

Tämä on Energiaviraston sähköisesti allekirjoittama asiakirja.

Detta är ett dokument som har signerats elektroniskt av Energimyndigheten.

This is a document that has been electronically signed by the Energy Authority.

Asiakirjan päivämäärä on: 01.02.2024

Dokumentet är daterat: 01.02.2024

The document is dated: 01.02.2024

## **Esittelijä / Föredragande / Referendary**

Nimi / Namn / Name: Tuomas Tyni

Pvm / Datum / Date: 01.02.2024

## **Ratkaisija / Beslutsfattare / Decision-maker**

Nimi / Namn / Name: Simo Nurmi

Pvm / Datum / Date: 01.02.2024

### **Tämä asiakirja koostuu seuraavista osista:**

- Kansilehti (tämä sivu)
- Alkuperäinen asiakirja tai alkuperäiset asiakirjat [Allekirjoitettu asiakirja alkaa seuraavalta sivulta. >](#)

### **Detta dokument består av följande delar:**

- Titelblad (denna sida)
- Originaldokument [Det signerade dokumentet börjar på nästa sida. >](#)

### **This document contains:**

- Front page (this page)
- The original document(s) [The signed document follows on the next page >](#)

Fingrid Oyj  
PL 530  
00101 Helsinki

## Päätös Fingrid Oyj:n ehdotukseen pätötehon muutosnopeusrajoituksista

### Asianosainen

Fingrid Oyj

### Vireilletulo

3.4.2023

### Ratkaisu

Energiavirasto vahvistaa Fingrid Oyj:n noudatettavaksi päätöksen liitteenä olevat pätötehon muutosnopeusrajoitukset.

Päätös on voimassa toistaiseksi.

Päätöstä on noudatettava muutoksenhausta huolimatta.

### Selostus asiasta

Fingrid Oyj (jatkossa myös Fingrid) toimitti Energiavirastolle 3.4.2023 komission asetus (EU) 2017/1485 sähkön siirtoverkon käyttöä koskevien suuntaviivojen (jäljempänä SO suuntaviivat) mukaisen pätötehon muutosnopeusrajoituksia koskevan ehdotuksen sekä taustadokumentin, joka sisälsi 1.2.2023-1.3.2023 pidetyn julkisen kuulemisen tulokset. Ehdotus sisälsi muun muassa muutoksia HVDC siirtojoh-tojen maksimaalisen muutosnopeuden rajoituksen määrittämiseksi sekä esitteli uuden artiklan ylimääräisten muutosnopeusrajoitusten asettamiselle HVDC-kaapelien teknisestä- tai käyttönäkökulmasta.

Energiavirasto toimitti SO suuntaviivojen artiklan 7 nojalla muutospyyntön Fingridille 3.10.2023. Muutospyyntö sisälsi menetelmän koherenttiutta parantavia tarkennuksia, kuten menetelmässä käytettyjen termien määrittelypyynnön. Lisäksi muutospyyntössä pyydettiin siirtoverkonhaltijoita poistamaan menetelmästä sel-laista sisältöä, joka ei tue taajuudensäätöblokkien taajuuden palautuksen säätövirheen tavoiteparametrin saavuttamista. Määräajaksi muutospyyntöön vastaamiselle oli asetettu 4.12.2023.

Fingrid toimitti Energiavirastolle 4.12.2023 täydennetyn ehdotuksen taajuuden vaikutusreservien mitoitus säännöistä.

**Energiaviraston toimivalta**

Euroopan parlamentin ja neuvoston direktiivin 2009/72/EY 35 artiklan mukaan kunkin jäsenvaltion on nimettävä yksi kansallinen sääntelyviranomaisen kansallisella tasolla.

Lain Energiavirastosta (870/2013) 1 §:n 2 momentin mukaan Energiavirasto hoitaa kansalliselle sääntelyviranomaiselle kuuluvat tehtävät, joista säädetään:

3) sähkön sisämarkkinoita koskevista yhteisistä säännöistä ja direktiivin 2003/54/EY kumoamisesta annetun Euroopan parlamentin ja neuvoston direktiivin 2009/72/EY, jäljempänä sähkömarkkinadirektiivi, nojalla annetuissa, suuntaviivoja koskevissa komission asetuksissa tai päätöksissä.

**Asiaan liittyvä lainsäädäntö****Komission asetukset (EU) 2017/1485 sähkön siirtoverkon käyttöä koskevista suuntaviivoista (SO suuntaviivat)**

SO suuntaviivojen 4 artiklan mukaan:

” 1. Tämän asetuksen tavoitteena on

- a) määrittää yhteiset käyttövarmuutta koskevat vaatimukset ja periaatteet;
- b) määrittää yhteiset yhteenliitetyn verkon käyttötoiminnan suunnittelun periaatteet;
- c) määrittää yhteiset taajuudensäätöprosessit ja -rakenteet;
- d) varmistaa olosuhteet, joissa käyttövarmuutta voidaan ylläpitää kaikkialla unionissa;
- e) varmistaa olosuhteet, joissa kaikkien synkronialueiden taajuuden laatutasoa voidaan ylläpitää kaikkialla unionissa;
- f) edistää verkon käyttöä ja käyttötoiminnan suunnittelua koskevaa koordinoitua;
- g) varmistaa siirtoverkon toimintaa koskevien tietojen läpinäkyvyys ja luotettavuus ja parantaa sitä;
- h) edistää unionin sähkönsiirtoverkon ja sähköalan tehokasta toimintaa ja kehittämistä.

2. Jäsenvaltioiden, toimivaltaisten viranomaisten ja verkonhaltijoiden on tätä asetusta soveltaessaan

- a) sovellettava suhteellisuuden ja syrjimättömyyden periaatteita;
- b) varmistettava avoimuus;
- c) sovellettava periaatetta, jonka mukaan suurin kokonaistehokkuus ja alhaisimmat kokonaiskustannukset optimoidaan kaikkien asianomaisten osapuolten kesken;



- d) varmistettava, että siirtoverkonhaltijat hyödyntävät, niin pitkälti kuin mahdollista, markkinapohjaisia mekanismeja verkon käyttövarmuuden ja stabiilisuuden varmistamiseksi;
- e) kunnioitettava paikalliselle siirtoverkonhaltijalle annettua vastuuta varmistaa käyttövarmuus, myös kansallisessa lainsäädännössä vaaditulla tavalla;
- f) kuultava asianomaisia jakeluverkonhaltijoita ja otettava huomioon niiden järjestelmään mahdollisesti kohdistuvat vaikutukset; ja
- g) otettava huomioon sovitut eurooppalaiset standardit ja tekniset spesifikaatiot.”

