Response to UK Government consultation on extending UKETS to Maritime

UK Government consultation on extending UKETS to maritime

https://www.gov.uk/government/consultations/uk-ets-scope-expansion-maritime-sector

Response from Simon Bullock[1], Lois Pennington[1], Andrew Welfle[1], Branwen ap Dafydd Tomos[2], Alice Larkin[1]. January 2025

Summary:

1) We agree with the definition of a domestic voyage, but voyages to and from **Crown Dependencies** should also be included.
2) The **inclusion of emissions at berth** from both domestic and international voyages is very welcome; this will also help improve the economic case for shore power.
3) We agree with the proposal to **include 100% of emissions between GB-NI**, and to expand the scope of the UK ETS to include 50% emissions coverage on UK-EEA routes. Greater coverage is beneficial from an environmental and economic perspective.
4) We strongly support the inclusion of **methane and nitrous oxide** emissions within the scheme. These are potent greenhouse gases. We recommend monitoring and measuring these gases separately rather than within a combined metric, given their very different lifetimes. However, if combined within one metric, then we strongly recommend that the ETS uses the most up-to-date values for global warming potential (GWP), as opposed to the referenced AR5 values.
5) Biofuels should be evaluated based on their **full lifecycle emissions**; the scheme should adopt lifecycle assessment (LCA) methodologies that are aligned with international standards. This should include emissions from the use phase, rather than assume that bio-based fuels are zero-emission at the point of combustion.
6) It is preferable from an environmental perspective to **avoid issuing exemptions** to the scheme, which would limit and weaken the policy. Where potential adverse impacts are identified, such as for lifeline ferry services, other options should be pursued to mitigate them, for example rebates.
7) It is not appropriate to set the size of the scheme's cap to 2030 according to values in the Carbon Budget Delivery Plan (CBDP). The CBDP values are out of date, see no decline in emissions to 2030, and are incompatible with both the Paris Climate Agreement goals and the UK's stated climate change ambitions. A **new emissions reduction pathway** for UK domestic and international maritime, and the size of the maritime cap in UKETS, is urgently required as part of a refreshed Clean Maritime Plan.
8) An update is needed on timescales for the **delivery of the delayed digital reporting system** for the UK Monitoring, Reporting and Verification (UKMRV) scheme.
9) We support the proposal to **lower the UKETS vessel threshold** from 5000Gt to 400Gt. Emissions from these vessels should be reported as part of UKMRV. This would align with proposals at EU level.
10) We strongly support the proposal to expanded UKETS to **include emissions from all international voyages** starting or ending in the UK in future. This should cover 50% of UK-EEA international shipping emissions (the remaining 50% already covered in EUETS), and 100% of UK-non EEA international shipping emissions, to ensure full coverage and to align as closely as possible with the Paris Climate Agreement. We suggest a starting date of from 1/1/2027.

[1] Tyndall Centre for Climate Change Research, University of Manchester
[2] Independent researcher

Full responses to consultation questions

Domestic voyage definition

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

No. Apart from one issue, this is a comprehensive and clear definition of a domestic voyage; we agree with the reasoning set out in the consultation. However, we do not see that the consultation, or its previous iterations, have provided any justification for the proposal not to include journeys between the UK and Crown Dependencies (CD) and Overseas Territories (OT). We note that the Government's ETS consultation response in June 2023 states on p78 that flights between the UK and CDs and OTs are treated as domestic, which implies that a similar position should be taken for maritime. For CDs in particular, (Isle of Man, Guernsey, Jersey), there are many ferry routes from GB&NI which, simply for practical purposes, are nothing other than domestic journeys and should be treated as such. Given that the consultation has proposals for extending the ETS to include UK-EU maritime journeys, it makes even more practical sense to include Isle of Man, Guernsey and Jersey in the UKETS. It would be anomalous and inconsistent for such journeys not to be included.

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

No. The scheme should cover journeys from the UK to Crown Dependencies and Overseas Territories.

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

Yes. If Crown Dependencies are not included there would be an unequal situation where, for example, emissions between Isle of Man and GB and NI are not included, but other ferry routes across the Irish Sea are. We note that the consultation is trying to prevent a situation where different pricing structures exist on different routes in the Irish Sea (e.g. in its proposals regarding GB-NI vs GB-RoI journeys); the same logic should apply to the Isle of Man and other Crown Dependencies.

