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11 March 2024

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Fuels Industry UK response to consultation "UK Emissions Trading Scheme: Free Allocation Review"

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, Petroineos, 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[1].

Free allowance allocation under the UK ETS currently provides critical mitigation against carbon leakage for the refining sector, although the sector receives a significantly lower proportion of free allowances and faces higher compliance costs than other energy intensive sectors at risk of carbon leakage.

Fuels Industry UK strongly supports introduction of a well-designed carbon border adjustment mechanism (CBAM) to address high compliance costs and loss of competitiveness against international competitors with no or significantly lower carbon costs, but this must continue to support exports and investment in UK manufacturing industries to avoid deindustrialisation. The interaction between the proposed UK CBAM

[1] BEIS Digest of UK Energy Statistics (DUKES) 2023.

and free allowance allocation under the UK ETS and with support available under the UK hydrogen and carbon capture business models must be carefully considered.

Fuels Industry UK welcomes the opportunity to respond to the consultation - our responses to the questions posed are given in Attachment 1.

Yours faithfully,

Dr Andrew Roberts
Director – Downstream Policy

cc:	Michael Duggan	Department for Energy Security and Net Zero
	Simon Stoddart	Department for Energy Security and Net Zero
	Emilio Marin	Department for Energy Security and Net Zero

Attachment 1

Fuels Industry UK Response to Consultation "UK Emissions Trading Scheme Free Allocation Review"

1. **Do you have any views on the interactions between other carbon leakage mitigation measures and a CBAM and/or the broad policy scenarios which the UK ETS Authority should explore in the future, in light of the UK Government's decision to introduce a CBAM? Please explain your answer.**

   Fuels Industry UK[2] agrees that there is a clear and robust linkage between the carbon leakage measures including free allowances and the introduction of a Cross Border Adjustment Mechanism (CBAM).

   Reducing the number of free allowances significantly without introducing an appropriate CBAM for a sector highly exposed to carbon leakage, such as the UK refining sector, will lead to decarbonisation through deindustrialisation, rather than a secure and orderly transition to net zero.

   The CBAM mechanism needs to consider exports, rather than indigenous UK production solely for UK consumption; the treatment of free allowances under other emissions trading schemes should also be included in the analysis.

   Under the current UK ETS scheme, the fact that the level of free allowance allocation is determined in advance via the Historical Activity Level (HAL) and Activity Level Change (ALC) mechanism means that economic decisions on incremental production are made with no additional free allowances being available. However international competitors who have no carbon costs such as those in the Middle East do not face this penalty. In other words, the concept of average free allowances in a CBAM does not work effectively under the current UK free allowance methodology.

2. **Should the UK ETS maintain the current approach to activity level changes or switch to a dynamic approach (i.e., should free allocation be adjusted after the end of the scheme year, based on reported activity levels)?**

   Fuels Industry UK strongly supports a switch to a dynamic approach to ensure that free allowance allocation is more effectively linked to emissions levels.

   We note that the impact of the COVID 19 pandemic is not mentioned in the consultation document but was substantial in many industries including the refining sector. We would therefore welcome clarification on whether the impacts of COVID 19 will be being considered in this review.

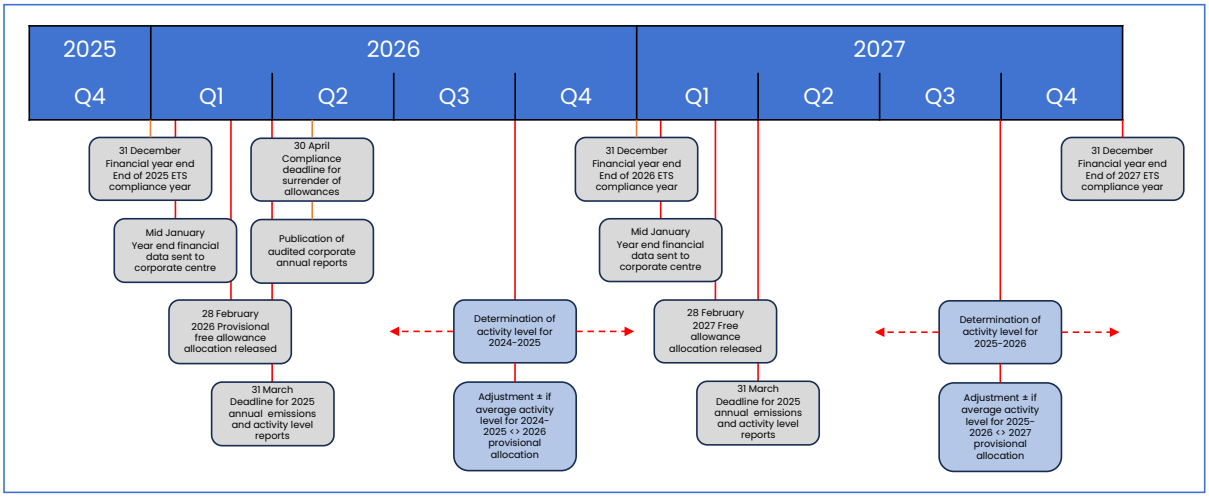
   As noted in the consultation document, the current free allocation rules (FAR) and ALC mechanism ensures that larger changes in activity are taken into account using a threshold of ±15% ALC. This represents a significant change for refineries

[2] Fuels Industry UK is the trade association representing the UK refining and downstream fuels sector.

equivalent to a typical change in emission levels of 30ktCO_2e. However, such levels were seen in 2020 due to the impacts of the COVID 19 pandemic and can be seen with major refinery maintenance turnarounds. Once the level of free allocation has been reduced by 15% or more, it can be some years before the ALC exceeds 15% of the HAL again, exposing operators to increased compliance costs due to the arbitrary threshold. Similarly, the increase in activity levels resulting from investment in new refinery units has proved unlikely to reach or exceed the 15% threshold, again exposing operators to increased compliance costs.

We would strongly recommend that under a dynamic allocation approach, the level of free allocations must be fixed by the end of each financial year to avoid provision in annual financial reports for unquantified risks arising from clawback of free allowances or the need to purchase additional allowances before the compliance deadline when this cost exposure is not known before the financial year end (Diagram 1).

Diagram 1. Timeline for dynamic allocation approach



Finally, we ask that the UK ETS authority needs to be suitably staffed and have suitable processes to carry out the necessary work (including the issuing of appropriate free allowances) in a timely manner, meeting set dates for confirmation of free allocation levels and any changes in allocation resulting from determination of activity levels before financial reporting deadlines.

3. If a dynamic approach were to be implemented, should provisional allocation be calculated based on a rolling period of recently reported activity?

