

## **Derogation request of APG**

**from the obligation under Article 16(8) pursuant to  
Article 16(9) of Regulation (EU) 2019/943 of the  
European Parliament and of the Council of 5 June  
2019 on the internal market for electricity for the  
Capacity Calculation Region Core**

## Introduction

- (1) In accordance with Article 16(8) of the Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the internal market for electricity (“Regulation 2019/943”) transmission system operators shall not limit the volume of interconnection capacity to be made available to market participants as a means of solving congestion inside their own bidding zone or as a means of managing flows resulting from transactions internal to bidding zones. The minimum levels of available capacity for cross-zonal trade are reached:
  - for borders using a coordinated net transmission capacity approach, the minimum capacity shall be 70 % of the transmission capacity respecting operational security limits after deduction of contingencies, as determined in accordance with the capacity allocation and congestion management guideline adopted on the basis of Article 18(5) of the Regulation 2009/714 (EC) of the European Parliament and of the Council of 13 July 2009 on conditions for access to the network for cross-border exchanges in electricity and repealing Regulation (“Regulation 2009/714”).
  - for borders using a flow-based approach, the minimum capacity shall be a margin set in the capacity calculation process as available for flows induced by cross-zonal exchange. The margin shall be 70 % of the capacity respecting operational security limits of internal and cross-zonal critical network elements, taking into account contingencies, as determined in accordance with the capacity allocation and congestion management guideline adopted on the basis of Article 18(5) of the Regulation 2009/714.
- (2) However, in case a transmission system operator cannot comply with the minimum capacity of 70 % to be made available to market participants due to operational security risks on foreseeable grounds, such transmission system operator may request from the relevant regulatory authorities a derogation from Article 16(8) of the Regulation 2019/943. The extent of such derogations shall be strictly limited to what is necessary to maintain operational security and they shall avoid discrimination between internal and cross-zonal exchanges. Before granting a derogation, the relevant regulatory authority shall consult the regulatory authorities of other Member States forming part of the affected capacity calculation regions. In absence of an unanimous decision by the regulatory authorities such decision is incumbent upon ACER.
- (3) ACER issued a Recommendation (No. 01/2019), published on 09 August 2019, describing a unified way on how to monitor the capacities made available to the market in relation to the 70% target for all considered timeframes and all coordination areas.
- (4) In accordance with the Regulation (EU) 2015/1222 of 24 July 2015 establishing a guideline on Capacity Allocation and Congestion Management (“CACM Regulation”) and the Regulation (EU) 2017/1485 of 2 August 2017 establishing a guideline on electricity transmission system operation (“SOGI”), TSOs are required to develop and deliver the proposals on the methodologies in which the essential elements related to the coordinated capacity calculation and coordinated usage of non-costly and costly remedial actions are to be defined. The following methodologies have to be submitted by TSOs from the same Capacity Calculation Region (“CCR”):

- a. The Capacity Calculation Methodologies for the Core CCR as referred to in Article 21 of the CACM Regulation (“Core CCM”).
  - b. The Coordinated Redispatching and Countertrading Methodology for the Core CCR as referred to in Article 35 of the CACM Regulation (“CACM 35”).
  - c. The Redispatching and Countertrading Cost-Sharing Methodology for the Core CCR as referred to in Article 74 of the CACM Regulation (“CACM 74”).
  - d. The operational security coordination methodology for the Core CCR as referred to in Article 76 of the SOGL Regulation (“SOGL 76”).
- (5) APG is operating the Austrian transmission system for electricity and therefore is ensuring the trans-regional national exchange of electricity as well as the exchange with neighbouring countries between generators and consumers. APG has been certified as Independent Transmission Operator on 12 March 2012.  
Essentially, the present request refers to the obligation deriving from Article 16 (8) of the Regulation 2019/943 which applies to APG in its role as transmission system operator from 01 January 2020.
- (6) After having performed the first preliminary analysis on the concepts of ACER’s Recommendation (No. 01/2019), APG cannot conclude with a reasonable certainty whether the cross-zonal capacities could meet the requirement defined in Art 16(8) of the Regulation 2009/714, as of 01 January 2020 due to the following reasons detailed in the provisions below and therefore issues this request for a derogation.
- (7) Against this background and pursuant to Article 16 (9) of the Regulation 2019/943, APG files the following request for the grant of a derogation from the obligations laid down under Article 16 (8) of the Regulation 2019/943 in relation to the bidding zone borders AT/DE, AT/CZ, AT/HU and AT/SI.

