ACER
European Union Agency for the Cooperation of Energy Regulators

ACER Decision on Core ID CCM: Annex I

First amendment of the ~~Intra-Day~~Intraday Capacity Calculation Methodology of the Core Capacity Calculation Region

in accordance with Articles 20ff. of the Commission Regulation (EU) 2015/1222 of 24th July 2015 establishing a guideline on capacity allocation and congestion management

~~02-12-2021~~

~~Purpose:~~	~~☐ methodology draft~~ ~~☒ for NRA approval~~	~~☐ for public consultation~~ ~~☐ for final publication~~
~~Status:~~	~~☐ draft~~	~~☒ final~~
~~TSO approval:~~	~~☐ for approval~~	~~☒ approved~~
~~NRA approval:~~	~~☒ outstanding~~	~~☐ approved~~

~~**Whereas**~~

~~TSOs of the Core CCR ("Core TSOs"), taking into account the following:~~

~~(1) Based on further developments and alignments with Core NRAs after the decision by the Agency in 21st February 2019, Core TSOs deemed it necessary to introduce the following changes.~~

~~The following changes fulfil the objectives set out in Article 3 CACM.~~ ~~081319~~ April 2022

Article 1
Amendments to ~~Article 2~~Whereas

~~1. Article 2. Definitions and interpretation~~The *Whereas* section shall be amended accordingly:

a) ~~a)~~ Paragraph ~~1~~2 shall be replaced and be read accordingly:

> ~~"~~"The intraday capacity calculation methodology takes into account the general principles and goals set in the CACM Regulation as well as in 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 "Regulation (EU) 2019/943"). The goal of the CACM Regulation is the coordination and harmonisation of capacity calculation and allocation in the day-ahead and intraday cross-border markets. It sets, for this purpose, the requirements to establish an intraday capacity calculation methodology to ensure efficient, transparent and non-discriminatory capacity allocation."

b) Paragraph 6 shall be replaced and be read accordingly:

> "The intraday capacity calculation methodology contributes to avoiding that cross-zonal capacity is limited in order to solve congestion inside control areas by (i) defining clear criteria under which the network elements located inside bidding zones can be considered as limiting for capacity calculation, and (ii) ensuring that a minimum share of the capacity is made available for commercial exchanges while ensuring operational security (Article 3(a) to (c) of the CACM Regulation and Article 16(8) of the Regulation (EU) 2019/943)."

c) A new paragraph 23 shall be included and be read accordingly:

> "The Core ID CCM (Annex II of Decision No. 02/2019 of ACER) is the subject of actions for annulment before the General Court (cases T-283/19 and T-631/19). The present amendment brings about targeted improvements in areas that are not the subject of those actions. It therefore does not affect the disputed parts of Decision No. 02/2019 of ACER and is without prejudice to their assessment by the Union Courts."

Article 2
Amendments to Article 2

Article 2. *Definitions and interpretation*, shall be amended accordingly:

a) Paragraph 1 shall be replaced and be read accordingly (including footnotes):

" For the purposes of the intraday capacity calculation methodology, terms used in this document shall have the meaning of the definitions included in Regulation (EU) 2019/943, Directive (EU) 2019/944, Comission Regulation (EU) 2015/1222[1] ~~as amended on 15 March 2021 by Commission Implementing Regulation (EU) 2021/280 of 22 February 2021~~, Commission Regulation (EU) 2016/1719[2] ~~as amended on 15 March 2021 by Commission Implementing Regulation (EU) 2021/280 of 22 February 2021~~, Commission Regulation (EU) 2017/2195[3] ~~as amended on 15 March 2021 by Commission Implementing Regulation (EU) 2021/280 of 22 February 2021~~, Commission Regulation (EU) 543/2013[4] ~~as amended on 01 January 2020 by Regulation (EU) 2019/943~~ and the definitions set out in Article 2 Annex I of the Decision No 02/2019 of the Agency for the Cooperation of the Energy Regulators of 21 February 2019 on the Core CCR TSOs' proposal for the regional design of the day-ahead and intraday common capacity calculation methodologies[5] ~~as amended on 10 May 2021 by the decision of the Core Regulatory Authorities on the first amendment of the day-ahead capacity calculation methodology of the core capacity calculation region.~~. In addition, the following definitions, abbreviations and notations shall apply:"

