

# Powernext

## *2003 ASSESSMENT*



### ***The market in 2003 ...***

**03/01/2003:** The law pertaining to the gas and electricity markets and to the energy public service is promulgated. It authorises and regulates the activity of electricity sales and purchases by French companies in France. Also, the government extends the CRE's (Commission de Régulation de l'Electricité – Electricity Regulatory Commission) regulatory umbrella to include natural gas, and changes its name to «Commission de Régulation de l'Energie» (Energy Regulatory Commission).

**08/01/2003:** A new power consumption peak in France is reached with 80 190 MW at 19h03.

**04/02/2003:** Inauguration of the Vigy-Uchtelfangen very high voltage line between France and Germany. It allows an improvement of the interconnection on the northern border (with Germany and Belgium) by adding a capacity with a potential from several hundreds MW to 1 000 MW depending on operational conditions.

**10/02/2003:** The market opening to competition reaches 37%, and the eligibility threshold goes down from 16 to 7 GWh.

**01/04/2003:** The set up of the balance mechanism involves a modification of the imbalance settlement system partly indexed on Powernext prices at the current moment.

**May-June 2003:** Social unrest at EDF makes the French market feel uneasy.

**August 2003:** Exceptional weather conditions increase seasonal norms by 5°C, thus making power consumption rise sharply.

**01/11/03:** Set up of new access procedures at the German and Swiss borders allowing an easier access to a greater number of actors.

### ***Powernext en 2003 ...***

**20/01/2003:** Entergy Koch Trading becomes a member of Powernext.

**22/01/2003:** Nuon Energy Trade and Eneco Energy Trade become members of Powernext.

**04/02/2003:** Powernext reaches a new trading peak with 20 819 MWh ; it is the first time that the total daily volume crosses the 20 000 MWh mark.

**10/02/2003:** Essent Energy Trading becomes a member of Powernext.

**26/03/2003:** Shell Energy Trading becomes a member of Powernext.

**16/06/2003:** Powernext's daily traded volume crosses the 30 000 MWh mark for the first time with 30 983 MWh.

**03/07/03:** Introduction of blocks for base and peak hours on Powernext.

**11/08/03:** Prices rise beyond 1 000 €/MWh on Powernext for hours 10 to 16.

**Septembre 03:** Following a trans-European call for tenders, renewal of the contract between Powernext and EDF pertaining to the operational management by Powernext of rights acquired by VPP buyers.

**21/10/03:** Electricité de Strasbourg becomes a member of Powernext.

**04/11/2003:** Powernext's daily traded volume crosses the 40 000 MWh mark for the first time with 40 044 MWh.

**06/11/03:** Accord Energy becomes a member of Powernext.

**11/12/03:** SNET becomes a member of Powernext

**23/12/03:** Powernext reaches a new daily volume record with 42 252 MWh.

**December 2003:** Powernext registers a new monthly volume record with 906 554 MWh.

November 26, 2003, marked the second anniversary of Powernext's « Day-Ahead » market. Since 2001, Powernext offers a centralised and secure trading platform to its members allowing a volume risk management a day before the scheduled delivery. The market model proposed by Powernext especially ensures a strong partnership with the central counterparty LCH.Clearnet and RTE the French transmission system operator (Réseau de Transport d'Electricité).

2003 confirmed a trend that started in 2002 by recording a tripling of traded volumes on Powernext. This activity increase reinforces the credibility of the short term price reference offered daily by Powernext and the attraction of the market towards eventual new members. 2003 was also marked by a particularly unusual meteorological context that put a strain on the production of electricity, and made prices explode over the summer. Powernext's prices respond well to the changes in market conditions, and constitute a coherent sign for a short-term balance situation of the French hub.

