

## Report on the use of the French-German interconnection in 2006

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## **Introduction: achieved improvements in Congestion Management in one year**

### *a. Implementation of new allocation mechanisms in 2005 and 2006*

For years, most of the European electricity interconnections were managed using administrative mechanisms (priority lists or pro-rata), and a priority of access was granted to long-term contracts between incumbent operators.

With the liberalisation process, cross-border power flows tended to increase, and congestions occurred more frequently, calling for efficient congestion management methods.

Furthermore, the European Regulation 1228/2003 on conditions for access to the network for cross-border exchanges in electricity came into force. Among other issues, it stipulated that “*network congestion problems shall be addressed with non-discriminatory market based solutions which give efficient economic signals to the market participants and transmission system operators involved*” (article 6.1). In other words, cross-border capacity auctions had to be implemented.

Due to repeated critical situations in December 2004 the past pro-rata procedure used for Germany to France exports was replaced as from 5 April 2005 by the introduction of a one-sided explicit auction for the day-ahead capacities by RWE Transportnetz Strom GmbH and EnBW Transportnetze AG. In addition the capacities have been auctioned quarterly and monthly since 1 July 2005.

During the summer of 2005, the Federal Network Agency and the Commission de Régulation de l'Énergie (CRE) set the priority for further developing the auctions in 2006 by having a coordinated congestion management mechanism for both directions.

The general principles of the auction design were publicly consulted by the regulators together with further questions on cross-border exchanges in the autumn of 2005. The market participants' statements were assessed by the regulatory authorities and considered through the development of a common Roadmap for the congestion management methods at the French-German border, published on 3 November 2005. In addition to the implementation of explicit auctions, this roadmap included the establishment of a secondary market, a further coordination of the intraday exchanges, the development of a coordinated model for calculating the transmission capacity and the investigation of further coordination possibilities.

The two German TSOs operating the interconnectors to France and the French TSO RTE therefore developed common capacity auction rules to be implemented on 1 January 2006 (see inset 1 for a description of the auction design and results).

In parallel to the establishment of the Roadmap, on 1 December 2005, CRE requested that RTE no longer recognise the right of priority access to interconnections through incumbent contracts concluded before enforcement of the Directive of 19 December 1996, following the judgement of the Court of Justice of the European Communities of 7 June 2005. According to the request of Federal Network Agency (August 2006), German TSOs do not further recognise the right of priority access to interconnections through incumbent contracts by 1<sup>st</sup> April 2007.

The Roadmap also announced that an annual report would be published by the regulatory authorities to give feed-back to market participants on how explicit auctions methods operate. As a result the TSOs have provided monthly extensive data on the auctions to the regulatory authorities since January 2006. This data forms the basis of the analyses presented in this report.

### *b. New European framework in 2006 and regulators' objectives for 2007*

In February 2006 the ERGEG launched its Electricity Regional Initiatives. Their objective is to speed up progress at regional level on building blocks for a single competitive electricity market and to identify and remove barriers to competition. Among the seven regions defined by the ERGEG, France and Germany belong together to two regions:

- the Central-West region, together with Belgium, Luxembourg and the Netherlands;
- the Central-South region, together with Austria, Greece , Italy and Slovenia.

Furthermore, on 1 December 2006, the new guidelines of Regulation 1228/2003 came into force. As Regulation (EC) 1228/2003 gave general principles on Congestion Management methods, these new guidelines provide more precise requests in order to improve the efficiency of the allocation mechanisms already in place. In particular, they strongly encourage regional approaches for calculating and allocating cross-border capacities.

In this regard, the five regulators of the Central-West region produced a regional Action Plan, published on 12 February 2007. This Action Plan continues the significant work achieved through the road maps elaborated by the regulators at the end of 2005, and indicates specific steps to carry out with a view to fostering regional integration of the electricity markets over the next two years. It provides precise timetables for improving several aspects of the Congestion Management methods within the region.

This report therefore has two objectives:

- First, as requested by the bilateral Roadmap, it aims to give a feed-back on the operation of the new allocation mechanisms implemented in 2005 and 2006. Three advantages of these new mechanisms are identified in Part 1:
  - o New economic signals, enabling interconnection capacity value to be estimated, have appeared.
  - o Congestion income is now transferred to all network users.
  - o Cross-border congestion management methods are more transparent (the capacities are now shared amongst a greater number of market players) and more efficient (capacity use is better correlated to price differentials).
- Secondly, it aims to accompany and justify the requests of the Central-West region Action Plan. Part 2 identifies the improvements needed in order to have fully efficient cross-border congestion management methods:
  - o Available capacities should be improved, both in terms of quantity (by developing flow-based calculation methods, requiring greater coordination between TSOs), and in terms of quality (by making long-term rights firmer, harmonising auction rules and improving transparency).
  - o Capacity use must be better correlated to the market price differential. With this aim in mind, implicit allocation mechanisms shall be encouraged for short-term timeframes (from day-ahead to real time), and of use of long-term capacities should be increased.
  - o Compliance with European Regulation (particularly with the new guidelines of Regulation (EC) 1228/2003) has to be assured during the process of reaching these two objectives.

As can be seen in the conclusion, the priorities defined in the Action Plan are in line with these needed improvements.

**Inset 1 -- Auction design and general overview of the allocated capacities**

In the Roadmap, the Federal Network Agency and the CRE agreed on the organisation of one-round sealed bids explicit auctions at marginal price for the annual, monthly and day-ahead timeframes. After the public consultation, the following capacity structure for the different timeframes was decided by the regulators:

- a minimum of 10% of overall capacity guaranteed all year round, for the day-ahead timeframe,
- a minimum of 20% of this capacity for the monthly timeframe,
- all the remaining capacity for the annual auction.

The following table gives a general overview of the allocated capacities.

**Table 1: participation in capacity auctions in 2006**

		Average available capacity for the auction (MW)	Average allocated capacity (MW)	Average number of participants	Average number of participants who got capacity
From France to Germany	Annual	900	899	36	13
	Monthly	383	383	25	6
	Day-ahead	1.297	1.288	12	7
From Germany to France	Annual	1.500	1.499	31	16
	Monthly	1075	1075	23	13
	Day-ahead	3.707	3.700	17	14

## 1. Numerous advantages of the new mechanisms

When the regulators decided to implement new mechanisms for the allocation of cross-border capacities, they expected crucial social welfare benefits, since the ultimate objective of these mechanisms is to lead to an efficient use of the interconnection with respect to the electricity demand and generation on each side of the border. Efficient use of the interconnection would improve the complementary use of both generation parks and smooth out the effects of electricity consumption peaks.

