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Submitted to Reformed National Pricing Delivery Plan
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About you

Are you responding as an individual or representing the views of an organisation

Type of respondent:
Organisation

Name of organisation/company/individual

Name of organisation/company/individual :
UK Energy Research Centre (UKERC)

Name of respondent

Name of respondent :
This response has been prepared by Dr Will Blyth (Imperial College), Professor Rob Gross (Imperial College), Dr Callum MacIver (University of Strathclyde) and Dr Phil Heptonstall (Imperial College).

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Type of organisation

Type of organisation:
Academic

Other (please specify):

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Size of organisation

Size of organisation:
N/A

Which sector you operate in?

Sector:
Public sector

Please specify, and what you mean by ‘other’ if applicable.:

Please list your SIC code/s:
85421, 85422 (These are the SIC codes for Imperial College, where UKERC is headquartered)

Please state the MW capacity for the technology you represent. Only capacity in operation, being commissioned or under construction needs to be included.

Solar :

Offshore Wind :

Onshore Wind:

Bioenergy:

Batteries :

Long Duration Energy Storage (LDES):

Pumped Hydroelectric Energy Storage:

Tidal Stream:

Wave:

Nuclear:

Interconnectors:

Natural Gas:

Hydrogen:

Geothermal:

Biomass - unabated:

Biomass - with CCUS:

Hydropower:

Demand:

Other (please specify):

None:

N/A:

Please use this box to provide further information or to expand upon what you mean by 'other' if applicable.:

Please state MW capacity in each region. Only capacity in operation, being commissioned or under construction needs to be included.

London:

South East England:

South West England:

East of England:

West Midlands:

East Midlands:

Yorkshire and the Humber:

North West England:

North East England:

Scotland:

Wales:

Northern Ireland:

Located Offshore (please specify):

Other (please specify):

None:

N/A:

Please specify if region if not listed above:

Please state how much capacity you are planning to develop and the locations in which this will be delivered.

Please provide details in the box below:

What development plans does your organisation currently have, and how far along is each project? (For example: holding land or seabed options, appraisal, planning submitted, consented, FID reached, under construction.) Please be as specific as you feel able to provide.

Please provide details in the box below :

Are you currently in receipt of any UK Government investment support (e.g., Contracts for Difference (CfD), Capacity Market or any other support schemes)? Please be as specific as you feel able to provide about different projects within your portfolio.

Please provide details in the box below :

No

We usually publish a summary of all responses, but sometimes we are asked to publish the individual responses too. Would you be happy for your response to be published in full?

Yes

How did you hear about this consultation?

How did you hear about this consultation?:
Email from this department

Other (please specify):

Section 1: Identifying Levers

1a) Do you agree with the key levers that we have identified for supporting the delivery of the SSEP?

Identifying Lever - Network Build:
Yes

Provide rationale and evidence to support your answer:

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Rationale and evidence to support answer - Seabed Leasing:
Yes

Provide rationale and evidence to support answer:

.

Identifying Levers - Planning Reform:
Yes

Provide rationale and evidence to support answer:

.

Identifying Levers - The Connections Regime:
Yes

Provide rationale and evidence to support answer:

.

Identifying Levers - Locational charges:
Yes

Provide rationale and evidence to support your answer:

.

Identifying Levers - Generation and Storage Investment Support Mechanisms:
Yes

Provide rationale and evidence to support your answer:

.

1b) Do you think there are any other levers missing or alternatives that should be considered?

No

If so, please list them below and provide rationale and evidence to support your suggestion :

.

Section 2: Categorisation of Levers

2 Do you agree with how we have categorised the levers. Specifically

Enabling levers - Network Build:
Yes

Enabling levers - Seabed Leasing:
No

Enabling levers - Planning Reform:
Yes

Network Build:

We agree that this is an important lever.