### Higher and more volatile prices

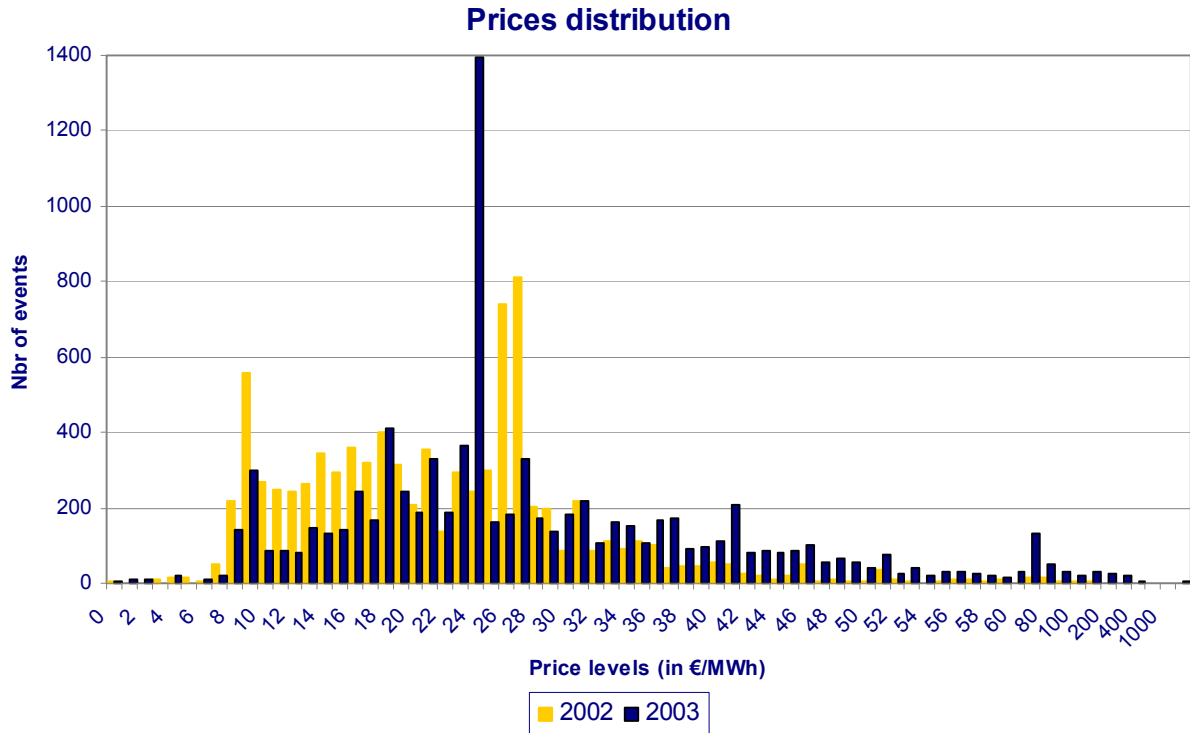
Average prices on Powernext were higher in 2003 compared to 2002, and reached sharp peaks which are at the origin of a great volatility.

	2002	2003
<b>Price en €/MWh</b>		
<b>Base</b>	21.19	29.22
<b>Peak (8h00-20h00)</b>	25.82	37.82
<b>Average daily fluctuation</b>		
<b>Base</b>	28%	33%
<b>Peak (8h00-20h00)</b>	35%	46%
<b>Volatility (1)</b>		
<b>Base</b>	36%	87%
<b>Peak (8h00-20h00)</b>	50%	155%

(1) standard deviation of daily absolute variations

The peak phenomenon, which is frequent on power markets, and its magnitude were not really surprising, but the period in which they happened was odd. Traditionally, periods of high prices correspond to the winter season when power consumption is heavy. Even if these prices peaked in January and in February, just as they did in 2002, the most remarkable fact concerns the level and volatility of prices recorded during the summer 2003 which was the hottest summer in a century. On August 11, 7 hours were quoted above 1 000 €/MWh. On that day, the base (0h00-24h00) and the peak (8h00-20h00) prices registered all time highs at respectively 310,373 €/MWh and 606,131 €/MWh.

The peak phenomenon brought a sharp increase of the daily volatility (considered as the standard deviation of daily absolute variations) on Powernext that reached 87% in 2003 on the baseload versus 36% in 2002.

