

ČEPS, a.s.

**Response to the ACER public consultation on the
influence of existing bidding zones
on electricity markets
(PC 2013 E 04)**

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The common bidding zone of Germany and Austria significantly influences the CEE region. Its impact may be summarized as follows:

- **It threatens the operational security of neighbouring transmission grids, as it contributes to unscheduled power flows.**
- **It discriminates against CEE market participants who trade outside the common bidding zone Germany - Austria by giving preferential treatment to commercial transactions at the German-Austrian profile, which is excluded from the regional capacity allocation mechanism.**
- **It creates a barrier to market integration within the CEE region and the completion of the IEM as TSOs outside the bidding zone insist on equal treatment of all profiles when introducing flow-based allocation method.**
- **It sacrifices secure operation of the region's systems to the benefit of trade between two countries.**

ČEPS, therefore, calls for:

- **A split of the German-Austrian common market area/bidding zone according to national borders in order to reach a level playing field for all Member States. Integration of national electricity markets should be ensured via market coupling and not by enlarging bidding zones.**
- **Inclusion of the German-Austrian border into the coordinated capacity allocation mechanism within the CEE region to overcome the present deadlock situation in the implementation of the flow-based mechanism.**

ČEPS, the transmission system operator (TSO) of the Czech Republic, welcomes the public consultation on the influence of existing bidding zones on electricity markets. ČEPS sees a real need for this review to assess current bidding zones in Europe, particularly in the Central Eastern Europe (CEE) region. This constitutes the first public consultation on the important issue of bidding zones and may increase chances that the current status quo will not be seen as set in stone, but may be modified to reflect experience gained in past years.

In 2007, when eight CEE TSOs launched the coordinated allocation of available transmission capacity on their mutual interconnectors, a common bidding area of Germany and Austria was already in place; it presented the by far biggest bidding zone in Europe, composed of 6 TSOs and serving 90 million people. Back then, energy markets in Europe were in a far different situation from today. The Third Energy Package was not in effect and the future impact of creating one bidding area of such extent to exceed national borders was hardly predictable. Substantial changes in the electricity business have taken place since, the most dramatic ones within the market area Germany – Austria.

The energy transformation (Energiewende) has been dramatically changing generation patterns in the German electricity sector, especially in the decommissioning of nuclear power plants and the sharp increase of intermittent renewable energy sources (RES). Currently, more than 32 000 MW of wind sources are installed, and capacities of 41 000 MW and 51 000 MW are foreseen for the years 2015 and 2020, concentrated predominantly in Northern Germany. Compared with predictions from 2012, the pace of new installations of wind sources will even accelerate. Germany officially admits that the disproportion between intermittent RES and transmission infrastructure development will

further worsen in coming years, yet this prediction still does not change its plans. This situation, together with other factors, will require an additional 5000 MW of internal North-South interconnection capacities by 2020. At the same time, however, key German investment projects lag behind schedule, as shown by both ENTSO-E TYNDP and the Bundesnetzagentur monitoring carried out in recent months. It may thus be assumed that development of needed infrastructure will not be completed on time. Moreover, it is clear that the use of neighbouring grids will further increase and power flows originated in Germany will continue to misuse neighbouring grids. ČEPS finds this situation unacceptable and calls on Germany to revise its plans and adapt them to reality. The process of integrating intermittent sources has been reversed from the very beginning: instead of developing adequate transmission infrastructure first and connecting RES afterwards, Germany has fostered a boom in RES installations and only then followed with the development of missing transmission infrastructure.

In 2013, the common market area of Germany and Austria plays an important role and is regarded as a highly liquid and developed day-ahead market. At the same time however, both from technical and market efficiency points of view, this common market zone has a strong negative effect on other countries of the CEE region, particularly its neighbours to the East: Poland, the Czech Republic, Slovakia and Hungary¹. Due to the highly meshed grid of the CEE region, consequences of developments in the bidding zone Germany – Austria are borne to a large extent by the neighbouring transmission systems, which are loaded by flows that the insufficient German system is not able to transmit. All these factors cause additional stress to the functioning of the regional energy market and to maintaining an acceptable level of operational security in adjacent grids. A disastrous system disturbance or even a widespread blackout with potentially fatal economic, social and political consequences is unacceptable. Politicians and grid users must realise that there is an important trade-off between liquidity of markets and system security. Under the current circumstances of network development, we cannot have both at the same time.

