

SQSS Modification Proposal Form

GSR029: Review of Demand Connection Criteria to Align with EREC P2/7

Overview: This modification is proposed to review the demand connection criteria in Section 3 of the NETS SQSS to resolve the discrepancies with EREC P2/7. This includes the review of the group demand definition and demand security contribution assumptions from embedded generation, demand side response, storage and active network management schemes.



Status summary: The Proposer has raised a modification and is seeking a decision from the Panel on the governance route to be taken.

This modification is expected to have a: High impact
Transmission Owners, Distribution Network Operators

Proposer's recommendation of governance route	Standard Governance modification with assessment by a Workgroup
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Who can I talk to about the change?	Proposer: Can Li Can.Li@nationalgrideso.com 077870394260	Code Administrator Contact: Jennifer Groome Jennifer.Groome@nationalgrideso.com 07966130854
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What is the issue?

There are discrepancies between the demand security criteria applicable on the transmission system, as defined in NETS SQSS Section 3, and the applicable distribution network planning criteria as specified in Engineering Recommendation P2/7 (EREC P2/7). This could lead to investment being neither coordinated nor efficient.

Why change?

The DNO demand connection standard, Engineering Recommendation P2 (EREC P2/7), has already undergone a review - some revisions have been made and further revisions are planned. This has resulted in three main discrepancies between Section 3 of the NETS SQSS and EREC P2/7:

- The NETS SQSS defines the size of a demand group based on the net transmission system demand. EREC P2/7, on the other hand, defines that size based on the total gross demand. This means that the level of the demand security that a DNO is required to provide could be different to what the transmission system is designed to provide, particularly in groups with a significant capacity of embedded small power stations.
- In providing demand security, EREC P2/7 allows the DNOs to rely on commercial contracts with distributed energy resources and on contributions from embedded small power stations. However, NETS SQSS Section 3 does not allow the use of commercial contracts and only takes the output of embedded small power stations to the extent that it reduces the group demand. This could lead to a discrepancy between the transmission network capacity and the distribution network capacity.
- The assumptions on the contribution from embedded large power stations towards demand security are different between the NETS SQSS Section 3 and those used in EREC P2/7 - with the latter referring to the Guidance on the Application of the Engineering Recommendation P2 (EREP 130).

These discrepancies could undermine the ability of both the TOs and DNOs to ensure that investment on their networks is coordinated, economic, and efficient. It could also have the unintended effect of significantly delaying the connection of embedded storage – a risk that has been raised by stakeholders on several occasions. Therefore, it is necessary to revise the NETS SQSS demand connection criteria to ensure coordinated and consistent investment at the point of interface between the transmission and distribution systems.

It is noted that DNO can carry out Cost Benefit Analysis (CBA) to demonstrate compliance with EREC P2/7 when the remedial works indicates that the options are not economically justifiable and/or do not align with its asset management strategy. It is not intended to adopt the same approach in SQSS Section 3 as this option should only be exercised under a strict set of occasions for specific demand groups. The number of GSPs in the transmission network is manageable through the normal derogation process in case similar circumstances occur.

This proposal will also ensure that the NETS SQSS is fit for a future energy system in which electricity is expected to play an increasing role in space heating and transportation. Embedded generation capacity and storage are expected to grow further, and consumers are increasingly interested in playing a role in the energy market via the provision of flexibility services. This will be achieved via:

- Ensuring that growth in demand is not masked by the growth in embedded generation. This will ensure that the right level of demand security is always maintained.

- Ensuring that opportunities offered by embedded generation, storage, and flexible demand are taken advantage of - such that some of the future investment is offset where it is economic to do so while not undermining the security of supply.
- Address any perceived blockers on connecting storage plant.

What is the proposer's solution?

Subject to a satisfactory assessment of the impacts of such a change, it is proposed to:

- change the definition of group demand in clause 3.5 to either the gross demand or net demand plus the output of small, medium and large power stations and flexible demand;
- introduce a definition of flexible demand;
- revise the background conditions specified in 3.7.3 and 3.7.4 to make it clear that the demand security contribution from embedded small and medium power stations, Demand Side Response, Energy Storage and Active Network Management scheme need to be considered;
- remove the effective contribution of embedded large power stations to demand group defined in Table 3.2 and replace it with the reference to EREP 130 Issue 3 2019 Annex D approaches for assessing the contribution from Non-Contracted DG to System Security as a guidance of assessment;
- to consider introducing a definition of electricity storage plant, which should be a subset of power stations, and clarify how its contribution to the group demand should be taken into account.

The proposal does not include an exhaustive list nor examples of what would contribute towards the gross demand value that is expected to be provided by the DNO as a part of their standard planning data. This is expected to take into account all the elements specified in EREC P2//7.

The proposal includes a definition for electricity storage plant and a definition of the group demand. It elaborates on how demand taken by such plant is to be taken into consideration when assessing the group demand. It does not include specific details on how to assess the contribution of such plant towards demand security as these are expected to be treated in the same manner as any other power station. This is not an essential part of this modification proposal but is likely to provide a much-needed clarity on storage connections within the context of Section 3 of the NETS SQSS.

Changing the group demand definition could potentially cause demand groups to move between two different categories. This could lead to a situation where the transmission capacity of a particular demand group becoming no longer sufficient to meet the requirements of the NETS SQSS.

