Position of ČEPS, MAVIR, PSE Operator and SEPS

regarding the issue of

Bidding Zones Definition

Response to the study commissioned by Bundesnetzagentur and authored by Frontier Economics and Consentec:

"Relevance of established national bidding areas for European power market integration – an approach to welfare oriented evaluation"

March 2012

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1. Executive Summary

The Czech Republic, Hungary, Poland and Slovakia and their transmission system operators (TSOs) respectively have been seriously affected by recent developments in the European continental transmission system. Great concern has been caused by one specific issue which – due to its seriousness and impact on transmission systems – has taken centre stage and has demanded due attention ever since.

What is concerned is the **issue of the growing amount of unplanned flows on the borders of the abovementioned countries**. These power flows do not result from the cross-border trade mechanism and they may create significant loading of the transmission grid. These power flows result from decisions taken outside of the regional capacity allocation mechanism (in the CEE region) and are not nominated to all concerned TSOs. These unplanned power flows can be split into external flows created by internal commercial transactions in one country (traditionally called "loop flows") and external power flows created by commercial transactions between two countries (traditionally called "transit flows"). Within the CEE region these unplanned power flows are due to internal exchanges between Northern and Southern Germany, but a significant share also results from exchanges within the common market area between Germany and Austria, thus creating an unplanned transit not coordinated with the neighbouring countries. These unplanned flows **significantly affect both power flows and security conditions in the neighbouring countries, endanger the network security of neighbouring systems and limit their cross-border trade capacity**. This situation is in contradiction to the idea of coordinated congestion management, and hence there is a need to analyze and evaluate possible solutions in this area.

This **report** represents a **joint response of ČEPS, MAVIR, PSE Operator and SEPS to the Frontier/Consentec study** presented in October 2011, which had been **commissioned by BNetzA** with the intention of exploring the economic merits and downsides of breaking up the joint German-Austrian bidding area into smaller zones. While analyzing the matter of the Frontier/Consentec study in more detail and in a broader context, the joint report also presents the common **position of the four CEE TSOs on the issue of bidding zones** and provides **recommendations concerning further proceedings and discussions** with the goal of reaching a well-designed and efficient solution that is fair and convenient to all stakeholders affected by the developments on the European energy market.

Concurrently, the joint report **aims to contribute to the discussion about capacity calculation and definition of bidding zones** which also proceeds **at the European level**, embodied by activities and documents produced by ACER and ENTSO-E in particular. We strongly believe that fundamental corrections in the definition of bidding zones should be introduced as soon as possible in order to improve the efficiency of coordinated capacity calculation and allocations, as well as to avoid the further escalation of insecure grid operation in the CEE region.

The Issue of Unplanned Flows

Having extensively analysed the issue of unplanned flows, the joint report comes to the conclusion that significant **unplanned transit flows are avoidable**. The only reason for such significant unplanned flows is a bad market design and incorrect definition (size) of bidding areas. **Implementation of the Flow-Based Allocation (FBA) mechanism under current bidding zone delimitation does not efficiently tackle the issue of unplanned flows as this will not allow for the internal transactions within large bidding zones to be controlled by this mechanism**. If the flow-based allocation was implemented and the bidding areas were well defined (characterized by no or limited cross-influence), unplanned transit flows would most likely be eliminated or would be insignificantly small. All unplanned transit flows would instead become market-controlled flows, would provide for a fair competition between them and transfer capacity would be correctly priced.

The Frontier/Consentec study provides an elaborated discussion of the market consequences of introducing new bidding areas within Germany. However, we believe that the Frontier/Consentec study is incorrect when it discusses the issue of unplanned transit flows and especially the effectiveness of market design measures in dealing with these flows. It is well known both from theory and real-life experience that **correct market design including well defined bidding areas can ensure that power flows are controlled by the market mechanisms**, resulting in both social welfare

maximization and secure system operation. This should thus be the key feature of the European market design.

The Frontier/Consentec study argues that the mutual cross-influence between bidding zones in Europe is symmetrical, and unplanned power flows (called loopflows in the Fronter/Consentec study) imposed by internal transactions in Germany are countered by unplanned power flows imposed on Germany by the neighbouring countries. The symmetry is, however, reached only in a symmetrical network, which is not the case of connection between Germany and Poland and the Czech Republic. Due to the geographical shape of these countries as well as the network topology and generation distribution, power flows induced by local trading in Germany flow through Poland, the Czech Republic, Slovakia and Hungary and are highly significant. As a result, **Polish, Czech, Slovak and Hungarian transmission systems are excessively loaded by large scale unplanned flows, which are not controlled by any market mechanism**.

The Frontier/Consentec Study

Having carefully examined the Frontier/Consentec study, we conclude that it does not fulfil the standards with regard to balance of opinions, transparency of data sources or understandability of conclusions.

It is regrettable that the Frontier/Consentec study analyses the possible impact of splitting the market of the German-Austrian area primarily on Germany, while conducting only a very superficial discussion of impacts of such splitting on adjacent market areas and transmission grids, especially in the CEE region. In this context, we draw attention to the fact that the Frontier/Consentec study **underestimates the impact of the German electric power sector on the neighbouring areas in connection with the phenomenon of unplanned flows** – all the more that the CEE region (including Germany) is regarded as a meshed area where unintended power flows occur and interdependencies between the interconnections are high.

We disagree with the conclusions of the Frontier/Consentec study. Our report focuses on justifying that **there are legitimate reasons for splitting of the German/Austrian bidding zone**. The current level of unplanned flows shall not be accepted as an axiom. As provided by the Regulation (EC) No 714/2009[1], commercial transactions between member states **shall be coordinated on the regional level**. Introduction of the **flow-based 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 the Regulation No 714/2009.

One very serious deficit of the Frontier/Consentec study is the **lack of transparency of the used data sources**. The underlying data sets are designated as "confidential", which prevents any external assessment of validity of demonstrated calculations and procedures and in particular the conclusions made. Elsewhere, the Frontier/Consentec study addresses the impact of local German transactions on the neighbouring transmission systems. Data presented in the study show that this effect is largely negligible, yet there is no reference to any relevant source from which this data was obtained. Without publication of all input data sets and information, however, the conclusions and outcomes of the Frontier/Consentec study cannot be accepted.

Also unacceptable are conclusions of the Frontier/Consentec study concerning market design measures and their ineffectiveness. We are in particular convinced that the **correct definition of bidding areas is a crucial element of market design to ensure economically efficient and secure operation of the interconnected power system, as well as correct pricing of capacities**. Moreover, in some cases smaller and well defined bidding areas are absolutely essential in order to ensure system security and economic efficiency. This issue must be thoroughly addressed in the

[1] Paragraph 3.1. of Congestion Management Guidelines, which constitutes an integral part of this community-wide legally binding law, says: *Capacity allocation at an interconnection shall be coordinated and implemented using common allocation procedures by the TSOs involved. In cases where commercial exchanges between two countries (TSOs) are expected to affect physical flow conditions in any third-country (TSO) significantly, congestion-management methods shall be coordinated between all the TSOs so affected through a common congestion-management procedure. National regulatory authorities and TSOs shall ensure that no congestion-management procedure with significant effects on physical electric power flows in other networks is devised unilaterally.*

implementation process of the European Target model. We strongly support such position, and will be actively involved in all discussions on that matter.

To conclude, the four CEE TSOs share the view that **the Frontier/Consentec study is not sufficient for any decision making**. We provide a number of recommendations and suggestions in terms of what could/should be done in order to find a solution convenient to all stakeholders concerned, while ensuring a stable and efficient system and meeting the EU target for a uniform energy market.

2. List of Abbreviations

AT	Austria
ATC	Available Transfer Capacity
BnetzA	Bundesnetzagentur (Federal Network Agency)
CEE	Central and Eastern Europe
CMGL	Congestion Management Guidelines
CWE	Central West Europe
DC	Direct Current
DE	Germany
FB	Flow-Based
FBA	Flow-Based Allocation
FG CACM	Framework Guidelines on Capacity Allocation and Congestion Management
GSK	Generation Shift Key
HVDC	High Voltage Direct Current
LSK	Load Shift Key
NRA	National Regulatory Authority
NTC	Net Transfer Capacity
PST	Phase-shifting transformer
PTDF	Power Transfer Distribution Factor
RAAS	Real time Awareness and Alarming System
RES	Renewable energy sources
TSO	Transmission system operator

3. Objectives of the Report

The elaboration of this report reflects recent developments in the European continental power system concerning the use of transmission network capacity and its two most important elements: **capacity calculation and definition of bidding zones.**

The Czech Republic, Hungary, Poland and the Slovak Republic and their transmission system operators (TSOs) respectively, are engaged in the related on-going discussion at the European as well as regional and multi-/bilateral level. Located in Central Europe, they have a lot of common difficulties. Looking back at the autumn of 2011 in particular, there is one specific issue which – due to its seriousness and impact on the transmission systems – has taken centre stage and has demanded due attention ever since.

What is concerned is the **issue of the growing amount of unplanned power flows on the borders of the abovementioned countries**. These power flows do not result from the cross-border trade mechanism and they may create significant loading of the transmission grid. These power flows result from decisions taken outside of the regional capacity allocation mechanism (in the CEE region) and are not nominated to all concerned TSOs. These unplanned power flows can be split into external flows created by internal commercial transactions in one country (traditionally called "loop flows") and external power flows created by commercial transactions between two countries (traditionally called "transit flows"). Within the CEE region these unplanned power flows are due to internal exchanges between Northern and Southern Germany, but a significant share also results from exchanges within the common market area between Germany and Austria, thus creating an unplanned transit not coordinated with the neighbouring countries, particularly through Poland, the Czech Republic, Slovakia and Hungary in the East, and the Netherlands, Belgium and France in the West. These unplanned flows **significantly affect both power flows and security conditions in the neighbouring countries, endanger the network security of neighbouring systems and limit their cross-border trade capacity**. This situation is in contradiction to the idea of coordinated congestion management, and hence there is a need to analyze and evaluate possible solutions in this area. It is the basic responsibility of us as TSOs to draw an attention on the situation endangering more and more the security of the whole European electric energy system.

On 24 October 2011, the German National Regulatory Authority - **Bundesnetzagentur (BNetzA) published a study** conducted jointly by Frontier Economics and Consentec, entitled "**Relevance of established national bidding areas for European power market integration – an approach to welfare oriented evaluation**" (hereinafter referred to as the "Frontier/Consentec study"). In the press release published on its website, the president of BNetzA Matthias Kurth said that the *"report ultimately confirms the view of BNA that the discussion on the creation of pricing zones for electricity in Germany puts the planned network expansion at risk and damages competition in Germany and Europe"*. Further, a press release goes on to state that market splitting would not help to *"reduce so-called loop flows through neighbouring countries as such flows are technologically impossible to avoid and occur when generation and load centres diverge, regardless of the existence of congestion"*.

This report should be understood as a **joint response of ČEPS, PSE Operator, SEPS and MAVIR to the Frontier/Consentec study commissioned by BNetzA**, discussing the matter of the study in a more general context, investigating the particular issues with support of fact-based evidence and providing counterarguments against the most obvious misunderstandings and incorrect conclusions of the Frontier/Consentec study.

The joint report aims to contribute to the discussion about capacity calculation and definition of bidding zones which also proceeds at the European level, embodied by the ACER Framework Guidelines on Capacity Allocation and Congestion Management and the work being carried out by ENTSO-E on Network Codes.

Last but not least, this report also presents the common **position of the four CEE TSOs on the issue of bidding zones** and provides **recommendations concerning further proceedings and discussions** with the aim of reaching a well-designed and efficient solution that is fair and convenient to all stakeholders concerned by the developments on the European energy market.

4. The Issue of Unplanned Power Flows in the Zonal Market Design

4.1. Introduction

The European continental power system is a highly meshed grid, characterized by strong interdependencies of power flows among particular systems. This has been recognized already by European National Regulatory Authorities (NRAs) as ACER required in its Framework Guidelines on Capacity Allocation and Congestion Management (FG CACM) to implement a Flow-Based (FB) method for capacity calculation in continental Europe as a preferred solution. The FG CACM oblige European TSOs to perform revisions of the efficiency (boundaries) of bidding areas. The overall aim of FG CACM was to ensure that there is indeed a strong interdependency between the bidding areas, and that adequate measures are taken in order to ensure overall market efficiency.

Cross-Zonal Transfer Capacity limits imposed on market participants are an important congestion management tool. These capacities define a technically feasible domain for market transactions, implicitly considering that all transactions that fall within that domain respect system security, and can be thus physically realized. Hence, these **Transfer Capacity limits are the only means of ensuring that trading decisions of market participants can be physically realized in real-time, respecting the system security requirements**. If these Transfer Capacity boundaries are removed, there are fewer means to ensure that the market outcome is technically feasible. Moreover, removal of a single boundary can and most likely will impact the security of other bidding areas, not limited to the neighbouring ones.

The main advantage of the **FB method** is that the increased coordination **considers limitations of particular physical network elements and gets the market closer to physics, which, as a result, improves its efficiency**.

According to FG CACM, a bidding zone is a network area within which market participants submit their energy bids. Zones should be defined by TSOs according to the principle of overall market efficiency and influence on physical flow conditions in third countries. This includes all economic, technical and legal aspects of relevance, such as security of system operation, socio economic welfare, liquidity, competition, network structure and topology, planned network reinforcement and re-dispatching costs. The definition of zones shall further contribute towards correct price signals and support adequate treatment of internal congestion.

The proper definition of bidding zones is crucial for efficient working of the FB method. Internal flows in a huge bidding zone cannot be controlled and it implies that the flows also have an impact on adjacent bidding areas. Without correct zones, FB allocation will not offer significant improvement. Actually, there will be some improvement compared to the present mechanism; however much more could be achieved with appropriately defined bidding zones.

The **market efficiency principle and aspects such as system security must be reflected in the assessment for preservation of existing zones or changing their formulation to either split or merge zones**. The assessment shall be prepared in a region-wide coordinated way, also taking into account possible impact on other zones in the respective region. According to the FG CACM TSOs shall repeat the assessment every two years or when network topology or patterns of generation and load, or local energy situations (deficits or surplus) are significantly changed or if it is necessary to ensure system security.

4.2. Legal Aspects

According to the Congestion Management Guidelines (CMGL), which are an integral part of the Community-wide binding Regulation (EC) No 714/EC/2009, in cases where commercial exchanges between two countries (TSOs) are expected to affect physical flow conditions in any third country (TSO) significantly, **congestion-management methods shall be coordinated between all the TSOs**

so affected through a common congestion-management procedure (Article 3.1[2] of the CMGL). NRAs and TSOs **shall ensure that no congestion-management procedure with significant effects on physical electric power flows in other networks is devised unilaterally.** At the same time, Article 1.2 of the CMGL lays down that in places where there is usually no congestion, no capacity allocation is needed and countries could be merged to form common bidding areas. Unfortunately, this later formulation is flawed as it suggests that it is about congestion solely between these two countries. We know that in meshed grids one cannot think in these categories because interdependencies between the borders and power flows are too strong. And hence it does not seem acceptable or correct to assume that the intention of policymakers was to set up a scheme where market participants from some bidding zones get disadvantaged against the other ones from another bidding zone. By agreeing to remove a certain border from coordinated capacity allocation, market participants from the newly formed bidding zone get a blank cheque for unrestricted use of the interconnected power system of the neighbouring areas.

4.3. Unplanned Power Flows

Unplanned power flows, sometimes incorrectly referred to as "loop flows"[3], are a real and serious increasing problem in the European power system. They result from differences between commercial inter-area transactions and the physical inter-area power flows. The meshed nature of the power system in Continental Europe implies that commercial transactions within and between market areas may cause significant power flows in other areas. **Both the current way of allocating cross-border capacity and inappropriate definition of bidding zones cause a situation where these flows are "unplanned" and unknown for affected TSOs. Moreover, there is no mechanism to ensure that they respect transmission constraints in the neighbouring power systems**. As a result, TSOs are unable to correctly assess the expected real-time utilization of their network after the market closure on D-1, which puts the transmission grid at risk.

Unplanned power flows have many negative effects on the pan-European power market as well as on power system security. They **may significantly decrease market efficiency and lead to insecure system operation**.

Because unplanned power flows are caused by commercial transactions **scheduled outside of the regional cross-border capacity allocation market mechanism**, they cannot be controlled by that market. Consequently, they do not have to compete for transmission capacity with cross-border market transactions, but instead get prioritized access to these capacities for free, taking away capacity from the organized cross-border market. Hence there is **less capacity available for organized cross-border market transactions**. Allocation of such transactions is therefore not based on willingness to acquire the transmission rights expressed by bids and offers, but they get the explicit priority over other market-based transactions, taking capacity in an uncontrolled way and blocking possibilities for other market participants to trade effectively. This leads to inefficient market solutions and consequently to incorrect energy prices.

In a liberalized market, **TSOs can control their power system only by means of market mechanisms**. The mechanism dedicated for this task is **cross-border capacities allocation**. However, due to the big volume of unplanned flows, TSOs in reality cannot fully control power flows in their power systems. Cross-border capacity limits often have no relevant impact on power flows, because they do not limit unplanned flows. This leads to a situation in which calculated capacities have little relevance. As unplanned flows on particular borders **may be up to several hundred or even more than thousands of MWs,** neighbouring TSOs observe significant volumes of power flows even when limiting cross-border capacities to zero. This significant **mismatch between scheduled and physical power flows constitutes a serious problem for TSOs and often leads to N-1**

[2] Quoting the content of the legal text of this paragraph: *"Capacity allocation at an interconnection shall be coordinated and implemented using common allocation procedures by the TSOs involved. In cases where commercial exchanges between two countries (TSOs) are expected to affect physical flow conditions in any third-country (TSO) significantly, congestion-management methods shall be coordinated between all the TSOs so affected through a common congestion-management procedure. National regulatory authorities and TSOs shall ensure that no congestion-management procedure with significant effects on physical electric power flows in other networks is devised unilaterally".*

[3] Phenomenon that is traditionally called "loop flows" is responsible for only a part of unplanned flows. To a large extent, unplanned power flows are simply transit flows caused by uncoordinated energy exchanges between states.

violations and other threats to system security, not only for the cross-border lines, but in the whole power system (see the recent critical situations in several transmission systems in the CEE region).

