

Annex A – Exceptions applied

Regulation 11(2) – applicant has asked for personal data of a third party

An exception under regulation 11(2) of the EIRs (personal information) applies to some of the information requested because it is personal data of a third party and disclosing it would contravene the data protection principles in Article 5(1) of the General Data Protection Regulation and in section 34(1) of the Data Protection Act 2018. This exception is not subject to the ‘public interest test’, so we are not required to consider if the public interest in disclosing the information outweighs the public interest in applying the exception.

Regulation 10(4)(d) – material in course of completion, unfinished documents or incomplete data

An exception under regulation 10(4)(d) of the EIRs (unfinished or incomplete information) applies to some of the information you have requested because it is an unfinished document.

This exception is subject to the ‘public interest test’. Therefore, taking account of all the circumstances of this case, we have considered if the public interest in disclosing the information outweighs the public interest in applying the exception. We have found that, on balance, the public interest lies in favour of upholding the exception. We recognise that there is some public interest in release as part of open, transparent and accountable government. However, this is outweighed by the public interest in ensuring that unfinished or incomplete information is not disclosed when it might misinform the public or give a misleading impression of the Government’s view or position on the matter to which the information relates.

Regulation 10(4)(e) – internal communications

An exception under regulation 10(4)(e) of the EIRs (internal communications) applies to some of the information you have requested because it is internal communication between Scottish Government Ministers and/or officials about policy development.

This exception is subject to the ‘public interest test’. Therefore, taking account of all the circumstances of this case, we have considered if the public interest in disclosing the information outweighs the public interest in applying the exception. We have found that, on balance, the public interest lies in favour of upholding the exception. We recognise that there is some public interest in release as part of open, transparent and accountable government, and to inform public debate. However, there is a greater public interest in high quality policy and decision-making, and in the properly considered implementation and development of policies and decisions. This means that Ministers and officials need to be able to consider all available options and to debate those rigorously, to fully understand their possible implications. Their candour in doing so will be affected by their assessment of whether the discussions will be disclosed in the near future, when it may

undermine or constrain the Government's view on that policy/issue while it is still under discussion and development.

Regulation 10(5)(f) – substantial prejudice to interests of person who provided the information

An exception under regulation 10(5)(f) of the EIRs (substantial prejudice to interests of person who provided the information) applies to some of the information you have requested. This exception applies because disclosure of this particular information would, or would be likely to, prejudice substantially the interests of organisations or individuals who provided that information to the Scottish Government. They:

- were not under any legal obligation to give us that information;
- did not supply it in circumstances in which it could, apart from the EIRs, be made available; and
- have not consented to disclosure.

This exception is subject to the 'public interest test'. Therefore, taking account of all the circumstances of this case, we have considered if the public interest in disclosing the information outweighs the public interest in applying the exception. We have found that, on balance, the public interest lies in favour of upholding the exception. We recognise that there is a public interest in disclosing information as part of open and transparent government. However, there is a greater public interest in protecting the interests of anyone who provides the Scottish Government with information on a confidential basis. Disclosing such information against the express wishes of the stakeholder is likely to undermine their trust in the Government and make them reluctant in future to share information with us on issues. This would significantly impair the Scottish Government's ability to develop policies and make decisions on the basis of fully informed advice and evidence. This would not be in the public interest.



The Scottish Parliament
Pàrlamaid na h-Alba

Liam Kerr MSP
Member of the Scottish Parliament for North East Scotland Region

Richard Lochhead MSP
Minister for Just Transition,
Employment and Fair Work
Scottish Government, St. Andrews House
Regent Road
Edinburgh
EH1 3DG

Our Ref: LK1335

3rd June 2022

Dear Minister,

Source of “Firm” Power

During the General Questions session on the 1st June 2022 I asked you:

“According to the Climate Change Committee’s “Net Zero: The UK’s contribution to stopping global warming” report, to hit net zero, the UK will need 4 times more clean power by 2050. They further say 38% of that needs to be “firm” power i.e. consistently generated and reliable, regardless of weather conditions or battery life. From what source will Scotland get that 38% “firm” electricity generation?”

Regrettably your, perhaps pre-scripted, response did not even begin to answer this question.

