

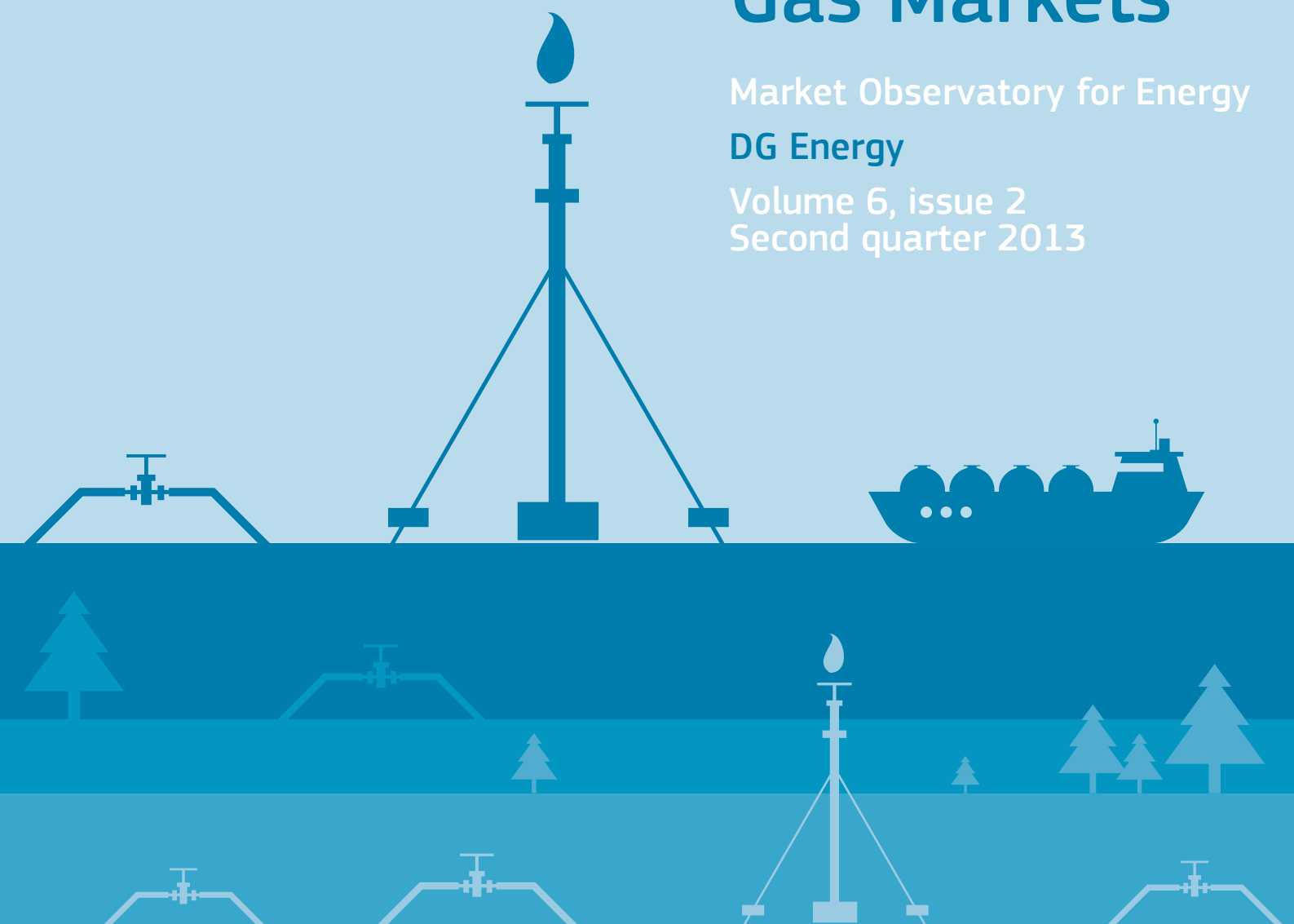


Quarterly Report

on European Gas Markets

Market Observatory for Energy
