
Explanatory document for the Nordic synchronous area proposal for the FRR dimensioning rules in accordance with Article 157(1) of the Commission Regulation (EU) 2017/1485 of 2 August 2017 establishing a guideline on electricity transmission system operation

1. Introduction

The Commission Regulation (EU) 2017/1485 of 2 August 2017 establishing a guideline on electricity transmission system operation (hereinafter “**SO Regulation**”) sets out rules on relevant subjects that should be coordinated between Transmission System Operators, as well as between TSOs and Distribution System Operators and with significant grid users, where applicable. The goal of the SO Regulation is to ensure provision of an efficient functioning of the interconnected transmission systems to support all market activities. In order to deliver these objectives, a number of steps are required.

One of these steps is to define the FRR dimensioning rules. Pursuant to Article 119(1)(h) of the SO Regulation, all Transmission System Operators in the Nordic LFC Block shall jointly develop common proposals for the FRR dimensioning rules defined in accordance with Article 157(1).

According to Article 6(3)(e)(iv) of the SO Regulation the proposal for FRR dimensioning defined in accordance with Article 157(1) (hereafter referred to as “**Proposal**”) shall be submitted for approval by the relevant national regulatory authorities (hereinafter “NRAs”) no later than 14 September, 2018. The Proposal is submitted for regulatory approval to all NRAs in the Nordic LFC block. According to Article 6(6) of the SO Regulation the Proposal needs to be submitted to ACER as well, who may issue an opinion on the Proposal if requested by the NRAs.

This document contains an explanation of the Proposal from all TSOs of the Nordic synchronous area (hereinafter “TSOs”). It is structured as follows. The legal requirements for the Proposal are presented in Chapter 2. Chapter 3 starts with describing the objective of the FRR dimensioning rules. Chapter 4 provides an overview of the existing situation and Chapter 5 an outlook to future developments. The proposed FRR dimensioning rules are described in Chapter 6. Chapter 7 describes the expected impact on the relevant objectives of the SO Regulation. Finally, Chapter 8 provides the timeline for implementation and Chapter 9 describes the public consultation.

2. Legal requirements and interpretation

2.1 Legal references and requirements

Several articles in the SO Regulation set out requirements which the Proposal must take into account. These are cited below.

- (1) Article 119(1)(h) and (2) of the SO Regulation constitutes the legal basis that the Proposal should take into account. Article 119 has the following content:

“1. By 12 months after entry into force of this Regulation, all TSOs of each LFC block shall jointly develop common proposals for: [...]

(h) the FRR dimensioning rules defined in accordance with Article 157(1); [...]

2. All TSOs of each LFC block shall submit the methodologies and conditions listed in Article 6(3)(e) for approval by all the regulatory authorities of the concerned LFC block. Within 1 month after the approval of these methodologies and conditions, all TSOs of each LFC block shall conclude an LFC block operational agreement which shall enter into force within 3 months after the approval of the methodologies and conditions;”

- (2) Article 157 of the SO Regulation has the following content:

“1. All TSOs of a LFC Block shall set out FRR dimensioning rules in the LFC Block operational agreement.

2. The FRR dimensioning rules shall include at least the following:

(a) all TSOs of a LFC block in the CE and Nordic synchronous areas shall determine the required reserve capacity of FRR of the LFC block based on consecutive historical records comprising at least the historical LFC block imbalance values. The sampling of those historical records shall cover at least the time to restore frequency. The time period considered for those records shall be representative and include at least one full year period ending not earlier than 6 months before the calculation date;

(b) all TSOs of a LFC block in the CE and Nordic synchronous areas shall determine the reserve capacity on FRR of the LFC block sufficient to respect the current FRCE target parameters in Article 128 for the time period referred to in point (a) based at least on a probabilistic methodology. In using that probabilistic methodology, the TSOs shall take into account the restrictions defined in the agreements for the sharing or exchange of reserves due to possible violations of operational security and the FRR availability requirements. All TSOs of a LFC block shall take into account any expected significant changes to the distribution of LFC block imbalances or take into account other relevant influencing factors relative to the time period considered;

