

Quarterly Report on European Electricity Markets



Directorate-General
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- MARKET OBSERVATORY FOR ENERGY

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Dear readers,

The recovery of the EU economy continued throughout the second quarter of 2010 despite concerns about the stability of the Euro-zone that were raised in the aftermath of the Greek debt crisis. Gross inland consumption of electricity started to increase again in most of the EU regions as more and more Member States were emerging from recession. Colder weather conditions, compared to the same period of 2009, also supported the growth of demand, especially in April and May.

Prices for natural gas and coal registered a robust increase in Q2 2010 exerting an upward pressure on power prices. As a result, wholesale spot and forward power prices rose on most of the observed power markets in Europe.

Wholesale prices in Northern Europe returned to normal levels as grid conditions and hydro reserve levels improved in Q2 2010. From this quarter onwards we start reporting on a new price area of the Nordpool market. I am pleased to welcome Estonia as the next Member State whose electricity wholesale market is covered by our reports.

As we celebrate the second anniversary of our reports, we also introduce a map illustrating commercial cross border flows of electricity.

The "focus on" topic of our report covers steam coal, one of the crucial elements of the EU power generation mix.

HIGHLIGHTS

- Following the usual seasonal patterns the gross inland electricity consumption in Q2 2010 decreased on EU-27 level compared to the first quarter of the year, however, it exceeded the quarterly power consumption of the second quarter of 2009 which was the deepest period of the economic crisis.
- The beginning of the second quarter of the year corresponds with the period of maintenance works of power plants (planned outages) on many EU markets that exerted apparent impacts on the evolution of electricity prices.
- After having experienced unusual conditions on the Nordic market in the first months of 2010 the second quarter could be characterized as a period of returning to normal market functioning. Both prices and traded volumes were significantly lower than those of the first quarter, returning to levels typical for this period of the year. As a consequence of the lower price levels the region became net power exporter again in Q2 2010.
- Wholesale electricity prices generally moved upwards in the second quarter of 2010 on most of the observed markets, helped by constant rise of coal and gas prices and colder-than-usual weather conditions in April and May 2010 in many EU countries. However, on some markets where the weather was milder and the situation of the economy weighed on power demand, price decreases could be observed.
- Forward prices of fuels continued rising in Q2 2010. The 2011 forward prices for baseload power increased as well, however in May a drop took place due to the fears of a new economic downturn.
- The focus on topic deals with the steam coal markets including the structure of EU steam coal imports. Steam coal's importance is particularly high in power production.

NEW FEATURES IN THIS REPORT

- Introduction of the Estonian price area in Nord Pool Power Exchange.
- Introduction of a map showing the amount of commercial electricity flows in the second quarter of 2010 across EU Member States, highlighting net power exporter and importer countries.

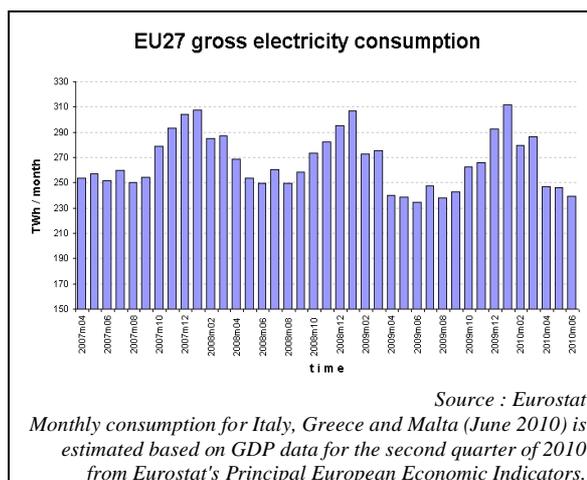
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A. Recent developments in the electricity markets across Europe

In the second quarter of 2010 the evolution of the monthly electricity consumption in the EU-27 followed the usual seasonal pattern of the preceding years. The average monthly consumption was below 250 TWh during quarter Q2 2010 and at the beginning of the summer in June as the heating period was over it dropped to the lowest value (239 TWh) observed in 2010 so far, more than 25% off its record high measured in January 2010.



In the second quarter of 2010 the quarterly gross electricity consumption was 732.4 TWh which is the second lowest seasonal (Q2) consumption value in the last eight years; showing a modest rise (2.7%) from its trough measured in the second quarter of 2009. The extent of the change in

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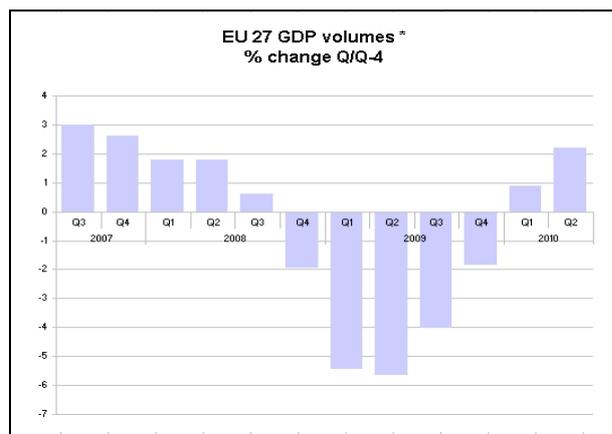
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quarterly gross consumption compared to Q2 2009 varied among different power market regions: in the Baltic region only a modest (1%) increase could be observed while in the Central and Eastern European Region (CEE) consumption showed a jump of 6.4%.

This latter must have been in conjunction with the relatively good economic performance measured as the growth of the quarterly GDP (compared to Q2 of 2009) and the significantly colder weather in the countries of this region. In contrast, both the Apennine Peninsula and the British Isles regions showed a slight contraction in their electricity consumption (-1.9% and -0.5%, respectively).



Source : Eurostat.

Selected Principal European Economic Indicators

* Gross domestic product (GDP) at market prices is the final result of the production activity of resident producer units. It is defined as the value of all goods and services produced less the value of any goods or services used in their creation. Data are calculated as chain-linked volumes (i.e. data at previous year's prices, linked over the years via appropriate growth rates). Growth rates with respect to the same quarter of the previous year (Q/Q-4) are calculated from raw data.

The European economy showed solid signs of recovery in the second quarter of the year; having grown by 1% compared to the first quarter of 2010 and by 2.2% compared to Q2 of 2009. With the exception of six Member States (MSs) EU countries have already come out of the

recession that also contributed to higher demand for electricity.

Among the economic sectors heavily rely on energy consumption the manufacturing industry posted an 8.2% growth in gross value added while the industry as a whole increased by 6.5% compared to the second quarter of 2009. In contrast, the construction sector showed a slight contraction (-0.9%)

According to the Eurostat/JRC data on heating degree days (HDD)¹, April 2010 in the EU-27 as a whole was a milder month than usual (about 14% less HDDs than the long-term average)

EU 27 Heating Degree Days in Q2 2010
Values for 2008, 2009, 2010 and 1980 – 2004
average

	April	May	June
2008	270.34	133.90	56.89
2009	238.64	123.95	67.55
2010	248.26	153.20	58.24
LT avg.	289.25	154.04	66.55

Source : Eurostat / JRC

Although May 2010 HDD values did not show any significant deviation from the normal seasonal temperature, in some countries, notably in the Central Western Europe Region HDDs were significantly

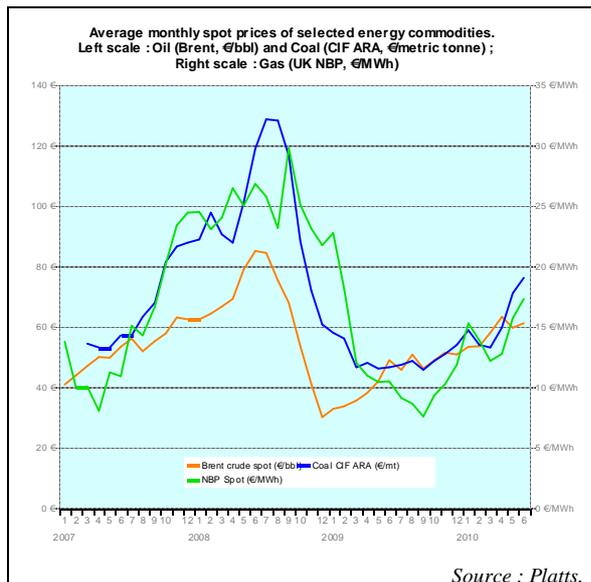
¹ Heating degree days (HDDs) express the severity of a meteorological condition for a given area and in a specific time period. HDDs are defined relative to the outdoor temperature and to what is considered as comfortable room temperature. The colder is the weather, the higher is the number of HDDs. The 'long term average' is the average HDD value for the years between 1980 and 2004. These quantitative indices are designed to reflect the demand for energy needed to heat a building. Cooling degree days (CDDs) are defined in a similar manner.

higher in May, meaning a colder weather that exerted influence on power prices.

A.1 Wholesale markets

In the second quarter of 2010 the price evolution of oil, natural gas and coal showed signs of divergence.

Brent crude oil spot prices were relatively stable during this period, the daily average prices fluctuated within a narrow band of € 55-65/bbl. This relative stability was the consequence of the simultaneous weakening of the Brent crude measured in USD (from 80.3 \$/bbl measured on the 1st April to \$ 72.1/bbl on 30th June) as the global economic outlook became less favourable and the depreciation of the EUR against the USD (1.34 \$/€ on 1st April vs. 1.23 \$/€ on 30th June), reflecting the euro-zone's financial stability concerns.



In contrast, both natural gas and coal prices soared during the second quarter of 2010. UK National Balancing Point (NBP) monthly average spot hub prices showed a 43% increase between March and June 2010 and the price increase of other major

European hubs was also in a 40-60% range. The average June monthly price level of the UK's NBP hub (€17.3/MWh) was the highest since February 2009. This unusually strong upward movement in gas prices might have been in strong relation with the relatively cold weather in April and May. NBP hub prices were also affected by fall-outs of Norwegian shipments during this period.

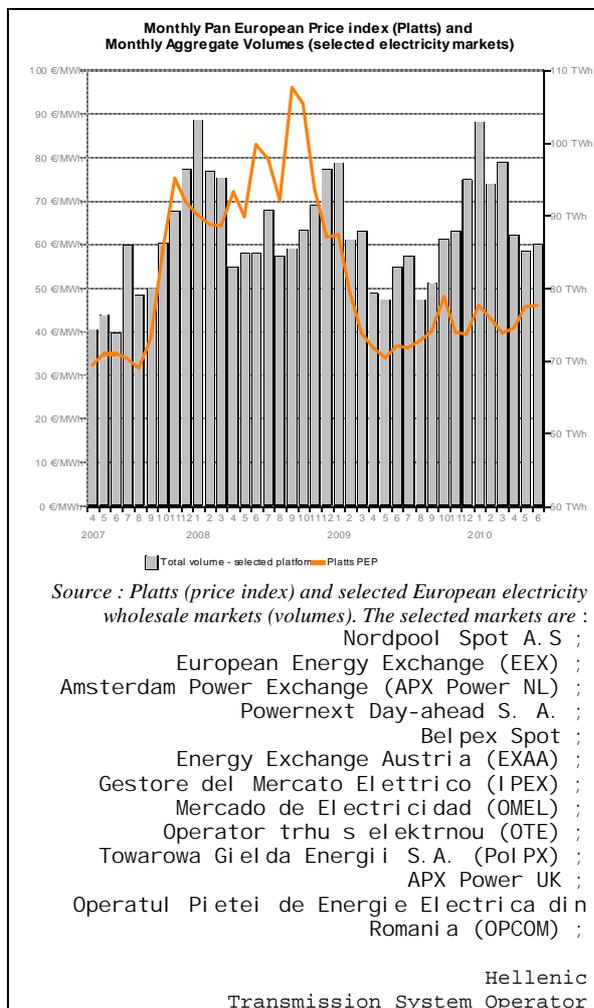
Similarly to gas, coal CIF ARA monthly average prices² rose significantly between March and June 2010 (from €53.2/Mt to €76.3/Mt, meaning a more than 43% increase and the highest monthly value since October 2008). This price increase was mainly due to the strong demand from Asia and increasing freight trade as well as to the impact of replenishing inventories in the wake of an increasing economic activity.

² Price for a metric tonne of coal (calorific value of 6 000 kcal / kg) delivered at the Amsterdam-Rotterdam-Antwerp area with cost, insurance and freight covered.

A.1.1 Day-ahead

EU wholesale markets

The monthly average of Platts Pan European price index showed a minor increase during the second quarter of 2010 (up from €39.6/MWh measured in March to €45.9/MWh in June).



Compared to the second quarter of 2009, marking the deepest period of the economic crisis and the lowest monthly pan-European electricity prices, the quarterly price index was up by 24.1% in Q2 2010 (as measured as the ratio of monthly traded-volume weighted average

prices of the Q2 period of the two consecutive years).

The average monthly traded volume in selected countries³ was 86 TWh in the second quarter of 2010, which was 12% less than in the first quarter of the year, mainly due to seasonal features and the reduction of traded volumes on Nordpool market (see comments on page 11). Nevertheless, it was 7% higher than in Q2 2009; reflecting the improving conditions of the European economy and colder weather than in the same quarter of 2009.

Although monthly average prices showed an upward trend on most of the markets during this quarter, in some countries (e.g.: Romania, see page 20) prices were lower at the end of the second quarter than in March 2010.

The quarterly traded-volume data followed the usual seasonal pattern in most cases (decrease compared to the first quarter of 2010) as the heating season has ended and milder weather entailed lower heating demand for electricity.

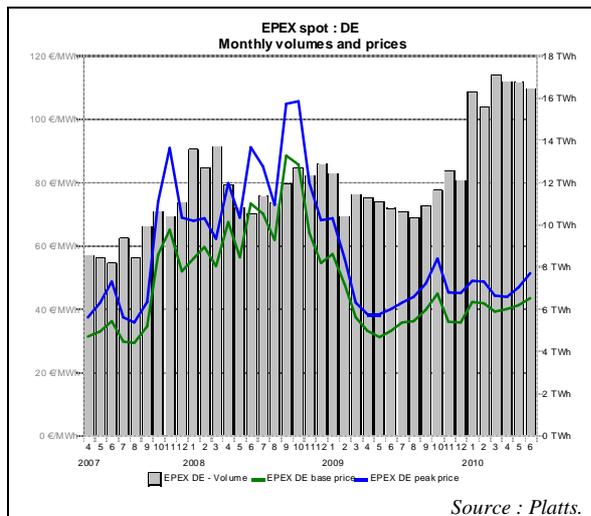
³ The *Quarterly Report* intends to cover all Member States, Candidate countries and countries from the European Economic Area that have developed a functioning wholesale market for electricity. For the time being, the selected countries are: Austria (AT), Belgium (BE), the Czech Republic (CZ), Denmark (DK), Estonia (EE), Finland (FI), France (FR), Germany (DE), Greece (GR), Italy (IT), the Netherlands (NL), Poland (PL), Portugal (PT), Romania (RO), Spain (ES), Sweden (SE), the United Kingdom (UK) and Norway (NO).

