

# Public consultation on the high-level approach for the identification of alternative bidding zone configurations to be considered for the bidding zone review

Fields marked with \* are mandatory.

This consultation is addressed to all interested stakeholders.

Replies to this consultation should be submitted by **3 August 2021, 23:59 hrs (CET)**.

Questions should be addressed to [ACER-ELE-2020-001@acer.europa.eu](mailto:ACER-ELE-2020-001@acer.europa.eu).

## Contact information

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I confirm that I have read the [data protection notice in this link and accepted.](#)

\* Is your input into this consultation confidential?

- Yes  
 No

ACER will publish all non-confidential responses.

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## Related documents

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- [Regulation \(EU\) 2019/942](#) of the European Parliament and of the Council of 5 June 2019 establishing a European Union Agency for the Cooperation of Energy Regulators ('ACER Regulation')
- [Regulation \(EU\) 2019/943](#) of the European Parliament and of the Council of 5 June 2019 on the internal market for electricity (recast) ('Electricity Regulation')
- [Regulation \(EU\) 2015/1222](#) of 24 July 2015 establishing a guideline on capacity allocation and congestion management ('CACM Regulation')
- [Regulation \(EU\) 543/2013](#) of 14 June 2013 on submission and publication of data in electricity markets and amending Annex I to Regulation (EC) No 714/2009 of the European Parliament and of the Council Text with EEA relevance
- [All TSOs' proposal for 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 in accordance with Article 14\(5\) of Regulation \(EU\) 2019/943 of the European Parliament and of the Council of 5th June 2019 on the internal market for electricity](#)
- [ACER Decision 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](#) (ACER Decision 29-2020)
- [ACER Guidance Note on Consultations](#)

## Introduction

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This consultation aims to gather views and information from stakeholders on the high-level approach for the identification of alternative bidding zone (BZ) configurations to be considered for the bidding zone review (BZR) process, pursuant to Article 14(5) of Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the internal market for electricity ('The Electricity Regulation').

This consultation follows the one launched in April 2020, whose scope was to gather views and information from stakeholders on selected aspects of the proposal developed in accordance with the above-mentioned article.

The definition of alternative BZ configurations has proven a difficult aspect of the proposal. In particular, the proposal did not include any alternative BZ configuration for Central Europe. In light of the insufficient technical information available for ACER to take an informed decision on alternative BZ configurations, with its Decision 29-2020 (the 'Decision'), issued on 24 November 2020, ACER adopted a pan-European BZR methodology and requested Transmission System Operators (TSOs) to carry out a Locational Marginal Pricing (LMP) simulation. Based on the results of this LMP simulation, ACER will be able to take a separate decision on alternative BZ configurations at a later stage.

When it comes to delineating BZs, there are at least two possible approaches. A first approach is a top-down (expert-based) one, whereby experts propose alternative BZ delineations, which could potentially yield more efficient outcomes than the current BZ configuration (the status quo). Based on available data and, whenever feasible, by performing certain market/network simulations, those alternative delineations are then confirmed or refined and finally prioritised. A second approach is a bottom-up (model-based) one, whereby LMP simulations are performed with a view to clustering nodes into BZs. Subject to certain delineation constraints, the clustering exercise yields alternative BZ configurations. By requesting TSOs to perform a LMP simulation, ACER intends to adopt a model-based approach for identifying alternative BZ configurations, as further elaborated in this document.

Taking stock of lessons learnt from previous BZR, ACER is gathering views from stakeholders in an attempt to identify improvements to the high-level approach for the identification of alternative BZ configurations to be considered for the BZR.

In the following, the context of this public consultation is first presented. Subsequently, the general approach is described and the detailed process explained in detail. At the end, the questions for consultation are listed.

