

Target Model Option 4+ Distribution Customer Guidance Document

DOCUMENT CONTROL

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Distribution

ESO, DNOs, TOs, ENA

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Problem Statement

The current connection offer process has been in place for many years and was designed to enable the connection of fewer, larger generators that were also subject to longer lead-time builds. As the UK transitions towards decarbonisation of multiple sectors of the economy, the current approach will need to evolve.

The current connections process doesn't go far enough to address the needs of distribution customers. The key issues highlighted by customers are:

1. There is a lack of transparency in queue position.
2. The time taken for customers on the distribution network to go through the connection process and receive a connection date is significantly longer than those on the transmission network.
3. There is no flexibility in the process to allow customers who are ready to connect to progress faster.
4. Unrealistic assumptions on customer behaviour such as ignoring ramping of capacity over time prevents earlier connections.

ESO are proposing to move to a new connections' application process in January 2025, where any customers who apply to ESO can only do so during an annual Gate 1 application. The new Distribution Forecasted Transmission Capacity (DFTC) submission process is proposed to integrate with the ESO solution known as TMO4+.

Existing Distribution Connection Process

Figure 1 outlines the basic connection process for distribution customers compared to applications made by transmission customers. As is highlighted, the DNO application process can take in excess of nine months with queue position only being secured once the offer has been clock started.

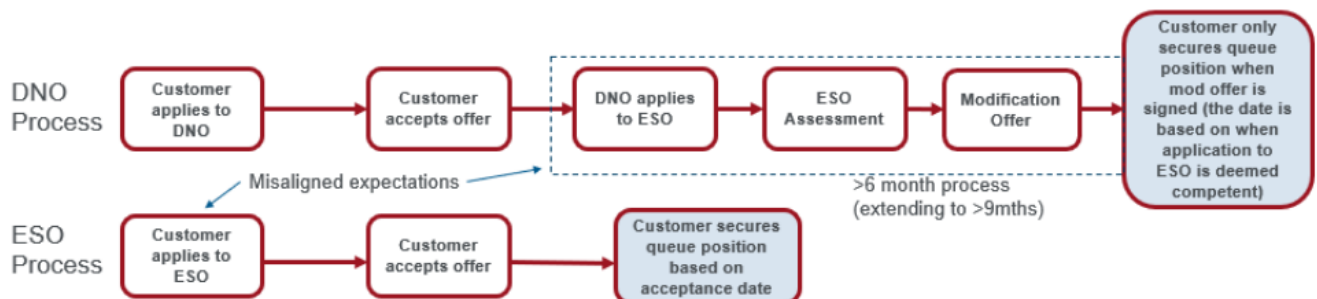


Figure 1: The Current Connections Process for Distribution compared to Transmission

The ESO's Five Point Plan to accelerate connections

The ESO is working with network companies to accelerate connection dates across transmission and distribution in the following areas:

1. TEC Amnesty (window closed in April 2023) – allowing developers to terminate contracts without any or minimal charge.
2. Updating technical modelling assumptions using more reflective Construction Planning Assumptions.
3. Changing how storage projects are treated – allowing faster connection.
4. Development of new contractual terms – deployment of queue management to enable better management of pipeline connections.
5. Development of an interim option for storage projects – allowing projects to connect non-firm and more quickly.

The ESO has published more information on its website¹.

Strategic Connections Group

As with the ESO's five-point plan, the Energy Networks Association is also pushing forward with actions in three key challenge areas. The three areas of focus to help deliver short-term improvements for customers are:

1. **Reforming the distribution network connection queue** – adoption of milestones for projects with offers made prior to 2017 (but are still in the connection queue) with potential to remove them from the queue. Adopting a 'first ready, first connected' approach.
2. **Changing how Transmission and Distribution coordinate connections** – development of DFTC and Technical Limits at Grid Supply Points.
3. **Greater flexibility for storage customers** – the use of flexible capacity (e.g., non-firm offers) to enable faster connection.

Connections Reform

ESO published in December 2023, the Connections Reform Final Recommendations Report². Its overall final recommendation was for the reformed connections process to be based on an early application window (with an indicative frequency and duration of 12 months) and two formal gates. This corresponded with Target Model Option 4 (TMO4), which was the initially recommended connections process model within the ESO's June consultation.

Gate 1 would provide connection offers based on a coordinated network design connection date. Gate 2 would be used to determine queue position for projects within the application window and to accelerate viable and robust priority projects, therefore enabling a 'First Ready, First Connected' approach.

The original recommendation within this report was the introduction of DFTC (formally known as Reserved Developer Capacity/RDC). New Relevant Embedded Small³ and New Relevant Embedded Medium Power Station⁴ projects would not need to wait for the Gate 1 application window as each DNO would reserve firm capacity for these projects, with that reserved capacity incorporated into the network modelling assumptions and methodology which would be used to create the coordinated T&D network design.

This would ensure that queue/capacity allocation was aligned with both transmission connection and large EG, whilst Relevant Embedded Small and Medium Power Station projects did not need to wait for an application window.

Since the ESO started its connections reform programme in October 2022, the transmission connection queue has grown by more than 275GW and has been growing at an average of over 20GW a month for the last 12 months. The distribution connection queue has also continued to grow and, at the current rate of growth, the total connections queue (across transmission and distribution) is likely to exceed 800GW by the end of 2024. This is over four times the installed capacity the ESO anticipate needing by 2050⁵. As a result of further policy development and industry engagement, and building on the foundation of TMO4, the ESO shared their proposal for a reformed queue mechanism applying to the entire Transmission connections queue that would ensure that those projects in the queue are those that are 'connections ready.'

Under the reformed *First Ready, First Connected* 'gated' approach, projects will enter the connections process at 'Gate 1' but will need to reach certain criteria to arrive at 'Gate 2' at which point projects can obtain a queue position and a connection date. At Gate 1, projects would only receive an indicative connection date and

¹ [Connections challenges: what are we doing now? | ESO \(nationalgrideso.com\)](#)

² [download \(nationalgrideso.com\)](#)

³ Small Power Station Grid Code definition (b) Embedded with a User System (or part thereof) where such User System (or part thereof) is connected under normal operating conditions to: (i) NGET's Transmission System and such Power Station has a Registered Capacity of less than 50MW; or (ii) SPT's Transmission System and such Power Station has a Registered Capacity of less than 30MW; or (iii) SHETL's Transmission System and such Power Station has a Registered Capacity of less than 10MW;

⁴ Medium Power Station Grid Code Definition (b) Embedded within a User System (or part thereof) where such User System (or part thereof) is connected under normal operating conditions to NGET's Transmission System and such Power Station has a Registered Capacity of 50MW or more but less than 100MW

⁵ [PowerPoint Presentation \(nationalgrideso.com\)](#)

connection point. Within industry, this proposal will be referred to as 'TMO4+⁶'. This change in approach has changed the intent of DFTC and led to re-work by the subgroup to deliver a process which aligns with TMO4+.

