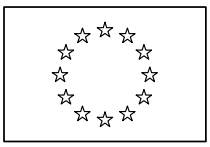

COMMISSION OF THE EUROPEAN COMMUNITIES

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COMMUNICATION FROM THE COMMISSION TO THE COUNCIL AND THE EUROPEAN PARLIAMENT

Report on the experience gained in the application of the Regulation (EC) No 1228/2003 "Regulation on Cross-Border Exchanges in Electricity"

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(Text with EEA relevance)

1. INTRODUCTION

This report fulfills the obligation of the Commission, contained in Article 14 of Regulation (EC) No 1228/2003 on conditions for access to the network for cross-border exchanges in electricity[1], to publish a report on the experience gained in the application of the Regulation. The Regulation aims at setting fair rules for cross-border exchanges in electricity, thus enhancing competition within the internal electricity market. The Regulation establishes a compensation mechanism for cross border flows of electricity, sets harmonised principles on transmission charges and rules on allocation of available capacities of interconnections between national transmission systems.

2. DEVELOPMENT OF CROSS-BORDER TRADE VOLUMES

Cross-border electricity flows in Europe have increased modestly year on year since market opening. However, on average, only 10% of electricity consumed in the EU crosses Member States' borders. Chart 1 gives the overall evolution of the physical cross-border flows in the EU27 countries, as well as in Norway and Switzerland.

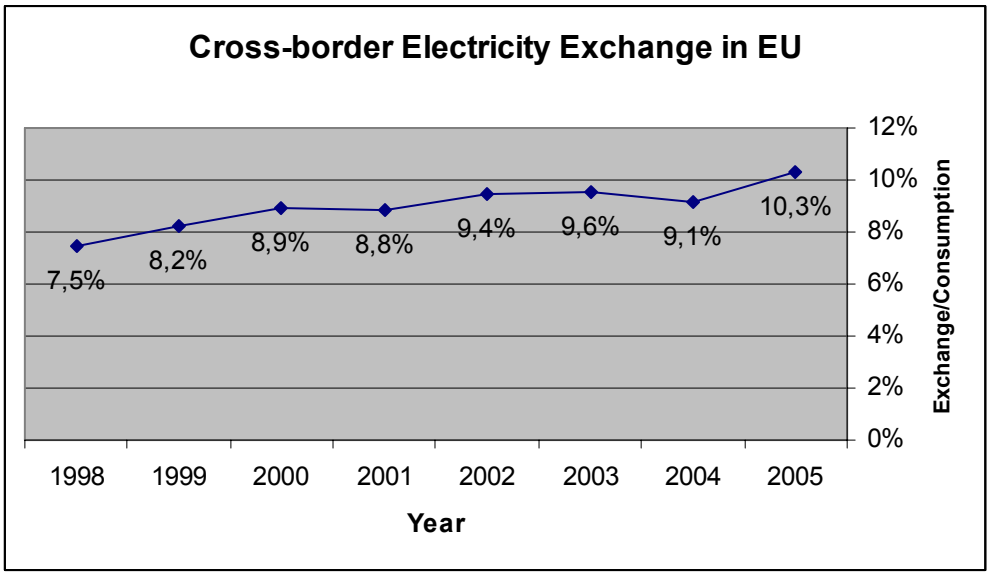

Chart 1: Development of the cross-border electricity flows between EU Member States, Norway and Switzerland (percentage of cross-border flows compared to gross electricity consumption).

[1] OJ L 176 of 15.7.2003, p. 1.

Chart 2 shows the cross-border flow quantities inside and between certain regions in Europe, as defined by the amended congestion management guidelines[2], with the addition of the South East Europe (SEE). In this chart, those countries belonging to several regions have been counted in the region to which they have the strongest physical connection. Switzerland has been included in the Central Western Europe region and Norway to the Northern Europe region. The chart gives only a rough picture of the reality and does not catch all features of the geographical markets. For example the German and Austrian markets are in practice largely integrated.

