

EFET response to ACER Public Consultation 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



24 April 2020

The European Federation of Energy Traders (EFET) ¹ welcomes the opportunity to provide comments to the ACER consultation on the TSOs' proposal for a methodology for the bidding zones review.

Our response to this consultation should be read in conjunction with our paper on lessons learnt from the previous bidding zones review,² and the comments we sent to ACER on the draft report of DNV GL on liquidity and transaction costs in the context of a bidding zones review.

1. Bidding zone review: Methodology

Topic 1: Pan-European consistency of the methodology

1.1.1 Please rate your degree of agreement or disagreement with the following statements: 1- Strongly disagree; 2- Disagree; 3- Neither agree nor disagree; 4- Agree; 5- Strongly agree.

	1	2	3	4	5
1. The assumptions and the methodology for the bidding-zone review must remain pan-European to the extent possible. Further consistency between regions must be ensured in the methodology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

¹ The European Federation of Energy Traders (EFET) promotes and facilitates European energy trading in open transparent, sustainable and liquid wholesale markets, unhindered by national borders or other undue obstacles. We currently represent more than 100 energy trading companies, active in over 28 European countries. For more information, visit our website at www.efet.org

² EFET position paper on bidding zones - Lessons from the past and recommendations for the future, dated 16 September 2019 and available at: https://efet.org/Files/Documents/Downloads/EFET%20position%20paper_%20BZ%20review_16092019.pdf.

included in the Proposal.					
2. While the proposal may accommodate regional aspects when duly justified, pan-European principles that aim to maximise European welfare should be ensured, e.g. concerning capacity calculation principles. In this regard, the methodology should be consistent with recommendations and decisions of ACER regarding capacity calculation (e.g. the ACER Recommendation on capacity calculation and the ACER decision on the Core capacity calculation methodology).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>

1.1.2. Please detail below which aspects of the Proposal adequately ensure overall pan-European consistency of the bidding-zone review methodology and should therefore be retained in the final methodology.

No comment.

1.1.3. Please detail below which aspects of the Proposal hamper overall pan-European consistency of the bidding-zone review methodology, and should therefore be amended in the final methodology.

According to article 14.5 of the recast Electricity Regulation 2019/943, TSOs shall propose “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 to the relevant regulatory authorities for approval”.

In our view, it is important that the proposal provides a consistent framework for TSOs to conduct bidding zones reviews (BZR) in the future. For this, **the principles for the assessment of both network congestions and market efficiency should be clear and harmonised in the methodology**, irrespective of whether the BZR are performed at EU or regional level.

The various assessment criteria leave room for interpretation and may be applied differently by TSOs. Hence, we have concerns about the current proposal to conduct BZR per bidding zone review region (BZRR), rather than at a pan-European level. With this approach, no harmonised implementation of the methodology can be guaranteed. In the event that ACER chooses to retain the BZRRs approach, additional cooperation and coordination between BZRRs must be ensured and the different principles and assessment criteria must be applied in the same way across the different BZRRs.

At the moment, we do not feel that these principles are detailed enough in the methodology proposal. Experience from the drafting and implementation of the

market Guidelines (CACM, FCA, EB) has taught us that these principles must be laid out clearly in order to avoid fragmented implementation.

Among the basic principles that should be strengthened, we would like to mention the following:

- **Target year:** article 5.1 should set a precise timeline for the target year for all BZRs. In order to safeguard the principle of stability of the BZ configuration and cater for open interests of market participants on already negotiated forward contracts, we have long argued that bidding zone reconfigurations should foresee a lead time of 5 years from the moment of the redelineation decision. Hence, given that the BZR and ensuing decision process can take up to two years, we suggest a target of 7 years from the start of the BZR.
- **Grid data:** articles 5.3(a) and 5.3(b) will lead to different grid elements being taken into account by different TSOs. This should be avoided.
- **Weather years:** article 5.4 should foresee that the same assumptions are used as for the TYNDP.
- **Other assumptions:** article 5.7, concerning the market prices which shall be taken into account, should be updated. The latest market prices should be used. The estimations of the TYNDP are not up to date.
- **Disaggregation to nodal level:** article 5.8 should foresee that the same methodology is used for disaggregating data as for the TYNDP, without exception. If the methodology in the TYNDP is deemed inappropriate by a TSO, it should actually be amended there. Consistency between network development planning and BZ configuration should be ensured.
- **Evaluation criteria:** article 13.1.3(b) should include precise indicators in order to be able to proceed to step 1 of article 13.2.8(a), which mandates monetisation of all the criteria to compare the benefits of a BZR in terms of network management with the losses in terms of market efficiency. The details provided in article 13.4 fall short of providing quantitative indicators to monetise market efficiency.
We refer to Annex 1 of this response for further input on precise quantitative indicators to assess market efficiency.
- **Modelling:** we note that the proposed methodology (articles 6, 7, 8, 9, 10 and 11) almost fully focuses on modelling a static economic dispatch. This allows measuring the efficiency or inefficiency of redispatch or congestion management. However, this is just one element of a proper BZR. For example, the methodology does not provide any detail as to how to quantify the impact of different BZ configurations on:
 - the efficiency of locational signals for investments and divestments,
 - liquidity of forward and intraday markets,

- imbalance risk exposure,
- the functioning of retail markets, or
- level of competition in wholesale and retail markets.