Under TMO4+, DNO's will be required to provide a DFTC submission in the Application Window for Gate 1.

At Gate 1, the DFTC submission will be included in a co-ordinated network design to inform plans for building future network capacity. Note that DNOs can still make connection offers if more applications are received than was included in their forecast. This ensures that small and medium generators will be able to get a connection offer with an indicative date and indicative connection point from DNOs without the DNO having to get the transmission impact assessed (as it has already been assessed through the DFTC process).

Offers will be issued back at Gate 1; DNO's will receive back indicative connection dates for the capacity and technology requested at each GSP.

When Relevant Embedded Small and Medium Power Station projects that can utilise DFTC apply to connect to the DNO, the DNO's can provide an indicative Transmission connection date and connection point to their customer.

The concept of Gate 2 will apply to Relevant Embedded Small and Medium Power Stations. When these projects meet Gate 2, they will have to submit "Gate 2 criteria" evidence to the DNO, who will manage the approval and interface with the ESO.

The Relevant Embedded Small/Medium Power Station projects that pass-through Gate 2 (via the DNO) will receive a firm connection date (from a Transmission perspective), be assigned a queue position, together with User Commitment liabilities and securities.

Implementation of TMO4+ will require changes to industry Codes and Licence Conditions. The code modification process will provide the opportunity for formal consultation with stakeholders as the proposals are progressed. Subject to the regulator's approval of timelines for the code modification process, the reformed process could be in place by January 2025.

What is the Minimum Viable Product (MVP) solution?

Connection Action Plan

The Connections Action Plan set this action and desired outcome relating to improvements on the transmission/distribution interface:

Desired Outcome: A clear, consistent, streamlined and transparent process to provide faster connection offers to distribution connected projects that have transmission system impacts on appropriate timeframes.

Action	ESO and DNOs to work closely to improve existing processes at the transmission/distribution interface and to ensure that any proposed future connection process enables DNOs to secure and allocate GSP capacity efficiently, providing certainty for distribution connection customers.
Action lead	ESO/DNOs
Action introduction date / impact date	Q4 2023 / Q1 2024
Progress indicator	Improved communication and customer experience Transmission works impacts for distribution customers are flagged and understood more quickly
Action review date	Q1 2024

⁶ ESO proposes retrospective application of upcoming long-term connections reforms | ESO (nationalgrideso.com)

In developing the original DFTC process, the following success measures were developed to augment those from the Connections Action Plan.

1. Customers will understand the transmission impact (both time and cost) for firm access for their potential connection more quickly than they do now.
2. Customers will get the best outcomes that are available (e.g. they won't be artificially delayed if there is capacity).

The original TMO4 and DFTC approach would have provided Relevant Embedded Small and Medium Power Station distribution customers with a firm connection date at the distribution offer stage. This would have met the augmented actions to ensure customers will understand the transmission impact (both time and cost) for firm access for their potential connection more quickly than they do now. Due to the size of the existing transmission queue the likely outcome of the original DFTC process would be that customers were provided with firm connection dates with significant delays (e.g. late 2030 connection date); not meeting the second augmented action to provide the best outcome available to customers.

One of the main drivers for moving to TMO4+ is to increase the entry requirements to join the queue, reducing the size of the queue and improving connection dates. The introduction of TMO4+ significantly changes the scope of DFTC from providing firm connection dates, connection point, and cost with the distribution offer (Gate 1), to only providing an indicative connection date and connection point at Gate 1. In TMO4+ firm connection dates, costs and connection point are only provided once a scheme has met the Gate 2 criteria. The revised customer journey for small and medium power stations is described in the section below.

This new TMO4+ process for distribution customers will provide improved communication at Gate 1 with an indicative date and connection point at the distribution offer stage. The firm transmission works will not be understood as quickly as the original DFTC proposal, but the expected improvement in connection dates will better meet the augmented action to deliver the best outcome for customers. It also ensures that a true T-D queue is used when undertaking assessments, so distribution customers are no longer disadvantaged that it is based off the DNO Gate 2 criteria met date, not the distribution acceptance date.

Proposed Solution

Based on the assessment undertaken by the working group and the views expressed the following sections sets out the working groups understanding of the process. This is intended to be a helpful input into the CUSC modification process and some aspects will be included in the CUSC legal text. However, other details are likely to remain outside of CUSC in a methodology document, the governance of which will need to be considered as part of the CUSC modification.

In this option, the DNO provides a forecast of the future connections (in MW) that will be made at each GSP for each technology type. The initial view is that the first forecast will be limited to what is expected to accept in the future 12-month period; in subsequent years this will be developed into a cumulative view of what will connect. The DNO would also provide information on the 'background' capacity i.e. what is connected and what is contracted to connect.

The ESO/TOs will consider this forecast along with any applications for Transmission connections, projects in pre-Gate 2, all Gate 2 contracted projects and potentially some anticipatory projects. The ESO will provide back to the DNO the indicative dates that the DNO can use in its connection offers for small or medium power stations, of any technology type at every GSP.

Any applications after the receipt of this information, the DNO will be able to provide an indicative date when it issues the Distribution connection offer. This is an improvement to the current situation where no information on the transmission impact is formally communicated to the customer when the Distribution connection offer is made.

When the customer meets the Gate 2 criteria, (this will be confirmed in code modification CMP434⁷) the DNO will submit an application for the connection (along with any others) in the next Gate 2 application window to

⁷ CMP434 Implementing Connections Reform

have their connection studied by the ESO/TOs in order to be provided with a confirmed connection date. The mechanism for this will be that the DNO will need to apply to the ESO under a batched assessment process similar to an Evaluation of Transmission Impact.