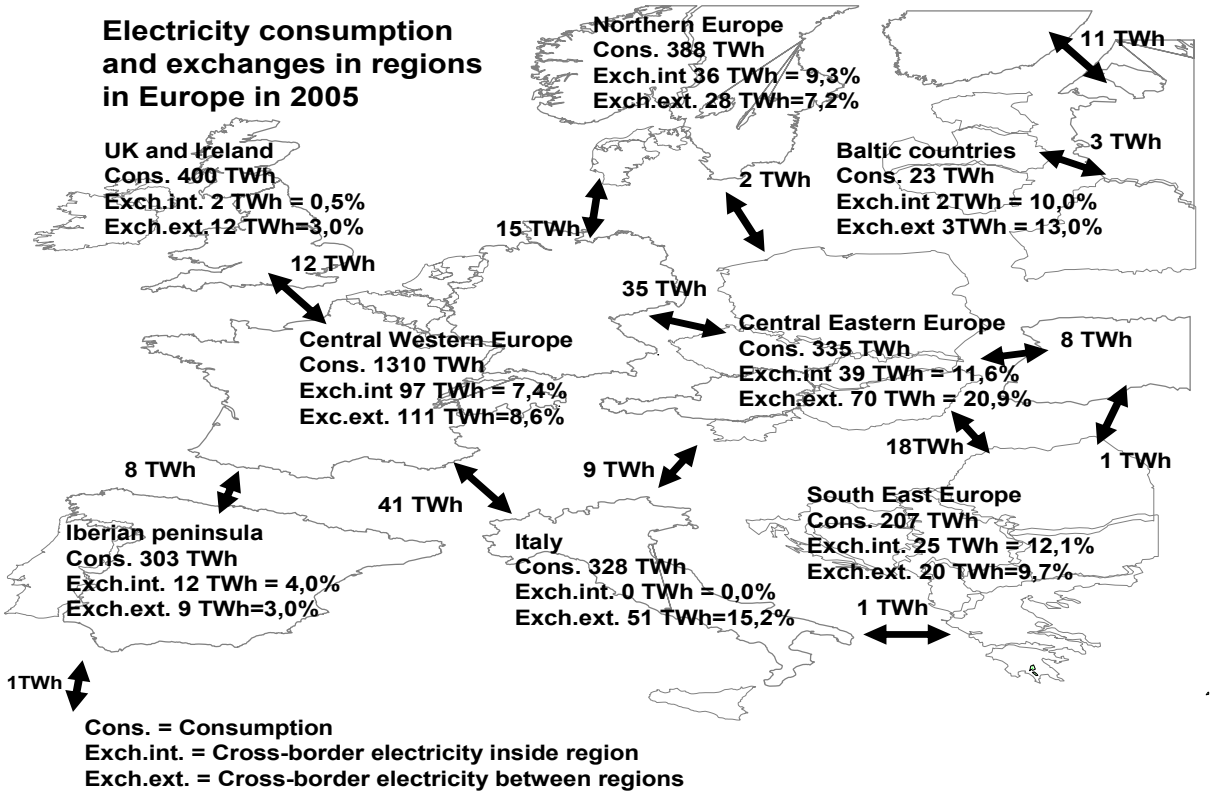

Chart 2: Electricity consumption and exchanges in regions in Europe in 2005[3]

The Chart shows that the largest region is the Central Western Europe (CWE) with an annual consumption of 1310TWh. The CWE region exchanges substantial amounts of electricity with all neighbouring regions, particularly with Italy (41 TWh) and with the Central Eastern Europe (CEE) region (35 TWh). Until recently, the Baltic region has been separate from the rest of the EU regions, but now the interconnector from Estonia to Finland, commissioned in December 2006, has ended this isolation.

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2 2006/770/EC: 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, OJ L 312, 11.11.2006, p. 59–65

3 Sources: UCTE, Nordel, DTi, Baltic TSOs

Of the total consumption in these regions (3271 TWh), 6,5% (213 TWh) is exchanged across borders inside the regions, 4,3% (141 TWh) between the regions and 0,7% (24 TWh) with third countries. However, it must be noted that physical flows are only a proxy to actual traded volumes on borders. When opposite commercial exchanges are netted, gross traded volumes can be higher than the physical volumes. Also, due to loop flows and due to the present method of capacity calculation, which poorly addresses the impact on third countries, commercial exchanges seldom coincide with the physical flows.

It seems evident from the current exchange patterns between regions, and from the underlying interconnection capacities, that there is scope for further integration of the regions towards a European market. This will lead to a higher price convergence between regions with similar generation mixes, and to a better use of arbitrage possibilities between regions with different generation mixes, such as between the CWE and the Northern European market.