TSOs can exactly assess unplanned flows only during real-time balancing and then must be able to take some measures to utilize their effects. To ensure system security TSOs have to secure day-ahead market additional resources (including remedial actions) and margins beyond the strictly necessary preventive security margins (N-1) both in the internal network and cross-border connections.

Additional security margins and measures used to compensate unplanned flows result in inefficient utilization of the network and severe limitation of possibilities of cross-border exchange. This leads to **decreased economic surplus or even loss of social welfare and** thus **additional costs for consumers**.

In this way **inter-zonal transactions may have a significant influence on economic surplus in other bidding zones areas**, because unplanned flows caused by them force other TSOs both to reduce/curtail cross zonal capacity reductions and re-dispatch their systems in economically less than optimal ways in order to balance the system and maintain its security. Large volumes of energy re-dispatched in real-time impose significant costs on TSOs, which are subsequently transferred to customers. Moreover technical efficiency of these measures applied within the highly meshed grids is strongly limited due to the effect of parallel paths.

During D-2 and D-1 planning TSOs have to analyze, prepare and take into account an unplanned flows forecast. This forecast depends on a number of volatile factors and has to somehow anticipate (forecast) the situation in neighbouring systems. If some of these factors, e.g. weather conditions, change or assumptions about neighbouring systems (in terms of load and generation pattern and topology) prove to be wrong, physical flows may significantly differ from the TSO forecast. Hence security margins may prove to be insufficient or inappropriate, which may finally lead to a serious threat to the power system security. In extreme cases, when corrective measures, such as i.e. re-dispatching of generation units, are exhausted or unavailable, this may lead to a blackout.

4.4. Reasons behind Unplanned Power Flows

In interconnected power systems, the following three types of unplanned flows may be distinguished:

- Type 1: power flows that are caused by transactions in another region (i.e. CWE) and are not directly taken into account in the coordinated capacity allocation scheme
- Type 2: power flows that are caused by transactions between bidding areas, and are not directly taken into account in the coordinated capacity allocation scheme
- Type 3: power flows that are caused by internal transactions within other bidding areas

The above types of unplanned flows are depicted in Figures 1-3. The blue arrows show market transactions, while the red ones show power flows caused by them. The ovals represent bidding areas and green lines cross-border connections.

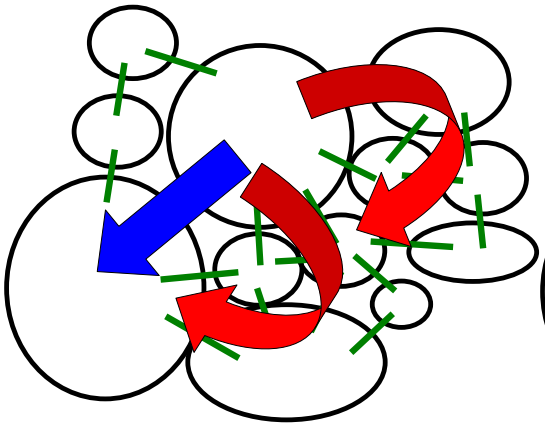

Figure 1. Unplanned power flows of Type 1

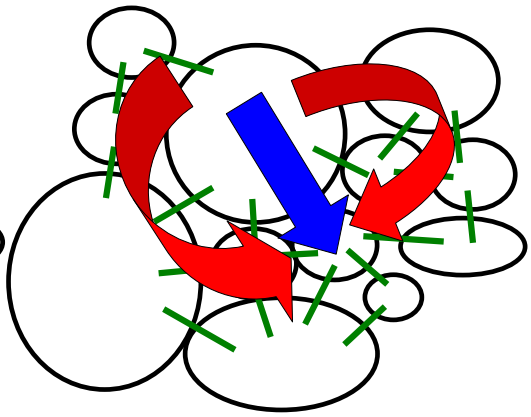

Figure 2. Unplanned power flows of Type 2

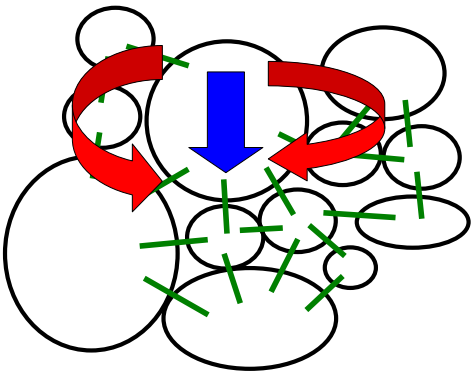

Figure 3. Unplanned power flows of Type 3

Type 1 unplanned power flows can be reduced by coordination of cross-border capacity calculation in the whole Continental Europe synchronized area. Hence transactions on all borders could be taken into account during cross-border capacity calculations. However, capacity calculation and the allocation mechanism have to reflect interdependencies between power market transactions and power flows in the whole market area.

To downgrade unplanned flows of **type 2**, a fully coordinated mechanism – flow-based allocation (FB), which takes into account interdependency between cross-border transactions and all power flows caused by them, must be introduced. If interdependency between cross-border transactions is not reflected in the capacity allocation process, there is a gap between the physical reality and the commercial world. In the absence of flow-based allocation, nominations are decoupled from the resulting power flows. Hence, there is no mechanism to ensure that power flows that will actually take place as a consequence of a cross-border transaction respect the security constraints in the neighbouring grid.

However, even introduction of flow-based capacity allocation over the whole Continental Europe grid would not totally eliminate unplanned flows of **type 3** unless bidding zones are changed and well defined. Transactions within zones are “invisible” for a flow-based zonal market. Hence, if these transactions cause significant power flows in other zones, they are unknown to affected TSOs and therefore still unplanned.

Bearing in mind the European approach to electricity markets, which is zonal, TSOs should concentrate their efforts on eliminating unplanned flows of types 1 and 2. This can be done by

introduction of FB capacity calculation and allocation, and is planned within the context of the Target Model.

When it comes to **type 3** unplanned flows, one often incorrectly hears that these represent pure physics and nothing can be done. This is only partially true. Type 3 unplanned flows can never be completely eliminated in the zonal market models, as they are related to the geographical deployment of the generation sources and consumption centres in the network. However, they can be limited. If a large bidding area is split into smaller ones, transactions between these two newly formed bidding areas can be allocated using the coordinated FB principle, and hence be effectively tackled. Unplanned flows would not be unplanned, as they would be scheduled by the FB mechanism, becoming market-based power flows. Adequate treatment of unplanned power flows is a decisive factor in the success of the European market reform and completion of the internal European market.

4.5. Relevance of Bidding Zone Size

Correct definition of bidding zones is crucial for effective operation of FB capacity allocation. In the case of incorrectly defined zones (in terms of shape and size) the market mechanism lacks data necessary to calculate and allocate capacities in the appropriate way. In the current zonal markets, there is no market mechanism that is able to place a physical footprint of an internal transaction on physical cross-border flows. Hence, internal transactions within bidding areas do not need to be nominated as using cross-border capacities. At the same time, they use the cross-border lines, thus contributing to the raise of unplanned transit flows. Therefore, correct definition of bidding areas is crucial for proper treatment of transactions both within and between the bidding areas.

Unplanned transit flows are a result of a chosen market design and the assumed bidding areas. **With correct market design and well defined bidding areas, most (if not all) transit flows would be controlled by the market mechanism and be therefore considered as "market-based flows"**. These would all compete on equal and fair grounds for access to cross-border capacities, and no transactions would be privileged over other ones. As a consequence, access to cross-border capacities would be correctly priced, allowing for fair competition and delimitating discrimination.

This does not mean that the power flow pattern would change, but rather that all these unplanned transit flows would instead become market-controlled flows. As a result, there would be fair competition between them.

4.6. Flow-based Capacity Allocation

The expected introduction of the flow-based method brings significant changes concerning capacity determination and should eliminate some disadvantages of the traditional NTC approach i.e. its inability to reflect mutual influence of cross-border transactions in a meshed grid, and the need to anticipate the market behaviour by assigning capacities to particular borders (ex-ante splitting of capacities among borders carried by TSOs).

The flow-based capacity calculation method can be generally used for both explicit and implicit auction, whereas, in accordance with the Target Model, it is currently intended to be used for implicit auction (Market Coupling). But both approaches require proper size (delimitation) of bidding zones as inputs in order to give acceptable results.

Generally, the main advantage of the flow-based method is its increased coordination because besides common data input (so called Common Grid Model) it considers the limitations of particular physical network elements. If flow-based allocation was implemented, and the bidding areas were well defined (characterized by no or limited cross-influence), unplanned transit flows would most likely be eliminated or be so small as to be insignificant.

In our opinion, however, it is also necessary to discuss the consequences of the FB method, at least from these main perspectives:

- Impact of intrazonal transactions on FB efficiency (FB domain size),
- Generation Shift Key uncertainties *(Note: Uncertainties due to assumptions on generation change. In principle the larger the zone the higher the uncertainty regarding the right generation assumptions. This finally has an effect on redistribution of simulated zone to zone transaction over grid elements),*
- Prioritization of RES.

Efficiency of the FB method established on zonal market design, especially in the CEE region, is highly influenced by the market zone delimitation (shape, size and geographical location). The zone DE-AT has been declared to be a common market area; commercial exchanges within this zone (either within Germany or between Germany and Austria) are not controlled by the future FBA mechanism. In other words, this practically means that these exchanges **are prioritized** to all cross-border transactions in the region. For that reason an intention to bring FB closer to the physics as much as possible requires having as small zones as possible. This would help to decrease uncertainties in estimating the expected generation distribution in the grid, thereby improving the quality of Generation Shift Keys[4].

In extreme cases this prioritization would mean that exchanges scheduled outside of the FBA mechanism “fill in” the grid and there will be no remaining capacity in neighbouring networks available for further allocation of cross-border transactions in some directions. Such an asymmetrical relationship and obvious discrimination cannot thus be accepted.

4.7. Conclusions

There are a number of conclusions that can be drawn up from the above stated. With regard to the issue of bidding areas and unplanned flows, these can be summarised as follows.

Eventually all power flows are based in physics. However, cross-border flows can be controlled by implementation of the proper market mechanism. To do this we need to set limits on internal transactions, which result in cross-zonal power flows. This can only be done by splitting bidding areas, and making this transaction visible for the market allocation mechanism.

Setting limits on cross-border exchanges means that it is impossible to schedule unlimited trade on the border concerned. As a consequence, power flows change. The effect might not be so visible in ATC, but surely it is visible in FBA, which takes into account all power flows resulting from these transactions.

Giving priority access for renewables has no justification for violating security of transmission systems. Maximum capacity limits are set for exchanges and as such need to be respected under all circumstances, no matter what the energy source. All energy sources shall compete for this capacity under equal market conditions ensuring non-discrimination.

Therefore, auctions have been introduced as they present the most efficient way of obtaining cross zonal capacity. Use of auctions ensures that the capacity is accessible for all market participants under equal and transparent conditions.

[4] Generation Shift Keys (GSK) are a means of translating an export/import position of a market area into generation injections in the nodes of the transmission system. In other words, GSK give information about TSO expectations with regards to which generators will be used to increase export/import of its market area, and how.

5. Response to the Frontier/Consentec study

5.1. Summary of the Frontier/Consentec Study

The Frontier/Consentec study is divided into several parts focusing, among other things, on the following topics:

- The current situation in the Germany/Austria bidding area (in terms of network constraints and unplanned power flows),
- The role of the German/Austrian electricity market for the European market,
- Market splitting (advantages and disadvantages, assumptions, necessary steps to implement, economic impacts, etc.),
- Projecting the analysis onto the situation in Germany/Austria.

The Frontier/Consentec study comes to the final conclusion that the splitting of the Germany/Austria market area into two or more smaller areas is not suitable for many reasons and is definitely not necessary. The authors' claims are based mainly on the following facts:

1. Based on the available statistics, there is practically only one bottleneck in the common area, which it is possible (so far) to relieve with the operational tools, especially re-dispatch.

2. There is no evidence that the internal capacity constraints in the area had a relevant impact on the reduction of transmission capacity to neighbouring market areas.

3. The current situation can be overcome and change significantly as a result of strengthening of the transmission network or construction of new generating resources in various parts of the area. The assumptions (on which the claim of the splitting was based) may then not apply in a few years. With regard to long-term electricity contracts, the area can be split if a lead time of at least three years were to be introduced.

4. The existence of loop flows is a natural consequence of a synchronously operating system and thus technically inevitable. Market splitting is not likely to fundamentally change the loop flow situation; furthermore loop flows need to be accepted according to EU law. Any splitting of this area cannot really change anything. The effect of loop flows is also largely symmetrical, so the loop flows tend to be mutually netted.

5. The splitting of the area should have significant impacts on the internal German and Austrian electricity market. Increased market concentration would likely (more often) exceed levels critical for the effective working of competition and would have further adverse effects on market liquidity. Market splitting would also have severe effects on the retail market.

6. The splitting of the area would be very costly.

5.2. General Remarks to the Study

We welcome elaboration of the Frontier/Consentec study and appreciate the great care given to its elaboration, gathering large amounts of data and working with a number of references to earlier works by Frontier and Consentec or third parties. However, having carefully examined the Frontier/Consentec study, we conclude that it does not fulfil the standards with regard to balance of opinions, transparency of data sources or understandability of conclusions. **Hence, we cannot agree with the report as a whole and its conclusions in particular**. The main reasons for the above are that the Frontier/Consentec study:

- **downplays the impact of the German transmission system operation on the other transmission systems, particularly in the context of unplanned flows;**

- **in many cases does not work transparently with the source data;**
- **practically does not deal with the flow-based method;**
- **focuses only on the arguments against splitting and more or less ignores the other arguments;**
- **adopts false assumptions that the German-Austrian bidding area does not depend on other market areas and that splitting would notably isolate the new market areas and**
- **focuses mainly on unplanned flows flowing through Western neighbours of Germany (the Netherlands, Belgium, France) while in fact unplanned power flows through Eastern neighbours cause even more serious problems and are underestimated in the study (or are not given sufficient attention).**

It is regrettable that the Frontier/Consentec study analyses the possible impact of market splitting of the German-Austrian area primarily on Germany, while having only a very superficial discussion of impacts of such splitting on adjacent market areas and transmission grids, especially in the CEE region. In this context, we draw attention to the fact that the Frontier/Consentec study **underestimates the impact of the German electric power sector on the neighbouring areas in connection with the phenomenon of unplanned flows**. The CEE region, as generally accepted and confirmed also by ACER Framework Guidelines on CACM, is considered as a meshed area where unintended power flows occur and interdependencies between the interconnections are high. Similar is said about the Central West Europe region. Germany is a part of both these regions, making it a central part of the meshed European power system.

The Frontier/Consentec study claims that the German-Austrian situation has not so far been characterised by structural and sustained **congestion**, no structural and sustained congestion has been identified within Germany and that capacity on most German borders is, in market relevant directions, mostly constrained by the respective foreign TSOs. It should be underlined that the situation experienced in the CEE region and particularly at the German (50HzT)-Czech profile shortly after publication of the Frontier/Consentec study showed quite the opposite. From the **end of November until mid-December 2011** ČEPS faced high transit flows over its cross borders in connection with increased wind in-feed in the Baltic area.

As the occurrence of such situation has been earlier declared[5] several times and also accepted at the EU forum[6], it is regrettable that the Frontier/Consentec study does not take it into consideration and in fact turns a blind eye to it completely. All the more that there are reasons to believe that the situation described above will be repeated unless appropriate measures are taken preventing unscheduled flows putting transmission systems of German neighbouring countries in danger. This is another reason why we cannot regard the results of the Frontier/Consentec study as sufficient.

The Frontier/Consentec study is valid in saying that the existence of unplanned flows is a natural phenomenon resulting from the very nature of operation of an interconnected transmission system and zonal market organization. We admit that any splitting of the German market would not eliminate all unplanned flows. That, however, does not mean that the current level of unplanned flows shall be accepted as an axiom. Contrary to the explanation of Regulation No 714/2009 mentioned in the Frontier/Consentec study, we must argue that according to paragraph 3.1 of the Congestion management Guidelines that form an integral, legally binding part of this Regulation, transactions between member states shall be coordinated on the regional level[7]. **We do not see a reason why this Community-wide law should not apply to transactions between Germany and Austria**. We also note that introduction of FB with this large German-Austrian bidding zone does not eliminate the obligation for both Germany and Austria to coordinate with other countries in the region. Moreover, failure to do so would in fact mean a violation of Regulation No 714/2009, and pose a threat of

[5] EWIS 2010 study "Towards a Successful Integration of Large Scale Wind Power into European Electricity Grids"
[6] Letter of ENTSO-E president to Commissioner for energy, April 2011
[7] Detailed discussion of this issue can be found in Chapter 4.3

infringement procedure for Germany and Austria, as exchanges between these two countries would still not be coordinated with other countries in the region. That is why we cannot identify ourselves with the outcome of the study. Moreover the recent situation has shown that a Europe-wide search for a satisfactory long term solution ensuring that the volume of unintended flows will be kept within "reasonable" limits and that the unplanned flows induced by a system topology will not threaten the operation of neighbouring systems, shall be promptly initiated.

