



**ERI Convergence and  
Coherence Report  
- An EREG Public Consultation Paper**

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## Table of Contents

<b>1</b>	<b>Introduction and background</b>	<b>- 6 -</b>
1.1	Introduction	- 6 -
1.2	Regions interact	- 7 -
1.3	Relevant legal and regulatory framework	- 8 -
1.4	Processes for ensuring coherence	- 11 -
<b>2</b>	<b>Overview of approaches in each region and assessment of coherence and convergence</b>	<b>- 13 -</b>
2.1	Introduction	- 13 -
2.2	Congestion management	- 13 -
2.2.1	Capacity calculation	- 14 -
2.2.2	Long term capacity allocation	- 17 -
2.2.3	Day ahead capacity allocation	- 20 -
2.2.4	Intraday	- 24 -
2.3	Balancing	- 25 -
2.3.1	Relevant developments	- 25 -
2.3.2	Assessment	- 26 -
2.4	Transparency and other topics	- 27 -
2.4.1	Relevant developments	- 27 -
2.4.2	Assessment	- 28 -
<b>3</b>	<b>Conclusions and views sought</b>	<b>- 30 -</b>
3.1	Capacity calculation	- 30 -
3.2	Long term and medium term capacity allocation	- 30 -
3.3	Day ahead	- 31 -
3.4	Intra day	- 31 -
3.5	Balancing	- 31 -
3.6	Transparency	- 32 -
3.7	Invitation to interested parties to comment	- 32 -
<b>4</b>	<b>Annex: Planned developments and solutions in each electricity REM</b>	<b>- 35 -</b>
4.1	Central West	- 35 -
4.2	Northern	- 39 -
4.3	France, UK, Ireland	- 42 -
4.4	Central South	- 45 -
4.5	South West	- 49 -
4.6	Central East	- 52 -
4.7	Baltics	- 55 -

## Executive Summary

ERGEG's Electricity Regional Initiative (ERI) established in 2006 seven groupings of countries, with a view to each integrating further their national electricity markets and as an interim step towards the creation of a single EU electricity market. This report makes a first assessment of how priorities and solutions adopted in each of the ERGEG ERI regions can be seen as coherent with each other and potentially enable convergence to the single market, and invites views.

Overall, ERGEG is confident that the regions have begun to work in ways that foster EU wide market integration, since:

- Processes and legal bases exist at EU level that guide progress at a regional level, particularly concerning congestion management and transparency;
- Most regions have identified and pursue similar priority topics; and
- The treatment of these priority topics is broadly similar and in principle allows further integration of regions at a later stage.

Nevertheless, coherence and convergence of regions will depend on the many details of proposed solutions for each topic in each region, which in the main remain to be fully developed. Issues identified at this stage include:

- Capacity calculation methods – issues here arise around ways of jointly and simultaneously calculating capacity across borders and regions. The use of load flow based methods and the specification of common grid models will need to be appropriately coordinated.
- Capacity allocation
  - Long and medium term – issues mainly associated with functioning and interaction of explicit auctions. Hence harmonization of auction rules and compatibility of different auction methods between regions will require attention going forward.
  - Day ahead - most regions are developing implicit day ahead auctions. In principle these are compatible but care is needed in terms of the detailed design and implementation (e.g. gate closure times, role of power exchanges) in order that regions are compatible.
  - Intra-day – issues include the extent to which continuous trading platforms can or should be extended across national markets and regions.
- Balancing – further integration of balancing markets is being pursued, and points to the desirability of using common platforms. Experience from the Nordic market suggests that large benefits can be reaped from a stepwise approach.
- Transparency – issues include the need to address this issue in all regions simultaneously, and to apply guidelines for good practice on a consistent basis.

- Governance issues, regulatory and legal framework – issues include how regional approaches are or can be overseen on a common basis, particularly regarding coordination of regulatory action and competences, common auction offices and power exchanges administrating implicit auctions. This topic needs to be addressed in more regions and at an EU level.

ERGEG seeks views on these issues and intends to follow up issues and views in the second half of 2007 and during 2008.

### Purpose of this paper

1. The purpose of this paper is to highlight market integration topics that, if not treated in a coherent manner in each region, have the greatest potential impact on the formation of the single market. It compares and contrasts priorities and solutions for these topics in each region. Moreover it considers topics that have been treated at the EU level by making a first assessment of whether issues that have an EU dimension are or are not being reopened or reinterpreted at the regional level. Issues here include Congestion Management Guidelines, balancing market integration and transparency.
2. ERGEG would stress that in considering convergence and coherence, it is clear that the “devil is in the detail” when evaluating the coherence between the different solutions. Such a detailed evaluation is not the purpose of this paper, and it is probably not be possible at all at the present stage of the developments of new regional CM methods. However, it will be necessary to carry out as soon as plans and implementations become more elaborated.
3. Details and solutions in each region are only now beginning to be developed and emerge, and coherence and convergence will largely depend on details adopted. ERGEG therefore intends to continue its oversight of these questions, both at an overall ERGEG and at a regional level.
4. While this is a first assessment on convergence and coherence, it reveals the need to formulate as soon as possible and as detailed as possible an overall vision for the goal of the single European electricity market. This paper will therefore also form an input to an overall strategic view or vision of the single market, which ERGEG intends to set out in 2008. This will characterize the single market and consider and map out proceeding from REMs to the single market.

## 1 Introduction and background

### 1.1 Introduction

5. The European Commission, ERGEG and other stakeholders have made clear their vision and process for the creation of a Single Electricity Market, anticipating the single market being reached via the interim step of the establishment and further development of regional markets that span across control areas and national borders. ERGEG supports the Commission's view on the importance of regional markets, considering that the concept of regional markets is a practical and achievable way of delivering progress on the move towards a single electricity market. The development of regional electricity markets, alongside the continuation of work to ensure effective liberalisation within national markets is an important step in delivering a competitive and effectively functioning single electricity market.
6. The European regulators, through the European Regulators' Group for Electricity and Gas (ERGEG), therefore launched the electricity regional initiative (ERI) in February 2006 with the objective of leading to further progress towards this goal, in collaboration with industry, government and other key stakeholders. This establishes 7 electricity Regional Energy Markets (REMs), each with a lead regulator, as set out in Table 1.

**Table 1 – Electricity REMs and Lead Regulators**

<b>Electricity Region</b>	<b>Countries</b>	<b>Lead Regulator</b>
<b>Central-West</b>	Belgium, France, Germany, Luxembourg, Netherlands	<b>CREG (Belgium)</b>
<b>Northern</b>	Denmark, Finland, Germany, Norway, Poland, Sweden	<b>DERA (Denmark)</b>
<b>France, UK &amp; Ireland</b>	France, Republic of Ireland, GB, Northern Ireland	<b>Ofgem (GB)</b>
<b>Central-South</b>	Austria, France, Germany, Greece, Italy, Slovenia	<b>AEEG (Italy)</b>
<b>South-West</b>	France, Portugal, Spain	<b>CNE (Spain)</b>
<b>Central-East</b>	Austria, Czech R, Germany, Hungary, Poland, Slovakia, Slovenia	<b>E-Control (Austria)</b>
<b>Baltic</b>	Estonia, Latvia, Lithuania	<b>PUC (Latvia)</b>

## 1.2 Regions interact

7. Each electricity REM has identified a number of priority topics and issues that it considers need to be tackled in order to foster trade and market integration across its region. In most regions these topics include :
  - Congestion management, in particular compliance with the CM Guidelines under Regulation 1228/2003 (6 REMs)
  - Balancing Integration (6 REMs)
  - Transparency (7 REMs)
8. Hence it will be important to ensure that the interim step of the treatment of these issues at a regional level complements the final objective of full market integration across the EU. That is, that decisions, actions and solutions for issues adopted at a regional level should facilitate and not impede the full integration of all regions to one single market at a later stage. It will be important to maintain an oversight that these developments are coherent in the longer run with a vision of what the single market might look like.
9. Such coherence is in any case vital from the outset, since a number of national markets (Austria, France, Germany, Poland, Slovenia) belong to more than one region. Moreover market integration will often be focused on the treatment of trade at national borders, with many national borders falling into a number of regions. Table 2 summarizes the extent of these overlaps.
10. On 1 January 2007 Bulgaria and Romania joined the EU. Discussions are currently taking place regarding Bulgaria and Romania's involvement in the existing ERI regions, and the possible more formal establishment of an '8<sup>th</sup> region' comprising the Energy Community Countries (South East). In finding an appropriate participation and solutions, technical, legal and also practical considerations will need to be taken into account.
11. Owing to the strong interconnection and geographical position in the UCTE synchronous area, the Swiss interconnections with the EU Member States play an important role for the whole EU Internal Electricity Market. Further discussions and the introduction of appropriate arrangements between the EU and Switzerland will be necessary in order to achieve an efficient and appropriately coherent solution within the EU legislative framework.

**Table 2<sup>1</sup> – Regions and overlaps**

	Number of Regions	Number of borders	Northern Europe	Central Western Europe	Central Southern Europe	Central Eastern Europe	South Western Europe	France, UK and Ireland	Baltic States
Number of countries			6	5	7	7	3	3	3
Number of borders			9	6	11	10	2	2	2
Denmark	1	3							
Sweden	1	5							
Finland	1	3							
Germany	4	9							
Poland	1	4							
Norway	1	3							
Netherlands	1	3							
Belgium	1	2							
Luxembourg	1	3							
France	4	6							
Italy	1	5							
Greece	1	1							
Switzerland	1	4							
Austria	2	6							
Slovenia	2	2							
Czech Republic	1	4							
Slovakia	1	4							
Hungary	1	4							
Spain	1	2							
Portugal	1	1							
UK	1	2							
Ireland	1	1							
Estonia	1	1							
Latvia	1	1							
Lithuania	1	2							

### 1.3 Relevant legal and regulatory framework

#### *Congestion Management Guidelines*

12. Amended binding Guidelines (i.e. the Congestion Management Guidelines<sup>2</sup>) on the management and allocation of available transfer capacity of electricity interconnections between national systems, to ensure that congestion management mechanisms evolve in a manner compatible with the objectives of the single market, entered into force 1 December 2006.
13. These Guidelines contain specific rules on congestion management mechanisms, publication of information and transparency, use of congestion income, timetable for

<sup>1</sup> Table adapted from Consentec consultants questionnaire on regional congestion management (as part of research for DG TREN).

<sup>2</sup> COMMISSION DECISION of 9 November 2006 amending the Annex to Regulation (EC) No 1228/2003 on conditions for access to the network for cross-border exchanges in electricity.

market operations and cooperation. Moreover the Guidelines defined seven regions that mirror the ERI electricity REMs, without taking into account non- EU- countries that are nevertheless part of the regions, such as Norway. The aim of these Guidelines is to further develop common and coordinated congestion management methods and procedures for the allocation of capacity which should be achieved within these. According to Point 3.2 “an interconnection involving countries belonging to more than one region the congestion management method applied may differ in order to ensure the compatibility with the methods applied in other regions to which these countries belong”. The target for compatible solutions is also taken up in Point 3.4: “Compatible congestion management procedures shall be defined in all these seven regions with a view to forming a truly integrated Internal European Electricity Market. Market parties shall not be confronted with incompatible regional systems”.

14. Finally, while at first sight the CM Guidelines offer a certain degree of freedom in the allowed congestion management methods (e.g. according to article 2.1 “capacity shall be allocated only by means of explicit (capacity) or implicit (capacity and energy) auctions”), it must also be recognized that the efficiency requirement imposed by the CM Guidelines (cf. articles 2.1 and 3.5) could considerably limit this supposed degree of freedom. In that respect, regular review by the Regulatory Authorities of the efficiency of applied congestion management methods (cf. article 1.10) is an important condition to define a target mechanism for the European Electricity Market. According to article 1.10, Regulatory Authorities can also impose their own terms and conditions in order to improve efficiency in the congestion management methods.
15. Currently, regulators work on the consensus principle. There is nevertheless little direct provision in the Guidelines for an overarching regional regulatory oversight. To this extent then the Guidelines provide only a partial legal framework for the ERI. All those questions are solved as soon as the powers of national regulators are fully harmonised on cross border issues and compliant with the guidelines, in particular article 1.10.

#### *Balancing integration*

16. ERGEG Guidelines on Good practice have also been compiled for electricity balancing<sup>3</sup> but principles included therein are not yet binding. The harmonisation and integration of the European balancing markets is considered to be an important prerequisite for the creation of a single European Energy market. The GGP are addressed to the market participants, network operators and stakeholders and are intended to provide a framework for a further development and implementation of integrated national balancing markets.
17. ERGEG intends to provide final advice to the European Commission on this topic after consideration of interrelationship between intra-day markets, automatically activated reserves and balancing. This work is foreseen in the ERGEG Work Programme for 2007/2008.