DG Energy

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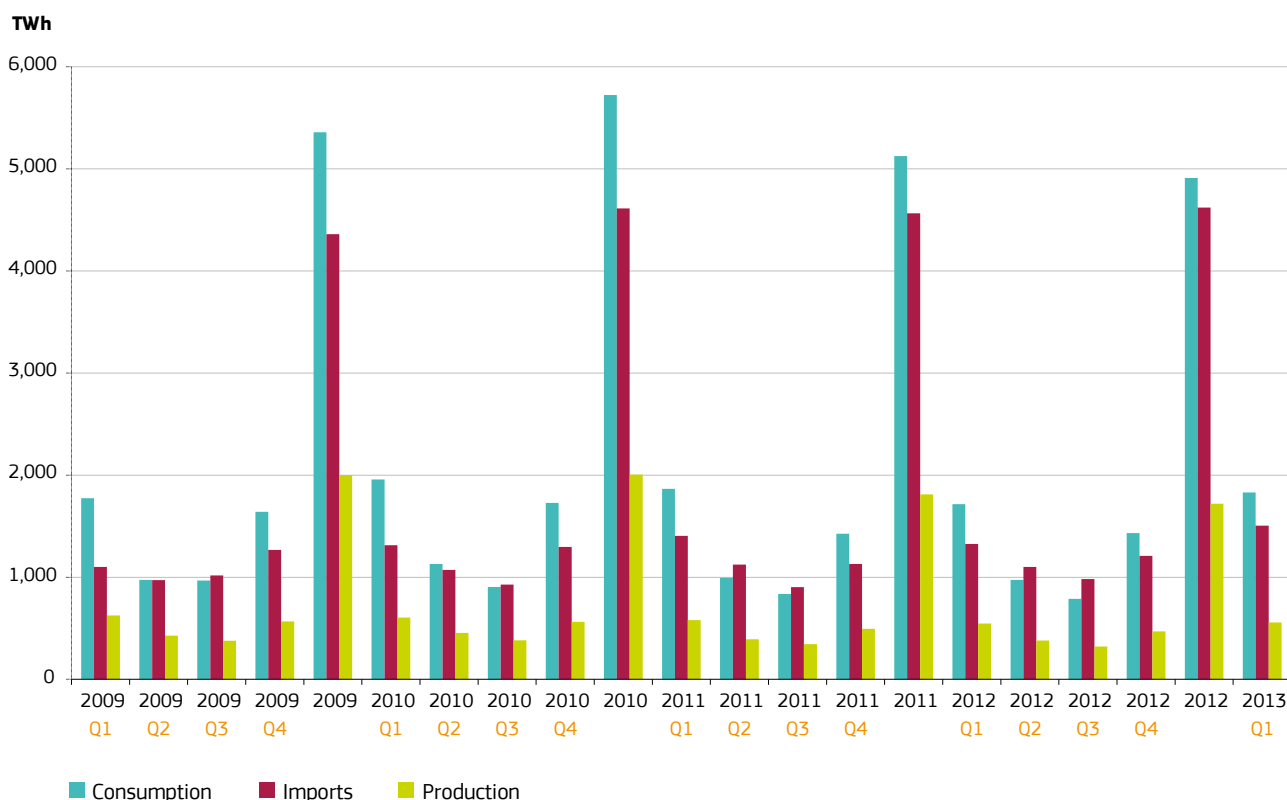
Highlights

