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Connections Reform Consultation

National Grid response to Ofgem's open letter

28 July 2023

This response to National Grid ESO's "Connections Reform Consultation" dated 13 June 2023 (the consultation) is from National Grid plc (NG), including our electricity transmission business, National Grid Electricity Transmission plc (NGET) and our distribution business, National Grid Electricity Distribution Holdings Limited (NGED).

National Grid Electricity Transmission (NGET) owns the high voltage electricity transmission network in England and Wales. National Grid Electricity Distribution (NGED, formerly Western Power Distribution) owns and operates the electricity distribution networks in the Midlands, the South West and Wales. Together, NGED and NGET facilitate the connection of supply and demand customers to the distribution and transmission systems and are investing to adapt and develop the network to connect new sources of low carbon and green energy to homes and businesses in support of the transition to net zero.

The response consists of three sections, providing a whole system perspective to the consultation:

- **Section 1**: National Grid Group cover note
- **Section 2**: National Grid Electricity Transmission response
- **Section 3**: National Grid Electricity Distribution response

Section 1: National Grid Group cover note

We thank you for the opportunity to respond to the proposals set out in NG ESO's Connections Reform Consultation. National Grid Group understands the issues industry currently faces and agrees that there is a strong need for reform to existing connections arrangements.

We agree with the ESO's Case for Change report for generation connections.

From a **transmission perspective**, we believe successful reform must deliver:

- **A connections process that has an appropriate level of entry requirements and contractual obligations at the transmission level** to effectively progress credible developments to connect in timescales that align to their needs. This would move away from a first-come-first-served process and towards a first-ready-first-connected approach, supported by a 'connect or move' policy.
- **Means by which network design can be de-coupled from the connections process, enabling strategic decisions about where to create capacity and provide for customer connections**. This would create a 'connection ready' network, that provides information to customers for investment decisions and reduces connection timescales through earlier engagement with the supply chain, and efficiencies through outage planning and build. This would need to be supported by an efficient connections process and a regulatory regime to ensure appropriate funding.

To achieve this, connections reform must address three elements: issues across the market, contract (process) issues and the physical works elements of the arrangements to connection customers.

From a **distribution perspective**, while our generation connection pipeline has significantly increased over the past few years and currently sits at 37GW, it is important to note that demand connections significantly outnumber the volume of generation connections applied for, accepted and energised across the distribution system. The processes distribution network operators undertake to provide annual visibility of the anticipated pipeline and transmission impact of demand connections remains fit for purpose and recognises that within an electricity system increasing in complexity, a greater level of decentralisation of the decision making can facilitate progress when the volumes of activity necessitate this.

Whilst we are supportive of some component parts of TMO 4, we ultimately have concerns on its overall ability to deliver the benefits that the ESO have outlined within its consultation document. We detail (in Section 2 Part 2) why, and what changes we propose to ensure greatest success in its implementation. We believe that further development is required on the ESO's recommended TMO 4 for it to be clear it can deliver the associated benefits in the timescales that are envisaged.

We do not underestimate the challenges of implementing a new process against an existing contracted background. We are supportive of the industry efforts to deliver accelerated connections through the ESO's 5-point plan and the ENA's 3-point plan and believe this will have a positive impact on connection dates for contracted customers. However more may be needed to either (a) reduce the pipeline of connections to a more balanced view of what the energy scenarios suggest will connect, or (b) apply the elements of the new process, including Queue Management to the contracted background to ensure fair and equal treatment of all future connections. We would welcome the opportunity to work collaboratively with the ESO and industry to further develop the implementation approach needed to have the desired impact of a successful reform.

Conclusion

We are keen to remain engaged with NG ESO, Government and Ofgem on this topic. Should you have any questions about the points raised in this consultation, please contact Chris Bennett at chris.bennett@nationalgrid.com.

Section 2: National Grid Electricity Transmission (NGET) Response

Executive Summary

There is an urgent need to reform the connections arrangements to deliver connections for customers within timescales that suit their needs, facilitate delivery of net-zero and drive value to end-consumers. We welcome the ESO's action to reform the connections process and believe that a new process, if well-designed and implemented correctly, could have a significant impact on the issues currently faced by industry.

NGET's ambition for transmission connections, is to ensure the effective and efficient connection of low-carbon technologies at pace to meet our net zero ambition. Within this response, we detail our view of what reform needs to deliver and our assessment of ESO's recommended Target Model Option (TMO) 4. Part 3 of this Section 2 outlines NGET's response to the consultation questions.

Whilst we are supportive of some component parts of TMO 4, we ultimately have material concerns on its overall ability to deliver the benefits that the ESO have outlined within its consultation document, and our ambition for wider reform. We detail within our response why, and what changes we propose to ensure greatest success in its implementation.

To deliver greatest impact, we believe that wider reform needs to deliver the following, and therefore a new connections process needs to enable these actions

1. **De-couple network design from customer applications and invest ahead of need**
2. **Create a standardised modular 'plug & play' connections product**
3. **Create a need for developers to demonstrate viability before entering the connections process**
4. **Move towards a 'connect or move' framework with first-come-first-served only applied if it is appropriate and fair.**
5. **Enable immediate benefit through effective implementation and transition**

NGET plays a significant role in connecting new sources of low carbon and green energy to homes and businesses in support of the transition to net zero and ensuring security of supply for end consumers.

We have worked collaboratively with the ESO and industry to determine appropriate action for reform, and to assist in the development of the proposed options for a new connections process. We have also been working with the ESO and the ENA on supporting delivery of their 5-point plan and 3-point plan respectively. We are starting to see impact from these initiatives and expect to free up at least 40GW of capacity by the end of the year to accelerate contracted connections.

Recognising the need for wider reform, we thank the ESO for their efforts in developing this consultation on a new connections process and welcome the opportunity to respond.

This response consists of three parts:

- **Part 1: NGET's ambition for connections reform and our view of required action**
- **Part 2: NGET's assessment of the ESO's proposed connection process option**
- **Part 3: Response to the ESO's specific consultation questions**

We support ESO's action to reform the connections process

Over recent years, we have witnessed significant and rapid change in the energy landscape, in the type and volume of developments wanting to connect to the transmission network. This industry change has come with challenges, which the ESO summarise as follows in their Case for Change[1] report:

- *Increasing application volumes and related increase to the timescales for connection*
- *Many new types of connection customer*
- *Significant changes to the mix of technologies*
- *Greater interaction between Transmission and Distribution networks*
- *Greater complexity and uncertainty over network investment planning*
- *An urgent need for a holistic, whole systems approach to planning network investment*

Despite this, the connections process has remained, for the most part, the same since it was introduced. It was designed in a way to manage the connection of a small number of large developments from a much less diverse range of technologies.

As well as changes within the industry, we also have a responsibility to respond to and enable wider economic, environmental, and societal changes such as the move to a low carbon future. NGET play a significant role in delivering the industry wide ambition to decarbonise the electricity network and deliver on Net Zero targets.

We agree with the ESO's conclusion that *'the current process is not likely to enable the connection of the necessary volume of renewable generation and other associated technologies quickly or efficiently enough – both from the perspective of project developers and in terms of securing best value for consumers and meeting Net Zero targets'*.

There are three components of the connections issue that need to be addressed in a collaborative approach

Whilst we agree with the overview of challenges within ESO's Case for Change, we have summarised the connections issue as being a combination of three contributing factors:

There is (1) an unconstrained market for connection applications, combined with (2) a lack of contractual obligations on developers to progress to connect, subsequently driving (3) a need to build more 'sockets' (connection points) than would be required, under even the most ambitious credible energy scenarios – all causing delays for customers that want to connect.

Within our characterisation of the issue, we believe that factors (1) and (2) are largely set out by the contractual agreement held between the customer and the ESO and offered as part of the connections process. We therefore welcome the ESO's efforts to lead the reform of the connections process. We believe a well-designed connections process, applied in the correct way, and complimentary of wider reform could have a significant impact on the issues currently being faced on connections.

Reforming the connections process is not a simple task as there is an existing process and contracted background that need to be considered in the design and implementation of a new process. Whilst bold change is needed to deliver Net Zero, there is a balance to be had with retaining investor interest in the market and rights for developers.

There is an agreement throughout industry that reform of the connections arrangements is a top priority and that changes should be implemented with urgency. We believe that the scope of reform

[1] ESO Case for Change report https://www.nationalgrideso.com/document/273021/download

is wider than just the connections process and that if designed in the right way, the connections process can effectively enable wider change.