A proper BZR review must contain a balanced assessment of all relevant elements, which requires quantification and monetisation of these elements. It is obvious that such monetisation will be difficult. A modelling approach may not be appropriate, in which case other approaches must be developed. However, it is wrong to ignore some elements just because monetisation is difficult. In that case some basic assessment and quantification must be done. Finally, it also means that very precise modelling for the quantification of one element (like the efficiency of redispatch) seems unnecessary.

- **Criteria.** Some comments on the criteria as listed in Article 13.4:
 - (1) operational security
 - The proposed assessment makes little sense. The different BZ configurations under review should all be able to be operated under security criteria, like the N-1 criterion.
 - (2) Security of supply
 - The proposed assessment makes little sense. The security of supply level (as expressed by capacity margins and energy non-served etc.) is a result of investment and divestment decisions in the market. Such decisions are not modelled. Instead, assumptions are taken. Theoretically, the market will always find dynamic equilibrium with a proper level of security or supply, irrespective of the BZ configuration, if it is assumed that BZ configurations are sufficiently stable and changes to such configurations are predictable.
 - (3) Degree of uncertainty in CZC calculation
 - It is unclear how this criterion will be used.
 - (4) Economic efficiency
 - The proposed evaluation refers only to an assessment of the efficiency of the static economic dispatch. This is an important element of the analysis, but it is just one of many elements of economic efficiency.
 - The individual components of the welfare calculation are not transparently explained and could therefore be questioned. For example, how are renewables support schemes taken into account? What, in practice, would TSOs try to capture?
 - (5) Firmness cost
 - It is correctly stated that this criterion must be part of the “economic efficiency” analysis. Although it must be noted that firmness costs (or redispatch costs) are not equal to welfare loss. Only if the ultimate dispatch is inefficient would a welfare loss materialise. Therefore, it is necessary to assess the efficiency of dispatch, not the amount of redispatch or the firmness costs. The amount of redispatch or firmness cost

- may only be an indicator for dispatch efficiency.
- (6) Market liquidity
 - This technical analysis of market liquidity should cover not only the day-ahead, but also the forward and intraday timeframes. Secondly, the methodology does not describe how this criterion is monetised. It is not sufficient to quantify parameters like price sensitivity and bid-ask spread for the different BZ configurations.
- (7) Market concentration and market power
 - The methodology does not describe how this criterion is monetised.
- (8) Facilitation of effective competition
 - The proposed approach is unclear.
- (9) Price signals for building infrastructure
 - The proposed approach is unclear. Congestion income is indeed an indicator for the need to expand transmission infrastructure. However, redispatch costs are also an indicator of such a need. In general, TSOs should be able to propose the most relevant transmission infrastructure expansion projects, independent of a specific BZ configuration.
- (10) Accuracy and robustness of price signals
 - An accurate price signal, reflecting the value of electricity in a certain part of the system, is important, as it results in more efficient investment/divestment decisions by the market. However, the methodology does not detail how this element is monetised. For example, in a market where many large power plants are expected to be closed, this element is more important than in a market with many large hydro power plants that are expected to be running for many more years.
- (11) Transition and transaction cost
 - A study is proposed, however, it is unclear what exactly will be studied and how this will be done. For instance, the proposal that “cost of past BZ reconfigurations shall be used as an input” should not be dependent on the fact that this data is “sufficiently available from all relevant stakeholders”: TSOs, possibly with the help of NRAs, should assess the costs or benefits of past BZ redelineations before engaging in new ones.
- (12) Infrastructure cost
 - We agree that this criterion will be ignored.
- (13) Market outcomes in comparison to corrective measures
 - We agree that this criterion will be embedded in the analysis of the criterion “economic efficiency.”
- (14) Adverse effects of internal transactions on other BZs
 - The proposed approach is unclear. The evaluation of this criterion should be embedded in the analysis of the criterion “economic efficiency.”
- (15) Impact on the operation and efficiency of the balancing

- mechanisms and imbalance settlement processes
 - In addition to the proposed assessment of reserve requirements, it is also necessary to assess the impact of higher or lower imbalance risks for market participants, because of more volatile imbalance prices.
 - (16) Stability and robustness of bidding zones over time
 - No comment.
 - (17) Consistency across capacity calculation time frames
 - We agree that this criterion will not be considered.
 - (18) Assignment of generation and load units to BZs
 - This criterion and the proposed approach are unclear.
 - (19) Location and frequency of congestion (market and grid)
 - This criterion and the proposed assessment are unclear. In particular, it is unclear what added value will be obtained in addition to the “economic efficiency” criterion.
 - (20) RES integration
 - This criterion and the proposed assessment are unclear.
- **Transparency** should be improved. Stakeholders should be enabled to verify results. The data that market participants would need for verification purposes should include at least the following:
 - Zonal demands in hourly resolution;
 - Zonal renewables infeed (wind, solar, others) at hourly resolution;
 - Underlying generation (generators not connected to the transmission grid, such as small-scale generators) at hourly resolution;
 - RAMs at hourly resolution (for flow-based region);
 - Zonal PTDFs at hourly resolution (for flow-based region);
 - NTCs (outside of the flow-based region);
 - Power plant allocations to zones.

