

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: 29.09.2023

Dokumentet är daterat: 29.09.2023

The document is dated: 29.09.2023

## **Esittelijä / Föredragande / Referendary**

Nimi / Namn / Name: Jori Sääntti  
Pvm / Datum / Date: 29.09.2023

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

Nimi / Namn / Name: Simo Nurmi  
Pvm / Datum / Date: 29.09.2023

### **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 503  
00101 Helsinki

## **Päätös Fingrid Oyj:n toimittamaan ehdotukseen koskien tarjousalueiden välisen siirtokapasiteetin markkinapohjaista jakamisprosessia Baltian kapasiteetinlaskenta-alueella**

### **1 Asianosainen**

Fingrid Oyj

### **2 Vireilletulo**

17.11.2022

### **3 Ratkaisu**

Energiavirasto vahvistaa Fingrid Oyj:n 13.7.2023 toimittaman ehdotuksen tarjousalueiden välisen siirtokapasiteetin markkinapohjaisesta jakamisprosessista Baltian kapasiteetinlaskenta-alueella.

Päätös on voimassa toistaiseksi.

Päätöstä on noudatettava muutoksenhausta huolimatta.

### **4 Selostus asiasta**

#### **4.1 Fingridin toimittama ehdotus**

Fingrid Oyj (jäljempänä myös Fingrid) toimitti 17.11.2022 Energiavirastoon vahvistettavaksi ehdotuksen muutoksesta sähköjärjestelmän tasehallintaa koskevista suuntaviivoista annetun Euroopan komission asetuksen (EU) 2017/2195 (jäljempänä myös Tasehallinnan suuntaviivat) 41 artiklan 1 kohdan mukaiseen voimassa olevaan menetelmään markkinapohjaisesta jakamisprosessista, jota käytetään alueiden välisen kapasiteetin jakamiseen tasehallintakapasiteetin vaihtoa tai reservien jakamista varten. Fingrid sekä muut Baltic kapasiteetin laskenta-alueen siirtoverkonhaltijat järjestivät julkisen kuulemisen muutosehdotuksesta ennen ehdotuksen toimittamista.

Tasehallinnan suuntaviivojen 6 artiklan 3 kohdan mukaisesti ehdotuksen laatimisesta vastaavat siirtoverkonhaltijat voivat pyytää ehtojen ja edellytysten tai menetelmien muuttamista ja menetelmien muuttamista koskevista ehdotuksista on järjestettävä julkinen kuuleminen.



Energiaregulaattoreiden yhteistyövirasto ACER asetti 13.8.2021 annetulla päätöksellään (*Decision of the European Union Agency for the Cooperation of Energy Regulators No 10/2021 of 13 August 2021 on the market-based allocation process of cross-zonal capacity for the exchange of balancing capacity for the Baltic CCR*) Baltian kapasiteetin laskenta-alueen siirtoverkonhaltijoille vaatimuksen toimittaa ehdotuksen muutoksesta menetelmään markkinapohjaisesta jakamisprosessista, jota käytetään alueiden välisen kapasiteetin jakamiseen tasehallintakapasiteetin vaihtoa tai reservien jakamista varten viimeistään 13.8.2022. Baltian kapasiteetin laskenta-alueen siirtoverkonhaltijat pyysivät 3.8.2022 yhteisesti kolmen kuukauden lisäaikaa muutosehdotuksen toimittamiselle. Energiavirasto sekä muut Baltic kapasiteetin laskenta-alueen kansalliset sääntelyviranomaiset myönsivät siirtoverkonhaltijoille yhteisesti pyynnön mukaisen lisäajan aina 13.11.2022 asti. Fingrid toimitti ehdotuksen Energiavirastoon neljä päivää määräajan jälkeen 17.11.2022. Energiavirasto toteaa, että vaikka ehdotukset tulisi aina toimittaa määräaikaan mennessä, myöhästyminen on kokonaisuuden kannalta vähäinen ja että ehdotus voidaan käsitellä siitä huolimatta.

#### 4.2 Ehdotuksen käsittely

Tasehallinnan suuntaviivojen 5 artiklan 6 kohdan mukaan, jos ehtoja ja edellytyksiä tai menetelmiä koskevan ehdotuksen hyväksyminen edellyttää useamman kuin yhden sääntelyviranomaisten päätöstä, asianomaisten sääntelyviranomaisten on kuultava toisiaan, tehtävä tiivistä yhteistyötä ja koordinoitava toimiaan sopimukseen pääsemiseksi. Sääntelyviranomaisten on tehtävä ehdotettuja ehtoja ja edellytyksiä tai menetelmiä koskevat päätökset kuuden kuukauden kuluessa siitä, kun viimeinen asianosainen sääntelyviranomainen on vastaanottanut ehdot ja edellytykset tai menetelmät.

Energiavirasto järjesti Fingridin ehdotuksesta julkisen kuulemisen 17.2.2023 – 17.3.2023 välisenä aikana markkinaosapuolille. Energiavirastoon ei toimitettu yhtään lausuntoa kuulemisen aikana.

Tasehallinnan suuntaviivojen 6 artiklan 1 kohdan mukaisesti sääntelyviranomaiset voivat pyytää siirtoverkonhaltijoita muuttamaan niiden toimittamia ehdotuksia. Saman kohdan mukaisesti asianomaisella siirtoverkonhaltijalla on täydennyspyynnön saatuaan kaksi kuukautta aikaa toimittaa muutettu ehdotus asianomaiselle sääntelyviranomaiselle.

Energiavirasto sekä muut Baltic kapasiteetin laskenta-alueen kansalliset sääntelyviranomaiset tulivat ehdotusta arvioituaan yhteiseen tulokseen siitä, että menetelmää täytyy muuttaa ennen kuin se voidaan hyväksyä. Energiavirasto pyysi 17.5.2023 lähettämällään muutospyyntöllä Fingridiä muuttamaan ehdotustaan sääntelyviranomaisten yhteisesti sopiman muutospyyntön mukaisesti.

Energiavirasto katsoi, että ehdotettu menetelmä ei kuvaa kantaverkkoyhtiöiden välistä markkinapohjaista siirtokapasiteetin jakamisprosessia riittävän selvästi. Energiavirasto pyysi myös lisäämään menetelmään kuvauksen prosessista, jonka mukaisesti jaettavan siirtokapasiteetin vakioluontoista enimmäismäärää uudelleenarvioidaan ja pienennetään tarvittaessa. Energiavirasto pyysi muutospyyntössään myös selvennettävää terminologiaa, tarkennettavaa raportointivelvollisuuksia sekä korjaamaan kirjoitusasua.

#### 4.3 Muutettu ehdotus ja sen käsittely

Fingrid toimitti muutetun ehdotuksen Energiavirastolle 13.7.2023 Tasehallinnan suuntaviivojen 6 artiklan 1 kohdan mukaisessa aikataulussa kahden kuukauden kuluessa sääntelyviranomaisten vaatimusten esittämisestä.

Energiavirasto sekä muut Baltic kapasiteetin laskenta-alueen kansalliset sääntelyviranomaiset arvioivat muutettua ehdotusta ja tulivat yhteiseen tulokseen siitä, että muutettu ehdotus täyttää muutospyyntöön vaatimukset.

### 5 Energiaviraston toimivalta

Euroopan parlamentin ja neuvoston direktiivi 2019/944 sähkön sisämarkkinoita koskevista yhteisistä säännöistä ja direktiivin 2012/27/EU muuttamisesta 57 artiklan mukaan kunkin jäsenvaltion on nimettävä yksi kansallinen sääntelyviranomainen 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.

### 6 Asiaan liittyvä lainsäädäntö

#### 6.1 Komission asetus (EU) 2017/2195 sähköjärjestelmän tasehallintaa koskevista suuntaviivoista

Tasehallinnan suuntaviivojen 3 artiklan mukaan:

” 1.Tämän asetuksen tavoitteena on

- a) edistää toimivaa kilpailua, syrjimättömyyttä ja läpinäkyvyyttä tasehallintamarkkinoilla;
- b) parantaa tasehallinnan tehokkuutta samoin kuin eurooppalaisten ja kansalaisten tasehallintamarkkinoiden tehokkuutta;
- c) yhdistää tasehallintamarkkinat ja edistää mahdollisuuksia tasehallintapalvelujen kaupan ja parantaa samalla käyttövarmuutta;
- d) edistää Euroopan sähkönsiirtoverkon ja sähköalan tehokasta toimintaa ja kehittämistä pitkällä aikavälillä ja helpottaa samalla vuorokausimarkkinoiden, päivän-sisäisten markkinoiden ja tasehallintamarkkinoiden tehokasta ja jatkuvaa toimintaa;
- e) varmistaa, että tasepalvelujen hankinta tapahtuu tasapuolisesti, objektiivisesti, läpinäkyvästi ja markkinapohjaisesti, siinä ei aiheuteta perusteettomia esteitä uusille tulokkaille ja se edistää tasehallintamarkkinoiden likviditeettiä ja ehkäisee samalla kohtuuttomia vääristymiä sähkön sisämarkkinoilla;



f) helpottaa kysyntäjoustop osallistumista, mukaan lukien yhteenliittymät ja energian varastointi, ja varmistaa samalla, että ne kilpailevat tasapuolisesti muiden tasepalvelujen kanssa ja tarvittaessa toimivat itsenäisesti yhtä kulutuslaitosta palvellessaan;

g) helpottaa uusiutuvien energialähteiden osallistumista ja tukea uusiutuviin energialähteisiin perustuvan tuotannon osuuden kasvattamista koskevan Euroopan unionin tavoitteen saavuttamista.”

Tasehallinnan suuntaviivojen 5 artiklan mukaan:

”3. Seuraavia ehtoja ja edellytyksiä tai menetelmiä koskeville ehdotuksille tarvitaan asianomaisen alueen kaikkien sääntelyviranomaisten hyväksyntä:”

”h) 41 artiklan 1 kohdan mukainen menetelmä alueiden välisen kapasiteetin markkinapohjaista jakamisprosessia varten kullekin kapasiteetin laskenta-alueelle;”

”5. Ehtoja ja edellytyksiä tai menetelmiä koskevaan ehdotukseen on sisällyttävä ehdotettu täytäntöönpanoaikataulu ja kuvaus niiden odotetuista vaikutuksista tämän asetuksen tavoitteisiin. Täytäntöönpanoaikataulu saa olla enintään 12 kuukautta asianomaisten sääntelyviranomaisten hyväksynnästä, paitsi jos kaikki asianomaiset sääntelyviranomaiset sopivat täytäntöönpanoaikataulun pidentämisestä tai jos tässä asetuksessa vahvistetaan erilaisia aikatauluja. Ehtoja ja edellytyksiä tai menetelmiä koskevat ehdotukset, joille tarvitaan useiden tai kaikkien sääntelyviranomaisten hyväksyntä, on toimitettava virastolle samaan aikaan kuin ne annetaan sääntelyviranomaisten hyväksyttäväksi. Viraston on asianomaisten sääntelyviranomaisten pyynnöstä annettava lausunto näistä ehtoja ja edellytyksiä tai menetelmiä koskevista ehdotuksista kolmen kuukauden kuluessa.

6. Jos ehtoja ja edellytyksiä tai menetelmiä koskevan ehdotuksen hyväksyminen tämän artiklan 3 kohdan mukaisesti tai muutoksen hyväksyminen 6 artiklan mukaisesti edellyttää useamman kuin yhden sääntelyviranomaisten päätöstä, asianomaisten sääntelyviranomaisten on kuultava toisiaan, tehtävä tiivistä yhteistyötä ja koordinoitava toimiaan sopimukseen pääsemiseksi. Jos virasto antaa lausunnon, asianomaisten sääntelyviranomaisten on otettava se huomioon. Sääntelyviranomaisten tai viraston, jos sillä on toimivalta, on tehtävä 2, 3 ja 4 kohdan mukaisesti ehdotettuja ehtoja ja edellytyksiä tai menetelmiä koskevat päätökset kuuden kuukauden kuluessa siitä, kun virasto tai asianomainen sääntelyviranomainen tai, soveltuvissa tapauksissa, viimeinen asianosainen sääntelyviranomainen on vastaanottanut ehdot ja edellytykset tai menetelmät. Määräaika alkaa kulua sitä päivää seuraavana päivänä, jona ehdotus toimitettiin virastolle 2 kohdan mukaisesti, viimeiselle asianosaiselle sääntelyviranomaiselle 3 kohdan mukaisesti tai tarvittaessa asianomaiselle sääntelyviranomaiselle 4 kohdan mukaisesti.”

Tasehallinnan suuntaviivojen 6 artiklan mukaan:



"1. Jos yksi tai useampi direktiivin 2009/72/EY 37<sup>1</sup> artiklan mukainen sääntelyviranomaisen vaatii 5 artiklan 2, 3 ja 4 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 asianomaisten sääntelyviranomaisten vaatimuksen esittämisestä. Asianomaisten sääntelyviranomaisten on päätettävä muutetuista ehdoista ja edellytyksistä tai menetelmistä kahden kuukauden kuluessa niiden esittämisestä."

"3. Virasto tai sääntelyviranomaiset, silloin kun kukin niistä vastaa ehtojen ja edellytysten tai menetelmien hyväksymisestä 5 artiklan 2, 3 ja 4 kohdan mukaisesti, voivat pyytää näiden ehtojen ja edellytysten tai menetelmien muuttamista koskevia ehdotuksia ja määrittää määräajan ehdotusten jättämiselle. Ehtoja ja edellytyksiä tai menetelmiä koskevan ehdotuksen laatimisesta vastaavat siirtoverkonhaltijat voivat ehdottaa muutoksia sääntelyviranomaisille ja virastolle. Ehtojen ja edellytysten tai menetelmien muuttamista koskevista ehdotuksista on järjestettävä kuuleminen 10 artiklassa säädetyn menettelyn mukaisesti, ja ehdotukset on hyväksyttävä 4 ja 5 artiklassa säädetyn menettelyn mukaisesti."

Tasehallinnan suuntaviivojen 41 artiklan mukaan:

"1. Kapasiteetin laskenta-alueen kaikki siirtoverkonhaltijat voivat viimeistään kahden vuoden kuluttua tämän asetuksenvoimaantulosta laatia ehdotuksen menetelmästä markkinapohjaiselle jakamisprosessille, jota käytetään alueiden välisen kapasiteetin jakamiseen tasehallintakapasiteetin vaihtoa tai reservien jakamista varten. Menetelmää on sovellettava tasehallintakapasiteetin vaihtoon tai reservien jakamiseen, kun sopimuskauden kesto on enintään yksi päivä ja sopimus tehdään viimeistään yksi viikko ennen tasehallintakapasiteetin tarjoamista. Menetelmään on sisällyttävä

a) markkinapohjaisen jakamisprosessin käytön ilmoitusprosessi;

b) yksityiskohtainen kuvaus siitä, kuinka määritetään tasehallintakapasiteetin vaihdossa tai reservien jakamisessa käytetyn alueiden välisen kapasiteetin todellinen markkina-arvo ja energian vaihdossa käytetyn alueiden välisen kapasiteetin ennustettu markkina-arvo sekä tarvittaessa energian vaihdossa käytetyn alueiden välisen kapasiteetin todellinen markkina-arvo ja tasehallintakapasiteetin vaihdossa tai reservien jakamisessa käytetyn alueiden välisen kapasiteetin ennustettu markkina-arvo;

c) yksityiskohtainen kuvaus sen alueiden välisen kapasiteetin hinnoittelumenetelmästä, sitovuusperiaatteista ja pullonkaulatulojen jakamisesta, joka on jaettu tasehallintakapasiteetin vaihtoa tai reservien jakamista koskeville tarjouksille markkinapohjaisen jakamisprosessin kautta;

---

<sup>1</sup> 2009/72/EY on korvattu direktiivillä 2019/944, joka astui voimaan 4.7.2019.



d) prosessi, jonka mukaisesti määritellään 2 kohdan mukainen tasehallintakapasiteetin vaihtoa tai reservien jakamista varten jaetun alueiden välisen kapasiteetin enimmäismäärä.

2. Markkinapohjaisella prosessilla jaettu alueiden välinen kapasiteetti on rajoitettava 10 prosenttiin kapasiteetista, joka oli käytettävissä energian vaihtoon kyseessä olevien tarjousalueiden välillä edellisen merkityksellisen kalenterivuoden aikana, tai uusien yhdysjohtojen tapauksessa 10 prosenttiin näiden uusien yhdysjohtojen asennetusta teknisestä kokonaiskapasiteetista.

Tätä määrärajoitusta voidaan olla soveltamatta, kun sopimus tehdään viimeistään kaksi päivää ennen tasehallintakapasiteetin tarjoamista, tai tasasähköyhdysjohtoilla yhteenliitetyillä tarjousalueen rajoilla siihen saakka kunnes yhteisesti optimoitu jakamisprosessi harmonisoidaan unionin tasolla 38 artiklan 3 kohdan mukaisesti.

3. Menetelmän on perustuttava tasehallintakapasiteetin vaihdossa tai reservien jakamisessa käytetyn alueiden välisen kapasiteetin todellisen markkina-arvon ja energian vaihdossa käytetyn alueiden välisen kapasiteetin ennustetun markkina-arvon vertailuun tai tasehallintakapasiteetin vaihdossa tai reservien jakamisessa käytetyn alueiden välisen kapasiteetin ennustetun markkina-arvon ja energian vaihdossa käytetyn alueiden välisen kapasiteetin todellisen markkina-arvon vertailuun.