(c) all TSOs of a LFC block shall determine the ratio of automatic FRR, manual FRR, the automatic FRR full activation time and manual FRR full activation time in order to comply with the requirement of paragraph (b). For that purpose, the automatic FRR full activation time of a LFC block and the manual FRR full activation time of the LFC block shall not be more than the time to restore frequency;

(d) the TSOs of a LFC block shall determine the size of the reference incident which shall be the largest imbalance that may result from an instantaneous change of active power of a single power generating module, single demand facility, or single HVDC interconnector or from a tripping of an AC line within the LFC block;

(e) all TSOs of a LFC block shall determine the positive reserve capacity on FRR, which shall not be less than the positive dimensioning incident of the LFC block;

(f) all TSOs of a LFC block shall determine the negative reserve capacity on FRR, which shall not be less than the negative dimensioning incident of the LFC block;

(g) all TSOs of a LFC block shall determine the reserve capacity on FRR of a LFC block, any possible geographical limitations for its distribution within the LFC block and any possible geographical limitations for any exchange of reserves or sharing of reserves with other LFC blocks to comply with the operational security limits;

(h) all TSOs of a LFC block shall ensure that the positive reserve capacity on FRR or a combination of reserve capacity on FRR and RR is sufficient to cover the positive LFC block imbalances for at least 99 % of the time, based on the historical records referred to in point (a);

(i) all TSOs of a LFC block shall ensure that the negative reserve capacity on FRR or a combination of reserve capacity on FRR and RR is sufficient to cover the negative LFC block imbalances for at least 99 % of the time, based on the historical record referred to in point (a);

(j) all TSOs of a LFC block may reduce the positive reserve capacity on FRR of the LFC block resulting from the FRR dimensioning process by concluding a FRR sharing agreement with other LFC blocks in accordance with provisions in Title 8. The following requirements shall apply to that sharing agreement:

(i) for the CE and Nordic synchronous areas, the reduction of the positive reserve capacity on FRR of a LFC block shall be limited to the difference, if positive, between the size of the positive dimensioning incident and the reserve capacity on FRR required to cover the positive LFC block imbalances during 99 % of the time, based on the historical records referred to in

point (a). The reduction of the positive reserve capacity shall not exceed 30 % of the size of the positive dimensioning incident;

(ii) for the GB and IE/NI synchronous areas, the positive reserve capacity on FRR and the risk of non-delivery due to sharing shall be assessed continually by the TSOs of the LFC block;

(k) all TSOs of a LFC block may reduce the negative reserve capacity on FRR of the LFC block, resulting from the FRR dimensioning process by concluding a FRR sharing agreement with other LFC blocks in accordance with the provisions of Title 8. The following requirements shall apply to that sharing agreement:

(i) for the CE and Nordic synchronous areas, the reduction of the negative reserve capacity on FRR of a LFC block shall be limited to the difference, if positive, between the size of the negative dimensioning incident and the reserve capacity on FRR required to cover the negative LFC block imbalances during 99 % of the time, based on the historical records referred to in point (a);

(ii) for the GB and IE/NI synchronous areas, the negative reserve capacity on FRR and the risk of non-delivery due to sharing shall be assessed continually by the TSOs of the LFC block.

3. All TSOs of a LFC block where the LFC block comprises more than one TSO shall set out, in the LFC block operational agreement, the specific allocation of responsibilities between the TSOs of the LFC areas for the implementation of the obligations established in paragraph 2.

4. All TSOs of a LFC block shall have sufficient reserve capacity on FRR at any time in accordance with the FRR dimensioning rules. The TSOs of a LFC block shall specify in the LFC block operational agreement an escalation procedure for cases of severe risk of insufficient reserve capacity on FRR in the LFC block.”

(3) Article 6(3)(e)(iv) of the SO Regulation states:

“The proposals for the following terms and conditions or methodologies shall be subject to approval by all regulatory authorities of the concerned region, on which a Member State may provide an opinion to the concerned regulatory authority: [...]

(e) methodologies and conditions included in the LFC block operational agreements in Article 119, concerning: [...]