Regional markets

Central Western Europe

Germany

In the second quarter of 2010 traded volumes of electricity remained close to their historical high values set in the first quarter of the year, although monthly volumes showed a gradual decrease following the seasonal pattern. The monthly average traded day-ahead spot volume of the EPEX German/Austrian area was 16.7 TWh in the second quarter of 2010, slightly higher than the respective value of Q1 of 2010 (16.3 TWh).



This can be deemed to be a significant value (about 35% of the combined German/Austrian average monthly gross electricity consumption - 48 TWh).

German day-ahead base-load spot prices showed a gradual increase during the second quarter of 2010; rising from a monthly average value of € 39.2/MWh measured in March to that of €43.4/MWh in June. Peak-load prices showed a faster increase, gaining €7/MWh (from 44 to 51) in the same period.

At the beginning of the second quarter of 2010 some plant maintenance works were undertaken (planned outages) that made the grid tighter and exerted an upward pressure on prices.

The weather conditions were also an important price driving factor through influencing the residential heating demand. While in April the weather in Germany was slightly milder than the long term average, in May it turned colder and the respective HDD value was 48% higher than the long term average for this period.

Peak-load prices were predominantly affected by changes in wind power supply; in quarter Q2 the number of forecasts⁴ of the daily wind power supply decreases outnumbered those of wind power supply increases; pushing the electricity prices higher. This might also have contributed to the widening spread between peak-load and base-load prices.

German clean dark spreads⁵ showed a high degree of volatility during the second quarter of 2010. During some short periods clean dark spreads even turned to negative, implying the non-profitability of power productions in these periods. The low values of the spreads were mainly due to the fact that German power prices did not

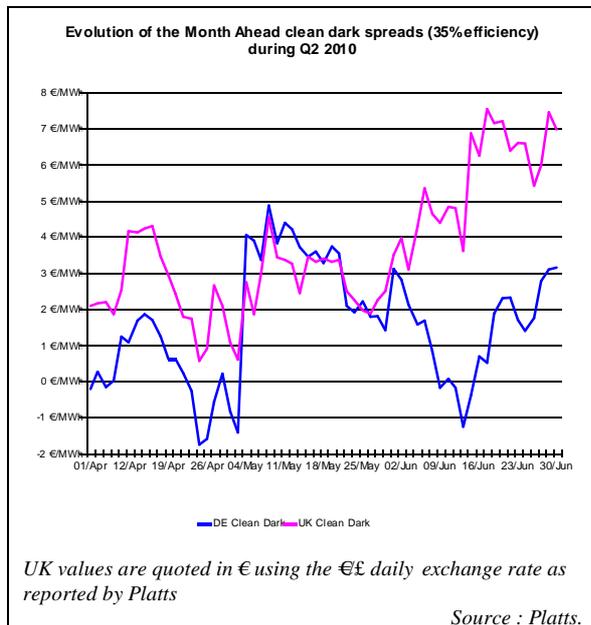
⁴ Source: Platts Daily Electricity Reports

⁵ Dark spreads are reported as indicative prices giving the average difference between the cost of coal delivered ex-ship and the power price. As such, they do not include operation, maintenance or transport costs. Spreads are defined for a coal-fired plant with 35 % efficiency.

Dark spreads are given for UK and Germany, with the coal and power reference price as reported by Platts.

Clean dark spreads are defined as the average difference between the price of coal and carbon emission, and the equivalent price of electricity.

follow the fast increase in coal prices in the second quarter of the year. Changes in wind power output also exerted influence on clean dark spread volatility; in mid-May when wind power output was low spread values reached a local maximum (€ 4.9/MWh).



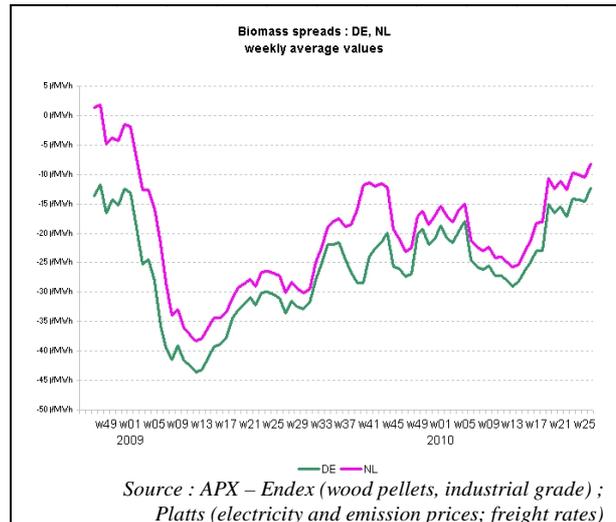
Although in the second quarter of 2010 market conditions of selling power generated from pellets and wood waste became more favourable as it is shown on the next graph, **biomass spreads**⁶

⁶ Biomass spreads are indicative values giving the average difference between (1) the combined price of electricity and carbon emission on the corresponding day-ahead market and (2) the price of industrial wood pellets (delivered month-ahead ex-ship at Rotterdam).

Biomass spreads do not include operation and maintenance costs. However, the German spreads include transport costs of shipping the pellets along the Rhine (Rotterdam – Cologne area).

Specific calculation assumptions: conversion factor of 1 ton of standard wood pellet contains 4.86 MWh of energy; generation efficiency of coal and biomass fired power plants equals 35%; the price of carbon emission is defined as the difference of the German dark and clean dark spreads, calculated according to the methodology of *Platts*.

remained still on the negative side, prompting the non-profitability of such kind of power generation without further support measures.



On the weekly variable cost side the net costs were moving downwards in a narrow range of € 74-77/MWh on the German market between the beginning of April and the last week of June 2010.

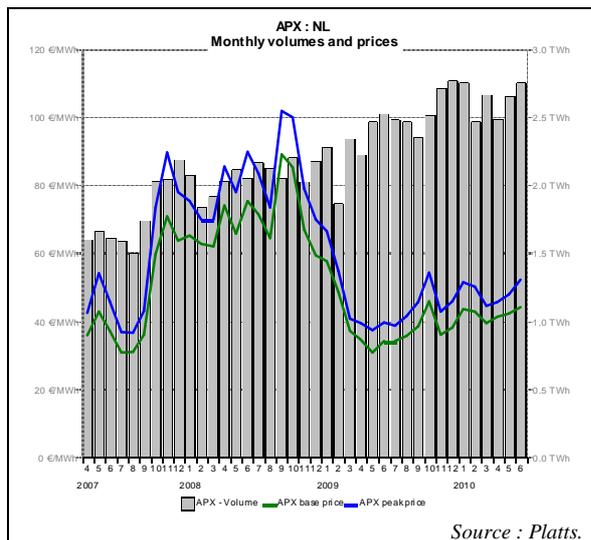
During the same period the combined price of electricity and emission allowance increased significantly from € 48.5/MWh to € 62.6/MWh, which was mainly due to the rise of base-load power prices.

In consequence of these market developments the biomass spread rose from € -25.4/MWh to € -12.4/MWh during the second quarter of 2010. Although this is the second highest value since the beginning of the observations (November 2008), further positive developments on either input-costs side or higher market electricity prices would be needed for the biomass based power production to turn to be profitable.

The Netherlands

The average monthly traded volume of day-ahead electricity contracts remained strong in the second quarter of 2010, reaching exactly the same value as in the first quarter of the year (2.6 TWh). This value is more than 28% of the gross electricity consumption of the Netherlands measured in April 2010.

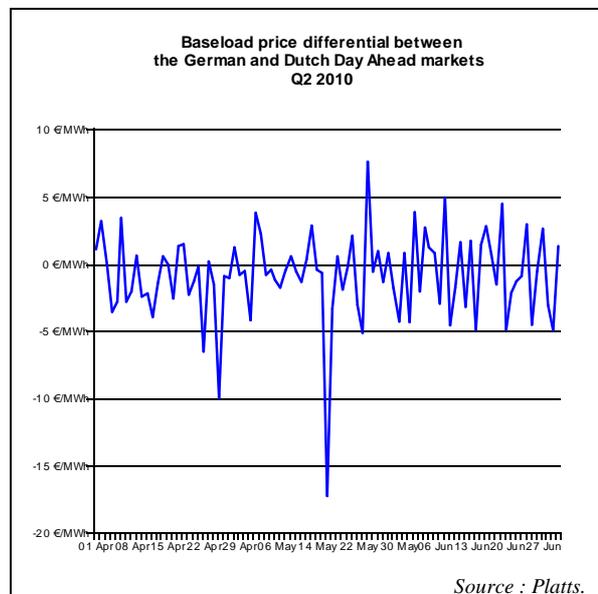
Similarly to the German market both base-load and peak-load prices showed gradual increase during the second quarter of 2010. Base-load monthly average prices rose from €39.4/MWh to €43.9/MWh between March and June while peak-load prices moved from €44.6/MWh to €52.2/MWh in the same period. Since the second quarter of 2009 electricity prices on the Dutch market followed an upward trend; in June 2010 monthly average base-load prices were up by 44% while peak-load prices rose by 39.7 since having marked their several year lows in May 2009.



Weather conditions played an important role in the evolution of power prices on the Dutch market; in April the weather turned out to be milder than usual but in May

HDD values were more than 50% higher than the long term average. This colder weather prompted a higher residential heating demand, pushing the power prices higher.

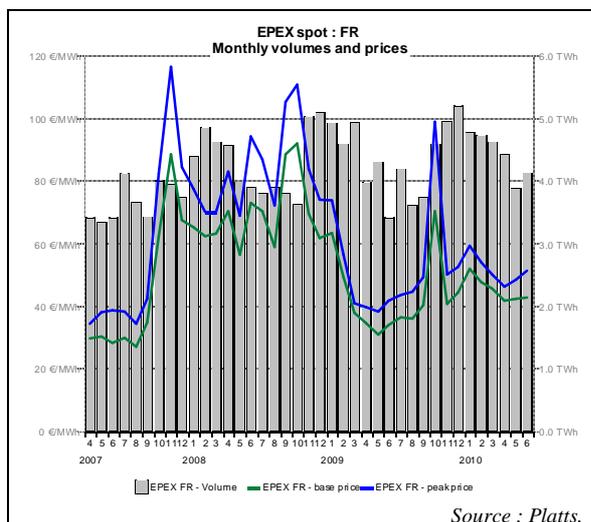
The difference between German and Dutch base-load prices was fluctuating within a narrow band (+/-€5/MWh) during most of the second quarter of 2010. On some days, when wind power supply suddenly jumped or dropped, this difference showed some extreme values.



France

After reaching a record high in December 2009, monthly traded day-ahead volumes started to decrease gradually and fell below 4 TWh in May 2010. Although in June 2010 the volume of power trading picked up again, the volume measured on EPEX power exchange in the second quarter of 2010 was still lower by 12% than that in the first quarter of the year. This volume drop in the second quarter corresponds to the experiences of previous years and it might be close relationship with the seasonality of the weather.

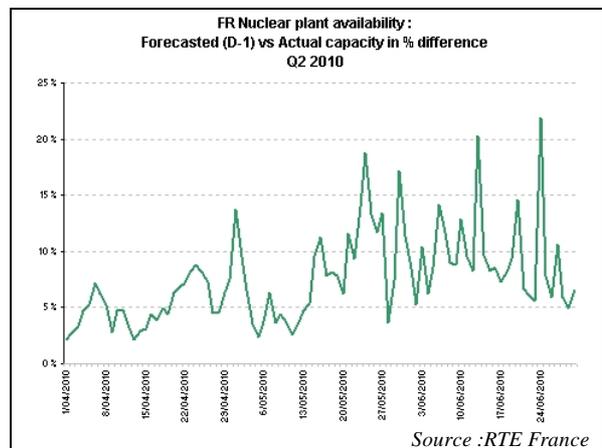
The monthly average of base-load day-ahead prices that stood at € 45/MWh in March 2010 moved downwards to a narrow range of € 41-42/MWh, signalling the only market in Central Western Europe (CWE) where average base-load prices were lower in June than in March 2010. Monthly average peak-load prices also dropped in April but until June they managed to catch up again to a level of € 51/MWh.



The relatively stable price level, despite planned outages and tighter wind power supply might be explained by weather

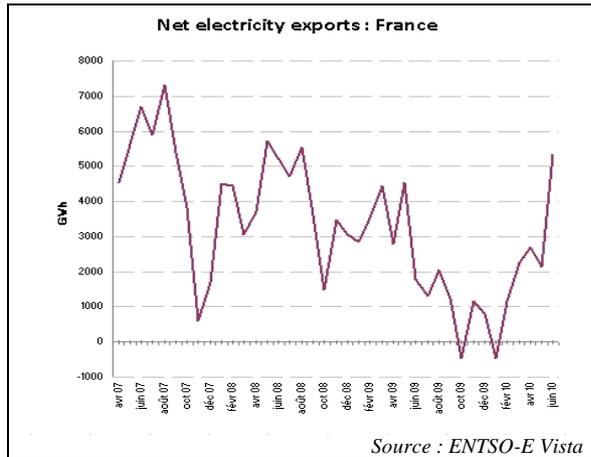
conditions that differed from those of Germany, Belgium and the Netherlands in the second quarter of 2010.

In April 2010 the temperature was higher than the long term average in France (HDDs were down by more than 20%, whereas in the other three countries HDDs decreased only slightly), implying a relatively mild weather in France. The weather in May turned less cold in France than in the other three countries (HDDs were up only by 28% whereas they increased by 40-50% in Belgium, Germany and the Netherlands).

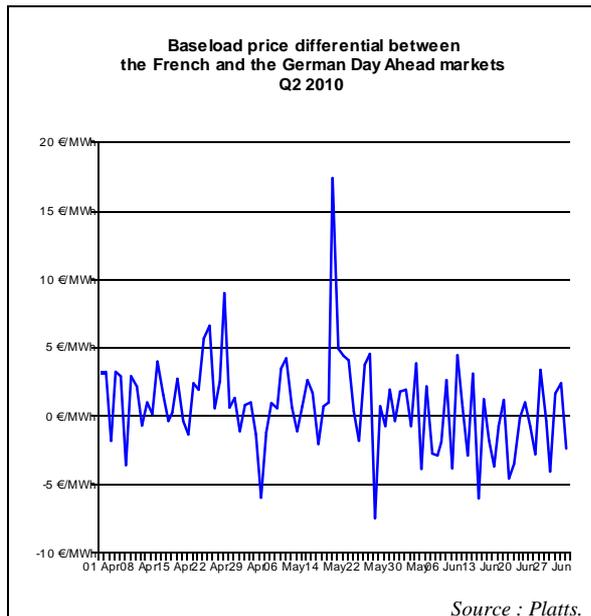


Data from the French TSO shows that by the end of the second quarter of 2010 the difference between forecasted and actual nuclear plant availability climbed to high ranges. This lower-than-forecasted availability did not manifest in high electricity prices which may point to the prior overestimation of the power load.

