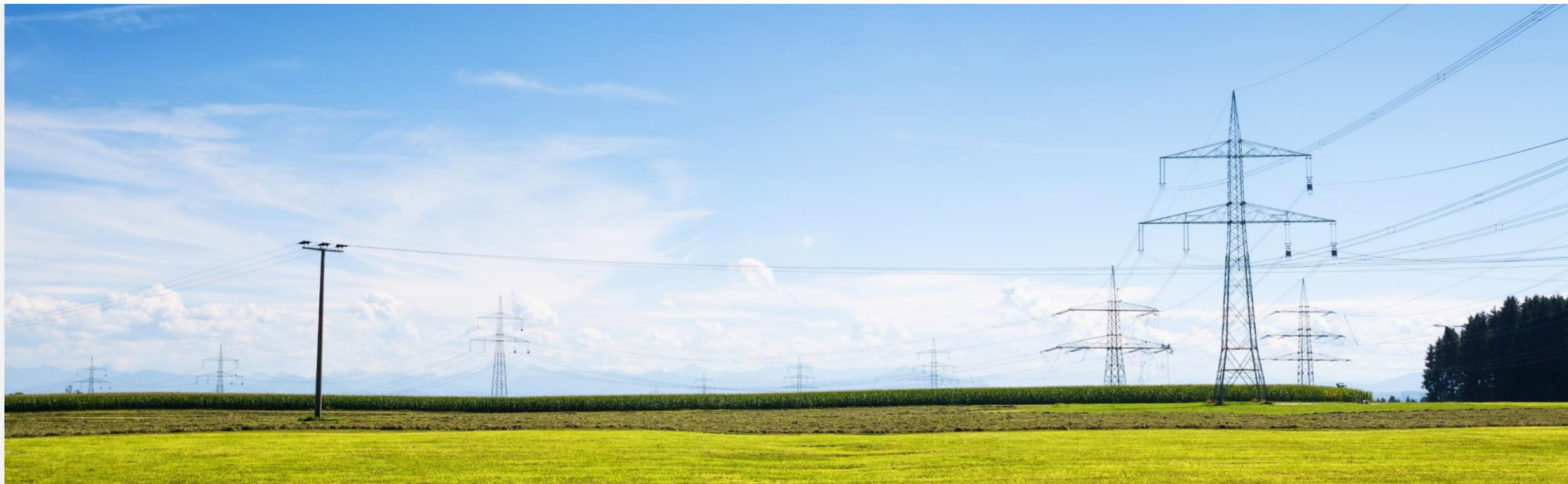


ENTSO-E CNC Implementation and Monitoring updates

TOP.2

20th GC ESC meeting, 10 December 2020



Ioannis Theologitis, ENTSO-E

CNC Implementation Monitoring

CNC Implementation Monitoring – December 2020 status

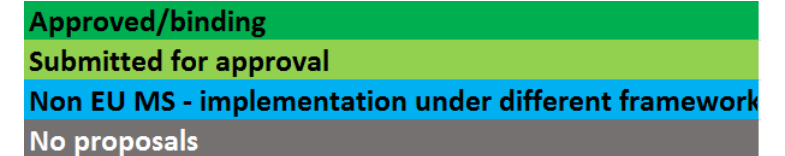
RfG NC



DC NC



HVDC NC



The CNC monitoring report of 2019 can be found [here](#)

The CNC monitoring report of 2020 will be published **by mid-December**

Changes to the Active Library since September 2020

The national implementation documents from the following countries will be included in the AL:

- ☐ Denmark
- ☐ Germany
- ☐ Italy
- ☐ Greece

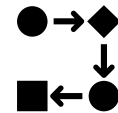
ENTSO-E's Implementation Monitoring Report – 2nd edition

Highlights of the second edition of the CNC Monitoring Report



Improved Analytics

- Implementation of non-exhaustive requirements by the Member States with dedicated figures
- Detailed graphical country-wise comparison of general and site specific implementations



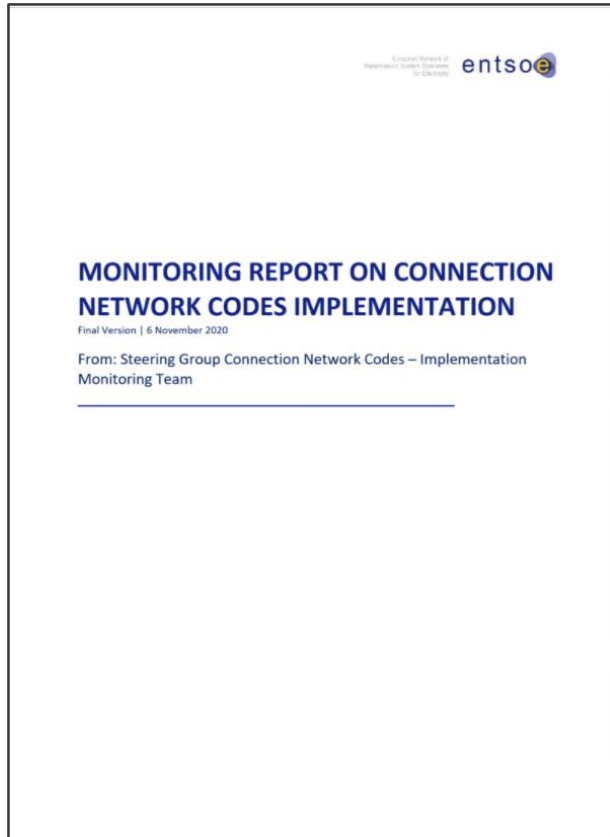
Improved process and structure

- Improved Monitoring Excel Tool to gather data of non-exhaustive requirements
- Introduction with guidance chapter how to interpret results
- Improved figures and design for better readability and visualisation of results
- Full set of values as complement of the report