According to Regulation 714/2009, commercial transactions between Member States shall be coordinated on the regional level. In the CEE region, a coordinated NTC based allocation method was chosen and has been applied since 2007 under the same conditions – while excluding the German-Austrian border from the regional coordination. Between 2006 and 2011, an investigation into a new method for the calculation and allocation of cross-zonal transmission capacity in the CEE region based on explicit flow-based (FB) methodology was carried out. As both TSOs and NRAs failed to achieve this goal, the approach was finally abandoned. In April 2012, CEE NRAs and ACER adopted a joint declaration on the implementation of the Target Model in the region, namely the Implicit Flow-Based Capacity Allocation to be implemented in one single step with day-ahead market coupling by the end of 2013.

Since 2006, CEE TSOs have repeatedly ended up in deadlock situations that prevented them from continuing the preparation of the flow-based allocation implementation. The main reason has always been the existence of a common market area Germany and Austria and its influence on the FB efficiency and failure to ensure positive benefits for each country. The CEE region has split into two groups: 1) (German and Austrian TSOs) justifying the existence of the current bidding zone delimitation within the region and calling for maintenance of the status quo, and 2) those pointing out the negative impacts of

¹ See two studies jointly elaborated by ČEPS, PSE, MAVIR and SEPS: *Common position regarding the issue of bidding zones definition* (March 2012) and *Joint study regarding the issue of unplanned flows in the CEE region; in relation to the common market area Germany – Austria* (January 2013). Published at www.ceps.cz.

keeping the German-Austrian border out of the coordinated capacity allocation mechanism, which would even further constrain CEE trading with the introduction of the FB method. From the perspective of the latter group, the introduction of the FB method within the current large German-Austrian bidding zone does not eliminate the obligation of both Germany and Austria to coordinate with other countries in the region; failure to do so in fact means violation of Regulation 714/2009. We hope that the European Commission will ensure that this regulation is fully implemented, also at the DE-AT border.

As CEE TSOs were not able to reach a consensus on further integration vis-à-vis the German-Austrian zone, NRAs were asked in July 2012 for clear guidance on how to proceed with FB implementation, especially asking whether FB MC was to be implemented under the current bidding zone delimitation (i.e. including a merged German-Austrian zone) or whether it should include assessment and a possible adjustment of bidding zone structure in the CEE region. Based on the answer received in March 2013, TSOs have been elaborating an adjusted FB technical solution based on today's bidding zones in order to take into account the influence arising from unscheduled flows and to study experience from the CWE region. Nevertheless, as recent development shows again, different attitudes towards the German-Austrian bidding zone keep dominating discussions within the CEE region. In this regard, the common market area of Germany and Austria has turned into a substantial issue for the CEE region, inhibiting its ability to reach the Target Model and contribute to the completion of the Internal Energy Market. As the last years show, the decision on the issue exceeds powers of both TSOs and NRAs and may require interference from a different level. As Germany and Austria are those who mainly benefit from the status quo, any new conditions currently discussed will worsen their present situation and, consequently, further limit possibilities for agreeing on any new arrangements.

The key reason why neighbouring TSOs have been questioning the existence of the common market area of Germany and Austria over the last years lies in the phenomenon of unscheduled (transit and loop) power flows and its main drivers: booming intermittent RES especially concentrated in areas of low load, such as wind capacities in northern Germany. Their production has to be transferred to load centres in the south of Germany and further southeast. In 2010, the EWIS study² predicted that commercial transactions between Germany and Austria would reach 5 500 MW in 2015. However, this level was already surpassed in 2013 when the exchanged market flows exceeded the level of 7 000 MW (!), thus going beyond the limit foreseen for 2015 by more than 30% (1 500 MW).