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. It is extremely welcome that all emissions at berth will be included. The UK has responsibility to mitigate its greenhouse gas emissions in line with the Paris Climate Agreement. The future global temperature rise responds to all sources of greenhouse gases. As such, any approach or policy that closes a gap in policy coverage will strengthen the global mitigation effort. Consequently, it is essential that emissions at berth in a UK port from ships performing both domestic and international voyages are included when the UK ETS is expanded.

Doing this will also help to address a major market failure which is preventing the accelerated deployment of shore power in the UK. Shore power is a proven technology which reduces air pollution from vessels at berth to zero, and provides major GHG benefits given the low carbon intensity of the UK electricity grid. However, deployment is hampered by marine fuel oils paying no tax, whereas UK electricity faces very high electricity taxation, among the highest in Europe.

Including emissions at berth within the UKETS will help to reduce this anti-competitive market distortion.

It is also extremely welcome that the proposal is to include emissions at berth from ships performing international voyages, not solely domestic voyages. These at berth emissions are effectively domestic, their inclusion broadens the coverage of the scheme, and their inclusion will improve the business case for shore power deployment in UK ports.

References:

https://tinyurl.com/SPaberdeen

https://research.manchester.ac.uk/en/publications/call-for-evidence-on-shore-power-response-from-tyndall-port-of-ab

https://research.manchester.ac.uk/en/publications/call-for-evidence-on-shore-power-response-from-tyndall-centre-uni

https://www.gov.uk/government/statistical-data-sets/gas-and-electricity-prices-in-the-non-domestic-sector

UK-NI-GB-Ireland questions

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.**

Yes, a system of equivalent obligations is preferable. However, we understand that research for BEIS (Frontier Economics, 2023) has shown that in the case of different obligations the risk of major adverse effects from gaming behaviour is low. Also, we are in agreement with the consultation that greater coverage increases the scheme's effectiveness and increases environmental benefits. So, options which combine equivalent obligations with greater coverage should be prioritised. If greater coverage is not prioritised, it would be preferable in our view to have a system of different obligations, than one which has lower coverage. The various options are set out below – Option 2 is preferable, but of the two other options, the original proposal is better than Option 1, as the coverage requirement is more important than of equivalence (particularly given the low risk of gaming behaviour).

			Equivalence	Coverage
100% of GB-NI (UKETS), 50% of GB-RoI (EUETS)	Original proposal	Non-equivalent obligations, baseline coverage		
50% of GB-NI (UKETS), 50% of GB-RoI (EUETS)	Option 1	Achieves equivalence but by reducing coverage		
100% of GB-NI (UKETS), 50% of GB-RoI (EUETS), 50% of GB-RoI (UKETS)	Option 2	Achieves equivalence by increasing coverage		

Reference: Frontier Economics, 2023. https://www.frontier-economics.com/uk/en/news-and-insights/news/news-article-i20390-the-impacts-of-the-uk-domestic-maritime-sector-joining-the-uk-ets/

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?**

No. The 50% NI-GB option results in lower coverage. Options which achieve equivalence with greater coverage should be preferred.

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. This is a highly preferable option. It achieves equivalence, and also greater coverage. It would also increase coverage through inclusion of 50% of emissions from all UK-EEA routes

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

n/a

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.**

Yes. These two approaches both achieve equivalence, but the latter approach does so through expanding coverage of the scheme, and is therefore highly preferable.

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.

n/a

Threshold questions

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.

n/a

12.If you support a de minimis threshold, should a simplified process apply or should the requirements of the UK ETS not apply at all? (Y/N) Please explain your response, providing evidence where possible.

n/a

CH4 and N20 questions

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. We strongly support the inclusion of methane and nitrous oxide within the scheme, as both are potent greenhouse gases with the potential to greatly increase the global warming impact of the shipping sector. This is particularly relevant as the maritime industry's transition to alternative fuel leads to the potential for an increase emissions that have a higher global warming potential than CO_2.

According to the latest IPCC Assessment Report, nitrous oxide (N_2O) has a global warming impact of 273 times that of CO_2, over 100 years. While current N_2O emissions from fossil fuel combustion are relatively low in the maritime sector, if the industry transitions to an ammonia-based propulsion system then there is a risk that these numbers could increase significantly. There is currently a lot of uncertainty regarding N_2O emissions from new ammonia engines, including poor representation in tools used to estimate emissions (e.g. Life Cycle Assessment Databases, Tomos et al., 2024) and we would support further research to gain data on this point, alongside close monitoring and regulation.

