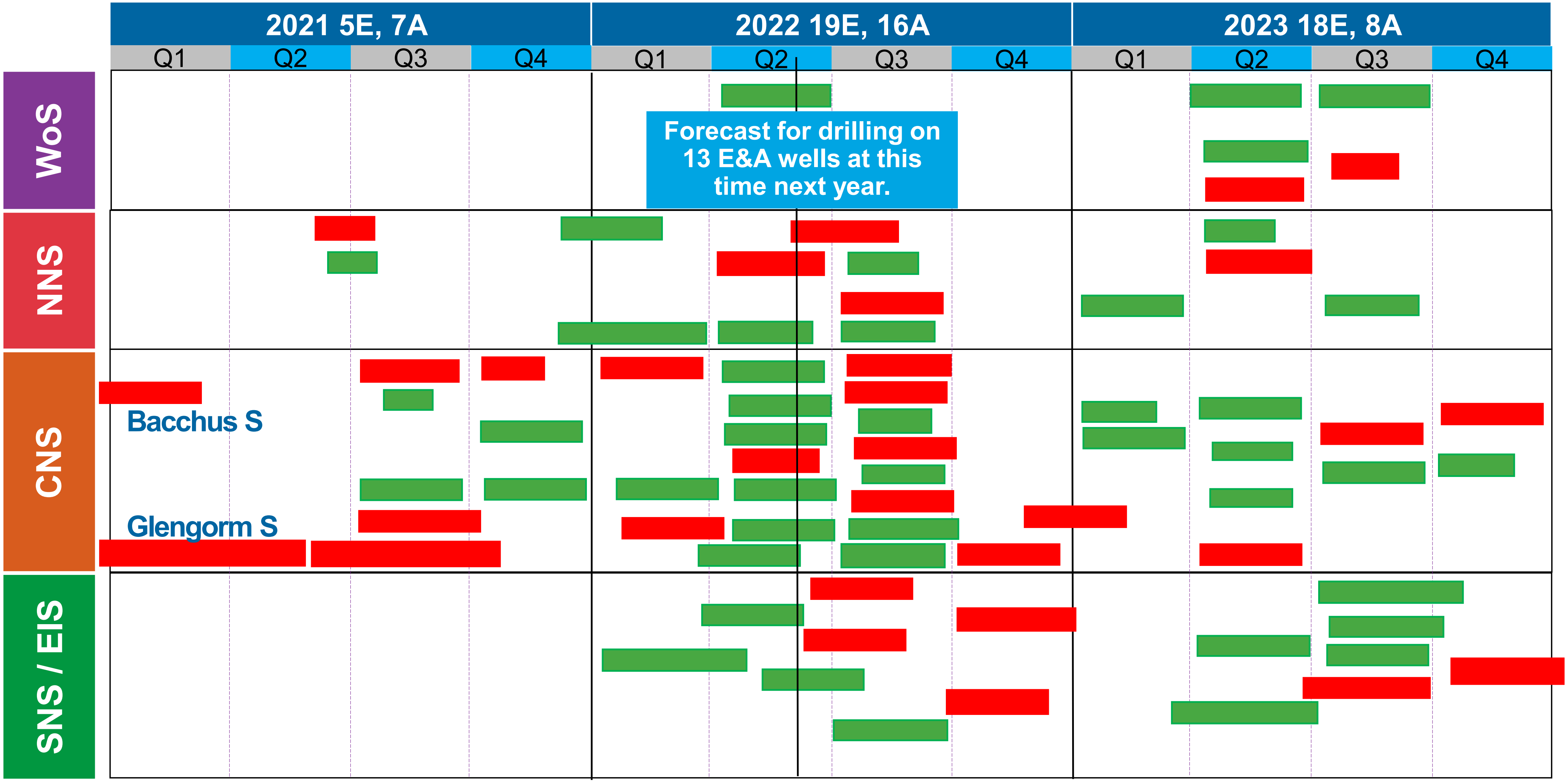

UK Stewardship Survey indicates activity levels back above 2014 levels next year……

