

## **All TSOs Participating in Bidding Zone Review Response to the ACER's and the National Regulatory Authorities' Feedback on input data, scenario, sensitivity analyses and assumptions to be used in the Bidding Zone Review of 3 May 2023**

30 November 2023\*

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## Background

Pursuant to Article 17(2) of Annex I of ACER Decision of 24 November 2020 on the methodology and assumptions that are to be used in the bidding zone review process and for the alternative bidding zone configurations to be considered (the Bidding Zone Review (BZR) Methodology), two months after the start of the BZR, TSOs shall submit all information used as an input for the BZR to the national regulatory authorities (NRAs) and to ACER.

All TSOs Participating in Bidding Zone Review (hereafter “the Participating TSOs”) thank ACER and NRAs for the interaction and guidance received over the past months with regard to the input data used for the BZR. Significant efforts on both ACER/NRAs- and TSOs-side were dedicated to determining the input data which resulted in a final data package delivery on the 22 December 2022 by the Central Europe (CE) Bidding Zone Review Region (BZRR) and the Nordic BZRR to ACER and NRAs.

Pursuant to Article 17(3) of the BZR Methodology, NRAs and ACER may submit comments on the data provided by TSOs within six weeks. These comments were initially provided on 13 February 2023 in the form of a note, “Regulators’ feedback on input data, scenario, sensitivity analyses and assumptions to be used in the Bidding Zone Review” to all TSOs participating in the BZR and updated subsequently on 3 May 2023 (“ACER’s and NRAs’ Feedback”).

ACER’s and NRAs’ Feedback captures the points for which a lack of alignment was identified during the discussions. Points that were agreed upon at an earlier stage in the process are elaborated upon in the changelog of the CE BZRR: Annex A – Input Data and Assumptions Overview, as published on the ENTSO-E website: [link](#).

Section 2 of ACER’s and NRAs’ Feedback highlights “*the need for a robust and technically sound analysis*” and indicates that “*TSOs are thus recommended to stick to the requirements prescribed in the BZR methodology and to follow the feedback provided by ACER and regulatory authorities in the present note.*”

The participating TSOs would like to highlight that there is a delicate balance between the timeline on the one hand, and the complexity of adapting the input data or assumptions on the other hand. This implies that neither all issues that will be identified during the BZR can be addressed<sup>1</sup>, as it could trigger a time-consuming rerun of the many scenarios, nor that all requests as proposed by ACER and NRAs can be considered.

Under these considerations, this document constitutes the answer of the participating TSOs to ACER’s and NRAs’ Feedback as set forth in Article 17(3) of the BZR Methodology; blue-colored sections are direct quotes from ACER’s and NRAs’ Feedback.

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<sup>1</sup> Providing that the issue encountered is not considered fundamental for the quality of the BZR.

## 1. The assessment of the criterion on economic efficiency (section 3.1 of ACER's and NRAs' Feedback)

- Pursuant to Article 14(1)(a) and Article 15(4)(a)(i) of the BZR methodology, the geographical scope that needs to be considered when assessing the criterion on economic efficiency is the EU. This means that a single EU optimization problem needs to be solved for both terms, contributing to the overall socio-economic welfare, i.e. market dispatch and remedial action optimisation (RAO). Running a fully separate optimisation problem for each BZRR and/or assuming a constant socio-economic welfare for BZRRs other than the one subject to the analysis fails to capture the interdependency across BZRRs, resulting in an underestimation of the EU socio-economic welfare.
  - The Nordic TSOs will simulate the criterion on economic efficiency on Pan EU level with a flow based approach simulated for the Nordics. Other synchronous areas will be simulated in the same one-step simulation as the Nordics but with NTC limits. To apply a flow based approach on a pan EU level is not currently feasible as it would require additional data collection and model implementation which would result in a significant delay. There is also a significant risk that the problem becomes unsolvable without even more powerful calculation servers, which would lead to even more delay. The aim is to also optimize the redispatch based on the same approach.
  - BZRR CE TSOs have implemented the assessment of the criterion on economic efficiency on a regional level for the following reasons:
    - The BZR methodology is based on a regional approach. This makes the effort better manageable, both from a data handling and a computational point of view. CE TSOs have implemented their tool chain accordingly, and follow a 2-step approach for market optimization:
      - Step 1: a pan-EU market optimization based on NTCs is performed;
      - Step 2: a regional market optimization following the regional capacity calculation step is performed;
      - The redispatch optimization is also performed on a regional level.As such, the socio-economic welfare indicator is therefore assessed on CE level.
    - Extending the assessment of the socio-economic welfare indicator to a pan-EU level in a single computational step would seriously impact the regional implementations so far and their timelines as:
      - Data interdependencies between the two regions are introduced;
      - Datasets would have to be adjusted;
      - Software would have to be adjusted;
      - Computational runs would have to be redone;
      - Computational challenges are foreseen when the datasets would increase even further.