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<sup>3</sup> ERGEG Guidelines of Good Practice for Electricity Balancing Markets Integration (GGP-EBMI) Ref: E05-ESO-06-08 6 December 2006 Available [www.ergeg.org](http://www.ergeg.org)

### *Transparency*

18. Concerning the special topic of transparency for market related information to wholesale market participants across the Member States, in addition to the transparency requirements of Article 5 of the CM Guidelines, ERGEG has developed Guidelines on good practice on information management and transparency in electricity markets<sup>4</sup>. These Guidelines establish a consistent approach according to the provision of market related information which is for the time being also discussed and implemented at regional level. The different data included in the Guidelines are considered to be the minimum necessary to ensure an appropriate level of information in all national markets.
19. The incorporation of these guidelines into a legally binding framework is presently being discussed with and by the European Commission.

### *Harmonisation and efficiency*

20. The regional approach was first launched by the Commission in 2004. The background to this was the fact that major problems were experienced in going directly for one integrated pan-European energy market. The difficulties are due to first the rather general requirements of the energy market Directives which allow for different national implementations. Secondly, different European regions historically have developed different structural, technical and regulatory frameworks. The regional approach therefore aimed at speeding up the market integration, at the same time allowing for taking into account these differences for a transitional period. An additional condition, however, was that framework conditions should at the same time converge between regions, rather than diverge.
21. The ERGEG Regional Initiative is based on these conditions. The Regional Initiative endeavours to speed up the integration on a voluntary basis, ERGEG and its members acting as catalysts of the process. This process is especially important in the transitional period between the second liberalisation package, now to be finally implemented nationally, and the much higher level of pan-European harmonisation expected in the 3<sup>rd</sup> package. The drafting, agreement and implementation of this package necessarily will take some years.
22. The monitoring of the development must ensure that regional solutions chosen must not diverge and preferably converge. However, the basic nature of such a regional approach means that solutions might not be totally compatible. Therefore at this stage we might be content with "second best solutions" regarding compatibility between regions.
23. A special case to be taken into account is when plans to develop regional markets are converging, but due to different timing of the initiatives a shorter period of divergence

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<sup>4</sup> Guidelines of Good Practice on Information Management and Transparency in Electricity Markets Ref: E05-EMK-06-10 2 August 2006 Available [www.erggeg.org](http://www.erggeg.org)

- might occur. This situation cannot necessarily be avoided, but it should not become a major obstacle to trading within or between regions.
24. Concerning compatibility of solutions chosen in various countries and regions it generally should be borne in mind that market integration might not require 100% harmonization of rules and other framework conditions. It is – and will increasingly become – an important task to distinguish legal and organizational differences that constitute barriers to cross border trade and those which do not. In this respect a clear distinction should be drawn between the wholesale market and the retail market.
  25. This first report on convergence and coherence – based on information available – tries to establish a kind of “headline list” in the ongoing regional processes which are different between regions and which potentially might constitute barriers to trade or to the subsequent harmonization steps towards a pan European market. The focus is entirely on the wholesale market. Subsequent work will address more in detail which differences will constitute real barriers in case they will be implemented.

#### **1.4 Processes for ensuring coherence**

26. ERGEG intends that the ERI be an interim step towards the overall objective of achieving a single market across the EU, and so each electricity REM is intended to be a component of that rather than each being an isolated development.
27. ERGEG therefore monitors overall progress of each electricity REM, publishing for example an Annual Report on the electricity and gas Regional Initiatives<sup>5</sup> and reports to the Florence Forum. ERGEG also maintains high level contacts with relevant stakeholders in order to maintain dialogue and receive views concerning progress and coherence.
28. A number of electricity REMs and individual regulators have also sought to establish ways or processes to integrate questions of coherence, convergence and the interaction of regions within their work. For example, terms of reference for the congestion management work in the Northern REM include a specific requirement to consider the implications of solutions adopted for the Danish – German border for other regions too.
29. The EU legal framework provides that for some topics adopted solutions meet common requirements. As described above, the principal legislative instrument here is the Congestion Management Guidelines. It is therefore a requirement in law that the Guidelines are adhered to in each Member State and hence in each electricity REM. In doing so, an important degree of common approach will be maintained. This should be facilitated by the regular review realized by the Regulatory Authorities of the compliance with the principles and rules established in the Regulation and Guidelines, and, in particular, the efficiency of applied congestion management methods.

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<sup>5</sup> ERGEG Regional Initiatives Annual Report Progress and Prospects – March 2007 Available [www.ergeg.org](http://www.ergeg.org)

30. Published ERGEG Guidelines for Good Practice on Information Management and Transparency in electricity markets, Balancing Market Integration, as described above, should also provide frameworks which if followed at a regional level provide for a coherent pan EU approach to the topics. The extent to which each electricity REM is following such GGP therefore provides an additional indicator of expected convergence and coherence.
31. The creation of a single European Electricity Market is the over-all target for any development and improvement of conditions of cross- border electricity trade. In this aim, regulators see as their main task to consider, assure and to monitor a coherent and compliant development within and between the regions they are part of.
32. In order to further market liberalization and integration, the European Commission announced in January 2007 as part of its Strategic Energy Review its intention to bring forward new legislation – the “3rd Package”. This is likely to address a number of cross border legal and regulatory issues, and so may in due course also enhance the ability of the ERI to foster national market integration.

## **2 Overview of approaches in each region and assessment of coherence and convergence**

### **2.1 Introduction**

33. This chapter analyses coherence and convergence issues and the main potential interactions within and between the regions in terms of the adopted issues and the proposed solutions. With this aim in mind, it is convenient to divide up the topics into congestion management (cf. section 2.2) - including capacity calculation (section 2.2.1), capacity allocation on long and medium term (section 2.2.2), day ahead (section 2.2.3), and intra-day (section 2.2.4) - balancing (cf. section 2.3) and transparency and other topics (section 2.4).
34. The ERGEG Regional Initiatives Annual Report 2007 summarized the way in which each electricity REM is planning to treat the topics of congestion management and balancing integration and sets out what the priority topics are for each region. The Annex to this paper comprehensively summarizes approaches in each region. This chapter gives an overview of these priorities in terms of approaches and timetables in each region under the heading of 'relevant developments'.
35. The second part of each section called "Assessment" goes on to review potential interactions. The principal area of interaction concerns congestion management (calculation and allocation of capacity on cross border interconnections). Other areas where potential interaction occurs include balancing integration and transparency. Interactions are assessed in terms of their potential to be a barrier to further market integration.
36. Convergence and coherence can appear in different stages. The first step is that the same issues are tackled on the way towards a single market. Secondly, the solutions for these issues should be coherent to the extent needed. Convergence and coherence should finally result in market outcomes which reflect the existence of a regional or even single market, such as price convergence.

### **2.2 Congestion management**

37. In most regions there is dedicated work on improving congestion management methods, including transmission capacity calculation, long and medium term (e.g. annual, monthly), day ahead, and intra-day capacity allocation.

## 2.2.1 Capacity calculation

### 2.2.1.1 Definition of concepts and practices

38. It may be helpful in considering coherence of approaches to set out some preliminary definitions of capacity calculation methods:
- Load flow calculation: an algorithm that calculates flows (electrical current) in network elements (lines, transformers) on the basis of detailed generation, demand and network instantaneous data;
  - Common regional network model: a common regional network model, corresponding to a relevant level of detailed description of the demand, of the generation and of the network (with the exact availability of transmission lines) for the whole region which constitutes the necessary data for performing regional load flow calculation. Such a model requires enhanced exchange of data between TSOs.
39. Electrical flows take all possible paths between source and sink, with a preference for the shortest ones (in fact, path with the lowest resistance to the flows). If the network is radial, there is only one possible path so exchanges do not require a high level of coordination. In a meshed network, any exchange in the system influences the flows in all network elements. The more the network is meshed, the more coordination between TSOs is required for the calculation and the allocation of capacities.
40. In the area of capacity calculation and flow (PTDF<sup>6</sup>) based allocation, it may be useful to distinguish the following concepts or practices:
1. Agreed commercial cross border capacities: capacities given on different borders and timeframes (Yearly, Monthly...) resulting from a bilateral agreement between TSOs. Daily checks based on load flow calculations may be made in order to verify that agreed capacities are feasible. Capacities under this approach are thus subject to elements of negotiation or compromise between TSOs.
  2. Bilateral capacity calculation: capacities determined on the basis of assumptions how others will use the capacity bilaterally between neighbouring TSOs. Very often, the minimum value calculated by the two TSOs is chosen as cross-border capacity. This corresponds more or less to the ETSO Net Transfer Capacity (NTC) calculation method. Under this approach there is some room for interpretation by TSOs.

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<sup>6</sup> PTDF is Power Transfer Distribution Factor

3. Basic coordination of (non flow based) capacity calculation between borders: in order to avoid the risk linked to the influence of loop-flows on other borders, a coordination of the (load flow based) calculated capacities on different borders is performed by one TSO on an agreed basis, leading to a reduction of the proposed capacities if due to network restrictions demands can not be met. Here, coordination refers to coordination between (flows on) different borders made by one TSO, and not to coordination between the two sides of the same border.
  4. Flow (PTDF) based capacity calculation: a calculation based on a common regional grid model. The calculation of available capacities takes into account the distribution of flows caused by assumed (or pre-defined) commercial transaction on the involved borders (by a calculated PTDF matrix).
  5. Regional flow (PTDF) based capacity allocation: the allocation (and the coordination) of available capacities on different interconnections of a region taking into account the interactions between the allocated capacities on the different borders. This requires the specification of a common grid model and the calculation of PTDF matrices, which describe the influence of each commercial exchange on one particular network constraint. Provided the calculation of PTDF is done with a sufficient level of detail, a regional flow (PTDF) based allocation may ensure that the coordination or the sharing of available capacities on different borders is performed in a market based way.
41. It should be noted that these calculation methods, whether NTC-based or PTDF-based, are somehow imperfect to the extent where they all face the fact that TSOs have to calculate NTC or PTDFs without precisely knowing what will be the physical flows in the network. In principle the PTDF approach goes further to solve this problem than NTC since optimization across multiple lines creates greater degrees of freedom. In addition, the problem may also be addressed through the simultaneous calculation and allocation of obligations to nominate on transmission line users.

### 2.2.1.2 Relevant developments

42. Some regions plan to coordinate in some manner interconnection capacity calculation between the national markets comprising the region.
43. The Central-West electricity REM has a dedicated workstream aimed at addressing the calculation of cross border capacity among its national markets with a view to maximizing firm cross border capacity. The plan is to have a regional co-ordinated common capacity calculation method. TSOs will report on such a method in November 2007. Indeed calculation of cross border capacities is covered by Central-West priority topics 2 (day-ahead) and 4 (long and medium term) of the Action Plan. Priority topic 5 (Maximisation of the amount and of the utilisation of cross-border capacities) should also bring improvements to the calculation and maximization of cross border capacity. Furthermore, this is to be linked to a regional capacity investment plan.
44. The Central-East region is planning to introduce a region wide capacity calculation method based on load flows which should include the specification of a common grid model. It is not clear about the extent to which this might affect cross border capacity calculation in those countries that are both in this region and others (Germany, Poland,

- Slovenia). TSOs here have established a workstream devoted to the capacity calculation issue.
45. The Central-South region has set out that the calculation of the Net Transfer Capacity on the north Italian borders have been calculated according to ETSO criteria and agreed via a Pentilateral Forum. This would in the first instance therefore be consistent with methods and plans adopted in the Central-West region and Central East.
  46. Both internally within the Nordic countries and between the Nordic countries and the Continent transfer capacity definitions in line with definitions used in ETSO are applied. On interconnections where only implicit auctions are applied (internal Nordic and KONTEK) total NTC is at the disposal for these implicit auctions. The issue of determining NTC is relatively straightforward on all of these interconnectors some of which are DC lines and all are outside the meshed continental system. Loop flows, therefore, is a relatively limited problem. The specific rules on determining hourly NTC is laid down in the joint Nordic System Operation Agreement and in bilateral agreements with non Nordic TSOs. In addition to fixed transmission reliability margins NTC is depending on certain capacity constraints and operational conditions within each TSO area. TSOs on both side of an interconnector calculate hourly NTC and the lowest capacity-figure apply as trading capacity. These are published on Nord Pool Spot website. In order to increase transparency for market players recently codes indicating types of capacity reductions are applied.