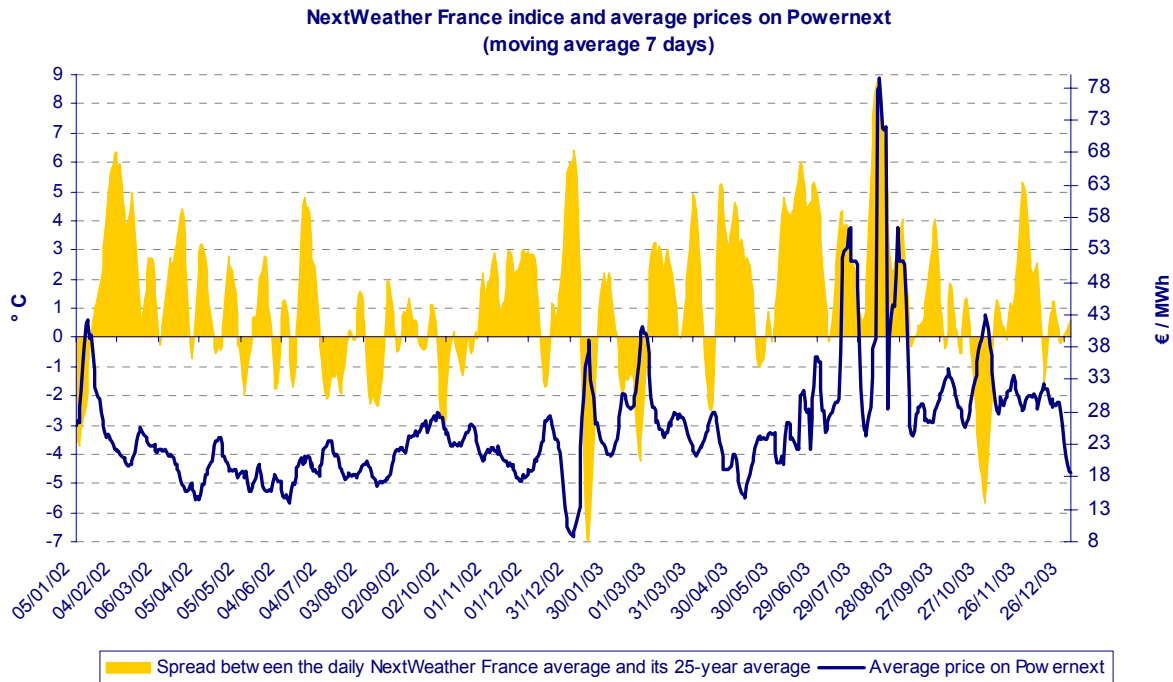


It can be observed that prices above 50 € were more frequent in 2002 than in 2003. The analysis of the frequency of these prices appearing also shows that the mechanism of EDF's capacity auction (VPP) continues to influence the French market prices with 20% of them between 23 and 24 € on Powernext<sup>1</sup>

### Prices influenced by exceptional weather conditions

The exceptional meteorological event of the summer was characterised by an intense sunshine, a lack of rain, and temperatures much higher than the average. On August 11 and 12, an all time minimum temperature of 25.5°C was reached in Paris, which largely eclipses the previous record of 24°C recorded in July 1976.

<sup>1</sup> The strike price of the baseload product is 23 €.



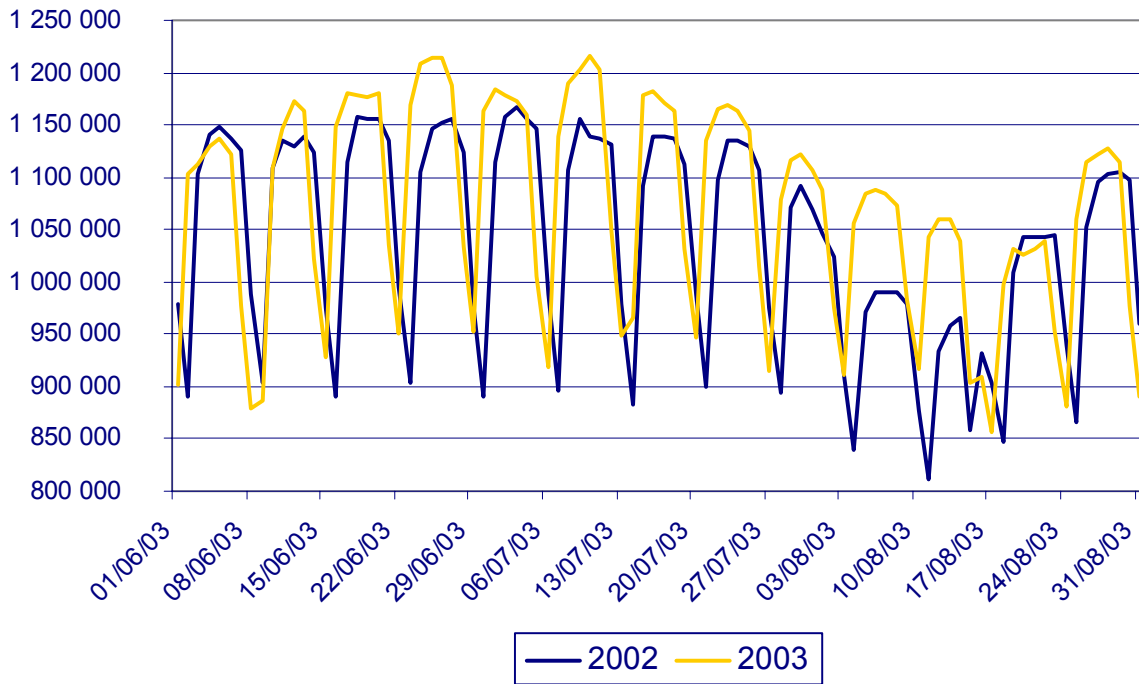
NextWeather© indexes are the property of Euronext et Météo France

Powernext prices reflect to the letter the evolution of market conditions with peaks highlighting balancing conditions specific to the hub level. Temperature fluctuations remain one of the principal factors in price determination. However, while this condition was traditionally limited to the winter season with a well marked negative correlation (unusually low temperatures with periods of high prices), it was also observed during the summer 2003 with a positive correlation of 65% between June and September.