As transmission owner, we need to provide three key things to customers to enable their connection to and use of our network.

1) Information – to enable customers to make decisions regarding when and where to connect
2) Connections – providing the capacity and physical assets to enable their connection
3) A reliable power system – giving them confidence in their operations and use of the network

The current connections arrangements provide for the design of the network, i.e. the capacity and physical assets to enable a customer's connection, to be based on individual customer requirements as outlined within their connection application. Paired with the significant volume of contracted connections, this drives an unrealistic view of required sockets, far more than is expected to be required to meet future demand and Net Zero targets.

As well as reform of the connections process, there is also an urgent need to address the process for determining timely network and substation design and delivery, and the regulatory price control framework that supports it.

De-coupling network design from individual customer applications is vital to deliver a future connection ready network. This network could be informed through information from initiatives such as Holistic Network Design (HND) follow-up and the Centralised Strategic Network Plan (CSNP) and would enable us to engage with the supply chain earlier whilst driving efficiencies through planned outages and build strategies. This would equally deliver accelerated connection dates for contracted customers, enabling a faster transition to Net Zero. In time this would result in better information provided to customers to inform their investment decisions and provide opportunities for connections via strategic capacity hubs.

In summary, we believe reform needs to deliver:

- **A connections process that has an appropriate level of entry requirements and contractual obligations** to effectively progress credible developments to connect in timescales that align to their needs. This would move away from a first-come-first-served process and towards a first-ready-first-connected approach, supported by a 'connect or move' policy.
- **Means by which network design can be de-coupled from the connections process, enabling strategic decisions about where to create capacity and provide for customer connections**. This would create a 'connection ready' network, that provides information to customers for investment decisions and reduces connection timescales through earlier engagement with the supply chain, and efficiencies through outage planning and build. This would need to be supported by an efficient connections process and a regulatory regime to ensure appropriate funding.

Whilst there are component parts of TMO 4 that have clear benefits, there are material concerns that still require addressing in its design.

We also detail within Part 2 of this response, our views that TMO 4 is further evaluated to ensure it effectively enables reform at the required pace. Whilst we are supportive of some component parts of TMO 4 we ultimately have material concerns on its overall ability to deliver the benefits that the ESO have outlined within its consultation document.

Central to these concerns are how the model interacts with a substantial contracted background that exists today. It is our understanding that the model is forward looking and therefore will only evaluate the design of the network for future applications within the proposed window. If this is the case, it will have no benefit in the network design decisions that are already established for the contracted background.

To bring this to life, today in England & Wales, we are working against a background of over 700 customer contracts, comprising a total of 269GW of generation alone, significantly more than what is required under any energy scenario to achieve net zero and deliver wider support to Europe through interconnectors. We therefore believe that in most areas across England & Wales the design of the network is already identified, it will only be in specific local situations where this could be subject to change. The more pressing issue is to enable an outcome where connection ready projects are prioritised against this already proposed network design which has already been considered.

To summarise, we believe that further development is required on the ESO's recommended TMO 4 for it to be clear it can deliver the associated benefits in the timescales that are envisaged.

We do not underestimate the challenges of implementing a new process against an existing contracted background. We are supportive of the industry efforts to deliver accelerated connections through the ESO's 5-point plan and the ENA's 3-point plan and believe this will have a positive impact on connection dates for contracted customers. However more may be needed to either (a) reduce the pipeline of connections to a more balanced view of what the energy scenarios suggest will connect, or (b) apply the elements of the new process, including Queue Management to the contracted background to ensure fair and equal treatment of all future connections. We would welcome the opportunity to work collaboratively with the ESO and industry to further develop the implementation approach needed to have the desired impact of a successful reform.

Part 1 – NGET ambition for Connection Reform

The connection arrangements and resulting oversubscription of contracts are causing delays in customer connections

We hear frequently from our customers, both directly and within the media, that timescales to connect to the transmission network are too long, and for many customers this impacts the viability of their future developments The first-come-first-served nature of transmission connections incentivises customers to secure their place in the pipeline of connections regardless of the maturity of their project, and this has also impacted the ability for distribution generation customers to connect. This drives a significant volume of connection applications to apply in timescales earlier than would normally be expected, leading to long connection timescales. Whilst the current rules have served the industry well, they are today no longer effective in delivering connections in a timely manner. The difference between customers' expectations and connection dates offered is growing and needs to be urgently addressed as will impact the UK's ability to meet Net Zero and undermine investment in the energy market.

A factor contributing to the lengthy connection timescales being offered to customers is the volume of customers contracted to connect, i.e. the more customers that are contracted, the longer it will take to connect them. There are a number of reasons why this is the case, but it is mainly due to the fact these connections and enabling works are taking place on a live network for which NGET, as TO for England and Wales, has a responsibility to provide security of supply to almost 60 million consumers.

Today, we are working against a background of 269GW of contracted generation and demand developments. This is almost four times the amount of what will be required to meet Net Zero targets and the most ambitious Future Energy Scenario as seen in **fig.1** below.

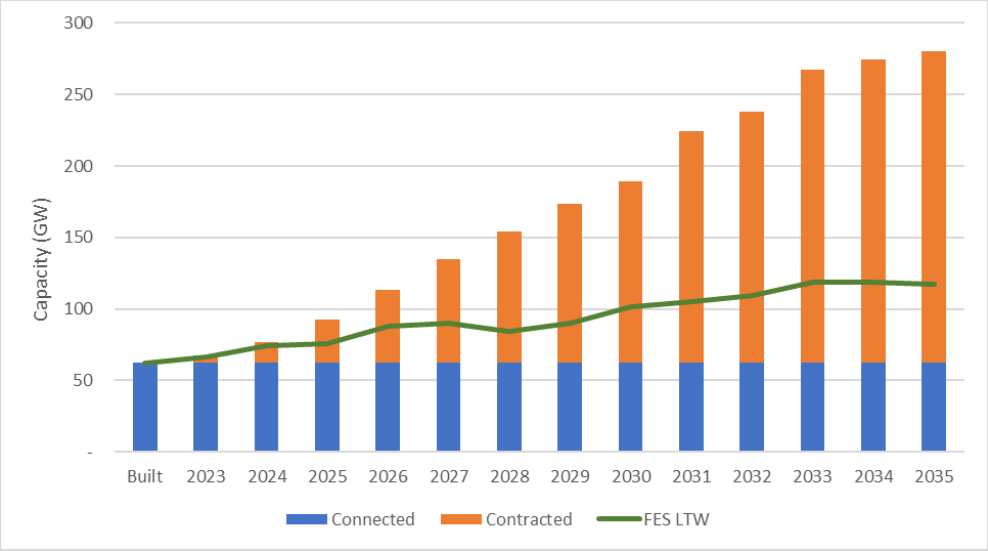

Fig.1 Connected and contracted capacity against the 'Leading the way' Future Energy Scenario within the ESO's FES 2023

We have seen a significant growth in the contracted background over the past few years. Within two years, the pipeline of connections has doubled, and in the past three months alone, it has grown by 40%. This creates a reality that more developments get contracted than is possible to connect in the same timeframe, therefore the background continues to grow. If the growth rate remains the same, we can expect the pipeline to double again in volume within the next year.

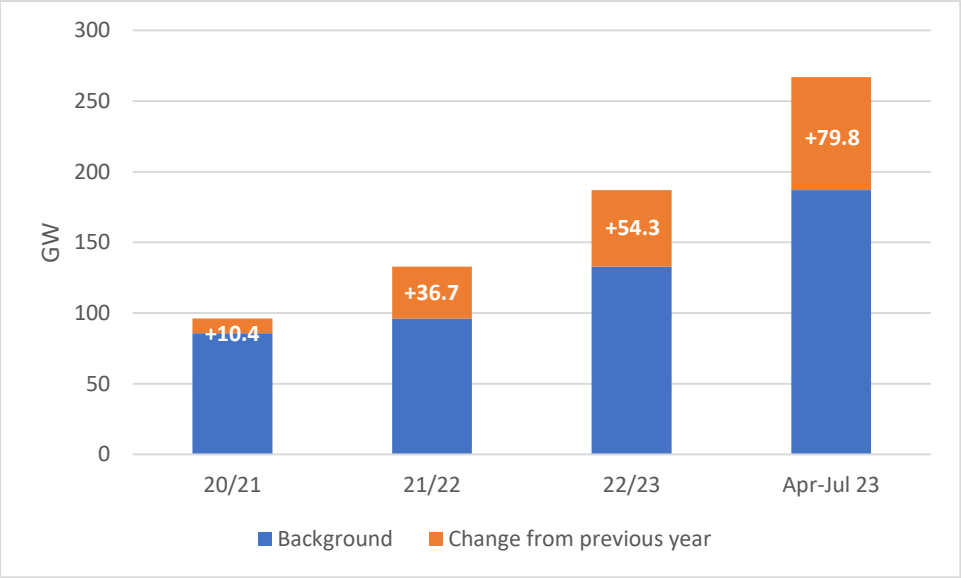

Fig.2 Annual growth of the NGET pipeline of contracted customers

With this representing significantly more than we will ever need to connect under any credible future energy scenario and to support wider interconnector needs, it causes a great deal of uncertainty. For example, this volume of work triggers the need for more than 50 new substations to be built, which we know is unnecessary and would be inefficient and irresponsible to build.

