



**Options for Decarbonisation of the existing CRM
design**

SEM-25-070

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EXECUTIVE SUMMARY

This consultation paper sets out proposals for decarbonisation of the existing Capacity Remuneration Mechanism (CRM) in the Single Electricity Market (SEM). The CRM, implemented in 2018, is currently operating under State aid approval until May 2028. In light of evolving EU policy, particularly the Climate, Energy and Environmental Aid Guidelines (CEEAG), and the climate targets across Ireland, Northern Ireland, and the European Union (EU), the SEM Committee is considering measures to reduce carbon emissions within the current CRM framework.

This consultation paper accompanies an assessment report ('the report') authored by AFRY, which explores a range of possible options to decarbonise, recommending a number of proposals.

The purpose of this consultation paper is to set out a number of questions related to the report, in order to seek stakeholder views on the decarbonisation options that could be implemented and have an impact within the timeframe of the remaining auctions held under the existing CRM design. These proposals aim to support the SEM Committee's strategic goal of delivering secure, low-carbon electricity outcomes and ensuring compliance with CEEAG requirements.

The key, mutually exclusive, proposals for consultation are:

- **Green Bonus:** An extension of contract duration for capacity units that meet defined low-carbon criteria, including emissions thresholds and hydrogen-readiness; or
- **Green Scalar:** A multiplier applied to the Capacity Payment Price based on a unit's carbon emissions intensity, incentivising lower-carbon technologies.

In addition, two supporting proposals are presented:

- **Emissions Data Publication:** Annual publication of CO₂ emissions data for capacity market units to enhance transparency and support future policy development; and/or
- **Decarbonisation Declaration:** A formal declaration and plan from bidders with fossil fuel-based capacity, outlining their pathway to net zero by 2050.

Stakeholders are invited to respond to the consultation by close of business on the 6 February 2026. Responses should be submitted to both CRMsubmissions@cru.ie & crmsubmissions@uregni.gov.uk.

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Glossary of Terms and Abbreviations

Abbreviation or Term	Definition or Meaning
ACER	Agency for the Cooperation of Energy Regulators
Blended Hydrogen-Readiness	The capability of a generation unit to burn a blend of hydrogen fuel (here, up to 30%), as part of its combustion process.
CEEAG	Climate, Energy and Environmental Aid Guidelines
Carbon Emissions Intensity	The amount of carbon dioxide emitted per kilowatt-hour of electricity produced by a generation unit
CRM	Capacity Remuneration Mechanism
EU	European Union
ILC	Intermediate Length Contract
SEM	Single Electricity Market
TSO	Transmission System Operator

1. Introduction

1.1 Background and context

In 2024, the SEM Committee considered the alignment of the current Capacity Remuneration Mechanism (CRM) with the updated State aid guidelines, the Climate, Energy and Environmental Aid Guidelines (CEEAG)¹. Subsequently, the SEM Committee published its Forward Work Plan 2024-25, which includes an action to consult on policy measures to further the decarbonisation of the Single Electricity Market CRM and aid compliance with the CEEAG.

To this end, AFRY were engaged to assess the options for decarbonisation of the existing CRM within the lifetime of the current design. The SEM Committee is publishing AFRY's report alongside this consultation paper.

This consultation seeks industry feedback on decarbonisation measures that the SEM Committee is now considering for the existing CRM design, and which could be implemented within the remaining operational period of the current CRM. It builds on the SEM Committee's recent decision to introduce Intermediate Length Contracts (ILCs), whilst also being driven by changes in the State aid guidelines with the publication of the CEEAG.

This work forms part of a larger programme of work regarding the development of the CRM. The second phase of this programme will be focused on the next State aid application and support the development of a future CRM design to be implemented after the expiry of the current approval. The SEM Committee intends to publish an update on this workstream in early 2026.

1.2 Related Documents

This consultation paper should be read in conjunction with the report, which provides AFRY's evaluation of decarbonisation options for the existing CRM. The report includes analysis of emissions potential, international best practices, and a proposed shortlist of measures. It serves as a key reference underpinning the proposals outlined in this consultation.

¹ [EUR-Lex - 52022XC0218\(03\) - EN - EUR-Lex](#)

1.3 Structure of Paper

The consultation paper is structured as follows:

- Section 2 presents the proposed decarbonisation measures, including the two principal measures – the “Green Bonus” and “Green Scalar” – and two supporting measures – emissions data publication, and decarbonisation declarations from bidders. The paper also invites feedback on other options referenced in the report.
- Section 3 outlines the next steps in the consultation process, including timelines and instructions for submitting stakeholder responses.