4. Sen alueiden välisen kapasiteetin hinnoittelumenetelmän, sitovuusperiaatteiden ja pullonkaulatulojen jakamisen, joka on jaettu tasehallintakapasiteetin vaihtoa tai reservien jakamista varten markkinapohjaisen jakamisprosessin kautta, on varmistettava tasapuolinen kohtelu energian vaihtoa varten jaetun alueiden välisen kapasiteetin kanssa.

5. Alueiden välistä kapasiteettia, joka on jaettu tasehallintakapasiteetin vaihtoa tai reservien jakamista varten markkinapohjaisen jakamisprosessin kautta, on käytettävä ainoastaan tasehallintakapasiteetin vaihtoon tai reservien jakamiseen ja niihin liittyvään tasesähkön vaihtoon.”

## 7 Perustelut

Fingrid Oyj toimitti muutetun ehdotuksen menetelmästä markkinapohjaiselle jakamisprosessille, jota käytetään alueiden välisen kapasiteetin jakamiseen tasehallintakapasiteetin vaihtoa tai reservien jakamista varten 13.7.2023.

Tasehallinnan suuntaviivojen mukaan, 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. Energiavirasto on tätä päätöstä valmisteltaessa tehnyt tiivistä yhteistyötä ja koordinoitua toimiaan muiden Baltic kapasiteetin laskenta-alueen toimivaltaisten sääntelyviranomaisten kanssa. Energiaviraston päätös noudattaa alueen sääntelyviranomaisten yhteisesti sopimaa linjaa, joka on esitetty tämän päätöksen liitteenä olevassa dokumentissa *“Position paper of the National Regulatory Authorities of Baltic Capacity Calculation Region on The Baltic Capacity Calculation Region*



*Transmission System Operators' proposal for the methodology for the market-based allocation process of cross-zonal capacity for the exchange of balancing capacity for the Baltic Capacity Calculation Region in accordance with Article 41(1) of the Commission Regulation (EU) 2017/2195 of 23 November 2017 establishing a guideline on electricity balancing, 19 September 2023".*

Energiavirasto toteaa, että muutettu ehdotus kasvattaa Baltian maiden välisten tarjousalueiden tasehallintakapasiteetin vaihtoon tai reservien jakamiseen varattavia enimmäiskapasiteetteja sekä vakiokapasiteetteja. Energiavirasto katsoo, että Fingridin esittämät Baltian maiden tarjousalueiden väliltä siirtoverkonhaltijoiden käyttöön varattavat kapasiteettimäärät ovat verrattain suuria, mutta samalla perusteltuja huomioiden siirtoverkonhaltijoiden selvityksen sekä Baltian maissa tarvittavien reservien määrän. Energiavirasto katsoo, että menetelmä kuvaa riittävän hyvin sen, miten määritetään varattavan kapasiteetin enimmäismäärä sekä sen kasvattaminen alueiden välistä tasahallintakapasiteetin vaihtoa tai reservien jakamista varten. Energiavirasto katsoo, että enimmäismäärän määrityksen lisäksi menetelmä kuvaa tarpeeksi hyvin myös prosessin, jonka mukaisesti varatun siirtokapasiteetin enimmäismäärää arvioidaan toistuvasti, sekä tarvittaessa pienennetään tilanteen muuttuessa. Energiavirasto katsoo myös, että menetelmässä kuvataan riittävän hyvin myös tasehallintakapasiteetin vaihdossa tai reservien jakamisessa käytettävien markkina-arvojen määrittäminen sekä kapasiteetin hinnoittelumenetelmä. Energiavirasto arvioi, että menetelmä täyttää myös ACER:n päätöksen 10/2021 mukaiset edellytykset.

Energiavirasto katsoo, että Fingridin 13.7.2023 toimittama muutettu ehdotus täyttää alueen sääntelyviranomaisten yhteisessä muutospyyntöissä edellytetyt vaatimukset ja on Tasehallinnan suuntaviivojen 3 artiklan tavoitteiden mukainen. Energiavirasto katsoo, että ehdotus täyttää myös saman asetuksen 41 artiklan vaatimukset. Fingrid toimitti muutetun ehdotuksen Tasehallinnan suuntaviivojen mukaisessa aikataulussa, ja se kuvaa markkinapohjaisen jakamisprosessin riittävän selvästi. Fingridin ehdotus täyttää siten Tasehallinnan suuntaviivojen vaatimukset ja tavoitteet ja on hyväksyttävissä.

## 8 Sovelletut säännökset

Komission asetus (EU) 2017/2195 artikkelit 3, 5, 6, 41

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

## 9 Muutoksenhaku

Muutoksenhakua koskeva ohjeistus liitteenä.

Liitteet Valitusosoitus Markkinaoikeuteen

Methodology for the market-based allocation process of cross-zonal capacity for the exchange of balancing capacity for the Baltic CCR in accordance with Article 41(1) of the Commission Regulation (EU) 2017/2195 of 23 November 2017 establishing a guideline on electricity balancing, 16 July 2023





Position paper of the National Regulatory Authorities of Baltic Capacity Calculation Region on The Baltic Capacity Calculation Region Transmission System Operators' proposal for the methodology for the market-based allocation process of cross-zonal capacity for the exchange of balancing capacity for the Baltic Capacity Calculation Region in accordance with Article 41(1) of the Commission Regulation (EU) 2017/2195 of 23 November 2017 establishing a guideline on electricity balancing, 19 September 2023

Explanatory document to Baltic CCR TSOs proposal in accordance with Article 41(1) of the Commission Regulation (EU) 2017/2195 of 23 November 2017 establishing a guideline on electricity balancing

Jakelu      Fingrid Oyj

Tiedoksi



## VALITUSOSOITUS

### Muutoksenhakuoikeus

Energiaviraston antamaan päätökseen saa hakea muutosta valittamalla siinä järjestyksessä kuin hallintolainkäyttölaissa (586/1996) säädetään. Valituskelpoisella päätöksellä tarkoitetaan toimenpidettä, jolla asia on ratkaistu tai jätetty tutkimatta.

Valitusoikeus on sillä, johon päätös on kohdistettu tai jonka oikeuteen, velvollisuuteen tai etuun päätös välittömästi vaikuttaa.

### Valitusviranomainen

Valitusviranomainen Energiaviraston päätökseen on markkinaoikeus.

### Valitusaika

Valitus on tehtävä 30 päivän kuluessa päätöksen tiedoksisaannista. Valitusaikaa laskettaessa tiedoksisaantipäivää ei oteta lukuun. Jos määräajan viimeinen päivä on pyhäpäivä, lauantai, itsenäisyyspäivä, vapunpäivä, jouluaatto tai juhannusaatto, määräaika jatkuu vielä seuraavan arkipäivän.

### Valituskirjelmän sisältö

Valitus tehdään kirjallisesti. Markkinaoikeudelle osoitetussa valituskirjelmässä on ilmoitettava:

- valittajan nimi ja kotikunta
- postiosoite ja puhelinnumero, joihin asiaa koskevat ilmoitukset valittajalle voidaan toimittaa
- päätös, johon haetaan muutosta;
- miltä kohdin päätökseen haetaan muutosta ja mitä muutoksia siihen vaaditaan tehtäväksi; sekä
- perusteet, joilla muutosta vaaditaan.

Valittajan, laillisen edustajan tai asiamiehen on allekirjoitettava valituskirjelmä. Jos valittajan puhevaltaa käyttää hänen laillinen edustajansa tai asiamiehensä tai jos valituksen laatijana on muu henkilö, on valituskirjelmässä ilmoitettava myös tämän nimi ja kotikunta.

### Valituskirjelmän liitteet

Valituskirjelmään on liitettävä:

- muutoksenhaun kohteena oleva päätös alkuperäisenä tai jäljennöksenä;
- todistus siitä, minä päivänä päätös on annettu tiedoksi tai muu selvitys valitusajan alkamisajankohdasta; sekä



- asiakirjat, joihin valittaja vetoaa vaatimuksensa tueksi, jollei niitä ole jo aikaisemmin toimitettu Energiavirastolle tai markkinaoikeudelle.

Asiamiehen on liitettävä valituskirjelmään valtakirja, jollei päämies ole valtuuttanut häntä suullisesti valitusviranomaisessa. Asianajajan ja yleisen oikeusavustajan tulee esittää valtakirja ainoastaan, jos valitusviranomainen niin määrää.

## 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**

Valituskirjelmä voidaan toimittaa valitusviranomaiselle myös postitse.

Valituksen voi tehdä myös hallinto- ja erityistuomioistuinten asiointipalvelussa osoitteessa <https://asiointi2.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.



## OHJE MAKSUA KOSKEVAAN MUUTOKSENHAKUUN

Valtion maksuperustelain (150/1992) 11 b §:n mukaan maksuvelvollinen, joka katsoo, että 6 §:ssä tarkoitettusta julkisoikeudellisesta suoritteesta määrätyn maksun määräämisessä on tapahtunut virhe, voi vaatia siihen oikaisua maksun määränneeltä viranomaiselta kuuden kuukauden kuluessa maksun määräämisestä.

# **Methodology for the market-based allocation process of cross-zonal capacity for the exchange of balancing capacity for the Baltic CCR**

in accordance with Article 41(1) of the Commission Regulation (EU)  
2017/2195 of 23 November 2017 establishing a guideline on electricity  
balancing

16 July 2023

## Whereas

- (1) This document provides a methodology for a market-based allocation process of cross-zonal capacity for the exchange of balancing capacity and sharing of reserves (hereafter referred to as “this methodology”) in accordance with article 41(1) of Commission Regulation (EU) 2017/2195 of 23 November establishing a guideline on electricity balancing (hereafter referred to as the “EB Regulation”) for the geographic area covering the Baltic capacity calculation region (hereinafter referred to as the “Baltic CCR”) as defined in accordance with Article 15 of Commission Regulation (EU) 2015/1222 of 24 July 2015 establishing a guideline on capacity allocation and congestion management (hereafter referred to as the “CACM Regulation”).
- (2) This methodology takes into account the general principles and goals set out in the EB Regulation as well as Commission Regulation (EU) 2017/1485 of 2 August 2017 establishing a guideline on electricity transmission system operation (hereafter referred to as the “SO Regulation”), the CACM Regulation and Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the internal market for electricity (hereafter referred to as the “Electricity Regulation”).
- (3) The Transmission System Operators of the Baltic CCR (hereafter referred to as the “TSOs”) intend to exchange balancing capacity and plan for that reason to develop common and harmonised rules and processes for this exchange and procurement in accordance with Article 33 of the EB Regulation. To secure this exchange of balancing capacity, the TSOs intend to submit an application proposal in accordance with Article 38(1) of the EB Regulation to allocate cross-zonal capacity across timeframes using the market-based allocation process pursuant to Article 41 of the EB Regulation. This methodology shall define the details of a market-based cross-zonal capacity allocation process.
- (4) This methodology is based on an optimisation process that seeks to maximise the sum of actual economic surplus from the procurement of balancing capacity and sharing of reserves and the forecasted estimation of economic surplus for the single day-ahead coupling. Consistent with the EB Regulation’s aims as stated in its Article 3, this optimisation process enhances the efficiency of balancing and of European and national balancing markets. The pricing method, the firmness regime and the sharing of congestion income for cross-zonal capacity that has been allocated for the exchange of balancing capacity ensures equal treatment with cross-zonal capacity allocated for the exchange of energy.
- (5) The optimisation process used to allocate cross-zonal capacity effectively trades off the use of cross-zonal capacity for the exchange of balancing capacity and sharing of reserves with the use of cross-zonal capacity for the exchange of energy in the day-ahead market. The forecasted market value of cross-zonal capacity for the exchange of energy that is used in this process is calculated based on the latest available day-ahead energy prices in the connecting bidding zones. The value of cross-zonal capacity for the exchange of balancing capacity is calculated within the optimisation process itself and formed by the actual balancing capacity bids submitted by the balancing service providers (“BSPs”). The TSOs will, as part of this allocation processes’ implementation, collect information on and review the accuracy and efficiency of the forecasting methodology used. This review will include a comparison of the forecasted and actual market values of cross-zonal capacity for the exchange of energy.
- (6) This methodology generally contributes to the achievement of the objectives of Article 3 of the EB Regulation. In particular, this methodology serves the following objectives:

- (a) This methodology enables the allocation of cross-zonal capacity for the exchange of balancing capacity to a region with common and harmonised rules and processes for the exchange and procurement of balancing capacity developed in accordance with Article 33 of the EB Regulation, and therefore facilitates the coupling of local balancing capacity markets. By doing so, this methodology contributes to an efficient utilisation of balancing capacity resources across bidding zone borders in order to secure the volume of balancing capacity needed to maintain operational security. The market-based cross-zonal capacity allocation process is using submitted bids from BSPs and a transparent forecasting method for estimating the value of cross-zonal capacity for the single day-ahead coupling to allocate cross-zonal capacity for balancing capacity procurement in the respective region. Hence, this methodology fosters effective competition in a non-discriminatory and transparent way in balancing markets (Article 3(1)(a) of the EB Regulation), enhances the efficiency of balancing as well as the efficiency of European and national balancing markets (Article 3(1)(b) of the EB Regulation) and contributes to the objective of integrating balancing markets and promoting the possibilities for exchanges of balancing services while contributing to operational security (Article 3(1)(c) of the EB Regulation).
- (b) This methodology takes into account the impact on the day-ahead market by using the forecasted market value of cross-zonal capacity in the day-ahead market for the objective to maximise the total economic surplus of both the day-ahead energy and balancing capacity markets. By allowing the exchange of balancing capacity, leading to a more efficient balancing capacity market and price formation, it also contributes to efficient investment signals in new capability for providing balancing capacity. Therefore, this methodology contributes to the efficient long-term operation and development of the electricity transmission system and electricity sector in the Union while facilitating the efficient and consistent functioning of the day-ahead, intraday and balancing markets (Article 3(1)(d) of the EB Regulation).
- (c) This methodology ensures that the procurement of balancing services is fair, objective, transparent and market-based, avoids undue barriers to entry for new entrants, fosters the liquidity of balancing markets while preventing undue distortions within the internal market in electricity (Article 3(1)(e) of the EB Regulation), since it will foster liquidity for the procurement of balancing capacity in integrated balancing capacity markets while taking into account the impacts on the day-ahead market. The allocation of cross-zonal capacities by the market-based capacity allocation process provides a transparent input for the procurement of balancing capacity in an objective way and is based on market inputs from the balancing capacity and day-ahead energy markets.
- (d) This methodology does not negatively impact the objectives in accordance with Articles 3(1)(f) and (g) of the EB Regulation.

**TITLE 1**  
**General provisions**

**Article 1**  
**Subject matter and scope**

1. This document is the methodology for the market-based allocation process of cross-zonal capacity for the exchange of balancing capacity and sharing of reserves in accordance with Article 41(1) of the EB Regulation for the Baltic CCR. It is based on the comparison of the forecasted market value of cross-zonal capacity for the exchange of energy and the actual market value of cross-zonal capacity for the exchange of balancing capacity and sharing of reserves in accordance with Article 39 of the EB Regulation.
2. This methodology also includes the algorithm principles for the cross-zonal capacity allocation function.
3. This methodology covers the bidding zone borders of the Baltic CCR.
4. The application of this methodology shall be subject to the methodology pursuant to Article 38(1)(b) of the EB Regulation, which shall define the bidding zone borders, the market timeframe and the duration of application in accordance with Article 38(2)(a) of the EB Regulation.
5. Two or more TSOs willing to exchange balancing capacity and/or willing to perform sharing of reserves by applying the market-based capacity allocation shall use a common and harmonised set of rules and processes for the exchange and procurement of balancing capacity in accordance with Article 33(1) of the EB Regulation, and respecting the requirements set out in Article 32 of the EB Regulation.
6. A TSO applying a central dispatching model and the market-based cross-zonal allocation process shall convert as far as possible the integrated scheduling process bids into standard balancing capacity product bids, pursuant to Article 27(3) of the EB Regulation. In this case, each reference to the standard balancing capacity bids in this methodology, shall be understood for this TSO as a reference to the integrated scheduling process bids converted into standard balancing capacity bids.

**Article 2**  
**Definitions and interpretation**

1. For the purposes of this methodology , terms used in this methodology shall have the meaning of the definitions included in Article 2 of the EB Regulation, Article 3 of the SO Regulation and Article 2 of the CACM Regulation, Article 2 of the Commission Regulation (EU) 2016/1719 of 26 September establishing a guideline on forward capacity allocation (hereafter referred to as the “FCA Regulation”), Article 2 of the Electricity Regulation, Article 2 of the Commission Regulation (EU) No 543/2013 of 14 June 2013 on submission and publication of data in electricity markets and amending Annex I to Regulation (EC) No 714/2009 of the European Parliament and of the Council (hereafter referred to as "Transparency Regulation") and Directive (EU) 2019/944.
2. The following additional definitions shall also apply:



- (a) 'cross-zonal capacity allocation function' means the functionality that optimises the allocation of cross-zonal capacity across the day-ahead market timeframe and the market timeframe for the exchange of balancing capacity and sharing of reserves;
- (b) 'economic surplus from the exchange of balancing capacity and sharing of reserves' means the sum for the relevant time period of (i) the TSOs' surplus for the exchange of balancing capacity and sharing of reserves, (ii) the BSPs' surplus for the exchange of balancing capacity and sharing of reserves and (iii) the congestion income. The surplus for BSPs is the difference between the balancing capacity price and the prices of the accepted balancing capacity bids multiplied by the accepted volume of the balancing capacity bids. The surplus for TSOs is the difference between the technical price limit and the balancing capacity price multiplied by the volume of the TSO demand;
- (c) 'mark-up' is a positive numerical value with units of EUR/MWh which means an addition per day ahead market time unit to the forecasted market value of cross-zonal capacity for the exchange of energy, calculated in order to take into account the uncertainty in the forecasted market value of cross-zonal capacity for the exchange of energy during the allocation of the cross-zonal capacity for the exchange of balancing capacity and sharing of reserves;
- (d) 'positive forecast error' is a positive numerical value with units of EUR/MWh which means an underestimation per day ahead market time unit of the initial forecasted market value of cross-zonal capacity for the exchange of energy;
- (e) 'reference day' means the day which is used to define the forecasted market value of cross-zonal capacity for the exchange of energy;
- (f) 'TSO demand' means the balancing capacity volume to be procured within the scope of the methodology pursuant to Article 33(1) of the EB Regulation by the connecting TSO and defined per scheduling area and bidding zone in accordance with Article 32(1) of the EB Regulation;
- (g) 'Demand reduction resources' - resources provided by the Baltic TSOs or other service providers for the reduction of the demand, to be procured from primary and back-up resources, according to EBGL Article 32(1);
- (h) 'Primary resources' – resources provided by the BSPs for the balancing capacity market auctions;
- (i) 'Back-up resources' - additional resources provided for balancing market auctions in case of unsatisfactory balancing capacity market optimization results;
- (j) 'The Baltic countries' – the joint geographical area of Estonia, Latvia and Lithuania.

