Via email:

box.connectionsreform@nationalgrideso.com

Email: claire.hynes@rwe.com

28th July 2023

Ref: ESO's Connection Reform Consultation

Dear All,

RWE is leading the way to a green energy world. With an extensive investment and growth strategy, the company will expand its powerful, green generation capacity to 50 gigawatts internationally by 2030. RWE is investing €50 billion gross for this purpose in this decade. The portfolio is based on offshore and onshore wind, solar, hydrogen, batteries, biomass and gas.

RWE Supply & Trading provides tailored energy solutions for large customers. RWE has locations in the attractive markets of Europe, North America and the Asia-Pacific region. The company is responsibly phasing out nuclear energy and coal. Government-mandated phaseout roadmaps have been defined for both of these energy sources. RWE employs around 19,000 people worldwide and has a clear target: to get to net zero by 2040. On its way there, the company has set itself ambitious targets for all activities that cause greenhouse gas emissions. The Science Based Targets initiative has confirmed that these emission reduction targets are in line with the Paris Agreement. Very much in the spirit of the company's purpose: Our energy for a sustainable life.

Overview

- RWE supports the development of Target Model Option (TMO) 4 so long as the extra time provided to produce a full connection offer provides a more reliable connection date, works programme and point of connection than the existing process.

- The ESO when co-ordinating the network design for batched connection contracts should consider whether to apply a universal NDA to batched projects so that they can access load flow models and detailed studies stored on an Extranet. This approach may mitigate concerns for NGESO around data protection when projects want access to the detail of projects involved in the same enabling works.
- RWE is concerned about the impact on user commitments if one or more batched projects terminate their connection agreement that are dependent on the same enabling works in a co-ordinated design when this approach is taken system wide. A similar scheme has been applied for offshore wind farm projects which are on a different scale to other technologies.
- Demand Connections: Directly Connected Demand should be included in the proposed TMO4 process as the number of projects is likely to increase greatly going forwards in the form of Electrolysers and Data Centres
- Reserved Developer Capacity: This is a key element of improving distribution connections. The current 'Statement of Works' and '*Project Progression*' requests from the DNOs to the ESO/TO are only codified for the response from the Transmission Operators and not for the timely submission from the Distribution Operators, this has led to delays in excess of a year for DNO connections. The ability for DNOs to reserve additional capacity will allow re-distribution to connecting parties immediately. However, the amount to be reserved will need to be carefully managed to avoid too much being requested, creating excessive development on the transmission system, and not enough resulting in delays connecting as is the status quo.
- RWE's U.K. Country Chair, Tom Glover has also recently published his thoughts on accelerating grid and enabling faster connections, which we have also attached for your consideration.

I hope you find this response useful, if you have any questions or would like to discuss any of our response further, please do not hesitate to contact me.

Yours sincerely,

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RWE Renewables & RWE Supply & Trading GMBH

1. **Do you generally agree with our overall initial positions on each of the foundational design options and key variations? Are there any foundational design options or key variations that we should have also considered?**

   For most technologies, we agree the market led approach to the connection application process should not be removed. It allows developers to apply for the best location to connect based on factors specific to their technology such as wind speed rather than on grid availability. The approach should produce more efficient generation projects that are sited appropriately for maximum output whilst allowing for innovative approaches to be developed in the market such as co-location with other technologies.

   There is a greater appetite for foundation option three's more strategically planned connection approach for Offshore Wind where the Crown Estate already selects the seabed sites for lease and working in tandem with the system operator could beneficially bring forward the build of required grid ahead of need to allow Offshore Wind projects to deploy more quickly. This foundational design option allows for a future transition to an offshore model where the Crown Estate applies for the Offshore wind farms grid connection as well as reserving the capacity in the application window similar to other markets rather than just reserving the capacity as suggested in Appendix 5 - Case Study 3.

   Whilst the existing status quo and more centrally planned foundational design options have been explored, there is a missing foundation option. Taking the opposite approach to centrally planned foundational design, a free-market TEC tradeable approach could be explored separately or in tandem.

2. **Do you agree with our initial view that the current issues with the connections process could potentially be addressed on an enduring basis through other, less radical, and lower risk means than the introduction of capacity auctions?**

   We agree that separating capacity from the connection contract on the basis proposed should not be taken forward as it would require a significant step change in the connections process to accommodate it. This proposal is seeking to confirm capacity at a late stage of the connection process which undermines the investment case for a project. Although, we don't need to have the TEC confirmed for a consent or environmental permit for a new site, we would need to know the maximum expected generation for the consenting application which would not be available within the timeframe under the proposed process.