In the context of the closure of Scotland’s nuclear energy generation capacity and the Scottish Government’s well-documented antipathy to the North Sea oil and gas industry, it is important that the people of Scotland understand what the Scottish Government’s plans are for that “firm” electricity generation that the Climate Change Committee says will be required. Many will naturally assume that the Scottish Government has sufficiently planned and projected when taking decisions on the current energy mix.

I would be grateful therefore for your prompt and succinct response explaining from what source precisely Scotland will generate that 38% “firm” electricity generation. In the, hopefully unlikely, event that the Scottish Government has failed to project that scenario, please state that fact.

Yours sincerely,

Liam Kerr
Member of the Scottish Parliament for the North East Region

M 2.17 The Scottish Parliament, Edinburgh, EH99 1SP
Liam.Kerr.msp@parliament.scot
0131 348 6973

 liamkerrmsp

 @liamkerrmsp



F/T: 0300 244 4000
E: scottish.ministers@gov.scot

Liam Kerr MSP
Email: Liam.Kerr.msp@parliament.scot

Our ref: 202200304391
13 July 2022

Dear Liam,

Thank you for your letter of 03 June in which you ask about firm power and Scotland's electricity generation.

Firstly, it is essential to highlight that Security of electricity supply is a reserved matter and is delivered by National Grid ESO across the whole of Great Britain under regulation from Ofgem.

Scotland is part of the GB wide market for electricity where power is traded across Scotland England and Wales with interconnectors extending trading opportunities across Ireland, Northern Ireland, Belgium, France and Holland. We expect this to continue in the future.

It is important to clarify that the figure of 38% firm power you mention, is only one of several scenarios detailed by the Climate Change Committee's 2019 Net Zero report. This work has since been updated in the 6th Carbon Budget. According to that analysis, the level of firm power generation can range between 15-27% in 2035 and 11-26% in 2050 depending on the scenario being considered. There is also the possibility that these proportions will change as our ability to harness and utilise even more renewable power increases over time.

Another important point to note is that the firm power forecasts by the Climate Change Committee are for GB and therefore not the sole responsibility of Scotland.

Scotland has sufficient secure supply capacity available – with around 9 Gigawatts, to meet peak demand of around 5 Gigawatts. Scotland is also a net electricity exporter, with 16 TWh of net exports in 2021.

Tha Ministearan na h-Alba, an luchd-comhairleachaidh sònraichte agus an Rùnaire Maireannach fo chumhachan Achd Coiteachaidh (Alba) 2016. Faicibh www.lobbying.scot

Scottish Ministers, special advisers and the Permanent Secretary are covered by the terms of the Lobbying (Scotland) Act 2016. See www.lobbying.scot



In regards to where Scotland's generation will come from; it is anticipated that Scotland's system will be powered by a high proportion of renewables complemented by other sources of low carbon, flexible power generation, as well as storage. Our priority continues to be to support energy efficiency, develop Scotland's huge renewable resource and to promote storage and flexibility.

Carbon capture and storage will be a vital part of Scotland's our energy transition, with significant potential to reduce emissions from electricity generation whilst supporting broader efforts for industrial decarbonisation and enabling negative emissions technologies.

Scotland is committed to delivering a just transition to net zero emissions by 2045. We recognise that the oil and gas industry will play a vital role in that transition, especially through their highly skilled workforce. To support the wider transition of the sector we must expand and develop our renewable energy sector while reducing our dependency on fossil fuels, making sure we do so in a way that also recognises our collective responsibility to tackle the global climate emergency.

The UK Government's decision not to award the Scottish Cluster carbon capture project clear and definitive Track-1 status is a serious mistake which shows a clear lack of ambition and leadership on climate change. This is a failure to sufficiently back the technology and therefore a just transition for Scotland's energy workforce including, in the North East. In contrast, the - while the Scottish Government has offered £80 million from its Emerging Energy Technologies Fund to help accelerate the Scottish Cluster.

Scottish Government plans to publish a draft Energy Strategy and Just Transition Plan later this year and is also working on the Climate Change Plan, both of which will explore the future of Scotland's electricity generation mix in more detail.

I hope this information has been useful.