Overall, cross-border trade opportunities are far from being fully utilised. This has been confirmed by the results of the sector inquiry into the electricity and gas markets[4]. This is partly due to a lack of integration of wholesale and balancing markets. In other cases, many countries do not yet have a reliable price signal to guide cross-border trade.

3. DEVELOPMENT OF CROSS-BORDER TRADING METHODS

The adoption of the amended congestion management guidelines was a step forward in the design of the EU internal electricity market. These guidelines contain practical rules to implement several principles, already included in Regulation 1228/2003. The main elements of the guidelines are the split of the EU into regions (seven regions plus South East Europe), the obligation for transmission system operators (TSOs) to operate a common coordinated capacity calculation and allocation system, and finally the requirements on transparency.

Capacity allocation methods currently in use on congested interconnections are the following (see also the chart in Annex 1):

(1) retention (vertically integrated company holds the capacity)

(2) priority allocation for legacy contracts

(3) explicit auctions

(4) implicit auctions

(5) for intra-day allocations, first-come-first-served and pro-rata

Only coordinated explicit and implicit auction fulfil the requirements of Regulation 1228/2003. However, retention is still used on some of the old merchant lines and some priority allocation is still granted to old contracts in spite of the ruling of the European Court of Justice in case C-17/03[5]. The Commission has already started legal action against these cases.

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4 Inquiry pursuant to Article 17 of Regulation (EC) No 1/2003 into the European gas and electricity sectors COM(2006)851, see Part b II.3 Market Integration

5 Vereniging voor Energie, Milieu en Water and Others v Directeur van de Dienst uitvoering en toezicht energie, OJ C 182 of 23.7.2005, p.2.

In the future, more capacity will be allocated through implicit auctions. The so-called market coupling method developed by ETSO and the association of European Power Exchanges (EuroPex) has, at the moment, the highest potential of truly integrating the European electricity market through implicit auctions at the day-ahead stage. The sector inquiry[6] showed that explicit auctions as currently practiced often lead to inefficient use of interconnection capacity and prevents market integration.

The calculation of cross-border capacity has been in the past largely based on the net transfer capacity (NTC) methodology developed by the European Transmission System Operators (ETSO). More sophisticated capacity calculation methods which are integrated with capacity allocation have recently been proposed, and are required in order to fulfil the amended congestion management guidelines. The most promising one is the so called flow-based method. In this method the available capacity is calculated in a global network model without sub-optimally disaggregating ex-ante the total capacity into bilateral NTC values. The flow-based method has the means to ensure that the resulting physical flows of all involved TSOs keep the network within its security limits. This method has large potential benefits when used in a highly meshed transmission network.

A lot of effort is still needed to implement new arrangements, including those set out in the amended congestion management guidelines. As a result, not all main projects could deliver by 1 January 2007, the deadline for having a common co-ordinated capacity calculation and allocation in place according to the amended congestion management guidelines. These difficulties are, firstly, of technical nature as the system needs to be tested and robust before being implemented. Secondly, it is often a political challenge to agree on changes in the market outcome. Even if a better method would increase the overall benefit for market participants and would provide a secure and more efficient use of the existing infrastructure, the amount of capacity to be allocated at some borders might diminish.

Some progress has been made in development of access to intra-day cross-border trade. This is also required by the amended congestion management guidelines, being mandatory from 1 January 2008.

The national regulators and the Commission will closely monitor the implementation of the amended congestion management guidelines. The Commission is prepared to start infringement procedures in case of non-compliance with the new guidelines.

4. INTER-TSO COMPENSATION MECHANISM

Regulation 1228/2003 also provides the framework in which compensation for the use of neighbouring networks is no longer based on explicit fees for individual trades (cross-border or transit fees) but on a global compensation mechanism based on physical flows. This makes a lot of sense in a meshed electricity network where opposite commercial flows net each other and physical flows almost never match with the contract path.