~~a)~~b) ~~b)~~ A new ~~number 68~~paragraph 19. shall be included and be read accordingly:

" ""'DACF' means day ahead congestion forecast;"

c) A new paragraph 69. shall be included and be read accordingly:

"'LTA domain' means a set of bilateral exchange restrictions covering the previously allocated cross-zonal capacities;"

~~b)~~d) ~~c)~~ A new ~~number 69~~paragraph 70. shall be included and be read accordingly:

~~''Extended~~"'Extended LTA inclusion approach' is ~~a~~an

[1] as amended on 15 March 2021 by Commission Implementing Regulation (EU) 2021/280 of 22 February 2021
[2] as amended on 15 March 2021 by Commission Implementing Regulation (EU) 2021/280 of 22 February 2021
[3] as amended on 15 March 2021 by Commission Implementing Regulation (EU) 2021/280 of 22 February 2021
[4] as amended on 01 January 2020 by Regulation (EU) 2019/943
[5] as amended on 10 May 2021 by the decision of the Core Regulatory Authorities on the first amendment of the day-ahead capacity calculation methodology of the core capacity calculation region

LTA inclusion approach in the Core Day-Ahead (DA) Capacity Calculation Methodology. When this approach is applied in the DA capacity calculation, the DA cross-zonal capacities consist of a flow-based domain (containing flow-based parameters) without LTA inclusion and a separate LTA domain (including LTA values);"

c)c) ~~c)~~ A new ~~number 70~~paragraph 71. shall be included and be read accordingly:

"'SEC_{DA}' means scheduled exchange resulting from already allocated capacities in the single day ahead coupling (SDAC). The parameter is provided by the SDAC based on the all TSO methodology for calculating scheduled exchanges resulting from single day-ahead coupling according to Article 43 of CACM Regulation."

Article ~~2~~3
Amendments to Article 11

~~2.~~ Article 11. *Update of intraday cross-zonal capacities remaining after SDAC*, shall be amended accordingly:

a) ~~a)~~ Paragraph ~~1~~2 shall be replaced and be read accordingly:

~~"The CCC shall use the final cross-zonal capacities resulting from day-ahead capacity calculation and the net positions resulting from already allocated capacities in the SDAC to calculate the updated day-ahead cross-zonal capacities to be used as intraday cross-zonal capacities at the intraday cross-zonal gate opening time.~~
~~In case the LTA inclusion in day-ahead is ensured through the LTA margin approach, the intraday cross-zonal capacities are described as flow-based parameters. In case the LTA inclusion in day-ahead is ensured through the Extended LTA inclusion approach, the intraday cross-zonal capacities are described as an union of flow-based parameters and "LTA values" (LTA domain).~~
~~For the updated intraday flow-based parameters, the PTDF values shall be the final PTDFs resulting from the day-ahead capacity calculation, and the RAM shall be derived as:~~

$$\overrightarrow{RAM}_{UID} = \overrightarrow{RAM}_{F} - \mathbf{PTDF}_{F}\,\overrightarrow{NP}_{AAC}$$

~~Equation 3~~

~~with~~

~~$\overrightarrow{RAM}_{UID}$ updated remaining available margin for intraday cross-zonal capacities~~
~~$\overrightarrow{RAM}_{F}$ final remaining available margin resulting~~

from the day-ahead capacity calculation

$\mathbf{PTDF_f}$ final power transfer distribution factor matrix resulting from the day-ahead capacity calculation

$\overrightarrow{NP_{AAC}}$ net positions resulting from already allocated capacities in SDAC

The updated LTA values, applicable in case the Extended LTA inclusion approach is applied in day-ahead, shall be derived as:

$$\overrightarrow{LTA_{UID}} = \overrightarrow{LTA_f} - \overrightarrow{SEC_{DA}}$$

Equation 3a

with

$\overrightarrow{LTA_{UID}}$ updated remaining available long-term capacities for provision to SIDC; value per oriented border

