



Department for
Energy Security
& Net Zero

Review of Electricity Market Arrangements

Summary of responses to second
consultation



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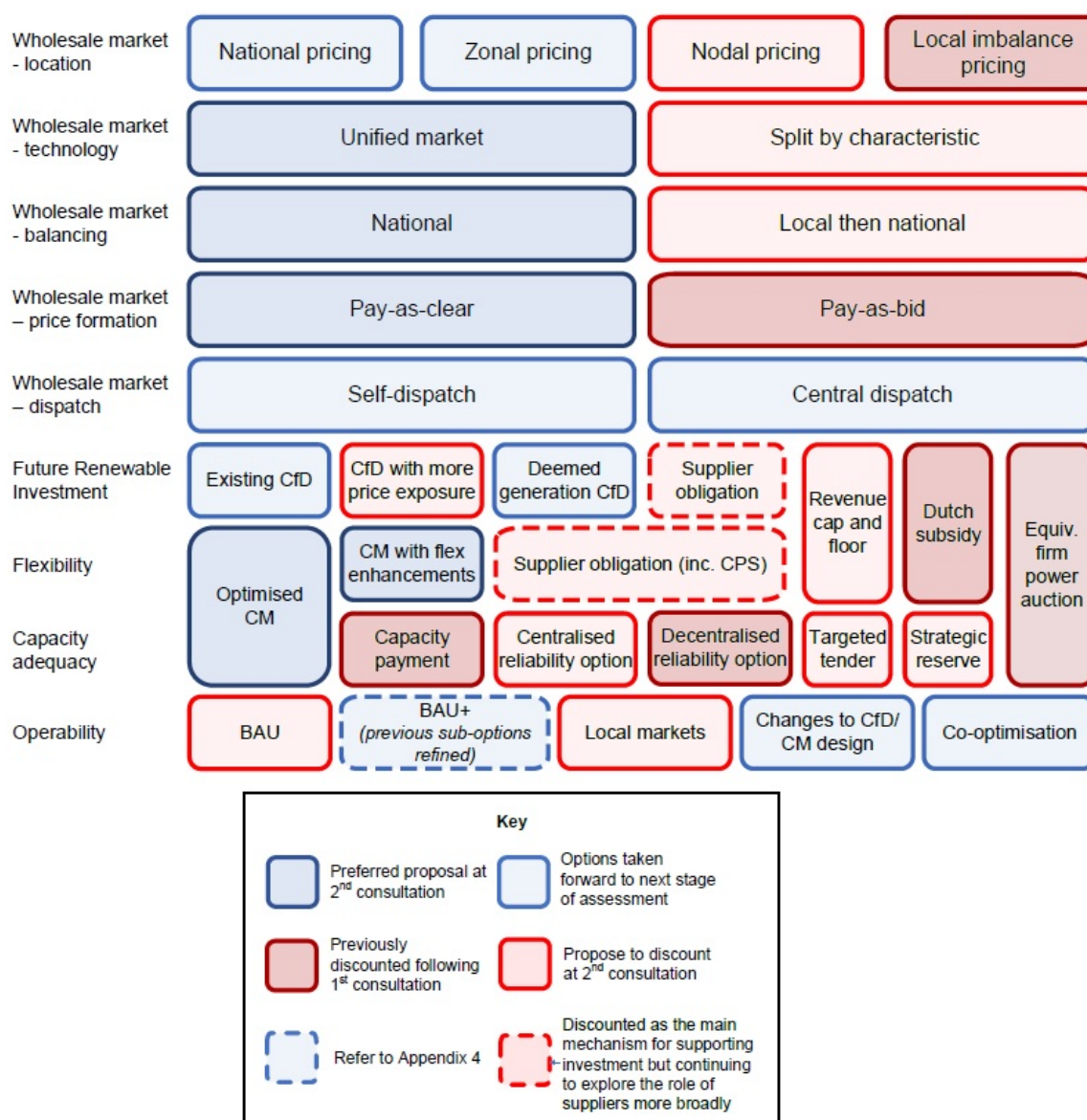
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Executive Summary

The second Review of Electricity Market Arrangements (REMA) consultation was launched by the previous government. It opened on 12 March 2024 and closed on 7 May 2024. REMA encompasses all electricity-related (non-retail) markets, and all technologies are within scope to the extent that they currently do, or potentially could, participate in these electricity markets. You can find the full list of options the previous government proposed to take forward and discount at this second consultation phase in Figure 1.¹

Figure 1: How the options from the first REMA consultation have progressed



¹UK Government, March 2024, Review of Electricity Market Arrangements Second Consultation Document, <https://assets.publishing.service.gov.uk/media/65ef6694133c220011cd37cd/review-electricity-market-arrangements-second-consultation-document.pdf>. Note: you can find Appendix 4 within this consultation document.

The second REMA consultation considered a range of issues and options related to reform across a number of market dimensions, grouped into key challenges facing electricity markets. These were:

- Challenge 1: Passing through the value of a renewables-based system to consumers.
- Challenge 2: Investing to create a renewables-based system at pace.
- Challenge 3: Transitioning away from an unabated gas-based system to a flexible, resilient, decarbonised electricity system.
- Challenge 4: Operating and optimising a renewables-based system, cost-effectively.
- Options Compatibility and Legacy Arrangements.

The consultation received 200 responses from a range of electricity market participants and wider stakeholders. A significant number of responses were received from generators and developers, but academia, representative bodies, suppliers, consultancies, investors, and energy infrastructure bodies were also well-represented.

Challenge 1: Passing through the value of a renewables-based system to consumers

Challenge 1 proposed that retaining marginal pricing and future-proofing the Contracts for Difference (CfD) scheme were the best ways to decouple gas and electricity prices. It also sought to explore how Corporate Power Purchase Agreements (CPPAs) could drive growth in new low carbon generation. The chapter further set out a planned approach to encourage electricity demand reduction by enhancing our assessment of its overall value and potentially strengthening price signals in electricity and retail markets. This work would be complemented by existing energy efficiency policies.

Many respondents noted the potential of CPPAs to help meet net zero targets, although there were some concerns that the growth of CPPAs might be limited by the current high barriers to entry. Some respondents noted that a larger CPPA market would spread the risk of variable renewable energy generation, though other respondents emphasised that CPPAs are generally only entered into by market players who can bear the related risk. The majority of respondents agreed with our decision to focus on a cross-cutting approach to incentivise electricity demand reduction, including sharper price signals and improving assessment methodologies for valuing power sector benefits.

Challenge 2: Investing to create a renewables-based system at pace

Challenge 2 committed to retain a CfD-type scheme as the primary and most effective mechanism for driving investment in renewable generation to deliver net zero. Challenge 2

also sought to ensure the CfD scheme was future-proofed by consulting further on a range of reform options.

A majority of respondents (55%) agreed that we had correctly identified the challenges for the future of the CfD scheme. Most respondents acknowledged that the CfD was a successful model for driving investment in renewable energy. Some respondents thought that the repowering of existing assets and the hybrid metering proposals put forward in the Contracts for Difference for Low Carbon Electricity Generation Consultation on proposed amendments for Allocation Round 7 and future rounds² would have a positive impact.

Most respondents noted that gaming risks were likely to be inherent in any deemed CfD model, with the key risk being the potential for generators to overestimate or underestimate (deemed) generation in order to maximise subsidy payments. More respondents preferred the deemed CfD over the capacity-based CfD. Benefits of the deemed CfD which were highlighted included protection of assets against volume risks, a reduction in both constraint costs and operational distortions and the fact it is closer in design to the current CfD scheme which would make it easier for investors to understand. Some respondents highlighted the increased costs associated with partial payment CfDs and the need to increase strike prices to cover them. Moreover, many respondents also wanted the government to further explore a hybrid reference price model, where a longer reference price operates alongside the day-ahead reference price, as it would help to alleviate the problem of reduced liquidity in wholesale markets.

Challenge 3: Transitioning away from an unabated gas-based system to a flexible, resilient, decarbonised electricity system

Challenge 3 proposed to retain and optimise the Capacity Market (CM) as our primary mechanism for ensuring capacity adequacy as we move towards net zero. It also set out proposals to promote sustained investment in flexible capacity based on the amount of flexibility we need to ensure a net zero power grid.

Most respondents expressed support for moving to an Optimised CM with a minimum procurement target for low carbon flexible technologies (i.e. minima). However, many responded that additional measures (regulatory, financial, and technological) would also be required to encourage uptake of flexible technologies. More respondents disagreed than agreed that an Optimised CM, and the proposed package of reforms as a whole, were sufficient on their own to incentivise flexibility. Most respondents supported the introduction of greater incentives under the CM to incentivise investment in flexibility. However, many emphasised that additional measures such as a mix of regulatory, financial, and technological solutions would be required to enhance the uptake of flexible technologies.

² UK Government, January 2024, Proposed amendments to Contracts for Difference for Allocation Round 7 and future rounds, <https://www.gov.uk/government/consultations/proposed-amendments-to-contracts-for-difference-for-allocation-round-7-and-future-rounds>.

Many respondents also expressed concerns around complexity and liquidity in the CM, with some noting that introducing minima may increase these challenges.

On unabated gas, many respondents agreed that a viable investment landscape for unabated gas generation plants to later convert to low carbon alternatives does not currently exist. The majority of respondents identified that the main challenge in converting existing unabated gas plants to low carbon alternatives such as power with Carbon Capture, Usage and Storage (power CCUS) or Hydrogen to Power (H2P) was uncertainty over the availability of required infrastructure for transport and storage.