The DNO will need to review the evidence and then confirm when Gate 2 criteria has been met for each project included in the submission but there is no requirement to provide the evidence to the ESO for it to be substantiated⁸. The timescales for confirming that Gate 2 has been met will be the same for both Transmission and Distribution projects. DNOs will have a further period to provide all the additional technical information that will be needed for the network assessment, timescales for this need to be established. The working assumption is that there will be three opportunities to submit projects each year. This will allow all projects (i.e. any Transmission projects and all the consolidated Distribution projects at a given GSP) to be studied concurrently with queue position established based on when the Gate 2 criteria was met. When the Gate 2 assessment has been completed, the ESO will provide an updated BCA for the relevant GSPs to the DNO. Once this has been agreed, the DNO will be able to issue the confirmed transmission information to the distribution customer.

Note that Gate 2 could be achieved at any point in the Distribution connection process, for example prior to the application, prior to acceptance or post acceptance. However, the Distribution connection offer must be accepted first before a project is included and submitted in the next batched window. Gate 2 criteria achievement dates will only be used to order the queue within the given batched window.

Customer perspective

The customer will get an indicative connection date and connection point when they receive their Distribution connection offer hence this is an improvement to the current status quo. In addition, compared with a transmission connection application, this process is much faster as DER can apply throughout the year without waiting for the annual window process.

In order to get a firm date, the customer will need to provide evidence that they have met Gate 2 and pay the Gate 2 application fee which the DNO will instigate. The current working assumption is for three Gate 2 tranches per annum within which T and D customer evidence of meeting Gate 2 is assessed. The impact of these tranches should avoid the situations where there has been reported delays in Project Progressions being submitted, but in some instances may add a short delay to the existing process (i.e. if currently a DNO submits Project Progressions within a month, in some circumstances this could be longer until the next submission can be made).

The indicative timeline is shown in the diagram below. The timescales for the customer meeting Gate 2 is shown in orange to highlight the potential variability; it is likely that many Distribution customers will be able to meet Gate 2 at the point that they accept their Distribution offer. The shortest time for a customer is likely to be about 10 months to be able to get a firm date but could extend beyond 14 months.

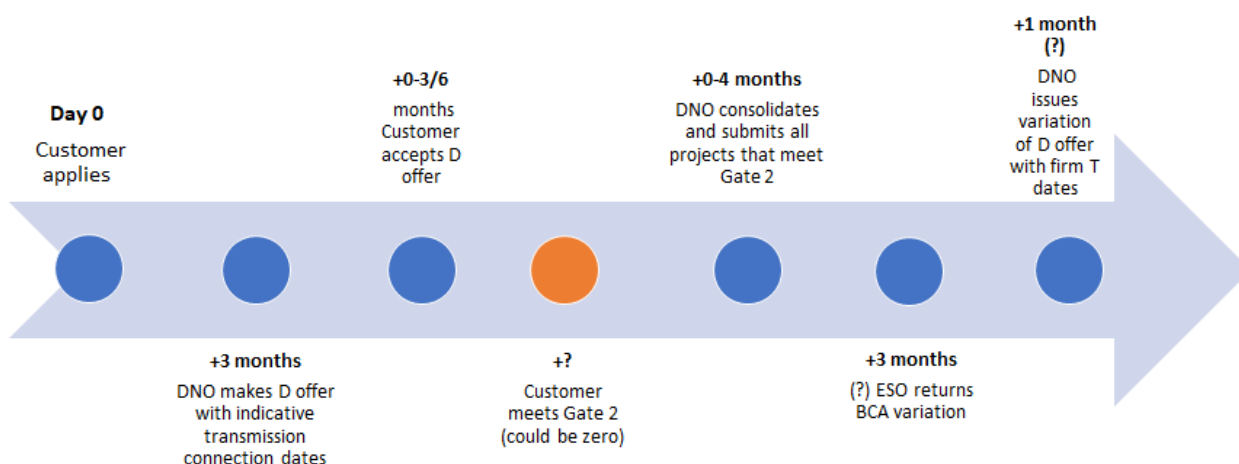


Figure 2: Indicative distribution customer journey

⁸ The ESO have discussed in Connection Reform workgroups that they are reviewing their solution around the assessment of Gate 2 criteria. The methodology document need to be updated to reflect the final proposed ESO solution should it change from what we have outlined as current thinking.

The customer would be aware that the possibility of the connection date being brought forward might arise if capacity became available e.g. through other projects cancelling and reallocation of capacity. There would also be the option of earlier connection on a non-firm basis at most, if not all, GSPs, e.g. via Technical Limits.

DNO Perspective

DNOs already forecast future distributed generation at each GSP through their Distribution Future Energy Scenarios (DFES) processes but further disaggregation is needed, particularly technology type associated with those connections between 1MW up to 100MW (or appropriate limits in Northern and Southern Scotland). The risks associated with this forecast in the original DFTC scope have now been removed as the forecast only informs indicative dates.

As only an indicative date will be initially provided, the same date will be provided for any connection offers of the same technology type at the same GSP i.e. there will be no interactivity applied as each will only get a confirmed date when it has met Gate 2 criteria.

With the exception of having to provide a DFTC forecast, and when Gate 2 criteria have been met, DNO processes will largely be unchanged. The DNO will need to vary the Distribution offer that the customer has accepted once it received the outcome from the Gate 2 assessment i.e. a variation to the BCA for the relevant GSP.

DNOs will need to consider whether the requirements for Milestone 3 and Gate 2 should be aligned or otherwise will need tracking separately.

ESO Perspective

The DFTC submission will increase the visibility that the ESO and TO has of the forecasted connections that may be made in the future.

TO Perspective

Subject to understanding of the role of the Connection Network Design and agreement of its methodology.

The TO, alongside the ESO, will need to consider the forecast submitted by the DNO is reasonable and decide on how it impacts modelling assumptions.

The TO will study the DFTC forecast alongside, demand, Transmissions applications, some pre-Gate 2 projects, all gate 2 contracted projects and some anticipatory projects.

The TO will need to consider at which granularity it provides indicative dates (are these based on GSP, Grouped GSPs, Region, FLOP zones, something else). Assess if there is any prioritisation for planning purposes which would impact those indicative dates. This will be confirmed in the Connection Network Design Methodology (CNDM).

DFTC Timeline

Integration with ESO Gated Proposal

TMO4+ has changed the DFTC concept envisaged under TMO4. Under TMO4, DFTC was the creation of a forecasted submission process into the application window (submission was expected to be akin to Transmission Impact Assessment) where DNO's reserve capacity, with firm connection date and location provided at Gate 1, with the expectation that the transmission impact would be provided back to DNO customers at the Gate 1 offer stage.