The drought brought a tense situation in terms of power production. The lowering of river flows was followed by a decrease of 21.6% of the hydroelectric production compared to August 2002 (source: RTE). The increase of river temperatures is the cause of a decrease of the nuclear production (-4% between August 4 and 24, according to the French Ministry of Industry) due to growing difficulties in cooling the reactors.

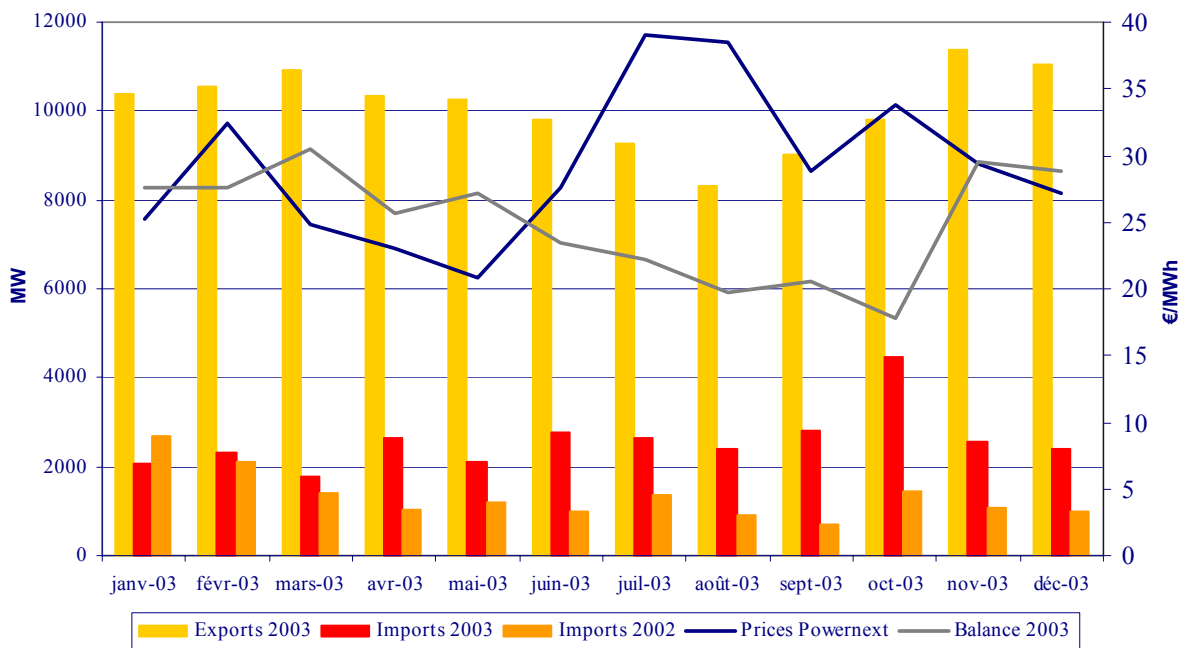
In parallel, power consumption went up during the summer, partly caused by an increase in the production of cooling products (air conditioner, refrigerators, etc.), and was in average 4% higher between June and August 2003 than the consumption recorded at the same period during the previous year.

### Electricity consumption during the summer



This difficult environment was also highlighted by a rise in electricity imports and a decrease of the exports. Compared to August 2002, imports increased by 107% in August 2003, and exports decreased by 3%.

