Department for
Business, Energy
& Industrial Strategy

Climate Compatibility Checkpoint Design

September 2022

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Introduction

Following a review of oil and gas licensing in the UK which concluded in March 2021, it was found that continued licensing for oil and gas is not inherently incompatible with the UK's climate objectives. This means that if the UK were to open another licensing round for oil and gas offering acreage in the UK Continental Shelf, it would not materially impact the ability of the UK to meet the international commitments it has made to combat global warming. These commitments include meeting Net Zero by 2050 in a way that is consistent with our carbon budgets and the Paris agreement.

However, the report acknowledged that this may not always be the case in the future, so recommended that a "checkpoint" be introduced, to ensure that the compatibility of future licensing with the UK's climate objectives is always evaluated before a licensing round is offered.

In December 2021, a consultation on the design of this checkpoint was launched[1]. This consultation ran up until the end of February 2022. A large number of detailed and thoughtful responses were received, which the government has now carefully considered. This document is not the government response to the consultation, which has been published as a separate document.

This document describes the design of the checkpoint, covering its overall structure, the individual 'tests" that comprise it, and the sources of data that it will use.

[1] Designing a climate compatibility checkpoint for future oil and gas licensing in the UK Continental Shelf, BEIS (2022), https://www.gov.uk/government/consultations/designing-a-climate-compatibility-checkpoint-for-future-oil-and-gas-licensing-in-the-uk-continental-shelf

UK Domestic Oil and Gas Sector - Context

Contribution to the UK Economy

Oil and gas accounted for 76% of UK energy demand in 2021.[2] The UK's domestic oil and gas industry is an important sector to the UK, providing energy, jobs, and tax revenue to the UK. The sector supported around 117,000 direct and indirect jobs in 2020, 36% of which were in Scotland[3] and almost £400bn has been paid in oil and gas production taxes since 1970.[4]

Maturity of the UK Continental Shelf

The UK continental shelf (UKCS), which is the where the UK sector sources its domestically produced oil and gas is a highly mature oil and gas basin. Production rates from the UKCS have been steadily declining and are expected to continue to fall in the coming years.[5]

Oil and Gas Licensing

This checkpoint focuses on licensing, which is the process by which oil and gas companies are awarded exclusive rights to explore for and produce oil and gas from a specific area of the UK continental shelf.

The Petroleum Act 1998 ("the 1998 Act") governs oil and gas exploration and production activities in the UK. Section 2(1) records the position that all rights to Great Britain's petroleum resources are held by the Crown. Section 3 of the 1998 Act enables the Oil & Gas Authority (trading by the name as North Sea Transition Authority (NSTA)) to grant licences for the exclusive right to search and bore for, and extract, petroleum to which section 2 of the 1998 Act applies or with respect to rights vested in the Crown by section 1(1) of the Continental Shelf Act 1964 (excluding the Welsh and Scottish onshore areas). Licences are acquired through competitive licensing rounds held periodically by the NSTA.

Licences are typically awarded by the NSTA following a "licensing round". These rounds, which have historically happened as often as once per year, allow prospective licence holders to bid for specific licence areas. Typically, a number of licence areas – selected by the NSTA following consultation with industry and other regulators – are on offer during the licensing round. The NSTA selects a winning bidder for each licence area according to a process described in further detail on the NSTA's website.[6]

Licensing is distinct from development consent. A licence grants the holder exclusive rights to explore for petroleum in the area covered by the licence. However, award of a licence does not automatically provide the licence holder permission to perform any activities. Any subsequent activities following award of a license, for example exploratory drilling, installation of seabed

[2] Digest of UK Energy Statistics (DUKES) (2022), table 1.1, Aggregate energy balances, July 2022, (Includes 'primary oils', 'petroleum products' and 'natural gas') https://www.gov.uk/government/statistics/energy-chapter-1-digest-of-united-kingdom-energy-statistics-dukes.
[3] Offshore Energies UK, Workforce Insight Report, http://oeuk.org.uk/product/workforce-insight-report-2021, pg 5, pg 9.
[4] Offshore Energies UK economic report (2022) - https://oeuk.org.uk/product/economic-report-2022/
[5] Production and expenditure projections, NSTA (2022), https://www.nstauthority.co.uk/data-centre/data-downloads-and-publications/production-projections/

equipment, or commercial extraction, would require further consents from the NSTA, and be subject to other regulatory requirements including environmental and safety assessments from BEIS Offshore Petroleum Regulator for Environment and Decommissioning (OPRED) and the Health and Safety Executive (HSE) respectively.