Conclusion: BZRR CE TSOs' implementation is based on a two-step approach where the economic efficiency criterion is assessed on a regional level only. Extending the assessment to a pan-EU level in one single step is not feasible without seriously impacting the existing toolchain and timeline. CE TSOs could however assess the pan-EU market welfare by applying a proxy where the socio-economic welfare for the non-CE regions is assessed during step 1 of the simulation chain (pan-EU market optimization based on NTCs). This would require a re-computation of the results of

step 1. From today's perspective, the timeline would be impacted by at least one month. Considering the current progress in CE and the pressure on the timeline, the decision whether or not to go for this option is pending and will be taken at a later stage. However, the redispatch optimization can only be performed on a regional level. Therefore, the criterion on economic efficiency can only be assessed on a regional level.

## 2. BZRR Central Europe (BZRR CE)

### 2.1. Dimensioning of balancing reserves (section 3.2.1 of ACER's and NRAs' Feedback)

#### 2.1.1. Answer of the German TSOs to ACER's and NRAs' comments on the dimensioning of balancing reserves in Germany

- The minimum dimensioning requirements are set in the SOGL<sup>2</sup> at Load Frequency Control (LFC) block level and not at bidding zone level; the dimensioning at bidding zone level results in a significant increase of reserve needs for Germany, which is seen as an extremely conservative and hence unrealistic situation
  - SOGL sets minimum requirements which have to be fulfilled. It is current practice to set dimensioning requirements at bidding zone level for the LFC block DE/LU/DKW. This aspect of the German approach of dimensioning reserves for the alternative configurations is therefore compliant with SOGL and directly derived from current operational practices compliant with SOGL.
  - The relevant NRAs consider the current approach to dimensioning applied in the DE/LU/DKW LFC-Block, i.e. dimensioning per each BZ within an LFC Block rather than per LFC Block, to be compliant with SOGL and have approved it.
  - Based on the requirements set in Guideline System Operation, cross-bidding-zone dimensioning requires allocation of cross-zonal capacity.
  - It is worth mentioning that the current practice of common dimensioning for the DE/LU bidding zone also reflects the physical distribution of pre-qualified FRR within Germany (major parts are located in the south). Without reservation of interconnector capacity for common dimensioning, the physical distribution of FRR is not reflected in some bidding zones and might end in a physical shortage of balancing capacity potential in specific zones. Furthermore, allowing for reservation of cross-zonal capacity will yield lower balancing capacity volumes as synergies in dimensioning can be used.
  - Moreover, the German TSOs confirm that the German approach will make a significant contribution to system security in Continental Europe.
- When the dimensioning is done on an LFC block level, the assumption is that there will be available cross-zonal capacity between the bidding zones of this LFC block to support the "sharing" of reserves (formally speaking, it is not exactly sharing, since sharing is between and not within LFC blocks). This assumption cannot hold all the time, since the reason for which there are multiple bidding zones in a LFC block is exactly the possibility of having congestions, so there should be a cross-zonal capacity allocation process in place for reserving the required

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<sup>2</sup> Commission Regulation (EU) 2017/1485 of 2 August 2017 establishing a guideline on electricity transmission system operation

cross-zonal capacity. For the Core region, there is already a methodology approved by ACER for market-based cross-zonal capacity allocation, with implementation deadline June 2023

