

Global Assessment of the Results of the 1st Series of Mini Fora on Congestion Management and Potential Impacts on the Draft Guidelines

Working Paper

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1. INTRODUCTION

Background

The participants at the 11th Florence Forum (16-17 September 2004) agreed that to make progress in the different regions in the area of congestion management ERGEG/CEER and the EC would convene a series of Mini Fora.

The Mini Fora were as well required to provide a plan and detailed timetable for the introduction of at least day-ahead co-ordinated market based mechanisms, such as auctions.

The identified regions were as follows:

- South Western Europe (PT-ES-FR)
- UK and Ireland (IE-UK-FR)
- Central Western Europe (FR-BE-NL-LU-DE)
- Central Southern Europe (FR-IT-CH-DE-AT-SI-GR)
- Nordic countries (NO-DK-SE-FI-DE-PL)
- Central Eastern Europe (DE-PL-CZ-SK-AT-HU-SI)
- Baltic states (EE-LV-LT)

The participants of the first series of Mini Fora, conducted from mid December 2004 to mid February 2005, were the European Commission, the relevant regulators, the TSOs and the Power Exchanges of the defined regions. In some Mini Fora ERGEG and the Ministries were also present.

The need for a second series of Mini Fora to which additional stakeholders could be invited will be considered in the light of the outcome of the first series.

Structure of the report

The global assessment of the results of the Mini Fora is discussed in sections two to six. In this assessment, the following areas have been considered:

- Targeted congestion management method

- Coordination of congestion management
- Distribution of responsibilities to the regulators and market players
- Relevant legal issues
- Transparency

Section 7 proposes the decisions to be taken and the way forward.

The Annex enclosed provide a short description of the congestion management methods.

2. TARGETED CONGESTION MANAGEMENT METHOD

A compatible congestion management method for Europe

A compatible congestion management method for Europe must be able to accommodate both explicit and implicit auctions. Present European congestion management methods are de facto becoming a combination of explicit auctions and implicit auctions. The method is applied to congested interconnectors. Zonal pricing is also a fundamental choice in the European electricity market with the zones, initially, corresponding to individual Member States.

Explicit auctions

Explicit auctions are the minimum requirement for congested interconnectors in Europe. In some regions they are also considered appropriate for longer term capacity allocation, like yearly and monthly auctions, allowing physical bilateral contracts between price zones. Alternatives exist such as financial contracts. Depending on the regional market structure, a special attention needs to be paid to the market power issues.

The main challenge with the current explicit auctions is a better co-ordination, starting from multilateral co-ordination between the TSOs and developing to a full regional (and beyond that) co-ordination.

Actions welcomed/agreed in the Mini Fora:

Explicit auctions which have recently been or are being introduced to several interconnectors to replace methods not compliant with the Regulation 1228/2003:

- *Germany-France border (due to the only recently appeared congestion)*
- *France-Belgium border*
- *France-Spain border*
- *Coordinated capacity allocation is already in place between the TSOs of the Czech Republic, Poland and Germany.*

Implicit auctions

Implicit auctions target especially the day-ahead and intra-day markets and congested interconnections where price differences change direction. They also have potentially a big positive influence on the liquidity of spot-markets in power exchanges. Finally implicit auctions are expected to enhance the competitive single market because of their efficiency in terms of maximising the use of capacity and mitigating market power. In the regions where implicit auctions are not used yet, the introduction shall be further examined, developed and if applicable, tested in pilot projects.

The ETSO/Europex model on Flow Based Market coupling proposes implicit auctions between price areas using European power-exchanges in a decentralised manner. A full implementation of the model requires a high level of coordination and could become feasible only on the mid-, or long-term.

Implicit auctions are already in place in the Nordic market (market splitting), and there are several other projects under way:

- France-Belgium-Netherlands Market Coupling
- Market splitting in the Iberian electricity market (Portugal-Spain) and market coupling on the France-Spanish border
- Market coupling through the future Norned cable (Netherlands-Norway)

Additionally, a project is underway for the market coupling through the existing Kontek cable Denmark-Germany.

In addition there are three examples of unilateral implicit auctions already implemented which allow some level of market coupling without a harmonised approach on both sides of the border:

- Day-ahead bids from Germany to the Dutch power exchange
- Day-ahead bids from Portugal and France to the Spanish power exchange
- Virtual bidding zones for the neighbouring countries of Italy to bid in the Italian power exchange

All these unilateral auctions can develop to a full market coupling.

Market coupling requires a reasonably liquid day-ahead spot-market in all price zones to be coupled. Solving the market price in a complex multi-zone environment is also a computational challenge.

