

ENTSO-E Connection Network Codes_revised Implementation Guidance Documents_November 2020

Overview

Background

According to Article 58 of Network Code Requirements for Generators (NC RfG), Article 56 of Network Code Demand Connection (NC DC) and Article 75 of Network Code High Voltage Direct Current (NC HVDC), ENTSO-E has the obligation to prepare non-binding guidance on implementation which shall be maintained every two years.

In the recent past, ENTSO-E produced (and when necessary improved later on) several Implementation Guidance Documents (IGDs) to support the national implementation of the Connection Network Codes (CNCs) in topics that were important and in cases complex. The list of topics that were elaborated included suggestions from stakeholders (discussed early 2016). Most IGDs were drafted by ENTSO-E while a few of them through established Technical Groups with the support of relevant stakeholders. Furthermore, several public workshops took place over the period between 2016 and 2018.

All IGDs were publicly consulted as required by the CNCs and ENTSO-E replied to the consultation feedback.

Final (current) published versions of the IGDs can be found **here**

[<https://www.entsoe.eu/network_codes/cnc/cnc-igds/>](https://www.entsoe.eu/network_codes/cnc/cnc-igds/) .

Last set of IGDs was published in March 2018 and this year (after two years) ENTSO-E provides first revisions, fulfilling the obligation of the two years' maintenance.

Objectives of the IGDs

The IGDs are primarily addressed to the transmission system operators and other system operators concerning the elements of the codes requiring national decisions. They shall explain the technical issues, conditions and interdependencies which need to be considered when complying with the requirements of these Regulations at national level.

The objectives of the implementation guidance documents are:

- to facilitate a common understanding of technical issues specified in the connection network codes, in context of new technologies and new requirements

- to deliver broader explanations and background information and to illustrate interactions between requirements
- to recommend coordination/collaboration between network operators (TSO) where either explicitly required by the connection codes or reasonably exercised from a system engineering perspective
- to give guidance to national specifications for non-exhaustive requirements, and
- to express the need of further harmonisation beyond what is requested by the CNCs when reasonable from a system engineering perspective.

Status of the revisions

The first set of the revised IGDs includes:

- additional clarifications that were provided during the exchanges with stakeholders, mainly at Grid Connection European Stakeholder Committee level. ENTSO-E has been asked through Q&As to detail some aspects further and doing so the subsequent decision was to ensure consistency of ENTSO-E's position/reply in different publicly available material.
- needed editorial changes and format changes that were necessary considering the different publication time.

The current IGD consultation is scheduled as follows:

02 December 2020 – 15 January 2021 – ENTSO-E publishes **six (6) draft revised IGDs** for consultation (please see below). The comments received will support the finalisation of the IGDs.

A preview of all the questions in this consultation can be accessed **here** [<user_uploads/preview-of-the-consultation_entso-e-connection-network-codes_revised-implementation-guidance-documents_november-2020.pdf>](user_uploads/preview-of-the-consultation_entso-e-connection-network-codes_revised-implementation-guidance-documents_november-2020.pdf) .

The revised IGDs under consultation are listed below and can be downloaded from the following **link** [<user_uploads/cnc-revised-igds-for-consultation_201201.zip>](user_uploads/cnc-revised-igds-for-consultation_201201.zip) .

1. **IGD on Autonomous connection/reconnection and admissible rate of change of active power**
2. **IGD on Demand Response – System Frequency Control**
3. **IGD on Parameters of Non-exhaustive Requirements**
4. **IGD on Maximum Admissible Active Power Reduction at Low Frequencies**
5. **IGD on Frequency ranges**
6. **IGD on Compliance Verification – Compliance Testing and Use of Equipment Certificates**

Why we are consulting

ENTSO-E is consulting the IGDs for three main reasons:

1. Although the main addressees of the IGDs are the system operators, the connection codes have a significant impact on manufacturers, power generating module operators, demand facilities and distribution networks.
2. The IGDs are drafted as supporting material for the connection codes implementation at the member state level and shall aim to give guidance for national specifications.
3. The IGDs are legally requested to be consulted with stakeholders before their release.