3. In this methodology, unless the context requires otherwise:

- (a) the singular also includes the plural and vice versa;
- (b) the table of contents and headings are inserted for convenience only and do not affect the interpretation of this methodology;
- (c) any reference to cross-zonal capacities shall include also the reference to allocation constraints as applied in the respective capacity calculation methodology pursuant to Article 20 of the CACM Regulation;
- (d) any reference to legislation, regulation, directive, order, instrument, code or any other enactment shall include any modification, extension or re-enactment of it then in force; and
- (e) any reference to an Article without an indication of the document shall mean a reference to this methodology.

## **TITLE 2**

### **Market-based allocation process of cross-zonal capacity for the exchange of balancing capacity and sharing of reserves**

#### **Article 3**

##### **Principles for applying market-based cross-zonal capacity allocation process**

1. The market-based capacity allocation process shall be executed by the cross-zonal capacity allocation function and shall determine the amount of cross-zonal capacities to be allocated to the exchange of standard balancing capacity products or sharing of reserves for each day ahead market time unit following the objective in Article 8(4).
2. TSOs shall use standard balancing capacity products for frequency restoration reserves and replacement reserves pursuant to Article 25(2) of the EB Regulation and submit all balancing capacity bids from standard balancing capacity products to the capacity procurement optimisation function pursuant to Article 33(3) of the EB Regulation. TSOs shall not modify or withhold any balancing capacity bids and shall include them in the procurement process, except under conditions set out in Article 26 and Article 27 of the EB Regulation.
3. A single gate closure time shall apply for all balancing capacity markets where this methodology is applied irrespective of time zone differences, such that one gate closure time shall be applied for the submission of all standard balancing capacity bids. This gate closure time shall be set D-1 after the pre-final capacity calculation and before the final day-ahead capacity calculation. For TSOs applying a central dispatching model and applying this methodology, the gate closure time for the submission of the integrated scheduling process bids that are converted to the standard balancing capacity bids shall be defined in the national terms and conditions pursuant to Articles 24(5) and 24(6) of the EB Regulation.
4. For each application of this methodology, the validity period of standard balancing capacity bids shall be equal or a multiple of the day-ahead market time unit and shall be less or equal to the total amount of day-ahead market time unit of the concerned day.
5. The pricing principle used for the settlement of standard balancing capacity bids between TSOs and BSPs for each application of this methodology shall be based on cross-zonal marginal pricing (pay-as-cleared).
6. The cross-zonal capacity allocation function shall allow linking of bids which participate in the market-based cross-zonal capacity allocation process, in accordance with the defined linking provisions pursuant to the methodology pursuant to Article 33(1) of the EB Regulation. Besides the exemption pursuant to Article 7(4)(b), such links shall only be allowed within the market-based allocation process.
7. All TSOs applying this market-based process shall ensure compatibility between the cross-zonal capacity allocation function and the capacity procurement optimisation function, including the selection of standard balancing capacity bids which determine the output of the cross-zonal capacity allocation function in accordance with Article 8(5).
8. According to Article 38(4) of the EB Regulation, cross-zonal capacities allocated to the exchange of standard balancing capacity products or sharing of reserves where this market-based allocation process is applied, shall be:

- (a) exclusively provided to the cross-border FRR control processes in accordance with Article 149 of the SO Regulation until all TSOs of a bidding zone border are connected to the respective platform pursuant to Articles 20 and 21 of the EB Regulation;
  - (b) exclusively provided to the respective platform, pursuant to Articles 19 to 21 of the EB Regulation, of the standard balancing capacity product it was allocated for, starting from the connection of the TSOs from the concerned bidding zone border to the respective platform.
9. The process of releasing allocated cross-zonal capacity for the exchange of balancing capacity and sharing of reserves, pursuant to Article 38(9) of the EB Regulation, shall be:
- (a) coordinated by the cross-border control process in accordance with Article 149 of the SO Regulation until the connection of the TSOs to the platforms pursuant to Article 19 to 21 of the EB Regulation;
  - (b) coordinated between the platforms for balancing energy pursuant to Articles 19 to 21 of the EB Regulation, starting from the connection of the TSOs to these platforms.

#### **Article 4**

#### **Notification process for the use of the market-based allocation process**

1. Each TSO intending to apply this market-based allocation process shall notify all TSOs of the same synchronous area(s) 3 (three) months prior to entering into operation in accordance with Article 150 of the SO Regulation and inform all stakeholders and all TSOs through an announcement on the ENTSO-E website, at least 3 (three) months prior to entering into operation. This announcement on the ENTSO-E website shall include:
  - (a) the TSOs involved;
  - (b) the expected date for the exchange of balancing capacity and sharing of reserves pursuant to Article 33(1) of the EB Regulation with the market-based allocation process to enter into operation;
  - (c) the detailed description of the specifications, including the market timeframe, in accordance with article 38(2) of the EB Regulation;
  - (d) the forecast of the average expected amount of frequency restoration power interchange due to the cross-zonal FRR activation process or reserve replacement power interchange due to the cross-zonal RR activation process;
  - (e) the maximum limit(s) of cross-zonal capacity for exchange of balancing capacity as defined pursuant to Article 5(1) and maximum amount of exchange or sharing of reserves pursuant to Article 5(3); and
  - (f) the type and direction of standard balancing capacity product which will be exchanged or shared.
2. All TSOs applying this methodology, shall share the algorithm applying the cross-zonal capacity allocation function with all Baltic CCR TSOs, of a cooperation applying the market-based process in accordance with Article 38(1) of the EB Regulation.

3. The TSOs intending to apply this methodology shall publish 3 (three) months ahead of the application of this methodology on the ENTSO-E website the expected costs and benefits of such an application of this methodology.

## **Article 5**

### **Process to define the maximum volume of allocated cross-zonal capacity for the exchange of balancing capacity and sharing of reserves**

1. In accordance with Article 41(1)(d) of the EB Regulation, the process to define the maximum volume of allocated cross-zonal capacity for the exchange of balancing capacity and sharing of reserves for the cross-zonal capacity allocation function shall be as follows:
  - (a) by default the maximum volume of cross-zonal capacity allocated for the exchange of balancing capacity and sharing of reserves shall be calculated as a percentage value of cross-zonal capacity calculated for the day-ahead timeframe in accordance with the capacity calculation methodologies developed pursuant to Article 20(2) of the CACM Regulation and the value shall be the following:
    - i. 50% for the borders between any two bidding zones which are inside the Baltic countries;
    - ii. 10% for all other bidding zone borders in the Baltic CCR;
  - (b) to resolve a situation where the limit for the maximum volume of cross-zonal capacity allocated for the exchange of balancing capacity in accordance with paragraph 1(a) is not sufficient to satisfy TSO demand in a bidding zone, a TSO may increase the percentage limit pursuant to paragraph 1(a) on the relevant bidding zone borders or critical network elements for the relevant day-ahead market time units. The limit for the maximum volume of cross-zonal capacity allocated for the exchange of balancing capacity shall only be increased to the point until the TSO demand is satisfied and the higher percentage value defined in this paragraph of the calculated cross-zonal capacity calculated for day ahead market timeframe. If this maximum limit is still not sufficient to satisfy a TSO demand, a fall-back procedure pursuant to Article 7(6) shall be initiated. TSOs shall notify the regulatory authorities of the Baltic CCR about each increase of the limit for the maximum volume of cross-zonal capacity allocated for the exchange of balancing capacity above the threshold set in paragraph 1(a). This notification shall include at least the final volume percentage and value in MW of cross-zonal capacity allocated for the exchange of balancing capacity and the reasons for the shortage of balancing capacity bids in the importing bidding zone, including the list of all available bids in the algorithm, per each bidding zone. The notification shall take place no later than two weeks after such increase. The annual impact of such increases shall be reported pursuant to Article 12(8)(b). The higher percentage value shall be the following:
    - i. 70% for the borders between any two bidding zones which are inside the Baltic countries;
    - ii. 20% for all other bidding zone borders in the Baltic CCR;
  - (c) if increases pursuant to paragraph (1)(b) occur due to a structural local shortage of BSPs' bids for a standard balancing capacity product in a bidding zone, in the case when over a two-week period it is observed that for at least 25% of market time units the process set in paragraph (1)(a) is executed, the limit for the maximum volume of cross-zonal capacity allocated for the exchange of balancing capacity and sharing of reserves in accordance with paragraph (1)(a) may be increased by 2 percentage points on the bidding zone borders which require an increase of this

limit. Such increase of the default limit shall be reported to stakeholders and the regulatory authorities of the Baltic CCR at least two weeks in advance of application. This process can be performed repeatedly up until the increased percentage value of the calculated cross-zonal capacity calculated for day ahead market timeframe set in this paragraph is reached. The applied default limits shall be published in accordance with Article 12(7). Following the increase of the default limit, if the structural local shortage of BSPs' bids is remedied, in the case when over a two-week period it is observed that during no hours the maximum threshold set by the process in this paragraph is reached, the increased limit shall be reduced by 2 percentage points on the bidding zone borders which no longer require the increase on the limit. Such decrease of the default limit shall be reported to stakeholders and the regulatory authorities of the Baltic CCR at least two weeks in advance of application. This process can be performed repeatedly in the cross-zonal capacity allocation function down to the default limit of 50% of the calculated cross-zonal capacity calculated for day ahead market timeframe, provided that TSO demand is still satisfied. The applied default limits shall be published in accordance with Article 12(7). The increased percentage value that can be reached by the process set in this paragraph is as follows:

- i. 70% for the borders between any two bidding zones which are inside the Baltic countries;
  - ii. 20% for all other bidding zone borders in the Baltic CCR;
2. The exchange of balancing capacity and sharing of reserves shall, in addition to the limit defined in accordance with paragraph 1, be limited by the rules for the exchange and sharing of reserves in accordance with Title 8, Chapter 1 and 2 of the SO Regulation through the:
  - (a) maximum procurement volume of balancing capacity per direction for a specific bidding zone, or a set of bidding zones due to operational security requirements pursuant to Article 165(3)(g) of the SO Regulation;
  - (b) minimum procurement volume of balancing capacity per direction for a specific bidding zone, or a set of bidding zones defined in accordance with the dimensioning process pursuant to Article 157(2)(g) of the SO Regulation.

## **Article 6**

### **Determination of the forecasted market value of cross-zonal capacity for the exchange of energy in single day-ahead coupling**

1. The initial forecasted market value of cross-zonal capacity for the exchange of energy defined for each direction, for each bidding zone border and for each day-ahead market time unit shall be:
  - (a) equal to the positive market spread for each day-ahead market time unit of the reference day for the direction of the positive market spread; or
  - (b) equal to zero for each day-ahead market time unit of the reference day for the direction of the negative market spread or in case of zero market spread.
2. The initial forecasted market value of cross-zonal capacity for the exchange of energy will be adjusted when the available cross-zonal capacity available for the exchange of energy is changed and the cross-zonal capacity is congested before the adjustment, after the adjustment or both. The adjustment in the market value of cross-zonal capacity for the exchange of energy is based on the expected changes in bidding zones' dispatch and the corresponding changes in bidding zone's clearing prices. The adjustment to the clearing prices in bidding zones shall be dependent on the forecast change of the net position of the bidding zone in a linear manner.

$$MCP_{1,a}^{DAM} = MCP_{0,a}^{DAM} + \alpha_a^{DAM} \times V_a$$

Where:

$MCP_{0,a}^{DAM}$  – the forecast DAM price from the reference day methodology in bidding zone a;

$MCP_{1,a}^{DAM}$  – the anticipated DAM price after the shift in net position in bidding zone a;

$\alpha_a^{DAM}$  – DAM price volume sensitivity of bidding zone a;

$V_a$  – change of net position from the forecast value for bidding zone a.

3. A mark-up shall be added to the initial forecasted market value of cross-zonal capacity calculated in accordance with paragraph 1, in order to take into account the uncertainty of the forecasted market value of cross-zonal capacity. This mark-up is defined for each direction as follows:
  - (a) if there is a negative or zero market spread for the initial forecasted market value of cross-zonal capacity in accordance with paragraph 1, the mark-up will be 0.1 EUR/MWh; and
  - (b) if there is a positive market spread, for the initial forecasted market value of cross-zonal capacity in accordance with paragraph 1, the mark-up will be 1 EUR/MWh.
4. If the average positive forecast error over the last 30 days, per bidding zone border and per direction, excluding the 5% hours with the highest positive forecast errors, is 1 EUR/MWh higher or lower than the mark-up applied the day before, the TSOs of this bidding zone border shall respectively increase or decrease the mark-up pursuant to paragraph 3(b) with 1 EUR/MWh for the respective direction. The mark-up for a positive market spread, can never be lower than the default value pursuant to paragraph 3(b) and never higher than 5 EUR/MWh. The updated mark-ups shall be published pursuant to Article 12(2).
5. The forecasted market value for the exchange of energy or sharing of reserves per product, per day ahead market time unit, for each direction and per bidding zone border shall be equal to the sum of the initial forecasted market value pursuant to paragraph 1, the adjustments deriving from paragraph 2 and the mark-up pursuant to paragraphs 3 and 4.
6. The reference day shall be:
  - (a) the previous working day whenever cross-zonal capacity is allocated for a working day;
  - (b) the previous weekend day or bank holiday whenever cross-zonal capacity is allocated for a weekend day; and
  - (c) the previous Sunday or bank holiday whenever cross-zonal capacity is allocated for a bank holiday in any of the relevant bidding zones.
7. The TSOs shall monitor the efficiency of the forecasting methodology pursuant to Article 12(8).

## Article 7

### **Determination of the market value of cross-zonal capacity for the exchange of balancing capacity and sharing of reserves**

1. The actual market value of cross-zonal capacity for the exchange of balancing capacity and sharing of reserves between all bidding zones where this methodology is applied shall be:
  - (a) equal to the change of economic surplus from the exchange of balancing capacity and sharing of reserves per MW of cross-zonal capacity allocated;

- (b) defined per day-ahead market time unit;
  - (c) calculated per standard balancing capacity product, separately;
  - (d) calculated based on the standard upward balancing capacity bids or standard downward balancing capacity bids submitted to the capacity procurement optimisation function pursuant to Article 33(3) of the EB Regulation; and
  - (e) calculated based on TSO demand.
2. The actual market value of cross-zonal capacity for the exchange of balancing capacity and sharing of reserves between bidding zones, where this methodology is applied, shall be calculated based on the change of economic surplus due to the exchange of balancing capacity and sharing of reserves, resulting from the change of available cross-zonal capacities allocated to the market timeframe for the exchange of balancing capacity and sharing of reserves.
  3. The TSOs shall not put a price on the TSO demand used in the market-based allocation process.
  4. TSOs may increase the TSO demand of a certain standard balancing capacity product to:
    - (a) select an indivisible bid if such an increase would decrease the overall procurement costs for the respective standard balancing capacity product; or
    - (b) substitute an lower quality standard balancing capacity product if such substitution is based on firm bid(s) from BSPs during the time of the market-based process and would decrease the combined overall procurement costs for both standard balancing capacity product or in case of volume shortage of the lower quality standard balancing capacity product and if there is no possibility for a similar lower quality standard balancing capacity product to participate directly in the market-based process.
  5. TSOs may decrease the TSO demand of a certain standard balancing capacity product in case of sharing of reserves.
  6. If the demand for a standard balancing capacity product of TSOs in a region where market-based cross-zonal capacity allocation is applied, exceeds the available amount of bids for the relevant standard balancing capacity product, while taking into account the maximum volume of allocated cross-zonal capacity for the exchange of balancing capacity and sharing of reserves in accordance with Article 5, a additional iterations of the cross-zonal capacity allocation function shall be commenced. Such procedures shall be described in the methodology pursuant to Article 33(1) and 38(1) of the EB Regulation.
  7. If the cross-zonal capacity allocation function cannot provide results due to any technical issues and unexpected circumstances, fallback conditions shall be in effect. Such procedures shall be described in the methodology pursuant to Article 33(1) and Article 38(1) of the EB Regulation.
  8. If a TSO demand for a standard balancing capacity product per bidding zone exceeds the available amount of locally submitted BSP bids in the bidding zone for the respective standard balancing capacity product but the maximum volume of allocated capacity is enough to cover the deficit, the market-based capacity allocation shall be performed. To calculate the change of economic surplus from the exchange of balancing capacity and sharing of reserves in such a case, the difference between the technical price limit and the marginal price of the importing BSP bids shall be considered as the change of economic surplus of the TSO of the bidding zone with insufficient bids. In case of insufficient local bids to meet the local TSO demand and a simulations scarcity situation in SDAC, the maximum between technical price limit applied in SDAC and the highest local BSP's bid price shall be used as the technical price limit for the market-based cross-zonal capacity allocation.

