

CONCLUSION DOCUMENT ON NC DC TITLE 3 MOVE TO SO GL

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From: ENTSO-E

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EXECUTIVE SUMMARY

This document describes the proposals including justifications for the amendment to the Regulation 2017/1485 establishing a guideline on electricity transmission system operation (hereafter SO GL).

The new Network Code on Demand Response (NC DR) has been drafted in accordance with ACER Framework Guidelines on Demand Response by the Drafting Team of ENTSO-E and the EU DSO Entity together with the Drafting Committee.

In ACER's framework guideline, ACER recommends that the technical requirements to provide demand response services are moved from the Network Code Demand Connection (NC DC) to the SO GL to limit the scope of the NC DC to capabilities for the grid connection.

This refers to extracting from NC DC the Title 3, named "Connection of demands units used by a demand facility of a closed distribution system to provide demand response services to system operators"; and including it into SO GL.

For consistency with the approach proposed in ACER framework guideline, two additional articles should be taken out of NC DC as these articles are specifically connected to the defined demand response services in Title 3 of the NC DC. Those articles are:

- Article 41 - Compliance testing for demand units with demand response active power control, reactive power control and transmission constraint management
- Article 45 - Compliance simulations for demand units with demand response very fast active power control

In the NC DC the following terms were used as type of demand response: demand response active power control, demand response reactive power control, demand response transmission constraint management, demand response system frequency control and demand response very fast active power control. This wording is not used in the SO GL and the wording had to be adjusted accordingly, without losing the originally scope of the NC DC. The "demand response" wording in SO GL has therefore been changed to "ancillary services and congestion management services" in order to fully comply with the scope of NC DC and existing scope of the SO GL (to cover all the services in the SO GL which can be provided by demand response).

The ENTSO-E experts identified several amendments to SO GL to:

- Ensure no technical requirements are lost by removing NC DC Title 3 (and related articles 41 and 45 in Title 4) while ensuring consistency in the terminology used in SO GL;
- Take care of all references in SO GL to NC DC Title 3.

Overview of the analysis

Title 3 of NC DC describes the: ‘Connection of demand units used by a demand facility or a closed distribution system to provide demand response services to system operators’. The demand response services are clarified in the first article of this Title:

NC DC Title 3 – Article 27 – General provisions

1. Demand response services provided to system operators shall be distinguished based on the following categories:

- (a) remotely controlled:
 - (i) demand response active power control;
 - (ii) demand response reactive power control;
 - (iii) demand response transmission constraint management.
- (b) autonomously controlled:
 - (i) demand response system frequency control;
 - (ii) demand response very fast active power control.

The terminology and the categorisation of demand response services is unused in SO GL, and its introduction in SO GL is not needed as those concepts can be translated by replacing the term ‘demand response’ by ‘ancillary services and congestion management services’.

In Directive 2019/944, ‘ancillary services’ are services excluding congestion management. Article 55 of SO GL already mentions ‘congestion management services’ as services the TSO shall use to ensure the operational security of its control area.

Therefore, when integrating the technical requirements from NC DC Title 3 in SO GL, the previous term ‘demand response’ in SO GL is substituted by (frequency and non-frequency) ‘ancillary services and congestion management services’, which covers all the service categories from (a) and (b) as established in Art. 27 of NC DC.

In SO GL, ‘congestion management services’ is considered a self-explanatory term, which reflects the concept of a service to manage a congestion, including cross-border congestion. Its introduction neither alters the NC DR scope nor removes the need for a more precise term in NC DR (‘local services’) that refers to intra-bidding zone service to solve ‘congestion issues’.

By replacing “demand response” by “ancillary services and congestion management services”, the experts’ proposal ensures to comply with the scope of NC DC and the existing scope of the SO GL.

With the limited time given, ENTSO-E thinks this is the most appropriate proposal that could be submitted since no inconsistency or contradiction with existing codes/methodologies or NC DR have been identified.

Additionally, the technical requirements that should be transferred from NC DC Title 3 (and articles 41 and 45 of Title 4) into SO GL to avoid any gaps have been analysed. The outcome of this analysis

is presented in the following Table 1. The decision not to include an article in SO GL implies that the article will be taken out of NC DC because the removed provisions are sufficiently covered by other existing provisions and/or by the proposed amendments.

NC DC articles	Decision and impacted SO GL articles
NC DC – Title 3 – Chapter 1 – General requirements	
Article 27 – General provisions	Decision not to include this in SO GL as the proposed changes in terminology described in the Introduction cover the gap.
Article 28 – Specific provisions for demand units with demand response active power control, reactive power control and transmission constraint management	<ul style="list-style-type: none"> - Technical requirements of NC DC 28.2a to c included in SO GL art.154 paragraph 2 and 3 - Technical requirements of NC DC 28.2.k added in SO GL in a new paragraph 12 in art.154 - Technical requirements of NC DC 28.3 included in SO GL in a new paragraph 4 in art.28
Article 29 – Specific provisions for demand units with demand response system frequency control	<ul style="list-style-type: none"> - Technical requirements of NC DC 29.2.a to c included in SO GL art.154 paragraph 2 and 3
Article 30 - Specific provisions for demand units with demand response very fast active power control	Decision not to include this in SO GL. The specific provisions concerning the delivery of (very fast) frequency response services are in general covered by the requirements and agreements made between the TSOs and service providers in general (in SO GL Part IV – Load-frequency control and reserves).
NC DC – Title 3 – Chapter 2 - Operational notification procedure	
Article 31 - General provisions	Decision not to include this in SO GL. Together with articles 32 and 33 this article is covered by provisions in SO GL and NC DR

	such as data exchange, prequalification, verification process and flex register etc.
Article 32 - Procedures for demand units within a demand facility or a closed distribution system connected at a voltage level of or below 1 000 V	<ul style="list-style-type: none"> - Provision of NC DC 32.6.a included in SO GL in a new subparagraph 1.(d) in art.52.1 and in new paragraph 3 in art.53. <p>Together with articles 31 and 33 the rest of article 32 is covered by provisions in SO GL and NC DR such as data exchange, prequalification, verification process and flex register etc.</p>
Article 33 - Procedures for demand units within a demand facility or a closed distribution system connected at a voltage level above 1 000 V	Decision not to include this in SO GL. Together with articles 31 and 32 article 33 is covered by provisions in SO GL and NC DR such as data exchange, prequalification, verification process and flex register, etc.
NC DC – Title 4 – Chapter 2 – Compliance testing	
Article 41 - Compliance testing for demand units with demand response active power control, reactive power control and transmission constraint management	<ul style="list-style-type: none"> - Scope of SO GL art.56 enlarged to cover congestion management by the new paragraph 1.(e) and additional wording in paragraph 2.(d). <p>Provisions are covered via prequalification requirements.</p>
NC DC – Title 4 – Chapter 3 – Compliance simulation	
Article 45 - Compliance simulations for demand units with demand response very fast active power control	Decision not to include this in SO GL. Provisions are covered via prequalification requirements.