SO suuntaviivojen 6 artiklan mukaan:

” 7. Jos ehtoja ja edellytyksiä tai menetelmiä koskevan ehdotuksen hyväksyminen edellyttää useamman kuin yhden sääntelyviranomaisten päätöstä, toimivaltaisten sääntelyviranomaisten on kuultava toisiaan, tehtävä tiivistä yhteistyötä ja koordinoitava toimiaan sopimukseen pääsemiseksi. Jos virasto antaa lausunnon, toimivaltaisten sääntelyviranomaisten on otettava se huomioon. Sääntelyviranomaisten on tehtävä 2 ja 3 kohdan mukaisesti ehdotettuja ehtoja ja edellytyksiä tai menetelmiä koskevat päätökset kuuden kuukauden kuluessa siitä, kun sääntelyviranomaisen tai, soveltuviissa tapauksissa, viimeinen asianosainen sääntelyviranomaisen on vastaanottanut ehdot ja edellytykset tai menetelmät.

8. Jos sääntelyviranomaiset eivät ole päässeet sopimukseen 7 kohdassa tarkoitetussa määräajassa tai niiden yhteisestä pyynnöstä virasto tekee päätöksen ehtoja ja edellytyksiä tai menetelmiä koskevista ehdotuksista kuuden kuukauden kuluessa asetuksen (EY) N:o 713/2009 8 artiklan 1 kohdan mukaisesti.

9. Jos ehtoja ja edellytyksiä tai menetelmiä koskevan ehdotuksen hyväksyminen edellyttää yhden nimetyn elimen päätöstä 4 kohdan mukaisesti, nimetyn elimen on tehtävä päätös kuuden kuukauden kuluessa ehtojen ja edellytysten tai menetelmien vastaanottamisesta.”

SO suuntaviivojen 7 artiklan mukaan:

” 1. Jos yksi tai useampi sääntelyviranomaisen vaatii 6 artiklan 2 ja 3 kohdan mukaisesti toimitettujen ehtojen ja edellytysten tai menetelmien muuttamista ennen hyväksymistä, asianomaisten siirtoverkonhaltijoiden on esitettävä hyväksyttäväksi ehdotus muutetuista ehdoista ja edellytyksistä tai menetelmistä kahden kuukauden kuluessa sääntelyviranomaisten vaatimuksen esittämisestä. Toimivaltaisten sääntelyviranomaisten on päätettävä muutetuista ehdoista ja edellytyksistä tai menetelmistä kahden kuukauden kuluessa niiden esittämisestä.”

SO suuntaviivojen 137 artiklan mukaan:



1. Kahden synkronialueen kaikilla siirtoverkonhaltijoilla on oikeus asettaa synkronialueen käyttösopimuksessa rajoituksia synkronialueiden välisten HVDC-yhdysjohtojen pätotholle, jotta voidaan rajoittaa niiden vaikutusta synkronialueen taajuuden laadun tavoiteparametrien saavuttamiseen, määrittelemällä yhdistetty suurin muutosnopeus kaikille HVDC-yhdysjohtoille, jotka liittävät yhden synkronialueen toiseen synkronialueeseen.
2. Edellä 1 kohdassa tarkoitettuja rajoituksia ei saa soveltaa epätasapainon netotukseen, taajuuden kytkentään eikä rajat ylittävään taajuuden palautusreservin ja korvaavan reservin aktivointiin HVDC-yhdysjohtojen kautta.
3. HVDC-yhdysjohdon kaikilla liittäville siirtoverkonhaltijoilla on oikeus määritellä taajuudensäättöblokin käyttösopimuksessa yhteisiä rajoituksia HVDC-yhdysjohdon pätotholle, jotta voidaan rajoittaa sen vai kutusta toisiinsa liitettyjen taajuudensäättöblokkien taajuuden palautuksen säätövirheen tavoiteparametrin saavuttamiseen, sopimalla kyseisen HVDC-yhdysjohdon muutosajoista ja/tai suurimmista muutosnopeuksista. Näitä yhteisiä rajoituksia ei saa soveltaa epätasapainon netotukseen, taajuuden kytkentään eikä rajat ylittävään taajuuden palautusreservin ja korvaavan reservin aktivointiin HVDC-yhdysjohtojen kautta. Synkronialueen kaikkien siirtoverkonhaltijoiden on koordinoitava nämä toimenpiteet synkronialueen sisällä.
4. Taajuudensäättöblokin kaikilla siirtoverkonhaltijoilla on oikeus määritellä taajuudensäättöblokin käyttösopimuksessa seuraavia toimenpiteitä, joilla tuetaan taajuudensäättöblokin taajuuden palautuksen säätövirheen tavoiteparametrin saavuttamista ja pienennetään deterministisiä taajuuspoikkeamia, ottaen huomioon sähköntuotantomoduulien ja kulutusyksiköiden tekniset rajoitukset:
  - a) sähköntuotantomoduulien ja/tai kulutusyksiköiden muutosaikoihin ja/ tai suurimpiin muutosnopeuksiin liittyvät velvoitteet;
  - b) taajuudensäättöblokin sähköntuotantomoduulien ja/tai kulutusyksiköiden laitekohtaisiin muutoksen alkamisajankohtiin liittyvät velvoitteet; ja
  - c) sähköntuotantomoduulien, kulutusyksiköiden ja pätothon kulutuksen välisen muutoksen koordinointi taajuudensäättöblokkissa.

## Perustelut

SO suuntaviivojen mukaisesti Energiavirasto on tätä päätöstä valmisteltaessa tehnyt tiivistä yhteistyötä ja koordinoanut toimiaan muiden toimivaltaisten sääntelyviranomaisten kanssa. Energiaviraston päätös noudattaa toimivaltaisten sääntelyviranomaisten yhteisesti sopimaa linjaa, joka on esitetty tämän päätöksen liitteenä dokumentissa "Approval by All Regulatory Authorities in the Nordic LFC blockon Amended Nordic LFC block proposal for ramping restrictions for active power outputin accordance with Article 137 of the Commission Regulation (EU) 2017/1485 of 2 August 2017 establishing a guideline on electricity transmission system operation".

Energiavirasto katsoo, että Fingridin 4.12.2023 toimittama täydennetty ehdotus täyttää Energiaviraston ja muiden sääntelyviranomaisten laatiman muutospyynnön vaatimukset. Energiavirasto toteaa, että menetelmä ei täsmällisesti määrittele



maksimaalisen pätötehon muutosnopeusrajoituksen muuttamisen käynnistäviä ehtoja ja siten menetelmään on, sääntelyviranomaisten muutospyynnössä pyytämällä tavalla, siirtoverkonhaltijoiden toimesta lisätty siirtoverkonhaltijoille velvollisuus päivittää menetelmää näiden osalta heti kun se on mahdollista.

Sääntelyviranomaiset katsovat yhdessä, että menetelmän artiklan 8(2) väliaikaan liittyy epävarmuuksia. Jotta väliajan sääntöjen epätäsmällisyys ei tarpeettomasti vaikuta menetelmän käyttöön tai soveltamiseen, sääntelyviranomaiset katsovat tarpeelliseksi, että siirtoverkonhaltijat arvioivat HVDC-yhdysjohtojen pätötehon muutosnopeusrajoituksia siirtymäajalla, jos siirtymäajan arvioitu kesto muuttuu. Näiden edellytyksien perusteella sääntelyviranomaiset katsovat mahdolliseksi hyväksyä menetelmän epävarmuuksista huolimatta.