There are no market limits for power exchanges between Germany and Austria, nor any declared physical congestion. Nevertheless, physical limitations of the internal German grid in paths exposed to transits (i.e. from North to South) cause unscheduled flows through neighbouring grids. These flows influence system security and violate the security criterion N-1. As the common V4 study of Czech, Polish, Slovak and Hungarian TSOs from January 2013 proves with real data, up to 50% (!) of transactions commercially contracted between Germany and Austria actually flow through neighbouring grids. These unscheduled flows further increase uncertainty in cross-zonal capacity calculation. Such uncertainty must naturally be covered by security margins which finally decrease available capacities to be used by the market.

² European Wind Integration Study: Towards A Successful Integration of Large Scale Wind Power in European Electricity Grids; <http://www.wind-integration.eu/>

ČEPS is convinced that the current bidding zone delimitation of the CEE region should be modified. The utmost priority is to ensure that all national borders correspond to bidding zones borders. All borders should be treated equally. The current common market area of Germany and Austria should be split and the German-Austrian border included into coordinated capacity allocation of the CEE region. Such an arrangement would eliminate discrimination and ensure fair treatment of market participants throughout the CEE region. Possible further splitting of Germany into more bidding zones should be subject to thorough analyses (the outcomes of the Technical report envisaged by the NC CACM) according to the frequency and location of congestion inside Germany. Another possibility, the introduction of a nodal system, is a much more complex issue whose implementation requires more in-depth analyses and substantial market design changes. Therefore, both latter options represent a long-term rather than a short-term goal.

Based on the evaluation of this public consultation, ČEPS looks forward to receiving a clear position of ACER and NRAs towards its concerns and long-term calls for a proper bidding zone delimitation to follow national borders in the CEE region, given that the political deadline of completing IEM is rapidly approaching. ČEPS finds it important to agree on principles by which any future revision of bidding zone delimitation will be assessed and reviewed. The European Commission should ensure that the anticipated NC CACM will not promote unequal treatment mentioned above, but rather see that a bidding zone should not include more than one member state.

Question 1

How appropriate do you consider the measure of redefining zones compared to other measures, such as, continued or possibly increased application of redispatching actions or increased investment in transmission infrastructure to deal with congestion management and/or loop flows related issues?

Proper delimitation of bidding zones must lead to a robust and stable solution that addresses access to the transmission grid by market means and does not compromise the security of supply. Therefore, ČEPS believes that the use of remedial actions (mainly the costly ones) should be primarily dedicated to system operation purposes and should ensure physical firmness, rather than present a measure to “artificially” maintain transmission capacities in a structurally congested grid. Synchronously connected grids were primarily used for ensuring the security of supply – in case of an internal problem, a neighbouring grid helped to transfer electricity flows. With increasing cross-border trade, such solidarity is carefully planned (security margins) in order to maximize trading opportunities. Unfortunately, we have witnessed an abuse of this solidarity when insufficient transmission capacity within one zone is compensated with the capacity of neighbouring grids – the allocation of such capacity being, however, outside the market model – or excessive use of remedial actions to ensure that results of the market do not compromise system security. We believe that if the systematic application of remedial actions is needed to ensure security within a zone, the zone’s configuration should be assessed thoroughly.

Status quo behaviour might lead to inefficient or even unsecure grid and market operation since:

- the volume of remedial actions (both costly and non-costly) is finite and often of a limited (technical) efficiency. This is especially true for smaller control areas (e.g. the Czech Republic);

- the availability of remedial actions cannot be 100% guaranteed, especially in the long term;
- decisions on their application are not always market based and reflective of market prices.

ČEPS believes that building new infrastructure should be the first choice measure in countries “causing” unscheduled flows due to a weak grid, as this represents a systemic and natural approach. Furthermore, any connection of new generation should be subject to building of an appropriate transmission infrastructure. For connecting a significant volume of RES production that has a priority in feed-in, close coordination with neighbouring TSOs must be established.