Table 1 - Overview table of provisions of NC DC Title 3 and articles 41 and 45 to be transferred in SO GL

The content of these articles can be found in the Annex, for clarity purposes the provisions to be transferred in SO GL and flagged in the table above are also flagged in **bold** in the Annex.

Amendment proposals to SO GL articles

The following chapters present the amendments to the relevant articles of SO GL to:

- include the provisions of NC DC articles flagged in the table above to ensure that no technical requirements are lost;
- review the references in SO GL to NC DC articles that will be removed from it to ensure consistency of the text;
- replace the term “demand response” by “ancillary services and congestion management services” in order to fully comply with the scope of NC DC, the existing scope of the SO GL and for consistency with the existing wording used in SO GL.

Amendment proposal to SO GL art.2 – Scope

The initial text is:

1. The rules and requirements set out in this Regulation shall apply to the following SGUs:

(a) existing and new power generating modules that are, or would be, classified as type B, C and D in accordance with the criteria set out in Article 5 of Commission Regulation (EU) 2016/631 (2);

(b) existing and new transmission-connected demand facilities;

(c) existing and new transmission-connected closed distribution systems;

(d) existing and new demand facilities, closed distribution systems and third parties if they provide **demand response** directly to the TSO in accordance with the criteria in **Article 27 of Commission Regulation (EU) 2016/1388 (3)**;

(e) providers of redispatching of power generating modules or demand facilities by means of aggregation and providers of active power reserve in accordance with Title 8 of Part IV of this Regulation; and

(f) existing and new high voltage direct current (‘HVDC’) systems in accordance with the criteria in Article 3(1) of Commission Regulation (EU) 2016/1447 (1).

[...]

The proposed text is:

1. The rules and requirements set out in this Regulation shall apply to the following SGUs:

(a) existing and new power generating modules that are, or would be, classified as type B, C and D in accordance with the criteria set out in Article 5 of Commission Regulation (EU) 2016/631 (2);

- (b) existing and new transmission-connected demand facilities;
- (c) existing and new transmission-connected closed distribution systems;
- (d) existing and new demand facilities, closed distribution systems and third parties if they provide ~~demand response~~ **ancillary services and congestion management services** directly to the TSO ~~in accordance with the criteria in Article 27 of Commission Regulation (EU) 2016/1388 (3);~~
- (e) providers of redispatching of power generating modules or demand facilities by means of aggregation and providers of active power reserve in accordance with Title 8 of Part IV of this Regulation; and
- (f) existing and new high voltage direct current ('HVDC') systems in accordance with the criteria in Article 3(1) of Commission Regulation (EU) 2016/1447 (1).

[...]

Justification of the proposed amendment

This amendment aims at deleting the reference to NC DC article 27 which will be removed out of it; and replacing "demand response" by "ancillary services and congestion management services" to ensure the alignment with the scope of NC DC and the existing scope of SO GL.

Deleting the reference together with the aforementioned change would be sufficient to ensure consistency of the text while leaving no technical gaps with respect to the scope of SO GL.

Amendment proposal to SO GL art.28 - Obligations of SGUs concerning voltage control and reactive power management in system operation

The initial text is:

1. By 3 months after entry into force of this Regulation, all SGUs which are transmission-connected power generating modules not subject to Article 16 of Regulation (EU) 2016/631, or which are HVDC systems not subject to Article 18 of Regulation (EU) 2016/1447, shall inform their TSO about their capabilities compared to the voltage requirements in Article 16 of Regulation (EU) 2016/631 or in Article 18 of Regulation (EU) 2016/1447, declaring their voltage capabilities and the time they can withstand without disconnection.

2. SGUs which are demand facilities subject to the requirements of Article 3 of Regulation (EU) 2016/1388 shall not disconnect due to a disturbance within the voltage ranges referred to in Article 27. By 3 months after entry into force of this Regulation, SGUs which are transmission-connected demand facilities and which are not subject to Article 3 of Regulation (EU) 2016/1388 shall inform their TSO about their capabilities in relation to the voltage requirements defined in Annex II of Regulation (EU) 2016/1388 declaring their voltage capabilities and the time they can withstand without disconnection.

3. Each SGU which is a transmission-connected demand facility shall maintain the reactive power setpoints, power factor ranges and voltage setpoints for voltage control in the range agreed with its TSO in accordance with Article 27.

The proposed new paragraph is:

4. For voltage control with disconnection or reconnection of static compensation facilities, SGUs which are transmission connected demand facilities or transmission-connected closed distribution systems shall be able to connect or disconnect its static compensation facilities, directly or indirectly, either individually or commonly as part of aggregation through a third party, in response to an instruction transmitted by the relevant TSO, or in the conditions set forth in the contract between the relevant TSO and the demand facility owner or the CDSO.

Justification of the proposed amendment

This amendment aims at moving the technical requirements from NC DC art.28.3 to an appropriate article in the SO GL with some wording adjustment to fit the scope of the SO GL article. The reader can refer to the Annex to find the wording from NC DC for comparison.

Amendment proposal to SO GL art.52 - Data exchange between TSOs and transmission-connected demand facilities

The initial text is:

1. Unless otherwise provided by the TSO, each transmission-connected demand facility owner shall provide the following structural data to the TSO:

- (a) electrical data of the transformers connected to the transmission system;
- (b) characteristics of the load of the demand facility; and
- (c) characteristics of the reactive power control.

2. Unless otherwise provided by the TSO, each transmission-connected demand facility owner shall provide the following data to the TSO:

- (a) scheduled active and forecasted reactive power consumption on a day-ahead and intraday basis, including any changes of those schedules or forecast;
- (b) any forecasted restriction in the reactive power control capability;
- (c) in case of participation in **demand response**, a schedule of its structural minimum and maximum power range to be curtailed; and
- (d) by exception to point (a), in regions with a central dispatch system, the data requested by the TSO for the preparation of its active power output schedule.

[...]

The proposed text is:

1. Unless otherwise provided by the TSO, each transmission-connected demand facility owner shall provide the following structural data to the TSO:

- (a) electrical data of the transformers connected to the transmission system;
- (b) characteristics of the load of the demand facility; and
- (c) characteristics of the reactive power control.

(d) the location at which the demand unit which provides ancillary services and/or congestion management services is connected to the network;

2. Unless otherwise provided by the TSO, each transmission-connected demand facility owner shall provide the following data to the TSO:

- (a) scheduled active and forecasted reactive power consumption on a day-ahead and intraday basis, including any changes of those schedules or forecast;
- (b) any forecasted restriction in the reactive power control capability;
- (c) in case of participation in **ancillary services or congestion management services**, ~~demand response~~, a schedule of its structural minimum and maximum power range to be curtailed; and
- (d) by exception to point (a), in regions with a central dispatch system, the data requested by the TSO for the preparation of its active power output schedule.

[...]

Justification of the proposed amendment

The amendment of SO GL art.52.1 to add a new paragraph (d) aims at including the provision from NC DC article 32.6(a) with some wording adjustment to fit the scope of the SO GL article. The reader can refer to the Annex to find the wording from NC DC for comparison. The addition regarding the location came from this NC DC article to be deleted so that the technical gap is filled.