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[6] Inquiry pursuant to Article 17 of Regulation (EC) No 1/2003 into the European gas and electricity sectors COM(2006)851, Market Integration, see Part b II.3.5.3

Progress in the inter-TSO compensation (ITC) mechanism has been made on a voluntary basis through the Florence forum process. The first voluntary agreement was made in March 2002 between ETSO members, although it still included a 1 €/MWh cross-border fee, which was collected either collectively or from export and import transactions, depending on the country. In 2003, this fee was reduced to 0.5 €/MWh and was finally abolished in 2004.

The voluntary agreement between TSOs has been based on a method that is a simplification of the reality in the cross-border flows. This simplification contains several flaws, which have become increasingly unsustainable for some participants to support. ETSO has worked to improve the methodology, and it has put forward a so called IMICA-model (Improved Modelling for Infrastructure Cost Allocation) which addresses some of the flaws of the previous system. However, as the method is very complicated, and as discussion is still going on on the principles of an ITC method, a new interim ITC mechanism is implemented in 2007 with some improvements.

The European Regulators' Group for Electricity and Gas (ERGEG) has worked on guidelines on ITC to be adopted by the Commission under Regulation 1228/2003. However, after several attempts and several candidate methods, the latest and the most promising being the IMICA method, no agreement had been reached within ERGEG by the end of 2006.

The Commission is still considering whether the work by ERGEG provides, in any case, a sufficient basis to adopt guidelines with the assistance of the electricity cross-border committee set up by Article 13 of Regulation 1228/2003.

5. NETWORK ACCESS TARIFF HARMONISATION

Network tariffs for accessing the transmission network vary enormously (see also the chart in annex 2). The average network tariff for a load connected to the transmission network, the L-charge, ranges from ca. 2 €/MWh (Sweden) to ca. 27 €/MWh (Denmark East). The average network tariff for a generator connected to the transmission network, the G-charge, ranges from 0 €/MWh (several Member States) to ca. 1.8 €/MWh (Ireland). There are several factors explaining these differences. In addition to differing infrastructure costs, these tariffs may or may not include losses, locational signals, system services or charges not directly related to TSO activities. These other charges are mostly related to public service obligations such as support to renewable energy sources and combined heat and power (CHP) as well as stranded costs.

Tariff harmonisation is needed in order to have a level playing field for the electricity market and it is one of the main issues addressed by Regulation 1228/2003. Although a binding guideline on tariff level has been in preparation already for several years in the Florence forum process, it cannot, according to the regulation, be adopted independently of the guideline for the ITC mechanism. The draft guideline on transmission tarification aims at gradually diminishing the spread on the G-charge. This is because the G-charge is more important regarding the level playing field than the L-charge.

6. CONGESTION

It can be noted that congestion patterns have become more volatile, even if there is no uniform method to collect and publish data on the appearance of congestion yet. In the past the flows, often dominated by long-term contracts, remained relatively stable. Increased volatility can be seen as a sign of a better functioning market leading to increased trade on both directions over the interconnectors. In some cases, this might also be due to a new trading strategy of players in a dominant position in one market: cross-border volumes are being optimised.

With market based mechanisms, the TSOs collect congestion rents which reflect the price difference between zones and the volume traded over each interconnector. On borders where explicit auctions have been used already for some time, the following rents were collected in 2005 (2004)[7]: Germany 158 M€ (98 M€), the Netherlands 48 M€ (35 M€), Czech Republic 44 M€ (41 M€), Poland 41 M€ (9 M€) and Denmark (borders with Germany) 28 M€ (19 M€). In the Northern region the following aggregated congestion rents have been collected under the market splitting system[8]: 48 M€ in 2004, 117 M€ in 2005 and 104 M€ in 2006. For 2006 several new explicit auctions were introduced in order to replace retention, priority allocation for legacy contracts or first-come-first-served methods, which are not compatible with Regulation 1228/2003 or the ruling of the European Court of Justice in case C-17/03 .

According to the Regulation, congestion revenues can only be used for guaranteeing capacity, building infrastructure or lowering the network tariff. Unfortunately, lowering the tariff has been the most common use of congestion revenues. Only in some cases network investments have been preferred (Nordic countries, the Netherlands). According to the amended congestion management guidelines the regulators will, from 2007, have to publish a yearly report on the collection and use of the congestion income.