### 2.2.1.3 Assessment

47. A common network model for capacity calculation is an essential contribution to be able to maximize available capacities under the condition of a secure network operation. The analysis shows that such a network model is currently not used in the regions defined in the Guidelines, but respective solutions are currently (at least partly) under development. The current practice is that TSOs coordinate the calculation of available capacities on a bilateral basis. An increased level of coordination exists within the Nordel synchronous area of the Nordic region and was partly reported for the CEE region and from the Iberian Peninsula. Although the level of grid model detail depends on how meshed the grid is, it is mandatory to rely on the adequate grid model and not only on a bilateral approach for capacity calculation.
48. A number of initiatives are taking place regarding improved methods of capacity calculation. The common denominator of these new improvements is in any case the CM Guidelines to be followed. Positive points are the work done on the development of common regional network models and the willingness of implementing PTDF-based allocation which requires increased coordination between TSOs. This will indeed require the specification of a common grid model, PTDF matrices, and require ways of dividing congestion revenues between TSOs. In regions with less meshed networks (e.g. Northern, Iberian Peninsula) this question is more straightforward.
49. Border and inter regional issues at first sight include:
  - What is the relevant level of details for the calculation of PTDFs? One node/zone or several nodes/zones per country?

- What would be the best sharing rule of auction revenues within a PTDF framework approach? How can transparency within the calculation process of PTDF based calculation be achieved properly?
- Interaction of Central-West, Central-East and Central-South. All the regions are developing a common grid model and examine the implementation of flow (PTDF) based allocation, mainly for the day ahead timeframe. Even if there is coherence in objective, overall coherence needs to be ensured in practical implementation.
- Evaluation of the proposed methods by relevant regulatory authorities.
- Treatment of firmness – e.g. will a market player receive different firmness if he trades in different regions?
- Timing issues. In other words, how capacity should be shared between the different timeframes?

## 2.2.2 Long term capacity allocation

### 2.2.2.1 Relevant developments

50. Central West, Central South, South West and France-UK-Ireland are looking to harmonize and improve present explicit auctions mechanisms over a timetable of the next one to two years.
51. In the Central-West, Central East, South West and Central-South regions, the harmonization and improvement of long and medium term cross border capacity allocation is planned. Harmonization of exercise / nomination of these rights might help with long term capacity allocation.
52. In the Northern region it is planned that one interconnector (Germany – East Denmark) will have 100% market coupling for day ahead while the other (Germany – West Denmark) might (at least initially) have annual and monthly explicit auctions. The application of the alternatives of “use it or lose it” or “use it or get paid” is currently considered. The Northern region is currently surveying the appetite of market players for long and medium term capacity reservations on interconnections, where day ahead market coupling is to be introduced. Concerning the two “merchant” interconnectors Baltic Cable and SwePol link, which are currently used by the owners according to wholesale market price differences, the future availability for the market is currently discussed in the Northern region and is also considered by the interconnector owners.
53. Regarding long and medium term capacity allocation hedging instruments, these are generally available in all regions. This long and medium term capacity rights could be financial (FTR) or physical (PTR). The main purpose of these instruments is to allow hedging the risk of volatility of price differential between two interconnected markets. Except in the Northern region, where the available hedging instruments are the financial forward market and “contracts for differences”, these long and medium term hedging instruments are allocated through explicit auction mechanisms by TSOs. The main difference between all these existing long and medium term hedging instruments rests on the degree of hedging that each instrument (FTR or PTR) is able to offer against differential price volatility.

### 2.2.2.2 Assessment

54. At present, except in the Northern Region, at most borders annual and monthly explicit auctions for physical capacity rights take place. Auction Rules are different in some aspects, for example, where to go to acquire capacity, functioning of secondary markets, definitions, nature of allocated products, processes for nominations and so on. Developments in several regions indicate that for long and medium term capacity allocation explicit auctions will be the congestion management solution for the next few years. It is therefore necessary to ensure that improvement and developments in the design of explicit auctions should occur in a compatible way. One necessary improvement will be the harmonisation of the auction rules within a region in order to set up identical conditions for taking part in the auctions. Then, at a later stage, interregional harmonisation might be envisaged.
55. A problem with different designs of explicit auctions might occur if one border is part of two different regions and might therefore be subject to different evolutions targets or development. Such a situation requires a strong effort of the regulatory bodies in order to assure a reasonable development within one region without distorting a harmonised development in other regions. Overall, the assignment of a given border to more than one region should be avoided. In those countries where several borders are part of more than one region the regulatory authorities assigned these borders to be subject in one region by bilateral agreement.

#### *Coexistence of different explicit auctions*

56. Since the processes of capacity allocation by explicit auctions are not directly linked to wholesale price differences between countries, different kinds of explicit auctions can technically coexist on different borders of one country. There are many examples of this at present in the EU.
57. Nevertheless a whole range of implementation details and coordination might hamper trade where a market player wishes to or must trade over one or more interconnections using an explicit method. Details include :
- type of interconnection capacity product offered – duration, (financial) firmness
  - auction processes, settlement, IT systems, contracts between market players and TSOs or auction offices
  - timetable for market operations
  - coordination of auction process on different interconnections, different regions
58. In practice, differences might imply overall welfare losses compared to for example more harmonised auction models (auctions rules, processes and IT platform). When market actors experience different auction products and different timing from one border to another, it indeed increases their transaction costs and their interest in trading cross-border. As described above several harmonisation and improvements will be elaborated in the Central-West, Central-South, and Central-East Regions.
- One example of an incoherent development might be the acceptance of incompatible congestion management mechanism at borders within one region or

between countries that are linked to several other regions, such as France and Germany. It has to be considered that developments within one region need to be evaluated concerning their effects on the development in other regions, by those countries that are part of more than one region in order to assure a coherent and compatible development.

- Harmonisation of auction rules is one of the possible ways to contribute to a convergent development. The discussion on several issues such as the status of transmission rights once awarded – are they Physical Transmission Rights (PTRs) financially firm (e.g. is there Force Majeure definition and compensation and curtailment rules?) - are led in many regions. The assessment of any differences between the rules in one region is a first step. The later step might be an extension of the discussion with other regions.
  - One potential problem for long and medium term capacity allocation is the set of differences in wholesale market designs – e.g. the quarterly products in Great Britain versus not having them in continental markets. Also this specific issue requires a strong coordination between the actions taken on the regional level, in order to achieve improvements based on harmonisation but not to distort the functioning of markets.
  - Another issue that needs to be taken into account is how the gradual harmonisation between continental Europe will respect and include electrical peninsulas, such as the UK and Ireland, and Iberian Peninsula.
59. The coexistence of explicit auctions with each other can in principle be improved in a number of ways. There can be an explicit bilateral auction on the border between regions, or an overlapping coordinated explicit auction (where the overlapping country participates in both regional mechanisms). Alternatively regions can, for the purposes of the auction, be merged to give a common explicit auction.

#### *Governance*

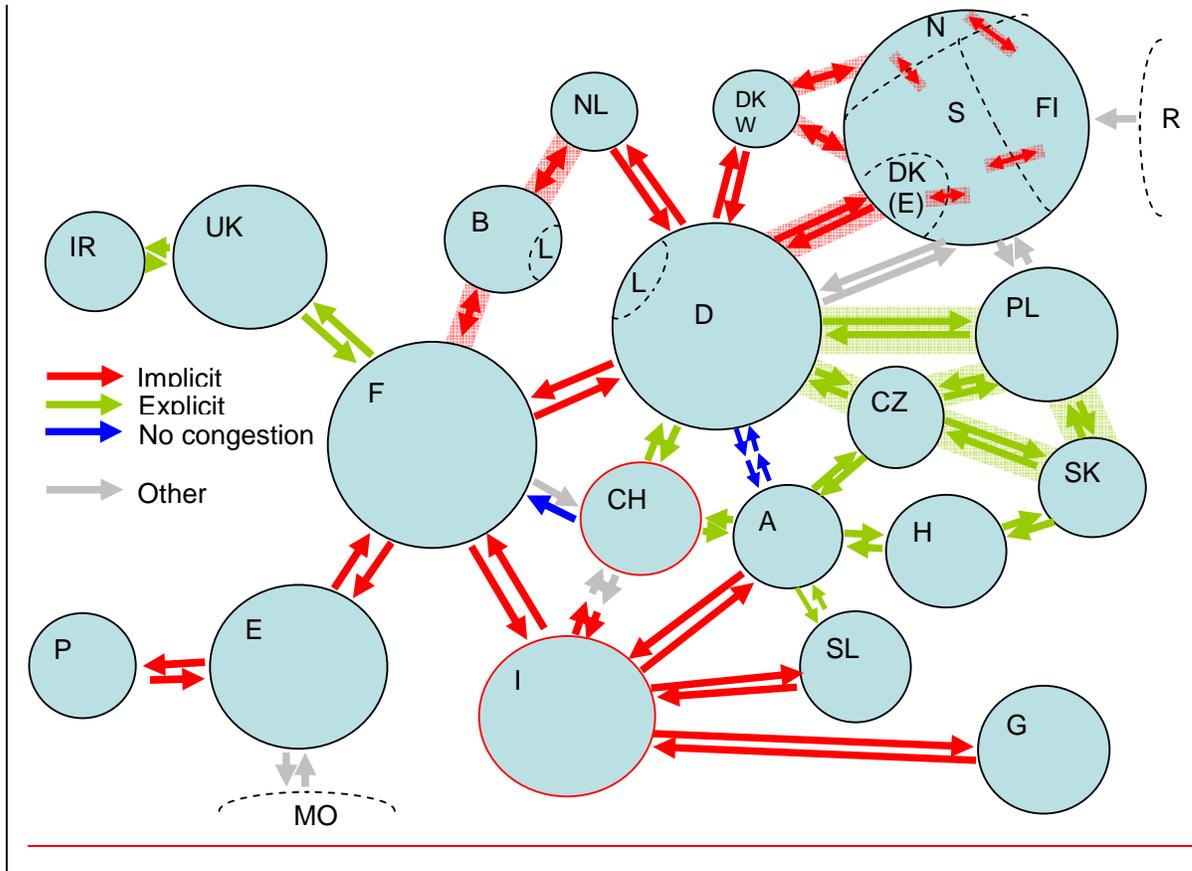
60. The harmonisation of long and medium term capacity allocation could lead to the implementation of an auction office in charge of explicit auctions. This raises the question of who oversees and regulates the Auction office, along with related questions:
- Is the Auction office a financial organization?
  - Who owns it? Where relevant, how are the ownership shares and decision making processes determined? Is entry of relevant new parties allowed for?
  - What is its basic organizational structure?
61. Naturally the key issue will be who oversees and regulates, how this is done, and how relevant authorities cooperate.

## 2.2.3 Day ahead capacity allocation

### 2.2.3.1 Relevant development

62. In the Nordic area, all the available day-ahead capacity is allocated via implicit auctions. Day-ahead implicit auctions are also applied between France, Belgium and the Netherlands and at the Kontek Cable which connects the Danish and the German market.
63. A majority of regions, except France-UK-Ireland and Central Eastern Europe, are proceeding with implicit auctions:
  - Ministries, regulators, TSOs, power exchanges and the North Western European Market Parties Platform in the Central-West region have agreed to implement flow based market coupling by January 2009 as a target date.
  - Day ahead market coupling is planned to be established within the Northern region through the German-Danish interconnectors by 4<sup>th</sup> quarter 2007.
  - On the new NorNed cable a transitional adjusted type of implicit auctions to interact with TLC market coupling in Belgium, France, and Netherlands – is envisaged for 4<sup>th</sup> quarter 2007.
  - Implicit market coupling arrangements are under discussion in South West and Central South (cf. regional action plans).
64. Finally, in the Central-East and France-UK-Ireland regions, where discussion about the issue of implicit auction has not yet started, the objective is to improve the applied explicit auction mechanisms. For the Central-East region, the priority is to implement a day ahead Flow (PTDF) Based Allocation of capacity. For this a common auction office is to be established in Freising (close to Munich), to be jointly owned by all 8 TSOs. In the France-UK-Ireland region, the priority is to make the existing explicit auction rules fully compliant with the European regulation and more harmonised with the common practice in Europe.
65. Generally therefore, regions seem to be heading for day ahead implicit auctions, though a couple will approach this goal via a stage with increasingly coordinated explicit auctions. Figure 1 illustrates the geographic spread of approaches. The reason for preferring implicit to explicit auctions day ahead among other things is that the electricity flows will better mirror short term wholesale market price differences guaranteeing an optimal use of available cross-border capacities.
66. While day-ahead explicit auctions are still the predominant capacity allocation method in continental Europe, it is now widely recognized that for the day-ahead timeframe, implicit allocation methods are more efficient than explicit auctions and should be the target mechanism for all regions for the day-ahead timeframe. Indeed, the report by the European Commission on the experience gained in the application of the Regulation 1228/2003, published on 15 May 2007, states that the so-called market coupling method has, at the moment, the highest potential of truly integrating the European electricity market at the day-ahead stage, by contrast with explicit auctions which often lead to inefficient use of interconnection capacity and prevent market integration.