- It has already been communicated by the Core CCR that Core TSOs will not implement the Core market-based cross-zonal capacity allocation (MB CZCA) due to certain implementation challenges. Instead, Core TSOs intend to implement directly the processes required for the harmonized MB CZCA (HMBCZCA) according to Art. 40(1) EBGL. The go-live of the first applications using the HMBCZCA in Core is currently envisaged for the end of 2026. Currently, only exchange of balancing energy and/or capacity but no sharing of reserves is planned in the Core project. Only sharing of reserves has the potential to reduce the amount of balancing capacity to be procured. Exchange of balancing capacity just aims at reducing procurement costs.
  - ACER and NRAs assume that sufficient cross-zonal capacity can be reserved for balancing requirements to stay the same over different configurations. However, TSOs cannot just reserve as much cross-zonal capacity as needed. According to the HMBCZCA, a daily economic assessment needs to be performed and it may very well be economically more efficient to use the cross-zonal capacity entirely for the day-ahead market in which case no cross-zonal capacity can be reserved for common procurement of balancing capacity or sharing of reserves. A reservation for common procurement of balancing capacity or sharing of reserves can therefore not be guaranteed and, at this point in time, cannot be reliably estimated (market outcome of alternative configurations is currently unclear).
  - Notwithstanding all uncertainties mentioned above, LFC areas/bidding zone would ensure secure system operation with an approach covering only 100 % of the dimensioning incidents, if exchange of balancing capacity and sharing of reserves at least within Germany is ensured at every point in time.
- The proposed approach for Germany results in covering 140% of the actual requirement (split between automatic frequency restoration reserve (aFRR) and manual frequency restoration reserve (mFRR)).
    - This is correctly understood. SOGL sets minimum requirements to be fulfilled. German TSOs dimension 140 % of the reference incident for FRR in order to have sufficient reserves also in case of additional imbalances due to e. g. RES forecast errors. This is derived from the current practice to activate mFRR when 60 % of aFRR has been used. In case of few German bidding zones (e. g. two bidding zones in Germany) the probabilistic approach is expected to be necessary for dimensioning, as the results from the probabilistic approach most likely lead to higher reserve requirements than two dimensioning incidents.
    - The way how the dimensioning is performed is defined in SOGL, however, the actual procured balancing capacity strongly depends on the ability to reliably reserve capacity on the bidding zone borders. This would lead to reductions in the amount of procured balancing capacity and is the desired way forward for all German TSOs.

**In summary, German TSOs see two options:**

1. Stick to the original approach of covering 140 % of the dimensioning incident per bidding zone. The assumption would be that no reservation of cross-zonal capacity for the sharing of reserves and the exchange of balancing capacity is possible.
  - In light of the current plans in Core for balancing cooperations this seems to be the most reasonable assumption.
2. Reduce the reserve requirements to cover 100 % of the dimensioning incident per bidding zone. The assumption would be that reservation of cross-zonal capacity for the sharing of reserves and the exchange of balancing capacity is possible and allows for some reduction of the reserve requirements.
  - This is only an option if NRAs and TSOs of the Core CCR commit to the reservation of cross-zonal capacity for the exchange and sharing of reserves at least within Germany. This is of utmost importance because German TSOs cannot decide for themselves to reserve cross-zonal capacity for balancing purposes but are dependent on the approval of other TSOs and NRAs of the Core CCR. In the past, some TSOs and NRAs did not support the reservation of cross-zonal capacity for balancing purposes which has hindered the implementation of such cooperations in the ALPACA project.

Although the German TSOs still see Option 1 as the most suitable option regarding system security, they see also a need for a common way forward. Option 2, from the perspective of the German TSOs, could be a compromise between the need for cooperation and the uncertainties around the availability of cross-zonal capacities for the exchange of balancing energy. Based on the arguments brought forward, it would be essential, with a potential introduction of bidding zones in Germany in particular, to allow for common procurement via the reservation of cross-zonal capacity.

On 27 July 2023, however, ACER and the chair of the Board of Regulators addressed an escalation letter to ENTSO-E in which they explicitly requested the German and Luxembourgian TSOs to assume a constant volume of balancing reserves for the German-Luxembourg area in all alternative bidding zone configurations to be investigated in the BZR and reserve the right to follow up with enforcement actions. German and Luxembourgian TSOs have therefore decided to comply with ACER's and NRAs' request and to implement the assumption of constant balancing capacity in the German-Luxembourg area in order to be able to proceed with the bidding zone review. However, based on their operational practice and experience, given the relevant legal and regulatory framework and anticipating an increased need for balancing capacity in case of bidding zone splits, German and Luxembourgian TSOs are convinced that this assumption is not correct. On the contrary, in case of a bidding zone split the impact on balancing capacity, operational processes and in particular the volume changes would have to be re-evaluated. Furthermore, an operational balancing concept including transmission capacity reservations<sup>3</sup> would have to be developed, assessed, and implemented. The question of how much transmission capacity could be reserved for balancing purposes and would not be available for the wholesale market would become relevant in this context. Ultimately, sufficient overall balancing capacity would need to be available in all bidding zones maintaining high levels of operational security (not only for Germany-Luxembourg but for the whole synchronous area). This would not be the case with the assumed constant balancing capacity levels.

