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By email to ukets.consultationresponses@energysecurity.gov.uk

Response to consultation “UK ETS: NPT transportation of CO₂”

Dear Sir or Madam

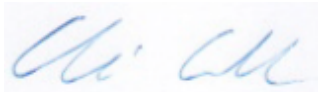
Fuels Industry UK represents the eight main oil refining and marketing companies operating in the UK. The Fuels Industry UK member companies – bp, Essar, Esso Petroleum, Petrolneos, Phillips 66, Prax Refining, Shell, and Valero – are together responsible for the sourcing and supply of product meeting over 85% of UK inland demand, accounting for a third of total primary UK energy (based on the Department of Energy Security and Net Zero Digest of UK Energy Statistics 2022).

The refining and downstream oil sector is vital in supporting UK economic activity. It provides a secure supply of affordable energy for road and rail transport, aviation, and marine applications, as well as for commercial and domestic heating. It also supplies base fluids for use in lubricants, bitumen for use in road surfacing, and graphite for use in electric vehicle batteries and as electrodes in steel and aluminium manufacture.

The sector is poised to play a central role in enabling a Net Zero future by leading deployment of at-scale decarbonisation technologies to reduce our own emissions and those of others. It also brings expertise in delivery of large scale, complex and capital-intensive projects. Maintaining and accelerating such investment to support the Net Zero transition means the UK needs to be a globally competitive place to invest. However, the UK is now at risk of being left behind, due to domestic disadvantages and international incentives.

Fuels Industry UK welcomes the opportunity to respond to the consultation on the integration of NPT CO₂ into the UK ETS. Our responses to the questions posed in the consultation document are given in Attachment 1.

Yours sincerely

A handwritten signature in blue ink, appearing to read 'Chris Gould', is displayed on a light blue rectangular background.

Chris Gould

Energy Transition Lead, Fuels Industry UK



UK ETS: Non-Pipeline transportation of carbon dioxide

Fuels Industry UK Response

- 1) What are your views on the proposed regulatory framework? You may wish to consider: the choice not to make NPT of CO₂ a regulated activity; the metering, monitoring, permitting implications; the approach to fugitive emissions, and any other practical implications.**

Fuels Industry UK broadly agrees that the proposed regulatory framework is a reasonable approach to start with, recognising the nascent nature of the industry (including the construction and commissioning of the initial UK CCS facilities).

The approach balances the competing needs to ensure that any losses are adequately accounted for under the UK framework while not imposing an undue regulatory burden on NPT participants as they become established.

We suggest that a lot of the concepts described in the regulatory framework, such as the treatment of surrender, fugitive and transport emissions, or the approach to the chain of custody would normally be covered in commercial contracts between the relevant counterparties. Such contracts are common in the oil and gas industry between counterparties (for example including the use of International Commercial, or INCO terms ¹), and these could be developed for the needs of the NPT sector.

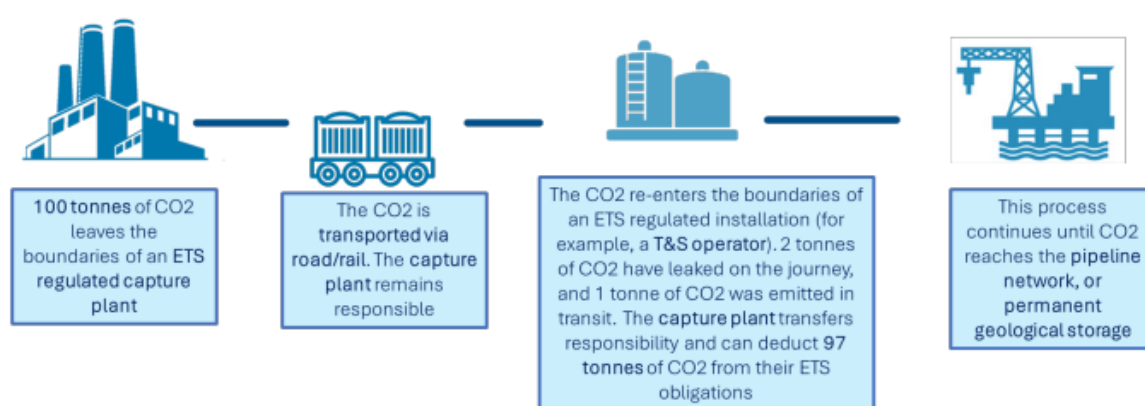
Drawing upon the diagram and the above paragraph, a much simpler method of regulation can be suggested, where the companies are incentivised at all times to ensure compliance. Then on periodic audit, the compliance can be checked if required by the appropriate competent authority.