Energiavirasto katsoo, että ehdotus mahdollistaa siirtoverkon käytön suuntaviivojen vaatimusten täyttämisen, on suuntaviivojen tavoitteiden mukainen ja siten hyväksyttävissä.

## Sovelletut säännökset

Komission asetus (EU) 2017/1485 4 artikla, 6 artikla, 7 artikla, 137 artikla

Laki sähkö- ja maakaasumarkkinoiden valvonnasta (590/2013) 36 §, 38 §

## Muutoksenhaku

Muutoksenhakua koskeva ohjeistus liitteenä.

### Liitteet

”Valitusosoitus markkinaoikeuteen”

”Approval by All Regulatory Authorities in the Nordic LFC block on Amended Nordic LFC block methodology for ramping restrictions for active power output in accordance with Article 137(3) and (4) of the Commission Regulation (EU) 2017/1485 of 2 August 2017 establishing a guideline on electricity transmission system operation”, 30 January 2024

”Amended Nordic LFC block methodology for ramping restrictions for active power output in accordance with Article 137(3) and (4) of the Commission Regulation (EU) 2017/1485 of 2 August 2017 establishing a guideline on electricity transmission system operation”, 29 January 2024

### Jakelu

Fingrid Oyj



## VALITUSOSOITUS

### **Valitusoikeus hallintopäätöksestä**

Energiaviraston antamaan hallintopäätökseen saa hakea muutosta valittamalla siten kuin laissa oikeudenkäynnistä hallintoasioissa (808/2019) säädetään. Valituskelpoisella hallintopäätöksellä tarkoitetaan päätöstä, jolla asia on ratkaistu tai jätetty tutkimatta.

Hallintopäätökseen saa hakea muutosta valittamalla se, johon päätös on kohdistettu tai jonka oikeuteen, velvollisuuteen tai etuun päätös välittömästi vaikuttaa ja se, jonka valitusoikeudesta laissa erikseen säädetään.

### **Valitusviranomainen**

Valitusviranomainen Energiaviraston päätökseen on markkinaoikeus.

### **Valituksen tekeminen ja valitusaika**

Valituksen saa tehdä sillä perusteella, että päätös on lainvastainen.

Valitus on tehtävä kirjallisesti 30 päivän kuluessa päätöksen tiedoksisaannista.

Jos tiedoksianto on toimitettu tavallisena tiedoksiantona postitse kirjeellä vastaanottajalle, katsotaan hänen saaneen asiasta tiedon seitsemäntenä päivänä kirjeen lähettämisestä, jollei muuta näytetä. Mikäli päätös annetaan hakijalle tiedoksi sähköisenä viestinä, päätös katsotaan annetuksi tiedoksi kolmantena päivänä viestin lähettämisestä, jollei muuta näytetä. Jos päätös on postitettu saantitodistusta vastaan, vastaanottajan katsotaan saaneen asiasta tiedon saantitodistuksen osoittamana aikana. Valitusaikaa laskettaessa tiedoksiantopäivää ei oteta lukuun.

Milloin kysymyksessä on sijaistiedoksianto, tiedoksisaannin katsotaan tapahtuneen kolmantena päivänä sijaistiedoksiantoa koskevan tiedoksiantotodistuksen osoittamasta päivästä. Viranomaisen tietoon asian katsotaan tulleen kirjeen saapumispäivänä.

Kun valituksen tekemisen määräajan viimeinen päivä on pyhäpäivä, itsenäisyyspäivä, vapunpäivä, joului- tai juhannusaatto tai arkilauantai, saa valituksen toimittaa ensimmäisenä arkipäivänä sen jälkeen. Valitus on toimitettava valitusviranomaiselle viimeistään valitusajan viimeisenä päivänä ennen valitusviranomaisen aukioloajan päättymistä.

Valituksen tekemisestä säädetään lisäksi sähköisestä asioinnista viranomaistoiminnassa annetussa laissa (13/2003). Määräaikojen laskemisesta säädetään säädettyjen määräaikain laskemisesta annetussa laissa (150/1930).



## Valituksen sisältö

Valituksessa on ilmoitettava:

- päätös, johon haetaan muutosta (*valituksen kohteena oleva päätös*);
- miltä kohdin päätökseen haetaan muutosta ja mitä muutoksia siihen vaaditaan tehtäväksi (*vaatimukset*);
- vaatimusten perustelut; sekä
- mihin valitusoikeus perustuu, jos valituksen kohteena oleva päätös ei kohdistu valittajaan.

Valituksessa on lisäksi ilmoitettava valittajan nimi ja yhteystiedot. Jos puhevaltaa käyttää valittajan laillinen edustaja tai asiamies, myös tämän yhteystiedot on ilmoitettava. Yhteystietojen muutoksesta on valituksen vireillä ollessa ilmoitettava viipymättä tuomioistuimelle.

Valituksessa on ilmoitettava myös se postiosoite ja mahdollinen muu osoite, johon oikeudenkäyntiin liittyvät asiakirjat voidaan lähettää (*prosessiosoite*). Mikäli valittaja on ilmoittanut enemmän kuin yhden prosessiosoitteen, voi tuomioistuin valita, mihin ilmoitetuista osoitteista se toimittaa oikeudenkäyntiin liittyvät asiakirjat.

Oikaisuvaatimuksen tekijä saa valittaessaan oikaisuvaatimuspäätöksestä esittää vaatimuksilleen uusia perusteluja. Hän saa esittää uuden vaatimuksen vain, jos se perustuu olosuhteiden muutokseen tai oikaisuvaatimuksen tekemisen määräajan päättymisen jälkeen valittajan tietoon tulleeseen seikkaan.

## Valituksen liitteet

Valitukseen on liitettävä:

- valituksen kohteena oleva päätös valitusosoituksineen;
- selvitys siitä, milloin valittaja on saanut päätöksen tiedoksi, tai muu selvitys valitusajan alkamisen ajankohdasta; sekä
- asiakirjat, joihin valittaja vetoaa vaatimuksensa tueksi, jollei niitä ole jo aikaisemmin toimitettu viranomaiselle.
- asiamiestä käytettäessä valtakirja, sen mukaan kuin oikeudenkäynnistä hallintoasioissa annetun lain 32 §:ssä säädetään.





## **Valituskirjelmän toimittaminen valitusviranomaiselle**

Valituskirjelmä on toimitettava valitusajan kuluessa markkinaoikeuteen, jonka osoite on

**Markkinaoikeus  
Radanrakentajantie 5  
00520 HELSINKI**

**faksi: 029 56 43314  
sähköposti: [markkinaoikeus@oikeus.fi](mailto:markkinaoikeus@oikeus.fi)**

Valituskirjelmä voidaan toimittaa valitusviranomaiselle myös postitse.