(iv) the FRR dimensioning rules in accordance with Article 157(1);

2.2 Interpretation and scope of the Proposal

In accordance with Article 157(1) and (2) of the SO Regulation, the scope of this Proposal shall include the dimensioning of both manual FRR (mFRR) and automatic FRR (aFRR) for the Nordic LFC Block. The result of the dimensioning are the required amounts of upward and downward mFRR and aFRR for the Nordic LFC Block, including the geographical distribution.

Outside the scope of this Proposal is how the TSOs of the Nordic LFC Block will ensure that sufficient FRR will be available in practice.

3. Objective of FRR dimensioning

The Nordic Frequency Restoration Process (FRP) applies mFRR and in some hours aFRR. The main purpose of FRR is restoring the system frequency in the Nordic synchronous area and consequently replace activated FCR. mFRR can also be pro-actively activated to prevent for frequency deviations, e.g. in case of (expected) deterministic frequency deviations. FRR shall be sufficiently available to maintain the frequency and to be within system security limits. The objective of FRR dimensioning is to determine a volume of aFRR and mFRR that shall be available in the Nordic LFC block. As the Nordic LFC block experiences frequent

congestions in the grid, the dimensioning shall take the geographical requirements for distribution of FRR into account.

4. The existing situation

In this chapter, the existing FRR dimensioning rules are described. As aFRR is a process under development in the Nordics and the current total Nordic determined volume of aFRR is a fixed and limited volume (300 MW) in about 1/5 of the hours of the week, the current Nordic FRR dimensioning is strongly dominated by mFRR (at least 15 times the aFRR capacity). Section 4.2 describes mFRR dimensioning, while section 4.2 elaborates on aFRR.

4.1 mFRR dimensioning

mFRR shall exist in order to restore the faster reserves FCR-N, FCR-D and aFRR when these reserves have been activated and to control flows in the grid within applicable limits. mFRR can also be pro-actively activated to prevent for frequency deviations, e.g. in case of (expected) deterministic frequency deviations. The mFRR shall in normal operation exist and be localized to the extent that the synchronous system can be balanced at any time. mFRR is dimensioned by the individual TSOs based on their control area assessment of local requirements. Bottlenecks on the network, dimensioning incidents and similar are included when assessing this.

The requirements for mFRR volumes in upward direction are currently defined by large national N-1 incidents: Each control area shall have mFRR volumes available equivalent to or greater than the dimensioning incident in the subsystem. The *'dimensioning incident'* is defined as *'faults which entail the loss of individual major components (production units, lines, transformers, bus bars, consumption etc.) and entail the greatest impact upon the power system from all fault events that have been taken into account.'*

In addition, the TSOs must also have reserves or other measures available to handle other imbalances which are correlated with N-1 incidents or two or more simultaneous faults which may occur within the TSOs control area and on the borders to other control areas.

In practice, all four TSOs dimension the mFRR volumes for their control area and determine the required distribution within the control area. The mFRR volumes are based on the dimensioning incident in the control area, as described above. However, some mFRR capacity is shared between Sweden and Denmark. mFRR that shall be available for handling of 'normal' BRP imbalances are not explicitly dimensioned for in Denmark East, Finland and Sweden. For this, these TSOs rely on voluntary mFRR energy bids that are available in the Nordic Regulating Power market. Also Statnett relies on voluntary mFRR energy bids for most of the time. However, if the probability for availability of sufficient mFRR is too low, Statnett contracts upward mFRR. This is normally an issue in winter.

There are currently no explicit Nordic arrangements for dimensioning nor contracting of downwards mFRR since historically availability of downward mFRR bids have been sufficient. However, the TSOs see a trend that the amounts of downward mFRR bids are reducing and the need for capacity is increasing. Due to this, the Nordic TSOs will now establish arrangements to secure downward mFRR capacity.

4.2 aFRR dimensioning

aFRR was introduced in the Nordic synchronous area in January 2013. The background for implementing and developing aFRR in the Nordics was the deteriorating frequency quality and aFRR was identified and agreed as one of the main measures to stop the weakening of the frequency quality.

