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Connections Reform

Consultation Response Proforma

Your feedback is important to this process. Please take this opportunity to provide any feedback that you may have. To aid your response, each question is linked back to the relevant document for ease of reference.

Please provide your feedback using this Proforma and sending an electronic copy to **box.connectionsreform@nationalenergyso.com** by **5pm** on the closing date of **2nd December 2024**.

We encourage early submission ahead of the deadline where possible to aid the processing of responses.

Respondent Details	
Name	Nicky Ferguson
Organisation	<p>Eku Energy Limited</p> <p><u>Eku Energy</u> is a specialist global battery energy storage business dedicated to advancing the energy transition. Jointly owned by a Macquarie Asset Management managed fund and British Columbia Investment Management Corporation, Eku Energy's purpose-built team brings together specialist technical capabilities, with experience across origination, development, system design, power markets and software optimisation. Eku Energy has a 24 GWh portfolio across four countries including the UK, Australia, Italy and Japan. Our current portfolio in the UK includes 40 MW in operation, 150MW in construction with a further pipeline of over 2GW.</p> <p>We have been actively engaging in the connections reform process, through consultations, RFIs, and as members of the code modifications working groups and welcome the opportunity to feedback into the reform that is the cumulation of the last 2 years' worth of work by NESO, government and industry.</p>
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Which category best describes your organisation?	<input type="checkbox"/> Consumer body <input type="checkbox"/> Demand <input type="checkbox"/> Distribution Network Operator <input type="checkbox"/> Generator <input type="checkbox"/> Industry body

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	<input type="checkbox"/> Interconnector <input checked="" type="checkbox"/> Storage <input type="checkbox"/> Supplier <input type="checkbox"/> System Operator <input type="checkbox"/> Transmission Owner <input type="checkbox"/> Virtual Lead Party <input type="checkbox"/> Other
Is this response confidential?	<input type="checkbox"/> Yes – I do not wish for this response to be shared publicly; however I understand it will be shared with Ofgem <input checked="" type="checkbox"/> No – I am happy for my response to be available publicly

Section 1 – Policy

You can find the relevant information in the **Great Britain's Connections Reform: Overview Document**

1. Do you agree with our intention to align the connections process to Government's Clean Power 2030 Action Plan?
<p>You can find the relevant information in Section 2 – Context</p> <p>A step change is needed in the approach for connections reform if investment is to continue and accelerate in the clean energy space at pace. Progressing towards 'ready and needed' projects for Clean Power 2030 is in theory the right approach, and we acknowledge this is a very difficult task that will result in a large loss of investment in the short term. However, we believe that to achieve the most effective energy transition at the lowest cost, increasing clarity and transparency is needed to allow for better investment certainty and higher quality, dynamic and market driven solutions.</p> <p>In particular, we think the following guiding principles need to be better incorporated:</p> <ol style="list-style-type: none"> Encourage market-based solutions to system needs – Wherever possible, we would recommend connections processes, like energy markets, be driven by system needs rather than prescribed technology needs. The governments CP30 plan is incredibly ambitious and requires more investment at a faster pace than has ever seen before. Industry is better placed than central planners to quickly adapt to changes within the system to ensure goals can still be met in a rapidly changing environment, e.g. allowing other technology to meet the system requirements for flexibility if LDES or DSR targets are not achieved. We welcome the allowance for innovative projects to receive

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designated bays in the future but think that further consideration needs to be made on how to allow market-based flexibility to account for uncertainties around capabilities of different technologies and generation and network build out.