## Context

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### Background

Pursuant to Article 14(5) of the Electricity Regulation, ENTSO-E, on behalf of all TSOs, published and submitted to regulatory authorities on 7 October 2019 a proposal for the methodology and assumptions that are to be used as well as for the alternative BZ configurations to be considered for the BZR process. Regulatory authorities identified shortcomings in the proposal. In particular, the proposal did not include any alternative BZ configuration for Central Europe. Regulatory authorities requested that TSOs amend the proposal before 20 February 2020. ENTSO-E, on behalf of all TSOs, published and submitted to regulatory authorities on 18 February 2020 an amended proposal. By letter of 13 July 2020, the Chair of the Energy

Regulators' Forum, on behalf of all regulatory authorities, informed ACER that they were unable to reach a unanimous decision on all TSOs' updated BZR proposal and that the updated BZR proposal was considered as referred to ACER as of 7 July 2020, pursuant to Article 14(5) of the Electricity Regulation.

With its Decision 29-2020 (the 'Decision'), issued on 24 November 2020, ACER decided on the BZR proposal as far as the methodology and assumptions for the BZR process are concerned and adopted a pan-European BZR methodology, referring the decision on alternative BZ configurations to a later stage.

## Legal framework

Pursuant to Article 14(1) of the Electricity Regulation, "*Bidding zone borders shall be based on long-term, structural congestions in the transmission network. Bidding zones shall not contain such structural congestions unless they have no impact on neighbouring bidding zones or, as a temporary exemption, their impact on neighbouring bidding zones is mitigated through the use of remedial actions and those structural congestions do not lead to reductions of cross-zonal trading capacity in accordance with the requirements of Article 16. The configuration of bidding zones in the Union shall be designed in such a way as to maximise economic efficiency and to maximise cross-zonal trading opportunities in accordance with Article 16, while maintaining security of supply*".

In addition, Article 33 of Commission Regulation (EU) 2015/1222 of 24 July 2015 establishing a guideline on capacity allocation and congestion management ('the CACM Regulation') includes a list of minimum criteria that the BZR shall consider.

While the BZR study has to consider all the criteria listed in the CACM Regulation, the following three elements are explicitly mentioned in the Electricity Regulation as objectives to be pursued when delineating BZs. Moreover, these three elements can be quantified and, as such, more efficiently compared. These elements are:

- Minimisation of structural congestions within BZs;
- Maximisation of economic efficiency;
- Maximisation of cross-zonal trading opportunities.

A fourth element mentioned in the Electricity Regulation is security of supply, which is difficult to quantify during the identification of alternative BZ configurations. This element will however be considered during the BZR study as envisaged in the CACM Regulation.

## General approach

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The approach to identify alternative BZ configurations depends on the available data.

As reported in paragraph 150 of the Decision, results derived from LMP simulations are adequate to inform on the decision on alternative BZ configurations and in particular on the three objectives derived from Article 14(1) of the Electricity Regulation.

With regard to the objective ‘Minimisation of structural congestions within BZs’, LMP simulations shed light on whether BZs contain structural congestions or not. In particular, LMP simulations, together with clustering and flow decomposition techniques, allow establishing a cause-effect relationship between physical congestions and the network areas that, by exchanging energy, significantly contribute to such congestions. This is in line with Article 2(4) of the Electricity Regulation that describes congestion as “*a situation in which all requests from market participants to trade between network areas cannot be accommodated because they would significantly affect the physical flows on network elements which cannot accommodate these flows*”. How the results of the LMP simulations and clustering techniques can be combined to identify the relevant network areas contributing to congestions is further described in the following section.

With regard to the other two objectives to be pursued when delineating BZs:

- Maximisation of economic efficiency: The results derived from LMP simulations provide a good opportunity to incorporate the economic efficiency criterion in the identification of alternative BZ configurations. While economic efficiency will be more accurately modelled in the BZR study itself, it is possible to use a proxy for economic efficiency when defining alternative BZ configurations. For example, a more efficient dispatch is expected to be attained when there are no or very limited nodal price differentials within a BZ. This is because the absence of nodal price differentials suggests that intra-zonal congestions are not expected to severely constrain the results of the market.
- Maximisation of cross-zonal trading opportunities: First, the minimum 70% target introduced in Article 16(8) of the Electricity Regulation is a binding requirement to be satisfied as of 1 January 2026, which could lead to a BZ change if not met, pursuant to Article 15(5) of the Electricity Regulation. Second, such minimum target is easier to meet when the flows that do not result from capacity allocation, i.e. loop flows and internal flows, consume a relatively small share of the capacity of network elements. In this context, a flow decomposition analysis is an adequate tool to identify whether alternative BZ configurations are able to limit the amount of flows that do not result from capacity allocation and to achieve the legally required targets.