Under TMO4+, DNO's will still need to provide a DFTC submission but will now only receive back an indicative date and indicative connection point at Gate 1, with all projects across Transmission & Distribution having to pass through Gate 2 to receive back firm Transmission impact.

All projects having to meet Gate 2 criteria under TMO4+ has meant that an additional process will need to be created with regards to how the DNO's will notify the ESO of projects which want to go through the Gate 2 process. Current thinking is that this will be an amendment to the existing processes.

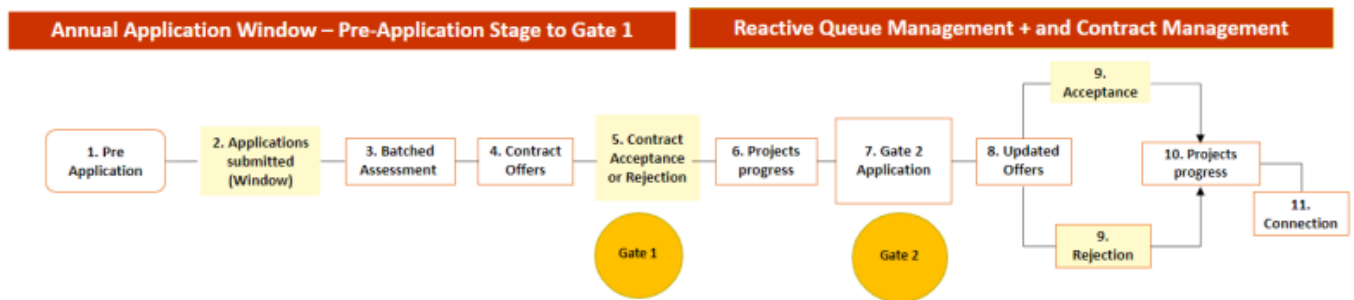


Figure 3: TMO4+ high-level process diagram

DFTC is reflective of steps 2-5 on the map above only however the Methodology covers up to step 9.

1. Pre application

Pre-application is not relevant for DNO's. Current thinking is that current touchpoints for initial exploratory discussion between DNO, TO's and the ESO will continue but not as a formalised process.

2. Applications submitted [window]

TMO4+ introduces an annual application window. DNO's will be required to submit their DFTC submission to the ESO within the application window. The DFTC submission will provide an overview of what is already connected and a view from the DNO of future forecasted acceptances in the following calendar year e.g. the DFTC submission in January 2025, will contain a view of forecasted acceptances for 2026.

The DFTC submission will be reviewed by the ESO for completeness.

It is currently anticipated that there will not be a fee by the DNO for a DFTC submission, but this will be updated to reflect the final code modification decision.

The ESO will forward the DFTC submission to the TO's who will perform an effectiveness check on the submission. If the information is not sufficient, there is a period of time for dialogue to take place between TO's and DNO's to update the submission.

Any updates will need to be completed before the Application window closes.

DFTC submissions that have reached competency by the end of the Application window will move forward to a batched assessment for coordinated network design.

3. Batched Assessment

Applications including DNO DFTC submissions will be grouped into CPAs and a coordinated network design performed to enable network planning and potential Anticipatory Investment requests.

Following completion, the network designs will be published via self-service tools and the DNO's informed of the latest network design. The Connections Network Design Methodology will outline the detail on the Batched Assessment methodology.

4. Contract Offer (Gate 1)

The ESO will need to acknowledge the DFTC submission, there are ongoing discussions about whether is reflected in the BCA.

In response to the DFTC submission, an indicative location for connection and indicative connection date included. There will be no user commitments or securities applied to distribution customers following DFTC response.

5. Contract Acceptance/Rejection

DNOs have the opportunity to discuss the DFTC response and where required enter into discussions with the ESO to resolve any queries.

6. Projects Progress

Projects progress through the DNO connections process.

7. Gate 2 applications

Gate 2 is mandatory for all Relevant Embedded Small/Medium Power Station projects. Once a project meets Gate 2 criteria, it can apply for Gate 2. Evidence that projects have met Gate 2 criteria will need to be validated by the DNO on behalf of the ESO.

Projects will have to have a signed contract with the DNO before entering the Gate 2 application process.

DNO's will submit Gate 2 Applications to the ESO in a Gate 2 Application window via a batched process along with the Gate 2 application fee when invoiced.

As part of this process, DNO's will need to complete a Gate 2 application submission and submit any necessary technical data.

Projects will be assessed at Gate 2 based on capacity, technology, connection point, connection date requested at Gate 1 as well as the Technical Information provided as part of the Gate 2 application process.

Queue position is assigned upon Gate 2 application and will be based on the date/time the DNO has specified that the project met Gate 2 criteria.

The ESO will perform a competency check on receipt of the Applications. The ESO will perform a competency check to ensure that the DNO has provided a date for when the customer met Gate 2 criteria and that the Gate 2 application fee has also been paid.

The TO will also perform a technical competency check against the technical information provided.

Successful projects will move forward to TO Connection Design. The detail on this process can be found in the Connections Network Design Methodology document.

8. Updated offers

The TO's will submit a TOCO to the ESO which will feed into an updated BCA, with updates also made to necessary contract appendices.

The Gate 2 Contract offer will be updated to provide capacity, technology confirmed location and date for connection, works required and User Commitment and Securities. Allocated Queue position is secured upon contract signature.

9. Contract acceptance/rejection

Similar to Gate 1, there is a process for the DNO to query their offer and a disputes process that can be utilised.

- The ESO will issue the offer to the DNO.
- Where the DNO does not sign the Gate 2 contract, in the assigned timeframe, the offer will lapse and schemes within the submission will need submitting in the next application window.
- When the DNO signs the offer, it will go to the ESO to countersign the DNO and TO contracts.
- Once the contract has been signed, the DNO will need to provide user security commitments (we are not changing how this is currently secured for the DNO).

10. Projects progress

Where DNO's have an Appendix G they will continue to submit as per CMP298. DNOs will manage the project's progress through the approved ENA queue management milestones.

Enduring Timeline

The process timeline below is an Appendix to CUSC mod CMP434 and outlines the ESO's current thinking on the process timeline for 2025 onwards. It is therefore subject to change.

The “Gate 2 to Whole Queue” swim lane is for the Retrospective process. The DFTC submission and Gate 2 batching of applications for DNO's, follow the orange and blue swim lanes.