This could be considered to provide a baseline of emissions; however, as we indicate in our response to Question 2 discussions with emitters themselves on planned events such as refinery turnarounds[3], which have a material and expected impact on emissions would also be beneficial in setting provisional allocations for the refining sector.

[3] American Fuel and Petrochemical Manufacturers, "Refinery turnarounds 101: What are turnarounds and why do we need them?", October 2023.

Provisional allocations can be set on any reasonable basis, provided that the actual free allocation is provided before allowances are surrendered for compliance. Options to enable this include using prior year activity (for example 2026 free allowances are based on the 2025 activity level report submitted by March 2026), or to use a two-year rolling average as suggested in the example provided in the Analytical Annex (see also response to Question 4).

However, the impact of the COVID-19 pandemic on fuel demand with a resultant impact on UK refinery emissions needs to be carefully considered. We suggest that a year could be considered to be impacted by COVID-19 if it contained a lockdown – in other words 2020 and 2021.

4. **If provisional allocation were to be calculated via a rolling period, should this be based on the most recent two full calendar years of verified activity (e.g., 2023-2024 for 2026 allocation)?**

   Fuels Industry UK would prefer a longer rolling period such that the impact of refinery turnarounds is mitigated against. Typically, refinery turnaround cycles operate over a timeframe of around 4 to 5 years; for this reason, a longer period may be more suitable to provide a better indication of longer-term average activity levels.

   However recent issues such as the COVID-19 pandemic with its consequential impact on refinery operations also need to be considered, as calculating refinery activity over the period 2019-2024 for example would not provide a reliable indication of activity in 2026.

   Provisional allocations can be set on any reasonable basis, provided that the actual free allocation is fixed before allowances are surrendered for compliance. Options to enable this include using prior year activity (for example 2026 free allowances are based on the 2025 activity level report submitted by March 2026), or to use a two-year rolling average as suggested in the example provided in the Analytical Annex (see also response to Question 3).

5. **Under the dynamic approach, should the energy efficiency calculation for fall-back benchmark sub-installations continue to refer to a fixed historical baseline?**

   Fuels Industry UK broadly agrees with this approach.

6. **If the UK ETS does not switch to a dynamic approach, should the UK ETS Authority consider reducing the 15% ALC threshold, and, if so, what would be an appropriate threshold?**

   Fuels Industry UK broadly agrees that if the UK ETS does not switch to a dynamic approach, an ALC threshold should be retained. This is well understood by emitters and has operated as expected over the initial period of the UK ETS.

   However, it needs to be recognised that for large emitters such as refineries, a ±15% change can be a very significant quantity in its own right and may be above the additional emissions from significant investment projects which would otherwise be entitled to free allowance allocation. The threshold should therefore be restated as a ±15% change in activity level or say 15kt CO_2e, whichever is the lowest, to support new investment before the HAL is again reassessed for a subsequent period.

7. **Do you agree that benchmarking is the appropriate methodology to ensure free allowances reward top performing installations and incentivise decarbonisation? (Y/N Please explain your answer)**

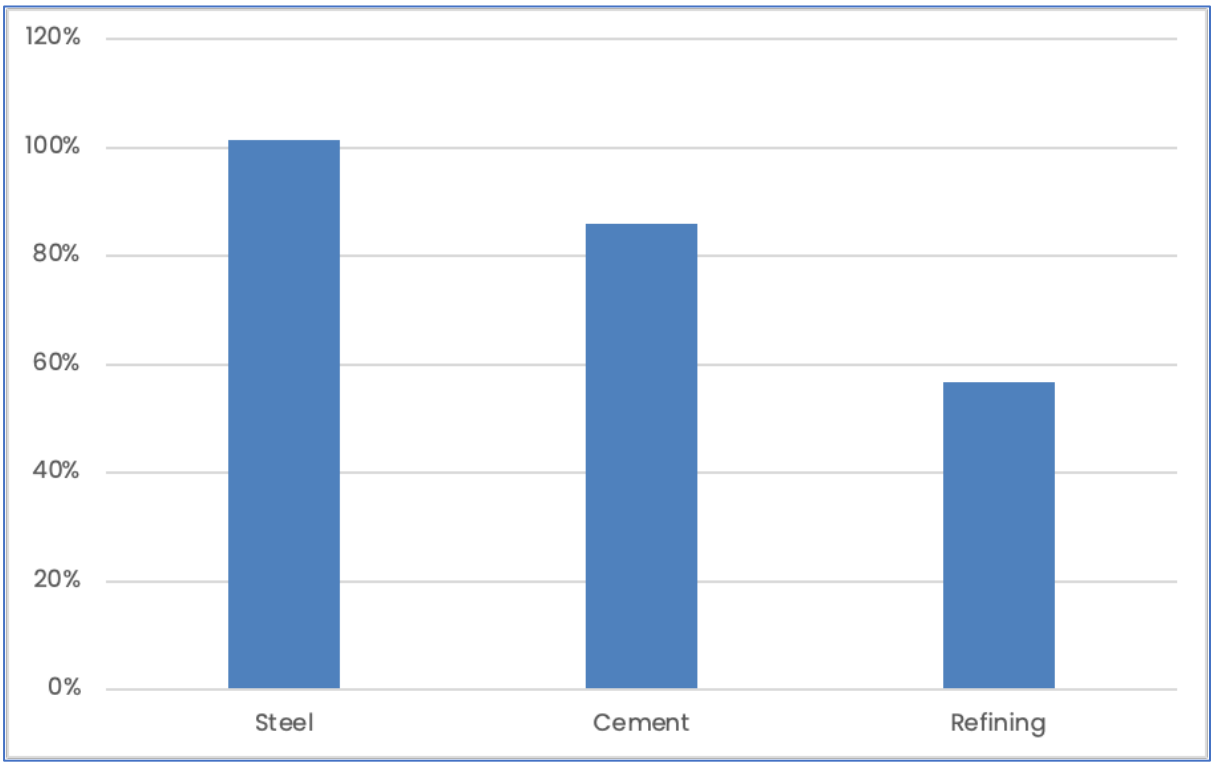
   Fuels Industry UK broadly agrees that a benchmarking approach is the appropriate methodology to ensure free allowances reward the top performing installations.

   However, we have significant concerns over the ability of the benchmarking approach to operate effectively when there are a limited number of UK installations in operation; for example, there are only 6 (and possibly 5 in 2025) UK refineries. We are unsure of whether this situation is similar in other sectors such as glass, concrete or steel. An approach considering average or first quartile emissions intensity over the number of installations may be more appropriate.