Introduction

1 What is your name?

Name

2 What is your email address?

If you enter your email address then you will automatically receive an acknowledgement email when you submit your response.

Email

3 What is your organisation?

Organisation

4 I want my answer to remain anonymous. If you tick this box, we will publish your comments but we will not publish your name and organisation.

I want my answer to remain anonymous

5 I want my answer to remain confidential - If you tick this box, we will not publish your answer to this consultation

I want my answer to remain confidential

6 I agree to ENTSO-E's Consultation Hub privacy policy

I agree to ENTSO-E's Consultation Hub privacy policy (Required)

IGD on Autonomous connection/reconnection and admissible rate of change of active power

Main revisions performed, specific to this IGD and beyond language edits, format changes and minor clarifications:

- Update on voltage and frequency criteria to be considered according to NC RfG Article 13(6) and 14(2) / Figure 1

1 Do you consider this IGD helpful?

Please select all that apply

yes no

2 Does the content of the IGD cover the technical issues of this topic appropriately?

Please select all that apply

yes no

3 Comments on the technical (or other) information within this IGD

Technical or other comments

IGD on Demand Response_System Frequency Control

Main revisions performed, specific to this IGD and beyond language edits, format changes and minor clarifications:

- Under frequency thresholds for the Baltic countries has been added
- Alignment of over frequency thresholds with LFSM-O thresholds
- Confirmation of GB LFSM-O thresholds

1 Do you consider this IGD helpful?

Please select all that apply

yes no

2 Does the content of the IGD cover the technical issues of this topic appropriately?

Please select all that apply

yes no

3 Comments on the technical (or other) information within this IGD

Technical or other comments

IGD on Parameters of Non-exhaustive Requirements

Main revisions performed, specific to this IGD and beyond language edits, format changes and minor clarifications:

- Update of the interpretation of non exhaustive requirements with higher level of detail
- Revised categorization of the requirements (general vs. site specific application)

1 Do you consider this IGD helpful?

Please select all that apply

yes no

2 Does the content of the IGD cover the technical issues of this topic appropriately?

Please select all that apply

yes no

3 Comments on the technical (or other) information within this IGD

Technical or other comments

IGD on Maximum Admissible Active Power Reduction at Low Frequencies

Main revisions performed, specific to this IGD and beyond language edits, format changes and minor clarifications:

- Incorporate the recommendation from turbine manufacturers regarding easing the compliance to RfG Article 13.4 and 13.5 considering the constraints of some SPGM technologies.

1 Do you consider this IGD helpful?

Please select all that apply

yes no

2 Does the content of the IGD cover the technical issues of this topic appropriately?

Please select all that apply

yes no

3 Comments on the technical (or other) information within this IGD

Technical or other comments

IGD on Frequency Ranges

Main revisions performed, specific to this IGD and beyond language edits, format changes and minor clarifications:

- The data as implemented are used as recommended values in the IGD
- All tables are changed

1 Do you consider this IGD helpful?

Please select all that apply

yes no

2 Does the content of the IGD cover the technical issues of this topic appropriately?

Please select all that apply

yes no

3 Comments on the technical (or other) information within this IGD

Technical or other comments

IGD on Compliance Verification - Compliance Testing and Use of Equipment Certificates

Main revisions performed, specific to this IGD and beyond language edits, format changes and minor clarifications:

- Extensive changes and clarifications regarding the use of equipment certificates for compliance purposes
- Developed with the support of IEC RE and received already valuable comments from expert stakeholders

1 Do you consider this IGD helpful?

Please select all that apply

yes no

2 Does the content of the IGD cover the technical issues of this topic appropriately?

Please select all that apply

yes no

3 Comments on the technical (or other) information within this IGD

Please select all that apply

yes no

Technical or other comments