Respondents broadly agreed with the proposal that new lower emissions limits for new build and refurbishing Capacity Market Units (CMUs) on long-term contracts should be implemented from the 2026 auctions at the earliest. Regardless of whether respondents agreed or disagreed with this proposal, almost all wanted to see clarity on timing.

Challenge 4: Operating and optimising a renewables-based system, cost-effectively

Challenge 4 proposed strengthening locational signals in the market by assessing two options: zonal pricing (which would send wholesale market participants both locational investment and operational signals) and a set of alternative options (which are likely to primarily send locational investment signals) which could be implemented under current national pricing arrangements. It also considered centralised dispatch, alongside the option of a reformed Balancing Mechanism (BM), and proposed to work with the National Energy System Operator (NESO), Ofgem and wider stakeholders to develop proposals for an electricity system operability strategy for 2035.

Some respondents agreed that the second consultation identified the correct design choices for zonal pricing were it to be implemented. Other respondents disagreed with the design choices identified, although these responses primarily voiced disagreement with zonal pricing as a policy option and did not express views on the design choices. Of the respondents who provided missing design considerations, many identified the grandfathering of existing assets as a key consideration, citing a need to protect existing asset value and investor confidence in the UK. Some respondents also identified the complexity of implementing zonal pricing.

Most respondents were supportive of our proposed alternatives to locational pricing, highlighting that many of the potential benefits of zonal pricing could be achieved with alternative reforms under a national pricing scenario.

Options Compatibility and Legacy Arrangements

The Options Compatibility and Legacy Arrangements chapter considered a range of issues and options related to Legacy Arrangements and the compatibility between different REMA options. It sought to take an appropriate whole-system perspective to identify the optimal

combination of reforms to deliver the transition to and operation of our future renewables-dominated power sector. It also aimed to further assess the impacts of REMA options on existing assets and participants in respect of Legacy Arrangements in the next phase of the programme.

More respondents stated that risks should be shared across all market actors than those who stated it should not. However, some respondents agreed that risks should be borne by those best placed to manage and mitigate it.

More respondents agreed than disagreed with our initial assessment of the compatibility between our remaining options. More respondents also agreed than disagreed with our approach to assessing the impact of REMA reforms on Legacy Arrangements. A majority of responses cited the twin threats of reduced investor confidence and increased regulatory risk as primary risks requiring a solution through the REMA programme. Some responses identified other risks emerging from Legacy Arrangements and offered proposals for a revised methodology.

Context

Overview of consultation proposals

The consultation posed 28 questions which sought views on a wide range of options for electricity market reform across several key market dimensions, including:

Challenge 1 - Passing through the value of a renewables-based system to consumers

- The role of marginal pricing across the wholesale market and how to future-proof the CfD scheme.
- Monitoring the evolution of the CPPA market, and its role in driving new low carbon generation.
- Incentivising electricity demand reduction and strengthening price signals.

Challenge 2 - Investing to create a renewables-based system at pace

- Use of the CfD-type scheme as the primary mechanism for driving investment in renewable generation to deliver net zero.
- Ensuring that the CfD scheme is future-proofed via a range of reform options. These include deeming CfD payments, moving to a capacity-based CfD, or implementing reference price reform.

Challenge 3 - Transitioning away from an unabated gas-based system to a flexible, resilient, decarbonised electricity system

- Reforms to the CM as our primary mechanism for ensuring capacity adequacy. Implementing shorter-term reforms to the CM to ensure the scheme continues to support security of supply effectively.
- Consideration of whether to introduce a minimum procurement target ('minima') into CM auctions.
- How to develop clear decarbonisation pathways for unabated gas to ensure a glide path to a fully decarbonised electricity system.
- How to promote sustained investment in the build-out of low carbon flexible capacity and supporting infrastructure.

Challenge 4 - Operating and optimising a renewables-based system, cost-effectively

- Strengthening locational signals in the market by assessing both zonal pricing and alternative options which could be implemented under current national pricing arrangements.
- Considering whether to adopt centralised dispatch, alongside reforms to the BM.

- Perceived barriers to the provision of ancillary services from co-located assets and how alignment of 'longer-term' ancillary services with CfD auctions could be achieved.

Options Compatibility and Legacy Arrangements

- Identification of an optimal combination of reforms to deliver the transition to and operation of a future renewables-dominated power sector.
- Assessment of the impact of REMA options on existing assets and participants in respect of Legacy Arrangements during the next phase of the programme.

This summary of responses outlines the feedback received to the 28 questions covering the above topics.

Engagement

To support stakeholders' understanding of the consultation proposals, DESNZ officials hosted five online webinars ("deep dives"). These seminars were each attended by between 100 and 300 stakeholders, who asked between 30 and 100 questions. Each deep dive covered one of the four challenges outlined above, plus a fifth webinar on Options Compatibility and Legacy Arrangements.

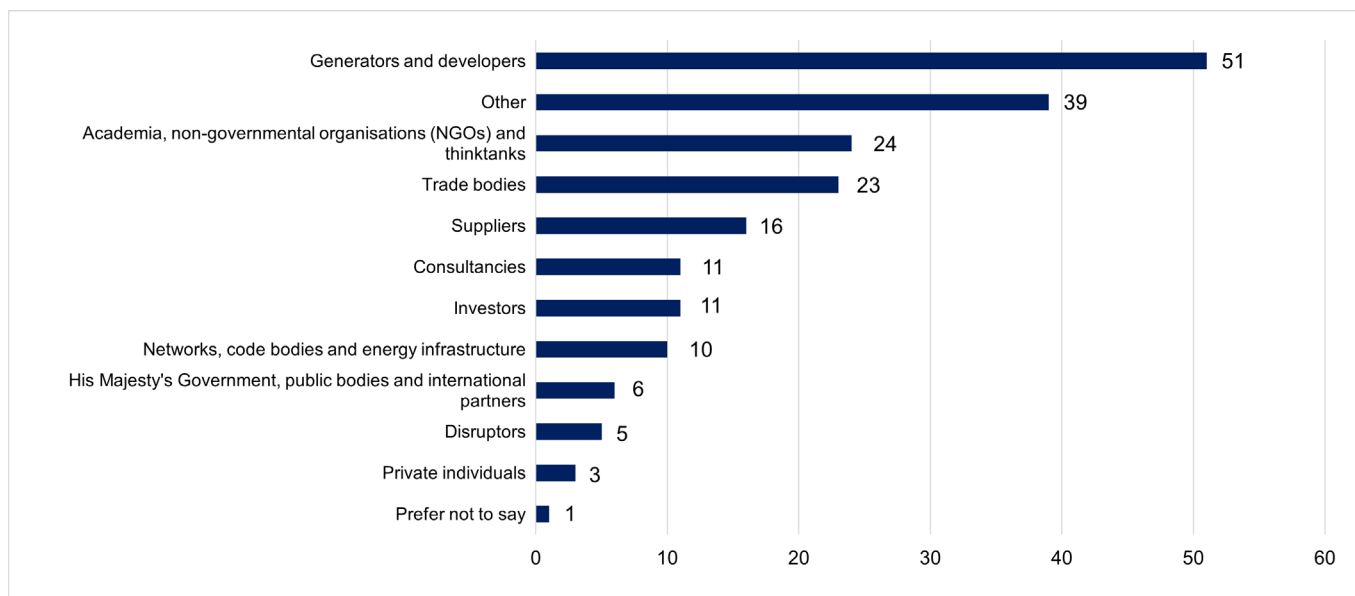
DESNZ officials also hosted a range of other stakeholder events, including:

- A technical media briefing, attended by the UK mainstream press, UK broadcasters, the business-centred press, and trade publications.
- An industry briefing, attended by 57 stakeholders and industry group representatives.
- A live LinkedIn Q&A session with Dan Osgood, Director Energy Markets & Analysis; and
- An End User Challenge Panel (EUCP) on locational pricing, attended by 28 consumer groups, small business associations, generators and suppliers.

Responses

The consultation was published on GOV.UK and ran from 12 March to 7 May 2024. The consultation received 200 responses in total. These responses were submitted through an online portal (Citizen Space, 118 responses), by email (81 responses) or by post (1 response). Figure 2 provides a breakdown of respondents by type. The government is grateful to all respondents to the consultation for taking the time to submit their views.

Figure 2: Breakdown of consultation respondents by category³



Consultation responses were read and analysed by officials using a qualitative coding method. Our analytical approach is set out in more detail in the Annex.

In summarising the responses received to each question, “the majority” indicates a view was held by more than 50% of respondents to that question, “most” or “many” indicates more than 70%, “some” between 30% and 70%, and “a few” less than 30% of respondents who expressed a view. This is consistent with the approach used for other UK Government consultation responses. When considering this summary of responses, please also note that:

- Due to the large volume of responses received, this summary does not seek to exhaustively capture all views expressed, but rather to summarise the prevalent themes and particularly notable points of feedback.
- Respondents used either an online response form, a downloaded response form, or sent in their responses by letter or email.
- Not all respondents answered every question, or only chose to address specific questions, so therefore the number of responses each question received varied significantly. We have noted the number of responses each question received in brackets; this number excludes those who did not answer the question. However, for multiple choice questions, it includes those who answered “No opinion”, as this could be a mark of sentiment in response to specific questions, and therefore provides a fuller picture of the results.
- Where questions were multiple choice, we have provided a summary of this data at the beginning of each chapter.