The relatively low price level of France market compared to other regional markets can also be traced on the rebound of net electricity exports of the country that rose to a two year high level in June, above 5TWh from a close-to-equilibrium situation at the beginning of 2010.

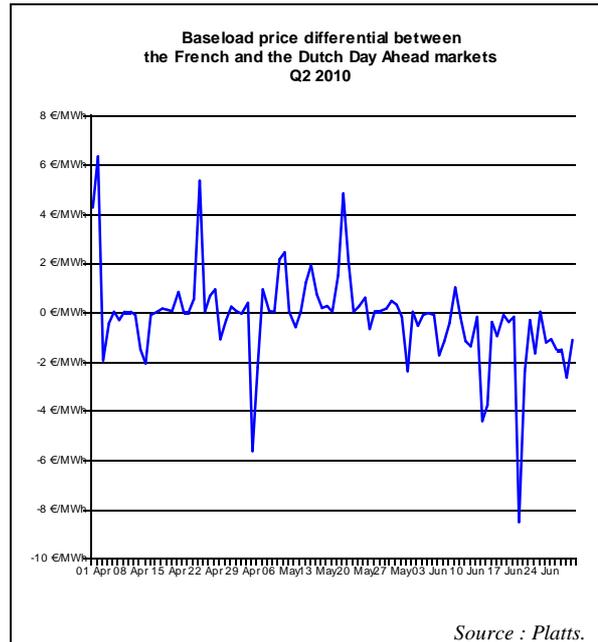


Although the quarterly average of the price difference between the French and German day-ahead wholesale prices showed a minor French premium, by the end of the second quarter of 2010 the French market was traded at a discount compared to Germany as German prices showed a growth in parallel with the stability of French contracts.



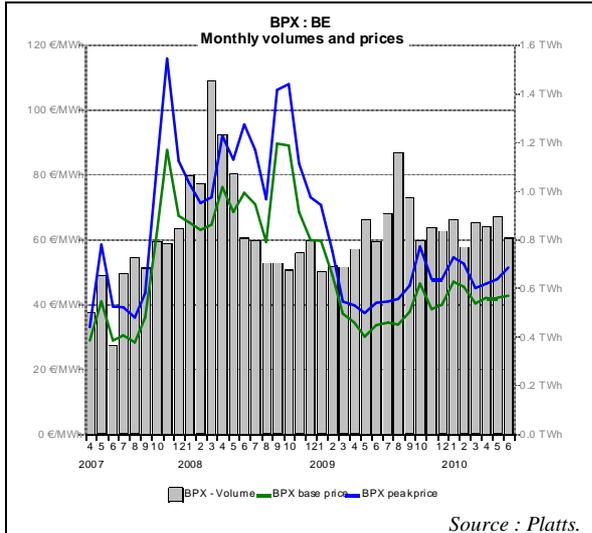
A similar situation could be observed in the price level relation of the French and the Dutch markets; while at the beginning of the quarter French prices were higher, at the end of Q2 2010 they were

outperformed by the increase of Dutch prices



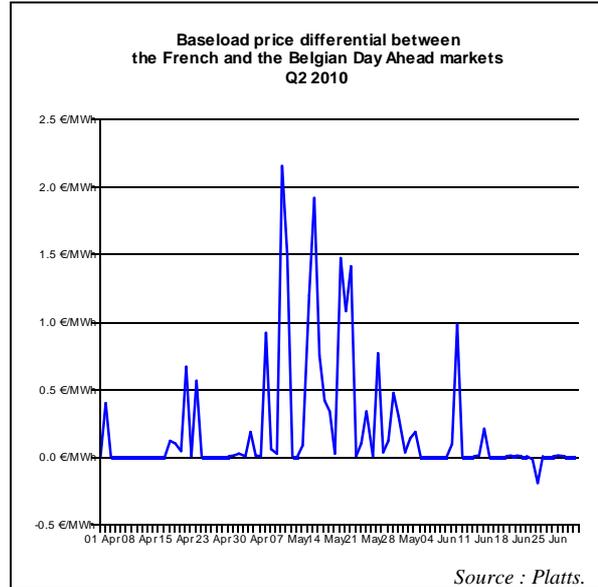
Belgium

In the second quarter of 2010 the monthly average traded volume of day-ahead spot contracts on the Belgian electricity markets was slightly above 0.8 TWh, which could be considered as a normal value since the last three months of 2009. This traded volume represents about 11-12% of the April 2010 monthly gross electricity consumption of the country.

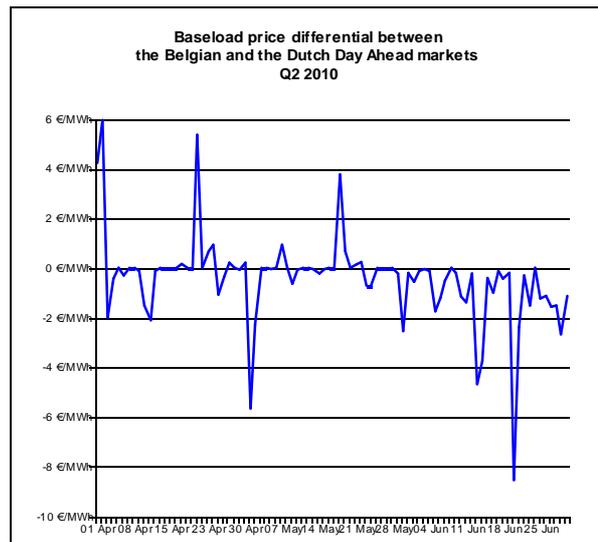


Base-load monthly average prices moved in a very narrow range, increasing from € 40.1/MWh measured in March to € 42.5/MWh in June 2010. Peak-load prices evolved in the same direction, gaining about €6/MWh during the second quarter of 2010. These price movements were broadly in line with the experiences on the German and Dutch markets that can be explained by similar weather conditions (temperatures and HDD values compared to their long term averages).

Price differences between French and Belgian day-ahead markets showed a minor premium of French prices that disappeared at the end of Q2 2010 as French prices remained more stable and Belgian market prices crept higher.

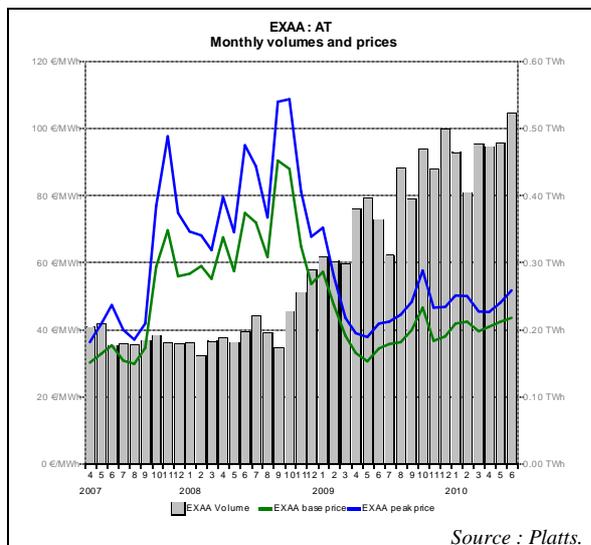


As the price increase in the Netherlands outperformed that of the Belgian market, the Dutch price premium turned to a firm discount by the end of the quarter.



Austria

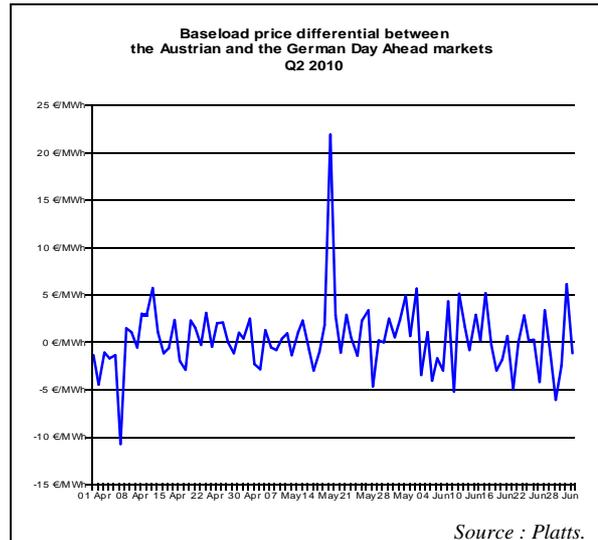
The monthly day-ahead traded volume continued to hit record high levels in June 2010 on the Austrian EXAA power market, totalling 0.52 TWh. It seems that the increasing trend of traded volume that began in the last months of 2008 is still on its way. This record-high value is still only about 9% of the Austrian monthly gross electricity consumption. This is significantly lower than the respective value on the German market, highlighting that the majority of Austrian power trading is carried out on the EPEX market.



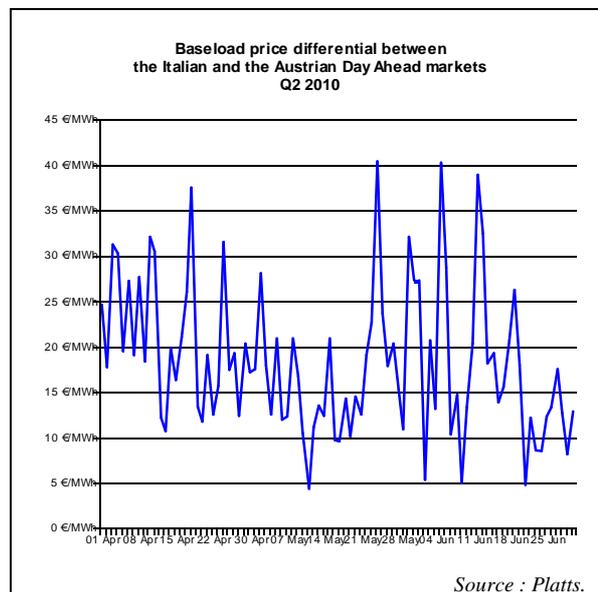
Monthly average price evolutions between March and June 2010 were quite similar to those on German EPEX market for both base-load and peak-load prices. Base-load monthly price level rose from €39.4/MWh to €43.1/MWh while that of the peak-load went up from €45.2/MWh to €51.5/MWh.

In Q2 2010 Austrian day-ahead wholesale prices were traded on an average small premium compared to the German market, although there were some weekend days when price difference widened

significantly. This proves a high degree of correlation between these two markets.

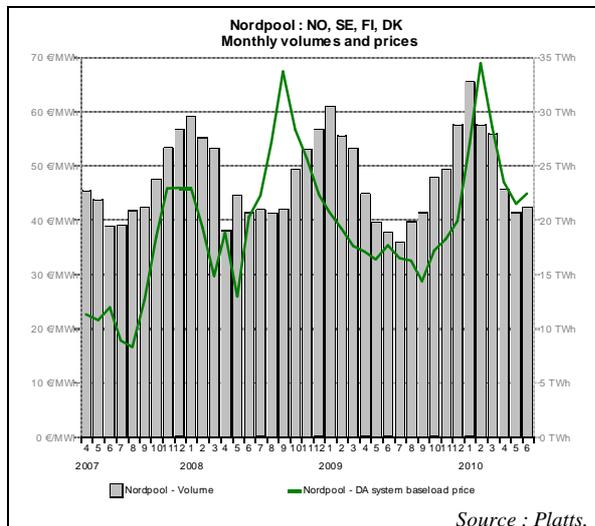


Compared to earlier quarterly periods the difference between the Austrian and the Italian day-ahead base-load contract was oscillating in a narrower band (mostly in the € 10-30/MWh range). The significant price discount to the Italian benchmark prevailed; although on some days Austrian prices got quite close to those of the Italian market.



Northern Europe

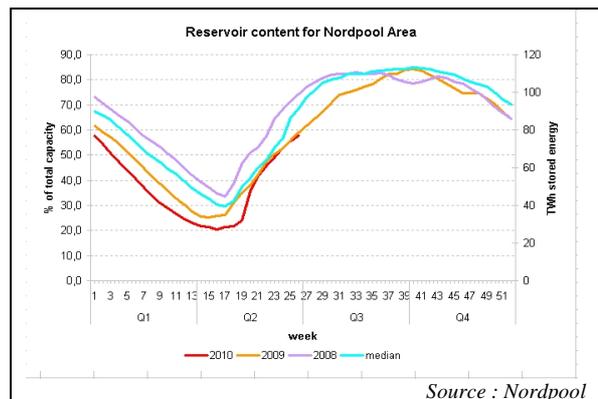
The second quarter of 2010 has brought a return of stability and normal conditions on Nordic markets after the upheaval experienced in Q1 triggered by harsh weather conditions, low level of reservoir contents, tight grid margins and in some periods reduced transmission capacity.



After record high values registered in January 2010 the average monthly volume returned to a moderate range and reached 21.6 TWh in the second quarter of 2010. This can be explained on one hand the stabilization of the market situation and on the other hand by seasonal impacts as the normal turnover is less during spring period (in Q2 2008 average monthly volume was 20.7 TWh while in Q2 2009 it reached only 20.4 TWh). The average monthly traded volume in Q2 was more than 74% of the gross inland electricity consumption of the concerned countries which was an outstanding ratio compared to other European markets. This also perfectly reflects the high liquidity and the developed nature of the Nordic power markets.

After the falling-out of bottleneck effects in the beginning of the year prices returned to their normal level in Q2 2010. Monthly average prices dropped from € 57/MWh measured in March to €43/MWh in May and they rose again in June to finish the quarter at a price level of € 44.8/MWh. The quarterly average price level was 32.1% higher than that of the second quarter of 2009.

In the second quarter of 2010 reservoir content levels still exerted an upward pressure on power prices, while they were still below the median of the long term capacity level⁷; although the difference diminished by the end of the observed period.