On the other hand, reinforcement and development of grids in zones suffering from unscheduled flows is seen as counterproductive, as decreased grid impedance will cause it to attract more of these unplanned flows (law of physics).

We acknowledge that building a new infrastructure is a long lasting procedure (usually takes about 5-10 years). Therefore, we believe that an adjustment to the bidding zone structure is the market based transitional solution to address the problem before the new infrastructure is built.

What is the trade-off between these choices and how should the costs attached to each (e.g. redispatching costs) be distributed and recovered?

Generally, costs for the application of remedial actions should be borne by originators of the problem. From a TSO point of view, the market model should not inherently compromise system security. It should reflect physical reality (i.e. grid topology, transmission capacity, security constraints, etc.) and not vice versa, whereby TSOs must ex ante activate (costly) remedial actions to keep the market working.

Even though there are initiatives to internalize costs for negative effects of the current bidding zone configuration (schemes for sharing costs of remedial actions), benefits for using the neighbouring transmission infrastructure are not redistributed equally, as it is mainly the large (DE-AT) zone which benefits.

Question 2

Do you perceive the existing bidding zone configuration to be efficient with respect to overall market efficiency (efficient dispatch of generation and load, liquidity, market power, redispatching costs, etc.) or do you consider that the bidding zone configuration can be improved?

We acknowledge that within interconnected synchronously operated grids certain deviations between physical and commercial flows will always occur. Further, access to the grid should be non-discriminative and market based. If internal transactions must be transferred also using neighbouring grids, appropriate coordinated measures should be applied in order to minimize the prioritization of such flows. All measures should be taken to ensure that the fair level of solidarity among member states is not abused.

We have identified (see V4 studies) that some cross-zonal interconnections (e.g. ČEPS-50Hertz or ČEPS-APG) systematically show significant deviations (unscheduled

flows) between scheduled commercial exchanges and measured physical flows (often of more than 1000 MW; in some cases the physical flow is even in opposite direction to the commercial one). These deviations indicate that the local market design does not properly reflect the physical essence of commercial transactions, ultimately leading to inefficient and vulnerable grid operation. We are convinced that this is mainly caused by an inappropriate bidding zone structure (e.g. due to limited internal transmission capacity within the DE-AT zone, we have witnessed that a significant part of internal DE-AT transactions has been transferred via the neighbouring grids – see V4 study).

Moreover, these unscheduled flows of such observed magnitudes directly affect daily grid operation. TSOs must keep security margins within the capacity calculation process to cover these uncertainties, finally decreasing the volume of trading capacities offered to the market. It means that these flows have prioritized access to the grid and are not subject to market-based allocation – possibly leading to market inefficiency.

Which advantages or disadvantages do you see in having bidding zones of similar size or different size?

According to the underlying law of physics, we should rather speak about electrical size (distances) than geographical. Even geographically large zones might behave like copper plate and so impact neighbouring systems only marginally. However, smaller zones should better approximate the underlying physical essence towards a nodal resolution – this allows for more precise prediction models and control of flows in the grid from both a technical and a market perspective.

We believe that the bidding zone structure should be set in a way that:

- each member state border should be the bidding zone border. Different national policies and regulation compromise the unity of the bidding zone and non-discriminatory access to cross-border transmission capacity. Market integration should be based on market coupling of national markets and not enlargement of bidding zones – the other situation creates discrimination favouring internal transactions to cross-border transactions;
- internal transactions are transferred without excessive additional loop flows via other zones; each member state may freely decide whether this is achieved by remedial actions relieving the internal congestion or zone splitting;
- the size and structure of a bidding zone should allow its behaviour (e.g. Generation Shift Key³) to be anticipated/estimated with a comparable level of certainty (large zones cause increased uncertainties in a capacity calculation compared to smaller zones),

thus leading to a comparable position of each zone both from the operational and market perspective.