There are three key components driving the situation we are currently facing

Over recent years, we have witnessed significant and rapid change in the energy landscape, in the type and volume of developments wanting to connect to the transmission network. This industry change has come with challenges, which the ESO summarise as follows in their Case for Change[2] report:

- *Increasing application volumes and related increase to the timescales for connection*
- *Many new types of connection customer*
- *Significant changes to the mix of technologies*
- *Greater interaction between Transmission and Distribution networks*
- *Greater complexity and uncertainty over network investment planning*
- *An urgent need for a holistic, whole systems approach to planning network investment*

Despite this, the connections process has remained, for the most part, the same since it was introduced.

[2] ESO Case for Change report https://www.nationalgrideso.com/document/273021/download

The connections problem is complex, and we feel it is helpful to break it down into three key components.

The Market (directed by policy)

An open market for generation and demand driven by a first-come, first-served process. This drives behaviour for developers to apply simply to secure their place in the pipeline as in many cases the connection is the longest lead time component.

The Contract (governed by the process)

The connection agreement is captured within a contract, currently lacking required, consistent obligations for developers to demonstrate progress and ability for capacity to be re-allocated accordingly to avoid connections being delayed by non-progressing projects.

The Physical Works (the products provided to facilitate a connection)

A physical connection 'socket' to connect a customer (e.g., a substation bay) and potentially increasing the size or number of 'wires' (overhead lines or cables) may be needed to support the required capacity. Existing arrangements result in inefficient allocation of works as they are linked to specific capacity requirements of contracted customers and 'reserves' capacity for customers, potentially blocking access for others.

There is a relationship and therefore balance required between the **market** and **contract**. The contract (including the process for a connection) needs to be appropriate for the way in which the market behaves and meets the needs of those wanting to connect. Currently, customers are applying in volume, regardless of maturity of project, simply to be allocated capacity and cover off the risk of not being in the contracted background.

The **physical works** are driven by both the number of projects and their requested capacity. Currently, with the background of 269GW contracted to connect, this is driving the need for over 50 new transmission substations, with a footprint of the size of 2-4 football pitches and a cost of approximately £5bn for consumers. When we consider what is required to meet targets, then we need a much lower number of new substations, potentially only 15-20. Crucially, some of these substations would also be required later in the net zero journey.

We agree with the ESO's conclusion that *'the current process is not likely to enable the connection of the necessary volume of renewable generation and other associated technologies quickly or efficiently enough – both from the perspective of project developers and in terms of securing best value for consumers and meeting Net Zero targets*.'

In recognition of the three components of the connections issue, we believe that the ESO's proposal to reform the connections process will have a limited impact. Action is also required to address the Market and Physical Works and the new process needs to act as an enabler to deliver successful reform across all elements. Within the next paragraph we detail how we the connections process can enable the changes we propose on the physical works to facilitate a customer's connection.

Why is a reform of the connection arrangements necessary?

Our ambition for transmission connections is to ensure the effective and efficient connection of low-carbon technologies at pace to meet our net zero ambition. When the connections arrangements were implemented, they were designed to facilitate the connection of a small number of large-scale centralised generation projects to the network. Connection timescales aligned for these types of projects, and the low volumes meant that the process could also cater for bespoke connection offering to be delivered efficiently, resulting in a reasonable confidence of progression and build. This is a stark difference to the situation today where a large volume of smaller scale projects, which can build relatively quickly are seeking connection. We also have large connections that require a whole new network to accommodate their MW. This creates a need for the process to align with changing customer needs, the pace needed to connect to the network and the commercial risk and business models that exist today.

To help deliver our ambition, we need to create a 'connection ready' network where sockets are available for customers to connect. This would remove the transmission physical works from lead times for customer connections, allowing customers to connect in timescales that align with their needs. This would enable earlier engagement with the supply chain and drive efficiencies through planned outages and build strategies, resulting in faster connections and a more efficient transmission to net zero. In time this would also result in better information provided to customers to inform their investment decisions and provide opportunities for connections via capacity hubs.

In order to deliver a connection ready network, we must:

1. **De-couple network design from customer applications and invest ahead of need**
2. **Create a standardised modular 'plug & play' connections product**

This is our long-term ambition and goal for connections and needs to be paired with a fair and transparent process for connecting customers, which if designed and applied well could make immediate impact whilst the network transitions to our desired state. These changes also need to be reflected in future regulatory regimes so that they effectively enable this approach, we seek to engage further with Ofgem to develop our PC26 proposals and ensure they represent a strategic investment approach for connections.

Actions 1. and 2. Would help deliver efficient delivery and use of available sockets on the network and remove the requirement for the delivery of a number of new substations at this stage of the net zero journey.

For a connections process to have real impact in resolving the issues faced, it must

3. **Create a need for developers to demonstrate viability before entering the connections process**
4. **Move towards a 'connect or move' framework with first-come-first-served only applied if it is appropriate and fair.**
5. **Enable immediate benefit through effective implementation and transition**

Actions 3., 4. and 5. would help send signals to the market to drive rational behaviour in applications and create an effective and fair process for customers to connect.

We have set out below a further description of what each of these requirements should deliver.

1. **De-couple network design from customer applications and invest ahead of need**

Under the current arrangements, when a customer applies, they are allocated capacity (in terms of a 'socket' and expected works to upgrade 'wires'), the detail of which is outlined within their connection offer. These connection offers are specific to a customer and the process is reactive and incremental in nature.

This worked well historically when a low volume of large capacity developments were connecting to the network. Network build times would quite often align to developer build times and there was less complexity and demand on outage management and the supply chain than we experience today with the significant volume of planned connections and additional upgrades required to the network.

To create a connection ready network, we must proactively design the network to deliver our strategic view of what the future generation and demand will look like. This network must be delivered at pace within the timescales required to meet net zero and decarbonisation targets. It is not possible to deliver at pace against a background of over 700 planned connections, all of which are at different stages of maturity and there is uncertainty about their actual ability to connect.

By de-coupling network design from customer applications, we could create capacity ahead of need and strategically place new substations where they make best sense for the market. We could create capacity hubs and provide customers with sight of planned capacity ahead of their applications to inform their investment decisions.

To deliver enhanced efficiency in connections, this should be coupled with a standardised connection product and the ability for capacity to be reallocated to ensure most efficient use of available capacity on the network.

Our existing regulatory framework is suited to a connections approach where network investment is in response to customer action to connect, as we change towards a strategic investment approach for connections, we will seek to amend the regulatory framework within the next price control to effectively enable this approach.

2. **Create a standardised modular 'plug & play' connections product**

To compliment a network that is strategically planned for connections and a flexible 'connect or move' process, we need to deliver future proof connection products for our customers.

The great amount of uncertainty that comes with a large background of contracted connections means that bespoke offerings for customers will be inflexible and most likely drive inefficient outcomes. We want to create a standardised modular 'plug & play' connection for customers, which is beneficial to many customers and enables a process which has flexibility in how capacity is re-allocated.

With investing ahead of need, we would be able to implement this new connection product at new substations and capacity hubs ready for customers, creating a connection ready network.

It is essential that this offering is paired with a fair and transparent connections process that uses queue management tools to drive a 'connect or move' culture, to deliver maximum benefit for consumers.

3. **Create a need for developers to demonstrate viability before entering the connections process**

Within the existing arrangements, there are very low barriers to entry for customers applying to connect to the network. This has resulted in a significant volume of customers contracted to connect given the low regret decision.