## Article 8

### **Determination of the allocated volume of cross-zonal capacity for the exchange of balancing capacity and sharing of reserves**

1. The cross-zonal capacity allocation function shall determine the allocated volume of cross-zonal capacity for the exchange of balancing capacity and sharing of reserves considering the selection of balancing capacity bids via the capacity procurement optimisation function.
2. The inputs to the algorithm for the cross-zonal capacity allocation function are:
  - (a) the forecasted day-ahead market prices of each of the bidding zones included in the forecast process;
  - (b) the price-volume sensitivity parameter of each of the bidding zones included in the forecast process which depicts the estimated increase or decrease in systems costs per bidding zone if forecasted level of dispatch in a certain bidding zone is increased or decreased;
  - (c) the forecasted net positions of each of the bidding zones included in the forecast process;
  - (d) the list of balancing capacity bids from balancing service providers for each bidding zone, day-ahead market time unit and standard balancing capacity product sorted in order of their bid prices;
  - (e) the volume of capacity provided by demand reduction resources used to reduce the amount of balancing capacity to be procured from primary and back-up resources to cover the TSO demand;
  - (f) the volume of available capacity provided by back-up resources used to satisfy TSO demand in case primary and demand reduction resources, and increase of cross-zonal capacity limits does not fully cover TSO demands;
  - (g) the TSO demand for each bidding zone, day-ahead market time unit and standard balancing capacity product; and
3. The constraints to the algorithm for the cross-zonal capacity allocation function are:
  - (a) the volume of cross-zonal capacity that can be allocated for the exchange of energy and for the exchange of balancing capacity and sharing of reserves, combined;
  - (b) the maximum volume of allocated cross-zonal capacity for the exchange of balancing capacity and sharing of reserves defined pursuant to Article 5(1);
  - (c) the minimum and maximum procurement volume of balancing capacity defined pursuant to Article 5(3); and
  - (d) the tolerance band for the reduced/increased TSO demand as a function of the available cross-zonal capacities, based on:
    - i. sharing of reserves agreement of two or more TSOs to be applied with market-based allocation pursuant to Article 7(5);
    - ii. substitution of reserves for volume shortage by another standard balancing capacity product pursuant to Article 7(4)(b);
    - iii. substitution of reserves for cost minimisation by another standard balancing capacity product pursuant to Article 7(4)(b).
4. The objective of the cross-zonal capacity allocation function shall be the maximisation, per trading day, of the sum of
  - (a) the expected economic surplus for SDAC, based on the forecasted market value for the exchange of energy pursuant to Article 6(5), and
  - (b) the economic surplus from the exchange of balancing capacity and sharing of reserves based on the actual market value for the exchange of balancing capacity pursuant to Article 7(2).



5. The mathematical formulation of the objective function is as follows:

$$\sum_{i,c} \left( bidcost_i \times bidvolume_i \times selected_i + V_{da,c} (MCP_c + \alpha_c \times V_{da,c}) \times \frac{1}{2} \right)$$

Where:

*bidcost<sub>i</sub>* is the cost of bid *i*;

*bidvolume<sub>i</sub>* is the volume of bid *i*;

*selected<sub>i</sub>* is a boolean determining whether bid *i* is accepted or not;

*V* is the deviation of the forecast net position of bidding zone *c*;

*MCP* is the forecasted day-ahead market price in bidding zone *c*;

*α* is the price/volume sensitivity of day-ahead bidding zone *c*.

6. The output from the algorithm for the cross-zonal capacity allocation function, per standard balancing capacity product and for each day-ahead market time unit is the available cross-zonal capacity allocated to the exchange of balancing capacity and sharing of reserves.
7. Each marginal volume of cross-zonal capacity shall be allocated to the exchange of energy in case the actual market value of cross-zonal capacity for the exchange of balancing capacity and sharing of reserves pursuant to Article 7(2) is lower or equal to the forecasted market value of cross-zonal capacity for the exchange of energy pursuant to Article 6(5).
8. Netting of cross-zonal capacity allocated to the exchange of balancing capacity and sharing of reserves is not possible between:
- (a) standard upward and downward balancing capacity bids;
  - (b) standard balancing capacity bids from different standard balancing capacity products.
9. In case where cross-zonal capacity allocated to the exchange of balancing capacity and sharing of reserves would be allocated such that cross-zonal capacity for upward and downward balancing capacity would be allocated in the same cross-zonal capacity direction, cross-zonal capacity allocated for upward balancing capacity products can be used by downward balancing capacity products; and vice versa.

## **Article 9**

### **Firmness regime for the allocation of cross-zonal capacity**

1. The cross-zonal capacity allocated for the exchange of balancing capacity and sharing of reserves shall be firm after the optimisation by the cross-zonal capacity allocation function.
2. In the event of force majeure or emergency situations, curtailment of cross-zonal capacities which were allocated using the cross-zonal capacity allocation function shall be proportionally distributed between

the affected cross-zonal capacity allocated for the exchange of energy and for the exchange of balancing capacity and sharing of reserves in accordance with Article 41(4) of the EB Regulation. TSOs can deviate from this principle by proposing a more cost efficient, non-discriminatory solution in the proposal pursuant to Article 33(1) of the EB Regulation.

3. Costs of ensuring firmness of cross-zonal capacity allocated for the exchange of balancing capacity and sharing of reserves shall include follow up costs of ensuring firmness of procured standard balancing capacity bids in accordance with paragraph 1, which are caused by the curtailment of firm cross-zonal capacity in the event of force majeure or emergency situations. These costs also include the additional costs from the procurement of balancing capacity due to the non-availability of the balancing capacity given the curtailment of cross-zonal capacity.
4. The costs of ensuring firmness shall be shared in accordance with the regional methodologies developed in accordance with Article 74 of the CACM Regulation and Article 76 of the SO Regulation for the cases that fall within the scope of these methodologies.
5. Any costs of ensuring firmness which are outside the scope of the methodologies referred to in paragraph 4 shall be borne by the TSO requesting the curtailment.

#### **Article 10** **Pricing of cross-zonal capacity**

1. TSOs allocating cross-zonal capacity for the exchange of balancing capacity and sharing of reserves applying this methodology within the Baltic CCR shall calculate the cross-zonal capacity price for the volume of cross-zonal capacity that is allocated for the exchange of balancing capacity and sharing of reserves.
2. The price of cross-zonal capacity allocated for the exchange of balancing capacity and sharing of reserves shall be calculated separately for each market time unit and each standard balancing capacity product.
3. The prices in EUR/MW of cross-zonal capacity per day ahead market time unit in each direction shall be equivalent to the difference in cross-zonal marginal prices of a standard balancing capacity product in bidding zones applying the market-based allocation process pursuant to Article 38(1) of the EB Regulation.

#### **Article 11** **Sharing of congestion income**

1. The congestion income shall be calculated per application of the market-based process pursuant to Article 38(1) of the EB Regulation and day-ahead market time unit and shall be equal to the volume of cross-zonal capacity allocated to the exchange of balancing capacity and sharing of reserves multiplied by the price of cross-zonal capacity allocated in accordance with Article 10. The congestion income pursuant to paragraph 1 will be shared in accordance with the methodology of Article 73 of the CACM Regulation and in accordance with Article 41(4) of the EB Regulation.

2. On a monthly basis TSOs of a cooperation applying the market-based process in accordance with Article 38(1) of the EB Regulation shall compare the monthly congestion income calculated in accordance with paragraph 1 with the congestion income which could have been generated for the amount of cross-zonal capacity allocated for the exchange of balancing capacity and sharing of reserves if allocated to the single day ahead coupling instead. The TSOs of a cooperation applying the market-based process in accordance with Article 38(1) of the EB Regulation shall inform all TSOs and regulatory authorities of the CCR and ACER of the outcome of this assessment.
3. If the comparison pursuant to paragraph 2 shows a deficit on a monthly basis of generated congestion income following the allocation of cross-zonal capacities for the exchange of balancing capacity and sharing of reserves, the TSOs of a cooperation applying the market-based process in accordance with Article 38(1) of the EB Regulation should pay a compensation to the single day ahead coupling to cover such deficit. The costs of such compensation shall be split among the TSOs of a cooperation applying the market-based process in accordance with Article 38(1) of the EB Regulation in accordance with the distribution of shares of overall decreased procurement costs per TSO from the application of the market-based process in the relevant month. The compensation to the single day-ahead coupling should be shared among all TSOs in accordance with the shares of decreased congestion income pursuant to the comparison in accordance with paragraph 3.

## **Article 12**

### **Publication of information**

1. The TSOs applying this market-based capacity allocation process shall publish all relevant and required information on the transparency website of ENTSO-E according to Article 12(5) of the EB Regulation.
2. The TSOs applying this market-based capacity allocation process shall publish the following information on the allocation of cross-zonal capacity for the exchange of balancing capacity and sharing of reserves as soon as possible but no later than one hour before the single day-ahead coupling gate closure time, as defined in accordance with Article 47(2) of the CACM Regulation, pursuant to Article 12(3)(h) of the EB Regulation:
  - (a) date and time when the decision on allocation was made;
  - (b) period of the allocation;
  - (c) volumes allocated including the actual percentage limit applied in accordance with Article 5 (1)(a) to (c); and
  - (d) market values used as a basis for the allocation process in accordance with Articles 6(5) and 7(2).
3. The TSOs applying this market-based capacity allocation process shall publish the following information on the use of allocated cross-zonal capacity for the exchange of balancing capacity and sharing of reserves as soon as possible but no later than 1 (one) week after the use of allocated cross-zonal capacity, pursuant to Article 12(3)(i) of the EB Regulation:
  - (a) volume of allocated and used cross-zonal capacity per day-ahead market time unit;
  - (b) volume of released cross-zonal capacity for subsequent time frames per day ahead market time unit in accordance with Article 38(8) of the EB Regulation;
  - (c) estimated realised costs and benefits of the allocation process. The TSOs will, based on the bid data for the respective standard balancing capacity product, estimate the reduction in

procurement costs and estimated welfare gains compared to fulfilling the TSO demand without allocating cross-zonal capacity for exchange of the respective standard balancing capacity product. These estimated costs and benefits will be published as values for each bidding zone, day ahead market time unit and each standard balancing capacity product for the balancing capacity market where this methodology is applied.

4. Each TSO applying this market-based allocation process and increased the TSO demand in accordance with Article 7(4)(b) shall publish information at least on the amount of the increase and the anonymised bid curve from the standard balancing capacity not participating in the market-based process on which basis the TSO demand was increased by no later than one day after the performed market-based allocation process.
5. The TSOs applying this market-based allocation process shall publish the description of the requirements of the algorithm for the cross-zonal capacity allocation function at least one month before its application.
6. The TSOs applying this market-based allocation process and using the option of Article 8(2)(d) shall publish a detailed description how the possible costs associated to the congestion income assessment pursuant to Article 11(4) are considered in the determination of the allocated volume of cross-zonal capacity for the exchange of balancing capacity and sharing of reserves at least one month before the option is used.
7. The TSOs applying this market-based allocation process shall publish an overview of the applicable default limits for the maximum volume of cross-zonal capacity allocated for the exchange of balancing capacity pursuant to Article 5(1)(a) and (c).
8. The TSOs shall monitor the efficiency of the forecasting methodology and conduct analysis on the default limit for the maximum volume of cross zonal capacity allocated for the exchange of balancing capacity and sharing of reserves and shall, by six months after the go-live of the market-based allocation process and subsequently at least once a year, submit a report to the relevant regulatory authorities. This report shall include at least:
  - (a) a comparison of the forecasted and actual market values of cross-zonal capacity for the exchange of energy;
  - (b) assessment of occurred increases of the limits for the maximum volume of cross-zonal capacity allocated for the exchange of balancing capacity and sharing of reserves in accordance with Article 5(1)(b), including statistics on the amount of incidents, increased volumes and percentages, reasons for the incidents and an analysis of the economic surplus effects on the SDAC;
  - (c) assessment of the impact on the price formation of the single day-ahead coupling due to the allocation of cross-zonal capacity for the exchange of balancing capacity and sharing of reserves;
  - (d) assessment of impacts on the economic surplus of the SDAC and economic surplus from the exchange of balancing capacity and sharing of reserves from the application of the market-based allocation process and the specific impact following an increase of a default limit for the maximum volume of cross-zonal capacity allocated for the exchange of balancing capacity and sharing of reserves pursuant to the process described in Article 5(1)(c);
  - (e) assessment of the adjustment process according to Article 6 (2), including assessment of the number of hours the adjustment has been made and assessment on the magnitude of the adjustments made;
  - (f) where necessary, proposals to improve the accuracy of the forecasted market values, including a different limit for the maximum volume of cross zonal capacity pursuant to Article 5(1) or different mark-up values per bidding zone border pursuant to Article 6(2) based on the results of the relevant analysis; and
  - (g) an assessment on the need to adjust the percentage limits on cross-zonal capacity allocation described in Article 5(1).

9. During implementation pursuant to Article 13(2), the TSOs shall inform regulatory authorities about the progress and the outcome of the performed verification processes for implementing the market-based allocation process.

### **TITLE 3** **Final provisions**

#### **Article 13** **Publication and implementation of the methodology for market-based capacity allocation**

1. The TSOs shall publish this methodology without undue delay on the ENTSO-E website after a decision has been made by the European Union Agency for the Cooperation of Energy Regulators in accordance with Article 6(2) of the EB Regulation.
2. The TSOs shall implement this methodology by the time the cross zonal capacity on all bidding zone borders of the Baltic CCR is calculated in accordance with the capacity calculation methodology developed pursuant to the CACM Regulation, by establishing the cross-zonal capacity allocation function to be ready for application of the market-based allocation process for the exchange of balancing capacity and sharing of reserves, where two or more TSOs intend to commonly procure balancing capacity.

#### **Article 14** **Language**

The reference language for this methodology shall be English. For the avoidance of doubt, where the TSOs need to translate this methodology into their national language(s), in the event of inconsistencies between the English version published by the TSOs in accordance with Article 7 of the EB Regulation and any version in another language, the relevant TSOs shall, in accordance with national legislation, provide the relevant national regulatory authorities with an updated translation of this methodology.

**Position paper of the National Regulatory Authorities  
of Baltic Capacity Calculation Region**

**on**

**The Baltic Capacity Calculation Region Transmission  
System Operators' proposal for the methodology for  
the market-based allocation process of cross-zonal  
capacity for the exchange of balancing capacity for the  
Baltic Capacity Calculation Region in accordance with  
Article 41(1) of the Commission Regulation (EU)  
2017/2195 of 23 November 2017 establishing a  
guideline on electricity balancing**

19 September 2023

## 1. Introduction and legal base

This document elaborates an agreement between the Baltic Capacity Calculation Region (CCR) National Regulatory Authorities (NRAs)<sup>1</sup> of 19 September 2023, on the Baltic CCR Transmission System Operators' (TSOs)<sup>2</sup> proposal for the methodology for the market-based allocation process of cross-zonal capacity for the exchange of balancing capacity for the Baltic CCR in accordance with Article 41(1) of the Commission Regulation (EU) 2017/2195 of 23 November 2017 establishing a guideline on electricity balancing (EBGL) (hereinafter Methodology).

This agreement of Baltic CCR NRAs shall provide evidence that a decision on the Methodology does not, at this stage, need to be adopted by the Agency for Cooperation of Energy Regulators (Agency) pursuant to paragraph 7 of Article 5 of EBGL. It is intended to constitute the basis on which the Baltic CCR NRAs will each subsequently make national decisions pursuant to paragraph 6 of Article 5 of EBGL to approve Methodology, submitted by TSOs.

The legal provisions relevant to the submission and approval of the Methodology, and this Baltic CCR NRAs' agreed opinion of the Methodology, can be found in Articles 3, 5(3) (h), 5(6), 5(7), 6(1), 6(2), 12(3) (j), 38(1) (b), 39, and 41 of the EBGL.

### Article 3

1. *This Regulation aims at:*

*(a) fostering effective competition, non-discrimination and transparency in balancing markets;*

*(b) enhancing efficiency of balancing as well as efficiency of European and national balancing markets;*

*(c) integrating balancing markets and promoting the possibilities for exchanges of balancing services while contributing to operational security;*

*(d) contributing to the efficient long-term operation and development of the electricity transmission system and electricity sector in the Union while facilitating the efficient and consistent functioning of day-ahead, intraday and balancing markets;*

*(e) ensuring that the procurement of balancing services is fair, objective, transparent and market-based, avoids undue barriers to entry for new entrants, fosters the liquidity of balancing markets while preventing undue distortions within the internal market in electricity;*

*(f) facilitating the participation of demand response including aggregation facilities and energy storage while ensuring they compete with other balancing services at a level playing field and, where necessary, act independently when serving a single demand facility;*

*(g) facilitating the participation of renewable energy sources and support the achievement of the European Union target for the penetration of renewable generation.*

---

<sup>1</sup> Estonian Competition Authority, Public Utilities Commission of Latvia, National Energy Regulatory Council of Lithuania, Energy Authority of Finland, Swedish Energy Markets Inspectorate, Energy Regulatory Office of Poland

<sup>2</sup> Elering AS, AS "Augstsprieguma tīkls", Litgrid AB, Fingrid Oyj, Svenska kraftnät, PSE S.A.