   If the capacity auctions were held sufficiently in advance, at or before the connection process applies then it may be more practical. Once we have transitioned to a whole system transmission and distribution management system, then the concept of a capacity auction should be revisited.

3. **Do you agree with our initial view that the reformed connections process should facilitate and enable efficient connection under either a market-based (i.e. locational signals) or 'centralised' deployment approach (or an approach somewhere between the two), but not mandate which approach to follow?**

   Yes, we agree that the process should remain flexible to both market-based and centralised approaches.

4. **Pre-Application Stage 4. Do you agree with our initial recommendation that TMA A to TMA C should all be progressed, irrespective of the preferred TMO?**

   Yes, we agree that TMA A '*Access to self- service tools*', TMA B '*Getting the best out of pre-application meetings*' and TMA C '*Appropriate use of optioneering route*' should be progressed irrespective of the TMO. There is a risk that the ESO is receiving multiple applications to determine where there is TEC available. Updated tools such as substation layouts, heat maps and in the long-term smart contracts that once signed automatically update the other tools to display the TEC available on the network should help to reduce information seeking applications that are eventually withdrawn but have had an administrative cost to the ESO.

   We also agree that the feasibility studies under TMA C should not be mandated. Previous feasibility studies undertaken have been of little benefit due to the poor quality as the estimation of the works and costs were not comparable with the connection offer provided. The cost of the feasibility is of the same order of magnitude in cost to a connection application which has led us to negate feasibility studies and go straight to the connection application. Our view differs in that we do not consider that third parties with comparable system models to NGESO can provide as a good a view, as NGESO has access to the most recent data. We encourage the ESO to invest in increasing the quality of their feasibility studies to provide added value which would ensure increased uptake of this option.

5. **Do you agree with our initial recommendation on the introduction of a nominal Pre-Application Stage fee, discounted from the application fee for customers which go on to submit an application within a reasonable time period?**

   We agree that the nominal pre-application fee should apply to a TO's licenced requirement to have a pre-application stage. It is to the benefit of all applicants that sufficient tools and modelling are supported to reduce speculative applications by ensuring the developer applies for a viable connection. There will be applicants that have projects being developed on permitted land rights where a developer has already built an asset and is aware of the technical requirements and may not need this service to progress their project. In this scenario, it may be appropriate to not apply a pre-application fee.

However, in the round, we do not consider that the pre-application fee should be refunded if the customer applied for a connection within a reasonable timeframe as this is an additional service being provided by the ESO which we would like to see well-funded with service level requirements to keep the tools up to date for applicants.

6. **Do you agree with the importance of the TMA A 'Key Data'? Please provide suggestions for any other key data that you suggest we consider publishing at Pre-Application Stage.**

Yes, we agree with the key data and consider that the enabling works dependencies should reflect any signed offers enabling works which should appear on the heat map. We would like to understand why the ability to visualise the nearest applicant and connection date is a later development when it forms part of the enabling works and their capacity should also be available. We further note that design workshop members were keen to waive confidentiality within reason in favour of greater transparency and better information.

7. **Do you agree with our initial recommendation with regard to TMA D (requirements to apply)?**

TMA D1 and D2 - '*Provision of Land* Rights' or '*Provision of a Letter of Authority*'

For onshore wind and solar projects, there is often long negotiations with private landlords for land rights pertaining to the site which do not have statutory timelines associated other than in the event of compulsory purchase rights being exercised. Onshore wind developers are unlikely to have sufficient control over land rights to provide evidence of land rights at the connection application stage but they are likely to be in a position to provide a letter of authority. Distribution Network Operators (DNOs) currently accept letters from the landowner confirming that they are in negotiations with the developer about an onshore wind / solar PV project on their land, and consent to the developer submitting an application for a grid connection. Such a letter is similar to the Crown Estate confirming that the developer has been awarded seabed rights, i.e. in advance of actually signing formal legal agreements for those seabed rights. NGESO should give some thought to how they will be able to verify the authenticity of these letters of authority.