A large background of contracted connections can be a real benefit. It drives competition, stimulates investor confidence in the market and provides the basis on which decarbonisation and net zero targets can be achieved. However, it does need a system that can enable the oversubscription to be optimised efficiently.

The challenges around a significant background of contracts comes with the uncertainty of who will connect. There will be projects within the background that do not have land rights, which may be planning a development on the same land as another or may be a duplicate application on the distribution network. If a project is not viable in the first place, we need to prevent it from entering the background of contracted connections. It reserves capacity, creates uncertainty in network design, and given the lack of obligations on developers to progress their projects it can cause delays for other viable developments wanting to connect.

We therefore believe there needs to be demonstration that a project is viable before applying to connect. We have discussed this at length with industry within ESO's design workgroup and feel that the ESO have proposed an effective solution via the requirement for a Letter of Authority and a duplication check on applications within TMO 4.

4. **Move towards a 'connect or move' framework with first-come-first-served only applied if it is appropriate and fair**

As mentioned previously, when a customer applies to connect, they are allocated capacity within their connection offer. This capacity is essentially reserved for that individual regardless of their progress and cannot currently be reallocated to ensure more efficient use of existing sockets and wires.

Given the large background this means that the capacity that has been allocated is far in excess of what is currently 'available' on the network and much more than we believe is required to be delivered to meet net zero and decarbonisation targets.

The challenge comes with the inability to re-allocate capacity to another a customer in the interest of delivering cost efficient connections and driving value for end consumers.

We need to transition to a process which uses queue management tools to require customers to meet development milestones or risk giving up their capacity to be re-allocated to another customer who is ready to connect. If applied successfully, this would ensure that capacity is allocated and re-allocated fairly and will give certainty to those wanting to and able to connect.

To deliver maximum impact, this should be implemented alongside proactive network design and a modular plug & play product that provides flexibility in connections when re-allocating capacity. This will deliver a faster transition to net zero and provide accelerated connection dates for customers.

We believe that the ESO have achieved a 'connect or move' framework that works in their recommended TMO 4. We additionally note that the queue management proposal that is with Ofgem for a decision can go some way with enabling part of this outcome to be achieved.

5. Enable immediate benefit through effective implementation and transition

We do not underestimate the challenges of implementing a new process against an existing contracted background. We are supportive of industry efforts to deliver accelerated connections through the ESO's 5-point plan and the ENA's 3-ponit plan and believe this will have an impact on connection dates for contracted customers.

However, more may be needed to either

(a) Reduce the pipeline of connections to an accurate reflection of what will actually connect, or
(b) Apply the elements of the new arrangements, including Queue Management to the contracted background to ensure fair and equal treatment of all future connections.

We would welcome the opportunity to work collaboratively with the ESO, Government and industry to further develop the implementation approach needed to have the desired impact of a successful reform.

Whilst there is a lot to deliver, NGET and industry are making progress and already seeing an impact

We have been working with industry to support implementation of shorter-term initiatives focused on releasing capacity from the contracted background and accelerate connections for those ready to connect.

These actions are broadly set out across the ESO and the ENA respective 5-point and 3-point plans. Below is a summary of activities in the first phase with which NGET is involved.

Coordination of capacity between Transmission and Distribution

Developing a new methodology for calculating a limit that can optimise the capacity that can connect behind a Grid Supply Point. NGET is working closely with the DNOs through the ENA to determine the new technical approach. We are strongly supportive of this proposed approach replacing the current statement of works process that is too slow and cumbersome with the pace that is required to deliver for net zero.

Treatment of Storage

Our role is at the heart of implementing the policy that the ESO has published for the treatment of Battery Energy Storage Systems (BESS). This new policy delivers a radical step change in how we model the impact of BESS connecting to the system and this will deliver new contractual arrangements for the treatment of BESS

New Construction Planning Assumptions

Applying a new background from the ESO that includes updated modelling assumptions to reflect current connection rates. NGET is actively restudying the contracted background for over 600 contracted customers. We expect to be able to discuss acceleration opportunities with customers during the summer

TEC Amnesty

Throughout the TEC Amnesty window 6.7GW (across 31 projects) have requested to give up capacity through this process. We are working closely with the ESO on how capacity that could be released from this process could be re-allocated for projects to move their connection dates forward.

Our work and focus on these initiatives are currently providing opportunities for over 40GW of capacity to be released by NGET. This will then benefit many customers who will have their connection dates accelerated.

We are also scaling up our operations to deliver 4.5GW of connections every year to 2035, however we need to ensure the background of planned connections is rationalised so that we can efficiently connect the right customers.

Part 2 - NGET assessment of the ESO's proposed connections process

Part 2 of our consultation response details our views on the assessment of the ESO's recommended connection process, Target Model Option (TMO) 4.

We will not be detailing our assessment of TMO 1, 2 or 3 as we believe that they do not align with our ambition for reform and would require complete re-design to gain our support.

We have assessed TMO 4 against our ambition for reform as set out in Part 1 of our response.

Summary of considerations on TMO 4

As well as a vital tool to reform the connections arrangements, the connections process should also act as an enabler for wider reform to take place.

We appreciate there are component parts of TMO 4 which enable a positive step change from the status quo today, and we state our support for these within part 3. We however have material concerns on the ability for this option to deliver the benefits set out within the ESO consultation but believe with further assessment and stress testing TMO 4 could be successful in delivering clear and impactful changes to the connections landscape. Our key concerns can be summarised as follows: -

Relevance of the contracted background – We understand that that the model is forward looking and therefore will only evaluate the design of the network for future applications within the proposed window. If this is the case, it will have no benefit in the network design decisions for the current contracted background which is significantly more extensive than any energy scenario required to achieve net zero. We urge the ESO to work with industry and Government to fully explore all options / powers to either

a. Reduce the pipeline of connections to an accurate reflection of what will actually connect, or
b. Apply the elements of the new arrangements, including Queue Management to the contracted background to ensure fair and equal treatment of all future connections.

By doing so, we could continue to release capacity currently being 'reserved' by non-progressing projects and provide accelerated connections to contracted customers wanting to connect, therefore will benefit both those in the contracted background and new customers applying to connect.

Customer ability for optioneering – We understand the benefit of having an optioneering process within the pre-application stage for customers. However, within a windowed process for applications, it is likely that the background on which the customer offer is based will be significantly different to that that was considering in the optioneering, and therefore would not be helpful for the customer. We suggest that more consideration is given as to what would be helpful to a customer pre-application to inform their investment decision.

Whole System Planning – The interactive nature of system planning across transmission and distribution needs careful and efficiently designed planning. Future connection processes need to deliver solutions that work across both transmission and distribution market arrangements. It is critical that the timing and decision process need to be aligned across these processes to provide confidence to investors. Whilst the design proposals have the potential to deliver against this, there is insufficient detail of how this will work in practice. We welcome further development as to how the process can support investment ahead of need and wider system planning.

Providing certainty between stage gates – The design of TMO 4 values the submission of planning application as a factor to proceed from gate 1 to gate 2. We don't believe this is sufficient to provide

confidence on the projects that are likely to connect, and fundamentally wont filter many projects within that window because the hurdle is low. We believe that approval of planning consent is a more appropriate milestone.

Timeframes of proposed windows – The current design proposal is for a national annual window. Whilst we recognise that there are different considerations for projects, we feel that for many projects this will be a significantly bigger constraint for them to manage. We also recognise the timing of the window will need to complete to align with the projects lead time. An example of this would be an offshore wind farm compared to a small onshore battery project. Both will have very differing timescale needs for how quickly they can connect to the network, and this will be an important factor to take into consideration with the design of the timing of the windows. We therefore would suggest consideration of more regular windows, with shorter timescales, to help meet the needs of the range of customers seeking a connection. We note however trade-offs will need to be made.

Obligations for customers to progress – We believe the proposed arrangements will apply Queue Management tools from gate 1, which we understand will be based on a backstop date. If this date is far in the future, there may be a long duration of time in which a customer can sit with an offer and not progress their project. We believe that a time limit could be introduced within the process to require a customer to progress to Gate 2 or give up their capacity. This would prevent any blockers for the subsequent round of applications resulting in longer backstop dates for new customers.