The regulator should set a clear expectation for contractual reporting of CO₂ movements. We note however that the consultation appears to suggest linking the initial emitter or capturer and the final sequester of the CO₂ emissions as these are both going to be regulated within the UK ETS. In reality, due to competition law ², it is illegal for the emitter or capturer to know the full supply chain after the point that their CO₂ is loaded onto the NPT truck, rail car or vessel; in other words, once it leaves the emitter or capturer it cannot be controlled by them.

¹ <https://www.great.gov.uk/learn/categories/selling-across-borders-product-and-services-regulations-licensing-and-logistics/logistics-and-freight-forwarders/incoterms/>

² <https://assets.publishing.service.gov.uk/media/5a7c805fed915d48c24102bd/oft447.pdf>

For example, if the emitting company transfers the CO₂ over to the T&S operator, the commercial invoice should transfer 97 units of CO₂ value to the emitting company, as that is the volume of CO₂ delivered. If they lost some en-route, that it is for the emitting companies cost, which incentivises them **NOT** to have emissions. The said invoice should be able to pay the emitting company a value for the CO₂ received, since it has value, where said value is fixed to the ETS price, less a handling charge (the cost to run the receiving facility.) As long as the invoice structure is regulated, such that it specifies the mass of CO₂ in a standard unit transferred + any operating costs then there is full transparency over the system.



The regulator only needs to regulate the well-head or the meter in the T&S Operators envelope entering the storage well-head.

In this way, the Government is funding the ETS units which are actually sequestered, and the logistics / value chain operators are simply transferring the value of the CO₂ down through the value chain. If the pipeline operator loses CO₂ along the way, that then becomes their cost and if they allow CO₂ of an unrealistically low purity into the system, such as a bulk amount of water, then they lose income there as well. It should be remembered that the UK ETS participant is at the start of the chain; if contractual agreements allow then if they capture and load 100 te of CO₂ then they should be able to reduce their UK ETS emissions by 100 te.

Using this approach, at every stage of the system, every participant is incentivised to conserve as much CO₂ in the system as possible and all the Government need to do is total up and regulate the amount of CO₂ sequestered. Any shortfalls then eat into the profitability of the operating companies; thus, they have a commercial reason to maintain the system, maximising the mass of CO₂ sent to the receiving facility. In other words, parties in the supply chain (e.g. emitter or title holder in either transit or sequester) will see economic incentive to avoid

losses; that incentive can be managed through “normal” contractual arrangements; it doesn't need to be managed through the UK ETS authority.

For information, shipping losses and gains typically come from metering inaccuracy and repeatability (often +/- 0.2% for fiscal level ³ accuracy). Differences within that tolerance should not be considered as losses by the UK ETS Authority (i.e. losses that would require purchase of a UK ETS allowance to offset)

2) Are there any issues or concerns, not set out in our proposals, that the Authority should consider or address in order to enable this framework? Please provide detail/evidence where appropriate.

Although not subject to UK-ETS regulation, detailed guidance on the chain of custody requirements in order to satisfy the UK ETS requirements should be produced and distributed by the relevant UK Government department(s). This ensures that the rules are clear to all and creates a level playing field for participants. These rules can then be appropriately referenced in the governing contracts detailed in our response to Q1 above.