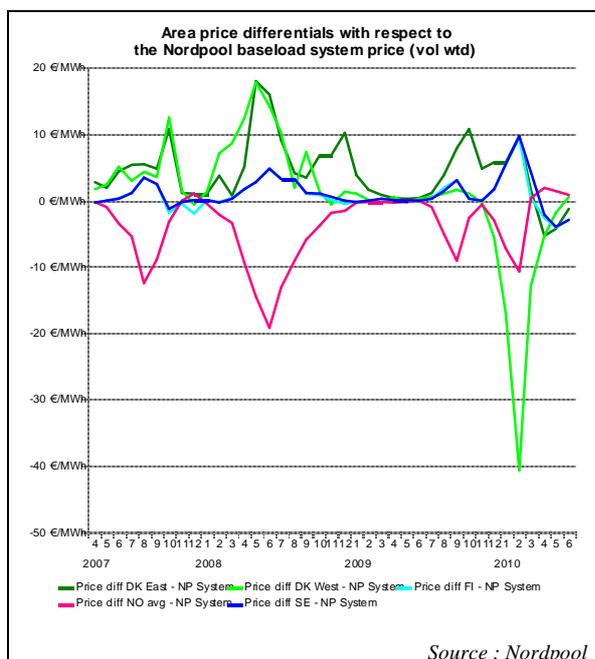
Weather conditions in the four countries concerned did not show a universal picture. In Norway the weather in April and May corresponded more or less with the long term average temperatures measured by HDDs, while in Sweden and in Finland HDDs were down in both April and May, suggesting a milder weather this spring. In contrast, Denmark's May HDD values were by 25% higher than the long term average, implying that the weather was colder than usual.

⁷ Median of reservoir content capacity level of years between 1990 and 2006.

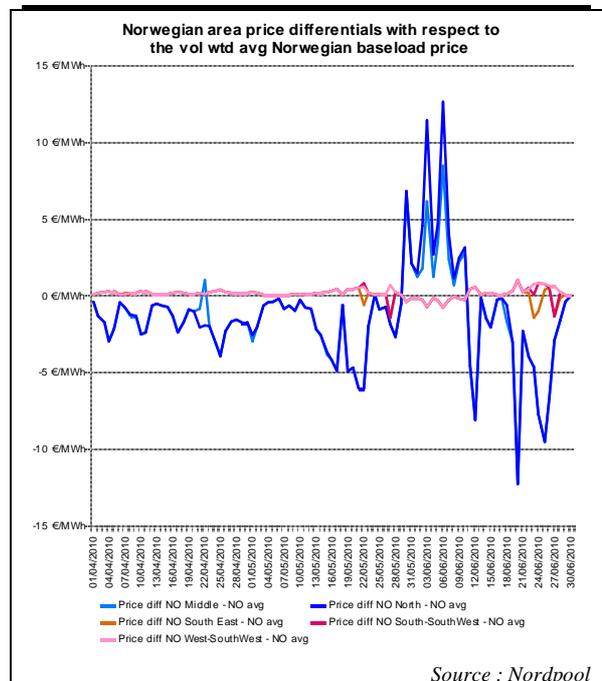
The average price premium of the Nordpool market compared to Germany was € 3.3/MWh in the second quarter of 2010, though by the end of this period the price premium began to turn to discount which used to be the normal situation in the last couple of years with the exception of the first quarter of 2010.

The extremely high area price dispersion from the Nordpool base-load system price that dominated the first quarter of the year practically disappeared and on monthly average area prices did not show significant difference from the system base-load price level.

In case of the daily average prices Swedish and Finnish prices were below the system price level during the whole period, in some periods (mainly on Sundays) showing severe drops. In contrast, Norwegian daily averages were mostly higher than Nordpool system prices in the second quarter of 2010.



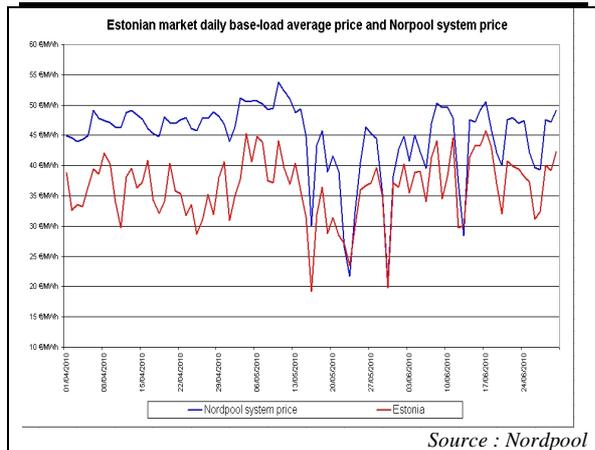
As the following chart shows the extremely high price deviations of the Norwegian area prices from the weighted average system price significantly diminished in Q2 compared to the first quarter of 2010. This is also signal of the normalization of the situation of power supply.



As a new development Nordpool launched a new bidding area in Estonia and thus the power market of this country has been connected to Nordpool, offering the trading possibility on a liquid power market.

The trading started on the 1st April 2010 and daily average traded volume showed a rapid growth during the second quarter of 2010 (in April: 4.5GWh; May: 5.4GWh; June: 11.9GWh). However, the cumulated market turnover during the second quarter was less than 1% of the Estonian gross inland electricity consumption; depicting

the premature development phase of the power trading.

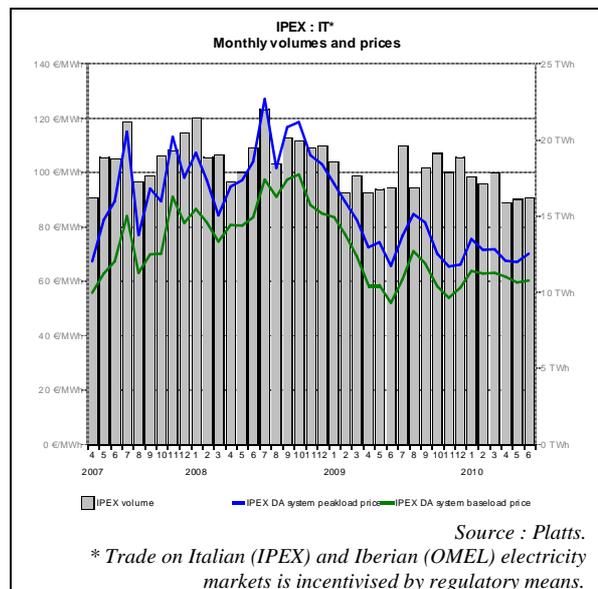


The daily average price evolution of the first three trading months (Q2 2010) showed a strong co-movement of Estonian and Nordpool system base-load prices. The average price discount of the Estonian prices was €8.5/MWh in this quarter and moving ahead in time it seemed to have diminished. Estonian prices showed especially high correlation with Finnish area prices.

Apeninne Peninsula

Italy

During the observed period the monthly traded volume on the IPEX Italian power exchange showed a relative stability as the heating season that is characterized by high monthly values was over. The average monthly traded volume in the second quarter of 2010 was 16.1 TWh which is nearly 4% less than that of Q2 2009 and 12% less than the respective value of the second quarter of 2008. It seems that traded volume data are on a decreasing path since the middle of 2008.



Both base-load and peak-load monthly average prices moved in a very narrow range (€59.3-61.3/MWh for the base-load and €67.3-70/MWh for the peak-load) and it is worth noting that monthly prices in June were still lower than in March 2010, though the prices reached their local minimal value in May 2010.

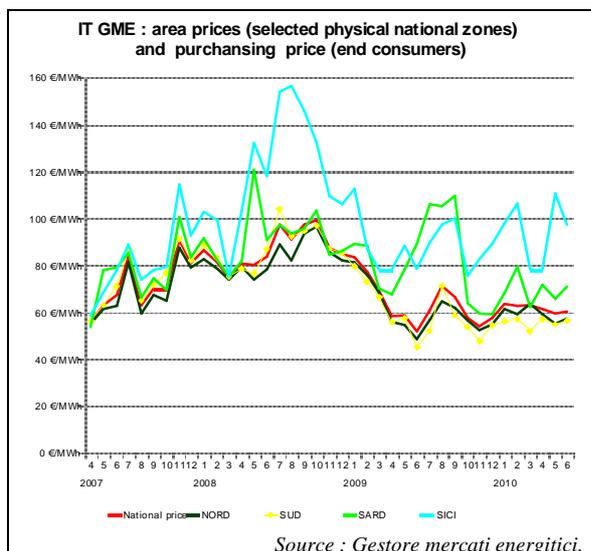
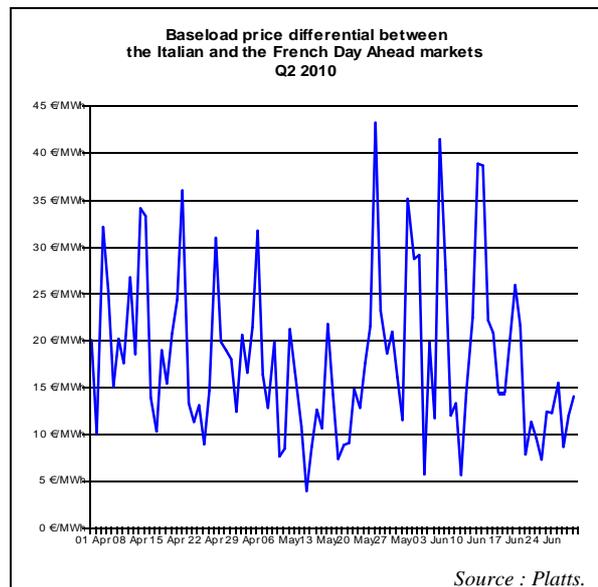
Looking at the Italian regional price developments Sardinia and Sicily remained the two most volatile regions (physical

natural zones), regarding the daily average prices.

The Sardinia and Sicily area hourly prices presented some examples for extreme price movements during the second quarter of the year. For example, between 6th and 8th April there were a few hours when Sardinia area prices exceeded €200/MWh, and this also held true for Sicily area prices for 17-18 June during the whole peak season (between 09⁰⁰ and 22⁰⁰ hours). On the other hand, for example, on 22nd June in the off-peak season prices of Sicily area were less than € 10/MWh, giving a good example for the possible amplitude of price fluctuations in these two areas.

The monthly average price data show the area prices of Northern Italy continued to move closely with the national prices while both Sardinia and Sicily area prices kept a distance from the national prices as it was the case in the last couple of quarters. In May and June Sicily prices climbed to their local highs as some extremely high hourly prices repeatedly appeared in the system.

premium compared to those of the French market in the second quarter of 2010. The premium seems to have increased from that of the previous quarter as there were two trading days when the daily premium was above €40/MWh.

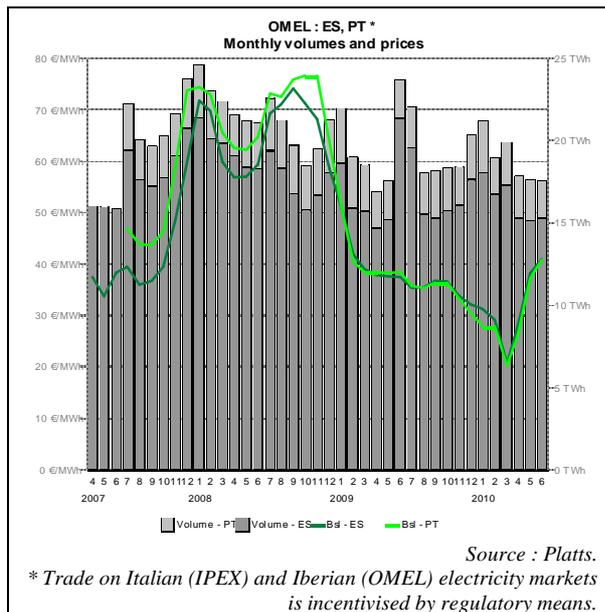


Italian base-load day-ahead prices were traded on an average € 18.1/MWh

Iberian Peninsula

Spain and Portugal

After the significant drop in monthly power prices measured in the first quarter of 2010 a sharp overturn could be observed in the second quarter. Base-load prices on the Spanish market jumped from their extremely low monthly average value of € 20.5/MWh measured in March to € 40.6/MWh in June which was the highest price since February 2009. It is worth mentioning that although the monthly average prices reached their minimal values on both markets in March 2010, the daily base-load prices fell to a range of €2-3/MWh in the very first trading days of April which was the lowest price since 1998.

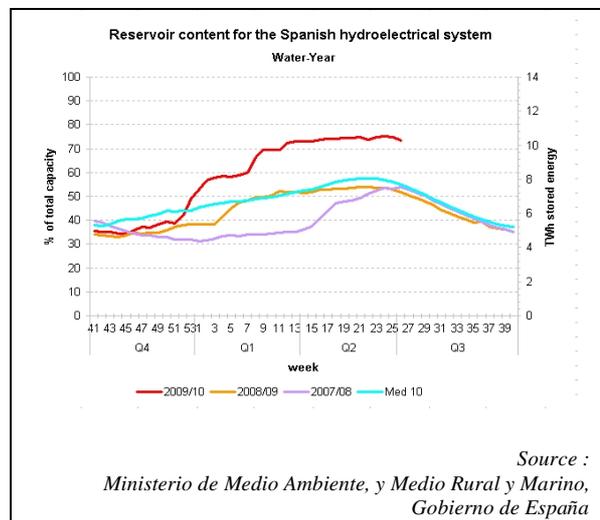


Base-load prices on the Portuguese day-ahead market followed closely the Spanish prices. However, an average discount of less than € 1/MWh could be observed compared to the Spanish market. Monthly traded volume data were stable during the second quarter of 2010 on both markets (a

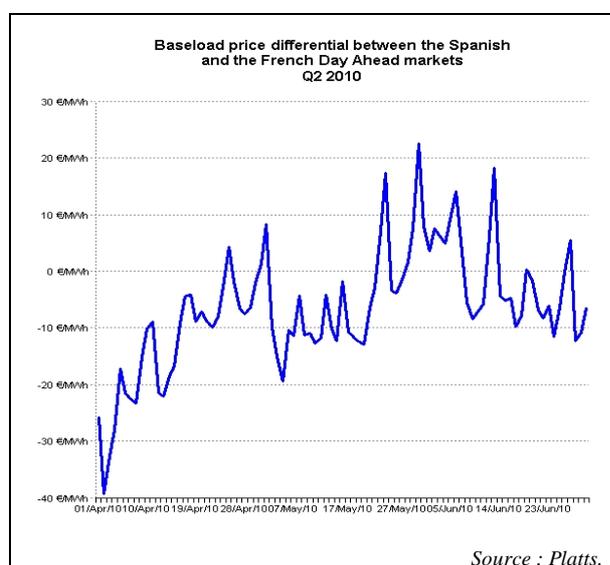
monthly average volume of 15.3 TWh for the Spanish and a 2.5 TWh for the Portuguese market). These values were lower than those of the first quarter of 2010, reflecting the usual seasonal pattern and they were also below the volume data of the second quarter of 2009; primarily owing to the high base period monthly measured in June 2009.