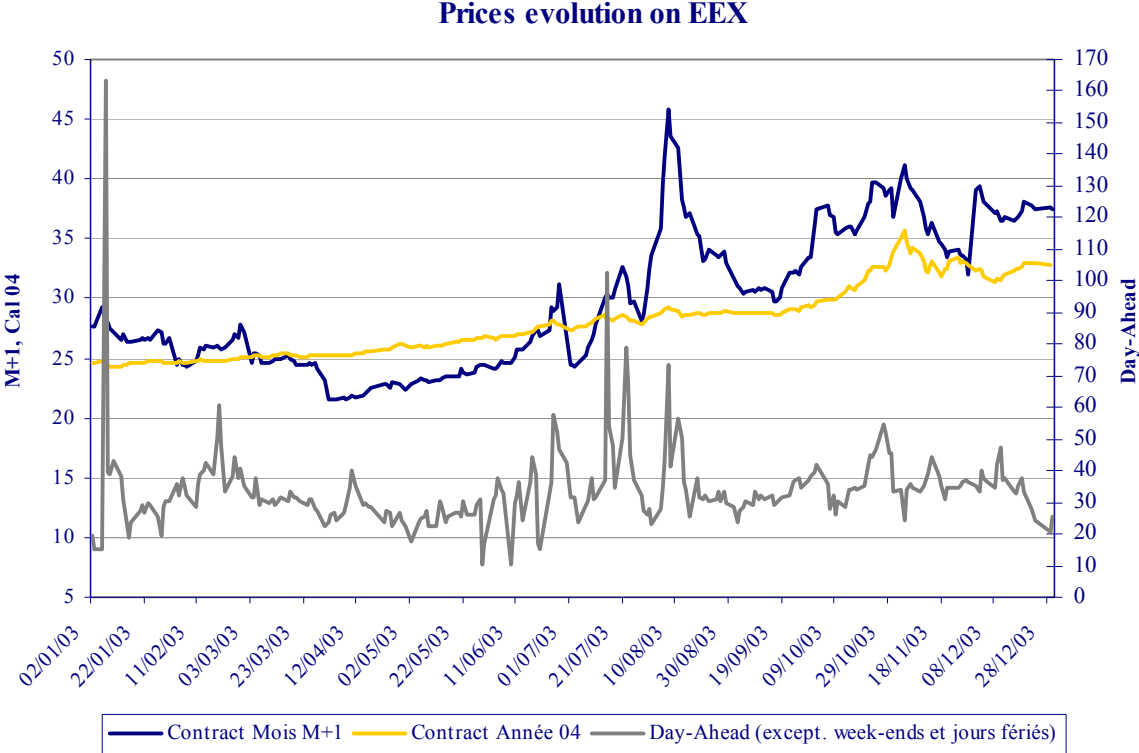
### Import/export balance France and Pownext prices



Powernext prices are sensitive to changes in the balance of exchanges between France and its neighbours (export – import). They tend to increase when this balance gets smaller (decrease of exports or increase of imports) indicating a relative “rarity” of the supply.

**Higher prices in Europe**

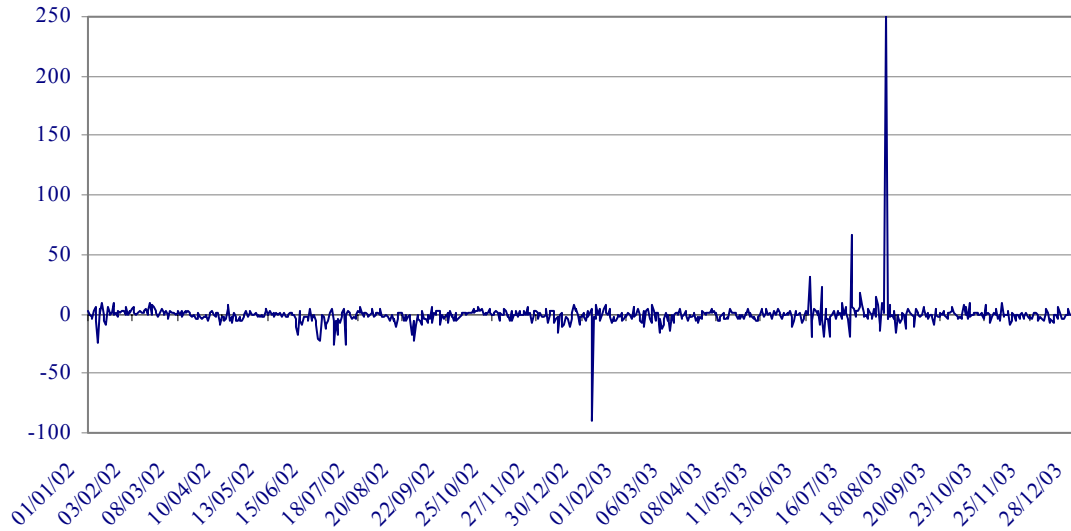
Several European markets have encountered situations of price and volatility increases. In the Netherlands, prices rose sharply on APX as baseload prices reached 46.47 €/MWh in 2003 compared to only 29.99 €/MWh in 2002. APX remains a market intrinsically volatile with a peak at 2 000 €/MWh for Hour 10 on August 13, and a volatility of 186% on baseload in 2003 versus 65% in 2002. Peak prices were also recorded on EEX’s day-ahead market (22.55 € for baseload in 2002 versus 29.49 € in 2003) where the volatility increased in 2003 as well (65% versus 35% in 2002). This sharp increase spread through the prices of its futures market’s products (Cal04 was quoted at 32.87 € on December 29, 2003 compared to 24.60 € on December 30, 2002).