The consultation period will run until the 6th February 2026, and responses should be sent to both CRMsubmissions@cru.ie & crmsubmissions@uregni.gov.uk.

2. Proposed Decarbonisation Measures

The SEM Committee is considering implementing one of the two principal measures recommended by AFRY (i.e. the Green Bonus or the Green Scalar). The SEM Committee notes that AFRY has conducted its analysis based on the assumption that any chosen measure would be in place in time for the T-4 auction after the T-4 2029/30 auction. The SEM Committee is also considering implementing the supporting measures – publication of emissions data and the introduction of a Decarbonisation Declaration requirement – described in the report.

The following sections set out the SEM Committee’s proposal for the implementation of each of these four measures² and request respondents’ feedback, including to the specific consultation questions posed. In some cases, supporting evidence is requested.

2.1 Green Bonus

The concept of the Green Bonus is that would provide additional contract length for Capacity Market Units that meet certain “green” criteria. This additional contract length would provide longer-term revenue certainty, potentially allowing the participant to access lower-cost funding, and allowing units eligible for the Green Bonus to bid more competitively into the CRM auctions.

A Green Bonus of two additional years’ contract duration has been in place in the Polish capacity market since 2017 for units that do not exceed a CO₂ emissions threshold of 450g/kWh. While this threshold was implemented in Poland in the context of a coal-dominated system, with the intent to drive the development of gas capacity, other technology types such as biomass and storage have also availed of the Green Bonus.

SEM Committee proposal

If selected, the Green Bonus would consist of an additional contract duration of one year for ten-year new or five-year refurbishing capacity that meets the following “green” criteria:

1. Does not emit more than a defined number of grams of CO₂ of fossil fuel origin per kWh of electricity produced. This threshold would be tighter than the

² For the avoidance of doubt, the Green Bonus and the Green Scalar are mutually exclusive options.

legislative 550g/kWh limit and would be set so as to incentivise higher efficiency gas plant as well as technologies that have lower carbon emissions of fossil origin than natural gas³. This carbon emissions intensity would be declared at Qualification Stage and verified at Substantial Completion.

2. For gas plants, must incorporate combustion equipment that is capable of burning a blend of up to 30 vol% hydrogen. This capability would need to be evidenced through certification by the gas turbine manufacturer at Qualification Stage and verified at Substantial Completion.

A 30 vol% blend is being proposed for the purpose of defining blended hydrogen-readiness based on the expected potential composition of gas in the natural gas transmission systems in the 2030s^{4,5,6} at this time and on our understanding of the technical capabilities of gas turbine technology that is currently available⁷. This requirement could be increased to a higher % blend in future as needed to reflect evolving policy developments and technology readiness. The SEM Committee notes that this proposal relates to *blended* hydrogen-readiness and does not preclude the development of criteria related to full hydrogen-readiness in the future, which may require up to 100 vol% hydrogen capability.

For the avoidance of doubt, the Green Bonus would be available to both five-year ILC and ten-year New Capacity.

Participants would apply for the Green Bonus at Qualification/Exception Application Stage, with their entitlement to bid for the bonus subject to approval by the RAs.

Consultation questions regarding the Green Bonus

1. Would the Green Bonus create an incentive that market participants can respond to within the timeframe of the remaining auctions under the existing CRM⁸?

³ Noting that in future, if the Green Bonus were to be carried through to the design of the new CRM post-expiry of the existing State aid approval, this threshold could be lowered over time.

⁴ [Assets.gov.uk/static/documents/national-hydrogen-strategy.pdf](https://assets.gov.uk/static/documents/national-hydrogen-strategy.pdf)

⁵ [Consultation on a Sustainable, Regional Approach for the Production, Storage, Transport and Use of Hydrogen as a Fuel](#)

⁶ [Hydrogen blending into the GB gas transmission network: consultation document - GOV.UK](#);

⁷ See the recent Hydrogen Acceptability Study commissioned by National Gas in GB: [Hydrogen Acceptability Summary Report.pdf](#).

⁸ Not including the upcoming T-4 2029/30 auction in March 2026.

