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HM Treasury

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Sent by email to: climatechangelevy@hmtreasury.gov.uk

Dear Sir or Madam

Climate Change Levy: treatment of electrolytic hydrogen in CCL and the changing energy context

Thank you for the opportunity to respond to the above consultation. This is a non-confidential response on behalf of Centrica plc.

We welcome the Government commitment in the Spring Budget 2025 to remove Climate Change Levy (CCL) costs from electricity used in electrolysis to produce hydrogen and to conduct a wider review of the CCL.

Low carbon hydrogen has a critical role to play in reaching the Government's Clean Energy Superpower and Growth Missions and meeting net zero. However, as highlighted in our recent submission to HMT[1], the inadvertent anomaly in the UK's CCL regulations is undermining the ability of this industry to take off.

Our preferred approach for removing the CCL from hydrogen is option A, as this option can be implemented more quickly and would therefore benefit early hydrogen projects (i.e. those awarded the first allocation round of the Hydrogen Production Business Model). Although it is more pathway or technology agnostic, option B would take too long to implement.

If possible, we would recommend that less strict wording is used in Option A to make it more technology neutral i.e. include any commodity or energy used for hydrogen production, regardless of the technology or pathway used (as opposed to only the electricity used for the electrolytic process). This version of Option A would be suitable as a long-term solution.

We are strongly against option C as this option would make hydrogen a taxable commodity and would therefore risk discourage hydrogen offtakers from fuel switching to the cleaner fuel. This would be detrimental to the viability of low carbon hydrogen projects.

As requested by HMRC, we have included as part of our response a presentation we made to an industry group, which sets out our thoughts on the pros and cons of each option as well as the process we followed.

We also recommend that:

- HMRC guidance clarifies the tax treatment of stored electricity and considers a specific exemption for supplies of electricity to and from battery storage facilities of all sizes, removing uncertainty and supporting the transition to a low carbon energy system. This would promote investment in battery storage and ensure a fair and consistent application of CCL.
- The CCL treatment of sustainable aviation fuels (SAF) is carefully considered to ensure the take up of these technologies, which are seen as critical to decarbonise the aviation sector, is not discouraged.

[1] "Scaling up the production of low carbon hydrogen: addressing CCL anomaly". Centrica, March 2025

- Government should also consider a CCL relief on biomethane from the gas grid as currently the green gas attracts the same rate as natural gas. Evidence such as Green Gas Certificates (or Renewable Gas Guarantees of Origin) could be provided to demonstrate the renewable origin of the gas supplied.

More broadly, the objectives of the CCL regime should be reviewed and the CCL reformed to reflect progress made in the decarbonisation of our energy system. Although the CCL is seen as a levy to tackle climate change, it has in fact been designed as a levy on energy consumption and it assumes that all consumption (except self-supply of renewables such as solar) results in greenhouse gas (GHG) emissions. This is increasingly untrue when applied to electricity, due to the decarbonisation of the electricity grid, and will also become increasingly untrue for gas as we make our gas supplies greener with sustainable gases. We believe Government should not apply the levy to clean energy (gas or electricity), as this is counterproductive and deters consumers from switching to clean energy sources.

About Centrica

Centrica is an integrated leading energy services and solutions provider founded on a 200-year heritage of serving people. Centrica's purpose of energising a greener, fairer future drives our strategy and our People and Planet Plan.

Retail

We are the UK's biggest retailer of zero carbon electricity, serving over 10 million customers across the UK, Ireland, and continental Europe through brands such as British Gas.

Infrastructure

Centrica Energy Storage+ (CES+) owns and operates the largest UK gas storage facility at Rough and has plans to redevelop the facility to be hydrogen ready. The business has also larger ambitions outside of storage, including onshore and offshore hydrogen production to help decarbonise its own as well as its customers' operations across a variety of industries. Our 10 MWe electrolytic hydrogen project to decarbonise Singleton Birch Kilns in Melton Ross (South Humber) was recently shortlisted by Government under the second Hydrogen Allocation Round (HAR2) of the Hydrogen Production Business Model.

Centrica Business Solutions (CBS) works with businesses across the UK, Ireland, Europe, and North America to provide energy insights, optimisation, and on-site generation solutions that our customers need to achieve their goals. The technologies we work with include Solar Photovoltaics (PV), batteries, Combined Heat and Power (CHP) and heat pumps.

Optimisation

Centrica Energy (CE) is the energy trading and optimisation arm of Centrica plc. It trades LNG, gas, power (including compliant PPAs and optimisation services to electrolysers and batteries) and energy attributes and connects independent producers, suppliers and corporate off-takers in the wholesale energy markets. Capacity under management, including renewables and optimisation assets increased to 16.7GW in 2024 from 16.3GW in 2023, of which more than 75% are renewables. Additionally, we have a growing route-to-market business for green gas.