These data would be needed for each bidding zone configuration and for each of the modelled zones.

1.1.4. Please add any comment on the need to ensure pan-European consistency.

No further comment.

Topic 2: Transparency and stakeholders' engagement

1.2.1 Please rate your degree of agreement or disagreement with the following statements: 1- Strongly disagree; 2- Disagree; 3- Neither agree nor disagree; 4- Agree; 5- Strongly agree.

	1	2	3	4	5
1. Maximum transparency must be guaranteed at all stages of the bidding zone review. In particular, all data, assumptions and relevant parameters used in the review should be published, subject to confidentiality issues and aggregation.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
2. There is a need for enhanced involvement of stakeholders during the bidding zone review process. This involvement should be described in the methodology.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

1.2.2. Please detail below which aspects of the Proposal adequately ensure transparency and stakeholders' engagement, and should therefore be retained in the final methodology.

No comment.

1.2.3. Please detail below which aspects of the Proposal hamper transparency and stakeholders' engagement, and should therefore be amended in the final methodology.

The methodology is far from prescriptive on how to quantify the criteria to assess market efficiency. If article 13.4 is maintained with such a low level of detail, the TSOs conducting a BZR should consult market participants on the indicators they intend to use for the analysis.

Engagement with stakeholders should be pursued, both at regional and the EU level, with a view to coordinating the various on-going BZRs. Regular meetings of a pan-European group would be necessary, using the platform of the former BZ SAG for instance.

1.2.4. Please add any comment on the topic of transparency and stakeholders' engagement.

No further comment.

Topic 3: Need to ensure a conclusive bidding zone study

1.3.1 Please rate your degree of agreement or disagreement with the following statements: 1- Strongly disagree; 2- Disagree; 3- Neither agree nor disagree; 4- Agree; 5- Strongly agree.

	1	2	3	4	5
1. Quantifiable, possibly monetised criteria should be the focus of the bidding zone review.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	✓
2. The assumptions and data used as inputs for the bidding zone review should be, as much as possible, checked against reality; the methodology should be based on realistic expectations about the future.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	✓	<input type="radio"/>
3. While methodological simplifications may be necessary to enable a timely delivery of the bidding zone study, they should not decrease the quality and relevance of the underlying analysis and indicators. In general, methodological simplifications should be sought when they are not expected to impact the results of the study.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	✓	<input type="radio"/>
4. The current TSOs' proposal to assess market liquidity mainly focuses on possible changes of liquidity in day-ahead markets. While liquidity of day-ahead markets is important, an assessment of liquidity impacts across all timeframes should be included. In particular additional indicators to capture the impact of a bidding zone reconfiguration on forward markets liquidity in a holistic manner should be considered.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	✓
5. In the first bidding zone review pursuant to CACM, significant efforts were put in simulating cross-zonal capacity calculation in a very detailed manner. In view of the 70% minimum target of cross-zonal capacity envisaged in the CEP, which will be taken into account in the bidding zone review, the role of capacity calculation may be less crucial than in the first bidding zone review. As a consequence, some simplifications in simulating cross-zonal capacity calculation should be envisaged, which would allow to increase the efforts on other important aspects of the review.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	✓
6. The current TSOs' proposal for the simulation of short-term welfare effects seems to exclusively rely on the changes in generation dispatch and related costs, while demand-side response is mostly disregarded. Given that a bidding zone configuration may have relevant impacts on the patterns of day-ahead market prices, DSR (including day-ahead	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	✓	<input type="radio"/>

demand elasticity) should be more robustly considered.					
7. The current TSOs' proposal for the simulation of short-term welfare effects seems to highly depend on the difference between the costs of scheduling generation (and residually demand) units in day-ahead markets and the costs of (re)scheduling generation (and residually demand) units in the re-dispatching timeframe. Some assumptions included in the Proposal such as considering full cross-zonal coordination for re-dispatching or the insufficient ^[17] consideration of the difference between the costs incurred in day-ahead and the re-dispatching timeframe may lead to conclude that all alternative bidding zone configurations deliver the same short-term welfare results as the status quo configuration. Such strong assumptions should be revised and aligned with the envisaged reality for the time horizon of the study as much as possible.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

1.3.2. Please detail below which aspects of the Proposal adequately ensure the bidding zone review to be conclusive and should therefore be retained in the final methodology.

No comment.

1.3.3. Please detail below which aspects of the Proposal prevent the bidding zone review from being conclusive and should therefore be amended in the final methodology.

The objective of BZR is to understand network and market behaviour, and the effects of BZ configuration changes on them. Hence, the objective should not be to model every aspect with full precision, but rather to focus the analysis on expected dynamics.

For instance, the request of NRAs to model flow-based market coupling results proved particularly unhelpful as it dramatically increased the complexity of the analysis, while focusing it on the day-ahead timeframe and foregoing the forward, intraday and balancing markets. Modelling was further hindered by the unavailability of the common grid model, differences in the TSOs' current treatment of the various levels of voltage on their network, and the unavailability of transaction data from REMIT. Yet, complex modelling of flow-based capacity calculation in DA is once again proposed by the TSOs.