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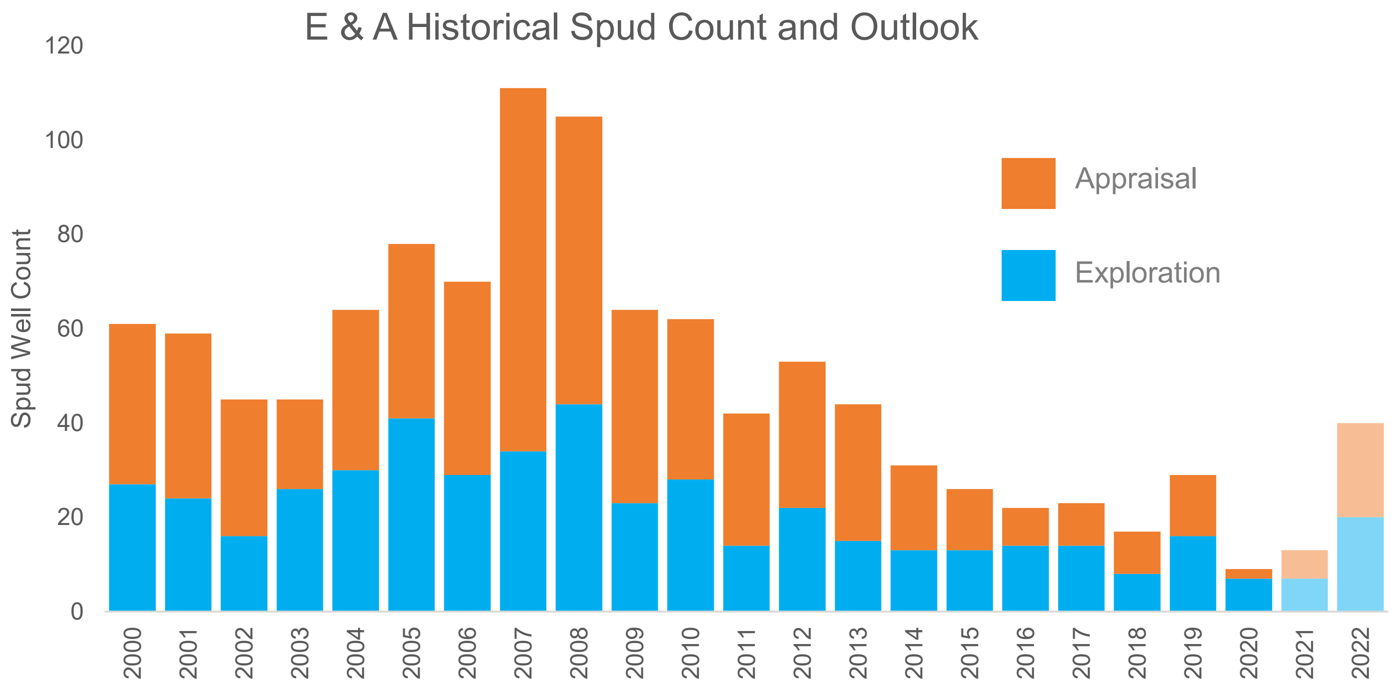


Energy Pathfinder

Key Messages

Only 7 of 35 wells in 2022 currently classed as Firm

Challenges

Can operators and supply chain get up to speed for this level of activity?