## **Article 1 Subject Matter and Scope**

- 1.1. APG requests a derogation from the implementation of the minimum margin available for cross-zonal trade of 70% transmission capacity as established in Article 16(8) and in accordance with Article 16(9) of the Regulation 2019/943 for the duration of one year for its Core bidding zone borders AT/DE, AT/CZ, AT/HU as well as AT/SI.
- 1.2. This request for derogation is based on 5 different foreseeable grounds for deviating from the 70% capacity criterion as further described in Article 3 justifying the approval of a derogation.

## **Article 2 Definitions and abbreviations**

AMR	Adjustment for minRAM
CC	Capacity Calculation
CCR	Capacity Calculation Region

CEP	Clean Energy Package
CGM	Common Grid Model
CNE(C)	Critical Network Element (with Contingency)
CWE	Central Western Europe
D-2	Two-Days Ahead
FB	Flow Based
FBCE	Flow Based Common Environment
INB	Italian North Border
MACZT	Margin Available for Cross-Zonal Trade
minRAM	minimum Remaining Available Margin
MNCC	Margin from Non-Coordinated Capacity Calculation
MCCC	Margin from Coordinated Capacity Calculation
MTU	Market Time Unit
NP	Net Position
NTC	Net Transfer Capacity
PFC	Power Flow Colouring
PST	Phase-Shifting Transformer
RAM	Remaining Available Margin
TRM	Transmission Reliability Margin
TTC	Total Transfer Capacity

### Article 3 Foreseeable grounds impacting operational security

Acknowledging that key methodologies from the CACM and SOGL Regulations mentioned in the Introduction are still not implemented in the CCRs in which APG is actively involved as a member TSO, APG cannot count on them in relation to the assessment and fulfillment of 70% capacity criterion, starting as of 1 January 2020. Based on this, the application of the minimum capacity of 70% in accordance with Article 16(8) of the Regulation 2019/943 for borders using a coordinated net transmission capacity and for borders using a flow-based approach from 01 January 2020 on, **endangers the operational security due to the 5 foreseeable grounds stated in Table 1**, which are further elaborated in this Article. These foreseeable grounds are relevant for all Austrian borders of the Core CCR (AT/CZ, AT/HU, AT/SI and AT/DE) if not explicitly specified otherwise.

TABLE 1. LIST OF FORESEEABLE GROUNDS THAT ENDANGER THE OPERATIONAL SECURITY

No.	Description
3.1	Insufficient concepts and IT-Tools for capacity calculation and validation (in line with the Regulation 2019/943) in the different capacity calculation areas
3.2	Insufficient redispatch potential to guarantee the 70% capacity criterion
3.3	Absence of consideration of flows of 3rd countries in the capacity calculation
3.4	Current usage of CNEC capacity > 30% by loop flows and PST flows and lack of cross-CCR coordination
3.5	Uncertainties in the capacity calculation process related to the non-existence of a common coordinated forecast process in Europe

As further elaborated in this Article all these arguments related to the request for derogation pursuant to Art 16(9) of the Regulation 2019/943 are foreseeable, they directly impact APG's operational processes and are of major importance for maintaining the operational security.

### **3.1. Insufficient concepts and IT-Tools for capacity calculation and validation (in line with the Regulation 2019/943) in the different capacity calculation areas**

Referring to Point (4) of the Introduction key methodologies concerning a capacity calculation and validation broadly coordinated in the Core region for the day ahead and intraday timeframe according to the CACM Regulation will not be implemented until the January 1<sup>st</sup> 2020. It was concluded that APG cannot count on them in relation to the fulfillment of the 70% criterion, starting as of 1<sup>st</sup> January 2020.

**Capacity Calculation at NTC borders:** As the Regulation 2019/943 entered into force on 4 July 2019 and the relevant ACER Recommendation (No 1/2019) was published on 9 August 2019, there is a too short time period left for TSOs to adapt current processes related to capacity calculation (evaluation, development, specification, implementation, testing, training) and be ready to fulfil requirements stemming from Article 16(8), starting from the 1 January 2020. The currently applied NTC methods (at AT/CZ, AT/HU, AT/SI) have been designed in such a way that they follow the ENTSO-E methodology which is based on the calculation of TTC (Total Transfer Capacity) and TRM (Transmission Reliability Margin). The NTC methodology assumes bilateral stepwise increase/decrease of power generation per country and monitoring of the n-1 security criteria relevant for a certain border. By that process the total values of cross-zonal capacity are calculated per border (and not per CNEC). That currently applied method, which is not compliant with the coordinated NTC approach according to the CACM Regulation, has neither been designed to calculate the margins available for cross-zonal trade per CNEC nor to evaluate the influence of commercial trades from the other non-coordinated areas on the elements of the coordinated area or to distinguish between different flow types.

