

# European Energy Markets Observatory

2005 and Winter 2005/06 Data Set  
Eighth Edition, October 2006

in collaboration with

 **SOCIETE GENERALE**  
Cross Asset Research

BIRD & BIRD

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# Introduction

It is my pleasure to introduce the 8th edition of the European Energy Markets Observatory (EEMO). The aim of this Observatory, which was first launched in 2001, is to give an update on the main indicators within the electricity and gas markets, to monitor the supply and demand balance and to measure the progress in establishing an open and competitive market in Europe.

It is by using public data sources, combined with our methodology and knowledge, that we are able to explain and anticipate major market events and trends in the industry.

During the period covered by this study (2005 and the beginning of 2006) we have observed the continuation of last years trends: higher energy prices, an overall decrease of peak generation margins, slow progress in interconnections and more generally insufficient infrastructure investments.

The recently established Emission Rights Trading market experienced great volatility due mainly to a lack of EU countries' coordination in publishing their 2005 results and in their comparison to the National Allocation plans. This in turn has influenced wholesale electricity prices.

We also observed situations (mainly during summer 2006) where the security of electricity supplies was threatened.

During the winter, the security of gas supplies was significantly endangered by the Gazprom cuts in gas delivery to Ukraine and hence to many European countries.

It is now clear that Gazprom is using its gas supply position and pipeline ownership to put pressure on Western and Eastern European utilities with a (successful) plan to get into the gas retail business.

For several months, tensions have been increasing between the European Union's deregulated and liberalized market philosophy and the more nationalistic and conservative approach from some countries, which is motivated by a desire to protect and even help to grow national champions.

In early April, the EU sent 28 letters of formal notice to 17 member states thus starting firm action to monitor the implementation of legislation on the internal European electricity and gas markets. In May, it strengthened its position by launching raids in European Gas Utilities headquarters and offices in order to assess their compliance with deregulation.

As we predicted in last year's Observatory, a new merger and acquisition wave has now begun, starting earlier this year with Gas Natural's hostile bid for Endesa, followed by the more amicable E.ON takeover proposal.

In response to an announced hostile bid by Enel for Suez, Suez/Gaz de France announced their merger. None of these mega mergers have yet been completed and there are many hurdles both at country and EU levels to overcome. However, if they go through they are likely to trigger additional mergers and acquisitions in a chain reaction, potentially creating an oligopolistic market, contrary to the unbundled and competitive free market that the EU would like to see.

For this 8th edition we have continued our successful partnership with Société Générale Equity Research and extended our utilities panel to analyze the financial performance and strategy of 23 companies. We have also added a new key feature, thanks to our partnership with international law firm Bird & Bird. We are now able to provide, for the first time, a sound analysis of regulation and legal questions that will have a growing influence on the overall market picture.

Professor Lewis from the University of Vaasa in Finland has kindly brought his expertise in clients' rate of suppliers' switching for different regional markets, thus helping us to better understand retail market competition.

Last but not least, you will find, embedded in the different chapters, a focus on the main energy issues for key European markets (Germany, UK, France, Italy, Spain, Portugal and Nordics)

I hope that you will enjoy reading this latest edition of the European Energy Markets Observatory, and that the information and analysis it provides will be useful for you.

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# Executive Summary

In 2005 and during the first half of 2006, European energy markets faced significant tensions while progressing at a slow pace towards a fully deregulated market.

## Energy issues continue to be on the top of political, industrial and financial agendas

The price of oil<sup>1</sup> reached the highest monthly average of \$62.85 in June 2006 (still below the record peak of December 1979 of \$100.52 - expressed in June 06 \$) The annual average (inflation adjusted) for the first half of 2006 has reached \$60.10, representing a 19.3 % increase compared to the 2005 average annual price and a 53.2% increase compared to the 2004 average annual price (28 % increase from 2004 to 2005).

This relatively high level of pricing results from the following combination of factors:

- High demand from emerging countries (China, India) and North America
- Geopolitical crises (Iraq war, Iran crisis, etc.)
- Civil wars (Nigeria)
- Lack of investment during the past years in exploration, production and refinery
- Impact of Katrina and Rita hurricanes on Gulf of Mexico oil platforms
- Nationalistic policies aimed at revisiting previous agreements with oil companies (Venezuela, Bolivia)
- Financial speculation
- Shortage of skilled manpower

These high prices have triggered interest for developing unconventional liquids (heavy oils, deep water and gas-related liquids) or bio-fuels.