³ Note: “Disruptors” included respondents providing innovative system services or technologies; “Other” includes respondents that did not fall into any of the other categories. Respondents were classified according to their answer to the question “Which of the below categories best describes your organisation?”

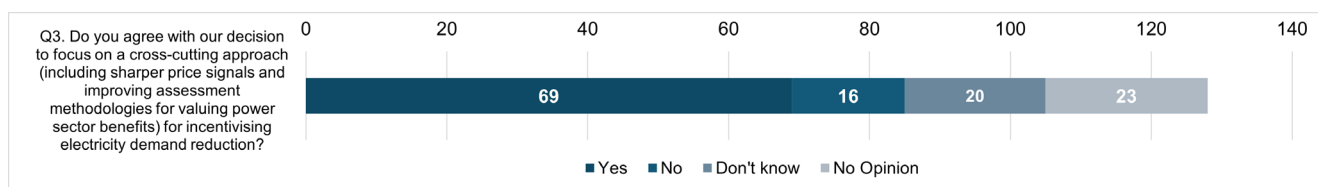
- The previous government ran a number of stakeholder events during the consultation period to support respondents in developing their responses; views expressed solely during these events are not captured here.

Challenge 1: Passing through the value of a renewables-based system to consumers

This chapter summarises responses to Questions 1 to 3 of the consultation. These questions considered a range of issues and options for reform related to Challenge 1, which focused on how to pass through the benefits of a renewables-based system to consumers.

Questions 1 and 2 specifically focused on how CPPAs can benefit different consumers and developers of low carbon capacity, and how this role might evolve in the future. Question 3 considered how best to incentivise electricity demand reduction going forward. Figure 3 shows responses to Question 3 – the only multiple choice question under Challenge 1.

Figure 3: A graph to show the number of respondents who agreed, disagreed, were unsure, or provided no opinion in response to Question 3



Many respondents noted the potential of CPPAs to help meet net zero targets, although there were some concerns that the growth of CPPAs might be limited by the current high barriers to entry. Some respondents noted that a larger CPPA market would spread the risk of variable renewable energy generation, though other respondents emphasised that CPPAs are generally only entered into by market players who can bear the related risk. The majority of respondents agreed with our decision to focus on a cross-cutting approach to incentivise electricity demand reduction, including sharper price signals and improving assessment methodologies for valuing power sector benefits.

Summary of Responses

Question 1 (118 responses) sought views on the growth potential of CPPAs.

- Many respondents noted that an increase in the uptake of CPPAs could help the UK to meet its net zero targets.
- Some respondents noted that to further grow the CPPA market, certain barriers to Power Purchase Agreement (PPA) uptake need to be overcome, the largest being the costs for small businesses to negotiate and sign them. Currently, these agreements are largely limited to large companies who can afford to enter into CPPA agreements. If such barriers to entry were overcome, these respondents reasoned that the CPPA market could be expanded.

- A few respondents noted that the introduction of zonal pricing (as part of the REMA reform programme) could limit the uptake of CPPAs. These respondents noted that a zonal system would limit the size of the CPPA market per zone, with certain zones potentially being more favoured than others.
- A few respondents believed there was little growth potential for CPPAs. These respondents highlighted that their recent uptake was due to energy prices spiking in 2022 and that now prices have settled, there is little desire to expand the market.

Question 2 (94 responses) sought views on how a larger CPPA market might spread the risks and benefits of variable renewable energy across consumers.

- Some respondents noted that a larger CPPA market would spread the risks among all participants, thus reducing exposure overall for each individual participant.
- Some respondents stated that risks are generally only taken on by those who can manage them, emphasising that CPPAs are not generally signed by those who cannot bear the associated risk. They further noted that those who enter into CPPAs are already aware of the risks before signing them.
- Some respondents suggested that the benefits from an expansion of the market would outweigh any potential downsides to CPPAs. Many of these respondents noted that price certainty was a positive aspect of CPPAs. They suggested that the more certainty market actors received, the more positively they would react to an expanding CPPA market.

Question 3 (128 responses) sought views on whether to focus on a cross-cutting approach to incentivise demand reduction.

- A majority of respondents (54%) agreed with our decision to focus on a cross-cutting approach to incentivising electricity demand reduction (including sharper price signals and improving assessment methodologies for valuing power sector benefits). This compared to 13% who disagreed, 16% who did not know, and 18% who expressed no opinion.
- Those respondents in agreement argued that a cross-cutting approach would promote a more holistic, system-wide perspective to incentivise electricity demand reduction. The following measures were identified as approaches to facilitate demand reduction: sharper price signals through an efficient electricity market, supportive policies which encourage energy efficiency measures, improved assessment methodologies for valuing power sector benefits and the introduction of targeted subsidies or regulatory mandates.
- A few respondents expressed concerns about introducing sharper locational price signals to incentivise demand reduction. They argued that locational pricing could lead to increased consumer costs and hinder progress towards net zero.

Challenge 2: Investing to create a renewables-based system at pace

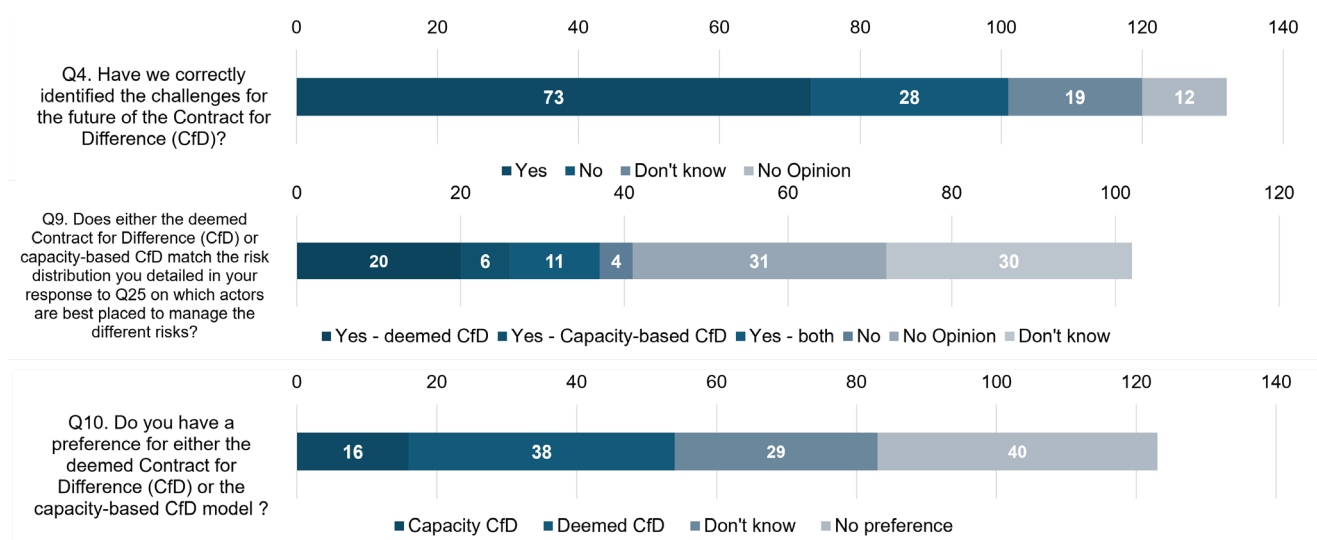
This chapter summarises responses to Questions 4 to 13 of the consultation. These questions considered a range of issues and options for reform related to Challenge 2, which focused on investing to create a renewables-based system at pace.

Questions 6, 9 and 13 focused on what schemes the government could put in place to drive investment in renewable deployment. Question 6 considered how far CfD reforms would resolve the three challenges outlined (scaling up investment, maximising responsiveness and distributing risk). Question 9 examined which actors were best placed to manage different market risks and whether the deemed CfD or the capacity-based CfD was best placed to meet this risk distribution. Question 13 sought views on CPPAs and PPAs and how REMA reforms more broadly would help to drive renewable deployment.

Questions 4, 5, 7, 8, 10, 11 and 12 considered how to future proof the CfD mechanism. Questions 4, 7 and 8 focused on whether we have correctly identified future CfD challenges and gaming risks / bidding behaviour respectively. Questions 5, 10 and 11 examined different aspects of a future-proofed CfD, including deemed CfDs, capacity-based CfDs and partial payment CfDs. Question 12 sought views on reforms to the CfD reference price.

Figure 4 shows responses to Questions 4, 9 and 10, which were the only multiple choice questions under Challenge 2.

Figure 4: A graph to show the multiple choice responses to Questions 4, 9 and 10



A majority of respondents (55%) agreed that we had correctly identified the challenges for the future of the CfD scheme. Most respondents acknowledged that the CfD was a successful model for driving investment in renewable energy. Some respondents thought that the repowering of existing assets and the hybrid metering proposals put forward in the Contracts

for Difference for Low Carbon Electricity Generation Consultation on proposed amendments for Allocation Round 7 and future rounds⁴ would have a positive impact.