Seabed Leasing :

Future seabed leasing should be considered more pro-actively as a primary lever in the longer-term in the case of offshore wind, by integrating with site-specific CfD auctions to streamline the procurement of offshore wind, potentially creating cost savings by reducing risk and other project development costs.

In this model, project characteristics are specified for a particular site, and companies bid for the rights to build those pre-developed projects to required specification. There is considerable international experience of using this approach, including for offshore wind in Denmark and Germany, and solar parks in India.

Site-specific auctions tend to work best where location is system-critical and there are only a limited number of viable sites, so developers can't meaningfully compete by bringing alternatives. This is typical for large projects like offshore wind, where grid access, seabed conditions and consenting constraints dominate. In these cases, centralising siting allows the planner to optimise location, and competition shifts to who can build the predefined project most efficiently.

In this model, competitive pressure relies on a sufficient number of firms willing to build the project, not on the number of projects in the pipeline. Since grid connections would be part of the pre-development of the project, the question of headroom in the CCTs would not arise. Likewise, auctions would not need to include a separate locational element as this would automatically be incorporated. In practice, this approach may take some time to develop, and is likely to be a longer-term approach to be considered for auctions after 2030.

Planning Reform:

We agree that this is an important lever.

Primary Levers - Connections Regime:
Yes

Primary Levers - Locational Charging:
Yes

Primary Levers - Generation and Storage Investment Support Mechanisms:
Yes

Connections Regime:

We agree with this categorisation but see our text below on Locational Charging.

Locational Charging:

Inclusion of locational elements within investment support mechanisms (e.g. through locational CfDs) is an important tool in the government's toolbox.

However, this option is seriously underplayed in the consultation. Whilst these three options are listed as primary levers, they are not treated equally in the consultation. Throughout the consultation text investment support is consistently treated as secondary or supplementary to the other two levers, with very little discussion of the potential to use it as a primary driver of location decisions. This is exemplified in the text of the response document:

"In addition to the siting signals currently sent by locational charges such as TNUoS, we will consider additional locational elements that could be included within our investment support schemes to help drive siting outcomes".

As we explain in more detail below, the limited attention to investment support in the consultation leads to important and viable solutions to known problems being overlooked. Our argument is that all three levers should be treated on an equal footing on their own merits, with proper attention paid to the potential to use investment support mechanisms (particularly CfDs) as a major driver of location decisions.

Generation and Storage Investment Support Mechanisms:

We agree with this categorisation but see our text above on Locational Charging.

Section 3: Lever Options – How to combine the levers

3 What are your views on the overall strategic approach we have used for combining the levers into an options framework? For example, the logic and structure underpinning the options including the grid for how to combine the primary levers.

Options combination - Views on the overall strategic approach for combining levers into an options framework:
Strongly Disagree

Provide rationale and evidence to support your answer:

As we will argue in relation to Question 4 of this consultation, we believe that the primary policy objective of these reforms should be to reduce costs for consumers. This puts additional emphasis on achieving cost-effective CfD auctions since these will provide the principal route to market for most large-scale renewable generation investments at least until the early 2030s. They therefore should be a key point of focus for policy because they mobilise substantial allocations of capital, locking in elements of consumer bills over the duration of their long-term contracts, and are therefore key to reaching the objective of reducing consumers' exposure to high and/or volatile gas prices.

We also note in response to Question 2 that the three levers introduced in the RNP consultation are not treated equally. We believe that a more equal consideration of the three levers would lead to a different conclusion on the implementation of Option 3, namely that locational CfDs should be used in preference to TNUoS as the main locational lever for CfD plant, whilst locational TNUoS is maintained as the key lever for merchant plant.

There are three key ways that siting and investment levers affect the cost-effectiveness of CfD auctions from a consumer's perspective which should be the driving force for design considerations:

i. minimising inframarginal rent
ii. increasing competition
iii. reducing risk and complexity

The sections below take each of these points in turn. We also conclude with a section setting out why we believe our proposed approach could help improve the deliverability of both Ofgem's TNUoS reform process, and the implementation of DESNZ's wider siting and investment levers process under the RNP delivery plan.