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<sup>3</sup> Those reserved transmission capacities would not be made available to the wholesale electricity market.

### **2.1.2. Answer of Transelectrica to ACER's and NRAs' comments on the dimensioning of balancing reserves in Romania**

- Finally, for the specific case of Romania, it has to be noted that the values of reserve capacities are applicable for the year 2020 and do not reflect the values for 2025, which are likely to be higher.

Conclusion: This request for adjustment arrived after the CE data freeze was introduced. With the BZR being a comparative study, and the numeric change considered to be small and remote from the areas impacted by the BZ splits, updated reserve capacities for Romania were not considered.

### **2.1.3. Answer of the BZRR CE TSOs to ACER's and NRAs' comments on the dimensioning of balancing reserves in Central Europe**

- TSOs' proposal to split FCR across BZs proportionally to the installed generating capacity (including both non RES as well as RES) is an arbitrary decision, which deviates from the approach that is put forward in Article 153(2)(d) of the SOGL when splitting the FCR needs among TSOs. According to the above-mentioned article, the total FCR needs in the synchronous area are allocated to each TSO based on the sum of the net generation and consumption of its control area divided by the sum of net generation and consumption of the synchronous area. For consistency reasons, it would be preferable that TSOs follow the same approach also when allocating FCR needs among BZs.
  - BZRR CE TSOs decided to allocate FCR capacity based on installed capacities as a pragmatic solution as these values are known in advance. Allocation based on net generation and demand would require additional market simulation runs just to determine these values. The potential benefit of a more detailed approach would not justify the additional effort and time required to run additional simulations. Furthermore, Article 153(2)(d) of the SOGL only refers to the allocation of FCR capacity to TSOs, not to bidding zones. It is not certain that TSOs will procure FCR capacity within bidding zones proportionally to the net generation and consumption.
- Should TSOs decide to use different reserve requirements depending on the BZ configuration, they should be able to provide evidence that this is needed through a simulation of the balancing timeframe. This simulation would have to illustrate the need for extra reserve by the lack of "sharing" possibilities. This analysis would have to be carried out for all BZs (and not only for the BZ whose configuration changes). Indeed, a split of a BZ might also positively impact the sharing capability of neighbouring BZs
  - This would mean that TSOs have to implement the daily economic assessment according to HMBCZCA to determine how much cross-zonal capacity may be used for the day-ahead market and for the sharing of reserves. With this new feature the whole simulation chain up until and including the market coupling would have to be run for the different German configurations with the full geographical scope. Only after these runs could the reserve requirements be determined. This is out of scope of the BZR.
  - BZRR CE TSOs decided to not evaluate indicator 15 "Operation and efficiency of the balancing mechanisms" where e. g. co-optimization of DA energy and balancing capacity is asked for exactly the reason that it is not possible, neither from a time nor resource nor model complexity perspective, to implement these features.

- BZRR CE TSOs however dimension balancing reserves according to Article 4.3 of ACER Decision 29-2020 which specifies that individual dimensioning of FCR, FRR and RR shall be done in accordance with Art. 153, 157 and 160 of the SOGL and shall represent the expected operational practice for the target year 2025.

Conclusion: Due to the complexity of the BZRR CE BZR, and the corresponding pressure on the BZRR CE timeline, the analysis suggested by ACER and NRAs is not feasible to accommodate.

#### 2.1.4. General conclusion on dimensioning of balancing reserves in Central Europe`

Taking all aspects of the discussion and the different viewpoints into account, BZRR CE TSOs agreed on the following solution for the dimensioning of balancing reserves in the BZRR CE:

- For Germany/Luxembourg, following the instruction of ACER and NRAs, the reserve requirements are held constant for the different configurations and not increased for the different split scenarios compared to the status quo configuration, contrary to what has been originally proposed by the German/Luxembourgian TSOs (see options 1 and 2 in section 2.1.1).
- Following the feedback from ACER and NRAs, for the Netherlands, reserve requirements will not be increased for the split bidding zone configuration, unlike originally proposed. TenneT NL considers that, given all uncertainty in the dimensioning of balancing reserves (FRR) in the future, especially in a new bidding zone configuration, it can be reasonable to assume that reserves will not increase. The existing reserves will be split over the new bidding zone proportionally to the installed generating capacity, as is also the assumption for FCR. (This is in line with the approach used for Italy and France.)
- For France and Italy, reserve requirements are held constant for the different configurations as originally proposed.