2. When applying this Regulation, Member States, relevant regulatory authorities, and system operators shall:

(a) apply the principles of proportionality and non-discrimination;

(b) ensure transparency;

(c) apply the principle of optimisation between the highest overall efficiency and lowest total costs for all parties involved;

(d) ensure that TSOs make use of market-based mechanisms, as far as possible, in order to ensure network security and stability;

(e) ensure that the development of the forward, day-ahead and intraday markets is not compromised;

(f) respect the responsibility assigned to the relevant TSO in order to ensure system security, including as required by national legislation;

(g) consult with relevant DSOs and take account of potential impacts on their system;

(h) take into consideration agreed European standards and technical specifications.

#### **Article 5(3) (h)**

3. The proposals for the following terms and conditions or methodologies shall be subject to approval by all regulatory authorities of the concerned region:

[...]

(h) for each capacity calculation region, the methodology for a market-based allocation process of cross-zonal capacity pursuant to Article 41(1);

#### **Article 5(6)**

6. Where the approval of the terms and conditions or methodologies requires a decision by more than one regulatory authority, the relevant 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 relevant regulatory authorities shall take that opinion into account. Regulatory authorities shall decide on the terms and conditions or methodologies submitted in accordance with paragraphs 2 and 3, within six months following the receipt of the terms and conditions or methodologies by the relevant regulatory authority or, where applicable, by the last relevant regulatory authority concerned.

#### **Article 5(7)**

7. Where the relevant regulatory authorities have not been able to reach agreement within the period referred to in paragraph 6, or upon their joint request, the Agency shall adopt a decision concerning the submitted proposals for terms and conditions or methodologies within six months from the day of referral, in accordance with Article 8(1) of Regulation (EC) No 713/2009.

#### **Article 6(1)**



1. Where one or several regulatory authorities in accordance with Article 37 of Directive 2009/72/EC require an amendment in order to approve the terms and conditions or methodologies submitted in accordance with paragraphs 2, 3 and 4 of Article 5, the relevant TSOs shall submit a proposal for amended terms and conditions or methodologies for approval within two months following the requirement from the relevant regulatory authorities. The relevant regulatory authorities shall decide on the amended terms and conditions or methodologies within two months following their submission.

#### **Article 6(2)**

2. Where the relevant regulatory authorities have not been able to reach an agreement on terms and conditions or methodologies within the two-month deadline, or upon their joint request, the Agency shall adopt a decision concerning the amended terms and conditions or methodologies within six months, in accordance with Article 8(1) of Regulation (EC) No 713/2009. If the relevant TSOs fail to submit a proposal for amended terms and conditions or methodologies, the procedure provided for in Article 4 shall apply.

#### **Article 12(3) (j)**

3. Each TSO shall publish the following information as soon as it becomes available:

[...]

(j) approved methodologies referred to in Articles 40, 41 and 42 at least one month before the application;

#### **Article 38(1) (b)**

1. Two or more TSOs may at their initiative or at the request of their relevant regulatory authorities in accordance with Article 37 of Directive 2009/72/EC set up a proposal for the application of one of the following processes:

[...]

(b) market-based allocation process pursuant to Article 41;

#### **Article 39**

1. The market value of cross-zonal capacity for the exchange of energy and for the exchange of balancing capacity or sharing of reserves used in a co-optimised or market-based allocation process shall be based on the actual or forecasted market values of cross-zonal capacity.

2. The actual market value of cross-zonal capacity for the exchange of energy shall be calculated based on the bids of market participants in the day-ahead markets, and take into account, where relevant and possible, expected bids of market participants in the intraday markets.

3. The actual market value of cross-zonal capacity for the exchange of balancing capacity used in a co-optimised or a market-based allocation process shall be calculated based on balancing capacity bids submitted to the capacity procurement optimisation function pursuant to Article 33(3).

4. *The actual market value of cross-zonal capacity for the sharing of reserves used in a co-optimised or a market-based allocation process shall be calculated based on the avoided costs of procuring balancing capacity.*

5. *The forecasted market value of cross-zonal capacity shall be based on one of the following alternative principles:*

*(a) the use of transparent market indicators that disclose the market value of cross-zonal capacity; or*

*(b) the use of a forecasting methodology enabling the accurate and reliable assessment of the market value of cross-zonal capacity.*

*The forecasted market value of cross-zonal capacity for the exchange of energy between bidding zones shall be calculated based on the expected differences in market prices of the day-ahead and, where relevant and possible, intraday markets between bidding zones. When calculating the forecasted market value, additional relevant factors influencing demand and generation patterns in the different bidding zones shall be taken duly into account.*

6. *The efficiency of the forecasting methodology pursuant to paragraph 5(b), including a comparison of the forecasted and actual market values of the cross-zonal capacity, may be reviewed by the relevant regulatory authorities. Where the contracting is done not more than two days in advance of the provision of the balancing capacity, the relevant regulatory authorities may, following this review, set a limit other than that specified in Article 41(2).*

#### **Article 41**

1. *By two years after entry into force of this Regulation, all TSOs of a capacity calculation region may develop a proposal for a methodology for a market-based allocation process of cross-zonal capacity for the exchange of balancing capacity or sharing of reserves. This methodology shall apply for the exchange of balancing capacity or sharing of reserves with a contracting period of not more than one day and where the contracting is done not more than one week in advance of the provision of the balancing capacity. The methodology shall include:*

*(a) the notification process for the use of the market-based allocation process;*

*(b) a detailed description of how to determine the actual market value of cross-zonal capacity for the exchange of balancing capacity or sharing of reserves, and the forecasted market value of cross-zonal capacity for the exchange of energy, and if applicable the actual market value of cross-zonal capacity for exchanges of energy and the forecasted market value of cross-zonal capacity for the exchange of balancing capacity or sharing of reserves;*

*(c) a detailed description of the pricing method, the firmness regime and the sharing of congestion income for the cross-zonal capacity that has been allocated to bids for the exchange of balancing capacity or sharing of reserves via the market-based allocation process;*

*(d) the process to define the maximum volume of allocated cross-zonal capacity for the exchange of balancing capacity or sharing of reserves pursuant to paragraph 2.*

2. Cross-zonal capacity allocated on a market-based process shall be limited to 10 % of the available capacity for the exchange of energy of the previous relevant calendar year between the respective bidding zones or, in case of new interconnectors, 10 % of the total installed technical capacity of those new interconnectors.

*This volume limitation may not apply where the contracting is done not more than two days in advance of the provision of the balancing capacity or for bidding zone borders connected through DC interconnectors until the co-optimised allocation process is harmonised at Union level pursuant to Article 38(3).*

3. This methodology shall be based on a comparison of the actual market value of cross-zonal capacity for the exchange of balancing capacity or sharing of reserves and the forecasted market value of cross-zonal capacity for the exchange of energy, or on a comparison of the forecasted market value of cross-zonal capacity for the exchange of balancing capacity or sharing of reserves, and the actual market value of cross-zonal capacity for the exchange of energy.

4. The pricing method, the firmness regime and the sharing of congestion income for cross-zonal capacity that has been allocated for the exchange of balancing capacity or sharing of reserves via the market-based process shall ensure equal treatment with the cross-zonal capacity allocated for the exchange of energy.

5. Cross-zonal capacity allocated for the exchange of balancing capacity or sharing of reserves via the market-based allocation process shall be used only for the exchange of balancing capacity or sharing of reserves and associated exchange of balancing energy

## **2. The Methodology proposal**

On 13 August 2021 Agency issued a decision No 10/2021<sup>3</sup>, which set the deadline for Baltic CCR TSOs to submit the Methodology proposal by 13 August 2022.

On 3 August 2022 the Baltic CCR TSOs submitted a request to Baltic CCR NRAs to extend the submission deadline of the Methodology proposal by three months, to the 13 November 2022.

The Baltic CCR NRAs jointly agreed to extend the submission deadline of the Methodology proposal to 13 November 2022.

The Methodology proposal was consulted by Baltic CCR TSOs through ENTSO-E consultation hub for one month from 22 September 2022 to 23 October 2022 in accordance with Article 10 of EBGL.<sup>4</sup>

The Baltic CCR TSOs' Methodology proposal was received by the last Baltic CCR NRA on 16 November 2022.

The Baltic CCR NRAs, in accordance with Article 5(6) of EBGL, assessed, consulted and closely cooperated and coordinated with each other in order to reach an agreement on the Methodology proposal, while taking into account the Agency issued decision No 10/2021. The

---

<sup>3</sup>[https://acer.europa.eu/Official\\_documents/Acts\\_of\\_the\\_Agency/Individual%20decisions/ACER%20Decision%2010-2021%20on%20the%20Baltic%20CCR%20methodology%20for%20market-based%20allocation.pdf](https://acer.europa.eu/Official_documents/Acts_of_the_Agency/Individual%20decisions/ACER%20Decision%2010-2021%20on%20the%20Baltic%20CCR%20methodology%20for%20market-based%20allocation.pdf)

<sup>4</sup> <https://consultations.entsoe.eu/markets/baltic-ccr-proposal-to-ebgl-article-41-methodology/>

Baltic CCR NRAs jointly agreed to request for amendments, in accordance with Article 6(1) of EBGL, and sent the request to the Baltic CCR TSOs. The last regulatory authority issued the request for amendment nationally on 16 May 2023.

The Baltic CCR TSOs resubmitted the amended Methodology proposal to the Baltic CCR NRAs and the last relevant regulatory authority received the Methodology proposal on 1 August 2023. Therefore, the new deadline for approval by the regulatory authorities is 1 October 2023.

### **3. The NRAs position**

Article 5(1) of the Methodology sets out the maximum volume of allocated cross-zonal capacity for the exchange of balancing capacity and sharing of reserves for the cross-zonal capacity allocation function. Based on the Methodology, by default the maximum volume of cross-zonal capacity allocated for the exchange of balancing capacity and sharing of reserves shall be calculated as a percentage value of cross-zonal capacity calculated for the day-ahead timeframe in accordance with the capacity calculation methodologies developed pursuant to Article 20(2) of the Commission Regulation (EU) 2015/1222 of 24 July 2015 establishing a guideline on capacity allocation and congestion management (CACM) and the value for the borders between any two bidding zones, which are inside the Baltic countries, shall be 50% and for all other bidding zone borders in Baltic CCR, the value shall be 10%.

The above-mentioned maximum volumes shall only be increased to the point until the TSO demand is satisfied and the increased percentage value that can be reached for the borders between any two bidding zones which are inside the Baltic countries is 70%. The increased percentage value that can be reached for all other bidding zone borders in the Baltic CCR is 20%.

Article 41(2) of the EBGL limits the maximum volume of allocated cross-zonal capacity for the exchange of balancing capacity or sharing of reserves which can be allocated by the market-based allocation process. While this limit should generally be at 10% of the available capacity for the exchange of energy of the previous relevant calendar year, this specific limit does not apply if the market-based allocation process is performed not more than two days before the provision of the balancing capacity. In case of this exemption, according to Article 39(6) of the EBGL, the relevant regulatory authorities can set another limit than the one specified in Article 41(2) of the EBGL after a review on the efficiency of the forecasting method by these regulatory authorities.

The Baltic CCR NRAs acknowledge that the maximum limit set out in Methodology is considerably higher than the one set out in Article 41(2) of EBGL, but also taking into account the Article 39(6) of EBGL which allows relevant regulatory authorities set a limit other than that specified in Article 41(2) of EBGL. Baltic CCR NRAs also acknowledge, that setting a higher maximum limit does not necessarily mean that additional cross-zonal capacity will be allocated for the exchange of balancing capacity or sharing of reserves. The allocation is decided based on efficiency criteria, and the maximum limit is only a constraint to the optimisation problem. Whether the change of the maximum limit will change the outcome of the optimisation problem depends only on the comparison of the economic surpluses of the two markets: the balancing capacity and the day-ahead one.

The Baltic CCR TSOs have procured two studies which investigate the appropriate forecasting methodology for forecasting the market value of CZC for the exchange of energy and the appropriate maximum volumes of allocated CZC for the exchange of balancing capacity or sharing of reserves and the impact of allocating large volumes of CZC for the exchange of balancing capacity or sharing of reserves. These studies justify the higher limits set out in the Methodology, otherwise, insufficient FRR capacity would be available to either Estonia or Lithuania and the NTC values of HVDC links in the day-ahead market between Estonia and Finland or Lithuania and Sweden/Poland must be restricted, respectively. Moreover, balancing capacity scarcity situations are observed, it is not possible to procure the necessary balancing capacity and NTCs with neighboring countries would have to be de-rated. Also, according to the studies, no negative impacts are observed on the neighboring countries (Sweden, Finland and Poland) when allocating large shares of CZC for balancing capacity on the Estonian-Latvian and Latvian-Lithuanian border and total system costs and day-ahead energy prices would remain stable. Large impacts are observed for the Baltic countries when allocating low shares of CZC for balancing capacity on the Estonian-Latvian and Latvian-Lithuanian border as both the balancing capacity and day-ahead energy market costs would increase.

After assessing the Methodology proposal, the Baltic CCR NRAs have concluded that the Methodology proposal covers all necessary arrangements pursuant to Article 41(1) of the EBGL.

#### **4. Conclusion**

The Baltic CCR NRAs welcome the submitted Methodology proposal. The Baltic CCR NRAs have assessed, consulted and closely cooperated and coordinated to reach an agreement on the Methodology proposal which meets the requirements of EBGL and as such can be approved by The Baltic CCR NRAs. Thereby, the Baltic CCR NRAs must take their decisions to approve proposals regarding Article 5(3)(h) and Article 41(1) of EBGL, based on this agreement, by 1 October 2023 at the latest.

**Explanatory document to Baltic CCR TSOs proposal in  
accordance with Article 41(1) of the Commission  
Regulation (EU) 2017/2195 of 23 November 2017  
establishing a guideline on electricity balancing**

## Table of Contents

1.	Definitions.....	3
2.	Introduction .....	4
2.1.	Background.....	4
2.2.	The CZC studies .....	4
3.	Formulating the CZC value forecast for the day-ahead market in the procurement optimization function	6
3.1.	The day-ahead forecast proxy .....	6
3.1.1.	Statistical approximation of the supply curves .....	6
3.1.2.	Building the day-ahead forecast proxy.....	7
3.2.	The procurement optimization function.....	9
4.	Mathematical formulation of the Baltic balancing capacity optimisation algorithm .....	11
4.1.	Allocation of CZC .....	11
4.2.	Product balances .....	11
4.2.1.	The day-ahead energy balance .....	11
4.2.2.	The balancing capacity balance.....	11
4.2.3.	The balancing capacity export restriction .....	12
5.	CZC allocation determination .....	13
6.	The maximum and optimal volume of allocated CZC for the exchange of balancing capacity or sharing of reserves .....	15
7.	Impact of allocating large shares of CZC for balancing capacity to neighbouring countries.....	19

## **1. Definitions**

BZ – Bidding zone

BZB – bidding zone border

CZC – Cross-zonal capacity



## **2. Introduction**

This document gives background information and the rationale for AST, Elering, Fingrid, Litgrid, Polskie Sieci Elektroenergetyczne and Svenska kraftnät proposal's for the amendment of methodology for a market-based allocation process of cross-zonal capacity (hereinafter referred to as "CZC") for the exchange of balancing capacity in accordance with Article 41(1) of the Commission Regulation (EU) 2017/2195 of 23 November 2017 establishing a guideline on electricity balancing (hereinafter referred to as "EB GL"). This proposal is hereinafter referred to as the "Proposal", and AST, Elering, Fingrid, Litgrid, Polskie Sieci Elektroenergetyczne and Svenska kraftnät are hereinafter collectively referred to as the "Baltic CCR TSOs".

### **2.1. Background**

The Baltic CCR TSOs envisage implementing a common balancing capacity market between the three Baltic countries in order to maximize economic efficiency and guarantee the necessary amount of reserves to be present at any given time for the Baltic countries. The balancing capacity market is envisaged to start by the time the Baltic countries connect their power systems to the Continental European Synchronous Area (CESA), which is scheduled to take place by the 1<sup>st</sup> of January 2026.

The Baltic countries' balancing capacity needs are significantly high compared to their peak loads. The balancing capacity need would be approximately 1800 MW of upward FRR and 1500 MW of downward reserve to be procured for the three Baltic countries combined. Fulfilling such an FRR demand would be impossible with the fleet of power plants currently existing and expected to enter the market by 2026. Instead, the Baltic TSOs have drafted a plan for an extensive sharing of reserves scheme to be implemented such that a total of approximately 710 MW of upward and downward FRR capacity shall be procured and shared between the countries. This amount of FRR will be able to cover any largest reference incident in the Baltic countries. The vision relies on extensive use of CZC to allow all Baltic countries the access to the necessary amount of balancing capacity.

### **2.2. The CZC studies**

The Baltic CCR TSOs have procured two studies which investigate the appropriate forecasting methodology for forecasting the market value of CZC for the exchange of energy; to investigate the appropriate maximum volumes of allocated CZC for the exchange of balancing capacity or sharing of reserves and the impact of allocating large volumes of CZC for the exchange of balancing capacity or sharing of reserves.

The first study (hereinafter referred to as the "CZC Study 1"), was conducted in 2021. The aim of the study was to propose an appropriate forecast methodology for the Baltic balancing capacity market. The specific challenges of the Baltic balancing capacity market are the high reserve demand for each Baltic bidding zone, an extensive amount of sharing of reserves and a high volume of CZC to be allocated for balancing capacity. Due to these reasons, a simple reference day method, which has been implemented in other CCRs is not suitable for the Baltic countries. As a result of CZC Study 1, a forecast methodology has been proposed which is based on a simple reference day approach, but which is accompanied by a bidding-zone based price-volume parameter that allows the forecast to be adjusted when the situation regarding the CZC is changed. The forecast methodology was found very suitable for the Baltic countries and is envisaged to be implemented along with the balancing capacity market. The description of the forecast methodology has been provided in this document, in section 2.