The amendment of SO GL art.52.2(c) replaces “demand response” by “ancillary services ^{or}¹ congestion management services” to ensure the alignment with the scope of NC DC and the existing scope of SO GL.

¹ the word 'and' has been replaced with 'or' as in this particular case, it can only be one or the other.

Amendment proposal to SO GL art.53 - Data exchange between TSOs and distribution-connected demand facilities or third parties participating in demand response

The initial title is:

Data exchange between TSOs and distribution-connected demand facilities or third parties participating in demand response

The proposed title is:

Data exchange between TSOs and distribution-connected demand facilities, **CDSOs** or third parties ~~participating in demand response~~ **providing ancillary services and congestion management services directly to the TSO**

The initial text is:

1. Unless otherwise provided by the TSO, each SGU which is a distribution-connected demand facility and which participates in **demand response** other than through a third party shall provide the following scheduled and real-time data to the TSO and to the DSO:

- (a) structural minimum and maximum active power available for **demand response** and the maximum and minimum duration of any potential usage of this power for **demand response**;
- (b) a forecast of unrestricted active power available for **demand response** and any planned **demand response**;
- (c) real-time active and reactive power at the connection point; and
- (d) a confirmation that the estimations of the actual values of **demand response** are applied.

2. Unless otherwise provided by the TSO, each SGU which is a third party participating in **demand response** as defined in **Article 27 of Regulation (EU) 2016/1388**, shall provide the TSO and the DSO at the day-ahead and close to real-time and on behalf of all of its distribution-connected demand facilities, with the following data:

- (a) structural minimum and maximum active power available **demand response** and the maximum and minimum duration of any potential activation of **demand response** in a specific geographical area defined by the TSO and DSO;
- (b) a forecast of unrestricted active power available for the **demand response** and any planned level of **demand response** in a specific geographical area defined by the TSO and DSO;
- (c) real-time active and reactive power; and
- (d) a confirmation that the estimations of the actual values of **demand response** are applied.

The proposed text is:

1. Unless otherwise provided by the TSO, each SGU which is a distribution-connected demand facility **or CDSO** and which **provides ancillary services and congestion management services directly to the TSO** ~~participates in demand response~~ other than through a third party shall provide the following scheduled and real-time data to the TSO and to the DSO:

(a) structural minimum and maximum active power available for **ancillary services and congestion management services** ~~demand response~~ and the maximum and minimum duration of any potential usage of this power for **ancillary services and congestion management services** ~~demand response~~;

(b) a forecast of unrestricted active power available for **ancillary services and congestion management services** ~~demand response~~ and any planned **ancillary services and congestion management services** ~~demand response~~;

(c) real-time active and reactive power at the connection point; and

(d) a confirmation that the estimations of the actual values of **ancillary services and congestion management services** ~~demand response~~ are applied.

2. Unless otherwise provided by the TSO, each SGU which is a third party **providing ancillary services and congestion management services** ~~participating in demand response as defined in Article 27 of Regulation (EU) 2016/1388~~, shall provide the TSO and the DSO at the day-ahead and close to real-time and on behalf of all of its distribution-connected demand facilities **or CDSOs**, with the following data:

(a) structural minimum and maximum active power available **for ancillary services and congestion management services** ~~demand response~~ and the maximum and minimum duration of any potential activation of **ancillary services and congestion management services** ~~demand response~~ in a specific geographical area defined by the TSO and DSO;

(b) a forecast of unrestricted active power available for the ancillary services and congestion management services ~~demand response~~ and any planned level of **ancillary services and congestion management services** ~~demand response~~ in a specific geographical area defined by the TSO and DSO;

(c) real-time active and reactive power; and

(d) a confirmation that the estimations of the actual values of **ancillary services and congestion management services** ~~demand response~~ are applied.

3. **Unless otherwise provided by the TSO, each distribution-connected demand facility, CDSO or third party providing ancillary services and congestion management services directly to the TSO shall provide the TSO and DSO structural data about the location of the facility providing ancillary services and/or congestion management services where it is connected to the network**

4. **Complementary to these rules the requirements of the NC DR shall apply.**

Justification of the proposed amendment

This amendment aims at including the provision from article 32.6(a) of NC DC, deleting the reference to NC DC art.27 and systematically replacing “demand response” by “ancillary services and congestion management services” to ensure the alignment with the scope of NC DC and the existing scope of SO GL.

Additionally, the experts added the “CDSOs” to fit properly the scope of SO GL set out in the article 2 where CDSOs are included.

Amendment proposal to SO GL art.54 – Responsibilities of the SGUs

The initial text is:

[...]

4. Upon request from the TSO or DSO, pursuant to Article 41(2) of Regulation (EU) 2016/631 and Article 35(2) of Regulation (EU) 2016/1388, the SGU shall carry out compliance tests and simulations in accordance with those Regulations at any time throughout the lifetime of its facility and in particular after any fault, modification or replacement of any equipment, which could have an impact on the facility's compliance with the requirements of this Regulation regarding the capability of the facility to achieve the values declared, the time requirements applicable to those values and the availability or contracted provision of ancillary services. Third parties providing **demand response** directly to the TSO, providers of redispatching of power generating modules or demand facilities by means of aggregation, and other providers of active power reserves shall ensure that the facilities in their portfolio comply with the requirements of this Regulation.

The proposed text is:

4. Upon request from the TSO or DSO, pursuant to Article 41(2) of Regulation (EU) 2016/631 and Article 35(2) of Regulation (EU) 2016/1388, the SGU shall carry out compliance tests and simulations in accordance with those Regulations at any time throughout the lifetime of its facility and in particular after any fault, modification or replacement of any equipment, which could have an impact on the facility's compliance with the requirements of this Regulation regarding the capability of the facility to achieve the values declared, the time requirements applicable to those values and the availability or contracted provision of ancillary services. Third parties providing **ancillary services or congestion management services** ~~demand response~~ directly to the TSO, providers of redispatching of power generating modules or demand facilities by means of aggregation, and other providers of active power reserves shall ensure that the facilities in their portfolio comply with the requirements of this Regulation.

Justification of the proposed amendment:

This amendment aims at replacing “demand response” by “ancillary services and congestion management services” to ensure the alignment with the scope of NC DC and the existing scope of SO GL.

Amendment proposal to SO GL art.56 – Purpose and responsibilities

The initial text is:

1. Each TSO and each transmission-connected DSO or SGU may perform operational testing respectively of its transmission system elements and of their facilities under simulated operational conditions and for a limited period of time. When doing so, they shall provide notification in due time and prior to the test launch and shall minimise the effect on real-time system operation. The operational testing shall aim at providing:

(a) proof of compliance with all relevant technical and organisational operational provisions of this Regulation for a new transmission system element at its first entry into operation;

(b) proof of compliance with all relevant technical and organisational operational provisions of this Regulation for a new facility of the SGU or of DSO at its first entry into operation;

(c) proof of compliance with all relevant technical and organisational operational provisions of this Regulation upon any change of a transmission system element or a facility of the SGU or of the DSO, which is relevant for system operation;

(d) assessment of possible negative effects of a failure, short-circuit or other unplanned and unexpected incident in system operation, on the transmission system element, or on the facility of the SGU or of the DSO.