Figure 1 – Development of day-ahead implicit auctions



### 2.2.3.2 Assessment

67. There is no indication – from practical experience and analysis - that different types of day ahead explicit auctions as well as different types of day ahead implicit auctions together with day ahead explicit auctions cannot coexist. However, “the devil is in the detail”, and it is therefore important to identify which differences in design of day ahead capacity allocation systems might potentially constitute barriers to the wholesale market trading. Having identified such potential obstacles, a clear distinction must be drawn between situations, where the obstacle will be transitional due to different timing of introduction of new allocation methods and situations where potential obstacles are built into “final” solutions.

#### *Coexistence of different explicit auctions*

68. As with long and medium term capacity allocation, day ahead auctions might involve the coexistence of different explicit auctions in adjacent or overlapping regions. Section 2.2.2.2 above sets out how this might be an issue.

*Coexistence of implicit and explicit auctions*

69. Among the Nordic countries and on the KONTEK interconnector to Germany a version with 100% implicit auctions are in place. But, there is a general view among regions that day ahead implicit auctions could coexist well with monthly and yearly explicit auctions on the same interconnectors. Indeed, the preference of market participants for some kind of long term capacity allocation rights seems to be closely related to their possibilities in the market to hedge various kinds of risks by way of physical or financial contracts.

*Coexistence of different implicit auctions*

70. Implicit auctions require trading capacity and energy as an integrated “package”. The most challenging case therefore seems to be the coexistence between two different methods of implicit auctions in adjacent or overlapping regions.
71. While the trend is to go for day ahead implicit auctions at the present stage different types of models are currently preferred and even the details of same type of model may differ. There are several solid arguments for these differences. Where the wholesale market of two or more countries already “shares” one power exchange market splitting is the obvious solution. Where each country – or group of countries – each have their power exchange, market coupling is currently the preferred solution. Where meshed networks exist, some kind of flow (PTDF) based market coupling is required in order to take better account of interdependent physical flows.
72. The project of Market Coupling on the new NorNed Cable might be used as a kind of experiment for this challenge to the extent that it aims to couple the “Trilateral market Coupling”, where gate closure is 11:00 am, with the NordPool Spot market, where gate closure is 12:00 am. As the “NorNed cable case” confronts two different times of gate closure, probably some transitional “second best solution” will be necessary to link the two sides of the triangle. A close cooperation on the issue has been initiated and a consultant study will be carried through over summer 2007.
73. Issues arising to bear in mind as each region considers the detailed solution to the question of day ahead capacity allocation therefore include:
- Harmonization of market design (in particular the implementation of a day-ahead fixing with a common gate closure time) will highly facilitate the development of implicit auction methods all over Europe.
74. There seems to be a consensus among regions on the willingness to implement implicit auctions. For the moment, different implicit mechanisms have been implemented (market splitting, market coupling), No problems are identified concerning coexistence of market splitting, market coupling and flow (PTDF) based market coupling as such. However, as a general rule, in order to have implicit auctions between two regions each with implicit auctions (or merging two such areas), gate closure times, “algorithms” and to some extent products and certain legal framework must be harmonized. Looking forward such harmonization, day ahead explicit auctions could remain an acceptable interim second best solution.

### *Harmonisation potential*

75. Another element is the organisational differences relating to creation of joint auction offices, maintaining cooperation between two or more Power Exchanges (PXs) etc.
76. Experience from present market coupling projects show that the “coupling algorithms” can be developed in different ways, giving more or less role for participating PXs in the capacity allocation process. While “price coupling” is a central calculation of clearing prices, cross border flows and traded volumes per participant, “volume coupling” allows participating PXs to continue to calculate clearing prices and volumes per participant – based on centrally calculated cross border flows. As it seems that “price coupling” and “volume coupling” can co-exist this might offer an important flexibility allowing less harmonized systems to coexist for a transitional period.
77. It is not possible at the present stage – with information available – to perform a detailed analysis identifying potential obstacles. The Regional Initiative, however, has initiated a substantially closer operational cooperation between TSOs, PXs and regulators within the regions – and even between the regions – which will allow such current analysis in dialogues. The CONSENTEC study “Towards a common co-ordinated regional congestion management method in Europe” commissioned by the DGTREN and due to report in June will be an important basis for this work.

### *Governance*

78. For convergence and coherence reasons, questions regarding the institutional framework regarding inter and intra regional implicit auctions arise.
79. For example, the governance of Power Exchanges (PXs) strongly differs from one country to another. In general, PXs are non regulated entities, separated from the TSOs. This status could lead to difficult situations in the context of the development of implicit auctions, which is, as already seen, the allocation mechanism to be generalised:
  - First, regulators have no way to stimulate PXs to participate to implicit auctions projects;
  - Second, PXs have no guarantee that the project costs they support for developing market coupling (or merging into market splitting) would be covered, in particular if the project is abandoned; this may curb PXs’ willingness to develop such projects;
  - Third, implicit auctions give to PXs a monopoly for the day-ahead capacities, but their services and fees are not regulated.
80. For these reasons, the harmonisation of PXs’ status and the possibility to regulate their cross border day-ahead activity should be addressed.

## 2.2.4 Intraday

### 2.2.4.1 Relevant development

81. Only the Nordic part of the Northern region (except Norway's borders), the French interconnections (except IFA and the French-Italian border), and the German – Swiss interconnections have already implemented cross-border intraday allocation mechanisms. The Nordic countries have implemented a performing continuous intraday trade platform whose main characteristic is the simultaneous (implicit) management of capacity and energy, which considerably facilitates efficient cross-border trade. The intraday allocation mechanisms applied on the French interconnections are less sophisticated: they allocate capacity only and they offer only a limited number of intraday gates (between 2 and 12 depending on the interconnection). In addition to this previous allocation mechanism, at the German-French interconnection, a pilot project has been set up in May 2007 that allows a web-based allocation of intra-day capacities, with possibilities for acquiring intra-day capacity for the direction Germany to France for 60 minutes ahead of every hour.
82. The Central-West is planning to revise intraday allocation mechanisms towards a system of continuous intraday platform similar to the one implemented in the Northern region. As specified in the topic three of the action plan, TSOs are to submit an implementation study in July 2007 with implementation scheduled for 2008.
83. Other regions, e.g. South West REM, have also announced plans to consider and introduce region wide intra-day cross-border trading mechanisms in order to facilitate cross-border trade and to be compliant with article 1.9 of the CM Guidelines.
84. The Northern region foresees coordinated intra-day trading on the Denmark-Germany interconnectors. This issue will be addressed after the implementation of the German-Denmark market coupling project.
85. For the France-UK-Ireland region, plans include the implementation of intra-day allocation mechanisms on the France-England interconnection. The region is also considering an 'advanced' solution likely to involve some form of continuous trading platform with a coordinated approach with the Central West region.
86. The Central-South region has agreed to work on the implementation of an intra-day allocation mechanism, and to give this topic priority. No details are presently available, but TSOs are expected to provide proposals in July 2007.

### 2.2.4.2 Assessment

87. The treatment of intra-day trade within regions remains on the work programmes for a number of regions. Different options are still on the table but most of stakeholders support continuous trading (as already developed in Nordic countries). In the longer term the form of such continuous trading could be elaborated further.
88. However details of proposed solutions have in general yet to be developed and so it is difficult at this stage to make any direct comments concerning any issues of convergence and coherence.

## 2.3 Balancing

### 2.3.1 Relevant developments

89. Currently except in Nordic countries and France, it is not possible for market players in neighbouring countries to participate in the national balancing market. The European Commission notes for example “it is currently not possible for Dutch, French or Polish generators to submit bids to a German TSO”<sup>7</sup> whereas the Austrian generators VKW and TIWAG can participate, as the German- Austrian border is not congested.
90. The reasons why most national balancing markets are not open to participants from abroad are not limited to a lack of harmonization or integration but primarily stem from national balancing arrangements that would have to be changed in order to comply with a principle of reciprocal access to local balancing markets. The principle of reciprocal access to balancing markets should be binding and laid down in the European regulation.
91. Furthermore in some countries, the balancing market is both a capacity and energy market whereas in other countries it is an energy-only market. For instance, in Germany, the whole needs of balancing energy are contracted ahead of real time. Owing to congestions on most of the European borders, which require the purchase of capacity, it is difficult for foreign participants to bid into such capacity markets. Imbalances are managed by automatically activated reserves and/or manually activated reserves (tertiary reserves). The European Commission has observed in this context that “the amount of capacity reserves bought differs substantially between TSOs” and that “some TSOs may lack incentives to purchase only the amount of reserves capacity that is strictly necessary”<sup>8</sup>.
92. The creation or enhancement (where existing) of trading balancing services across borders is being pursued by the Central-West, France – UK – Ireland (FUI), South West and Northern regions. It is also ranked as the second priority item according to the list of priorities approved by the Central-South RCC.
93. The Central-West region plans to introduce cross border balancing trade. Central-West expects TSOs to submit a detailed proposal for this on June 1<sup>st</sup> 2008 with a view to implementation by March 1<sup>st</sup> 2009. A first step is expected by 1<sup>st</sup> July 2007 with the submission by TSOs of a comprehensive proposal for intraday trade taking into account interrelationship with balancing. More specifically, the TSOs committed to studying how a common intraday capacity allocation platform could be used for balancing trades.
94. In the France-UK-Ireland region plans are being studied for enhancing reciprocal access to balancing markets in France and Great Britain by introducing a TSO to TSO trade model, with implementation in 2008. Such a TSO-TSO balancing trade model

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<sup>7</sup> See the Energy Sector Inquiry of the European Commission p.301 [COM(2006) 851 final]

<sup>8</sup> Idem 6

would allow market participants to sell their balancing energy to the neighbouring country. TSOs would act as intermediaries sharing offers and bids from their own control area and would be responsible for the operational handling of bids/offers activation and corresponding cross-border flow. The implementation of this model would require the development of a new information communication platform that should be compatible with the developments of balancing trades on other French borders and consequently in other regions whom France belongs to. Furthermore it should be able to evolve towards a target solution using a common platform for integrated balancing markets as it exists in the Nordic countries. Plans here are consistent with the ERGEG GGP for balancing market integration, although the France-UK-Ireland region for this topic is not making reference to any practices or developments elsewhere.

95. The Northern region has the integration of Nordic, German and Polish balancing power markets within its work programme. The Nordic countries since 2002 have had a “light” version of a common market for balancing power, which has delivered major benefits. The joint market covers fast manual reserves to regulate frequency. The commercial market players (generation and consumption) submit bids (price, volume and location) for up and down regulation to the national TSOs, which forward them to the Norwegian TSO, which sorts them according to price (“bid ladder”). Bids are called for activation in this order, but it is the national TSO which has the contact to generators/consumers of their area when activating (and deactivating) the bids. The balancing power price is determined by the marginal bid activated in the hour of operation. The system requires some minimum harmonization of the “quality” of bids, but apart from this the common “bid ladder” is the core of the joint system, each TSO having still all relations to generators and consumers of their area. The socioeconomic benefits of merging the balancing power stock are obvious and it has made superfluous specific balancing efforts on the interconnectors within the region. Even Western Denmark, which is not synchronous with the rest of the Nordic area, has been included in the joint balancing market since 2006.
96. The Baltic region is considering balancing rules across the three countries.

### **2.3.2 Assessment**

97. Integration of balancing markets has major potential socioeconomic benefits. Nordic experience indicates that a total harmonization of all elements of the markets is not necessary in order to reap major benefits. National TSOs can keep contacts with generators and consumers of their area. This indicates that a step wise development of integrated regional balancing markets might be a feasible approach.
98. As the various projects for cross-border balancing trade enhancement are still at their very beginning or even non-existent, it is not yet clear how regions plan to integrate balancing markets and the extent to which these might or might not be coherent.
99. Nonetheless, the new information communication platform which is required to implement the TSO to TSO balancing trade model, that would be implemented in 2008 in France-UK-Ireland, should be able to be expanded to the participation of TSOs from other regions and to evolve towards a target common platform for balancing markets.