In 2022, another study (hereinafter referred to as the "CZC Study 2"), was conducted where consultants investigated the details regarding CZC allocation between the Baltic bidding zones. More precisely, after in-depth modelling of the Baltic balancing capacity market, the appropriate CZC allocation limitations were proposed, which were based on analyzed economic parameters and an analysis taking into account the aspects of balancing capacity security of supply. Furthermore, several impacts were analyzed: firstly the impact on neighbouring countries' day-ahead markets of allocating large shares of CZC on the borders between the Baltic bidding zones and secondly the impact of significantly limiting the maximum CZC

allocation for balancing capacity between the Baltic bidding zones. The results of CZC Study 2 have been described in sections 6, **Virhe. Viitteen lähdettä ei löytynyt.**, and 7.

### 3. Formulating the CZC value forecast for the day-ahead market in the procurement optimization function

The objective function of the procurement optimization function is the maximization of welfare across the day-ahead and the balancing capacity markets. In the Baltic CCR market-based CZC allocation methodology, the actual value of CZC for the exchange of balancing capacity or sharing of reserves and the forecasted market value of CZC for the exchange of energy shall be compared. The day-ahead market is represented via a forecast methodology which constructs a forecasted proxy of the day ahead market. The balancing capacity market is represented by the actual bids of the balancing capacity market. Therefore, in the procurement optimization function, the forecasted welfare for the day-ahead market is compared to the actual welfare of the balancing capacity market. The forecasted day-ahead market proxy model is constructed as described below.

#### 3.1. The day-ahead forecast proxy

##### 3.1.1. Statistical approximation of the supply curves

Often, simple reference day forecast methodology is used to forecast the CZC value for day-ahead market. In such a case, price difference of a similar day and similar hour is taken as the value of CZC for day-ahead market. The Baltic TSOs foresee possible need for allocating large shares of CZC for balancing capacity. For such a case, a simple reference day is not adequate to deliver a forecast of CZC, because large shifts in allocation of CZC can severely impact the value of CZC which the simple reference day methodology is unable to capture. Thus, it is necessary to represent the day-ahead market in a more realistic way.

Generally, the market welfare of a day-ahead market in a certain bidding zone can be expressed through the following formulation:

$$WF = \sum_i q_{d,i} \times p_{d,i} - \sum_i q_{s,i} \times p_{s,i}$$

Where:

$i$  - the set of accepted demand and supply bids;

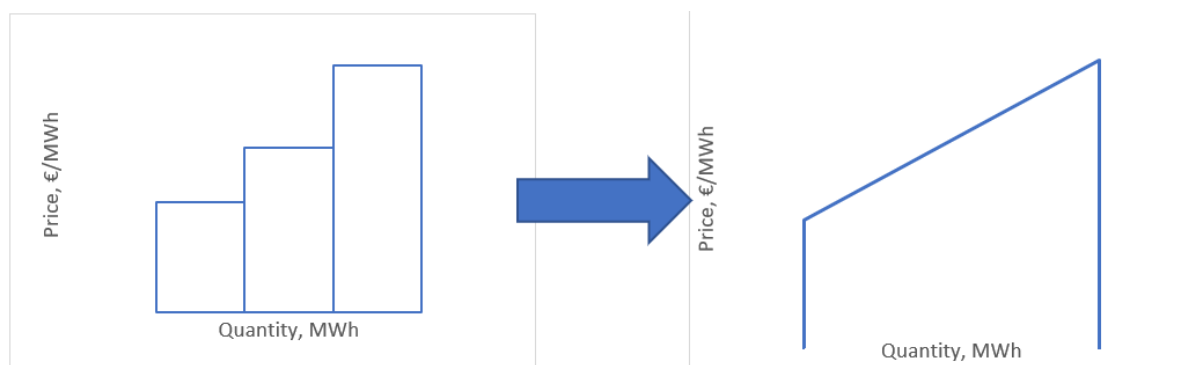
$q_{d,i}$  – quantity of demand bid  $i$ ;

$p_{d,i}$  – price of demand bid  $i$ ;

$q_{s,i}$  - quantity of supply bid  $i$ ;

$p_{s,i}$  - price of supply bid  $i$ .

The presented welfare formulation implies the knowledge about all supply and demand bid sizes and quantities. This information is not available at the time of allocating CZC for exchange of balancing capacity or sharing of reserves, and an approximation must be implemented. A significant gain in simplicity can be achieved when individual bids are replaced by a continuous supply curve, which determines the supply and demand values for a given clearing price. For the case of supply bids, such a simplification from individual bids to a linear approximation is presented as follows:



In the simplified case, a relationship between the output of the aggregate of suppliers in a bidding zone and the clearing price of the bidding zone is established. This can be called “the price-volume sensitivity” of a bidding zone, which can be calculated per bidding zone  $a$  by analyzing clearing data from a statistical sample of MTUs and calculated over average values:

$$\alpha_a = \frac{\Delta p_a}{\Delta q_a}$$

The price-volume sensitivity  $\alpha_a$  allows to estimate the change in day-ahead market clearing price as a function of dispatched generation, which will be used in the following steps to establish a full day-ahead market welfare expression.

$$\Delta p_a = \Delta q_a \times \alpha_a$$

The simplified representation of the day-ahead market dispatch costs which uses the price-volume sensitivity parameter, shall in this document be named the **day-ahead forecast proxy**.

The day-ahead forecast proxy allows to approximate the price and volume interaction between several bidding zones and bidding zone borders. A simple example of such approximation between two bidding zones is illustrated below.

### Example of price-volume sensitivity mechanic between two congested bidding zones

#### Bidding zone A forecast values:

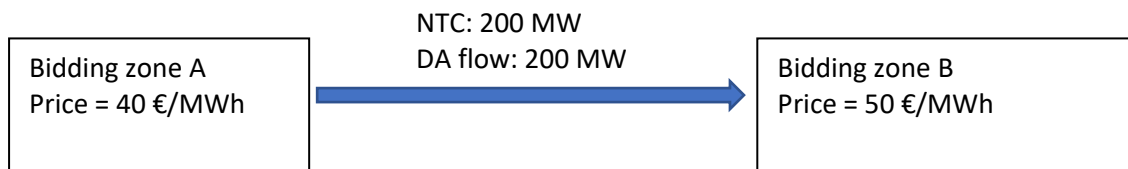
Net position: +200 MW  
DAM price: 40 €/MWh  
 $\alpha = 0,04$  €/MW

#### Bidding zone B forecast values:

Net position: -200 MW  
DAM price: 50 €/MWh  
 $\alpha = 0,08$  €/MW

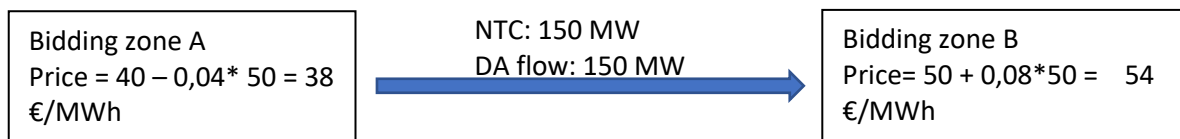
#### Forecast situation

NTC between BZ A and BZ B is 200 MW.



#### Realized actual situation

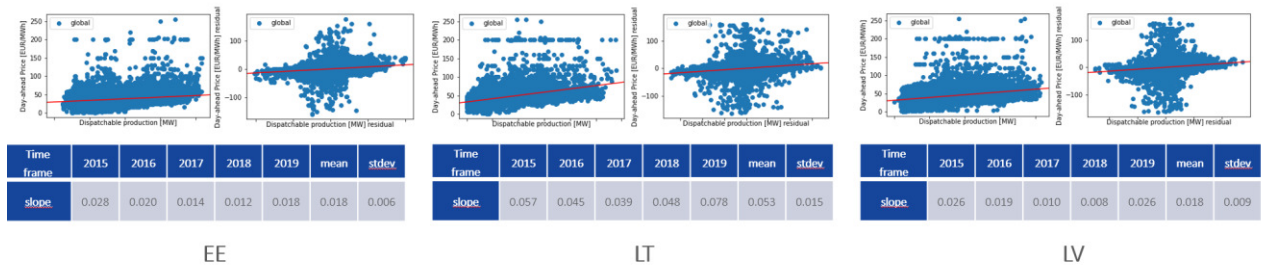
Compared to the forecast situation, the NTC between A and B is reduced by 50 MW.



### 3.1.2. Building the day-ahead forecast proxy

In order to express the realistic price-volume interaction in the balancing capacity procurement optimization function, the price-volume parameter  $\alpha_a$  must be correctly determined. Without having access to the exact bidding curves in each bidding zone under consideration, the approximation must be made through long-term statistical analysis.

From a long-period statistical analysis the price-volume sensitivity parameter is determined by observing historic day-ahead market prices, as well as the output of dispatchable generation in the bidding zone. An illustration of such a statistical sample along with the determined price-volume sensitivities for the three Baltic bidding zones has been presented in the image below.

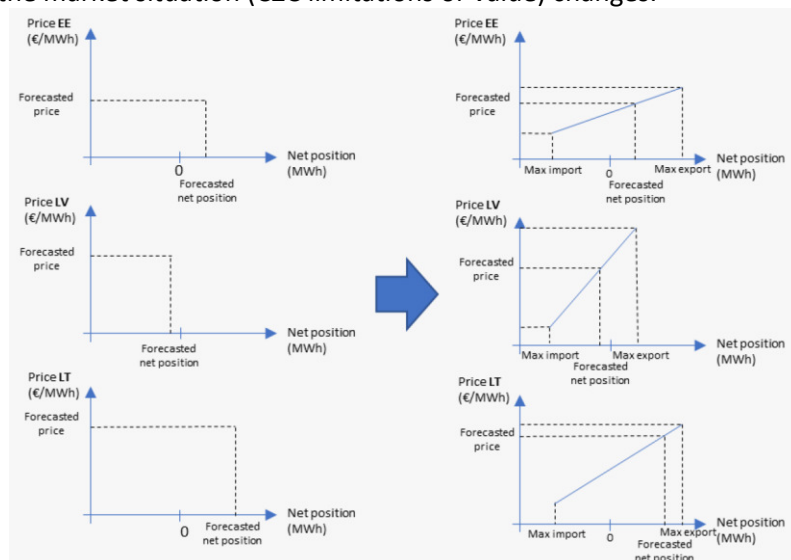


As can be followed in the numerical example brought forward in section 3.1.2, only information regarding the value of the price-volume sensitivity is not enough to approximate the interaction between the bidding zones. More data regarding the status of the bidding zones is needed for the interaction, more precisely:

- The day-ahead market price in each bidding zone and for each MTU;
- The net position of each bidding zone for each MTU.

These parameters needed for input shall be acquired from the selected reference day, i.e. the chosen reference day shall determine the initial price levels and net positions of each of the bidding zones. However, as indicated before, these prices and net positions are subject to change, according to the changed NTC values or competition between the DA and the BC markets.

Thus, the market situation is forecasted, but areas are also allowed to increase or decrease their supply/demand as the market situation (CZC limitations or value) changes.



The change in the day-ahead market price of a bidding zone can then be expressed by the forecast market price and the anticipated change in the net position:

$$MCP_{1,a}^{DAM} = MCP_{0,a}^{DAM} + \alpha_a^{DAM} \times V_a$$

Where

DAM – Day-ahead market;

a – bidding zone a;

$\alpha_a^{DAM}$  – DAM price volume sensitivity of bidding zone a;  
 $MCP_{0,a}^{DAM}$  – the forecast DAM price from the reference day methodology in bidding zone a;  
 $MCP_{1,a}^{DAM}$  – the anticipated DAM price after the shift in net position in bidding zone a;  
 $V_a$  – change of net position from the forecast value for bidding zone a.

From the formulation, it can be observed that the net position and the forecast DAM price can move in harmony. Therefore, if one areas export flow is restricted, for instance, the DAM market price is anticipated to be lowered as a result.

### 3.1.3. Day-ahead proxy in the procurement optimization algorithm

In the procurement optimisation function, the total welfare for the balancing capacity market and the forecast welfare for the day-ahead market need to be expressed. As there is no price on the TSO demand on the balancing capacity market, the welfare in the balancing capacity market can be expressed through the costs of the market, i.e sum of costs of all accepted balancing capacity bids.

Through the day-ahead forecast proxy, the same approach is used for the forecast day-ahead market welfare. Thus the costs for the day-ahead market are expressed by the volume of accepted bids multiplied by their price:

$$C^{DAM} = \sum_i q_{s,i} \times p_{s,i}$$

However, in the day-ahead forecast proxy, the day-ahead market is not expressed by individual bids, but instead by a continuous supply curve. Instead of individual bids, the sum of total accepted volume shall then be observed. It should be kept in mind that from the reference day the net position for each of the bidding zones is already observed. This means that in the procurement optimization function the welfare change compared to the reference day is observed, not the actual total welfare.

In case the clearing price in a bidding zone changes, the change in welfare in that bidding zone through the price volume sensitivity can be expressed as:

$$\Delta C^{DAM} = \Delta V_a \frac{MCP_{0,a}^{DAM} + MCP_{1,a}^{DAM}}{2}$$

The new clearing price is a function of the change in volume of accepted energy in the bidding zone and thus the following substitution can be made:

$$MCP_{1,a}^{DAM} = \alpha_a^{DAM} \times \Delta V_a$$

Finally, through the accepted volume of day-ahead energy in each of the bidding zones, the forecast clearing price and the price-volume sensitivity, the welfare change in the day-ahead market shall be expressed as follows:

$$\Delta C^{DAM} = \frac{\Delta V_a \times (MCP_{0,a}^{DAM} + \alpha_a^{DAM} \times \Delta V_a)}{2}$$

## 3.2. The procurement optimization function

As determined above, in the procurement optimization function, the forecasted welfare for the day-ahead market is compared to the actual welfare of the balancing capacity market. As a simplification of the function, only the cost aspects of the welfare are represented. Therefore, the formulation of the procurement optimization function objective function can be expressed as:

$$F_{Obj} = C^{DAM} + C^{BC}$$

The term  $C^{DAM}$  represents the forecast welfare aspect of the day ahead market and was elaborated in the previous section. The term  $C^{BC}$  represents the welfare term of the balancing capacity market and can be expressed through the socio-economic costs of fulfilling balancing capacity demand:

$$C^{BC} = \sum_i bidcost_i \times bidvolume_i \times selected_i$$

Combining the meanings of  $C^{DAM}$  and  $C^{BC}$  the final form of the objective function can be expressed:

$$F_{obj} = \sum_a \left[ \Delta V_{da,a} \times \left( MCP_{0,a} + \alpha_a \times \Delta V_{da,a} \right) \frac{1}{2} \right] + \sum_i (bidcost_i \times bidvolume_i \times selected_i)$$

Where:

$bidcost_i$  - the cost of bid  $i$ ;

$bidvolume_i$  - the volume of bid  $i$ ;

$selected_i$  - a boolean determining whether bid  $i$  is accepted or not;

$\Delta V_{da,a}$  - the deviation of the forecast net position of bidding zone  $a$ ;

$MCP_a$  - the forecasted day-ahead market price in bidding zone  $a$ ;

$\alpha_a$  - the price/volume sensitivity of day-ahead bidding zone  $a$ .

During the optimization process of the procurement optimization function, the following main decision variables are subject to be changed by the algorithm in order to find the optimal CZC split between the day-ahead and the balancing capacity market:

- $selected_i$  – the Boolean variable shall determine which balancing capacity bids shall be chosen by the algorithm in the cost minimization process;
- $\Delta V_{da,a}$  – the net position variable of each bidding zone shall determine how much the net position of each of the bidding zones changes, which shall determine the final clearing price in each of the bidding zones (an in extent, the value of CZC for the exchange of energy in the algorithm); and
- The CZC allocated for the exchange of energy or for the exchange of balancing capacity and sharing of reserves.

Due to the fact that only the cost aspect of socio-economic welfare is represented in the objective function, the value of  $F_{obj}$  shall be minimized during the optimization process, to find the solution with the highest possible welfare.

## 4. Mathematical formulation of the Baltic balancing capacity optimisation algorithm

As established in the previous section, the objective function of the balancing capacity procurement algorithm consists of the forecasted cost for the day ahead market and the actual cost of the balancing capacity market. The value of the objective function is minimized and the results with the highest possible welfare, given the inputs, is delivered for each day. The algorithm is also subject to a set of mathematical constraints.

### 4.1. Allocation of CZC

The forecast algorithm will allocate the CZC for balancing capacity and the exchange of energy in the day-ahead timeframe. The three Baltic bidding zones form an LFC block, within which imbalance setting takes place. As such, up and down regulating bids are never activated simultaneously and CZC need not be allocated for up and down regulating capacity both, but only the largest of the two must be allocated. Thus, for any existing CZC between areas  $a$  and  $b$  within the Baltic LFC block, for both directions, two equations are defined for the allocation of CZC, as described by equations 5.1 and 5.2, both of which will be active at the same time during the optimisation procedure.

$$V_{a \rightarrow b}^{DAM} + CZC_{a \rightarrow b}^{aFRR+} + CZC_{a \rightarrow b}^{mFRR+} \leq NTC_{a \rightarrow b} \quad (5.1)$$

$$V_{a \rightarrow b}^{DAM} + CZC_{b \rightarrow a}^{aFRR-} + CZC_{b \rightarrow a}^{mFRR-} \leq NTC_{a \rightarrow b} \quad (5.2)$$

This aspect of CZC allocation is further elaborated on in section 5.

