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# UK Emissions Trading Scheme Scope Expansion: Maritime

Department for Energy Security & Net Zero

UK Emissions Trading Scheme (UK ETS) Authority

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## UK National Clean Maritime Research Hub's response 23 January 2025

*The UK National Clean Maritime Research Hub is focusing on research at lower technology readiness levels to inform future research, development and deployment. Through collaboration with stakeholders from across the maritime sector, the Hub aims to drive forward innovation and transformation, establishing the UK's competitive advantage by setting a global benchmark for excellence.*

**Website:** <https://www.clean-maritime-research-hub.org/>

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## Section A: Implementing the UK ETS for Maritime

### Scope of the Scheme

#### Definitions

**1) Do you agree with the proposed definition of a domestic voyage? (Y/N) Please explain your response, providing evidence where possible.**

Yes, but there are some issues to be considered as outlined below.

There is support in general for the expansion of the UK ETS to include domestic voyage emissions. However, there is a risk of adverse economic affects for ferry services around the UK where communities depend on ferry services on islands and peninsulas. Ferry services between the UK and Crown Dependencies should be considered as well. The socio-economic implications of the UK ETS need to be appraised for such communities.

For cruise ships that stop at multiple UK ports as part of an international itinerary (but originating from a non-UK port) need to appraise the implications of including in the domestic voyage definition as this could result in adverse effects on the tourism economy for those UK ports and regions.

The inclusion of emissions at berth whether this is a domestic or international voyage appears to be inconsistent with the domestic voyage framing.

**2) Do you agree that the proposed definition will capture all relevant domestic emissions? (Y/N) Please explain your response, providing evidence where possible.**

Yes, but there are some issues to be considered as outlined below.

In general, the proposal provides a mechanism for reducing the environmental impacts from shipping. But consideration is needed about the potential for impact on different types of shipping activity.

Domestic short sea shipping activities compete with road and rail. If carbon pricing is applied to domestic short sea ships and not to other forms of transportation this will impact competitiveness compared with road and rail. This could result in higher domestic emissions overall among other impacts if the modal shift is to road, which is likely given constraints on the UK rail network. A feeder vessel is estimated to have 7x lower emissions for moving a container per km compared with an average laden HGV<sup>1</sup>.

Including emissions at berth will capture international voyages as well as domestic. The potential impact could be ships anchoring for extended periods to ensure time spent at berth will be shortest possible that could result in increased emissions within the sector.

**3) Do you envisage this definition leading to any loopholes or perverse incentives? (Y/N) Please explain your response, providing evidence where possible.**

Yes, as outlined below.

There is a risk that the extra costs are simply passed on to customers in fares and shipping rates. This may not result in the levels of emissions reduction required. There are risks too that the carbon cost results in modal shifts as described in the response to the previous question and expanded on below, and on services between Great Britain and Ireland.

Domestic short sea shipping that are subject to carbon pricing will be less competitive in transporting containers in the UK compared to road and rail and this could result in a modal shift. The capacity on the UK rail network is constrained and so it can be anticipated that this will shift more freight to road resulting in higher overall emissions, more congestion, local air pollution and potential increase in road accidents. Increased road freight could lead to higher highways maintenance costs as well. This modal shift could impact on the competitiveness of UK ports providing such shipping services and encourage some rerouting where 100% emissions are not covered such as between the EU-Republic of Ireland.

There is a potential discrepancy that could be created for vessels travelling between Great Britain and Ireland. Under the UK ETS expansion proposal, for the emissions of vessels travelling between Great Britain and Northern Ireland (NI) will be subject to 100% of emissions covered, whereas the emissions of vessels travelling between Great Britain and the Republic of Ireland (RoI) will be subject to 50% coverage under the EU ETS. This could lead to potential rerouting to reduce exposure under the UK ETS.

Including emissions at berth requires improved grid supply and infrastructure to provide shore power as well as mechanisms for more competitive UK electricity pricing. Without these makes UK ports less competitive and risks adverse impacts on trade.

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<sup>1</sup> <https://www.portoftyne.co.uk/absea>

**4) Do you agree with the inclusion of emissions at berth in a UK port from ships performing both domestic and international voyages? (Y/N) Please explain your response, providing evidence where possible.**

Yes, but there are some issues to be considered as outlined below.