Most respondents noted that gaming risks were inherent in any deemed CfD model, with the key risk being the potential for generators to overestimate or underestimate (deemed) generation in order to maximise subsidy payments. More respondents preferred the deemed CfD over the capacity-based CfD. Benefits of the deemed CfD which were highlighted included protection of assets against volume risks, a reduction in both constraint costs and operational distortions and the fact it is closer in design to the current CfD scheme which would make it easier for investors to understand due to the complexity of the latter and because it was unlikely to achieve the same benefits as the former.

Some respondents highlighted the increased costs associated with partial payment CfDs and the need to increase strike prices to cover them. Moreover, many respondents also wanted the government to further explore a hybrid reference price model, which is calculated using both a longer reference price and the day-ahead reference price, as it would help to alleviate the problem of reduced liquidity in wholesale markets.

Summary of Responses

Question 4 (132 responses) sought views on whether we have correctly identified the challenges for the future of the CfD scheme.

- A majority of respondents (55%) agreed that we had correctly identified the challenges for the future of the CfD scheme. This compared to 21% who disagreed, 15% who did not know, and 9% who expressed no opinion.
- The challenges facing the future of the CfD scheme were grouped into three main categories. Firstly, how to scale up renewables investment; secondly, how to maximise CfD responsiveness to system needs; and thirdly, how to best distribute risk across electricity market participants.
- Most respondents acknowledged that the CfD is a successful model for driving investment in large-scale renewable energy. These respondents advocated for the continuation of the CfD and agreed that reform was needed to ensure the subsidy remains fit for purpose into the future.
- Some respondents proposed solutions to scale up renewable investment, including greater transparency around CfD auctions and budgets to enable investors to plan ahead.
- Some respondents recognised that it was important not to put too great a risk on investors, as CfD reform could potentially lead to greater risks for them. Other

⁴ <https://www.gov.uk/government/consultations/proposed-amendments-to-contracts-for-difference-for-allocation-round-7-and-future-rounds>

respondents also acknowledged it was important to get the right distribution of risk across participants and minimise risk to consumers.

- Some respondents identified additional areas to be considered alongside CfD reform. This included the need for reform to Transmission Network Use of System (TNUoS) charges to improve investor confidence in renewables and bring down consumer costs. The need for planning system reform was raised, as well as the need to ensure value for money for customers when designing CfD reform, including by encouraging competition and innovation.

Question 5 (86 responses) sought views on how far assets would alter their behaviour, assuming the CfD distortions which had been identified were removed and renewable assets were exposed to the full range of market signals and risks.

- Views on how far assets would alter their behaviour were mixed. Some respondents saw merit in removing CfD distortions because this would make a positive difference to the behaviour of generators. They noted that generators were well placed to develop innovative business models to adapt their behaviour.
- However, some respondents were unsure whether removing distortions would make a difference. These respondents were not certain that market distortions were caused by the CfD and noted that variable generators were unable to fully respond to market signals.
- Some respondents identified that wider system reform was needed. This included addressing problems with the lack of grid infrastructure and connection constraints, alongside encouraging storage to minimise the constrained operation of generators.

Question 6 (97 responses) sought views on the extent to which 'ongoing' reforms to the CfD might resolve challenges relating to increasing investment, distributing risk and increasing the responsiveness of the system.

- There were mixed views from stakeholders in response to this question. Some respondents thought the ongoing reforms would resolve the identified challenges. These respondents argued that proposals to enable the repowering of existing assets at the end of their operating life and hybrid metering arrangements (which could make it easier for CfD generators to co-locate with other assets such as storage) would have a positive impact.
- Some respondents identified additional challenges to be considered and noted that the most important of these was the need to publish details of auctions further in advance. This, it was argued, would allow developers to plan a pipeline of projects, which would then improve competition.
- Additional suggestions for reforms included removing the phasing cap for offshore wind, which would enable projects to begin commercial generation earlier whilst maintaining a

viable construction programme. This would then help manage the twin problems of construction risk and weather constraints as sections of a site could come online sooner / whenever they were ready.

- There was some support for ensuring routes to market were considered across a broad range of technologies. These respondents stressed the importance of ensuring a level playing field across technologies.

Question 7 (86 responses) sought views on what gaming risks, if any, were in the deemed generation model, and whether any of the deeming methodologies / variations altered those gaming risks.

- Most respondents noted that gaming risks were inherent in a deemed CfD model. Some respondents agreed that the key risk associated with the deemed CfD was the potential for generators to overestimate or underestimate their deemed generation to maximise subsidy payments.
- Of the respondents who expressed a preference for a deeming methodology, the majority preferred a methodology based on site-specific data. They further recommended either third-party deeming (Option 1) or asset-led deeming (Option 2), as these two options balanced the need for a robust methodology with implementation complexities and costs. Some respondents recommended a hybrid of these two options.
- Some respondents supported using the “Power Available” signal as the basis for calculating deemed generation because it was a concept that wind generators were already familiar with.
- A reference generation approach (Option 3) and deeming for ancillary services only (Option 4) were considered to introduce significant complexity with little benefit. Some respondents recommended that any calculation should be simple, transparent, administratively light and cost-effective.
- Some respondents supported the variations of either turning deeming off, or deeming only below the strike price, to protect generators from the risk of paying back significant sums of money to the Low Carbon Contracts Company (LCCC) during outages.
- Those who commented on the variation of removing deemed subsidy payments during periods of constraint mostly did not support this option due to the revenue uncertainty it would introduce.
- Of the respondents who commented on the negative pricing rule, most respondents supported its removal to protect generators from volume risk.
- Other risks identified by respondents as associated with the deemed generation model included: public perception of generators being paid when not generating, higher consumer costs, negative impacts on incentives to co-locate with storage and negative impacts on PPAs.

Question 8 (74 responses) sought views on what factors would influence auction bidding behaviour under the capacity-based CfD.

- Views on this question were mixed. Some respondents highlighted that a capacity-based CfD auction was likely to favour projects whose investors have a higher risk appetite, were optimistic in forecasting project revenues, had lower projected capital expenditure and had a higher bid capacity. Some noted that this investor profile was similar to that in the CM.
- Some respondents highlighted that how, and at what level, the consumer protection mechanism was set would influence bid prices at auction.

Question 9 (102 responses) sought views on whether the proposed CfD options matched the risk distribution detailed in their response to Q25, which related to which actors are best placed to manage the different risks.

- More respondents (20%) thought the deemed CfD matched the risk distribution detailed in their Q25 response than those who thought the capacity-based CfD did (6%). A few respondents (11%) suggested that both types of CfD matched the risk distribution, 4% thought that neither did, 29% did not know, and 30% expressed no opinion.
- Respondents largely preferred the deemed CfD over the capacity-based CfD due to the complexity of a capacity-based CfD and because it was unlikely to achieve the same benefits of a deemed CfD. A few respondents argued that bid prices were likely to increase under a capacity-based CfD, because of the revenue uncertainty that this option could create – especially in combination with wider REMA reforms.
- A few respondents expressed a preference for retaining the current CfD with some minor changes. This was largely because they considered that different changes to the proposals in the REMA consultation were needed, such as network innovation and an increased load through transmission. There were also concerns that significant changes to the CfD model could undermine generators' business models, as well as concerns about the impacts on PPAs.
- Some respondents raised concerns that introducing revenue risk uncertainty, such as locational risk which generators cannot respond to, would undermine any benefit gained from reforming the CfD.

Question 10 (123 responses) sought views on preferences for either deemed or capacity-based CfDs.

- More respondents (31%) preferred a deemed over a capacity-based CfD (13%); 24% of respondents did not know, and 33% expressed no preference.

- Some respondents thought that both models would continue to lead to market distortions in varying ways. They highlighted that careful consideration should be given to the interaction between the CfD scheme and the CM.
- Some respondents highlighted the need to protect generators from paying back revenue during periods of high prices when projects are offline due to technical issues. They also encouraged consideration of an extension to CfD contract lengths to 20 years or more.
- Many potential benefits of a deemed CfD were highlighted by respondents. These included protection of assets against volume risks, a reduction in both constraint costs and operational distortions, and the fact it is closer in design to the current CfD scheme which would make it easier for investors to understand. Additional potential benefits highlighted included the removal of negative pricing impacts, the ability of the deemed CfD to incentivise both high quality assets and optimal site development, and finally, that it allows developers to act in the best interest of the system, rather than simply maximising generation.
- A few respondents supported the capacity-based CfD over other options. These respondents highlighted a number of potential benefits, from reducing market distortion by exposing generators to price signals, to reducing gaming risks; and from providing a higher level of revenue certainty, to improving competition in the wholesale market (by providing more liquidity). As an additional benefit, these respondents argued that a capacity-based CfD would be more straightforward to implement and easier for investors to understand. With competitive auction design, it was further noted that the capacity-based CfD could incentivise generators to maximise asset yield.

Question 11 (92 responses) sought views on particular merits or risks with partial payment CfDs.

- The majority of respondents saw more risks than merits in a partial payment CfD scheme. These respondents highlighted how investors already have the option to pursue a partial payment CfD. The rationale for this is as follows: mandating a certain percentage split would hinder investors (particularly smaller generators) to operate an investible business model. On this reasoning, if partial payment CfDs were beneficial across the market, every CfD would already be a partial payment CfD.
- Some respondents highlighted the increased costs associated with partial payment CfDs; particularly, the likely need to increase strike prices to cover the increased costs of running a split generator. It was further noted that appetite for partial payment CfDs was the result of needing to overcome restrictions in the CfD, such as the cap on phased CfDs, rather than reflecting a desire for a partial payment CfD itself.
- Few respondents preferred partial payment CfDs over deemed or capacity-based CfDs. Of those respondents who saw merit in partial payment CfDs, they felt the greatest benefit would be achieved if partial payment CfDs were combined with PPAs. It was also noted that the percentage split would determine the precise benefit of a partial payment CfD.