RICHARD LOCHHEAD

Tha Ministearan na h-Alba, an luchd-comhairleachaidh sònraichte agus an Rùnaire Maireannach fo chumhachan Achd Coiteachaidh (Alba) 2016. Faicibh www.lobbying.scot

Scottish Ministers, special advisers and the Permanent Secretary are covered by the terms of the Lobbying (Scotland) Act 2016. See www.lobbying.scot

Taigh Naomh Anndrais, Rathad Regent, Dùn Èideann EH1 3DG
St Andrew's House, Regent Road, Edinburgh EH1 3DG
www.gov.scot



INVESTORS
IN PEOPLE

Accredited
Until 2020



Annex D – Ofgem Net Zero Britain Report – Submission

From: [redacted]
Electricity Networks and Regulation
Energy and Climate Change
03 August 2022

Cabinet Secretary for Net Zero, Energy and Transport

Ofgem Net Zero Britain – Call for input.

Purpose

1. To bring to your attention seek approval for a response to Ofgems recent Net Zero Britain publication.

Priority

2. **Urgent** – Officials would welcome a prompt response to this submission to allow for a response to be issued to this call for evidence before the deadline on 08 August

Background:

3. Ofgem has set out plans for ‘Net Zero Britain’ which includes a number of proposed reforms to deliver a resilient, low cost, low carbon power sector.
4. The case for change (and proposed solutions) are organised around three broad themes:
 - I. **Coordination:** finding the optimal balance between network investment and use of flexibility
 - II. **Optimisation:** Specifically;
 - **The marginal price challenge:** addressing the current arrangements that allow relatively costly power sources (gas, and in future, hydrogen) to set the price for the whole electricity market, potentially leading to higher than necessary costs for consumers and returns for investors in non-gas power generation
 - **Need for granular market signals:** given the single electricity price in the GB market, the ESO is required to intervene to balance the system. This means that cleaner generation is often paid to stop power generation in constrained areas. Ofgem believe that locational based prices would unlock locational flexibility and save billions of pounds annually.
 - III. **Consumers:** maximising opportunities for consumers that will arise through the evolving energy market while also ensuring protection for those who choose not to or are unable to do realise them.

Sensitivities:

5. [redacted]

6. [redacted]

Ofgem's Proposed Reforms

7. **Coordination:** Proposals under this area are generally projects/ policies that are underway. This includes the creation of a Future System Operator (FSO) who will play an increasingly significant role in shaping the energy system and driving forward network competition.
8. The paper also sets out Ofgem's thoughts on the coordination of local stakeholders and institutions required to achieve net-zero. This follows a recent call for input on the capabilities and functions of local energy institutions and governance as well as the potential for new institutions.
9. Overall, Ofgem recognises that energy governance, combined with open, accurate and comprehensive market information, could do more to better facilitate non-network solutions and flexibility.
10. **Optimisation:** The paper considers a number of routes to reform the GB market in order to address the marginal price challenge (gas setting the wholesale market price) and lack of granularity in price signals (risk that energy assets aren't built where they are most needed)
11. The first option would be to split the wholesale market with a renewable power market that would allow renewable projects to get paid their costs and a separate firm power market that would clear in the usual way to incentivise investment in dispatchable generation.
12. Ofgem suggest that the same results could be achieved by increasing the use of the Contract for Difference (CfD) mechanism. CfD holders do not receive the marginal price and at times of high prices (like now) CfD holders pay back the difference.
13. While these arrangements could offer consumer benefits they do not address the lack of granular locational signals in the market. With that in mind, Ofgem has set out initial thinking on a range of options that could extend the use and accuracy of locational signals
14. **Locational Marginal Pricing (LMP)** [redacted]
 - LMP would introduce greater variation in wholesale electricity prices across GB, based on supply and demand of electricity within specific zones or nodes on the network (Annex A). Ofgem has already commissioned further detailed analysis of a transition to this model in the GB market which is expected to report in Autumn 2022.
 - A number of stakeholders including [redacted] have criticised proposals to move to a LMP model in GB.
 - [redacted]

Other options that are considered include:

15. **More locational network charges:** could be introduced for both transmission and distribution capacity. Under this approach traditional TNUoS and DUoS charges would be allowed to vary in real time to enable participants to decide whether to participate in the market when there is limited capacity in the network.
16. [redacted]
17. **Introduce location signals to the balancing market:** Under current arrangements when competing to provide services in the balancing market (for example curtailment or voltage control) parties compete solely on price, regardless of where they are on the network. Therefore introduction a locational element to these arrangements could increase the accuracy of how network conditions and constraints are signalled.
18. **Expand the use of flexibility contracts:** Some DNOs currently offer contracts to parties that can provide flexibility and relieve constraints on their system. Expanding these arrangements could offer additional benefits. However, Ofgem have not set out any detail on what it would expect network owners to do to expand this offering beyond proposals within existing business plans
19. **Centralised dispatch:** Depending on the market design (i.e. if used with nodal pricing) this can remove the need for a separate balancing market. [redacted]

In addition to the options above, Ofgem acknowledges that market signals alone may not provide sufficient incentive for much needed long duration storage (such as pumped storage hydro).

Consumers:

Whereas the current energy crisis, stemming from global market volatility indisputably calls for an urgent energy market reform, it is clear that the proposed changes will take years to be implemented and consumers will not see any benefits in the short term.

As pointed out in the report, consumer benefits from Locational Marginal Pricing might be limited when the energy generation location is fixed such as with renewable projects. [redacted]

Ofgem committed to developing a framework of 'consumer interests' this year that secure fair prices, low-cost transition and market resilience, however, no details about the consultation timescales or stakeholder engagement are available in the report.

Recommendations

20. It is requested that you:

- Note the contents of this submission.
- [redacted]

Locational Marginal Pricing

Background

Locational Marginal Pricing (LMP) is an alternative model for the GB wholesale electricity market, where electricity prices would be determined at individual nodes or within specific zones on the network and reflect the balance of supply and demand in that area.

Following recent work from National Grid ESO on this subject, Ofgem is undertaking its own analysis of this model, appointing consultants to undertake a quantitative assessment of LMP in the GB market.

A working group has been established and Scottish Government is represented on the group. The first meeting on the 26 May 2022 focused on project objectives, modelling assumptions and methodology and potential wider policy impacts. Subsequent workshops will focus on different elements, including outputs from economic modelling, implementation, and transitional measures.

Zonal and Nodal pricing

Nodal pricing will set different market prices at different nodes on the network. This can vary from a few hundred to a few thousand, with this typically influenced by network size and the level of congestion.

Zonal pricing splits the electricity network into defined zones with boundaries usually drawn to reflect where major transmission network constraints occur. Each zone operates like the current national market, with a single price that does not reflect network constraint costs within the zone.

We expect that both models could create a disadvantage for generators located in Scotland [redacted] and further analysis is required to determine if this approach would align with Net Zero targets.

Sensitivities

[redacted]

Given the LMP model would create price signals that are analogous to those provided through TNUoS charges, we expect that this will create a significant disadvantage for generators located in Scotland.

[redacted]

It is important to acknowledge that that LMP could, however, present significant benefits for consumers and further analysis is needed here.

[redacted]

[redacted]

Annex B

Constraint Management

Constraint management is required where the electricity transmission system is unable to transmit power to the location of demand, due to congestion at one or more parts of the transmission network.

National Grid ESO is responsible for managing constraints on the electricity system. This responsibility is executed through a market mechanism known as the “balancing market” (BM).

The BM is managed through a series of auctions across 48 half hour windows every day (i.e. every 30 mins in each 24 hours). In each of these windows BM participants (transmission connected generators and demand customers as well as some distribution connected customers) can submit bids or offers to either turn down or turn up their generation output.

National Grid ESO will accept either bids or offers in order to keep the system in balance (i.e. operating within 0.2Hz of 50hz)

Renewables in the BM (Connect and Manage)

The connect and manage regime, introduced in 2011, allowed National Grid ESO to use constraint management as a tool to protect consumers from over-investment in our electricity infrastructure by offering renewable generators connection dates before wider reinforcements to the system were constructed.

Until connect and manage was introduced generators could have to wait for transmission owners to build new transmission assets capable of taking excess power to centres of demand before they were able to connect.