7. ACCESS TO CROSS-BORDER ELECTRICITY TO END USERS

The borders between countries and control areas still form an important obstacle to true market integration. A medium term target is to aim at regional harmonisation of the market and building of new infrastructure in such a way that the market participants will be less hindered by the borders than they are today. This situation has been largely created for wholesale market participants in the Nord Pool area. When market participants in the Nordic market are bidding into the day-ahead spot market, the system automatically optimises the cross-border infrastructure use. The balancing market is also integrated using bids from the whole region. However, this Nordic market does not yet extend directly to the retail market, as the customers are still obliged to use suppliers established in the same country. Work is going on in view of establishing a true Nordic end-user market. Another example of an integration of wholesale markets is Germany and Austria. Retail market integration in this area is also being discussed.

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7 Information collected from auction office websites. Rent at each interconnector is assumed to be split 50-50 between the TSOs involved.

8 Nordel

8. SECURITY OF SUPPLY

The first year of the Regulation being in force, 2003, proved to be a difficult one for security of electricity supply. Italy suffered a major black-out in September 2003 due to problems in the interconnection lines with Switzerland and due to failure in limiting the spread of the fault. Also in September 2003, a major black-out happened in southern Sweden and in eastern Denmark. Less far-reaching blackouts occurred in 2003 in London and Helsinki. The most recent black-out on 4 November 2006 affected the whole Union for the Coordination for the Transmission of Electricity (UCTE) synchronous area. This incident originated in northern Germany and lead to the splitting of the UCTE area into three parts and, consequently, to approximately 10% of load shedding in the western area in order to preserve the integrity of the transmission network.

As major system disturbances occur very seldom, it is not possible to draw conclusions yet on whether the probability of the occurrence of black-outs is becoming higher or lower than before the increases in cross border transmission. It was, however, clear from the Italian black-out that the TSOs did not have a sufficient framework in place to guarantee a high level of system operation on a European scale. Co-operation was based on non-binding recommendations without monitoring and enforcement of those recommendations. Consequently UCTE started work on changing the recommendations into a handbook of rules, enforced and monitored through a binding agreement between all UCTE member TSOs. This process is not yet finished although considerable progress has been made.

It has been discussed especially in the Florence forum process, whether binding security rules at the European level are necessary. This is already possible through the Regulation, although the Commission has not chosen to make any proposal to date.

The recent ETSO report on generation adequacy[9] indicated that there is no major concern for most of the European network until 2012. After 2012, the situation might become critical if the investments take place more slowly than predicted. The situation can change rather quickly when new investments are announced, such as in Italy, Spain, Netherlands and Germany. The Nordic countries are dependent on rainfall, due to a high share of hydro power. Therefore, generation capacity becomes an issue in dry years such as 2006.

The ETSO report takes into account the influence of cross-border connections to the generation adequacy at regional level with the expectation that TSOs would not unilaterally cut interconnectors between Member States in the case of extreme peak demand conditions. However, the behaviour of some TSOs in these conditions is not very predictable. Some examples indicate that domestic customers might be preferred to foreign ones. This is a violation of both the Directive 2003/54 on common rules for the internal market of electricity[10] and the Directive 2005/89 concerning measures to safeguard security of electricity supply and infrastructure investment[11]. Further discussion on this important issue will take place in the context of the implementation of the latter directive.

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9 Generation adequacy, an assessment of the interconnected European power systems 2008-2015 May 2006, ETSO

10 OJ L 175 of 15.7.2003, p. 37.

11 OJ L 33 of 4.2.2006, p. 22.

9. LOCATIONAL SIGNALS

Locational signals are a fundamental requirement for the functioning of the electricity market. Locational signals refer to any transmission tariffs or conditions which influence the generation dispatch in the short term and the siting of new generation plants and electricity intensive customers in the long term.

Currently, congestion effects provide the strongest network related locational signal in the EU electricity market. Effectively the existence of congestion means that the market is divided into price zones and congestion maintains a price difference between zones. This is a strong signal when a company chooses where to invest in generation capacity. In addition, within some countries (the United Kingdom, Sweden and Norway) there is also an inbuilt locational signal element in the network access tariff. This signal is supposed to influence both short term behaviour (dispatching) and long term behaviour (investments). There are not yet any European-wide locational signals in tariffs to supplement those arising from congestion. Harmonisation of network tariffs may be needed before a European-wide locational signal could be reasonably built into the tariffs.