100. Moreover, as the developments for cross-border balancing trade are closely linked to the developments for cross-border intra-day trade, the issues of coherence and convergence are similar in both areas. Target common platform for balancing markets should be compatible with the common intraday capacity platform that would be developed in Central-West region. A common target for all regions could be the model developed in Nordic countries.
101. Contrary to the Congestion Management Guidelines, the principles included in the GGP for Balancing Market Integration are not yet binding. Further work is needed in 2007/2008 before EREG provides final advice to the European Commission on this topic. Going forward EREG would expect to see any plans for balancing market integration to be made against the template of the EREG GGP.

## **2.4 Transparency and other topics**

### **2.4.1 Relevant developments**

#### *Transparency*

102. Five regions – Central-West, Northern, France-UK-Ireland, Central-East and South West – are addressing wholesale market transparency issues in terms of the EREG GGP as a top priority item. The remaining regions – Central-South and Baltic – have adopted transparency as a second priority.
103. Central-West and France-UK-Ireland have for example published analyses of the differences between present national practice and the position recommended in the GGP. In the Northern region, a comprehensive system for collection and release of relevant market information is being drafted, based on the GGP. Northern, France-UK-Ireland and Central East regions have established forms of working groups to progress transparency issues. In the Central-West region the issue is addressed in its action plan and within the framework of the Pentalateral Energy Forum, the region has also published a “wish list” along these lines. Central-West region has also explicitly considered the implications of transparency for the Congestion Management Guidelines.
104. In the Northern Region the basis for the work on this issue has been a consultation on proposed definitions of the single transparency items by the market parties. The comments received were taken into account while drafting an index on definition, time of publication, availability of data, need for updates and reference timeframes. The report is going to be agreed among regulators in the region and then be discussed with the market parties. It is intended to provide an instrument for the TSOs to implement the transparency requirements set in the Congestion Management Guidelines. The report shall also be used as a check list for regulators in order to assure the implementation of the Guidelines in Congestion Management and the improvement of the transparency level according to the Guidelines of Good Practice on Information Management and Transparency in Electricity Markets.

*Other*

105. Other topics to be pursued by some regions include regulatory issues, market entry barriers, transmission tariffs, regional market monitoring, and approaches to licensing market players.
106. The Central West region is considering regional cross-border monitoring.
107. The South West region within the framework of MIBEL is addressing the distribution of competences and organizational matters concerning regulatory authorities. A Regulators Council has been established comprising the four national entities responsible for energy market regulation – i.e. the Spanish and Portuguese energy and financial market regulators. In order to tackle these tasks efficiently, the Council acts as a president's committee, that is, each regulator is represented by members with capacity to take decisions. The Council is supported by a technical and other committees. The aim of this Council is to monitor Mibel and its specific markets (spot, long term, etc.) in terms of implementation and operation. A monthly report is issued by this Council through the involved regulators websites.

**2.4.2 Assessment***Transparency*

108. As the guarantee of transparency is one of the most important features for the liberalisation process and needs to be accompanied, monitored and enforced by the regulatory authorities a common approach is of high importance. The purpose of a transparent market is to provide all market participants with necessary data equally. The feasibility of implementation of better transparency in national markets and across regions will also be heavily influenced by the legal framework applying in each country, including obligations or liabilities on TSOs and other relevant parties to release and publish data.
109. Possible obstacles for harmonisation of the transparency requirements are different market designs, different market sizes, and different market liquidity levels in the European countries. Different definitions of the several information items in the national markets and the current practice of publication (different legal obligations between countries) can be considered as a challenge for harmonisation too.
110. A possible issue on coherent and compatible development might be the implementation and transposition of the GGP requirements in a non harmonised way, which would mean that no basis for comparison is given and market actors still have to take into account national requirements. This issue could be addressed by using the report as a template for harmonised definitions in order to assure a common interpretation and transformation of the GGP. In order to assure harmonised application, regulators and stakeholders in countries that are in more than one region should continue to consider and strive for an interregional compatibility.
111. Three of the regions – Central-West, Northern, and Central-East - are striving for adoption of the same approach and broadly speaking the same Transparency Report including data definition. This report was agreed and developed in the Northern

Region. The France-UK-Ireland region is also adopting a coherent approach with the GGP. In principle this provides for a consistent approach.

*Cross border regulatory issues*

112. When developing regional markets, efficient discussions and decision making processes are important. Hence the institutional framework should support that. The cooperation of involved entities should take place according to their tasks and competences.
113. This is particularly important if the institutional setting foresees entities like e.g. regional auction offices which cover the capacity allocation for the entire region. In that case the institutional and contractual framework should provide sufficient legal bases for, for example, the relationship with market parties, dispute resolution, and regulatory supervision. The same is true in cases where Power Exchanges are involved in the capacity allocation.
114. Currently the competences are not uniform per country and so the regional cooperation may not be as efficient as possible. Moreover, this is not a topic that is receiving direct attention in most regions.

### 3 Conclusions and views sought

#### Considering convergence and coherence

115. Broadly speaking, the descriptions and assessments from chapter 2 indicate that approaches in each region are implicitly compatible with the eventual development of the single market. That is, most regions have chosen to address similar topics and as far as details are available, have chosen to address them in similar ways. Moreover approaches for congestion management are underpinned by the CM Guidelines. Nevertheless there are a number of areas of detail where potential obstacles to overall market integration could arise. This chapter summarizes conclusions here and seeks views.

#### 3.1 Capacity calculation

116. A number of regions are addressing the question of capacity calculation across the relevant region, although regional common models are yet to be developed by TSOs. This will need to be addressed given the requirements of the CM Guidelines concerning regional common models.

117. Capacity calculation using load flow based methods for day ahead timeframe is the route taken by the 'central' regions, and on this basis would point to a reasonable degree of convergence where networks are meshed. Regions peripheral to the 'central' regions are beginning to address the questions but have in general not defined approaches to solutions yet, generally because they have less meshed networks and therefore less direct need to address these questions.

#### 3.2 Long term and medium term capacity allocation

118. The current status quo of explicit auctions for the allocation of long and medium term capacity allocation will be for the near future in Europe. An exception is the Northern region where available long term hedging instruments are totally disconnected from the physical reality of the network. (financial forward market – hedging over time – and contracts for differences – hedging price area differences).

119. As mentioned above several projects on harmonisation are under development in the regions focusing the target for a harmonised and improved set of auction rules for long- and medium term capacity allocation. Regions that are addressing this topic appear to be doing so in reasonably coherent manners. Challenges in terms of the use of explicit auctions therefore will include the form of auction, and the auction platform used. It will also be necessary to harmonise and improve the characteristics of allocated products (firmness, compensation scheme, hourly / daily, quarterly or only monthly, etc).

120. An important challenge for enhancing the efficiency of long and medium term allocations in Europe is also to agree on a single interface and single platform. Further convergence may necessitate appropriate market design harmonization (cf. 10 January

2007 CE paper). It also raises the question of the regulation of auction office, PXs or interconnector operator.

### 3.3 Day ahead

121. Approaches in terms of the day ahead allocation of capacity are converging, with day ahead implicit auctions in general being the preferred approach as being the most efficient. A particular issue that arises in terms of convergence is therefore the extent to which neighbouring regions or countries in two or more regions might participate. For pragmatic reasons, a stepwise approach should be privileged with, in a first step, implementation of market coupling arrangements on a limited number of countries, followed, in a second step by a progressive extension to neighbouring countries. For this purpose, the market coupling algorithm solution and the institutional framework that will be developed in the first step, should be kept as flexible as possible in order to make easier future extensions. In the longer run, a more centralized approach like the Nordic market splitting may appear more efficient.
122. Further convergence may necessitate appropriate market design harmonization (cf. 10 January 2007 CE paper). It also raises the question of the regulation of auction office, PXs or interconnector operator.

### 3.4 Intra day

123. Except in the Nordic countries, at the French interconnections, and at the German-Swiss border, no intraday allocations are in place. Where this issue has been addressed, regions have opted for planning to implement continuous trading platforms.
124. Further convergence may necessitate appropriate market design harmonization (cf. 10 January 2007 CE paper).

### 3.5 Balancing

125. As stated by conclusions of the XIII Florence Forum, integration of balancing markets is of crucial importance for integration of electricity markets.
126. However, balancing market integration has not been targeted as a first priority issue by many regions that are not really stimulated to do so since the principles of the GGP for Balancing Market Integration are not yet binding. Those regions that plan to address this topic have not yet set out details about how national markets might be better integrated. In principle coherence at the EU level is pursued since the topic is being addressed in a manner consistent with the EREG GGP on balancing market integration.
127. EREG would therefore confine comments on this topic to remarking that EREG GGP exist for balancing market integration and that further work on the interrelationship between balancing market, intra-day market and automatically activated reserves is planned during 2007 to consider further in principle how national

markets might better be integrated. Further convergence may necessitate appropriate market design harmonization (cf. 10 January 2007 CE paper).

### 3.6 Transparency

128. Regions that have identified this as an issue to be pursued are addressing the issue in terms of the ERGEG GGP, and this should produce a reasonable degree of coherence of approach across the EU.
129. Nonetheless a number of regions have chosen not to pursue this topic immediately and to that extent there is a risk that differences in wholesale market transparency appear across the EU in case the provisions of the Guidelines do not become binding soon.

### 3.7 Invitation to interested parties to comment

130. ERGEG invites views from interested parties concerning the extent to which approaches adopted or planned to be adopted in electricity REMs could be foreseen to be coherent with the overall goal of reaching a single market, and where appropriate views on how such approaches might be made coherent.
131. Comments are invited concerning any of the issues raised in this paper. Respondents might for example like to consider commenting on the extent to which the treatment of the following issues raises concerns for the overall movement to a single market:
  - Capacity calculation
    - The level of transparency of the current and future capacity calculation methods applied by the different TSOs;
    - The need and the importance of long term (year, month) capacity rights (physical or financial) and the associated need for long term capacity calculation; and
    - Which information should be published in the case of a flow (PTDF) based capacity allocation? Indeed, some implementation scheme may imply that ex-ante cross border day ahead capacity estimation should not be available anymore.
    - Is there any added-value of implementing PTDF-based allocation method without an implicit allocation method or an explicit auction of obligations to nominate?
  - Long and medium term capacity allocation
    - Current auction procedures as well as the products auctioned are different in some aspects:
      - a. Can different auction procedures (where to go to acquire capacity, nominations, functioning of secondary markets, time frame....etc) on different interconnections hamper cross border trade where a market player wishes to or must trade over more than one interconnection?

- b. Can different auction products (product profile, duration, degree of firmness etc) on different interconnections hamper cross border trade where a market player wishes to or must trade over more than one interconnection?
      - c. To what extent can the harmonisation of auction procedures and products contribute to a convergent development?
    - Can the coexistence of PTRs and FTRs on different borders reduce the degree of hedging for a market player who wishes to or must trade over more than one interconnection? Can such coexistence on different borders cause any other obstacle to cross border trade where a market player wishes to or must trade over more than one interconnection?
  - Day ahead capacity allocation :
    - Can day-ahead NTC based allocations and flow (PTDFs) based allocations coexist as such?
    - Can day-ahead market coupling and market splitting coexist as such? Would you consider market splitting (a single power exchange) more efficient, in the longer run?
    - Does the linking or merging regions using implicit auctions require a high degree of harmonization of “algorithms” and to some extent products and legal framework?
    - Do you regard “volume coupling” (each PX participating in a joint auction office still calculating own prices, but based on auction office calculated volumes on interconnectors) as a flexible option in a transitional period towards a price coupling?
  - Intra day :
    - Should regions pursue the implementation of continuous trading platforms?
    - What could or should be the geographical scope of such continuous trading platforms?
    - Will the development of several competing intraday platforms in the same geographical area not be detrimental to the development of liquidity in intraday?
    - If, for liquidity reasons, one single intraday platform appears to be relevant, who should offer this service? TSOs? PXs? Other? Should it be regulated, and how?
  - Balancing
    - Is the harmonization of the remuneration schemes for balancing bids/ offers (pay-as-bid versus pay-as-cleared) a pre-requisite to the integration of balancing markets?
    - Is the harmonization of the methods which determine the share of automatically activated reserves and manually activated reserves in the balancing reserves procurement a pre-requisite to the integration of balancing markets?