[redacted]

[redacted]

Annex E – Submission – Response to BEIS REMA Consultation

From: [redacted]
Electricity Networks and Regulation
Energy and Climate Change
10 October 2022

Cabinet Secretary for Net Zero, Energy and Transport

PRIORITY AND PURPOSE

1. Purpose - To bring to your attention the UK Government's consultation on its Review of Electricity Market Arrangements (REMA) [redacted].

2. [redacted]

CONTEXT AND ISSUES

3. The UK Government committed to a Review of Electricity Market Arrangements in the British Electricity Security Strategy (BESS) published in April 2022.

4. BEIS opened its consultation on REMA in July 2022 which provides an assessment of the drivers for change and a wide range of possible options for reform.

5. Note that these proposals are separate to the short-term changes that BEIS are putting in place for renewables and nuclear in the wholesale market, although there is some overlap with proposals in the longer term REMA consultation.

6. Overall, the REMA consultation identifies the following issues:

- . Current market arrangements will not deliver a fully decarbonised power system.
- a. The existing approach to maintaining security of supply is likely to come at risk of missing our decarbonisation objectives, as the current Capacity Market continues to lock in high carbon assets.
- b. The existing market structure does not place us on a least cost pathway to power sector decarbonisation.

7. The REMA consultation presents a range of options to address these problems but does not present a preferred approach.

8. The scope of proposed reforms is broad and the UK Government hopes that this first consultation will help to rule out any options where there are clear and immovable barriers to delivery, before progressing with any detailed analysis.

9. Several key stakeholders including National Grid ESO and Ofgem have pre-empted the outcome of REMA by issuing strong statements of support for Locational Marginal Pricing (LMP).

10. [redacted]

OPTIONS CONSIDERED AND ADVICE

11. Overall, REMA represents a significant and far reaching programme of work that will review the structure of the GB wholesale market, the role of subsidy mechanisms (e.g CfD and Capacity Market), incentives for flexibility and demand side response and certain aspects of electricity security (capacity and operability).

12. A summary of the options for wholesale market reform is set out in Annex A.

13. A summary of the options to reform market support mechanisms is set out in Annex B.

14. All options considered will create both risk and opportunities across many aspects of Scottish Government's plans for a just transition to net zero, and officials do not recommend support for specific options before detailed analysis is available.

15. [redacted]

16. It is vital that all stakeholders that would be impacted by the risks and opportunities should be closely engaged in this work by the UK Government.

17. [redacted]

18. [redacted]

NEXT STEPS

19. BEIS officials have indicated that they expect to be in a position to publish a response to the REMA consultation by January 2023.

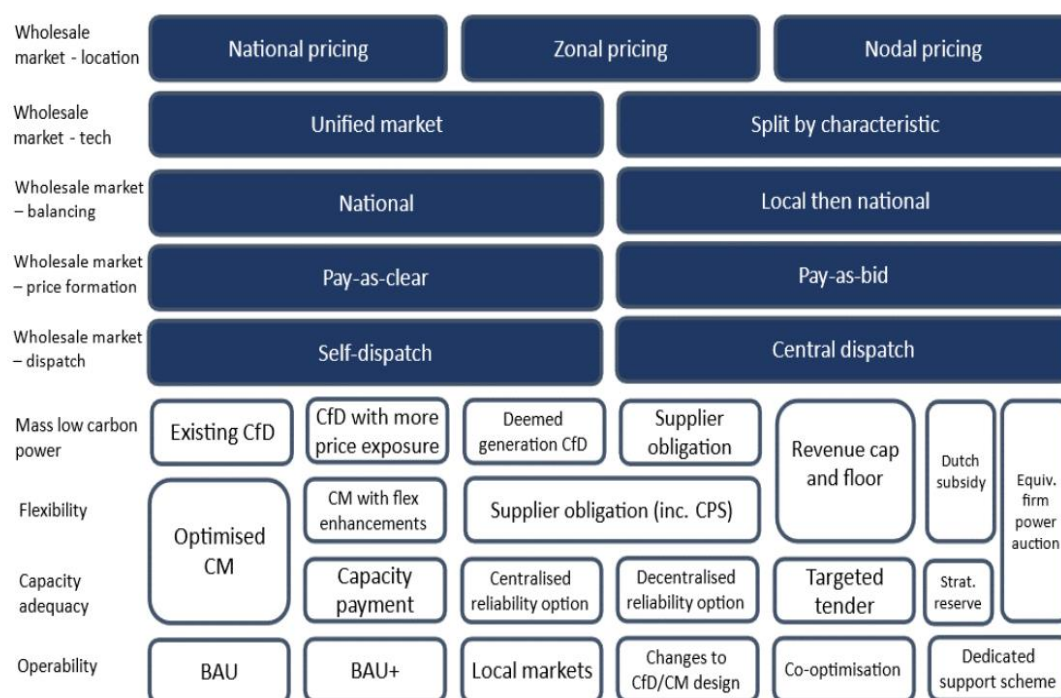
20. Detailed analysis of remaining options would follow with further consultation required in mid-2023.