We look forward to future engagement with you and other industry parties. I hope you find these comments helpful but please contact me if you have any questions.

Yours faithfully,

Dr Mariachiara Zennaro

Regulatory Affairs Manager – Biomethane, Hydrogen and GB Gas

Centrica

Our response to the consultation questions

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 electrolysers, solid oxide electrolysers). Can electricity used in electrolysis be described as either purely non-fuel use, or any fuel use incidental in all cases?

Yes. We agree that all water electrolytic processes use power to aid an electrochemical reaction to make hydrogen. In our view this can be described as non-fuel use. However, the overall electrolysis process may also use electricity in a non-fuel role, for example in heating / cooling or compression within the system.

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

Yes, different technologies will inevitably have different efficiencies. It should be expected that even within the same family of electrolysers (proton exchange membrane/PEM, alkaline and solid oxide electrolysers/SOE) there will be slight differences in the amount of electricity required to produce a kilogram of hydrogen. Differences between PEM and alkaline electrolysers have been observed across projects within Centrica. It is our understanding that for selected PEM and alkaline electrolysers the amount of energy required per kilogram of hydrogen is 55 – 65 kWh for alkaline and 50 - 60 kWh for PEM. Technological advances may also improve efficiencies over time across all types of electrolysers. Centrica have engaged the market to obtain the above values, but this should not be treated as an exhaustive comparison.

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)?

There will be different types of energy usage within a plant producing hydrogen by electrolysis.

The main additional uses of energy within these systems would be the operation of pumps, system controls and instrumentation, compressors and heating and cooling requirements. The significance will vary according to the type of electrolysis and according to any project-specific variations. Centrica estimates that if compression is required, it will act as the largest external energy user, accounting for 5% - 7% of the estimated energy consumption of a site. In our view this is an incidental usage of energy (ie used for another process separate from the electrolytic reaction) and should therefore still be added as non-fuel usage. Each site will have different cooling, heating and compression requirements which will add additional energy requirements to the site.

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

We anticipate a steady growth in low carbon hydrogen production over the next 10 years if Government rolls out the key policy mechanisms and measures it has committed to in a timely manner.

The UK Government is committed to positioning the country as a global leader in hydrogen. In the recent Hydrogen Strategy Update to the Market, published last December, Minister Sarah Jones recognised the critical role of low carbon hydrogen to achieving net zero and delivering the Government's Clean Energy Superpower and Growth Missions. Hydrogen will be crucial as a flexible, low carbon energy source that can support renewable integration, provide reliability, balance a high renewables world, and enable a more cost-efficient whole energy system for homes and business.

The seventh Carbon Budget published in February also stresses that hydrogen has a pivotal role in achieving net zero. The Climate Change Committee confirmed that hydrogen will be essential to decarbonise sectors where electrification is challenging, such as ceramics and chemical production. It serves as a vital source of long-term storable energy and as a crucial feedstock for sustainable aviation fuels, underscoring its potential in driving our transition to a low carbon growth focused economy.

The Government is also committed to introduce a long-term funding mechanism for the Hydrogen Production Business Model, the so-called Gas Shipper Obligation, which they recently consulted on. This enduring funding mechanism is critical to provide certainty and confidence to the sector and kick start the hydrogen market. However, key policy measures such as the removal of the Climate Change Levy from low carbon hydrogen must be adopted as a matter of urgency to ensure the hydrogen market does not lead to unacceptable cost increases for consumers.

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?

We strongly recommend that option A, with some amendments, is adopted given that a solution must be in place for projects that have been awarded the first allocation round (HAR 1) of the Hydrogen Production Business Model. Option A is the option that can be implemented more swiftly.

In addition, while initially focused on electrolysis, secondary legislation allows easier future updates to accommodate emerging technologies such as pyrolysis, plasma reforming, or others not yet commercialised. This flexible route avoids the delays and uncertainty of primary legislation, making it a sensible and adaptable path forward.

However, as previously mentioned, not all electricity used in electrolytic hydrogen production is for the electrolysis process (ie the splitting of the water molecules), and, in addition, there are other pathways to produce low carbon hydrogen (such as pyrolysis, gasification and thermal plasma electrolysis) that option A would exclude.

We believe all the commodities used to produce low carbon hydrogen should be relieved from the CCL, not just that used for the actual electrolytic process. Government should therefore avoid narrowing or restricting the description, to ensure broader applicability to current and future hydrogen technologies.