   We note that the UK refining sector receives a significantly lower proportion of free allowances and faces higher compliance costs than other energy intensive industries at risk of carbon leakage (Diagram 2). This is due to the challenging nature of the refinery benchmark[4], where the early part of the curve has a marked impact on the determination of the benchmark value if this is based on the median of the top 10% of installations.

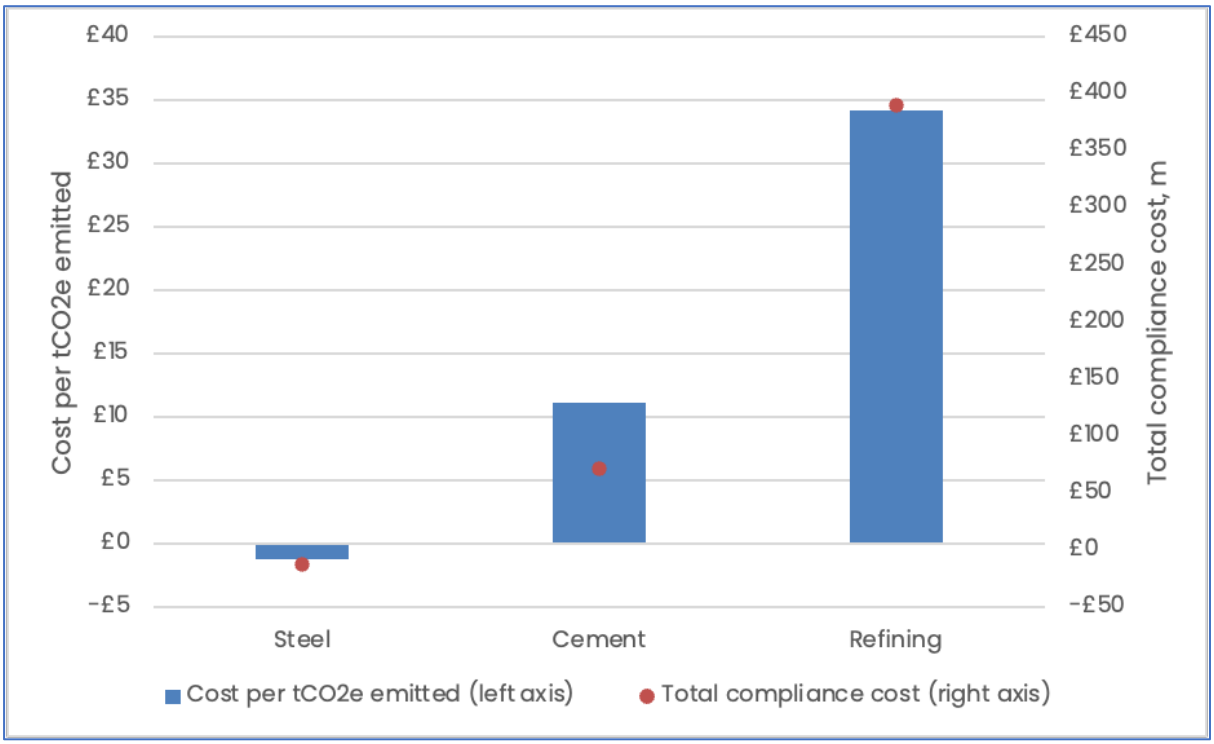
[4] See EC "Update of benchmark values for the years 2021 – 2025 of phase 4 of the EU ETS - Benchmark curves and key parameters", June 2021.

Diagram 2: Free allowances as a percentage of verified emissions



Data source: UK Emissions Trading Scheme Registry

Diagram 3: Estimated 2022 Compliance costs Source



Data source: UK Emissions Trading Scheme Registry, ICAP

This disadvantage has been compounded by the UK government's decision to render the UK refining sector ineligible for support under the EII Indirect ETS Cost Compensation Scheme based on a flawed assessment – European refineries in at

least 14 Member States are eligible for support under similar schemes. This is clearly unjust for a sector having one of the highest levels of exposure to carbon leakage.

Historically, private sector investment has driven energy and emission improvements rather than government subsidised improvements. Energy is one of the highest costs energy intensive industries face[5], and investments have been made over several years; there are now very few projects which offer improvements without significant changes. Emissions reductions can be brought about by changing fuel source (such as changing refinery heaters to hydrogen burning[6]), although this requires a large-scale source of low carbon hydrogen. Changing technology is also a possibility (such as converting steel furnaces to electric arc as in the case for Port Talbot[7], although these can have other issues such as the loss of the ability to make virgin steel).

We also question how the benchmarking approach operate when some refineries have access to government supported enhanced decarbonisation technologies such as CCUS, and others do not. The wrong approach could potentially lead to the government effectively picking winners, resulting in a lack of a level playing field and market distortions. This must be avoided and access to technologies cannot impact the benchmarking process or Annual Reduction Rate (ARR) approach.

Fuels Industry UK would like the opportunity to continue to engage with DESNZ on the design of the refinery benchmarking process.

8. What are your views on the proposed options for updating UK ETS benchmarks?

Option 1 is the most appropriate option in this case for the refining sector.

Option 2 risks considering EU future benchmarks which are impacted by European decarbonisation projects. Option 3 risks the UK ETS risks moving to a situation where there are too few installations in the UK for the benchmarking update to be meaningful.

As we discuss in our response to Q7 we question how the benchmarks can be used for refineries when there are a limited number of emitters in the sector. In the refining sector there are certainly less than 10, making it impossible to benchmark based on the top 10% of emitters. An approach considering average emissions over the number of installations may be more appropriate.

[5] House of Commons Library Debate pack, "Energy intensive industries", 2021.
[6] Essar Oil UK Press Release, "Essar To Build UK'S First Refinery-based Hydrogen Furnace in £45 Million Investment", 2022.
[7] Tata Steel, "Green steel future", 2024.

At an EU level, the benchmarking process is more robust[8], due to the higher number of refineries leading to a more distributed performance curve (82 for EU ETS Phase 4)[4].

As we discuss in our response to Question7, it remains unclear how the benchmarks will be applied when government supported deep decarbonisation projects are implemented. A failure to properly take these into account risks the government "picking winners". This must be avoided and access to technologies cannot impact the benchmarking process or ARR approach.

9. **Do you agree with the proposed minded to position for updating benchmarks using UK data only to set the ARR? (Y/N Please explain your answer)**

   No.

   While Fuels Industry UK welcomes the recognition that there is a more limited data set in the consultation (in this case 2016/2017 and 2022/2023) and recognises that there is no decarbonisation technology in use over these years.

   However, this approach could be problematic if it used in the future, for example using 2027/2028 data for the next phase post 2030, which could distort the performance of some emitters over others. The Implementation of a UK CBAM including the inclusion of products from the refinery sector[9] could also have an impact on the approach as well. We would therefore ask that the UK government ensures that there is a further consultation considering these factors in the future.