**Capacity Calculation at Flow Based (CWE) border (DE/AT):** As the Regulation 2019/943 entered into force on 4 July 2019, there is a very short time period left for TSOs to adapt current processes related to flow-based capacity calculation and be ready to fulfil obligations from Article 16(8), starting from the 1 January 2020. The necessary IT changes include the possibility to set the minRAM value per CNEC individually (nowadays only a global setting for all CNECs is possible), while there is also a necessity to have an agreed method (followed by IT development) on how to calculate MNCC values per CNEC. According to the latest information available, only the option to set the minRAM values individually for each CNEC in CWE will be ready in time. Regarding the calculation of MNCC, CWE TSOs have consulted CWE NRAs on open questions for the IT developments. However, for certain points CWE NRAs haven't provided a common guidance yet, e.g. concept for consideration of MNCCs.

**Capacity Validation at NTC and Flow Based (CWE) border (DE/AT):** The new methods and processes of capacity calculation in line with the requirements of the Regulation 2019/943 (see Capacity Calculation paragraphs above and Article 4) and according to ACER's Recommendation (No. 01/2019) are expected to lead to significantly more volatile MCCC values, which due to the basic principles of the methodology according to the Recommendation can go way beyond the security limits, as first evaluations show. Therefore an additional process step for operational security validation of the calculated capacities is of paramount importance to ensure secure

operational conditions. The concepts, methods and IT-tools for this process step are currently not yet available.

Due to the location in the center of the continent, APG is highly exposed to the effects of diverse developments on the electricity sector in many European countries. In this context for APG it is even more critical that the capacity calculation and forecast methods are not yet harmonized and properly coordinated (see Introduction (4)). Hence, such a validation process is of high complexity and has to consider all relevant uncertainties that come along with the current status. It needs to be newly developed and tested thoroughly, to ensure that the capacities calculated under consideration of minimum targets according to the Regulation 2019/943 can be secured in each and every MTU with the remedial actions available.

Without a reliable validation process, along with the new respectively enhanced capacity calculation concepts considering the 70% minimum target, there is no possibility to evaluate if the available remedial actions and especially the redispatch potential after the closure of day-ahead energy market are sufficient to solve potential overloads and to ensure physical firmness of the transmission capacities offered on D-2 level. **This could lead to situations, where higher capacities are given to the market with the goal to fulfil the 70% MACZT criterion, but the redispatch potentials to ensure these capacities are physically not available. This would impose an unbearable risk for operational security and endanger security of supply.** Currently such a process is not in place yet. A reliable validation process including the relevant IT tools is foreseen to be developed and implemented according to the steps provided in Article 4.

**Due to the aforementioned reasons APG is not able to calculate from 1 January 2020 the volume of NTC transmission capacity on its Eastern and South-Eastern borders (AT/CZ, AT/HU, AT/SI) that would comply with the newly designed 70% criteria on at least one limiting CNEC. Concerning the CNECs relevant for the CWE region, the minRAM values to be determined in line with ACER Recommendation (No. 01/2019), that consider exchanges outside of CWE region (MNCC values), can as well not be calculated by 1 January 2020. Even if the capacity calculation in line with CEP 70% requirement would be possible starting from 1<sup>st</sup> January 2020, without reliable validation processes, it wouldn't be feasible to evaluate if the available remedial actions are sufficient to solve potential overloads and to ensure physical firmness of the transmission capacities offered on D-2 level.**

**Due to those reasons, APG is not able determine with any appropriate accuracy the 70% cross-zonal capacities to be offered to the market, and in the consecutive step, cannot validate their feasibility by ensuring the network security.**

**A raise of cross border capacities currently cannot be assessed by APG at capacity calculation stage neither regarding the effect on the 70% targets and nor on the impact on operational conditions. Such an approach would impose an unbearable risk for operational security and seriously endanger security of supply (see as well 3.3).**