There is currently significant growth in Liquified Natural Gas (LNG) propulsion with LNG engines making up 65% of all new ship builds (UCL Bartlett Energy Institute, 2022). As a major component of LNG, methane emissions are becoming more important in maritime emissions. Methane is approximately 30 times more potent than CO_2, over 100 years. Methane slippage, the release of uncombusted methane from ship engines, can make up a major share of the emissions from ships. One study by the International Council on Clean Transportation found that methane slip averaged 6.4% in the most common type of engine (ICCT, 2024).

Including these emissions within the ETS aligns with the IPCC AR6 guidelines on greenhouse gas reporting, ensuring consistency with international standards. It will be vital to account for these emissions effectively as the sector increasingly diversifies the fuels being used, and their inclusion will also encourage innovation in engine and systems design to reduce nitrous oxide emissions and methane slip.

Refs: Summary of IPCC GWP values, 2024, https://ghgprotocol.org/sites/default/files/2024-08/Global-Warming-Potential-Values%20%28August%202024%29.pdf

Tomos, B.A.D. *et al*. (2024) 'Decarbonising international shipping – A life cycle perspective on alternative fuel options', *Energy Conversion and Management*, 299, p. 117848. Available at: https://doi.org/10.1016/J.ENCONMAN.2023.117848.

UCL Bartlett Energy Institute, 2022, https://www.ucl.ac.uk/bartlett/energy/news/2022/sep/shipping-sectors-costly-affair-lng-marine-fuel

ICCT, 2024 https://theicct.org/publication/fumes-characterizing-methane-emissions-from-lng-fueled-ships-using-drones-helicopters-and-on-board-measurements-jan24/

14.Do you agree with our proposal for how to calculate an operator's greenhouse gas emissions on a carbon dioxide equivalent (CO2e) basis? (Y/N) Please explain your response, providing evidence where possible.

Yes and no. We broadly agree with the proposed method to calculate greenhouse gas emissions on a CO_2e basis aligns with many existing approaches and provides a single metric for reporting purposes. However, we would like to note some important considerations.

Firstly, we strongly recommend that the ETS uses the most up-to-date values for global warming potential (GWP), as opposed to the referenced AR5 values. For example, the IPCC AR6 reports updated GWP100 values of 29.8 for methane (up from 28 in AR5) and 273 for nitrous oxide (up from

265 in AR5). We would also like to note that the IPCC AR6 highlights methane's significant short-term impact and recommends using GWP20 for some applications, to better reflect its high immediate warming potential. The GWP20 of methane is 84.9, as presented in AR6. There is no difference between GWP20 and GWP100 for nitrous oxide.

This distinction between short and long-term impacts is particularly relevant, because the timeframes for greenhouse gas emission reduction targets to be met, in order to align with the Paris Agreement, are less than the 100 year timeframe over which Global Warming Potential is typically measured and used to combine greenhouse gas emission contributions. Over the period relevant to the IMO's 2030, 2040 and 2050 targets, avoiding methane emissions (as measured in GWP CO_2e) will have a much greater impact (by 80 times) on future temperature rises than an equivalent amount of CO_2 over the same period. While this does not reduce the imperative to cut CO_2, combining emissions under one metric without understanding which disaggregated gases are being cut, will lead to uncertainty over the shipping sector's contribution to potential future warming. At worst, this could lead to a reduced mitigation impact, hidden within the combined metric.

While we recognise that a single metric is the simplest method, our research highlights several concerns that warrant further investigation, including quantitative scenario work, before making a final decision. Research (e.g., Cooper et al., 2020) has shown that a single metric does not always fully convey the complexity of climate change impacts. This study of emissions from bio-based sources showed that variations in greenhouse gas mixtures, and in the timing of emissions, can result in radically different warming impacts. In these cases, a single metric for climate-change effects was found to be wanting. In scenarios where complex dynamics are apparent, we recommend considering additional metrics, more detailed inventories, or full time-series impact results to ensure a more accurate representation of climate-change impacts.

For most areas of the energy system, other than agriculture and waste, combining emissions under one metric may not be so important, as the production of methane and nitrous oxide are typically very low compared with CO_2. However, a low-carbon transition in shipping is currently leading to a perverse incentive to increase the use of LNG, as mentioned above. As such it is essential that these other gases are monitored in their own right, and not simply aggregated, to ensure accurate tracking of the climate impact of the sector.