Question 12 (78 responses) sought views on the merits and risks of reform to the CfD reference price and its impact on market liquidity.

- Many respondents noted the problem of a lack of liquidity in forward markets and the need to tackle it.
- Many respondents showed interest in further consideration of a hybrid reference price model. They particularly noted the need for longer reference prices, meaning reference prices further ahead in time than the current day-ahead or month-ahead prices, for instance. It was said this could encourage trading in different markets, thus increasing overall market liquidity and reducing the commonality of negative pricing in the day-ahead market. Respondents did however want to keep a day-ahead reference price as part of a calculation in combination with a longer reference price, with this being important for variable generators as it closely reflects prices for their daily generation.
- Some respondents noted the need to test other ways of improving liquidity as an alternative to reference price reform.
- Some respondents commented on the inability of renewables to trade beyond the day-ahead market without risk. This is because they were restricted by the immediate weather conditions on the day of generation; for example, wind farms cannot produce electricity if there is no wind. They also noted the problems that a system encouraging forward trading might create, particularly for smaller generators. This includes the inability to obtain collateral to underpin trading and the associated additional volume risk of trading in time horizons beyond their physical ability to generate.

Question 13 (78 responses) sought views on the potential for CPPAs, PPAs, and REMA reforms more broadly to drive small-scale renewable deployment.

- Many respondents highlighted the need for further government support in CPPAs and PPAs to facilitate the deployment of small-scale renewables on all timescales. Commonly cited barriers included credit risk for smaller offtakers (i.e. purchasers) and administrative complexity for small generators in securing CPPAs.
- A few respondents felt that CPPAs were not well suited to facilitating small-scale renewable deployment in their current form, due to the barriers mentioned above. Most of these respondents suggested other support should be in place to encourage small-scale renewable deployment.
- A few respondents commented that REMA reforms alongside CPPA and PPA markets would encourage small-scale renewable deployment in the near mid and long-term, by improving investment certainty and encouraging small-scale renewables to locate closer to locational demand.
- A few respondents considered that REMA reforms would have either a minimal or negative impact on the deployment of small-scale renewables. Often these respondents

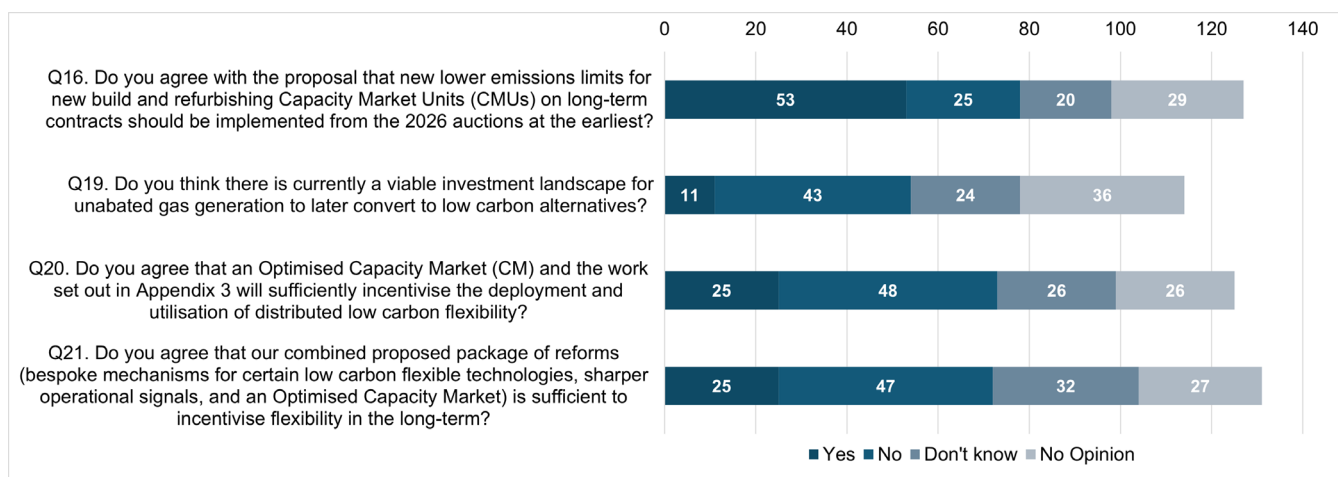
cited a move to zonal pricing as decreasing revenue certainty for small-scale renewables, the complexity of responding to policy changes, and finally decreasing wholesale market prices.

Challenge 3: Transitioning away from an unabated gas-based system to a flexible, resilient, decarbonised electricity system

This chapter summarises responses to Questions 14 to 21 of the consultation, which considered two key problems. Firstly, how to maintain security of supply in a future electricity system dominated by variable renewable generation and, secondly, how to manage a smooth transition away from unabated gas to low carbon flexible technologies.

Figure 5 below provides an overview of the survey responses received.

Figure 5: A graph to show the number of respondents who agreed, disagreed, were unsure, or provided no opinion in response to Questions 16, 19, 20 and 21



Most respondents expressed support for moving to an Optimised CM with a minimum procurement target for low carbon flexible technologies (i.e. minima). However, many responded that additional measures (regulatory, financial, and technological) would also be required to encourage uptake of flexible technologies. More respondents disagreed than agreed that an Optimised CM, and the proposed package of reforms as a whole, were sufficient on their own to incentivise flexibility. Most respondents supported the introduction of greater incentives under the CM to incentivise investment in flexibility. However, many emphasised that additional measures such as a mix of regulatory, financial, and technological solutions will be required to enhance the uptake of flexible technologies

Many respondents also expressed concerns around complexity and liquidity in the CM, with some noting that introducing minima may increase these challenges.

On unabated gas, many respondents agreed that a viable investment landscape for unabated gas generation to later convert to low carbon alternatives does not currently exist. The majority

of responses identified that the main challenge in converting existing unabated gas plants to low carbon alternatives is uncertainty over availability of required infrastructure for transport and storage, for gas plants looking to convert to power CCUS or Hydrogen to Power (H2P).

Respondents also broadly agreed with the proposal that new lower emissions limits for new build and refurbishing Capacity Market Units (CMUs) on long-term contracts should be implemented from the 2026 auctions at the earliest. Regardless of whether respondents agreed or disagreed with this proposal, almost all wanted to see clarity on timing here.

Summary of Responses

Question 14 (94 responses) sought views on whether there were any unintended consequences or desirable characteristics regarding the optimal use of minima in the Capacity Market (CM).

- The majority of respondents expressed overall support for introducing minima into the CM to help maintain security of supply in a decarbonised electricity system by incentivising the deployment of low carbon flexibility. Of these, the majority stated they would need more information before they could give comprehensive feedback on the proposal and included caveats regarding the design of the eligibility criteria, auction parameters and potential unintended consequences of minima.
- Of the respondents who provided feedback on the potential unintended consequences of introducing minima, many highlighted potential concerns around increasing complexity and reducing liquidity in the CM, with a few respondents noting that multiple minima would increase this risk. They highlighted that increasing complexity could deter participation in the CM, which could potentially result in reduced liquidity and increased clearing prices. A few respondents highlighted the importance of considering the cost to consumers as a result of introducing minima and noted that incorrectly defined procurement targets and a lack of liquidity could potentially result in overpaying for capacity.
- Many respondents highlighted the importance of designing minima and its parameters correctly, with some respondents advocating for the importance of including low carbon eligibility criteria. Some cautioned that this definition must be carefully considered to capture the right technologies for maintaining security of supply and to incentivise innovation. Some respondents commented on the importance of carefully defining flexibility requirements for minima if they are to be included. Of the respondents who commented on flexibility characteristics, a few noted that a mix of technologies can provide the required flexibility and that individual assets which provide some, but not all, desirable characteristics should not be excluded.
- Some respondents advocated for clarity regarding the interactions between bespoke mechanisms and the Optimised CM and commented on the need for the long-term policy intent and implementation timelines to be clear. Some stakeholders encouraged

the department to share further information on the intended design for minima and to undertake additional engagement with industry before implementing it.

Question 15 (91 responses) sought views on what aspects of the wider Capacity Market (CM) framework, auction design and parameters we should consider reviewing to ensure there are no barriers to success for introducing minima into the CM.

- Stakeholders provided feedback on a range of issues related to the design of CM auctions and parameters to ensure there are no barriers to success for introducing minima. Of the auction parameters to be reviewed as part of the wider CM framework, a few respondents suggested both the Price Cap and Net Cost of New Entry (Net CONE) should be revisited to ensure they remain fit for purpose and reflect the current costs of both building new and maintaining existing capacity.
- A few respondents highlighted their support for the proposal to review the Reliability Standard to ensure it appropriately reflects the changing nature of security of supply risks. A few respondents noted that the CM's primary function should continue to be ensuring security of supply and advocated for retaining technology neutrality to do so. A few respondents also noted the importance of improving our understanding of future system stress events, to ensure procurement targets are set correctly and that we have the correct technology mix in the CM.
- Some respondents advocated for clarity around how derating factors would manifest in the Optimised CM and how they would interact with minima or whether minima would replace them, particularly if flexibility characteristics were introduced. A few respondents suggested the de-rating methodology should be reviewed in order to remove barriers to CM participation and improve incentives for low carbon, battery/storage, and demand-side technologies within the scheme.
- A few respondents suggested that the secondary trading regime should be reviewed alongside the introduction of minima to ensure compatibility. This was viewed as necessary to ensure that the introduction of different clearing prices would not reduce opportunities for trading CM agreements, with potential knock-on implications for security of supply. In addition, a few respondents commented on the administrative framework and governance structure of the CM. Respondents stated that these elements should be reviewed in order to enable smooth implementation of minima and to avoid introducing further complexity to the scheme.