### *a. New economic signal of the value of cross-border capacities*

Before the auctions were launched, there was no way of estimating the value that market players assigned to cross-border capacities. Thanks to the auctions, such a value can now be calculated: Table 2 shows the total auction revenue, divided by the sum, hour by hour, of the total auctioned capacity (yearly – monthly – daily). This provides an economic signal allowing the value of one megawatt on each interconnection for one whole year to be compared. This new tool can be considered as a useful indicator for investments in the European grid.

**Table 2 – Value of cross-border capacities in 2006**

	Value in each direction		Total for the interconnection
	€/MWh	€/MW	€/MW
<b>France to Germany</b>	<b>1.22</b>	<b>10 695</b>	<b>22 253</b>
<b>Germany to France</b>	<b>1.32</b>	<b>11 558</b>	

### *b. New economic signal of good working order of the mechanisms*

The previous indicator gives market's willingness to pay for cross-border capacities. Here, we compare and contrast the annual congestion income (i.e. the auction revenue), reflecting the observed willingness to pay of market players, with the theoretical congestion income, based on the hourly market price differential between the countries.

**Table 3 – Theoretical and actual congestion income for 2005 and 2006 (million euros)**

	2005			2006		
	Auction revenue	Theoretical congestion income	rate	Auction revenue	Theoretical congestion income	rate
<b>Germany to France <sup>1</sup></b>	<b>15</b>	<b>121</b>	<b>12%</b>	<b>53</b>	<b>158</b>	<b>34%</b>
<b>France to Germany</b>	<b>0</b>	<b>34</b>	<b>0%</b>	<b>21</b>	<b>75</b>	<b>28%</b>

The differences between theoretical and actual congestion income stem from:

- the resilience of the markets (i.e. the fact that use of the interconnection in the direction of the price gradient tends to decrease it), which is not taken into account in our definition of the theoretical congestion income,
- the difficulty that market players have in anticipating exactly what the day-ahead price differentials will be, each day for the whole of the following year,

<sup>1</sup> For 2005 the values here calculated are from 5 April to 31 December (with the auctions).

- the fact that hourly arbitrages cannot always be made, for example because market players implement their arbitrages on a longer term basis (e.g. with base or peak products),
- lack of widespread healthy competition.

Here, we consider trends in the ratio of actual and theoretical congestion incomes, particularly with a view to comparing several interconnections. For example, a relatively weak ratio could stem from an incompatibility in the market designs of the two countries, an inappropriate or non-transparent auction design, or a lack of competition on the interconnection.

Regular monitoring of this ratio over the next few years could enable assessment of the impact of a modification to the auction rules or to the market design in one country and whether and to what extent proper market operations are being achieved.

### *c. Transfer of the congestion rent to grid users*

With free capacity allocation, the entire theoretical congestion rent is kept by interconnection users, as shown in Table 2 above. Thanks to auction revenue, a part of this theoretical rent is transferred to grid users (74 million euros, for the French-German interconnection in 2006, to be shared in equal parts between the two countries). Precisely because the TSOs have to use the congestion income in accordance with Article 6.6 of European Regulation (EC) 1228/2003, it is shared by all network users as any use of the income will in the end benefit all users.

Concerning the French share, these revenues are used as income which is deducted from the charges to be covered by the grid tariff. In its deliberation of 21 December 2006, CRE highlighted the extremely low amount dedicated to investments in cross-border capacities for 2007, which is at odds with the implementation of the single electricity market. Concerning the German side, the major part of the congestion management revenues are also used for the deduction of the grid access fees.

### *d. New distribution of capacities between market players*

As Table 4 shows, the concentration of the market at the interconnection decreased sharply from 2005 to 2006. In particular, the fact that the 2006 allocation mechanism from France to Germany was non-discriminatory, unlike the priority list and the priority of access granted to long-term contracts, in force in 2005, has a direct consequence on the number of active users: 39 in 2006 compared with 24 in 2005.

**Table 4 – Market concentration indexes for 2005 and 2006**

	From France to Germany		From Germany to France		
	2005	2006	2005, before 5 April	2005, after 5 April	2006
<b>Number of active users</b>	24	39	27	31	36
<b>Highest market share</b>	90%	23%	28%	22%	18%
<b>HHI <sup>1</sup></b>	8088	895	1259	953	779

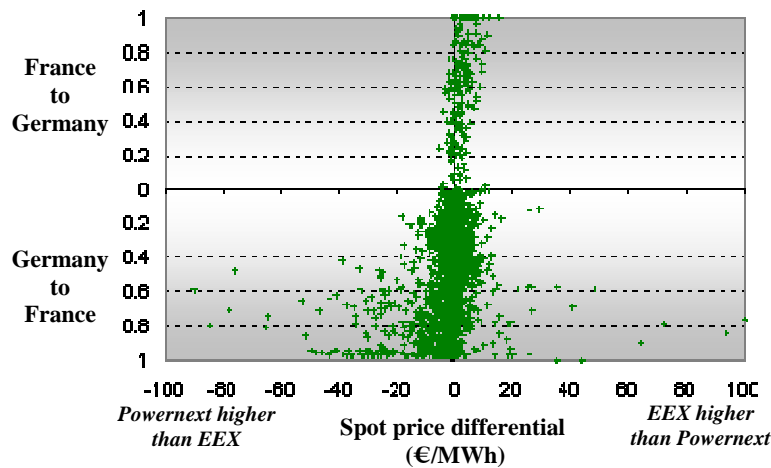
<sup>1</sup> The Hirschmann Herfindhal Index (HHI) provides an assessment of the concentration of a market: it is the sum of the squares of the market shares. The smaller it is, the smaller the market concentration is: for pure and perfect competition, it would be 0, whereas for a monopoly, it would be 10,000.

