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1<sup>st</sup> of May 2025

By email to [climatechangelevy@hmtreasury.gov.uk](mailto:climatechangelevy@hmtreasury.gov.uk)

### **Treatment of electrolytic hydrogen in the CCL and the changing energy context**

Dear Sir or Madam

Fuels Industry UK represents the seven main oil refining and marketing companies operating in the UK. The Fuels Industry UK member companies – bp, Essar, Esso Petroleum, Phillips 66, Prax Refining, Shell, and Valero – are together responsible for the sourcing and supply of product meeting over 87% of UK inland demand, accounting for over a third of total primary UK energy<sup>1</sup>.

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.

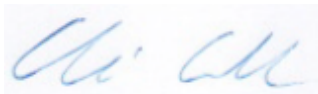
Fuels Industry UK welcomes the opportunity to respond to the consultation on the treatment of electrolytic hydrogen in the Climate Change Levy (CCL) and the changing energy context.

Our responses to the consultation questions are given in Attachment 1.

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<sup>1</sup> Based on the Department of Energy Security and Net Zero Digest of UK Energy Statistics 2024

Yours sincerely

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

Chris Gould

Energy Transition Lead, Fuels Industry UK

## **Attachment 1: Fuels Industry UK Response**

### **About you**

1. What is your name?

Christopher Gould

2. What is your email address?

chris.gould@fuelsindustryuk.org

3. Which category in the following list best describes you? If you are replying on behalf of a business or representative organisation, please provide the name of the organisation/sector you represent, where your business(es) is located, and an approximate size/number of staff (where applicable).

Trade Body or Association

Fuels Industry UK represents the seven main oil refining and marketing companies operating in the UK. The Fuels Industry UK member companies – bp, Essar, Esso Petroleum, Phillips 66, Prax Refining, Shell, and Valero – are together responsible for the sourcing and supply of product meeting over 87% of UK inland demand, accounting for over a third of total primary UK energy.

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.

Fuels Industry UK welcomes the opportunity to respond to the consultation on the funding model for the hydrogen production business model.

### Chapter 3 – Removing CCL costs from electricity used in hydrogen electrolysis

4. There are different types of electrolysis which can be used to produce hydrogen (e.g., alkaline electrolyzers, solid oxide electrolyzers). Can electricity used in electrolysis be described as either purely non-fuel use, or any fuel use incidental in all cases?

Fuels Industry UK is unable to answer this question in detail as we are not involved in the design and production of electrolyser equipment.

However, we would encourage the consistent treatment of electrolytic hydrogen under the CCL to avoid undue complication in a nascent industry. Electricity prices prior to the addition of the climate change levy (CCL) are already sufficiently high, and form such a significant portion of operating costs (around 70%)<sup>2</sup> for these plants that they will drive efficiency improvements over time, regardless of the CCL.

5. Is there any difference in the amount of electricity needed to produce a hydrogen yield in comparison to different types of electrolysis?

Fuels Industry UK cannot comment on this question in detail as we are not involved in the design and production of electrolyser equipment.

However, we would expect that the efficiency of the various types of electrolyzers would vary for a number of reasons. We are aware of a number of reports on this subject that may be of interest<sup>3,4</sup>.

6. What energy uses are involved in the production of hydrogen by electrolysis other than for the electrolysis itself? How significant are these uses (e.g., in proportion to the electricity used for the electrolysis and to the hydrogen yield)?

Fuels Industry UK cannot comment on this question in detail as we are not involved in the design and production of electrolyser equipment.

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<sup>2</sup> <https://www.renewableuk.com/media/gjkhpx2n/splitting-the-difference-hydrogen-co-report.pdf>

<sup>3</sup> <https://www.enectiva.cz/en/blog/2023/08/comparison-of-the-various-kinds-of-electrolyzers-for-hydrogen-production/>

<sup>4</sup> <https://www.mdpi.com/1996-1073/17/19/4944>

7. How do you envisage hydrogen production will develop in terms of technology and scale over the next 10 years?

We would expect that as the technology expands at scale and due to the high costs involved (not least from the high operating costs for electricity), then further developments will continue over time to make the electrolysis production of hydrogen more efficient. However, we cannot comment on what these would be as we are not involved in the design and production of electrolyser equipment.

