



Department for
Energy Security
& Net Zero

Designing a framework for transparency of carbon content in energy products

Summary of Responses

July 2023



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1. Introduction

In the December 2020 *Energy White Paper*, we committed to “ensure consumers are provided with more transparent and accurate information on carbon content when they are choosing their energy services and products”.¹

A Call for Evidence was issued by the Department for Business, Energy & Industrial Strategy (BEIS) on 16th August 2021, and closed on 6th December 2021. This summary of responses is now being published by the Department for Energy Security and Net Zero (DESNZ).

The Call for Evidence received 37 responses, including from consumer groups, energy suppliers, think-tanks, consultants, and other market participants. We are grateful to all those who took the time to respond.

Since the Call for Evidence was released, there has been significant progress across the Department. This includes the publication of the *Net Zero Strategy*, the first document of its kind for a major economy, which set out our vision for a market-led, technology-driven transition to decarbonise the UK economy and reach net zero by 2050. The *Net Zero Strategy* also included our commitment to have a fully low-carbon power sector by 2035, subject to security of supply, to underpin our net zero ambitions.²

This was followed by the *British Energy Security Strategy*³, in which we committed to undertake a comprehensive review of electricity market design, to ensure that it is fit for the purpose of maintaining energy security and affordability for consumers as the electricity sector decarbonises. This is now being taken forward in the Review of Electricity Market Arrangements (REMA) programme⁴.

Earlier this year, we published *Powering Up Britain*⁵, which set out how we will enhance our country’s energy security, seize the economic opportunities of the transition, and deliver on our Net Zero commitments. This set of documents included the *Energy Security Plan*, *Net Zero Growth Plan*, and Government response to the recommendations of the *Independent Review of Net Zero*. This builds on our ambitions set out in the *British Energy Security Strategy* and the *Net Zero Strategy* to enable the transformation of the energy system so it is secure, low-cost and low-carbon.

¹ <https://www.gov.uk/government/publications/energy-white-paper-powering-our-net-zero-future>

² <https://www.gov.uk/government/publications/net-zero-strategy>

³ <https://www.gov.uk/government/publications/british-energy-security-strategy/british-energy-security-strategy>

⁴ <https://www.gov.uk/government/consultations/review-of-electricity-market-arrangements>

⁵ <https://www.gov.uk/government/publications/powering-up-britain>

Review of Electricity Market Arrangements (REMA)

The Review of Electricity Market Arrangements seeks to fulfil the following objectives:

- Ensure a cost-effective transition as we move to our future Net Zero consistent power sector,
- Maintain a secure electricity supply throughout the 2020s and beyond, as we continue to move away from fossil fuel-based generation technologies, and
- Ensure our decarbonisation ambitions are delivered, so that the power sector contributes towards our legally-binding carbon budgets and we achieve our aim of a fully decarbonised power sector by 2035, subject to security of supply.

The first REMA consultation ran from July to October 2022. It considered the key whole systems issues that need to be addressed through electricity market arrangements to deliver an energy system for the future. In March 2023, we published the summary of responses to the first REMA consultation. We aim to publish a second REMA consultation in autumn 2023 and will take decisions on shorter-term reforms more quickly where it is viable to do so.

As detailed in the summary of responses to the first REMA consultation, we noted the feedback on the potential role of Power Purchase Agreements (PPAs) in driving investment in mass low carbon generation. We are considering the role of Government in this market as part of our ongoing policy development. We also set out that enabling system flexibility is a key priority of the REMA programme. We are continuing to explore how reform – including through the wholesale market, capacity market and considering the role of suppliers – can enable system flexibility, and will set out further thinking on this in the second consultation. We have also considered the evidence provided in response to this Call for Evidence as part of REMA policy development.

A smart and flexible system

Building a smart, flexible, and digitalised energy system that actively manages the scale and nature of demand will enable a more efficient, secure, and lower cost system. Since the publication of the *Smart Systems and Flexibility Plan*⁶ and *Energy Digitalisation Strategy*⁷ in July 2021, government, Ofgem and industry have been working to remove barriers, facilitate change, and spur innovation to deliver a smart and flexible energy system. The government has since set out further proposals which build on these actions and embed smart and flexibility principles throughout our work to achieve power decarbonisation by 2035, support energy independence and achieve Net Zero at least cost by 2050. This is essential for integrating high volumes of low carbon power, heat, and transport and reduce costs by up to £10 billion per year by 2050.