Funding and rig commitments needed

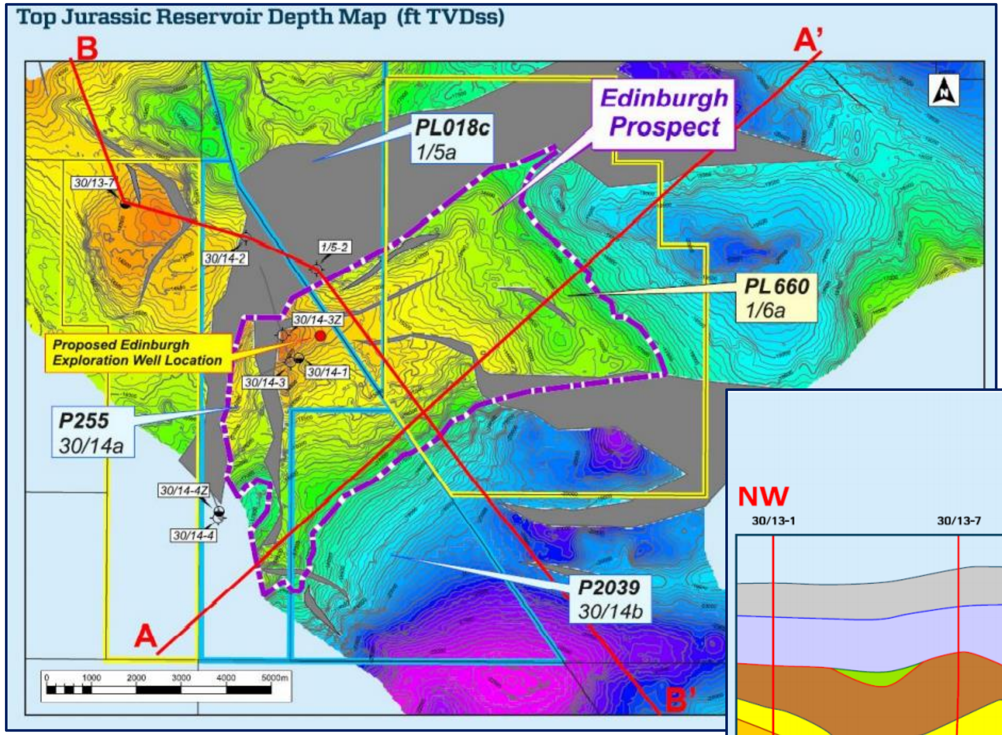
Majority of wells in 2022 are single well work programmes

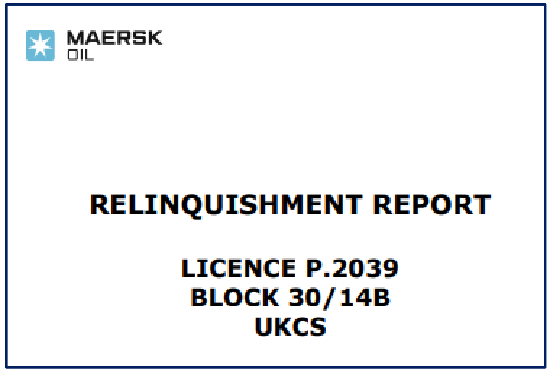
Farm Out activity to secure financial approvals

Early, robust and integrated planning needed to deliver this 2022 programme

OGA stewardship discussions will test readiness to deliver these forecasts

Edinburgh exploration well in 2021
Example of OGA influence to aid investment

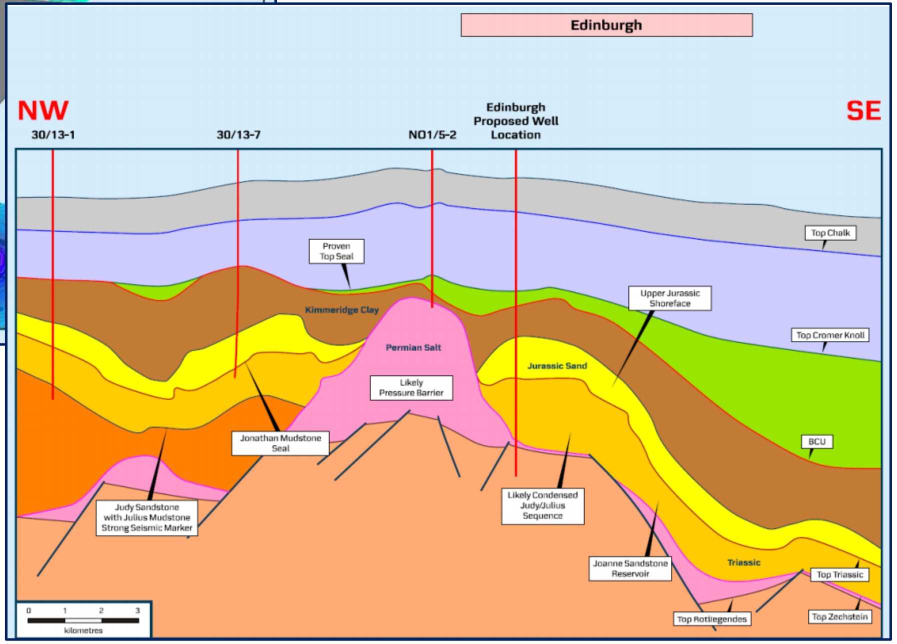




MAERSK OIL

RELINQUISHMENT REPORT

LICENCE P.2039
BLOCK 30/14B
UKCS



Key Messages

Complex licence situation: 4 licences, cross-border with Norway

Good example of the licensing process. Relinquished block was relicensed in 30th Round