Refs:

Cooper, S.J.G. *et al.* (2020) 'Exploring temporal aspects of climate-change effects due to bioenergy', *Biomass and Bioenergy*, 142. Available at: https://doi.org/10.1016/j.biombioe.2020.105778

Bullock et al., 2023. 'Are the IMO's new targets for international shipping compatible with the Paris Climate Agreement? *Climate Policy*. Available at: https://doi.org/10.1080/14693062.2023.2293081

Exemptions

15.Do you have any views on the exemption of Government non-commercial maritime activity, or the activity covered by this term? (Y/N) Please explain your response, providing evidence where possible.

Yes. The ETS is a major policy tool to achieve annual reductions in GHG across sectors. If Government non-commercial activity is exempted from this policy, there needs to be a clear strategy for how emissions reductions will be achieved instead. The consultation references the MoD's Climate

Change and Sustainability Strategic Approach – this 2021 document states that in the first "epoch" (2021-2025): "*A comprehensive baseline and database will be built to allow decisions on a detailed plan for all themes in epochs two and three. Carbon targets as well as wider sustainability and GGC targets will run through the yearly Defence Plans*". To align with the Paris Climate Agreement, it is essential that such strategies, for the MoD and other Government bodies, do actually set clear short term targets en route to zero emissions well before 2050, and actions to deliver these targets. It is not clear at present that these strategies are in place – the comprehensive baseline and database and carbon targets mentioned above do not appear to be in place as yet. If these strategies do not include clear targets and actions, it is not justifiable to exempt their maritime emissions from the UK ETS.

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.

No. These ferry services are often critical "life-line" services. It is essential that decarbonisation objectives are delivered whilst still providing an affordable service for local people and businesses. The ETS is a policy tool to deliver GHG reductions. If island ferry services are exempted, there is an increased likelihood that there will be less GHG reduction. It would be preferable to include island services in the ETS (i.e. the policy still affects the decisions of the providers of the service), but provide an equivalent rebate for the users of the services. Alternatively, if there is to be an exemption, then there could be provision of alternative policy to help these services decarbonise (for example increased capital grants for low-carbon port and vessel infrastructure.

Options:

Option A: ETS applies. Ferry providers face costs of £X, and pass these onto costs to users. Incentive for ferry operators to reduce GHGs, but increased costs for users

Option B: ETS applies. Ferry providers face costs of £X, and pass these costs onto users. Govt issues a rebate of £X to users. Incentive for ferry operators to reduce GHGs, no increased costs for users.

Option C: ETS does not apply. No incentive for ferry operators to reduce GHGs

We believe that options A and C are weaker, as they pit environmental and social objectives against each other. Option B integrates these objectives. Obviously, option B requires the Government to spend a small % of the revenue from auctioned allowances (or other sources) to prevent financial burdens for lifeline ferry users.

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.

No. As above, some mechanism is needed to prevent increased costs to remote communities, but this does not have to be in the form of an exemption.

18.If these services are exempted, do you think they should be subject to UK ETS MRV regulations8 ? (Y/N) Please explain your response, providing evidence where possible.

Yes. It's important to have as comprehensive a set of data as possible. Even if these ferries are exempted, their operators (e.g. Caledonian MacBrayne) would still need to be monitoring emissions comprehensively in order to plan and deliver organisational decarbonisation strategies; this should not be considered an onerous requirement.

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

No

20.Do you consider that there are any further subsectors which might be unduly impacted by the policy and require exemption? (Y/N) Please explain your answer, including on whether UK ETS MRV regulations should apply, and provide evidence where possible

No

Size of cap

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.

No. Aligning to CBDP is not appropriate. The technical annex states that "*In the previous Authority Response, we advised that our estimates for in-scope emissions from maritime in the first year of inclusion in the UK ETS (2026) would be equivalent to around two million UK allowances, decreasing each year for the remainder of the phase*", but goes on to state that the new proposal is instead for a more lax cap of 2.4 million UKAs in 2024, and more critically that it would not decrease at all in the subsequent years to 2030. The argument for this change is that "*The CBDP trajectory is flat and assumes no real abatement before 2030*". The technical annex goes on to state that "*if an updated decarbonisation trajectory were to be produced ahead of the Authority Response, we would seek to adjust instead per that more recent trajectory*."

We urge the Government to issue an updated decarbonisation trajectory ahead of the Authority response, in line with a fair UK contribution to the IMO's new climate strategy, as part of a revised Clean Maritime Plan, and that the Authority uses this trajectory to set a steeply diminishing cap adjustment for inclusion of domestic maritime in the UK ETS.