There is a major issue concerning locational signals within some Member States, especially in large countries with a single price area and where congestion is not explicitly recognised. For example, in Germany there is a high penetration of wind power in the north of the country with priority dispatch. Although congestion exists between northern and southern Germany, the maintenance of a single price area means that the locational signal for conventional generators does not exist. Southern Sweden and southern Austria also suffer from a lack of locational signals for generation due to the maintenance of a single price area. In France there is a single price area for electricity and a zonal tariff for gas: it creates congestion on the electricity transmission system whereas it would be more economic to transport primary energy than electricity. Flow-based allocation methods are expected to provide more information about the location of bottlenecks in the power system.

10. CONCLUSIONS

During the period when the electricity markets have been open in Europe, there has been a steady but modest increase in cross-border flows. The main driver has been the possibility to trade between price areas with price differentials. The capacity calculation and allocation methods have developed, with possible further improvement to come as a result of the amended guidelines for congestion management adopted in November 2006. They will require methods based on a wider regional optimisation of the use of the network instead of concentration on bilateral trade between two adjacent countries. This will also provide a more secure management of physical flows.

However, there are signs that the transmission network sometimes operates close to its physical limits. The blackout in Italy in 2003 and in UCTE in 2006 showed how costly any incident in the European-wide transmission network can be. Therefore it is important for increase in trade to be accompanied with more co-ordinated network operation and the building of new infrastructure, including upgrading existing lines, building new lines and investing in other network components, where needed. Due to the local nature of electricity, this increase potential is not unlimited, but there is still substantial scope to optimise the use of existing transmission resources. This being said, increasing flows is not a target as such. It is rather the possibility for flows which is a necessary condition for cross-border trade and a fundamental element for a well functioning internal electricity market.

The European market is increasingly based on a regional concept. This first developed naturally, following the physical realities of the network. With the establishing of the regions in the amended congestion management guidelines and with the development of the Electricity Regional Initiatives by ERGEG, the regional approach has received an official status. The regional approach should, however, be considered as a pragmatic tool to achieve an overall European market. There is a priori, no major reason why the implementation of the electricity market should vary a lot between the regions.

The amended congestion management guidelines entered into force 1 December 2006. The ITC guidelines and tariff harmonisation guidelines are under preparation and should be adopted during 2007 by the Commission. With these guidelines the rules foreseen by Regulation 1228/2003 will be achieved, with the exception of security and reliability rules. In the meantime it has become clear that there is a need to address a number of issues on which the Regulation does not foresee detailed guidelines. The following tentative list contains the ongoing issues relating to cross border trade, only some of which are fully covered by the Regulation. However, most of them are already addressed by various ERGEG initiatives:

(1) Security and reliability rules: rules between the TSOs to ensure safe operation of the grid. A mandate for the adoption of guidelines by the Commission is already contained in Article 8 of Regulation 1228/2003.

(2) Connection rules: governing the relation between the TSOs and the customers (generators, distribution system operators and big end-customers).

(3) Rules for trading electricity: harmonisation of trading arrangements, timetables and products, including intra-day trade.

(4) Transparency rules: detailed rules on data exchange and publication between market participants. Transparency rules are already addressed in the amended congestion management guidelines.

(5) Balancing and reserve power rules: aiming at further integration of the balancing and reserve power markets. Cross-border balancing is already addressed in the amended congestion management guidelines.

(6) Data exchange and settlement rules: aiming at integration of the retail market through sufficiently harmonised data exchange and settlement rules.

(7) Investment incentive rules including locational signals: providing a European framework for efficient investment signals for both generation and network investments.

The need for and the level of detail of these rules are still to be discussed, and further studies are needed in order to provide the necessary input. However, it has become evident that further integration of the internal market needs a coherent set of rules, as elaborated in the communication from the Commission on prospects for the internal gas and electricity market[12]. Many of these rules already exist, but on a national basis or a company basis, with a different oversight by national regulators. The incompatibility of these rules may be one of the biggest obstacles to market integration. The communication on prospects for the internal gas and electricity market elaborates what role the regulators should have in preparing, monitoring and enforcing these rules, and how the TSOs should be involved in this process.