As a summary, results derived from LMP simulations, complemented with flow decomposition analyses, will be used to assess whether different alternative BZ configurations contribute to the objectives envisaged in the Electricity Regulation for the design of BZs. This includes the presence, or the lack thereof, of structural congestions within BZs and the maximisation of economic efficiency and cross-zonal trading opportunities.

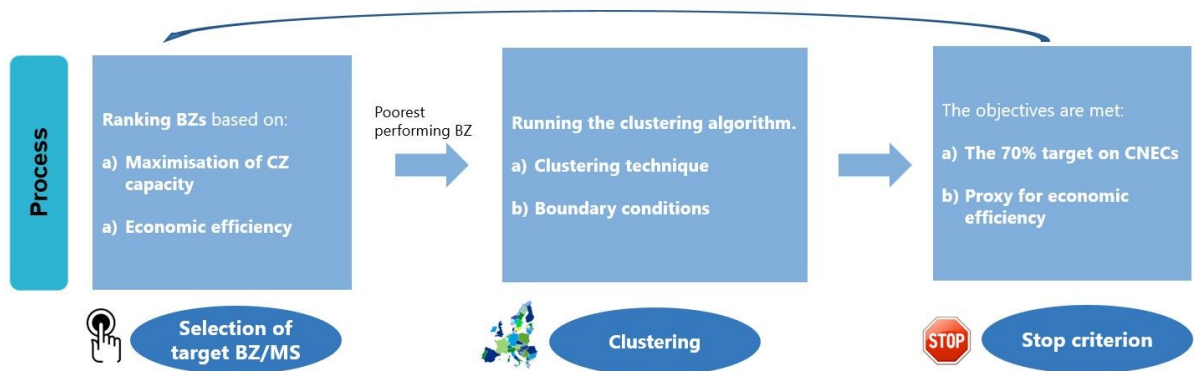
In the following, the detailed process leading to the definition of alternative BZ configurations is presented.

## Detailed process

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The process proposed to identify alternative BZ configurations is an iterative one that comprises three steps: i) the selection of the target BZ/Member State (MS), ii) the clustering and iii) the stop criterion, as presented in Figure 1. An additional fourth step that is not part of the iterations is also required to combine the identified individual alternative BZ configurations to study their joint impact. For the sake of clarity, an individual BZ configuration refers to e.g. the split of a given BZ A into two BZs A1 and A2, while an alternative BZ configuration may consider the joint impact of such split with another individual BZ configuration, e.g. the merge of BZ B and BZ C into a single BZ. This fourth step is described at the end of this section.

Figure 1 – High-level approach for the definition of alternative BZ configurations



The process is designed in such a way that each iteration focuses on one single BZ or one single MS, based on the ranking built in the first step ('the selection of the target BZ/MS'), as further described below. This is an important feature of the process as it imposes the MS borders as a boundary condition to the process. In practical terms, this implies that both splits and mergers of BZs as alternative configurations are possible as long as the new BZ remains within existing MS borders, with the only exception of maintaining already existing BZs comprising more than one MS (essentially Germany and Luxembourg).