2. The results of the operational testing referred to in paragraph 1 shall be used by a TSO, DSO or a SGU, in order for:

(a) the TSO to ensure correct functioning of transmission system elements;

(b) the DSO and SGUs to ensure correct functioning of distribution systems and of the SGUs' facilities;

(c) the TSO, DSO or SGU to maintain existing and develop new operational practices;

(d) the TSO to ensure fulfilment of ancillary services;

(e) the TSO, DSO or SGU to acquire information about performance of transmission system elements and facilities of the SGUs and DSOs under any conditions and in compliance with all relevant operational provisions of this Regulation, in terms of:

- (i) controlled application of frequency or voltage variations aimed at gathering information on transmission system and elements' behaviour; and
- (ii) tests of operational practices in emergency state and restoration state.

The proposed text is:

1. Each TSO and each transmission-connected DSO or SGU may perform operational testing respectively of its transmission system elements and of their facilities under simulated operational conditions and for a limited period of time. When doing so, they shall provide notification in due time and prior to the test launch and shall minimise the effect on real-time system operation. The operational testing shall aim at providing:

- (a) proof of compliance with all relevant technical and organisational operational provisions of this Regulation for a new transmission system element at its first entry into operation;
- (b) proof of compliance with all relevant technical and organisational operational provisions of this Regulation for a new facility of the SGU or of DSO at its first entry into operation;
- (c) proof of compliance with all relevant technical and organisational operational provisions of this Regulation upon any change of a transmission system element or a facility of the SGU or of the DSO, which is relevant for system operation;
- (d) assessment of possible negative effects of a failure, short-circuit or other unplanned and unexpected incident in system operation, on the transmission system element, or on the facility of the SGU or of the DSO.

(e) assessment of the technical capability of a SGU to provide ancillary and/or congestion management services

2. The results of the operational testing referred to in paragraph 1 shall be used by a TSO, DSO or a SGU, in order for:

- (a) the TSO to ensure correct functioning of transmission system elements;
- (b) the DSO and SGUs to ensure correct functioning of distribution systems and of the SGUs' facilities;
- (c) the TSO, DSO or SGU to maintain existing and develop new operational practices;
- (d) the TSO to ensure fulfilment of ancillary services **and congestion management services**;
- (e) the TSO, DSO or SGU to acquire information about performance of transmission system elements and facilities of the SGUs and DSOs under any conditions and in compliance with all relevant operational provisions of this Regulation, in terms of:
 - (i) controlled application of frequency or voltage variations aimed at gathering information on transmission system and elements' behaviour; and

(ii) tests of operational practices in emergency state and restoration state.

Justification of the proposed amendment

This amendment aims at ensuring that the provisions related to technical requirements from NC DC art.41 are covered in SO GL.

Amendment proposal to SO GL art.81 – Regional adequacy assessment

The initial text is:

[...]

2. Each TSO shall provide the regional security coordinator with the information necessary to perform the regional adequacy assessments referred to in paragraph 1, including:

(a) the expected total load and available resources of **demand response**;

[...]

The proposed text is:

[...]

2. Each TSO shall provide the regional security coordinator with the information necessary to perform the regional adequacy assessments referred to in paragraph 1, including:

(a) the expected total load and; **where applicable**, available resources of **demand facilities providing ancillary services and congestion management services**~~demand response~~;

[...]

Justification of the proposed amendment

This amendment aims at replacing “demand response” by “ancillary services and congestion management services” to ensure the alignment with the scope of NC DC and the existing scope of SO GL. The term 'where applicable' is introduced to avoid any unnecessary exchange of data with RCC(s).

Amendment proposal to SO GL art.105 – Control area adequacy analysis

The initial text is:

1. Each TSO shall perform control area adequacy analysis by assessing the possibility for the sum of generation within its control area and cross-border import capabilities to meet the total load within its control area under various operational scenarios, taking into account the required level of active

power reserves set out in Articles 118 and 119. 2. When performing a control area adequacy analysis pursuant to paragraph 1, each TSO shall:

(a) use the latest availability plans and the latest available data for:

(i) the capabilities of power generating modules provided pursuant to Article 43(5) and Articles 45 and 51;

(ii) cross-zonal capacity;

(iii) possible **demand response** provided pursuant to Articles 52 and 53;

[...]

The proposed text is:

1. Each TSO shall perform control area adequacy analysis by assessing the possibility for the sum of generation within its control area and cross-border import capabilities to meet the total load within its control area under various operational scenarios, taking into account the required level of active power reserves set out in Articles 118 and 119. 2. When performing a control area adequacy analysis pursuant to paragraph 1, each TSO shall:

(a) use the latest availability plans and the latest available data for:

(i) the capabilities of power generating modules provided pursuant to Article 43(5) and Articles 45 and 51;

(ii) cross-zonal capacity;

(iii) possible **demand facilities providing ancillary services or congestion management services** ~~demand response~~ provided pursuant to Articles 52 and 53;

[...]

Justification of the proposed amendment

This amendment aims at replacing “demand response” by “ancillary services and congestion management services” to ensure the alignment with the scope of NC DC and the existing scope of SO GL. To ensure precision, “demand facilities providing” is added before this term to indicate the respective concerned parties.

Amendment proposal to SO GL art.107 – Control area adequacy in day-ahead and intraday

The initial text is:

1. Each TSO shall perform a control area adequacy analysis in a day-ahead and intraday time-frame on the basis of:

(a) schedules referred to in Article 111;

(b) forecasted load;

(c) forecasted generation from renewable energy sources;

(d) active power reserves in accordance with the data provided pursuant to Article 46(1)(a);

(e) control area import and export capacities consistent with cross-zonal capacities calculated where applicable in accordance with Article 14 of Regulation (EU) 2015/1222;

(f) capabilities of power generating modules in accordance with the data provided pursuant to Article 43(4) and Articles 45 and 51 and their availability statuses; and

(g) capabilities of demand facilities with **demand response** in accordance with the data provided pursuant to Articles 52 and 53 and their availability statuses.

[...]

The proposed text is:

1. Each TSO shall perform a control area adequacy analysis in a day-ahead and intraday time-frame on the basis of:

(a) schedules referred to in Article 111;

(b) forecasted load;

(c) forecasted generation from renewable energy sources;

(d) active power reserves in accordance with the data provided pursuant to Article 46(1)(a);

(e) control area import and export capacities consistent with cross-zonal capacities calculated where applicable in accordance with Article 14 of Regulation (EU) 2015/1222;

(f) capabilities of power generating modules in accordance with the data provided pursuant to Article 43(4) and Articles 45 and 51 and their availability statuses; and

(g) capabilities of demand facilities **providing ancillary services and congestion management services** ~~with demand response~~ in accordance with the data provided pursuant to Articles 52 and 53 and their availability statuses.