Process Timeline

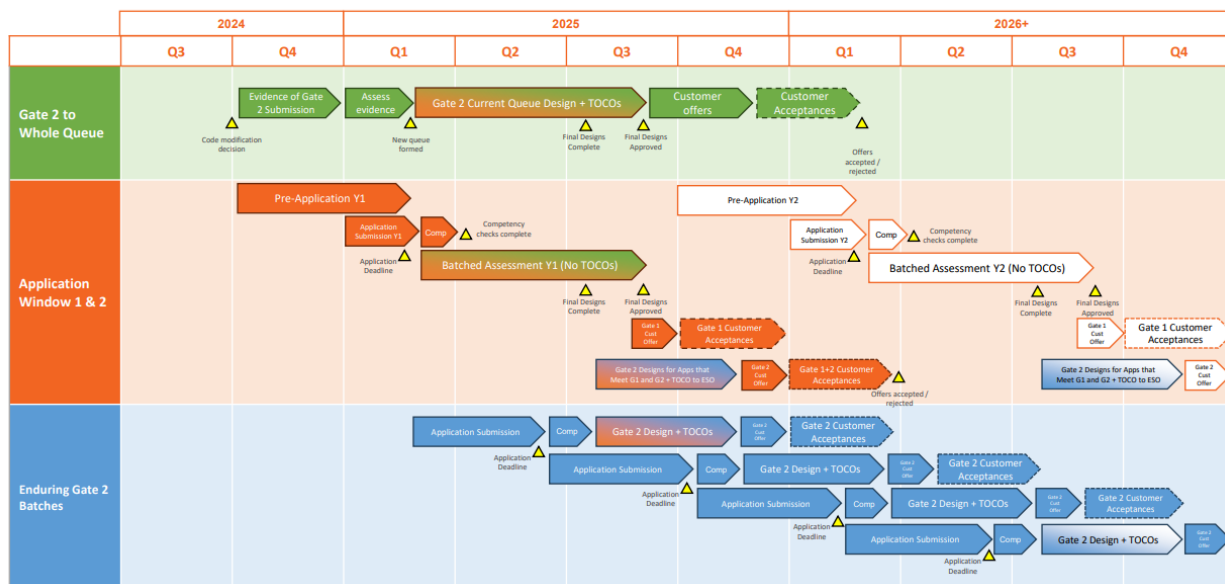


Figure 4: TMO4+ process timeline

DFTC Submission 2024

The code modification CMP434 proposes a go-live date of TMO4+ of the 1st January 2025. To enable DNOs to offer out an indicative date and location at the distribution offer date, DNO's will need to submit a DFTC submission in September 2024, and issued and approved by the end of December 2024, so that it can be offered out by DNOs throughout 2025.

The first Gate 2 application window they can utilise is in Q1 2025 (subject to what is approved by the Authority under CMP434).

DNO DFTC Submission

DFTC Template

The DFTC template as developed under the ENA DFTC working group in collaboration with all DNOs, TOs and ESO. This template will require sign-off from the TO/ESO Network Design Methodology working group.

It is expected that the CMP434 CUSC modification will capture the requirement for DNOs to submit a DFTC submission, but this methodology will be referenced as the document that captured the detail on the submission requirement.

This methodology will outline/approve the most recent DFTC submission template. It is expected that ESO will publish on its website the new data template each year which DNO's will need to submit in the Gate 1 Application Window.

The current template proposes four tables that will capture the data the ESO and TOs have stated they require as part of the DNO's DFTC submission. The four proposed data tables are:

Table 1: Proposed DFTC data tables for each DNO GSP

Table Number	Submission Table	Short Description (see sections below for detail)
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1	Connected Generation	The current connected generation for relevant small and medium power stations broken-down by technology
2	Accepted Not Connected Generation - Gate 2 Achieved	Accepted not yet connection generation that has met Gate 2, broken down by technology type and 10 year forecast of aggregated expected energisation
3	Accepted Not Connected Generation - Gate 2 Not Achieved	Accepted not yet connection generation that has not met Gate 2, broken down by technology type
4	DFTC Forecast	Forecast of expected acceptances in following year, broken down by technology type

GSP Information

In addition to the technical data in each submission template (as per Table 1), the following information is also required.

Table 2: GSP Template general information

Field Name	Description	Clarifications
Network Operator	The network operator that is providing the submission	This needs to be broken down by licence area (e.g. NGED South Wales)
Grid Supply Point	Name of GSP that submission data represents	Each GSP needs to be submitted separately, even where run in parallel
Existing Appendix G	Confirmation if GSP has an existing Appendix G	
Latest Approved Appendix G/data snapshot	Provide the approved Appendix G/Appendix 19 version or snapshot	

Network Operator:	NGED South Wales
Grid Supply Point	Swansea North
Supplementary Data	
GSP currently has Appendix G	Yes - Mark 3
Approved Appendix G Date (if applicable)	5/3/2024

Figure 5: Example of populated GSP information

Technology Breakdown and Hybrid Sites

The data provided in this template will be broken-down by the common transmission categories, as detailed in Table 3.

All forecasts will be provided in registered capacity (e.g. export) MWs.

Both battery import and export are required separately.

Table 3: DFTC submission technology break-down requirements

DFTC Submission Technology Categories (MW)
Solar PV
Waste/ CHP

Hydro
Wind
Other
BESS Import
BESS Export

The CNDM needs to confirm how they would like hybrid sites treated as part of the DFTC submission.

Table 1 – Connected Generation

The first table records the generation that is connected to the GSP as of the snapshot date used to collate the submission. Where an Appendix G is in-place, this should reflect the latest signed position schemes are recorded as connected.

Where a connection date is in the past, then as per existing processes this needs to be either changed to connected or the connection date moved.

Table 1 - Base Network - Connected Generation	
Technology	MW
Solar PV	150
Waste/ CHP	60
Hydro	0
Wind	20
Other	30
BESS Import	30
BESS Export	30
Total	320

Figure 6: Showing populated example of Table 1 – Connected Generation

Additional information on Table 1:

- It is expected that this table will just reflect the latest Appendix G position, where the GSP has an existing Appendix G
- Only includes generation/BESS that is deemed as relevant small or medium power stations. Schemes below the impact assessment threshold will not be included.