The CBDP has very limited data on domestic maritime trajectories, other than to say it assumes limited decarbonisation on carbon budgets 4 and 5 (2023-2027 and 2028-2032). We understand that for domestic shipping, the CBDP and the advice from the CCC in its 6th Carbon Budget report both assume no domestic maritime decarbonisation before 2030, and in turn that these assumptions are based on a selection of the modelling by UMAS et al in their series of 2019 reports for the Government's Clean Maritime Plan. For example, the CCC's 6th carbon budget methodology report on page 279 includes a table that marries the CCC's scenarios ("balanced pathway", "headwinds", "tailwinds", etc), with some of the scenarios in the UMAS report (scenarios A-D). In these UMAS A-D scenarios, emissions do not decrease until after 2030; from then very steep decarbonisation pathways to zero are assumed. However, other scenarios are possible – for example UMAS also propose a scenario G, in which stronger policies on ECAs (which, incidentally, the Government consulted on in 2024) lead to deep emissions reductions in the 2020s. The pathway assumed in the CBDP and by the CCC is not a given, it is an assumption, one of many possible. We argue that it is now an outdated assumption, on two grounds.

First, the IMO has in 2023 agreed a new climate strategy which includes a new "strive" goal to reduce global international shipping emissions by 30% by 2030. This is a major advance on the previous strategy, which assumed no emissions reductions by 2030. It is a major advance for which the UK was a strong advocate. The UK has also argued that developed countries should go further than the

global average, given the UNFCCC principles of common but differentiated responsibilities, and the UK's greater capability and responsibility to act. This means that the UK's domestic shipping ambition for 2030 should be greater than the IMO's 30% target. It would be completely inconsistent with the IMO and the UK's wider climate objectives if the cap adjustment for including UK domestic shipping in UKETS did not have a steep downward trajectory from 2026-2030.

Second, the modelling underpinning the UMAS analysis for the Clean Maritime Plan was based, rightly, on the Government's carbon values. Since 2009, a 'target consistent' approach has been used to estimate these values, calculated as the marginal abatement cost of meeting the Government's targets. The UMAS analysis used the values valid at the time, however these values were updated in 2021, with the Government explicit that this was to reflect both the more ambitious goals of the Paris Climate Agreement, and also the June 2019 move from a UK 80% target to a net zero target (https://www.gov.uk/government/publications/valuing-greenhouse-gas-emissions-in-policy-appraisal/valuation-of-greenhouse-gas-emissions-for-policy-appraisal-and-evaluation). At the time, the UMAS et al analysis for the Clean Maritime Plan stated that "*The MACC also shows that, for UK domestic shipping, it is estimated that there are a further 2.1 MtCO_2e (38% of BAU emissions) that could be abated at a cost of less than £88/tCO_2e (2018 prices), which is the Department for Business, Energy and Industrial Strategy (BEIS) price of carbon projected for that year*". However, under the updated BEIS methodology, the 2031 value is now £285/tCO_2 in 2031 (2020 prices). These new carbon values imply that it is now justified to abate around 90% of 2031 business as usual emissions.

We contend that the proposed cap adjustment is based on an outdated view of the required level of shipping and global decarbonisation, and as such it must not be used. It is imperative that the Government issues a new decarbonisation pathway for UK maritime, as part of the long-delayed Clean Maritime Plan refresh, which the Authority can use to revise its current proposed cap adjustment.

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.

No. We agree with the general approach, that the cap adjustments should follow relevant decarbonisation pathways, but – as set out for question 21 – we do not believe that the CBDP is an adequate representation of the Government's required trajectory for maritime. In addition, there is insufficient detail in the consultation to ascertain whether the 2.4 million figure for 2025 is the correct baseline, for example, how at berth emissions are included (for international and domestic emissions) and on what basis they are calculated (eg fuel sales or activity basis).

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.

100% auctioning should be the default option, reflecting the well-established polluter pays principle.

24.What would you expect to be the impact of the proposed approach to cap adjustment on participants in the sector and/or the wider UK ETS market? Please explain your response, providing evidence where possible.

The proposed approach weakens the overall UK ETS as time goes on, as the maritime adjustment does not decrease; the overall cap becomes more misaligned with a Paris 1.5°C trajectory over time.