This choice does not exclude the possibility for mergers beyond MS borders in future BZR. However, such a possibility is not considered for this BZR for the following reasons. First, in light of the Electricity Regulation, the main trigger and objective of a BZR is to address structural congestions and/or facilitate the attainment of the minimum 70% target. In view of the significant presence of congestions in Europe and the significant efforts still needed to meet the 70% target, it seems efficient to focus on configurations that help to meet this target. Second, it was found that it would be difficult to reach an agreement on which mergers to prioritise, if any, and to introduce specific arrangements that MS mergers would entail. Hence, as the number of configurations to be studied needs to remain limited, it is efficient to focus on alternative configurations for which an agreement is likely to be found.

The iterative process is conducted separately for each area where a joint LMP analysis is carried out by the TSOs. In the following, each step is presented in detail.

The first step, 'the selection of the target BZ/MS', aims to identify the BZ (or the MS to which the BZ belongs when several BZs belong to the same MS, as further elaborated below) that is selected in each step for the identification of alternative configurations in such BZ. Such identification is based on a ranking built on the following two indicators:

- Amount of burdening internal flows and loop flows per BZ on relevant network elements; and
- An indicator on economic efficiency, as further detailed below.

With regard to the first indicator, the amount of burdening internal flows and loop flows per BZ is derived from a flow decomposition analysis. An internal flow or a loop flow caused by a given BZ is considered to be burdening if it is in the same direction as the sum of all internal flows and loop flows on the considered network element. Flow decomposition is performed on all cross-zonal network elements as well as internal network elements used in capacity calculation, based on best available data and computational capabilities. This analysis covers the most recent three years (i.e. 2018, 2019 and 2020) of the latest ENTSO-E's technical report on structural congestions and other major congestions as well as the target year of the BZR, i.e. 2025. The lower the amount of burdening internal flows and loop flows on network elements originated in a given BZ, the higher the BZ scores with regard to this indicator.

With regard to the second indicator, different indicators, which can be used as a proxy for economic efficiency, are currently being considered. An example of this could be the dispersion of nodal prices. In such a case, the lower the dispersion of nodal prices in a given BZ, the higher the BZ scores with regard to this indicator.

Then, BZs are first ranked according to each of the two indicators and then a single ranking is built by combining the positions of each BZ in both rankings, while considering that the two proposed indicators are equally important for the purpose of the aggregated ranking. At each iteration, the geographic area where alternative BZ configurations are investigated is the BZ which performs the worst in the aggregated ranking. If the MS already includes multiple BZs, the identification of alternative BZ configurations for the MS as a whole may be investigated. This allows the possibility of considering mergers of BZs within MSs that currently comprise more than one BZ. When a MS with multiple BZs is selected for the first time in step 1, then the algorithm would seek to identify two BZs within the MS. If the MS is selected again in a subsequent step 1, then the algorithm would seek to identify three BZs within the MS and so on.

The second step corresponds to the application of a clustering algorithm, aiming to group nodes into BZs. Additional considerations regarding this step are as follows:

- First, this step is based on the results of the LMP simulations, which is solely conducted for the target year of the BZR, i.e. 2025.
- Second, currently two types of clustering methods, namely graph-based and constrained clustering, are being considered for the selection of the most adequate clustering algorithm. The final selection will depend on the outcome of the consultancy study on the matter.

- Third, the identification of sub-BZs within a BZ is subject to an additional boundary condition: the size, in terms of total generation and consumption of the newly identified BZs, should not be too different. This is needed to mitigate the issue related to the so-called flow-factor competition that could arise in case of very diverse BZ sizes.

The third step, the 'stop criterion', aims to determine whether the iterations for the identification of additional BZ configurations should continue or not. In line with the objectives envisaged in the Electricity Regulation, the iterations stop when the following two targets are simultaneously met:

- For all the considered network elements and market time units, the share of internal flows and loop flows taken together is lower than or equal to 23% of the thermal capacity of the network element. This value is obtained by assuming a 10% share for reliability margins and a contribution of this share in the ratio 20/70 to internal flows and loop flows.
- The indicator used as a proxy for economic efficiency reaches the target for all considered BZs. For example, if the dispersion of nodal prices is considered as a proxy, the target would be set to a residual value.