Future of the Sector

Significant effort is being made by both the offshore oil and gas industry and the government to ensure the North Sea basin continues to mature in line with the UK's climate commitments. The North Sea Transition Deal (NSTD) sets out how the government is working with the offshore oil and gas industry in partnership to achieve a managed energy transition.

In the NSTD, the upstream oil and gas sector committed "to reduce emissions from oil and gas production by 10% by 2025, by 25% by 2027 and by 50% by 2030 (all relative to a 2018 baseline), as measurable steps to a net zero basin by 2050." [7] These figures are understood to be technically feasible by expert regulators and the NSTA, and were reflected in the Net Zero Strategy.[8] The NSTD is compliant with future carbon budgets and the UK's Nationally Determined Contribution (NDC) under the Paris Agreement.[9]

[7] North Sea Transition Deal (2021), https://www.gov.uk/government/publications/north-sea-transition-deal.
[8] Net Zero Strategy (2021), https://www.gov.uk/government/publications/net-zero-strategy .
[9] The UK's Nationally Determined Contribution under the Paris Agreement (2020), https://www.gov.uk/government/publications/the-uks-nationally-determined-contribution-communication-to-the-unfccc.

Principles of the Checkpoint

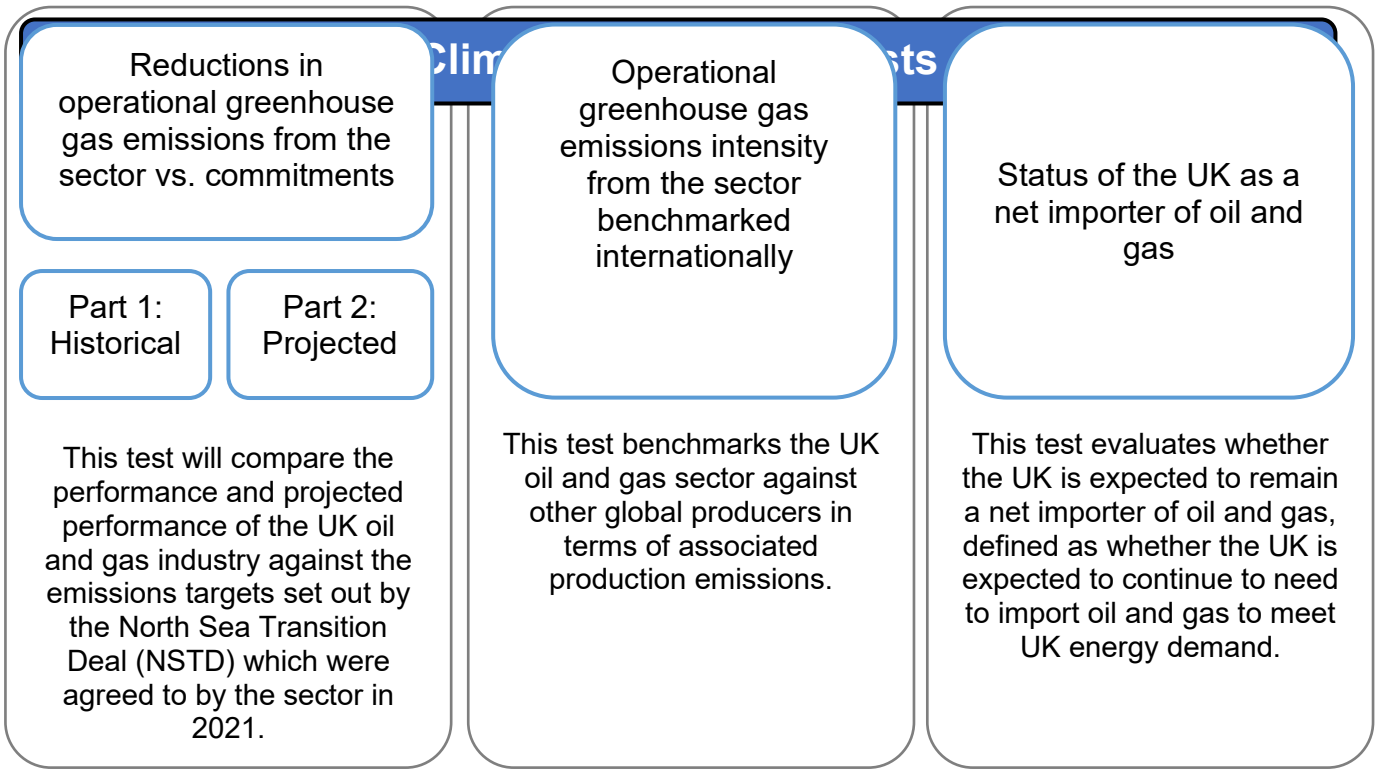
As articulated in the consultation document, the proposed principles for the checkpoint were as follows:

- **Evidence-based:** the checkpoint must use either reliable data, or credible projections.
- **Transparent:** the checkpoint structure should be clear and objective, and the sources of all data and projections should be publicly available and transparent.
- **Simple:** the checkpoint should be able to be described in a short document, and therefore give confidence to all stakeholders that a clear and methodical process is being followed.