$\overrightarrow{LTA_f}$ LTA domain resulting from the day-ahead capacity calculation thus adjusted for long-term nominations; value per oriented border

$\overrightarrow{SEC_{DA}}$ schedule exchange resulting from already allocated capacities in SDAC"

b) Paragraph 2 shall be replaced and be read accordingly:

"In case the LTA inclusion in day-ahead is ensured through the LTA margin approach: "For each CNEC, each TSO may reducedecrease the RAM_f to excludeby decreasing the component AMR_{DA} and $LTA_{margin,DA}LTA_{margin,DA}$ as calculated pursuant to the day-ahead capacity calculation methodology such that the reduced RAM_f iswhile ensuring compliance with Article 16 of Regulation (EU) 2019/943 in order to avoid undue discrimination between the day-ahead RAM_f calculated pursuant to Equation 3 and the same RAM_f decreased by AMR_{DA} and $LTA_{margin,DA}$.

In case the LTA inclusion in day-ahead is ensured through the Extended LTA inclusion approach: for each CNECinternal and cross-zonal exchanges as reffered to in Article 21(1)(b)(ii) of the CACM Regulation. Irrespective of the options provided to each TSO pursuant to this paragraph, each TSO may reduce RAM_f to exclude the component AMR_{DA} as calculated pursuant to the day-ahead capacity calculation methodology such shall ensure that on each bidding zone border, the long-term capacities that the reduced RAM_f is are in effect taken into account in the $LTA_{margin,DA}$, are between the day-ahead RAM_f calculated pursuant to Equation 3 and the same RAM_f decreased

~~by AMR_{DA}. Each TSO may also reduce LTA_F such that the LTA_F is between the long-term allocated capacity value resulting from the day-ahead process, per oriented border, and zero~~0.001 MW and 1500 MW."

b) ~~c) In~~ Paragraph 3 ~~the fourth sentence~~ shall be replaced and be read ~~accordingly~~accordingly:

~~"~~"Until six months after the implementation of intraday capacity calculation pursuant to Article 4(2)(b), the Core TSOs may set to zero the cross-zonal capacities calculated pursuant to Article 4(2)(a), including those calculated pursuant to a transitional solution for updating the cross-zonal capacities remaining after the day-ahead capacity allocation pursuant to Article 26(6). Intraday cross-zonal capacities may be set to zero until the target start of allocation as defined in Article 4(2)(b) and on the condition that offering non-zero cross-zonal capacities pursuant to Article 4(2)(a) could endanger operational security.

a) In case the final cross-zonal capacities, calculated in accordance with this Article and taking into account Article 21(1), are in the form of ~~flow-based parameters or in the form of a union of flow-based parameters and a LTA domain~~ATCs, such a decision ~~shall~~may be ~~coordinated among all Core~~made per bidding zone border by the competent TSOs~~."~~;

~~**Article 3**~~
~~**Amendments to Article 21**~~

~~3.~~ b) In case the final cross-zonal capacities, calculated in accordance with this Article and taking into account Article 21(1) are in the form of flow-based parameters, such a decision shall be coordinated among all Core TSOs. Further details on the application of transitional solution are defined in Annex 2 to this methodology."

Article 4
Amendments to Article 21

Article 21. *Calculation of ATCs for SIDC fallback procedure*, shall be amended accordingly:

~~a) In paragraph 1 the first sentence shall be replaced and be read accordingly:~~

~~"In case the SIDC is unable to accommodate flow-based parameters, the CCC shall convert the cross-zonal capaci-~~

~~ties into available transmission capacities (hereafter referred as "ATCs for SIDC fallback procedure") for each Core oriented bidding zone border and each DA CC MTU."~~

~~b~~a) Paragraph 2 shall be replaced and be read ~~accordingy~~accordingly:

"The ~~cross-zonal capacities~~flow-based parameters shall serve as the basis for the determination of the ATCs for SIDC fallback procedure. As the selection of a set of ATCs from the ~~cross-zonal capacities~~flow-based parameters leads to an infinite set of choices, ~~an iterative~~the algorithm provided in ~~a systematic way or a mathematical optimisation~~paragraph 5 determines the ATCs for SIDC fallback procedure."