(Minimising inframarginal rent)
Inframarginal rent in CfD auctions is caused by cost differentials between regions, e.g. due to resource differences, ease of project development or other factors. It can also be created by TNUoS differentials, for example if high TNUoS charges in Scotland were to lead to GB-wide CfD strike prices set by a marginal Scottish project.

If inherent project cost differentials between regions are known before the auctions are held, then there is a strong case for policy to be designed to minimise these rents. The logic of driving planning through a centralised SSEP process implies that indeed, these cost differentials are, at least to some degree, predictable.

We therefore argue that minimising inframarginal rent should be a primary objective of the design of locational levers.

Our assessments of the three locational levers against this objective are:

• A CCT-only approach is likely to create significant inframarginal rent by allowing CfD auctions to clear at a single price for all projects, with no allowance made for inherent cost differences associated with location.
• TNUoS can have positive or negative impacts on inframarginal rent. To the extent that TNUoS charges represent some of the inherent locational cost differentials, they may correct some of the excess inframarginal rent in a CCT-only approach. However, such correction is likely to be inaccurate, will depend on specific TNUoS designs, and will be using an instrument (TNUoS) for which it was not primarily designed.
• Locational CfDs have the most flexibility to be designed with the primary purpose of reducing inframarginal rent. This could be done through volume-based approaches (e.g. use of maxima or minima as per the AR7 auction) or through a price-based approach that aims to correct for inherent locational price differentials.

We would argue that the third lever, locational CfDs, is therefore likely to outperform the other two levers in regard to this policy objective.

(Increasing competition)
The consultation addresses auction competitiveness through an increase in CCT headroom – this is a key point of difference between Option 2a and 2b. However, if the timescale covered by the CCT thresholds spans multiple auction rounds, then the total volume of projects in the pipeline is likely to be higher than the volume of projects being procured in any given auction round. The CCTs would not themselves be the binding constraint on the total number of projects able to bid into any given auction, at least in the earlier rounds of auctions. Therefore, the degree of headroom is not the most

significant issues constraining competition in auctions.

This then leads to the competitiveness impacts of any subsequent measures taken to reduce inframarginal rent associated with a CCT-only approach. There are three options:

• Volume-based locational CfD auction (using e.g. maxima and minima). This would potentially reduce competition by effectively splitting the auction into multiple pots. This risk would need to be assessed before using this route.
• Price-based signals would cause less competitiveness concerns than volume-based instruments. This could be either TNUoS or Price-based locational CfD auction.
• On this measure, TNUoS and price-based locational CfD auctions would be similar. Volume-based CfD auctions would need further assessment to see if this criterion is a barrier to implementation.

(Reducing risk and complexity)
CCTs are simple, but for the reasons outlined above they may not be sufficient on their own, and one or other of the locational levers may be needed in addition. We believe that TNUoS has significant disadvantages compared to locational CfDs in terms of risk.

TNUoS currently suffers from considerable volatility leading to the introduction of risk premia into CfD auctions. This could be solved by fixing TNUoS for the duration of the CfD contracts.

We advocate going a step further to fix TNUoS either at zero or at some other flat rate for projects with a CfD contract in all locations. Subsequent analysis could be undertaken to assess the optimal rates given the split of payment between producers and consumers.

This would have advantages:
• Reduces risk by creating greater levels of certainty in operating costs and net revenues;
• Reduces complexity by having a single instrument (locational CfDs) to signal location rather than two (assuming some form of locational CfD would be needed to address inframarginal rent)
• Depending on the chosen TNUoS model, locational CfDs may be less complex

We are not advocating abolishing locational TNUoS for merchant plant. We believe it performs an important role in the market by providing locational signals to merchant generators, storage and other market players. TNUoS reform could consider ways in which longer-term contracts for these charges could be developed in addition to the standard variable rates to support risk management for longer-term merchant investment.