The above principles have shaped the design of the checkpoint. Proposals for alternative principles were made by several consultation respondents and are discussed in the government response document. After reviewing consultation responses, it was decided that the principles will remain unchanged from those proposed.

Structure of the Checkpoint

This section outlines the overall structure of the checkpoint. This includes the three tests and how these tests relate to the decision for holding or not holding a future licensing round.



Relationship between tests and a future licensing round

The ultimate decision on whether and when to hold a new licensing round is delegated to expert regulators, the NSTA, and therefore is not formally controlled by government Ministers.

For this reason, this checkpoint does not have a legislative basis, and is instead presented as an informative, data and narrative-based exercise designed to inform Ministers on whether to endorse the NSTA in launching a new round. The NSTA will continue to reserve the final decision on whether to launch a new round.

The decision to support or not support a new licensing round is based on a wide variety of considerations that include both climate-based as well as other non-climate-based concerns. Such factors are beyond the scope of this checkpoint and may include, but are not limited to:

- the contribution of the oil and gas sector to the UK economy, including jobs supported, tax revenue contributed, and energy supplied;
- the impact that not offering a licensing round would have on the investment climate for UK oil and gas in the context of an already highly mature sector; and
- the additional level of energy security that a new licensing round could offer the UK in future.

This checkpoint has therefore been designed to provide advice and information for Ministers to consider but does not bind the Minister to a given outcome. The checkpoint will present the data around each test to Ministers in a graphical format alongside a written narrative.

Further detail on this decision is presented in the government response document.

Reductions in operational greenhouse gas emissions from the sector vs. commitments

Description of the Test

This test will compare the performance of the UK oil and gas industry against the emissions targets set out by the North Sea Transition Deal (NSTD) which were agreed to by the sector in 2021 (or other targets agreed with government).[10] This part of the test will be conducted in two parts:

- **Part 1** which looks at *historical* performance to date and whether the sector has met the targets it has committed to; and
- **Part 2** which looks at the *projected* emissions of oil and gas production and the sector's ability to meet the targets set in the NSTD.

The NSTD sets out the joint government and sector's commitment to achieving a 50% reduction in emissions by 2030 when compared with a 2018 baseline (as well as stepping-stone targets of 10% by 2025 and 25% by 2027).

Beyond 2030, the sector's own commitments to achieve 90% emissions reductions by 2040 and 100% reductions by 2050 will be used for this test.[11] Should any other targets be agreed with government, these would take the place of the NSTD targets and sector's own commitments.

The NSTD identified the need to coordinate the strategic development of oil and gas electrification with other technologies in the North Sea as the primary means to decarbonise the oil and gas sector between 2027 and 2040. It will also support the oil and gas sector's transition to a net zero basin. The government continues to work with regulators and developers to tackle barriers to the electrification of oil and gas platforms in the North Sea.

Part 1 – Historical performance

This part of the test will assess whether the sector has met the targets it has committed to in the NSTD.

Sources of Data

The National Atmospheric Emissions Inventory (NAEI) is a dataset covering the emissions of industries by the Intergovernmental Panel on Climate Change (IPCC).[12] Emissions from the IPCC categories relevant to the UK upstream oil and gas industry will be summed to produce a dataset of historical emissions for the UK upstream oil and gas sector.

Other Considerations

There will be no interpolation performed between NSTD targets; only the specific NSTD targets for 2025, 2027 and 2030. The sector will be expected to have achieved at least a 10%

[10] North Sea Transition Deal, BEIS (2021), https://www.gov.uk/government/publications/north-sea-transition-deal
[11] Pathway to a Net Zero Basin, Oil and Gas UK (Now Offshore Energies UK) (2020), http://oeuk.org.uk/product/product-production-emissions-targets-report/
[12] National Atmospheric Emissions Inventory, https://naei.beis.gov.uk/index.

reduction from 2018 levels in 2025 and 2026, a 25% reduction in 2027, 2028 and 2029 and 50% in 2030 and until 2040 when it will be 90%[13].

Part 2 – Future of emissions reductions

This part of the test will assess if the sector is projected to meet the future emissions reductions targets as set out in the NSTD.