Another example of questionable argumentation concerns the case of splitting of the Swedish transmission system into several zones. The Frontier/Consentec study in this context describes arguments against splitting of Sweden, but completely ignores the response by the European Commission, which presents arguments to support this splitting.

Finally, we believe that the very serious deficit of the Frontier/Consentec study concerns the lack of transparency of the used data sources. The underlying data sets (e.g. for calculation of NTC) are designated as "confidential", which prevents any external assessment of validity of demonstrated calculations and procedures and in particular the conclusions made. Elsewhere, the report addresses the impact of local German transactions on the neighbouring transmission systems. Data presented in the report show that this effect is largely negligible, yet the report does not refer to any relevant source from which this data was obtained. Without publication of all input data sets and information, the conclusions and outcomes of the Frontier/Consentec study cannot be accepted.

Contrary to the assumptions declared in the study, **it must be stressed that splitting of a market area into several smaller bidding zones does not mean that these areas become completely isolated markets with independent pricing**. Even though we admit that shrinking of a bidding zone might advantage incumbents, the price of such bidding zone would remain heavily influenced by the import and export capabilities and market situation in adjacent market areas. Especially when the markets are more and more integrated (thanks to coupling of markets on a day-ahead and intraday timeframe), isolation of a market area in the heart of the interconnected electricity system is not imaginable[8]. Because the Frontier/Consentec study builds mainly on such a wrong assumption, we cannot accept the overall conclusions.

To conclude, the four CEE TSOs do not agree with the general conclusions of the Frontier/Consentec study. In contrast to its conclusions, we see legitimate reasons for splitting of the German/Austrian bidding zone. Our arguments begin with the need to respect European legislation, and end with lack of acceptance for situations when our power systems are strongly influenced by unplanned power flows that reduce market efficiency and pose a threat to the security of our power systems. We are convinced that correct definition of bidding areas is a crucial element of a good market design to ensure economically efficient and secure operation of the interconnected power system, as well as correct use and pricing of interconnection capacities.

5.3. Discussion with Selected Statements and Conclusions

5.3.1. Unplanned Flows

One of the very important issues that affect the planning and controlling of the transmission systems in Central Europe is the issue of unplanned flows. This issue is also very briefly dealt with in the Frontier/Consentec study. The basic conclusions made by the report include:

[8] Italy may serve as an example of a similar situation as it is split into several bidding areas, but in most of these areas, the same price is usually formed. The only exception is the area "Southern Italy", with a permanent bottleneck with the rest of Italy, and the islands (Sicily, Sardinia), which is not case relevant to discussions about the area of Germany/Austria.

- The existence of unplanned flows results from the very nature of the operation of the synchronous transmission system, and setting of the bidding zones has no significant impact on their existence and amount.
- Unplanned power flows have a more or less symmetrical character – that is, the unplanned power flow induced by the local commercial transactions in one country are largely neutralized by similar power flows in the opposite direction caused by the local commercial transactions in neighbouring countries.

Backed by extensive argumentation presented in Chapter 4 of this report, we conclude that significant **unplanned transit flows are avoidable**. The only reason for significant unplanned flows is a bad market design and incorrect definition (size and shape) of bidding areas. If flow-based allocation was implemented, and the bidding areas were well defined (characterized by no or limited cross-influence), unplanned transit flows would most likely be eliminated or be insignificantly small. This does not mean that the power flow pattern would change, but rather that all these unplanned transit flows would instead become market-controlled flows, and there would be fair competition between them. Transfer Capacity would be correctly priced.

The Frontier/Consentec study argues that the mutual cross-influence between bidding zones in Europe is symmetrical, and unplanned power flows imposed by internal transactions in Germany are countered by power flows imposed on Germany by the neighbouring countries. The symmetry is, however, reached only in a symmetrical network, which is not the case of connection between Germany and Poland and the Czech Republic. Due to the geographical shape of these countries as well as the network topology and generation distribution, power flows induced by local trades in Germany flow through Poland, the Czech Republic, Slovakia and Hungary and are highly significant.

This statement can be illustrated by the final report of the working group North-South Interconnections in Central-Eastern Europe, established by the European Commission[9]. The source of most of the data used for the study was ENTSO-E data of Cross-Border Commercial Schedules, Final Cross-Border Schedules (where available) and Cross Border Physical Flows for 2010.

The report concludes, among other things, that the highest incidence of unplanned flows flow from Germany into Poland, and are subsequently transmitted through Poland into the Czech Republic and Slovakia, and onward into Austria and Hungary. The unplanned flows, in this case, arise during more than 90% of hourly periods and the differences between commercial and physical flows are very significant (in excess of 500%).

Commercial flows from the ČEPS control area to the 50HzT control area were in 83% of hours in the year 2010 higher than the physical flows (in the year 2011 in 90% higher). This proves that there are no symmetrical unplanned flows from the Czech Republic to Germany of the same amount. The transmission system of the Czech Republic is heavy loaded by the flows from the north to the south of Germany. According to this statement the commercial flows from the ČEPS control area to the TenneT control area were in 75% of hours in the year 2010 lower than the physical flows (79% in the year 2011).The report also indicates significant correlation between unplanned power flows from Germany to the Czech Republic (mainly through Poland) and intermittent generation (wind and solar) in Germany.

There is also reference to a statement made by APG concerning the fact that the current significant congestion on the Czech-Austrian border arises primarily as the result of high unplanned flows, which are caused by congestion within Germany and capacity shortages between Germany to Austria at the tie line between the substations St. Peter and Isar. As mentioned in the report, this current congestion is likely to be relieved by the investments in the internal German grid and at the German-Austrian border, which are anticipated to reduce unplanned flows passing through the Czech Republic.

Even if there are no significant congestions between Germany and Austria declared, large volumes of commercial exchanges between them create significant unplanned flows in third countries, especially in the Czech Republic, Hungary, Poland and Slovakia.

[9] Market analysis and priorities for future development of the Electricity market and infrastructure in Central-Eastern Europe under the North-South Energy Interconnections initiative, Final Report, version 3.4, 19 December 2011, PricewaterhouseCoopers, chapters 3.5.4 and 3.5.5, http://ec.europa.eu/energy/infrastructure/north_south_east_en.htm

5.3.2. Unplanned Flows and RES

The Frontier/Consentec study claims that "*maintaining the national renewables support scheme would call for transmission priority for power from renewable sources across the new commercial border, with the effect that the power market would take place on top of a situation that physically very much resembles the status quo*".

Support scheme for renewables is an internal German issue. Hence, one cannot expect that priority dispatch granted to renewables in Germany will be extended to priority access to infrastructure in the neighbouring bidding areas. For this reason, it is unacceptable that such argument is put on the table in the discussion about bidding areas in Europe.

Nevertheless, there are certain principles that should be respected. Germany, the same as any other European country, should ensure that flows from RES generated on its territory are securely incorporated into its grid. ENTSO-E has recently asserted that a safe and secure European power system requires robust internal networks in Member States and increased interconnection between them. It stated that "accommodating RES requires overcoming the barriers that prevent internal transmission networks from being reinforced, especially planning and permitting issues. Nevertheless, risks arise if renewable generation in certain regions expands faster than the transmission network to bring that generation to the loads where it is contracted for – which is for now a function of national support schemes. If this is allowed to happen then there is a real risk of significant curtailments of RES generation, or of provoking network security risks. The recent increase in RES in tightly meshed synchronous networks makes such situations difficult but also urgent to resolve."[10]

In the light of the latest incidents and above stated, **Czech, Hungarian, Polish and Slovak transmission systems are excessively loaded by large-scale unplanned flows, which are not controlled by any market mechanism. They lower/decrease available transfer capacity on the interconnections and threaten the security of supply.** No new RES generation capacity should be installed in the north of Germany without prior strengthening of the interconnection between the north and south of Germany. Also the impact of the German moratorium on nuclear power should be taken into consideration.

5.3.3. Changes in the German Generation Structure

The older nuclear power stations in Germany will be retired step by step. At the same time, new generation (most probably wind power) will be installed during the following years.

The Frontier/Consentec study states that it is practically not possible to predict changes of flows resulting from changes in the generation structure. It is true that the prediction is not easy and any kind of calculation would be undoubtedly encumbered by a certain error. However, we consider it necessary to carry out simulations at least for several most probable scenarios. The results will with high probability indicate whether the Remptendorf–Redwitz bottleneck will remain or disappear; concurrently, new additional potential bottlenecks could be identified. On the other hand, the grid investments expected in Germany in the upcoming years can mitigate some of these bottlenecks – this should also be taken into account.

We are also convinced that these simulations have already been performed by German TSOs because such analysis is always one of the main inputs for the strategic decision concerning further grid investments. In this context, we can hardly believe that "not enough information is available to allow for an informed judgement" concerning eventual splitting of the German/Austrian zone.

[10] ENTSO-E Response to the European Commission's Public consultation on Renewable Energy Strategy, 7/2/2012

5.3.4. Impact on Cross Border Capacities

The Frontier/Consentec study claims that "*there is no indication that market splitting as such would allow for an increase of cross-border capacity as it merely transforms the anyway existing restriction of power transfer within the bidding area into an ex-ante limitation between the newly created hub*".

The whole issue is about precisely that – correct treatment of power transfer limitations in the market clearing process. The current transmission restrictions in Germany forbid the power transfer via the German bidding areas, but as the magnitude of these power transfers is not restricted from the market perspective and thus fully maintained, the power flows go physically via the neighbouring grids. This in turn restricts the ability of neighbouring bidding areas and market participants in these bidding areas to use their transmission system as it is already used by unplanned transit flows. It is much fairer if the needs for transmission grid utilization are visible directly in the market outcome, so that all market participants from the region can compete amongst themselves for access to the transmission grid in a fair manner. This is the only approach that can ensure efficient market outcome, correct pricing of cross-border capacity and equal treatment of the transactions.

In another part of the document, the authors demonstrate that internal transactions within Germany use the transmission system of i.e. Poland and the Benelux countries. This observation is indeed correct. However, an obvious conclusion in this case is that restricting these north-south German transactions or transactions between Germany and Austria allows for more capacities between Germany and its neighbours. It is worthwhile to note that in a well-functioning liberalized market the market outcome could result in very similar physical flows as today. However, this would be a result of a market game and not a non-market-based decision that favours one market participant at the expense of another one. The key is that all transactions would be correctly priced, and discrimination would be eliminated.

The Frontier/Consentec study presents calculation of the impact of different types of commercial transactions on certain transmission lines. As examples, the following commercial transactions were selected:

- one transaction within Germany (from north to south) and
- five cross-border commercial transactions (from Germany to France, the Netherlands, Belgium, Poland and the Czech Republic).

The main reason for our doubts is the source of the data. The study only informs that "*the model has been composed from public data*", yet without specifying which data (from which authority, etc.) are concerned. This makes an impartial check of calculations and verification of conclusions impossible. It must be noted that there exist in principle many possible configurations of the European network that can substantially differ from each other – presentation of single PTDF matrix without specification of its source is quite insufficient. This aspect is very significant especially during the last several years where the following trends have been visible:

- moving of the trading from long-term horizons to shorter ones (as close to delivery time as possible) together with the increase of the cross-border exchanges,
- large amount of new installed power of the renewable sources (which is relevant, among other countries, especially for Germany).

Both these aspects dramatically magnify the volatility of the electrical flows in the European network. It is therefore not sufficient to select and assess one concrete grid situation and disregard many others because other configurations may lead to quite different results.

The other factor which can significantly change the output of the calculation and consequently also the conclusions, is the structure of the Generation (Load) Shift Keys (GSK/LSK). These keys determine how the export/import flow will be divided into particular nodes in the exporting/importing area. Without knowledge of how the cross-border flows are projected into the German area (and partially also the Czech one), it is not possible to present any strict conclusions concerning the load of the Remptendorf–Redwitz power line.

Also, data concerning the cross-border exchanges between the Czech Republic and Austria are not present. We are of the opinion that the impact on the neighbouring systems should also be added to the output and interpreted as it is an important precondition for reaching a comprehensive picture of the situation.

Furthermore, it is not clear what is meant under the flow "DE North<->South". The simulation of several relevant cases should be made, using the real historical network configurations and the distribution of the generation and consumption.

Besides comments related to the underlying grid model, we must demur to the assertion that the capacity on the Czech–German border is usually ("in the large majority") limited by ČEPS. This is not completely true.

For example, in the year 2010, the average number of cases when NTC was limited only by ČEPS in the ČEPS export direction was 10%, while in 60% of cases the NTC was limited by at least one of the German TSOs. In the ČEPS import direction in 41% of cases the limitation was purely by ČEPS and in 33% of cases by at least one of the German TSOs. In the remaining percentages, the same limitation was applied by both sides.

5.3.5. Price Signals

The Frontier/Consentec study states: *"The smaller the bidding zone the higher will be the potential for the exercise of market power in the spot market. This could result in distorted market prices which would in turn reduce the confidence in the price signals from the power exchanges."*

The introduction of smaller bidding zones will prevent a distortion of price signals and reflect real market conditions: prices will increase in the zones where there is a deficit of cheap generation or in zones where consumption is significant (and vice-versa). These price signals will give clearer indications to investors on the most relevant places to build new generation capacities, although we accept that this impact is visible rather in a long-term perspective and that the impact of these price signals to the real investments is very limited, namely due to the long-term return on investment as well as uncertainty about the future market conditions.

Re-dispatching, on the other hand, provides no price signals, and costs spent for the re-dispatching are socialized to all payers for the use of the transmission system. It is economical nonsense to defend the re-dispatching approach with the explanation that "*the corrective action will not influence wholesale power prices which are uniform within the bidding area*" (the Frontier/Consentec study, chapter 3.6.2). It is true that the impact is not direct. But it does not disappear; it is reflected only indirectly through the socialized costs transferred to all participants, not only to the participants who benefit from the trade.

In this context, we would like to note that the requirement to provide economic signals is also embedded in the Congestion Management Guidelines of Regulation No 714/2009 (par. 1.5).

Concerning the argument that the smaller bidding areas tend to increase the market price volatility, it must be noted that the size of the German bidding areas would be – even after eventual splitting e.g. into two smaller bidding areas – still higher than most of the national electricity markets in Europe. Many conclusions made in the Frontier/Consentec study are based on the assumption that the particular bidding areas will be very small, with significant impact on the behaviour of the market actors within the zone. However, the maximum realistically expectable possible splitting of the German market area is into two zones (Northern and Southern). Each of them would still be relatively large, so the eventual negative effect that is relevant for extremely small zones (lack of competition, market concentration) would be negligible.

It is necessary to underline that the splitting of the current single German zone does not lead to the existence of two isolated zones. The calculation of the concentration ratios made in the Frontier/Consentec study is, from this point of view, burdened by a very big mistake because two

significant factors are not considered – import from neighbouring countries and transfers between the Northern and Southern zones. Yet the possibility to trade cross-border is one of the significant factors limiting the market concentration on the national level. The argumentation that the market concentration in the Southern zone will exceed the thresholds recognized by the German competition law is, in this context, questionable.

Further, we are of the opinion that there are far more important factors that influence reliability of price signals (e.g. feed-in tariffs for RES, political decisions on generation mix, legal framework for building new generation capacity, emission allowances market, etc.) than those used by the Frontier/Consentec study.

The study also claims that "*introducing more bidding areas will lead to a less efficient dispatch*". Efficient dispatch is a dispatch that is technically feasible and leads to the lowest costs to consumers. In the case of copper plate zonal markets, it is likely that market clearing results in infeasible schedules (e.g. some intra-zonal constraints are violated). This technically infeasible dispatch is then in a later stage made feasible by corrective measures executed by TSOs. By contrast, in the case of correctly defined bidding areas, the market result is technically feasible, and does not need to be corrected by any re-dispatching, and hence the costs of corrective measures are avoided. Moreover, price differences between bidding areas are a good indication of scarcity, giving explicit, market-based investment signals for location of new power plants and transmission reinforcements.

5.3.6. Market Liquidity

The discussion related to the eventual splitting of the current wide market area of Germany-Austria into several smaller areas shall be managed taking into account the very recent similar case in Sweden. This case is mentioned several times in the Frontier/Consentec study but always only arguments against market splitting are emphasized while arguments in favour of the market splitting are trivialized or even ignored. For example, the Frontier/Consentec study states that "*market participants recently expressed concerns that the upcoming market splitting within Sweden would lead to high market concentration in two of the four national bidding areas*". Unfortunately, the response of the European Commission, which refuses substantial number of these concerns[11], is not present.

In 2006, a group of Danish market participants submitted to the Commission a complaint about the behaviour of the Swedish TSO Svenska Kraftnät, which performed many times since at least the year 2002 curtailment of the cross-border transmission capacities due to the internal congestion located at several points in the Swedish network zone. The market participants stated that this approach discriminated the cross-border trades against the local ones. In particular, market participants pointed out that the limited export from Sweden to Denmark inflated the prices in eastern Denmark, restricting effective competition and eventually harming consumers in the area.

The Commission acknowledged the complaint and Svenska Kraftnät in response to this complaint suggested splitting of the Swedish bidding zone into several smaller bidding zones. In this respect, there is a certain similarity to the case of the German-Austrian area where one can hear, from the side of market participants (but also operators of neighbouring transmission systems), complaints against alleged reducing of the cross-border capacities as a result of capacity constraints of the national German-Austrian network.