It is important to note that merchant plant operating under differentiated locational TNUoS rates would not be at a significant competitive disadvantage to CfD plant operating on a zero or flat-rate TNUoS charge applied at the point of auction. This is because they do not compete in the same market. Each CfD auction round is effectively a separate competition, largely isolated from other auction rounds and from the wider wholesale market.

In order to allow merchant plant the same degree of certainty over locational prices that CfD plant would enjoy, it would be worth considering offering long-term fixed TNUoS contracts for merchant plant that would fix charges at the point of final investment decision. This would help manage risks and reduce investment costs.

(Improved deliverability)
We believe that our proposal would help to simplify and accelerate the implementation phase of RNP and TNUoS reform by separating out the two key functions of locational signalling; on the one hand to direct merchant investment, and on the other to hold cost-effective CfD auctions.

TNUoS reform is likely to be a complex process, requiring sufficient time to ensure that it is designed well for the long-term functioning of the market. Splitting out these processes would allow TNUoS reform to proceed without having to address the potential side effects on inframarginal rent – an objective for which it was not designed.

In the meantime, CfD auctions can proceed without requiring complex special arrangements for TNUoS. Setting TNUoS to a flat rate for CfD plant would be a simple measure to implement. Replacing it with a locational CfD could also be simple to implement, depending on the design chosen. AR7 was an example of a volume-based locational CfD auction using minima to split the clearing price between locations – so experience has already been gained of implementing this mechanism. Alternative price-based mechanisms have not been used to date, but in principle would act in a similar way to current locational charges, but with more flexibility to set locational price adjustments to appropriate rates independently of the TNUoS reform process, and with improved outcomes for inframarginal rent.

Whilst we would see this proposal as being a helpful simplification, it nevertheless requires strong coordination between Ofgem's TNUoS reform options being considered in their call for input, and this consultation on the locational siting and investment levers.

Section 4: Assessment Criteria

4 To what extent do you agree or disagree with the criteria we have used to assess the options?

Assessment criteria - Do you agree with our assessment criteria?:
Disagree

Provide rationale and evidence to support your answer:

We believe that "reducing costs for consumers" should be separated out as a distinct assessment criterion, which arguably would then become the most important criterion in the list. We believe that this could lead to a different assessment of the levers than having cost to consumers wrapped up in the

system efficiency criterion as the current consultation suggests. In particular, a consumer cost focus could lead to different assessment of the importance of:

• Inframarginal rent. Rent is essentially an allocation issue, not a system efficiency issue. Pulling this out into a separate consumer cost assessment criterion would give greater weight to explicitly reducing rents in favour of consumers.
• Reducing risk and complexity. This also relates to allocation of costs in the system. A consumer-oriented assessment could lead to different conclusions on the benefits of implementing simpler solutions, particularly in relation to CfD investment routes that will dominate investment for at least the next 5 years.

This comment about the need to focus on consumer costs underpins our 'strongly disagree' response to question 3 on the strategic approach used in the consultation.

Assessment criteria - Are there any elements that you think should be considered that have not been included?:
Yes

Provide rationale and evidence to support your answer, with particular reference to any other criteria that could be included in the assessment :

"Reducing costs to consumers" should be a separate criterion. See above.

Section 5: Initial Assessment

5 Do you agree with our preference for Options 2a, 2b and 3 being suitable for further development (and Options 0, 1 and 4 being discounted)?

Initial assessment - Option 0:
I agree it should be discounted

Initial assessment - Option 1:
I agree it should be discounted

Initial assessment - Option 2a:
I agree it should be further developed

Initial assessment - Option 2b:
I agree it should be further developed

Initial assessment - Option 3:
I agree it should be further developed

Initial assessment - Option 4:
Not Sure

Provide rationale and evidence to support your answer:

See our responses to other questions in the consultation for our rationale.