German and Luxembourgian TSOs are convinced that the assumptions now taken for the BZR regarding the level of reserve requirements, specifically for Germany/Luxembourg, are not appropriate and may lead to less valid or even invalid results. With a potential introduction of bidding zones, in Germany in particular, it would be essential to at least allow for common procurement via the reservation of cross-zonal capacity.

#### 2.2. Redispatch mark-ups (section 3.2.2 of ACER's and NRAs' Feedback)

- It is proposed in the ACER's and NRAs' Feedback to: "Use 2022 values (or absent these, the values for the second half of 2021) as a reference for the opportunity costs for the 2028 scenario".
  - As also elaborated in section 2.4, BZRR CE TSOs would like to insist that the sensitivity analysis is not a 2028 scenario.
  - Data for the year 2022 is not easily available. Additionally, 2022 was an exceptional year due to historically low French nuclear availability. As such a data collection for 2022 is not deemed appropriate or possible.
  - Data collection for the year 2021 is currently under investigation. The full year would have to be considered since some power plant categories are redispatched very infrequently so that there is not enough data for some categories when only using half a year.



- In addition, ACER and NRAs also highlight that Article 9(4)(b)(ii) of the BZR methodology explicitly mentions that redispatch mark-ups need to include at least opportunity costs and readiness costs, whereas in the German industry guideline readiness costs are set to zero. Furthermore, the same guideline does not consider the opportunity costs derived from the balancing timeframe, which constitute another relevant contribution to the overall value of the mark-ups.
  - Within the German redispatch remuneration scheme, there is the possibility to remunerate readiness costs. Readiness costs are not automatically set to zero. However, readiness costs have not been claimed by power plant operators (at least not in the considered year of 2019).
  - Opportunity costs from the balancing market: Under German law, proven lost revenue opportunities are reimbursed. Thereby, no differentiation is made between opportunities from balancing or intraday. Since proof for each individual case of redispatch would be at least costly and, in case of doubt, controversial and difficult, the industry has agreed on a procedure (German industry guideline) that estimates all lost revenue opportunities on the basis of the volatility on the intraday market. The procedure is thus a proxy for actual lost revenue opportunities in all markets and is common practice.

Conclusion: BZRR CE TSOs will address this request in the final report if technically possible. BZRR CE TSOs are investigating whether the 2021 data can be collected, so that it can serve as a reference for the redispatch mark-ups in the sensitivity analysis where increased fuel and CO<sub>2</sub> prices are considered as one dimension.

### **2.3. Network models (section 3.2.3 of ACER's and NRAs' Feedback)**

- ... regulators recommend TSOs to further investigate the impact of those discrepancies before concluding that they do not have any impact on the outcome of the study. In addition, regulators invite TSOs to use the same network model throughout the whole BZR to avoid similar issues in the future.
  - Indeed, during Q4 of 2022 there were several exchanges between ACER and TSOs linked to the CGMs. The final CGMs for the target year 2025 and the sensitivity analysis have been shared with ACER and NRAs on December 22nd, 2022, as a part of the data package. The CE TSOs will continue to use those CGMs for the remainder of the BZR.

Conclusion: BZRR CE TSOs will continue to use the current CGMs for the remainder of the BZR.

### **2.4. Sensitivity analysis (section 3.2.4 of ACER's and NRAs' Feedback)**

The sensitivity analysis is used to assess the criterion on 'stability and robustness of BZs over time'. It is not an additional scenario. Nonetheless, performing the sensitivity analysis is a very time-consuming part of the BZR. One sensitivity analysis requires a rerun of all climate years and all configurations. From a tool chain perspective, it is not possible to pick out some weeks to be analyzed. Therefore, given the computational complexity and corresponding runtimes of the toolchain and the time available to perform the BZR, BZRR CE TSOs initially considered to only facilitate one single sensitivity analysis including three dimensions: grid (based on the year 2028), RES (based on the year 2028), and increased fuel and CO<sub>2</sub> prices.

Based on earlier (13 December 2022) informal feedback received from ACER and NRAs, BZRR CE TSOs have additionally decided to investigate the inclusion of the load (based on year 2028) as a 4<sup>th</sup> dimension into their sensitivity analysis, in a simplified way as suggested by ACER.

