

## Draft Final Modification Report

# CM080: Transmission Impact Assessment process

## Overview:

DNOs are obliged not to connect any new single embedded generation where it “may have an impact on the NETS” without undertaking a “Request for a Statement of Works” to NGEESO. This process does not take into account the growing trend of smaller embedded generation connections. A “Transmission Impact Assessment” process which facilitates an aggregated assessment process mitigates the need to apply to multiple individual connections saving time/admin and making it easier for NGEESO to consider the *cumulative* impact of smaller individual connections.

## Modification process & timetable



**Have 5 minutes?** Read our [Executive summary](#)

**Have 20 minutes?** Read the full [Final Modification Report](#)

**Have 30 minutes?** Read the full Final Modification Report and Annexes.

**Status summary:** This Report will be submitted to the STC Panel for them to carry out their Recommendation Vote on whether this change should happen.

**Panel recommendation Vote:** The Panel will hold their recommendation vote on 28 September 2022

**This modification is expected to have a: medium impact** on Transmission Owners

<b>Governance route</b>	Standard Governance modification to proceed to Code Administrator Consultation
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<b>Who can I talk to about the change?</b>	<b>Proposer:</b> Terry Baldwin <a href="mailto:Terry.Baldwin@nationalgrideso.com">Terry.Baldwin@nationalgrideso.com</a>  07814 778 118	<b>Code Administrator Chair:</b> Sally Musaka <a href="mailto:Sally.musaka@nationalgrideso.com">Sally.musaka@nationalgrideso.com</a>  07814 045 448
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Contents

**Contents** ..... 3

**Executive summary** ..... 4

**What is the issue?** ..... 5

    Why change? ..... 5

**What is the solution?**..... 6

    Proposer’s solution ..... 6

    Legal text..... 6

**What is the impact of this change?** ..... 7

**Proposer’s assessment of the impact of the modification on the stakeholder / consumer benefit categories** ..... 7

    Proposer’s assessment against the Applicable Objectives ..... 7

    Proposer’s assessment against STC Objectives ..... 7

    Code Administrator consultation summary ..... 8

    Panel recommendation/determination vote ..... 10

    Panel conclusion..... 12

**When will this change take place?** ..... 12

    Implementation date ..... 12

    Date decision required by ..... 12

    Implementation approach ..... 12

**Interactions**..... 12

**Acronyms, key terms and reference material**..... 13

    Reference material ..... 13

**Annexes**..... 13

## Executive summary

This proposal requires an STC change for the following reasons:

1. To create the concept of an Evaluation of Transmission Impact (ETI) which has multiple routes to complete.
2. To create the concept and processes for the Transmission Impact Assessment (TIA) method to meet the ETI
3. To create the provision of ETI Trigger criteria per Grid Supply Point (GSP) so decisions can be made on the most appropriate ETI application route.

## What is the issue?

The proposer believes that the current Statement of Works (SoW) process can be inefficient and time-consuming where there are concurrent multiple smaller connection applications. In order to overcome these the Network Operators have trialled and refined a more efficient aggregated assessment (widely known as the “Appendix G” process) of Distributed Generators (DG) that have or may have an impact on the National Electricity Transmission System (NETS).

The Proposer seeks to formalise the trial process into the STC (alongside CUSC modification CMP298 which introduces these arrangements in to the CUSC), which will work alongside the current Statement of Works process.

## What is the solution and when will it come into effect?

### Proposer’s solution:

To address this defect, the proposer believes that instead of a DNO applying for a statement of works for every single connection they can, where the ETI Trigger Criteria is met, request a TIA whereby they are assigned a block of available capacity to which they can connect multiple small and medium sized generation subject to a known amount reinforcing works needing to be carried out (if any).

The Proposer seeks to enable DNOs to correctly trigger an ETI, information is required from the TOs for each Grid Supply Point.

### Implementation date:

The proposed implementation date is 10 working days after the Authority’s decision to approve CMP298.