2. **Focus on quality** – CP30 aims to increase energy security, lower carbon and costs for consumers. The core values of this policy need to be kept at heart when considering the types of projects that receive the limited and costly connection capacity of the grid. Not all technology projects are alike, and higher quality projects are likely to have more technical and operational potential, providing more system security and ensuring higher utilisation of renewable assets and the grid. For example, a simple battery may be able to shift renewable energy from periods of high generation to periods of high demand, but this will add more value to the system depending on the battery location, duration, and efficiency. In addition, grid forming BESS are able to provide system services as an alternative to provision by fossil fuels such as inertia, reactive power, constraint management, and black start support. Allowing the market to prove the quality of their deliverable to meet system needs would ensure that CP30 is more likely to be achieved and even if not, consumers would still reap the maximum benefit of the energy transition.
3. **Transparency and reliability of spatial planning** – Transparency and data provision have been a welcome core goal of NESO in recent years and has driven huge amounts of improved investment certainty. The modelling used in the connections reform process as the basis for what is needed must be robust as it will be the basis for deciding winners and losers of large amounts of development investment. For example, 27 GW of storage will maintain connections agreements, which may result in these sites achieving £50-100k/MW/yr revenues for 20+ years totalling around £27-54bn in revenues (or around £2m for each 100MW asset). However, around 200 GW of storage will lose their grid connection offers, resulting in between £2-70k/MW loss in investments in developing those sites totalling £400M- 14 bn (or £200k – 7m for each 100MW asset). Therefore, it is critical Industry, NESO, the DNOs and government all agree on the assumptions, methodology and key outputs to assure they are both ambitious but practically achievable. Our view is that the current spatial plan does not allow for sufficient transparency to interrogate the reliability of such a plan. It also has been a transmission focused process to date and needs to give much greater consideration to distribution connected projects to ensure effectivity. This is important because 50-60GW of the 250GW of storage lies within the distribution queue, a large and important potential lever for delivering CP30.
4. **Consideration of investment / supply chain requirements** – In order to achieve the overarching goal of connecting projects with advanced developments with a credible pathway to delivery, practical consideration for investment and supply chain certainty and timing need to be considered to avoid an investment hiatus. Timing of offers, milestones, and connection dates need to account for the long lead times required e.g. certainty is needed on connection offer dates 3 years in advance of delivery (in time to have 1 year to reach FID + 2 years of construction). For supply chains to deliver,

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consideration needs to be made for the number of skilled workers and amount of long lead equipment required, along with the expected annual delivery of projects. Our view is that the current proposal risks creating investment hiatuses from the rapid pace of connections and lack of contingency, and more clarity and thought is needed on projects that will be shielded from connection date changes and timings for projects to be informed of progression.

5. **Increase certainty of rewards for investors** – We recommend priority be placed on enabling and accelerating the support for storage, to increase investor confidence and ensure the UK remains a leading market for energy storage to enable the energy transition and maintain energy security. The connection reform process has created a huge amount of uncertainty for investors, with hundreds of billions of investments written off as 100s of GWs of projects lose their place in the queue, also reducing potential future investment. In order to ensure that credible development of the future queue still happens at pace, these risks must be balanced with rewards on the revenue side. Currently, there is much uncertainty around returns for storage, including the impacts of the LDES market, REMA, Balancing Mechanism skip rates, Capacity Market, and merchant market reforms. While many of these reforms aim to support low carbon flexibility, the lack of clarity on their delivery form and timing will result in an investor view of more risk rather than less. We recognise this consultation is focused on connections reform and not on the uncertainty within the market and concurrent reforms. However, considering the high level of uncertainties on investment returns and the need for increased speed and volume of investment, focusing on removing the largest barrier to investment certainty for storage through a clear and reliable connections reform process should be an utmost priority.

2. Do you agree with our proposal for overall design 2 (that the reformed connections queue should be limited to and prioritised to only include ready projects that align with Government's Clean Power 2030 Action Plan, NESO Designated Projects, and directly connected demand projects outside the scope of Government Clean Power 2030 Action Plan)?

You can find the relevant information in **Section 5 – Our overall preferred connections reform design**

We agree with the underlying principles of overall design 2 –that the queue should only include projects that are certain to be connected. This will bring the necessary investment certainty that we stress is needed from the connections reform in our response to question 1. We also agree that the new queue should filter projects based on those that can quickly progress and have viable pathways to delivery, as in design 2 and 3.

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Our primary concern with design 2 is the basis for the proposed determination of strategic alignment. We believe that a design which limits gate 2 offers for strategic alignment should focus on 4 things:

1. ensuring the alignment is technology neutral and based on system needs;
2. ensuring the spatial modelling is robust and transparent;
3. accounting for both ambition as well as practicalities of implementation; and
4. ensuring there is sufficient investment certainty for projects that deliver on the system safety and security needs already identified through market contracts.