~~c) In paragraph 3 letter (a)~~

Article 5
Amendments to Article 26

Article 26. Timescale for implementation, shall be ~~replaced and be read~~amended accordingly:

~~"final flow-based parameters ($\mathbf{PTDF_f}$ and $\overrightarrow{RAM_f}$) as calculated pursuant to Article 19 or final flow-based parameters ($\mathbf{PTDF_f}$ and $\overrightarrow{RAM_{UDD}}$) as calculated pursuant to Article 11 and, if applicable, $\overrightarrow{LTA_{UDD}}$ calculated pursuant to Article 11;"~~

a) ~~d) In paragraph 5 the first sentence~~Paragraph 2 shall be deleted.

b) Paragraph 6 shall be replaced and be read as the new paragraph 5, accordingly:

"After the adoption of this methodology and until the implementation of the day-ahead capacity calculation methodology, the Core TSOs shall apply a transitional solution to compute the cross-zonal capacities which remain after the day-ahead capacity allocation pursuant to Article 4(2)(a). This update shall be done based on day-ahead cross-zonal capacities used in existing day-ahead capacity calculation and allocation initiatives. The details on the application of this transitional solution are defined in Annex 2 to this methodology."

~~a)~~c) Paragraph 7 shall be replaced and be read as the new paragraph 6, accordingly:

~~"In case the cross-zonal capacities are described solely by flow-based parameters, the calculation of the ATCs for SIDC fallback procedure is an iterative procedure, which~~

~~gradually calculates ATCs for each DA CC MTU, while respecting the constraints of the final flow-based parameters pursuant to paragraph 3:"~~

~~e) In paragraph 5, letter (b) the definition of~~ $\overrightarrow{RAM}_{\mathcal{F}}$ "After the implementation of the day-ahead capacity calculation methodology and until the implementation of the intraday capacity calculation methodology pursuant to Article 4(2)(b), the Core TSOs shall apply a transitional solution for updating of intraday cross-zonal capacities remaining after the SDAC as reffered to in Article 4(2)(a). The details on the application of this transitional solution are defined in Annex 2, Annex 3, Annex 4 and Annex 5 to this methodology. During this transition period:

(a) Annex 3 shall apply and replace Article 11;

(b) Annex 4 shall apply and replace Article 21; and

(c) Annex 5 shall apply."

d) Paragraph 8 shall be deleted.

Article 6
Amendments to Annex 2

Annex 2: *Requirements for calculation of intraday cross-zonal capacities before full implementation of intraday capacity calculation*, shall be amended accordingly:

a) The cell in the second row, third column of the table in Annex 2 shall be replaced and be read accordingly:

~~"remaining available margin of the flow-based parameters pursuant to paragraph 3, or equal to~~ $\overrightarrow{RAM}_{UD}$ ~~from Article 11(1), if applicable."~~

~~f) A new paragraph 6~~"Leftovers from the day-ahead cross-zonal capacities based on Core DA CCM according to the transitional solution pursuant to Article 26(6) and Annexes 3, 4 and 5 OR Zero intraday cross-zonal capacities pursuant to Annex 3(4)"

b) The cell in the third row, third column of the table in Annex 2 shall be ~~added~~replaced and be read accordingly:

"~~In case the~~ Leftovers from day-ahead cross-zonal capacities ~~are described as the union of flow-~~based ~~parameters~~on Core DA CCM according to the transitional solution pursuant to Article 26(6) and ~~a LTA domain,~~ Annexes 3, 4 and 5"

Article 7
New Annex 3

Annex 3: *Update of intraday cross-zonal capacities remaining after the SDAC in* the ~~calculation of the~~*transition period*, shall be added and read accordingly:

"1) The CCC shall use the final cross-zonal capacities resulting from day-ahead capacity calculation and the net positions resulting from already allocated capacities in the SDAC to calculate the updated day-ahead cross-zonal capacities to be used as intraday cross-zonal capacities at the intraday cross-zonal gate opening time.