*e. Greater flow consistency with the price differential*

A clear correlation can be established between the use of the interconnection compared with the price differential and the changes made to the allocation mechanisms (Figures 1, 2 and 3).<sup>1</sup>

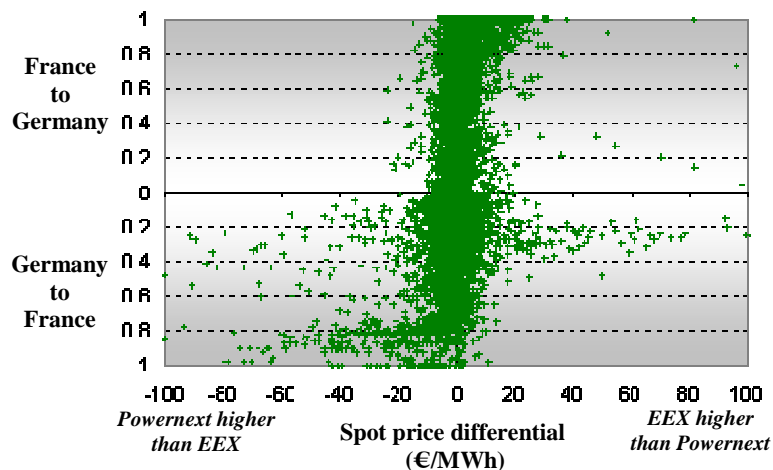
During the first part of 2005, when allocation mechanisms were not market-based and when long-term contracts enjoyed priority access rights, the net flow on the interconnection followed a “business as usual” logic from Germany to France. Although EEX-Price was higher than Powernext-Price for 37% of the time, the net flow occurred from Germany to France for 90% of the time (bottom half of Figure 1).

**Figure 1 – Correlation between the net hourly utilisation rate of the interconnection and the hourly price differential between the power exchanges, from January 2005 to 4 April 2005**



During the second part of 2005, when auctions were set up from Germany to France, the balance between net flow and prices was better. When EEX-Price was higher than Powernext-Price, the net flow followed the price gradient for 59% of the time, as shown in the top right hand quadrant of Figure 2 (compared with 24% for the first part of the year).

**Figure 2 – Correlation between the net hourly utilisation rate of the interconnection and the hourly price differential between the power exchanges, from 5 April 2005 to 31 December 2005**



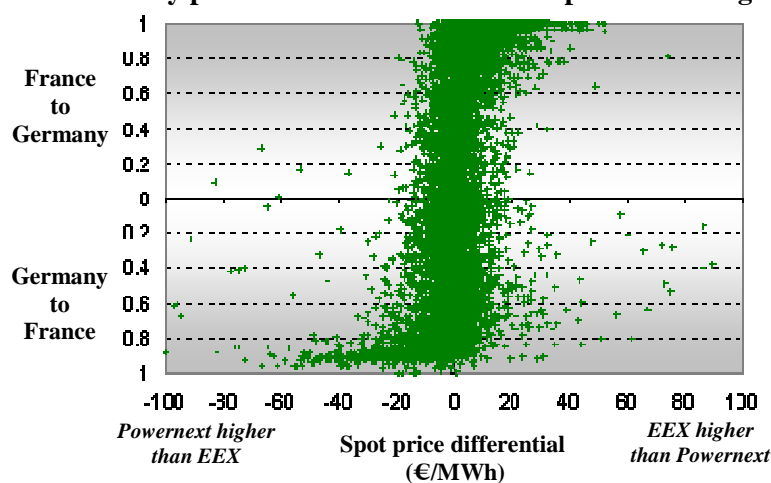
<sup>1</sup> In order to avoid distortions due to transaction costs, in our calculations we considered that the price differential was favourable to flows if it was greater than 2 €/MWh.

In 2006, with the launch of the auctions from France to Germany, interconnection use was better related to the price differential. When EEX-Price was higher than Powernext-Price, the net flow went from France to Germany for 70% of the time (top right hand quadrant of Figure 3); when Powernext-Price was higher than EEX-Price, the net flow followed the price gradient for 77% of the time (bottom left hand quadrant of Figure 3).

Consequently, although interconnection use was not completely consistent with power exchange prices in 2006, the “business as usual” logic observed until April 2005 seems to have been abandoned in favour of more reactive behaviour to price differentials.

Furthermore, in 2006, the interconnection was almost fully used (i.e. the net flow exceeded 90% of the net transfer capacity in one of the two directions) for 26 % of the time, whereas in 2005 it was almost fully used for only 13% of the time.

**Figure 3 – Correlation between the net hourly utilisation rate of the interconnection and the hourly price differential between the power exchanges in 2006**



### Conclusion on the advantages of the new mechanisms

As stated above, the implementation of auction mechanisms has resulted in several types of advantages:

**New economic signals:** the two new signals that we have highlighted – comparative willingness to pay for cross-border capacities, and indicator of proper market operations – are a direct consequence of the implementation of auction mechanisms. They represent a useful tool for regulators to monitor and assess the need for new interconnectors and the efficiency of the allocation mechanisms implemented.

**Congestion income transfer:** part of the theoretical congestion income (i.e. the auction revenue) is currently transferred to grid users via a decrease in the grid tariff in accordance with article 6.6 of Regulation (EC) 1228/2003. This enables the profits of cross-border transactions to be shared by all grid users.

**New distribution of capacities:** The shift from administrative and discriminatory mechanisms in 2005 to transparent, non-discriminatory and market-based mechanisms in 2006 has increased the competition at the border and enabled new market players to operate.

**More efficient capacity use:** Better capacity use with respect to the price differential between the two countries necessarily leads to improved use of our complementary generation parks and demand, to an overall drop in costs and finally, to an increase of social welfare.



## 2. Further improvements required

The aim of this part is to show that, although clear advantages were observed from 2005 to 2006 thanks to the changes made to allocation mechanisms, progress still needs to be made to achieve fully efficient cross-border congestion management methods. Four possible improvements have been identified:

- *Good working order of the mechanisms*: for explicit auctions (separate stages for buying or selling energy on the one hand, and buying cross-border capacities on the other hand), regulators monitor the willingness of market players to pay for cross-border capacities, in order to identify the possible distortions and gaming that would undermine the efficiency of allocation mechanisms.
- *Use of auctioned capacities with respect to price differentials*: it is crucial to improve the correlation between the use of cross-border capacities and the electricity price differential between the two countries. Increasing this correlation would enable better use of both generation parks, and eventually drive electricity prices down, especially during price peaks.
- *Use of capacities for short-term exchanges*: intraday and balancing cross-border exchanges are crucial for security of supply.
- *Management of capacities*: in accordance with the European Regulation, especially with the new guidelines of Regulation 1228/2003, regulators pay attention to the compliance of CM mechanisms and to the quality of the information published by TSOs.