A similar approach is used in the Renewable Transport Fuels Obligation (RTFO) ⁴ and Sustainable Aviation Fuel (SAF) mandate ⁵ where detailed chain of custody requirements is described. The guidance is typically updated on an annual basis, considering developments in the low carbon fuel sector.

3) Between Option 1 and Option 2, which is your preferred approach? Please give reasons for your answer. You may wish to consider decarbonisation benefits, MRV/compliance implications, and possible impacts on accessibility of NPT.

Neither Option 1 nor Option 2 would be the preferred approach, as it generates unnecessary cost and hindrance to the delivery of the CO₂ sequestration policy. To invoke either Option 1 or Option 2, creates a perverse incentive relative to shipping of fuels; if importing hydrocarbon fuels into the UK for burning, standard shipping rules and costs apply ⁶. Yet if attempting to sequester CO₂, an additional set of costs and regulations are being applied to the company seeking to reduce their environmental liabilities.

³ <https://www.sucofindo.co.id/en/articles/fiscal-metering-and-its-implementation>

⁴ <https://www.gov.uk/government/collections/renewable-transport-fuels-obligation-rtfo-orders#rtfo-guidance>

⁵ <https://www.gov.uk/government/collections/sustainable-aviation-fuel-saf-mandate#saf-guidance>

⁶ <https://www.bp.com/en/global/bp-supply-trading-and-shipping/documents-and-downloads/technical-downloads/terms-and-conditions.html>

Option 3 captures the UK ETS objectives, as it is incentivising the use of the cheapest form of transport to manage the sequestration activities. This typically will align with the least amount of fuel or energy required to deliver sequestration, which is aligned with the ETS policy. Put another way, to regulate the transport of CO₂ effectively double taxes the activity, as the ships (or rail or trucks) are paying for their emissions once already (through the use of fuel or inclusion on the UK ETS) before the additional levies of transport emissions are added.

Option 3 would seem to be the only reasonable option. As we indicate, there is no need for double regulation of CO₂ transport; all trucks and vessels over 5000 te are already subject to GHG emissions reduction regulation, through the RTFO or UK ETS so there is no need to doubly legislate them. Transport emissions are not currently considered in the UK ETS, (but are covered by the RTFO), so if emissions of transport CO₂ are to be obligated within the UK ETS, then the UK ETS cap should be adjusted accordingly. A couple of examples help to highlight where transport emissions are not currently considered in legislation:

- Bioethanol⁷ supply via truck vs Blendstocks for oxygenate blending (BOB)⁸ via pipeline; no account is taken of the truck emissions of the bioethanol supply, even though it is more CO₂ intensive than the pipeline supply of BOB.
- CO₂ emissions of a vessel importing refined product e.g. diesel are not subject to the UK ETS, so the proposal to penalise vessels transporting CO₂ includes double regulation of their emissions.

However, in the scenario where the Government chooses to double penalise the sequestration transport, Option 2 would be our preferred approach. Our response assumes that a range of specific emission factors by fuel type would be available, for example a diesel, hydrogen or electricity-based emission factor.

This approach recognises the role of low carbon transport, better reflects the emissions associated with transport and encourages decarbonisation. In practice, using a range of standard transport emission factors would not result in a significant increase in MRV for NPT users. For example, diesel fuelled trucks will be diesel trucks and hydrogen fuel trucks will be hydrogen fuelled trucks, and these will not change their fuel type on a routine basis. Similarly, electric trains will run on electricity and not switch to diesel. It is unlikely that specific NPT users will change their transport modes on a routine basis, preferring to establish long term contracts that provide off-taker certainty. The MRV requirements could therefore be simplified to be vehicle specific.