[...]

Justification of the proposed amendment

This amendment aims at replacing “demand response” by “ancillary services and congestion management services” to ensure the alignment with the scope of NC DC and the existing scope of SO GL. To ensure precision, "providing" is inserted before the term to link the concerned parties and the services which they provide.

Amendment proposal to SO GL Article 127 - Frequency quality defining and target parameters

The initial text is:

[...]

8. The proposal for modification of the values pursuant to paragraph 6 and 7 shall be based on an assessment of the recorded values of the system frequency for a period of at least 1 year and the synchronous area development and it shall meet the following conditions:

(a) the proposed modification of the frequency quality defining parameters in Table 1 of Annex III or the frequency quality target parameter in Table 2 of Annex III takes into account:

(i) the system's size, based on the consumption and generation of the synchronous area and the inertia of the synchronous area;

(ii) the reference incident;

(iii) grid structure and/or network topology;

(iv) load and generation behaviour;

(v) the number and response of power generating modules with limited frequency sensitive mode — over frequency and limited frequency sensitive mode — under frequency as defined in Article 13(2) and Article 15(2)(c) of Regulation (EU) 2016/631;

(vi) the number and response of demand units operating with activated demand response system frequency control or demand response very fast active power control as defined in **Articles 29 and 30 of Regulation (EU) 2016/1388**; and

(vii) the technical capabilities of power generating modules and demand units;

The proposed text is:

[...]

8. The proposal for modification of the values pursuant to paragraph 6 and 7 shall be based on an assessment of the recorded values of the system frequency for a period of at least 1 year and the synchronous area development and it shall meet the following conditions:

(a) the proposed modification of the frequency quality defining parameters in Table 1 of Annex III or the frequency quality target parameter in Table 2 of Annex III takes into account:

(i) the system's size, based on the consumption and generation of the synchronous area and the inertia of the synchronous area;

(ii) the reference incident;

(iii) grid structure and/or network topology;

(iv) load and generation behaviour;

(v) the number and response of power generating modules with limited frequency sensitive mode — over frequency and limited frequency sensitive mode — under frequency as defined in Article 13(2) and Article 15(2)(c) of Regulation (EU) 2016/631;

(vi) the number and response of demand units **providing reserves to TSOs** ~~operating with activated demand response system frequency control or demand response very fast active power control as defined in Articles 29 and 30 of Regulation (EU) 2016/1388~~; and

(vii) the technical capabilities of power generating modules and demand units;

Justification of the proposed amendment

This amendment aims at removing the reference to articles of NC DC title 3.

Amendment proposal to SO GL art.154 – FCR technical minimum requirements

The initial text is:

1. Each reserve connecting TSO shall ensure that the FCR fulfils the properties listed for its synchronous area in the Table of Annex V.

2. All TSOs of a synchronous area shall have the right to specify, in the synchronous area operational agreement, common additional properties of the FCR required to ensure operational security in the synchronous area, by means of a set of technical parameters and within the ranges in Article 15(2)(d) of Regulation (EU) 2016/631 and **Articles 27 and 28 of Regulation (EU) 2016/1388**. Those common

additional properties of FCR shall take into account the installed capacity, structure and pattern of consumption and generation of the synchronous area. The TSOs shall apply a transitional period for the introduction of additional properties, defined in consultation with the affected FCR providers.

3. The reserve connecting TSO shall have the right to set out additional requirements for FCR providing groups within the ranges in Article 15(2)(d) of Regulation (EU) 2016/631 and **Articles 27 and 28 of Regulation (EU) 2016/1388** in order to ensure operational security. Those additional requirements shall be based on technical reasons such as the geographical distribution of the power generating modules or demand units belonging to an FCR providing group. The FCR provider shall ensure that the monitoring of the FCR activation of the FCR providing units within a reserve providing group is possible.

4. The reserve connecting TSO shall have the right to exclude FCR providing groups from the provision of FCR in order to ensure operational security. This exclusion shall be based on technical reasons such as the geographical distribution of the power generating modules or demand units belonging to an FCR providing group.

5. Each FCR providing unit and each FCR providing group shall have only one reserve connecting TSO.

6. Each FCR providing unit and each FCR providing group shall comply with the properties required for FCR in the Table of Annex V and with any additional properties or requirements specified in accordance with paragraphs 2 and 3 and activate the agreed FCR by means of a proportional governor reacting to frequency deviations or alternatively based on a monotonic piecewise linear power-frequency characteristic in case of relay activated FCR. They shall be capable of activating FCR within the frequency ranges specified in Article 13(1) of Regulation (EU) 2016/631.

7. Each TSO of the CE synchronous area shall ensure that the combined reaction of FCR of a LFC area comply with the following requirements:

(a) the activation of FCR shall not be artificially delayed and begin as soon as possible after a frequency deviation;

(b) in case of a frequency deviation equal to or larger than 200 mHz, at least 50 % of the full FCR capacity shall be delivered at the latest after 15 seconds;

(c) in case of a frequency deviation equal to or larger than 200 mHz, 100 % of the full FCR capacity shall be delivered at the latest after 30 seconds;

(d) in case of a frequency deviation equal to or larger than 200 mHz, the activation of the full FCR capacity shall rise at least linearly from 15 to 30 seconds; and

(e) in case of a frequency deviation smaller than 200 mHz the related activated FCR capacity shall be at least proportional with the same time behaviour referred to in points (a) to (d).

8. Each reserve connecting TSO shall monitor its contribution to the FCP and its FCR activation with respect to its FCR obligation, including FCR providing units and FCR providing groups. Each FCR

provider shall make available to the reserve connecting TSO, for each of its FCR providing units and FCR providing groups, at least the following information

- (a) time-stamped status indicating if FCR is on or off;
- (b) time-stamped active power data needed to verify FCR activation, including time-stamped instantaneous active power;
- (c) droop of the governor for type C and type D power generating modules as defined in Article 5 of Regulation (EU) 2016/631 acting as FCR providing units, or its equivalent parameter for FCR providing groups consisting of type A and/or type B power generating modules as defined in Article 5 of Regulation (EU) 2016/631, and/or demand units with demand response active power control as defined in **Article 28 of Regulation (EU) 2016/1388**.

9. Each FCR provider shall have the right to aggregate the respective data for more than one FCR providing unit if the maximum power of the aggregated units is below 1,5 MW and a clear verification of activation of FCR is possible.

10. At the request of the reserve connecting TSO, the FCR provider shall make the information listed in paragraph 9 available in real-time, with a time resolution of at least 10 seconds.

11. At the request of the reserve connecting TSO and where necessary for the verification of the activation of FCR, a FCR provider shall make available the data listed in paragraph 9 concerning technical installations that are part of the same FCR providing unit.

The proposed text is:

1. Each reserve connecting TSO shall ensure that the FCR fulfils the properties listed for its synchronous area in the Table of Annex V.