Question 16 (127 responses) sought views on whether respondents agreed with the proposal that new lower emissions limits for new build and refurbishing Capacity Market Units (CMUs) on long-term contracts should be implemented from the 2026 auctions at the earliest.

- Some respondents (42%) agreed with the proposal. This compared to 20% who disagreed, 16% who did not know, and 23% who expressed no opinion.

- Most respondents, whether agreeing or disagreeing, wanted to see clarity on timing. Many also wanted to see clarification on how the limits would be implemented, as they were concerned about retroactive application, “cliff-edge” implementation or limits that might change over the course of a plant’s operation.
- Support for the proposal was mixed between those who supported the principle of emissions limits and those who supported the specific proposal on timing of implementation, even if they did not agree with the principle of emissions limits.
- Some respondents, while supportive of emissions limits, argued that additional measures were needed to have any impact on emissions.
- A few respondents disagreed with the proposal for a range of reasons. Some agreed with the principle of emissions limits but disagreed with the proposal to push back the earliest implementation date to 2026. This was because they felt that delaying ran counter to decarbonisation goals and sent the wrong signals to the market, potentially disincentivising investment in low carbon technologies. Some respondents expressed disagreement with emissions limits in general, rather than the proposal to delay implementation, citing the need to balance them with security of supply and existence of other mechanisms. Some respondents also pointed to the need for a clear decarbonisation pathway for unabated gas plants.

Question 17 (64 responses) sought views on how emissions limits for new build and refurbishing capacity would impact flexible capacity investment decisions.

- Most respondents were neutral on this proposal because many had a focus on low carbon technologies and therefore felt that the introduction of emissions limits would have little or no impact on their investment decisions.
- A few respondents, particularly investors in gas assets, felt that emissions limits would have a negative impact on financial viability. They stated that there was a need for assurances on the longer-term application of limits as well as clear decarbonisation pathways to help mitigate risk.
- Some respondents, who were not investors, commented on how they perceived the impact on markets. They largely considered that emissions limits sent a favourable market signal for low carbon investment, whilst noting that the delay in implementation is a negative in that respect. These respondents agreed with gas investors that emissions limits might negatively impact investment in gas.

Question 18 (73 responses) sought views on the challenges in converting unabated gas generation plants to low carbon alternatives.

- The majority of respondents identified the main challenge in converting existing unabated gas plants to low carbon alternatives as the availability of required infrastructure for transport and storage. They highlighted that at present, there were

challenges around the availability of infrastructure to transport and store captured emissions, which may be a barrier for gas plants looking to convert to power CCUS.

- There were similar challenges around hydrogen infrastructure for plants looking to convert to H₂P. Some respondents also highlighted that another challenge for plants converting was the cost and availability of hydrogen. These respondents flagged that there needs to be more clarity surrounding hydrogen networks and better access to adequate hydrogen.
- Some respondents disagreed with the need for policies to incentivise new gas if low carbon flexible generation technologies will be operational by the 2030s. They argued that the government should now focus on low carbon alternatives instead of new unabated gas. Additionally, they raised concerns that policies to encourage new unabated gas could negatively impact investment in low carbon alternatives and might also lead to assets becoming stranded.
- A few respondents also commented that the government should focus on overcoming grid connection issues, as there was a considerable amount of renewable capacity stuck in connection queues.

Question 19 (114 responses) sought views on the viability of the investment landscape for unabated gas generation plants to later convert to low carbon alternatives.

- Responses to this question were mixed. Some respondents (38%) argued that there is not currently a viable investor landscape for unabated gas generation plants to convert. This compared to 10% who considered there was a viable investment landscape, 21% who did not know, and 32% who expressed no opinion.
- Some respondents argued that instead of incentivising new unabated gas, the government should focus on driving forward renewable and low carbon alternatives. These respondents said they would not invest in new unabated gas.
- Some respondents said that for there to be a viable landscape for plants to convert, barriers surrounding infrastructure, including transport and storage of CO₂ and access to hydrogen, would need to be overcome. These respondents emphasised that the government needed to develop infrastructure to enable plants to convert to low carbon alternatives. Some thought that if these barriers were overcome, there may be a more viable investor landscape for unabated gas to convert.
- A few respondents thought that clear decarbonisation pathways were needed for gas plants to improve investor confidence. They raised that there needs to be a clear plan with a timeline set out for when plants would be able to convert, ensuring clear messaging throughout. This, they argued, would help to maintain investor confidence. They also thought that mixed messaging on gas could negatively impact low carbon investment.

- A few respondents commented that it was too early to judge the current investor landscape for plants to convert. This was because more evidence was needed on the success of early power CCUS and H2P projects.

Question 20 (125 responses) sought views on whether an Optimised CM and the work set out in Appendix 3 would sufficiently incentivise the deployment and utilisation of distributed low carbon flexibility.

- There were mixed views from stakeholders in response to this question. Some respondents (38%) disagreed that an Optimised CM and the work set out in Appendix 3 of the consultation would sufficiently incentivise the deployment and utilisation of distributed low carbon flexibility. This compared to 20% who agreed, 21% who did not know, and 21% who expressed no opinion.
- Some respondents stated that it was difficult to assess whether the Optimised CM and other policies would be sufficient to incentivise distributed low carbon flexibility, without more information to understand the Optimised CM's design, how targets will be set and what the eligibility criteria for minima will be.
- Of those who expressed a view, some respondents felt an Optimised CM would be beneficial in encouraging investment, while others suggested that the CM should remain technology neutral. They further highlighted that incentivising the wrong technology may distort market prices, and as a result lead to higher costs for consumers. Of those respondents who were supportive of the idea that an Optimised CM will encourage investment, some highlighted that the transition should not be overly complex and that it should avoid creating new market barriers.
- Some respondents advised that additional market mechanisms may be needed to attract increased private investment in the development and use of distributed low carbon flexibility.
- Other respondents identified the need to tackle a range of short-term challenges including removing barriers to entry; speeding up grid connections; addressing skip rates and dispatch transparency within the BM; and improving the ability to stack revenue to encourage investment and promote market growth.
- Some respondents advised that insufficient consideration had been given to consumer engagement and awareness to encourage participation in demand-side flexibility. A few respondents noted that community-based actions such as Demand Side Response (DSR) could better achieve energy system objectives of local flexibility, with the resulting financial benefits allocated to local communities. A few respondents also highlighted the need to accelerate the smart meter rollout as a critical enabler. They argued that better metering standards will be required for nationwide deployment of domestic DSR, including an alignment of distribution and transmission network standards.
- Some respondents further advised that greater standardisation, liquidity and harmonisation between different markets (alongside other unspecified incremental

changes) could result in significant improvements which will be critical to further developing flexibility in the system.

- A few respondents called for an updated flexibility and storage strategy, including an update to the 2021 Smart System and Flexibility Plan. They argued this was needed to monitor and coordinate the progress of different DSR policies.

Question 21 (131 responses) sought views on whether the REMA reforms were sufficient to incentivise flexibility in the long-term.

- There were mixed views from stakeholders in response to this question. Some respondents (36%) disagreed that the combined proposed package of reforms (bespoke mechanisms for certain low carbon flexible technologies, sharper operational signals, and an Optimised CM) were sufficient to incentivise flexibility in the long-term. This compared to 19% who agreed, 24% who did not know, and 20% who expressed no opinion.
- Most respondents supported the introduction of greater incentives under the CM to incentivise investment in flexibility. However, many emphasised that additional measures such as a mix of regulatory, financial, and technological solutions will be required to enhance the uptake of flexible technologies. Some advised that any reforms to the CM for low carbon should not jeopardise bespoke business model support needed for H2P and CCUS power / infrastructure. A few respondents mentioned additional measures which should be considered, such as grid connection and digitalisation improvements.
- Several respondents noted issues relating to the implementation of an Optimised CM in line with the responses to the more specific questions on that mechanism.
- Some respondents thought that a coordinated approach was required to ensure we provide clear signals in areas such as the amount of capacity needed on the system and achieve a balance of benefits and risks for developers, generators, investors, and consumers alike. A few respondents mentioned that incentivising inefficient or uneconomic technologies could distort market prices, hinder small-scale schemes and lead to higher costs for consumers. A few mentioned that the REMA package of reforms should seek to coordinate long-term price signals to trigger efficient investment in combined flexibility for dispatchability, stability and congestion services.
- Finally, a few respondents mentioned that closer integration is required between CM mechanisms and demand side flexibility initiatives, with particular emphasis on residential demand flexibility. Some of these respondents also stated that REMA should consider treating communities as a single entity, to encourage the growth of local markets.