**Option A – Add hydrogen electrolysis to the non-fuel use exemption**

8. Would this deliver on the government's commitment to remove the CCL costs from electricity used in hydrogen electrolysis and be in line with wider objectives?

Fuels Industry UK agrees that this appears to deliver on the government's commitments and be in line with wider objectives. However, the hydrogen produced may be used as a fuel, and so the impact of this may need to be carefully considered as the consultation is unclear on this point.

Also, as this is a nascent industry, with further technical advances expected in the coming years, then the approach should be kept under review to ensure it continues to meet these objectives in the future.

9. Do you agree with the proposed framing of an exemption for electricity used for electrolysis to produce hydrogen, noting the constraints imposed on what can be done by the powers in the primary legislation?

Fuels Industry UK agrees with the proposed framing of the exemption based on the available information.

However, as this is a nascent industry, with further technical advances expected in the coming years, then the approach should be kept under review to ensure it continues to meet these objectives in the future.

10. Would there be any unintended consequences? If so, could you provide evidence of their scale?

Given the nascent nature of the industry, it is difficult to predict unintended consequences at this time. As we discuss in our response to Q8, the hydrogen produced could potentially be used as a fuel and the impacts of this approach may need to be considered.

## Option B – Relieve input fuel to hydrogen production

11. Would this deliver on the government’s commitment to remove the CCL costs from electricity used in hydrogen electrolysis and be in line with wider objectives?

Fuels Industry UK agrees that this appears to deliver on the government’s commitments and be in line with wider objectives.

This also appears to be the most pragmatic option and follows the same approach for other taxable commodities such as natural gas or LPG. We agree that it also offers opportunities to provide greater “future proofing” of hydrogen supply routes.

12. Would there be any unforeseen consequences in using this option to deliver on our commitment to remove the CCL costs from electricity used in electrolysis to produce hydrogen?

Given the nascent nature of the industry, it is difficult to predict unforeseen consequences at this time.

13. Do you have suggestions for providing a wider exemption for specific inputs used to produce hydrogen or for inputs to specific hydrogen production processes. If yes, please support any proposal with a case referring to the criteria set out above and provide definitions of the inputs or processes that you think should be exempt.

There should be an exemption to all processes generating low carbon hydrogen (LCH) meeting the UK LCH standard <sup>5</sup>, which is in line with the UK government policy of being technology agnostic.

14. If the exemption was limited to low carbon inputs or processes, do you have any concerns about the ability to always be under the low carbon threshold, and whether a narrower exemption would create problems for investments or return expectations?

The hydrogen production business model (HPBM) is the critical enabler for the development of the hydrogen economy in the UK. Under this, hydrogen that does not meet the low carbon threshold will not receive support. This support is likely to be materially greater than any CCL costs.

Therefore, the CCL exemption, while important, is less likely in itself to create problems for investments or return expectations when the hydrogen does not meet the criterion for receiving HPBM support.

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<sup>5</sup> <https://www.gov.uk/government/publications/uk-low-carbon-hydrogen-standard-emissions-reporting-and-sustainability-criteria>

### Option 3 – Make hydrogen supply a taxable commodity

15. Would this deliver on the government’s commitment to remove the CCL costs from electricity used in hydrogen electrolysis and be in line with wider objectives?

Fuels Industry UK does not believe that this will deliver on the commitments or wider objectives.

The market is nascent and still needs support and development in the coming years. To include it as a taxable commodity at this stage has the potential for hydrogen to be seen as less attractive for investment, particularly given that hydrogen is not being seen in the same way in other jurisdictions such as the EU.

Making hydrogen a taxable commodity in any way, including the CCL levy, could create an impression of the UK as being seen less attractive to investors. It should therefore be avoided as far as possible.

16. Do you agree that now is an appropriate time to consider the role of CCL in the hydrogen economy more broadly?

No

Fuels Industry UK does not agree that now is an appropriate time.

The market is nascent and still needs support and development in the coming years. To include it as a taxable commodity at this stage has the potential for hydrogen to be seen as less attractive for investment, particularly given that hydrogen is not being seen in the same way in other jurisdictions such as the EU.

Making hydrogen a taxable commodity in any way, including the CCL levy, could create an impression of the UK as being seen less attractive to investors. It should therefore be avoided as far as possible.