⁷ https://www.esru.strath.ac.uk/EandE/Web_sites/02-03/biofuels/what_bioethanol.htm

⁸ https://www.concawe.eu/wp-content/uploads/rpt_08-3-2008-01143-01-e.pdf

4) What are your views of the merits of Option 1/Option 2 vs Option 3? Please provide as much detail as possible on direct and associated costs of our proposed approaches to transport emissions, in the context of the overall costs of NPT journeys.

Option 2 offers a more flexible approach and incentivises transport decarbonisation. In practice, the increased MRV requirements are not likely to be significant and can be managed by participants.

Option 1 and Option 3 do not offer any specific incentivisation of transport decarbonisation and do not accurately reflect the specific emissions associated with NPT. However, Option 3 does reduce barriers to operation, provides a lower barrier to entry and does much more to encourage up-take of an NPT system. While Option 3 may appear less aligned with the intended policy of the ETS, it has the benefit of helping to get the industry started whereas today minimal CO₂ is being sequestered. Given that transport emissions are such a small fraction of the total CO₂ volume potentially transported⁹, the benefits of the added complexity of options 1 or 2 are very small indeed. It is also worth noting that transport emissions are not included in the UK ETS at present, so the introduction of transport emissions should only be done with a revision to the UK ETS cap to ensure that existing participants are not disadvantaged.

The emissions factors can be updated on an annual basis and published in the compliance guidance referenced in our response to Q2 above. This would be based on available evidence such as the RTFO statistics¹⁰, which are published by the DfT on an annual basis and derived from verified low carbon fuel use in the UK.

⁹ <https://www.freightos.com/freight-resources/air-sea-freight-co2-emissions-calculator/>

¹⁰ <https://www.gov.uk/government/collections/renewable-fuel-statistics>

5) What are your views on the possible emissions factors we propose for road and rail? If you would suggest any alternative emissions factors, please detail them and explain your preference. If you have views on the considerations that the specific emissions factors for road/rail for Option 2 might take into account, please share them here.

The emission factors proposed seem to be simplistic and based on a single year only. We are unclear why the emission factor for CO₂ trains would materially be any different to the emission factors for the freight trains routinely used on the UK rail network ¹¹.

We would recommend that any emission factors are updated on an annual basis using publicly available data and published in the compliance guidance we discuss on our response to Q2 above. They should also be the same as used for RTFO or SAF transport, as transport emissions are based on the mass transported, not the material transported. Again, simplicity and standardisation should be prioritised to facilitate this nascent business model.

6) What are your views on each of the options presented for the regulation of CO₂ transporting ships? Please consider the practicalities of each approach and the impact of any compliance burden. If there are any emissions associated with the storage, transport and processing of CO₂ by ship that you believe either option would not capture, please highlight this in your answer.

Option 1 harmonises the requirements for shipping with those of road and rail transport, providing a level playing field for all transport types. For shipping, all that needs to be done is to report the volumes transferred through the existing customs declaration system in use for every other cargo moved into UK ports ¹². All that is needed is to define a customs port at the well-head for reporting purposes, then all of the existing systems can perform the reporting required. Thus, this constitutes a minimal regulatory burden, commensurate with the objectives of encouraging the ETS scheme and carbon sequestration. However, the competition law aspects of this need to be carefully considered, for example can the initial emitter or capturer be made aware of the final emissions sequestered, with the potential for multiple companies to be in the supply chain between them.

Options 2 and 3 increase the regulatory burden for participants and treat shipping as a special case against road and rail transport.

As we articulate in our response to Q1, we would expect that shipping of CO₂ would be covered by rigorous commercial contracts including robust INCO terms to

¹¹ <https://dataportal.orr.gov.uk/media/1dzb2awz/rail-emissions-2022-23.pdf>

¹² <https://www.great.gov.uk/support/customs-taxes-and-declarations/>

manage the emission liabilities. In line with the governments published strategy for CCUS which looks to move to a market-based approach, government intervention in this is not required, only to publish guidance on the process and UK ETS requirements for emitters and receivers and to set up a well-head as a UK port for customs purposes and to set a zero cost tariff for CO₂, otherwise it would suppress sequestration activities.