Generally said, there are three main ways (apart from investment into the network, which is quite a long-term task) to solve such a problem:

- Limit the cross-border trades to solve internal congestions (solution selected by Svenska Kraftnät first)
- Splitting the bidding zone
- Re-dispatching

[11] Commission Decision of 14/4/2010 relating to a proceeding under Article 102 of the Treaty on the Functioning of the European Union and Article 54 of the EEA Agreement (Case 39351 – Swedish Interconnectors)

The final solution proposed by Svenska Kraftnät and accepted by the Commission was splitting the bidding zone.

This decision, however, met on the market participants' side with negative reactions. The main objections to this solution can include the threat of market concentration, negative impacts on the retail market and the commercial risk arising from different prices in different areas. These aspects are discussed separately in the following chapter.

5.3.7. Concentration and Retail Market

Some respondents addressed by the Commission argued against the splitting of Sweden. The main arguments were similar to the arguments specified in the Frontier/Consentec study:

- Market concentration
- Negative impact on the retail market

Concerning concentration, the Commission stated that concentration in electricity markets is a result of physical factors (such as network topology and location of production and demand in the network) and that the splitting of Sweden into smaller bidding zones will have no impact on it. The Commission noted, among other things, that the market concentration exists already in unsplit Sweden; however its existence and impact are hidden because of usage of non-transparent congestion relieving measures. Thus, "bidding zones can reveal market concentration but do not enhance market concentration," concluded the Commission. Market concentration is, in the opinion of the Commission, not an argument against splitting the market. Rather we can say that it is, in the interest of market transparency, more appropriate in this particular situation to split the market, because it reveals the distortions hidden under the secondary market with countertrades (or a re-dispatch market).

As for the negative impact on the retail market, the Commission pointed out the case of Norway, which is already now split into several bidding zones without visible impact on the competition and prices on the retail market. This claim can be confirmed e.g. by the fact that the number of the consumers who switched supplier is practically the same in Norway and in Sweden (about 10 % – see Nordic Market Report 2011) and that the retail prices in Norway are even lower than in Sweden (see the same report or similar reports for the previous years).

The Commission concluded that there was no evidence that the bidding zones decreased competition in the retail market.

It should also be mentioned that the Nordic countries started the project of the development of the joint retail market where every retail supplier in any of the four countries in question will be able to supply the electricity to any customer in the joint area. This project shall be completed no later than in 2015.

Of course, the rules for the retail market will have to be subordinated to the rules for the wholesale market – the rule that the energy from one country to another must be transferred via Nord Pool will surely remain. However, the current studies concerning the future joint retail market in Nordic countries do not consider this input condition to be problematic.

This project is mentioned here especially to demonstrate that the very competitive retail market can be established also in an environment where many wholesale bidding areas exist.

This aspect should also be seen in the context of the fact that the German electricity market can be considered as the most developed market in Europe, suggesting that it can adapt to new conditions at least as well as in the Nordic region.

5.4. Conclusions

We welcome the fact that BNetzA initiated elaboration of such a study, which can be considered as a pioneering effort in this area. However, as basic assumptions on objectivity, transparency and reasonability were not fulfilled, we **cannot consider this study sufficient for any decision making**.

Moreover, we consider that many conclusions are biased and wrong as developed and explained in detail in the previous subchapters.

We regard the Frontier/Consentec study as a report which is **neither objective nor balanced.** From our point of view, the study lacks relevant data and leaves question marks about the ways in which final conclusions were drawn up. What is rather questionable is also the whole procedure of drafting the report, commissioned by a regulatory body and coming to conclusions which in fact correspond to previously expressed arguments, yet are currently relying on an expert report.

The Frontier/Consentec study provides an elaborated discussion of the market consequences of introducing new bidding areas within Germany. However, **the study is incorrect when it discusses the issue of unplanned power flows** (called “loop flows” in the discussed study), **and especially the effectiveness of market design measures in dealing with these flows.** It is well known both from theory and real-life experience that correct market design including well defined bidding areas can ensure that power flows are controlled by the market mechanisms, resulting in both social welfare maximization and secure system operation. This should thus be the key feature of European market design.

We also do not agree with the conclusions concerning market design measures and their ineffectiveness. In particular we are convinced that **correct definition of bidding areas is a crucial element of market design to ensure economically efficient and secure operation of the interconnected power system, as well as correct pricing of capacities**. Moreover, in some cases smaller and well defined bidding areas are absolutely essential in order to ensure system security and economic efficiency. This issue must be thoroughly addressed in the implementation process of the European Target model. We strongly support such position, and will be actively involved in all discussions on that matter.

6. Country Specific Situations

6.1. Introduction

The following Figure presents the realized schedules for exchanging energy across the border in CEE. As can be seen in the Figure, one of the most important schedules in volume is the one between Germany and Austria. Moreover, it is clearly increasing in volume. Hence, from all other schedules, this one requires the most coordination.

All countries in the CEE region are significantly influenced by the transactions within Germany (in the North – South direction) and within the DE – AT bidding zones.

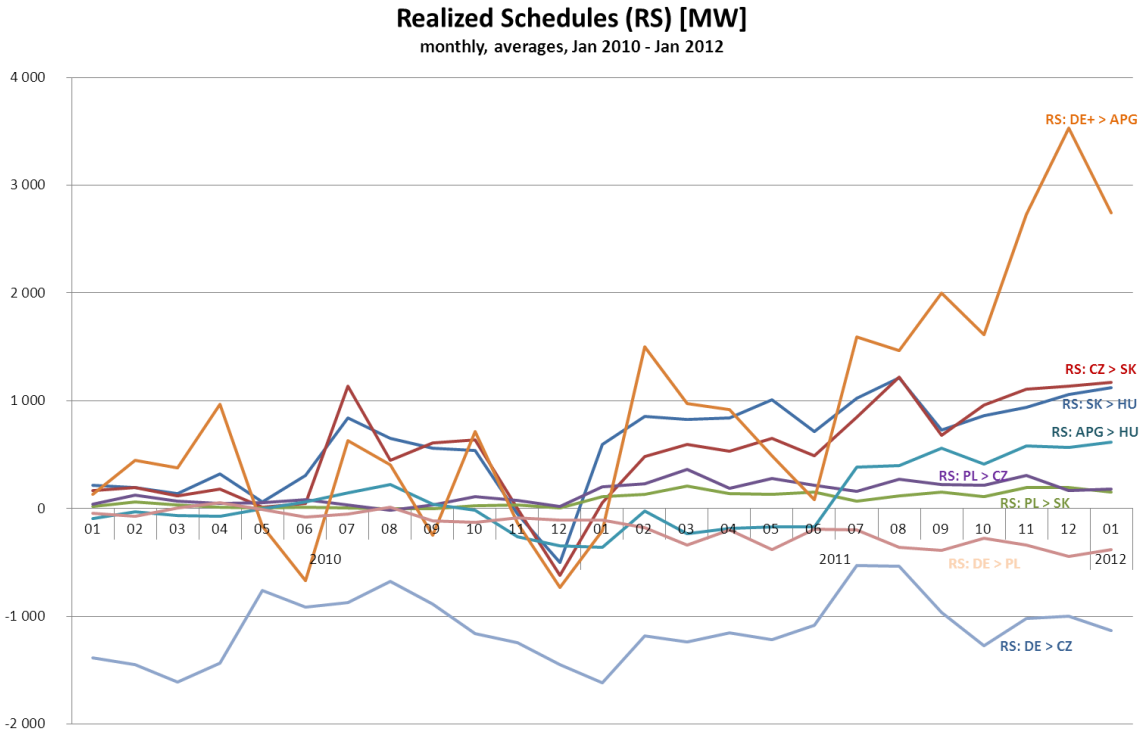

Figure 4. Realized cross-border exchange schedules between CEE countries (source: vulcanus.org)

6.2. Poland

The transmission network of Poland is significantly affected by unplanned flows. Uncertainties related to the magnitude and occurrence of unplanned flows negatively affect both the available cross-border capacities offered for cross-border trade, as well as system security.

As concerns the offered transfer capacities on the Polish technical profile (all synchronous borders together: Germany, the Czech Republic and Slovakia), especially the long term capacities are affected. Monthly and yearly capacities offered by PSE Operator for export have a declining trend, while Monthly and yearly capacities for import are consequently zero for the last years.

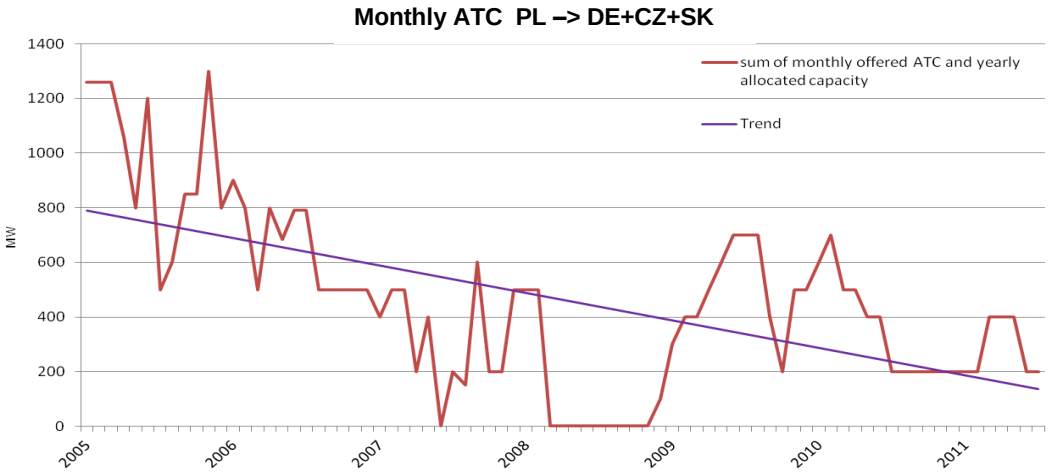

Figure 5. Polish monthly offered capacities (incl. yearly allocated) for export

The main reason for declining capacities is increased uncertainties, and the related risks of physical flows that go beyond the acceptable limits of the Polish transmission system. Experience from past years shows that power flows on the Polish synchronous profile have little to do with offered capacities. These power flows are mainly caused by factors external to PSE Operator, while PSE Operator has to deal with them in real time. The following graph shows the evolution of unplanned power flows over the past few years. For comparison, unplanned power flows on the border between Germany and Austria are also presented on the same graph.

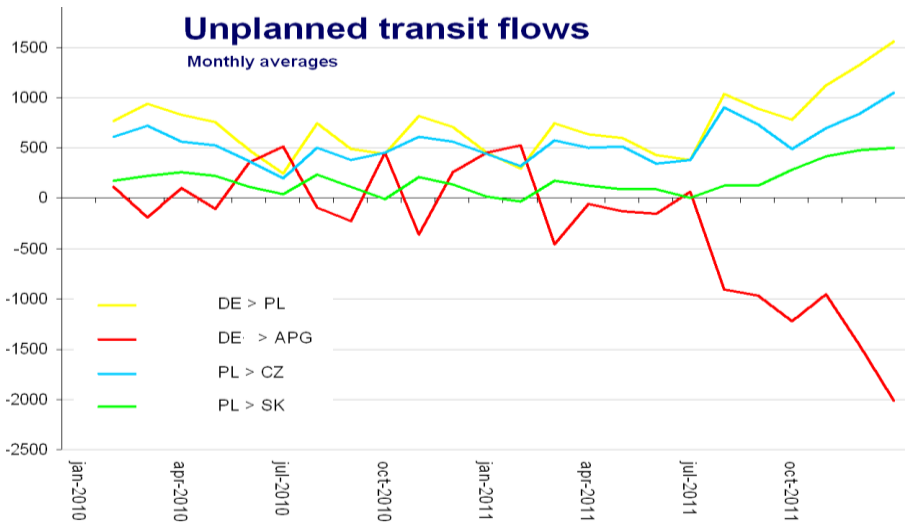

Figure 6. Unplanned power flows at Polish borders, monthly averages (source: vulcanus.org)

What is interesting in the above figure is that while all Polish borders suffer from unplanned power flows (there is more power flowing through the border than the allocated commercial exchanges), the same cannot be said about the border between Germany and Austria. The border between Germany and Austria experiences negative unplanned flows, meaning that there are more commercial exchanges scheduled via this border than the actual power flows that it conducts. The obvious conclusion is that the transactions scheduled on this border flow through other borders. The following Figure demonstrates the magnitude of these commercial exchanges, giving an idea of what can be expected in the future.

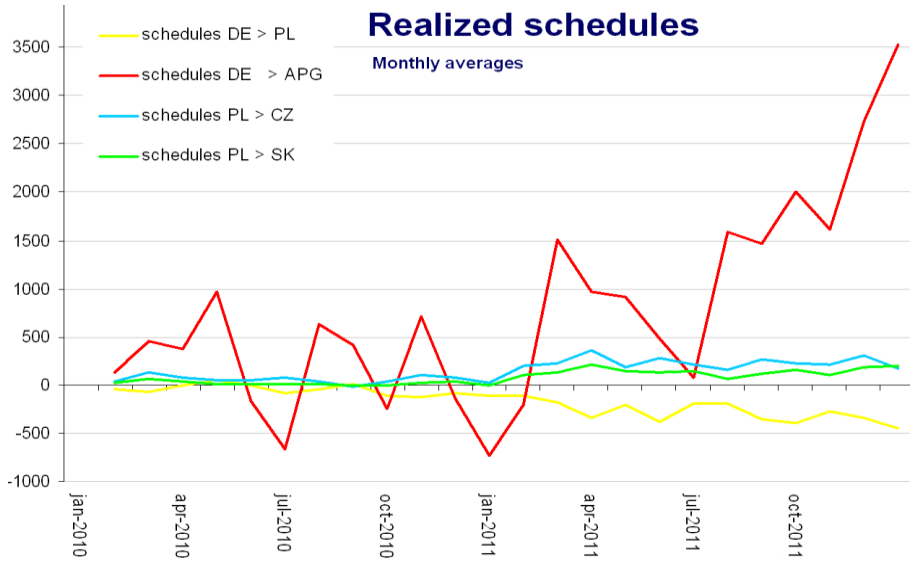

Figure 7. Realized cross-border exchange schedules at Polish borders, monthly averages (source: vulcanus.org)

As can be seen from the above Figure, commercial exchanges on the border between Germany and Austria are by far higher than the exchanges scheduled on all Polish borders. Hence, from all exchanges in the CEE region, the ones between Germany and Austria need the most coordination. Their volume is simply too high as compared with other exchanges, and the effect they have on neighbouring power systems is simply too significant. In order to prove this relationship, the following Figure shows the correlation between commercial schedules between Germany and Austria and unplanned power flows between Germany and Poland. In 2011, this correlation reached 82%.

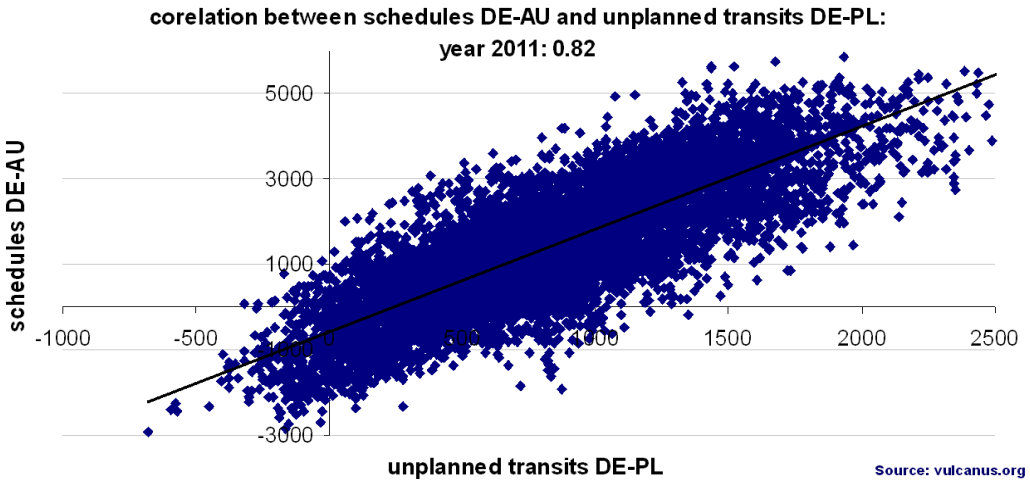

Figure 8. Correlation between cross-border schedules between Germany and Austria and unplanned power flows Germany-Poland, 2011 (source: vulcanus.org)

The above explanations have demonstrated that some of the unplanned flows are caused by uncoordinated exchanges between Germany and Austria. These exchanges, considered as internal ones in the common German-Austrian market area, are to a large extent physically realized also with the use of the Polish power system, taking away cross-border capacities that could have been used for organized cross-border trade between CEE countries. As a result, efficiency of the cross-border market in CEE is distorted.

However, even if such efficiency loss could be accepted, unplanned power flows also distort system security, which cannot be accepted. The following Figure shows the occurrence of unsecure network situations in the Polish grid in the last few years. These are expected N-1 violations detected ahead of real time, which call for measures to be executed by the TSO in order to ensure N-1 compliance. It is important to note that not all of these situations could have been resolved, meaning that in some situations the system was operated outside of N-1 security domain, risking a cascade in the event of a fault. This list is based on internal PSE Operator data; however, it is easily verifiable for example by checking the yellow light occurrence in the TSO Security Cooperation traffic light signal system.