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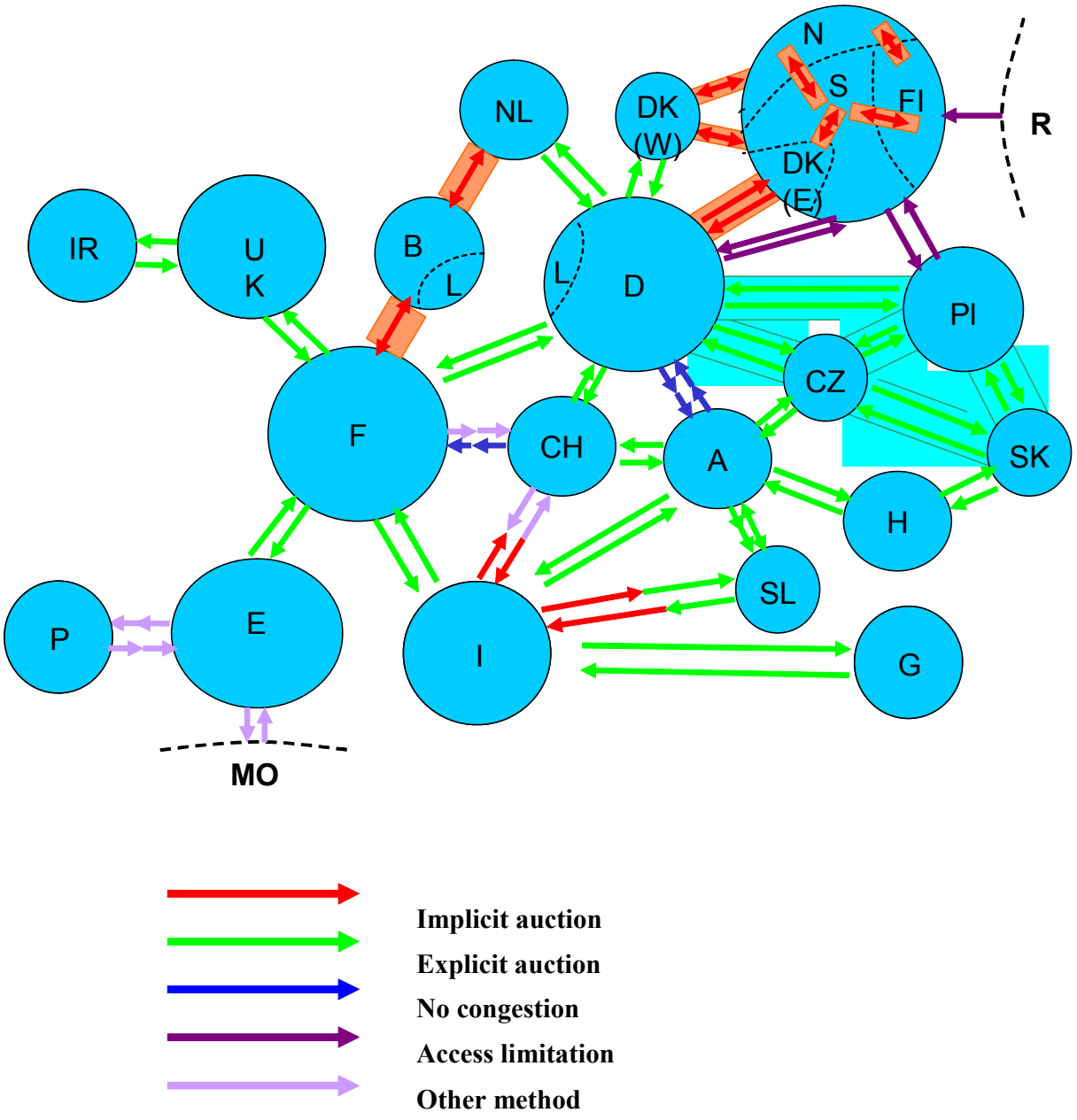
[12] Prospects for the internal gas and electricity market, COM(2006)841

Annex 1: Congestion management methods in use in Europe (source ETSO report: *An Overview of Current Cross-border Congestion Management Methods in Europe,* May *2006*)

Day-ahead allocation (updated in January 2007)



Annex 2: Level of transmission tariffs in Europe

(source ETSO report from 2006: *ETSO Overview of transmission tariffs in Europe: Synthesis 2005*)