7) Please highlight if you have a preferred option, and the reason for this preference.

Option 1 would be our preferred approach.

Options 2 and 3 increase the regulatory burden for participants and treat shipping as a special case against road and rail transport.

As we articulate in our response to Q1, we would expect that shipping of CO₂ would be covered by rigorous commercial contracts including robust INCO terms to manage the emission liabilities. In line with the governments published strategy for CCUS which looks to move to a market-based approach, government intervention in this is not required, only to publish guidance on the process and the UK ETS requirements for regulated emitters and receivers.

8) What are your views on the proposal to apply a tonne.km based emissions factor to the emissions of CO₂-transporting ships which are below the proposed UK ETS Maritime threshold of 5000 GT?

If the UK Government cannot see the benefits garnered by the non-regulation of transport of CO₂, this may be a pragmatic approach in the early phases of the NPT sector development.

We would ask why CO₂ ships of less than 5000 te are being treated differently to any other vessel carrying a different vessel which seems inconsistent and unduly penalises the nascent CO₂ industry. If transport emissions relating to vessels under 5000 te are so large, then the way to obligate these is to lower the 5000-tonne threshold and capture all vessels in the UK ETS. If transport emissions for vessels under 5000 tonnes are to be included in the UK ETS, then the UK ETS cap needs to be adjusted accordingly, rationing the principle that expansion comes which means no net change to the cap.

This approach should be reviewed as the sector develops to ensure that it remains fit for purpose and adequately considers the emissions associated with the sector, as a market-based approach is most likely to work better and with fewer costs.

9) What are your views on the possible emissions factors we propose (see footnote 12)? If you would suggest any alternative emissions factors, please detail them and explain your preference.

The approach to emission factors should be consistent with those of road and rail, as outlined in our response to Q3 above as far as possible to ensure a level field. However, shipping may be able to change their fuel types more easily than road or rail transport, and this needs to be adequately considered.

10) What proportion of CO₂-transporting ships, in your view, will be <5000GT? What sorts of journeys would such ships conduct?

At this stage it is difficult to determine what will be the optimum size of CO₂ transporting ship.

However, experience shipping industry indicated that larger ships offer economies of scale, leading to lower per tonne shipping costs and there will be a drive to generally make ships as large as practically possible.

The typical scales of vessel used for shipping ethane / liquid ethylene is around 30kte¹³. LNG around 100kte¹⁴. Propane and butane around 20kte minimum¹⁵.

Therefore, it is very unlikely that CO₂ will be shipped in quantities below 5000te as the costs are simply too high and the cargo value too low¹⁶.

We note the dedicated CO₂-transporting ships being built for the Northern Lights project, and that they are in excess of 5000 Gross Tonnes¹⁷.

¹³ https://www.eia.gov/naturalgas/weekly/archivenew_ngwu/2021/06_10/#itn-tabs-1

¹⁴ <https://www.maritimeoptima.com/insights/different-type-and-sizes-of-liquefied-natural-gas-lng-carriers>

¹⁵ <https://www.maritimeoptima.com/insights/different-types-and-sizes-of-liquefied-petroleum-gas-lpg-carriers>

¹⁶ https://www.um.edu.mt/library/oar/bitstream/123456789/80374/1/Revealing_the_impact_of_increased_tanker_size_on_shipping_costs.pdf

¹⁷ <https://norlights.com/news/northern-lights-first-co2-transport-ship-ready-for-delivery/>

11) What are your views on our proposed approach to multi-port journeys? Do you believe it will be achievable without imposing additional MRV/metering requirements on CO₂-transporting ships? Please explain your answer and provide evidence where possible.

Yes.

We agree that this seems to be a pragmatic approach at this stage and will be achievable without imposing additional MRV / metering requirements.