Valituksen voi tehdä myös hallinto- ja erityistuomioistuinten asiointipalvelussa osoitteessa <https://asiointi.oikeus.fi/hallintotuomioistuimet/#/>

*Kun valituskirjelmä toimitetaan hallinto- ja erityistuomioistuinten asiointipalvelun kautta, liitteet voi toimittaa skannattuna asiointipalvelussa tai kirjeitse. Kirjeitse toimitettaessa mainitse asiasta asiointipalvelun Viesti-kentässä.*

Valituskirjelmän lähettäminen postitse tai sähköisesti tapahtuu lähettäjän omalla vastuulla.

## **Oikeudenkäyntimaksu**

Valituksen käsittelystä markkinaoikeudessa voidaan periä oikeudenkäyntimaksu.

Valittajalta peritään markkinaoikeudessa oikeudenkäyntimaksu 2120 euroa.

Tuomioistuinmaksulaissa (1455/2015, <https://www.finlex.fi/fi/laki/ajan-tasa/2015/20151455?search%5Btype%5D=pika&search%5Bpika%5D=tuomiois-tuinmaksulaki#P5>) on erikseen säädetty tapauksista, joissa maksua ei peritä.

**Approval by All Regulatory Authorities in the Nordic LFC  
block**

**on**

**Amended Nordic LFC block methodology for ramping  
restrictions for active power output in accordance with Article  
137(3) and (4) of the Commission Regulation (EU) 2017/1485  
of 2 August 2017 establishing a guideline on electricity  
transmission system operation**

**30 January 2024**

## **I. Introduction and legal context**

This document elaborates an agreement of all Regulatory Authorities in the Nordic LFC block ( Forsyningsstilsynet (DUR), Energimarknads Inspektionen (Ei), Energiavirasto (EV) , Reguleringsmyndigheten for energi (NVE-RME) and Ålands Energimyndighet, hereinafter referred to as NRAs), agreed on January 2024, on the Nordic TSOs (Fingrid Oyj, Svenska kraftnät, Energinet, Kraftnät Åland AB and Statnett SF, hereinafter referred to as TSOs) “Amended Nordic LFC block methodology for ramping restrictions for active power output in accordance with Article 137(3) and (4) of the Commission Regulation (EU) 2017/1485 of 2 August 2017 establishing a guideline on electricity transmission system operation” (hereinafter referred to as respectively “amended ramping restrictions proposal” and “Regulation 2017/1485”).

This agreement of the NRAs shall provide evidence that a decision on the amended ramping restrictions proposal does not need to be adopted by ACER pursuant to Article 6(8) of the Regulation 2017/1485 at this stage. This document is intended to constitute the basis on which all NRAs will each subsequently make national decisions pursuant to Regulation 2017/1485 Article 6(1) to approve the amended ramping restrictions rules proposal submitted by the TSOs.

*The legal provisions relevant to the submission and approval of the amended ramping restrictions proposal, and this all NRAs agreed opinion, are Articles 4(1), 5(1), 6(3)(e)(i), 6(6), 6(7), 7(1), 11, 119(1)(c), 137(3) and 137(4) of Regulation 2017/1485.*

### **Regulation 2017/1485**

#### **Article 4(1)**

This Regulation aims at:(a) determining common operational security requirements and principles; (b) determining common interconnected system operational planning principles; (c) determining common load-frequency control processes and control structures; (d) ensuring the conditions for maintaining operational security throughout the Union; (e) ensuring the conditions for maintaining a frequency quality level of all synchronous areas throughout the Union; (f) promoting the coordination of system operation and operational planning; (g) ensuring and enhancing the transparency and reliability of information on transmission system operation; (h) contributing to the efficient operation and development of the electricity transmission system and electricity sector in the Union.

#### **Article 5(1)**

TSOs shall develop the terms and conditions or methodologies required by this Regulation and submit them for approval to the Agency in accordance with Article 6(2), to the competent regulatory authorities in accordance with Article 6(3), or to the entity designated by the Member State in accordance with Article 6(4) and (5) within the respective deadlines set out in this Regulation. In exceptional circumstances, notably in cases where a deadline cannot be met due to circumstances external to the sphere of TSOs, the deadlines for terms and conditions or methodologies may be prolonged by the Agency in procedures pursuant to Article 6(2), jointly by all competent regulatory authorities in procedures pursuant to Article 6(3), and by the competent regulatory authority in procedures pursuant to Article 6(4) and (5).

#### **Article 6(3)(e)(i)**

The proposals for the following terms and conditions or methodologies and any amendments thereof 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: methodologies and conditions included in the LFC block operational agreements in Article 119, concerning: ramping restrictions for active power output in accordance with Article 137(3) and (4);

#### **Article 6(6)**

The proposal for terms and conditions or methodologies shall include a proposed timescale for their implementation and a description of their expected impact on the objectives of this Regulation. Proposals for terms and conditions or methodologies subject to the approval by several regulatory authorities in accordance with paragraph 3 shall be submitted to the Agency within 1 week of their submission to regulatory authorities. Proposals for terms and conditions or methodologies subject to the approval by a designated entity in accordance with paragraph 4 may be submitted to the Agency within 1 month of their submission at the discretion of the designated entity while they shall be submitted upon the Agency's request for information purposes in accordance with Article 3(2) of Regulation (EU) 2019/942 if the Agency considers the proposal to have a cross-border impact. Upon request by the competent regulatory authorities, the Agency shall issue an opinion within 3 months on the proposals for terms and conditions or methodologies.

#### **Article 6(7)**

Where the approval of the terms and conditions or methodologies in accordance with paragraph 3 or the amendment in accordance with Article 7 requires a decision by more than one regulatory authority pursuant to paragraph 3, the competent regulatory authorities shall consult and closely cooperate and coordinate with each other in order to reach an agreement. Where the Agency issues an opinion, the competent regulatory authorities shall take that opinion into account. Regulatory authorities or, where competent, the Agency shall take decisions concerning the submitted terms and conditions or methodologies in accordance with paragraphs 2 and 3 within 6 months following the receipt of the terms and conditions or methodologies by the Agency or the regulatory authority or, where applicable, by the last regulatory authority concerned. The period shall begin on the day following that on which the proposal was submitted to the Agency in accordance with paragraph 2 or to the last regulatory authority concerned in accordance with paragraph 3.

#### **Article 7(1)**

Where the Agency or all competent regulatory authorities jointly request an amendment in order to approve the terms and conditions or methodologies submitted in accordance with paragraphs 2 and 3 of Article 6 respectively, the relevant TSOs shall submit a proposal for amended terms and conditions or methodologies for approval within 2 months following the request from the Agency or the regulatory authorities. The Agency or the competent regulatory authorities shall decide on the amended terms and conditions or methodologies within 2 months following their submission.