The time vessels spend at berth is significant and therefore inclusion of these emissions is essential for the UK to deliver on its climate goals. However, we would like to raise awareness of the following issues.

When a ship arrives at a port there are emissions associated with vessels at anchorage or waiting before finally at berth. We propose that a better definition would be the *“Inclusion of emissions during hours not underway or not used for propulsion”*. This would address the concern that may encourage extended anchorage time to reduce emissions at berth.

We have concerns too about the burden on ship operators who visit UK ports infrequently and therefore may reroute to avoid UK ports. This will reduce choice and increase costs for UK importers and exporters.

Electricity prices in the UK are among the highest in Europe. This results in much higher operational costs if using shore power in the UK compared with onboard auxiliary engines using the much cheaper marine gas oil or marine fuel oil. When compared with European countries, there are a lack of incentives in the UK to use shore power. Note that shipping operators are cost-sensitive and operate on narrow profit margins to compete in a highly competitive international shipping market.

UK ports have and continue to make significant investments in shore power infrastructure in line with their own decarbonisation targets. Low utilisation rates threaten the financial viability of shore power projects. Variability in pricing between ports may introduce further challenges.

It is likely that to deliver on UK shore power projects will need supporting mechanisms. If include in the UK ETS emissions at berth, or the broader non-voyage definition proposed above, this needs to be accompanied by a programme of government support for shore power infrastructure.

A range of supporting mechanisms are suggested below:

- Subsidies for port shore power e.g. EU member states are not charged VAT on marine electricity
- Incentives such as emissions charges for using auxiliary engines in port
- Setting of standard tariffs for UK shore power and fixed term contracts for predictability and stability
- An awareness and education campaign to highlight the advantages of shore power.

It is noted that the IMO is currently developing a measure to capture emissions at berth, and it is advisable to move in step with global application of measures to avoid adverse economic impacts as outlined.

## Northern Ireland-Great Britain & UK-EEA Routes

**5) Do you agree with our position that routes between Northern Ireland and Great Britain should face equivalent carbon pricing obligations to that between the Republic of Ireland and Great Britain? (Y/N) Please explain your response, providing evidence where possible.**

It depends.

This proposal risks conflict and confusion with the EU ETS.

While this adjustment addresses the potential discrepancy between GB-NI and GB-RoI it is advisable to consider extending the scope of the UK ETS to include 50% of emissions of the in-scope ships travelling between the UK and the European Economic Area (EEA).

**6) Do you agree that subjecting in-scope ships on voyages between Northern Ireland and Great Britain to 50% (as opposed to 100%) of their carbon pricing obligation under the UK ETS would be suitable for ensuring carbon pricing obligation equivalence and emissions coverage equivalence between Northern Ireland and Republic of Ireland? (Y/N) a. Should this option be time limited or exist for as long as there remains a disparity in the carbon pricing obligation on these routes?**

It depends.

This measure is acceptable only if there is no coverage of UK-Overseas routes. However, it should be time-limited because there will be a lack of control over emissions on UK-EEA routes.

**7) Do you believe expanding the scope of the UK ETS to include 50% emissions coverage on UK-EEA routes could a) lead to better decarbonisation outcomes for the sector and b) be a suitable alternative approach to ensuing equivalence in carbon pricing obligations to that outlined in Question 6 above? (Y/N) Please explain your response, providing evidence where possible.**

Yes, but there are some issues to be considered as outlined below.

Including 50% emissions coverage on UK-EEA routes would make the UK ETS consistent with the EU ETS and lead to better decarbonization outcomes for the sector with the coverage of UK-EEA routes. However, it does not cover the UK-Overseas (outside of EEA) routes and is a disproportionate way to ensure equivalence with the Irish Sea.

Such a mechanism would not only bring all services to EEA ports in scope, but all deep-sea international container and Ro/Ro services that operate between the UK and EEA ports.

It is noted that introducing such a mechanism would deviate from addressing international emissions via multilateral action taken at the IMO negotiations.

**8) Are there any other alternative approaches we should consider? Please explain your response, providing evidence where possible.**

Expanding the scope of the UK ETS to include 50% emissions coverage on UK-Overseas routes. This would avoid one of the loopholes in the EU ETS, where vessel operators might reroute to UK ports to avoid high emission penalties.