### **3.2. Insufficient redispatch potential to guarantee the 70% capacity criterion**

Already today APG regularly applies remedial actions including substantial volumes of redispatching to ensure firmness of already allocated capacities and maintain operational security. Studies and analysis performed so far have shown, that the redispatch potential and processes currently available might not be sufficient to guarantee the 70% capacities, starting from 1 January 2020. In fact, an increase of cross-zonal capacities could lead to situations, where the current redispatch potential is not sufficient to ensure a safe grid operation. On top of that, significant uncertainties

related to the forecasts of cross-zonal exchanges outside of the respective coordination area (see 3.5) will increase the demand for redispatching capacities even much further. Key methodologies according to the CACM Regulation and SOGL addressing that issue, especially regarding operational security coordination as well as coordinated redispatching and countertrading will not be implemented by 1 January 2020 and will therefore not alleviate that situation.

**Due to the reasons above a mismatch between the amount of redispatch needed when increasing capacities towards 70% requirements and the currently available redispatch potential is expected by APG, especially under consideration of the currently available methods and processes. Insufficient remedial actions and especially redispatch capacities constitute a high risk for operational security.**

### **3.3. Absence of consideration of Flows of 3<sup>rd</sup> Countries in the Capacity Calculation<sup>1</sup>**

According to the guidance given by EC in its letter from 16 July 2019, the consideration of the non-EU country flows in the capacity calculation and counting these flows towards the 70% target of MACZT should be possible on the condition that an agreement has been concluded by all TSOs of a CCR with TSO of the third country, approved by the respective NRAs. This agreement should be fully in line with EU capacity calculation principles and rules, and should cover at least:

- Consideration of internal third country constraints for intra-EU capacity calculation
- Consideration of EU internal constraints for capacity calculation on the border with third countries, and
- Cost-sharing of remedial actions

However, the physical flows caused by the 3<sup>rd</sup> countries are present on the CNECs and cannot be artificially neglected in the calculation process. It also needs to be pointed out that non-consideration of third country flows leads to a different treatment of the EU Members States TSOs with the regard to fulfilment of 70% requirement, with a significant disadvantage for those which are stronger exposed to flows of 3<sup>rd</sup> countries.

As the cross-zonal capacities of APG are significantly influenced by the import/export of Switzerland, a non-consideration of schedules from/to Switzerland during the determination of MNCCs would lead to a RAM shift towards lower RAMs on the certain APG CNECs and also bring uncertainties. . With a focus on Switzerland different potential options of the inclusion are currently being investigated within the Core CCR in close coordination with the European Commission, ACER and the NRAs of the Swiss neighboring countries. Depending on the resulting solution a contractual framework is planned to be established. Nevertheless the timeline to fulfil all the preconditions related to the inclusion of third countries into the determination of MACZT stated above is very tight. Under consideration of the status and the remaining open issues, it is rather unlikely and not in the sphere of APG that an appropriate contractual framework can be concluded before 1 January 2020. In order to fulfil the 70% requirement without considering CH, APG would need to artificially increase available capacity/RAM on some CNECs. **Based on analysis performed with historical data, some CNECs are highly influenced from third country flows. A further artificial increase of capacity/RAM would increase the risk for operational security risk and endanger the network security.**

---

<sup>1</sup> Argumentation is valid for all APG CNECs / NTC borders, but especially relevant for the consideration of CH flows in the calculation of DE/AT capacity calculation

### **3.4. Usage of CNECs capacity >30% by loop or PST flows originating from the other coordination areas (or capacity calculation regions) due to the lack of cross-CCR coordination<sup>2</sup>**

According to the Regulation 2019/943, the total amount of 30 % of capacity on each CNE can be used for the reliability margins, loop flows and internal flows. Based on the calculations performed with historical data, the volume of loop flows and PST flows is sometimes substantially higher on some CNECs. **This inevitably leads to the fact that 70% margin available for cross-zonal trade cannot be fully given to the market without endangering network security, as a large amount of capacity is blocked by loop flows (incl. PST flows).** The reason for this can be found in the not yet implemented coordinated capacity calculation methods according to the CACM Regulation in the different CCRs (calculation of loop flows and its limitation is foreseen in the Core CCM), the pending implementation of proper methods for operational security coordination and the non-existence of adequate cross-CCR coordination, as for example between Core and Italy North CCR.