#### **Article 11**

- 1 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 1 month.
- 2 The proposals for terms and conditions or methodologies submitted by the TSOs at Union level shall be published and submitted to public consultation at Union level. Proposals submitted by

the TSOs at regional level shall be submitted to public consultation at least at regional level. Parties submitting proposals at bilateral or at multilateral level shall carry out a public consultation at least in the Member States concerned.

- 3 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.

#### **Article 119(1)(c)**

By 12 months after entry into force of this Regulation, all TSOs of each LFC block shall jointly develop common proposals for: ramping restrictions for active power output in accordance with Article 137(3) and (4);

#### **Article 137(3)**

All connecting TSOs of an HVDC interconnector shall have the right to determine in the LFC block operational agreement common restrictions for the active power output of that HVDC interconnector to limit its influence on the fulfilment of the FRCE target parameter of the connected LFC blocks by agreeing on ramping periods and/or maximum ramping rates for this HVDC interconnector. Those common restrictions shall not apply for imbalance netting, frequency coupling as well as cross-border activation of FRR and RR over HVDC interconnectors. All TSOs of a synchronous area shall coordinate these measures within the synchronous area.

#### **Article 137(4)**

All TSOs of an LFC block shall have the right to determine in the LFC block operational agreement the following measures to support the fulfilment of the FRCE target parameter of the LFC block and to alleviate deterministic frequency deviations, taking into account the technological restrictions of power generating modules and demand units:

- (a) obligations on ramping periods and/or maximum ramping rates for power generating modules and/or demand units;
- (b) obligations on individual ramping starting times for power generating modules and/or demand units within the LFC block; and
- (c) coordination of the ramping between power generating modules, demand units and active power consumption within the LFC block.

## **II. The amended ramping restrictions proposal**

This amended ramping restrictions proposal constitutes an amendment of the proposal the TSOs submitted to NRAs on 24 March 2021. The proposal was approved by the NRAs on 3 February 2022.

The first amended proposal received on 4 April 2023 from the TSOs included more details and increased the transparency of the ramping restrictions process compared to the previous approved methodology. The amended proposal facilitates the use of ramping restrictions with the implementation of 15 minutes MTU in the intraday and day-ahead markets. In addition to this, the TSOs have included a process on how to evaluate and update the maximum ramping rate on a specific HVDC interconnector on a yearly basis if needed.

The proposal was submitted to the NRAs on 4 April 2023 together with a separate explanatory document. The NRAs sent a Request for Amendment (RfA) on 4 October 2023 to the TSOs as the proposal lacked some clarifications and details and also contained parts that were not seen to belong to the methodology. The amended ramping restrictions proposal was submitted to the NRAs by the TSOs on 4 December 2023 together with a separate explanatory document. Among other amendments in the proposal, one change compared to the proposal submitted on 4 April 2023 is the process in article 4 for making a cost-benefit analysis whenever there are significant changes in the operating environment. These cost-benefit analyses shall be done every 5 years at minimum. This change was requested by the NRAs to address the continuous evaluation of the efficiency of ramping restrictions compared to other alternatives.

The request for submitting a new methodology to define criteria (article 8(7) in the amended methodology) was based on a view that article 4 was introducing ways of adjusting the maximum ramping rate on a specific HVDC interconnector in the future without explicitly defining the criteria for evaluation and update. Based on the NRAs' request, a new condition was added to the methodology where it requires the TSOs to submit a new amended methodology to include at least a definition for 'deterministic frequency deviation' (DFD) and threshold value for the change of DFDs ('significant decrease' and 'significant increase' respectively).

Furthermore, the former article 5 concerning technical or operational limitations of the HVDC interconnectors, in the proposal submitted on 4 April 2023, has also been deleted at NRAs' request. This was because the article did not specifically contribute to the fulfilment of the FRCE target parameters, which is the objective of the methodology.

The proposed ramping restrictions will also apply during an interim period between the switch to 15-minute MTU on the intraday market and the day-ahead market with the possibility of increasing ramping periods acc. 8(2). According to information received from TSOs dated 26 January 2024, the interim period is expected to be short (approximately 1-2 weeks) and therefore the possibility to increase ramping periods will be used if the interim period is prolonged, if deemed necessary. Because there is still some uncertainty concerning the interim period, the NRAs will for this position paper and the national decisions note to the interpretation of article 8(2) that the TSOs will perform an evaluation of the ramping restrictions on the HVDC interconnectors in case of a prolonged interim period.

Regulation 2017/1485 requires NRAs to consult and closely cooperate and coordinate with each other in order to reach an agreement and make decisions within six months following receipt of submissions of the last NRA concerned. According to Regulation 2017/1485 a request for amendment gives the TSOs two months to amend the proposal and the NRAs two months to reach an agreement. A decision is therefore required by each NRA by 4 February 2024.

### **III. NRAs' position**

The NRAs see the need for changes in the ramping restrictions methodology towards the implementation of 15 min MTU in both DA and ID timeframes and therefore welcome the TSOs' effort to set out updated common restrictions to enable the fulfilment of the FRCE target parameter of the connected LFC blocks. The NRAs also see that there are concerns induced by the upcoming connection to the MARI and PICASSO platforms and the general development in the power balance of the Nordics (the impact of increasing share of renewable energy). These changes are expected to impact the utilization of the HVDC interconnectors and the fulfilment of the FRCE target parameters, and therefore result in a need for a methodology which opens for a dynamic adaptation of the ramping restrictions on the HVDC interconnectors.

The NRAs are of the opinion that the amended ramping restrictions proposal enables the achievement of the objectives of Article 4 of Regulation 2017/1485.

The NRAs have therefore reached an agreement that the amended ramping restrictions meet the requirements of Regulation 2017/1485.

### **IV. Conclusions**

The NRAs of the Nordic LFC block have on 30 January 2024 reached an agreement on approval of the amended ramping restrictions proposal in accordance with Article 137(3) of the Commission Regulation (EU) 2017/1485 of 2 August 2017 establishing guideline on electricity transmission system operation. All NRAs have assessed, consulted and closely cooperated to reach an agreement that the amended ramping restrictions proposal meets the requirements of Regulation 2017/1485 and as such can be approved by all NRAs.

NRAs shall, based on this agreement, make their national decisions by 4 February 2024. The amended ramping restrictions proposal will be adopted upon the decision of the last NRA in the Nordic LFC block. Following the national decisions by all NRAs, the TSOs are required to publish the amended ramping restrictions proposal as approved, according to Article 8(1) of Regulation 2017/1485. All TSOs must respect the implementation deadlines provided in the amended ramping restrictions proposal.