However, please note potential adverse impacts on e.g. domestic short sea shipping who under the proposals would have 100% emissions coverage. We recommend an impact assessment is undertaken to assess the impact on domestic short sea shipping activity such as risks of modal shifts to road freight, potentially higher emissions, and other socio-economic and environmental impacts.

**9) Do you consider that there are differing impacts of these two approaches which we should consider when making a final decision? (Y/N) Please explain your response, providing evidence where possible.**

It depends.

The alternatives shown in Figures 2–3 (on p.11) for the GB-NI and GB-Rol routes may have varying implications for administering emission allowances under both the EU ETS and the UK ETS. It may also have an impact on the UK Monitoring, Reporting and Verification (MRV) system because emissions need to be monitored, reported, and verified for each voyage stage i.e. leg by leg.

**10) Do you foresee any additional consequences of this policy intervention that we should be aware of? (Y/N) Please explain your response, providing evidence where possible.**

Yes possibly.

The alternative in Figure 2 on p.11 imposes less emissions penalty on shipping emissions between GB and Ireland (both NI and Rol) than on shipping emissions between England, Scotland, and Wales. This may influence trade and routing among GB regions with potential economic impacts on GB ports.

## Threshold for the Scheme

**11) Should we consider a de minimis threshold for operators with very low emissions to avoid a compliance burden? (Y/N) If so, what should this de minimis threshold be? Please explain your response, providing evidence where possible.**

No.

While introducing a de minimis threshold may offset the compliance burden of the UK ETS for those ships, it may create conflicts with the EU ETS.

## Inclusion of methane and nitrous oxide emissions

**13) Do you agree with the inclusion of emissions from the combustion or slippage of methane and nitrous oxide emissions from maritime activity within the scheme? (Y/N) Please explain your response, providing evidence where possible.**

Yes, but there are some issues to be considered as outlined below.

Over a 100-year time horizon the global warming potential (GWP) of methane (CH<sub>4</sub>) is 27 (non-fossil sources) or 30 (fossil sources), and the GWP of nitrous oxide (N<sub>2</sub>O) is 273 times that of

carbon dioxide (CO<sub>2</sub>) per tonne<sup>2</sup>. The inclusion of emissions from the combustion or slippage of CH<sub>4</sub> and N<sub>2</sub>O from maritime activity can address a broader spectrum of greenhouse gases associated with maritime transport, enhancing the system's effectiveness in mitigating climate change.

It is argued that liquefied natural gas (LNG) is a “bridging” fuel in the transition to a low carbon shipping sector. This is because when only CO<sub>2</sub> emissions is considered, this is lower for LNG than for traditional marine fuels such as heavy fuel oil and marine gas oil. But there is significant CH<sub>4</sub> leakage during the production, transportation and use of LNG.

The global warming potential of CH<sub>4</sub> over a 100-year time horizon when compared with CO<sub>2</sub> has been given above. It should be noted that the short lifetime of CH<sub>4</sub> means that it has much higher potency over shorter time horizons. The GWP for CH<sub>4</sub> over a 20-year horizon is 82.5 (fossil sources)<sup>2</sup> times that for CO<sub>2</sub>.

Including CH<sub>4</sub> in the emissions coverage addresses the risk of incentivising LNG and could lead to increase focus on sustainable alternative fuels. There are emissions associated with the production and transportation LNG, and it should be considered whether these upstream emissions should be taken into account. However, there can be inaccuracies and variability in lifecycle emissions due to different sources and logistics involved with marine fuels.

As for Q30 the collection of shipping data about fuel and energy consumption is more important.

Note that aligning with the EU ETS will reduce administrative burdens.

**14) Do you agree with our proposal for how to calculate an operator’s greenhouse gas emissions on a carbon dioxide equivalent (CO<sub>2</sub>e) basis? (Y/N) Please explain your response, providing evidence where possible.**

Some agreement.

The calculations would benefit from using accurate data on shipping emissions of CH<sub>4</sub> and N<sub>2</sub>O, both at sea and in ports.

The inclusion of CH<sub>4</sub> and N<sub>2</sub>O could encourage shipping to move towards sustainable alternative fuels. However, supply chain emissions would not be included and CH<sub>4</sub> leakage can be significant in the production and transportation of LNG for example.

There needs to be a focus on developing the supply and required infrastructure around alternative fuels that have lower emissions across all greenhouse gases such as green ammonia, hydrogen and biofuels.