TMA D3 '*Provision of Planning Consent*'

This would be a significant departure from the existing planning consent process which requires a grid connection agreement when applying for planning consent. In the Irish market, this higher hurdle is required to be met when submitting a connection application and is a better indicator of a viable project as many projects do not receive consent. However, any proposal to require planning consent ahead of a grid connection agreement must take into account that the

planning rules are different in Scotland, England and Wales which could create a non-level playing field. Further, the statutory timescales (where they exist) are routinely not adhered to and this creates delays – for both developers of generation and grid. It would therefore not be desirable to create further delay to deployment of low carbon generation by introducing new connections rules which reduced synergies. Any further consideration of TMA D3 would require a full impact assessment (with input from relevant stakeholders in UK government departments and devolved powers) in order to determine whether this could be taken further.

TMA D4 '*Duplication Check*'

The '*Duplication check*' proposal is over simplified and could be subject to some unintended flaws as if you only allow one application per site, it is not indicative of whether a connection application is viable. We have an example where we have multiple technologies (hydrogen, battery, thermal power station and a synchronous condenser) all on the same site with the same land title. Furthermore in Aurora's recent analysis in '*Down to the wire: The critical role of networks in delivering the energy transition*' which explored the impact of different levels of network deployment and the utilisation of dispatch of generation and flexible assets when decarbonising the energy sector by 2035, this multi-technology site containing the hydrogen project was mentioned as it was deemed key to reducing constraints in it's network area. A hydrogen project on a multi-technology site such as this may not receive a grid connection offer under this proposed rule.

TMA D5 '*Simplification of Standardisation of Offer T&Cs*'

We agree that D5 '*Simplification of Standardisation of Offer T&Cs*' should be taken forward.

TMA D6 '*Acceptance of Standard T&C's on Application*'

We agree that it may be beneficial for the system operator to have standard contractual clauses that apply to more efficiently administrate their contracts.

8. Do you agree with our initial recommendation with regard to TMA E (determination of enabling works), including that it is right to wait until the impact of the 5-Point Plan is known before forming a view on whether further changes to TMA E are required?

The impact of the 5-Point plan should be known by the 01 March 2024 when the two-step offer has completed. Therefore, we consider it would be in the best interest of applicants for the outcome to be understood before an implementation plan is proposed.

TMA E3 '*Non-Firm Connections*'

This TMA proposes to put in place a non-firm connection agreement either based on an inter-tripping scheme arrangement or through an operational arrangement that manages the operational risk until the enabling works are completed. We recognise that this non-firm connection arrangement is a short-term initiative in the 5-point plan and whilst we recommend that the following measures of whole system network guidance and cap on interruptions are put in place as set out below, we ask the ESO to be ambitious and create a long term plan to transition to a whole system dynamic operational model.

Introduction of Electricity Whole System Network Guidance

Electricity whole system network guidance should be introduced due to the number of different types of non-firm connections now available in the market. It should cover the broad spectrum of non-firm connection options for plant that is requested to be: turned off, turned down, has timed windows, notice is given within day or for part of hours, day ahead notification or has yearly set windows of unavailability, just to name a few. Due to the wide number of combinations available, we suggest that system operators consider offering standardised products in a similar way to the inter-trip process. In the inter-trip statements, there can be different classes of non-firm that come in different standard configurations.

Cap on Interruptions

Proposals should take into consideration the utilisation of the battery and should stipulate a cap on interruptions to allow asset owners to risk assess the impact on their business case. To ensure fairness of treatment, there are devices that allow the developer to monitor congestion to ensure that all interruptions are within the limit of the cap, should they wish to do so. This would provide confidence that the network operators are operating within the limits and understand the commercial impact on the battery storage project.

Dynamic Operational Modelling:

Ultimately the final goal should be to move away from a binary model to a whole system dynamic operational model. Under the distribution system:

- ANM systems are monitoring the constraint, demand and generation several times a second and issue floating point limitation signals to anyone that needs to have one.
- Data openness – ANM thermal thresholds driving the flexible offer are known, historical demand data is available at several voltage levels, LiFo queues, network information, running arrangements, outage frequency and past behaviour etc. The only bits the developer has to take a view on is capacity factor profiles of various generation technologies (which is straight forward).

- Once commissioned, the ANM system is transparent so if you get turned down you would know why it has happened and what's driving it.

We encourage the ESO to consider whether there would be benefits to utilising the distributor's ANM system for the whole system dynamic operational modelling or if they have a preference for other tools and equipment that are available to help model/manage a more dynamic/intermittent network.