Also energy mix policies for electricity generation are being revisited with new investments in cleaner coal-fired plants and a possible renaissance of nuclear power.

The gas wholesale price<sup>2</sup> went up to an average annual price of \$6.26/Mbtu for 2005 which represents a 38 % increase on 2004.

High prices of gas-fired plants, which are often switched on for the marginal production, combined with high CO2 certificate prices have resulted in a strong structural increase in electricity wholesale prices.

2005 spot prices surged to an annual average of €49/MWh, up 54% on 2004.

Winter 05/06 spot prices jumped even higher, reaching an annual average of €64/MWh, up 70% on winter 04/05.

Weather conditions (high summer 2005 temperatures, low rainfall in Spain and France and cold weather during winter 05/06) resulted in very high price spikes.

When the cold wave hit Europe in November 2005, five nuclear plants were unavailable in France and two in Germany. The hydro reservoirs in France were also at their lowest level since hydro records began 80 years ago. As a consequence, peak price spike of €270/MWh and €240/MWh have been seen in Germany and France respectively.

Contrary to the previous year, Nordic hydrological levels were very good during winter 2005 and NordPool was Europe's sole exchange provider of low wholesale hydro power.

High electricity and gas prices raised a lot of concerns among consumers and the politicians but had a very favorable impact on the financial results of utilities, which increased their war chests significantly (more than 50bEuros for E.ON alone). The total valuation of the sector increased by 20%.

## In early 2006, Gazprom's cut of Ukraine gas delivery was a "wake-up call" for short and long-term security of supply issues.

The industry's dependence on and the threat to the gas security of supply was strongly highlighted by the Russian crisis that hit Europe during the winter of 2005-2006. On the 29th of December, the dispute between Russia, the new Ukrainian Orange government, and Turkmenistan over gas prices and transits broke out in earnest. This crisis occurred during an extraordinary cold spell all over Europe.

It was the second time in less than 13 months that Europe had to test the limits of its gas supply system. Countries such as Italy and Spain, with high dependency on gas supply for power plants and limited substitution capacity to other type of generation capacity, faced significant instabilities in their power and gas markets. Italy for example has been severely hit, and had to rely on strategic storage to prevent a collapse of its gas network.

Other countries such as the U.K., Germany and Netherlands have a better balance between gas-fired and coal-fired plants and were able to switch to coal. Countries such as France with a high portion of nuclear generation were less impacted. Nevertheless many European countries had to rely on strategic storage and to import available LNG.

This crisis also highlighted long-term gas security of supply issues.

As pointed out in the March 2006 EU green paper, with the depletion of European fields, gas imports will increase to 80% of the demand over the next 25 years (from 50% today) and Europe will become more dependent on Russia imports that already represent 25% of European supplies.

The dominant role of Gazprom became even more visible during recent months. The Russian government did not accept to enter into a discussion with the European Commission, aiming at applying the third party access principle to Gazprom's pipelines thus allowing ex -Soviet Union gas producers to sell directly in Europe.

On the contrary Gazprom progressed with its strategy to get into the retail market with a small acquisition in UK and an agreement with ENI in Italy. And this is unlikely to be the end of the story!

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1: Illinois Basin Crude oil  
2: European Union CIF

Unfortunately, gas wholesale market liquidity and storage capacity expansion did not improve enough to play a significant role in mitigating security of supply risks.

Despite progress in traded volumes of physical gas in physical (APX UK and APX Holland) or virtual hubs (Dutch TTF and the UK'S NBP) and several new market initiatives in Spain, Germany and France, overall traded volumes remained very low compared to European global gas demand.

The numerous long-term bilateral contracts bundled with pipeline access rights are a strong barrier for new entrants' pipeline access and the different EU attempts to forbid them were up to now unsuccessful. Unfortunately, the new infrastructures planned may not guarantee additional access transparency.

It is now clear that stronger regulatory action is needed to really implement third party access.

Gas storage is playing a vital role in the security and stability of gas supply especially in tight situations. Nevertheless, progress on implementation of the March 2005 Good Practice for Gas Storage System Operators (GGPSSO) requirements have been insufficient and storage capacities still need solid growth.