17. If hydrogen is made a taxable commodity for CCL purposes, what exemptions from CCL might be introduced?

Fuels Industry UK strongly urges hydrogen not to be made a taxable commodity at this time.

As a result, there should not be a need to consider any appropriate exemptions.

18. Should separate rules be considered on the taxation of hydrogen and natural gas blends? Please explaining the reasoning for your answer, using evidence to substantiate your view where possible.

No

Fuels Industry UK does not agree that there should be any taxation on hydrogen at this time

The market is nascent and still needs support and development in the coming years. To include it as a taxable commodity at this stage has the potential for hydrogen to be seen as less attractive for investment, particularly given that hydrogen is not being seen in the same way in other jurisdictions such as the EU.

Making hydrogen a taxable commodity in any way, including the CCL levy, could create an impression of the UK as being seen less attractive to investors.

### Summary of Options

19. Out of the three options, which would you prefer the government to pursue and why?

Option B appears to be the most pragmatic option and is in line with the treatment of other commodities such as natural gas or LPG. It also offers greater potential for “future proofing” hydrogen production.

20. If you have a preference for Options A or B, do you think government should continue working on the CCL position for the supply of hydrogen longer term?

Fuels Industry UK agrees that the government should continue to work on the CCL position for the supply of hydrogen.

This is a nascent industry, with further technical advances expected in the coming years, then the approach should be kept under review to ensure it continues to meet these objectives in the future.

21. Are there any other options you think should be considered?

Fuels Industry UK is not aware of any other options that should be considered.



## Chapter 4 – Ensuing CCL remains up to date in the UK’s changing energy context

22. Do you feel that CCL’s energy efficiency objectives are supportive of wider government objectives, such as net zero and clean power?

### No

We note the comments in Chapter 1 on the influence of the CCL on carbon emissions, by effectively raising prices for affected consumers. However, the role of additional UK taxation such as the CCL, or the operation of the UK (and previously EU) ETS is leading to decarbonisation through deindustrialisation (carbon leakage), rather than improving energy efficiency.

The view of Fuels Industry UK is that carbon leakage is real, and we would agree with those who believe UK industrial output is reducing faster than UK demand. For example, the CCC’s 2024 progress report to Parliament<sup>6</sup> stated that whilst UK territorial emissions fell 47% from 1990–2021, imported emissions increased by 21% over the same period, resulting in a reduction of UK consumption emissions of only 24%.

The wider government objectives such as net zero and clean power are better served by an effective emissions trading scheme including a well-designed CBAM for sectors affected by carbon leakage. There should also be effective support for nascent technologies such as low carbon hydrogen and CCUS. The wider industrial strategy needs to be considered to ensure that the UK is seen as an attractive place for investment when compared to international options.

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<sup>6</sup> <https://www.theccc.org.uk/publication/progress-in-reducing-emissions-2024-report-to-parliament/>

23. Do you feel CCL creates any barriers to developments in the energy landscape in the next 5–10 years which means CCL may need to be reviewed to support them instead?

We would support a wider review of the CCL against the changing energy landscape. As the consultation mentions, factors such as decarbonisation of the electrical grid may lower the environmental impacts of operations, reducing the carbon savings available through efficiency improvements.

Moreover, the significant increases in electricity and natural gas prices in recent years<sup>7</sup> would have given significant financial incentives for operators to improve efficiency, regardless of the CCL.

The CCL simply adds to these costs, making the burden on UK companies more significant and reducing our international competitiveness.

In short, the CCL should be reviewed to ensure that it encourages appropriate behaviours from consumers and does not undermine the attractiveness of the UK as a place to invest.

24. Do you think there are opportunities for CCL to further incentivise energy efficiency?

**No**

As we note in our response to Q23, there have been significant increases in electricity and natural gas prices in recent years, which would have given significant financial incentives for operators to improve efficiency, regardless of the CCL.

The CCL simply adds to these costs, making the burden on UK companies more significant and reducing our international competitiveness.

In short, the CCL should be reviewed to ensure that it encourages the right behaviours from consumers and does not undermine the attractiveness of the UK as a place to invest.