- New technical work programme completed
- Improved data quality
- Farm down
- Well investment decision
- Progression to Phase C

OGA enhanced stewardship

Good example of licence turnover and maturation process

Seismic Survey Statistics and SE3 compliance

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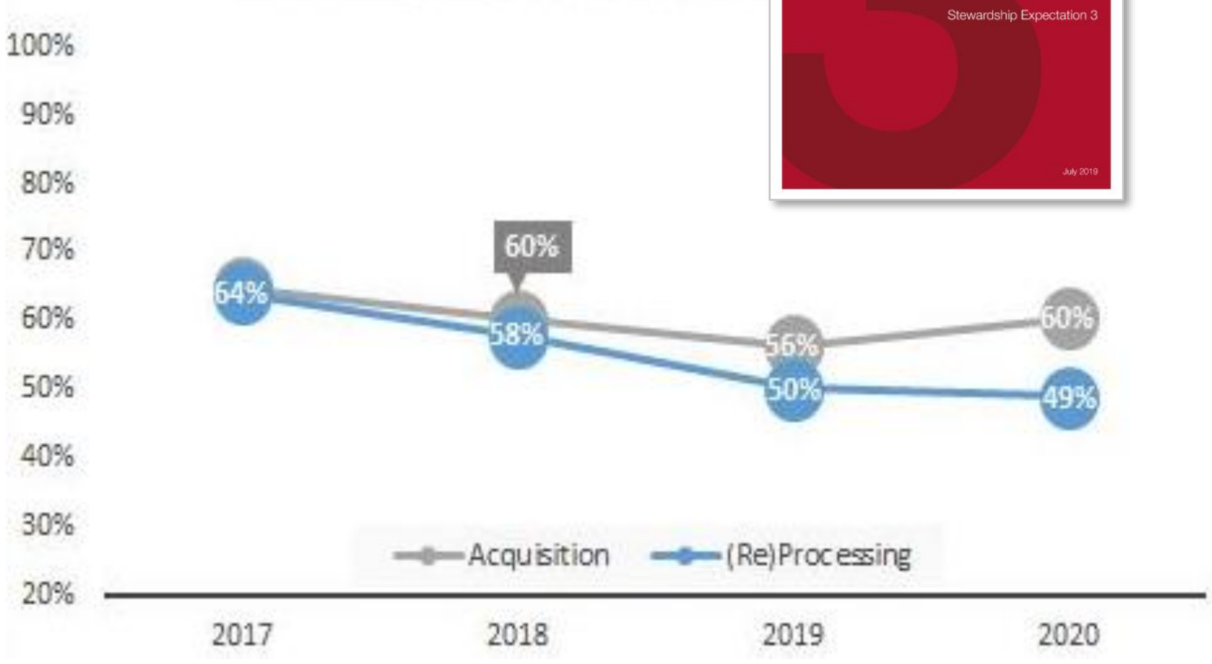
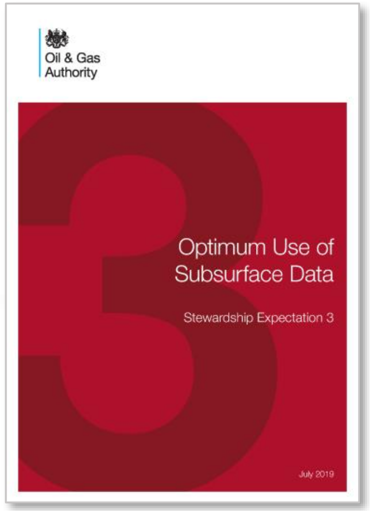
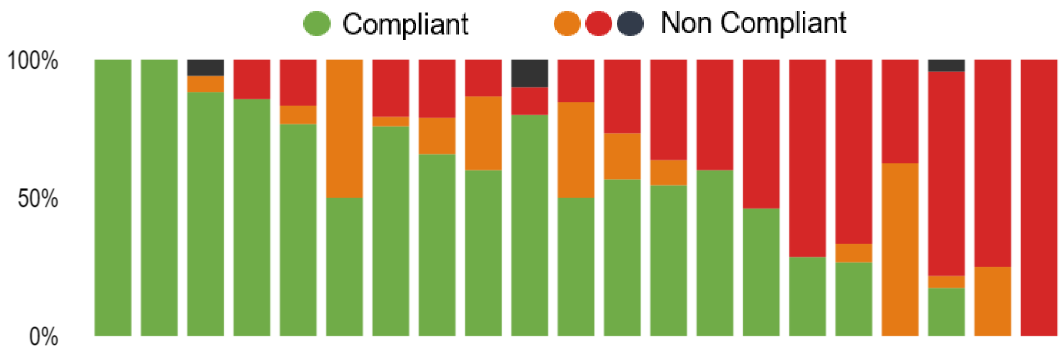
Seismic Data SE3 Compliance