Introduction of the market coupling model needs also institutional arrangements between market actors, work on methods for market settlement and perhaps also changes in national legislation and regulation.

Actions welcomed/agreed in the Mini Fora:

- *Market coupling between France, Belgium and Netherlands to start mid 2005.*
- *Three step approach to introduce market coupling to the France-Spain border, first step achieved mid 2005.*
- *Market coupling between Netherlands and Norway through the Norned cable in 2008*
- *Open Market Coupling (OMC) idea as a possible solution for integrating explicit and implicit auctions for Germany. The Open Market Coupling takes into account the need of coordination between the different interconnectors and combines advantages of both implicit and explicit auctions. It is a further development of explicit auctions to achieve entire market coupling by allowing power exchanges to participate in the capacity auctions.¹*
- *Willingness of the Austrian TSO (APG) to co-ordinate further information exchange regarding information exchange on implicit auctions in the Central Eastern European region.*

Intra-day and balancing markets

Further integration of the European electricity market through regional intra-day and balancing markets seems to be beneficial and feasible. Some examples already exist in Europe.

Actions welcomed/agreed in the Mini-Fora:

- *Study of the European Commission on Intra-day and balancing markets, results available in autumn 2005.*
- *Report to be completed by UK, French and Irish TSOs in collaboration with other interested parties which shall include consideration of improvements to the allocation of intra-day interconnector capacity.*

3. COORDINATION OF CONGESTION MANAGEMENT

The scope of coordination of congestion management includes:

- Coordination between the regions
- Coordination within a region
- Coordination between the market operators

¹ As a first step RegTP will invite a study group consisting of all German stakeholders in order to identify and work on open questions concerning the Open Market Coupling, e.g. definition of the process, technical and legal criteria. A first meeting shall take place before Easter 2005. On a second step the results of the work done in the study group will come up for discussion on the EFG/ ERGEG –Level.

Regional differences shall not impede the future evolution and development of a harmonised congestion management method for Europe. Countries particularly exposed to regional differences are Germany and France, as they are connected to several regions.

Better regional co-ordination in congestion management should provide important benefits both in efficiency and in secure operation of the networks. The nature of the European electricity market and the transmission network calls for a strong co-ordination between market actors. Increased wind generation make flows in the transmission system more volatile.

Calculation of available capacity needs further development and increased transparency. Capacity calculation is fundamental for the whole process of congestion management.

The time-table of market operations lacks harmonisation. A harmonised time-table becomes a necessary condition for more general market coupling.

Congestion management methods for the year 2005 were in some cases decided very late to allow even a bilateral co-ordination over the border. This calls for increased co-operation between the market actors and regulators.

An idea of Open Market Coupling (OMC) has been presented. OMC is an institutional arrangement including an auction office which could incorporate both explicit and implicit auctions on various borders of one country.

Actions agreed in the Mini-Fora:

- *Co-ordination of congestion management based on explicit auctions in the Central Eastern Europe between TSOs. A co-ordinated method all involved TSOs shall be introduced in the beginning of 2006.*
- *Working group on a co-ordinated congestion management method for the year 2006 on the Italian borders.*
- *Further improvements across Republic of Ireland, France and UK could be obtained from better co-ordination of trading and improvements in the utilisation of capacity. Report to be completed by UK, French and Irish TSOs, in collaboration with other interested parties, which shall include consideration of improvements to the allocation of intra-day interconnector capacity.*

4. ASSIGNING CONGESTION MANAGEMENT RESPONSIBILITIES TO MARKET ACTORS

Ensuring network security is the responsibility of TSOs. Market operations shall be designed in such a way that the TSOs can enable these operations in compliance with network security operation.

Commercial capacity allocation can be done in several ways by several actors:

- TSOs (e.g. in explicit auctions)
- Body acting on behalf of TSOs, for example a power exchange or a market operator (like Nordpool in the Nordic market or the auction office in the OMC concept)

Implicit auctions require a more complicated institutional arrangement between market operators. As presented in the ETSO/Europex FMC concept, these arrangements can be different in different countries and regions, as long as the basic functions performed are the same.

5. LEGAL ISSUES OF CONGESTION MANAGEMENT

Moves to closer regional and wider co-operation raise some legal issues regarding the institutional arrangements, especially the status of power exchanges. In some cases power exchanges are established by law, like in Spain. In most cases they are private initiatives. Hence any harmonization of legal or regulatory frameworks for Power Exchanges would probably require lengthy processes at the national level. Therefore and if relevant these changes need to be considered on a long term basis.