### 4.2. Product balances

Product balances are observed for all balancing capacity products (including up and down separately). Due to the nature of the day-ahead market value forecast methodology implemented, the day-ahead energy balance is also observed in the context of the day-ahead energy market proxy.

#### 4.2.1. The day-ahead energy balance

The day-ahead energy balance is established for each of the bidding zones and consists of the forecasted net position of each bidding zone from the reference day. The forecast net position of the bidding zone can be altered during the optimization process, when CZC allocation for the exchange of energy is changed and thus the generation/load levels in bidding zones are also anticipated to be changes. Thus the net positions of bidding zones must change in harmony with the CZC allocation. For each of the bidding zones, the day-ahead energy balance is expressed as shown in equation 5.3

$$NP_{FC,a} + \Delta V_{da,a} + V_{\rightarrow a} - V_{a \rightarrow} = 0 \quad (5.3)$$

Where:

$NP_{FC,a}$  – forecasted net position of the bidding zone  $a$ , according to the reference day;

$\Delta V_{da,a}$  – adjustments in the net position of bidding zone  $a$  due to changes in day-ahead price (the adjustment can be positive or negative);

$V_{\rightarrow a}$  - sum of forecasted import energy volumes of bidding zone  $a$ ;

$V_{a \rightarrow}$  - sum of forecasted export energy volumes of bidding zone  $a$ .

#### 4.2.2. The balancing capacity balance

Because the Baltic TSOs implement an extensive balancing capacity sharing arrangement within the Baltic LFC block, the balancing capacity balance equation is not completely analogous to the day-ahead energy balance equation. Namely, in the case of sharing, a bidding zone can have access to the same resource it is dispatching via CZC to other bidding zones. Furthermore, because all the capacity is envisaged to be shared, there is no export of balancing capacity aspect in the balancing capacity balance equation. In conclusion, the balancing capacity balance equation is described by equation 5.4.



$$\sum_i(\text{bidvolume}_i \times \text{selected}_i) + V_{\rightarrow a}^{BC} \geq D_a^{BC} \quad (5.4)$$

Where

$\text{bidvolume}_i$  – is the volume of bid  $i$  which is located in bidding zone  $a$ ;

$\text{selected}_i$  – Boolean variable that determines whether bid  $i$  in bidding zone  $a$  is accepted;

$V_{\rightarrow a}^{BC}$  – total volume of imported balancing capacity from other bidding zones;

$D_a^{BC}$  – balancing capacity demand for a product in bidding zone  $a$ .

#### 4.2.3. The balancing capacity export restriction

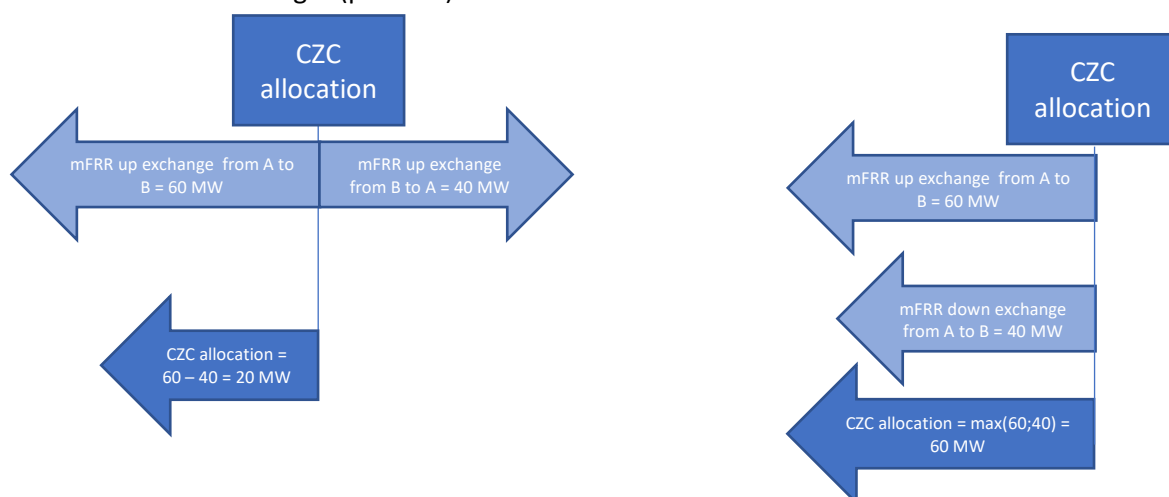
Due to the nature of sharing of reserves and the special equation for the balance of balancing capacity equation, a special constraint needs to be set in place which modifies the amount of balancing capacity which can be shared between bidding zones  $a$  and  $b$ . In essence, balancing capacity which has been imported from bidding zone  $b$  to bidding zone  $a$ , cannot be shared back from bidding zone  $a$  to bidding zone  $b$ . The mathematical formulation is defined by equation

$$V_{a \rightarrow b}^{BC} \leq \sum_i(\text{bidvolume}_i \times \text{selected}_i) + V_{\rightarrow a}^{BC} - V_{b \rightarrow a}^{BC} \quad (5.5)$$

## 5. CZC allocation determination

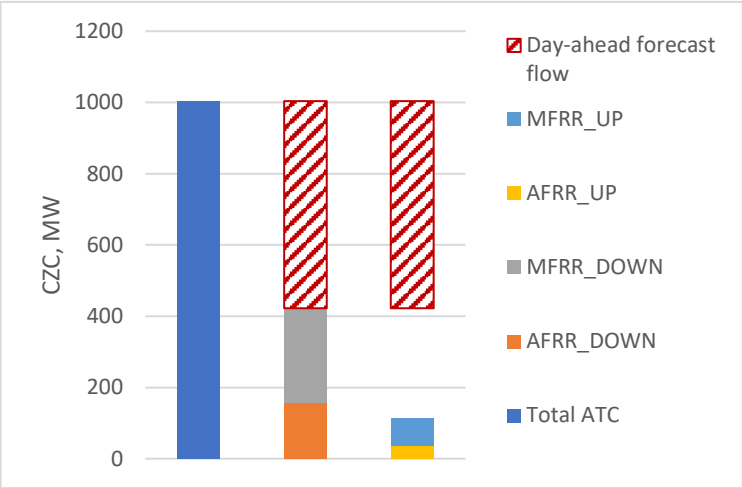
Netting of CZC allocated to the exchange of balancing capacity or sharing of reserves is not possible between standard upward and downward balancing capacity bids **and** standard balancing capacity bids from different standard balancing capacity products.

However, for standard balancing capacity products of opposite directions, the same CZC can be used. For example, if CZC is allocated to exchange or share mFRR up from BZ A to BZ B, and also CZC is allocated to exchange or share mFRR down from BZ B to BZ A, then the resulting CZC allocation on the border of BZ A and B would be of the same direction. Because the Baltic LFC block shall engage in common imbalance management, there will be no simultaneous activation of up and down balancing products, it is not necessary to allocate enough CZC to accommodate the balancing energy flows of both products. Therefore, within the Baltic LFC block when standard balancing capacity products of up and down direction are to be allocated such that the CZC allocation would be in the same direction, the highest of the two is allocated. This is in line with the envisaged imbalance management of the Baltic LFC block as well as maximizes the usage of existing CZC assets. The comparison between netting and the double usage of CZC is illustrated in the image below. On the image, netting is illustrated on the left (not possible); overlapping usage of CZC is illustrated on the right (possible).



While up and down direction products can use the same CZC to a certain extent, it should be kept in mind that aFRR and mFRR allocations of the same activation direction (for example, aFRR up and mFRR up), are always cumulative. In order to understand more thoroughly how the balancing capacity allocations for the four products interact with each other and the day-ahead market forecast, the below illustration has been created. The illustration considers sample output of the balancing capacity procurement algorithm for one market time unit, and data is presented one bidding zone border in one direction.

In the illustrated example, it can be followed that the forecast day-ahead flow shall take up more than half of the ATC. The combination of down regulation FRR products uses as much exactly as is left the the forecast day-ahead flow, meaning there is a direct competition between the FRR down product allocations and the forecast DA flow. Because this amount of CZC is already allocated for down direction products, the same amount of CZC could be used by up regulation FRR products, but this is not the case. Up direction regulation products take a significantly smaller of available CZC, indicating that there is no further value for allocating additional CZC for up regulation products (but there is value in allocation more capacity for down products). Therefore, it can be said that in this example aFRR down and mFRR down are causing the congestion, but aFRR up and mFRR up are not, because for the first two, additional CZC would have value, but for the latter two, it does not.



## **6. The maximum and optimal volume of allocated CZC for the exchange of balancing capacity or sharing of reserves**

In the CZC Study 1 serious limitations have been identified with the maximum allocation level on the exchange of balancing capacity established by ACER decision 10/2021 (20% in normal situations, 50% in case of scarcity). In particular, it was found that the normal situation maximum allocation level prevented the procurement of the necessary reserve and led to frequent balancing capacity scarcity situations.

The Baltic TSOs see that (i) a certain level of CZC allocation is necessary to avoid balancing capacity scarcity and (ii) a possibly higher level of CZC is necessary to reach the optimal allocation between balancing capacity and energy markets.

In order to assess the impacts of CZC allocation on balancing capacity procurement and reserve sharing, a sensitivity study has been designed in CZC Study 2. The impact of the maximum allocation limit is studied on the four reference weeks identified with four key performance indicators:

- Balancing capacity procurement where the ability to procure the necessary balancing capacity is analyzed depending on the maximum allocation limit;
- System costs where the system costs for the day-ahead energy and balancing capacity markets are assessed for the Baltic countries and their neighbors;
- Cross-zonal capacity usage where the usage of interconnectors within the Baltics and with neighboring countries is analyzed;
- Day-ahead energy market prices where the prices for energy within the Baltics and with neighboring countries are analyzed.

Simulations were performed with a maximum allocation limit for the exchange of balancing capacity ranging from 100% to 0% with 5% steps (21 simulations).

With a 100% limit, the co-optimization is able to allocate the CZC between the energy and balancing capacity markets freely, effectively finding the optimal solution (least overall cost). When reducing the maximum allocation limit on the exchange of balancing capacity, the system is more constrained and the total cost increases.

In the Baltic CCR, the dimensioning of FRR is directly linked to the NTC with neighboring countries. Upward FRR must cover the loss of an interconnector when importing energy and downward FRR must cover the loss of an interconnector when exporting energy.

In case of balancing capacity scarcity, it might be necessary to reduce the NTC with neighboring countries so as to avoid the exposure to an imbalance that could not be mitigated.

To model the NTC reduction in the case of balancing capacity scarcity, two iterations of the simulation were performed. In the first simulation, NTCs with neighboring countries are not limited and balancing capacity scarcity situations can be observed. In the second simulation, the NTC with neighboring countries (Estonia-Finland and Lithuania-Sweden) are reduced as a result of the balancing capacity scarcity. NTC reductions are applied as follows:

- The available capacity for imports to Estonia from Finland (resp. exports from Estonia to Finland) is reduced by the amount of upward (resp. downward) reserve scarcity observed in Estonia.
- The available capacity for imports to Lithuania from Sweden (resp. exports from Lithuania to Sweden) is reduced by the amount of upward (resp. downward) reserve scarcity observed in Lithuania.

### **6.1. Balancing capacity procurement**

In CZC Study 2 following observations has been made:

- When sufficient CZC is allocated to the exchange of balancing capacity, reserve is procured where it is cost-efficient. The reserve sharing target is met and the Baltic countries share a total of 710 MW of FRR procured in both directions.
- With lower levels of CZC allocated to the exchange of balancing capacity, reserve is procured where it is available and exchanged within the set limits. The reserve sharing target cannot be met and the Baltic countries procure larger amount of FRR overall (up to 1800 MW in the least favorable cases).
- With insufficient levels of CZC allocated to the exchange of balancing capacity, sufficient reserve cannot be procured, creating scarcity situations. The scarcity situations increase as the maximum allocation limit decreases.

## 6.2. System costs

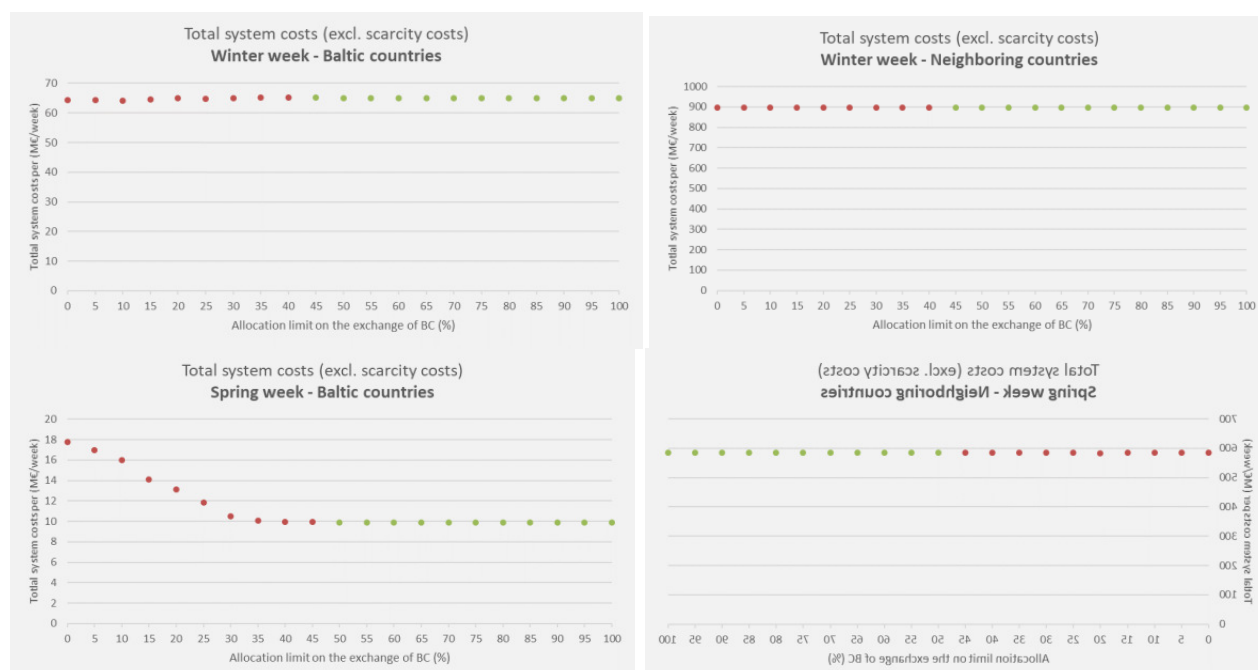
Comparing system costs allows to assess the economic efficiency for both the day-ahead energy and the balancing capacity markets as a function of the maximum allocation limit.

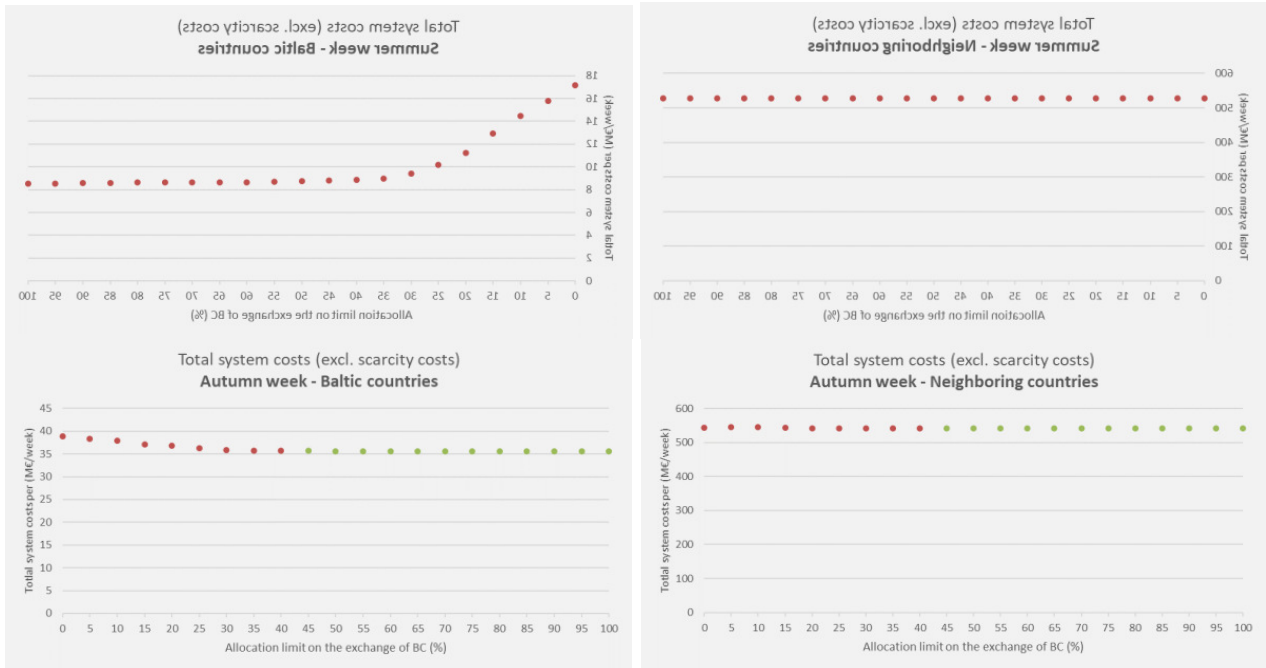
Figure X shows the total system costs for the Baltic countries (day-ahead energy and balancing capacity markets combined) and for the neighboring countries (day-ahead energy market only) as a function of the allocation limit on the exchange of balancing capacity.