In order to operate a large bidding zone (one not exceeding member state borders) with internal congestion, a Member State should have the right to decide which measures it takes to ensure that the bidding zone does not negatively influence neighbouring member

³ In capacity calculation process the GSK construction is crucial for correct interpretation of zonal variables (e.g net position) to nodal resolution e.g. generation injections used in load flow calculation on grid models.

states. Relevant national authorities should guarantee the fulfilment of this to neighbouring states.

In light of the above, we believe that the current bidding zone configuration in the CEE region should be revised (see V4 study).

Question 3

Do you deem that the current bidding zones configuration allows for an optimal use of existing transmission infrastructure or do you think that existing transmission infrastructure could be used more efficiently and how? Additionally, do you think that the configuration of bidding zones influences the effectiveness of flow-based capacity calculation and allocation?

The transmission infrastructure may be used optimally only if uncertainties regarding its operation are minimized. It should be stressed that under the *optimal use of the transmission infrastructure* we do not necessarily mean maximum usage of the grid (system security).

As shown in the common V4 studies, the CEE region suffers from unplanned flows. Commercial exchanges between Germany and Austria causing unplanned flows represent not to be neglected uncertainty in capacity calculation process. To cover this, a part of the transmission capacity must be reserved (prioritized) and not provided to the market (security margin). The bidding zone size correlates with the increase of some other uncertainties (e.g. in GSK determination). Ergo, additional volume of transmission capacity is reserved to cover these uncertainties instead of being given to the market.

We believe that a way to increase the optimal use of the grid would be inter alia to coordinate FB capacity calculation and allocation, applied to a proper bidding zone structure, as this should, theoretically, bring commercial transactions closer to the physics.

Because the effectiveness of the FB allocation mechanism is dependent on the quality of input data and the scope of its application, uncertainties should be minimized. The more flows are controlled by the allocation mechanism, the higher will be the effectiveness of the calculation and allocation mechanisms, and vice versa.

Under the current CEE bidding zone configuration,

- if the commercial exchanges between Germany and Austria were not subject to a FB regional coordinated allocation mechanism in terms of a direct control on transactions at the DE-AT border and their impact on other CEE grids, and with the knowledge that
- the DE-AT zone is by far the largest zone (further arbitrarily divided into two capacity calculation regions despite being one bidding zone),

keeping the status quo would question the efficiency of the regional FB calculation and allocation.

Question 4

How are you impacted by the current structure of bidding zones, especially in terms of potential discrimination (e.g. between internal and cross-zonal exchanges, among different categories of market participants, among market participants in different member states, etc.)? In particular, does the bidding zones configuration limit cross-border capacity to be offered for allocation? Does this have an impact on you?

As has been confirmed by the V4 studies, ČEPS and other CEE TSOs have been affected by the current zone structure, mainly by the joint DE-AT market area. Differences between physical and commercial exchanges over some ČEPS borders reach several thousands of MW. Security reliability margins need to be maintained for such uncertainties, so fewer capacities are available to the market. Further, these flows are not directly controlled by any coordinated market mechanism and might prioritize DE-AT zone market participants' access to the grid.

It is then true, that the bidding zone structure in the end affects cross-zonal capacity calculation and allocation mechanisms and leads to the limitation of cross-zone capacities. As the second V4 study shows, in some cases almost 50% of flows scheduled between DE and AT zone actually flowed in reality through neighbouring systems. With exchanges on the level of up to 7000 MW, more than 3000 MW were realised through other systems. Detailed models also showed that some of DE-AT exchanges could impact the flows by up to 35% on the 50Hertz – ČEPS border and by up to 45% on the ČEPS – APG border. Since such flows compromise system security, in order to ensure security within the CEE region, it should be ensured that cross-border transactions from Germany at the DE-AT border are limited and subject to regional coordination in capacity calculation and allocation. Only in this way can a secure and efficient transmission grid operation be achieved in a short time.