### a. In terms of good working order of the mechanisms

- **Long-term auctions**

Long-term capacity rights provide a way for market players to buy and sell long-term products on different markets and to hedge their risks on each market. As with any hedging instruments, the more flexible and firm long-term capacity rights are, the higher the willingness to pay the right price will be.

Market players who want to participate in long-term auctions can consider two price references to determine their willingness to pay for the capacity. On the one hand, if they are involved in long-term arbitrages, they can consider the forward price differential available the day of the auction. On the other hand, if they are more interested in shorter term arbitrages, this initial value has to be supplemented by their estimation of price differential volatility on an hourly basis (daily, weekly, or any other timescale) over the whole period.

Because regulators do not have access to these estimations (which differ for each market player), the choice has been made to use the theoretical value of capacities, calculated ex-post, based on the actual volatility of hourly prices. When market predictions do not materialise (for example in the event of an unexpected change in the weather), this value may be lower than the marginal price of the auctions. Nevertheless, the marginal price of yearly (or monthly) auctions is expected to be, in principle:

- at least of the same magnitude as the price differential of the Y+1 (or M+1) forward products;
- lower than the theoretical value of the capacity, calculated with the actual hourly price differential of the power exchanges throughout the whole year (or month).

Table 5 shows that the above principles for 2006 and 2007 are satisfied, and that the marginal price of the yearly auction for 2006 is much lower than the theoretical value of the yearly capacity. It also shows that the price paid for the yearly capacity 2007 in both directions is much higher than in 2006, although the forward price differential has the same scale. This increase in the price of yearly

capacities from 2006 to 2007 is probably, among other factors, a consequence of the improvements in the auction rules (implementation of secondary markets).

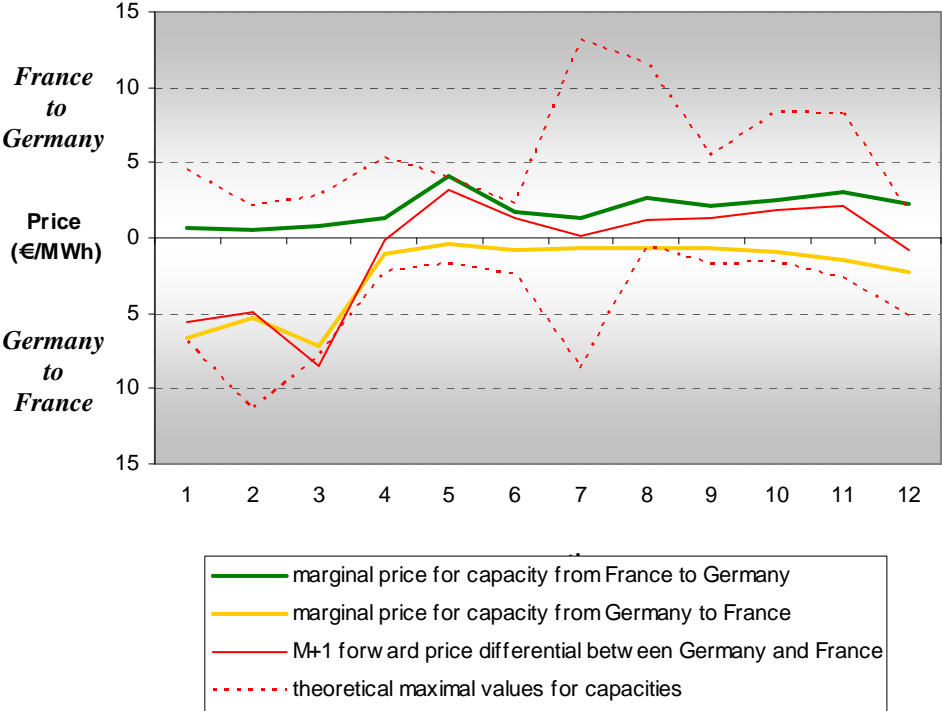
The fact that the marginal price is higher, for both years, than the yearly forward price differential, tends to prove that market players generally use yearly capacity to make shorter term arbitrages rather than yearly ones.

**Table 5 – Price of yearly capacities for 2006 and 2007**

	2006	2007
<b>From France to Germany</b>		
Y+1 forward price differential	-0.70	0.65
Marginal price of the auction	0.61	3.03
Theoretical value of the capacity	5.84	-
<b>From Germany to France</b>		
Y+1 forward price differential	0.70	-0.65
Marginal price of the auction	1.01	2.22
Theoretical value of the capacity	4.34	-

The same type of conclusions can be drawn concerning the monthly capacity (see Figure 4): even if the price of the capacity is clearly less than the theoretical value of the capacity, in general it is higher than the M+1 forward price differential, which tends to prove that monthly capacity is used to make shorter term arbitrages rather than monthly ones.

**Figure 4 – Price of the monthly capacities compared to the M+1 forward price differential and to the theoretical maximal value of the capacities**



**Possible improvements in the good working order of long-term auctions**  
 As with any hedging instruments, long-term capacity rights have to be as flexible and firm as

possible. Improvements are thus possible in order to obtain the right willingness to pay for these rights, particularly if they remain physical rights. The implementation of Financial Transmission Rights might bring additional benefits, but this must be analysed carefully. Regulators will initiate intensive discussion on this issue.

**Harmonisation:** With a fully harmonised set of rules within Europe, or at least within the Central-Western region, and with a common user-TSO interface, cross-border trading would be easier for market players.

**Nomination process:** a user-friendly nomination interface would also enhance the flexibility of these rights. Other advantages are given if nomination can be done towards one single auction office.

**Secondary trading:** Secondary markets permit to increase the value of long-term capacities. The fact that PTR transfer and PTR resale were implemented on this interconnection for 2007 is probably one of the factors contributing to the higher price of the 2007 capacity.