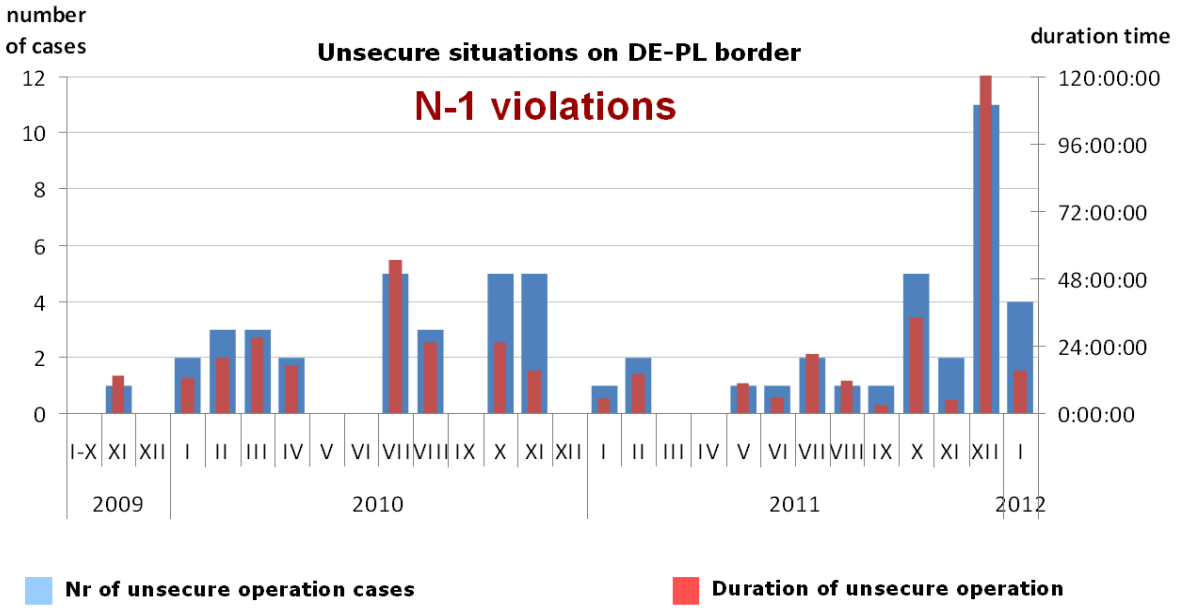

Figure 9. Unsecure situation detected in the Polish grid, caused by unplanned power flows. Number of cases and their duration (source: internal data of PSE Operator)

All of the abovementioned cases call for activation of remedial actions by PSE Operator. The measures that are used the most by PSE Operator are:

- Topology measures. These are non-costly measures where the TSO changes the configuration of its power system in order to alter the power flows.
- DC Loop procedure. This is a non-costly measure, agreed within multilateral agreements between the TSOs from Poland, Germany, Denmark and Sweden. It uses the DC connections SwePol and Kontek Cable to revert the market-based schedules on these DC links in order to create a power flow in the reverse direction, alleviating the overloaded lines. This procedure can be used either in the clockwise direction to alleviate the border between Germany and Poland, or counter-clockwise to aid Sweden's internal network. It is important to note that the availability of DC Loopflows depends on the market and network conditions.
- Cross-border re-dispatching between Germany and Poland.

The following Figure shows the number of cases when these remedial measures were activated, together with the energy volumes exchanged.

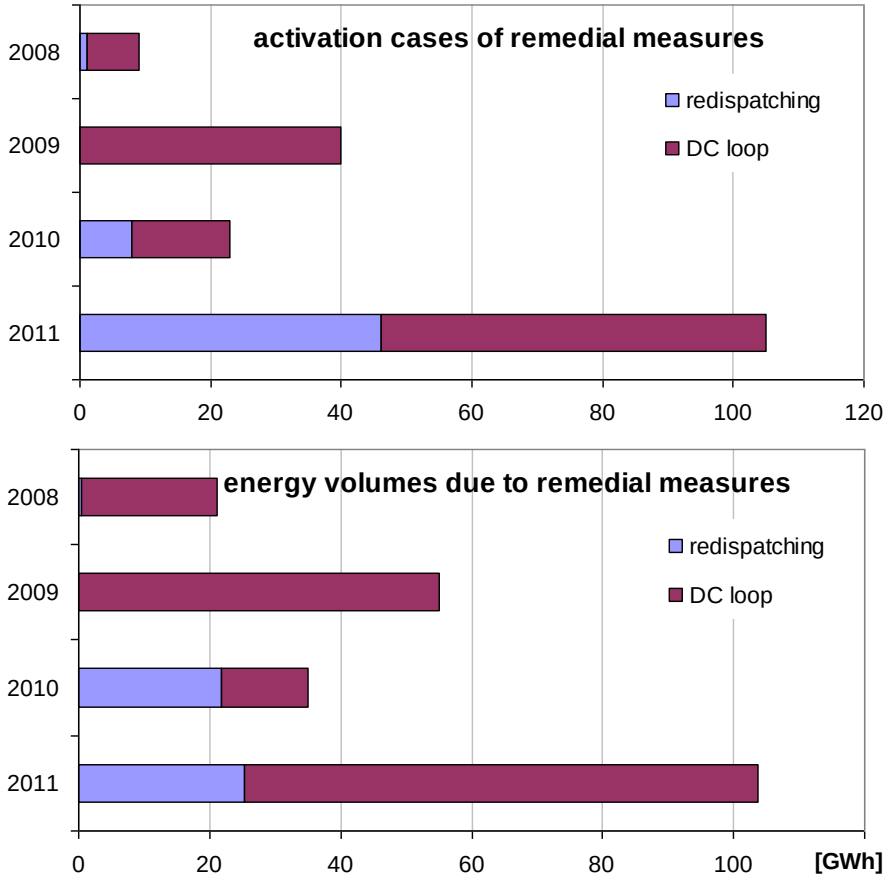

Figure 10. Use of corrective remedial actions to maintain system security of the Polish power system. Application cases and exchanged energy volumes, 2008-2011

The trend is clear, and the growing number of cases when such remedial actions is needed calls for taking this problem seriously. It is unsustainable to assume that an infeasible market outcome can always be corrected by re-dispatching performed by the TSO. The limit is availability of these measures and their effectiveness. Today, with very low offered capacities, and even with zero capacities offered in the import direction, PSE Operator has to perform remedial measures on a regular basis. It has already happened in the past years that the system had to work outside of N-1 conditions due to unavailability of remedial measures. As unscheduled power flows are on a growing trend, there is a danger that the system will be forced outside of N-1 more often, therefore increasing exposure to risk of a cascade tripping. Such cascade will have a huge impact on the European power system, as tripping of the Polish interconnection lines to Germany will lead to overloads and trips between the Czech Republic and Germany. As a consequence, connection from Germany and Austria will experience loading adequate to scheduled commercial exchanges, and might not be able to sustain it.

6.3. Czech Republic

6.3.1. General

The geographical position of the Czech Republic located in the centre of continental Europe is specific. Five mutually affected and interdependent cross border interconnections, together with a strong internal national network determine the ČEPS grid as a naturally transiting system that is strongly influenced by external impacts (such as transit flows).

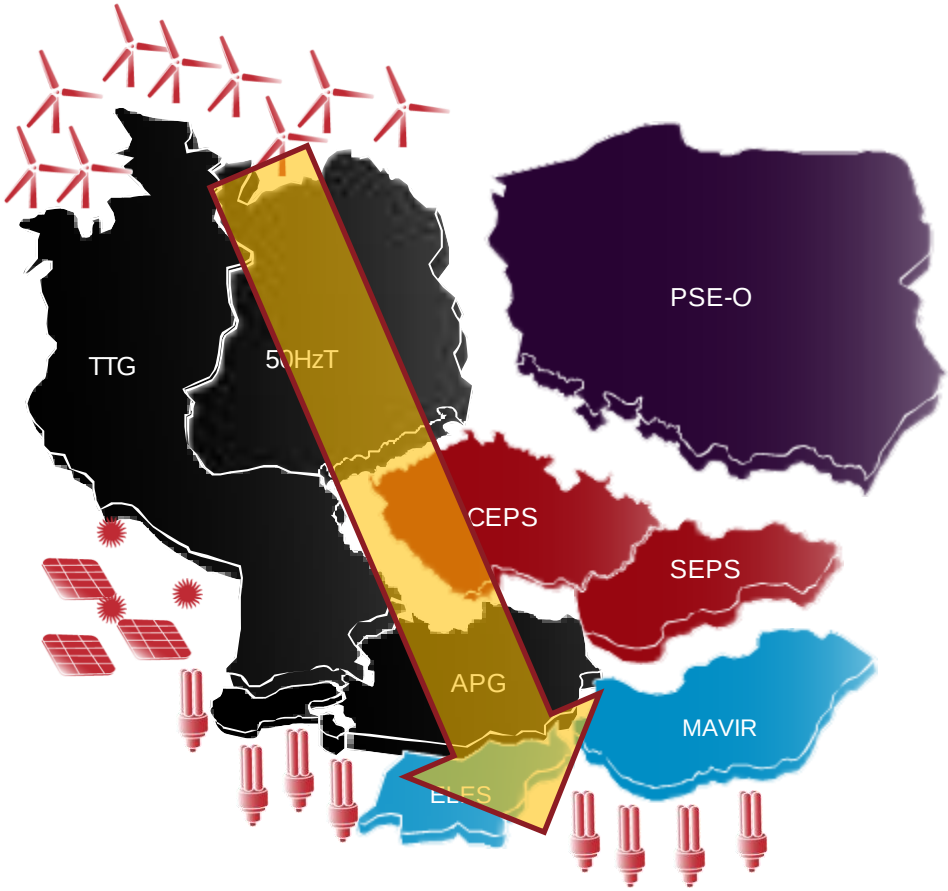

Figure 11. Power flow in the CEE region

6.3.2. Extreme Transit Flows in Winter 2011/12

In the period from mid-November until mid-December 2011 but also in January and February 2012 ČEPS and other CEE TSOs faced high transit flows over its grids. The main cause was increased generation (including wind in feed in the northern part of Germany) and consequent transit of this electricity to the centres of consumption located in Austria and further in the south (southeast) of Europe. From ČEPS's perspective the situation was extreme both in its duration (almost three weeks in November/December) and in transit volumes (historical maximum over 3500 MW).

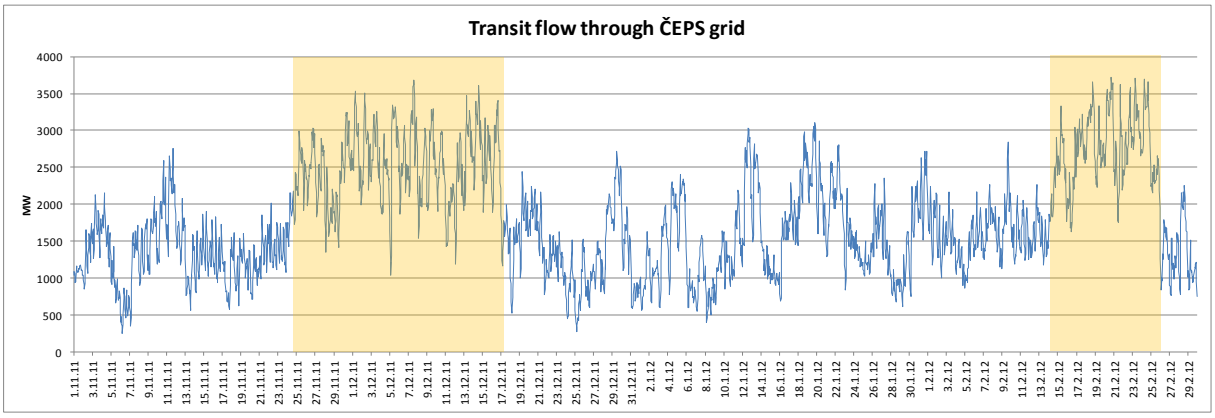

Figure 12. Transit flow through the ČEPS grid

The 3rd of December 2011 was the most critical day in that period. The yellow cross light in RAAS had to be switched on (see the map below) because of constant N-1 violation. Cross border capacities were reduced (both from the ČEPS and 50HzT side), but it had very limited impact on the physical cross border flows. Furthermore intraday trading sessions had to be stopped both in the export and import directions. All remedial actions available (both costly and non costly) were exhausted.

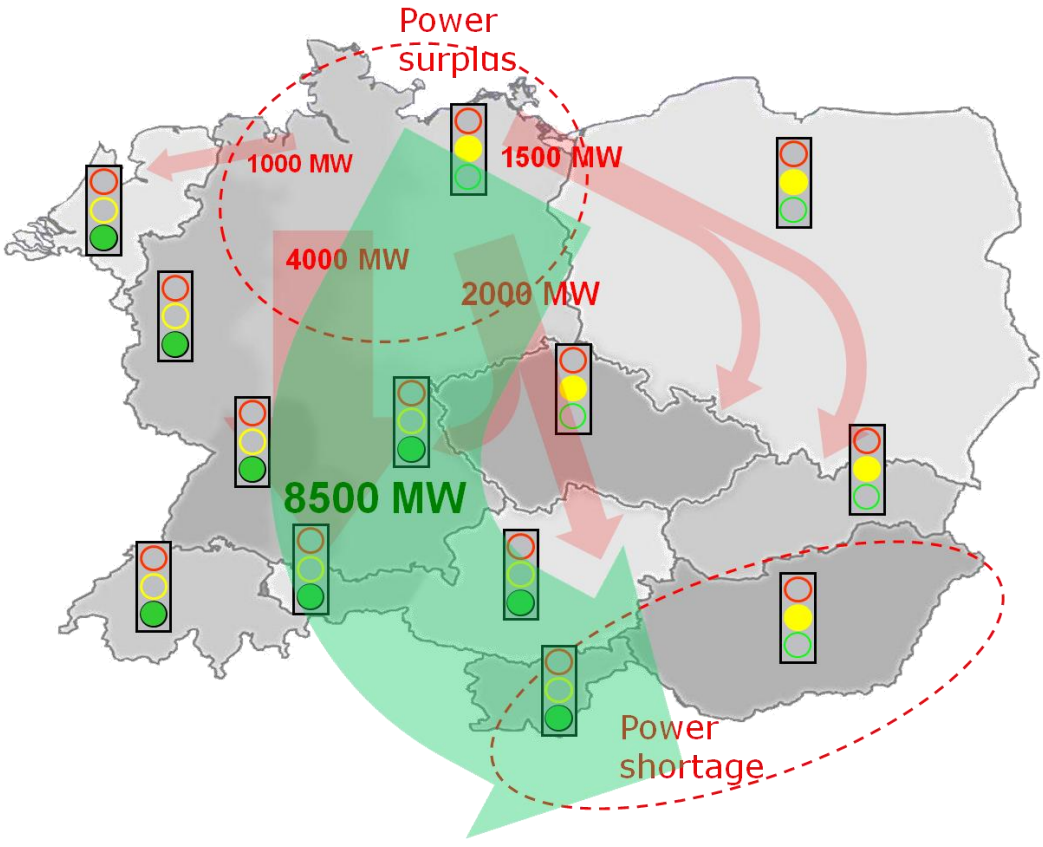

Figure 13. Power flows in the critical period

Regarding the cross border interface between ČEPS and 50HzT the maximum secure operational limit at 1700 MW was exceeded several times (see Figure 15) – the maximum physical flow at 1960MW exceeds this limit by 260 MW! Once all prepared remedial measures were exhausted, there was a real risk of a cascading collapse if one line accidentally tripped resulting in a local blackout.

The following figures show evolution of commercial, physical flows and physical N-1 limits over the most exposed cross border profile between ČEPS-50HzT and ČEPS-APG, where significant discrepancies between scheduled and real cross border flows can be observed. Regarding the ČEPS-50HzT profile the commercial and physical flows also had different directions and the difference between them was up to the level of 2000 MW! Mutual correlation between physical flows on ČEPS's profiles with both 50HzT and APG is presented in Figure 16.