(a) In the case that the LTA inclusion in day-ahead is ensured through the LTA margin approach, the intraday cross-zonal capacities are described as flow-based parameters;

(b) In the case that the LTA inclusion in day-ahead is ensured through the Extended LTA inclusion approach, the intraday cross-zonal capacities are described as a union of flow-based parameters and "LTA values" (LTA domain).

For the updated intraday flow-based parameters, the PTDF values shall be the final PTDFs resulting from the day-ahead capacity calculation, and the RAM shall be derived as:

$$\overrightarrow{RAM}_{UID} = \max(0, \overrightarrow{RAM}_f - \mathbf{PTDF_f}\,\overrightarrow{NP}_{AAC})$$

Equation 3b

with

$\overrightarrow{RAM}_{UID}$ updated remaining available margin for intraday cross-zonal capacities
$\overrightarrow{RAM}_f$ final remaining available margin resulting from the day-ahead capacity calculation
$\mathbf{PTDF_f}$ final power transfer distribution factor matrix resulting from the day-ahead capacity calculation
$\overrightarrow{NP}_{AAC}$ net positions resulting from already allocated capacities in SDAC
The updated LTA values, applicable if the Extended LTA inclusion approach is applied in day-ahead, shall be derived as:

$$\overrightarrow{LTA}_{UID} = \max(0, \overrightarrow{LTA}_f - \overrightarrow{SEC}_{DA})$$

Equation 3c

$\overrightarrow{LTA}_{UID}$ updated remaining available long-term capacities for provision to SIDC; value per oriented border

$\overrightarrow{LTA_f}$ LTA domain resulting from the day-ahead capacity calculation thus adjusted for long-term nominations; value per oriented border;
$\overrightarrow{SEC_{DA}}$ schedule exchange resulting from already allocated capacities in SDAC

2) In case the LTA inclusion in day-ahead is ensured through:

(a) the LTA margin approach: for each CNEC, each TSO may decrease the RAM_f by decreasing $LTA_{margin,DA}$ as calculated pursuant to the day-ahead capacity calculation methodology while ensuring compliance with Article 16 of Regulation (EU) 2019/943 in order to avoid undue discrimination between internal and cross-zonal exchanges as reffered to in Article 21(1)(b)(ii) of the CACM Regulation;

(b) the Extended LTA inclusion approach: each TSO may decrease the LTA_f on its borders while ensuring compliance with Article 16 of Regulation (EU) 2019/943.

Irrespective of the options provided to each TSO pursuant to pursuant to (a) and (b), each TSO shall ensure that on each bidding zone border, the long-term capacities that are in effect taken into account pursuant to (a) and (b) are between 0.001 MW and 1500 MW.

3) For each CNEC, each TSO may adjust the RAM_f by modifying the AMR_{DA} as calculated pursuant to the day-ahead capacity calculation methodology while ensuring compliance with Article 16 of Regulation (EU) 2019/943 in order to avoid undue discrimination between internal and cross-zonal exchanges as reffered to in Article 21(1)(b)(ii) of the CACM Regulation.

4) During the transitional period pursuant to Article 26(6) the Core TSOs may set to zero the cross-zonal capacities calculated in period before 22h at D-1. These intraday cross-zonal capacities may be set to zero on the condition that offering non-zero cross-zonal capacities pursuant to Article 4(2)(a) could endanger operational security. Such a decision may be made per bidding zone border by the competent TSOs."

Article 8
New Annex 4

Annex 4: *Calculation of* ATCs *for SIDC fallback procedure* ~~is a mathematical optimisation process.~~*in the transition period*, shall be added and read accordingly:

~~Following objective function is applied:~~

$$~~Maximize~~ ~~\left[\left(\sum \overrightarrow{ATC}_{phys} / N_{oriented\ borders}\right) * W_{sum} + \left(\text{Min}\ \overrightarrow{ATC}_{phys}\right) * (1 - W_{sum})\right]~~$$

~~with~~

~~ATC_{phys} — Sum of the ATCs resulting from flow based parameters and possible long-term capacities, e.g : $(\overrightarrow{ATC}_{phys} = \overrightarrow{ATC}_{FB} + \overrightarrow{ATC}_{LTA})$~~