More detail on each of these considerations is below:

1. **Technology caps:** we believe that technology caps are not the best basis for strategic alignment to CP30. We believe that many technologies are able to provide a wide variety of system benefits which industry is better placed to identify. For example, a battery can be built to provide short or long duration storage and may be augmented at a later date to extend duration as the market enables value to be captured from longer durations. Determining strategic alignment based on the ability to provide the necessary system services within a region would be better suited than technology caps to deliver CP30 in a market driven and agile manner.
2. **Spatial modelling:** we believe that scrutiny needs to be placed on the spatial modelling and assumptions and the rationale behind technology capacity caps. In particular, the rationale behind selection of technology groups, zonal boundaries, and key assumptions and sensitivities needs to be explained. With the current data provided, there is a lack of clarity as to what the final zones and caps are and how they vary under different sensitivities. This makes it very difficult for investors to understand the implications for their projects, to feedback input, or to understand the potential for these to change. There is also uncertainty around how the technology types were chosen, how the bottom-up modelling has been done and what assumptions are being used that may change over time. For example, with the current data provided with CP30, even the amount of storage that is in the queue varies by 100+Gw between the impact assessment and the CP30 data book. If investors do not feel certain that the plan is robust and unlikely to change, then they are unlikely to want to continue investing in projects in the queue. More transparency in the inputs and outputs is also necessary to plan for their future investments.
3. **Implementation:** more consideration needs to be placed on the practicality of implementation. We expect to see longer lead times for development and much higher attrition of projects than is currently included in the modelling and methodology. The plan for replacing projects that fall out in the queue needs more thought before finalising a design principle. A plan also needs to be in place from the start of how

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technologies which are not implemented can be replaced by other technologies, e.g. can short duration storage replace LDES and DSR if needed?

4. **Long term contract:** design 2 should consider how to ensure projects with long-term contracts are included in the initial queue. Many investors will be looking to enter long term revenue contracts to secure debt finance and structure lowest cost solutions, such as through the Capacity Market, LDES scheme, or alternative scheme or offtake agreements. These agreements are integral to support the safe and secure operation of the electricity system and will come with high penalties for not delivering. Therefore, we believe that projects that secure a long-term TSO, government or industry-based offtake or revenue contract should be prioritised to retain their queue position or have a bay allocated for them within the delivery timescale as appropriate.

We agree that a version of design 2 could work, if the modelling were based off robust assumptions that were supported by industry, DNOs and government, and accounted for some flexibility to allow for uncertainties around implementation.

5. Do you think all 'ready' projects should be included in the reformed connections queue (overall design 3)? If so, how would you propose that we mitigate risks to consumers or developers of material misalignment to the SSEP?

You can find the relevant information in **Section 6 – Assessment of alternative design for connections reform**

We agree with the NESO that design 3 is suboptimal due to the lack of certainty that would be provided to grid connection offers outside of the 2030 and 2035 buckets of connections. We agree that a system needs to be in place for projects that are ready to replace those that may not be built or may not in the end be needed; however, having a secondary queue forming at the end of the 2035 queue will result in a similar amount of uncertainty for project investors as having a gate 1 offer as in design 2. If there is any increased uncertainty for projects receiving connections, it risks reducing certainty for all the projects in the new queue and diminishing the overall outcome.

6. 4. Do you agree that the reformed connections queue should initially focus on the 2035 time horizon?

You can find the relevant information in **Section 4 – Key building blocks for aligning connections to strategic energy plans**

In principle, we agree with the selection of the 2035 horizon. The time frame needs to be constrained sufficiently to minimise the total capacity of the queue and provide high levels of

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certainty to investors on connection dates, but also be sufficiently long in duration to allow for longer lead items to be added to the queue. Therefore, 2035 appears to be a reasonable threshold. However, we have a few suggestions for further consideration when finalising the plans:

1. More attrition needs to be accounted for if the difference between CP30 and 2035 does not allow at least 20% additional projects to be in the queue and progressing development.
2. More certainty is required on the queue formation from 2031–2035. Currently, the documents state queue position and planning are not deemed critical but they do not state what will be the basis of this queue. Without this information, it will be difficult to support the rationale for the 2031–2035 queue.
3. The milestones and queue management method for 2031–2035 projects needs to be clarified. It is not clear how the proposed forward-looking milestones for planning will apply for projects in the queue for 2031–2035.
4. Further consideration and a clear plan need to be outlined for how the queue will be extended beyond 2035 and at what timeframes. This will be critical for the current reform to support the UK's long-term net zero transition and ensure sufficient investment certainty beyond 2035.