**Panel recommendation:** The Panel has recommended unanimously/by majority that the Proposer’s solution is implemented

## What is the impact if this change is made?

CM080 will save all parties time/administration and will make it easier for NGESO to consider cumulative impact of groupings of otherwise less-significant individual connections.

This modification will also mitigate the need for the “Statement of Works Request”

process of having to apply to multiple individual connections and will enable DNOs to provide faster and more accurate connection offers.

## Interactions

<input type="checkbox"/> Grid Code	<input type="checkbox"/> BSC	<input checked="" type="checkbox"/> CUSC	<input type="checkbox"/> SQSS
<input type="checkbox"/> European Network Codes	<input type="checkbox"/> Other modifications	<input type="checkbox"/> Other	

This modification is required to enable CUSC modification CMP298 to proceed.

## What is the issue?

In the Proposer's view the current Statement of Works (SoW) process can be inefficient and time-consuming where there are concurrent multiple smaller connection applications. In order to overcome these the Network Operators have trialled and refined a more efficient aggregated assessment (widely known as the "Appendix G" process) of Distributed Generators (DG) that have or may have an impact on the National Electricity Transmission System (NETS).

This proposal seeks to formalise the trial process into the STC (alongside CUSC modification CMP298 which introduces these arrangements in to the CUSC), which will work alongside the current Statement of Works process.

The reason an STC change is required is to:

1. Create the concept of an Evaluation of Transmission Impact (ETI) which has multiple routes to complete.
2. Create the concept and processes for the Transmission Impact Assessment (TIA) method to meet the ETI
3. Create the provision of ETI Trigger criteria per Grid Supply Point (GSP) so decisions can be made on the most appropriate ETI application route.

## Why change?

The Distribution Network Operators (DNOs) have an obligation not to connect DG where they determine the DG to be a Relevant Embedded Small or a Relevant Embedded Medium Power Station that may have an impact on the NETS. The definition of Relevant Embedded Small (and Relevant Embedded Medium) Power Station currently refers to individual power stations which may have a significant system effect on the NETS with such significant impact being identified as an expenditure of more than £10,000. Due to the rise in the volume of connected DG, which individually may not impact the NETS but may collectively, it is necessary to find an efficient method to administer the connections process thus preventing the requirement for bulk SoW applications. The TIA process is being proposed to work alongside the SoW process so either can be used.

There is currently a code modification (CMP298) going through the CUSC change process to enable this transition, however for the modification to work, the Transmission Owners will be required to submit additional information on available capacity at Grid Supply Points and determine the ETI Trigger Criteria for each GSP, which will in-turn determine if a TIA or SoW is required.

## What is the solution?

### Proposer's solution

In the Proposer's view the solution is that instead of a DNO applying for a statement of works for every single connection they can, where the ETI Trigger Criteria is met, request a TIA whereby they are assigned a block of available capacity to which they can connect multiple small and medium sized generation subject to a known amount reinforcing works needing to be carried out (if any).

To enable DNOs to know when to trigger an ETI, Trigger Criteria is required from the TOs for each Grid Supply Point.

### ETI trigger Criteria table

- Any single or group of generators which falls below all the ETI trigger criteria can be connected without triggering an ETI.
- Any single or group of generators which is above any limit must be subject to a ETI, which can be completed by following either the SoW process or the TIA process.

GSP Name	DNO	ETI Trigger Criteria					ETI Method	TIA Data	
		Active Power (MW)	Apparent Power (MVA)	Reactive Power (Mvar)	Amperage (KA)	Voltage (kV)		Total MW	Materiality Trigger (MW)
Example	Western Networks	10	11	N/A	N/A	33			
Testington	Easter Power	1	0.5	N/A	1	11	Transmission Impact Assessment (TIA)	150	26

Figure 1 Example ETI/TIA table

### TIA process

Once a DNO applies for a TIA, the National Grid Electricity System Operator (NGESO) will validate the request and ask the relevant TO to calculate the Materiality Trigger available for the DNO's use. The Materiality Trigger available should be calculated as a function of the 'planning limit' however the calculation itself is left to individual TOs to decide.