~~$N_{oriented\ borders}$ — The number of oriented borders in Core CCR~~

~~W_{sum} — A common weighting factor applied on all Core borders to adopt between maximizing the sum of ATCs averaged across all borders and maximizing the lowest ATC across all borders; this value is a scalar between 0 and 1~~

~~(a) This objective function is subject to the following constraints:~~

$$~~\overrightarrow{ATC}_{phys} = \overrightarrow{ATC}_{FB} + \overrightarrow{ATC}_{LTA}~~$$

$$~~\overrightarrow{ATC}_{LTA} + (\alpha - 1) * \overrightarrow{LTA}_{UID} \leq 0~~$$

$$~~\mathbf{pPTDF}_{zone-to-zone} * \overrightarrow{ATC}_{FB} - \alpha * \overrightarrow{RAM}_{UID} \leq 0~~$$

$$~~\overrightarrow{ATC}_{FB} \geq 0~~$$

$$~~\overrightarrow{ATC}_{LTA} \geq 0~~$$

~~with~~

~~α — A single optimization variable, between 0 and 1 used for all ATC borders.~~

~~$\overrightarrow{LTA}_{UID}$ — Updated remaining available long-term capacities for ATC extraction pursuant to Article 11~~

~~$\overrightarrow{RAM}_{UID}$ — Updated remaining available margin for~~

~~ATC calculation provided by the FB Domain pursuant to Article 11~~

~~**pPTDF**$_{zone-to-zone}$ positive zone-to-zone power transfer distribution factor matrix~~

~~(b) At the end of the calculation, there are some constraints with no capacity left. These are the limiting constraints for the calculation of ATCs for the SIDC fallback procedure."~~

1. "In case the SIDC is unable to accommodate flow-based parameters or in case the leftovers from the day-ahead cross-zonal capacities based on Core DA CCM are used according to a transitional solution as defined in Annex 2 to this methodology, the CCC shall convert the cross-zonal capacities into available transmission capacities for each Core oriented bidding zone border and each DA CC MTU. The Core TSOs may delegate this responsibility to a third party.

2. The cross-zonal capacities shall serve as the basis for the determination of the ATCs for SIDC fallback procedure. As the selection of a set of ATCs from the cross-zonal capacities leads to an infinite set of choices, an applicable algorithm determines the ATCs for SIDC fallback procedure.

3. The following inputs are required to calculate ATCs for SIDC fallback procedure for each ID CC MTU:

   (a) the final flow-based parameters ($\mathbf{PTDF}_f$ and $\overrightarrow{RAM}_{UID}$) and $\overrightarrow{LTA}_{UID}$ as calculated pursuant to Annex 3 and, if applicable, $\overrightarrow{LTA}_{UID}$ calculated pursuant to Annex 3;

   (b) If defined, the global allocation constraints shall be assumed to constrain the Core net positions pursuant to Article 7(5), and shall be described following the methodology described in Article 18(2). Such constraints shall be adjusted for offered cross-zonal capacities on the non-Core bidding zone borders.

4. In case the cross-zonal capacities are described solely by flow-based parameters, the calculation of the ATCs for SIDC fallback procedure is an iterative procedure, which gradually calculates ATCs for each DA CC MTU, while respecting the constraints of the final flow-based parameters pursuant to paragraph 3:

(a) The initial ATCs are set equal to zero for each Core oriented bidding zone border, i.e.:

$$\overrightarrow{ATC}_{k=0} = 0$$

with

$\overrightarrow{ATC}_{k=0}$ the initial ATCs before the first iteration

(b) the remaining available margin of the final flow-based parameters ($\overrightarrow{RAM}_f$) have to be adjusted for the flows resulting from net positions or already allocated capacities resulting from the SIDC in accordance with Article 4(5)(b):

$$\overrightarrow{RAM}_{ATC}(0) = \max(0, \overrightarrow{RAM}_f - \mathbf{PTDF_f}\,\overrightarrow{NP}_{SIDC})$$

Equation 14

With

$\overrightarrow{RAM}_{ATC}(0)$ remaining available margin for ATC calculation at iteration k=0

$\overrightarrow{RAM}_f$ remaining available margin of the flow-based parameters pursuant to paragraph 3, or equal to (RAM)$^{\rightarrow}$_UID from Annex 3, if applicable.