TMA E4 'Anticipatory Investment'

RWE welcomes the introduction of TMA E4 '*Anticipatory Investment*' which promotes a more co-ordinated planning approach to the grid, potentially building grid and undertaking strategic wider network reinforcements ahead of need in preparation for connections. Efficiencies can be gained through closer process alignment between parties participating in the co-ordinated network design and the planning consents process.

9. Do you agree with our initial recommendation with regard to TMA F (criteria for accelerating 'priority' projects)?

Under the ESO's recommended TM04, one of the impacts in moving from a '*First come, first served*' connection queue to a '*First ready, first served*' approach is that the connection queue is created at the point of submitting your consent. This approach favours less complex projects with planning applications that can be more quickly submitted and can take advantage of the ability to be advanced to an earlier connection date. Therefore, TMO4 rather than promoting a mix of technologies for advanced connection to the network, it is likely that less complex projects will be brought forward first which although beneficial for de-carbonising the network more quickly may result in an unbalanced technology mix on the grid. TMA F provides a possible solution to this issue.

TMA F1 'Government Support' and F2 'Positive Consumer/ Network Benefit Case

All generation projects bring benefits to the grid. To better understand whether we would support TMA F1 and F2, we would need to see the methodology proposed. We encourage the ESO to speak with the consultancy Aurora on their recent analysis in '*Down to the wire: The critical role of networks in delivering the energy transition*' which explored the impact of different levels of network deployment and the utilisation of dispatch of generation and flexible assets when decarbonising the energy sector by 2035. This conversation may be useful in coming to a decision on whether to create a methodology that advances projects that alleviate network constraints and are given government prioritisation. Any prioritisation methodology would need to consider a wide number of frameworks and schemes such as whether to prioritise Nationally Significant Infrastructure Projects (NSIP) projects, Accelerated Strategic Transmission Investment (ASTI)

projects, Network Option Assessment (NOA) pathfinders and Crown Estate can also prioritise the projects that win in their leasing rounds. The resulting methodology should not reduce the transparency of the connection queue.

TMA F3 '*Shovel Ready Project*'

We consider that TMA F3 proposing to promote a '*shovel ready project*' is a better standard for determining whether a project is viable than submitting consents but would recommend that NGESO explores advancing projects on the on the basis of '*securing consent*'.

TMA F4 '*Price Based Mechanism*'

The tier-based pricing mechanism proposed by TMA F4 disproportionately favours well-capitalised generators. If progressed, it could be in part mitigated by using the advanced connection fee to create a fund for building grid more quickly to bring connection dates forward as a whole. However, it is likely to distort the market.

Whilst TMA F provides one type of solution, there are questions around the amount of applications that the ESO will receive for batch processing in a gated period and whether there will be sufficient resource to meet the demand. Should this be the case, the ESO could look at the Irish model where the number of applications submitted is constrained to a specific number and is prioritised. The first slots are prioritised for projects with the highest generation output, 10 reserved for storage projects and the remaining projects based on the oldest planning consent date. However, it is critical that deployment of new generation is enabled at pace to ensure that targets for decarbonisation and deployment in line with government targets is achievable. The new connections process should treat all potential connections fairly and tools such as strategic grid planning and anticipatory investment employed to ensure efficiency.

10. Do you agree with our initial recommendation with regard to TMA G (queue management)?

RWE is supportive of the principles behind G1 '*Reactive Queue Management*' and G2 '*Reactive Queue Management Plus*'. We are not supportive of TMA G4 as it allows a project to advance despite a detrimental impact on other projects contracts. We consider that the consumer impact represented by G3 is better assessed by the ESO to determine whether it is appropriate to connect a generator earlier where a short-term cost to the consumer may quickly be mitigated by long term added value.

11. Do you agree these four TMOs present a reasonable range of options to consider for a reformed connections process?

Yes, RWE agrees that the four TMOs are an appropriate range of options.

12. Do you think any of the four TMOs could be materially improved e.g. by adding, removing or changing a specific aspect of the TMO? If so, what and why?

Please see our response to question 14.