Participation questions

25.Do you agree with the proposed regulatory provisions, such as the scheme year, compliance dates, content of the emissions monitoring plan and penalties regime, operator requirements, or applicable regulator? (Y/N) Please explain your response, providing evidence where possible.

n/a

Reporting

26.Do you agree that we should use the UK MRV regime as the basis for the UK ETS, with deviations for the purpose of the UK ETS MRV requirements as outlined? (Y/N) Please explain your response, providing evidence where possible.

Yes. We assume that DfT would also be altering UK MRV in the same way, such that UK ETS MRV and UK MRV are the same.

27.Do you agree that the approval of monitoring plans for maritime should be in line with existing UK ETS processes? (Y/N) Please explain your response, providing evidence where possible.

Yes. We note that in May 2023 the Government paused the requirement for reporting emissions to allow for the development of a new digital reporting service. There has been no update on this since. It seems essential that this digital reporting service is operational and being used before maritime is included in the ETS, and would welcome an update from the Government on when this system will be in place.

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.

n/a

29.How best should we account for biofuels and other sustainable fuels used in the maritime sector in the scheme? How best can we consider lifecycle emissions for fuels used in the maritime sector in the scheme? Please explain your response, providing evidence where possible.

We recommend that biofuels, and other sustainable fuels, should be evaluated based on their full lifecycle emissions. This is especially important in the case of biofuels, which are currently incorrectly given a default value of zero emissions when they meet specific criteria.

The lifecycle greenhouse gas emissions of biofuels vary significantly based on the type of feedstock the production route, and the associated supply chain. For example, plastic-derived biofuels often have higher lifecycle CO_2 emissions than crop residue-based equivalents. As such, we would recommend using differentiated impact factors for biofuels, which account for feedstock and production route and represent the varying emissions profiles of alternative fuels.

Lifecycle emissions should be calculated using emission factors per megajoule, or kilogram of fuel. These should encompass both upstream (feedstock production, transportation, and processing) and downstream (combustion/use phase) impacts. This approach is consistent with carbon accounting frameworks, such as the GHG protocol, and has been applied in other transport sectors such as the CORSIA scheme for aviation.

The UK Supergen Bioenergy Hub has demonstrated that policies that mandate restrictions on high-emission activities within a fuel's value chain can significantly improve lifecycle GHG performance (Thornley et al., 2015; Welfle et al., 2017). Research shows that while typically biofuels have lower

greenhouse gas footprints than their fossil fuel counterparts, they display considerable variability depending on their lifecycle. For example, studies have highlighted that maritime biofuels can sometimes have GHG emissions higher than other low-carbon maritime fuels (Tomos et al., 2024). A framework for emissions accounting must therefore understand and capture this variability, to avoid incentivising fuels with high emissions. It is also essential to avoid rewarding biofuels linked to land-use changes, or other activities that contribute to significant emissions.

In summary, the scheme should adopt lifecycle assessment (LCA) methodologies that are aligned with international standards, such as the UNFCCC or the GHG protocol. It should also differentiate emission factors by fuel type, production route and feedstock origin. A lifecycle accounting approach that reflects the variability of GHG impacts across fuel types will provide higher credibility and accountability than a zero-slate approach for all alternative fuels that meet certain emissions reductions criteria.

Thornley, P. *et al.* (2015) 'Maximizing the greenhouse gas reductions from biomass: The role of life cycle assessment', *Biomass & Bioenergy*, 81, pp. 35–43. Available at: https://doi.org/10.1016/j.biombioe.2015.05.002.

Tomos, B.A.D. *et al.* (2024) 'Decarbonising international shipping – A life cycle perspective on alternative fuel options', *Energy Conversion and Management*, 299, p. 117848. Available at: https://doi.org/10.1016/J.ENCONMAN.2023.117848.

Welfle, A.J. *et al.* (2017) 'Generating low-carbon heat from biomass: Life cycle assessment of bioenergy scenarios', *Journal of Cleaner Production*, 149, pp. 448–460. Available at: https://doi.org/10.1016/j.jclepro.2017.02.035.

Welfle, A.J. *et al.* (2020) *Accounting Whole Life Cycle Bioenergy Emissions within the UNFCCC Emission Accounting Framework*. Manchester. Available at: https://www.supergen-bioenergy.net/news/briefing-paper-accounting-whole-life-cycle-bioenergy-emissions-within-the-unfccc-emission-accounting-framework/.