It should be noted that CH<sub>4</sub> combustion produces lower levels of nitrous oxides (NO<sub>x</sub>), sulphur oxides (SO<sub>x</sub>) and particulates when compared with traditional marine fuels. Therefore, use of LNG for auxiliary engines improves the local air quality in ports. This is important as ports are often located in populated areas and air quality impacts on health in those communities.

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<sup>2</sup> IPCC Sixth Assessment Report (2022) Working Group 1: The Physical Science Basis. Chapter 7: The Earth’s Energy Budget, Climate Feedbacks, and Climate Sensitivity. Table 7.15 Emissions metrics for selected species: global warming potential (GWP), global temperature-change potential (GTP) <https://www.ipcc.ch/report/ar6/wg1/chapter/chapter-7/#7.6>

Inclusion of CH<sub>4</sub> in the UK ETS for maritime needs to take a balanced approach between reducing emissions and providing disincentives for switching to LNG especially while there is insufficient supply and infrastructure of alternative fuels.

## Exemptions

### Further possible exemptions

**16) Do you think an exemption is necessary for specific ferry services serving island communities in Scotland? (Y/N) Please explain your response, providing evidence where possible.**

Potentially but there is a risk of unfairness when compared with other routes and communities.

We support that consideration is needed on routes that increased costs could have an adverse impact on communities such as the Scottish Islands. It should be noted however that similar arguments apply elsewhere in the UK and therefore this exemption could be perceived as unfair.

This exemption could create disparities between Scottish ferry services and other domestic routes including those serving the Isle of Wight, the Scilly Isles, and Northern Ireland. It should be noted that the Isle of Wight is a vital part of the UK's transport infrastructure, and we caution against ferry operators facing a disadvantage due to different carbon pricing rules. It could undermine the financial viability of ferry services to the Isle of Wight leading to increased fares or reduced services for its residents and visitors.

**17) Do you think an exemption is necessary for specific ferry services serving peninsular communities in Scotland? (Y/N) If so, what would be a suitable definition of remote peninsular communities? Please explain your response, providing evidence where possible.**

Same arguments as for 16. and potential discrepancies between ferry services serving other peninsular communities in the UK.

**18) If these services are exempted, do you think they should be subject to UK ETS MRV regulations? (Y/N) Please explain your response, providing evidence where possible.**

If such services are exempted than the UK ETS MRV regulations could be implemented in phases so that those effected can plan and prepare.

**19) Do you have any further comments to make on an exemption for ferry services serving island and/or peninsula communities in Scotland?**

If implemented, then the Scottish Government should have a plan to accommodate the phased implementation of the UK ETS policy.

In the interests of fairness an appraisal is needed of the impact carbon pricing will have on ferry services for all communities and visitors that depend on them in the UK. Such an appraisal needs to assess socio-economic factors and whether carbon pricing is the appropriate mechanism to encourage reduced emissions for this maritime sector.

## Adjusting the Cap for Maritime

**21) Do you agree that the proposed approach, of adding allowances equivalent to emissions in scope per emissions trajectories aligned to the CBDP, is the most appropriate approach to adjusting the cap and to ensure the emissions reductions required to deliver climate targets? (Y/N). Please explain your response, including by proposing an alternative approach if appropriate.**

Yes, but there are some issues to be considered as outlined below.

First there needs to be consistency with the EU ETS to avoid distortions as already highlighted.

There are two additional concerns:

- a. The promised refresh of the Clean Maritime Plan has been severely delayed and this has hindered the ability of the maritime industry to develop strategies and conduct investments in line with a current policy framework. There needs to be greater certainty and a clearer roadmap for the emissions cap to be effective, and so that the maritime sector can deliver short- and long-term targets.
- b. Funds arising from application of the UK ETS to the maritime sector and adjustments to the emissions cap should ideally be ring fenced for the sector. These funds could then be used to support emissions reduction initiatives within the maritime sector, and not diverted to general government taxation income streams. Such funds can then be used to accelerate decarbonisation in the maritime sector while remaining globally competitive.

**22) Do you agree with the proposed approach to adjusting the cap to account for the inclusion in the scheme of emissions from the maritime sector? (Y/N). Please explain your response with reference to any alternative approaches or sources of evidence, or consideration of how to account for emissions from GB-NI and/or UK-EEA voyages.**

Please see response to question 21.