$\mathbf{PTDF_f}$ PTDF matrix of the final flow-based parameters

$\overrightarrow{NP}_{SIDC}$ Core net positions resulting from SIDC which are not already included in the CGM

c) The iterative method applied to calculate the ATCs for SIDC fallback procedure consists of the following actions for each iteration step *k*:

i) for each CNEC and external constraint of the flow-based parameters pursuant to paragraph 3, calculate the remaining available margin based on ATCs at iteration *k*-1

$$\overrightarrow{RAM_{ATC}}(k) = \overrightarrow{RAM_{ATC}}(0) - \mathbf{pPTDF}_{zone-to-zone}\ \overrightarrow{ATC_{k-1}}$$

with

$\overrightarrow{RAM_{ATC}}(k)$ remaining available margin for ATC calculation at iteration k

$\overrightarrow{ATC_{k-1}}$ ATCs at iteration k-1

$\mathbf{pPTDF}_{zone-to-zone}$ positive zone-to-zone power transfer distribution factor matrix

i. for each CNEC, share $RAM_{ATC}(k)$ with equal shares among the Core oriented bidding zone borders with strictly positive zone-to-zone power transfer distribution factors on this CNEC;

ii. from those shares of $RAM_{ATC}(k)$, the maximum additional bilateral oriented exchanges are calculated by dividing the share of each Core oriented bidding zone border by the respective positive zone-to-zone PTDF. The maximum additional bilateral oriented exchanges may be negative, i.e. it may lead to decrease the exchange capacity;

iii. for each Core oriented bidding zone border, $\overrightarrow{ATC_k}$ is calculated by adding to $\overrightarrow{ATC_{k-1}}$ the minimum of all maximum additional bilateral oriented exchanges for this border obtained over all CNECs and external constraints as calculated in the previous step;

iv. go back to step i;

v. iterate until the difference between the sum of ATCs of iterations *k* and *k*-1 is smaller than 1 kW;

vi. the resulting ATCs for SIDC fallback procedure stem from the ATC values determined in iteration *k*, after rounding down to integer values;

vii. at the end of the calculation, there are some CNECs and external constraints with no remaining available margin left. These are the limiting constraints for the calculation of ATCs for SIDC fallback procedure.

(c) positive zone-to-zone PTDF matrix ($\mathbf{pPTDF_{zone-to-zone}}$) for each Core oriented bidding zone border shall be calculated from the $\mathbf{PTDF_f}$ as follows (for HVDC interconnectors integrated pursuant to Article 13, Equation 8 shall be used):

$$pPTDF_{zone-to-zone,A\rightarrow B} = \max\left(0, PTDF_{zone-to-slack,A} - PTDF_{zone-to-slack,B}\right)$$

Equation 15

with

$pPTDF_{zone-to-zone,A\rightarrow B}$ positive zone-to-zone PTDFs for Core oriented bidding zone border A to B

$PTDF_{zone-to-slack,m}$ zone-to-slack PTDF for Core bidding zone border m

5. In case the cross-zonal capacities are described as the union of flow-based parameters and an LTA domain, the calculation of the ATCs for SIDC fallback procedure is a mathematical optimisation process.

The following objective function is applied:

$$Maximize\ [\left(\sum \overrightarrow{ATC}_{phys} / N_{oriented\ borders}\right) * W_{sum} + \left(\text{Min}\ \overrightarrow{ATC}_{phys}\right) * (1 - W_{sum})]$$

with

ATC_{phys} Sum of the ATCs resulting from flow based parameters and possible long-term capacities, e.g. :

$$\left(\overrightarrow{ATC}_{phys} = \overrightarrow{ATC}_{FB} + \overrightarrow{ATC}_{LTA}\right)$$

$N_{oriented\ borders}$ The number of oriented borders in Core CCR

W_{sum} A common weighting factor applied on all Core borders to adopt between maximizing the sum of ATCs averaged across all borders and maximizing the lowest ATC across all borders; this value is a scalar between 0 and 1, initially set to 0.5.