If, after each iteration, the stop criteria are not met, then the process restarts from step 1, to identify a new BZ to be selected for the identification of alternative configurations in such BZ. For each step, a new list of BZs is used as an input. Such list comprises: i) the BZs of the status quo, except those that were altered in previous iterations and ii) the BZs proposed in any of the previous steps. For MSs with multiple BZs, the BZs to be considered in each step are the ones identified during the latest iteration when the MS was selected in step 1.

The fourth and final step concerns the combination of the identified alternative BZs into alternative configurations to be studied. A list of maximum 10 alternative configurations per bidding zone review region is envisaged. This list includes a limited number of:

- Individual alternative BZ configurations;
- Combination of two individual alternative BZ configurations;
- Combination of three (or more) individual alternative BZ configurations

selected among all possible combinations of individual alternative BZ configurations that lead to the highest incremental improvements for the considered indicators.



## Questions

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### Topic 1: Main objectives for the identification of alternative bidding zone configurations

Article 14(1) of the Electricity Regulation establishes that “*Bidding zone borders shall be based on long-term, structural congestions in the transmission network. Bidding zones shall not contain such structural congestions unless they have no impact on neighbouring bidding zones or, as a temporary exemption, their impact on neighbouring bidding zones is mitigated through the use of remedial actions and those structural congestions do not lead to reductions of cross-zonal trading capacity in accordance with the requirements of Article 16. The configuration of bidding zones in the Union shall be designed in such a way as to maximise economic efficiency and to maximise cross-zonal trading opportunities in accordance with Article 16, while maintaining security of supply*”.

1.1. Do you agree that the identification of alternative bidding zone configurations should mainly seek the following three objectives: 1) Minimisation of structural congestions within bidding zones; 2) Maximization of economic efficiency and 3) Maximisation of cross-zonal trading opportunities?

*at most 1 choice(s)*

- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree

1.2 Please provide any comments on the main objectives to be considered when identifying and prioritising alternative bidding zone configurations.

*4999 character(s) maximum*

We agree that the suggested targets, following the Electricity Regulation, are relevant for the identification of alternative bidding zone configurations. Nevertheless, in accordance with the view provided by ENTSO-E, we would like to stress that beyond these targets, there are additional objectives of fundamental relevance to be considered when identifying alternative bidding zone configurations:

- Alternative BZ configuration should be practically implementable. Therefore, such aspect could be evaluated, e.g. by checking whether each node can be clearly allocated to the new bidding zones. To this end it would be preferable to leave existing control areas / distribution grids intact when delineating new bidding zones.
- According to Article 14(1), the bidding zone configuration should also maintain security of supply. This should be considered as an essential precondition for all potential alternative bidding zone configurations. Such configurations which perform positively in other criteria while violate this precondition should not be assessed in further steps of the study, as security of supply is undeniably fundamental within any set up of the electricity market.
- According to CACM GL Article 33, liquidity and market concentration are important parameters to be assessed when analysing market efficiency. In view of the Green Deal and the current developments at European Level, the impact of alternative bidding zones configuration on renewable energy investments and its penetration into the grid should also be considered as a relevant factor when identifying bidding zone alternative configurations. The electricity system is crucial for the energy transition and for the successful achievements of the EU climate goals. In this context, the definition of bidding zones has a high impact on

market efficiency in terms of setting the right signals for renewable energy investments and providing market participants with the proper liquidity, market power and market concentration.

- In order to ensure consistency within these main objectives when identifying alternative bidding zone configurations, stability over time is a very important criterion that should be also taken into account. This is crucial, as the configurations will be maintained at least for several years and the bidding zone configuration is supposed to give the right investment signals to investors.

We acknowledge that a full consideration of these elements in the identification of bidding zone configurations is a challenging task. Other than that, in depth-studies of these elements are to be conducted in the main study of the Bidding Zone Review. However, if there are already clear signs or (qualitative) information from other studies / reports which unambiguously point out that a configuration resulting from the LMP clustering exercise does not comply with the above-mentioned objectives, we consider it to be better to discard the respective configuration from the assessment in the Bidding Zone Review. The time saved by not considering configurations which clearly violate the above-mentioned criteria can better be used to study configurations for which it is not clear up front that they violate these criteria to an unacceptable extent.