### **3.5. Uncertainties in the capacity calculation process related to the non-existence of a common coordinated forecast process in Europe**

According to the Regulation 2019/943, the reliability margin on a critical network element needs to be contained within 30% of Fmax under consideration of contingencies together with loop flows (incl. PST flows) and internal flows. For the determination of the capacities to be offered for the cross-zonal trade according to ACERs Recommendation (No. 1/2019), netting of flows outside of the coordination area (MNCCs) is envisaged. These MNCCs are to be calculated based on non-coordinated and non-harmonized forecasts. As the coordination areas nowadays are relatively small (especially for NTC methods), and as there is no common, harmonized and reliable net-position or exchange forecast yet implemented in Europe, the application of such a methodology will inevitably lead to large uncertainties which cannot be covered by a such low reliability margin. **Neglecting these evident and foreseeable uncertainties can lead to high overloads and potentially to operational situations where the available remedial action portfolio (incl. redispatch) is insufficient. This would endanger the operational security severely.**

All five foreseeable grounds clearly justify the necessity of the derogation from the implementation of the minimum margin available for cross-zonal trade of 70% transmission capacity as established in Article 16(8) and in accordance with Article 16(9) of the Regulation 2019/943 for maintaining security of supply.

APG made best efforts in the very short timeframe available to analyse the effects of the 70% requirements on operational security conditions as comprehensively as possible, which resulted in the conclusions above. Nonetheless the current level of information is still rather limited and significant uncertainties remain, e.g. on how other member states will implement the Regulation 2019/943 (especially for NTC-Borders), how certain outages and their combination affect the capabilities, lack of operational experience with new methods and processes, etc. Therefore it is currently not yet feasible for APG to assess all the potential effects of the 70% requirements on operational security conditions conclusively. APG will closely monitor the further developments and will resume investigations when further information/experience is available.

---

<sup>2</sup> Argument is especially valid for the CNECs of CZ/HU/SI coordination area

## Article 4 Steps towards Implementation of the 70% MACZT Criterion

In order to be able to fulfil the requirements of Art 16(8) of the Regulation 2019/943 and to conclude with a reasonable certainty whether the cross-zonal capacities could meet those requirements, APG plans to develop the necessary methods and concepts, as well as the IT tools as an interim step until the relevant key methodologies according to the CACM Regulation and the SOGL are implemented (see Introduction (4)).

This article lists concrete steps and projects to mitigate the foreseeable grounds for derogation as presented in Article 3.

### 4.1 Mitigation of insufficient concepts and IT-Tools for capacity calculation (in line with Regulation 2019/943) in the different capacity calculation areas

- As the monitoring concept introduced by ACER with its Recommendation No. 01/2019 is based on CNECs, changes in the current NTC capacity calculation methodology are necessary towards the introduction of a CNEC based calculation. Until the implementation of the Core CCM, for three NTC borders (AT/CZ, AT/HU, AT/SI), an enhanced CNEC based NTC calculation methodology, which considers mutual interdependencies of all three borders, will be specified and respective IT-tools will be developed in 2020, followed by the tests and implementation. The calculation tools should enable APG to calculate in a more coordinated manner across the three borders the highest possible NTCs with respect to the 70% requirements and under consideration of reliably maintaining operational security. In addition to the NTC values per border, the result of this calculation should be at least one NTC-limiting CNEC for a certain MTU, including the related  $MAZCT$ . Before the successful start of operation, operator training will take place.
- Until the implementation of the Core CCM, for the CWE border (DE/AT), a centralized calculation of MNCCs and resulting AMRs (Adjustment for minRAM) is foreseen to be implemented in the CWE IT system during the year 2020. Besides that, APG is currently working on a local tool for the calculation of MNCCs and resulting AMRs on its CWE CNECs for the purpose of testing and analysis. With this tool, it will be possible for APG to determine the AMRs needed to fulfill a certain  $MAZCT_{min}$  criterion and the still valid 20% Fmax criterion (within CWE) for its CWE CNECs.
- General technical aspects of NTC and FB capacity calculation methodologies, which will be developed in 2020, are described more into details in the Article 4.1.1.
- In parallel, APG is actively working together with the other Core TSOs to implement the Core capacity calculation methodology (Core CCM) in line with the Regulation 2019/943. This methodology is expected to be a major step towards an adequately coordinated capacity calculation in the highly meshed system of Continental Europe and, according to the Core CCM, is to be put into operation by December 2020.