Regular updates on the generation connected (in the form of 'Total MW') shall be provided to the TOs by the DNOs after validation by NGESO (minimum twice per year). The Total MW shall not exceed the Planning Limit and this shall be reflected in the Materiality Trigger provided by the TO to NGESO. Once the Total MW is equal to or greater than the Materiality Trigger then the DNO (via NGESO) shall either request an increase in the Materiality Trigger (and any associated construction works) by extending the TIA or request that the Statement of works process shall be applied.

### Legal text

Please see Annex 3 for the legal text changes.

## What is the impact of this change?

### Proposer's assessment of the impact of the modification on the stakeholder / consumer benefit categories

Stakeholder / consumer benefit categories	Identified impact
Improved safety and reliability of the system	<b>Positive</b> Enables NGESO to consider cumulative impact of groupings of otherwise less-significant individual connections
Lower bills than would otherwise be the case	<b>Positive</b> Enabling DNOs to offer more accurate connection costs should reduce the uncertainty risk reducing the connection cost.
Benefits for society as a whole	<b>Positive</b> Reduced connection costs should result in lower bills for consumers.
Reduced environmental damage	<b>Neutral</b>
Improved quality of service	<b>Positive</b> Reducing the admin requirements will ensure a smoother customer journey for new connections.

### Proposer's assessment against the Applicable Objectives

#### Proposer's assessment against STC Objectives

Relevant Objective	Identified impact
(a) efficient discharge of the obligations imposed upon transmission licensees by transmission licences and the Act	<b>Neutral</b>
(b) development, maintenance and operation of an efficient, economical and coordinated system of electricity transmission	<b>Positive</b> This saves all parties time/admin and makes it easier for NGESO to consider cumulative impact of groupings of otherwise less-significant individual connections.
(c) facilitating effective competition in the generation and supply of electricity, and (so far as consistent therewith) facilitating such competition in the distribution of electricity	<b>Neutral</b>
(d) protection of the security and quality of supply and safe operation of the national electricity transmission system	<b>Neutral</b>

insofar as it relates to interactions between transmission licensees	
(e) promotion of good industry practice and efficiency in the implementation and administration of the arrangements described in the STC	<b>Positive</b> It mitigates the need for the “Statement of Works Request” process of having to apply to multiple individual connections.
(f) facilitation of access to the national electricity transmission system for generation not yet connected to the national electricity transmission system or distribution system;	<b>Positive</b> This will enable DNOs to provide faster and more accurate connection offers.
(g) compliance with the Electricity Regulation and any relevant legally binding decision of the European Commission and/or the Agency.	<b>Neutral</b>

### **First Code Administrator consultation summary**

The Code Administrator Consultation was issued on the 28 April 2022 and closed on 20 May 2022 and received **2** responses. One from the ESO and the other from NGET.

A summary of the responses can be found in the table below, and the full responses can be found in Annex 4.

<b>Code Administrator Consultation summary</b>	
<b>Question</b>	
Do you believe that the CM080 Original Proposal better facilitates the STC Objectives?	<b>NGET</b> – Believe the Original Proposal has the potential to be positive on Objectives A, C, E and F but this is contingent upon the detailed process expected to be set out in STCP18-4. However, at this time they cannot say the proposal better meets these relevant objectives as STCP18-4 has not been developed. The proposal is not as administratively efficient as it could be, and they are concerned over the resource impact on TOs which is critically contingent on the processes that have yet to be agreed / developed.
Do you support the proposed implementation approach?	<p><b>ESO</b> - Yes. The ESO supports the implementation approach. This proposal promotes efficiency by mitigating the need for having to apply for multiple ‘Statement of Works Request’ for smaller connections.</p> <p><b>NGET</b>- No. Without the changes to STCP18-4 being concluded they do not believe it is appropriate to set out the timings of implementation.</p>