2020 Acquisition compliance is 60% for Tier Zero companies

Key Messages

9 3D Seismic Surveys acquired in 2020
Covering of 7000 sq km
2021 plan 12000 sq km

60% of licences covered by 3D data shot in last 10 years

49% of licences covered by data reprocessed in last 5 years

Data quality crucial for derisking investment decisions

Is reprocessing activity keeping pace with technology advances?

Data releases supporting licence activity

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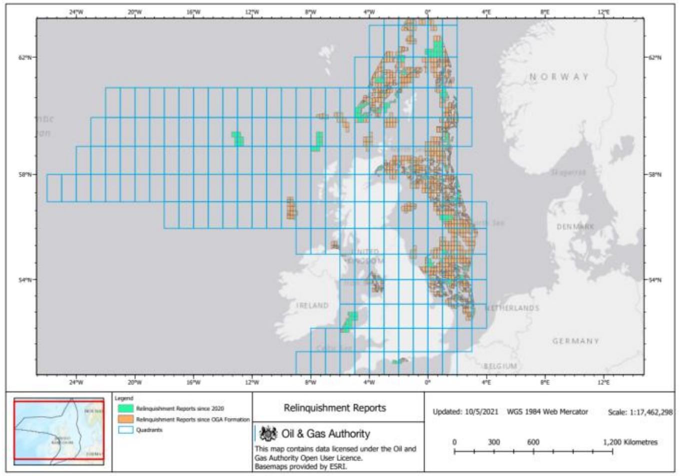
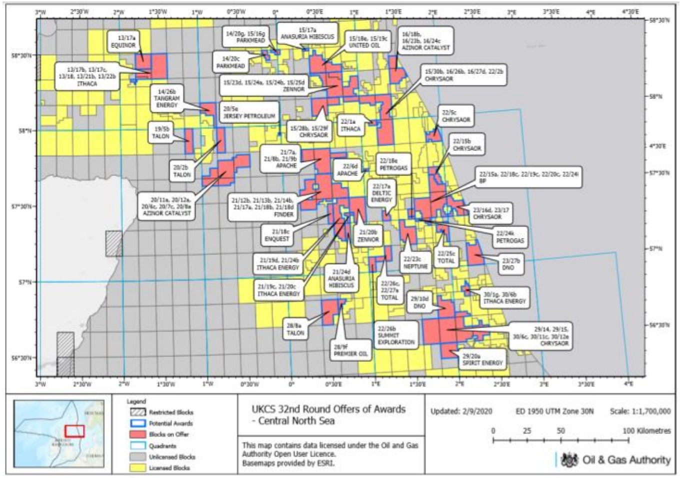
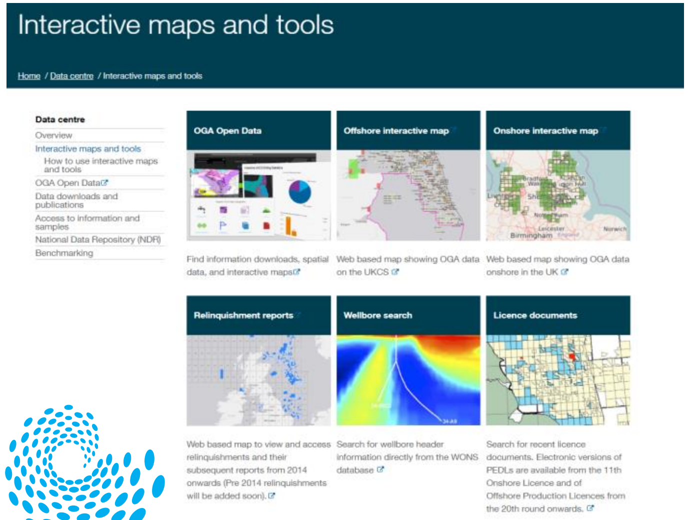
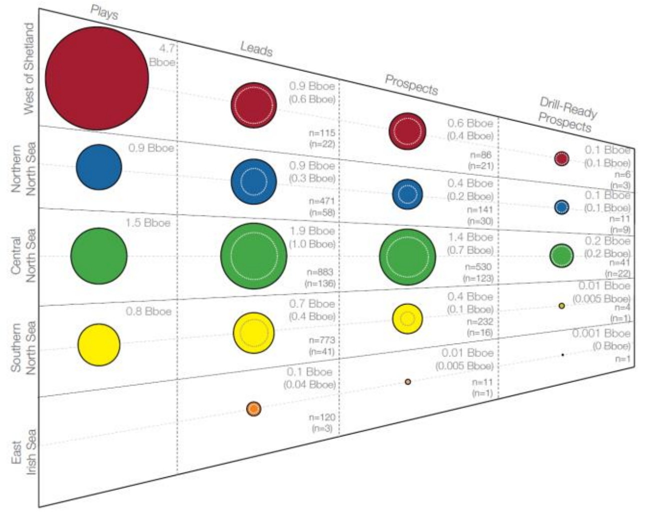