#### 4.1.1 General technical aspects of NTC and FB capacity calculation methodologies

In the course of establishing the methodologies and projects that will provide an interim solution to the issues that the request for derogation addresses, APG will specify and develop methods and tools for calculation of cross-zonal capacities on CNEC level. Those methodologies will be based on

the concepts introduced with the ACER Recommendation No. 01/2019, and aim to fulfil the following equation in the capacity calculation phase:

$$MCCC (MTU) + MNCC (MTU) \geq MAZCT_{min} (MTU)$$

Where:

$MAZCT_{min}$  is the minimum MACZT target level for a CNEC and MTU (70% of Fmax pursuant to Article 16(8) of the Regulation 2019/943 or lower in case of derogation or action plan)

MCCC is the margin from coordinated capacity calculation

MNCC is the margin from non-coordinated capacity calculation

#### Determination of margin for forecast error related to the non-coordinated transit flows calculation

- Due to the central location of APG's transmission system and the rather small coordination areas, high MNCC values are the consequence and also high uncertainties in the determination of MNCC for the Austrian CNECs. These uncertainties are expected to decrease once the Core CCM including the respectively coordinated forecast processes are implemented, constituting a large coordinated area encompassing as well four of the six Austrian borders. Due to the high uncertainties and resulting forecast errors of non-coordinated transits, it is necessary to apply a dedicated margin for MNCC forecasting errors in order to ensure operational security. This margin, which is to be considered as a part of the MNCC, shall be included in the capacity calculation methodology. By taking this into account, MNCC shall be calculated as follows:

$$MNCC = MNCC_{CGM} + MNCC_{margin}$$

Where:

MNCC is the margin from non-coordinated capacity calculation

$MNCC_{CGM}$  is the forecasted non-coordinated transit flow induced by cross-zonal exchanges outside of respective coordination area(s). The flow is calculated using the best available forecast of the bidding zones net positions.

$MNCC_{margin}$  is the margin necessary to cover the uncertainties related to the forecasted non-coordinated transit flows induced by cross-zonal exchanges outside of the coordination area(s). The details related to the calculation of  $MNCC_{margin}$  shall be given in the detailed capacity calculation methodology which is planned to be implemented in the second half of 2020.

#### Determination of acceptable level of loop flows

- a) Article 16(8) of the Regulation 2019/943 stipulates that 30% of Fmax of CNE under consideration of contingencies (CNEC) is to be used to accommodate loop flows, internal flows and transmission reliability margin. Due to the reasons stated in Article 3.4, it will be necessary to establish an approach to calculate an acceptable level of loop flows.
- b) Loop flows are to be estimated during the capacity calculation process by using the CGM. In absence of the coordinated capacity calculation process in the Core CCR, a CGM shall be prepared by APG based on best available information in the moment of its creation. In order

to obtain the level of expected loop flows per CNEC, net positions of the different bidding zones in the CGM will be shifted to zero-balance:

$$F_{0,all} = F_{ref} - PTDF_{all} \overline{NP}_{ref,all}$$

Where:

- $F_{0,all}$  is the total flow per CNEC in situation without any commercial exchange between bidding zones
- $F_{ref}$  is flow per CNEC in CGM (with commercial exchanges)
- $PTDF_{all}$  is power transfer distribution factor matrix which contains all bidding zones and all CNECs
- $\overline{NP}_{ref,all}$  is the total net positions per bidding zone included in the CGM

This approach for the determination of the total loop flow, which represents a situation without any commercial exchange between bidding zones, is in line with the Article 17.3 of Core CCM.

- c) In order to derive the loop flows per CNEC and until a flow decomposition methodology is approved within Core, the following decomposition methodology will be applied:
  - a) Cross zonal CNECs: As there are no internal flows over a tie-line, there is no need to decompose flows any further as  $F_{0,all}$  defines directly loop flows;
  - b) Internal CNECs: a flow decomposition method is required to distinguish the internal flows from loop flows. The Power Flow Colouring (PFC) decomposition method<sup>3</sup>, which is based on a perfect-mixer principle and is consistent with the European zonal market model, will be used to allow for a complete partitioning of the power flow on each CNEC.
- d) For a given CNEC,  $LF_{calc}$  [%] is equal to the loop flow computed following paragraph c) of this Article divided by  $F_{max}$ , which is the maximum admissible power.
- e) The values determined according to point d) of this Article shall be compared with the threshold of acceptable level of the loop flows ( $LF_{accepted}$  [%]). This threshold, which might be different for cross zonal and internal elements, shall be defined in the second half of 2020. As the loop flows constitute a part of 30%  $F_{max}$  margin of each CNEC, loop flows exceeding the  $LF_{accepted}$  might influence the  $MAZCT_{min}$  value per MTU.