Although the reservoir content of the Spanish hydro-electrical system remained significantly higher than the long term average in the second quarter of the year, this could not exert a downward pressure on power prices in a similar magnitude than in the first quarter of 2010. There were two reasons that might have contributed to the increase in power prices.

First, during the entire second quarter both wind level forecasts and current observations showed lower power supply from wind energy and this exerted an upward pressure on electricity prices. Second, in Q2 of 2010 several maintenance works (planned outages) took place in Spain; and especially the fall-out of two nuclear plant units (Trillo and Asco II) reduced the available power supply.



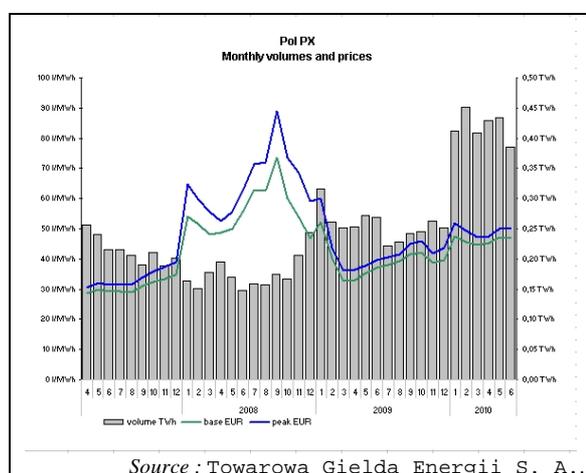
As the prices on the Spanish market returned to normal levels during the second quarter of 2010, the extremely high price discount compared to the French market at the beginning of April began to disappear and it even turned to a price premium in the second half of May, though the price discount returned in the second half of June.



Central Eastern Europe

Poland

The monthly traded volumes on the Polish market were close to their record high values set in the first quarter of 2010, although in June a minor decrease occurred, probably in conjunction with seasonal impacts (beginning of the summer season).

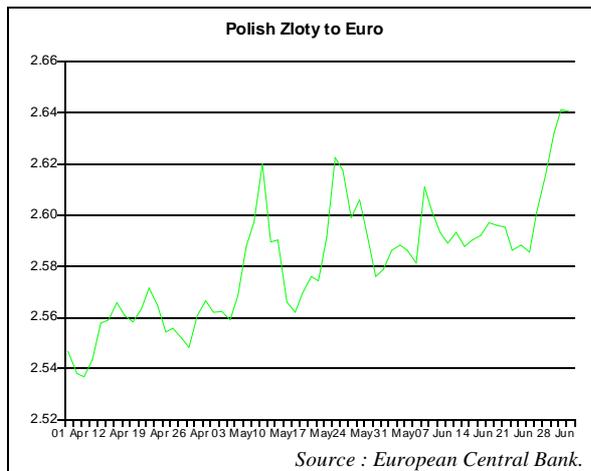


Both base-load and peak-load prices were surprisingly stable, bearing in mind that prices were going up in the second quarter on the major European markets. Monthly average prices in June (both base-load and peak-load) increased by only € 2-3/MWh compared to March, while prices on German market that usually acts as a price setter for other Central European markets rose by € 4-7/MWh during the same period.

Poland assures the vast majority of its gross inland consumption from domestic sources and solid fuels are predominant in its electricity mix. Surprisingly Polish power prices remained stable in spite of soaring benchmark coal prices in the second quarter of 2010 (Coal CIF ARA prices rose by more than 40% between

March and June). Although in the past a strong correlation could be observed between coal prices and Polish power prices, the current stability of electricity prices might be in relation with coal pricing different from CIF ARA (Poland has significant domestic coal production and imports the remaining part of its consumption mainly from Russia and former Soviet states).

The other reason for power price stability might be sought in currency exchange rates (Polish zloty showed a depreciation path during the second quarter of 2010; this might also have contributed to keeping the prices lower measured in euros).

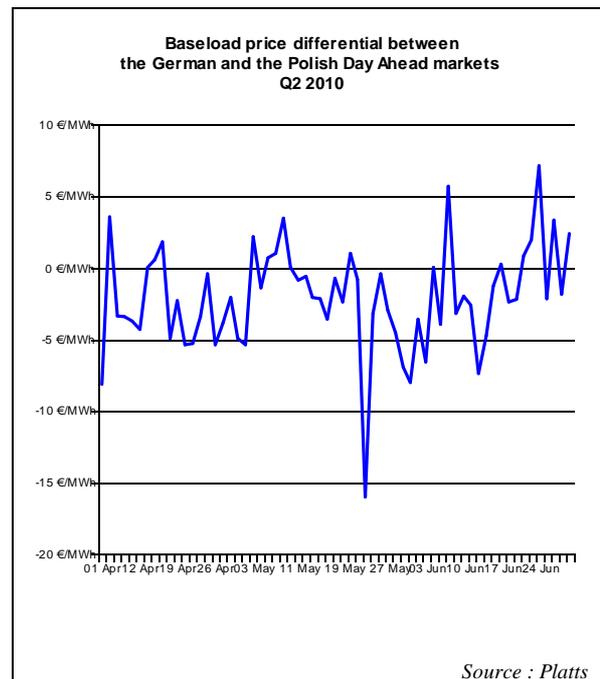


The next chart provides an evidence of the inter-connected nature of the German and the Polish electricity market; base-load price differentials fluctuated in a € +/-5/MWh range during almost the whole second quarter of 2010.

At the end of the period the German premium edged higher, reflecting the stability of Polish prices and the increase of those ones on the German market.

Increasing German price premiums are also reflected in the reduced volume of

electricity flows from Germany to Poland: while in the first quarter of 2010 1.78 TWh power was exported to Poland, this value dropped to 1.07 TWh in the second quarter of the year.

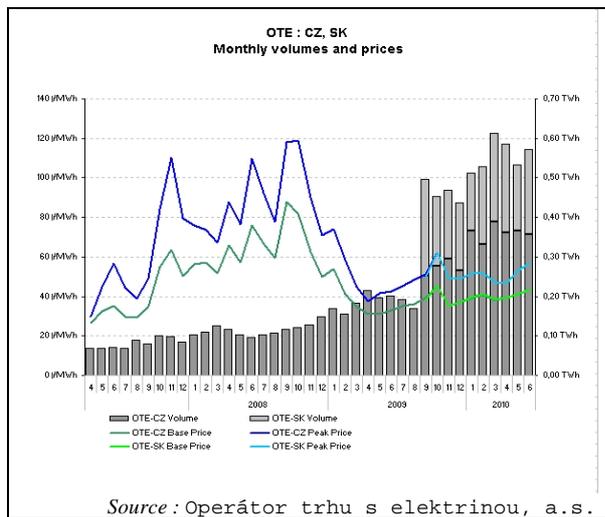


Czech Republic and Slovakia

The monthly average volume on the Czech market in the second quarter of 2010 remained close to its record high value set in the first quarter and reached about 0.36 TWh. On the Slovak⁸ market the average monthly volume was even a bit higher in the second quarter (0.2 TWh) than the respective value of the first quarter of 2010.

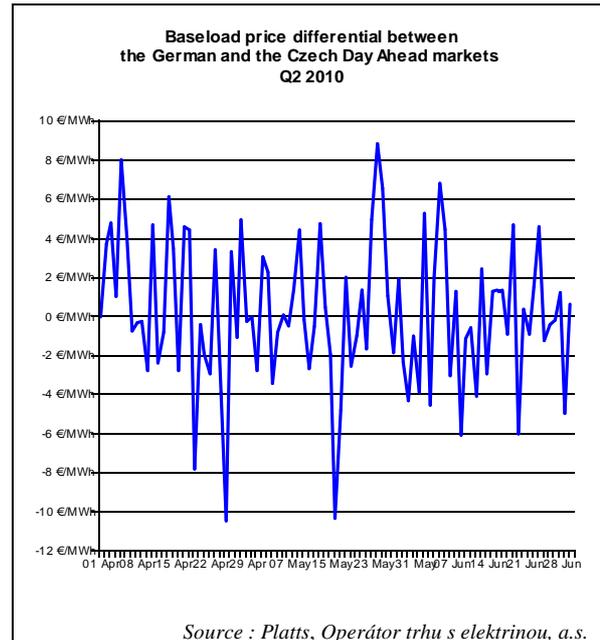
⁸ In the Quarterly Report on European Electricity Markets January-March 2010 (Vol. 3 Issue 1) Slovak monthly peak-load prices were reported as containing weekend price quotations; in the current report the calculation method has been adjusted to that of the Czech prices in order to enhance consistency.

The average monthly combined traded volume of the two markets was 0.57 TWh in the second quarter of 2010, which was about 7-8% of the combined gross inland electricity consumption of the two countries.



Monthly average base-load and peak-load prices on both markets were on an upward path during the second quarter of 2010. Base-load prices rose from €38/MWh to €43/MWh between March and June on both markets. The increase in both Czech and Slovak peak-load prices was faster (from €47/MWh to €57/MWh) than that of the base-load prices.

The faster increase in peak-load prices might have been in strong relationship with the similar price movements on the German market as both Czech and Slovak markets closely follow the evolution of German power prices.



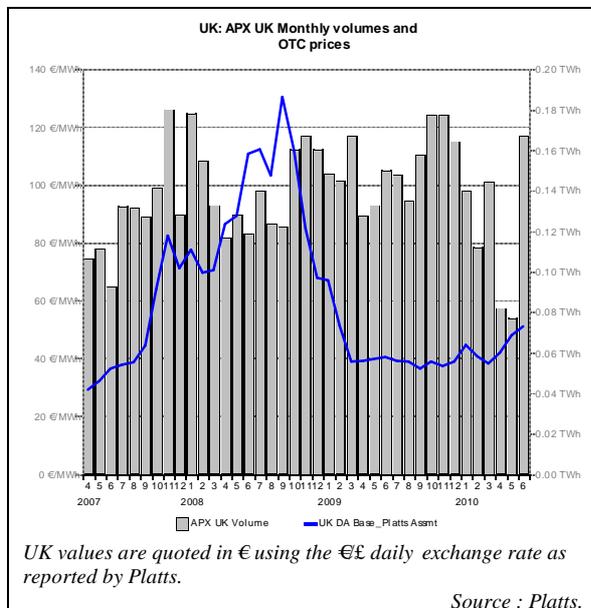
Although the averages of the German and Czech base-load day-ahead prices did not show significant difference in the second quarter of 2010 (DE - €41.5/MWh vs. CZ - €41.4/MWh); the chart above shows that the German price premium that could be observed at the beginning of the quarter turned to a slight discount by the end of June.

This change of relation between the two countries' price level is also reinforced by the decrease of the volume of the Czech export to Germany: while in the first quarter the volume of the export exceeded 2.8TWh, in the second quarter of 2010 the total export volume was just above 1.5TWh.

British Isles

UK

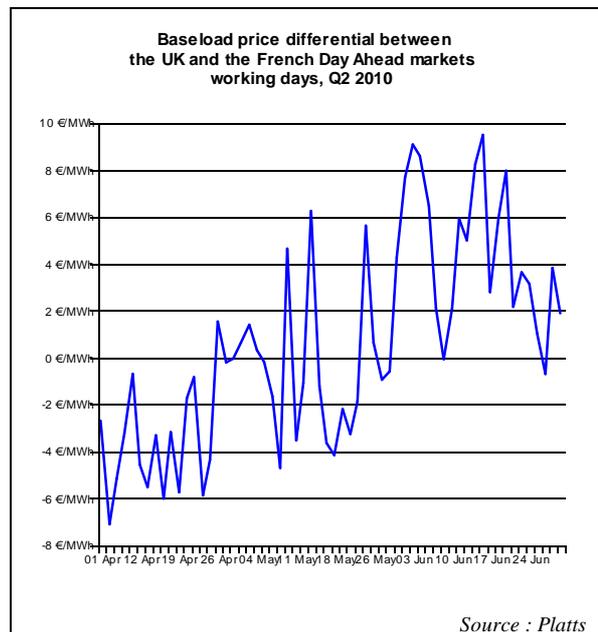
UK day-ahead base-load prices were soaring during the second quarter of 2010. The monthly average base-load price, which was about € 38/MWh in March, gradually increased during this three months period and exceeded €50/MWh in June. This was the highest monthly value since February 2009.



The primary factor for the upward trend of electricity prices was the permanent increase in price of the natural gas on the UK market. The correlation between the price evolutions of these two energy products became probably stronger than in the previous quarter.

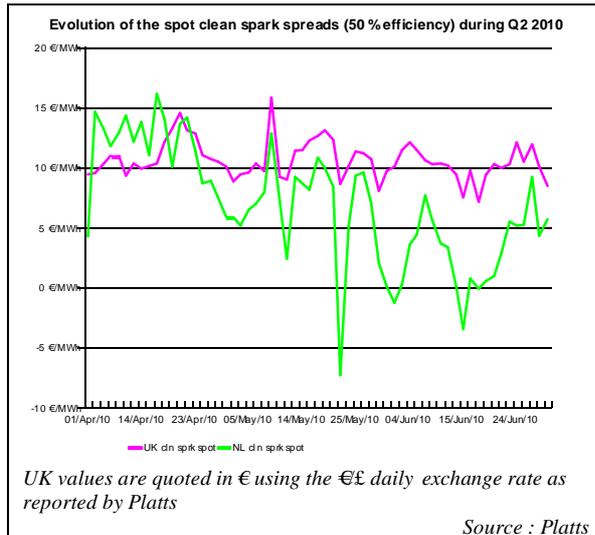
An other important factor might have contributed to higher power prices was the apparently colder weather in May 2010 compared to long term average, though in April the weather was a bit milder than usual. The beginning of this spring period incurred some planned outages (maintenance works) of power plants and

lower supply of electricity. Monthly traded volumes dropped to their lowest values in April and May during the last three years while in June they rebounded to the value observed in the first quarter of 2010.



Higher prices on the UK market were also reflected in the trend reversal of price relation between UK and FR market: since early June power on the UK market is traded on a price premium compared to the French exchange; which defies the discount observed in earlier periods.

Higher UK prices also exerted influence on the direction of power flow between these two markets: according to the data of ENTSO-Vista the net inflow reached 1.66 TWh from the French market, while in the first quarter of 2010 the net outflow from the UK to France reached 1.5 TWh.



The UK spot clean spark spread⁹ was fairly stable during the second quarter of 2010; it oscillated around € 10/MWh during most of the observed period. In contrast, the Dutch spot clean spark spread was more volatile and with the exception of the first two weeks of the quarter the spread value was below that of the UK, primary owing to lower electricity prices on the Dutch market.