The aFRR product shall be seen as an automatic "complement" to mFRR in the Frequency Restoration process.

The Nordic LFC block centrally activates aFRR from a single Load Frequency Controller (LFC). Based on the measured frequency, this LFC calculates the required activation of aFRR and distributes the activation

requests to the Nordic TSOs pro-rata. Consequently, each Nordic TSO distributes the requests to the contracted aFRR providers in its control area.

Currently, only procured aFRR capacity can be activated and therefore the complete dimensioned amount shall be procured. The TSOs procure aFRR in the morning and evening hours where the frequency variations are most challenging.

Each quarter of a year, all Nordic TSOs determine the hours for which aFRR shall be dimensioned. These hours include the hours where the frequency variations are most challenging. Dimensioned aFRR capacity will be at least 300 MW in at least 35 hours/week as today.

5. Outlook

The TSOs expect that future challenges will require more automated balancing. The Nordic TSOs will increase the number of aFRR contracting hours from 35 hours/week today to all hours. After that, the aFRR volume will gradually be increased from today's level of 300 MW to a tentative target volume of 600MW. From that point in time a new dimensioning method for aFRR will have to be implemented.

The proposal presented in section 6 of this document does not comply to the requirements in Article 157 of the SO Regulation in all aspects. Most importantly, the proposed dimensioning rules for mFRR will dimension mFRR per control area instead of for the entire LFC Block. Furthermore, the FRR dimensioning rules will not make use of a probabilistic methodology and historical records. The TSOs have agreed on an approach for a new Nordic balancing model. Within the implementation process, the TSOs are developing a FRR dimensioning process which will comply with the requirements in Article 157 of the SO Regulation. Once defined, the TSOs will start an amendment process to this proposal.

6. Proposal for FRR dimensioning

The proposal reflects the existing rules as discussed in section 4. In addition to the existing rules, the proposal includes dimensioning of downward mFRR. Downward mFRR will be even more important when the new HVDC interconnectors have been commissioned. This results in the following text for Article 3 and 4 of the Proposal:

Article 3 – mFRR dimensioning

1. Each TSO is responsible for dimensioning of mFRR for their control area and for determining the required geographical distribution of mFRR capacity within their control area;
2. The mFRR capacity dimensioned for the control area shall at least cover the dimensioning incidents in the control area, in which the 'dimensioning incidents' is defined as 'faults which entail the loss of individual major components (production units, lines, transformers, bus bars, consumption etc.) and entail the greatest impact upon the power system from all fault events that have been taken into account.'. Both upward and downward mFRR shall be dimensioned.

Article 4 – aFRR dimensioning

1. Each quarter of a year, all Nordic TSOs determine the hours for which aFRR shall be dimensioned and the dimensioned amount of aFRR capacity based on the targeted frequency quality and the specifications in 2 and 3 below;
2. The hours for which aFRR shall be dimensioned shall at least include the hours where the frequency variations are most challenging;
3. Dimensioned aFRR capacity will be at least 300 MW.

7. Expected impact of the Proposal on the relevant objectives of the SO Regulation

The Proposal generally contributes to and does not in any way hamper the achievement of the objectives of Article 4 of the SO Regulation. In particular, the Proposal serves the objectives to:

- Article 4(1)(c) determining common load-frequency control processes and control structures;
- Article 4(1)(d) ensuring the conditions for maintaining operational security throughout the Union;
- Article 4(1)(e) ensuring the conditions for maintaining a frequency quality level of all synchronous areas throughout the Union; and

The Proposal contributes to these objectives by specifying the dimensioning rules for mFRR and aFRR, which are key reserves that are used in the common Nordic load-frequency control processes. Sufficient mFRR and aFRR guarantee the right FRCE and frequency quality level and consequently maintain the operational security by reducing the risk for automatic Under Frequency Load Shedding (UFLS), automatic reduction of generation and for system blackouts due to under or over frequency.

8. Timescale for the implementation

The TSOs shall implement the Proposal not later than when Nordic LFC block operational agreement enters into force in accordance with Article 119 of the SO Regulation.