Table 2 – Accepted Not Connected Generation - Gate 2 Achieved

This data table captures all accepted-not-yet-connected schemes that have met the Gate 2 criteria.

As shown in Figure 7, this forecast needs to be broken-down by both the approved technology types and the expected energisation date.

Table 2 - Accepted Not Connected Generation - Gate 2 Achieved										
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Date Range	[1/1/2025 - 31/12/2025]	[1/1/2026 - 31/12/2026]	[1/1/2027 - 31/12/2027]	[1/1/2028 - 31/12/2028]	[1/1/2029 - 31/12/2029]	[1/1/2030 - 31/12/2030]	[1/1/2031 - 31/12/2031]	[1/1/2032 - 31/12/2032]	[1/1/2033 - 31/12/2033]	[1/1/2034 - 31/12/2034]
Technology	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW
Solar PV	40	80	150	200	200	240	300	320	400	400
Waste/ CHP	0	0	20	20	20	20	20	20	50	50
Hydro	0	0	0	0	0	0	0	0	0	0
Wind	0	0	0	50	50	50	100	100	100	100
Other	30	45	60	60	60	70	70	70	90	90
BESS Import	0	50	100	150	200	200	250	250	300	300
BESS Export	0	50	100	150	200	200	250	250	300	300
Total	70	175	330	480	530	580	740	760	940	940

Figure 7: Example of populated Table 2 – accepted-not-yet-connected generation that has met Gate 2

Additional information on Table 2:

- ESO will update the date range for each year (1-10) and circulate a revised template each year
- Hybrid sites should be treated as per the above section on hybrid sites
- The expected energisation forecast year is based on the firm energisation date
- Where an expected energisation date is beyond a 10-year horizon, then further years can be forecast where required

Table 3 - Accepted Not Connected Generation - Gate 2 Not Achieved

Table 3 captures all accepted-not-yet-connected schemes that have not yet met the Gate 2 criteria by the point of taking the snapshot for the DFTC submission.

Table 3 - Accepted Not Connected Generation Gate 2 Not Achieved				
Technology	Accepted Not Connected Generation in Hopper (MW)			
Solar PV	40			
Waste/ CHP	0			
Hydro	0			
Wind	0			
Other	30			
BESS Export	0			
BESS Import	0			
Total Export	70			

Figure 8: Example of populated Table 3 – accepted-not-yet-connected generation that has not met Gate 2 criteria

As shown in Figure 8, this forecast needs to be broken-down by the standard transmission technology categorisation for technical assessments. No year forecast is required as the firm connection date is not known at this point.

Further consideration needs to be given for the 2024 DFTC submission as to where schemes that are accepted-not-yet-connected are recorded. All DNO schemes will not have submitted their evidence by the time that the DFTC forecast needs to be submitted in 2024, meaning that splitting by Gate 2 criteria met will not be a meaningful view. An approach could be to submit Table 2 as all schemes that have firm-works confirmed (i.e. have received a full transmission offer) in Table 2 and provide schemes that are pending a full transmission outcome in Table 3, as a firm connection date will not be known.

Table 4 – Distribution Forecast Transmission Capacity

Table 4 captures the actual DFTC forecast. It has been discussed in the DFTC working group whether this forecast should be:

- One year forecast of acceptances that the DNO will receive at the GSP for the following year (e.g. 1/1/2025-31/12/2025 for the 2024 submission), broken down by technology
- A 10 year forecast giving the DNOs best-view of what generation will actually connect broken down by technology

The assessment of each of these proposed forecast options can be found in Table 4: Assessment of both DFTC forecast options.

Table 4: Assessment of both DFTC forecast options

Option	Benefits	Disadvantages
1 year acceptance forecast	+ Easier for the DNOs to produce, particularly for the 2024 submission	- Doesn't give ESO/TOs as much information on strategic growth

	+ In 2024 submission it is unlikely that a detailed assessment will be undertaken, so this would be a reasonable MVP.	- This type of forecast is unlikely to be correct given the uncertainty on connection activity and the technology granularity requested
10 year generation connections forecast	+ Has the potential to provide the ESO/TO with more useful information on expected growth based on the DNOs knowledge of connections	- Challenging to forecast accurately as existing Distribution Future Energy Scenarios (DFES) generally show distribution gradual growth, not large step-changes as seen by larger generation connections

It is proposed that for the 2024 DFTC submission, the first option of a 1 year forecast of expected acceptances is provided. For the 2025 DFTC submission, we will be asking for input from the CNDM workgroup to confirm the length of the forecast.

Table 4 DFTC - 1 year ahead acceptances

Technology	DFTC Forecast (MW)		
Solar PV	40		
Waste/ CHP	0		
Hydro	0		
Wind	0		
Other	30		
BESS Export	20		
BESS Import	20		
Total Export	90		

Figure 9: Example of populated Table 4 – DFTC

At the point of submission these schemes won't have accepted, so will not be recorded on the Appendix G (where in place).

DNO's will use best endeavours to create a reasonable DFTC forecast to submit to the ESO in the Application Window. The Application Window and Gate 1 process is important at sending the right signals to the ESO, TO's and DNO's about the network that needs to be built to allow us to meet net zero by 2050 and to help with the energy transition. Receiving this information prior to Gate 2, helps ensure that the network is built in the right place and on time. To do that the ESO has to make some assumptions and DFTC is critical in helping to do that.

DFTC Submission Clarifications

All licenced area GSPs will be submitted as a single excel workbook, with a single sheet populated for each GSP. Where the forecast is 0 for all technologies it is anticipated that a submission will still be required, subject to code modification decision around data and fee requirements.

Fault level infeed information is no longer required for the DFTC forecast, as the TOs have confirmed that no fault level assessments will be completed when assessing the outcome of DFTC.

Each GSP will be submitted in a separate sheet, even where run as a GSP group.

DFTC Response

The ESO will acknowledge the DFTC submission and provide back indicative dates and indicative locations.

New Acceptance Process

We are waiting a formal steer from the CNDM workgroup as to whether the Appendix G needs to be amended to record where schemes have accepted a Gate 1 distribution offer prior to them being submitted into a Gate 2 batched assessment.