During the pre-application window, an innovation programme window could be run in parallel to allow developers to propose bespoke solutions that would allow the project to connect to the grid more quickly. This could be new connection applications that do not fit within the existing scope or existing connected projects that could demonstrate how they could connect or manage their project more efficiently on the network and are seeking an arrangement with the ESO. The ESO could then determine whether to take any of these bespoke approaches forward on an annual basis and incorporate it into the planning process. This would prevent the stifling of innovation for projects connecting through an increasingly more co-ordinated and planned connections process with an ESO that is open to conversation.

Please also see our response to question 30 on accelerating grid connections.

13. Are there any important TMOs we have missed?

We have not identified any further TMO's for your consideration at this time.

14. Do you think '*Submit Consent*' is too early for Gate 2 in TMO2 to TMO4? If so, what milestone should be used instead and why?

There may be a risk to the quality of consenting applications submitted to bodies such as Town and Country Planning where the speed at which you can submit your consenting application could determine whether you are eligible for an advanced connection date or a connection that does not require enabling works.

The point at which a project '*submits consents*' does not represent a viable project. There are a significant number of projects that do not secure planning consent and although it is late to create a connection queue, it is a more appropriate time to determine whether a project is offered an advanced connection date. Once planning is achieved, there is an expiry date to the planning permission within which the project will need to have initiated construction. If the connection process with connection offer dates currently over ten years in the future, promotes submitting consenting applications early, it is likely to result in projects planning consent expiring before they are able to initiate construction.

We encourage the ESO to work more closely with the developer and with the government to understand the challenges faced by the interactions between the connections process and the real consenting process.

We do see merits in '*Secured Consents*' as opposed to '*Submit Consent*' as an indicator of a more viable project that could be utilised at Gate 2. This could be

fraught with much longer timelines and modification applications would have to be allowed between the Gate 1 connection offer and more lengthy timeframe for securing consents. Should the network connections process becomes overly congested then you could offer a similar approach to Ireland where you offer an advanced connection dates to those with the oldest secured planning consent first to prevent a viable project's planning expiring.

15. Do you agree that TMO4 should be the preferred TMO?

Our main question for the ESO is whether qualitatively the extra time provided to produce a full connection offer under TM04 will provide a more reliable connection date, works programme and location if required over TMO2 (6 months) and TMO3 (9 months) timescales, If this is the case, we will support the increased application processing times of the preferred option with a request that the connection offer contains:

- **Service Level Agreements (SLAs) for account manager response times** throughout the connection process. For example, producing the connection offer within a certain timeframe is a licenced requirement but there are currently no KPIs requiring account managers to respond to customer queries in the three months prior to signing the connection offer. These are often show stopping questions which determine whether the Customer accepts the offer at all. Often these queries just require a small tweak to or clarification of understanding regarding the connection offer for it to be accepted. This is likely to increase the number of connection offers accepted at the first stage. We are keen to see a more customer centred approach that is sufficiently resourced to deal with these queries.

- **Provision of a reliable onshore interface location** when the full connection offer is provided. This is to prevent high costs to the project where a point of connection is changed at a late date and consenting work had already been initiated causing costs to the developer for which they will not receive recompense.

- **Communication on connection options**. As part of the co-ordinated design, it would be beneficial if NGESO shared with the project the various design options considered and why they were discarded in favour of their preferred option.

The ESO when co-ordinating the network design for batched connection contracts should consider whether to implement a similar approach to the U.S. Midcontinent Independent System Operator's (MISO) which applies a universal NDA to clustered projects so that they can access load flow models and detailed studies stored on MISO's Extranet. This approach may mitigate concerns for

NGESO around data protection later in the process when projects want access to the detail of projects involved in the same enabling works.

RWE welcomes the introduction of a backstop date in TM04 on the basis that the connection date is more reliable and ambitious than the current connection timeframes. The connection date should represent the best possible connection date that can be provided at the time of its assessment. Due to the connection application window being annual and a twelve month processing time, all tools should be up to date with the relevant information and by utilising a frozen contracted background to analyse batched connections applications against, we would expect the ESO to produce better quality connection offers with fewer errors and reliable connections dates and points of connection.

To maintain flexibility within the process, it would be beneficial if requests to modify connection applications could be processed outside of the connections window with the exception of TEC increases that are analogous to new connections and should follow the same timeframe as a new connection. For example, once connection queue milestones have been introduced to construction agreements, there will be modification connection applications where the developer has evidenced that they have been delayed due to a third party and are allowed to modify their completion date. If the developer has to wait for the annual application window, they will be in contravention of the connection queue milestones in the construction agreement.