On the contrary, **we suggest simplifying the modelling of the effect of alternative bidding zones delineations on the management of networks, as well as on the functioning of markets.** Modelling flow-based in the future also has its significant share of uncertainties (beyond the fact that it solely focuses on DA markets). A reasonably representative modelling of network management and market functioning would simplify the analysis and be more helpful, while keeping expectations representatives of various possible realities in the future.

We also insist that all segments of the markets should be scrutinised. In particular, the efficiency of **forward markets** should not be forgotten, as they still represent over two-thirds of transactions on the European electricity markets. Effects of bidding zone reconfigurations on **intraday and balancing timeframes**, as well as on **retail markets** should also be analysed, as they suffer when the liquidity of wholesale markets decreases.

Demand-side response and storage should be taken into account in the analysis, once again with reasonable expectations as to their development in the years to come.

1.3.4. How do you think that the inclusion of experts' views should be organised and could help ensure a conclusive bidding zone review?

Expert-based scenarios look only at national or sub-national borders. While we understand the political difficulty that a recommendation to delineate bidding zones borders without regard for Member States borders may face at a regulatory and political level, we believe it is not the role of TSOs to care for such concerns. Rather, TSOs should deliver a technical analysis with hopefully a strong input for a bidding zones delineation expected to maximise welfare at the European level.

Where experts' views are included, then these should be made transparent and market participants should be able to react to such views in the form of public consultations.

1.3.5 Please specify how specific the final recommendation of the TSOs should be:

- TSOs should specify whether the bidding zone configuration should be maintained or changed and in case of the latter, specify their preference for one alternative bidding zone configuration.
- TSOs should specify whether the bidding zone configuration should be

maintained or changed and then present a number of possible options, highlighting the benefits and shortcomings of different options, subject to the considerations of other aspects (e.g. implementation timeline, minimum 'lifetime' of the alternative bidding zone configuration to ensure the benefits exceed the transitional costs, measures to mitigate certain impacts, etc.).

- Other possible ways of presenting the final recommendation. Please specify

1.3.6. Please add any comment on the topic of ensuring a conclusive bidding zone review, which adequately supports the decision making process.

The TSOs are not a neutral actor on the subject of bidding zones. Their main task is to maintain system security, which would be facilitated in a system without any kind of corrective congestion management. TSOs may also be inclined to wish to reduce redispatch costs by increasing the number of bidding zones without regard for the effect of this on market efficiency, and hence the price of energy on the market. Hence, while we trust TSOs to do their best in the BZRs they will perform, it is important that they present ranges of options with pros and cons when a specific BZ configuration is considered as deserving to be changed. This should allow the final decision makers – Member States and the European Commission – to make as balanced as possible decisions.

2. Definition of alternative Bidding Zone configurations

2.1 According to the Article 14(1) of Regulation (EU) 2019/943, "Bidding zone borders shall be based on long- term, structural congestions in the transmission network." Moreover, the same article mentions that "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 order to delineate bidding zones, there are at least two possible approaches. A first approach is a top down (expert-based) one, whereby experts propose alternative bidding zone delineations, which could potentially yield more efficient outcomes than the current bidding zone configuration (the status quo). A second approach is a bottom up one (model-based) where locational marginal pricing (LMP) simulations are performed with a view to clustering nodes (e.g. based on similar marginal prices) into bidding zones. TSOs informed ACER that persisting problems with data input and modelling impede the possibility of using model-based approaches for the upcoming bidding zone review.

Given the above and the difficult to reach agreements, configurations were not submitted for several regions, including regions where structural congestions persist. In view of this, an expert-based approach (possibly supported by some elements of modelling) seems the main option available to propose bidding zone configurations for the upcoming bidding zone review. In the absence of a model-based option, ACER

believes that some quantitative aspects should still be considered when considering alternative bidding zones, namely:

- *An identification of the network elements, which are more frequently congested and lead to costly remedial actions the most.*
- *An identification of the geographical areas (bidding zones) which contribute the most to congestion on network elements. These areas could be a bidding zone where the congested element is located (in case of congestions caused by internal exchanges mainly) or other bidding zone (in the case of loop flows).*
- *(If available), a LMP simulation to support the expert-based delineation of bidding zones (e.g. to confirm, refine and/or prioritise the delineation of the previously defined expert-based configurations).*

Please provide your views on the relevance of the above-proposed principles, which aim to support an expert-based delineation process.

For the analysis of congestions, the first BZ review relied on a mix of expert-based scenarios – looking at how to split or merge bidding zones, respecting national borders – and model-based scenarios – looking at how to form bidding zones from the ground up using nodal prices. Problems with data input and modelling led ENTSO-E to abandon the model-based scenarios, even though this approach may have represented the most optimal way to delineate bidding zones once crossed with market efficiency data. We believe it would be a mistake to abandon this avenue in the next bidding zones review for the sake of political realism.

For the next review, we recommend going back to the drawing board on the model-based scenarios and making sure that the results from the future clustering exercise, even re-processed and as politically sensitive as they may appear, be analysed according to the welfare maximisation metric like any expert-based scenario.

2.2 The Proposal envisages a locational marginal pricing (LMP) simulation as an optional element of the bidding zone review.