Where a scheme that was provided with a DFTC forecast accepts the offer, then the DNO will record this using their approved internal processes. Subject to CNDM decision, DNOs may need to inform the ESO, where schemes are accepting DFTC (Gate 1 offers). These schemes will fall into 2 broad categories:

- Schemes that have not met Gate 2 criteria on application
- Schemes that have met Gate 2 criteria on application

Where a scheme has not met Gate 2 criteria on application, or in sufficient time to be submitted in the next Gate 2 batched submission then they can be recorded on a revised Appendix G template. This revised template will need to:

- Record that the scheme has not met Gate 2 criteria
- Not assign a queue position, connection date or associate with any construction agreements
- Record if Gate 2 evidence has been provided
- If they have been submitted into a batched assessment (pending signing/outcome)

It is anticipated that a proportion of schemes will apply to DNOs either meeting Gate 2 on application, or meeting it shortly afterwards. Where this is the case, then they can be added to the monthly Appendix G update recording them as:

- Accepted
- Having met Gate 2 and provided evidence
- Having not yet been submitted into a batched assessment.
- Not assign a queue position, connection date or associate with any construction agreements

Where a scheme has provided Gate 2 evidence on application and can be submitted into the next batched assessment, then they may not be added to the Appendix G where not available.

DNO Gate 2 Batched Submission

As per the enduring Gate 2 batched assessment process shown in Figure 4, it is currently proposed there will be 3 submission windows per year on a 4 month rolling basis. The overarching principles for the Gate 2 submission can be found in the DFTC Timeline section above. This section focusses on the technical data requirements and process.

Only projects above the existing lower capacity TIA thresholds have to go through the Gate 2 Application Window.

These thresholds are currently where registered capacity is:

- England and Wales <1MW
- Scotland South <200kW
- Scotland North <50kW

DNO Submissions

DNOs can submit at any point during the Gate 2 application window. Changes that will be required to this template:

- Field to record when Gate 2 evidence was provided for each scheme.
- The technical data queue for the batched assessment shouldn't be ordered based on the earliest Gate 2 evidence provided for schemes in the submission window

For clarity, where a scheme met Gate 2 criteria (but evidence not provided) earlier than a scheme that was submitted in a previous batched submission, they will not move ahead of this scheme in the queue. The Gate 2 criteria met is only to sort queue position in the current batched assessment process.

It is expected that most DNOs will submit late in the window, to ensure that they can include all the schemes possible in the batched assessment.

It is expected that the same technical data is required as the existing process, but this will be confirmed in the Network Design Methodology workgroup.

DNO Submission Deadline

To give the DNOs sufficient time to prepare full technical data submissions, then only schemes that have had their evidence approved 'x' weeks before the ESO window cut-off will be submitted in the next window. This is to allow DNOs time to prepare the technical data for all GSPs, noting that there may be an influx of late Gate 2 evidence provided to meeting the criteria.

Any scheme that doesn't meet this 'x' week cut-off will be submitted in the next batched submission

Gate 2 Full Offer

Current view is it aligns with BAU currently but this will be discussed in workgroups shortly.

Clarifications

User Commitment Liabilities and Securities

It is not anticipated that DFTC will be securable by the DNOs under the prevailing approach to liability and security. Relevant Embedded Small and Medium Power Stations will be liable for, and secure as normal once they are contracted with the DNO and have accepted their updated Offer (post Gate 2).

It is expected that the existing security and liability arrangement will remain for schemes that have been issued a firm connection date, following passing Gate 2 and being submitted by the DNO in the batched submission.

All other applications outside of the DFTC process will be subject to the normal approach to liability and security i.e. Connection Applications for new GSPs and Modification Applications for work being carried out on the DNO Network etc.

BEGA/BELLA/Small and Medium DER

All small and medium relevant DER will go through the DFTC process detailed in this methodology. If they were to also to request a BEGA, then they also need to apply directly to the ESO and go through the gate 1 and gate 2 application windows.

Large DER will sit outside of the DFTC and DNO batched submission process and will apply directly to ESO for a BEGA once they have a distribution offer. The ESO is still required to mod-notice the DNO, who will then submit a mod-app with the technical data. One approach would be to reflect the existing process, so that DNOs get mod-noticed in sufficient time to submit the technical data as part of the batched submission (or alongside).

iDNO Inclusion

Distribution iDNOs that want to connect small or medium relevant DER will apply to the DNO, who will treat them the same as a normal small or medium DER by providing an indicative date at the distribution offer stage and then submitting via the batched application process when Gate 2 is met.

Transmission IDNO's

For IDNO's who are connecting direct to Transmission, once their GSP is planned, they should be providing DFTC submission annually.

Capacity Reallocation

Currently, our thinking is that reallocation of capacity policy will continue into Connections reform. This means that DNO's can manage their own queues within the Appendix G and ensure who is next in the queue has the best chance to use any terminated capacity.

Capacity Reallocation is relevant only post Gate 2. It can only be reallocated to projects that have gone through Gate 2.

Interactivity

Gate 1 current assumption - as indicative date is provided at Gate 1, there will be no interactivity applied.

Gate 2 current assumption – queue position is based upon when projects demonstrate that they have met Gate 2 criteria to the ESO (or DNO), therefore there will be no interactivity applied.

Fees

Application fees payable to the ESO will still apply.

There is no fee currently proposed by the ESO for the DFTC submission.

There will be a Gate 2 application fee for the submission of contracts into Gate 2.

New GSP Applications

Where a DNO requires a new GSP for network compliance purposes, the application process should be as per the CUSC via a new Connection Application and outside of the requirements of DFTC and TMO4+.

However, if the Connection Application includes Relevant Embedded Generators, this should be subject to the requirements of DFTC and TMO4+. for Gate 1 an indicative location will be provided in the form of a connection node and an indicative Completion Date. The Gate 2 Offer would be inclusive of clauses that set out a whole system approach to ensure the distribution system arrangements are considered before the location of the new GSP is decided upon.

If the new GSP is triggered in response to a DNO Application which includes Relevant Embedded Generators, the approach set out above will be apply.

Risks and Dependencies

GC0139

It was identified that the new DFTC is effectively providing ESO/TOs with some additional information that they do not currently receive via the Week 24/50 submissions from DNOs. As the impact of this forecast is now reduced, consideration should be given to integrating the DFTC submission and process into the ongoing GC0139 process which is looking at reforming the data exchange between transmission and distribution. This code change is not scheduled to come in until 2026, so raising with the working group to see if there is a long-term solution is recommended.

It was concluded that in the short timeframe for a 2024 DFTC submission a separate template and process is the correct approach.

Technical Limits

This will be covered under the ENA Technical Limits working group.