10. **If you do not agree with the suggested methodology, please provide accompanying evidence as to why it should not be pursued and suggestions for an alternative methodology for updating benchmarks.**

    We would strongly suggest that the ARR methodology is not going to work effectively with a small data set from a limited number of emitters.

    For example, emitting assets can be impacted by maintenance events, such as refinery turnarounds, during the initial or final points of the ARR assessment, creating a false impression of the ARR including overstating it.

    Fuels Industry UK would welcome the opportunity to work with DESNZ to develop an alternative methodology for updating the refinery benchmark, including the development of refinery examples to assess the impacts of the methodology on the level of FAA.

[8] Concawe Newsletter, Vol. 18, No.2, "Benchmarking of refinery CO2 emissions", 2009.
[9] FuelsEurope, "Carbon Border Adjustment Mechanism", 2023.

11. Do you have any views as to alternative methodologies that can be applied for updating benchmarks with zero UK sub-installations?

Fuels Industry UK believe that one option would be to reference the EU benchmark for the second period of EU ETS Phase 4.

12. Do you agree that the carbon leakage list should be updated to reflect UK industrial sector's risk of carbon leakage? If you disagree, please explain how you think the carbon leakage list should be calculated in the future.

Fuels Industry UK agrees that the carbon leakage list should be updated.

There appears to be confusion on which industries are, or are not, deemed to be at risk of carbon leakage[10]. We note for example the ministerial statement[11] in which the CBAM was said to be being applied to the sectors most at risk of carbon leakage (which did not include the refining sector).

Fuels Industry UK note that Figure 13 in the Analytical Annex to the Free Allocation Review shows the refining sector to have the second highest exposure to carbon leakage at EU level. Recalculation of the Carbon Leakage Indicator (CLI) using UK data for the period 2016-2019 indicates that the CLI for NACE Code 19.20 is higher than at EU level (Table 1)[12].

Table 1. Carbon leakage risk for the UK refining sector

NACE Code 19.20	Trade intensity, %	Direct emissions intensity	Indirect emissions intensity	Emissions intensity	Carbon Leakage Indicator
EU (2013-2015)	25.8	11.440 kg CO_2e/€	1.031 kg CO_2e/€	12.471 kg CO_2e/€	3.22
UK (2016-2019)	48.9	*11.371 kg CO_2e/£*	*0.4458 kg CO_2e/£*	*11.817 kg CO_2e/£*	*5.77*

Data sources: ONS ABS, HMRC Trade Info, DESNZ, DUKES

It should be noted that the CLI calculation using UK data results in an emissions intensity and CLI expressed in kg CO_2e/£. The CLI thresholds should therefore be recalculated to provide an equivalent basis as previously used when the CLI thresholds were set in kg CO_2e/€.

[10] UK Government consultation, "Addressing carbon leakage risk to support decarbonisation", 2023.
[11] HM Treasury Ministerial Statement, 18 December 2023.
[12] Calculated on the same basis as used by the European Commission, using ONS Annual Business Survey and HMRC Trade Info data.

13. Do you agree that carbon leakage risk should continue to be calculated on the basis of emissions intensity and trade intensity, or are there other factors which you think the Authority should consider?

Fuels Industry UK broadly agrees that the carbon leakage risk should continue to be calculated on the basis of emissions intensity and trade intensity.

However, this assumes that the correct overall energy usage and emissions are considered.

Trade exposure only measures the exposure to imports, not exposure to competition in other export markets. Many industries (for example the car industry) can only successfully operate in the UK if they have viable export routes, as well the indigenous UK market. Refiners also operate on the same basis, with a need for exports in order to maintain viable UK operations.

A failure to reflect the carbon leakage properly and accurately for the sector is likely the lead to further refinery closures and decarbonisation through deindustrialisation[13].

Fuels Industry UK would welcome the opportunity to support DESNZ in calculation of the CLI and assessment of carbon leakage risk for the sector using UK data recognising the complexities involved and lack of available data specific to refining (see response to Question 14).

14. Based on the data sets we have explored, do you agree with our approach to explore using UK data based on ONS, ABS and HMRC trade data? And, if this data set is found to be representative, do you agree that the Authority should use this to calculate the carbon leakage indicator?

Fuels Industry UK agree with the proposed approach to use UK data taken from ONS, ABS and HMRC Trade Info datasets. However, although the ONS ABS data supports international UK statistical reporting obligations, care must be taken in use of the data for specific purposes, such as the determination of trade intensity. Further verification may be required due to the inclusion of a broad range of activities under some four-digit SIC Codes, periodic reporting for smaller manufacturing entities and the reliance on self-classification and allocation of activities where businesses are engaged in multiple activities covering more than one four-digit SIC Code[14].

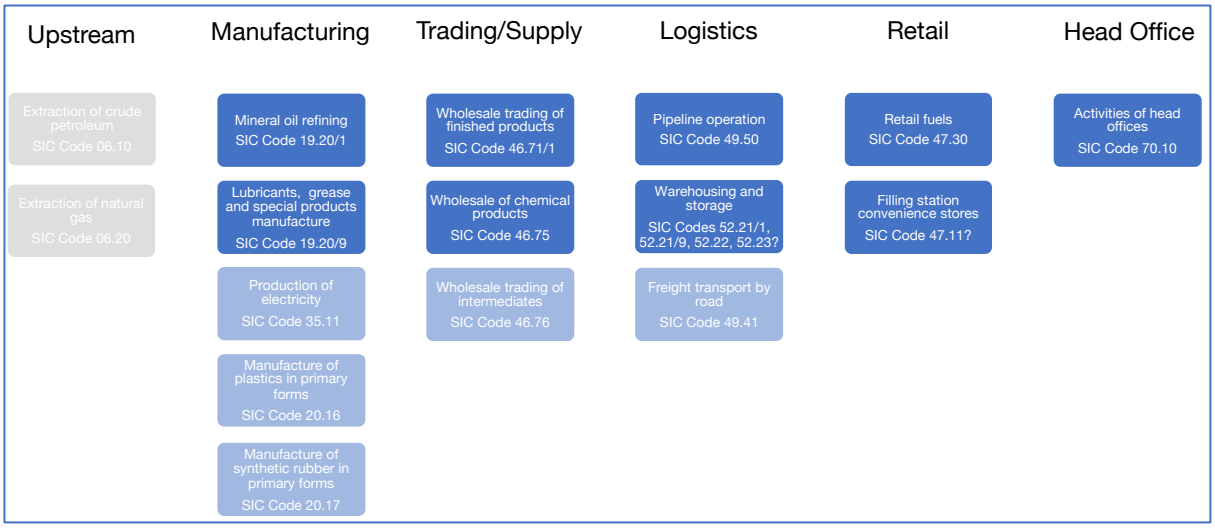
The refining and downstream oil sector covers a range of activities covered by several SIC Codes (Diagram 4). Turnover and GVA reported for each activity are dependent on company structures and transfer pricing between different entities in the supply chain, in particular for refineries involved in toll manufacture, where

[13] Civitas, "A short route to deindustrialisation?", 2023.