2. Where should the CO₂ emissions threshold be set to incentivise higher efficiency gas plant as well as lower carbon technologies? Please provide appropriate evidence and rationale to support.
3. Is one year the appropriate additional contract duration?
4. Is the definition of blended hydrogen-readiness appropriate i.e. that the unit must incorporate combustion equipment that is capable of burning a blend of up to 30% hydrogen? Should a higher/lower percentage blend be applied for the blended hydrogen-readiness definition?

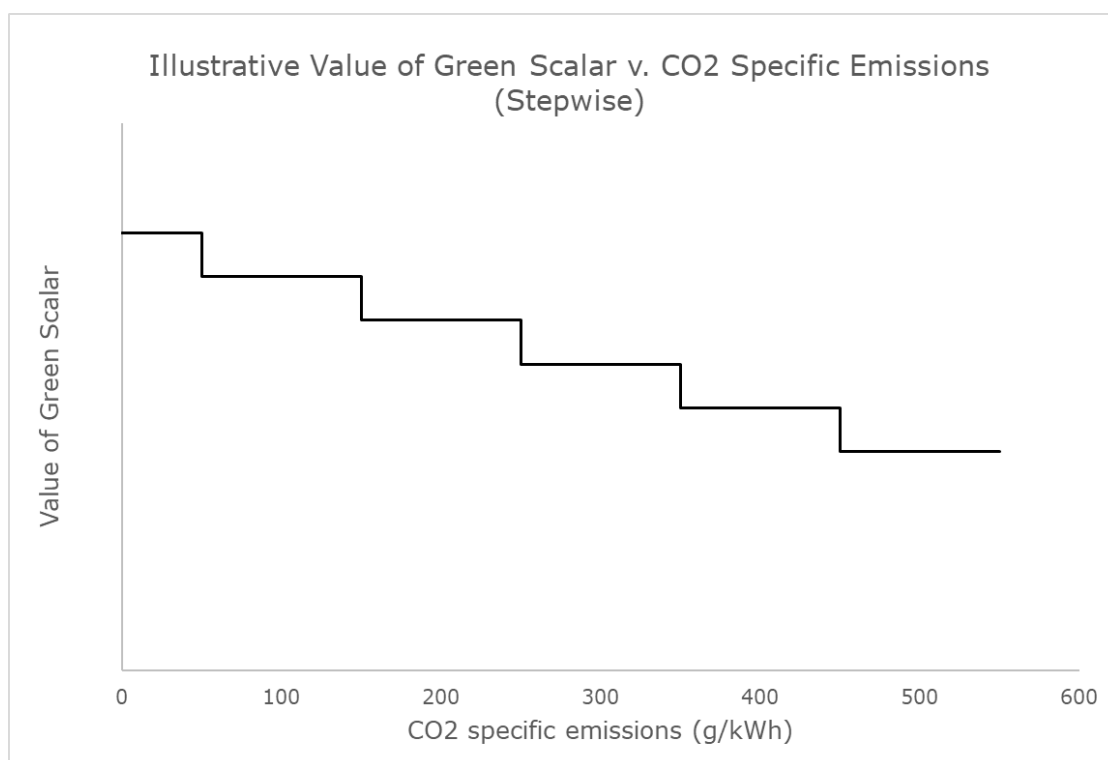
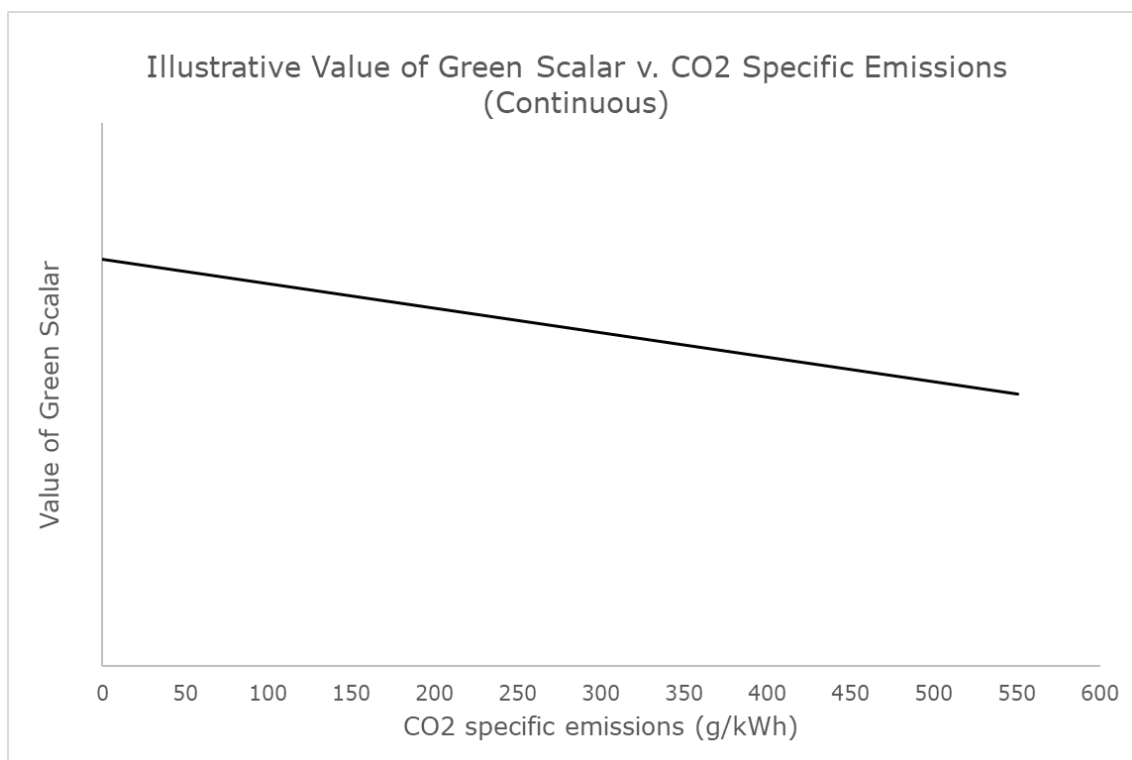
2.2 Green Scalar