	<p>The ETI process intended to be carried out is more onerous than for the Statement of Works process and is therefore far from being a direct equivalent. Once the detailed process development within STCP18-4 is well underway they will be in a better position to gauge likely resourcing impacts and recruitment needs</p>
<p>Do you have any other comments?</p>	<p><b>ESO</b> - STCP 18-4 currently describes the process of how TO(s) respond to an NGESO Request for a Statement of Works as a result of a User (the DNO) applying to NGESO for a Request for a Statement of Works. Following the approval of CM080 it will be necessary to establish and describe a similar process for Transmission Impact Assessments which works in a similar way.</p> <p>A high-level summary of the areas which will be added to STCP 18-4 following the CM080 approval are;</p> <p><u>ETI</u>  Trigger criteria for each GSP to be supplied by the TOs  The date by which NGESO would expect the initial trigger criteria for all GSPs  Trigger criteria data update requirements</p> <p><u>TIA</u>  Information flows between TOs and NGESO and Users for requests  Application fees  Application effectiveness  Planning assumptions</p> <p><b>NGET</b>- This modification has been published too soon and STCP18-4 modifications should have been set out in detail concurrently and have reached a point where affected STC parties were comfortable with STCP proposals. CM080 (only changes to STC Section D being consulted upon here) has no content to indicate the likely impact of the proposal on TOs.</p> <p>It would be appropriate to wait until the detailed application in STCP18-4 is agreed in principle by affected STC parties before this modification is submitted. The Legal Text in 4.3.2 (MVA) and 4.3.3 (MVA<sub>r</sub>) can be removed. These are broadly superfluous and confer little that is not</p>

	delivered from the MW criterion. MWs covered in 4.3.1 and kA covered in 4.3.4 should be sufficient.
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Legal text issues raised in the consultation- Yes
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## Second Code Administrator Consultation

Following the first Code Administrator, some legal text issues were identified in Section D Part Four 4.3.2 and 4.3.3. The STC Panel at their meeting on 27 July 2022 reviewed the proposed amendments to the legal text. These were as follows (text in red):

4.3 Evaluation of Transmission Impact **may require** the Transmission Owner to submit Trigger Criteria, **as agreed with NGESO** and identified in 4.3.1 to 4.3.4, for Network Operators at GSPs within their network subject to a timetable agreed with NGESO.

The Panel discussed the above legal text changes and agreed that changes to Section D Part 4.3 were not typographical.

The Panel agreed these changes needed to be further consulted on, specifically on this legal text change and agreed to run a 5 Working day Second Code Administrator Consultation (from 8 August 2022 to 15 August 2022) ahead of the Draft Final Modification Report being re-presented to August 2022 STC Panel.

The Legal text modification can be found in Annex 5

## Second Code Administrator Consultation Summary

The Second Code Administrator Consultation was issued on the 08 August 2022 and closed on 15 August 2022 and received **2** non- confidential responses, which supported the changes to Part 4.3. These responses can be found in Annex 4.

The ESO agrees that the amended text still satisfies the NGESO's requirement to have the ability to request technical information from the TOs to facilitate the creation of the significant impact criteria.

SSEN agrees the proposed amended text better facilitates the objectives but also notes that the legal text for the STCP amendments is still in progress and it should be agreed to and finalised before overall approval of CM080.

## Panel Recommendation Vote

The Panel will meet on the 28 September 2022 to carry out their recommendation vote. They will assess whether a change should be made to the STC by assessing the proposed change and any alternatives against the Applicable Objectives.