- **Weather was an important determinant of gas consumption over the first quarter of 2013 with unseasonably cold weather** over large parts of Europe, in particular in March 2013.
- **Lower production, subdued imports of LNG and lower physical flow volumes from Norway and North Africa** in the first half of 2013 compared to the same period in 2012 (-5% and -17%, respectively) **contributed to an increase in physical flows from Russia** (+10%). Physical flows from Russia remained below the volumes registered in the first half of 2011.
- **In the first quarter of 2013, consumption of hard coal continued to rise relative to the same period in 2012 in a number of large coal consuming Member States** such as Germany (+2%), France (+25%) and the UK (+1%). Colombia is now the second largest exporter of hard coal to the EU, on a par with Russia.
- **The role of trading hubs as an instrument for exchange of natural gas in Continental Europe continued to increase.** In the first half of 2013 three of the continental hubs – TTF in the Netherlands, as well as Gaspool and NCG in Germany – saw double-digit growth in traded volumes (+27%, +23%, +22%) relative to the first half of 2012. Physically delivered volumes on EU hubs went up by 5% altogether, with the largest increases in Zeebrugge (+48%), Gaspool (+14%) and NCG (+13%).
- **LNG imports continued to fall**, by 34% in the first four months of 2013 relative to the same period in 2012 and by almost 50% relative to the LNG imports peak registered in the first four months of 2011. The IEA projects further declines in the EU's LNG imports.
- Even so, in absolute terms, monthly LNG volumes in April 2013 went up to levels not observed since August 2012.
- **Increased demand due to the cold snap in late March 2013, together with decreased LNG supplies during the first quarter, led to very low storage levels at the start of the second quarter of the year**, in sharp contrast with the situation at this time in previous years.
- **The evolution of the benchmark UK NBP and US Henry Hub spot prices illustrates the persisting variation in global gas prices.** In Q2 2013, day-ahead prices on the NBP were more than twice as high as the wholesale prices for gas on the Henry Hub in the United States.
- **Japan and Korea remain attractive LNG destinations, with prices 35-50% above average EU prices for LNG.** Over the first quarter of 2013 the share of the EU in global LNG imports went down to 15% (from 21% in 2012), while the share of Asia went up to 77% (from 70% in 2012) and exports to Asia went up by 6%.
- **Decoupling between coal prices on the one hand and oil and gas prices on the other appears to have slowed down in the second quarter of 2013.**
- **Consumers continue to pay very different retail prices**, with the difference between the lowest-priced consumption band and the highest-priced consumption band in the same country exceeding 5 Eurocents/kWh in the case of households in 6 Member States (all taxes included) and 2 Eurocents/kWh in the case of industrial users in 11 Member States (excluding VAT and other recoverable taxes).

1. Gas Consumption – Production – Imports

- EU's natural gas consumption remained relatively stable over the first quarter of 2013. Preliminary data shows that consumption in the first quarter of 2013 increased slightly compared to the same period in 2012.
- In Q1 2013, weather was an important determinant of natural gas consumption with unseasonably cold weather in large parts of Europe, in particular in March 2013. Whereas in January and February 2013 the number of heating degree days was close to the long-term average, March 2013 experienced a particularly high number of heating degree days, far exceeding the long term average. Over the quarter as a whole the number of heating degree days was about 5% higher than in the same period a year earlier.
- In the first quarter of 2013 gas imports into the EU increased by more than 10% relative to the same period in 2012, while EU production of natural gas remained stable.