RECOMMENDATIONS

21. It is requested that you:

- Note the contents of this submission and
- Approve the response provided in **Annex C**

Summary of options for wholesale market reform



The diagram above provides an overview of the scope of reform options that are under consideration in BEIS's Review of Electricity Market Arrangements.

[redacted]

Introducing locational pricing, either zonal or nodal:

Locational Marginal Pricing (LMP) is an alternative model for the GB wholesale electricity market, where electricity prices would be determined at individual nodes or within specific zones on the network and reflect the balance of supply and demand in that area.

Nodal pricing will set different market prices at different nodes on the network. This can vary from a few hundred to a few thousand, this is typically influenced by network size and the level of congestion.

Zonal pricing splits the electricity network into defined zones with boundaries usually drawn to reflect where major transmission network constraints occur. Each zone operates like the current national market, with a single price that does not reflect network constraint costs within the zone.

Under both models of locational pricing (nodal and zonal) it is expected that Scottish generators would receive a lower unit price of electricity acting as a significant disincentive for investment.

There would, however, be scope for consumers and industry to benefit from these lower prices [redacted].

Splitting the market into separate markets for variable and firm power: Under this approach prices in the variable, 'as available' market would be set on the basis of the long-run marginal cost of renewables (i.e. factoring in all the costs of producing that unit of energy, including building a new plant); prices in the firm, 'on demand' market would continue to be set by short-run marginal cost (i.e. only factoring in the cost of producing an extra unit of energy, mostly made up of fuel costs).

This approach would decouple renewables from gas enabling consumers to more directly benefit from lower cost of renewable power. In addition, it would allow the value of flexibility to be realised in market prices i.e. how much people are willing to shift their demand in order to capture the lower prices of the 'as available' market). This could provide strong incentives for demand-side flexibility: the price differential between the two markets would provide arbitrage opportunities for technologies able to shift demand in time.

However, it should be noted that this is novel approach to market structure has not been employed in other markets. A number of fundamental design questions are still be answered: for example, how prices would be formed in the 'as available' market; how the two markets would interact (e.g. would all 'as available' power be consumed before any 'on demand' power?).

Splitting the market in two could also lower liquidity and, by extension, lead to lower competition in each market compared to the status quo.

There are also risks for consumers and potential just transition impacts. For example, if this model results in greater complexity or more variability in price signals, then detailed wholesale and retail market design will need to ensure that consumers, particularly vulnerable consumers, do not suffer undue detriment if they do not engage with the market.

Moving toward more local markets could be achieved by reorienting the market towards the distribution network. This would require a separate market (pool, balancing, and ancillary services) at each connection between the transmission and distribution networks, overseen by distribution network operators (DNOs).

Participation would be voluntary. DNOs would be responsible for balancing the local market and ensuring its operability: they could procure from other markets to do so (either other local markets or the national wholesale market). The national wholesale market would continue to exist and would be reconfigured to co-ordinate with these new local markets. The System Operator would be responsible for overseeing the national markets and would have responsibility for residual national issues on the grid.

[redacted]

Further work is needed to understand a) the costs and benefits relative to our current arrangements, b) how the GB market might implement a local market model or

imbalance pricing in practice; and c) the potential role of sub-national institutions, including combined authorities, in supporting the delivery of a distribution-level approach.

Summary of options to reform market support mechanisms

In addition to wholesale market changes, the consultation sets out a number of options that could improve market support by amending or replacing CfD's and Capacity Markets as well as introducing new support measures for low carbon Flexibility.