UK power prices followed the upward trend of fuel prices during this quarter and thus UK spark spread reached high values (more than € 7/MWh) by the end of the second quarter of 2010 that could only be

⁹ Spark spreads are indicative prices showing the average difference between the cost of gas delivered on the gas transmission system and the power price. As such, they do not include operation, maintenance or transport costs. The spark spreads are calculated for gas-fired plants with standard efficiencies of 50% and 60%. This report uses the 50% efficiency.

Spreads are quoted for the UK, German and Benelux markets.

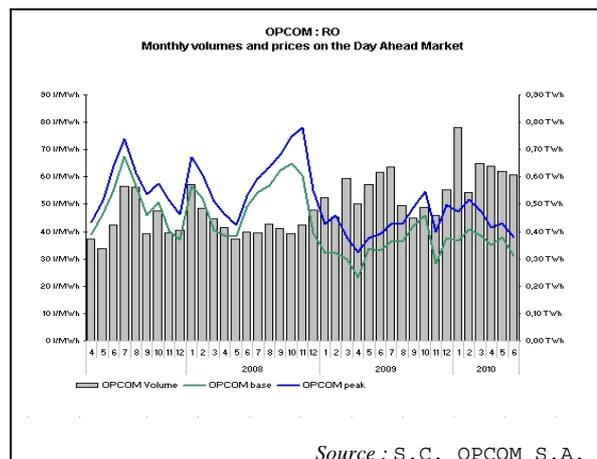
Clean spark spreads are defined as the average difference between the cost of gas and emissions, and the equivalent price of electricity.

measured in the beginning of this year. (See chart on page 6).

South Eastern Europe

Romania

In contrast to most of the other observed European power markets Romanian day-ahead electricity prices followed a downward trend in the last couple of months. Base-load price were 19% lower in June 2010 compared to those of March; reaching an average of € 31/MWh which was the lowest level since November 2009. Peak-load prices also decreased by more than 20% during the second quarter of 2010; and the monthly average of € 38/MWh observed in June 2010 was the lowest price since May 2009.

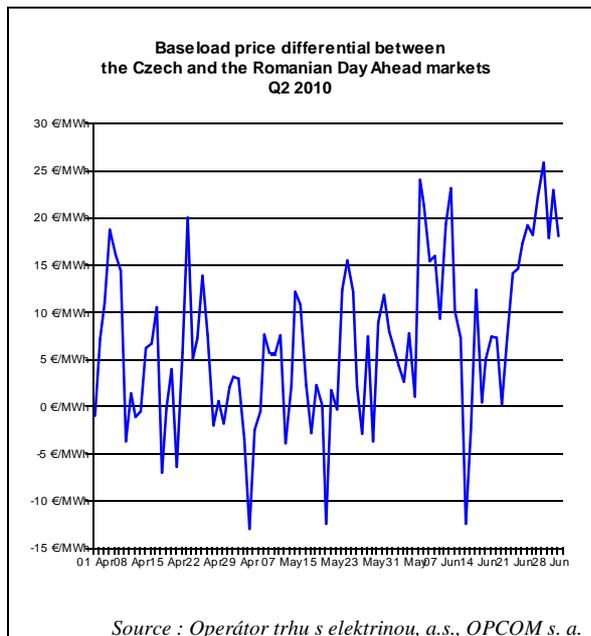


This phenomenon was probably strongly correlated to the milder-than-usual weather conditions and the overall performance of the economy. Heating degree day values were significantly lower in April and May (13% and 45%, respectively) than the long term average. In the second quarter of 2010 GDP data still showed a -0.5% contraction of the economy compared to

the Q2 2009 and this must have weighed on power demand.

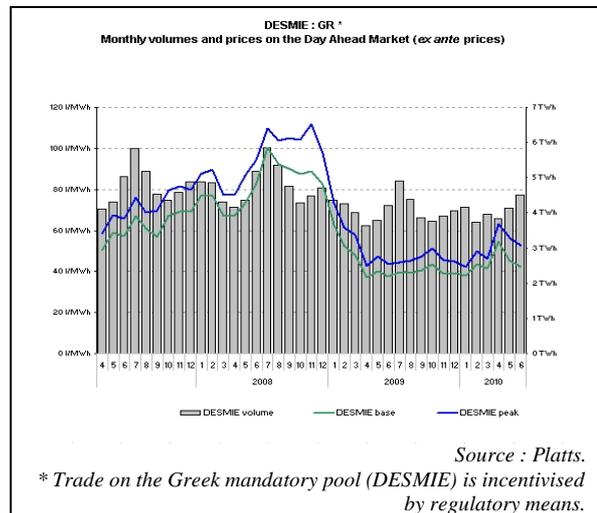
The average monthly traded volume on OPCOM market was 0.62 TWh that represented 14% of the gross inland electricity consumption of Romania in the second quarter of 2010.

The price differential between Czech and Romanian base-load prices has significantly widened during the second quarter, as a consequence of divergent price movements on the two markets. By the end of the observed period the Czech price premium climbed to an eighteen months record high range of € 20-25/MWh.



Greece

Both base-load and peak-load day ahead power prices showed a sudden jump in April on the Greek market while in May and June they began to return to their levels closer to those of earlier months.



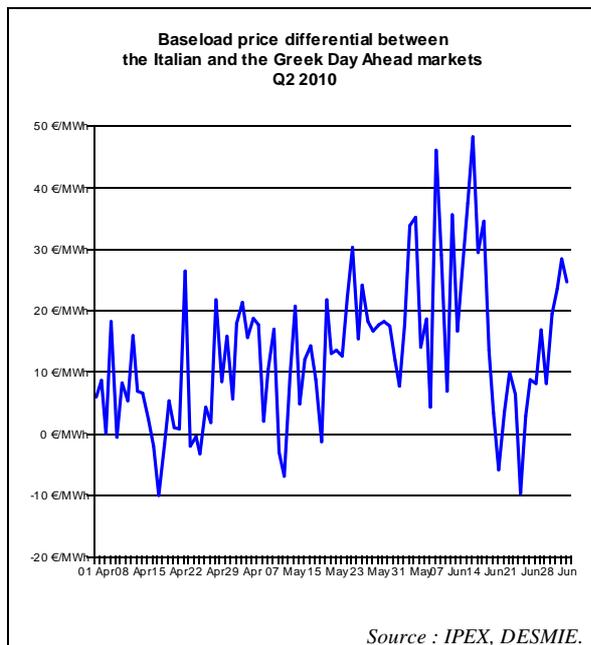
Average base-load prices peaked at € 55/MWh in April while those of peak-load were above € 63/MWh; both numbers mark a fifteen month record high value.

This price evolution seemed to be strange bearing in mind that the weather was extremely mild in this period in Greece (in April the heating degree values were 38% lower than the long-term average, prompting a significant demand reduction stemming from heating needs).

The Greek economy was still in recession in the second quarter of 2010 (quarterly GDP index showed a -3.8% contraction compared to Q2 of 2009) and monthly year-on-year industrial production numbers were still on the negative side in Q2 2010.

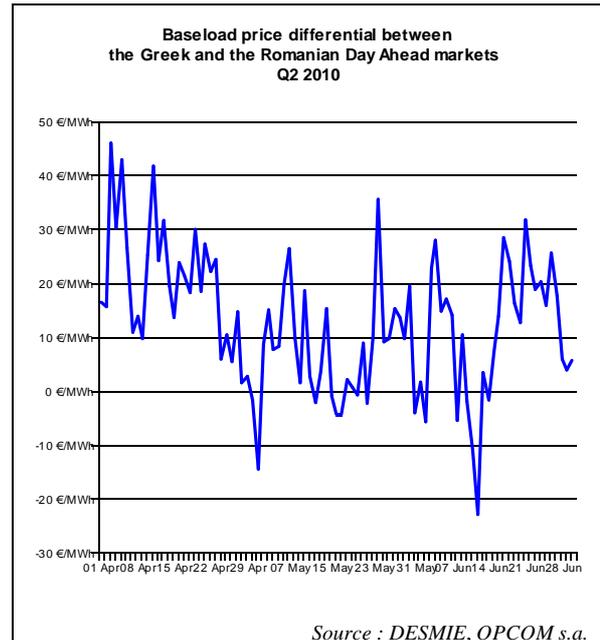
The possible reason should be sought on the supply side while according to Eurostat's monthly electricity statistics data

the total gross electricity generation (indigenous production) fell to an eleven-year-low value of 3.65 TWh. This significant drop in domestic production entailed a higher demand for power from import sources.



Both base-load and peak-load prices began to decrease in May and the monthly average values in June 2010 were € 42/MWh and € 52.5/MWh, respectively. Mild weather continued to weigh on the heating demand in the month of May (HDD values were also lower), indigenous production picked up again and additional power demand did not arise in the lack of economic rebound. These factors have all contributed to the diminishing of power prices in Greece.

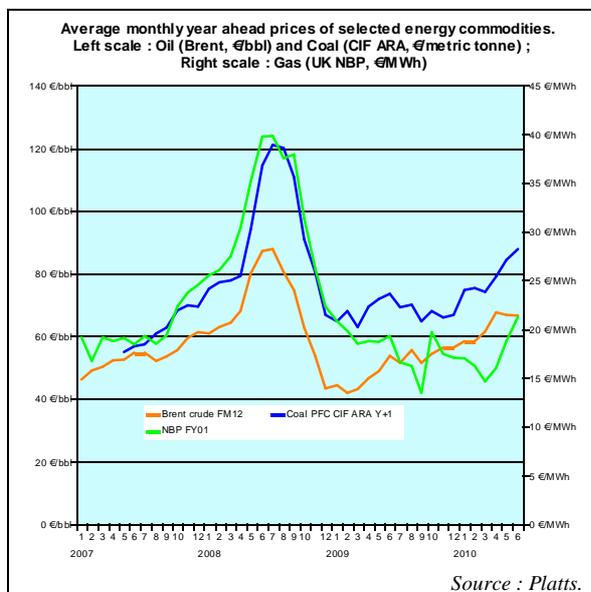
The high power prices in April can also be traced on the discounts to the Italian market which was not a usual phenomenon in the last couple of months.



The price premium of the Greek market compared to the Romanian prices climbed to more than € 40/MWh at the beginning of the second quarter which happened last time in early 2009. The average price difference between the base-load prices of the two markets was € 12.7/MWh in the second quarter of 2010.

A.1.2 Forward markets

The monthly averages of the selected commodities were in Q2 2010 still showing an increasing trend after the drop in the beginning of 2009. For example, the year-ahead coal price CIF ARA increased by 36 % since January 2009 when expressed in €/metric tonne. This increase is not unexpected when taking into consideration the Indian and Chinese demand which strongly influence the world coal market (see also the "Focus on" topic in this issue).



The chart also shows that the development of the Brent and NBP year-ahead prices were different, with Brent showing a stronger increasing trend and the NBP price being more volatile.

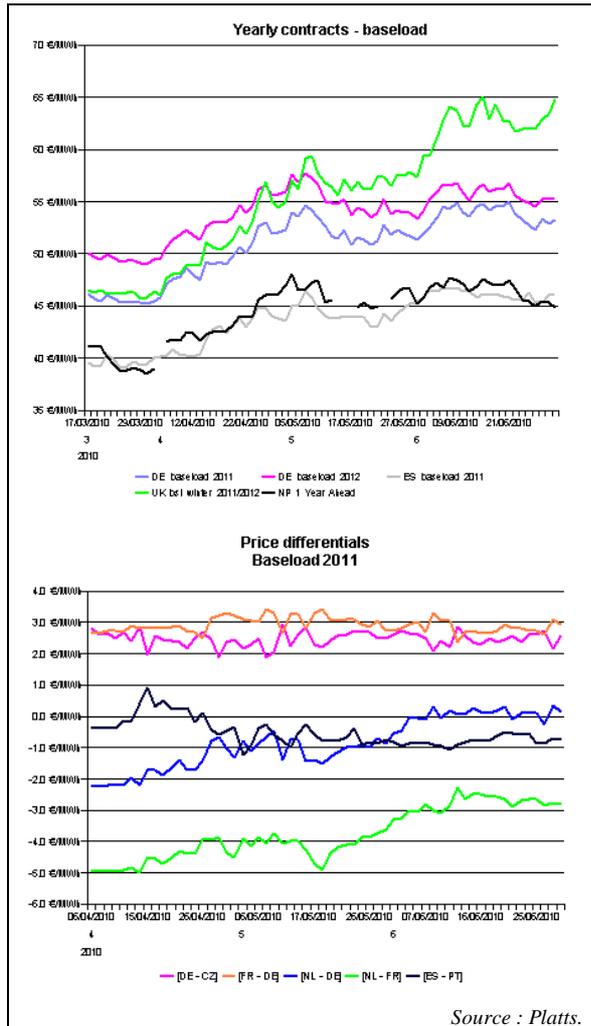
The quarterly average of Brent year-ahead appreciated by 13 % in Q2 2010 relative to Q1 2010, whereas the gas year-ahead rose by 17 % in the same period. But on the yearly level (Q2 2010 vs. Q2 2009), Brent gained 35 % and gas dropped by 1 %. The decoupling of oil and gas prices observed

on the spot markets appears to be present on the forward markets as well.

The increasing forward prices of energy commodities apparently influenced the yearly forward contracts for baseload power in Q2 2010. An overall increase can be noted, especially in April. This was related not only to higher fuel prices, but to more expensive ETS CO₂ allowances as well.

However, in May a general drop in forward baseload prices took place. This coincided with the falling equity indices and the Eurozone debt crisis. The traders were apparently concerned over the influence of the debt crisis on the power sector. Nevertheless, all observed curves ended the quarter at a higher level.

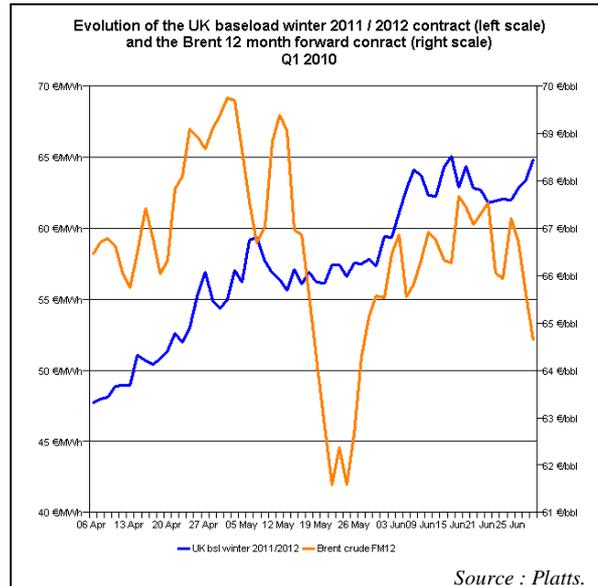
The price differentials show that the differential between the French and the Dutch prices, which considerably increased during the previous quarter, decreased by the end of Q2 2010. From €5/MWh the differential dropped to under €3/MWh. The differential between the German and the Dutch prices narrowed as well, from €2/MWh to €0.1/MWh.