- To what extent a common intraday trading platform could be used for or interact with balancing trades?
- Could “TSO to TSO” balancing trades co-exist with “Actor to TSO” balancing trades? Could both processes co-exist and interact using a common balancing trade platform?
- To what degree should TSO to TSO coordination be enhanced or merged for national balancing markets to become properly integrated?
- Transparency :
  - Is the described coordination of regions concerning the treatment of transparency sufficient?
  - What should be expected or required in terms of a harmonised level of transparency across the EU?
- Governance and regulation :
  - Who should preferably be the owners of joint auction offices? How should “shares” (ownership and voting rights) be determined?
  - Should auction offices, interconnectors operators and PXs disposing of all or part of interconnection capacity (disposing of an “essential facility”) be regulated?
  - Which governance elements could ensure non discriminatory access of additional owners to a joint auction office?
  - Could you mention other important governance requirements for PXs and auction offices
    - a. providing “essential facilities”?
    - b. undertaking purely competitive business?

EREGEG invites all interested parties to comment on the understanding and issues raised in this paper. Any comments should be received by **14<sup>th</sup> September 2007** and should be sent by email to [convergence@erreg.org](mailto:convergence@erreg.org).

Following the end of the public consultation period, ERGEG will publish all comments received from stakeholders. Any respondents wishing ERGEG to treat its contribution as confidential should clearly state this in their reply and endeavour to give any confidential material in annexes that can be separated from publishable non-confidential material.

Any questions relating to this document should in first instance be directed to:

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## 4 Annex: Planned developments and solutions in each electricity REM

### 4.1 Central West

Belgium, France, Germany, Luxembourg, Netherlands  
Lead Regulator CREG, Belgium

#### 1. Relevant features and developments :

- Neighbour regions are Northern, France-UK-Ireland, Central-South, South-West and Central-East.
- Germany is also a member of Central South, Central East, and Northern.
- France is also a member of South West, Central South, and France/UK/Ireland.
- Power exchanges are APX, BelPex, Powernext, EEX.
- The development of the region is driven also by the governmental Pentalateral Forum.
- The NorNed cable is planned to enter into operation at end of 2007. Market coupling is planned later between Norway and the Netherlands, to be done by APX and Nord Pool spot.
- In November 2006, the Netherlands, Belgium and France established a harmonised system of day ahead market coupling (Trilateral Market Coupling) without any central auction office but with kind of rotating central responsibility among the three participating exchanges.
- Ministries, regulators, TSOs, power exchanges, and the North Western European Market Parties Platform signed a 'Memorandum of Understanding' on 6 June 2007. This set out among other things a commitment by signatories to progressing the region's priority topics.

#### 2. Current situation and plans

##### Congestion Management

##### *Capacity calculation*

3. Belgium-France border: yearly, monthly and daily cross border capacities calculations are made by RTE and Elia with different methods and are based on a good exchange of information between the TSOs. The commercial capacity is equal to the minimum value of the results of the calculation made by each TSO. No netting of monthly and yearly capacities is taken into account in the daily calculation.
4. France-Germany border: yearly, monthly, daily and intra-day cross border capacities calculations are made by RTE in the direction from France to Germany and by RWE Transportnetz in the opposite direction. Netting of monthly and yearly capacities is taken into account in the daily calculation.
5. Borders of the Netherlands: the amount, the sharing between borders and timeframes of the commercial capacities of the Netherlands have been agreed between Elia, E.ON

Netz, RWE Transportnetz and Tennet. Daily and monthly calculation checks are made by the TSOs.

6. The calculation of cross border capacities is covered by priority topics 2 (day-ahead) and 4 (long and medium term) of the Action Plan. Priority topic 5 (Maximisation of the amount and of the utilisation of cross-border capacities) should also bring improvements.
7. The expected status in 2008 should be compliant with the new Congestion Management guidelines.

*Long term and medium term*

8. Monthly and yearly allocations of cross-border capacities based on explicit auctions are presently organised on all the borders in the region.
9. On the borders of the Netherlands with Belgium and Germany, yearly and monthly allocation are presently organised by TSO-Auction for Elia, E.ON Netz, RWE Transportnetz and Tennet. Yearly capacities are auctioned in two rounds, each round representing around 50% of the yearly capacity. The first round takes place end September and the second round takes place end November.
10. Between France and Germany, auctions are presently organised by RTE in the direction from France to Germany, and by RWE Transportnetz in the opposite direction.
11. Between France and Belgium, allocation of capacities are presently jointly organised by Elia and RTE.
12. Three different sets of auction rules exist in the region: one for Belgium-France (IFB rules), one for the borders of the Netherlands (TSO-Auction rules) and one set for the French-German border (IFD rules).
13. Auction times are not yet harmonised. Auction rules are not fully harmonised, although some progress has been achieved (concerning definition of force majeure, secondary trading, etc.).
14. Plans for the harmonisation and improvement of long/medium term allocations of cross-border capacities are mainly covered by the priority topic 1 of the Action Plan. Priority topic 5 concerning the maximization of the amount and of the utilisation of cross-border capacities should also bring improvements.
15. The expected status at the end of 2007 should be compliant with the new Congestion Management guidelines.

*Day ahead*

16. Day ahead cross border allocations between Belgium, France and the Netherlands are presently organised through a market coupling (implicit auctions) between the 3 power exchanges, Belpex, Powernext and APX since November 2006. This is the Tri-Lateral Coupling (TLC).

17. On the borders of the Netherlands with Belgium and Germany, day ahead cross border capacities are presently allocated by TSO-Auction through explicit auctions between E.ON Netz, Tennet and RWE Transportnetz.
18. Between France and Germany, day-ahead auctions are presently organised by RTE in the direction from France to Germany, and by RWE Transportnetz in the opposite direction.
19. At least three different sets of day-ahead auctions rules exist in the region, for the power exchanges and for each explicit auction mechanism. Auctions times are not yet harmonised.
20. Planned solutions for this region are an improvement of day-ahead allocations of cross-border capacities. This should be achieved through pursuing priority topic 2 (Implementation of a day-ahead flow-based market coupling in the entire Central West region) of the Action Plan. Priority topic 5 (Maximisation of the amount and of the utilisation of cross-border capacities) should also bring improvements.
21. The expected status in 2008 should be compliant with the new Congestion Management guidelines.

#### *Intra-day*

22. Intraday cross-border capacity allocation presently only exists on the borders of France with Belgium and Germany. It is based on an improved pro-rata mechanism.
23. The region plans to improve and implement intraday allocations of cross-border capacities through pursuing priority topic 3 of the Action Plan, concerning cross border intraday trade and balancing.
24. The expected status in 2008 should be compliant with the new Congestion Management guidelines.

#### Balancing

25. French balancing mechanism is open to German balancing market parties. However there is no reciprocity and no other balancing exchanges take place within CW region (excepting between German control areas). Cross-border balancing is covered by the priority topic 3 of the Action Plan.
26. The expected status in 2009 should be compliant with the new Congestion Management guidelines.

#### Transparency

27. The current level of transparency in the region is given in the transparency wish list presented on ERGEG website:  
[http://www.ergreg.org/portal/page/portal/EREGEG\\_HOME/EREGEG\\_RI/ERI/Central-West/TransparencyWishlist%20CWE%20REM.doc](http://www.ergreg.org/portal/page/portal/EREGEG_HOME/EREGEG_RI/ERI/Central-West/TransparencyWishlist%20CWE%20REM.doc)
28. Transparency requirements are covered by priority topic 7 of the Action Plan.

29. The expected level of transparency at the end of 2007 should be compliant with the new Congestion Management guidelines.

Other

30. The region plans to investigate and promote some form of regional market monitoring. This will for example involve commitments from regulators to exchange relevant data and information.

## 4.2 Northern

Denmark, Finland, Germany, Norway, Poland, Sweden  
Lead regulator DERA, Denmark

### 31. Relevant features and developments :

- Neighbour regions are Central West, Baltic and Central East.
- Germany is also a member of Central East, Central West, Central South.
- Poland is also a member of Central East.
- Power exchanges EEX and Nord Pool Spot.
- In October 2006 TSOs EEX and Nord Pool Spot as well as TSOs E.ON Netz, Vattenfall Europe Transmission and Energinet.dk agreed on a MoU on establishing day ahead market coupling on German- Danish interconnectors by 4th quarter 2007 and setting up a joint "auction office".
- The NorNed cable is planned to enter into operation at end of 2007. Market coupling is planned later between Norway and the Netherlands, to be done by APX and Nord Pool spot.

### 32. Current situation and plans

#### Congestion Management

#### *Capacity calculation*

33. Between the Nordic countries in principle all capacity is available for day ahead market splitting (operated by Nord Pool Spot). However, capacity can be reduced due to outages on interconnections or due to security of supply problems which requires TSOs to reduce available transmission capacity. TSOs inform Nord Pool Spot at 9:30 day ahead about trading capacities available. Trading capacity is firm from 10:00. Transmission is guided by Nordel grid code.
34. Concerning available capacity the same principle is used for German - East Danish Kontek interconnector, where market-splitting is operated by Nord Pool Spot.
35. German – West Danish interconnector operates with bilaterally agreed capacity calculation rules (E.ON Netz and Energinet.dk).
36. From 4th quarter 2007 German – Danish interconnectors will be subject to day ahead market coupling operated by European Market Coupling Company (EMCC) coordinating the activities of Nord Pool Spot and European Energy Exchange (EEX). Probably German - East Danish Kontek interconnector will have 100% market day ahead market coupling, while German – West Danish interconnector will still offer longer term capacity reservations by explicit auctions.
37. Swedish-German Baltic Cable and Swedish-Polish SwePol cable are both operated and used by the owners as "merchant" lines. Possibilities to coordinate – or even merge – the operation with the new Danish – German operational principle is considered.

*Long term and medium term*

38. German - West Danish interconnector offers long and medium term capacity reservation possibilities. These are offered by explicit auctions on a yearly and monthly basis. "Use it or lose it" is applied.
39. Any application for long term or medium term capacity reservations on the two "merchant lines" will be treated on a case by case basis.
40. The preferences of the market actors concerning possibilities for long and medium term reservations in the future are currently being reviewed.

*Day ahead*

41. All interconnections between the Nordic countries as well as the German - East Danish Kontek interconnector are operated by a comprehensive day ahead market splitting operated by Nord Pool Spot. This activates separate price areas in case of congestions.
42. Firmness of the day-ahead allocation is secured by TSOs' countertrading.
43. German - West Danish interconnector is operated by daily auctions.
44. From 4th quarter 2007 German – Danish interconnectors will be subject to day ahead market coupling operated by European Market Coupling Company (EMCC) coordinating the activities of Nord Pool Spot and European Energy Exchange (EEX).
45. Swedish-German Baltic Cable and Swedish-Polish SwePol cable are both operated and used by the owners as "merchant" lines. Possibilities to coordinate – or even merge – the operation with the new Danish–German operational principle are being considered.

*Intra-day*

46. Intraday trading among Finland, Sweden and Denmark is performed on the ELBAS market operated by Nord Pool Spot. This trading also covers the German - East Danish Kontek interconnector. Trading can be done from close of day ahead implicit auctions until one hour before hour of operation. Intra day trading on interconnections is possible within the transmission capacity available after day-ahead allocations.
47. On the German - West Danish interconnector there is no intra-day trading. However, introduction of coordinated intra-day trading will be addressed in continuation of the introduction of day ahead market coupling on the Danish-German interconnectors by 4th quarter 2007.

Balancing

48. The Nordic countries have established important elements of a common balancing power market – of a "TSO to TSO model" type. The market focuses on manual

frequency reserves. Market actors supply bids directly to their national TSO. However the bids received by all TSOs are merged into on common list, from which balancing power bids (generation and consumption) are activated on a bid-price basis. The national TSOs are responsible for activating the bids.

49. There is no common balancing market between the Nordic countries and Germany/Poland. However, in certain situations balancing power bids across the borders are encouraged and accepted on an ad hoc bilateral basis.
50. It is part of Northern Europe ERI work programme to promote an integration of the Nordic and the German (and possibly the Polish) balancing power markets.

#### Transparency

51. Among the Nordic countries release of information of relevance to market actors is primarily done by Nord Pool Spot. Supply of information by members of Nord Pool Spot is a contractual requirement as precondition for membership. Similar information is released by the major German generators via EEX on a voluntary basis. Other information is re-leased by TSOs.
52. A comprehensive system for collection and release of relevant market information is being drafted as part of Northern ERI. The draft is based on ERGEG Guidelines of Good Practice on Information Management and Transparency.