Reforming the existing Contract for Difference Framework: BEIS is concerned that the CfD limits exposure to market signals for a significant portion of asset life, incentivising assets to run whenever possible. This does not incentivise assets to locate optimally for system need and does not facilitate competition with low carbon flexible assets. Full insulation from price risk also removes the need for generators to hedge, reducing market liquidity.

In order to address these concerns Ofgem has proposed CfD variants with increased price exposure, either during the length of the contract or shorter contracts, to increase the amount of time (after their contract expires) that generators are fully exposed to market signals.

This could include:

- A CfD with a strike range: instead of a single price, plants are guaranteed a maximum and minimum price per MWh output, with market exposure within that range.
- Changes to the reference price methodology: for example, by setting CfD top-up payments for an entire week, with opportunities for profit or loss if plants do better in the market than the weekly average.

A 'deemed generation' CfD: In this model plants are paid based on their potential to generate in a particular period, rather than their actual generation behaviour. This means generators would not have to export energy to receive their CfD top-up payment, as they do currently.

Where there is more value in participating in ancillary service markets, or charging on-site battery storage for times when demand is higher, they will be incentivised to do so.

[redacted]

Further analysis is necessary to assess the impact of the above changes for generators in Scotland.

Equivalent Firm Power Auctions: This model would be similar to the existing capacity market framework. However, all parties would be able to compete based on de-rated capacity.

The auction would include enforceable capacity contracts with penalties for non-delivery, and so incentivise variable generators to seek contracts with flexible assets to back up their variability and improve their de-rating factor to provide a greater 'equivalent' firm power.

The auction would not value decarbonisation, instead leaving this objective to an economy-wide carbon price. However, a second stage process of applying a carbon constraint could be designed to ensure the auction results meet an emissions target.

The strengths of the EFP auction are that it creates a technology-neutral auction and a secondary market for flexibility as renewables seek to improve their de-rating factors. The current separation of the CfD scheme and the Capacity Market address the different market issues faced by renewables and firm power.

There are drawbacks - the auction encourages variable renewables to contract with flexibility providers at an individual project level, but it may be more cost-effective to procure system security at a system level.

[redacted]

Cap and Floor Mechanism would follow the precedent of the interconnector cap and floor. This would provide generators with a guaranteed minimum revenue in each period.

They would compete in the full range of markets (capacity, wholesale, balancing, ancillary services), and if they do not meet their minimum revenue, then they would be topped up at the end of the period. There would be no transfer if their revenue was between the floor and the cap.

A Dutch Auction scheme could be applied to numerous technologies across renewable electricity, renewable heat, renewable gas, low-carbon heat, and industrial decarbonisation.

Dutch Auctions are based on the cost effectiveness of different technologies at avoiding CO₂ emissions. There is a set budget for each auction, and bids are accepted until this budget is reached.

The Dutch government contracts directly with assets and provides a subsidy to assets for up to 15 years (similar to CfD's). The level of support covers the difference between the base tariff awarded per tonne of CO₂ equivalent avoided and an estimated market remuneration. This is broadly equivalent to the average CfD top-up payment (per MWh) divided by an assumed marginal CO₂ saving (kgCO₂/MWh).

The main advantage of the Dutch Subsidy is that it creates a common currency for comparing the relative value for money of decarbonisation projects.

This allows a large range of technologies to compete for support, including generation, flexibility and demand reduction, which should lead to a lower cost capacity mix overall.

The key challenge in designing a version of the Dutch Subsidy for the power sector is maintaining the value of this common currency whilst providing different technology types with appropriate incentives. Paying generators per tonne of CO₂ abated, incentivises assets to maximise their output, in order to maximise their revenue.

[redacted]

[redacted]

Annex C

Annex F – REMA update – March 2023

From: [redacted]@gov.scot
To: [redacted]@gov.scot
Sent: 04 April 2023 09:14
Subject: FW: REMA update - March 2023

Hey [redacted]

Just checking you actually get these...

Thanks,

[redacted]

From: [redacted]@beis.gov.uk
Sent: 22 March 2023 14:19
Subject: REMA update - March 2023

Hi all

You are receiving this email because you are part of the internal (XDESNEZ and XWH) Review of Electricity Market Arrangements (REMA) mailing list, if you would like to be removed or someone else in your team needs to be added please let us know by replying to this email. Following the publication of the summary of responses and holding the first two meetings of our external engagement forums, we would like to provide you with an update of our recent activity and next steps for the REMA programme.