Question 5

Would a reconfiguration of bidding zones in the presence of EU-wide market coupling significantly influence the liquidity within the day-ahead and intraday market and in which way? What would be the impact on forward market liquidity and what are the available options to ensure or achieve liquidity in the forward market?

ČEPS does not reply, as it exceeds the scope of the TSO's activities.

Question 6

Are there sufficient possibilities to hedge electricity prices in the long term in the bidding zones you are active in? If not, what changes would be needed to ensure sufficient hedging opportunities? Are the transaction costs related to hedging significant or too high and how could they be reduced?

ČEPS does not reply, as it exceeds the scope of the TSO's activities.

Question 7

Do you think that the current bidding zones configuration provides adequate price signals for investment in transmission and generation/consumption? Can you provide any concrete example or experience where price signals were/are inappropriate/appropriate for investment?

ČEPS believes the current bidding zone structure in the CEE region does not provide fully adequate price signals. Many externalities, e.g. some flows are preferentially treated and not subject to market allocation, some generation is treated specially (out-of-market systematic redispatch activation, RES prioritization), are not internalized in the current electricity market, so the current price signals might not fully reflect real needs. We would like to point out that the market price formation is not subject only to the bidding zone configuration and congestion management methods.

Question 8

Is market power an important issue in the bidding zones you are active in? If so, how is it reflected and what are the consequences? What would need to be done to mitigate the market power in these zones? Which indicator would you suggest to measure market power taking into account that markets are interconnected?

ČEPS does not reply, as it exceeds the scope of the TSO's activities.

Question 9

As the reporting process (Activity 1 and Activity 2) will be followed by a review of bidding zones (Activity 4), stakeholders are also invited to provide some expectations about this process. Specifically, which parameters and assumptions should ENTSO-E consider in the review of bidding zones when defining scenarios (e.g. generation pattern, electricity prices) or alternative bidding zone configurations? Are there other aspects not explicitly considered in the draft CACM network code that should be taken into account and if so how to quantify their influence in terms of costs and benefits?

Currently, capacity is also allocated on a TSO-TSO (control area-control area) level. The draft CACM network code, however, anticipates only borders between bidding zones - this suggests that the bidding zones are well defined. In case of the DE-AT bidding zone, such an approach is questionable, as ČEPS is strongly convinced this zone should be split.

Any analysis should reflect the current setting of cross-border capacity allocation and explain possible impacts on future arrangement. From our point of view, the study should assess a scenario when all member state borders are also bidding zone borders (DE-AT border). When forming a new bidding zone structure, it should be ensured that:

- a bidding zone should not be larger than a member state and that the
- merging of bidding zones must not create additional loop flows.

The draft CACM network code also misses a clear action plan how to change bidding zones – i.e. how to apply the outcomes of the bidding zones study in practice. There is no

anticipated timeline for a decision on the bidding zone configuration in case the bidding zone study shows a need for a bidding zone configuration changes.

Question 10

In the process for redefining bidding zones configuration, what do you think are the most important factors that NRAs should consider? Do you have any other comments related to the questions raised or considerations provided in this consultation document?

The target model strives to implement market coupling among electricity markets. Since national markets with different national policies and regulation compromise the unity of the bidding zone and non-discriminatory access to the cross-border transmission capacity, it should be ensured that the member state border is also a bidding zone border. In case of a sufficient transmission capacity on the cross-border connection, market coupling would enable the creation of a single price zone. The market might then benefit from the integrated market while regional cooperation in capacity calculation and allocation ensures the security of supply. Further, we believe that another important factor is the mitigation of unscheduled flows with a twofold effect: enhancing system security (a TSO priority), and levelling the playing field for market participants. A proper bidding zone configuration would allow for efficient functioning of the FB allocation mechanism in the CEE region and should not interfere systematically with the system security, as is the case now.

When assessing the bidding zone configuration, NRAs should ensure that benefits and costs of such configuration are distributed among Member States in a non-discriminative and fair manner.