## Topic 2: Indicators for the selection of the target bidding zone/member state

To ensure that the objectives listed in Topic 1 are met, and based on the data available to ACER, the following indicators are proposed:

- The amount of internal flows and loop flows contributing to congestions, per bidding zone and on network elements included in capacity calculation, for the maximisation of cross-zonal trading opportunities; and
- The dispersion of nodal prices, i.e. assessing the level of homogeneity of nodal prices within the same bidding zone, for the maximisation of economic efficiency.

### 2.1. Do you agree with the proposed indicators?

*at most 1 choice(s)*

- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree

### 2.2 In light of the objectives listed in Topic 1, please indicate other possible indicators for the selection of the target bidding zone/member state.

*4999 character(s) maximum*

In accordance with the view provided by ENTSO-E, in general, we support to use the maximisation of cross-zonal trading opportunities in the process of searching for alternative BZ configurations. However, when it comes to the 70% target (stop criteria), we would like to point out the following:

- Assessing the 70% criterion (both trigger and stop criterion) with a flow decomposition based on historical data as part of the proposed iterative process is not precise. With each iteration of the process, a

new split is introduced and the Bidding Zones of the newly defined configuration are ranked in step 1 / the newly defined configuration is checked for compatibility with the 70% requirement in step 3. For these two analyses, the dispatch and the flows from historical data determined based on the BZ configuration that was in place during the respective time are used as input for the flow decomposition in every iteration. What is neglected is that dispatch and flows of historical data would have differed significantly in case a different bidding zone configuration would have been in place (please notice also that until October 2018 Germany and Austria were one Bidding Zones including Luxembourg, which means that the BZ configuration was different from the status quo configuration). To assess whether a BZ configuration is compliant with the 70% target (stop criterion a) as well as to rank Bidding Zones based on the amount of internal flows and loop flows (trigger criterion a), a full simulation chain comprising market simulation and remedial action optimization should be performed.

- The 70% target (stop criterion a) should take into account the applicable actions plans.
- The 70% target (stop criterion a) does not consider the possibility of remedial actions (costly and non-costly) which could counteract physical overloads resulting from more capacity given to the market than physically available. Furthermore, in operational practice, internal and loop flows that account for more than (as proposed by ACER) 23 % of a line capacity do not necessarily lead to the need for redispatch measures if at the same time less than 70 % of the respective line capacity is used by market participants for cross-zonal trading. As market simulation and remedial action optimization are not performed but replaced by a flow decomposition approach, the methodology structurally leads to proposing smaller bidding zones than necessary to fulfil the 70% in operational practice. In this regard the methodology is therefore overly strict and should be reconsidered.

We also want to highlight that there is still lack of clarity on the methodology proposed by ACER as information on, for example, objective values of structural congestions and a detailed description of the indicator for economic efficiency is not provided. Furthermore, it would be helpful if the methodology contained information on how CNECs will be selected in order to apply the stop criteria. It would also be valuable to state whether loop-flows and internal flows are to be calculated in N-1 state. For the sake of transparency, these should be defined and shared upfront.

Apart from that, as further detailed in the answer of Topic 1, we believe that the criteria proposed by ACER should not be the only criteria considered when identifying alternative configurations.

Regarding the indicator on structural congestions, we would recommend that ACER builds its assessment by also taking into account the information that the upcoming Technical Report will contain on this matter.

### Topic 3: Boundary conditions for the clustering algorithm

The high-level approach is designed in such a way that each iteration focuses on one single bidding zone or one single member state, based on the ranking built in the first step ('the selection of the target bidding zone/member state'). In practical terms, this implies that both splits and mergers of bidding zones as alternative configurations are possible as long as the new bidding zone remains within existing member state borders, with the only exception of maintaining already existing bidding zones comprising more than one member state.