Welfle, A.J. *et al.* (2023) 'Sustainability of bioenergy – Mapping the risks & benefits to inform future bioenergy systems', *Biomass and Bioenergy*, 177, p. 106919. Available at: https://doi.org/10.1016/J.BIOMBIOE.2023.106919.

Welfle, A.J. and Röder, M. (2022) 'Mapping the sustainability of bioenergy to maximise benefits, mitigate risks and drive progress toward the Sustainable Development Goals', *Renewable Energy*, 191, pp. 493–509. Available at: https://doi.org/10.1016/j.renene.2022.03.150

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 CO2e emissions? Please explain your response, providing evidence where possible.

Recent research has developed emissions factors for various maritime fuel pathways (see Tomos et al., 2024). This work provides a strong foundation for maritime emissions factors; however, we recommend that these should be viewed as initial reference points and strongly highlight the need for more research and engagement to establish robust emission factors. We recommend:
1. Support and development of supplier and site-specific lifecycle assessments for fuel production, both within and outside the UK.
2. Making regular updates to emissions factors as production technologies and supply chains evolve.

3. Consideration of regional variations in production methods and energy systems, that may affect lifecycle emissions.

Tomos, B.A.D. *et al.* (2024) 'Decarbonising international shipping – A life cycle perspective on alternative fuel options', *Energy Conversion and Management*, 299, p. 117848. Available at: https://doi.org/10.1016/J.ENCONMAN.2023.117848.

31.Do you agree that the changes outlined above should also be made to the existing UK MRV regime? (Y/N) Please explain your response, providing evidence where possible

Yes. See answer to question 27.

Obligated entity questions

32.Do you agree with the proposed approach to defining the obligated entity? (Y/N) Please explain your response, including your views on the requirements for the delegation of responsibility, and on the proposed default position where those requirements are not met. If you do not agree, please outline your preferred alternative approach.

33.Do you agree with our understanding of the ability for the obligated entity to seek entitlement to cost recovery? (Y/N) Please explain your response, including the extent to which you would expect revision to contractual arrangements.

n/a

Guidance question

34.On which aspects of the policy proposals should we produce guidance, and to what timescale? Please explain your response, providing evidence where possible.

n/a

Impacts questions

35.Does the section above capture all relevant short and long term decarbonisation impacts of the UK ETS? (Y/N) Please explain your response, providing evidence where possible.

n/a

36.How else could the UK ETS support decarbonisation in the sector? Please explain your response, providing evidence where possible.

n/a

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.

n/a

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.

n/a

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.

n/a

Equalities act

40.Do you consider that the application of the UK ETS to the maritime sector will lead to any impacts for any groups with protected characteristics under the Equality Act 2010? And do you consider any elements of the UK ETS expansion to the maritime sector could be designed to achieve the objectives set out under s149 of the Equality Act 2010? Please explain your response, providing evidence where possible.

n/a

Further expansion – lower threshold

41.Do you agree that a lower threshold could support the maritime sector to decarbonise? (Y/N) Please explain your response, providing evidence where possible.

Yes. The Government's June 2023 consultation response states that a 5000Gt threshold covers 39% of domestic maritime emissions, and lowering the threshold to 400Gt would increase coverage to 76% (Fig 7, p108). In addition, the current 5000Gt threshold may lead to boundary effects for some classes of vessel. This possibility is highlighted by the EU in Directive (EU) 2023/959 where they state that moving the threshold to 400 Gt "*would improve the effectiveness of the EU ETS and potentially reduce evasive behaviour with the use of ships below the 5 000 gross tonnage threshold*" Analysis by the Tyndall Centre of multi-purpose supply vessels visiting a UK port finds that the size range is 2500-8500 Gt, but 35% of these vessels are in the 4000-5000 Gt range, and 16% in the 5000-6000 Gt range. The 5000Gt threshold for this class of vessel will lead to a situation where some vessels are within the UK ETS, but many other very similar vessels will be outside it; it could lead to a situation where companies contracted vessels just below the 5000Gt threshold, to avoid ETS charges.

42.Do you agree that if we were to lower the threshold, it should be to 400GT? (Y/N) Please explain your response, providing evidence where possible.

Yes. If the threshold were lowered, 400Gt is the most sensible option, as it aligns with the proposals in EU MRV and the EU ETS. Regulation (EU) 2023/957 on EU MRV (https://eur-lex.europa.eu/eli/reg/2023/957/oj) already applies the lower 400Gt threshold to general cargo ships and offshore vessels (article 1), with a decision on other vessel types being due on 31/12/2024. Paragraph 30 of Directive (EU) 2023/959 on EU ETS (https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32023L0959) states the commission should report on including vessels below 5000Gt by 31/12/2026.