Key Messages

44 Relinquishment reports made public in 2020

Excellent report quality is now the norm

32nd Licensing Round completed

115 Licences offered across 260 blocks

99 start in Initial Term

16 directly to Second Term (Straight to FDP)

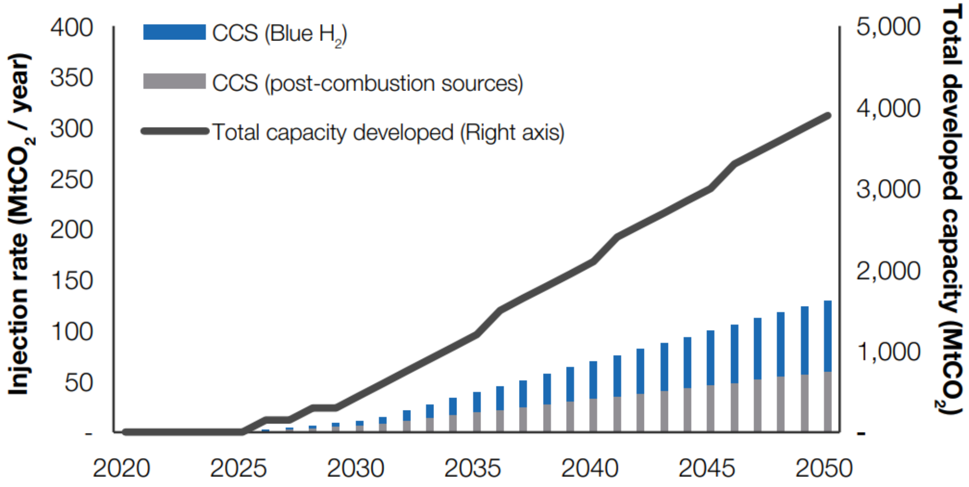
Updated version of NDR live in July 2021
Continued data publication via OGA Data Centre and NDR

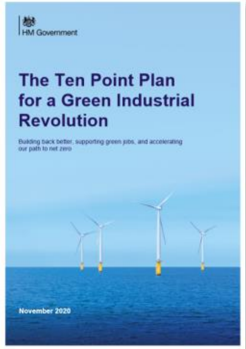
Renewed focus on Resource Progression via stewardship process

Developing UK potential to store CO_2

- **CCS is vital in all CCC 6th Carbon Budget Scenarios**
- **EIP: 130 $MtCO_2$/yr** by 2050 (central case) would require **~4 Gt CO_2** storage capacity developed across **>20 individual stores**

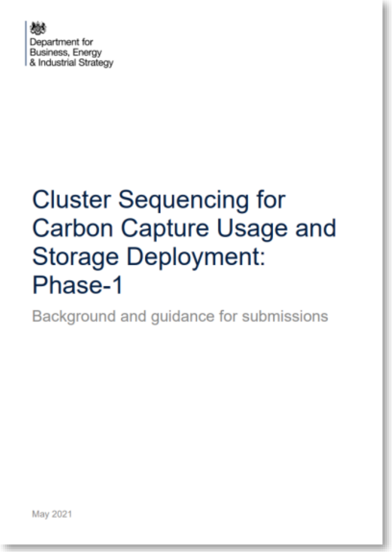
CO_2 injection build-up to support net zero





Investing in carbon capture usage and storage could potentially deliver...