Refinement of Options - Option 2a:
Needs further consideration

Refinement of Options - Option 2b:
Needs further consideration

Refinement of Options - Option 3:
Needs further consideration

Please specify which aspect you are referring to, and provide rationale and evidence to support your answer :

CCTs on their own will likely create significant inframarginal rent in CfD auctions. This is likely to require locational CfD designs to address (see answer to Q3 for reference).

Please specify which aspect you are referring to, and provide rationale and evidence to support your answer :

CCTs on their own will likely create significant inframarginal rent in CfD auctions. This is likely to require locational CfD designs to address (see answer to Q3 for reference).

In addition, it's not clear that introducing additional headroom to CCTs (beyond the level needed to account for expected levels of project attrition) would be critical for ensuring competitive CfD auctions. If CCT thresholds are set for a duration that spans several CfD auctions, then at least the earlier auctions would not be volume constrained by the CCTs.

Please specify which aspect you are referring to, and provide rationale and evidence to support your answer :

TNUoS may perform less well than locational CfDs at controlling inframarginal rent in CfD auctions (see response to Questions 3 and 4). Option 3 should therefore consider fixing TNUoS at zero or a flat rate for all locations when being applied to CfD auctions. A locationally differentiated TNUoS charge should be considered for merchant investments. Reform options should include the possibility of offering fixed longer-term contracts for TNUoS charges to reduce merchant investment risk for renewables, and contract lengths tailored to plant bidding into the various CM auctions.

Please specify, provide rationale and evidence to support your answer :

6 How do you think the risks and disadvantages identified under Options 2a, 2b and 3 (as outlined in the delivery plan and above) could be addressed?

Provide rationale and evidence to support your answer:

If the timescale covered by the CCT thresholds spans multiple auction rounds, then the total volume of projects in the pipeline is likely to be higher than the volume of projects being procured at least for the earlier auction rounds. The CCTs would not themselves be the binding constraint on individual auctions, at least for earlier auction rounds, and the degree of headroom is not the most significant issues constraining competition at least to start with.

Provide rationale and evidence to support your answer:

Provide rationale and evidence to support your answer:

This acts in both directions. Uncertainty may lead to fewer required projects rather than more. Too many projects in the pipeline may squeeze out later generations of more cost-effective projects.

Provide rationale and evidence to support your answer :

Agree, this risk needs to be assessed and is a key reason for headroom. Expected attrition rates should ideally be factored in.

Provide rationale and evidence to support your answer:

This should be seen as a primary concern for policy design (see answers to Q3 and 4). It likely makes Option 2a unviable without additional intervention through locational CfD design.

Provide rationale and evidence to support your answer:

This may be an important consideration, especially if it means that overall system costs risk being higher than anticipated under the SSEP scenario. A viable solution to this problem is to incorporate additional locational signalling within the CfD auction design (see response to Q3).

However, it is possible that non-market factors, particularly public acceptance and planning, may over-ride any financial incentives. If that is the case then it is important to accept that there are binding non-financial constraints on development in some parts of the country, and adapt the SSEP accordingly, rather than continuing to pursue development in areas where it is not societally or environmentally acceptable.

Provide rationale and evidence to support your answer :

As noted above, if CCT thresholds are set over a time period that spans multiple auctions, then CCTs will not be the binding constraint on volumes of projects that can enter the auctions, at least in the first few rounds. The ‘gold-rush’ may therefore occur anyway. If the phasing of investment into different zones is an important part of achieving a cost-effective build-out, then this will need to be achieved via other means. Our response to Q3 sets out why we think that locational CfD auctions would be the best way to achieve this.

Provide rationale and evidence to support your answer:

Same response as for Option 2a.

Provide rationale and evidence to support your answer:

See above, in practice we don’t see this occurring as the headroom is not the binding constraint, and other locational signals would in practice likely be needed anyway.

Provide rationale and evidence to support your answer:

This should be a primary concern for policy design. See answer to Option 2a.