⁶ <https://www.gov.uk/government/publications/transitioning-to-a-net-zero-energy-system-smart-systems-and-flexibility-plan-2021>

⁷ <https://www.gov.uk/government/publications/digitalising-our-energy-system-for-net-zero-strategy-and-action-plan>

The 2023 *Electric Vehicle Smart Charging Action Plan*⁸ sets out the steps that government and Ofgem will take to deliver energy flexibility from electric vehicle (EV) charging, providing affordable, green power. The transition to EVs is expected to stimulate electricity suppliers to develop a wider choice of tariffs marketed to EV drivers. The tariffs incentivise domestic and non-domestic customers who drive EVs to smart charge their vehicles to avoid peak electricity demand times, through economic rewards and reduced carbon impact.

Renewable Energy Guarantees of Origin / Guarantees of Origin recognition

The regulations governing GB's Renewable Energy Guarantees of Origin (REGO) scheme originally derived from European Union legislation. From 1 January 2021, following the UK's withdrawal from the EU, Guarantee of Origin (GoO) certificates issued in GB were no longer recognised by EU member States. However, GoOs issued in EU countries continued to be recognised in GB. We therefore committed to review this lack of reciprocity in the recognition of certificates.⁹ A public consultation took place in spring 2022, seeking the views of stakeholders about when recognition of EU GoOs should end in GB.¹⁰ Over 70% of respondents chose 1 April 2023 as their preferred implementation date, and in July 2022, we announced that the recognition of EU GoOs in GB would end on this date. Secondary legislation was then laid before Parliament in November 2022 to achieve this change. The change took effect from 1 April 2023.

We are now undertaking a broader review of the REGO scheme, exploring how it can further benefit the production of renewable electricity in the UK.

Public engagement for net zero

The government approach to public engagement for Net Zero was set out in the *Net Zero Strategy*. The public will play a key role in the transition, and in the coming months we will set out further detail on how Government will (i) support public awareness of our actions through our digital platforms, (ii) develop a roadmap setting out plans and proposals under net zero and (iii) construct a guiding framework, in conjunction with partners and trusted messengers, to amplify Net Zero messaging.

The Government is committed to empowering people and businesses to make their own green choices. In July 2022, the government launched an online advice service that provides high-

⁸ <https://www.gov.uk/government/publications/electric-vehicle-smart-charging-action-plan>

⁹ <https://www.gov.uk/government/publications/generating-low-carbon-electricity>

¹⁰ <https://www.gov.uk/government/consultations/feed-in-tariffs-and-contracts-for-difference-proposals-relating-to-guarantees-of-origin>

level trusted, impartial, and tailored advice to consumers on how to improve home energy performance and information on retrofit recommendations. In December 2022, the Government also launched the 'It All Adds Up' campaign with £18 million funding. This campaign provides advice on simple, low, or no-cost actions that households can take to cut energy use.

We continue to engage and support businesses to meet net zero commitments including through the SME Climate Hub, which is part of the global Race to Zero campaign and gives businesses access to a suite of tools for measuring, reducing and reporting on their emissions.

Competition & Markets Authority

In October 2021, the Competition & Markets Authority (CMA) issued a *Green Claims Code* to help businesses understand and comply with their existing obligations under consumer protection law when making environmental claims.¹¹

Consumer protection law provides a framework for businesses to make environmental claims that help consumers make informed choices. In protecting consumers from misleading environmental claims, consumer protection law also protects businesses from unfair competition. It creates a level playing field for those businesses whose products genuinely represent a better choice for the environment and who can make truthful environmental claims.

The CMA's *Green Claims Code* identifies practical principles to help businesses comply with the law. These principles are that:

- claims must be truthful and accurate.
- claims must be clear and unambiguous.
- claims must not omit or hide important relevant information.
- comparisons must be fair and meaningful.
- claims must consider the full life cycle of the product or service.
- claims must be substantiated.

The CMA has also issued a *Green Claims Code for Shoppers* to help consumers to identify genuine environmental claims about products and services that they are considering purchasing.¹²

Further, the CMA's Annual Plan 2023-2024 includes a commitment to continue work on potential 'greenwashing' (i.e. misleading claims about the environmental characteristics of products and services) by some firms.

¹¹ <https://www.gov.uk/government/publications/green-claims-code-making-environmental-claims>

¹² <https://www.gov.uk/government/publications/green-claims-code-for-shoppers/green-claims-code-for-shoppers>

2. Summary of Responses

Green electricity tariffs and the potential for consumer harm

REGO certificates as a basis for 'matching' consumption

Consultation Question:

1. Does the current approach of retrospective annualised matching (using REGO certificates) provide a sufficient level of consumer transparency? Please provide reasons.