9. Public consultation

Article 11 of the SO Regulation states that: *“TSOs responsible for submitting proposals for terms and conditions or methodologies or their amendments in accordance with this Regulation shall consult stakeholders, including the relevant authorities of each Member State, on the draft proposals for terms and conditions or methodologies listed in Article 6(2) and (3). The consultation shall last for a period of not less than one month.”*

This Proposal has been consulted in the period 1 July to 15 August 2018. The appendix to this document includes the views of stakeholders resulting from the consultations and explains if and how these views have been taken into account in the proposal.

Appendix: Results of Public Consultation

Article 11(3) of the SO Regulation states that: *“The TSOs responsible for developing the proposal for terms and conditions or methodologies shall duly take into account the views of stakeholders resulting from the consultations prior to its submission for regulatory approval. In all cases, a sound justification for including or not including the views resulting from the consultation shall be provided together with the submission of the proposal and published in a timely manner before, or simultaneously with the publication of the proposal for terms and conditions or methodologies.”*. Table 1 lists the views of stakeholders on this proposal resulting from the consultations and explains if and how these views have been taken into account in the Proposal.

Table 1: Views of stakeholders resulting from the consultations and explains if and how these views have been taken into account in the Proposal.

no.	organisation	comment	response TSOs
2	Danish Energy	<p>Overall, we are disappointed with the lack of detail and the absence of actual methodologies across all four proposals. We remind TSOs that, according to Article 6(3)(d-e) of the SO Regulation, the four proposals consulted upon are supposed to contain the actual methodologies and conditions to be included in the Synchronous Area and LFC block operational agreements when submitted for regulatory approval. We find these methodologies and conditions fundamentally lacking in the current proposals.</p> <p>We are also disappointed that these methodologies haven’t been prepared in cooperation with the stakeholders and underline that stakeholders must be included in the preparatory process from an early phase.</p> <p>Nordic TSOs, operating one of the most closely integrated regional power systems in the world, should lead the way in European integration through much more ambitious and detailed proposals. The current proposals will delay the Nordic integration by postponing important decisions to the future implementation of a new Nordic balancing model. Furthermore, the proposals will render the Nordic countries non-compliant with the SO Regulation, which the TSOs explicitly recognize in the Explanatory Document on FRR dimensioning rules, by stating that “The proposal presented in section 6 of this document does not comply to the requirements in Article 157 of the SO Regulation in all aspects. [...] The TSOs have agreed on an approach for a new Nordic balancing model. Within the implementation process, the TSOs are developing a FRR dimensioning process which will comply with the requirements in Article 157 of the SO Regulation. Once defined, the TSOs will start an amendment process to this proposal.”</p> <p>We can only conclude that the Nordic TSOs are fully aware of the insufficiencies of the current proposals and find it odd they have nonetheless decided to consult upon them. Our major concern is that that Nordic TSOs may de facto shift decision-making on the relevant methodologies to their parallel initiative on new Nordic balancing - with weakly defined and non-legally binding implementation timelines – instead of complying to the process laid out in the SO Regulation. In order to fulfil the letter and spirit of the SO Regulation, and remain amongst the leaders of regional power system integration in European, we urge TSOs to take the following specific comments on each of the four proposals into account:</p>	<p>Comment acknowledged and did not result in a change of the proposals. As referred to by the respondent, the TSOs are in a process of changing their balancing model to fulfil the requirements in the SO Regulation and to reflect the needs for the Nordic situation. The Nordic TSOs have experienced that this process is very complex and time consuming and due to that the Nordic TSOs regret that it has not been possible to finalize the development work yet. However, earlier this year, the TSOs concluded a Cooperation Agreement including the main principles of the new Nordic balancing model and an initial schedule for implementation. At this moment, the TSOs pay a big effort in detailing the new Nordic balancing model. Since the TSOs want to do this carefully and also want to involve stakeholders in the development, the TSOs require more time than originally allowed by the SO Regulation. The TSOs will also like to stress the fact that operational agreements have to reflect the actual operational arrangements and in general not some future concept. Accordingly, the proposals mainly describe the existing situation. Once the Nordic balancing model has been developed, the TSOs will start an amendment process, in accordance with the relevant rules in the SO Regulation. A time plan for the amendments will shortly be discussed with the NRAs and all stakeholders will be informed. Needed implementation time for TSOs and other stakeholders will also have to be considered.</p>