Tripling today's capacities by 2030 would be needed in order to provide the required gas wholesale market flexibility.

**Despite an increase in investments, the supply and demand electricity balance deteriorated in 2005 with an overall capacity margin decreasing to 4.8% compared to 5.8% in 2004<sup>3</sup>**

Ever since the publication of our 2002 European Energy Market Observatory edition, we have stressed the security of supply issues and last year we estimated the need for investment in electricity generation plants at €700 bn over the next 25 years.

Our financial chapter shows that investments in generation grew again but the 2005 levels and five year commitments are still insufficient to restore a secure supply situation.

Some improvements in capacity margin are worth noting in Ireland (+21% increase in margin due to a +36% increase in capacity), UK (+1% in margin due to +13% in capacity), Portugal (+4% margin, +9% capacity), Greece, Italy and Holland (+6% capacity), Germany (+4% capacity).

Nevertheless demand as well as growth or shifting peak loads (Spain +15% in peak load from 2004 to 2005, UK +11%, Holland +8% and France +5.6%) are leading to an overall decrease in real margins.

The most illustrative case for this period is in Spain where real capacity decreased (-4%) despite an increase of 5,500 MW (+8%) of generation capacity and where the peak load shifted from winter to summer with the growth in demand for air conditioning systems.

Overall, Belgium, France, Greece and Hungary are still in a tight balance, having had negative margins for more than three months. France was especially impacted by the cold waves, experiencing negative margins from January to March 2005 and then for November and December 2005.

**Utilities commitment regarding long-term power capacity increase remained unclear despite high price signal**

Mid-term (up to 18 months) prices have exceeded for the first time €50/MWh and should have eased decisions for further investment in capacity. However these market signals are still too short-term compared to the lifetime of generation plants (20 to 60 years) and cannot by themselves mitigate the risks related to those huge investments.

In fact, 2005 saw a growth in investment for the first time since 1997. The investment/turnover ratio reached 10%, equivalent to 2000/2001. The annual volumes of investments in new generation capacities should be in excess of €30 billion per year for the next five years. However they were too modest to impact the 2005/2006 supply/demand balance positively, showing that an acceleration in construction programs is certainly necessary.

The recent gas crisis as well as high fossil fuel prices and CO2 emissions restrictions have led the EU and utilities to review their energy mix policy.

In this new context, we should witness:

- A significant upturn favoring new coal-fired power plants equipped with "clean coal" technologies
- A new debate about relaunching nuclear programs
- A growth in energy innovation programs.

As stated in the March 2006 EU green paper, energy efficiency should improve and could result by 2020 in a 20% reduction in electricity demand (or a demand in 2020 at approximately the same levels as today). This would have a very beneficial impact on security of supply and CO2 emissions reduction.

Such ambitious objectives should translate into national plans and hopefully we should see these being launched in 2007.

3: UCTE region only

**Although liquidity increased in national wholesale markets, a liquid European power market that could improve security of supply, is still far away.**

Wholesale power markets are clearly emerging as a very active segment of the value chain and a successful step towards more competition. Volumes of trade in organized markets are continuously picking up, 30% more in 2005 than 2004 reaching a record high of 3,781 TWh (almost half of total traded volumes in Europe).

Integrated regional electricity markets are developing in spite of remaining regulatory and political uncertainties:

- The France-Belgian-Dutch day ahead power market, Belpex, was approved by the Belgian Government in January 2006 and is awaiting final regulatory approvals
- Iberian energy markets MIBEL (Mercado Ibérico de Electricidade) became effective in July 2006 abolishing the “electric border” between Spain and Portugal and reducing market concentration in both countries.

Also, several markets are “naturally” converging such as the German and French power market, where prices were 99.69% correlated in 2005.

Almost all European cross-border transmission capacity allocation mechanisms are now based on economic and financial criteria. As examples, we can mention joint auctions in the Central Eastern Europe region as well as the decision of French TSO (RTE) to set up explicit auctions.

However physical interconnections across Europe are still insufficient and many of the “peripheral” countries (Great Britain, Ireland, Spain, Portugal, Italy and Greece) remain “electricity islands”.

During the period, several regulators such as French CRE or Belgian CREG and European organizations such as EFET have called for significant increases of electricity generation capacity releases through virtual Power Plants auctions. This would have allowed a reduction in the supply side concentration and an increase in competition. Unfortunately very few new auctions were reported during the period.