Some level of regulatory control is necessary for all key activities affecting congestion management, for example:

- Capacity calculation
- Bidding into explicit and implicit auctions
- Capacity allocation
- Obligation for generators to provide information
- Transparency

Existing merchant lines and the congestion management method applied to them is a matter of regulatory control.

Actions agreed in the Mini-Fora:

- *Co-operation between regulators on merchant lines between Nordic countries and the rest of Europe.*

6. TRANSPARENCY

Transparency is a necessary condition for a well functioning European electricity market. It is needed for:

- Establishing a level playing field, especially for the new entrants
- Market actors for their planning and decisions
- For regulatory control

- For development of the European market

In the regional approach it is very important that all the regulators in the region have access to a harmonised set of relevant information on the whole region. This is necessary for example for market monitoring purposes and any assessments of dominance or other competition concerns.

Data on generation is fundamental for the congestion management. As the capacity allocation on the borders is normally done before the final generation dispatch is known, there is a need for an iterative approach.

7. FOLLOW-UP ACTIONS

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| <ul style="list-style-type: none">• ERGEG should propose to the EC as soon as possible an agreed set of the Congestion Management Guidelines. |
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| <ul style="list-style-type: none">• Reporting to the Florence Forum |
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| <ul style="list-style-type: none">• A decision on the needs for the second round of Mini Fora will be taken by the EC later |
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ANNEX

SHORT DESCRIPTION OF THE MARKET BASED CONGESTION MANAGEMENT MECHANISMS UNDER DISCUSSION

This annex includes a short description of each of the market-based congestion management methods which are being discussed. The reference sources are provided in section 4 of the main report.

1. Explicit auctions [ref. 1]

Along with the requested capacity amount, the applicants have to declare how much they are willing to pay for this capacity. These bids are ordered by price and allocated starting from the highest one until the available capacity is used up. Usually the price is set to the bid price of the lowest allocated bid.

2. Implicit auctions [ref. 1]

While with explicit auctions the electricity spot markets are separated from the transmission capacity allocation procedure and close after the transmission capacity has been allocated. With implicit auctioning transmission capacity is managed implicitly by the spot markets: Network users submit purchase or sale bids for energy in the geographical zone where they wish to generate or consume, and the market clearing procedure determines the most efficient amount and direction of physical power exchange between the market zones.

- Market splitting

Allocation is based on generators' bids into the electricity spot market. A price is then determined for each area on the assumption that no connection exists. Market splitting means that cross-border capacity is automatically allocated such that price differences between the two areas in question are minimized. The implicit price paid to the TSO for access amounts to the remaining differences between prices in the two markets since this will be the profit made by the TSO from its "brokering" activities.

- Flow Based Market Coupling [refs. 1 and 2]

The Flow Based Market Coupling is an extension of the implicit auctioning concept and has been jointly developed by ETSO and Europex following a request from the participants at the Florence Fora. This concept is a combination of ETSO proposal 'flow-based modeling' which takes explicit account of the physical flows of electricity

and the Europex proposal 'Decentralized Market Coupling' which integrates regional energy markets with cross-border congestion management.

The underlying assumption behind flow-based modeling is that the European system can be operated as a number of single-price regions, each of which can be represented as a single node in a simplified transmission model. The regional nodes are connected by notional transmission circuits. The flow properties of this simplified model are described by 'flow factors', and limits ('bottleneck capacities') are placed on the notional inter-regional circuits to represent the effects of cross-border transmission constraints.

Market coupling is based on the assumption that an administered day-ahead market exists in each region (i.e. at each node of the simplified transmission model). Subject to the ability of the transmission model to support the associated flows, market coupling enables the regional markets to trade with each other if it is economically efficient to do so.

3. Open Market Coupling [ref. 3]

This proposal was first presented by the European Energy Exchange (EEX) at the Nordic Mini Forum. The main feature of this method is that it can integrate the different congestion management methods applied in different EU-members states. It is supported by the idea of establishing a coordinator whose main tasks would be the determination of the optimal capacity usage, the execution of the required cross-border trades and the settlement of these cross-border trades.

References

1. Analysis of Cross-Border Congestion Management method, June 2004. Study conducted by Frontier Economics and Consentec for the European Commission.
2. Flow Based Market Coupling, September 2004. Joint proposal by ETSO and Europex.
3. Presentation held by the European Energy Exchange (EEX) at the Nordic Mini Forum in Helsinki, 19th January 2005.
4. Report on the situation of Congestion Management at the EU Borders. ERGEG, September 2004.
5. Available conclusions of the 1st series of the individual Mini Fora (Dec. 2004 - Feb. 2005). http://europa.eu.int/comm/energy/electricity/florence/mini_fora_en.htm