Two main observations can be made:

- For the neighboring countries, total system costs are stable and tend not to be affected by the limit on the exchange of balancing capacity within the Baltic countries (high allocation limit restricting the exchange of energy within the Baltic countries or low allocation limit with scarcity resulting in NTC reductions with the neighboring countries).
- For the Baltic countries, total system costs are relatively stable until scarcity appears for maximum allocation levels below 50%. In the Winter week, the generation dispatch is very constrained regardless of the maximum allocation limit, leading to stable total system costs.

**Figure X. Total system costs**





### 6.3. Cross-zonal capacity usage

It has been observed that within the Baltics, the CZC usage increases as the allocation limit increases. Restricting the CZC usage for the exchange of balancing capacity does not necessarily result in greater energy exchange as more generation capacity is dedicated to local balancing capacity procurement. With neighboring countries, the CZC usage generally decreases as the CZC allocation limit increases. Similarly, when the CZC allocation limit is low, the level of energy import in the Baltics is higher as more capacity is dedicated to local balancing capacity procurement.

### 6.4. Day-ahead energy market prices

For allocation limit levels between 0% and 50%, day-ahead energy market prices tend to be slightly higher as the balancing capacity scarcity situation in the Baltics impose a reduction of NTCs with neighboring countries. Under normal conditions, DAM prices are up to 45% higher in the Baltics and up to 7% higher in Finland and Sweden than in the optimal case (100% allocation limit). Day-ahead energy market average prices in the area are the lowest when the allocation limit for the exchange of balancing capacity is set to 35% and above.

- For allocation limit levels above 50%, day-ahead energy market prices are stable. The reduction of CZC allocated to the exchange of energy does not impact the market prices.

### 6.5. Outcomes

The Baltic CCR TSOs have established that a high CZC allocation is imperative to the functioning of the Baltic power system. It has been determined in CZC Study 2 that operating below 50% allocation limit is not possible without frequent balancing capacity scarcity in the Baltic countries. Balancing capacity scarcity shall lead to significant negative consequences, such as:

- The Baltic countries' inability to fulfil their balancing obligations to the CESA power system

- If insufficient FRR capacity is available to either Estonia or Lithuania, the NTC values of HVDC links in the day-ahead market between Estonia and Finland or Lithuania and Sweden/Poland must be restricted, respectively.

Under CZC Study 2 it was found that:

- Below 50%, an infeasible regime is found as consistent balancing capacity scarcity situations are observed. It is not possible to procure the necessary balancing capacity, NTCs with neighboring countries have to be de-rated.
- Between 50% and 65%, a sub-optimal regime is found. For normal situations, it is possible to procure the necessary balancing capacity. For degraded situations, it is not possible to procure the necessary balancing capacity but the magnitude and the overall system cost decrease.
- Above 65%, the optimal regime is found. The overall system costs are minimum (or close to minimum) for both normal and degraded situations.

Additionally to the CZC Study 2 results, TSOs evaluated overall situation in Baltic balancing market, ACER decision 10/2021, legal framework under Electricity Balancing guidelines, Electricity Regulation and concluded that:

- As was stated in CZC Study 2 the range for optimal regime is between 50 and 65 % without any major difference for balancing market, in order to allocated the greater part for the day-ahead market, TSOs came t conclusion that the optimal allocation equals 50% under normal situations.

In the context of FRR scarcity in the algorithm, the Baltic TSOs foresee a higher CZC limit. However, due to the fact the day-ahead market situation is formulated as a forecast which may contain inconsistencies regarding the availability of generated energy in each bidding zone, it is possible that the balancing capacity procurement algorithm does not detect day-ahead scarcity similarly accurately as the balancing capacity scarcity. Thus, it is foreseen that in case of scarcity, not all CZC could be allocated for balancing, in order to not cause curtailment in the day-ahead market due to insufficient CZC available for the exchange of energy.

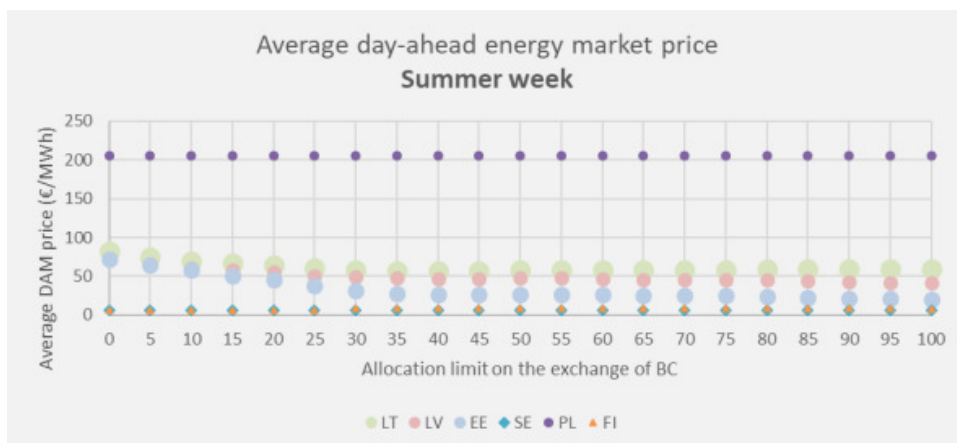
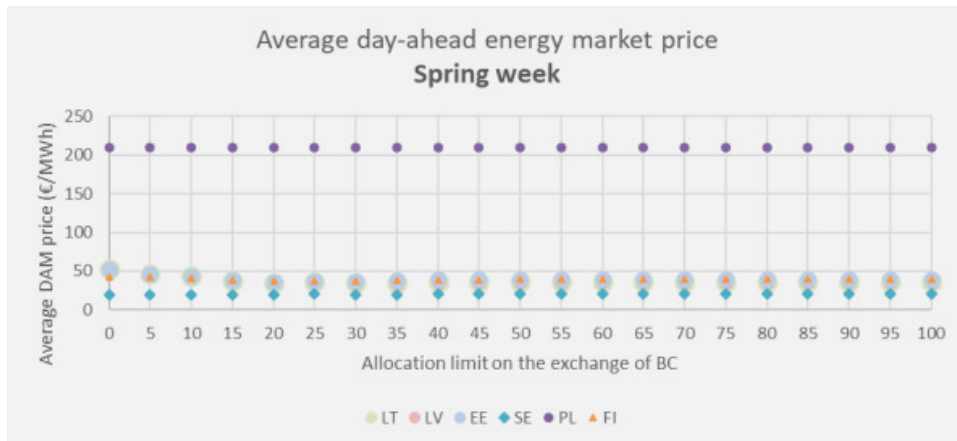
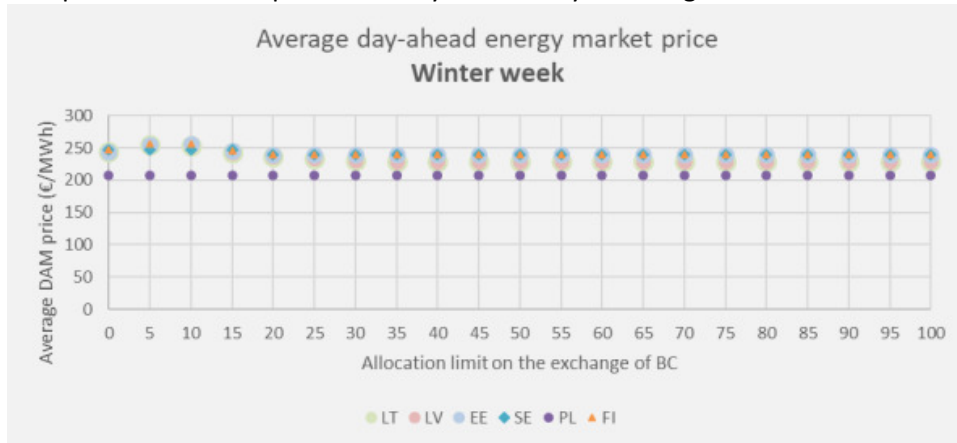
- Accordingly, TSOs deem it necessary to allocate the part of CZC in case of degraded situation up to 70 % instead of 100 %, in this case again allowing for the day-ahead market to function.

<b>Key findings:</b>
<ul style="list-style-type: none"> <li>• The generation capacity is scarce and under generation or transmission capacity maintenance/outage, procuring the necessary balancing capacity is not guaranteed and leads to frequent scarcity situations regardless on the limit on the exchange of balancing capacity.</li> <li>• When scarcity situations are expected, higher maximum allocation levels are necessary to mitigate entirely or partially the scarcity.</li> <li>• <b>No negative impacts</b> are observed <b>on the neighboring countries</b> (Sweden, Finland and Poland) when allocating large shares of CZC for balancing capacity on the Estonian-Latvian and Latvian-Lithuanian border, <b>total system costs and day-ahead energy prices remain stable.</b></li> <li>• <b>Large impacts</b> are observed for the <b>Baltic countries</b> when allocating <b>low shares</b> of CZC for balancing capacity on the Estonian-Latvian and Latvian-Lithuanian border as both the balancing capacity and day-ahead energy market costs increase.</li> </ul>

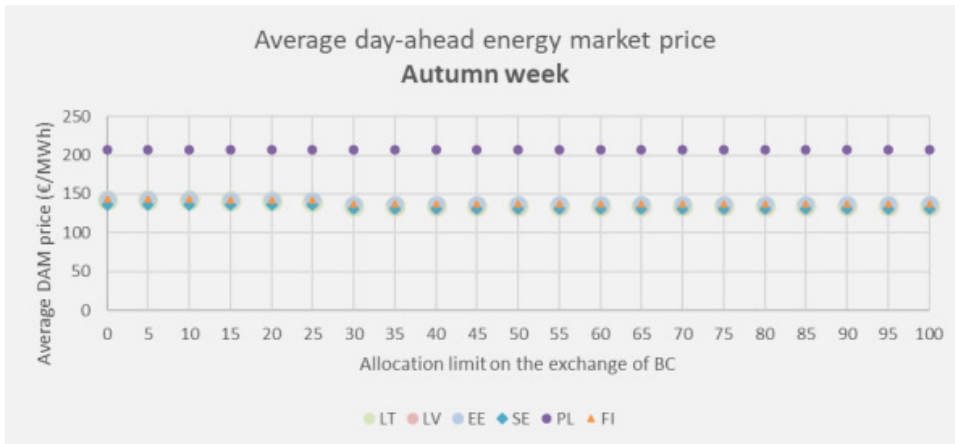
- according to above-mentioned reasons, the CZC allocation limitations for balancing capacity have been determined to be 50% of CZC calculated for the day-ahead timeframe, and in the case of balancing capacity scarcity this number can be extended to 70%.

## 7. Impact of allocating large shares of CZC for balancing capacity to neighbouring countries

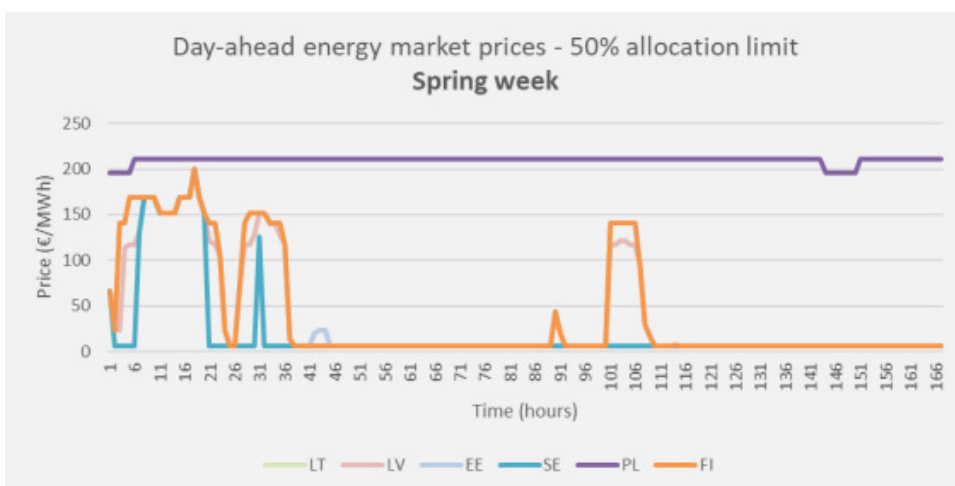
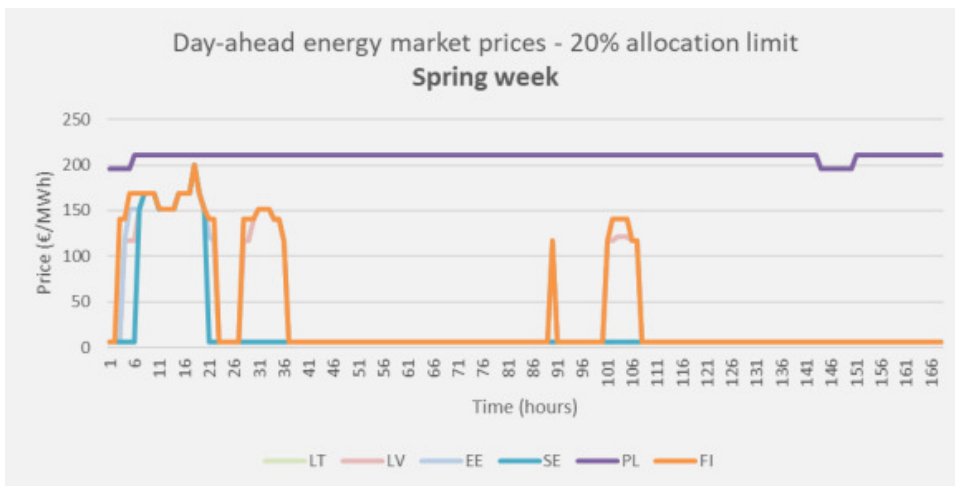
According to the study results, Day Ahead Market prices show overall good convergence in the region except with PL whose price is mostly dictated by its own generation mix.

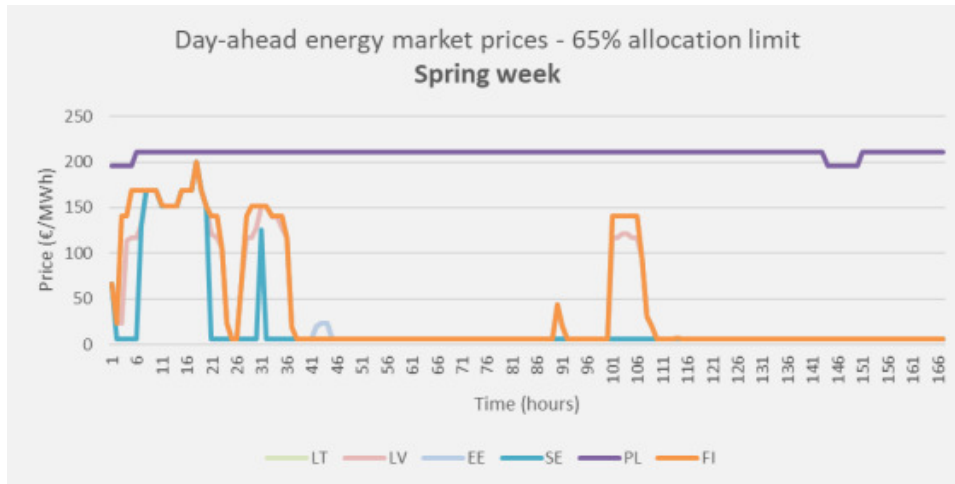






Allocating large shares of CZC for the exchange of balancing capacity implies that the CZC allocated to the day-ahead energy market could be reduced within the Baltics and could by extension restrict the commercial capacities in the region. However, the allocation of large shares of CZC for balancing capacity in Baltic countries have a very limited impact to the Polish, Finnish and Swedish day-ahead market prices.





For the neighboring countries total system costs are stable and do not seem to be affected by the balancing capacity procurement situation within the Baltics.

No negative impact is observed on the neighboring countries when allocating large shares of CZC for the exchange balancing capacity.

## 8. Further considerations on CZC limits

The Baltic CCR acknowledge the problems which may arise when comparing the forecast market value of CZC for the exchange of energy with the actual market value of CZC for balancing capacity. However, due to the tight and illiquid situation in the Baltic balancing capacity market, a significant share of CZC is necessary to be allocated for balancing, as highlighted above in several instances. However, there is a special situation where balancing capacity is not in direct competition with the day-ahead market, and that is when balancing capacity products would be allocated on CZC in the opposite direction of the forecast flow of energy in the day-ahead market.

Therefore, the Baltic CCR TSOs are considering a further future amendment of the methodology where the direction of forecast day-ahead flows are taken into account when determining the CZC allocation limits. The proposal would include forecasting the day-ahead flows as the first step, then applying different CZC allocation limits for BC for different directions:

- The standard 50%/70% CZC allocation limit for BC shall be applied to all borders
- The limit is increased (for example, to 80% or 90%) on the CZC with a specific direction where the flow forecast indicates a flow in the opposite direction.

It is clear the forecast of flows in the day-ahead market shall contain errors. Thus it is foreseen that the forecast day-ahead flow which triggers a higher limit of CZC allocation for balancing must contain within itself some kind of margin of error, such as a flow of at least 300 MW, interconnector usage above a certain threshold or similar. The concrete trigger has not yet been decided and would depend on the specific forecast methodology used and its accuracy, therefore further investigation is required before a detailed proposal can be added to the Baltic CCR methodology of market-based allocation CZC allocation process for balancing capacity.