Proposed implementation - As the connections arrangements are captured within industry codes, there is a structured process for the changes required to the detail that sits within the codes. The ESO anticipates that there will be a series of licence changes and code changes (which are usually subject to industry development and challenge and permit alternative proposal to be raised) with required changes to IT, data and processes, people and training to take place along the same timescales. Our understanding is for the ESO's desire for this process to be completed by 2025/2026.

We understand that the ESO also plans to explore other routes for implementation over e.g. whether there is potential for a Significant Code Review, whether Energy Code Reform could be utilised, or seek Secretary of State powers to direct changes to the codes. ESO is also considering whether some changes could be implemented ahead of others.

We agree with the urgency in making changes to the connections arrangements to have the impact required to deliver faster connections for customers and deliver on net-zero. We therefore consider that the standard route for code and licence change is not an appropriate route to make changes to the connection arrangements. We believe that the ESO have ran a robust industry development and consultation process in developing their proposal for a new connections process and that this should be taken into account. We urge Ofgem to work with the ESO to aid in the accelerated delivery of a new connections process either through a Significant Code Review or other bespoke means.

Proposed transition - We agree with the ESO that bold action is needed to address the size of the existing background. Prior to 'go live' of the new connections process, the ESO plans to continue to improve the outcomes of the connections process as much as possible by continuing to introduce changes within their control under the current frameworks, via the 5-point plan. Depending on the impact of the 5-point plan, ESO will consider whether they can make any further changes to rationalise the contracted background.

We would welcome the opportunity to discuss our assessment and proposed actions further with the ESO to assist in further development of TMO 4 prior to the ESO's final recommendations to Ofgem.

Part 3 – NGET Response to Consultation questions

Consultation question		NGET Response
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?	We agree with the majority of the ESO's views on the foundational design options and key variations. We believe that the ESO and industry have identified a broad range of potential options for a new process. Whilst we agree with the ESO's views around a centrally planned design option, variation 5 details the potential for decoupling connection from capacity. It is important to note that this could be interpreted in different ways, and whilst in the consultation document, the ESO talk about the option for an auction allocating capacity vs connection offer, we believe consideration could also be given to separating connection and capacity. With our ambition to de-couple network design from customer applications, we aim to change the process in which we determine network investment required to connect customers. This is largely due to the volume of connection contracts unlikely to proceed and the potential to speed up connection timescales by implementing this approach. We have considered whether it is best not to allocate 'capacity' to a customer within their connection offer, however, understand how this is not desirable for customers and may undermine their investment case for developments as they would not receive confirmed capacity until later in a process. We believe that capacity can be allocated to customers at connection offer stage if; a) There are arrangements that enable capacity to be de-coupled from network design and investment ahead of customer application b) There are tools to effectively re-allocate capacity to ensure more efficient use of existing sockets
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?	Yes we agree with the ESO recommendations to implement a process that is flexible but continues to work with a market-led approach to customer connections, we believe that material enhancements to the process along with the other key factors we have set out within the response could deliver an efficient solution. This will help to drive innovation and competition in the market and, if implemented successfully, could achieve the goal of speeding up connections for customers. We believe that the approach outlined in TMO 4 could be developed later to work with auctions if this were necessary in the future, but we caution against this more radical solution being the solution currently.
3	Do you agree with our initial view that the reformed connections process should facilitate and enable efficient connection	We believe that if designed and applied well, the new process can have the desired impact to facilitate efficient connections using a similar market-based approach to what exists today. We believe, if possible, a market-based

	Consultation question	NGET Response
	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?	approach should remain, as drives innovation and delivers strong competition in the market. Please see our response to question 7 for our view on what entry requirements drive the right market behaviour.
4	Do you agree with our initial recommendation that TMA A to TMA C should all be progressed, irrespective of the preferred TMO?	We have different views across the respective TMA options, these views are set out below **TMA A** (Access to Self-service tools) – We believe that enhanced information for customers will enable a positive improvement in both the volumes and location where customers will be looking to apply. We also acknowledge this is feedback routinely communicated from customers at this phase of the process. Given the level of information and volume of enquiries we expect, we would propose this to be automated and updated through a digital system to improve the customer experience and enable real time information to be available. **TMA B** (Getting the best out of pre application meetings) – Standardisation of the approach to pre application meetings should be a core objective of the process. In some cases the process will need to flex to accommodate non-routine applications that may require a different approach. We agree for the need for a checklist prior to booking a pre-application meeting to help support this outcome. We are however concerned that the nature of pre-application meetings does not work well with a window approach as proposed under the recommended TMO 4 as there will be a higher level of interaction between projects prior to gate 2 which will be difficult to quantify ahead of the window. This will provide challenges in confirming connection works, anticipated backstop / connection dates and financial security. **TMA C** (Appropriate use of optioneering route) – We recognise in some cases it is helpful for customers to have this level of insight and detail before applying and we support providing customers with information to inform their investment decisions. Today it is difficult to achieve this at this phase of the process as the current first-come-first-served prioritisation means that information is often out of date once it is produced. Additionally, the high degree of interactivity between projects, especially within a meshed network means that there are other factors that impact this decision outside of the specific project in question. It is for these reasons we believe this option will not provide the degree of clarity that customers require.

Consultation question		NGET Response
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?	No, we believe that a focus on ensuring the right data and information is available to customers to help inform their decisions on applying is the most valuable action that can be taken. If customers have access to the right information, we believe this will benefit both decision making and the timing for when customers look to apply. There are also concerns that the administrative burden of customers needing to pay a pre application stage fee may adversely impact the pace of the process and cause additional work for customers, the ESO, and potentially TOs with little or no tangible benefit.
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 sending the right market signals through data and information helps the market make rational and informed decisions in terms of their connection applications. With our ambition to deliver an innovative, modular plug & play connections product in the future, there may be an opportunity to provide a cost for customers applying for an 'off the shelf' offer. If there is a standardised product offering, there is the potential for a digital tool to help calculate expected connection costs for customers (although this will need to be refined as more site-specific information becomes available). Information from an application window (regarding overhead lines and enabling works) would be useful to use to inform applications in the following window.
7	Do you agree with our initial recommendation with regard to TMA D (requirements to apply)?	Yes, we agree with ESO recommendation on TMA D (Requirement to apply). The introduction of a Letter of Authority with duplication check will help to encourage rational behaviour in submitting applications and naturally reduce the volume of applications due to the expected duplication in applications received today. We do not believe that there should be further requirement to apply than that set out in TMA D. The practicalities of conducting a duplication check need to be recognised, as this could be quite challenging for the ESO and would need to consider Distribution applications as well as Transmission to see if duplication arises across networks. It may be that the form of the Letter of Assurance could be developed in such a way to make this task easier for the ESO to administer.

Consultation question		NGET Response
		A requirement for a letter of authority could lend itself to enhancing the key data provided under TMA A, with the use of digital tools to help provide customers with clear signals of where land is available.
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?	We agree with this proposal. We see the determination of enabling works as a separate design issue to the design of the connection process as covered in the respective TMOs. We however stress the importance of the policy in determining enabling works as critical in driving timescales for customers to connect to the network. We also believe that a difference assessment and criteria is required on evaluating this point, given the interactive nature between the scope of enabling works and the cost of constraints.
9	Do you agree with our initial recommendation with regard to TMA F (criteria for accelerating 'priority' projects)?	Yes, we agree with ESO recommendations on this TMA. Projects designated by Government (TMA F1) or those with a significant consumer benefit and/or wider economic societal benefit (TMA F2) should be able to be prioritised or fast-tracked for connection. The reformed process should enable customers to progress on their own merit by meeting milestones via Queue Management (if approved and implemented) We do not recommend that parties should be able to pay for a quicker connection (TMA F4) as would give an unfair advantage to some We do however wish to express the importance of ensuring all progressions and process for progressing customer connections are as fair as possible and are transparent to the market.
10	Do you agree with our initial recommendation with regard to TMA G (queue management)?	Yes - we agree with ESO's preference for the implementation of RQM+. We consider RQM+ to be the fairest application of Queue Management and helps to enable our reform objective 3. Customers can progress on their own merit to timescales that align to their requirements. We believe more consideration is needed to determine whether there is an order of priority capacity should be allocated for those able to progress under TMA F i.e. should a certain volume of capacity be reserved for those projects with high economical / societal benefit.