---

**Amended Nordic LFC block methodology for ramping restrictions  
for active power output in accordance with Article 137(3) and (4) of  
the Commission Regulation (EU) 2017/1485 of 2 August 2017  
establishing a guideline on electricity transmission system operation**

---

29 January 2024



All TSOs of the Nordic LFC block, taking into account the following:

### Whereas

- (1) This document is the common methodology developed by all Transmission System Operators within the Nordic LFC block (hereafter referred to as “TSOs”) for ramping restrictions for active power output in accordance with Article 137(3) and (4) of Commission Regulation (EU) 2017/1485 establishing a guideline on electricity transmission system operation (hereafter referred to as “**SO Regulation**”)<sup>1</sup>. This methodology is hereafter referred to as “**Methodology**”. The Methodology is an amended version of the methodology ‘*Amended Nordic LFC block methodology for ramping restrictions for active power output in accordance with Article 137(3) and (4) of the Commission Regulation (EU) 2017/1485 of 2 August 2017 establishing a guideline on electricity transmission system operation*’. The amended methodology of 2 December 2021 has been approved by the NRAs in February 2022.
- (2) The Methodology takes into account the general principles and goals set in SO Regulation as well as Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on conditions for access to the network for cross-bidding-zone border exchanges in electricity (hereafter referred to as “Regulation (EU) 2019/943”). The goal of the SO Regulation/Regulation (EU) 2019/943 is the safeguarding of operational security, frequency quality and the efficient use of the interconnected system and resources. Article 119(1)(c) of the SO Regulation sets for this purpose requirements for the TSOs to “*jointly develop common proposals for: [...] ramping restrictions for active power output in accordance with Article 137(3) and (4);*”
- (3) Article 137(3) and (4) of the SO Regulation define the scope of this Methodology. Article 137(3) states that “*All connecting TSOs of an HVDC interconnector shall have the right to determine [...] common restrictions for the active power output of that HVDC interconnector to limit its influence on the fulfilment of the FRCE target parameter of the connected LFC blocks [...]*”. The TSOs will make use of this right. Article 137(4) states that “*All TSOs of an LFC block shall have the right to determine in the LFC block operational agreement the [...] measures*” related to “*power generating modules and/or demand units [...]*. After implementation of 15 minutes MTU in the day-ahead, intraday and balancing markets, the TSOs will not make use of this right anymore.
- (4) The existing ramping restrictions for HVDC interconnectors and production and the existing possibilities for the TSOs to coordinate ramping between production plans limit FRCE and frequency deviations in such a way that the current target on frequency quality will be fulfilled.
- (5) This amendment to the methodology is required because of the change of the Market Time Units (MTU) in the day-ahead and intraday market from 60 to 15 minutes. The methodology also considers other developments in the power system that may affect the FRCE and frequency quality.

---

<sup>1</sup> As amended by Commission Implementing Regulation (EU) 2021/280 of 22 February 2021, amending Regulations (EU) 2015/1222, (EU) 2016/1719, (EU) 2017/2195 and (EU) 2017/1485 in order to align them with Regulation (EU) 2019/943.

- (6) The TSOs have studied in 2020 different measures<sup>2</sup> that mitigate the impact of ramping and the results confirm that ramping restrictions on HVDC interconnectors are the most efficient measure from a socioeconomic welfare perspective.
- (7) The TSOs have investigated the impact of the proposed ramping restrictions on individual HVDC interconnectors for 15 minute MTUs and conclude that the negative impact of ramping restrictions on the European Socio Economic Welfare (SEW) will be substantially reduced compared to the existing situation.
- (8) In response to the public consultation of previous ramping restriction proposals, many stakeholders suggested to increase the efficiency of ramping restrictions by replacing restrictions on individual HVDC interconnectors by a combined Nordic ramping restriction. The TSOs have investigated this scenario and concluded that it will not result in a significant increase of European SEW, compared to the situation after implementation of 15 min MTU and the proposed ramping restrictions. In addition, combined restrictions cannot completely replace restrictions on individual HVDC interconnectors and may require additional restrictions on bidding zone level, which increases the complexity. Furthermore, the implementation of combined Nordic ramping restrictions requires upgrades in market systems. For these reasons, a combined Nordic ramping restriction is not proposed in this amended methodology.
- (9) Article 6(3) of the SO Regulation states that this Methodology is subject to approval by the Nordic NRAs:  
*“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: [...] (i) ramping restrictions for active power output in accordance with Article 137(3) and (4);”*
- (10) According to Article 6(6) of the SO Regulation the expected impact of the Methodology on the objectives of the SO Regulation has to be described and is presented below.
- (11) The Methodology 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 Methodology contributes to these objectives by specifying ramping restrictions. These ramping restrictions are required to maintain the operational security by reducing the risk for automatic frequency disconnection and for system blackouts due to under or over frequency. Furthermore, the ramping restrictions are required to maintain the frequency quality level of the Nordic synchronous area.
- (12) In conclusion, the Methodology contributes to the general objectives of the SO Regulation to the benefit of all market participants and electricity end consumers.

---

<sup>2</sup> Such as additional FRR, FCR or counter trading.

Amended Nordic LFC block methodology for ramping restrictions for active power output in accordance with Article 137(3) and (4) of the Commission Regulation (EU) 2017/1485 of 2 August 2017 establishing a guideline on electricity transmission system operation

## **SUBMIT THE FOLLOWING AMENDED METHODOLOGY TO ALL REGULATORY AUTHORITIES OF THE NORDIC LFC BLOCK:**

### **Article 1 - Subject matter and scope**

1. The ramping restrictions described in this Methodology are the common methodology of TSOs in accordance with article 137(3) and (4) of the SO Regulation. The Methodology applies solely to the Nordic LFC block.

The Nordic LFC block covers transmission systems of East-Denmark (DK2), Finland, Sweden and Norway.

This Methodology has been developed by Energinet, Fingrid Oyj, Kraftnät Åland AB, Svenska kraftnät and Statnett SF.

### **Article 2 - Definitions and interpretation**

1. For the purposes of this Methodology, the terms used shall have the meaning of the definitions included in Article 3 of the SO Regulation and in Article 2 of Commission Regulation (EU) 2017/2195.
2. For the purpose of this Methodology,
  - a. a HVDC interconnector means all HVDC cables between a LFC area in the Nordic LFC block and a LFC area in another LFC block.
  - b. Deterministic Frequency Deviations (DFDs) mean frequency deviations around the transition from one Market Time Unit (MTU) to the next which are caused by momentary imbalances that result from differences in ramping from electricity demand, electricity production and HVDC exchange going from their market results from the first MTU to the scheduled value of the next.
  - c. Combined ramping restriction means a ramping restriction that applies to the sum of the exchanges on a defined group of HVDC interconnectors.
3. In this Methodology, unless the context requires otherwise:
  - a. the singular indicates the plural and vice versa;
  - b. the headings are inserted for convenience only and do not affect the interpretation of the Methodology; and
  - c. any reference to legislation, regulations, directives, orders, instruments, codes or any other enactment shall include any modification, extension or re-enactment of it when in force.