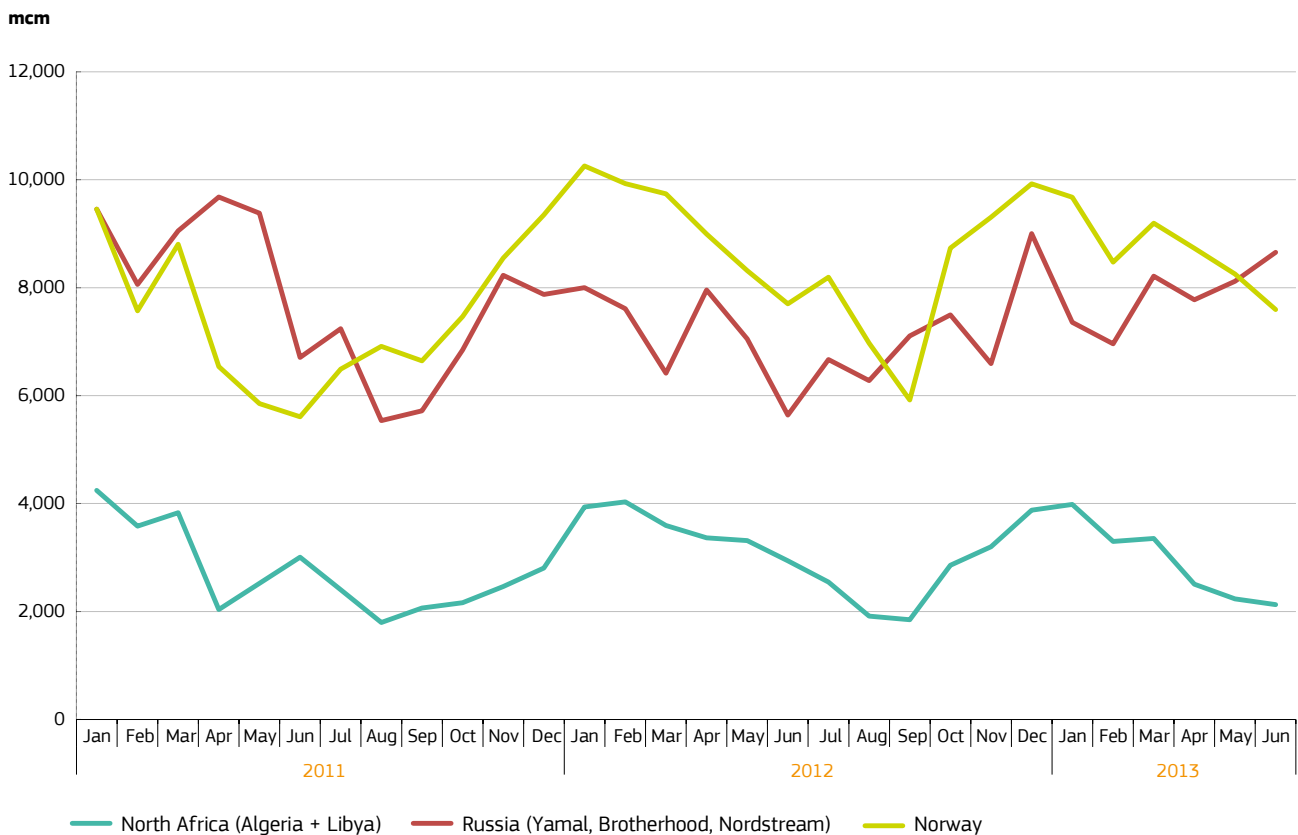
FIGURE 1 - EU 27 GAS CONSUMPTION, IMPORTS AND PRODUCTION



Source: Eurostat, data as of 15 July 2013 from data series nrg_ind_343m (subject to revisions). Data for the first quarter of 2013 for Germany from the IEA. Includes Croatia from 2009 onwards.

- A closer look at the physical flow volumes of gas into the EU reveals that in the first half of 2013 Norwegian and North African physical flows fell in comparison to the volumes registered in the same period in 2012 (-5% and -17%), while imports of Russian gas increased by 10%. At the same time, during the first half of 2013 Norwegian imports of gas into the EU remained higher than they were during the same period in 2011 (+18%), while Russian imports remained below their 2011 level (-10%).
- The increase in physical flows from Russia was particularly pronounced in June 2013, with a 50% increase over the same month in 2012. The increase in physical flows from Russia came along reduced supplies from North Africa, lower gas production and subdued LNG volumes (even if during the shoulder months¹ in North Asia – April and May – Europe managed to attract more LNG cargos than in the preceding months). In April, Norwegian imports to Germany rose to meet demand for storage injections.