[14] Rules for reporting of multiple and integrated activities are included in the ONS "UK Standard Industrial Classification of Economic Activities 2007 (SIC 2007)" structure and explanatory notes.

the crude oil and finished product inventories are owned by trading companies or banks.

Diagram 4. SIC Codes for activities involved in the fuel supply chain



Source: ONS, Fuels Industry UK

Mineral oil refining is classified under SIC Code 19.20 "Manufacture of refined petroleum products". This is a broad category including specialist or non-refining activities not carried out in UK refineries:

- manufacture of oil-based lubricating oils or greases, including from waste oil
- manufacture of white spirit, Vaseline, paraffin wax, petroleum jelly etc.
- manufacture of petroleum briquettes
- manufacture of peat briquettes
- manufacture of hard-coal and lignite fuel briquettes

The number of business enterprises reporting under SIC Code 19.20 is significantly higher than the number of UK refineries included under the UK ETS. For example, in the 2021 ABS[15] (the latest available), 111 enterprises reported under SIC Code 19.20, whereas only 10 installations reported emissions in 2021 under the UK ETS[16].

Fuels Industry UK believe a large proportion of the enterprises reporting in the ABS under SIC Code 19.20 are lubricant blending companies, which are not included under the UK ETS. Turnover, GVA, import/export data etc. for these activities should be excluded from quantitative assessment of trade intensity for the refining sector - many of the products produced under these activities have much higher prices and margins than products produced by the refineries.

[15] ONS Non-financial business economy, UK and regional (Annual Business Survey): 2021 results, May 2023.
[16] UK ETS Authority Compliance Report - Emissions and Surrenders, June 2023. Installations are classified in this report under NACE Code 1920, which is equivalent to SIC Code 19.20. Of these 10 installations, the Shell UK Limited Fife NGL Plant (ETS Permit No. UK-S-IN-12350) appears incorrectly classified; it should rather be classified under NACE Code 610 or 620.

Similar issues arise with use of HMRC Trade Info data at four-digit Commodity Code level[17]. The raw data reported under Commodity Code 27.10 shows a large number of imports and exports of non-refinery products with a wide variation in unit value, including import/export of packed products which have much higher unit value than bulk refinery products. Instead, use of data at eight-digit PRODCOM level (for example, 27101211 to 27101975; 27102011 to 27102090; 27111211 to 27111397; 27129031 to 27129039; and 27131100 to 27139090) would be more appropriate to include only products manufactured by refineries in the assessment of trade intensity and carbon leakage risk.

15. Do you agree with the risks we have set out with the alternative data sets? If not, please provide evidence.

Yes.

See also response to Question 14.

16. Do you agree with our minded to position to bring forward the phase out date of the CLEF for those not on the 2026 carbon leakage list to 2026?

Yes.

Fuels Industry UK agrees with the minded to position to bring forward the phase out date of the CLEF for those not on the 2026 carbon leakage list to 2026. However, we believe that the analytical annex is poor, in that it does not show how many free allowances that would be impacted, nor does it address potential inflationary impacts involved in the withdrawal of free allowances. It is possible that the analytical annex is based on the EU data set, rather than a UK only data set.

As previously discussed there needs to be alignment with other carbon leakage measures including a CBAM. Details on the CBAM are still in development, including which sectors to which it will apply.

There appears to be confusion on which industries are, or are not, deemed to be at risk of carbon leakage. We note for example the ministerial statement in which the CBAM was said to be being applied to the sectors most at risk of carbon leakage (which did not include the refining sector).

However, calculations show that it is in fact on of the most exposed sectors (as referenced in the CLL published in the national annex Figure 13, page 19). We therefore urge the government to update the carbon leakage list and CBAM mechanisms to include refining as a matter of urgency.

If the minded to position is introduced, it would lead to a reduction in free allowances with no CBAM mitigation, increasing costs to UK refineries to

[17] HM Revenue and Customs UK Trade Info, Commodity Code 27.10.

unsustainable levels and leading to refinery closures. Amongst the many other impacts, this has significant impacts for UK core fuel resilience [18].

17. **Do you agree that the Authority should tier the carbon leakage list to better target those most at risk of carbon leakage?**

    No.

    There does not appear to be sufficient information in the Analytical Annex to make an informed judgement on whether we agree or disagree with this approach.

    There should be targeting of free allowances at the sectors that are at highest risk of carbon leakage; however, a tiered approach seems an overly complex and burdensome way of approaching this. Alternative carbon leakage mitigation measures such as CBAMs should also be assessed alongside tiering.

18. **Do you have views on the principles that the Authority should use to guide decision making on tier design if we opt to tier the carbon leakage list?**

    There should be targeting of free allowances at the sectors that are at highest risk of carbon leakage; however, a tiered approach seems an overly complex and burdensome way of approaching this.

    Wide impacts such as national security and energy resilience including core fuel resilience also need to be considered as part of the principles set.

    Alternative carbon leakage mitigation measures such as CBAMs should also be assessed alongside tiering.

19. **Above, we have outlined three illustrative examples of ways we could tier the carbon leakage list. Do you have any views on these? Do you have views on alternative ways that this could be done?**

    Fuels Industry UK has no views on alternative ways that this could be done.

20. **Do you have views on whether we should tier the Cross-Sectoral Correction Factor in the instance of its application?**

    There should be targeting of free allowances at the sectors that are at the highest risk of carbon leakage; however, a tiered approach to the CSCF seems an overly complex way of doing this.

    Alternative carbon leakage mitigation measures such as CBAMs should also be assessed alongside use of a CSCF, such that application of a CSCF can be avoided for as long as possible.

[18] DESNZ Guidance, "Energy Security Bill factsheet: Core fuel resilience", 2023.

21. Do you have views on the principles we have outlined for consideration of decarbonisation technology?

We broadly agree with the principles outlined for consideration of decarbonisation technology.

We have concerns with Principle 2, which considers what technology is available, rather than what technology is being deployed in practice. This means that the approach is no longer market led, which we understand was the original intent. It also does not take account of large-scale government funded deep decarbonisation projects[19].