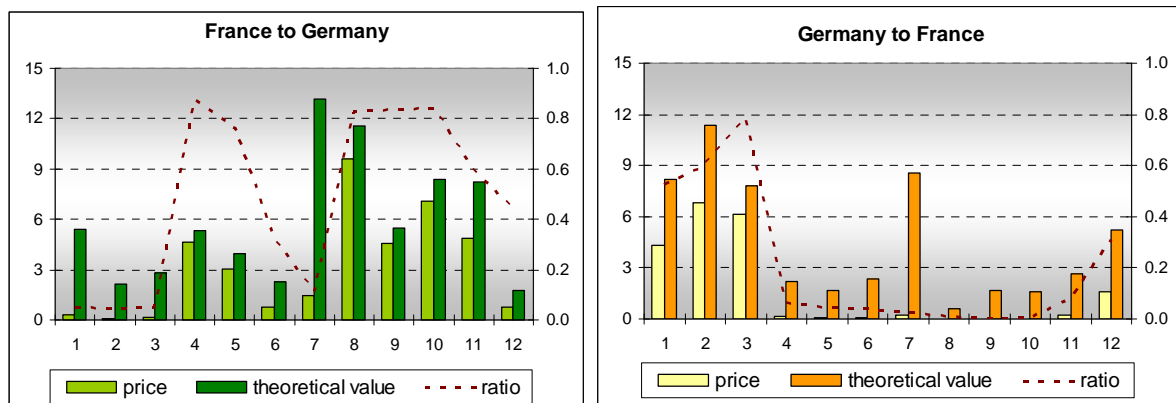
**Firmness:** As requested by European Regulation (EC) 1228/2003 and by its new guidelines, capacities should be made available as firm as possible in order to reduce the risks supported by market players.

- **Daily auctions**

In a perfect world the price of daily auctions would be equal to the day-ahead price differential. However, in reality, market players do not have perfect information on market prices when daily auctions take place, and the marginal price of the daily auctions as a result is generally lower than the day-ahead price differential.

Throughout 2006, very irregular prices were observed for the daily capacities from France to Germany. The price of daily capacities from Germany to France was generally particularly low, although the price differential was often favourable to flows in this direction (Figure 5).

**Figure 5 – Monthly average price of daily auctions compared with monthly average price differential in 2006 (€/MWh)**



As a result, the daily auctions induced revenues of less than 25 million euros, whereas the theoretical income of the daily auctions was about 145 million euros.

**Possible improvements for the price of daily capacities: implicit auctioning**

With a day-ahead implicit auction, the price paid by the market for the daily capacity should automatically equal the price differential between the power exchanges involved in the implicit mechanism.

*b. In terms of use of auctioned capacities*

Ideal use of auctioned capacities would correspond for each hour of the year to:

- maximum use in the direction of the price differential: the rate of use of the capacity (nominated capacity divided by available capacity) must be 1;
- no use in the opposite direction to the price differential: rate of use should be 0.

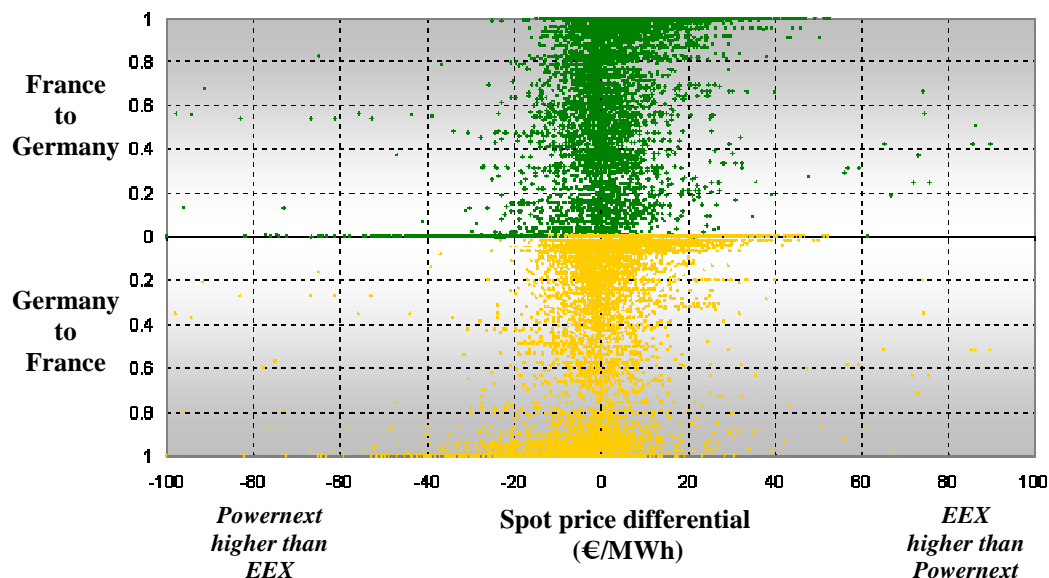
Figures 6 and 8 would present an S-shape for each direction with such a perfect use.

As above, in order to avoid bias incurred by transaction costs, in our calculations we considered that the price differential foster interconnection use if it was greater than 2 €/MWh.