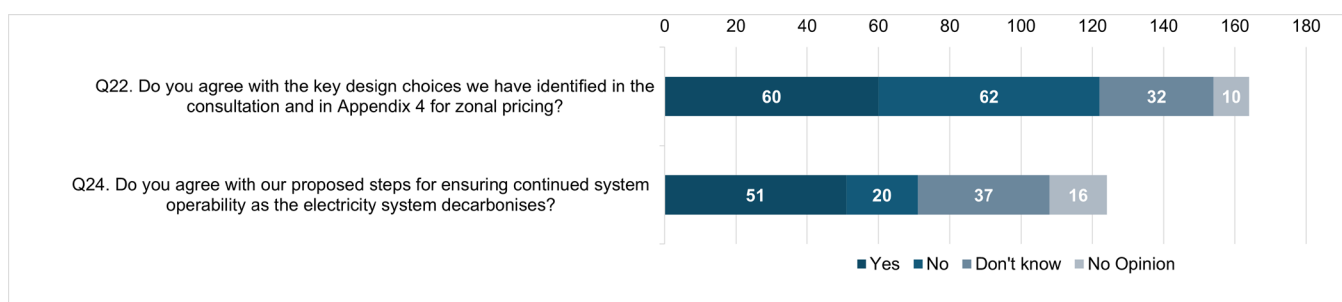
Challenge 4: Operating and optimising a renewables-based system, cost-effectively

This chapter summarises responses to Questions 22 to 24 of the consultation. These questions considered a range of issues and options for reform related to Challenge 4, which focused on options for operating and optimising a cost-effective renewables-based system, considering location.

Question 22 sought views on design choices if we were to pursue zonal pricing. Question 23 considered how far national pricing alternatives could go towards resolving the challenges we have identified, compared with zonal pricing. Question 24 analysed whether respondents agreed with our proposed steps for ensuring continued system operability as the electricity system decarbonises.

Figure 6 shows responses to Questions 22 and 24, which were the only multiple choice questions under Challenge 4.

Figure 6: A graph to show the number of respondents who agreed, disagreed, were unsure, or provided no opinion in response to Questions 22 and 24



Some respondents agreed that the second consultation identified the correct design choices for zonal pricing were it to be implemented. Other respondents disagreed with the design choices identified, although these responses primarily voiced disagreement with zonal pricing as a policy option and did not express views on the design choices. Of the respondents who provided missing design considerations, many identified the grandfathering of existing assets as a key consideration, citing a need to protect existing asset value and investor confidence in the UK. Some respondents also identified the complexity of implementing zonal pricing.

Most respondents were supportive of our proposed alternatives to locational pricing, highlighting that many of the potential benefits of zonal pricing could be achieved with alternative reforms under a national pricing scenario. These respondents claimed that the alternatives to locational pricing could be implemented on a quicker time scale, with less disruption to investment and with overall lower risk. Almost all respondents urged caution on the issue of reforming access rights, due to its strong link to investor confidence.

Most respondents did not support centralised dispatch. They argued that centralised dispatch was disruptive and had a negative impact on competition and investor confidence. Most respondents supported a shortening of settlement periods. Respondents who touched on the operability measures set out in the consultation were mostly supportive of our proposals.

Summary of Responses

Question 22 (164 responses) sought views on whether respondents agreed with the key design choices identified in the second consultation and in Appendix 4 for zonal pricing.

- There were mixed views from stakeholders in response to this question. Some respondents (38%) disagreed with the design choices identified in the consultation for zonal pricing. This compared to an almost equal proportion (37%) who agreed, 20% who did not know, and 6% who expressed no opinion. Of the respondents who disagreed with the design choices, many respondents selected this option due to their disagreement with zonal pricing as a policy option and did not express disagreement with the actual design choices for zonal pricing identified in the consultation.
- Most respondents viewed the potential lowering of consumer energy bills as a result of zonal pricing positively, especially in aiding those in fuel poverty. However, many respondents asserted that consumer impacts need to be better considered in zonal design. They suggested that mechanisms need to be put in place for ensuring transparency and fairness when deciding pricing allocations across zones.
- Some respondents disagreed with the key design choices and with zonal pricing more broadly, with some of those asserting that an evolution of the current market would be preferable.
- Of the respondents who provided missing design considerations, some identified the grandfathering of existing assets as a key consideration, citing a need to protect existing asset value and investor confidence in the UK by protecting these assets. Those respondents who suggested further design considerations for grandfathering were mixed in their preferences for design choices as presented in the consultation.
- Many respondents who did not view the proposed design choices positively were worried about investor confidence should zonal pricing be introduced. These respondents added that the lack of predictability in prices would make forecasting of demand difficult. Some felt that zonal pricing's impact on new investment would negatively impact the GB electricity market's net zero goals.
- Low market liquidity was identified by some respondents as another risk of zonal pricing which might require further design consideration. A few respondents were worried that zonal pricing would increase transaction costs, ultimately leading to higher costs for consumers.
- Some respondents argued that implementing zonal pricing would be complex, and that any transition to a zonal system would be expensive and take many years. A few respondents suggested that the scale of disruption caused by implementing a zonal

design outweighed its potential benefits. However, many agreed that if zonal pricing could be implemented smoothly then the benefits of more acute locational price signals would benefit both the energy market and consumers.

Question 23 (112 responses) sought views on how far our retained alternatives to locational pricing options would go towards resolving the challenges we have identified, compared with locational pricing.

- Most respondents were supportive of the proposed alternatives to locational pricing. Many respondents highlighted the fact that much of the potential benefit of zonal pricing could be achieved with these reforms under a national pricing scenario. These respondents claimed that the alternatives to locational pricing could be implemented on a quicker time scale and with less disruption to investment and with overall lower risk. There were some responses, however, that doubted the ability of the alternative options to address the challenges identified. These respondents highlighted that the alternative options would not send sufficient operational signals to address constraints and that a patchwork of reforms could lead to greater complexity.
- Most respondents were supportive of reform to network charges. Many respondents claimed that network charges have the potential to send more effective locational investment signals that would have some impact on constraint costs. There was a strong sentiment that for network charges to achieve this impact they will need to be reformed to increase predictability and accuracy. There were some respondents that were more doubtful and pointed out that, for example, network charging did not send operational signals and that charging reform had been attempted unsuccessfully in the past.
- Almost all the respondents addressing proposed changes to access rights urged caution due to the importance of access rights to investor confidence. There was a roughly even split of those who were positive about changes to access rights versus those who were against. Those against highlighted the impact on investor confidence. The respondents which supported changes pointed out their ability to send strong locational signals, but most of these supportive respondents said that access rights should only be removed for new assets.
- Almost all respondents who commented on interconnectors were supportive of proposals to optimise their use. Several respondents expressed that this was something which should be looked at urgently to address the challenges identified in the consultation. Some respondents also mentioned the need for better cross-border integration as a means of achieving more efficient dispatch. Expansion of measures for constraint management was similarly supported by almost all of the respondents who addressed it. Both the options of expanding local constraints markets and improving forecasting of congestion received support from respondents.

Question 24 (124 responses) sought views on whether respondents agreed with our proposed steps for ensuring continued system operability as the electricity system decarbonises.

- Some respondents (41%) agreed with our proposed steps for ensuring continued system operability. This compared to 16% who disagreed, 30% who did not know, and 13% who expressed no opinion.
- Almost all respondents were positive about the steps outlined to reform the BM by improving transparency and competition. Specifically, there were many respondents who approved of the prioritisation of those two reform areas. Respondents noted that these reforms would allow wider access to the BM including for flexibility providers, and that our proposals would result in a competitive BM.
- Most respondents supported a shortening of settlement periods. The arguments here included that it would allow for a more granular wholesale market, which would help to enable the inclusion of smaller scale, flexible, and DSR participants. Other respondents also spoke about how it would better enable markets to balance the system and how it was a relatively quick and easy reform to implement. There were a few respondents who were against shortening settlement periods because of the implementation costs, potential impacts on metering and smart meters, and issues around increased data flows.
- Of the few respondents who touched on gate closures, most disagreed with our decision to discount it as an option. They argued that it should be considered because it would allow a more granular wholesale market, and because the benefits of shortening settlement periods would not be fully realised without also shortening gate closures.
- Most respondents that touched on the operability measure set out in the consultation were supportive of our proposals. Respondents were particularly supportive of proposals to improve greenhouse gas emissions reporting for NESO's operability activity, proposals for an electricity system operability strategy out to 2035 and proposals to improve forecasting of medium to long-term operability needs.
- The majority of respondents argued that centralised dispatch should not continue to be considered. Many respondents focused on the risky and disruptive nature of centralised dispatch and the negative impacts it might have on competition and investor confidence. Some respondents pointed out that other reforms proposed in the consultation have the potential to deliver the benefits of centralised dispatch with much less risk. Several respondents queried the technical ability of NESO to administer such a system and expressed concerns around NESO dispatching fairly.