43.Is it practical for ships between 400GT and 5000GT to undertake monitoring, reporting and verification requirements? (Y/N) Should there be a simplified monitoring regime should the threshold be lowered? Please explain your response, providing evidence where possible.

Yes. Irrespective of whether vessels are in the UK ETS or not, their owners/operators should be monitoring their emissions as part of organisational strategies to decarbonise.

44.Would any inland waterways or leisure craft be captured by a 400GT threshold? (Y/N) Please explain your response, providing data where possible.

n/a

45.When would be an appropriate date for lowering the threshold if we were to lower it in the future? Please explain your response, providing evidence where possible.

Given the urgency of climate change, earlier dates would be preferable. Alignment with the timescales in the EU MRV and EU ETS revisions would seem appropriate also – the EU intend to report on 400Gt in EU ETS by end 2026.

46.What will be the impacts of lowering the threshold? Would any sub-sectors be disproportionately impacted? Please explain your response giving evidence where possible.

Increasing the coverage of the scheme is desirable, from both an effectiveness and environmental perspective. We note that even at 400Gt, 24% of domestic emissions would not be covered. For smaller vessels (<400Gt) to decarbonise, some form of policy on carbon pricing is still essential, as fuel oil is untaxed, whereas the main alternative for inland or smaller vessels (electricity) is highly taxed – a perverse market distortion. For these smaller <400Gt vessels, it is likely that the option of taxes on fuel oil would be simpler and more efficient than extending the trading scheme further. Similarly, we note that the discussion on whether to extend the threshold from 5000Gt to 400Gt should not be a binary choice of do it or not. If the threshold is not extended to 400Gt the alternative should not be nothing, but some other form of carbon pricing, such as taxes, on fuel oil used by vessels in the 400-5000Gt range.

Further expansion - international

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. The UK claims climate change mitigation leadership and is therefore fully aware of gaps in coverage in terms of climate policy world-wide. The science dictates that future temperatures respond to rising greenhouse gases irrespective of where they are released in the world. Given the escalating impacts and practical reality that some parts of the world are much better equipped than others to mitigate emissions – and have a strong historical imperative to do so when compared with, for example, countries in the global south – mitigating as large a share of emissions as is practically feasible, is essential. As an island, the UK has a strong maritime history and influential role within the sector. Using this to benefit future global climate outcomes would demonstrate climate leadership. The UK has mechanisms and capacity to monitor ship emissions and direct influence through port callings. It is also operating within a world, and with neighbours close by within the EU, that will increasingly need to strengthen climate mitigation efforts. As such the UK should expand the UK ETS in future to include emissions from all international voyages starting and ending in the UK, until which time other trading systems or similar policies expand their own coverage, and ultimately align with the goals of the Paris Climate Agreement.

Overall, this proposal increases the scope and therefore the effectiveness and environmental benefits of the scheme. This proposal is very welcome. It also aligns with the Government's decision to include international shipping emissions within the carbon budgets under the Climate Change Act 2008.

48.If you agree with the above, do you think 50% of emissions from voyages by in scope 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.

No. The UK ETS should cover 50% of UK-EEA international shipping emissions, and 100% of UK-non EEA international shipping emissions, to ensure full coverage. With a rationale as outlined above, that the UK should take a greater responsibly for shipping emissions, given its technical capacity and influence, it follows that in the first instance, 100% of the emissions for a ship making an international voyage that starts or ends in the UK from overseas should be covered, within a Paris 1.5°C compliant cap, until those emissions are covered by another scheme (also Paris compliant), given the purpose of such a policy is to minimise climate impacts that the UK, alongside the rest of the world, will need to respond to. It would, however, reduce unintended economic consequences if the UK were to also encourage the EU to take a similar approach on the scope of its system, and on tightening its cap to be compliant with the EU's fair contribution to limiting warming to 1.5°C.

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.

Given the urgency of mitigating climate change, this inclusion should be made as soon as reasonably practicable. For UK-EEA emissions, these are already monitored, verified and reported as part of the EU MRV and EU ETS, and as such these emissions should be included at the same time as domestic maritime emissions are included in UK ETS, i.e. from 2026. For UK-non EEA emissions, further time may be needed, and we suggest a starting date of from 1/1/2027.