FIGURE 2 - PHYSICAL PIPELINE FLOWS INTO THE EU



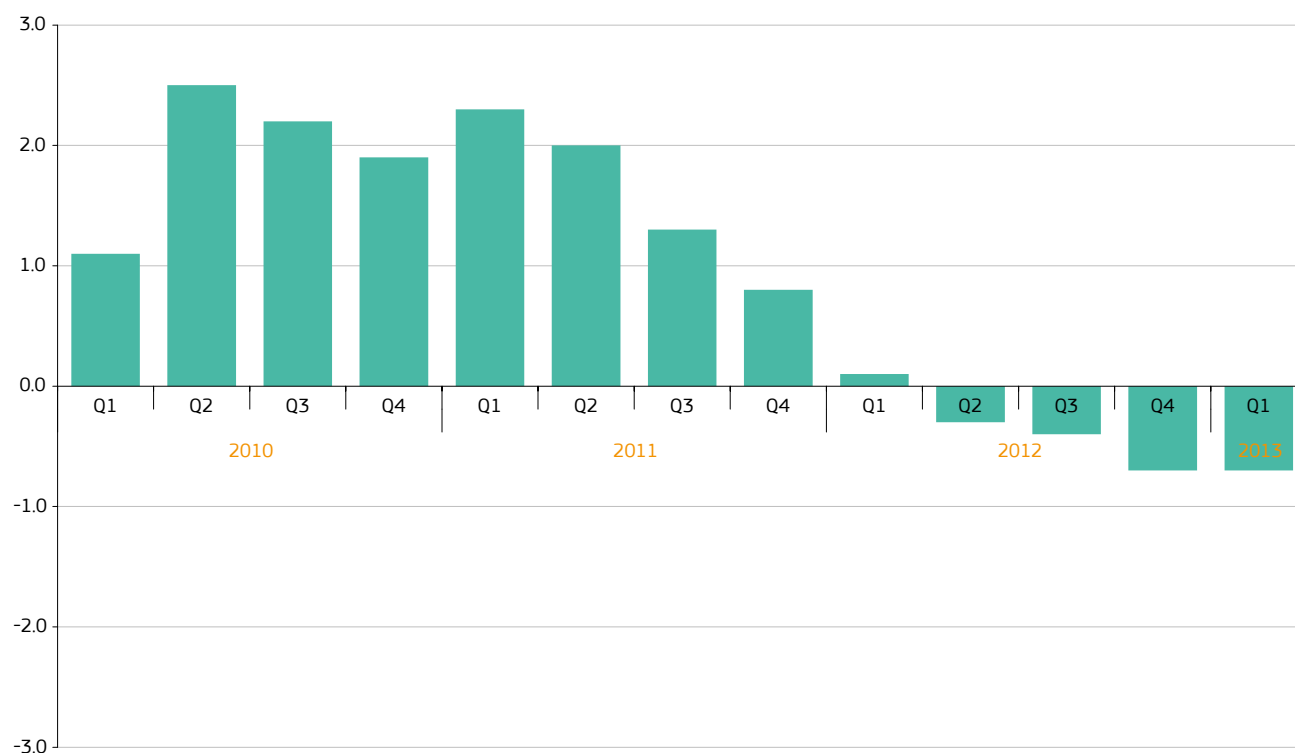
Source: Bentek/Platts.

Note: Russian flows include landing points Velke Kapusany, Mallnow and Greifswald. Norwegian flows include landing points Zeebrugge, Dunkerque, Dornum, Emden, St Fergus and Easington.

1. Shoulder months are the ones bordering months of high demand, e.g. between the heating and the cooling months.

- The first quarter of 2013 saw a contraction of 0.7% of the Gross Domestic Product (GDP) in the EU relative to the same period in 2012 and following a contraction in the three preceding quarters of 2012.

FIGURE 3 - EU 27 GDP Q/Q-4 CHANGE (%)