Implementation Questions

You can find the relevant information in the **Great Britain's Connections Reform: Overview Document**

7. Do NESO's preferred options against each of the variables discussed in the Overview Document best deliver efficient alignment to Government CP30 Plan?

You can find the relevant information in **Section 5 – Our overall preferred connections reform design** and **Section 7 – Further variables and options to align connections reform with strategic energy planning**

A great amount of detail has been considered for each of the variables and we support much of the initial thinking by NESO. Variables 1 and 2 are covered in our responses to previous questions. Commentary on each of the remaining variables of relevance below

3. **Demand** – agree with scope.
4. **Oversupply** – For oversupply, we agree with aligning with some forms of targets. However, we question if CP30 targets are correct. See response to question 1 and 2, which focus on more scrutiny of the choice of technology caps, the spatial modelling,

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and implementation assumptions. In addition, we support inclusion of projects with long term TSO, government or industry revenue contracts, such as capacity market contracts or tolls, to be considered when limiting the oversupply.

5. **Undersupply** – we agree with filling technologies from adjacent locations. We would further recommend allowing technologies in distribution and transmission zones to also be potential substitutes for undersupply, as well as different technologies that meet similar system needs. For reserving bays, we agree that some level of this will be necessary if the mix of generation with different lead times is to be achieved. However, if projects are ready and needed but held back from connecting to reserve a bay for another project for non-commercial reasons, there needs to be very robust validation that delaying deployment of one technology for another will create an overall system benefit.
6. **Attrition** – We disagree that the 2035 pathway allows enough projects to account for attrition. It will be difficult to mobilise investment quickly if more attrition is seen than expected. Our view is that for existing storage projects in the current queue, there will be at least 30% chance of non-delivery from gate 2 offers and low likelihood of mobilising investment for projects moved to gate 1 offers. We would advocate for including at least an additional 10% attrition for storage projects in this case. We would also advocate for ensuring there is more consideration to how in practice the process would work of replacing projects that drop out of the queue moving forward. If this process is very clear, gate 1 offers can clearly identify their likelihood and timings of getting a gate 2 offer if projects drop out, allowing them to better prepare for any changes that require mobilising investment.
7. **Transition to SSEP1** – agree that the queue should see no reduction/ reordering after SSEP1 to maintain investor certainty. To do so, we think more needs to be done to substantiate 2030 and 2035 spatial caps and to ensure sufficient projects are in place in the 2030 pots.
8. **Alignment to transmission and distribution** – It is not clear to us where the scope of the boundary is in the current option. As the process appears to have been made for transmission, with distribution assets an afterthought, it is highly unclear how those projects within the scope will be affected. We agree that larger embedded generation should be included, but more clarity is needed on how they are affected and what the process will be for including them. For example, from the documents published, it isn't clear if distributed generation >50 MW, or with a BEGA and BELLA, applies to the DN or TN zones or to the financial commitments. It also isn't clear what % of the technology caps will be for distribution zones. Finally, how the queue re-ordering will be done for projects with project progression dates done in batches also needs clarification. This makes it very difficult for DN connected assets to determine where they stand.

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9. **Spatial element** – We agree that a spatial element needs to be included in the connections reform. However, we cannot comment on if the CP30 zones are appropriate as the necessary data has not been made available to understand where the zones are or how they were determined. Making this clear should be a top priority to provide investors more clarity as to implications and to provide investment certainty where possible.
10. **Order queue** – Ordering of the queue will have one of the biggest impacts on storage connections in the reform and needs extra scrutiny to ensure projects that obtain gate 2 offers are those that will most efficiently deliver on clean power objectives. We agree with ordering projects considering both the existing queue position and planning status; however, we would go further. We would stress the need for further granularity in consideration of how a project is progressing – e.g. if they have planning in principle or started a pre-application, or if they have applied for a long-term revenue contract and are bound to deliver within a certain time frame. In addition, we would recommend considering implementing the financial instruments tool prior to ordering the queue, as it may result in many projects dropping out and resulting in a large delay to re-do network modelling and change the queue order again.