- support for around 50,000 jobs by 2030
- up to £1 billion of public investment by 2025
- savings of around 40 MtCO2e between 2023 and 2032, or 9% of 2018 UK emissions



- **Ongoing Cluster Sequencing Process** to support CCUS Deployment, including:
  - £1bn CCS Infrastructure Fund (CIF)
  - CCUS business models for T&S, power and industrial capture.

- Ambition to capture and store >10Mt of CO_2 per year by 2030 – the equivalent of all the industrial emissions in the Humber or taking around 4 million cars off the road
- UK Government will facilitate the deployment of CCUS in 4 clusters by 2030
- In order to reach net zero, all industrial clusters will need to decarbonise, and CCUS will play a key role in enabling this. Government will continue to work with industry to map and support a logical sequence for future CCUS deployment.

Positioning the UK as a world leader in CCUS technologies

Building a pipeline of CCS Opportunities

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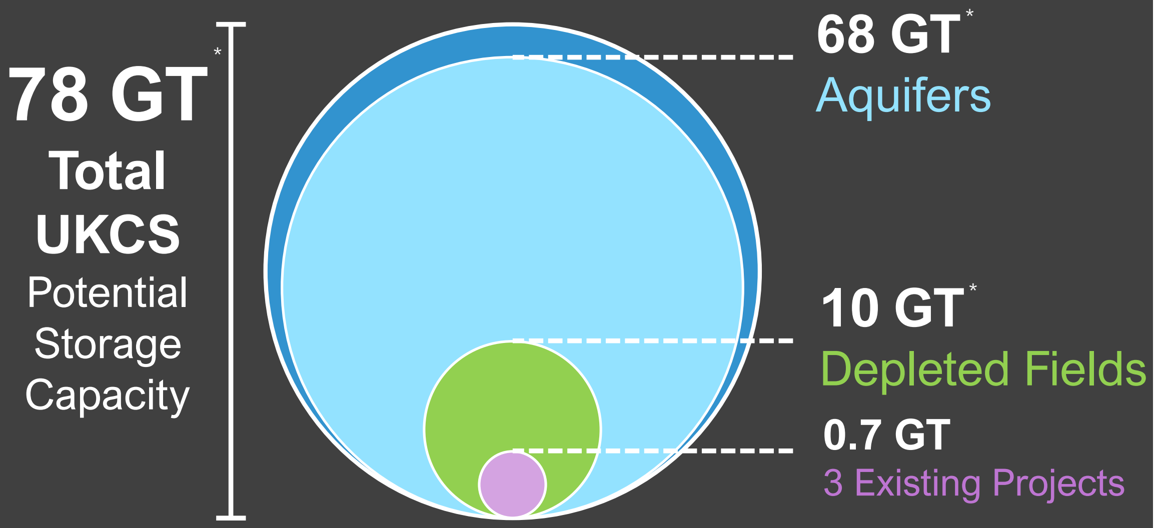
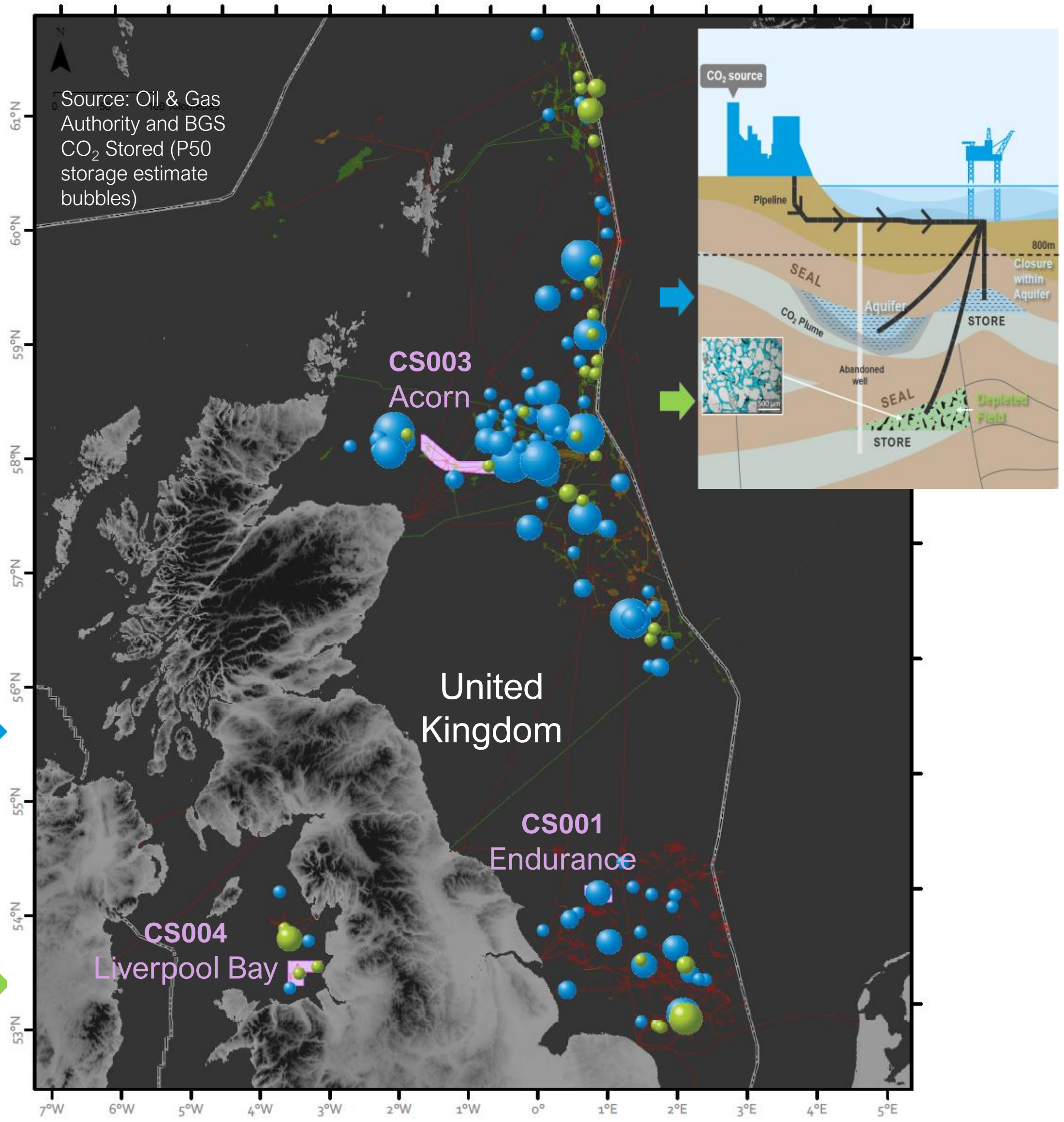