Technology can be industry specific, so focusing on a technology only approach means that the cheapest pathway across all industries is not chosen. Again, this is against the general principle of a market led approach.

There must be a level playing field for emitters in a given sector, regardless of whether they have, or do not have, access to decarbonisation technology. A failure to do this risks the government "picking winners" resulting in a lack of a level playing field and market distortions. This must be avoided and access to technologies cannot impact the benchmarking process or ARR approach.

22. Do you have views on how the UK ETS Authority should define decarbonisation technologies to be included in this work?

There should be alignment between the UK ETS authority and the DESNZ support for decarbonisation technologies (such as the low carbon hydrogen [20] and CCUS business models[21]).

However, these business models are currently largely based on pipeline-based networks (both onshore and offshore) to carbon storage. These models need to be further developed to support distributed sites[22] who are remote from these pipeline networks. This could include for example trucking or shipping of CO2 to appropriate carbon storage receipt facilities.

There will be complications in this approach as different business structures start to emerge where boundaries occur; for example, if a refinery separates a new low carbon hydrogen business to a different company entity. This could impact the benchmarks and not be captured by the decarbonisation of the primary refinery asset(s).

A failure to take account of these factors would lead to the UK government picking winners" resulting in a lack of a level playing field and market distortions. This

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[19] DESNZ Policy Paper, "Carbon capture, usage and storage (CCUS) supply chains: a roadmap to maximise the UK's potential", 2021.

[20] DESNZ, "Hydrogen production business model", 2023.

[21] DESNZ, "Carbon capture, usage and storage (CCUS): business models", 2023.

[22] IEA GHG Programme, "Distributed CO_2 collection", 2007.

must be avoided and access to technologies cannot impact the benchmarking process or ARR approach.

23. Above we have outlined two possible methodologies for how we could consider access to decarbonisation technology in FA calculation. Do you have any views on the approaches outlined above?

In our view, neither option outlined offers a feasible methodology for considering access to decarbonisation technologies in the FA calculation.

Option 1 is not feasible for several reasons, not least the low number of installations with either access, or lacking access, to decarbonisation technology. There are also variations in decarbonisation technology, with some emitters having access to CCS via a pipeline with lower associated emissions than others who may have to ship CO_2 to a storage facility resulting in market distortion.

Option 2 creates market distortions from the outset, favouring emitters who have access to decarbonisation technologies and so picking winners.

We note from the sessions held by DESNZ in mid 2023 that the thinking was for emitters to receive free allowances in a consistent manner for all emitters, but to then forefelt them back based on the CO_2 captured. This methodology also took account of the capture plant efficiencies. We would therefore ask for clarification if this methodology has now been discarded; it has the potential to offer a solution subject to further discussion and development.

"Deemed emissions" could be one option; for example, if a site has carbon capture for benchmarking purposes it could be assumed that it does not. For low carbon hydrogen, the benchmarks could assume methane combustion rather than hydrogen. These would offer a more appropriate counterfactual where subsidised technologies are used.

24. Are there alternate ways that you think we should examine to alter the free allocation methodology to consider access to decarbonisation technology?

As we indicate in our response to Question 23, we note from the sessions held by DESNZ in mid 2023 that the thinking was for emitters to receive free allowances in a consistent manner for all emitters, but to then forefelt them back based on the CO_2 captured. This methodology also took account of the capture plant efficiencies. We would therefore ask for clarification if this methodology has now been discarded; it has the potential to offer a solution subject to further discussion and development.

25. Are there alternative ways, outside of free allocation, that the ETS could consider access to decarbonisation technology?

Access to decarbonisation technology needs to develop further from the current Track based approach, and in line with the CCUS long-term vision announced in December 2023[23].

We believe that there needs to be a coordinated approach to decarbonisation, not just managed by the UK ETS but involving other departments including DESNZ, DBT, Treasury and the DfT. The UK government cannot expect decarbonisation costs from later cluster Tracks to be lower than the earlier tracks – the easiest projects have been selected first (for example with easy pipeline access to CO_2 storage locations). It cannot reasonably be expected that prices will follow the offshore wind decreasing price cycle.

Only a coordinated approach which considers all the impacts of decarbonisation technologies can be effective in minimising emissions while creating a level playing field for emitters within a sector.

26. Do you have views on whether the Authority should introduce conditions, related to decarbonisation efforts, on receiving free allocations?

Fuels Industry UK strongly disagrees with the introduction of conditionality related to decarbonisation efforts for entitlement to free allowances.

Free allowances are provided to mitigate carbon leakage only and conditionality should not be used as a vehicle to effectively punish emitters who are unable to implement decarbonisation projects due to lack of access to funding or government supported schemes. Avoiding the cost of purchasing UK ETS allowances is the trigger for emissions reduction projects; withholding free allowances reduces the viability of businesses and simply increases exposure to carbon leakage.

The attractiveness of the sector for further investment in emissions reduction using other technologies must also be considered, for example, efficiency improvements have been ongoing in the refining sector for many years, and there are now limited opportunities for further improvements.

If FAA is reduced through application of conditionality, compliance costs increase and the business case for further investment is undermined. Lack of investment will inevitably result in capacity reductions and closures over time, leading to decarbonisation through deindustrialisation.

[23] DESNZ, "New vision to create competitive carbon capture market follows unprecedented £20 billion investment", 2023.

27. Above we have outlined three illustrative designs for conditions for free allocations. Do you have views on whether we should introduce any of these options, how they are designed, and do you have a preference out of the stated options?

As we indicate in our response to Question 26, Fuels Industry UK does not support the introduction of conditions related to decarbonisation efforts, on receiving free allocations.

In our view, none of the options presented consider either unequal access to government funded carbonisation technologies, or the attractiveness of the UK sectors as a place to invest.

Example 3 means that only the sectors that are within the scope of the UK ETS and are exposed to carbon leakage would have a decarbonisation plan; and the scope of this is unnecessarily narrow.

Fuels Industry UK note that DBT are currently considering use of International Sustainability Standards Board IFRS S1 and S2 to create UK Sustainability Disclosure Standards[24] and that these would include decarbonisation plans for all businesses. In our view this is a far more appropriate and effective way to legislate decarbonisation requirements.

28. Do you have views on alternate conditions that the Authority should consider for receiving free allocations?

The approach taken seems overly simplistic and attempting to create a "one size fits all" approach, rather than recognising the needs of various industrial sectors.

We would therefore recommend that engagement with the sector is more appropriate in setting conditions to ensure ongoing financial viability.

29. Do you have views on whether there are alternative decarbonisation incentives that could be implemented through free allocations?

In our view it is wrong for decarbonisation incentives to be wholly implemented through changes to free allowances.