8. Do the methodologies deliver our preferred options against each of the variables?

You can find the relevant information in **Section 3 – Overview of framework of codes and methodologies for connections reform**

See question above.

9. Are there key policy areas that are not covered by our preferred options against each of the variables or that would not be delivered by the methodologies?

You can find the relevant information in **Section 5 – Our overall preferred connections reform design** and **Section 7 – Further variables and options to align connections reform with strategic energy planning**

NESO has been leading in providing technology neutral market driven solutions for the electricity market along with increased transparency of data. The policy could be improved if it focused on these 2 other core areas in the connection reform as well.

10. Do you agree with our approach to managing project attrition between 2025–2030, and 2031–2035, whilst ensuring that the SSEP can deliver maximum benefits to GB consumers?

You can find the relevant information at **Section 7 – Further variables and options to align connections reform with strategic energy planning**

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As stated in question 6, we do not agree that the current approach allows for sufficient attrition, nor is it clear how projects will be replaced when attrition occurs. Particularly for storage projects, we think this needs to be a focus.

We disagree that the 2031–2035 pot of capacity allows enough projects to account for attrition. For example for storage, this will be 2 GW additional projects, which does not allow for much flexibility if a large project falls out in a region or if no similar projects are in the queue for 2031–2035. Many storage projects are currently in the queue (over 200GW) but only 27GW are to make it into the 2030 pot. We think that it will be highly unlikely further investment will be made to the projects that are relegated to gate 1 after so much investment is lost during this process. Therefore, it will be difficult if more attrition is seen to mobilise investment. Instead, more attrition should be accounted for. This will also allow some flexibility if different types of projects drop out of the queue to find a suitable fit, or to allow for more storage to connect if the grid if modelling views change or storage is able to provide additional system benefits than currently accounted for.

Connections Network Design Methodology

You can find the relevant information in the [**Connections Network Design Methodology – Detailed Document**](#)

11. Do you agree with the approach to applying the Gate 2 Readiness Criteria and the Gate 2 Strategic Alignment Criteria to the existing queue and future Gate 2 Tranches?

We agree with applying Gate 2 readiness and some form of strategic alignment criteria to CP30. However, we do not have confidence in the CP30 technology caps as currently presented as the correct measure for determining strategic alignment. Our core issues, covered in detail in our response to questions 1 and 2, include:

3. Technology caps are not the best method of determining pots. Allowing these pots to be determined based on system needs allows market based, adaptable solutions that are more likely to deliver on the true goals of CP30.
4. Spatial modelling used as the basis for the capacities needs to be thoroughly interrogated to make sure it is robust. The inputs, method and outputs need to be transparent and clear to ensure industry and government can align and move forward with investment decisions.
5. Implementation practicalities need to be considered, along with the certainty and timeframes needed for investment and supply chain mobilisation. Expect that the deployment of grid and generation will vary and allow for flexibility in the queue to mobilise investment quickly.
6. Ensure connection and revenue certainty are both progressed, with long term contracts supporting the basis for firm connection offers.
7. Further consideration is needed for how the process applies to distribution connected assets of different sizes.

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12. Do you agree with the approach to managing advancement requests?

At a high level, we agree with the approach to managing advancement requests. In particular, we agree that only those projects that request advancement should receive earlier connection dates. We also believe that it is beneficial to allow projects to select their earliest connection date, and if they receive this connection date offer they must accept it. However, this must be on the condition that there aren't additional grid access restrictions, e.g. such as curtailment from technical limits, as these may make a project uneconomical. It will be critical for projects to have transparency of the queue within their 'pot' in each zone at the time of their request to better understand the potential for their advancement. It will also be critical to define a process for project advancement after the initial application of gate 2 offers to the existing queue. This must account for timescales to mobilise investment, at least 2-3 years prior to connection for storage assets.

The advancement process as it relates to reordering the queue could consider further consideration. As outlined in question 7, the order of the queue will have the biggest impact on storage, resulting in either connection advancement or writing off development costs. This needs to consider additional granularity for projects advancing with viable development pathways and potentially long-term revenue contracts.

Further consideration needs to be included as to how the financial instrument would interact with advancement of projects in terms of timing of implementation. We would recommend adding the financial instrument prior to finalising the new queue and offering advancement as an interim solution to not need to duplicate network capacity modelling and queue consideration by NESO and increase certainty by investors of reform results.