Aquifers
- Significantly larger size
- Greater subsurface uncertainty
- Requirement for new data & appraisal
- Potentially lower well-integrity risk

Depleted Fields
- Many small stores
- Potential to re-use infrastructure
- Existing data can provide baseline
- Legacy well-integrity risk

Source: Oil & Gas Authority and BGS CO_2 Stored (* P50 storage estimates)



Industry can express interest in new areas through Nomination Form on OGA website

Leading the transition

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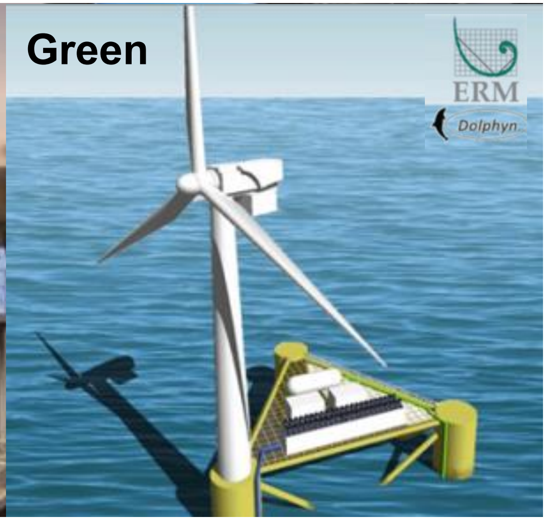

Great opportunity to be part of the solution, rather than the problem