Nonetheless, the situation on the German market was less tense than on the French market. The price increase was not as sharp and the peaks not as high, which made the usually high correlation between both markets go down (60% compared to 80% in 2002), accompanied by strong movements of price spreads.



**Price spread Powernext - EEX  
(base, in €/MWh)**

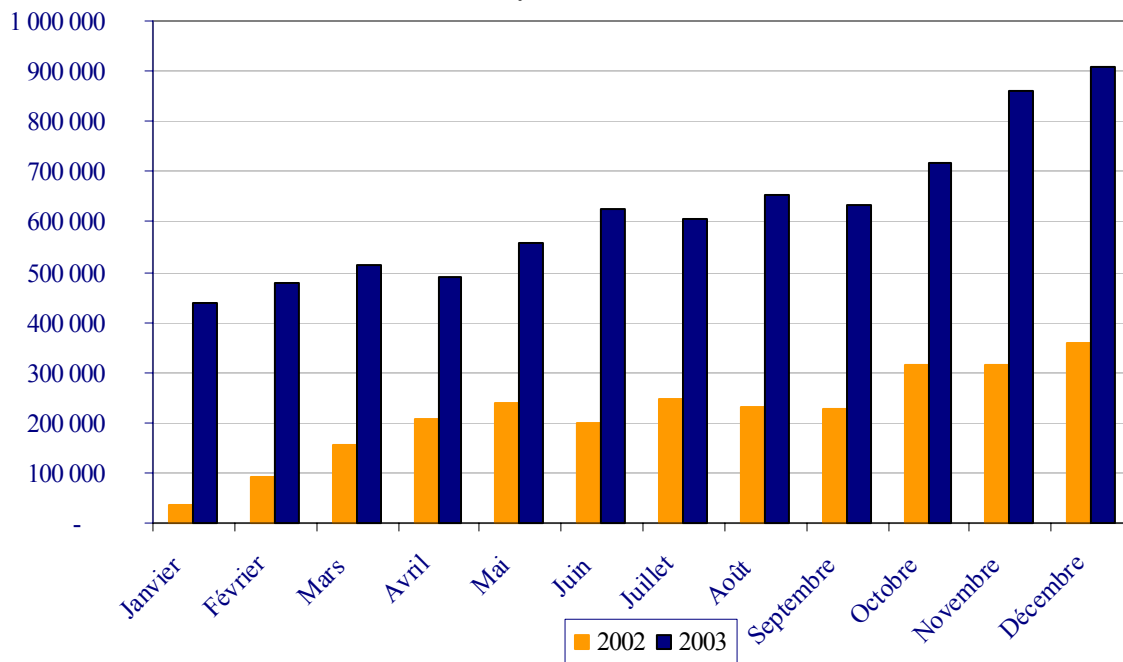


**An increasing market quality which allowed it to assimilate exceptional events and to prepare the launch of a futures market.**

**300% volume increase in 2003**

The volumes traded on Powernext have steadily continued their progress. 7.5 TWh were traded in 2003 (20 500 MWh/day) compared to 2.6 TWh in 2002 (7 186 MWh/day).

**Monthly volume in MWh**



The volume was evenly spread on all hours as about half of it was traded on peak hours, as was the case in 2002.

This increase was possible because of a strengthening of Powernext's price reference's credibility, as well as the arrival of new members and the development of existing members' activity. On December 31<sup>st</sup>, 2003, Powernext counted 39 agreed members among which 33 were active on the market, representing an increase of more than 30% of the total number of active members.