Summary of responses

The majority of respondents argued that the current approach does not provide a sufficient level of transparency. Many respondents argued that it was unclear to consumers whether their choice of a green tariff led to there being 'additional' renewable generation, and that this led to consumer misunderstanding. Other respondents argued that the process by which REGO certificates could be 'unbundled' and traded separately to the trading of electricity was itself unclear to consumers. Respondents also argued that the current system was not sufficiently transparent because the annualised matching of certificates with consumption did not provide enough real-time information to consumers about when renewable electricity was produced.

The minority of respondents who argued that the current approach is sufficiently transparent emphasised the simplicity of the current system, maintaining that more 'granular' certificates which identified when the renewable power was generated (e.g. half-hourly certificates) would be confusing for consumers and complex to deliver.

Consultation Question:

2. Can you provide any evidence on your commercial experiences with Power Purchase Agreements (PPAs) for renewable energy? For example – availability, commercial competitiveness etc.

Summary of responses

Several respondents noted that PPAs can support the development of renewable assets 'that might not have been possible otherwise' by offering financial security, thereby de-risking investment, and by including support services such as forecasting and trading. However, other respondents argued that because PPAs are private contracts which vary in their terms, not all PPAs offer such 'additionality'.

Other respondents argued that PPAs tend to be suitable for, and available to, only certain kinds of market participants. It was argued that PPAs suit market participants with a particular risk appetite, who seek long-term price security, and tend to be available only to large companies able to provide substantial, long-term financial commitments.

Respondents argued the PPA market is shallow, with a limited number of participants, and that the market lacks transparency. For example, one respondent noted that the market includes 'informational asymmetry which hinders price discovery', while another argued that the lack of information about PPAs makes 'competitiveness...hard to assess'.

Consultation Question:

3. Can you provide any evidence on operational issues or other challenges that may materially limit a supplier's ability to offer PPA backed green electricity tariffs? For example, how do you balance forecasting of consumers usage vs the need to settle on a half hourly basis?

Summary of responses

Most respondents noted that the intermittency of renewable generation would make it challenging to ensure the supply of renewable electricity, backed by PPAs, on a half-hourly basis. Attempting to do so would require significant over-procurement of renewable generation and would lead to price volatility. Such tariffs would also need to be accompanied by penalties for suppliers who failed to procure only renewable electricity for their customers when they had promised to do so.

Other respondents noted that the limited pool of PPAs available would be an obstacle to suppliers seeking to offer PPA-backed green electricity tariffs. Several respondents emphasised that this would be a particular problem for smaller suppliers who may not be regarded as sufficiently creditworthy or who may lack the resources to bear significant financial risk. It was also argued that the complex negotiations or difficult forecasting required in agreeing a PPA would be difficult for smaller generators and suppliers.

Consultation Question:

4. Can you provide any insights or evidence as to the role Renewable Energy Guarantee of Origin (REGO) certificates play in financing and commercial decision making?

Summary of responses

Almost all respondents agreed that REGOs have historically been too cheap to influence long-term investment decisions. REGOs were described as playing ‘no role’ or only a ‘minor’ role in investment decisions.

However, some respondents suggested that the recent increase in the price of REGOs could see the certificates come to play a role in the business case for new renewable investment. It was argued that this would become even more likely if REGO certificates were more ‘granular’, with half-hourly certificates providing an income stream for low-carbon flexible assets and those able to generate at times of low renewable output.

Consultation Question:

5. How can green tariffs be regulated to enable consumer choice to drive additional investment in low carbon electricity generation? Please provide reasons.

Summary of responses

Only two respondents argued that no significant reform was required. The remaining twenty-four respondents who answered this question directly offered a variety of suggestions.

The most popular suggestions included a clearer definition of ‘additionality’ which would allow consumers to understand if their purchase of a green tariff contributed to more renewable energy being produced. It was suggested that this could be achieved if Ofgem clarified or enforced Supply Licence 21D¹³ or if an independently managed system was introduced to rank green tariffs according to their ‘additionality’.

Several respondents argued that consumer choice could drive additional investment in low carbon electricity if different kinds of REGOs were clearly distinguished. Six respondents argued that REGOs which have been traded ‘bundled’ with physical power should be distinguished from those which have been ‘unbundled’ and traded separately. Three respondents argued that a distinction should be drawn between REGOs from subsidised and those from unsubsidised renewable generators.

¹³ <https://www.ofgem.gov.uk/publications/decision-modify-standard-licence-conditions-slcs-electricity-supply-licence-inserting-new-condition-slc-21d>

Respondents also suggested that consumer choice could drive investment if there was closer temporal matching between renewable energy generation and consumption. Two respondents suggested that immediate reform should be introduced so that REGOs were matched with consumption on a monthly basis. Six respondents argued the REGO scheme should move towards half-hourly matching. Other respondents emphasised the role of real-time carbon intensity information and green tariffs in promoting more flexible energy usage and other demand-side responses.