#### Other

53. In addition to the above mentioned topics Northern Europe ERI plans to address:
  - Coordination of planning and investment in transmission
  - Coordination of integration of major shares of wind-power in the systems

### 4.3 France, UK, Ireland

France, Republic of Ireland, Northern Ireland, Great Britain  
Lead Regulator Ofgem, GB

54. Relevant features and developments :

- Neighbour regions are Central West, South West and Central South.
- France is also a member of France is also a member Central West, South West, and Central South.
- Exchanges: Powernext, UKPX.
- The work focuses on some harmonization of the capacity allocation methods, (basically explicit auctions) including the introduction of Intraday.
- Reciprocal access to balancing markets facilitated by TSO to TSO trades is also being established.

55. Current situation and plans

Congestion management

*Capacity calculation*

56. Currently the IFA is not offered 'firm'. The Interconnector Operator may curtail usage for technical or other reasons. Compensation to users is limited to the original price paid for capacity.

57. TSOs have mapped out a timetable to optimize firm capacity. No details are available yet.

*Long term and medium term*

58. Reserve prices are charged for use of the IFA.

59. Reserve prices have been reduced to a de minimis level.

60. Currently, UIOLI exists in principle at the day ahead stage. Capacity holders who do not declare their intention to nominate their capacity allocation see the IFA capacity sold to other users.

61. Market players favour the introduction of UIOSI arrangements.

62. TSOs are developing UIOSI arrangements for long term (greater than D-1), and UIOLI for daily and intra day capacity.

*Day ahead*

63. Currently, UIOLI exists in principle at the day ahead stage. Capacity holders who do not declare their intention to nominate their capacity allocation see the IFA capacity sold to other users. But the unused capacity is not re-allocated since there is no intraday allocation mechanism

64. Market players favour the introduction of UIOSI arrangements, if a market-based intraday allocation mechanism is implemented.
65. TSOs are developing UIOSI arrangements for long term (greater than D-1), and UIOLI for daily and intra day capacity.

*Intra day*

66. Currently, there is no intraday allocation mechanism.
67. UIOLI exists in principle at the day ahead stage. Capacity holders who do not declare their intention to nominate their capacity allocation see the IFA capacity sold to other users.
68. Market players favour the introduction of UIOSI arrangements, if a market-based intraday allocation mechanism is implemented.
69. TSOs are developing UIOSI arrangements for long term (greater than D-1), and UIOLI for daily and intra day capacity.
70. IFA capacity holders are able only to re-declare flows within day during 6 intra day gate closures. In practice little use is made by capacity holders of these possibilities.
71. The target mechanism discussed within the Central-West ERI, i.e. an intraday continuous platform, has been presented and is to be considered as a solution for the IFA. TSOs will need in due course to develop proposals for an intra day trading platform, but this is not yet an explicitly adopted solution. Solutions adopted will need to recognize gate closure pattern for GB, France, and the interconnector intra-day gates.
72. Less efficient but compliant solutions are also still on the table (explicit auctions and improved pro-rata).

Balancing

73. Access to French BM ("MA") is available through direct offers of GB participants. Offers can be activated in D-1 only, before 18:00. Activated offer must be included in the participant MCN. In practice, there are no offers because of uncertainty of activation vs. capacity usage opportunity by the participant. In addition, from September 2006, RTE generally does not activate offers in D-1, except for CM or Reserves reasons.
74. Balancing and Ancillary Service Agreement between NG and RTE (BASA) allows balancing exchanges. However it suffers from a lack of transparency and is considered by RTE as an emergency contract (activation if there is no more energy available in France).
75. TSOs are developing a TSO to TSO model of reciprocal access. Balancing parties will be able to offer balancing services into the 'foreign' market through their host TSO.

### Transparency

76. Regulators have set out the current situation in each country as measured against the ERGEG GGP. Main conclusions by country are :

GB	Largely compliant
France	Little data published on generation market
Republic of Ireland and Northern Ireland	Largely compliant within context of All-Island market

77. Regulators are working to the ERGEG GGP. An assessment has been carried out and gaps identified. Regulators are working to fill these gaps, within the constraints of legislation and the market arrangements. A consultation paper is planned to be published bringing these points together.

#### 4.4 Central South

Austria, France, Germany, Greece, Italy, Slovenia  
Lead Regulator AEEG, Italy

##### 78. Relevant features and developments :

- Neighbour regions are Central West, South West, France-UK-Ireland and Central East.
- France is also a member of Central West, South West and France-UK-Ireland.
- Germany is also a member of Central East, Central West and Northern.
- Austria is also a member of Central East.
- Slovenia is also a member of Central East.
- The region borders non EU countries.
- The role of Switzerland is crucial. Presently observer.
- Exchanges: GME, Powernext, EEX, EXA, Borzen.
- 2007: Agreement on harmonization of bilateral agreements on explicit auctions.
- Yearly, monthly and daily auctions (except for capacity from Italy to France: only daily auctions)
- Different "capacity products" offered with different durations and profiles.
- Harmonised nominations procedures.
- Existing day-ahead implicit allocation on 50 % capacity between IT and CH / SLO for 2007
- Day ahead flow based market coupling planned.
- Annual and monthly capacity reservations might become financial.

##### 79. Current situation and plans

###### Congestion Management

###### *Capacity calculation*

80. The Net Transfer Capacity on the Italian northern borders for 2007 interconnection capacity allocations has been calculated according to the criteria defined by ETSO and agreed via the Pentalateral Agreement. The transmission capacity assessment is carried out on the basis of identified network datasets, called "base cases", properly processed by TSOs involved in the Pentalateral Agreement (Italy, Slovenia, France, Austria, and Switzerland).
81. Bilateral agreements allow for coordination with Greece. The methodology used is based on NTC scenarios and a common transmission model is used.
82. The region has agreed to work on the improvement of coordination of the capacity calculation methodology. The RCC members also agreed to commission the analysis of the implementation of a flow-based approach for short term and long term capacity

calculation and allocation. However, regulators for this region considered that a flow-based approach for long term allocations is not likely to be implemented in 2008 as it raises a number of implementation issues. Nonetheless, regulators decided to launch a stream of work on the subject for future implementation.

*Long term and medium term*

83. Bilateral agreements on joint allocation of interconnection capacities have been signed by TSOs concerning the following interconnections: France-Italy, Austria-Italy, and Italy -Greece. These agreements provide for:
- the allocation of the interconnection capacities by means of yearly, monthly and daily auctions of physical transmission rights (PTRs) with different durations and profiles, and
  - the use of the interconnection capacities by means of harmonised nomination procedures.
84. Capacity on the Switzerland-Italy interconnection and on the Slovenia-Italy interconnection is not jointly allocated: each TSO is responsible for the allocation of 50% of the available capacity. The available interconnection capacity from Slovenia to Italy and from Switzerland to Italy is offered by TERN as auction operator, in form of Physical Transmission Rights (PTRs) through explicit auction procedures.
85. Annual explicit auctions take place for interconnection capacity from Austria to Italy, from France to Italy and on the Greece-Italy border (both directions) with respect to the following products :
- Austria - Italy: annual base load;
  - France - Italy: annual base load and annual base load excluding August;
  - Greece - Italy: annual peak hours products with the exception of the announced scheduled maintenance program and with the exception of some months during the year; annual off-peak hours products with the exception of the announced scheduled maintenance program and with the exception of some months during the year.
  - Italy - Greece: annual base load, with the exception of the announced scheduled maintenance program.
  - Switzerland-Italy: base load, base load without August.
  - Slovenia-Italy: base load, base load without August.
86. For medium term products, interconnection capacity is allocated via explicit auctions from Austria to Italy; from France to Italy and from Greece to Italy in respect of monthly base load and monthly peak. The Switzerland-Italy and Slovenia-Italy products are base and peak load.
87. For yearly and monthly auctions PTRs are offered on firm basis, except for the cases where curtailments are necessary due to circumstances that constitute force majeure, scheduled maintenance of the interconnection or for security the safety of network operation. PTR curtailment is allowed up to 45 equivalent days on the France-Italy

- interconnection, 35 days on other interconnections. PTRs acquired through yearly and monthly auctions are curtailed on a 'pro rata' basis.
88. PTRs holders are compensated for the price paid but not for all the costs incurred in by being curtailed. On the France-Italy interconnection only, in case of PTRs curtailments for network security reasons, the PTRs holder is compensated at 110% of the total payments effectuated for the hours of curtailed PTRs.
  89. There is a secondary market on the France-Italy; Austria-Italy, and Greece-Italy borders, UIOLI provisions are in place, and nominations are firm.
  90. There is a secondary market on the Italy-Slovenia and Italy-Switzerland borders. A UIOSI provision is in place since each PTRs holder resells on daily basis the difference between his yearly or monthly PTRs and his energy offers accepted on the Italian day ahead market (implicit auction). There is no need for nominations as capacity is implicitly nominated with submission of energy offers in the day-ahead market.
  91. The region has agreed to work on the harmonisation and improvement of the existing explicit auction rules for yearly and monthly allocations.
  92. As noted under the topic of capacity calculation, the region is also considering the implementation of a flow based method.
  93. The main open issue in the region at present is the lack of joint interconnection capacity allocations with Switzerland and Slovenia.
  94. As regard to the Slovenia-Italy border the relevant TSOs are going to sign a joint allocation agreement during 2007.
  95. Regarding Switzerland, the RCC members consider that Switzerland's involvement is crucial to an efficient market integration in the Central-South region. However, as Switzerland is not part of the European Economic Area, it has no obligation to implement any European regulation.

#### *Day ahead*

96. Bilateral agreements on joint allocation of interconnection capacities have been signed by TSOs concerning the following interconnections: France-Italy, Austria-Italy, and Greece-Italy. These agreements provide for:
  - the allocation of the interconnection capacities by means of yearly, monthly and daily auctions of physical transmission rights (PTRs) with different durations and profiles, and
  - the use of the interconnection capacities by means of harmonised nomination procedures.
97. Daily explicit auctions of hourly blocks take place in both directions for the following borders: Italy–Austria and Italy–France. However the features of the products sold are different from France to Italy (options to use capacity, sold on D-1) and from Italy to France (obligations to use capacity, sold on D-2).

98. On the Switzerland-Italy border and on the Slovenia-Italy border daily available interconnection capacity in both directions is assigned, through implicit auctions on the day ahead energy market (MGP) in form of right and obligation to inject or withdrawal energy into/from the Italian grid.
99. For Daily Auctions, PTRs are offered on a firm basis except for the cases where curtailments are necessary due to circumstances that constitute force majeure. You are compensated for the price you paid but not for all the costs you incurred in by being curtailed.
100. There is no secondary market.
101. This region is therefore planning to study a market coupling approach for day ahead allocation of capacity. As noted under the topic of capacity calculation, the region is also considering the implementation of a flow based market coupling approach.

#### *Intra-day*

102. There is no intraday allocation mechanism at present. However in the last RCC meeting, members agreed on giving priority to intraday agreements within the 2008 work plan for the region.
103. The region has agreed to work on the implementation of an intra-day allocation mechanism.

#### Balancing

104. Integration / compatibility of balancing markets is ranked as the second priority item according to the list of priorities approved by the Central-South RCC.

#### Transparency

105. Transparency is ranked as the second priority item according to the list of priorities approved by the Central-South RCC in April 2006 (on the 1st RCC meeting).
106. In September 2006, during the 4th RCC meeting, the Lead Regulator (Italy) suggested the re-ranking of this item to first priority. However, the proposal was rejected by the RCC on the grounds that congestion management issues should be paid maximum attention.

#### Other

107. No other topics are addressed in this region.

## 4.5 South West

France, Portugal, Spain  
Lead Regulator CNE, Spain

### 108. Relevant features and developments :

- Neighbour regions are Central West, Central South and France-UK-Ireland.
- France is also a member of Central West, Central South, and France-UK-Ireland .
- Power exchanges: Currently, OMIP (Portugal – Iberian futures market), OMIE (Spain – Iberian spot market) and Powernext (France). A unique Iberian Market Operator (OMI) will be effective as from October 2007.
- Portugal-Spain market driven by the government MIBEL initiative. The South-West Electricity REM aims at integrating the Iberian market (MIBEL) and the French electricity market.
- Key achievement for MIBEL in 2007: implementation of a congestion management mechanism at the Portuguese-Spanish border consistent of a mixture of explicit auctions (long term capacity allocation) managed by both system operators, and market splitting (day-ahead capacity allocation) managed by a single market operator (OMI).
- A detailed action plan for 2007-2009, with concrete actions and deliverables, is agreed for the region.