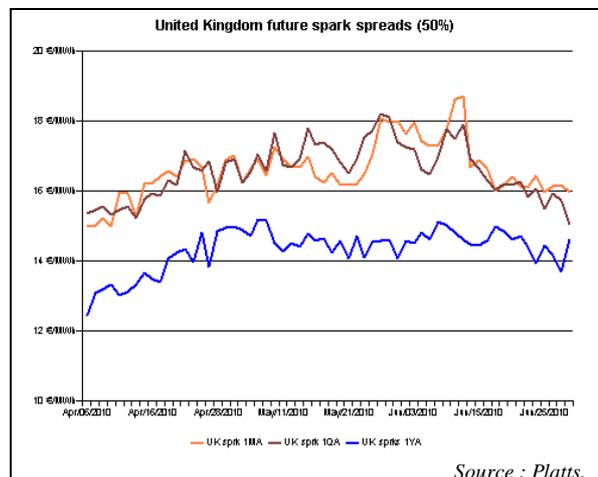
The UK baseload price for winter 2011/2012 grew constantly throughout the quarter, although this trend slowed down in May. It started the quarter at €46/MWh and finished at €64.8/MWh. This represented an increase of 40 %.

More notable was the steep drop of the Brent 12-month forward contract in mid-May. As already mentioned the markets showed concerns in May over the debt troubles in Europe, the depreciation of the Euro and a drop in equity indices. The very low level of this contract, falling also under €62/bbl, showed to be unsustainable

and the price soon rose back to above €66/bbl.

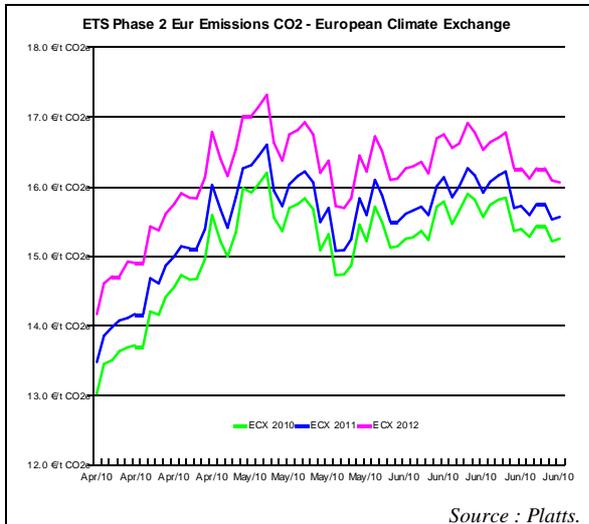


The British spark spreads did not show a considerable change ever since they dropped in September last year. Nevertheless, a slight increase took place in Q2 2010. The average quarterly spark spread for one month ahead increased by 18 % relative to Q1 2010. For one quarter ahead this increase was 8 % and for one year 11 %.



In April the carbon prices on the European climate exchange followed the general

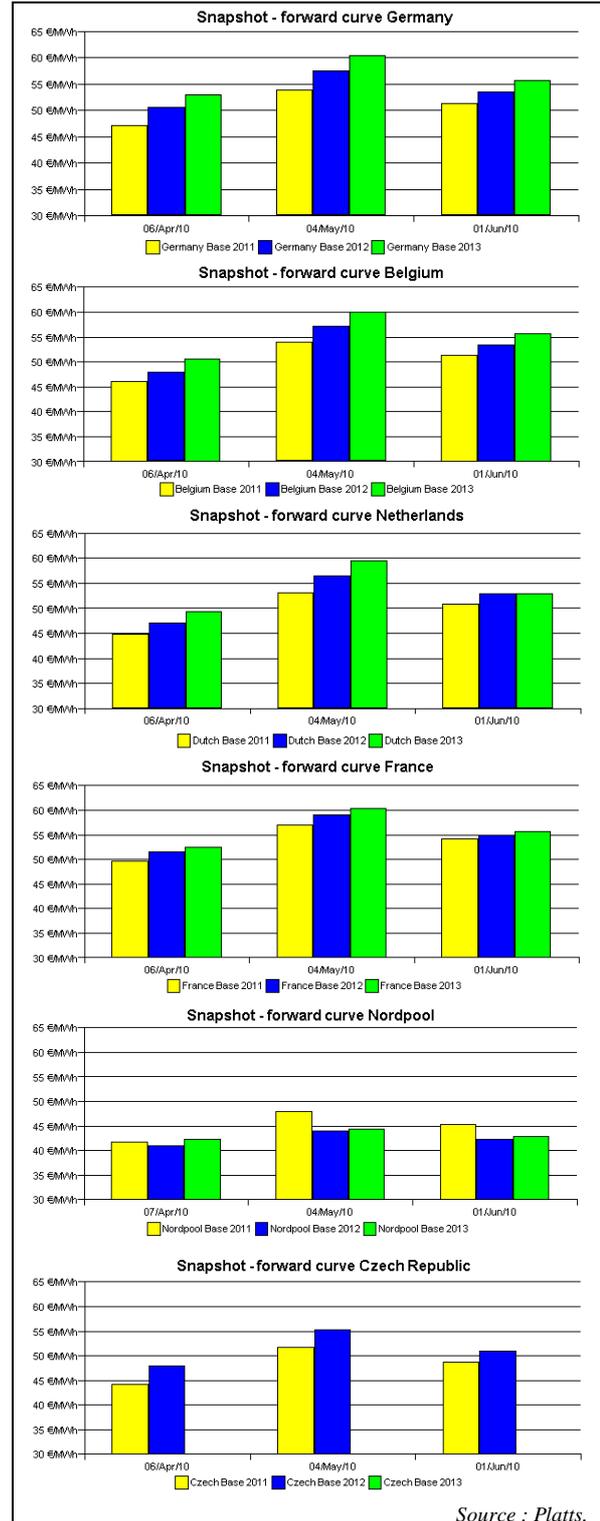
trend in increasing prices along with power and energy commodities. In this month the prices of emission allowances increased by 20 % and more. As elsewhere the prices dropped in May, but throughout the quarter contango¹⁰ was in general present in the pricing of European forward contracts. Nordpool was an exception, where backwardation¹¹ occurred in May and June.



For all markets the decrease in the beginning of June relative to the beginning of May was visible. This was in line with falling prices as seen in the other charts above which took place later in May.

¹⁰ A situation of contango arises when the closer to maturity contract has a lower price than the contract which is longer to maturity on the forward curve.

¹¹ Backwardation occurs when the closer-to-maturity contract is priced higher than the contract which is longer to maturity.

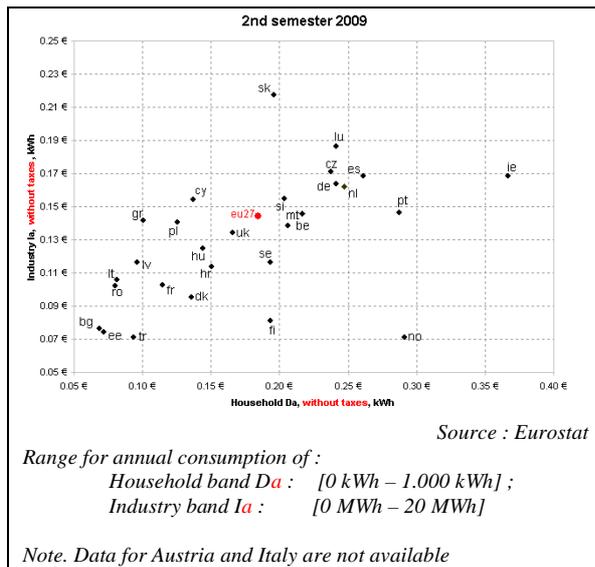


A.2 Retail markets

A.2.1 Prices by Member state

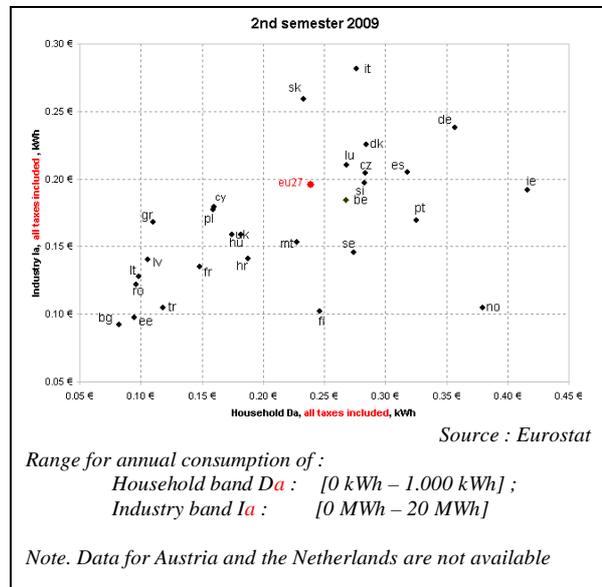
In this the net retail prices, i.e. without taxes, are presented for the lowest consumer bands (up to 1000 kWh annually for households and up to 20 MWh annually for industry).

The chart shows that the highest net price for one kWh of electricity in the household band Da was paid by Irish households, with an average of €0.37/kWh. This was also the case in the second semester of 2008, when the price stood at €0.43/kWh. The lowest net price was paid by the Bulgarian households, namely €0.07/kWh, same as in the second semester of 2008.



In the industry sector the highest net price in the industry band Ia was paid in Slovakia (€0.22/kWh), while the second highest net price was paid in Luxembourg (less than €0.19/kWh). Among the EU member states the lowest net price was paid by the Estonian industry (almost €0.075/kWh).

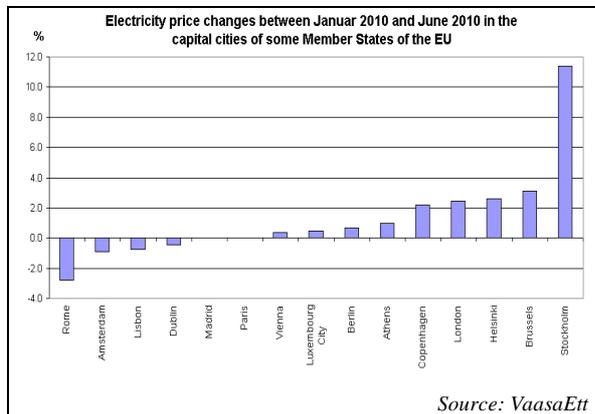
When analysing the prices with all taxes included, the picture at the top and the lower end was almost unchanged. The price in Ireland was the highest in the domestic sector, and in Bulgaria the lowest. In Bulgaria the price was also the lowest in the industry sector, while Slovakia ranked second after Italy (the data on net price in Italy is not available).



The evolution of the price with all taxes included for households in the second semester of 2009 compared to the same semester of 2008 was most dynamic in France where it dropped by 35 % (from €0.23/kWh to €0.15/kWh) and in Malta where it saw an increase of 79 % (from €0.13/kWh to €0.23/kWh). In both countries these changes are to a large extent related to the changes in net prices.

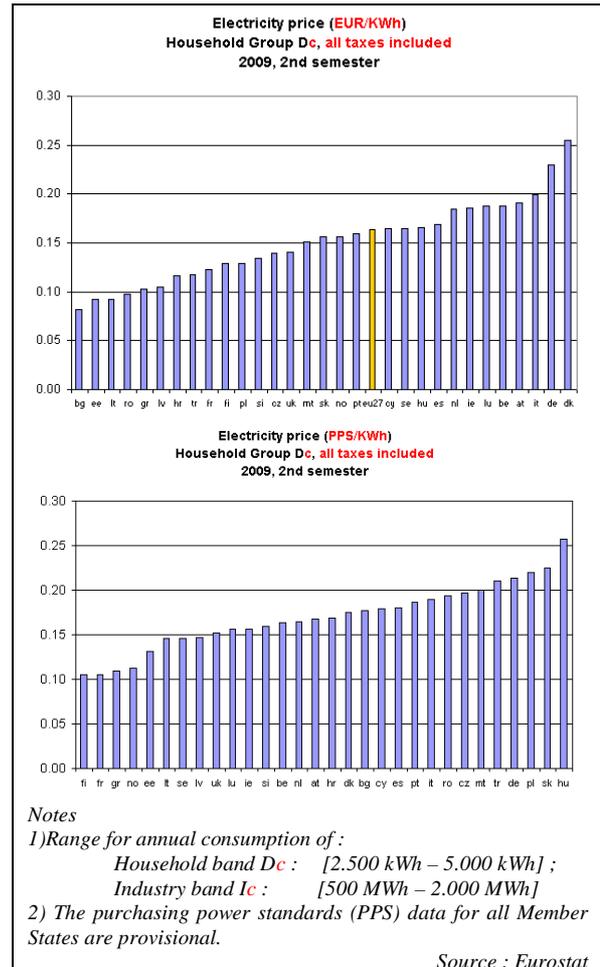
In the industry sector the biggest decrease in the gross price within the same period was seen on Cyprus (-19 %) and the biggest increase in Spain (29 %). Also in this case the changes in gross prices can mostly be attributed to the changes in net prices.

A further look at the HEPI¹² index shows that the gross price for electricity increased in the first semester of 2010 by the largest percentage in Stockholm among the selected European capitals. However, the highest average gross price in the same semester was paid in Copenhagen (€0.28/kWh) and the lowest in Athens (€0.115/kWh).



A.2.2 Cross-panel data on household electricity prices

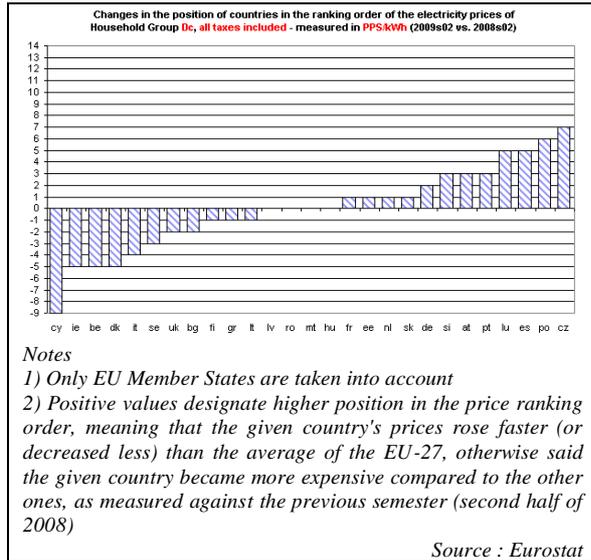
The ranking order of the households with the annual consumption between 2.500 and 5.000 kWh changed little when compared to the second semester of 2008. Below the EU-27 average were predominantly still the new member states. However, Hungary, Luxembourg and Spain joined the group of countries with prices above the EU-27 average.