• **Long-term capacities**

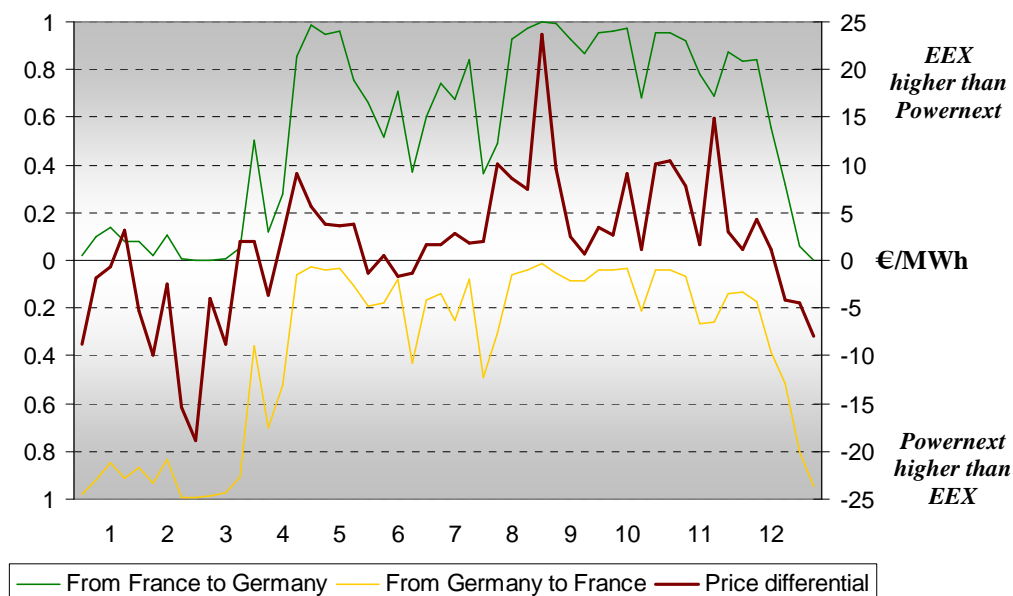
Figure 6 shows the use of long-term (yearly and monthly) capacities compared to the day-ahead hourly price differential. It should present two S-shapes, but actually highlights a very weak correlation between hourly nominations and hourly prices. Indeed, long-term capacities were fully used for only 77 hours of the year from Germany to France, and for 764 hours from France to Germany. For 60% of the year, nominations occurred while the price differential was in the opposite direction.

**Figure 6 - Correlation between the hourly utilisation of the long-term capacities and the hourly price differential between the power exchanges (2006)**



In fact, it seems that long-term capacities are used for longer term arbitrages rather than on an hourly basis. Figure 7 shows that with weekly average prices and nominations, the use of long-term capacities seems much more consistent with the price differential. German prices were generally lower than French prices through the winter (January to March, and December), and flows generally followed this price gradient (very low flows from France to Germany, and almost maximum flows from Germany to France). In the same way flows followed the price gradient in warmer seasons (from April to November): flows from France to Germany were almost maximum, except during the heat wave (June and July), and flows from Germany to France were quite low.

**Figure 7 – Weekly average utilisation rate of long-term capacities and weekly average day-ahead price differential between the power exchanges (2006)**



#### **Possible improvements in the use of long-term capacities**

Hourly analysis seems to be inappropriate for long-term capacity rights, because of generators' and consumers' need to exchange energy in the long term.

Nevertheless, this apparent inefficiency should not affect overall capacity use. This is because if after the long-term nominations opposite flows are correctly netted, and if there is an efficient (i.e. implicit) allocation mechanism for daily capacities, then the resulting flow would be fully in keeping with the hourly price differential and the use of the interconnection capacity would be optimum.

Finally, if long-term capacity rights changed from physical into purely financial rights, nominations would no longer exist and long-term capacity rights would only be financial hedges from one market to the next. The Regional Coordination Committee (RCC) of the CWE Region will analyse what benefits will be reached by switching from physical transmission rights to financial transmission rights.

- **Daily capacities**

With ideal use, Figure 8 would present an S-shape for each direction. But as can be observed, actual use of daily capacities poorly reflects the ideal use.

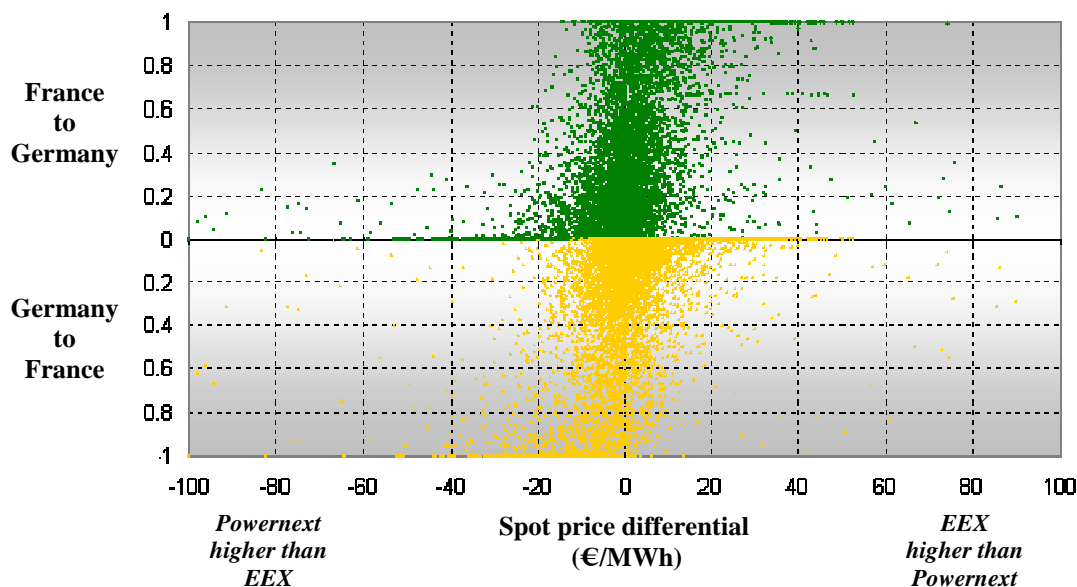
Capacity use from Germany to France was maximum for only 588 hours, whereas the price differential was conducive to imports for 3,723 hours of the year. Likewise, the daily capacity from France to Germany was fully used for only half of the hours during which they should have been (1,402 hours out of a total 3,107).

Furthermore, the main striking inefficiency is the fact that during half of the year, capacity is nominated in the opposite direction to the price differential; during two thirds of the year, daily capacities are used in both directions at the same time.

Finally, it is particularly surprising that the same market player nominates daily capacities in both directions at the same time: such behaviour is incomprehensible, since opposite flows cancel each

other out. Nine market players behaved in this way at this interconnection, for more than quarter of the year in one case. This type of behaviour will be further investigated by the RCC of the CWE Region.

**Figure 8 - Correlation between the hourly utilisation of the daily capacities and the hourly price differential between the power exchanges (2006)**



**Possible improvements in the use of daily capacities: implicit auctioning**

With an implicit day-ahead allocation mechanism, daily capacity use would be completely consistent with the price differential of the power exchanges involved in the mechanism.