2.2.1 Should a LMP simulation be a mandatory element of this bidding zone review?

✓ Yes No

2.2.2 Should a LMP simulation be used as an input for proposing alternative bidding zone configurations?

✓ Yes No

2.2.3 If so, how do you think a LMP simulation can be used to support the proposal of alternative bidding zone configurations?

It should be used to support the expert-based approach to delineate bidding zone configurations (i.e. the expert and model-based approach should complement each other).

It should be used as the main element to delineate bidding zone configurations together with techniques for clustering nodes into alternative bidding zones (i.e. a purely model-based approach should be used).

Other Please specify

2.2.4 Please indicate other possible benefits of including a mandatory LMP simulation during the bidding zone review

2.3 When proposing bidding zone configurations, do you see the need to ensure that the incremental effects of combined bidding zone configurations are identified (see the example below)? Please, provide your views on possible pros and cons of such an approach.

Yes, this would be a good way to ensure that an appropriate balance between merging and splitting scenarios is guaranteed in the BZRs. For more details on this, see our response to question 3.

2.4 Which other criteria should in your view be considered when proposing alternative bidding zone configurations?

If and when a decision to redefine the boundaries of bidding zones has been taken, decision-makers should be attentive to the following points:

- **The process of changing bidding zones delineation takes many years for decision-making and implementation.** In the meantime, the grid and the market situations change and the assumptions that were used when reviewing the zones might prove to be wrong. A regular review of the network and market conditions during the bidding zones redelineation implementation is necessary to mitigate the risk of sudden price shocks and incoherent redelineation in the end.
- **We recommend a lead-time of at least five years for any change in bidding zones configuration from the moment the decision to amend the BZ delineation is taken. This is to limit negative effects of the redelineation on open interests of market participants.** Most forward contracts have a maturity of maximum three to five years in the current context of electricity markets. It should be noted that the change will nonetheless affect (positively or negatively) existing investments (generation plants, storage assets, demand-response providers) which have a longer amortisation period. Also, the development of long-term

power purchase agreements (PPAs) for renewable electricity, often concluded for a period of five to ten years, will be particularly affected by changes in bidding zones delineation.

3. Conclusion

3. Please provide any further comment

An important lesson from the first bidding zones review conducted by ENTSO-E concerns the overall approach of the review: the first review's different scenarios showed a clear bias towards splitting rather than merging options.

Looking at the proposal of the TSOs on possible scenarios of alternative BZ configurations for the next BZR, this bias is once again present. Two examples could serve to bring balance in the TSOs proposal:

- In Continental Europe, TSOs seem to be unable to agree on scenarios to study concerning the same bidding zone(s), with contradictory views whether to study reducing or enlarging specific zones. Instead of considering this as a disagreement and not proposing scenarios, we suggest that TSOs study both splitting and merging scenarios.
- In SWE, TSOs have indicated the absence of congestion at the PT-ES border. We therefore insist that the SWE TSOs study the merging of the Spanish and Portuguese bidding zones.

For the next review, we strongly suggest reviewing bidding zones configuration from a neutral perspective, i.e. being open not only to splitting them, but also to maintaining or merging existing bidding zones, as well as a combination of splitting and merging. This means:

- **Not pre-judging that congestions and loop flows inherently induce welfare losses without assessing their actual cost on the one hand, and the market benefits of the zone they stem from on the other hand:** physical loop flows and transit flows are an integral part of any zonal model. For example, depending on the bidding zones configuration, the same physical loop flows and transit flows could either become “*loop flows*”, “*transit flows*”, “*internal flows*” or “*import/export flows*”. As such, loop flows and transit flows cannot be considered as “good” or “bad”, but just need to be managed and have no preferential treatment, the cost of congestions and loop flows they create should definitely be analysed as part of the bidding zone review – it could even be a trigger to launch one. But from a welfare perspective, these congestions and loop flows should be accepted

until the cost of their management is higher than the gain associated with more cross-border capacity for cross-border trade. The question is how TSOs coordinate in order to manage loop flows and ensure economically efficient decision-making. The sole measurement of loop flows and their associated costs does not demonstrate a welfare loss as such and should not be presented in this manner.

- **Not pre-judging that certain market models that work in specific environments can be a solution for the whole of Europe:** leaving aside our observations on the negative effects on market efficiency of the 2011 bidding zone split in Sweden, we harbour deep concerns with the premise that a Nordic-style arrangement of small zones plus exchange-determined system price could just be superimposed on Continental Europe, without serious market disruption. The idea to implement a Nordic-style system price schemes in other regions to cope with decreasing levels of liquidity and competition following a bidding zone split fails to recognise that this market design feature is not desired by market participants in other regions; implies the abolition of bidding zone-to-bidding zone hedging opportunities currently available to market participants; and does not provide sufficient hedging tools as the liquidity on the hub is too small.
- **Not casting away inconvenient observations during the review that would go against a “small bidding zones”-centric approach:** for example, the “First edition of the bidding zones review”³ showed some non-intuitive results that were given little consideration at a later stage (p.120): *“A decrease in the number of bidding zones (as in the case of a merge of bidding zones) should increase (or, at least, should not decrease) the number of congestions expected in the system, since generation is restricted in more zones by the market. Yet, this is not the case for the obtained results, where the ‘Small Country Merge’ configurations [merging the Belgian and Dutch bidding zones] show lower congestions/better performances than the ‘Status Quo’.”* The benefits of merging two or more smaller bidding zones into one, or indeed merging one or two smaller bidding zones with part of a larger one, should be considered with the same open mind as that of splitting a bidding zone into two or more smaller zones.