Using the PPS¹³ correction the comparison done for the same period shows some major changes in the ranking of some countries. In Czech Republic the PPS price of a kWh in the household group with all taxes included was the 13th highest in 2008s02, whereas in 2009s02 it was already the 6th highest one. Cyprus on the other hand, had in 2008s02 the second highest price, but in 2009s02 it had only the 11th highest price.

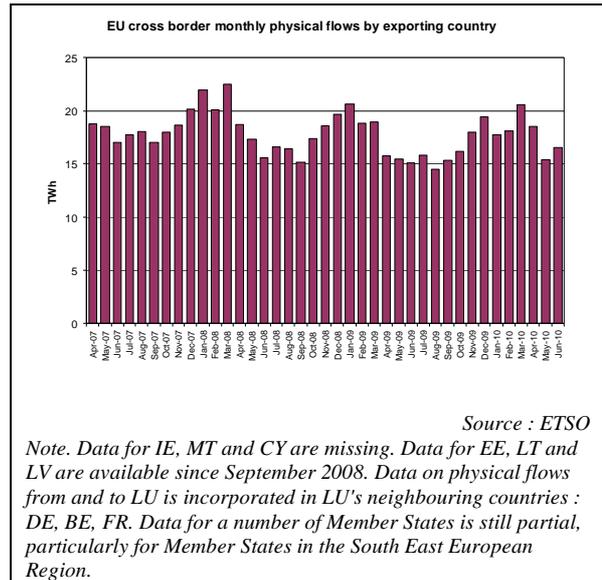
¹² HEPI electricity price index was developed by the Austrian energy market regulator E-control and VaasaEtt Global Energy Think Tank, providing monthly information about the evolution of final electricity consumer prices in some selected capital cities of EU countries.

¹³ Purchasing power parities eliminate the effects of the differences in price levels between countries, thus allowing volume comparisons of GDP components and comparisons of price levels. They show how many units of currency A need to be spent in country A to obtain the same volume of a product or a basic heading or an aggregate that X units of currency B purchases in country B.



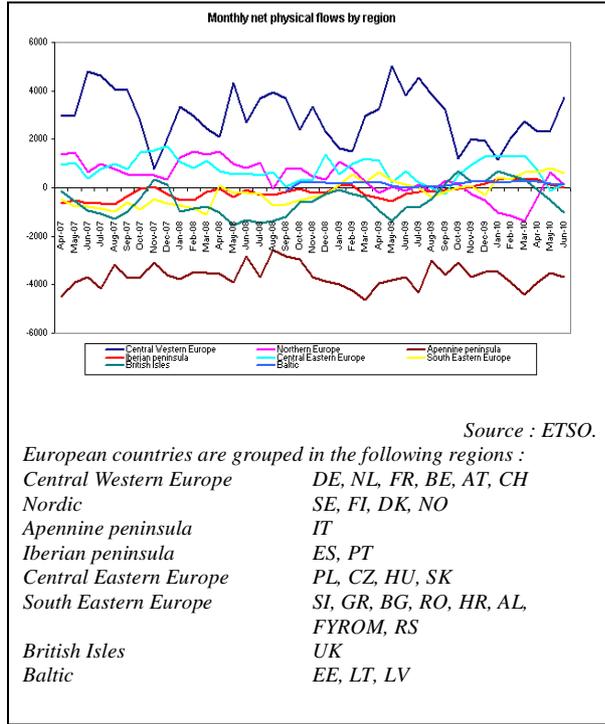
B. Building the internal market for electricity: cross border flows and trade

The total amount of monthly physical flows reached 50.5 TWh in Q2 2010, which was 10 % less than in Q1 2010. This decrease in Q2 followed the usual pattern, as physical flows reached their highest levels in colder months. The flows were also high in April (18.5 TWh), but in May they were already significantly lower (15.4 TWh). In June they reached 16.6 TWh.



Year-on-year the flows in Q2 2010 were 9% higher than year before. The biggest increases were registered in the UK, Northern Europe and the Baltic countries. However, compared to Q2 2008, the flows were 2% lower in Q2 2010.

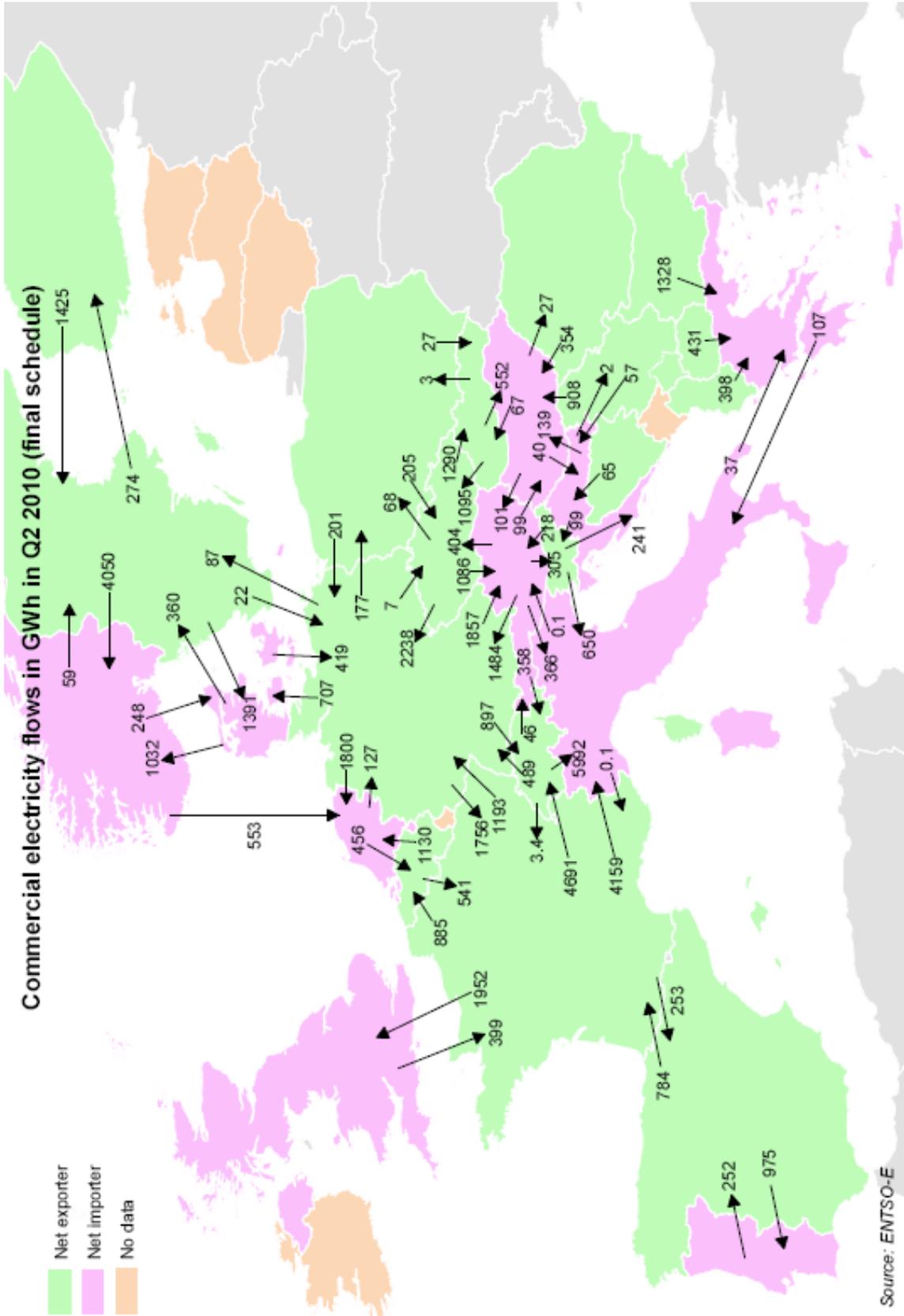
The overall EU balance of outgoing and incoming electricity flows was positive in Q2 2010. The highest net physical flows were as usually registered in the Central Western Europe. The order of magnitude of this region corresponded to the negative balance of the Apennine peninsula. The balance of British islands turned negative again, after being positive since September 2009. On the other hand, the balance of Northern Europe turned positive in May after being negative since November 2009. In Central Eastern Europe the balance was slightly negative in May, but otherwise it was positive as it has been for most of the period depicted in the chart below.



The following map on commercial flows shows some similarities with the two charts above. The UK was a net importer in Q2 2010, and the bulk of the flows took place in Central Western Europe. Italy was a heavy net importer and as it seems Norway did not yet recover from the dry winter and low hydro levels.

Note to the map:

Data for some countries are not available (see the legend). Due to presentation constraints the Northern European countries and Cyprus cannot be included on the map completely. Data on the commercial flows concerning Romania, Bulgaria and Serbia are not complete. There is no data available on Kosovo under UNSCR 12/4499. Data on flows between Germany and Austria are estimates. For the majority of the reported borders, commercial flow data is netted on hourly frequency. For the case of the Czech-Slovak border, gross commercial values are given.



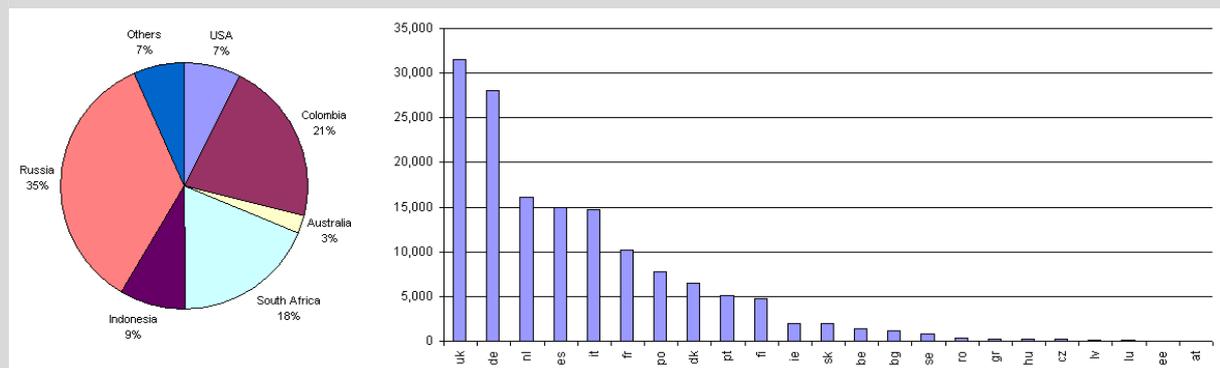
C. "Focus on Steam Coal"

The Energy Statistics Manual of IEA and Eurostat define three main groups of coal: hard coal, sub-bituminous coal and brown coal. Hard coal, having gross calorific value above 23,865 kJ/kg, is further divided into coking coal (used in production of coke for blast furnaces), other bituminous coal and anthracite used for raising steam, therefore referred to as steam coal.

The total world steam coal exports amounted to 676 Mt in 2008 (1.2 % less than in 2007). The leading exporter was Indonesia with 26 % share of the world total, followed by Australia (17 %), Russia (13 %), Colombia (11 %) and South Africa (9 %).

Steam coal is typically used in power production. Preliminary data show that in 2009 86 % of the EU gross inland consumption of steam coal was used for this purpose. This equals 208 million tonnes (compared to 235 Mt in 2008).

In 2009 the EU imported 148 Mt of steam coal (160 Mt in 2008), and as the chart below shows 74 % of it came from three countries: Russia, Colombia and South Africa. The leading importers were the United Kingdom, Germany and the Netherlands.

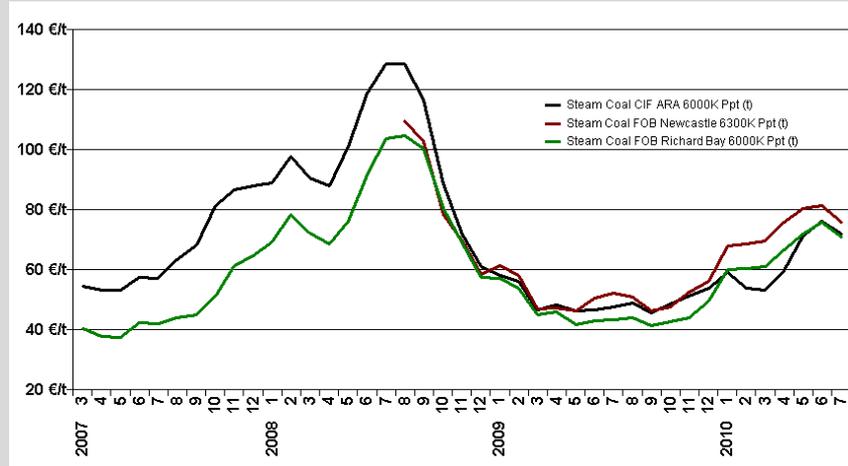


Sources of EU steam coal imports and imports by the Member States (Mt) in 2009

Source: European Commission

The domestic production reached 109 Mt in 2009 (116 Mt in 2008). This represented 45 % of the gross inland consumption and 86 % of it was mined underground.

There are two important drivers influencing the prices and the development of the international steam coal trade: the demand in Asia and the volatility of freight rates. The following chart presents the selected spot prices for steam coal.



Spot wholesale prices for steam coal

Source: Platts

In spite of the global economic downturn and falling prices, the steam coal market did not experience the expected collapse in 2009. This is primarily due to the increased imports by China and also India. In 2009 first shipments of steam coal from Colombia and South Africa to China took place and coal from South Africa is being increasingly exported to India as well. Historically Colombia and South Africa were delivering to the Atlantic markets. This led to a strong divergence between the Pacific and Atlantic markets, with China becoming an important net importer, while the exports to the EU and the USA stagnated. The weakness of the Atlantic area relative to the Pacific area is demonstrated also by the fact, that the price of coal delivered to Europe (ARA - Antwerp, Rotterdam, Amsterdam) has in the last two years often been lower than the free-on-board prices of coal in Newcastle (Australia) or Richard Bay (South Africa) heading for Asian markets.

The obligation for Member States to report on the imports of hard coal is laid down in the Council Regulation (EC) No. 405/2003 of 27 February 2003 concerning Community monitoring of imports of hard coal originating in third countries. According to this regulation any person or undertaking importing coal for power production or production of coke needs to report to the Member State, which in turn report to the European Commission.¹⁴

¹⁴ The reports can be found under the following link:
http://ec.europa.eu/energy/observatory/coal/hard_coal_imports_en.htm