Whilst national power markets have become more liquid, market coupling initiatives remained limited and the emergence of a pan-European power market still lies far ahead.

**Despite the implementation of the European Greenhouse Gas Emission Trading Scheme, it is highly unlikely that the EU will be able to meet its Kyoto protocol obligations**

CO2 emission trading made a spectacular entry into the energy markets.

Over the first 16 months period, the price of the European CO2 credits (EUA) was pushed upward to an amazing €30/ton in April 2006 (a 275 % increase in less than a year). It was rapidly brought down in May 2006 to its initial price (around €7 to €10 /ton) after the reporting of real 2005 emissions levels. These levels were on average much lower than expected, leading to a surplus of allowances.

However, the EU-15 countries were 300million tons of CO2 away from meeting their Kyoto protocol objective with the notable exception of the UK (tight NAP-National Allocation Plan—and consistent with ambitious Kyoto goals).

In June/July 2006 the prices stabilized at €15- €18/ton influenced by the fact that more fossil-fuelled electricity will be generated in 2006/2007 and that players with long positions didn't sell either for speculative reasons or because they are waiting for more visibility on the phase two ETS (2008-2012) scheme.

The 19 first drafts of NAP for this second period were published in July 2006 and should be challenged by the EC as 12 to 14 out of 19 are not in compliance with the criteria published by the Commission.

One could expect a rigorous response from the Commission.

As pointed out during the debates by the UK Parliament on its future energy law, much longer-term schemes are needed to mitigate the utilities' risk in investing in power plants with long-term lives such as nuclear plants.

**CO2 credit prices had a significant influence on wholesale power prices**

The CO2 credit prices are weighting significantly on the cost of peak capacities, and their volatility had an impact on both wholesale power price (emissions trading prices are giving market operators a new price reference on forward contracts) and valuation of market players.

Companies with a large portfolio of generation capacities (RWE, EDF, Iberdrola, Verbund) gained value as the CO2 emission prices increased. Pure suppliers (Centrica, EVN, MVV Energie) lost value by not being able to pass on all additional CO2 emission prices increases on in their retail price.

**Increase in retail prices have driven customer dissatisfaction triggering different attitudes in both fully competitive markets and non yet competitive markets.**

Liberalized electricity markets exist in 19 European States for industrial and commercial customers and 12 for residential customers. Over 70% of European electricity consumption and over half of Europe's electricity customer base are now subject to free market choice, if not free market prices.

In competitive retail markets, higher churn reflected customer dissatisfaction regarding price increases.

During 2005 and the first few months of 2006, the highest customer churn was in the UK, which experienced an average of 20-25%, with Norway being also a very active market.

The Netherlands, Sweden and Finland were 'Active' markets.

Whilst there was a mild level of switching in Denmark and Flanders region of Belgium, the other five fully Liberalized European markets are still effectively 'Dormant'.

However precedents established in active electricity markets around the world show that switching in European retail electricity markets could increase dramatically if serious barriers to competition were removed.

One of the most significant barriers to switching remains low level regulated tariffs that render all companies' offers uncompetitive. This has recently been the case in several European markets including the Spanish residential market and the French markets.

In order to respond to angry customers who chose wholesale market-related prices a few years ago, the French government has established special conditions for electro-intensive customers and more recently for smaller customers, allowing the latter to benefit from new "return capped tariffs".

These measures not only distort competition but give the wrong economic signals for energy savings.

**Residential gas and electricity prices have increased but at different speeds reflecting each country's regulatory environment.**

2005-2006 saw significant retail price rises due to various factors including mostly wholesale gas and power price increases.

2005 residential electricity prices experienced double digit increases in some countries like Poland (+56%), Czech Republic (+19%), and close to double digit increase in many other countries such as The Netherlands, Italy and Ireland..

Electricity price differences remain even when considering only the supply components. It spreads from 10 €/100kWh (for Ireland and The Netherlands) to around €5/100kWh (for Finland and France) and even €3.3 /100kWh in Austria.

2005 residential gas prices experienced double digit increases in many European countries too, with above 20% increases for Slovakia, Sweden, Poland, Czech Republic and Ireland, and beyond a 15% increase in Belgium, Austria and the UK.