3.1. Do you agree that member state borders should be considered as boundary condition for the clustering algorithm?

*at most 1 choice(s)*

- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree

3.2 Please indicate other possible geographical boundary conditions for the clustering algorithm, including pros and cons of such approach.

*4999 character(s) maximum*

In accordance with the answer provided by ENTSO-E, we agree with the need to consider member states borders in the clustering approach, in order to avoid configurations that may not be manageable from a purely administrative perspective, when it comes to implementing the results of the study. In spite of that, we would like to underline that the boundary conditions proposed by ACER, by forbidding the mergers of existing bidding zones covering different member states, is considered as too restrictive and not suitable for the study's purpose of identifying the optimal solution for the market.

Upfront restrictions of possible mergers should not be set, as an analysis of a possible positive impact of such mergers on the set criteria should be carried out. By avoiding new bidding zones to differ largely in size, while at the same time not analysing the merger of existing zones, there might be an automatic effect of favouring the splitting of larger bidding zones – which would be achieved not due to better market efficiency but due to the parameters and boundary conditions pre-defined within this bidding zone identification process. This goes in the opposite direction of the real purpose of the bidding zone study, as it would negatively influence the configurations analysed and not contribute on finding the optimal solution for the market.

In order to maintain a realistic and goal-oriented framework, boundary conditions should be implemented in such a way that the alternative bidding zone configurations analysed could consist of the merger of existing bidding zones.

An additional boundary condition of the clustering algorithm is introduced, according to which the size, in terms of total generation and consumption of the newly identified bidding zones, should not be too different. This is needed to mitigate the issue related to the so-called flow-factor competition that could arise in case of very diverse bidding zone sizes, as further elaborated below. The competitive position of one bidding zone with respect to the others in the access to cross-zonal capacity is determined by the zonal Power Transfer Distribution Factors (PTDFs). A so-called flow-factor competition issue arises whenever zone-to-zone PTDFs between two bidding zones are systematically larger than between any other pair of bidding zones. In those circumstances, the concerned bidding zones have fewer chances to access the available cross-zonal capacity and, under scarcity circumstances, this could in turn lead to security of supply issues.

3.3. Do you think that having bidding zones with homogenous size in terms of total generation and consumption should be an objective when identifying alternative bidding zone configurations?

*at most 1 choice(s)*

- Only for newly-defined bidding zones
- Always
- Never

3.4 Please provide any comments on this boundary condition.

The objectives when identifying alternative bidding zone configurations have been discussed in the first question of this consultation. Homogenous size is not mentioned in the regulation and should not be seen as one of them. Also, we do not take it as a given fact that a bidding zone configuration consisting of bidding zones of a homogenous size in terms of total generation and consumption is by definition better than other bidding zone configurations, which is why we do not see a need to include this as boundary condition.

If the methodology and main objectives (as discussed in the first question of this consultation) are well defined and implemented, there should be no reason to consider size homogeneity as a boundary condition, as the resulting alternative configurations would fulfil the defined optimization objective and the size of bidding zones should be an outcome of it.

## Topic 4: Combination of identified individual alternative bidding zone configurations to study their joint impact

An individual bidding zone configuration refers to e.g. the split of a given bidding zone A into two bidding zones A1 and A2, while an alternative bidding zone configuration may consider the joint impact of such split with another individual bidding zone configuration, e.g. the merge of bidding zone B and bidding zone C into a single bidding zone.

A list of maximum 10 alternative configurations per bidding zone review region is envisaged. This list includes a limited number of:

- Individual alternative bidding zone configurations;
- Combination of two individual alternative bidding zone configurations;
- Combination of three (or more) individual alternative bidding zone configurations.

selected among all possible combinations of individual alternative bidding zone configurations that lead to the highest incremental improvements for the considered indicators.