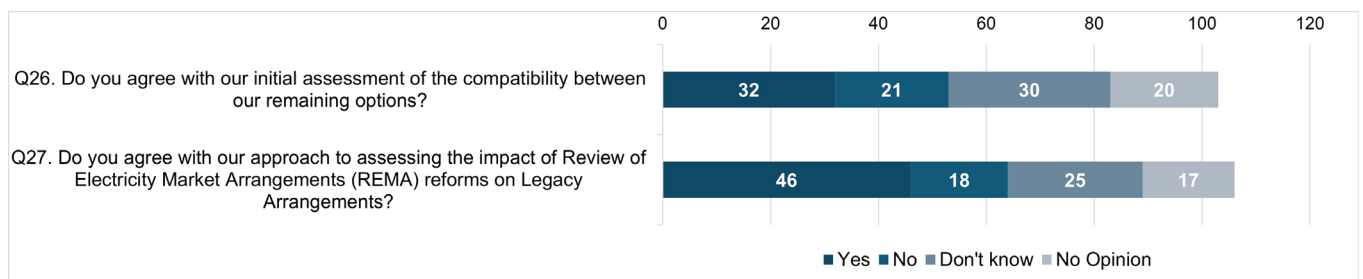
Options Compatibility and Legacy Arrangements

This chapter summarises responses to Questions 25 to 28 of the second consultation, which considered a range of issues and options related to Legacy Arrangements and the compatibility between different REMA options.

Question 25 focused on which market actors were best placed to bear and manage different types of risk within the remaining options, as presented in the second REMA consultation. Question 26 asked respondents whether they agreed with our initial assessment that there is a high degree of compatibility between the remaining REMA reform options. Question 27 considered whether respondents agree with our approach to assess REMA reform options and their impacts on a scheme-by-scheme basis. Question 28 focused on what risks we need to consider with regard to Legacy Arrangements and how they can best be mitigated.

Figure 7 shows responses to Questions 26 and 27, which were the only multiple choice questions within the Options Compatibility and Legacy Arrangements chapter.

Figure 7: A graph to show the number of respondents who agreed, disagreed, were unsure, or provided no opinion in response to Questions 26 and 27



The majority of respondents stated that risks should be shared across all market actors. However, a number of respondents agreeing with this view suggested that risk should be borne by those actors best placed to manage and mitigate it.

More respondents agreed than disagreed with our initial assessment of the compatibility between our remaining options. More respondents also agreed than disagreed with our approach to assessing the impact of REMA reforms on Legacy Arrangements. A majority of respondents cited the twin threats of reduced investor confidence and increased regulatory risk as primary risks requiring a solution through the REMA programme. Some respondents identified other risks emerging from Legacy Arrangements and offered proposals for a revised methodology.

Summary of Responses

Question 25 (93 responses) sought views on which market actors are best placed to bear / manage different types of risk.

- The majority of respondents stated that risks should be shared across all market actors. However, a number of respondents agreeing with this view suggested that risk should be borne by those actors best placed to manage and mitigate it. Respondents differed in their definition of “market actors”, however this term was frequently defined as meaning generators, suppliers, consumers and government / regulatory bodies.
- Some respondents noted that placing more risk on generators would likely lead to an increase in the cost of capital. In these instances, concerns were raised about the potential impacts on investment and investor confidence.
- A few respondents noted that a zonal approach would introduce additional risks to the market, particularly for generators and investors. Of these, several questioned the value of this additional risk.
- A few respondents focused on consumer risks, emphasising the need to avoid placing additional or undue risk on this market segment. A key argument cited for this was that consumers had few tools, if any, to mitigate such risk.

Question 26 (103 responses) sought views on REMA’s initial assessment of the compatibility between the remaining options.

- Views were mixed on this question. Some respondents (31%) agreed with our initial assessment of the compatibility between our remaining options. This compared to 20% who disagreed, 29% who did not know, and 19% who expressed no opinion.
- Some respondents stated that there was insufficient detail to make a meaningful assessment of options compatibility. Moreover, some said options needed to be narrowed further before a thorough evaluation could be done.
- A few respondents disagreed with the initial approach, arguing for a whole-system analysis as opposed to isolated interactions between options. Additionally, a few respondents, whether in agreement with the initial assessment or not, called for further engagement with stakeholders.
- A few respondents emphasised that zonal pricing could increase risk for investors in CfDs and the CM. These respondents cautioned that reduced liquidity and increased price / volume risk could drive up costs and disincentivise investment, particularly in renewables.
- A few respondents highlighted that compatibility and alignment with wider (i.e. non-REMA) initiatives was missing and should be included. These respondents cited initiatives such as the retail electricity market, the Strategic Spatial Energy Plan (SSEP), and the Centralised Strategic Network Plan (CSNP). They also urged consideration of

policy initiatives around alternative energy sources (natural gas, biomethane, hydrogen, power CCUS and Long Duration Electricity Storage (LDES)) and broader UK Government priorities such as the Net Zero Strategy.

Question 27 (106 responses) sought views on our approach to Legacy Arrangements and the impact on REMA.

- Some respondents (43%) agreed with our approach to assessing the impact of REMA reforms on Legacy Arrangements. This compared to 17% who disagreed, 24% who did not know, and 16% who expressed no opinion.
- A majority of respondents cited REMA's potential impact on investor confidence as a valid reason for developing an appropriate approach to Legacy Arrangements and putting in place relevant protections.
- Some respondents specified that they agreed with certain aspects of the approach to assessing the impact of REMA reforms on Legacy Arrangements. For example, the proposals to split the impacts out into financial and functional categories, and the approach to assessment on a scheme-by-scheme basis.
- A few respondents disagreed with, or criticised, specific aspects of the approach as set out in the second consultation document. Of these, most criticisms were raised in relation to the idea of protecting specified assets from REMA impacts as a whole. This was because of the complexity of implementing protections and the potential for creating market distortions. A small number of respondents also referred to the "scheme-by-scheme approach", suggesting it would not capture operability and compounding impacts from different REMA reforms.
- Typically, respondents welcomed provision of legacy protection in some form, however opposition primarily came in the form of requesting that specific assets, such as generators with CfDs, were fully protected from the impacts of REMA. Other respondents made more bespoke suggestions to REMA's proposed approach.
- Of those that requested specific assets be fully protected, some respondents expressed that all legacy assets (i.e. assets subject to Legacy Arrangements) be fully protected from the impacts of REMA reforms. Only a few respondents requested that all investments made (regardless of whether they were subject to Legacy Arrangements) in the market be fully protected.
- Of those that made suggestions to modify the government's approach, the majority of comments were made in relation to one of the following points:
 - 1) Communicating and engaging with investors and stakeholders – these typically either requested that: stakeholders and investors are involved in the decision-making process (with the aim of assisting the government in understanding the challenges REMA poses to them), or for government to provide clear communication about its intentions, in order to retain investor confidence.

- 2) Expanding the scope of Legacy Arrangements to consider merchant generators or other private contracts between market participants, in addition to the government schemes listed; and
- 3) Refinement of the definition of "Legacy Arrangements," as well as the period, schemes and projects the term should cover.

Question 28 (57 responses) sought views on risks relating to Legacy Arrangements.

- A majority of respondents to this question cited impacts on investor confidence as a risk to consider in relation to Legacy Arrangements. Of those that cited this, many responses were coupled with one of the following risks:
- 1) Cost of capital – where respondents were concerned by the risk of cost of capital increasing and impacting on investment.
- 2) International competition – where respondents were concerned by the additional risk brought about by REMA and its influence on the relative appeal of the GB market for investment compared to other markets internationally.
- 3) Net zero and renewables investment – where respondents were concerned that any impact on investment would impact on renewable generation rollout.
- Some respondents flagged the risks that the merchant tail (that is, operators in the market beyond the lifetime of any contract) presents for Legacy Arrangements. A few respondents also noted the additional risk that the merchant tail presented in relation to a withdrawal of generation capacity from the market.
- Some respondents flagged concerns in relation to zonal pricing and its influence on the risks raised above.
- Finally, a few respondents suggested targeted mitigation measures to potential risks presented by certain REMA reforms. However, these mitigation proposals were not sufficient in number or popularity to draw any specific conclusions.

Annex: Methods

This annex sets out our approach to analysing the consultation responses and its key limitations.

Qualitative analysis: Free text responses

In conducting the analysis, officials developed two sets of codes. Firstly, they allocated sentiment codes to each response, considering whether the response to each question had a “positive”, “negative” or “neutral” response to REMA’s proposals. Officials then developed qualitative codes based on patterns emerging from the responses, following an inductive thematic analysis approach. Inductive thematic analysis is a data-driven exploration where the dataset is the starting point for engaging with meaning. It allows themes to surface from the text which is provided. Officials took the codes which they developed from the responses and produced three to five main themes per question based on the most common codes to write up in their question response summary.

Quantitative analysis: Survey responses

Officials merged responses from Citizen Space and those submitted by email and letter to compile the survey data. The survey data therefore included both data where respondents had provided a clear tick-box answer and data based on a qualitative assessment of sentiment. Where respondents elaborated on multiple choice questions but did not directly put multiple choice answers, officials used the response to allocate an answer. Those responses that had no comment on a question and provided no multiple choice answer were excluded from calculations on each particular question.

Key limitations

Whilst officials sought to conduct as systematic and robust an analysis as possible, there are several key limitations to note:

- There is inherently a degree of subjective judgement in using qualitative coding and thematic analysis in practice – application of this method may have differed slightly across the different officials reviewing responses
- The number of responses to each question, as well as the extent to which respondents elaborated on their answers, varied significantly across the consultation. Additionally, whilst we received 200 responses, these responses may not form a representative picture of those impacted by electricity market arrangements as a whole.

- Whilst every effort was made to provide an accurate qualitative assessment of responses in compiling the survey data, this again involved an element of subjective judgement.

This publication is available from: <https://www.gov.uk/government/consultations/review-of-electricity-market-arrangements-rem-a-second-consultation>

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