Special feature

- Complete FRT assessment with supportive markings for compliance verification



Revised IGDs for consultation

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

IGD revisions



An ENTSO-E legal mandate according to Article 58 (NC RfG), Article 56 (NC DC) and Article 75 (NC HVDC)



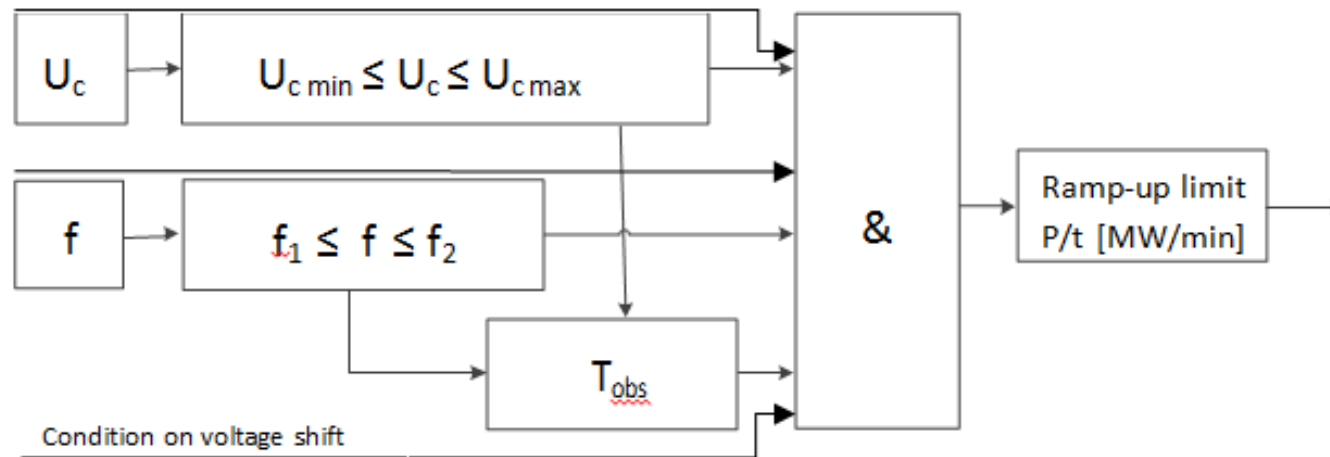
All IGDs

- **All IGDs have been subject to:**
 - additional clarifications upon stakeholder interaction, mainly at GC ESC level
 - consistency check with publicly available material
 - editorial changes to consider adequately developments since last publications
- **Worth noting that:**
 - All changes are not substantial and do not alter the guidance of the original versions.
 - IGD revisions correspond to the existing CNCs only

Main specific IGD revisions 1/4

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

- **Revision performed:**
 - Update on voltage and frequency criteria to be considered
→ acc. to NC RfG article 13(6) and 14(2)



Main specific IGD revisions 2/4

Demand Response – System Frequency Control

- **Revision performed:**
 - 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

Parameters of Non-exhaustive Requirements

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

Main specific IGD revisions 3/4

Maximum Admissible Active Power Reduction at Low Frequencies

- **Revision performed:**
 - 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.

Frequency Ranges

- **Revision performed:**
 - The data as implemented are used as recommended values in the IGD
 - All tables are changed

Main specific IGD revisions 4/4

Compliance Verification – Compliance Testing and Use of Equipment Certificates

- **Revision performed:**
 - Splitting of the 2017 IGD into three IGDs:
 1. IGD named “Compliance verification – testing and applying Equipment Certificate (EqC)” – *currently submitted for approval*
 2. IGD named “Compliance verification – electrical simulation models”
 3. IGD named “Compliance verification – monitoring cycles over life-time”
 - 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

Overview of planning until March 2021

Overview of planning until March 2021

- Continuation/Finalisation with the work of the new Expert Groups
- Publication of the second edition of the monitoring report + a revised monitoring excel file to be launched
- Assessment of consultation feedback for the revised IGDs.
- Continuing the developments on the IGDs for compliance verification (see TOP.3.).

GC ESC Expert Groups

For all EGs a public space can remain available [here](#)

Baseline for type A power-generating modules (EG BtfA)

- Meetings:

- 7 September
- 29 October
- 17 November
- **15 December**

Criteria for significant modernisation (EG CSM)

- Meetings:

- 12 August
- 25 September
- 6 November
- **16 December**

Interaction Studies and Simulation Models (EG ISSM) for PGM/HVDC

- Meetings:

- 3 July
- 4 September
- 7 October
- 4 November
- **11 December**