The Green Scalar is a relatively novel concept in the context of Capacity Market design in Europe, although a similar idea has recently been consulted on in GB. It would create an incentive for lower carbon capacity by increasing the Capacity Payment Price of successful units as a function of their carbon emissions intensity. As the scalar values would be published in advance of the auction, participants could reflect the impact of the scalar in their bids, allowing them to bid more competitively.

The SEM Committee recognises that the development of this option may be subject to greater risk in terms of the timeframe for implementation and for State aid approval, given its relative novelty. However, it offers a more nuanced approach than the Green Bonus to the incentivisation of low carbon technologies in the CRM and may be more forward-looking as a result.

SEM Committee proposal

If selected, the Green Scalar would consist of a multiplier on the Capacity Payment Price of successful units, reflecting their carbon emissions intensity. A scalar value of 1 would be applied to the capacity payment price of successful units with emissions at the legislative 550g/kWh threshold. The value of the scalar would increase as the carbon emissions intensity of the successful units decreased relative to that threshold. This could be a continuous function, or a stepwise one with specific emissions bands associated with specific scalar values. Illustrative examples of these two approaches are shown in the figures below.



The values of the parameters defining this function would be consulted on, and decided, in advance of each auction, alongside the other capacity auction parameters. The carbon emissions intensity would be declared at Qualification Stage and verified at Substantial Completion.

Consultation questions regarding the Green Scalar

5. Would the Green Scalar create an incentive that market participants could respond to within the timeframe of the remaining auctions under the existing CRM⁹?
6. What are the appropriate CO₂ emissions thresholds that should apply for the Green Scalar? Please provide appropriate evidence and rationale to support.
7. Should the Green Scalar be a continuous or stepwise function?

Consultation questions relevant to both the Green Scalar and Green Bonus

8. Which of these two options – the Green Scalar or the Green Bonus – do respondents consider is likely to be more effective within the timeframe of the remaining auctions under the existing CRM⁹?
9. What technologies could be expected to benefit from the Green Bonus or the Green Scalar in the specified timeframe?
 - a. For each technology referred to, what is the associated scale of and timeframe for investment for an existing or a new plant?
10. What is the expected commercial running pattern for each technology and are there constraints on its flexibility?
11. What verification process should apply to ensure compliance with the emissions thresholds for either measure?

2.3 Emissions Data Publication

The ACER Opinion on the calculation of CO₂ emissions limits¹⁰ sets out a common EU methodology for calculating the specific and annual emissions of generation capacity participating in Capacity Markets. The SEM Committee published additional guidance¹¹ on this methodology in 2020. As it stands, all applicants applying for qualification for a CRM auction must provide ex-ante information regarding the CO₂

⁹ Not including the upcoming T-4 2029/30 auction in March 2026.