Consultation question		NGET Response
		For the avoidance of doubt, we do not consider RQM is the same as CMP376. The CUSC amendment deals with creating gaps in queue but is silent on what do with these. Both RMQ and RQM+ are dependent on gaps being created and this underlines the need for some form of CMP376 to be implemented.
11	Do you agree these four TMOs present a reasonable range of options to consider for a reformed connections process?	Yes. Whilst we have discounted TMO 1, 2 and 3 due to them not being close to achieving our ambition for reform, we believe NGESO have outlined a good range of potential options for industry consideration.
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?	We appreciate there are component parts of TMO 4 which enable a positive step change from the status quo today, and we state our support for these within part 3. We however have material concerns on the ability for this option to deliver the benefits set out within the ESO consultation but believe with further assessment and stress testing TMO 4 could be successful in delivering clear and impactful changes to the connections landscape. Our key concerns can be summarised as follows: - **Relevance of the contracted background –** We understand that that the model is forward looking and therefore will only apply to new applications. If this is the case, it will have no benefit in the network design decisions for the current contracted background which is significantly more extensive than any energy scenario required to achieve net zero. We urge the ESO to work with industry and Government to fully explore all options / powers to either a. Reduce the pipeline of connections to an accurate reflection of what will actually connect, or b. Apply the elements of the new arrangements, including Queue Management to the contracted background to ensure fair and equal treatment of all future connections. By doing so, we could continue to release capacity currently being 'reserved' by non-progressing projects and provide accelerated connections to contracted customers wanting to connect, therefore will benefit both those in the contracted background and new customers applying to connect. **Customer ability for optioneering** – We understand the benefit of having an optioneering process within the pre-application stage for customers. However, within a windowed process for applications, it is likely that the background on which the customer offer is based will be significantly different to that that was considering in the optioneering, and therefore would not be helpful for the customer. We suggest that more consideration is given as to what would be helpful to a customer pre-application to inform their investment decision. **Whole System Planning –** The interactive nature of system planning across transmission and distribution needs careful and efficiently designed planning. Future connection processes need to deliver solutions that work across both

Consultation question		NGET Response
		transmission and distribution market arrangements. It is critical that the timing and decision process need to be aligned across these processes to provide confidence to investors. Whilst the design proposals have the potential to deliver against this, there is insufficient detail of how this will work in practice. We welcome further development as to how the process can support investment ahead of need and wider system planning. **Providing certainty between stage gates –** The design of TMO 4 values the submission of planning application as a factor to proceed from gate 1 to gate 2. We don't believe this is sufficient to provide confidence on the projects that are likely to connect, and fundamentally wont filter any projects within that window. We believe that approval of planning consent is a more appropriate milestone. **Timeframes of proposed windows –** The current design proposal is for a national annual window. Whilst we recognise that there are different considerations for projects, we feel that for many projects this will be a significantly bigger constraint for them to manage. We also recognise the timing of the window will need to complete to coordinate with the projects lead time. An example of this would be an offshore wind farm vs a small onshore battery. Both will have very differing timescale needs for how quickly they can connect to the network, and this will be an important factor to take into consideration with the design of the timing of the windows. **Obligations for customers to progress** – We believe the proposed arrangements will apply Queue Management tools from gate 1, which we understand will be based on a backstop date. If this date is quite far out, there may be a long duration of time in which a customer can sit with an offer and not progress their project. We believe that a time limit could be introduced within the process to require a customer to progress to Gate 2 within a certain amount of time or give up their capacity. This would prevent any blockers for the subsequent round of applications. **Proposed implementation -** As the connections arrangements are captured within industry codes, there is a structured process for the changes required to the detail that sits within the codes. The ESO anticipates that there will be a series of licence changes and code changes (which are usually subject to industry development, challenge and proposed alternatives) with required changes to IT, data and processes, people and training to take place along the same timescales. Our understanding is for the ESO's desire for this process to be could be completed by 2025/2026.

Consultation question		NGET Response
		We understand that the ESO also plans to explore other routes for implementation over e.g. whether there is potential for a Significant Code Review, whether Energy Code Reform could be utilised or seek Secretary of State powers to direct changes to the codes. ESO is also considering whether some changes could be implemented ahead of others. **Proposed transition -** We agree with the ESO that bold action is needed to address the size of the existing background. Prior to 'go live' of the new connections process, the ESO plans to continue to improve the outcomes of the connections process as much as possible by continuing to introduce changes within their control under the current frameworks, via the 5-point plan. Depending on the impact of the 5-point plan, ESO will consider whether they can make any further changes to rationalise the contracted background.
13	Are there any important TMOs we have missed?	No, we agree that the presented options represent a realistic range of options that improve on the baseline. We recognise that other options were discussed as part of the development process and appreciate the range of expertise on these groups to develop a range of options that help meet stakeholder needs.
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?	Yes, we consider 'submit consent' too early and too weak a milestone to justify progression through Gate 2 (where transmission works are confirmed, and a specific connection date specified). We don't expect any filtering to occur based on this criterion since historical data supports the position that submitting planning consents does not equate to a project being credible and that they will progress to connect. This will not act as a filter to provide confidence on credible projects, which we believe is the purpose of the gate 2 and is critical to ensuring the network investments being planned are the right ones. Submission of consent does not indicate that a customer has a high likelihood of connecting, and with the incentive to be designated as a priority project and get a specific, firm connection gate at Gate 2, there will likely be a race to submit consent following Gate 1. With the high volume of customers expecting to progress past Gate 2, you would expect higher administrative requirement in implementing Queue Management obligations and higher likelihood of having to terminate projects and re-allocate capacity. The impact of this dynamic on consenting bodies also needs to be understood, as could result in long project delays at this stage that would otherwise not have been the case. Whilst Queue Management should be effective at reallocating capacity, that would otherwise be reserved for long periods of time by non-progressing projects, ideally the process works in a way that termination of non-progressing projects is a last resort.

Consultation question		NGET Response
15	Do you agree that TMO4 should be the preferred TMO?	Yes - out of the four options presented, TMO4 is NGET's preferred TMO. We do however believe further amendment to its design are required for it to be successful. Please see our response to Q12 and Section 2 of this response for the changes we propose are made.
16	Do you agree with our design criteria assessment of the four TMOs? If not, what would you change any why?	Whilst we recognise there are component parts of TMO 4 which could be beneficial depending on the scope of implementation. We however conclude that TMO 4 does not meet the design objectives as successfully as outlined by the assessment of options. There are a couple of examples of this we have outlined below: - **Creates a more coordinated and efficient transmission system and network design** In order to **1. 'Better inform when and where to connect'**, the new process improves provision of data for customers in the pre-application stage. However, the usefulness of that data is dependent on the status of available capacity. We need to de-couple network design from customer applications and invest ahead of need to be 'connection ready' for customers. In time, we could be in a position to provide a view of available / expected capacity on the network to inform application decisions. This will not be achieved through changing the process alone. The process needs to be designed in a way in which network design is not based on the information being provided by customer applications. Design criteria **3. 'Delivers more efficient use of network capacity'** is not achieved through TMO 4 because network capacity is allocated to a customer at Gate 1, and at that stage projects are still speculative and subject to planning. We also see no real filter being applied between Gate 1 and Gate 2 since submitting planning consents does not equate to a project being credible and that they will progress to connect. We believe that this will lead to a position where 100% of customers who applied in that window will proceed to Gate 2. There will however undoubtedly be a level of attrition on who will connect based on the planning process and commercial decisions projects will make. TMO 4 as an option has no real unique attributes to deal with this over and above the existing framework today. Design criteria **14. 'Enables parties to plan and act more efficiently'** is achieved to some extent, however the information that customers want to inform their investment decisions is unlikely to be provided. By creating a 'connection ready' network, within time we could give an idea to customers where capacity will be available to help inform decisions and drive more rational market behaviour.