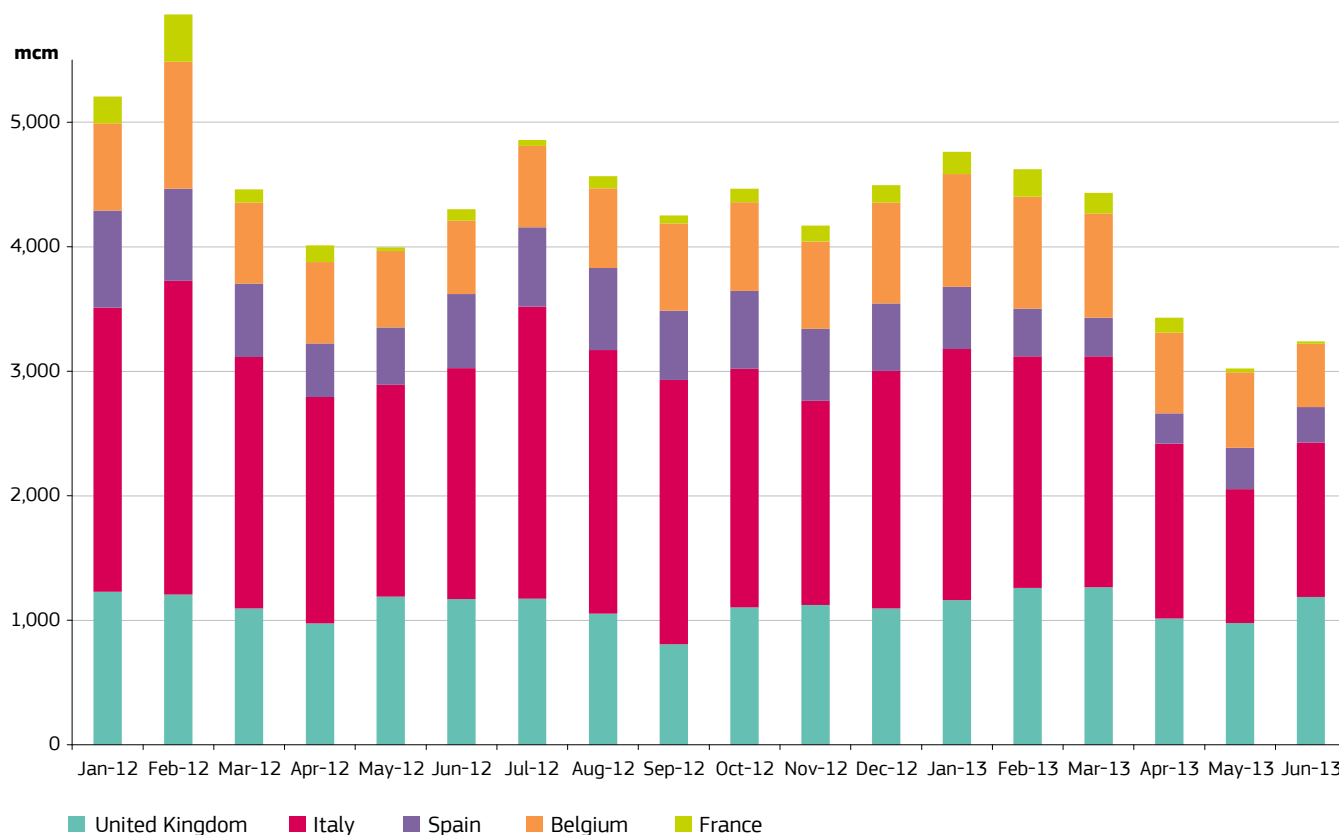


Source: Eurostat

- Across the UK, Italy, Spain, Belgium and France as a whole, in Q2 2013 gas consumption in the power generation sector went down by 21% relative to Q2 2012.
- In Italy and France, the drop in the use of gas for power generation exceeded 30% in Q2 2013 relative to the same period in 2012. Stronger output from Italy's rapidly expanding renewables sector has crowded out a large share of gas-fired generation. In the UK and Belgium the decrease was around 5%². Against strong RES generation, especially given high precipitation that boosted hydro generation levels, the decrease in Spain exceeded 40%. Analysis of data of installed generation capacity on gas in Spain (source: Platts) and daily production by generation technology (source: Red Eléctrica data) shows that in the year to 1 October 2012, the utilisation rate of CCGT in Spain was about 16%.

2. CORRIGENDUM: In volume 6, issue 1 (first quarter 2013) we wrongly stated that gas consumption in the power sector of Belgium went up by 65% in Q1 2013 relative to Q1 2012. According to data provided to us by Bentek, the increase was only by 11% (from around 2,370 mcm in Q1 2012 to around 2,640 mcm in Q1 2013).