#### 4.2 Mitigation of insufficient concepts and IT-Tools for capacity validation (in line with Regulation 2019/943)

- o Until the implementation of Core CCM, it is planned that a new methodology to validate the outcomes of the capacity calculation tools (Article 4.1) will be specified and respective IT-tools will be developed, followed by the tests and implementation.

---

<sup>3</sup> Dusan Vlaisavljevic et al, "Power Flow Colouring: A Novel Power Flow Tracing Methodology Tailored for the European Zonal Electricity Market Design", Proceedings of IEEE ISGT Conference (Bucharest, October 2019)

- In parallel, APG is actively working with the other Core TSOs to implement capacity validation requirements in line with Core CCM and in line with the Regulation 2019/943.

#### **4.3 Mitigations for increasing redispatch potential to guarantee 70% requirement**

- Until the submission and implementation of Core methodologies according to Articles 35 of the CACM Regulation and Article 76 SOGL, APG will further on actively work on gaining access to additional redispatch potentials available in neighboring and non-neighboring countries as an interim improvement. Preliminary assessments show that a higher level of redispatch volumes are required to ensure the cross-zonal capacities calculated in line with the 70% requirements.
- The implementation of the methodologies according to Articles 35 of the CACM Regulation and Article 75 and 76 SOGL is a further key factor in approaching the 70% minimum targets under secure operational conditions. They are aiming at expanding the available remedial action portfolio and its optimized application. In parallel to the interim improvement, APG will actively work with the other Core TSOs to submit methodology proposals related to coordinated redispatch and countertrading methodology in line with Articles 35 of the CACM Regulation and Article 76 SOGL and in line with Regulation 2019/943 and subsequently implement those.

#### **4.4 Absence of consideration of flows of 3rd countries in the capacity calculation**

- In order to properly consider the flows originating from 3rd countries, APG is actively involved in the Core CCR investigations and discussions on how to integrate 3rd countries in the relevant methodologies.
- With a focus on Switzerland these investigations and developments are currently done in close coordination with the European Commission, ACER and the NRAs of the Swiss neighboring countries.
- Depending on the resulting solution a contractual framework is planned to be established.

#### **4.5 Mitigation of CNEC capacity usage >30% by loop flows and PST flows and lack of cross-CCR coordination**

- This foreseeable ground for derogation cannot be solved solely by APG. As the network of APG is located on the edge of two regions, the mutual interaction between the different CCRs is especially visible on APG's CNECs and this requires close coordination and clear rules of network operation especially for the application remedial actions (e.g. control of PSTs), which are currently not in place but are foreseen with the implementation of Articles 21 and 35 of the CACM Regulation as well as Articles 75 and 76 SOGL

#### **4.6 Uncertainties in the capacity calculation process related to the non-existence of a common coordinated forecast process for determination of net positions in Europe**

- The application of a capacity calculation process in line with 70% requirements on a relatively small coordination areas leads to large uncertainties which cannot be covered with the low reliability margins.

- An assessment of adequate minimum reliability margins will be performed by APG during the implementation of new capacity calculation and validation tools (Article 4.1 and Article 4.2).

The aforementioned mitigation measures will require a significant amount of human and financial resources. Especially those which are envisaged as individual interim solutions until the relevant key methodologies according to the CACM Regulation and SOGL (see Introduction (4)) are implemented, are expected to be in operation just for a very short time period. Hence the huge effort, interfering with sensible operational processes and potentially restricting the availability of resources for the development of the enduring solutions according the CACM Regulation and SOGL in Core is indeed questionable in the view of APG. A review of the necessary efforts and costs against the short-term benefits and in consequence a guidance on that issue and on the expected way forward from E-Control would be highly appreciated.

## **Article 5 Duration of the Derogation**

APG requests the derogation for one year in accordance with Art. 16.9 of the Regulation 2019/943. In the course of the beginning of next year and provided that the derogation was granted, APG will develop and publish the methodologies and projects that will provide an interim solution to the issues that the request for derogation addresses in line with the steps set forth in Article 4.

This request is applicable for all the APG CNECs used in day ahead calculation in CWE (respecting the applicable PDTF threshold) and all NTC borders within the Core CCR.