3	Danish Energy	<p><i>FRR dimensioning rules</i></p> <p>We are disappointed to note that the TSO proposal is not compliant with the requirements of the SO Regulation Article 157(2-4). According to the regulation, TSOs must dimension FRR at LFC Block level and not – as in the draft proposal – at Control Area level. Similarly, the proposal does not ensure that the dimensioning is based on the use of probabilistic methods and historical data, as also required by the SO Regulation. While we recognize that TSOs may want to uphold the current dimensioning process for an interim period, we find it unacceptable that decisions on any details are postponed to the new Nordic balancing market development, for which the detailed implementation deadlines are unknown and not legally-binding. We believe that TSOs, as an absolute minimum, should at least define a future methodology for LFC Block dimensioning and an implementation deadline in the current proposal.</p>	<p>Comment acknowledged and did not result in a change of the proposal. The TSOs note that FRR dimensioning for an LFC block with limited transmission capacity between the LFC areas is a complex issue in which both balancing and congestion management shall be considered. The TSOs are working on a new Nordic Balancing model, which includes FRR dimensioning for the Nordic LFC block. However, since security of supply has the TSOs' highest priority, the TSOs decided not to rush this issue, but develop a robust methodology carefully and in coordination with their stakeholders. <i>The TSOs also refer to their response to item no. 2.</i></p>
4	Danish Energy	<p>Importantly, the FRR dimensioning rules should reflect a growing need for aFRR resources in the future Nordic balancing market. TSOs expect a growing need for automated balancing due to a changing generation mix and the harmonization of balancing markets towards a slightly more 'reactive' balancing philosophy. The proposed aFRR dimensioning fully fails to take this into account by stipulating in Article 4(2-3) that aFRR will still only be dimensioned for certain hours a week and only with a 300MW minimum volume. We suggest that TSOs walk the talk of their own Explanatory Document, in which they recognize a need for larger volumes in more hours, by ensuring a dimensioning of at least 600MW aFRR for all hours of the year in the final proposal.</p>	<p>Comment acknowledged and did not result in a change of the proposal. The issues mentioned by the respondent are included in the TSOs' work on the new Nordic balancing model. <i>The TSOs also refer to their response to item no. 2 and 3.</i></p>
5	Danish Energy	<p>Finally, we appreciate that downward mFRR will be dimensioned in the future.</p>	<p>Comment acknowledged and did not result in a change of the proposal.</p>
12	Danish Energy	<p>In sum, we are surprised and disappointed that TSOs evade the SO Regulation requirements and submit four proposals with little actual substance for consultation. We strongly urge TSOs to start discussions with stakeholders and significantly revise the four proposals in line with our comments above, most importantly by adding substance and details on the envisaged methodologies in order to bring them into compliance with the SO Regulation, before submitting them for final NRA approval.</p>	<p>Comment acknowledge and did not result in a change of the proposals. The TSOs confirm that in the development process of the new Nordic balancing model, stakeholder involvement is of paramount importance.</p>
14	Energy Norway - Association	<p>While Energy Norway regrets that the topics of this consultation has not been agreed upon within the NBC, we recognize that since the NBC represents a fundamentally new way of balancing the Nordic synchronous system, and the Nordic TSOs have different viewpoints, the development process is complex and time-consuming and not all aspects have been concluded up to this point. But given both the importance and complexity of the NBC and the requirements given by the SOGL, it is important that the TSOs increase the transparency and involvement related to the development and implementation of the NBC going forward. This will require a more proactive involvement of stakeholders in the development and implementation process. Among</p>	<p>Comment acknowledged and did not result in a change of the proposals. The TSOs confirm that the development process is complex and time-consuming and that not all aspects have been concluded up to this point. The TSOs further confirm that stakeholder involvement is crucial in the development of the new Nordic Balancing model and will be an important part of the development process.</p>