Respondents also suggested that there should be a move away from a binary between 'green' and 'not green', and towards a spectrum of green tariffs. This might then include tariffs which encouraged demand-shifting or which had varying degrees of carbon intensity.

Consultation Question:

6. Should the ability to report emissions using both market-based and location-based emission factors be maintained, and if so, should there be a requirement to report both side by side in corporate reporting?

Summary of responses

A significant majority of respondents argued that the ability to report both market-based and location-based emissions should be maintained. However, respondents were divided about whether there should be an obligation to report both. Many respondents argued that there should be a requirement to report both, noting that this increases transparency because the two methods each convey different information and each incentivise different, positive behaviours. A handful of respondents argued that both methods should be maintained, but that corporate reporting should include a choice about whether to use one method, the other, or both. They argued that this increases choice and therefore encourages innovation.

However, several respondents argued that both reporting systems should not exist in parallel because this leads to inconsistency and double counting.

Consultation Question:

7. Can you provide any evidence regarding the types of messages associated with green electricity tariffs that you believe to be misleading to consumers?

Summary of responses

Almost all respondents provided evidence about the types of messages which could be misleading to consumers. The most common example cited were messages which created the expectation that electricity had been directly sourced from renewable generators. Respondents also noted messages which encouraged consumers to believe that they were increasing the amount of renewable energy being generated by purchasing a green tariff. Respondents also identified that some terms, such as 'green', 'renewable', or 'clean', can be used in an ambiguous or ill-defined way which can be misleading.

A handful of respondents did not identify any misleading messages, instead noting that where suppliers have acquired enough REGOs to evidence their claims, their 'green tariff' claims are often not misleading.

Consultation Question:

8. Can you provide any evidence as to the type of interventions or remedies (including international best practice approaches) which may help achieve greater transparency in green electricity tariffs?

Summary of responses

Almost all respondents who answered this question noted interventions and remedies which could increase transparency. Several respondents suggested that transparency would be increased if REGO certificates had to be more closely matched with when energy was consumed, with half-hourly or monthly certificate-matching. Other respondents suggested that REGO certificates be matched according to where energy was produced, with locational REGOs. Other respondents argued that transparency would be increased if suppliers had to prove positive environmental impacts when making green claims. A further suggestion was that transparency could be increased if consumers were provided more real-time information about the carbon intensity of the electricity grid when consumers were using energy.

The role of consumers in achieving Net Zero

Consultation Question:

9. How best do you think the carbon content of energy supplied to a home or business consumer could be made more transparent to consumers?

Summary of responses

The most common response was that the carbon content of energy supplied could be made more transparent by providing real-time information about the carbon intensity of the grid by hour and by location. Other respondents argued that information should be provided about the electricity which a supplier has purchased, rather than about the carbon intensity of the electricity grid, including information about whether that electricity was purchased through PPAs. A further suggestion was that REGO certificates could include more precise information about when electricity was generated, allowing more granular matching with consumption. Respondents also emphasised that information should be conveyed in a simple, consistent way and using a variety of channels, including phone notifications.

A framework fit for the future

A smart and flexible system

Consultation Question:

10. Should there be any avenues to accommodate flexibility technologies within a future green tariff framework (should a future framework be necessary)? If so, how could this be achieved?

Summary of responses

Almost all respondents emphasised the importance of flexibility and most respondents agreed that the future green tariff framework should accommodate flexible technologies. Respondents cited both demand-side response and energy storage as flexible technologies. Many respondents argued that time-matched or 'granular' REGOs would attribute value to storage which charged during periods of high renewable penetration and then discharged when low levels of renewable generation are available. Other respondents argued that the green tariff framework should incentivise demand-shifting but were not clear how this behaviour could be recognised and encouraged through green tariffs.

A handful of respondents argued either that it was premature to design a framework when it was unclear what scale of flexibility would be required. Or they argued that while flexibility was important, it was not obvious that it should be accommodated within a green tariff framework.

Consultation Question:

11. Can you provide any evidence on areas where the current REGO system works well or creates barriers to the market offering more innovative Time of Use (ToU) tariffs?