The current proposed wording includes the phrase "electricity used for electrolysis to produce hydrogen". This should be changed into "any commodity or energy used to produce hydrogen".

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?

As highlighted above, Option A is our preferred option because it is quicker to implement, but the suggested wording is excessively narrow and would benefit some forms of production over others in a way that prevents competition.

As this is a "live" issue with the HAR 1 projects, the need for a solution that covers these projects is critical and this would only be possible with option A. However, we recommend rephrasing the currently suggested wording "electricity used for electrolysis to produce hydrogen into "any commodity or energy used to produce hydrogen. This would also include alternative pathways to produce hydrogen (such as pyrolytic processes or thermal plasma pyrolysis) that are excluded by the current proposals.

As HMRC is aware, this approach means defining electricity used in hydrogen production as "non-fuel" or mostly non-fuel use (where fuel use is incidental).

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

The unintended consequence of the proposed wording is to favour electrolysis over other methods, which would be problematic, as explained above.

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?

This option would make the law more consistent to itself – previously gas input fuel was relieved and electricity as input fuel was not. Under this option the additional cost of CCL caused by a CCL charge on the electricity supply to an electrolyser would be removed.

However, it would delay implementation significantly, missing the opportunity to deliver changes this year. In addition, with evolving technologies and no certainty on future hydrogen production methods, broad exemptions could be difficult to define and control. Introducing exemptions for fuel use may raise compliance and definitional issues, particularly if hydrogen production pathways continue to diversify.

Option B represents a risk in being too tightly connected to just one method of production and would involve administrative burdens on PP10/PP11 exemption forms.

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?

We are aware of no unforeseen consequences.

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.

We support a wider exemption of all energy inputs to the production of low carbon hydrogen, regardless of the type of energy input or the type of pathway used.

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?

There is no need to specify a low carbon threshold for energy input as the Low Carbon Hydrogen Standard already includes specific eligibility criteria in terms on the energy inputs that can be sourced to produce hydrogen compliant with the Low Carbon Hydrogen Standard. To maintain simplicity and consistency with other Government policies we recommend that all energy input into the production of hydrogen compliant with the Low Carbon Hydrogen Standard are relieved from the CCL. Annex B of the Low Carbon Hydrogen Standard specifies all the evidence required for the electricity supply to a hydrogen production plant under the standard.

Option C – 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?

In our view making hydrogen a taxable commodity would risk the commercial viability of hydrogen projects by willingly putting them in scope for CCL levies on supply to customers.

Blended supplies of hydrogen and natural gas may be subjected to CCL if supplied by pipeline as a utility gas supply. The market frameworks required to support the supply of hydrogen to customers are at an early stage of development and they may change as the hydrogen economy develops. We cannot therefore exclude at this stage that hydrogen supply to customers or risk-taking intermediaries in the future will not be considered as a utility gas supply. This means there is a risk that in the future offtakers of hydrogen would be subject to pay the CCL on the hydrogen supplied to them, placing an additional cost that may discourage adoption by the market compared to cheaper alternatives.

In addition, we do not support this option as it would also take too long to be implemented and would not be in time to be adopted for early projects.

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

Yes. It is time to consider whether the Climate Chang Levy was intended to be a tax on energy consumption or a tax on GHG emissions. The regulation and guidance are not coherent in this respect. We believe that it should focus on GHG emission reduction rather than energy consumption. It is understood as the latter but described as the former.

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

As previously mentioned, we don't believe low carbon hydrogen should be made a taxable commodity as this would deter offtakers from fuel switching to the clean fuel. It doesn't make sense to tax a commodity that can be used to deliver GHG emission abatement and replace fossil fuels.

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, we believe the approach should be consistent (ie hydrogen should not be taxable, whether included in blends or pure).

Summary of Options

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

As highlighted above, our preferred approach is a slightly amended version of option A, with a less narrow text, which could be used as a permanent solution.

We believe that the timeline required to implement Option B is too long to facilitate the HAR1 projects and it would hinder the general development of the hydrogen economy. Adapting existing secondary legislation, with the ability to continue to amend it as needs arise, is also less likely to obstruct currently unseen future developments in the technology of hydrogen production.

We are strongly against option C as this option would make hydrogen a taxable commodity and this would discourage hydrogen offtakers to fuel switch to hydrogen to decarbonise their processes.

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?

Yes, as the industry develops, tax law must also change to accommodate developments.

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

No

Chapter 4 – Ensuring 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?

Yes, as any tax on energy must encourage businesses to wish to reduce their consumption.