TMO4 contains an existing challenge already seen in the Irish market where applicants are batched together and assessed for the enabling works required. One of these connectors could be an interconnector that requires 25% of a substation to be built to accommodate its connection and other projects are also then planned to connect at that substation. If the interconnector project pulls out, the substation is still required to facilitate the remaining connections which could now be at significantly increased cost to any remaining project in the batch depending on how user commitment is assigned, and how this interacts with anticipatory investment and strategic long-term grid planning. We would like to more fully understand how the ESO intends on processing batched multi technology connection contracts whilst ensuring that there is only a fair and reasonable risk to a project's user commitments before agreeing that TMO4 is the way forward. We consider there may be a significant step change in magnitude of cost for enabling works.

The Irish market is utilising a workaround which is the creation of a smart hub that socialises the cost for all of the projects that connect to it. We encourage ESO to explore case studies from different markets in this regard.

16. **Do you agree with our design criteria assessment of the four TMOs? If not, what would you change any why?**

We are broadly in agreement that TMO 4 better meets the design criteria set out by connection reform.

17. What are your views on the stated benefits and key challenges in relation to TMO4?

Please see our response to question 15.

18. Do you think that there is a better TMO than TMO4? Whether that be TMO1 to TMO3, as presented, a materially different option, or a refined version of one of the four TMOs we have presented?

We consider that TMO4 is the most beneficial of the TMOs proposed. Please see our response to question 15.

19. Do you agree with our views on DNO Demand in respect of the TMOs?

We agree with the rationale for this as it levels the field to that of directly connected users by and large. Clarity needs to be provided as to which consents are required to achieve NETS queue position at Gate 2, Users, DNO substation, or both.

20. Do you have any views on the appropriate mechanism to incentivise accurate forecasting of requirements and avoid more RDC than is necessary being requested by DNOs?

An incentive scheme would need an element of look-back to evaluate what was requested and what was actually used, charges/incentivisation should be based on the imbalance between the two values. The charge could adjust the level of User Commitment applied to the DNO, if there is such a charge envisaged. The question of costs from User Commitment schemes is always going to be awkward where these are borne by a network operator unable to pass them through to the actual users. Depending on how costs and commitments are handled for this Reserve Developer Capacity (RDC) capacity there could be a scenario where DNOs are disincentivised from requesting RDC, i.e. if there are onerous costs for holding that RDC. This may be mitigated by accurate forecasting thus having higher costs for holding RDC incentivises greater accuracy. However, a risk averse approach could be to limit the RDC requested, which could financially protect the DNO at the expense of system users. A look back scheme on RDC utilisation would not only need to look at under-utilised RDC but RDC shortfall (which may be more difficult to measure).

21. Do you agree with our views on the process under which DNOs apply to the ESO on behalf of relevant small and medium EG that impact on or use the transmission system, including that (under TMO4):

i) DNOs should be able to request RDC via application windows to allow them to continue to make offers to EG interwindow; and

This would lessen the timeline impact that initially faces users comparing the world today to the TMO4 world where you would be going from a 3 month turnaround to a 9-12 months. Under this proposal such Users could see a quicker turnaround then the existing SoW/Project Progression route. The down side would be the inequality between Large and small/medium generators, but as there are many code requirement differences between the sizes already then the more applicable comparison is if directly connected, Large are treated different to embedded Large? GC0117 aiming to align.

ii) Resulting offers should be for firm access until relevant EG has reached Gate 2 (at which point they can request advancement and an earlier non-firm connection date)? This would be acceptable.

22. Do you agree that directly connected demand should be included within TMO4 and that the benefits and challenges are broadly similar as for directly connected generation?

Yes, with the outlook for hydrogen electrolysers and data centres it would make sense that these user types fall into the same process. Some additions may be required, a demand equivalent of TEC (Transmission Import Capacity as mentioned in the consultation) and related changes to the CUSC would allow a change in related User Commitment. A TIC register should also follow as a result.

23. Do you agree that TMO1 to TMO3 would require a separate offshore process, and that this would result in material disbenefits?

To improve coordination then yes, however this feels too much like the world today, a world in which would be coordinated designs have and are taking years to produce an output. We would be in strong opposition to any model that encourages add-on, bespoke evaluations that start from scratch each time thus taking years to produce, such as HND.