³ First edition of the bidding zones review, ENTSO-E, 2018, available at: https://docstore.entsoe.eu/Documents/News/bz-review/2018-03_First_Edition_of_the_Bidding_Zone_Review.pdf

ANNEX 1: EFET recommendations of quantitative criteria to assess market efficiency

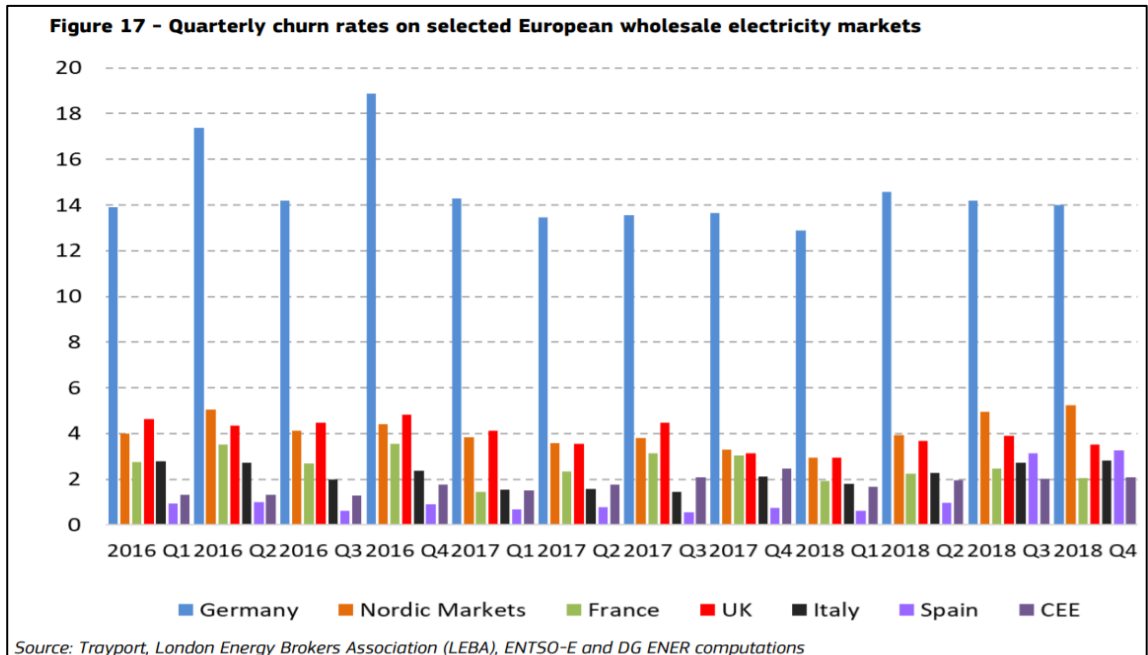
During the first edition of the review, the analysis of the market efficiency of different bidding zones reconfigurations rapidly became a problem. Even after consulting market participants on possible quantitative indicators, ENTSO-E took the decision to limit its assessment of market efficiency to a qualitative analysis.

*Any review of bidding zones ought to include a serious and thorough quantitative analysis of market efficiency in different bidding zone configuration scenarios. We insist the analysis of efficiency must extend to the study of **liquidity** and **competition** effects of any re-delineation of bidding zones, alongside the physical elements needed to keep the grid stable. The reason is that lower liquidity entails a welfare loss as it results in higher costs for hedging and/or higher remaining risks. For this purpose, we suggest a list of principles and proposed indicators.*

Liquidity indicators

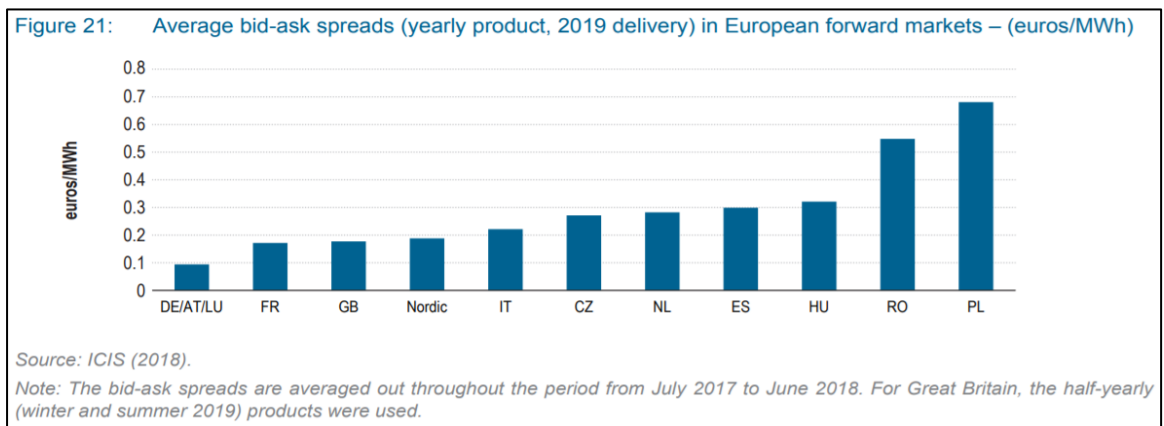
In a **liquid market**, any amount of energy (coal, gas, power, carbon, oil, etc.) can be bought or sold at any time, for any delivery period, without causing a significant movement in the energy price. Liquid markets allow market participants to manage their market risk in an efficient manner. This in turn increases market efficiency by increasing the ease and security of transacting, and, arguably, the robustness of price signals. In the context of the bidding zone review, churn rate, bid-offer spread, market depth and traded volumes are vital measures:

- **Churn rate:** the number of times electricity is traded before it is consumed. The most liquid electricity market in Europe, Germany, has a churn rate of around 12 for forward markets. This level is considered acceptable, while markets with a churn rate below 4 or 5, i.e. most other European markets, are considered illiquid. The chart below presents the churn rates on selected wholesale electricity markets (exchange-based and OTC markets, spot and futures).



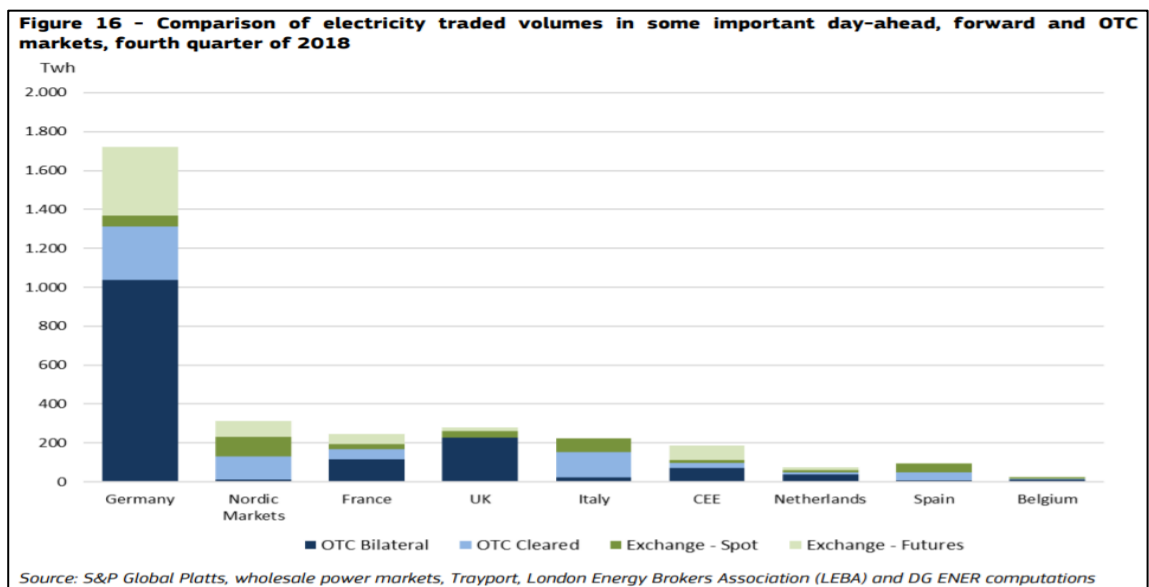
Source: DG ENER, Electricity market reports, Q4 2018; p.18

- Bid-offer spread:** bid-offer (or bid-ask) spreads represent the cost of getting into or out of a position in the market. The ACER Report notes that “transaction costs (which are related to the bid-ask spread size) incurred by market participants tend to be lower in bigger markets (when market ‘size’ is considered to be equivalent to traded volumes)”. In a liquid market, bid-offer spreads should be fairly small in relation to the market price, the lowest in Europe being currently in Germany at 0.1 €/MWh in forward markets. To understand the importance of this indicator, an increase in the bid-ask spread in Germany of 0,1 EUR/MWh means an additional cost of hedging of EUR 450 million for market participants (based on 2016 forward volumes, all things equal).



Source: ACER annual report on the Results of Monitoring the Internal Electricity and Natural Gas Markets in 2017 – Electricity Wholesale Markets Volume; p.49

- **Market depth:** the extent to which a market can absorb transaction volumes without having a major impact on the price. Higher market depth shows confidence in the market and reflects the accuracy of the price signals. Such an indicator shows the price sensitivity of each extra MWh purchased.
- **Transaction volumes:** The volumes of MWh traded are an indicator of market liquidity, and with the implementation of REMIT, data is available not only for exchange-based transactions, but also OTC (brokered and bilateral) transactions. The graph below shows a comparison of traded electricity volumes – exchange-based and OTC – in various European countries/regions.