Provide rationale and evidence to support your answer:

Provide rationale and evidence to support your answer:

See answer to Q3. We propose that the TNUoS options for reform as set out in the consultation should be pursued further in order to provide suitable locational signals to merchant investments. However, we suggest that TNUoS charges should be radically simplified when applied in the context of CfD auctions. This would improve deliverability because locational signals could be simplified based on previously tried and tested approaches to locational CfDs.

Provide rationale and evidence to support your answer:

See answer to Q3 on how to reduce complexity.

Provide rationale and evidence to support your answer:

See answer to Q3 on how to address predictability for investors.

Provide rationale and evidence to support your answer:

See answer to Q3 on how to address inframarginal rent.

Please specify, provide rationale and evidence to support your answer:

Section 6: Individual Levers - Connection Regime

7a) Do you think it would be practical to set Connections Capacity Thresholds (CCTs) for Options 2a, 2b and 3, by SSEP technology and zone?

Connection Regime - Technology and zone - Do you think it would be practical to set Connections Capacity Thresholds (CCTs) for Options 2a, 2b and 3, by SSEP technology and zone:
Yes

Provide rationale and evidence to support your answer:

SSEP will set expectations for generation volumes by technology and zone, and we expect CCTs could be set on this basis.

Provide rationale and evidence to support your answer:

SSEP will set expectations for generation volumes by technology and zone, and we expect CCTs could be set on this basis.

7b) How should these thresholds be determined?

Provide details along with rationale and evidence to support your answer:

In line with SSEP.

8a) Should we set the CCT at a level higher relative to the CSNP planning line to allow for project attrition and competition in investment support schemes (i.e. the difference between Option 2a and Option 2b)

CCT higher to CSNP - Set the CCT at a level higher relative to the CSNP planning line:
No (i.e. Option 2a)

Provide rationale and evidence to support your answer:

CCT levels should take into account expected levels of project attrition, and should take into account potential uncertainty in demand if this is seen as a key risk that could affect consumer costs.

CCT levels don't necessarily need to take into account additional headroom for auctions if the timescale for the CCTs spans multiple auctions, as CCTs would not be the binding constraint on the volume of projects able to enter auctions, at least in the early stages of the scheme.

8b) If we set the CCT above the SSEP Pathway, what additional safeguards might be needed to ensure we keep within the SSEP Pathway uncertainty range?

Provide details, rationale and evidence to support your answer:

We have no comment to make on this.

Section 7: Individual Levers - Locational Charging

9 What are your views on the role of locational charging, and interactions with our investment support schemes? Note that detailed questions on potential TNUoS and connection charging reforms are covered in Ofgem's Call for Input.

Provide details, rationale and evidence to support your answer:

The consultation document puts undue emphasis on TNUoS as the only locational charging mechanism available. Although the table in Fig 3 of the consultation includes investment support mechanisms (inc. CfD) as a category of locational charges, the consultation document does not treat this as an equal lever, but rather as a supplementary lever. See response to Q3 for further discussion.

We think the approach to this lever needs fundamentally rethinking, with the potential to use CfD design as an alternative locational charging (or volume-signalling) mechanism, consistent with Fig 3. For the reasons set out under Q3, we believe this would perform better than TNUoS in the context of the CfD route to market in the key policy objective of reducing costs to consumers (see answer to Q4).

Section 8: Individual Levers - Government Investment Support Mechanisms

10 For Options 2a, 2b and 3, what, if any, changes or reforms would be needed to government investment support mechanisms (such as the Contract for Difference, Capacity Market etc), and if so, what specific reforms would be needed?