Consultation question		NGET Response
		Design criteria 21. 'Reduces overall costs to end consumers', again to some extent this may be achieved through efficiencies proposed. However, in the current cost crisis being faced by consumers there is a need to drive the most efficient delivery of connections that we can achieve, and we believe this will mostly be achieved by investing ahead of need to facilitate faster connections, which will be facilitated through TMO 4 and queue management tools. We also do not believe TMO 4 meets the following objectives 5 Reduces risk of wasted effort 6 Parties able to engage to identify best option(s) 23 environmental and community impacts are avoided, minimised, or mitigated by the network design
17	What are your views on the stated benefits and key challenges in relation to TMO4?	We believe that the benefits outlined within the consultation document are difficult to validate at this stage. This is due to the anticipated implementation of TMO 4 as a forward-looking process i.e. it only applies to new applications. If this is the case, then considerable enabling works have been identified for customers already in the contracted background. A forward-looking process that only applies to new applications will lead to network designs over and above what has already been contracted and required (as it is for an additional volume of connections). On this basis we do not believe that the current design of the proposed model can deliver the savings for consumers which the HND process (for offshore connections) has achieved. Furthermore, without existing customers having the same rules applied to them, opportunities that may exist to allocate capacity (and therefore contracted work) differently according to the progression through Gate 2, cannot be taken.
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?	Yes, we propose changes to the design of TMO 4 so that it better enables the wider reform required to deliver net zero. We do not believe that TMO 1, 2 or 3 are however better than TMO4. Whilst TMO 4 is the best option presented by NGESO, we consider there to be key changes required for it to be successful in enabling the wider reform that is required. Please see our response to Q12 for the changes we propose are made to TMO 4.

Consultation question		NGET Response
19	Do you agree with our views on DNO Demand in respect of the TMOs	We believe that TMO 4 is appropriate to be applied to DNO Demand, however does not remove some of the blockers demand customers experience today in terms of their connections (such as the applicability of Connect & Manage). We believe that the DNO is best placed to manage their own connections through a process that works for distribution customers. This can be supported by the TOs and ESO by allocating DNOs a capacity threshold to manage their connections within, without having to trigger a transmission network impact assessment.
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?	We believe that all DNOs should be incentivised to accurately forecast demand growth across their system in accordance with the Grid Code Planning Code obligations. However, the demand forecast should account for demand growth across a large number of customer bases such that they avoid the need for applications to the TO.
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 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)?	Yes, we agree with the position outlined in TMO 4. (I) This process has been happening successfully using the Appendix G Project Progression process. DNOs should be encouraged to submit, in a timely and accurate fashion, bulk applications to the ESO on behalf of embedded small and medium power stations whilst continuing to make offers in the background. (ii) Resultant offers should be on a firm basis, but non-firm/acceleration should be explored in parallel.
22	Do you agree that directly connected demand should be included within TMO4 and that the benefits and challenges are	Yes, it is important that growth in the demand sector is a key consideration for design of the new connections process and to enable parity between the treatment of different technologies within the connection process.

Consultation question		NGET Response
	broadly similar as for directly connected generation?	Demand connections provide different implications for the network so there is a benefit for them both to be included in the background being assessed as part of Gate 1 in TMO 4 as we will have a better understanding of capacity requirements. We also believe that the principles under TMA F in regard to determining priority projects for progression should also apply to directly connected demand.
23	Do you agree that TMO1 to TMO3 would require a separate offshore process, and that this would result in material disbenefits?	Yes, we do not believe that TMO 1, 2 or 3 should be considered for implementation.
24	Do you agree that TMO4 is the most aligned to the direction of travel for offshore projects? If not, why?	We do agree, however there are differences to recognise. TMO 4 has some similar characteristics to HND, but the design of TMO 4 needs to recognise how it would interact with the relevant HND processes. There are also differences to recognise, with HND being delivered against a known background (i.e., clarity on lease arrangements and location / sizing of projects) whereas TMO 4 is developing a network on an unknown view of what is coming forward to apply for a connection. This means that the design of TMO 4 needs to cater for additional uncertainties and risks over and above the current HND process today.
25	Other than the Letter of Authority differences are there any other TMAs which have specific offshore considerations?	We don't believe there are any that have any further offshore considerations at this stage.
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?	We believe there are two distinct dimensions to this question: (1) how the proposed models work where there are *existing* CATOs and OFTOs; and (2) whether any of the models better facilitate appointing *new* CATOs and OFTOs. In respect of (1) we believe the processes should apply consistently to all TOs, either as a lead or affected TO. Without this, customers may be treated differently, or network issues might not be addressed wholistically, simply because of how the network owner was appointed. In respect of (2) we cannot form a complete view at this time based on the information presented and the different forms of competition that are envisaged. We understand that the CSNP is the key enduring process that enables network competition by identifying the load related network requirements and then running a CBA to see where

Consultation question		NGET Response
		there is benefit in network competition. Whilst the consultation notes there needs to be "strong links" between the CSNP and connections process, no detail has been provided on how this will be achieved. How the target models support or hinder different forms of competition is likely to be affected by other factors than just the amount of design time there is at an early stage. For example, it is not clear how an early competition model would work during a bulk assessment phase of interacting applications and how non-network solutions would be considered at the same time. Alternatively, were a late competition model to be used, we need to better understand how the process and timeline to compete work would work alongside a gated connections process.
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?	Yes, we agree with the recommendations outlined in the TMAs.
28	Do you agree with our current views in respect of the implementation period?	We agree with NGESO view that the case for reform is so strong and immediate that the industry governance processes need to be streamlined to deliver reform as quickly as possible to deliver material benefits for customers and consumers. We agree that there could be a transitional process for implementation where some elements of the recommendation could be implemented ahead of the reformed process going live. We do not consider the option for making changes via the standard open governance process appropriate or possible for a relatively complex number of changes where coordination is required. The current open governance timescales provide concerns on pace and given the complex topic and process design aspects, as outlined within this consultation, it will not achieve the desired impact in the time required. We encourage NGESO to explore other options such as a Significant Code Review to implement changes needed to the connections process. As detailed within Part 2 of our response, whilst we are supportive of component parts of TMO 4 but believe that further design changes are required for it to have a meaningful impact. Currently it is not going to have the desired impact due to the extent of the contracted background.

Consultation question		NGET Response
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 agree there is a need for transitional arrangements to move from existing to future connections processes, especially given the volume of change and existing background. We agree with NGESO that radical action is needed against the contracted background, however at this stage we believe this to be more than is currently in progress through the ESO 5-point plan and the potential implementation of queue management.
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?	We outline our asks of Government and/or Ofgem within Parts 1 and 2 of our response but in summary: 1. The market needs clear signals for investment which can be provided through policy and/or regulation to drive an energy mix that aligns to long term UK energy strategy. We believe that Government and/or Ofgem are in a position where they can influence market behaviour and investment decisions. 2. We urge Government and Ofgem to recognise the need for wider reform that encapsulates the need for strategic investment ahead of connection application; that can be enabled through appropriate regulatory price control mechanisms. 3. We encourage Ofgem and Government to support action to address the existing pipeline of contracted connections to ensure impact of connections reform as soon as possible. This could be through enabling application of a new connections process and / or queue management principles to be applied to existing contracts, or other more targeted action.

Section 3: National Grid Electricity Distribution Response

Within this response, we detail NGED's position regarding the ESO's Connections Reform consultation, providing feedback on the proposals and how we expect these to be most effective in addressing the main challenges.

We agree with the ESO's summary of the landscape to date within their Case for Change report for generation connections. From a NGED perspective, our generation connections pipeline has increased significantly over the past few years and currently sits at 37GW. Our Distribution Future Energy Scenarios forecast 37GW will be installed by 2040-2045, depending on net zero compliant scenario, demonstrating the market-led pipeline of connections applications to far exceed the expected range of net zero compliant scenarios.

However, it is important to note that demand connections hugely outnumber the volume of generation connections applied for, accepted and energised across the distribution system. The processes Distribution Network Operators (DNOs) undertake to provide annual visibility of the anticipated pipeline and transmission impact of demand connections remains largely fit for purpose and recognises that within an electricity system increasing in complexity, a greater level of decentralisation of the decision making can facilitate progress when the volumes of activity necessitate this.

The decentralisation of the energisation process for demand enables the transmission system to be assessed based on the DNO's qualified forecast of the net impact of the connections activity, rather than it being based on an assessment of the gross installed capacity. We believe **this autonomy at a distribution level is important** in ensuring the volume of connections activity forecast within our networks is decoupled from the overarching development required on the transmission system to enable net zero. This autonomy allows for industry to manage the connections pipeline to prevent unnecessary delays than would otherwise be the case.

This autonomy has precedent. To expedite the connections processes in line with the customer volumes being actioned, the transmission-distribution boundary assessment processes have been developed through a number of iterations. Initially, the Statement of Works processes have been augmented, from an initial position of individual assessment; this was developed into the "Appendix G" process, which introduced the ability for DNOs to enable bulk assessment of embedded generators. This was then further taken forward in some of NGED's areas through a Regional Development Programme to allow energisation of embedded generation in advance of enabling transmission works.