REMA consultation and publication of summary of responses

As many of you will be aware, the first REMA consultation (opened on 18th July and closed on 10th October 2022) invited views on REMA's proposed vision and objectives for future electricity market arrangements. In total we **received 225 responses from across the energy industry** and on the 7th March we published a summary of responses.

The 'summary of responses' report, set out the main themes from feedback received to the first REMA consultation with the majority of respondents agreeing with the vision and objectives for electricity market arrangements, as well as the challenges identified. Within the document we have also outlined the options for reform that we will continue to explore, including reforms to wholesale market arrangements (e.g. shortening settlement periods and ways to introduce more locational signals), mechanisms for ensuring security of supply (including a range of modifications to the existing Capacity Market and potential complementary mechanisms), and mechanisms to support deployment of low carbon and flexible generation at scale.

We discounted a small number of options based on the consultation feedback received and based on work conducted internally since publishing the first consultation. The options that have been discounted are local imbalance pricing, pay-as-bid, dutch subsidy, equivalent firm

power auction, capacity payments and a decentralised reliability option. We have also discounted supplier obligations (for both mass low carbon power and flexibility), targeted tender and strategic reserve as standalone mechanisms. In most cases the majority of respondents agreed that we should not continue to consider those discounted options; the summary of responses sets out our rationale for discounting specific options in further detail.

On 15th March we invited all REMA stakeholders to a MStems meeting about the summary of responses, around 150 stakeholders attended the call which provided a high-level overview of the chapters within the summary of responses and set out the next steps for the REMA programme. The recording is [linked here](#) if interested.

REMA next steps, external engagement forums, ministerial and international engagement

Following the publication of summary of responses, we continue to develop, refine and narrow down options for reform closely, working with industry and stakeholders, and expect to undertake further consultation in late 2023. To help facilitate effective engagement for REMA we have recently set up two external stakeholder forums and have attached readouts from the sessions.

- The **Market Participant Forum** convenes market participants and relevant trade body representatives from across the energy space to provide an opportunity for facilitated discussions on key policy issues.
- The **End User Forum** convenes stakeholders representing the interests of a broad spectrum of end users (from domestic to industrial consumers to devolved administrations) to enable feedback and informed engagement on both the REMA design process and the Future Retail Strategy

End User Forum meeting on 16th February

The majority of discussion focussed on the impact of current market arrangements on end users and how fairness might be defined, with strong emphasis of considering the cumulative impact of REMA and Retail reforms of consumers throughout the process, and there was positive feedback overall on providing opportunities and space for these conversations.

Market Participant Forum on 27th February

The session was focussed around three breakout groups which focussed on CfDs and Power Purchase Agreements, Green Power Pool and splitting the wholesale market. Overall there was agreement that a combination of CfDs and PPAs had already decoupled prices to an extent and would/could continue to do so, that the GPP wouldn't improve the status quo and that Split Markets would be too complex to deliver any tangible benefit.

The End User and Market Participant Forums will meet again in mid-April to discuss locational signals.

Ministerial engagement

Our ministerial engagement is beginning to ramp up as we enter the next phase of development towards the second consultation. Since the turn of the year we have set up regular teach in sessions with Minister Stuart to discuss workstream issues in more detail, kicking off after recess. For further information, please reach out to [redacted]@beis.gov.uk

International engagement

On 8-9th March a small delegation from DESNZ travelled to Brussels to engage with stakeholders on REMA and the EU's parallel electricity market reform work. REMA's Director, Dan Osgood, joined a Eurelectric-organised panel discussion about electricity market reform in the European Parliament. During the session, panellists had a productive discussion on the similar challenges faced by the UK and EU in their respective markets. For further information on the EU and international angles of REMA's work, please contact [redacted]@beis.gov.uk

If you would like to meet with the REMA team or have a question about any of the REMA workstreams (wholesale market, low carbon investment, operability, flexibility and capacity adequacy) please get in touch and request a meeting. We will write to you again in late April following the second REMA forum meetings

Kind regards
[redacted]