Government Investment Schemes - Option 2a - The Contracts for Difference scheme (CfD):
Yes

Government Investment Schemes - Option 2a - The Nuclear Regulated Asset Base (RAB) model:
N/A

Government Investment Schemes - Option 2a - The Hydrogen to Power Business Model (H2PBM):
N/A

Government Investment Schemes - Option 2a - The power CCUS Dispatchable Power Agreement (DPA) business model:
N/A

Government Investment Schemes - Option 2a - The Capacity Market:
N/A

Government Investment Schemes - Option 2a - The Interconnector Cap and Floor:
N/A

Government Investment Schemes - Option 2a - The Long Duration Energy Storage (LDES) scheme:
N/A

Government Investment Schemes - Option 2a - Other (please specify):
N/A

The Contracts for Difference scheme (CfD):

As noted in Question 4 of this consultation, we believe that the primary policy objective of these reforms should be to reduce costs for consumers.

CfD auctions will provide the principal route to market for most large-scale renewable generation investments at least until the early 2030s. They therefore should be a key point of focus for policy because they mobilise substantial allocations of capital, locking in elements of consumer bills over the duration of their long-term contracts, and are therefore key to reaching the objective of reducing consumers' exposure to high and/or volatile gas prices. Tackling inframarginal rent and reducing risk is one of the key ways in which value to the consumer can be achieved. Inframarginal rent in CfD auctions is caused by cost differentials between regions, e.g. due to resource differences, ease of project development or other factors. It can also be created by TNUoS differentials, for example if high TNUoS charges in Scotland were to lead to GB-wide CfD strike prices set by a marginal Scottish project.

If inherent project cost differentials between regions are known before the auctions are held, then there is a strong case for policy to be designed to minimise these rents. The logic of driving planning through a centralised SSEP process implies that indeed, these cost differentials are, at least to some degree, predictable. Locational CfDs have the most flexibility to be designed with the primary purpose of reducing inframarginal rent, and are therefore likely to outperform TNUoS in achieving this primary objective. This could be done through volume-based approaches (e.g. use of maxima or minima as per the AR7 auction) or through a price-based approach that aims to correct for inherent locational price differentials. More details are provided in our response to Q3.

The Nuclear Regulated Asset Base (RAB) model:

The Hydrogen to Power Business Model (H2PBM):

The power CCUS Dispatchable Power Agreement (DPA) business model:

The Capacity Market:

The Interconnector Cap and Floor:

The Long Duration Energy Storage (LDES) scheme:

Other - please specify and list below:

Government Investment Schemes - Option 2b - The Contracts for Difference scheme (CfD):
Yes

Government Investment Schemes - Option 2b - The Nuclear Regulated Asset Base (RAB) model:
N/A

Government Investment Schemes - Option 2b - The Hydrogen to Power Business Model (H2PBM):
N/A

Government Investment Schemes - Option 2b - The power CCUS Dispatchable Power Agreement (DPA) business model:
N/A

Government Investment Schemes - Option 2b - The Capacity Market:
N/A

Government Investment Schemes - Option 2b - The Interconnector Cap and Floor:
N/A

Government Investment Schemes - Option 2b - The Long Duration Energy Storage (LDES) scheme:
N/A

Government Investment Schemes - Option 2b - Other (please specify):
N/A

The Contracts for Difference scheme (CfD):

As noted in Question 4 of this consultation, we believe that the primary policy objective of these reforms should be to reduce costs for consumers.

CfD auctions will provide the principal route to market for most large-scale renewable generation investments at least until the early 2030s. They therefore should be a key point of focus for policy because they mobilise substantial allocations of capital, locking in elements of consumer bills over the duration of their long-term contracts, and are therefore key to reaching the objective of reducing consumers' exposure to high and/or volatile gas prices. Tackling inframarginal rent and reducing risk is one of the key ways in which value to the consumer can be achieved. Inframarginal rent in CfD auctions is caused by cost differentials between regions, e.g. due to resource differences, ease of project development or other factors. It can also be created by TNUoS differentials, for example if high TNUoS charges in Scotland were to lead to GB-wide CfD strike prices set by a marginal Scottish project. If inherent project cost differentials between regions are known before the auctions are held, then there is a strong case for policy to be designed to minimise these rents. The logic of driving planning through a centralised SSEP process implies that indeed, these cost differentials are, at least to some degree, predictable.