a) This objective function is subject to the following constraints:

$$\overrightarrow{ATC}_{phys} = \overrightarrow{ATC}_{FB} + \overrightarrow{ATC}_{LTA}$$

$$\overrightarrow{ATC}_{LTA} \leq (\alpha - 1) * \overrightarrow{LTA}_{UID}$$

$$\overrightarrow{ATC}_{FB} \leq \alpha * \frac{\overrightarrow{RAM}_{UID}}{pPTDF_{zone-to-zone}}$$

$$\overrightarrow{ATC}_{FB} \geq 0$$

$$\overrightarrow{ATC}_{LTA} \geq 0$$

with

α A single optimization variable, between 0 and 1 used for all ATC borders

$\overrightarrow{LTA}_{UID}$ Updated remaining available long-term capacities for ATC extraction pursuant to Annex 3

$\overrightarrow{RAM}_{UID}$ Updated remaining available margin for ATC calculation provided by the FB Domain pursuant to Annex 3

$\mathbf{pPTDF}_{zone-to-zone}$ positive zone-to-zone power transfer distribution factor matrix"

Article 9
New Annex 5

Annex 5: *Other transitional arrangements*, shall be added and read accordingly:

" 1. Each Core TSO shall have the right to perform individual validation of ID ATCs calculated and provided to Core TSOs pursuant to Annex 4. Pursuant to this validation, each Core TSO shall have the right to adjust ID ATCs on its bidding zone borders in case such adjustments are needed to maximise cross-zonal capacity and/or to maintain operational security. The

maximum of ID ATC increase per per bidding zone border shall be 300 MW.

2. The ID ATC on a biding zone border shall always be the lowest value of ID ATCs set by TSOs on both sides of this bidding zone border.

3. As soon as possible after the implementation of DA CCM and no later than from four months after the adoption of this Decision, each Core TSO requiring amendment of ID ATCs shall provide to all Core TSOs the justification for each ATC adjustment. This justification shall be based on the assessment of the day-ahead or intraday congestion forecast common grid models and shall include the concerned CNECs on which the need for decrease or increase of flow or capacity was identified to maximise cross-zonal capacity and/or maintain operational security.

4. After the implementation of DA CCM, the he Core TSOs shall regularly publish the following information about the update of intraday cross-zonal capacities remaining after the SDAC in the transition period:

   a. the percentage of LTA and AMR applied on the intraday level pursuant to Annex 3;

   b. applied Wsum value pursuant to Annex 4; and

   c. the flow-based domain and, if relevant, LTA domain used for ATC extraction pursuant to Annex 3, in particular the values: $\overrightarrow{RAM_f}$ (before and after possible adjustment), $\overrightarrow{NP_{AAC}}$* **PTDF**$_f$, $\overrightarrow{RAM_{UID}}$, $\overrightarrow{LTA_f}$ (before and after possible adjustment), $\overrightarrow{SEC_{DA}}$ and $\overrightarrow{LTA_{UID}}$;

   d. ID ATC adjustments pursuant to paragraph 1 including justifications as of deadline pursuant to paragraph 3;

   In case the information pursuant to point (c) cannot be published at the time of implementation of DA CCM, it shall be published as soon as feasible and for all days since the implementation of DA CCM.

5. As from four months after the start of the transition period pursuant to Article 26(6), the Core

CCC shall assist the Core TSOs in the ATC validation, by providing at least the following information for each Core CNEC and for each MTU, based on the CGMs from the DACF procedure:

a. reference flows;

b. zone-to-zone PTDFs of Core oriented borders; and

c. potential maximal flows due to ID ATCs, superposed to the reference flows.

The CCC shall provide this information not later than 20:45 of D-1.

6. During the transition period pursuant to Article 26(6), the Core TSOs shall apply and implement, without the need to amend the intraday capacity calculation methodology, further adjustments of the ATC extraction methodology pursuant to Annex 4 if it better meets the objectives of the CACM Regulation and is agreed among Core TSOs."