**23) Do you have views on whether allowances from cap adjustments in Phase I should all flow directly to auctions, or whether a proportion should flow to reserve pots? Please explain your response, providing evidence where possible.**

Please see response to question 21.

## Participating in the scheme

### Monitoring, Reporting and Verification of CO<sub>2</sub> emissions from ships (MRV) regime and the UK ETS MRV requirements

**28) Do you agree that we should remove the requirement for a Document of Compliance from the UK ETS MRV requirements? (Y/N) Please explain your response, providing evidence where possible.**

No.

Additional data of lifecycle emissions for fuels used in the maritime vessels should be collected at part of the UK ETS MRV.

**30) Which greenhouse gas emission factors for each maritime fuel and energy source would be most appropriate to use under the scheme? Are these emission factors fit for purpose for calculating lifecycle CO<sub>2</sub>e emissions? Please explain your response, providing evidence where possible.**

The collection of shipping data about fuel and energy consumption is more important. Using the greenhouse gas emission factors for each maritime fuel and energy source to calculate lifecycle CO<sub>2</sub>-eq emissions may be less accurate due to differences in the sources and logistics of maritime fuels.

## Impacts of the scheme

### Decarbonisation impacts of the scheme

**37) Do you consider that the application of the UK ETS will have any further environmental impacts, positive or negative? (Y/N) If negative, are there any mitigations that could be taken? Please explain your response, providing evidence where possible.**

Yes.

We have highlighted the potential impacts of the UK ETS on domestic short sea shipping activity being included in carbon pricing regimes could lead to modal shifts to rail and road, with the latter being more likely. This would lead to higher emissions overall plus other undesirable impacts such as the economic impact on ports serving domestic short sea shipping, increased road congestion and air pollution, potential for more road accidents and higher costs of highway maintenance.

The inclusion of emissions at berth for all voyages could result in more time spent in anchorage to minimise time at berth. This risks not achieving the level of emissions reductions required. To avoid this need to address the lack of competitiveness of UK electricity prices as well as grid infrastructure and supply.

### Potential distributional impacts and carbon leakage risk

**38) Do you consider that application of the UK ETS will lead to any adverse impacts for any particular communities or regions, or sub-sectors of the maritime economy. (Y/N) Please explain your response, providing evidence where possible.**

Yes.

We have discussed several potential adverse impacts in this response document. These are summarised below:

- Electricity prices if including emissions at berth – UK prices are among highest in Europe
- Domestic short sea shipping sector – could lead to modal shift to road leading to higher emissions overall and economic impacts on ports (and therefore wider community and region) providing that service

- Distortions if apply carbon pricing for GB-NI in line with GB-RoI because EU ETS 50% and UK ETS proposal is 100% - this could result in economic impacts on ports where shipping rerouted to where 50% not 100%
- Communities that are dependent of ferry services not just in Scotland – appraisal needed including of Crown Dependencies including economic impacts such as on tourism

**39) Do you consider that application of the UK ETS will lead to any carbon leakage or modal shift to other transport types? (Y/N) Please explain your response, providing evidence where possible.**

Yes.

If the UK ETS is applied to domestic maritime sector only, this may lead to carbon leakage in international maritime sector.

Further the carbon pricing of maritime fuels may increase shipping costs, and this could be passed on to shippers. This could influence a modal shift to other transport modes particularly for domestic short sea shipping.

Impacts for different shipping activities would need to be assessed for their significance overall.

## Section B: Potential further expansion of the UK ETS to additional maritime emissions

### Coverage of International Routes

**47) Should the UK ETS be expanded to include emissions from all international voyages starting or ending in the UK in future? (Y/N) Please explain your response, providing evidence where possible.**

Yes.

This would make UK ETS consistent with EU ETS and avoid the loopholes in EU ETS. However, the challenge is how to set up an appropriate UK authority for international vessels.

**48) If you agree with the above, do you think 50% of emissions from voyages by inscope ships making an international voyage which starts or ends in the UK from overseas should be covered? (Y/N) Please explain your response, providing evidence where possible.**

Yes.

This would be consistent with the EU ETS.

**49) If you support the inclusion of international voyages, do you have a view on when this should be implemented? Please explain your response, providing evidence where possible.**

Inclusion of international voyages should follow a phase-in process like that used for the EU ETS. This would enable the maritime sector to plan for the adjustments and avoid discrepancies and distortions if the UK ETS is out of step with the EU ETS.