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<sup>7</sup> <https://commonslibrary.parliament.uk/research-briefings/cbp-9714/>

25. Beyond hydrogen, have you identified any other potential CCL issues, including but not limited to developments in low carbon fuels or production processes that have not been accounted for within CCL?

We note the recent work by the DfT on creating the Sustainable Aviation Fuel (SAF) mandate<sup>8</sup>, and the SAF revenue certainty mechanism<sup>9</sup> to encourage investment in UK production facilities.

We have looked at the treatment of SAF (both co-processed in an oil refinery<sup>10</sup> and in a stand-alone plant) under the CCL, and can share the following analysis

Under current legislation, energy supplies to refineries are exempted from CCL to avoid double taxation. This was a clear intent of the original CCL policy and was subject to consultation when the Government introduced proposals later incorporated into the Finance Act 2000. The exemption is provided under Schedule 6 Part II Paragraph 13 of the Finance Act 2000 which states:

“A supply of a taxable commodity to a person is exempt from the levy if –

- (a) the supply is not a supply of electricity that is deemed to be made under paragraph 23(3), and
- (b) the commodity is to be used by that person—
  - (i) in producing taxable commodities other than electricity,
  - (ii) in producing hydrocarbon oil or road fuel gas,
  - (iii) in producing, for chargeable use within the meaning of section 6A of the Hydrocarbon Oil Duties Act 1979 (fuel substitutes), liquids that are not hydrocarbon oil, or
  - (iv) in producing uranium for use in an electricity generating station.

For this purpose, “hydrocarbon oil” and “road fuel gas” have the same meaning as in the Hydrocarbon Oil Duties Act 1979 and “liquid” has the same meaning as in section 6A of that Act.”

Paragraph 23 identifies the conditions for deemed self-supply, stating under paragraph 23 (3):

“Where—

- (a) a person has produced a taxable commodity,
- (b) the commodity is either—

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<sup>8</sup> <https://www.gov.uk/government/publications/about-the-saf-mandate/the-saf-mandate-an-essential-guide>

<sup>9</sup> <https://assets.publishing.service.gov.uk/media/67ea570037baea91c58ca065/saf-govt-response-revenue-certainty-mechanism.pdf>

<sup>10</sup> <https://www.sustainableaviationfutures.com/saf-spotlight/coprocessing-topsoe>

- (i) a taxable commodity other than electricity, or
- (ii) electricity that has been produced from taxable commodities, and
- (c) as regards a quantity of the commodity, the person makes no supply of that quantity to another person but causes it to be burned (or, in the case of electricity, consumed) in the United Kingdom, the person is for the purposes of this Schedule deemed to make a supply to himself of that quantity of the commodity."

These two paragraphs recognise the provisions made under Article 21 (3) of the Energy Products Directive 2003/96/EC to exclude both imports of electricity and refinery own use of energy products in the production of "hydrocarbon oil or road fuel gas", i.e. products obtained from the refining or processing of crude oils. This states:

"The consumption of energy products within the curtilage of an establishment producing energy products shall not be considered as a chargeable event giving rise to taxation, if the consumption consist [sic] of energy products produced within the curtilage of the establishment. Member States may also consider the consumption of electricity and other energy products not produced within the curtilage of such an establishment and the consumption of energy products and electricity within the curtilage of an establishment producing fuels to be used for generation of electricity as not giving rise to a chargeable event. Where the consumption is for purposes not related to the production of energy products and in particular for the propulsion of vehicles, this shall be considered a chargeable event, giving rise to taxation."

Although there have been several amendments made to the CCL scheme over the years, there have been no attempts to change either Paragraph 13 or Paragraph 23 of the Finance Act 2000 Schedule 6 Part II.

SAF appears to fall under the definition of "hydrocarbon oil" given in the Hydrocarbon Oil Duties Act 1979, but I also note that production of hydrocarbon oils is not limited to refineries and would potentially apply to any "establishment producing energy products". Use of SAF in commercial aviation would also be exempted from CCL under Article 14(b) of the Energy Products Directive 2003/96/EC. It would appear therefore that SAF production and use (except possibly in "private pleasure flying") is already exempt from CCL.

We would therefore encourage HM Treasury to continue to exempt all forms of SAF manufacture from the CCL to provide a level playing field with existing liquid fuels and to avoid additional barriers to UK production.