We see the proposals outlined within the ESO's Connections Reform consultation pertaining to the transmission distribution boundary as being a further leap forward in expediting the connections process for embedded customers, compared to the status quo position.

We also see great potential for further acceleration of these reforms through the ongoing work under the ENA's SCG. The ENA's three-point plan has a significant volume of work addressing improvements in the T-D boundary and we see the implementation of technical limits under the SCG's initiatives as being a precursor to the TMA explored within this consultation as RDC.

Consultation question		NGED Response
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?	No. We believe all three foundation options should be taken forward and greater ambition from the ESO in moving towards the capabilities of the FSO is needed given the scale of the challenge. We believe the ESO should be taking a firmer position on what generation capability should be developed by the market. We believe this could include signposting of the quotas of developments across regions of the UK, should that development not facilitate an economic net zero pathway. For the variations considered, we agree with the ESO's position.
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?	Yes. The current pipeline for generation far exceeds the short term requirements and the market is over-delivering in response to insufficient information about system needs. The ESO should look to address this by a combination of measures, many of which are discussed in this consultation.
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?	We agree that locational signals are clearly needed, but the ESO should not sit agnostic on the blend of these levers. The connections reform process should take a definitive stance following comprehensive stakeholder and industry engagement on the efficient mixture and calibrated combination of these approaches.
4	Do you agree with our initial recommendation that TMA A to TMA C should all be progressed, irrespective of the preferred TMO?	Yes, self-service data, pre-application meetings and optioneering are all options that are available to distribution customers already and have proven to be effective stages in the application process. TMA A to TMA C should all be progressed as part of any preferred TMO.
5	Do you agree with our initial recommendation on the introduction of a nominal Pre-Application Stage fee, discounted from the application fee for	No. Connections surgeries aren't chargeable at a Distribution level, yet the volumes of potential connections are much larger. Feasibility study costs are applicable however and we agree with the ESO's proposal that a formal Feasibility Study via the optioneering route should be chargeable. Where early stage fees are applicable, discounting them from any potential future charges seems a fair approach.

Consultation question		NGED Response
	customers which go on to submit an application within a reasonable time period?	
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.	The LTDS reforms at a Distribution level have recently concluded and the specifically identified data items are also largely applicable at a Transmission level. Consideration should be given for the potential alignment against the data items recommended by the LTDS reforms. We agree that granular capacity information for the connected and future position is a key dataset that customers will require. We acknowledge the challenge of providing queue position due to the milestone and the interactivity of enabling works, but strongly believe that providing this information would benefit customers any enable them to make more informed decisions.
7	Do you agree with our initial recommendation with regard to TMA D (requirements to apply)?	Yes. They should be progressed as are they are well aligned to requirements at Distribution. These changes will reduce the number of speculative applications that can saturate the connection queue.
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?	These measures have already been taken forward with a fair level of maturity across the system and their benefits are unambiguous. These all seem reasonable and it is reasonable that an impact assessment could be taken forward now to propose ways of immediately leveraging these benefits. We recognise there may be a question around timing for taking forward these changes and do not see the need for connections reform and TMA E to be taken forward together.
9	Do you agree with our initial recommendation with regard to TMA F (criteria for accelerating 'priority' projects)?	Yes. In the longer term it is reasonable that the FSO should be able to recommend TMA F1 projects or adjudicate TMA F2 & F3 projects. We think accelerating these FSO powers on these should be explored ahead of capacity based auctions.
10	Do you agree with our initial recommendation with regard to TMA G (queue management)?	It is currently unclear how RQM+ would enable benefits for distribution connected customers and we are concerned that an implementation of RQM+ which didn't consider distribution connected projects which are higher priority could be discriminatory. We would expect the process of accelerating priority projects would be accessible for distribution-connected projects and use objective criteria which could be equitably satisfied by distribution projects. If this cannot be done, then RQM would be the preference as acceptance date order prioritisation is evident. CMP 376 could be used to inform thinking, but would need further evolving.

Consultation question		NGED Response
		We agree PQM is problematic and needs further work ahead of exploration.
11	Do you agree these four TMOs present a reasonable range of options to consider for a reformed connections process?	Yes, we agree that the four TMOs present a reasonable range of options for consideration when considered with the Reserved Developer Capacity approach for DNOs to secure capacity for fast moving small scale connections.
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?	12 months for TMO4 gate 1 process time seems very long for distribution customers. We need to be confident that the RDC is designed in such a way that facilitates the expected pipeline and volume of distribution connections, recognising their smaller scale, agility and shorter project timescales.
13	Are there any important TMOs we have missed?	No further suggestions
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?	"Submit Consent" is an easily reachable milestone and consideration should be given to be going further in terms of actually achieving consent, such as "Consent Granted".
15	Do you agree that TMO4 should be the preferred TMO?	Out of all the TMO options, we agree that TMO4 is the preferred TMO. But this must include the concept of RDC, aligned to a design process agreed by DNOs, to best enable distribution connections.
16	Do you agree with our design criteria assessment of the four TMOs? If not, what would you change any why?	No further suggestions
17	What are your views on the stated benefits and key challenges in relation to TMO4?	We would agree with the potential stated benefits and the key challenges. Specifically highlighting the need to consider how fast moving distribution connections are able to progress through the Reserved Developer Capacity (RDC) mechanism proposed.
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	No

Consultation question		NGED Response
	one of the four TMOs we have presented?	
19	Do you agree with our views on DNO Demand in respect of the TMOs	Yes, we agree that DNO demand outside of the forecasts of week 24/B07 should form part of the TMO4, where the impact is deemed significant by the DNO. We believe the current timescales on week 24 (likely to be replaced with the GC0139 change proposal) timescales are too drawn out for the pace of change we are seeing and reports on demand compliance need to happen in a more timely manner. It does make sense that the application window is shortly after the B07 responses, giving sufficient time for DNOs to assess whether an application for additional transmission capacity is required.
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?	There are significant synergies with the T-D boundary work currently being advanced through the SCG, which we think should be explored. We recommend retaining the Appendix G mark 2 as per the SCG work, but Project Progressions should move to a standardised annual process or data exchange to align to TMO4, which would include an RDC forecast as part of the DFES or connections pipeline assurance processes. This may include some benchmarking/assessment processes to align forecasting accuracy and inform future confidence or attrition rates.
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 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)?	Yes, it is critical that DNOs be enabled to provide firm capacity and energisation of embedded generation within windows. DNOs should request RDC based on an agreed assessment process, related to the application windows available to transmission customers. As per the work being progressed under ENA's SCG within the T-D boundary workstream, technical limits should be given to the DNOs which would allow energisation under a non-firm arrangement prior to Gate 2, but firm access will be agreed under a consistent RQM methodology. Non-firm access for distribution connections would be ubiquitous, and passing Gate 2 would be an appropriate stage-gate to unlock accelerated firm access. Not implementing non-firm access pathways administered by the DNOs risks distribution connections being even further inhibited by timely transmission processes than the status quo.
22	Do you agree that directly connected demand should be included within TMO4	Yes, processes across demand, generation and storage should be as aligned as possible.

Consultation question		NGED Response
	and that the benefits and challenges are broadly similar as for directly connected generation?	
23	Do you agree that TMO1 to TMO3 would require a separate offshore process, and that this would result in material disbenefits?	No comment
24	Do you agree that TMO4 is the most aligned to the direction of travel for offshore projects? If not, why?	No comment
25	Other than the Letter of Authority differences are there any other TMAs which have specific offshore considerations?	No comment
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?	No comment
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?	Yes, we agree with the recommendations proposed.
28	Do you agree with our current views in respect of the implementation period?	We agree with the strong case for change in implementing these reforms. We would urge ESO to consider which items are able to be accelerated to bring immediate benefits. Much quicker reforms, particularly on the distribution side could be enabled through more tactical implementation, similar to the Appendix G trial and the current ENA SCG work which is delivering immediate benefits.

Consultation question		NGED Response
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?	Given the scale of reforms and pace of change needed, every effort should be explored to accelerate activity. The work currently being completed under the ENA's SCG is very aligned to the concept of RDC explored in this consultation and could provide a springboard to enable quicker implementation. NGED would be happy to support design of more nuanced details, such as interactions with queue management, capacity reallocation and treatment of security/liability obligations.
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?	