However, there are some challenges. The CCL is seen as a levy upon climate emissions but is written as a levy on energy consumption. It assumes that all energy consumption (except self-supply of renewables such as solar) results in emissions. This is increasingly untrue when applied to electricity due to changes in the electricity infrastructure landscape and the increasing share of clean electricity in the energy mix. UK's electricity is increasingly produced by renewables such as wind, solar or hydroelectric, or clean production such as nuclear. This may be worthy of reconsideration.

In our view supplies that do not produce carbon emissions should benefit from an exemption, for example where it is possible to isolate the supply through the purchase of specific renewable PPAs. This is available already where a business consumer contracts directly with a renewable

electricity supplier but not via an energy utility, which disadvantages the utility from acting as an intermediary for clean power.

A CCL exemption on resale of renewable or low carbon (nuclear) electricity at a utility level would provide further economic motivation to energy utilities to secure renewable energy supply.

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?

Government should provide more clarity on the CCL treatment on supplies to and from Battery Energy Storage Systems (BESS) – see below answer to Q25. Supplies to and from a BESS should not be seen as a supply, but as a way of changing the timing of a supply.

Government should also consider the CCL treatment of Sustainable Aviation Fuels (SAF) and other Synthetic Fuels – these are fuels created from hydrogen and previously captured carbon dioxide and they are seen as critical to decarbonise sectors like aviation and contribute to energy security. It would be beneficial to their economics if CCL was not incurred during production or consumption, to align with current CCL treatment upon jet fuel, petrol and diesel for motor transport.

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

We don't have further comments on this question.

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?

Biomethane

Government should consider a CCL relief on biomethane from the gas network as currently the green gas attracts the same rate as natural gas. Evidence such as Green Gas Certificates (or Renewable Gas Guarantees of Origin) could be provided to demonstrate the renewable origin of the gas supplied.

Sustainable aviation fuels

The CCL treatment of SAF should be carefully considered not to discourage the take up of these technologies which are seen as critical to decarbonise the aviation sector.

Sustainable Aviation Fuel (SAF) can be produced via the Fischer-Tropsch process combining low carbon hydrogen with biogenic sources of CO2, or as a side-effect of Lyme-making. Some electricity might be used in the Fischer-Tropsch process, in addition to natural gas for heater elements.

Renewable electricity

The exemption below (referenced here in HMRC Notice CCL 1/3) is not available to "utility" suppliers such as Centrica but could be used by a competitor who was exempted from holding a generation or utility licence to compete with us by supplying renewable electricity directly to a consumer via the National Grid without charging CCL. The exemption should be made available to utility suppliers.

Supplies of electricity from renewable sources not liable to CCL
Where you are an auto-generator or exempt unlicenced supplier, there is no requirement to account for CCL on self or direct supplies of renewable source electricity.

Direct supplies means a supply made under a contract involving only the renewable generator and the customer, with no intermediary third-party taking ownership of the electricity. Direct supplies include those made by the distribution system of a licensed electricity distributor, provided no one else takes ownership of the electricity.

There is no requirement to provide forms Climate Change Levy: relief supporting analysis (PP10) and Climate Change Levy supplier certificate (PP11) where renewable source electricity is not liable to main rates of CCL. When claiming other reliefs, renewable source supplies must be deducted.

Battery Storage and CCL Exposure – Suggested HMRC Guidance

- **Clarification on CCL Treatment for Battery Storage Charging**
  Currently, there is no explicit exemption for electricity used to charge battery storage under CCL legislation. This creates uncertainty regarding whether CCL applies at the point of charging, potentially leading to retrospective tax liabilities for some market participants if challenged by HMRC. Clear guidance on the CCL treatment of stored electricity would provide much-needed regulatory certainty.

- **Unequal Treatment of Market Participants**
  Under the existing framework, licensed utilities face higher CCL exposure compared to non-utilities. If HMRC were to challenge the tax treatment of battery storage, licensed suppliers could be subject to retrospective CCL charges, while non-utilities would likely face only prospective exposure. This creates a competitive imbalance in the energy market.

- **Minimum 2MW Capacity Requirement and Market Impact**
  The current exemption applies only to battery storage facilities over 2MW, which qualify as “generating stations.” This effectively prevents smaller battery storage sites from benefiting from the exemption, acting as a barrier to investment in smaller-scale, flexible energy storage solutions. Greater clarity on whether all battery storage facilities should be treated as "generating stations" under CCL rules would help encourage investment in a wider range of energy storage projects.

- **Policy and Compliance Considerations**
  Without a clear exemption for battery storage, operators may face additional costs and administrative burdens, making certain storage projects less financially viable. Providing a specific exemption for stored electricity, regardless of battery size, would support the growth of energy storage technologies and align with the UK's net-zero ambitions by enabling a more flexible and efficient energy grid.