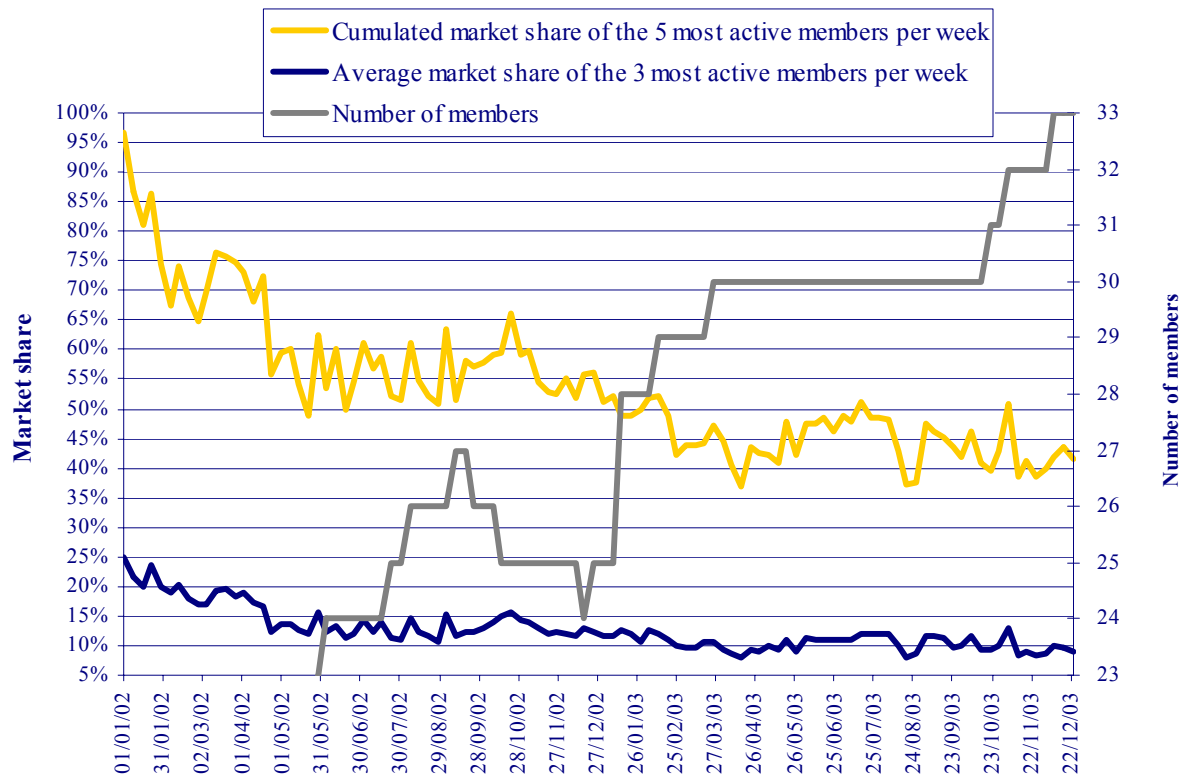
### *List of members as of December 31st, 2003*

■ CARGILL INTERNATIONAL S.A	■ STATKRAFT ENERGY DEUTSCHLAND GMBH
■ EDF TRADING LIMITED	■ ENEL TRADE S.P.A
■ ELECTRABEL S.A	■ TRAFIGURA ELECTRICITY ITALIA SRL
■ ENDESA TRADING SA	■ ENBW GESELLSCHAFT FÜR STROMHANDEL MBH
■ IBERDROLA GENERACION SAU	■ EDISON ENERGIA S.P.A
■ TOTALFINAELF GAZ AND POWER LIMITED	■ SEMPRA ENERGY EUROPE LIMITED
■ AARE-TESSIN LIMITED FOR ELECTRICITY	■ BARCLAYS BANK PLC
■ NORSK HYDRO ENERGIE AS	■ ENTERGY-KOCH TRADING GMBH
■ EGL	■ ENECO ENERGY TRADE B.V.
■ CNR	■ NUON ENERGY TRADE WHOLESALE N.V.
■ GASELYS UK LTD	■ ESSENT ENERGIE TRADING B.V.
■ EON SALES AND TRADING GMBH	■ SHELL ENERGY TRADING LIMITED
■ ÖSTERREICHISCHE ELEKTRIZITÄTSWIRTSCHAFTS-AG (VERBUND)	■ ELECTRICITE DE STRASBOURG
■ UNION FENOSA GENERACION SA	■ ACCORD ENERGY LTD
■ BKW FMB ENERGIE SA	■ SNET
■ VATTENFALL EUROPE TRADING GMBH	
■ RWE TRADING GMBH	
■ BP ENERGIE (DEUTSCHLAND) GMBH	