### **Article 3 – Ramping restrictions for the active power output of HVDC interconnectors**

In order to fulfil the FRCE target parameters for the LFC block and LFC areas as referred to in Article 128 of the SO Regulation, the following ramping restrictions apply:

1. Each Nordic TSO shall apply ramping restrictions to each HVDC interconnector that connects its LFC area with another LFC area outside the Nordic LFC block and applies a 15 minutes Market Time Unit for intraday and/or day-ahead exchange:
  - a. The ramping period shall have a duration of 10 minutes and starts 5 minutes before each MTU;

- b. The initial value for the maximum ramping rate shall be 30 MW/min. The maximum ramping rate shall be regularly evaluated and if necessary updated in accordance with the procedure in Article 4. For LFC areas subject to a combined restriction in accordance with paragraph 2, the maximum ramping rate may be increased as described in Article 5;
2. One or more Nordic TSOs may apply a combined ramping restriction for HVDC interconnectors that connect one or more LFC area(s) in the Nordic LFC block with other LFC areas that participate in the Internal Energy Market (IEM). This shall be done in accordance with the following characteristics:
  - a. The ramping period shall have a duration of 10 minutes and starts 5 minutes before each MTU;
  - b. The initial value for the maximum combined ramping rate shall be:
    - i. at least the multiplication of 30 MW/min, and the number (n) of HVDC interconnectors subject to this sum restriction minus one (in formula:  $30 \text{ MW/min} * (n-1)$ ); and
    - ii. not more than the multiplication of 30 MW/min, and the number (n) of HVDC interconnectors subject to this sum restriction (in formula:  $30 \text{ MW/min} * n$ );
    - iii. updated in accordance with the procedure in Article 4(2).
  - c. If technically feasible, the initial value for the maximum combined ramping rate shall be increased up to the maximum value specified in paragraph b)ii) for the MTU shifts at which less than full ramping takes place on HVDC interconnectors that connect the LFC area(s) that apply the combined ramping restriction to the LFC areas that do not participate in the IEM;
  - d. The TSOs shall include and keep updated the specifics of each combined restrictions in the Nordic System Operation Agreement, including:
    - i. the LFC areas and the HVDC interconnectors subject to the combined ramping restriction;
    - ii. the value for the maximum combined ramping rate in accordance with paragraph b);
    - iii. the requirement to increase maximum combined ramping rate in accordance with paragraph c).
3. The following ramping restrictions shall be applied to each HVDC interconnector that applies a Market Time Unit different from 15 minutes in both intraday and day-ahead exchange:
  - a. The total duration of the ramping periods per hour shall not exceed 20 minutes;
  - b. The initial value for the maximum ramping rate shall be 30 MW/min. The maximum ramping rate shall be regularly evaluated and if necessary updated in accordance with the procedure in Article 4.

#### **Article 4 –Evaluation and update of ramping restrictions**

1. Every year in quarter 1, the TSOs shall complete an evaluation of the ramping restrictions based on the following procedure:
  - a. The TSOs assess the number of minutes outside the standard frequency range and the deterministic frequency deviations;
  - b. If the number of minutes outside the standard frequency range is more than 20% below the Nordic aim for frequency deviations outside the standard frequency range<sup>3</sup> and the assessment of the deterministic frequency deviations shows a significant decrease in deterministic frequency deviations, the maximum ramping rate (as referred to in Article 3(1)) shall be increased with exactly 10% (rounded to the nearest whole number);

---

<sup>3</sup> as stipulated in the Nordic synchronous area methodology for the frequency quality defining parameters and the frequency quality target parameter in accordance with Article 127 of the Commission Regulation (EU) 2017/1485 of 2 August 2017 establishing a guideline on electricity transmission system operation.

- c. If the number of minutes outside the standard frequency range is more than 20% above the Nordic aim for frequency deviations outside the standard frequency range<sup>3</sup> and the assessment of the deterministic frequency deviations shows a significant increase in deterministic frequency deviations, the maximum ramping rate (as referred to in Article 3(1)) may be decreased with exactly 10% (rounded to the nearest whole number). Alternatively other measures<sup>2</sup> shall be considered to improve the FRCE quality and frequency quality of the LFC block;
  - d. If the number of minutes outside the standard frequency range is within the 20% range around the Nordic aim for frequency deviations outside the standard frequency range<sup>3</sup> and the assessment of the deterministic frequency deviations shows a significant decrease of deterministic frequency deviations in three consecutive years, the maximum ramping rate (as referred to in Article 3(1)) shall be increased with exactly 10% (rounded to the nearest whole number);
  - e. If the number of minutes outside the standard frequency range is within the 20% range around the Nordic aim for frequency deviations outside the standard frequency range<sup>3</sup> and the assessment of the deterministic frequency deviations shows a significant increase in deterministic frequency deviations in three consecutive years, the maximum ramping rate (as referred to in Article 3(1)) may be decreased with exactly 10% (rounded to the nearest whole number). Alternatively other measures<sup>2</sup> shall be considered to improve the FRCE quality and frequency quality of the LFC block;
  - f. The conditions regarding deterministic frequency deviations in paragraph 1(b), 1(c), 1(d) and 1(e) shall only apply when a definition of deterministic frequency deviations is approved by the NRAs and definitions of "significant decrease" and "significant increase" are approved by the NRAs in accordance with Article 8(7).
2. Every year in quarter 1, the TSOs that apply a combined restriction shall complete an evaluation of the maximum combined ramping rates for each Nordic LFC area subject to a combined ramping restriction (as specified in Article 3(2)), based on the following procedure:
    - a. The TSOs assess the number of minutes outside the maximum FRCE limit for each LFC area;
    - b. If the number of minutes outside the maximum FRCE limit for the LFC area is larger than an agreed quality standard<sup>4</sup>, the relevant TSO shall inform the other TSOs if the maximum combined ramping rate for the relevant LFC area shall be changed or if other measures<sup>2</sup> shall be taken to improve FRCE quality for the LFC area(s);
    - c. The individual TSOs may also relax the combined ramping rate if agreed between TSOs of the Nordic LFC block.
  3. The TSOs apply the following process for their evaluation:
    - a. Every year in quarter 1, the TSOs shall evaluate the ramping restrictions based on the procedures in paragraph 1 and 2. The TSOs shall also make a cost-benefit analysis whenever there are significant changes in the operating environment but shall be done every 5 years at minimum, counting starting from the implementation of the Article 4. Cost-benefit analysis shall focus on alternative measures<sup>2</sup> compared to decreasing the ramping rate, to give more depth for the evaluation and conclusions.
    - b. If the procedures result in an update of the ramping restrictions, the TSOs shall agree on these updates with their cable partners in accordance with Article 6 not later than in quarter 2 of the same year.
    - c. Not later than in quarter 2, the TSOs shall publish and send to the NRAs their analysis, the results of their evaluation and their conclusions on the update of the maximum ramping rate. The publication shall be transparent and clearly describe the process, input data and the

---

<sup>4</sup> The reference for the evaluation shall be the FRCE limit of the LFC area as to be included in appendix 1 of the LFCR Annex of the Nordic System Operation Agreement.