		<p>other things, the TSOs should justify and explain working plans, time-tables and SOGL compliance issues, challenges and opportunities for market players and implementation strategy. A step by step implementation of NBC is a probable starting point given the complexity and need to gain experience.</p> <p>Up to now the stakeholders have not been sufficiently involved, and a continuation of this practice will not only hurt the implementation of the NBC but may also backfire on the TSOs in the long run.</p>	
18	Finnish Energy	<p>Overall, we are disappointed with the lack of detail and absence of actual methodologies across all four proposals. According to Article 6(3) (d-e) of the SOGL, the four proposals consulted upon are supposed to contain the actual methodologies and conditions to be included in the Synchronous Area and LFC block operational agreements when submitted for regulatory approval. We find these methodologies and conditions fundamentally lacking in the current proposals and hence that the proposals are not compliant with SOGL We are also disappointed that these methodologies haven't been prepared in cooperation with the stakeholders and underline that stakeholders must be included in the preparatory process from an early phase.</p> <p>The current proposals will delay the Nordic integration by trying to postpone important decisions to the future implementation of a new Nordic balancing model. Furthermore, the proposals will render the Nordic countries non-compliant with the SOGL, which the TSOs explicitly recognize in the Explanatory Document on FRR dimensioning rules, by stating that "The proposal presented in section 6 of this document does not comply to the requirements in Article 157 of the SO Regulation in all aspects. [...] The TSOs have agreed on an approach for a new Nordic balancing model. Within the implementation process, the TSOs are developing a FRR dimensioning process which will comply with the requirements in Article 157 of the SO Regulation. Once defined, the TSOs will start an amendment process to this proposal."</p> <p>We can only conclude that the Nordic TSOs are fully aware of the insufficiencies of the current proposals and find it odd they have nonetheless decided to consult upon them. Our major concern is that that Nordic TSOs are about to shift decision-making on the relevant methodologies to their parallel initiative on new Nordic balancing - with weakly defined and non-legally binding implementation timelines – instead of complying to the process laid out in the SOGL.</p> <p>For to follow SOGL, and remain amongst the leaders of regional power system integration in European, we urge TSOs to take the following specific comments on each of the four proposals into account:</p>	<i>The TSOs refer to their response to item no. 2.</i>
19	Finnish Energy	<p><i>FRR dimensioning rules</i></p> <p>We are disappointed to note that the TSO proposal is not compliant with the requirements of the SOGL Article 157(2-4). According to the regulation, TSOs must dimension FRR at LFC Block level and not – as in the draft proposal – at Control Area level. Similarly, the proposal ensure that the dimensioning is based on the use of</p>	<i>The TSOs refer to their response to item no. 3 and no. 4</i>

		<p>probabilistic methods and historical data, as also required by the SOGL. While we recognize that TSOs may want to uphold the current dimensioning process for an interim period, we find it unacceptable that decisions on any details are proposed of being postponed to the new Nordic balancing market development, for which the detailed implementation deadlines are unknown and not legally-binding. We believe that TSOs, as an absolute minimum, should at least define a future methodology for LFC Block dimensioning and an implementation deadline in the current proposal. Importantly, the FRR dimensioning rules should reflect a growing need for aFRR resources in the future Nordic balancing market. TSOs expect a growing need for automated balancing due to a changing generation mix and the harmonization of balancing markets towards a slightly more 'reactive' balancing philosophy. The proposed aFRR dimensioning fails to take this into account by stipulating in Article 4(2-3) that aFRR will still only be dimensioned for certain hours a week and only with a 300MW minimum volume. We suggest that TSOs walk the talk of their own Explanatory Document, in which they recognize a need for larger volumes in more hours, by ensuring a dimensioning of at least 600MW aFRR for all hours of the year in the final proposal.</p>	
23	Finnish Energy	<p>In sum, we are surprised and disappointed that TSOs seemingly have chosen to evade the SOGL requirements and submit four proposals with little actual substance for consultation. We strongly urge TSOs to significantly revise the four proposals in line with our comments above, most importantly by adding substance and details on the envisaged methodologies in order to bring them into compliance with the SOGL, before submitting them for final NRA approval.</p>	<i>The TSOs refer to their response to item no. 12.</i>
32	Swedenergy	<p>Overall, we like to raise our concerns with the level of detail in the current proposals. According to Article 6(3)(d-e) of the SO Regulation the four proposals consulted should include descriptions of methodologies and conditions to be included in the Synchronous Area and LFC block operational agreements when submitted for regulatory approval. In our view the current proposals are quite general, and the methodologies and conditions still need to be developed and specified. It is important to take part of these details to be fully able to assess consequences and costs.</p> <p>We are aware of the time constraints and other ongoing processes linked to the development of these methodologies and conditions. Nevertheless, we would have liked to see that the methodologies had been prepared in cooperation with the stakeholders. We would like to underline that stakeholders must be included in the preparatory process from an early phase. Nordic TSOs have the possibility to lead the way in European integration. The current proposals can lead to a delay of Nordic integration by postponing important decisions to the future implementation of a new Nordic balancing model, for which the detailed implementation deadlines are unknown and not legally-binding.</p>	<i>The TSOs refer to their response to item no. 2.</i>