2. All TSOs of a synchronous area shall have the right to specify, in the synchronous area operational agreement, common additional properties of the FCR required to ensure operational security in the synchronous area, by means of a set of technical parameters and within the ranges in Article 15(2)(d) of Regulation (EU) 2016/631 and Articles ~~27~~ **12** and ~~28~~ **13** of Regulation (EU) 2016/1388 **and within the ranges specified by the relevant system operator at the connection point if the FCR providing units and the FCR providing groups are connected at a voltage level below 110 kV**. Those common additional properties of FCR shall take into account the installed capacity, structure and pattern of consumption and generation of the synchronous area. The TSOs shall apply a transitional period for the introduction of additional properties, defined in consultation with the affected FCR providers.

3. The reserve connecting TSO shall have the right to set out additional requirements for FCR providing groups within the ranges in Article 15(2)(d) of Regulation (EU) 2016/631 and Articles ~~27~~ **12** and ~~28~~ **13** of Regulation (EU) 2016/1388 **and within the ranges specified by the relevant system operator at the connection point if the FCR providing units and the FCR providing groups are connected at a voltage level below 110 kV** in order to ensure operational security. Those additional requirements shall be based on technical reasons such as the geographical distribution of the power

generating modules or demand units belonging to an FCR providing group. The FCR provider shall ensure that the monitoring of the FCR activation of the FCR providing units within a reserve providing group is possible.

4. The reserve connecting TSO shall have the right to exclude FCR providing groups from the provision of FCR in order to ensure operational security. This exclusion shall be based on technical reasons such as the geographical distribution of the power generating modules or demand units belonging to an FCR providing group.

5. Each FCR providing unit and each FCR providing group shall have only one reserve connecting TSO.

6. Each FCR providing unit and each FCR providing group shall comply with the properties required for FCR in the Table of Annex V and with any additional properties or requirements specified in accordance with paragraphs 2 and 3 and activate the agreed FCR by means of a proportional governor reacting to frequency deviations or alternatively based on a monotonic piecewise linear power-frequency characteristic in case of relay activated FCR. They shall be capable of activating FCR within the frequency ranges specified in Article 13(1) of Regulation (EU) 2016/631.

7. Each TSO of the CE synchronous area shall ensure that the combined reaction of FCR of a LFC area comply with the following requirements:

(a) the activation of FCR shall not be artificially delayed and begin as soon as possible after a frequency deviation;

(b) in case of a frequency deviation equal to or larger than 200 mHz, at least 50 % of the full FCR capacity shall be delivered at the latest after 15 seconds;

(c) in case of a frequency deviation equal to or larger than 200 mHz, 100 % of the full FCR capacity shall be delivered at the latest after 30 seconds;

(d) in case of a frequency deviation equal to or larger than 200 mHz, the activation of the full FCR capacity shall rise at least linearly from 15 to 30 seconds; and

(e) in case of a frequency deviation smaller than 200 mHz the related activated FCR capacity shall be at least proportional with the same time behaviour referred to in points (a) to (d).

8. Each reserve connecting TSO shall monitor its contribution to the FCP and its FCR activation with respect to its FCR obligation, including FCR providing units and FCR providing groups. Each FCR provider shall make available to the reserve connecting TSO, for each of its FCR providing units and FCR providing groups, at least the following information

(a) time-stamped status indicating if FCR is on or off;

(b) time-stamped active power data needed to verify FCR activation, including time-stamped instantaneous active power;

(c) droop of the governor for type C and type D power generating modules as defined in Article 5 of Regulation (EU) 2016/631 acting as FCR providing units, or its equivalent parameter for FCR providing groups consisting of type A and/or type B power generating modules as defined in Article 5 of Regulation (EU) 2016/631, and/or demand units ~~with demand response active power control as defined in Article 28 of Regulation (EU) 2016/1388~~ **acting as FCR providing units or FCR providing groups.**

9. Each FCR provider shall have the right to aggregate the respective data for more than one FCR providing unit if the maximum power of the aggregated units is below 1,5 MW and a clear verification of activation of FCR is possible.

10. At the request of the reserve connecting TSO, the FCR provider shall make the information listed in paragraph 9 available in real-time, with a time resolution of at least 10 seconds.

11. At the request of the reserve connecting TSO and where necessary for the verification of the activation of FCR, a FCR provider shall make available the data listed in paragraph 9 concerning technical installations that are part of the same FCR providing unit.

12. Each reserve providing unit and reserve providing group shall have the withstand capability to not disconnect from the system due to the rate-of-change-of-frequency up to a value specified by the relevant TSO. With regard to this withstand capability, the value of rate-of-change-of-frequency shall be calculated over a 500 ms time frame.

Justification of the proposed amendment

This amendment to SO GL art.154 intends to take care of the technical requirements in NC DC art.28.2.a to c and k; and art.29.2.a to c.

Based on the analysis carried out by the experts, the references in SO GL art.154 to articles 27 and 28 of NC DC should have been to articles 28 and 29 instead. The technical requirements set up in those articles are only used in SO GL art.154.2 and art.154.3. Therefore, the decision has been made to refer to these technical requirements directly in the paragraphs.

To ease that approach, the experts pointed out that articles 12 and 13 of NC DC are referring to the same technical requirements as those in articles 28 and 29. Therefore, the decision has been made to refer directly to articles 12 and 13 of NC DC and fill the technical gap by an additional sentence.

Additionally, the reference in SO GL art.154.8.c to NC DC art.28 has been modified to refer to FCR providing units or groups.

Finally, a new paragraph has been added to include the technical requirements specified in NC DC art.28.2.k.

Amendment proposal to SO GL Article 156 – FCR provision

The initial text is:

1. Each TSO shall ensure the availability of at least its FCR obligations agreed between all TSOs of the same synchronous area in accordance with Articles 153, 163, 173 and 174.
2. All TSOs of a synchronous area shall determine, at least on an annual basis, the size of the K-factor of the synchronous area, taking into account at least the following factors:
 - (a) the reserve capacity on FCR divided by the maximum steady-state frequency deviation;
 - (b) the auto-control of generation;
 - (c) the self-regulation of load, taking into account the contribution in accordance with **Articles 27 and 28 of Regulation (EU) 2016/1388**;
 - (d) the frequency response of HVDC interconnectors referred to in Article 172; and
 - (e) the LFSM and FSM activation in accordance with Articles 13 and 15 of Regulation (EU) 2016/631.

The proposed text is:

1. Each TSO shall ensure the availability of at least its FCR obligations agreed between all TSOs of the same synchronous area in accordance with Articles 153, 163, 173 and 174.
2. All TSOs of a synchronous area shall determine, at least on an annual basis, the size of the K-factor of the synchronous area, taking into account at least the following factors:
 - (a) the reserve capacity on FCR divided by the maximum steady-state frequency deviation;
 - (b) the auto-control of generation;
 - (c) the self-regulation of load, ~~taking into account the contribution in accordance with Articles 27 and 28 of Regulation (EU) 2016/1388~~;
 - (d) the frequency response of HVDC interconnectors referred to in Article 172; and
 - (e) the LFSM and FSM activation in accordance with Articles 13 and 15 of Regulation (EU) 2016/631.