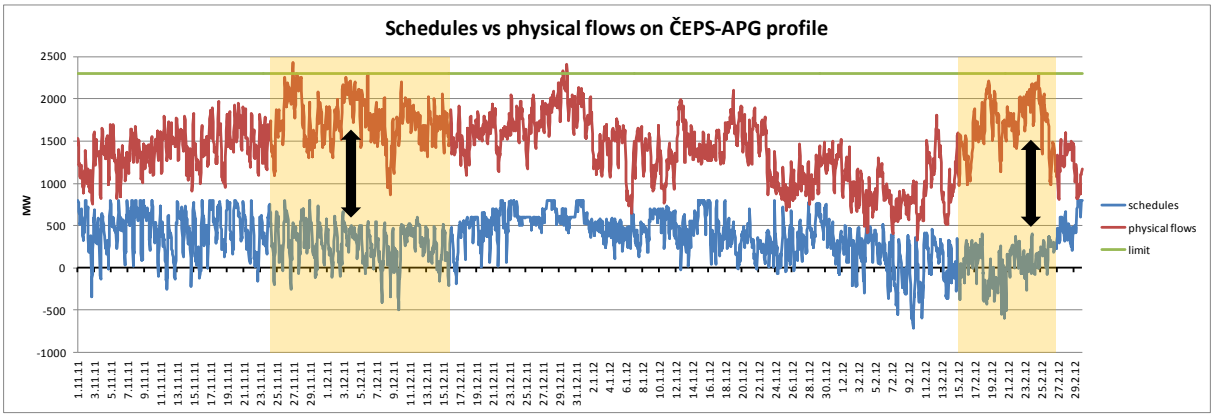

Figure 14. Schedules and physical flows on the ČEPS-APG profile

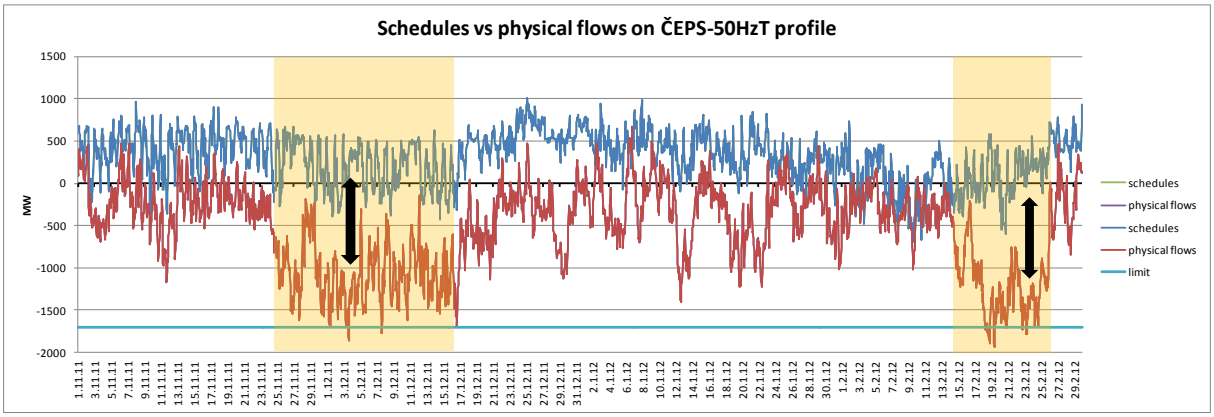

Figure 15. Schedules and physical flows on the ČEPS-50HzT profile

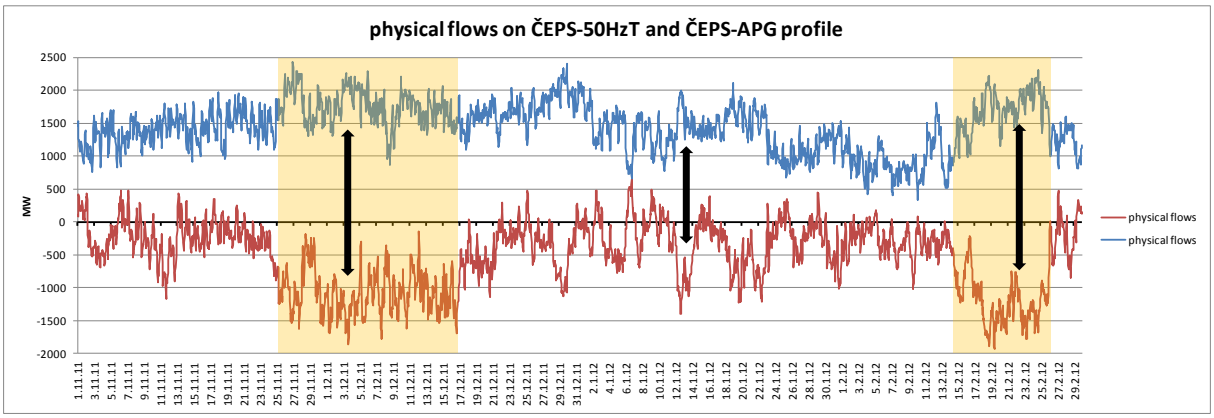

Figure 16. Physical flows on the ČEPS-50HzT and on the ČEPS-APG profile

6.4. Slovakia

6.4.1. Introduction

Interconnection of the transmission systems within Europe was performed in order to enhance operational safety of the solidarity principles among TSOs in critical situations. Currently, however, business plans are superior to this idea. Thus the result is the occurrence of increasingly serious problems.

The Slovak transmission system has been built for decades as a common Czech and Slovak system. This explains its excellent interconnection with the Czech system (2 lines of 220kV and 3 lines of 400kV). Both Czech and Slovak networks have low internal resistance that favours unscheduled flows and system loading. With the annual maximum on the level of up to 4500 MW the unscheduled flow of hundreds of MWs means a significant operational problem.

6.4.2. Current situation in the electricity system of the Slovak Republic

Since August 2011, the transmission system of the Slovak Republic has been almost constantly in a state of failure to meet the basic criterion for safe and reliable operation of the electricity system. It is caused, similarly as in the Czech system, by high transit of electricity from the North-West of Europe to the South-East of Europe due to high production of electricity in renewable sources in the North of Germany and deficit of the production capacities in the South-East of Europe.

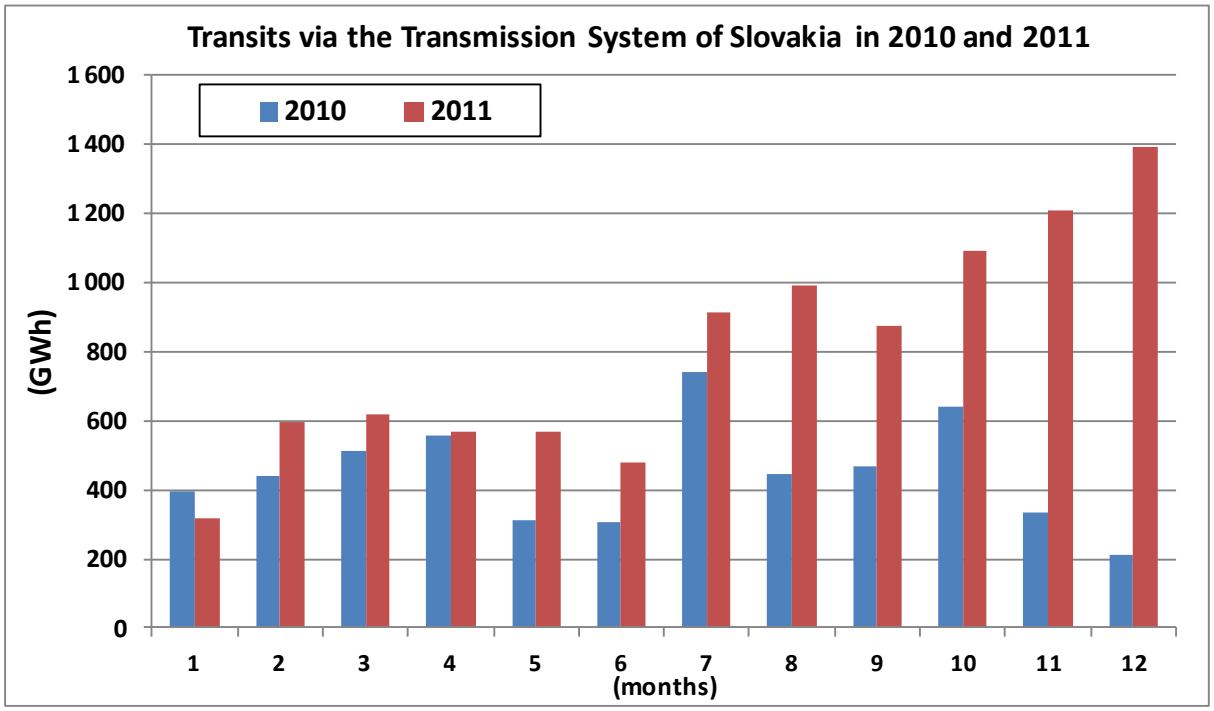

Figure 17. Monthly Transits of Electricity via the Transmission System of the Slovak Republic during the years 2010 and 2011

The volume of the physical transit of electricity in 2011 amounted to 34.3% from vertically transited power within the internal network of the transmission system of the Slovak Republic and compared to 2010 this share grew by 11.1%. Increased transit flows influence, in particular, significant increase of losses in the transmission system and recently also its safe operation. Losses of the transmission system of the Slovak Republic in 2011 reached the highest value in the last ten years. The increased monthly volumes of losses compared to 2010 started to appear from the second half of the past year, which corresponds to the increase of volumes of electricity transits in the identical period. The costs of increased losses shall be borne by electricity consumers in the electricity system of the Slovak

Republic while this is a result of phenomena SEPS cannot control. The increase of losses is great along with the costs for their coverage. It is immoral to leave consumers in Slovakia to bear them without any control over them. They suffer the consequences of phenomena caused by someone else.

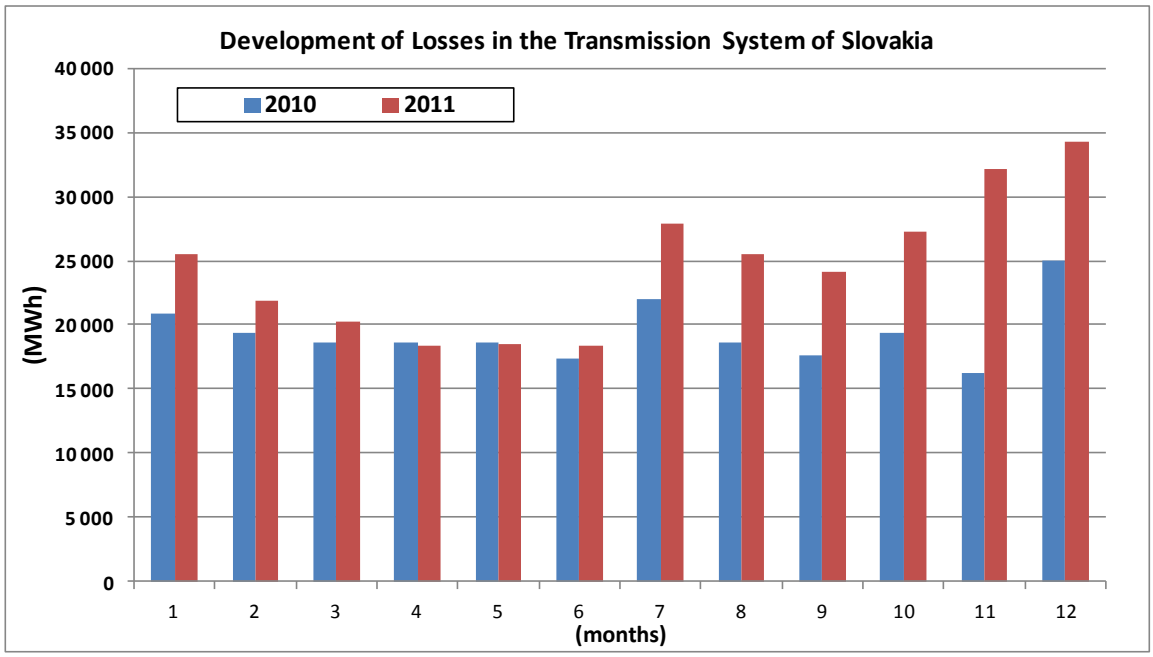

Figure 18. Monthly development of Losses of Electricity in the Transmission System of the Slovak Republic during the years 2010 and 2011

Increased transits have been recently causing **the failure to meet the N-1 criterion and the overload of cross-border lines**. The example of the line overload above PATL is obvious from the chart below.

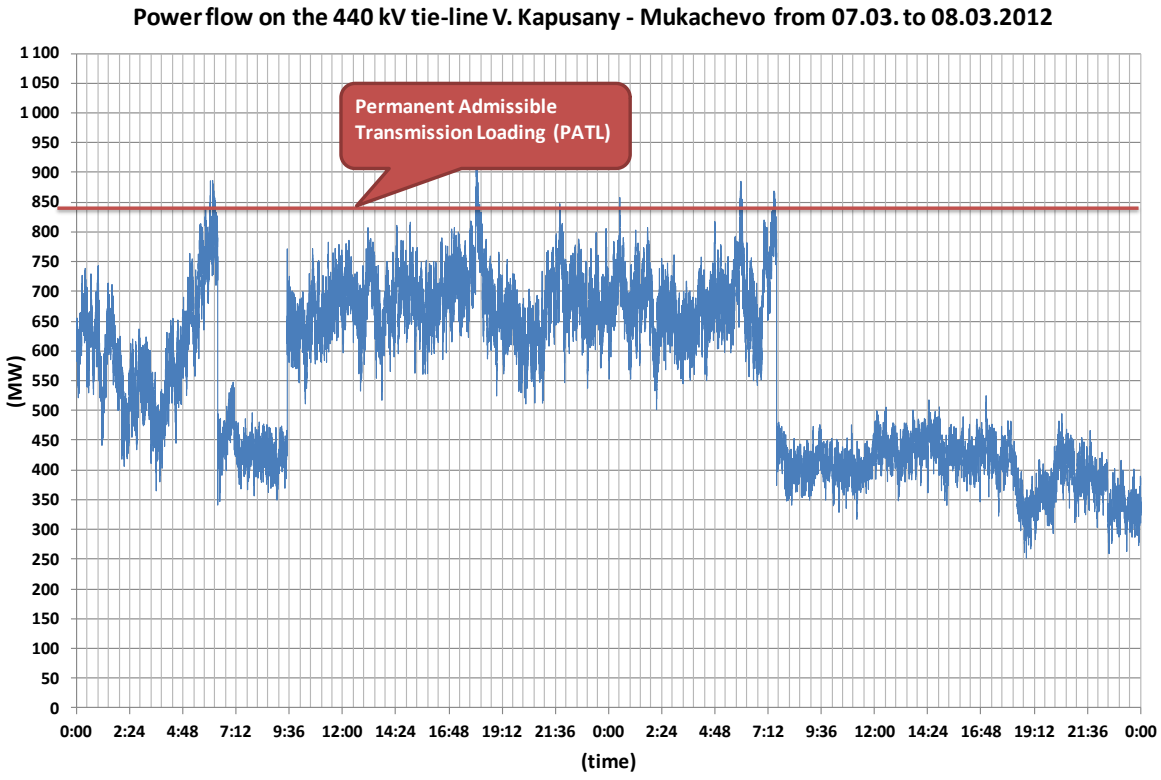

Figure 19. Power flow on the 440 kV tie-line V. Kapusany – Mukachevo from 07.03. to 08.03.2012

To prevent serious disturbances which could also spread to the neighbouring systems, (cascade switching out of lines) and to unload line transmissions of Slovakia's transmission system, which were at the limit of the transmission capacities, there are **reconfigurations (changes) of connection in the selected substations in Slovakia**. This is the only effective internal measure executable to resolve the critical situation of the N-1 criterion non-fulfilment in the conditions of the Slovak transmission system while it is necessary to emphasize that the conditions for its execution has to be fulfilled. Reconfiguration also has, however, negative impacts on the transmission system operation. It leads to reduction of reliability and integrity of the internal network, and it causes technical problems to the participants on the market in electricity (producers, consumers, distribution companies) connected to the transmission system. Concurrently, it increases organisational demands for maintenance (in some cases it disables maintenance), handling and it complicates dealing with disturbances in the system.

The decisive cause of the aforementioned problems consists in nomination of business diagrams in certain cases highly above the framework of real physical flows which are transmitted via the profile. The significant influence is shown by the high deficit of production capacities in the South-East of Europe or the business strategy when acquiring electricity outside the control area. Examples are demonstrated in the following charts:

- situation on the DE-APG profile
- relation between transit via the transmission system of Slovakia and import of South-East TSOs
- comparison of the physical and scheduled transit via Slovakia's transmission system