However, as we outline in our response to Q7, we would expect that shipping of CO₂ would be covered by rigorous commercial contracts including robust INCO terms to manage the emission liabilities. In line with the governments published strategy for CCUS¹⁸ which looks to move to a market-based approach, government intervention in this is not required, only to publish guidance on the process and the UK ETS requirements for regulated emitters and receivers.

In this way, the shipping company would provide a market-based cost for the transport. If the reporting of the CO₂ volumes and the commercial contracts are managed as per the market contacts of today for other liquid cargos, there would be clear reporting of shipped volumes, thus UK ETS certificates surrendered, and the costs of shipping could be applied. In this way, the industry would naturally reflect the shipping costs, which makes the need for regulating the shipping moot.

12) What are your views on the three options presented for the regulation of intermediate storage? Would you suggest any alternative approaches? In your answer, you may wish to consider: the possible infrastructure/compliance costs of each option; compatibility with any other likely metering, or monitoring requirements; potential impacts on the viability of any possible form of NPT; and whether all types of intermediate storage and associated emissions would be captured.

None of the three options proposed is particularly appealing as the whole system can be made to naturally regulate itself, commercially without the need for costly government oversight and undue regulatory intervention. However, of the three options specifically outlined, Option 3 offers the most flexibility for NPT operators, with the risks being assessed on a case-by-case basis.

In practice, we would expect that operators would establish detailed contracts for intermediate storage locations including risks such as fugitive emissions and

¹⁸ <https://www.gov.uk/government/publications/carbon-capture-usage-and-storage-a-vision-to-establish-a-competitive-market>

quality risks. One option likely to emerge is that a broad contract covering these issues would be developed by the intermediate storage operator. These would manage the risks articulated in the options presented in the consultation document. In line with the governments published strategy for CCUS which looks to move to a market-based approach, government intervention in this is not required, only to publish guidance on the process and the UK ETS requirements for regulated emitters and receivers.

13) Do you have a preferred option, and if so, which one? If you would suggest any other approach to the regulation of intermediate stores, please outline it here.

Option 3 would be our preferred approach of those outlined in our response to Q12, however this is less than perfect option. This offers the most flexibility whilst managing the risks in an appropriate manner.

In practice, we would expect that operators would establish detailed contracts for intermediate storage locations including risks such as fugitive emissions and quality risks. One option likely to emerge is that a broad contract covering these issues would be developed by the intermediate storage operator. These would manage the risks articulated in the options presented in the consultation document. In line with the governments published strategy for CCUS which looks to move to a market-based approach, government intervention in this is not required, only to publish guidance on the process and the UK ETS requirements for regulated emitters and receivers.

At each transfer of CO₂ between entities, commercial contracts would be set up to pay for the transfer, as CO₂, having a price, has value as it is entered into the system. Then if each entity along the value chain pays for the transfer of CO₂ through the system, every entity is incentivised to ensure that the CO₂ meets storable qualities and to minimise fugitive losses, otherwise that entity will have paid for a product which it cannot sell onto the final storage well-head. In the event of a quality issue, it is very unlikely that CO₂ would be vented, as that would incur that entity the full ETS cost for doing so. Instead, the CO₂ would most likely be recovered and re-worked to regain adherence to the required contractual specification.

All that the ETS needs to do is to set the price that it shall purchase CO₂ at, at the well-head (the traded CO₂ futures price would suffice ¹⁹) and to define how contracts must report volumes to each other and then allow the commercial entities to do the rest. The whole point of setting a CO₂ price through the futures market or ETS IS to make a market for CO₂. The commercial entities will then

¹⁹ <https://www.ice.com/products/80216150/UKA-Futures/data?marketId=6994206>

naturally optimise, in alignment with that value proposition, to deliver what the government wants and to fulfil government policy.

14) Do you have views on the appropriate MRV and metering methodology for each option? Please explain your response, providing evidence where possible.