### 109. Current situation and plans

#### Congestion Management

##### *Capacity calculation – Interconnections*

110. Significant interconnection capacity among Member States is crucial to have effective regional integration. In this way, regulators involved in this region have set up this issue as first priority for the region. Particularly, since France is participating in other four regions, a proper interconnection between MIBEL and the French market is key. Regulators have called on TSOs to provide an analysis of the current status of the interconnection infrastructures as well as of the future needs.
111. At present, the capacity calculation is not based on a common methodology or transmission model and it is not really coordinated, but capacity calculation procedure guarantees the fulfilment of operational security criteria in the region. The South West REM will address the optimization and transparency of the cross-border capacity calculation.
112. As coordinated congestion management methods are been put in place in every involved border (F-SP and P-SP) the level of coordination in capacity calculation is increasing but bilaterally, practical rules on this are agreed by system operators in each border. Nevertheless, both methods are very similar.

*Long term and medium term*

113. Long and medium term allocation methods consist of annual and monthly explicit auctions. Auction methods are bilaterally coordinated on every interconnection in the region: France-Spain and Portugal-Spain. There is no explicit region wide coordination, but methods used are similar. A better coordination and a potential harmonisation will be taken forward in the region.
114. They are both market-based mechanisms. Capacity nominated is firm, that is, the capacity acquired in auctions and nominated by owner on D-1 gets firm. If curtailments take place because of security reasons before nomination, there is compensation. The capacity acquired in long term auctions can be resold in posterior auctions or offered in a secondary market. UIOLI principle is applied in the France-Spain border and UIOGPFI in the Portugal-Spain border. The use of auctions revenues is compliant with article 6 of Regulation 1228/2003.
115. A new congestion management scheme between Portugal and Spain has been implemented. The necessary rule (Ministerial Order) establishing the new mechanism was published in Spain on 28 March 2007 and new requirements regarding the grid code and market rules are been implemented.
116. Congestion management mechanism in MIBEL-France border to be developed in three steps:
  - i. June 2006: Explicit auctions with different time-frames.
  - ii. Next step: Explicit auctions in the long term, supplemented by day-ahead "limited market coupling".
  - iii. Last step: Coexistence of explicit auctions (long term capacity allocation) and "full market coupling" (day-ahead capacity allocation).

*Day ahead*

117. On the France-Spain border: at present explicit auction, but it is expected in a second phase to implement a market coupling mechanism, as above. For the Portugal-Spain border: market splitting is used. The methods are bilaterally coordinated in every interconnection of the region: France-Spain and Portugal-Spain. Furthermore, the implementation of a day-ahead market coupling mechanism between the Iberian and the Central West markets will be addressed in the region.

*Intra-day*

118. At present, on the France-Spain interconnector explicit auctions are used for intra-day allocation. On the Portugal-Spain interconnector, intra-day allocation is to be based on implicit auctions. Methods are bilaterally coordinated for each interconnection of the region: France-Spain and Portugal-Spain. They are market-based mechanisms, but not yet definitively established, and are to be improved in the future according to the agreed detailed action plan for 2007-2009.
119. It is expected that implicit auctions will be used for intra-day allocation on the France-MIBEL border in the future.

### Balancing

120. By now, there are not balancing exchanges between countries in this region (although French balancing mechanism is in theory open to Spanish participants). It is considered a priority topic in the REM and cross-border and reciprocal access to balancing markets will be addressed in the region.

### Transparency

121. Transparency is considered a priority topic in this REM and specific deliverables have been established by the 2007-2009 work programme for the region. Particularly, an in-depth comparative analysis of the state-of-the-art regarding information management and wholesale market data handling across Member States and a consistent regulatory proposal on how to reach a stable, satisfactory – as well as feasible – degree of transparency (according to ERGEG's GGP) will be undertaken.

### Other

#### *Regulatory framework*

122. In Lisbon on 8 March 2007, Spanish and Portuguese Ministers signed an agreement on works aimed at making the Spanish and Portuguese electricity regulatory framework compatible. Of particular note was the definition of the principles of the shareholding structure and functioning of the Iberian Market Operator.

#### *Iberian spot market*

123. In addition, Portugal eliminated the Energy Acquisition Contracts before July 2007. Following this, generation units in Portugal trade on the electricity spot market.
124. In principle therefore, the Iberian spot market has started in July 2007. Further regulatory changes on detailed rules (grid code, market rules, etc.) are being developed and will be implemented by October 2007.

## 4.6 Central East

Austria, Czech, Germany, Hungary, Poland, Slovakia, Slovenia  
Lead Regulator E-Control, Austria

### 125. Relevant features and developments :

- Neighbour regions are Central West, South West, Baltic, Central East and Central South.
- Germany is also a member of Central East, Central West, North.
- Austria is also a member of Central South.
- Poland is also a member of North.
- Slovenia is also a member of Central South.
- The region borders non-EU countries, as well as the South East Europe region.
- Exchanges: EXA, OTE, EEX, PolPex, Borzen.
- By 2007 some coordination of bilateral explicit auctions, but also some “old” long term contracts still exist. Focus on developing the existing bilateral explicit auctions into a coordinated congestion management system by 2008. It has been decided to establish a common auction office owned with equal shares by all participating TSOs and in Munich.

### 126. Current situation and plans

#### Congestion Management

##### *Capacity calculation*

127. The currently applied capacity calculation model in the CEE Region is based on the bilateral NTC approach. A common region-wide grid model is not yet used. The plan for further development is to implement a region-wide flow based capacity calculation. This shall be applicable in the first step for the day-ahead allocation. For the annual and monthly capacity assessment TSOs are still considering possible calculation methodology. However, it is acknowledged that all different calculation steps (annual, monthly and daily) have to be coordinated and compatible with each other.

##### *Long term and medium term*

128. All congested border capacities are currently allocated in annual and monthly explicit auctions. Capacities between Czech Republic, Germany, Poland and Slovakia are auctioned centrally by an Auction Office run by the Czech TSO CEPS. For these borders common Auction rules are applied. The NTC-capacity calculation is modified from bilateral NTC to the so called “technical profiles”. The other borders are managed by bilaterally coordinated explicit auctions. The capacities given to the market are firm except cases of force majeure (relatively unclear definition in auction rules). In case curtailments are necessary the affected market parties are compensated with the respective auction prices paid. Transfer of annual and monthly rights to other market participants are possible but no centralized and standardized secondary market is established.

129. For Slovenia an exemption from the application of Regulation 1228/2003 granted by the EC is valid until July 2007. Currently the capacities are allocated with non-market based methods. After the expiry date of the exemption it is planned to have explicit auctions as well.
130. Under the ERI a project on implementing completely coordinated explicit auctions is currently running. The TSOs agreed to establish a common Auction Office for the Region in Germany. The coordination will cover capacity calculation (not defined yet for annual and monthly, flow based for daily), central allocation via the Auction Office, common auction rules, a system for revenue distribution (distribution key not defined yet – to be proposed by TSOs) and common operational interface (e.g. for payment etc.) to market parties via the Auction Office.

#### *Day ahead*

131. All congested border capacities are currently allocated in annual and monthly explicit auctions. Capacities between Czech Republic, Germany, Poland and Slovakia are auctioned centrally by an Auction Office run by the Czech TSO CEPS. For these borders common Auction rules are applied. The NTC-capacity calculation is modified from bilateral NTC to the so called “technical profiles”. The other borders are managed by bilaterally coordinated explicit auctions. The capacities given to the market are firm except cases of force majeure (relatively unclear definition in auction rules). In case curtailments are necessary the affected market parties are compensated with the respective auction prices paid. Transfer of annual and monthly rights to other market participants are possible but no centralized and standardized secondary market is established.
132. For Slovenia an exemption from the application of Regulation 1228/2003 granted by the EC is valid until July 2007. Currently the capacities are allocated with non-market based methods. After the expiry date of the exemption it is planned to have explicit auctions as well.

#### *Intra-day*

133. At some borders in the Region (e.g. Czech Republic – Slovakia) Intra-day allocation is possible. This is done in a non-market based manner (first come – first serve). But no coordinated mechanism is in place in the Region.
134. The IG started to discuss that issue but no concepts or plans were made yet.

#### Balancing

135. Not a high priority issue in the CEE Region. To our knowledge currently mainly market based procurement procedures for balancing products.

#### Transparency

136. The transparency situation in the CEE Region is rather diverse. In the first step the Regulatory Authorities evaluated the current situation compared with the ERGEG GGP IMT. Then was decided to use the procedure and work from the Nordic Region

coordinated by BNetzA in order to have a coherent development in this respect. For the Nordic Region a report was produced which provides more exact definitions of the publication requirements and makes a reference to the legal basis for the data disclosure. Moreover it includes a comparison to which extend the requirements are currently met in practice. This report will be amended for the CEE Region. In parallel shall be checked to what extend and how the legally binding transparency provisions from the Congestion Management Guidelines are fulfilled.

### Other

#### *Market entry barriers*

137. In order to support a smooth market entry of non-incumbent companies a certain level of compatibility in national legal requirements for market activities (e.g. licences), market design (e.g. gate closure times etc.) and operational issues (e.g. data formats etc.) is needed. The CEE Regulators defined the identification of currently existing impediments and the negative impacts on market integration in that respect as a major priority. So far EFET provided a list of such obstacles per country at the 1st SG meeting. Based on that, discussions shall be deepened in the next month. In particular shall be identified who/how can remove such barriers.

#### *Regulatory competences*

138. For efficient market integration the competences for setting or amending rules, “running the market” and monitoring tasks should be efficient. The CEE Regulators tried in a first step to identify a list of tasks which seems to be essential for market integration. Moreover was figured out which party (e.g. Ministry, Regulator, TSO) has the responsibility for these tasks under the current national legislation. The first picture shows, that the allocation of responsibilities differs in the Region. This situation requires a proper coordinate on the work on market integration in the Region, since always the relevant decision makers should be involved sufficiently. The next step should be to demonstrate this first evaluation step to the Governments.

## 4.7 Baltics

Estonia, Latvia, Lithuania  
Lead Regulator PUC, Latvia

139. Relevant features and developments :

- Neighbour regions are Northern, Central East, non-EU countries
- The EstLink cable became operational in 2007 and connects Baltics with Finland and hence the Northern Europe Region. Consideration is given to capacity allocation by market coupling or market splitting managed by Nord Pool Spot.

140. Current situation and plans

### Congestion Management

141. The region is not subject to cross border transmission constraints that require methods of congestion management.

### Balancing

142. The Baltic states' TSOs have a responsibility for maintaining balance on their electricity systems. The balance energy provider to the Estonian, Latvian, Lithuanian TSOs is the Russian energy company "INTER RAO JES". Latvian and Lithuanian TSOs buy the balance energy from the Russia (in reality from the balance energy provider, that bought the balance energy from Russia and from the HPP). The Estonian TSO purchases balance energy from Russia through the Latvian balance energy provider.

143. In a liberalized market, the balance energy for the consumers would be supplied either by a trader or system operator in accordance with the balance energy contract between the trader, system operator and consumer. In the future there will not be remarkable changes. The balance energy market could be developed only in the case when the neighbouring countries (outside the EU) start to operate in a manner that will be compatible with free electricity market principles.

### Transparency

144. The topic of transparency is an ongoing topic. The fulfilment of the ERGEG GGP for example is currently subject to discussion.

### Other

#### *Licensing*

145. The comparison of the existing licensing systems and analysis of the current situation shows that there are no big differences in the licensing mechanisms among the Baltics. Licenses are issued by the Regulator in all countries. Only minimum requirements exist in each country, which could be reached by licence applicants reasonably easily. However, depending on market development the requirements should be minimized. For example, one issue to address is the level of detail to be required in business plans presented by licence applicants (in case of Estonia and Latvia).

146. Only one barrier has been identified which could delay the trading of the electricity among the Baltics. This is the electricity import/export permits system in Lithuania and electricity import licensing in Estonia. According to this the recommendation is to initiate the abolition procedure of such kind of permits and licenses as soon as possible.
147. In the future it will be necessary for regulators to take interim steps to facilitate the entry of prospective participants into our domestic markets and into Common Baltic Electricity Market as well. Steps include :
- initiate the abolition of the export/import permits and licenses in the Baltics as soon as possible;
  - maximize access to information by posting licensing requirements and other useful information (e.g. application form, licensing requirements in English) on regulators' websites. It would be a significant step forward to help applicants learn the requirements of the relevant licensing authority and to simplify and reduce the duration of the licensing procedure; and
  - propose appropriate changes to legislative authorities (to Ministries or Governments) addressing the greatest concerns stressed by traders.