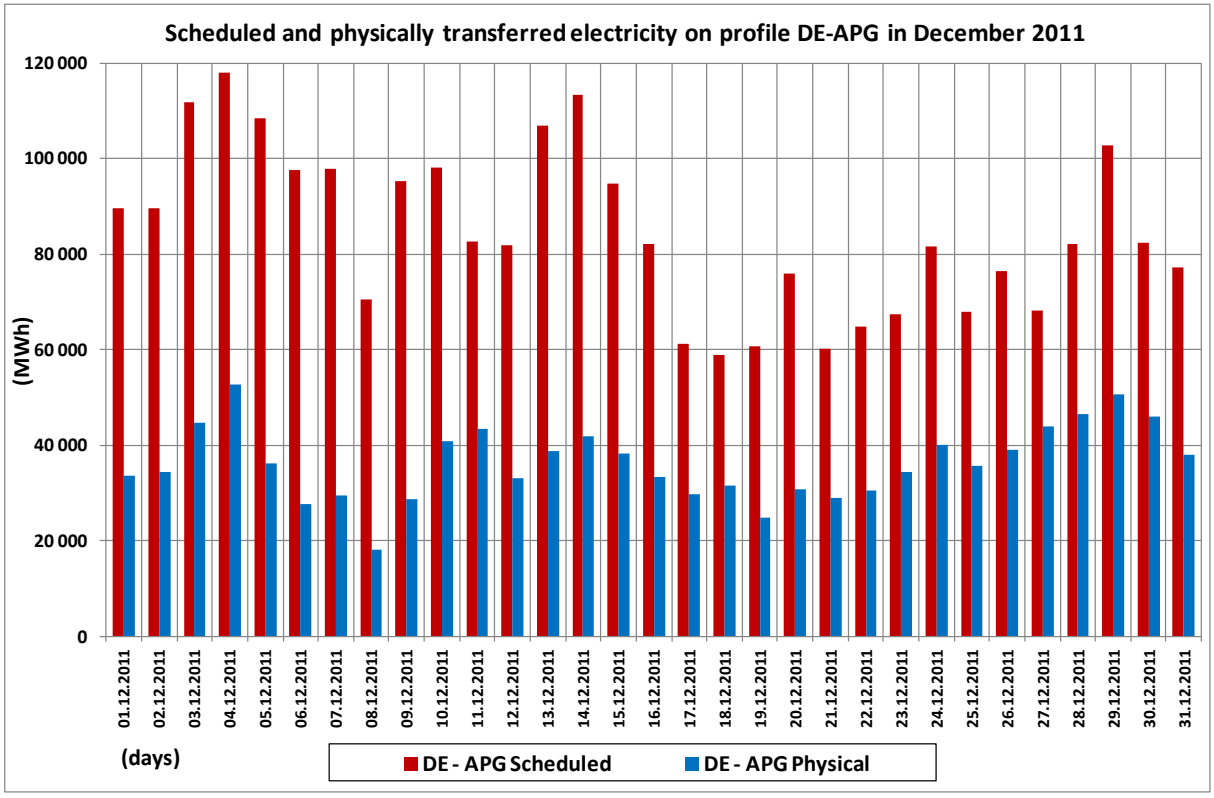

Figure 20. Difference between Scheduled and Physical Flows on the DE-APG Profile

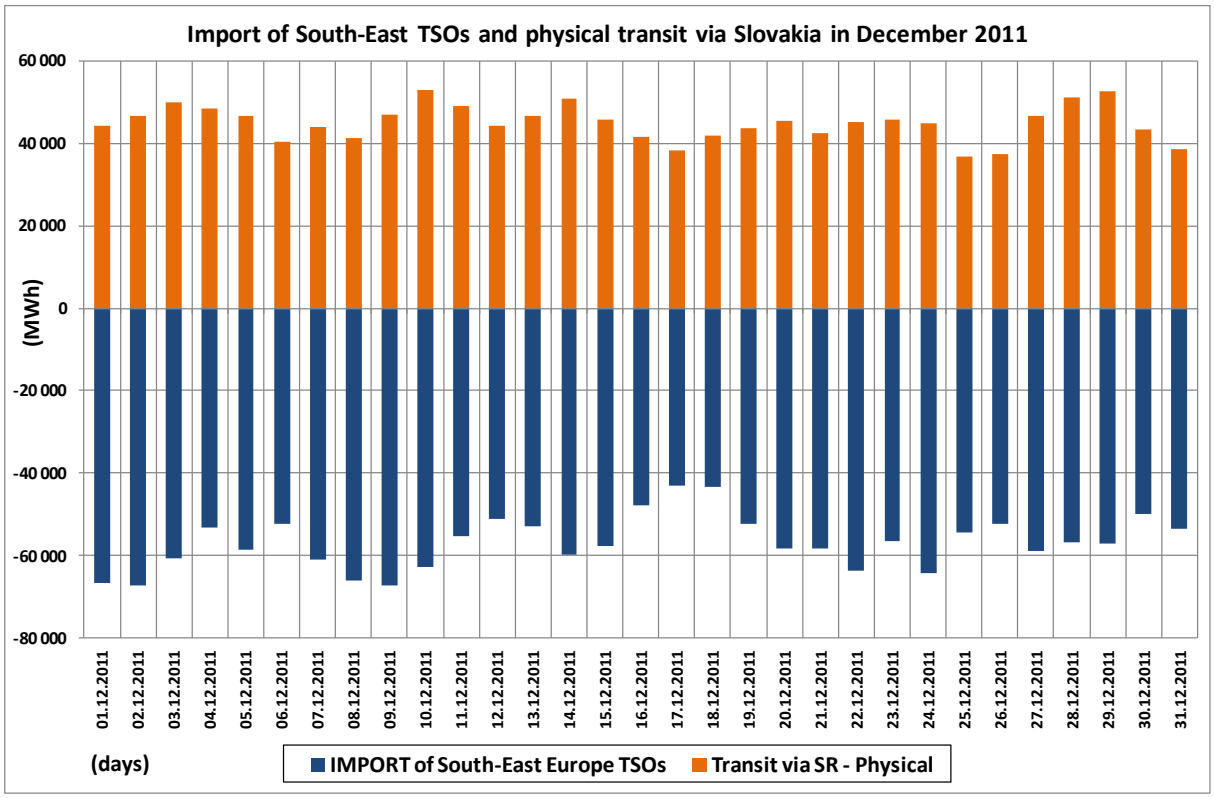

Figure 21. Import of South-East TSOs against Transit via the Electricity System of the Slovak Republic

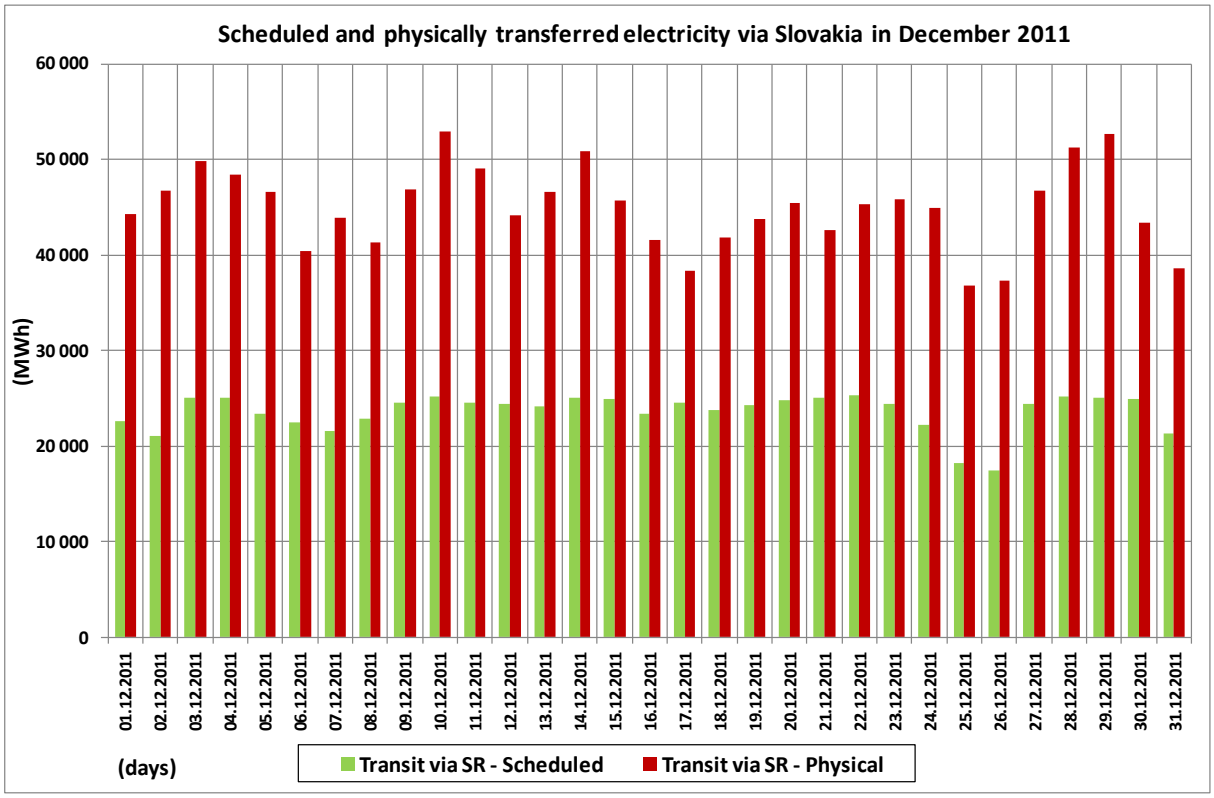

Figure 22. Physical Transit against Scheduled Transit via the Electricity System of the Slovak Republic

The mentioned examples are from December 2011; however, this phenomenon may be documented in other months too. This is an alarming state. As the charts show, the differences of the physical transit on the DE – APG profile against the scheduled one sometimes exceed 100%. Improvement of the situation in the future cannot be anticipated. The charts were processed using the data available to all ENTSO-E members in the Vulcanus system and they are transparent.

The situation in the Slovak transmission system commenced to get significantly worse from July 2011. The trend is growing and the concerns regarding collapse are more urgent. This is shown in the chart below.

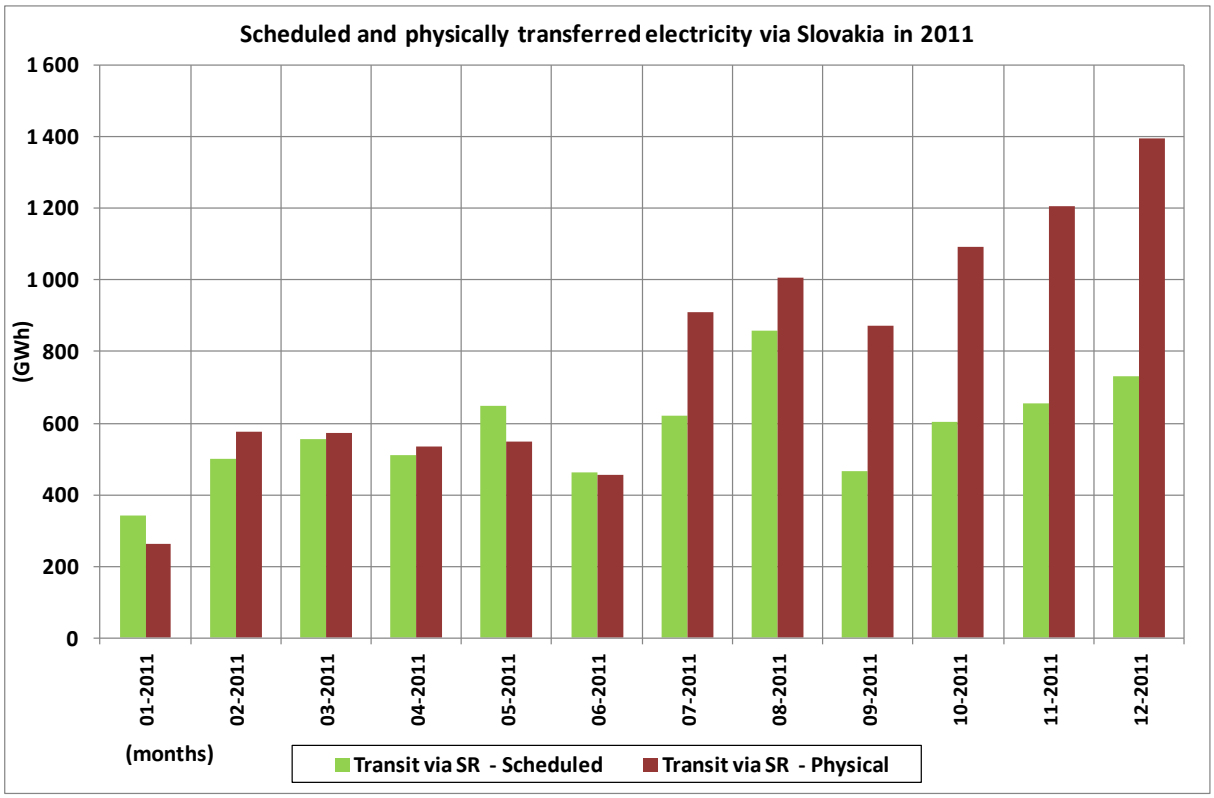

Figure 23. Physical Transit against Scheduled Transit via the Electricity System of the Slovak Republic

6.4.3. Possible Solutions

It is very difficult to build new lines on the territory of Slovakia (and not only in Slovakia) due to resistance of the public. The costs of their construction are high. Construction of blocking technologies (PST and HVDC) on profiles with load due to unscheduled flows is an expensive and pointless solution. Moreover, in its substance this solution just pushes electricity to other profiles of the neighbouring TSOs, thus only the local problem is being resolved without solving the cause consisting in irresponsible increase of business flows exceeding the technical possibilities. The influence of trading exceeding the technical possibilities on the transit via the Slovak system is documented by the chart below.

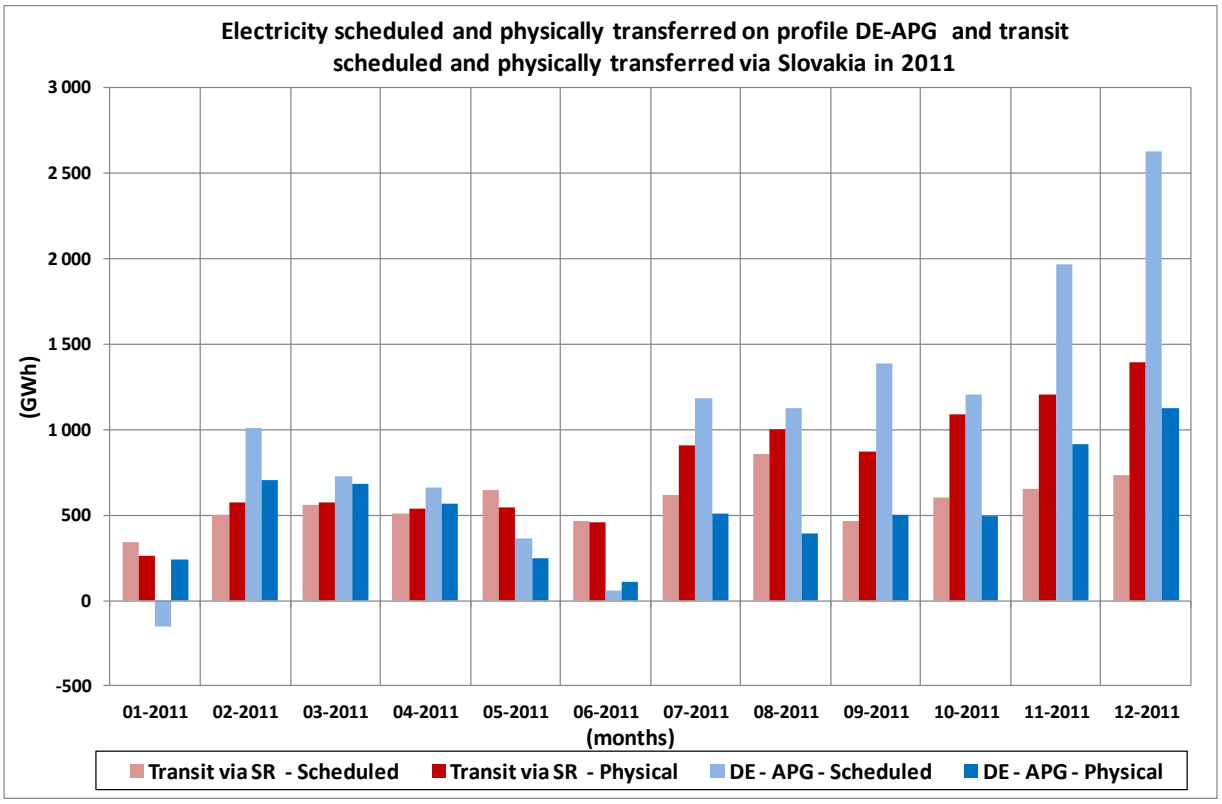

Figure 24. Physical Transit against Scheduled Transit via the Electricity System of the Slovak Republic and on the DE-APG profile

It is obvious that such disproportions are caused and allowed by the existence of the great bidding zone of Germany and Austria.

The dependence of the import growth in South-East Europe on the growth of physical transit flows via the Slovak system is being documented by the following chart.

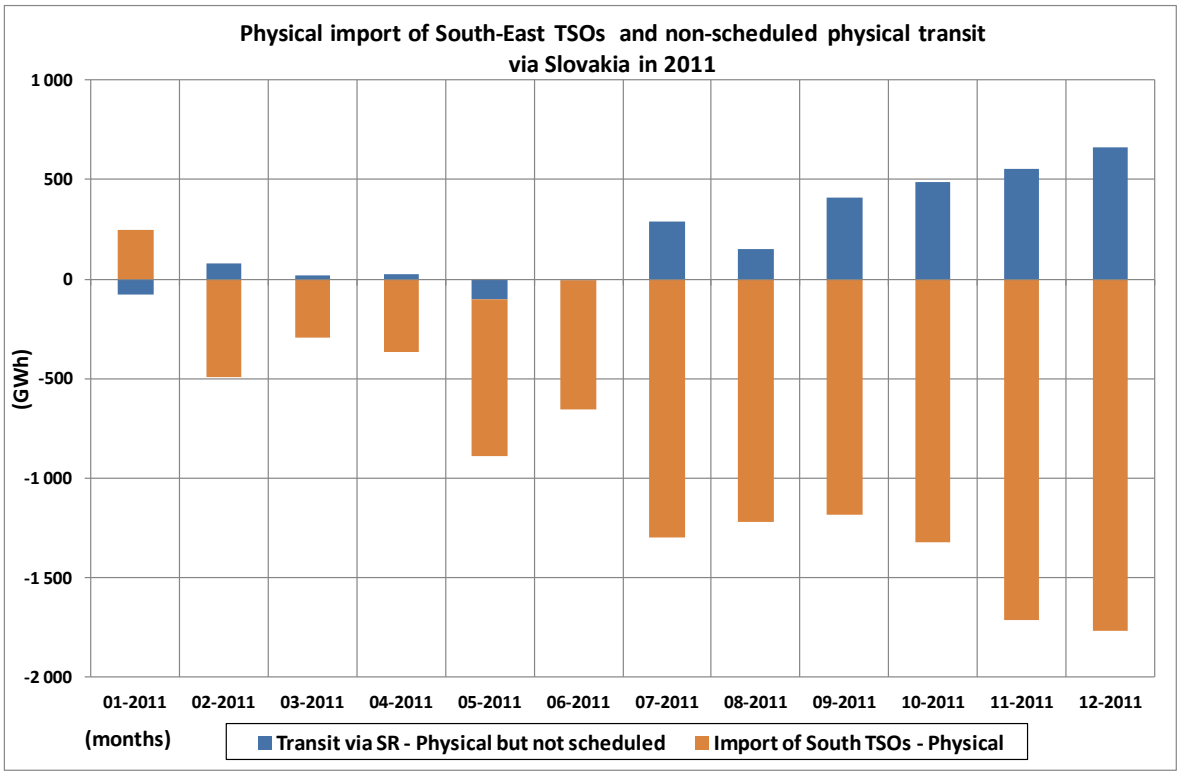

Figure 25. Import of South-East TSOs against Transit via the Electricity System of the Slovak Republic

The possibility of regulation over the production from electricity renewable sources in real time in the case of the profile overload shall also be taken into consideration. The return on investments in the electricity renewable sources count on support upon preferential launch of their production on the market. The system disintegration, however, shall cause incomparably higher damages. It is better to rather find a compromise and develop a mechanism for renewable sources of electricity. It is assumed this cannot be avoided in the future.