FIGURE 4 - NATURAL GAS CONSUMPTION IN THE POWER GENERATION SECTOR OF SELECTED EU COUNTRIES

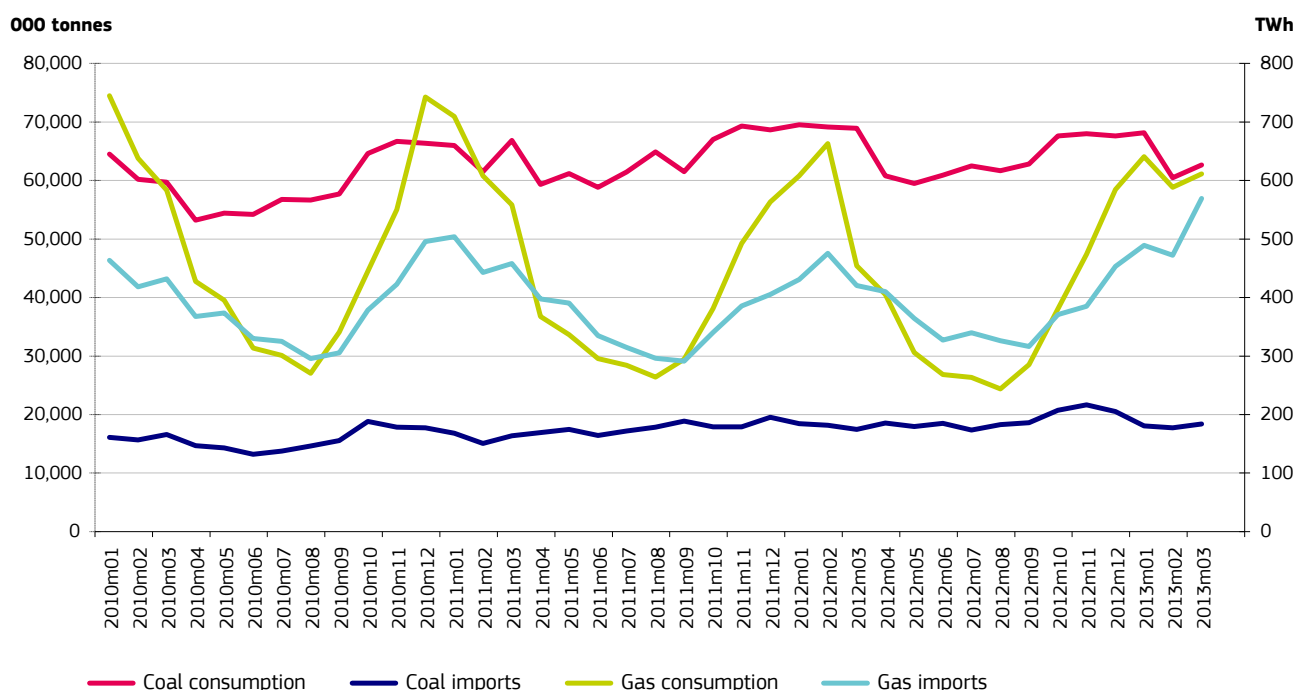


Source: Bentek/Platts

- The main drivers behind natural gas consumption in the power sector were low economic growth, translating into no or low growth in power demand, relative gas and coal prices, low ETS prices and the relentless growth of renewable electricity.
- In its 2013 Medium-term gas market report, the IEA revised downward its forecast of European gas consumption to 525 bcm by 2018 (down from 561 bcm in 2017, according to the 2012 Medium-term gas market report): Europe was the region that saw the largest downward revision compared to last year's forecast. The revision of the IEA is driven almost entirely by low economic growth and more conservative expectations in the power generation sector. In IEA's forecast renewable electricity production outpaces total additional generation needs by 13% over 2012-2018, leaving combustible fuels with a decreasing residual load despite the shutdown of nuclear facilities in some countries.
- Furthermore, the IEA forecasts that over the next two years an unfavourable gas, coal and carbon price relationship will contribute to a further drop in European gas demand in 2013, before recovering as the price relationship improves in favour of gas only in the second half of the decade. According to the IEA, as of early 2013, a carbon price of around 45 Euro/tCO_{2eq} would be necessary to trigger switching from an average efficient coal-fired plant to an average efficient gas-fired plant. As of mid-July 2013, ETS allowances are traded at around 4 Euro/tCO_{2eq}.