Sources of Data

The NSTA publishes a number of emissions scenarios which look at both the baseline of emissions reductions and the cases of electrification in their annual Emissions Monitoring Report[14]. This test will assume a central case for electrification, together with a cessation of Routine Flaring by 2030 in line with the World Bank Zero Routine Flaring initiative[15].

Other Considerations

As outlined in part 1, there will be no interpolation performed between NSTD targets. Additionally, when considering the impact of future licensing rounds on emissions projections, the underlying assumption is that there will not be significant new installations as a result of developments resulting from future licensing rounds. The majority of such new fields are assumed to be tiebacks to existing infrastructure which it is assumed will not materially impact emissions levels. It is recognised that there could be a life-extension effect on some installations, but it is not expected that future licensing will have a material effect on total projected emissions of the industry.

Key Elements for Presentation

The following describes the key elements that will be included in a checkpoint document for this test:

Element	Data series	Source
Graph	Historical emissions from the sector starting from 2018	NAEI
	Projected emissions from the sector, considering the central case of electrification and flaring and venting reductions[16]	NSTA
	NSTD emissions reduction targets	BEIS / Industry
Text	Written narrative covering sector emissions and developments in this space	BEIS analysis
Table	Summary table outlining results of the test and highlighting uncertainties	BEIS analysis

[13] UK upstream oil and gas sector, Pathway to a net-zero basin: production emissions targets (2020), https://oilandgasuk.cld.bz/OGUK-Pathway-to-a-Net-Zero-Basin-Production-Emissions-Targets-Report-2020/6/
[14] NSTA Emissions monitoring report (2022), https://www.nstauthority.co.uk/news-publications/publications/2022/emissions-monitoring-report-2022/
[15] Zero Routine Flaring by 2030 (ZRF) Initiative, https://www.worldbank.org/en/programs/zero-routine-flaring-by-2030/endorsers
[16] NSTA Emissions Monitoring Report outlines the proactive abatement initiatives that will assist the sector with meeting the NSTD targets, https://www.nstauthority.co.uk/news-publications/publications/2022/emissions-monitoring-report-2022/

Operational greenhouse gas emissions intensity from the sector benchmarked internationally

Description of the Test

This test benchmarks the UK upstream oil and gas sector against other global producers in terms of associated production emissions.

For reasons outlined in the government response document, the emissions intensity of oil and gas will be compared separately, as described below. Where data limitations for international figures exist, emissions comparisons between the UK and international producers will be made on the basis of carbon intensity.

Benchmarking Emissions Intensity of Oil Production

Oil is traded on a global market, and it is very difficult to trace the original sources of all crude oil imported into the UK. Similarly, it is very difficult to trace the ultimate destination of oil produced in the UK. Oil exported from the UK will undergo refining abroad, and the resultant refinery products may change ownership several times before final consumption.

For the purposes of this test, the emissions intensity of oil production will be compared with a global average of all oil producers. This average will be weighted by the annual production of each producer to ensure that small producers do not disproportionately affect the average.

Benchmarking Emissions Intensity of Gas Production

In contrast to oil, gas is traded more locally. This is primarily due to the difficulty and expense associated with transporting gas across large distances. Where gas is traded over large distances, this is either through pipelines or as liquefied natural gas transported by sea. In both cases, the origin of the gas is usually known. It is therefore generally more possible to assign an emissions intensity to imported UK gas than it is for oil and refinery products.

For the purposes of this test, the emissions intensity of UK gas production will be compared with the emissions intensity of the UK's imported gas. This will be calculated by taking an average emissions intensity from countries the UK imports gas from (defined by BEIS' Energy Trends data), weighted by import volume to the UK.[17]

Sources of Data

UK and International emissions intensity:

Industry emissions data will be used for this benchmark. If total emissions data is not available, carbon emissions data will be presented.

Other considerations:

Many fields produce both oil and gas. Therefore, when calculating the average total or carbon emissions intensity for either oil or gas separately, it is necessary to apportion emissions based on the respective production levels of oil and gas. The approach that BEIS will take in this calculation is to separate emissions using the ratio of oil to gas production, on a unit of energy basis.

[17] Energy Trends: UK gas, BEIS, Table ET_4.4.

Since the data being used for this test may be sourced from a private company, it is not possible to publish the dataset in full.