This needs a clear long-term industrial strategy in which investment decisions can be made on the basis of established government policies and legislation. This includes access to large scale decarbonisation technologies such as CCS for all participants on an equitable basis. Simply reducing the number of FAs without complementary support, including a well-designed CBAM will increase costs and reduce the attractiveness of the UK as a place to invest. This is likely to lead to decarbonisation through deindustrialisation.

[24] DBT Guidance, "UK Sustainability Disclosure Standards", 2023.

30. **Do you have views on whether there would be barriers to an equitable application of conditionality in principle, if the Authority was to pursue this option?**

As we indicate in our response to Q26, Fuels Industry UK strongly disagree with the introduction of conditionality related to decarbonisation efforts, as a condition for entitlement to free allowances.

As we indicate in our previous responses, the issue of equitable application of conditionality needs to be approached with caution.

Some emitters in the refining sector will have access to government supported decarbonisation technologies, and some won't. If this is not considered, it will lead to "picking winners" leading to market distortions and must be avoided.

31. **Do you agree with the Authority's approach on Technical Change One for treating free allowances in the final year of operation in cases of permanent cessations of activity? (Y/N Please explain your answer)**

Fuels Industry UK broadly agrees with this approach as it seems to manage the need for the emitter to manage their carbon leakage risk while ensuring that free allowances are efficiently applied.

32. **With the Authority's proposed approach on Technical Change One, what risks should the Authority consider regarding the return of overallocated allowances?**

There is an obvious risk of insolvency to consider where a company may be unable to simply return allowances. However, these would be no different to the risk run by creditors in any business and it is difficult to see how they can be reasonably avoided without imposing an undue burden on all UK emitters.

33. **Do you agree with the Authority's approach on Technical Change Two for updating the definition of permanent cessations of activity? (Y/N Please explain your answer)**

Yes.

Fuels Industry UK broadly agrees with this approach.

34. **Do you agree with the Authority's approach on Technical Change Three to update the minimum content of the monitoring methodology plan? (Y/N Please explain your answer)**

No.

Difficulties with the level of precision required for monitoring of refinery process streams, heat flows and electricity consumption under the Free Allocation Regulation, (EU) 2019/331 (FAR), ETS Monitoring and Reporting Regulation (EU)

2018/2066 and EU Monitoring Guidance[25], have long been recognised at EU level and elsewhere, as these are generally incompatible with general refinery practice, technical feasibility and high additional cost.

In refineries, CO2 emissions are leased from a relatively high number of sources and sub-installations. Quantification of both the activity level data and carbon content of emissions sources relies on a number of measurement devices and laboratory analyses, with the major internal fuel, refinery fuel gas, varying in composition from minute-to-minute, with similar complexities associated with monitoring flow rates, temperatures and pressures.

The consequences of this complexity have not been recognised in development of the Regulations or Guidance Document – further detail on the limitations of available measurement devices and their provision is available in the following documents:

- Concawe Report No 04/10 "Guidance document for application of the EU Commission's guidelines for monitoring and reporting of GHG emissions", 2010.
- The API/IPEICA guidance document "Addressing uncertainty in oil and natural gas industry greenhouse gas inventories. Technical considerations and calculation methods.", 2015.
- The API "Compendium of Greenhouse gas emissions methodologies for the oil and gas industry", 2009.

As regards to the proposals made for updating the minimum content of the monitoring methodology plan, there is limited monitoring of electricity consumption available for refinery sub-installations, although accurate metering of electricity production by combined heat and power (CHP) plants and electricity imports and exports is generally available. However, although refineries are likely to be covered by exchangeability considerations, information on electricity consumption at sub-installation level is not required under the CWT[26] methodology used to determine the free allowance allocation for refineries.

35. Do you agree with the Authority's approach on Technical Change Four to change the heat metering measurement hierarchies? (Y/N Please explain your answer)

No.

As identified in the response to Question 34, difficulties with the level of precision required for monitoring of refinery process streams, heat flows and electricity consumption, have long been recognised as these are generally incompatible with general refinery practice, technical feasibility and high additional cost.

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[25] EU Guidance Document No. 5, "Guidance on Monitoring and Reporting in Relation to the Free Allocation Rules", February 2019.

[26] The original "Complexity Weighted Tonne" or CWT™ methodology was developed by Solomon Associates (now Solomon Insights) for the purpose of refinery benchmarking. It was subsequently renamed "CO_2 Weighted Tonne" in EU Commission documents.

In general, refineries are not allocated free allowances under the heat benchmark for consumption of steam. However, refinery operators have been required to carry out a simplified uncertainty assessment by regulators on behalf of the ETS Authority; this should be sufficient without any requirements to improve the measurement system if the operator has adopted the practices and methodologies identified under the industry guidance referenced in the response to Question 34.

As regards the specific proposal that for heat metering, equivalent accuracy to MID compliant metering can be accepted, this can be interpreted that each meter should be accurate to ±3%, therefore assigning the same uncertainty threshold for every heat meter regardless of the size of heat flow being monitored. This is more stringent than the requirements for those used directly in the calculation of CO_2 emissions.

Uncertainty requirements for the main Annual Emissions Report (AER) meters are determined based on a major, minor, or de-minimis criteria. The uncertainty requirements under AER vary from 1.5% to 7.5% based on stream size. Assigning uncertainty requirement based on size of stream is more pragmatic than a blanket requirement for all.

A fall-back approach for uncertainty should also be taken into consideration. It is possible to have one meter out-with 3% but overall benchmark uncertainty within tolerance. Therefore, propose a fall-back uncertainty approach to also be included.

See also the responses to Questions 36 and 38.

36. Do you agree with the Authority's approach on Technical Change Five to adjust Monitoring Principles with relation to hierarchies? (Y/N Please explain your answer)

No.

Fuels Industry UK disagrees strongly with the proposal that operators re-visit the uncertainty assessment where derogations to the hierarchy for monitoring methods have been granted in advance of every allocation period, although it is unclear whether this refers to the annual allocation or for the UK ETS Phase 1 periods – 2021 to 2025 (Period 1) and 2026 to 2030 (Period 2). This would introduce unnecessary administrative burden, with the outcome of the assessment unlikely to change over long periods of time due to the complexity of refinery operation.

Uncertainty assessment for refinery emissions monitoring is usually performed based on calculation of the overall level of uncertainty rather than at source

level[27]. In a typical refinery, CO_2 emissions are generated by 8 to 15 sources[28]. Often, the distribution of CO_2 emissions between these sources follows the "80/20 rule" (typically 80% of emissions coming from 20% of sources), with two or three sources dominating the emissions.