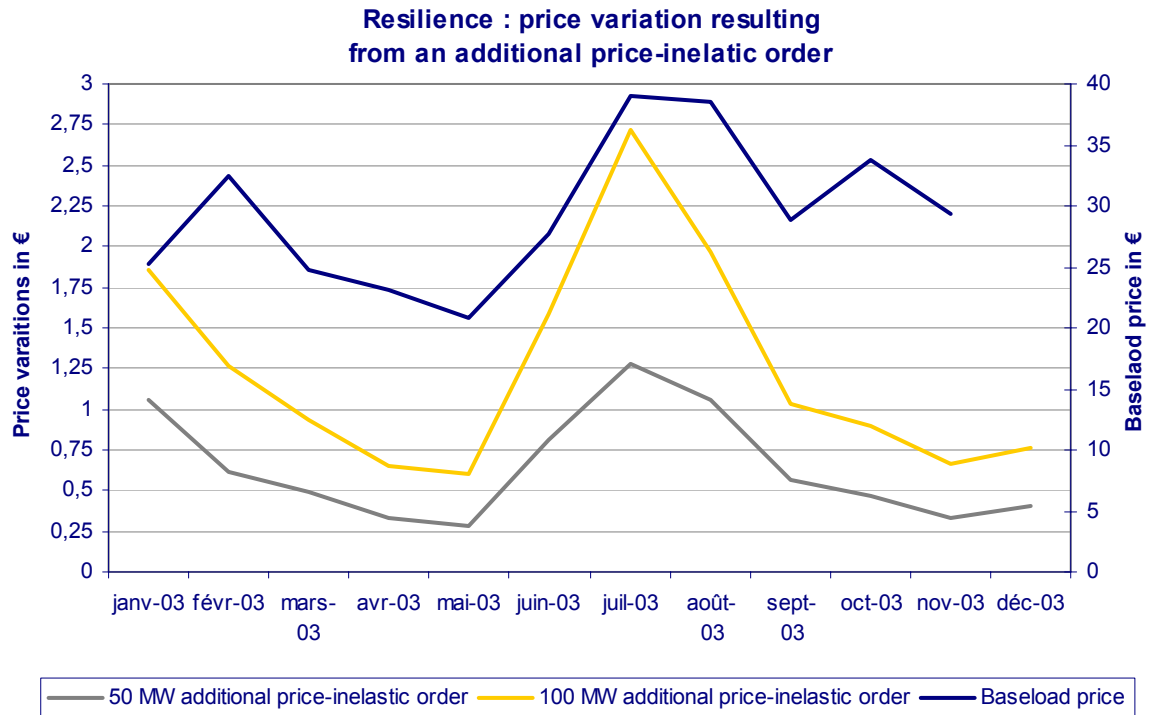
Because of the promulgation of the January 2003 law giving more flexibility to the activity of purchasing and buying electricity in France, local French transmission companies and industrials alike can more readily access the market in general and Powernext specifically. Some of them have already started trading on Powernext, and others have also been agreed while finalising a start date within a few weeks.

The members' rate of participation to the negotiation is excellent as an average of 28 of them actually traded on a daily basis during the month of December. This represents 90% of Powernext's members being present every single day and thus contributing to the volume increase and to an efficient price determination.

The total traded volume is rather evenly divided among these members since the weekly market share of the most active member amounts to approximately 10% of this volume. The operation of the organised market is then perfectly competitive, and guarantees a fair treatment of all actors.



The increase of traded volume coupled with the arrival of new actors showing increasing sophistication and setting up diversified strategies, allow an improvement of the quality of the market offered by Powernext. This quality can be measured by an excellent market resiliency. The resiliency index is defined as the average of absolute market clearing price variations caused by an additional price-inelastic bid on each of the hours of the period. On average in 2003, an additional 50 MW order could potentially have moved the market prices up or down by only 0.64 €/MWh compared to 5.44 €/MWh in 2002. It must be noted that non-executed block orders, which are especially numerous on Powernext, are not taken into account in these simulation. Powernext's market depth is thus underestimated by this index.



This excellent average actually hides important discrepancies for certain periods. It is particularly interesting to note that the market resiliency gets worse whenever prices go up. For example, the year's least favourable result was recorded in July with an index of 1.28 €/MWh for 50 MW while prices started to increase. The high price levels were confirmed in August while the resiliency was getting much better with an index of 1.06 €/MWh. Thus, the resiliency seems to decline when prices reach unusual spheres, and it improves when the market consensus is firmer and the visibility is getting better.

The beginning of 2004 confirms the good results registered during 2003 with a record week between January 5 and 11 of 225 884 MWh (an average of 32 269 MWh/day). This is a good omen for 2004 which will be a crucial year for Powernext's development with the planned launch of a futures market, in the second quarter, with physical delivery in a first phase. These new instruments will offer essential tools to all market actors enabling a price risk management at medium and long term. They will also be an important source of information on the price time structure by allowing the establishment of a consensus on what will the price of electricity be in a month, a quarter, or a year.

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