- variables used for the evaluation, an evaluation of alternative measures<sup>2</sup> and to determine whether the maximum ramping restriction should or should not be changed. The publication shall also describe the time of implementation of the new ramping restriction;
- d. Not later than in quarter 3, the TSOs shall implement the new ramping restrictions.

#### **Article 5 – Increasing maximum ramping rate for HVDC interconnectors subject to a combined restriction**

1. If the combined ramping restriction in Article 3(2) covers the concerned HVDC interconnector, the connecting Nordic TSO(s) may increase the maximum ramping rate as defined in Article 3(1) for this HVDC interconnectors if the following conditions apply:
  - a. The maximum ramping rate of the HVDC interconnector can be physically and operationally adapted to facilitate this change;
  - b. The change does not cause local network security problems;
  - c. The TSO connecting the other end of the HVDC interconnector approves the change.
2. The TSOs shall follow the process below when increasing the maximum ramping rate on HVDC interconnectors in accordance with paragraph 1:
  - a. The TSO confirms with the TSO on the other end of the HVDC interconnectors that all conditions in paragraph 1 have been fulfilled;
  - b. In coordination with the TSO on the other side of the HVDC interconnector, NEMOs and other relevant parties, the ramping restriction are changed in the day-ahead market systems, intraday market systems and internal TSO systems.
3. If one of the TSOs that connect the HVDC cable considers that the maximum ramping rate on HVDC interconnectors shall be reduced after they have been increased in accordance with paragraph 1, the TSOs shall follow the process below:
  - a. The TSOs connecting the HVDC interconnectors agree on a new restriction. It is noted that the Nordic TSOs shall not apply slower maximum ramping rate than indicated in Article 3(1);
  - b. In coordination with the TSO on the other side of the HVDC interconnector, NEMOs and other relevant parties, the ramping restriction are changed in the HVDC control systems, the day-ahead market systems, intraday market systems and internal TSO systems.

### **Article 6 – Coordination with cable partners**

1. The Nordic TSOs are responsible for meeting the FRCE target parameters for the LFC block as referred to in Article 128 of the SO Regulation and accordingly need to set the ramping restrictions for their LFC block. TSOs of other LFC blocks and synchronous areas may set their ramping restrictions independently. In case the maximum ramping rates are set differently on each side of an HVDC interconnector or a combination of HVDC interconnectors, the lowest value shall prevail. This may result in a need to deviate from the resulting ramping rate according to the rules in this methodology.

### **Article 7 – Measures to support the fulfilment of the FRCE target parameter of the LFC block and to alleviate deterministic frequency deviations, taking into account the technological restrictions of power generating modules and demand units**

1. In order to fulfil the FRCE target parameters for the LFC block as referred to in Article 128 of the SO Regulation, the following ramping restrictions apply:
  - a. When the hourly production plan of balance responsible parties representing power generating modules in Finland, Norway and Sweden changes more than 200 MW at hour shift, these balance responsible parties need to reschedule their plan with quarterly steps 15 minutes before hour shift, at hour shift and 15 minutes after hour shift in order to adjust the plans to better correspond to the consumption pattern. In Norway, the steps can be applied 30 minutes before the hour shift until 30 minutes after the hour shift. This obligation is not relevant in Denmark East due to the physical characteristics for production;
  - b. In case that planned production changes and planned HVDC exchanges around hour shift will impact the frequency in a way that cannot be entirely handled by control centres in the minutes before and after operating hour, the TSOs are allowed to request balance responsible parties that represent power generating modules to advance or delay parts of planned production steps at the hour shift. The power schedules may be changed from 30 minutes before hour shift till 30 minutes after the hour shift.
2. In order to fulfil the FRCE target parameters for the LFC block and LFC areas as referred to in Article 128 of the SO Regulation and the frequency targets as referred to in Article 127 of the SO Regulation:
  - a. Ramping rules should be considered by each TSO in order to minimise the activation of reserves, the FRCE of the LFC block and LFC area and the corresponding (deterministic) frequency deviation of the synchronous area. This could be reflected, for example, by financial incentives or operational requirements provided by TSO to balancing service providers, balance responsible parties that represent power generating modules and/or demand units.
  - b. Ideally, the Balance Responsible Parties (BRP's) ramp starts between 7.5 and 5 minutes before the start of an MTU and linearly ramps to the schedule for the next MTU which shall be reached between 5 and 7.5 minutes after the start of that MTU.

### **Article 8 – Publication and implementation**

1. The relevant TSOs shall publish (in accordance with Article 8 of the SO Regulation) the Methodology without undue delay after the competent NRAs have approved the Methodology or a

decision has been taken by the Agency for the Cooperation of Energy Regulators in accordance with Article 6 of the SO Regulation.

2. At the time of the changing to a 15 minutes MTU in the intraday market at the bidding zone border, Article 3 shall be implemented at this bidding zone border, except for Article 3(1)(a). Instead of the ramping period defined in Article 3(1)(a), a ramping period of up to 15 minutes may be applied, starting not earlier than 7.5 minutes before the start of the MTU and ending not later than 7.5 minutes after the start of the MTU. Article 3 shall be fully implemented when the Nordic TSOs have established the connection to the European platform for the exchange of mFRR in accordance with Article 20 of Commission Regulation (EU) 2017/2195 and 15 minutes MTU has been implemented in day-ahead and intraday markets.
3. Article 4 shall be implemented one year after the implementation of a 15 minutes MTU in the intraday market.
4. Article 5 and article 6 shall be implemented without undue delay after approval of this amended methodology by the NRAs.
5. At the time of implementation of the 15 minutes MTU in the day-ahead market, Article 7(1) becomes obsolete.
6. In case that the rules in this methodology cause a change to the combined ramping restrictions, the maximum ramping rates or ramping periods, the Nordic TSOs shall issue a market message as soon as new values are approved by the TSOs, with information of the reason for change and when new values will be implemented.
7. After fulfilling the conditions stated in Article 8(3), the TSOs shall deliver a new amended proposal for the NRAs approval no later than one year after fulfilling the conditions. The new proposal should include at least definition for ‘deterministic frequency deviation’ (DFD) and threshold value for the change of DFDs in Article 4(1)(b), (c), (d) and (e) (‘significant decrease’ and ‘significant increase’ respectively).

### **Article 9 – Language**

The reference language for this Methodology shall be English. For the avoidance of doubt, where TSOs needs to translate this Methodology into national language(s), in the event of inconsistencies between the English version published by TSOs in Nordic LFC block in accordance with Article 8(1) of the SO Regulation and any version in another language the relevant TSOs shall, in accordance with national legislation, provide the relevant national regulatory authority with an updated translation of the Methodology.