Locational CfDs have the most flexibility to be designed with the primary purpose of reducing inframarginal rent, and are therefore likely to outperform TNUoS in achieving this primary objective. This could be done through volume-based approaches (e.g. use of maxima or minima as per the AR7 auction) or through a price-based approach that aims to correct for inherent locational price differentials. More details are provided in our response to Q3.

The Nuclear Regulated Asset Base (RAB) model:

The Hydrogen to Power Business Model (H2PBM):

The power CCUS Dispatchable Power Agreement (DPA) business model:

The Capacity Market:

The Interconnector Cap and Floor:

The Long Duration Energy Storage (LDES) scheme:

Other (please specify and list below):

Government Investment Support - Option 3 - The Contracts for Difference scheme (CfD):
Yes

Government Investment Support - Option 3 - The Nuclear Regulated Asset Base (RAB) model:
N/A

Government Investment Support - Option 3 - The Hydrogen to Power Business Model (H2PBM):
N/A

Government Investment Support - Option 3 - The power CCUS Dispatchable Power Agreement (DPA) business model:
N/A

Government Investment Support - Option 3 - The Capacity Market:
Yes

Government Investment Support - Option 3 - The Interconnector Cap and Floor:
N/A

Government Investment Support - Option 3 - The Long Duration Energy Storage (LDES) scheme:
N/A

Government Investment Support - Option 3 - Other (please specify):
N/A

The Contracts for Difference scheme (CfD):

As noted in Question 4 of this consultation, we believe that the primary policy objective of these reforms should be to reduce costs for consumers.

CfD auctions will provide the principal route to market for most large-scale renewable generation investments at least until the early 2030s. They

therefore should be a key point of focus for policy because they mobilise substantial allocations of capital, locking in elements of consumer bills over the duration of their long-term contracts, and are therefore key to reaching the objective of reducing consumers' exposure to high and/or volatile gas prices. Tackling inframarginal rent and reducing risk is one of the key ways in which value to the consumer can be achieved. Inframarginal rent in CfD auctions is caused by cost differentials between regions, e.g. due to resource differences, ease of project development or other factors. It can also be created by TNUoS differentials, for example if high TNUoS charges in Scotland were to lead to GB-wide CfD strike prices set by a marginal Scottish project. If inherent project cost differentials between regions are known before the auctions are held, then there is a strong case for policy to be designed to minimise these rents. The logic of driving planning through a centralised SSEP process implies that indeed, these cost differentials are, at least to some degree, predictable.

Locational CfDs have the most flexibility to be designed with the primary purpose of reducing inframarginal rent, and are therefore likely to outperform TNUoS in achieving this primary objective. This could be done through volume-based approaches (e.g. use of maxima or minima as per the AR7 auction) or through a price-based approach that aims to correct for inherent locational price differentials.If TNUoS charges are included within CfD auction bids, then locational CfDs may in any case be needed to correct distortions that this could create to inframarginal rent (as was seen in AR7). This would lead to unnecessary complexity due to having two instruments to address a single objective. Replacing locational TNUoS with a zero or flat-rate charge for CfD plant (whilst maintaining locational TNUoS for merchant plant) should be considered as a way of simplifying and derisking the mechanism. Both could be implemented using tried and tested designs, improving deliverability. See responses to Q3 and Q4 for further details.

The Nuclear Regulated Asset Base (RAB) model:

The Hydrogen to Power Business Model (H2PBM):

The power CCUS Dispatchable Power Agreement (DPA) business model:

The Capacity Market:

Consider introducing fixed-rate TNUoS for contract periods that match the CM auction contracts in order to reduce risks (see response to Q3 for further discussion).

The Interconnector Cap and Floor:

The Long Duration Energy Storage (LDES) scheme:

Other (please specify and list below):