24. Do you agree that TMO4 is the most aligned to the direction of travel for offshore projects? If not, why?

Yes, we consider this TMO better facilitates offshore coordination as long as it produces a quality offer that has lower chance of changing as is the problem with existing offshore offers under the HND process. Can the ESO actually deliver this within the TMO4 timescales as HND programmes have exceeded the proposed TMO4 timeframe?

25. Other than the Letter of Authority differences are there any other TMAs which have specific offshore considerations?

Leaving aside the view that the ESO should not reject applications on the basis of TMA I 1-4, TMA I may require different thresholds in comparison to onshore due to the size and complexity of building large offshore windfarms.

RWE

26. Do you agree with our views on network competition in the context of connections reform, including that TMO4 is the option which is most aligned with network competition as it includes the most design time at an early stage in the end-to-end process?

Limited information but the premise sounds reasonable.

27. Do you agree with our initial recommendation related to each of the TMAs within this chapter? If so, why? If not, what would you change and why?

TMA H	1-5	We agree with the recommendation with the qualification that pre-application fees should be reflected in a greater quality of pre-application information
TMA I	2	We have reservations on the recommended ability to cancel and application based on technology or location. This may work for the offshore windfarm example given but as a universal approach we do not feel it is justified.
TMA J	2	We agree that J2 should be advanced but we would also like to a range of options (J3 orJ4) as one of these options may represented a more attractive solution, for example, a drop by a certain number of MW may create a several year improvement which may be more attractive for a certain developer, thus freeing TEC for another user. Presently there is no visibility of 'break-points' in offers, the User never knows that if they went for 100MW less they may have halved their costs or reduced the connection time.
TMA K	2 , 3, 4 AND 6	We like the direction of travel of the recommendations but we don't feel they go far enough. The existing short term TEC products need changes not just clarification, unless clarification results in some minor code changes which allow multiple year applications for products such as LDTEC for example. We would have also liked to K5 advanced to look at capacity trading between users on a more free basis then the rather opaque TEC exchange process that exists currently in the CUSC.
TMA L	1	We support L1 but think there is merit in an L2 charge/security
TMA M	1	We support ad-hoc updates over the other proposals but only on the basis that they actually occur/are managed.
TMA N	3	We support this as the current process is undefined and possibly not consistently applied.
TMA O	1-4	We support the recommendations, these examples should sit outside of formal modifications.
TMA P	1	We agree with the recommended route
TMA Q	1	None of the options create a high degree of leverage on the ESO to perform, all options appear to have at least a degree of passthrough to others ultimately paying. The transmission licencees should have some degree of personal exposure to Liquidated Damages.
TMA R	1	We agree with the use it or lose it approach as it will address the issue of 'dormant TEC', but feel there is merit to R2 in addition.

TMA S	1	Only the one option here but we do agree with the requirement for clarifying the process.

28. Do you agree with our current views in respect of the implementation period?

Initially appears optimistic particularly in respect of the code changes required as these often take longer than initially envisaged and may have a degree of circularity upon each other if they are dealing with a similar subject. We encourage ESO (and Ofgem) to consider developing processes for expediting inter-related and important code modifications such as these. However this should never come at the expense of being thorough, and all necessary impact assessments and evidence gathering should be prioritised over rushing anything.

29. Do you agree with our current views in respect of transitional arrangements? What are your views on how and when we should transition to TMO4?

We do agree with the interim processes underway/proposed but we do feel they are operating outside of subsequently required code changes. It is crucial that statutory timescales in licences are in place for transitioning, otherwise there is a risk that the backlog in the connections queue is worsened.

30. What further action could Government and/or Ofgem take to support connections reform and reduce connection timescales, including in areas outside of connections process reform?

Backing of anticipatory investment in respect of assets that are yet to be attributed to users, this may also be applied to DNO additional requested capacity, is key to speeding up the energy transition in the UK.

Create a new unified system of working cross government bodies, there has to be alignment between the energy strategy, land (Crown Estate), planning bodies, hydrogen support mechanisms etc. Currently there is always a weakest link from the above which either impacts on the user directly of impacts on the networks therefore the user eventually. We would like to see bundling of connection capacity with sea bed leases in a more explicit way than proposed under offshore process in TMO4. This could also be extended to hydrogen support project zones in a similar fashion.