		<p>We therefore strongly encourage the TSOs to start discussions with stakeholders and to revise the four proposals in line with our comments, before submitting them for final NRA approval.</p> <p>We have the following specific comments to each of the four proposals:</p>	
34	Swedenergy	<p><i>FRR dimensioning rules</i></p> <p>According to the SO Regulation Article 157(2-4), the TSOs must dimension FRR at LFC Block level. However, in the draft proposal this is made at the Control Area level. Similarly, the proposal ensure that the dimensioning is based on the use of probabilistic methods and historical data, as also required by the SO Regulation. We believe that TSOs should define a future methodology for LFC Block dimensioning and an implementation deadline in the current proposal.</p> <p>Further, the FRR dimensioning rules should reflect a growing need for aFRR resources in the future Nordic balancing market. TSOs expect a growing need for automated balancing due to a changing generation mix and the harmonization of balancing markets towards a slightly more 'reactive' balancing philosophy. The proposed aFRR dimensioning do not seem to take this into account as Article 4(2-3) states that aFRR will still only be dimensioned for certain hours a week and only with a 300MW minimum volume. We therefore suggest that TSOs, in line with the Explanatory Document, develop this for the final proposal.</p>	<i>The TSOs refer to their response to item no. 3 and no. 4</i>
37	UPM-Kymmene Oyj	<p>In "Explanatory document for the Nordic synchronous area proposal for FRR dimensioning rules", it is stated that "The Nordic TSOs will increase the number of aFRR contracting hours from 35 hours/week today to all hours. After that, the aFRR volume will gradually be increased from today's level of 300 MW to a tentative target volume of 600 MW. From that point in time a new dimensioning method for aFRR will have to be implemented."</p> <p>Increasing the share of aFRR and decreasing the share of mFRR will eliminate some of the large-scale industry from participating to FRR markets because many of the current industrial processes capable of demand response can be operated only by single step response (for example on/off). This would mean that a large share of industrial capacity capable of providing regulation power would not be available.</p>	Comment acknowledged and did not result in a change in the proposal. The TSOs note that due to several developments (more HVDC interconnectors, more intermittent generation) balancing the Nordic power system requires automatic actions including automatic FRR. There will however still be a need for significant volumes of mFRR in the balancing process.
38	UPM-Kymmene Oyj	<p>As a general comment: when defining FRR dimensioning between Nordic countries, it has to be taken care of that the entire market design (day-ahead, intraday and FRR) is optimized economically. TSOs should not unnecessarily reserve interconnector capacity to reserve markets.</p>	Comment acknowledged and did not result in a change in the proposal. It shall be noted that market aspects are covered by the 'Commission Regulation (EU) 2017/2195 of 23 November 2017 establishing a guideline on electricity balancing'. Accordingly, the issues referred to by the respondent are not within the scope of this proposal. However, the development of the new Nordic balancing model includes both technical and market aspects and will take the issues referred to by the respondent into account.