6.5. Hungary

6.5.1. General

The transmission network of Hungary is highly affected by the north-south unplanned flows, as a part of the CEE North to South profile.

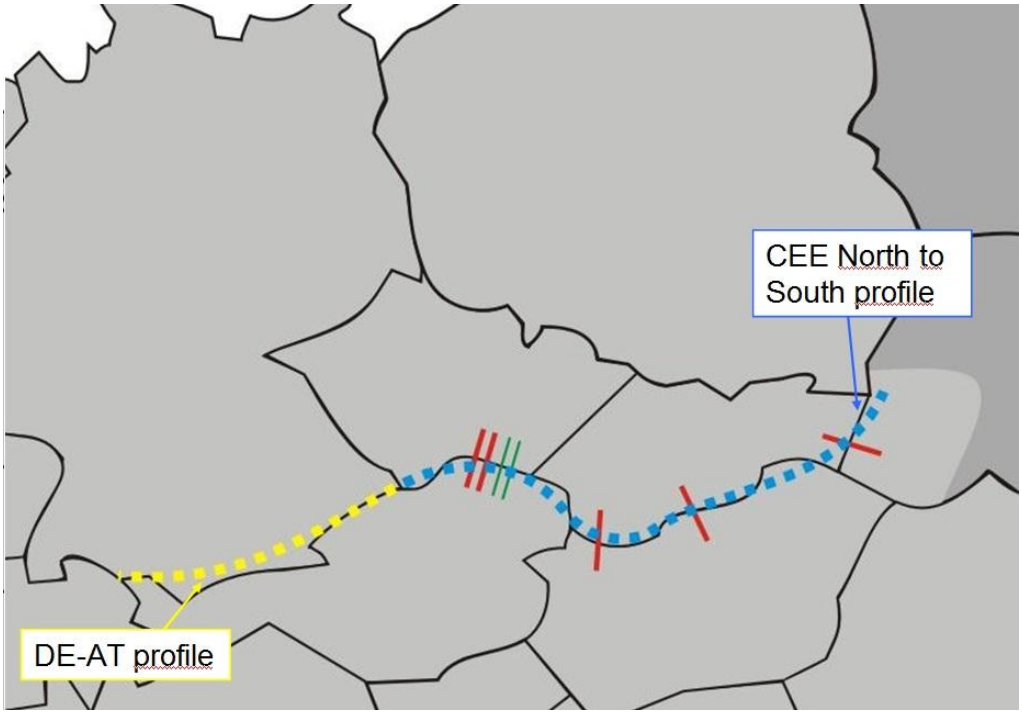

Figure 26. Definition of CEE North to South profile

6.5.2. Schedules and real flows

MAVIR has registered the schedules of this CEE North to South profile and that of the DE-AT border together with the CEE North to South profile real power flows for four months between November 2011 and February 2012. It can be seen that in this profile the real flows much more exceeded the schedules and practically followed the extra high DE-AT schedules (Figure 27).

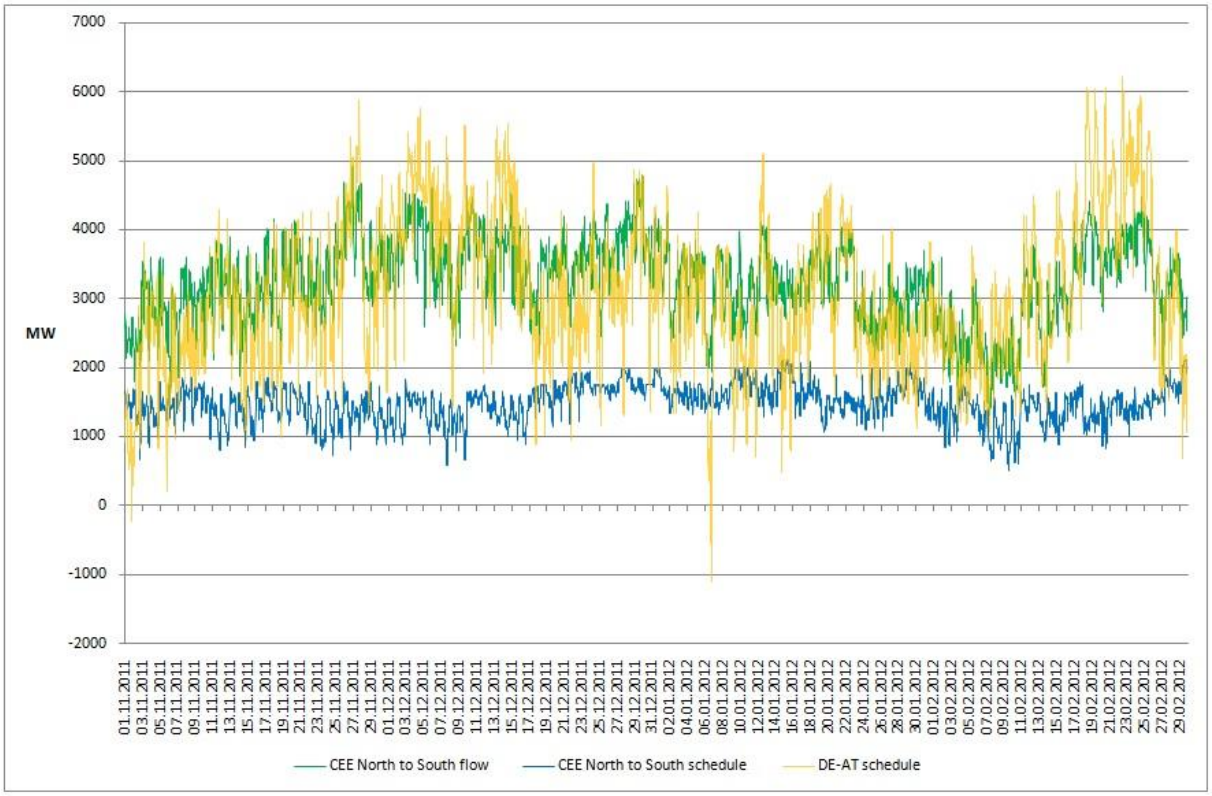

Figure 27. Coincidence between DE-AT schedules and CEE North to South real flows

In consequence of the mentioned – and gradually increasing – reconciled DE-AT schedules, the N-1 security criterion could not be kept on the Slovak–Hungarian border even with the minimal NTC values. Several times, if one of the parallel lines was tripped, the interconnector Gabčikovo–Győr would be overloaded. Therefore MAVIR was forced to indicate the danger with yellow light of the RAAS system:

- from 26th November (22:50) to 27th November (1:25)
- on 1st December between 11:30 – 13:40
- on 4th December between 9:00 – 22:00
- on 10th December between 13:01 – 17:39
- from 10th December (22:10) to 11th December (4:55)

MAVIR tried to ease the situation to some extent by switching manipulations and other measures, but had no more tools to avoid the possible consequences. A tie-line tripping on the CEE profile could have easily led to a cascade tripping in the region.

In order to see the correlations of the North to South flows with their own schedules and with the ones between Germany and Austria MAVIR has made an analysis. This review has shown a much higher correlation (72%) of the CEE North to South flows with the DE-AT schedules than with own schedules (28%) (Figure 28).

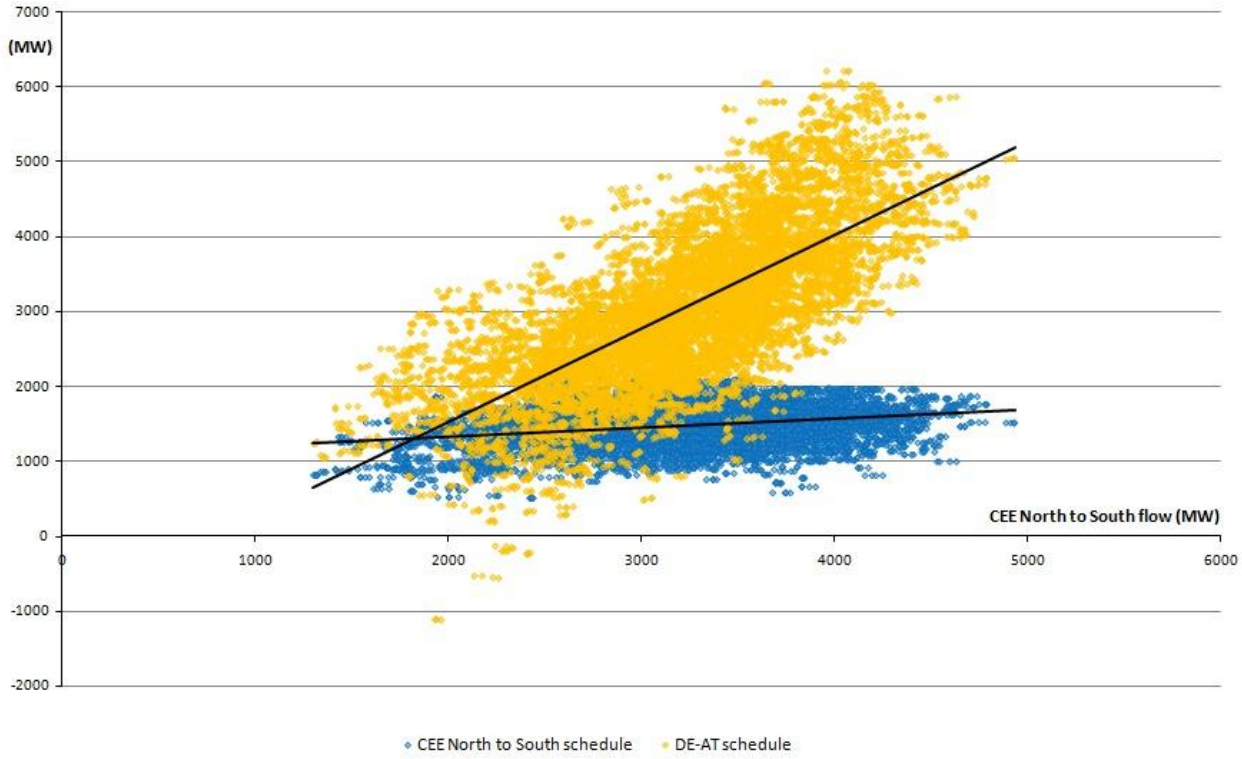

Figure 28. Correlations btw. the schedules DE-AT, CEE North to South and the real CEE North to South flows

6.5.3. Impact of the German wind energy generation on the Hungarian Electricity Market

Futhermore, MAVIR has studied the impact of the German wind energy generation on the admissible Slovak-Hungarian cross-border capacity and consequently on the social welfare of the Hungarian Electricity Market. The result has shown that above 4000 MW German wind generation there is a considerable loss of social welfare. In December 2011 the average forecasted wind generation was 4800 MW in Germany which caused a negative impact on the Hungarian Electricity Market.

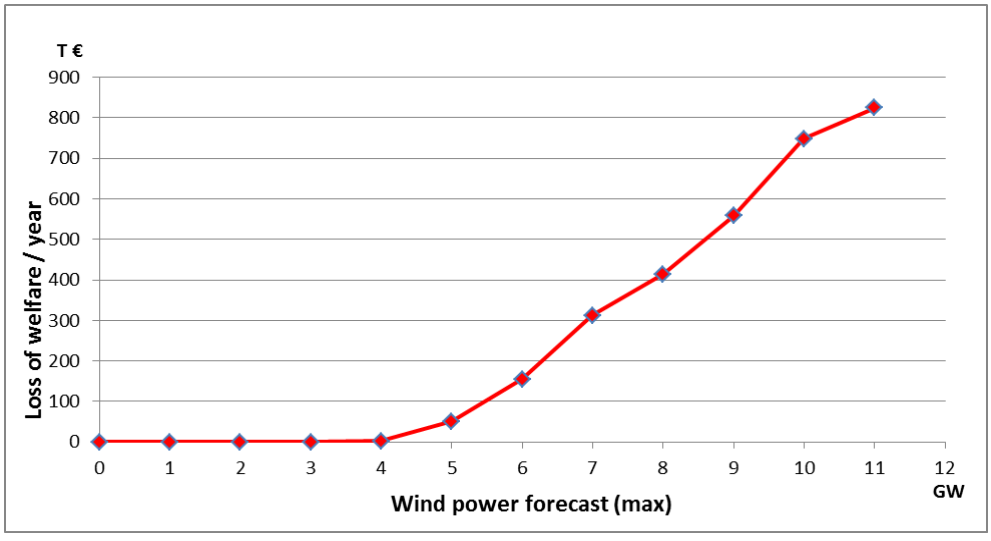

Figure 29. Impact of German wind energy generation on the Hungarian Electricity Market

7. Next Steps

Based on the finding of this report, ČEPS, MAVIR, PSE Operator and SEPS share a common view that the **issue of unplanned power flows**, creating critical situations in several countries of the CEE region, **must be tackled as soon as possible**. From all possible range of solutions, being network reinforcement, increasing flexibility of the transmission system and **market design improvement**, we consider the latter as the most effective as it addresses directly the issue. At the same time, we would like to underline that in order to succeed with completing the European internal market for electricity all of the possible improvement paths should be followed.

This report presents a view of four CEE TSOs on the issue of market design, and more specifically the bidding zones definition. The report provides for a comprehensive discussion of the matter of unplanned power flows and its impact on market efficiency and system security. In order to improve the current situation, we **propose for the following steps to be taken**:

- **Split the German-Austrian common market area into separate bidding zones**, with transactions between these bidding zones to be allocated in a coordinated manner. In that respect, the future FBA Market Coupling mechanism should consider Germany and Austria as separate bidding zones, so that there is no discriminatory treatment of any European Member State what concerns the obligation to coordinate its transactions with the neighbouring systems. This should be the starting point of the future European market and bidding zones configuration, as required by Regulation No 714/2009, which treats all Member States equal.
- **Analyze the impact of the German north-south flows for the different power system condition scenarios**, in order to allow for tracking their impact on cross-border interconnectors as well as some critical internal lines in neighbouring countries. Such analysis would be helpful in elaborating the possible short term remedies. This should be based on historical data from the recent years (i.e. 2009-2012), as well as expected evolution in the future given the possible nuclear phase-out in Germany.
- **Perform an analysis of the configuration of bidding zones and its impact on the efficiency of the target model – FBA Market Coupling**. The study should analyze the economic, as well as the technical implications of bidding zones configurations, and be accompanied by concrete conclusions and tasks to be executed. This study should also result in proposing new definition of bidding zones in Europe, investigating how large bidding zones could be split, or smaller ones to be merged, under well-defined criteria. Such study must be performed as soon as possible.
- **Investigate the relation smaller bidding zones and trade liquidity, price signals, etc**. It is often asserted that smaller zones are detrimental to liquidity, and limit trade opportunities, increase market power, etc. We, as 4 TSOs being responsible for facilitating market functioning in our countries, are convinced that smaller bidding zones are no obstacle to liquid trade. There are numerous financial hedging instruments which have proven its efficiency to facilitate wholesale trade across bidding zones in different parts of the world, such as liquid trade on the Nordic market using the System Price contracts, as well as the experiences of highly liquid trade activities in nodal markets in U.S.

Reaching the final goal of a common EU-wide integrated electricity market requires in our view **resolving the abovementioned issues**. Without changing the configuration of bidding zones, and more specifically without treating Germany and Austria as separate bidding zones, introduction of the target model – Flow-Based Market Coupling, will only have a moderate influence on unplanned power flows. As argued numerous times in this report, FBA can function properly only under well-defined bidding zones.

We are happy to see that **some steps going in the direction of tackling the abovementioned issues have already been taken**. In that respect, we welcome the initiative of the CWE region which launched the study of bidding zones for the purpose of their FBA Market Coupling project. We are also happy to see that ACER and European Commission have recently shown their intention to launch a study of bidding zones. We strongly believe that a quality expert discussion is indeed required. However, we underline that this discussion must be carried out with an open mind, keeping all options open. Commitment to implement the Target Model without seriously considering changing the bidding

zones configuration is hardly acceptable for countries that suffer from deteriorated system security and loss of social welfare due to market design deficiencies and unplanned power flows.

A debate on possible splitting of the German/Austrian area should be interlinked with a debate concerning unplanned flows and they should in fact be led together, thus ensuring reflection of all related aspects and consequences.

We commonly **call upon BNetzA to provide its own solution** which would bring an end to creating unplanned flows endangering transmission networks of Germany's neighbouring countries. New rules should ensure that the volumes of unplanned flows are at a level that ensures stable and reliable operation of the Central European transmission system, and does not distort availability of cross-border transfer capacities in the region.

Bearing in mind the common goal of establishing a uniform EU energy market by 2014, **EU-wide dialogue is needed.** We consider it necessary to codify additional rules, in particular because we (as well as virtually every TSO) have the obligation to ensure secure operation of the transmission system.

Splitting and merging of bidding zones must be done in coordination. Provisions that guarantee this should be clearly stated in the Network Codes, as well as clear and unambiguous criteria for analysing the efficiency of bidding zones, and rules for defining new bidding zone configurations.

8. List of Figures