Justification of the proposed amendment

This amendment aims at removing the references to the articles of NC DC Title 3 which are proposed for deletion.

Annex

The following chapters present the content of NC DC Title 3 and articles 41 and 45. For clarity, the provisions transferred in SO GL are flagged in bold and are consistent with the information provided in the Table 1.

NC DC - Title 3 – Connection of demand units used by a demand facility or a closed distribution system to provide demand response services to system operators

Chapter 1 - General requirements

Article 27 - General provisions

1. Demand response services provided to system operators shall be distinguished based on the following categories:

(a) remotely controlled:

(i) demand response active power control;

(ii) demand response reactive power control;

(iii) demand response transmission constraint management.

(b) autonomously controlled:

(i) demand response system frequency control;

(ii) demand response very fast active power control.

2. Demand facilities and closed distribution systems may provide demand response services to relevant system operators and relevant TSOs. Demand response services can include, jointly or separately, upward or downward modification of demand.

3. The categories referred to in paragraph 1 are not exclusive and this Regulation does not prevent other categories from being developed. This Regulation does not apply to demand response services provided to other entities than relevant system operators or relevant TSOs.

Article 28 - Specific provisions for demand units with demand response active power control, reactive power control and transmission constraint management

1. Demand facilities and closed distribution systems may offer demand response active power control, demand response reactive power control, or demand response transmission constraint management to relevant system operators and relevant TSOs.

2. Demand units with demand response active power control, demand response reactive power control, or demand response transmission constraint management shall comply with the following requirements, either individually or, where it is not part of a transmission-connected demand facility, collectively as part of demand aggregation through a third party:

(a) be capable of operating across the frequency ranges specified in Article 12(1) and the extended range specified in Article 12(2);

(b) be capable of operating across the voltage ranges specified in Article 13 if connected at a voltage level at or above 110 kV;

(c) be capable of operating across the normal operational voltage range of the system at the connection point, specified by the relevant system operator, if connected at a voltage level below 110 kV. This range shall take into account existing standards and shall, prior to approval in accordance with Article 6, be subject to consultation with the relevant stakeholders in accordance with Article 9(1);

(d) be capable of controlling power consumption from the network in a range equal to the range contracted, directly or indirectly through a third party, by the relevant TSO;

(e) be equipped to receive instructions, directly or indirectly through a third party, from the relevant system operator or the relevant TSO to modify their demand and to transfer the necessary information. The relevant system operator shall make publicly available the technical specifications approved to enable this transfer of information. For demand units connected at a voltage level below 110 kV, these specifications shall, prior to approval in accordance with Article 6, be subject to consultation with the relevant stakeholders in accordance with Article 9(1);

(f) be capable of adjusting its power consumption within a time period specified by the relevant system operator or the relevant TSO. For demand units connected at a voltage level below 110 kV, these specifications shall, prior to approval in accordance with Article 6, be subject to consultation with the relevant stakeholders in accordance with Article 9(1);

(g) be capable of full execution of an instruction issued by the relevant system operator or the relevant TSO to modify its power consumption to the limits of the electrical protection safeguards, unless a contractually agreed method is in place with the relevant system operator or relevant TSO for the replacement of their contribution (including aggregated demand facilities' contribution through a third party);

(h) once a modification to power consumption has taken place and for the duration of the requested modification, only modify the demand used to provide the service if required by the relevant system operator or relevant TSO to the limits of the electrical protection safeguards, unless a contractually agreed method is in place with the relevant system operator or relevant TSO for the replacement of their contribution (including aggregated demand facilities' contribution through a third party). Instructions to modify power consumption may have immediate or delayed effects;

(i) notify the relevant system operator or relevant TSO of the modification of demand response capacity. The relevant system operator or relevant TSO shall specify the modalities of the notification;

(j) where the relevant system operator or the relevant TSO, directly or indirectly through a third party, command the modification of the power consumption, enable the modification of a part of its demand in response to an instruction by the relevant system operator or the relevant TSO, within the limits agreed with the demand facility owner or the CDSO and according to the demand unit settings;

(k) have the withstand capability to not disconnect from the system due to the rate-of-change-of-frequency up to a value specified by the relevant TSO. With regard to this withstand capability, the value of rate-of-change-of frequency shall be calculated over a 500 ms time frame. For demand units connected at a voltage level below 110 kV, these specifications shall, prior to approval in accordance with Article 6, be subject to consultation with the relevant stakeholders in accordance with Article 9(1);

(l) where modification to the power consumption is specified via frequency or voltage control, or both, and via pre-alert signal sent by the relevant system operator or the relevant TSO, be equipped to receive, directly or indirectly through a third party, the instructions from the relevant system operator or the relevant TSO, to measure the frequency or voltage value, or both, to command the demand trip and to transfer the information. The relevant system operator shall specify and publish the technical specifications approved to enable this transfer of information. For demand units connected at a voltage level below 110 kV, these specifications shall, prior to approval in accordance with Article 6, be subject to consultation with the relevant stakeholders in accordance with Article 9(1).

3. For voltage control with disconnection or reconnection of static compensation facilities, each transmission connected demand facility or transmission-connected closed distribution system shall be able to connect or disconnect its static compensation facilities, directly or indirectly, either individually or commonly as part of demand aggregation through a third party, in response to an instruction transmitted by the relevant TSO, or in the conditions set forth in the contract between the relevant TSO and the demand facility owner or the CDSO.

Article 29 - Specific provisions for demand units with demand response system frequency control

1. Demand facilities and closed distribution systems may offer demand response system frequency control to relevant system operators and relevant TSOs.

2. Demand units with demand response system frequency control shall comply with the following requirements, either individually or, where it is not part of a transmission-connected demand facility, collectively as part of demand aggregation through a third party:

(a) be capable of operating across the frequency ranges specified in Article 12(1) and the extended range specified in Article 12(2);

(b) be capable of operating across the voltage ranges specified in Article 13 if connected at a voltage level at or above 110 kV;

(c) be capable of operating across the normal operational voltage range of the system at the connection point, specified by the relevant system operator, if connected at a voltage level below 110 kV. This range shall take into account existing standards, and shall, prior to approval in accordance with Article 6, be subject to consultation with the relevant stakeholders in accordance with Article 9(1);

(d) be equipped with a control system that is insensitive within a dead band around the nominal system frequency of 50,00 Hz, of a width to be specified by the relevant TSO in consultation with the TSOs in the synchronous area. For demand units connected at a voltage level below 110 kV, these specifications shall, prior to approval in accordance with Article 6, be subject to consultation with the relevant stakeholders in accordance with Article 9(1);

(e) be capable of, upon return to frequency within the dead band specified in paragraph 2(d), initiating a random time delay of up to 5 minutes before resuming normal operation.

The maximum frequency deviation from nominal value of 50,00 Hz to respond to shall be specified by the relevant TSO in coordination with the TSOs in the synchronous area. For demand units connected at a voltage level below 110 kV, these specifications shall, prior to approval in accordance with Article 6, be subject to consultation with the relevant stakeholders in accordance with Article 9(1).