Source: DG ENER, Electricity market reports, Q4 2018; p.17

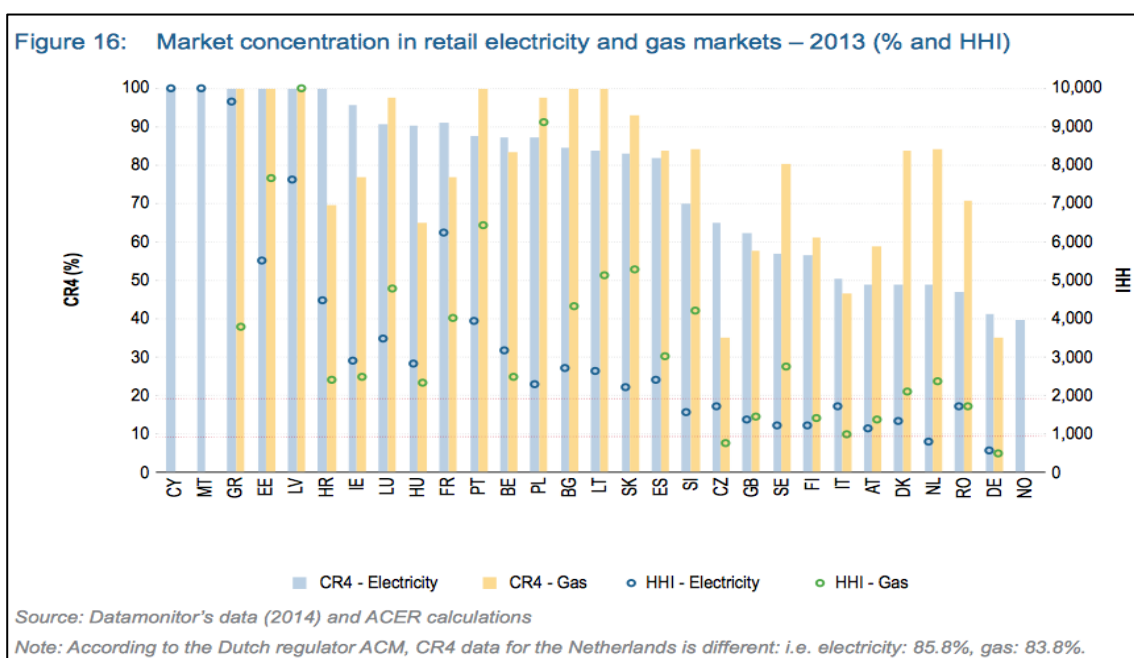
Competition indicators

Well-defined bidding zones should foster **competition in all segments of the market**, *i.e.* in all timeframes of the wholesale market (including across borders), and on the retail market. Here are indicators to assess the degree of competition:

- **Market entry/exit activity:** entry/exit activity shows how easily market participants can take the decision to enter or exit a market based on commercial consideration, and if regulatory and administrative barriers are reasonably low. Note that this indicator is imperfect for comparisons, as newly liberalised markets tend to have a temporarily high entry/exit activity that does not fairly represent the current level of competition in those markets. Nonetheless, it can be a good indicator for its evolution in the

future. We regret to see that ACER discontinued this indicator, well analysed in MMR 2015 for example, in recent years.

- **Market concentration:** market concentration indicates the market share of each market participant in a given market (most widely used is the Herfindahl–Hirschman Index, or HHI). In comparison with the previous indicator, it allows not only to see how many market participants there are on a market and how diverse they are, but also how influential they can be. This indicator is mainly applied in antitrust and competition law and mentioned in a study commissioned by ACER measuring the competitiveness of European electricity and gas markets⁴.



Source: ACER

- **Number of retail suppliers:** the number of retail suppliers is also a sign of the health of a market. While the development of the retail markets depends on many variables, a high number of retail suppliers shows, amongst others, how easy it is for suppliers – independent from power generation businesses – to secure energy at an affordable price on the local wholesale market.

⁴ IPA Advisory Limited, Ranking the Competitiveness of Retail Electricity and Gas Markets: A proposed methodology, Final Report to ACER, dated 2015 and available at: http://www.acer.europa.eu/en/electricity/market%20monitoring/documents_public/ipa%20final%20report.pdf

Total number of electricity retailers to final consumers, 2003-2017			
	2003	2010	2017
Belgium	45	37	60
Bulgaria	8	36	57
Czechia	365	324	399
Denmark	113	33	39
Germany	940	>1 000	1404
Estonia	42	41	46
Ireland	6	8	12
Greece	5	11	19
Spain(*)	375	202	291
France	166	177	185
Croatia	1	3	9
Italy	390	268	638
Cyprus	1	1	1
Latvia	1	4	26
Lithuania	8	15	22
Luxembourg	11	11	10
Hungary	12	38	42
Malta	1	1	1
Netherlands	42	36	48
Austria	160	129	171
Poland	175	146	190
Portugal	5	10	27
Romania	8	56	105
Slovenia	8	16	21
Slovakia	18	77	71
Finland	>100	>100	~100
Sweden	127	134	171
United Kingdom	24	22	47
Norway	223	184	197
Montenegro	.	.	5
North Macedonia	1	3	19
Serbia	.	.	19
Turkey	5	466	216
Bosnia and Herzegovina	.	.	26
Kosovo*	.	.	3
Moldova	.	.	4

. : data not available
 (*) This designation is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo Declaration of Independence.
 Detailed table (2003-2017) available in 'Source data for tables and graphs'

Source: Eurostat