13. Do you agree with the approach to reserving Connection Points and Capacity at Gate 1?

No response.

14. Do you agree with the approaches to reallocating capacity when 2030 pathway projects and 2035 pathway projects exit the queue?

We agree that capacity should be reallocated when projects exit the queue. However, it is unclear how 'like-for-like' projects will be chosen. Will this be based on technology and zone alone, or size, duration, voltage, and GSP? What happens if no like-for-like project is in the 2035 bucket waiting for acceleration. What happens if a similar project is in the queue but requires different grid reinforcement than a later project? More consideration is needed on this process and how it could be improved. This should include a process for attrition that focuses on replacing projects with those that meet similar system needs in the area and be transparent for all investors to understand.

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Gate 2 Criteria Methodology

You can find the relevant information in the [Gate 2 Criteria Methodology- Detailed Document](#)

15. Do you agree with the following elements of this Gate 2 Criteria Methodology?
<ul style="list-style-type: none"> a. Gate 2 Readiness Criteria – Land (Chapter 4) b. Gate 2 Readiness Criteria – Planning (Chapter 5) c. Gate 2 Criteria Evidence assessment (Chapter 8) d. Self-Declaration Templates (Chapter 9)
yes
No answer
yes
yes

16. Do you agree that the alternative route of meeting the Gate 2 Readiness Criteria should be only limited to projects that seek planning consent through the Development Consent Order route?
No answer

Project Designation Methodology

You can find the relevant information in the [Project Designation Methodology - Detailed Document](#)

17. Do you agree that the categories of projects that we have identified are the appropriate ones to potentially be designated?
<p>We agree that the categories for designation are all meaningful. However, whether this is an exhaustive and appropriate list will be based on the interpretation and implementation.</p> <p>In particular, we strongly agree with the following 2 points, but need more clarity on how these would be delivered or assessed:</p> <ul style="list-style-type: none"> • for critical to security of supply, prioritising dispatchable generation and particularly storage. • For critical to system operation, projects that hold or intend to hold a commercial contract to deliver Network Services and will be seeking to connect could be eligible for designation.

18. Do you agree with the proposed criteria for assessing Designated Projects?
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It is difficult to determine the method for assessing designated projects as the vague terminology currently leaves a lot of room for different interpretations/implementations. E.g. how will it be assessed if a project 'materially mitigates the risks' and delivers 'material benefit'? Considering most projects connecting to the grid may have a material impact on the grid, how will additionality be proved? We believe the assessment criteria is the most critical element. These must be public, transparent and able to be reviewed by Ofgem to assure fair application. They should also be broad enough to account for changing electricity system needs. Without clear assessment methodologies, there is a risk that Ofgem will consider this process to be selecting 'winners'.

19. Do you agree with the indicative process NESO will follow for designating projects?

As stated in questions above, we think more information is necessary as the process/assessment criteria are too vague to ensure clarity for potential investors and fair and efficient processes are used.

Additional Questions

18. Do you have any other comments (including whether there was anything else you were expecting to be covered in these documents)?

Overall, we think the connections reform is a huge positive step towards reducing the queue and creating certainty. We think the core things to keep in mind are the following:

1. Ensure the highest level of scrutiny on the spatial modelling and implementation assumptions before implementation and allow maximal transparency for industry to prepare.
2. Allow flexibility for the market to deliver changing system needs wherever possible, in particular by focusing on system needs rather than technology caps.
3. Focus on providing certainty to investment. Create connections and investment returns certainty to balance the connections losses through accelerating market reforms that support low carbon flexibility.
4. Ensure timeframes will allow adequate certainty for investment to minimise potential hiatuses in investment and risk not achieving the CP30 acceleration goals.

Thank you for the opportunity to contribute to this important consultation. We believe that the UK's careful consideration of the connections queue is a promising sign of the future certainty needed for energy storage investments. We are confident that with the right changes, the investment signals, strategic needs and connection offers will align to ensure that energy storage remains a critical part of the energy transition in the UK.

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We understand that this is a complex set of topics, and we would welcome the opportunity to collaborate further on the connections reform. We look forward to discussing our response with you in due course. Please do not hesitate to contact our team to discuss anything further.