**Unbundled distribution assets as well as smart metering, should trigger increased retail competition**

Unbundling of distribution networks is now a key area of investigation by the European Commission and all national regulators. Unbundling should be completely implemented by July 2007.

This separation of distribution electricity and gas networks from incumbent utilities is essential to ensure independent network operations and non-discriminatory access to networks for all market participants, thus helping to increase competition. Also, management of these assets and their real costs should become more transparent for regulators and enable them to fix the distribution tariffs to be charged to customers more accurately.

The analysis of 2005 distribution charges to customers shows significant variation from country to country. The most illustrative example is between two large developed and mature markets, Germany and UK where there is 100 % difference on distribution charges paid by customers respectively (€6.2/100KWh and €3/100KWh). These differences could explain the recent position taken by the German regulator to impose a stiff reduction (close to 20% in certain distribution zones) on network charges.

Some smart electricity metering initiatives were taken in 2005 and early 2006. They demonstrate how the use of new technologies can improve network management, establish more transparent relationships with clients and increase their satisfaction through new added services.

This transparency and accuracy of consumption measurement would ease client switching and thus increase real retail competition. In addition, real-time pricing opposed to pricing based on profiling, will give incentives to customers to save electricity.

The two most illustrative smart metering initiatives are in Italy where Enel completed its massive program of renewal of all its 30 million meters using a new Automated Meter Management (AMM) technology, and in Sweden where a legal requirement is forcing utilities, by 2009, to bill all customers on actual consumption.

**The EU's desire to strengthen its role and implement a fully liberalized market, is conflicting with national policies and the big consolidation moves by utilities.**

The European Commission (EC), European Court of Justice (ECJ) and European Parliament (EP) have been trying to create the momentum to develop a common energy policy.

The EU March Green paper features this policy and tries to establish a balance between the market's full liberalization and the security of supply.

However, some States have been reluctant to let the EU interfere with their national energy policies, which they view as strategic. They are also not willing to entrust the EU to negotiate with external suppliers such as Gazprom on gas supply issues.

As an illustration, countries such as Spain, are trying, despite EU recommendations, to establish national utility champions and others, under pressure from the big incumbents, are looking at postponing the total unbundling of transportation and distribution assets.

**A second M&A wave has started, and if successful should trigger further market consolidation.**

As we predicted in last year's Observatory, a new merger and acquisition wave started earlier this year with Gas Natural's hostile bid for Endesa, followed by the more amicable E.ON takeover proposal.

In response to an announced hostile bid by Enel for Suez, Suez/Gaz de France announced their merger. None of these mega mergers has yet been completed and there are many hurdles both at country and EU levels to overcome. However, if they go through they are likely to trigger additional mergers and acquisitions in a chain reaction, potentially creating an oligopolistic market contrary to the unbundled and competitive market that the EU would prefer.

These mega deals are hiding a handful of smaller transactions illustrating different strategies: smaller players' expansion, bigger players' portfolio consolidation and the desire to start investing in new frontier countries such as Russia or Eastern Europe.

**What about the future?**

As usual the future is difficult to predict but the market should stay very dynamic.

We will definitely see a confrontation of different strategies and policies:

- The EU free market policy with a strong push for unbundling thus creating new players that could in turn enter into a consolidation wave (as with NGT in the UK)
- The large utilities' oligopolistic views and desire to spend their big war chests on European acquisitions
- The country politicians' views pushing for a "back to basics attitude" focusing utilities' investments on ensuring security of supply, low prices and good service to their customers
- Not forgetting new, rich and ambitious players such as Gazprom willing to enter the retail European markets...

So life should continue to be interesting!

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## BIRD & BIRD

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Through its scientific knowledge-based research and development approach, VaasaEmg uniquely provides practical strategic assistance to the global utilities industry and public policy makers, especially in liberalised markets. VaasaEmg has furthermore published & presented extensively around the world and together with its partner Peace Software is the world's leading source of global customer loyalty trend data and explanations.

Since it began nine years ago, VaasaEMG has conducted research in 49 markets around the world, for more than 250 energy and utilities companies, the European Regulators Group for Electricity and Gas (ERGEG) and other governmental organizations. VaasaEMG is furthermore chief editor of the Energyforum Global Report and heads the Global Round-Table of Energy & Utilities Marketing Experts.

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