Demand, B07 and Week 24 process

No changes are currently proposed to the existing week 24/50 submission and subsequent B07 assessments. TOs would utilise this data alongside the DFTC forecast to undertake their Gate 1 strategic assessment and Gate 2 detailed technical assessment.

It is acknowledged that there is future work needed to better align demand and generation driven transmission assessments from a distribution perspective. Integration of demand assessment into TMO4+ was deemed out-of-scope of the minimum viable product, but is an area that should be looked at further following the initial rollout of TMO4+.

Next Steps

CUSC mod CMP434⁹ and STC mod CM095¹⁰ “Implementing Connections Reform” have been raised by the ESO to deliver the Connections Reform design to introduce TMO4+ into the relevant codes. They reference a DFTC methodology will be progressed outside of the Code process, through the ENA DFTC subgroup. Its intention is to support the ESO solution being proposed under these mods and to outline the DFTC process from Application Window through to Gate 2 offer.

The review and sign-off of this document will need to be addressed via discussions with the ENA.

⁹ [CMP434 Implementing Connections Reform | ESO \(nationalgrideso.com\)](#)

¹⁰ [CM095 - Implementing Connections Reform | ESO \(nationalgrideso.com\)](#)

Extracts from Connections Action Plan

3.5b Reducing friction at the Transmission/Distribution Interface

Distribution network connections can have an impact on the transmission system. This interactivity is increasing, with over 80% of GSPs across GB, now being subject to transmission constraints. This results in increasing numbers of distribution connections triggering the Project Progression process, adding time and cost to their connections.

Conversely, transmission connections sometimes have an impact on distribution networks, particularly where transmission connections are made close to distribution. In these cases, the 'Third Party Works' (TPW) process is triggered. This similarly increases the interactions between different network companies, which can lead to unforeseen costs and delays. Code modifications (CMP328 and DCP392)⁵⁵ have been raised relating to the TPW process and cost apportionment of works arising. DCP392 is with Ofgem for decision, while Ofgem has issued a send-back for CMP328.⁵⁶

Where a connection impacts on both the distribution and transmission network the need for efficient and accurate information flows between the parties is critical. Furthermore, the ESO and network companies are required to proactively consider optionality of solutions across the boundary of their respective networks, in line with their Whole System licence obligations.

The process of interaction between DNOs and the ESO/TOs, in situations where there is, or could be, impacts on the other party's network is defined in the CUSC for transmission impacts and Distribution Connection and Use of System Agreement (DCUSA) for distribution impacts.

The DNOs and ESO have made some progress in terms of information sharing, through the introduction of a new Transmission Impact Assessment (TIA) process, and inclusion of Appendix G to the DNO/ESO BCAs at GSPs in England and Wales. Whilst the principles of Appendix G have been widely adopted, there is no common approach. Further work is needed to ensure greater alignment and standardisation and to ensure the complete roll out of the Appendix G process to all areas. Irrespective of the outcome of CMP298 (which intends to fully implement Appendix G), we want the ESO and network companies to go further by sharing all connection data at each GSP, with interested parties, as Open Data.

Even with these improvements, the current arrangements are not adequate. Many customers are experiencing unacceptably long delays (up to two years in some cases) between receiving a DNO connection offer (where this is conditional on a TIA) and receiving a final connection offer including the transmission aspects, including any cost and timing impacts. Distribution connections are increasingly dependent on transmission reinforcements, resulting in the conditional connection dates (which only cover distribution network aspects) being revised, sometimes by as much as 10 years, frequently making such projects unviable. In some cases, communication is poor, with little or no information on the likely outcome of the TIA for distribution customers, meaning connection dates can be moved very materially, sometimes with little warning. This uncertainty creates risk for project developers and investors.

There are two fundamental problems that need to be addressed;

1. the process by which DNOs request, and are allocated, transmission capacity from the ESO is not fit for purpose. It typically takes too long, and distribution connection customers are not being provided with adequate information about likely transmission impacts at an early enough stage.
2. around 64%⁵⁷ of generation and storage projects are unable to connect to the distribution network without transmission reinforcement works.

Actions to resolve these two problems are described below.

In the short-term we expect to see a marked improvement in the performance of DNOs and the ESO. We expect to see the average period between a DNO identifying the potential need for a TIA and the customer receiving a full connection offer, including any transmission works, substantially reduced. We recognise that there are no comprehensive regulatory timelines applying to this process and Ofgem will consider this as part of its wider review of connections incentives and obligations (see Chapter 3.5d).

In the meantime, we would like to see the ESO and DNOs working together to introduce and clearly communicate a consistent approach by the end of January 2024, resulting in regular and predictable Project Progression submission timescales, underpinned by voluntary targets and monitoring/reporting of timelines.

We would also like to see the ESO and DNOs assess and review the thresholds for TIAs; to accelerate connection timescales for distribution customers.

We also expect communication between the DNOs and their customers to improve significantly, in respect of potential transmission impacts. DNOs should ensure that customers are aware that their connections dates and costs may change, depending on transmission network impacts. Ofgem will monitor this activity carefully, consider appropriate policy levers and consult on solutions to ensure that the ESO and DNOs are held to account in terms of the transparency and timeliness of interactions at the Transmission/Distribution interface, as part of the review of connections incentives and obligations (see Chapter 3.5d).

In the medium-term, further revisions to the process at the Transmission/Distribution interface are expected, as part of the ESO's longer-term connections reform, which would also impact on distribution connections that may have an impact on the transmission network.

Under the ESO's preferred model each DNO would apply for Reserved Developer Capacity (RDC) at each GSP during the annual application window alongside transmission connection applications. By aggregating all connections that may have an impact on transmission in a single application window, the ESO and TOs would be able to consider the system impacts and design solutions on a more holistic, whole system basis. Under this approach the ESO has reasoned that DNOs would be able to allocate capacity to their customers throughout the year, without recourse to the ESO on individual connections.

While the principles of an RDC application process have been described at high-level by the ESO, more detail is needed to understand whether this approach would provide the desired outcome of a clear, consistent and transparent process to provide connection offers to distribution connection customers.

There are certainly challenges with the RDC approach that need further consideration. Further consultation is needed with the DNOs and their customers, and the ESO is working with the ENA to explore the RDC solution further. It is important that momentum is maintained, that the ESO, TOs and DNOs continue to engage actively and constructively, and that concerns are adequately addressed, prior to the ESO making recommendations.



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