The majority of UK refinery furnaces and heaters (of which there are over 100) are now fired by a mixture of refinery fuel gas (RFG) and natural gas (NG), with NG as the balancing fuel. The composition of the mixed fuel varies constantly and from point to point in the refinery fuel gas system, depending on where RFG and NG are introduced into the system, which can extend over a large area (several hectares). The total flow is calculated by adding (and sometimes subtracting) readings from several flow meters and the uncertainty associated with the total flow stems from the precision of all individual measurements. The same applies where other fuel types (fuel oil or re-gassed LPG) are used and to emission sources including where combined stacks are used (the majority of cases).

The uncertainty analysis method and algorithms recommended by Concawe for use under the EU ETS are based on a simplified method recommended by the Intergovernmental Panel on Climate Change (IPCC)[29] and are provided in the Concawe report[27]:

Uncertainty for a product function:

Given a function P = A * B

The uncertainty for P is $U_p = \sqrt{(U_a^2 + U_b^2)}$

This formula can be applied to estimate the combined uncertainty for the emissions from one source calculated as the product of the activity data, the emission factor and the oxidation factor (note that the uncertainty on the latter is always very low and does not have a material effect on the result).

Uncertainty for a sum function:

Given a function S = A + B

The uncertainty for S is $U_s = \sqrt{((U_a * A)^{2 +} (U_b * B)^2 / S)}$

This formula applies to the estimation of the overall uncertainty for the total emissions from all sources within the installation.

The Concawe report also includes a calculation of CO_2 emissions uncertainty for a typical refinery (Annex 1). In the example, tier requirements on activity data are not met for most of the sources, which has also been found for the six major UK refineries. Refinery experience is that the sources for which the tier requirements can easily be met are usually small and do not contribute in any significant way to

[27] Concawe Report No 04/10 "Guidance document for application of the EU Commission's guidelines for monitoring and reporting of GHG emissions", 2010.

[28] The word "source" is used here with the same meaning as in the EU Guidelines, i.e. as a fundamental building block of an overall CO_2 emission calculation. For instance, a "source" can be a complete fuel system.

[29] IPCC "Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories", 2000.

the overall uncertainty. However, the overall uncertainty is lower than on any single activity and is within the range of the overall uncertainty indicated in Annex I, Table 3 of the Guidelines[25], or 3.5% (liquid and gaseous fuels with varying composition, emissions exceeding 500 kt/a). This mirrors experience for UK refineries, highlighting that the overall uncertainty is lower than what could have been anticipated from the single activity uncertainties.

Considering that the uncertainty on the basic variables is itself only an estimate, this method is therefore considered best practice by European refinery experts involved in development of the Concawe report.

Since improvement in the uncertainty of individual sources only has a material effect when such sources have a significant contribution and/or have a very poor uncertainty to start with, strict adherence to the hierarchy for monitoring methods for refineries would be at best inappropriate, bearing in mind the technical infeasibility of meeting the required levels for major sources. This must be recognised in any technical changes made to the MMP requirements and by verifiers and regulators involved in determination of refinery activity levels and emissions reporting.

37. **Do you agree with the Authority's approach on Technical Change Six to update the unreasonable cost calculation reference price? (Y/N Please explain your answer)**

    No.

    Fuels Industry UK strongly disagrees that the unreasonable cost calculation reference price be updated to reflect UK ETS allowance prices, as these vary constantly. This uncertainty would make it impossible to carry out a sound unreasonable cost calculation or to develop a robust business case for investment in an improved determination methodology.

    Instead, a fixed reference price should be used, to avoid the situation where the unreasonable cost calculation shows an investment is justified when the calculation is performed, but not when the investment is implemented and vice versa. Similarly, the unreasonable cost calculation must be applied equitably across all installations irrespective of when the calculation is performed.

38. **Do you agree with the Authority's approach on Technical Change Seven to require control systems checks be made at yearly intervals? (Y/N Please explain your answer)**

    No.

    The term "control system checks" need to be defined and clarified. Whilst conducting annual checks and calibrations on transmitters is time consuming, it is possible to conduct these checks while instruments are online. However, checks on the instruments themselves may require equipment shutdowns and so not be possible at yearly intervals when plants are in operation for extended periods.

Refineries typically operate their process equipment continuously between maintenance intervals (which can be up to five years).

The FAR requires that "the operator shall ensure that all relevant measuring equipment is calibrated, adjusted and checked at regular intervals including prior to use, and checked against measurement standards traceable to international measurement standards, where available, and proportionate to the risks identified." (Article 11(4)). It seems to be counterintuitive to move away from a risk model, disregarding %-influence on activity level or instrument stability.

As an example, over 150 instruments are used by one of the UK refineries in the determination of activity levels and in emissions monitoring. These include 45 primary instruments (flow meters), 73 secondary instruments (density, pressure, temperature), 38 for measurable heat monitoring and 3 meters for electricity monitoring. Another member has more than 100 ETS relevant meters, of which approximately 25% rely on refinery turnarounds for maintenance.

Access to these meters may not be available on a permanent basis, for example requiring scaffolding or other access equipment due to their location at height. There may also be HSE issues associated with meter or instrument calibration such as heat or chemical exposure, or issues associated with working at height as mentioned above. Finally, contracting personnel availability to provide access, or calibration services may be limited.

The proposal to introduce annual checks on monitoring equipment used by refineries is therefore completely impractical and wholly unjustified, especially when downtime costs (typically £1m/day, including the cost of imports to maintain supply) are taken into consideration. The requirement is also unlikely to achieve any additional reduction in emissions.

Appendix 1

Assessment of CO_2 uncertainty levels for a typical refinery

Source	% of total CO_2 emissions	Uncertainty, %			Weighted uncertainty, %	Square of weighted uncertainty	Contribution, %
	A	Activity data	Emission factor	Total (*U*)	*U * A*	$(U * A)^2 \times 10^4$	
Refinery fuel gas	43.9	5.0	3.0	5.8	2.6	6.6	65
Liquid fuel	27.9	4.0	1.2	4.2	1.2	1.4	13
Natural gas	7.8	2.9	1.0	3.1	0.2	0.1	1
Natural gas to SP2	0.2	4.0	1.2	4.2	0.0	0.0	0
Imported fuel gas	0.1	4.0	2.4	4.7	0.0	0.0	0
Flare	1.3	25.0	7.0	26.0	0.3	0.1	1
Hydrogen plant	9.6	3.0	1.0	3.2	0.3	0.1	1
Fluid catalytic cracker	9.1	10.0	11.5	15.2	1.4	1.9	19
Reformer catalyst regeneration	0.1	4.0	3.0	5.0	0.0	0.0	0
Total						**10.1**	
Overall uncertainty (square root of sum of squares, %						**3.2**	