Key Elements for Presentation

The following describes the key elements that will be included in a checkpoint document for this test:

Element	Data series	Source
Oil emissions intensity bar chart	**Below data to be shown on a bar chart**	
	Current emissions intensity at a national level for UK produced oil, along with emissions intensity of oil originating from other global producers. Bar chart to be arranged to show position of the UK relative to other countries. A proxy of carbon intensity may be used in place of total emissions intensity.	Industry data provider
	Indication on graph of production weighted average of all emissions intensities.	BEIS Analysis of provided data
Gas emissions intensity bar chart	**Below data to be shown on a bar chart, with a bar for each exporter of gas in the basket**	
	Current emissions intensity at a national level for the UK's sources of imported gas. A proxy of carbon intensity may be used in place of total emissions intensity.	Industry data provider. Sources of gas provided by BEIS.
	Indication on graph of import weighted average of all emissions intensities from the included countries.	BEIS analysis of provided data
Text	Written narrative covering the data outlined above.	BEIS analysis

Status of the UK as a net importer of oil and gas

Description of the Test

This test evaluates the scale of both current and future production from the UK Continental Shelf relative to the UK's demand for oil and gas in a net zero scenario.

This test will therefore illustrate whether the UK is projected to remain a net importer of oil and gas for the foreseeable future. It will evaluate the UK's projected demand for oil and gas in a net zero scenario, with the projected production of oil and gas from the UK North Sea assuming continued licensing and development.

The test will be run separately for oil and gas. For oil, the production of crude oil and natural gas liquids will be compared to the demand for refinery products.

The test will assess a projection period of between 10 and 15 years, focussing on the results for 5-, 10- and 15-year intervals. This is partly driven by the availability of robust projections. The checkpoint will use the best available projections of domestic oil and gas demand that consider reduced demand from future policies consistent with Carbon Budget 6 and HMG's Net Zero pledges.

There is an interaction between this test, and Tests 1 and 2. Should the UK become a net exporter of oil and / or gas, Ministers may wish to consider whether the fuel being exported is lower emission than that of other producers.

Sources of Data

Production

For production, this test will use projections from the NSTA.

The NSTA produces projections of UK oil and gas production twice a year to inform the fiscal forecasts produced by the Office for Budget Responsibility (OBR)[18]. The projections are broken down by oil and gas and assume continued development and continued licensing in line with the NSTA's strategy of Maximising Economic Recovery.

Demand

For demand, this test will use underpinning charts and tables from the published BEIS Net Zero Strategy (NZS)[19] and assumptions on non-energy use demand.

In 2021, BEIS published its Net Zero strategy, outlining the policies and proposals for decarbonising sectors to meet the net zero target by 2050. The strategy was accompanied with figures of potential oil and gas demand. These figures will be used for the purposes of this test.

As a result of the underlying assumptions, the figures show how much oil and gas the UK will be expected to use in a scenario where oil and gas use is reduced significantly as the UK reaches net zero.

The available figures currently run until 2037, covering a 15-year period. The NZS will be updated ahead of Carbon Budget 7 and further future carbon budgets.

[18] North Sea Transition Authority, Production and expenditure projections, https://www.nstauthority.co.uk/data-centre/data-downloads-and-publications/production-projections/
[19] BEIS, Net Zero Strategy https://www.gov.uk/government/publications/net-zero-strategy

Other Considerations

As well as plotting this data on a line graph separately for oil and gas, this test will indicate the status of the UK as a net importer or exporter for the 10-15 years from the time at which the checkpoint is being run. The following definitions will be used.

Net importer: when UK projected production level is lower than UK projected demand.

Net exporter: when UK projected production level is higher than UK projected demand.

Key Elements for Presentation

The following describes the key elements that will be included in a checkpoint document for this test:

Element	Data Series	Source
Oil Supply vs Demand Graph	**Below data will be plotted on a line graph for direct comparison. This graph will therefore indicate whether the UK is expected to become a net exporter of oil at any point in the next 10-15 years.**	
	UK demand for 10-15 years for oil and oil-based fuels consistent with net zero by 2050	BEIS
	Projected UK production of crude oil for 10-15 years, with continued licensing and continued development	NSTA
Gas Supply vs Demand Graph	**Below data will be plotted on a line graph for direct comparison. This graph will therefore indicate whether the UK is expected to become a net exporter of gas at any point in the next 10-15 years.**	
	UK demand for 10-15 years for natural gas consistent with net zero by 2050	BEIS
	Projected UK production of natural gas for 10-15 years, with continued licensing and continued development	NSTA
Table	Tabulated results showing assessment of likelihood of UK becoming a net exporter for 5, 10, and 15 years in the future	BEIS analysis of BEIS and NSTA data
Text	Written narrative covering UK import and export of both oil and gas	BEIS analysis of BEIS and NSTA data