**Vote 1:** Does the Original, facilitate the objectives better than the Baseline?

Panel Member: **Robert Wilson, National Grid Electricity System Operator (NGESO)**

	Better facilitates AO (a)?	Better facilitates AO (b)?	Better facilitates AO (c)?	Better facilitates AO (d)?	Better facilitates AO (e)?	Better facilitates AO (f)?	Better facilitates AO (g)?	Overall (Y/N)
Original								
Voting Statement								

**Vote 1:** Does the Original, facilitate the objectives better than the Baseline?

Panel Member: **Neil Sandison, Scottish Hydro Electric Transmission plc (SHET)**

	Better facilitates AO (a)?	Better facilitates AO (b)?	Better facilitates AO (c)?	Better facilitates AO (d)?	Better facilitates AO (e)?	Better facilitates AO (f)?	Better facilitates AO (g)?	Overall (Y/N)
Original								
Voting Statement								

**Vote 1:** Does the Original, facilitate the objectives better than the Baseline?

Panel Member: **Mike Lee, Offshore Transmission Owner (OFTO)**

	Better facilitates AO (a)?	Better facilitates AO (b)?	Better facilitates AO (c)?	Better facilitates AO (d)?	Better facilitates AO (e)?	Better facilitates AO (f)?	Better facilitates AO (g)?	Overall (Y/N)
Original								
Voting Statement								

**Vote 1:** Does the Original, facilitate the objectives better than the Baseline?

Panel Member: **Richard Woodward, National Grid Electricity Transmission (NGET)**

	Better facilitates AO (a)?	Better facilitates AO (b)?	Better facilitates AO (c)?	Better facilitates AO (d)?	Better facilitates AO (e)?	Better facilitates AO (f)?	Better facilitates AO (g)?	Overall (Y/N)
Original								
Voting Statement								

**Vote 1:** Does the Original, facilitate the objectives better than the Baseline?

Panel Member: **Milorad Dobrijevic, Scottish Power Transmission plc. (SPT)**

	Better facilitates AO (a)?	Better facilitates AO (b)?	Better facilitates AO (c)?	Better facilitates AO (d)?	Better facilitates AO (e)?	Better facilitates AO (f)?	Better facilitates AO (g)?	Overall (Y/N)
Original								
Voting Statement								

**Vote 2 – Which option is the best?**

Panel Member	BEST Option?	Which objectives does this option better facilitate? (If baseline not applicable).
Robert Wilson		
Neil Sandison/Neil Bennett		
Milorad Dobrijevic		
Mike Lee/Joel Matthews		
Richard Woodward		

**Panel conclusion**

The Panel, **unanimously/ by majority recommended** that the Proposer's solution should be implemented.

**When will this change take place?****Implementation date**

Implementation timelines in line with CUSC modification CMP298.

A decision is required from the Authority as soon as reasonably practicable. This modification is required to enable CMP298 to proceed.

**Implementation approach**

A staged implementation plan will need to be created by the Workgroup for how the TOs will supply the required information at the GSPs.

**Interactions**

- |  |   |  |                               |
|--|---|--|-------------------------------|
| <input type="checkbox"/> Grid Code                 | <input type="checkbox"/> BSC                    | <input checked="" type="checkbox"/> CUSC | <input type="checkbox"/> SQSS |
| <input type="checkbox"/> European<br>Network Codes | <input type="checkbox"/> Other<br>modifications | <input type="checkbox"/> Other           |                               |

**Acronyms, key terms and reference material**

Acronym / key term	Meaning
BSC	Balancing and Settlement Code
CM	Code Modification
CUSC	Connection and Use of System Code
STC	System Operator Transmission Owner Code
SQSS	Security and Quality of Supply Standards
TIA	Transmission Impact Assessment
ETI	Evaluation of Transmission Impact
DG	Distributed Generator (a generator who is connected or planning to connect to a DNO or Independent DNO)
DNO	Distribution Network Operator
GSP	Grid Supply Point
NETS	National Electricity Transmission System
SoW	Statement of Works

**Reference material**

- [CUSC modification CMP298](#)

**Annexes**

Annex	Information
Annex 1	Proposal form
Annex 2	Terms of Reference
Annex 3	Legal Text/Amended Legal Text Changes
Annex 4	1 <sup>st</sup> Code Administrator Consultation responses
Annex 5	2 <sup>nd</sup> Code Administrator Consultation responses