In line with the governments published strategy for CCUS which looks to move to a market-based approach, government intervention in this is not required, only to publish guidance on the process and the UK ETS requirements for regulated emitters and receivers.

In practice, we would expect that operators would establish detailed contracts for intermediate storage locations including risks such as fugitive emissions and quality risks. Government should let these contracts develop and not prescribe requirements for commercial entities.

15) Please give your opinion on the two proposed options for UK ETS custody transfer, and state whether you have a preference, explaining the reasons for your views.

Option 2 would be our preferred approach.

In line with the governments published strategy for CCUS which looks to move to a market-based approach, government intervention in this is not required, only to publish guidance on the process and the UK ETS requirements for regulated emitters and receivers.

In practice, we would expect that operators would establish detailed contracts for intermediate storage locations including risks such as responsibilities through the supply chains. Government should let these contracts develop and not prescribe requirements for commercial entities.

Option 1 is a more regulator-based approach and does not encourage a more market-based approach.

16) Please give your opinion on the three proposed options for regulating the mixture of CO₂, and state whether you have a preference, explaining the reasons for your views.

Option 3 would be our preferred option.

Option 1 is very restrictive and will significantly limit flexibility in the supply chain when the market is trying to develop. It will also limit the development of intermediate storage, which will be critical to the development of a resilient UK

CCS industry, as well as the smoothing of supply to the final T&S locations. It should not be pursued further as an option.

Option 2 is slightly less onerous than Option 1 but is still very restrictive and will have similar outcomes.

In practice, we would expect that operators would establish detailed contracts for intermediate storage locations including risks such as responsibilities through the supply chains. Government should let these contracts develop and not prescribe requirements for commercial entities.

17) Does this NPT model have any implications for GGRs if they are included in the UK ETS?

Yes, self-evidently the NPT model will have many implications for GGRs under the UK ETS as this will establish the requirements for GGRs not directly connected by pipelines.

GGRs should be included in a technology neutral way in the NPT model. The government should publish guidance on the process and the UK ETS requirements for regulated emitters and receivers including those involved in GGRs.

In practice, we would expect that operators would establish detailed contracts for intermediate storage locations including risks such as responsibilities through the supply chains. Government should let these contracts develop and not prescribe requirements for commercial entities.

For example, if an NPT supply of SF₆²⁰ or some other freon²¹ was added to the wellhead, for geological storage, it would make sense to value that material as its CO₂ warming potential (in tonnes of CO₂ equivalent) multiplied by the mass provided. So, if 10 tonnes of SF₆ was sequestered, the value assigned would be 23500 x 10 te x ETS price of CO₂. At this price, it would be sensible to apply dedicated transport to the well-head and to pay the provider for the CO₂ emissions equivalent saved, less the costs of transport. NPT transport is thus the main route of disposal, leaving the pipeline to manage CO₂ and to self-regulate.

²⁰ <https://www.epa.gov/eps-partnership/sulfur-hexafluoride-sf6-basics>

²¹ <https://www.britannica.com/science/Freon>

18) Do you agree with our position on cap adjustment for NPT?

Fuels Industry UK agrees that the cap should not be adjusted downwards for NPT.

However, if the scope of the UK ETS changes to include new emissions, then the cap may need to be adjusted upwards accordingly. This is the case if the UK ETS includes emissions from NPT trucks, trains and vessels under 5000 te.

This is for the reasons articulated in the consultation document and ensures the UK emitters can continue to be competitive on an international basis.

19) What are your views on this implementation timeline? Please provide information and evidence where appropriate and indicate if there is a date by which you believe UK ETS NPT regulations would need to be confirmed or in force.

Before any NPT CO₂ can be considered, the pipeline-based CCS T&S systems need to be established. Given the timing of these which will need a number of years to construct and commission, the late 2020s may be an appropriate time to implement the NPT regulations.

However, the governing regulations should be introduced as soon as practically possible, to give investor certainty for emitters and capturers and allow adequate time to prepare for implementation.