The demand shall be increased or decreased for a system frequency above or below the dead band of nominal (50,00 Hz) respectively;

(f) be equipped with a controller that measures the actual system frequency. Measurements shall be updated at least every 0,2 seconds;

(g) be able to detect a change in system frequency of 0,01 Hz, in order to give overall linear proportional system response, with regard to the demand response system frequency control's sensitivity and accuracy of the frequency measurement and the consequent modification of the demand. The demand unit shall be capable of a rapid detection and response to changes in system frequency, to be specified by the relevant TSO in coordination with the TSOs in the synchronous area. An offset in the steady-state measurement of frequency shall be acceptable up to 0,05 Hz.

Article 30 - Specific provisions for demand units with demand response very fast active power control

1. The relevant TSO in coordination with the relevant system operator may agree with a demand facility owner or a CDSO (including, but not restricted to, through a third party) on a contract for the delivery of demand response very fast active power control.

2. If the agreement referred to in paragraph 1 takes place, the contract referred to in paragraph 1 shall specify:

- (a) a change of active power related to a measure such as the rate-of-change-of-frequency for that portion of its demand;
- (b) the operating principle of this control system and the associated performance parameters;
- (c) the response time for very fast active power control, which shall not be longer than 2 seconds.

Chapter 2 - Operational notification procedure

Article 31 - General provisions

1. The operational notification procedure for demand units used by a demand facility or a closed distribution system to provide demand response to system operators shall be distinguished between:

(a) demand units within a demand facility or a closed distribution system connected at a voltage level of or below 1 000 V;

(b) demand units within a demand facility or a closed distribution system connected at a voltage level above 1 000 V.

2. Each demand facility owner or CDSO, providing demand response to a relevant system operator or a relevant TSO, shall confirm to the relevant system operator, or relevant TSO, directly or indirectly through a third party, its ability to satisfy the technical design and operational requirements as referred to in Chapter 1 of Title III of this Regulation.

3. The demand facility owner or the CDSO shall notify, directly or indirectly, through a third party, the relevant system operator or relevant TSO, in advance of any decision to cease offering demand response services and/or about the permanent removal of the demand unit with demand response. This information may be aggregated as specified by the relevant system operator or relevant TSO.

4. The relevant system operator shall specify and make publicly available further details concerning the operational notification procedure.

Article 32 - Procedures for demand units within a demand facility or a closed distribution system connected at a voltage level of or below 1 000 V

1. The operational notification procedure for a demand unit within a demand facility or a closed distribution system connected at a voltage level of or below 1 000 V shall comprise an installation document.

2. The installation document template shall be provided by the relevant system operator, and the contents agreed with the relevant TSO, either directly or indirectly through a third party.

3. Based on an installation document, the demand facility owner or the CDSO shall submit information, directly or indirectly through a third party, to the relevant system operator or relevant TSO. The date of this submission shall be prior to the offer in the market of the capacity of the demand response by the demand unit. The requirements set in the installation document shall differentiate between different types of connections and between the different categories of demand response services.

4. For subsequent demand units with demand response, separate installation documents shall be provided.

5. The content of the installation document of individual demand units may be aggregated by the relevant system operator or relevant TSO.

6. The installation document shall contain the following items:

(a) the location at which the demand unit with demand response is connected to the network;

(b) the maximum capacity of the demand response installation in kW;

(c) the type of demand response services;

(d) the demand unit certificate and the equipment certificate as relevant for the demand response service, or if not available, equivalent information;

(e) the contact details of the demand facility owner, the closed distribution system operator or the third party aggregating the demand units from the demand facility or the closed distribution system.

Article 33 - Procedures for demand units within a demand facility or a closed distribution system connected at a voltage level above 1 000 V

1. The operational notification procedure for a demand unit within a demand facility or a closed distribution system connected at a voltage level above 1 000 V shall comprise a DRUD. The relevant system operator, in coordination with the relevant TSO, shall specify the content required for the DRUD. The content of the DRUD shall require a statement of compliance which contains the information in Articles 36 to 47 for demand facilities and closed distribution systems, but the compliance requirements in Articles 36 to 47 for demand facilities and closed distribution systems can be simplified to a single operational notification stage as well as be reduced. The demand facility owner or CDSO shall provide the information required and submit it to the relevant system operator. Subsequent demand units with demand response shall provide separate DRUDs.

2. Based on the DRUD, the relevant system operator shall issue a FON to the demand facility owner or CDSO.

NC DC – Title 4– Compliance

Chapter 2 - Compliance testing (from art 36 to 41)

Article 41 - Compliance testing for demand units with demand response active power control, reactive power control and transmission constraint management

1. With regard to the demand modification test:

(a) the technical capability of the demand unit used by a demand facility or a closed distribution system to provide demand response active power control, demand response reactive power control or demand response transmission constraint management to modify its power consumption, after receiving an instruction from the relevant system operator or relevant TSO, within the range, duration and time frame previously agreed and established in accordance with Article 28, shall be demonstrated, either individually or collectively as part of demand aggregation through a third party;

(b) the test shall be carried out either by an instruction or alternatively by simulating the receipt of an instruction from the relevant system operator or relevant TSO and adjusting the power demand of the demand facility or the closed distribution system;

(c) the test shall be deemed passed, provided that the conditions specified by the relevant system operator or relevant TSO pursuant to Article 28(2)(d)(f)(g)(h)(k) and (l) are fulfilled;

(d) an equipment certificate may be used instead of part of the tests provided for in paragraph 1(b), on the condition that it is provided to the relevant system operator or relevant TSO.

2. With regard to the disconnection or reconnection of static compensation facilities test:

(a) the technical capability of the demand unit used by a demand facility owner or closed distribution system operator to provide demand response active power control, demand response reactive power control or demand response transmission constraint management to disconnect or reconnect, or both, its static compensation facility when receiving an instruction from the relevant system operator or relevant TSO, in the time frame expected in accordance with Article 28, shall be demonstrated, either individually or collectively as part of demand aggregation through a third party;

(b) the test shall be carried out by simulating the receipt of an instruction from the relevant system operator or relevant TSO and subsequently disconnecting the static compensation facility, and by simulating the receipt of an instruction from the relevant system operator or relevant TSO and subsequently reconnecting the facility;

(c) the test shall be deemed passed, provided that the conditions specified by the relevant system operator or relevant TSO pursuant to Article 28(2)(d)(f)(g)(h)(k) and (l) are fulfilled.

Chapter 3 - Compliance simulation (from art 42 to 45)

Article 45 - Compliance simulations for demand units with demand response very fast active power control

1. The model of the demand unit used by a demand facility owner or a closed distribution system operator to provide demand response very fast active power control shall demonstrate the technical capability of the demand unit to provide very fast active power control to a low frequency event in the conditions set out in Article 30.
2. The simulation shall be deemed passed provided that the model demonstrates compliance with the conditions set out in Article 30.