Summary of responses

Respondents were divided in response to this question. Three respondents argued that the REGO system neither promotes nor discourages the emergence of innovative ToU tariffs. However, the most common response, offered by six respondents, was that the existing REGO system does offer a barrier to the emergence of more innovative ToU tariffs. Reasons cited were that consumers believe that they are already consuming renewable electricity and therefore do not need to shift consumption patterns for environmental reasons. Or that low levels of consumer understanding of the REGO system meant that consumers' environmental preferences did not motivate them to elect for ToU tariffs. Or that the existing, annualised REGO system does not provide sufficient information which allows consumers to decide to shift their demand within day to match their supplier's own procurement.

One respondent noted that REGOs are an instrument which provide evidence of a supplier's procurement, while consumers are more likely to shift demand in response to real-time information about the carbon intensity of the electricity grid. Several respondents noted that ToU tariffs expose consumers to wholesale market price signals and that there is a close correlation between wholesale prices and the carbon intensity of the electricity grid. Therefore, they argued, more 'granular' (for example, half-hourly) REGOs would be replicating information already contained in wholesale market price signals.

Consultation Question:

12. Are there any other emerging needs you believe a future green or low carbon tariff framework (should a future framework be necessary) should accommodate?

Summary of responses

Respondents provided a range of responses to this question. The most popular suggestion was that the green tariffs framework should include a role for demand-shifting and other flexibility. Respondents argued that this would encourage consumers to use electricity at times when it is being generated by renewable assets. Other respondents focused upon REGOs, suggesting either that there should be clearer information about the source of REGOs or that REGOs should have to be more closely temporally matched with consumption.

Respondents also suggested that there should be i) clearer definitions of 'green' and 'renewables', ii) clarification of the role of third-party intermediaries (who may be able to drive

consumer engagement and contribute to the development of demand-side response), iii) certification of carbon offsets, and iv) expansion of Fuel Mix Disclosure so that all generation sources are separately itemised.

Other low carbon solutions

Consultation Question:

13. Should other forms of low carbon power, such as nuclear, hydrogen, CCUS and CHP be considered as part of any future green or low carbon tariff regulatory developments (should developments be necessary)?

Summary of responses

The majority of respondents argued that net zero should be the priority and therefore that all forms of low carbon power should be included in a green or low carbon tariff framework. It was argued that this would be the most efficient way of promoting decarbonisation.

Six respondents argued that Fuel Mix Disclosure should separately itemise nuclear, biomass, and non-renewable energy sources, including the carbon intensity for each. This would then allow consumers to make informed decisions about the source of their electricity. Other respondents suggested that further clarification was required about terms such as 'additionality', 'low carbon', and 'renewable'. Some respondents emphasised that the pursuit of Net Zero required not only renewable generation, but also smart and flexible energy usage.

Consultation Question:

14. There is an emerging market for 'green gas' tariffs. Should our work consider any interventions to include these within the tariff regulatory framework?

Summary of responses

Most respondents argued that 'green gas' should be included in the tariff regulatory framework. Reasons cited were that this would aid transparency and build the consumer confidence required to stimulate the market for 'green gas'. Some respondents argued that before 'green gas' could be included in the regulatory framework, there needed to be more clarity about what counted as 'green' gas.

Those respondents who argued that 'green gas' should not be included in the regulatory framework argued either i) that the existing system of voluntary schemes was sufficient or ii) that 'green gas' was a distraction from the goal of electrification.

3. Next Steps

The Government continues to promote a retail energy market which works better for consumers, which is more resilient and investable, and which supports wider energy system transformation. It is particularly important for the first and third of these objectives that consumers understand how their choices, including the choice to select a green tariff, can support decarbonisation.

Alongside the publication of this summary of responses, the Government is publishing a Call for Evidence to look at aspects of the retail market policy and regulatory framework which may be acting as either barriers to innovation itself or to the ability of consumers to access the benefits of such innovation. This Call for Evidence is titled *Towards a more innovative retail market*. In addition, the Review of Electricity Market Arrangements (REMA) continues to develop proposals for reform to electricity market arrangements ahead of a second consultation in autumn 2023. This includes considering the role of Government in the market for Power Purchase Agreements. We are also now undertaking a broader review of the REGO scheme, exploring how it can further benefit the production of renewable electricity in the UK.

If changes to the 'green tariffs' framework are to be taken forward, they will be aligned to appropriate future policy work streams, such as the wider programme of reform to the retail energy market on which we intend to consult later in 2023. Any changes made to ensure consumer choices can continue to support decarbonisation will be delivered either through reform to the retail energy market, or other reform programmes such as REMA.

Designing a framework for transparency of carbon content in energy products: summary of responses

This consultation is available from: www.gov.uk/government/consultations/designing-a-framework-for-transparency-of-carbon-content-in-energy-products-call-for-evidence

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