*c. In terms of use of short term capacities*

• **Intraday exchanges**

Intraday cross-border exchanges are a useful tool for market players to be as balanced as possible.

**Table 6 – Use of intraday capacities**

	<b>From France to Germany</b>	<b>From Germany to France</b>
Intraday average available capacity	936 MW	2880 MW
Intraday average used capacity	65 MW (6.9%)	68 MW (2.4%)

At present, allocation of intraday capacities is not coordinated between the French and German TSOs:

- On the French side, RTE allocates options to nominate intraday capacity, for import from and export to France, through an improved pro-rata procedure.<sup>1</sup>

<sup>1</sup>The French Import / Export rules are available on

- On the German side, EnBW TNG and RWE Transportnetz Strom allocate obligations to nominate intraday capacity, for import from and export to their control areas, with a “first come first serve” procedure.<sup>1</sup>

Under this non coordinated scheme intraday exchanges are limited, as shown in Table 6.

#### **Possible improvements in the development of cross-border intraday exchanges**

Volumes exchanged could increase and capacity use could be optimised if a coordinated and efficient allocation mechanism was applied. The possible implementation of a single continuous intraday trading platform, which would continuously allocate intraday capacity within as many countries as possible, should be studied in particular.

- **Balancing exchanges**

German market players currently participate in the French balancing market. As shown in Table 7, their activity represents 2.7% of the accepted offers and 3.8% of the accepted bids.

**Table 7 – Activity of German operators in the French balancing mechanism**

	Accepted offers	Accepted bids
Average total activated capacity	450 MW	450 MW
Average activity of all foreign operators <sup>2</sup>	98 MW (21.7%)	40 MW (8.9%)
Average activity of German operators	12 MW (2.7%)	17 MW (3.8%)

For the time being French market players can not participate in the German balancing market.<sup>3</sup>

#### **Possible improvements for the development of cross border balancing**

Cross-border Balancing trades could increase competition on national Balancing Markets and could increase security of supply. Therefore it has to be considered in future investigations how cross-border balancing trade could be enhanced. However, before implementing cross-border balancing trade specific issues have to be clarified, e.g. how an intraday trading platform could be used for balancing trade.

Furthermore internal electricity market will not be achieved without integration of Balancing Mechanisms as clearly stated by the conclusions of the 13<sup>th</sup> Florence Forum.

[http://www.rte-france.com/htm/an/offre/telecharge/regles\\_IE\\_V21\\_an.pdf](http://www.rte-france.com/htm/an/offre/telecharge/regles_IE_V21_an.pdf)

<sup>1</sup> The German rules for intraday capacity allocation are available on

<http://www.rwetransportnetzstrom.com/generator.aspx/netznutzung/auktionierung-deutschland-frankreich?property=Data/id=409340/intraday-rules.pdf>

<sup>2</sup> An accepted offer on the French balancing mechanism corresponds, for foreign operators, to a flow from their country to France, while an accepted bid corresponds to a flow from France to their country.

<sup>3</sup> German TSOs balance their control areas using only reserves that they have previously contracted: under these contracts cross border balancing interconnection capacity would have to be reserved either by TSOs or market participants.

#### *d. In terms of capacity management*

In addition to monitoring both the market's willingness to pay for capacities and of the use of capacities, regulators pay attention to the compliance of TSOs' work with European regulations and to market players' expectations. The following issues were particularly taken into account by regulators in 2006.

- **Calculation of capacities made available to the market**

In accordance with European Regulation (EG) 1228/2003 and its new guidelines that came into force on 1 December 2006, TSOs must work in a coordinated manner through all the steps from capacity calculation right up to secure grid operation, and publish all relevant data concerning cross-border exchanges. The regulators are in charge of reviewing the scheme proposed by the TSOs for calculating interconnection capacities (Article 5.2 of the guidelines) and the way in which related information is published (Article 5.5 of the guidelines).

In 2006, the two regulators have focused their attention on the correct application of the netting and "Use-It-Or-Lose-It" rules. For each timeframe, the available capacity must include the unused capacity at the precedent timeframe (UIOLI) and the capacity used in the opposite direction at the precedent timeframe (netting). Consequently, the available capacity at the day-ahead stage (or intraday stage) must be equal to the difference between the NTC<sup>1</sup> calculated on D-2 (or D-1) and the netted periodic nominations (or netted periodic and day-ahead nominations).

Although this general formula was applied for most of the hours of the year, numerous exceptions occurred on the French-German interconnection:

- When the appropriate base case used by the TSOs to calculate total capacities indicates a high commercial flow from Germany to France (usual situation in winter), the general formula is not applied for calculating the intraday capacity available from France to Germany. Even if France imports from Germany, it generally exports to its other Eastern neighbours (Belgium, Switzerland and Italy). As a result, even though the commercial flow is from Germany to France, the physical flow is generally from France to Germany. Grid constraints could therefore occur if the commercial flow from Germany to France is too low. For intraday sessions, in the France-Germany direction, it is thus not possible to propose the nominated flows in the Germany-France direction plus the NTC in the France-Germany direction, even if this NTC is zero. For this calculation, the TSOs use the actual upper limit of the net flow in the France-Germany direction, which is in fact negative. This negative limit is neither published nor passed on to regulators.
- When the base case indicates a high flow from France to Germany, the general formula cannot be applied for the available intraday capacity from Germany to France. If the day-ahead net flow from France to Germany was assessed at 1500 MW (its maximum value), and the NTC from Germany to France was assessed at 4500 MW (average value), then the proposed capacity at the intraday stage from Germany to France would be about 6000 MW. According to the explanations provided by the TSOs, such a high capacity can not be proposed fully because its use could lead to considerable constraints: such variations in the commercial flow would have an adverse effect on the generation plans defined the day before and thus make physical flows difficult to forecast.
- Other specific situations could impede proper application of this general formula when there is a lack of coordination between the TSOs, for instance a delay in transmitting information. Because the daily auctions are only held one hour after the nomination of long-term capacities, a delay of a few minutes in the communication between TSOs could force the auction operator to hold daily auctions without netting.