¹⁰ <https://www.acer.europa.eu/sites/default/files/documents/Publications/Opinions/ACER%20Opinion%2022-2019%20on%20the%20calculation%20values%20of%20CO2%20emission%20limits.pdf>

¹¹ <https://www.semcommittee.com/files/semcommittee/media-files/SEM-20-036%20CEP%20Technical%20Guidance%20Information%20Note.pdf>

emissions intensity of their unit. The ACER Opinion also requires ex-post verification in the case of certain unit types, most commonly including:

- Generation units using mixed fuels;
- Waste-to-energy generation units; and
- Generation units in which CO₂ is captured and transferred.

The intention of this existing reporting is to ensure compliance with the emissions limits set out in the 2019 Electricity Regulation¹². As decarbonisation increasingly plays into the operation of the CRM, through the implementation of the Green Bonus or Green Scalar, and through further development for the next State aid application, it may be appropriate to expand the scope of this ex-post reporting to ensure that capacity availing of “green” incentives continues to meet eligibility requirements on an ongoing basis.

SEM Committee proposal

Based on the reporting regime currently in place, the SEM Committee is proposing to introduce a requirement for the CO₂ emissions information for each capacity market unit receiving capacity payments for a given year to be published by the TSOs on an annual basis. If and when the scope of the current reporting regime is expanded, the intention would be for the resulting additional data to also be published. The SEM Committee considers that this will provide greater transparency regarding the carbon emissions contribution of each Capacity Market Unit and will support the development of future decarbonisation policy related to the CRM, as well as the impact assessment of any such changes already introduced.

Consultation questions

12. Do you agree with the proposal to publish the carbon emissions data submitted at qualification by successful units, and where relevant, ex-post data provided by successful units?

¹² [Regulation - 2019/943 - EN - EUR-Lex](#)

2.4 Decarbonisation Declaration from Bidders

A “Decarbonisation Declaration” from bidders would be required in respect of units producing carbon emissions of fossil fuel origin. A similar requirement for a decarbonisation commitment is in place in the Belgian CRM. The intention of this declaration is to ensure that successful participants in Capacity Auctions have formally acknowledged their role in contributing to decarbonisation and actively plan for how they are going to do so.

SEM Committee proposal

At Qualification Stage, applicants with new or ILC multi-year fossil capacity would be required to submit the following:

- a. A signed Director’s declaration acknowledging the role of the participant in contributing to meeting the relevant decarbonisation targets, including through an accompanying plan for decarbonisation of the successful capacity with the objective of reaching net zero by 2050.
- b. A plan for decarbonisation of the successful capacity market unit. This plan should include an indicative timeline with the ultimate objective of reaching net zero by 2050. An updated plan will be required to be submitted after 5 years for multiyear contracts that exceed this term.

Consultation questions

13. How effective do respondents consider the proposed “Decarbonisation Declaration” would be?
14. Is the proposed content of the “Decarbonisation Declaration” sufficient? Could other elements be included e.g. feasibility study, interim targets?

2.5 Other measures

Finally, the SEM Committee notes AFRY’s longlist of options for decarbonisation of the SEM CRM.

15. Do you consider that any of the other measures discussed in the accompanying AFRY Assessment Report, or any measures to achieve decarbonisation that not identified by AFRY, should be considered further by the SEM Committee? If so, please state clearly if your view relates to the timeframe of the present

workstream (lifetime of the existing CRM) or longer-term CRM development. If so, please provide supporting evidence.

3. Next Steps

The SEM Committee invites views from stakeholders on the various questions presented in this consultation paper. The SEM Committee would welcome supporting evidence and information where relevant.

Responses to this consultation paper should be sent to both CRMsubmissions@cru.ie & crmsubmissions@uregni.gov.uk by close of business on the 6 February 2026. It would be appreciated if responses are submitted in searchable PDF or Microsoft Word format.

Unless marked confidential, responses will be published on the SEM Committee website. Respondents may request that their response is kept confidential, and such request will be respected subject to any legal disclosure requirements. Respondents who wish to have their responses remain confidential should clearly mark their response to that effect. Confidential information should be contained in a separate appendix, if possible, to allow publication of the rest of the response.

The SEM Committee notes that some of the questions in this consultation call for detailed information, which may be confidential, and would encourage participants to submit such information, marking as confidential as necessary.

The SEM Committee will carefully consider all comments received, with a view to publishing a decision in Q2 2026. Following publication of a decision, the RAs will develop any necessary modification proposals to the CMC and/or other documents.