The need to set a limit to the maximum number of alternative configurations to be studied is derived from the time window available to transmission system operators to perform the bidding zone review. This is laid down in Article 14(6) of the Electricity Regulation, according to which “*On the basis of the methodology and assumptions approved pursuant to paragraph 5, the transmission system operators participating in the bidding zone review shall submit a joint proposal to the relevant Member States or their designated competent authorities to amend or maintain the bidding zone configuration no later than 12 months after approval of the methodology and assumptions pursuant to paragraph 5.*”

4.1. Please provide any comments on the approach to combine the incremental effects of individual alternative bidding zone configurations to study their joint impact.

In accordance with the view provided by ENTSO-E, we agree with the need identified by ACER to limit the number of alternative bidding zone configurations to be assessed in any bidding zone review region, to in any case not exceed 10 and preferably to remain below 6. We would like to highlight the increased simulation efforts for each additional configuration, which could make the bidding zone review infeasible in the time requested by the regulation. Therefore, each possible alternative configuration should be carefully assessed and its benefit weighed against the time and effort that is needed for its simulation. It should also be kept in mind that the more configurations need to be assessed, the less time there is to run different sensitivity analyses.

The approach proposed by ACER of how to arrive at the alternative bidding zone configurations is not fully clear, so it is difficult to provide detailed feedback on it. We understand that iterations are performed until the stop criteria are met. This would lead to only one 'high potential' alternative bidding zone configuration necessary to reach the stop criteria. This scenario will contain a certain number of changes compared to the status quo. Then choosing to test another configuration with only a subset of the changes of this 'high potential' configuration seems arbitrary and inherently means that this configuration does not comply with all the stop criteria. Alternatively, to obtain another 'high potential' configuration, the 70% target (stop criterion a) could be relaxed, to e.g. account for remedial actions. This way the whole region under consideration would be compliant with the stop criteria which would be varied to take into consideration different uncertainties.

Given the limited time window, a balance needs to be struck between the number of alternative configurations to be investigated, and the 'depth' that these alternative configurations can be investigated. We consider that it might be more relevant to use the limited time to study various 'high potential configurations' in more detail, instead of spending time on studying a multitude of 'sensitivity configurations' which are only to be evaluated to assess what the individual effect of certain changes of a 'high potential' scenario would be.

4.2. In your view, how many alternative bidding zone configurations per bidding zone review region should be analysed during the bidding zone review to ensure an adequate level of representativeness, while still allowing transmission system operators to comply with the timeline set out in Article 14(6) of the Electricity Regulation?

*at most 1 choice(s)*

- Less than 5
- Between 5 and 10
- More than 10

## Topic 5: Other comments

5 Please provide any other comments on the high-level approach and add a sufficient explanation.

4999 character(s) maximum

In accordance to ENTSO-E's answer, we wish to highlight that the content of this consultation should only be considered in the framework of the BZ Review to be performed in the course of 2022 and not be considered as the methodology to be used to determine alternative configurations to be studied in future Bidding Zone Reviews. Looking at the future and taking into account both the content of the BZR Methodology and the timings foreseen in EU regulation, new BZ Reviews will impose extremely tight deadlines for determining Alternative BZ Configurations. Depending on the nature of the region where these Alternative BZ

Configurations need to be assessed, they may require a more agile and simplified approach.

Furthermore, we would like to reiterate the call upon ACER to be consulted before the final configurations are proposed. Considering our expertise, we offer contribution with views regarding the operational feasibility of the alternative configurations, in order to be able to point out any potential issues, for example, due to simplifications made as part of the LMP calculations and clustering.

Most of all, we urge transparency throughout the entire process, welcoming greater clarity on the methodology, regarding detailed parameters used by the clustering algorithm and the final decision on alternative configurations. Even though the methodology has been described in this consultation and presented within a Webinar, many of the calculations details and specifics of future decisions are still not entirely clear. At the same time that we are willing to perform a technical-based and transparent bidding zone review, we request accordingly a technical-based and transparent definition of bidding zone alternative configurations.

## **Contact**

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