In case that the technical grounds described in Article 3 of this derogation request cannot be fully tackled (either by APG or jointly within the Core CCR), before the expiry of the derogation period, APG might have to request a renewal of the derogation. If such a case should occur, APG will provide a detailed justification for a renewal of the derogation.

## **Article 6 Proportionality regarding maintaining the operational security**

In light of the foreseeable grounds outlined in Article 3, such as missing capacity calculation and validation tools, lack of consideration of third country flows, high loop flows and uncertainties as well as an insufficient redispatch potential, it is not possible for APG to fulfill the 70% criterion from 1 January 2020 without endangering operational security.

Concerning the requirements of Art 16(8) of the Regulation 2019/943 and under consideration of the ACER Recommendation 01/2019, APG therefore plans to develop the necessary methods and IT tools for calculation and verification of cross-zonal capacities (see Article 4) as an interim step until the relevant key methodologies according to the CACM Regulation and the SOGL are implemented.

Though this interim step will not provide for a solution for all foreseeable grounds according to Article 3, these developments (according to Article 4) are first of all necessary to enable APG to evaluate the MACZT at the stage of capacity calculation, which is a precondition to draw conclusions with reasonable certainty whether the cross-zonal capacities meet the requirements of Art 16(8) of

the Regulation 2019/943 under the respective framework conditions (e.g. MNCC uncertainties, level of loop and PST flows). On the other hand, reliable validation methods and tools are vital to ensure operational security while aiming at the transition towards fulfilment of the 70% criterion.

According to the current planning, in the second half of 2020 APG will test the IT-tools to be developed and will perform studies in order to parameterize them. In the course of this, especially the following parameters will be evaluated:

- $MNCC_{margin}$ ,
- $LF_{accepted}$ ,
- *Reliability Margin*

The determination of these parameters (including the final concepts of the respective methods) will be done based on the results of the mentioned studies and analysis, in coordination with the national regulatory authority E-Control and under consideration of the operational security.

Until the go-live of the respective methods and tools mentioned above (see Article 4), APG has to continue to apply the current methodologies and practices for capacity calculation, in order to maintain operational security, while APG shall make its best efforts to offer the following cross-zonal capacities as average per year:

- For NTC borders (AT/CZ, AT/HU and AT/SI): Per border and direction the values that are at least on the same level (on average per border and per direction) as in the last three years.
- For the FB border (AT/DE): 20% of  $F_{max}$  per CNEC for cross-zonal trades within the CWE region and the currently applied process of the long-term capacity inclusion.

With the go-live of the new capacity calculation methodologies and respective IT tools, APG will report the achieved MACZT to E-Control. With the go-live of the validation tools APG will assess in coordination with E-Control the possibilities to increase cross-zonal capacities considering the 70% criterion, while ensuring operational security.

The scope of the derogation therefore does not go beyond what is necessary to maintain operational security, as set out in Article 3 and does not relate to curtailment of capacities already allocated (Article 8).

## **Article 7      Non-Discrimination**

The proposed derogation aims at the transition from the status quo to the 70% criterion in a non-discriminatory manner. Any currently applicable methodologies with respect to calculating the NTC values or FB capacities or any future methodologies which still need to be developed do and will not contain any measures resulting in a discrimination between internal and cross-zonal exchanges.

The new methodological approaches and related IT tools to be developed during the derogation period as described in Article 6, aim at an increased transparency that undue discrimination between internal and cross-zonal exchanges is avoided as the sum of reliability margin, loop flows below an acceptable level (defined by threshold  $LF_{accepted}$ ) and internal flows on each CNEC is lower than 30% for as long as operational security can be guaranteed. This ensures that, even in presence of loop flows above an acceptable threshold, the internal flows accounted for in the capacity calculation are reduced as long as operational security can be guaranteed.

## **Article 8 No curtailment procedures of capacities already allocated pursuant to Art 16 Abs 2**

The proposed derogation shall apply solely to the determination of capacities on all Core CCR borders of APG, which will be made available for cross-zonal exchanges. The derogation does not provide any grounds for the curtailment of any already allocated capacities. Curtailments of already allocated capacities remain subject to respective Network Codes/Guidelines.

## **Article 9 Request**

For all the above mentioned reasons, and as previously mentioned in Article 1, APG, in accordance with Article 16 (9) of Regulation 2019/943 seeks to be granted a request for derogation from the obligations under Article 16 (8) of Regulation (EC) No 2019/943 with regard to the bidding zone borders AT/DE, AT/CZ, AT/HU and AT/SI for the a period of one year.