The proposal assumes that contribution from embedded small power stations, embedded medium power stations, distributed energy resources and flexible demand towards supply capacity are going to be specified by DNOs through normal planning processes. Contributions from large power stations on the other hand, are estimated by transmission licenses as per the current practice. This ensures that there will not be any double counting. The workgroup will need to decide whether to:

- adopt this assumption in their final proposal,
- consider another scenario where DNOs are responsible for specifying the contribution of embedded large power stations, or
- make provisions for transmission licensees to modify the assumptions provided by DNOs to take into account any information they have, e.g. by the virtue of a

commercial agreement or an operational arrangement of a certain power station or flexible demand.

In all three cases, the workgroup will need to the scope of data sharing required and the most appropriate mechanism of sharing such data. The workgroup will also need to consider how is it that services could be procured by one party, e.g. DNOs, to support TOs compliance with the NETS SQSS.

It is suggested that DNO's current assessment of contribution from power stations and flexible demand is only needed when there is still network deficiency after taking into account the network capacity, transfer capacity and capacity from contracted power stations and flexible demand. The workgroup will need to decide whether to:

- request the DNO to submit the data for the GSPs where such assessment has been carried out;
- request the DNO to establish the demand security contribution for all GSPs;
- or set up a process for TOs to workout network deficiency at certain GSPs and request the DNO to submit the relevant data.

Table 3.2 in SQSS specifies the effective contribution of embedded large power stations to demand group importing capacity in NGET's transmission system. There isn't similar requirement for SPT or SHET. This proposal seeks to replace Table 3.2 with the reference to RERP130 and introduce the aligned requirement on all three transmission areas. This reference will act as a guidance to assess the demand security contribution from power stations to achieve compliance to SQSS section 3. This is to ensure continuous alignment and consistent treatment of embedded generation amongst transmission and distribution licensees. The workgroup will need to consider whether to:

- adopt this assumption in the final proposal,
- adopt this assumption in the final proposal but specify the version of EREP130 so that any future changes will go through the NETS SQSS governance, or
- retain and update table 3.2 as appropriate.

The workgroup will need to advise on any changes that may be required to other codes in order to facilitate the implementation of this proposal. This is likely to include changes to the standard planning data in the Grid Code to facilitate data sharing between DNOs and the ESO. It may also include changes to the STC and CUSC.

Draft legal text

Attached in Annex 1.

What is the impact of this change?

Proposer's assessment against SQSS Objectives	
Relevant Objective	Identified impact
(i) facilitate the planning, development and maintenance of an efficient, coordinated and economical system of electricity transmission, and the operation of that system in an efficient, economic and coordinated manner;	Positive This modification will ensure that the requirements for demand connection applied by TOs and DNOs are consistent, which can facilitate that the investment

	on their networks is coordinated, economic, and efficient.
(ii) ensure an appropriate level of security and quality of supply and safe operation of the National Electricity Transmission System;	Positive The modification will allow customers to receive the right level of demand security by updating the group demand definition and reviewing demand security contribution
(iii) facilitate effective competition in the generation and supply of electricity, and (so far as consistent therewith) facilitating such competition in the distribution of electricity; and	Neutral N/A
(iv) facilitate electricity Transmission Licensees to comply with any relevant obligations under EU law	Neutral N/A

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	Positive This modification will ensure the right level of security of supply to customers by updating the group demand definition and reviewing demand security contribution by various means.
Lower bills than would otherwise be the case	Positive This change will facilitate that the reinforcement and network investments made by TOs and DNOs are coordinated, economic and efficient and will benefit end consumers.
Benefits for society as a whole	Positive This change will facilitate that the reinforcement and network investments made by TOs and DNOs are coordinated, economic and efficient and will benefit the end consumers.
Reduced environmental damage	Positive

	This modification will allow more efficient connection of storage and support the journey towards net-zero.
Improved quality of service	Positive

When will this change take place?

Implementation date

As soon as possible.

Date decision required by

31 March 2023

Implementation approach

The Grid Code may need to be updated to facilitate the data exchanged between NGENSO and DNOs, e.g., as part of the Week 24 submission.

Other changes to the STC and/or CUSC may need to be required to support the planning process.

Proposer's justification for governance route

Governance route: Standard Governance modification with assessment by a Workgroup

The proposed modification has identified a few discrepancies between SQSS and EREC P2/7 and provided an initial plan to address them. The details of the solution, the wider impact and any additional changes that need to facilitate the solution need to be assessed by a Workgroup with input and contribution from the industry.

Interactions

Grid Code BSC STC CUSC
 European Other Other
 Network Codes modifications

The proposed changes to SQSS might lead to potential changes to other codes such as Grid Code, STC and CUSC.

The Grid Code may need to be updated to facilitate the data exchanged between NGENSO and DNOs, e.g., as part of the Week 24 submission.

Other changes to the STC and/or CUSC may need to be implemented to support the planning process.

Acronyms, key terms and reference material

Acronym / key term	Meaning
BSC	Balancing and Settlement Code
CUSC	Connection and Use of System Code
STC	System Operator Transmission Owner Code
SQSS	Security and Quality of Supply Standards
EREC P2/7	Engineering Recommendation P2 Issue 7 2019
EREP 130	Engineering Report 130 Issue 3 2019
TO	Transmission Owner
DNO	Distribution Network Operator
DSR	Demand Side Response
ANM	Active Network Management

Reference material

- [EREC P2/7](#)
- [EREP 130](#)

Annexes

- 1) Draft legal text
- 2) Workshop 1 meeting minutes
- 3) Workshop 2 meeting minutes