We would also encourage the ESO not to abandon the discussion on separating capacity from connections (as per page 31). A degree of separation may enable the ability of Users to trade TEC which could allow for less viable projects to give way to more financially viable projects, essentially creating a *'natural selection'* amongst projects. Under the current and proposed processes the ESO and the Regulator have no way to evaluate the viability of projects in the queue, ability to trade TEC could enable this evaluation without the input from the ESO and the NRA.

We have set out a number of initiatives below from RWE's U.K. Country Chair, Tom Glover from his paper on 'Removing the Barriers to Low Carbon Power'

that we consider could help to tackle the issue and could be developed further by Ofgem in co-ordination with the system operators.

Greater Transparency of Connection Availability: Poor visibility of network availability is a material issue, meaning developers must place multiple applications to find a viable site. Further consideration should be given to improving the transparency relating to opportunities to connect and connection timescales (building on the work taking place under the connection reform process). In addition, high-tech approaches for the application process could reduce the preapplication workload and automatically produce offers.

Higher / Earlier Connection Liabilities: Currently, the cost of applying for and holding a connection agreement is extremely low, and the limited cost of holding the place in the queue encourages parties to hold the agreement, even if the project is unviable or delayed until the last possible moment the liabilities increase. Higher upfront costs, or higher and earlier liabilities for grid connection agreements would mean that only viable projects with a high chance of commitment would apply for and hold connection agreements, and there would be a clear incentive to hand back agreements if projects become uneconomic/unviable..

An obvious disadvantage of this approach is that development costs would increase due to higher upfront grid costs. The recently launched '*two-stage offer process*' for England and Wales whereby developers can take a place in the queue without having to place any securities risks further exacerbating this issue.

Allowing Parties to '*Trade*' Connection Capacity: A more market-based approach would be to allow parties to '*trade*' connection capacity. For example, if one onshore windfarm is progressing more quickly, or is more economically feasible (i.e. larger, newer technology), but is behind in the queue, they should be able to come to a commercial agreement to trade places. Equally, a new offshore windfarm could pay an old gas station to close earlier and take over its grid capacity.

Further consideration could be given to any restriction of tradeable MWs between technologies (i.e., XMW of offshore wind may only be equal to YMW of a gas station) and between locations (i.e., if the bottleneck on the network is a long way from the generator selling its grid capacity, then there may be multiple locations where the generator buying the grid capacity could choose to connect (i.e. it wouldn't necessarily have to be right next door).

More Flexible and Commercial Arrangements for Grid Entry: Instead of building a new connection, two users (e.g. an existing gas station with a firm connection, and a new offshore wind farm) could agree to share the same grid capacity -

when it's windy, the windfarm uses the capacity, and vice versa the gas station. The windfarm would be prepared to compensate the gas generator for lost income, in exchange for getting onto the grid earlier.

As a simple example, an offshore windfarm may not be able to get an early connection agreement because of a lack of grid capacity in the location. However when looked at in detail, this may be because the grid capacity was held by a number of older gas stations. In reality though, in windy conditions, it is highly unlikely the gas stations would run, and if they did likely margins would be small.

The first issue is that the current grid security standard (known as the Security and Quality Supply Standard – SQSS) does not adequately consider this happening. Reviewing and updating this element of the SQSS is urgently required.

Further, a more efficient commercial arrangement than building a new connection could be for a gas station and an offshore windfarm to agree to share the same grid capacity, and in doing so commit to the ESO never to jointly export any more than that capacity. Therefore, put simply, when it's windy the windfarm would use the capacity, and vice versa the gas station, with the windfarm getting priority despatch due to its low carbon and low marginal cost status. In this scenario, the windfarm would be prepared to pay the gas generator any lost income, in exchange for getting onto the grid earlier.

From a consumer perspective, these kinds of commercial arrangements could be attractive because low cost, low carbon generation would potentially come on earlier, and ultimately localised increases in grid capacity (and therefore new infrastructure) may be reduced, or even not be required at all. Permitting and facilitating commercial arrangements to allow more efficient optimisation of grid connections between assets in this way would accelerate connections and facilitate a lower cost transition to net zero.

Facilitating such commercial arrangements as those illustrated above would allow for a more efficient optimisation of grid connections between assets and accelerate connections. Low cost, low carbon generation would potentially come on earlier, and ultimately localised increases in grid capacity (and therefore new infrastructure) may be reduced, or even not be required at all.