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<sup>1</sup> NTC : Net Transfer Capacity



### **Possible improvements in the calculation of available capacities**

**Coordination:** In accordance with Article 3.5 of the Congestion Management Guidelines, regulators would like to see a greater coordination between TSOs. A common transmission model should be used by all the TSOs involved. Furthermore, the implementation of a common nomination interface could be considered so as to facilitate systematic application of netting. More coordination and information exchange between TSOs are also needed, especially about the best views on generation and consumption plans. Finally, a flow-based method could only be applied in the event of closer coordination between TSOs.

**Transparency:** The French TSO RTE was asked to be more transparent on this calculation. Federal Network Agency expects that the common calculation method required by the Action Plan will take into account transparency requirements as well. The regulators accept the existence of specific cases, but would like a greater level of transparency in order to increase the confidence of the market and comply with Article 5 of the guidelines.

**Incentive scheme:** in any case, one of the issues to be addressed by regulators for the next months is the implementation of an incentive scheme developed by the TSOs and approved by regulators. This incentive scheme should lead TSOs to maximize available capacities made available to the market for each timeframe.

- **Capacity curtailments and auction cancellations**

No capacity curtailments occurred on the French-German border in 2006, in contrast with other French interconnections. Given the German legal framework TSOs have to inform the regulator and the concerned parties immediately and provide causes for the curtailment, which have to be proven after request by the regulator.

Furthermore, only 3 daily auctions were cancelled from France to Germany. In 2006 no auction cancellations occurred from Germany to France.

### **Possible improvements in curtailment of capacity and cancellation of auctions**

Since TSOs are in charge of allocating maximum capacity, in the event of an auction cancellation they should at least publish the precise reason for the cancellation.

Concerning capacity curtailments and auction cancellations, the implementation of an incentive method should be considered, which would, for example, allow better arbitrages between redispatching or counter-scheduling and curtailments, and better management of the maintenance scheme.

- **Auction platforms**

At present, RTE manages the allocation of capacities from France to Germany, with the ARIBA auction platform. On the other side, RWE Transportnetz Strom GmbH manages the allocation of capacities from Germany to France.

Following the implementation of the auctions from France to Germany, several criticisms were made by market players concerning the ARIBA platform. RTE reacted and improved the platform but market players are still expecting some improvements.

### **Possible improvements in auction platforms**

Concerning operational details of the ARIBA platform such as bid format, submission deadline, access to bids by several persons of a single firm, etc, improvements are possible following the

example of the TSO Auction Office bv and of RWE's platform.

More generally, the use of a single auction platform on this border (and preferably in the whole Central-West region) would facilitate coordination between TSOs, in compliance with Article 3.5 of the Congestion Management Guidelines, and would provide several benefits:

- it would facilitate the netting of flows in the opposite direction,
- it would be cheaper for TSOs in the long term,
- it would facilitate exchanges for market players.

## Conclusion: regional approach needed

The important work carried out by regulators and TSOs within the framework of the Roadmap has greatly improved congestion management, as shown in Part 1. New economic signals have appeared, estimating the value of the different interconnection capacities at the French-German border. Furthermore, because the TSOs have to use the congestion income in accordance to regulation 1228/2003, it is now shared out amongst all grid users. Lastly, thanks to market-based and non-discriminatory allocation mechanisms, the capacities are now more widely shared out amongst market players and are used more consistently with price differentials on the French-German border.

As shown in Part 2, inefficiency is still to be found in congestion management methods. To fine-tune the mechanisms already in use and apply the new legal framework, a more global approach, at least at a regional level, is needed.

The launch of ERGEG's Regional Initiatives meets this need perfectly. In particular, in the Central-West region, including Belgium, France, Germany, Luxembourg and the Netherlands, the five regulators work actively together in order to define the target congestion management mechanisms to be applied within the region. Accordingly, the Action Plan published by regulators in February 2007 defined eight priorities for improvement in existing mechanisms within this region. These priorities are in keeping with the areas for improvement identified in Part 2 of this report:

1. *Harmonisation and improvements of the long-term explicit auctions:* as shown in Part 2.a, the regional harmonisation of auction rules (possibly along with the creation of a single auction office), and the improvement in long-term capacity firmness, would facilitate the work of market players who would thus be inclined to pay the right price for capacities. In the same way, implementation of a single nomination interface, enabling application of netting without exceptions, could be envisaged.
2. *Implementation of a day-ahead flow-based market coupling:* this is the key issue to be addressed in the region. As shown in Part 2.b, the implementation of market coupling would maximise use of bilateral available day-ahead capacities compared to the price differential of power exchanges. Moreover, a flow-based approach, unlike the current NTC-based approach, would improve use of the total capacities within the five countries.
3. *Implementation of cross-border intraday and balancing trade:* as exposed in Part 2.c, intraday and balancing exchanges must be encouraged. Proposals for cross-border intraday exchanges were submitted by TSOs within the framework of the Belgium – France – The Netherlands and France – Germany Roadmaps. Regulators have requested more in-depth study on this basis, particularly on the possible implementation of a continuous capacity platform, in order to obtain an entirely regional solution compatible with cross-border balancing exchanges.
4. *Establishment of a common calculation method for cross-border capacities:* as mentioned in Part 2.d, the implementation of a transparent and common method for calculating capacity is required by the new guidelines for Congestion Management.
5. *Maximisation of the amount and of the utilisation of cross-border capacities:* as already mentioned in Part 2.d, a regional incentive scheme would motivate TSOs both to maximize available capacities and implement efficient congestion management methods more rapidly.
6. *Elaboration of a regional capacity investment plan:* because grids in the Central-West region are highly meshed, an investment plan must be designed at a regional level. Due to regulators having very different competencies in terms of investments, political support from Ministries is indispensable for this matter. This will help TSOs to hold a common view on the priority needs for investments in the regional transmission grid.
7. *Transparency:* conformity with article 5 of the new guidelines of Regulation (EC) 1228/2003 is the strict minimum, whereas the requests of ERGEG's Guidelines for Good Practice on Information Management and Transparency in Electricity Markets could be

broached over the longer term. In particular, the available intraday capacity calculation method for the French-German interconnection must be published by the TSOs as soon as possible, as mentioned in Part 2.d.

8. *Regional market monitoring*: the RCC will develop a common regional report from 2007, conducted by a planned joint monitoring taskforce.