In 2023, BZRR CE TSOs have further developed the toolchain. To this date, BZRR CE TSOs have tested all modules of the toolchain separately and successfully. However, it has not been possible to run through all steps of the fully integrated toolchain without errors thus far. Expected simulation times are also very long due to the complexity of the models' strict requirements set by the BZR Methodology, in particular due to:

- (i) the number of integer constraints to be modelled in the flow-based market coupling,
- (ii) the complexity of performing detailed RAO at European scale, and
- (iii) need to perform time-consuming loop flow calculations,
- (iv) the need to perform sensitivity runs, for potentially all alternative configurations and climate years.

BZRR CE TSOs are fully committed to completing the BZR with high quality and delivering their recommendation as soon as possible. However, with the uncertainty on the full functioning of the toolchain and simulation times, communicating a reliable timeline to deliver a BZR satisfying all requirements of the BZR methodology is not a straightforward process.

BZRR CE TSOs are aiming to deliver the final BZR report, including the recommendation to amend (or not) the current bidding zone configuration, by the end of 2024. TSOs will strive to perform sensitivity analysis to include the 'stability and robustness of BZs over time' criterion as part of the final evaluation. However, this will require simplifications to the sensitivity analysis which may include:

- (i) applying an incremental approach by changing one dimension at a time;
- (ii) simplifying various modelling steps in the sensitivity runs to speed up the most time-consuming steps;
- (iii) performing sensitivity analysis only for a reduced number (e.g. 3-5) of the most promising alternative configurations, e.g. based on a ranking of the monetized benefits;
- (iv) performing sensitivity analysis for a reduced number of climate years.

Conclusion: BZRR CE TSOs applying the above measures to ensure the delivery of the BZR study and recommendation (including one sensitivity analysis) by the end of 2024. However, if BZRR CE TSOs encounter unforeseen modelling challenges with the sensitivity or must unexpectedly perform reruns, which might put finalizing the BZR by the end of 2024 in jeopardy, BZRR CE TSOs will submit the final BZR report with a further reduced sensitivity analysis in order to ensure delivery of the BZR by the end of 2024.

Finally, the list of additional grid projects included in the sensitivity analysis for 2028 is not sufficiently clear. As done for the projects considered in the LMP analysis with target year 2025, regulators recommend TSOs to break down this table such that each row corresponds to one network project and to provide, for each project, the corresponding project ID used in the list of transmission projects included in the ten-year network development plan (TYNDP) 2022.

Conclusion: BZRR CE TSOs may address this request in the final report if feasible.

## 2.5. Simplifications (section 3.2.5 of ACER's and NRAs' Feedback)

The technical constraints of the generating units are considered.

- With regard to the RAO module, it is also important to note that all constraints listed in Article 9(3) of the BZR methodology must be duly considered in the optimization problem.
  - CE TSOs are considering all constraints as per Article 9(3) of the BZR methodology but it should be noted that some constraints are not relevant after simplifications are applied. This is mostly related to generation constraints:
    - Ramping is not considered as all units can ramp between Pmin and Pmax for the given hourly MTU granularity.
    - Minimum run-time is not relevant as we apply the simplification that the commitment of units is determined from day-ahead market dispatch (ACER states in its note that this simplification may be applied).
    - Start-up and shut-down times can be considered in a simplified way (as per Article 9(8)b of the BZR methodology), but are also not applicable after applying the simplification described in the previous point.
- Furthermore, in line with Article 9(6) of the BZR methodology, the availability and activation of non-costly remedial actions must reflect the expected operational practices of TSOs for the target year 2025.
  - CE TSOs are considering the non-costly RAs (PST, HVDC, and topological actions) in a way that reflects the expected operational practice in 2025.

Conclusion: The CE TSOs consider that the implementation is in line with the requirements and expectations from ACER and NRAs, as outlined above.

## 3. Conclusion

All TSOs participating in the Bidding Zone Review would like to thank ACER and NRAs for the constructive cooperation and discussions.

The Bidding Zone Review is an unprecedentedly complex study. The balance between performing the study within the time available and the computational run times to perform the various computation steps with the required level of detail is a challenge. We hope to have contributed to your understanding of the reasoning behind the TSO decisions presented in this note, as well as have highlighted the effort that the TSOs are making in accommodating the ACER's and NRAs' Feedback as much as feasible.

All TSOs participating in the Bidding Zone Review look forward to a fruitful continuation of the cooperation ahead.