- EU consumption of coal has remained relatively stable over 2012, while imports of hard coal went up by approximately 8% in 2012 compared to 2011. In 2012, Colombia became the second largest exporter of hard coal to the EU (23% of EU hard coal imports), on a par with Russia (24%). The share of the US remained stable between 2011 and 2012 at 17% (up from 13% of EU hard coal imports a year earlier), while the share of Australia and South Africa went down (to 7% and 6%, respectively).
- Over the first quarter of 2013 imports of hard coal increased relative to the same period in 2012 in a number of EU countries, including the UK (+15%), the Netherlands (+6%), Germany (+9%) and France (+13%). Imports of hard coal grew significantly in Ireland (+125%) and Portugal (+11%), as well as in some smaller markets such as Greece. In the same period, consumption of hard coal went up by 2% in Germany, 25% in France and 1% in the UK and almost doubled in Portugal³.

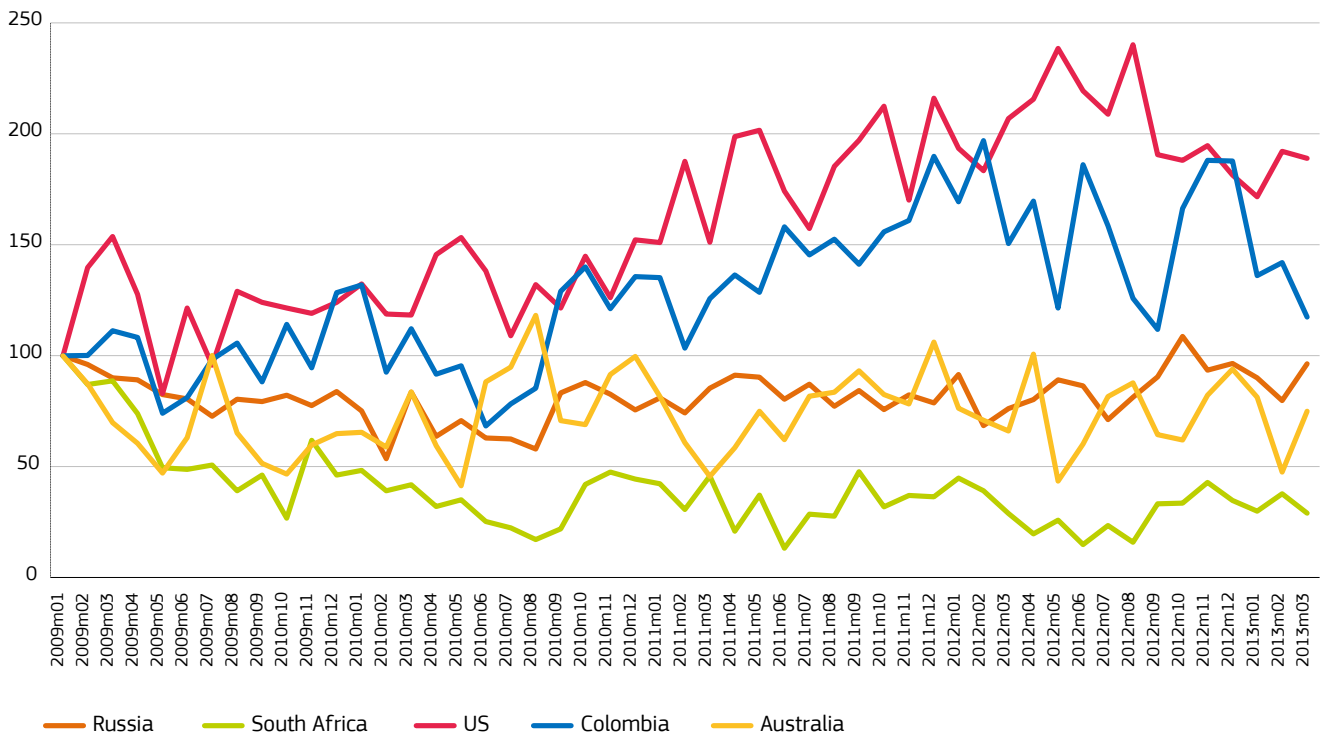
FIGURE 5 - EU CONSUMPTION AND IMPORTS OF GAS AND COAL COMPARED



Source: Eurostat as of 15 July 2013. Left-hand scale: Coal. Right-hand scale: gas. Gas consumption data from Eurostat data series nrg_ind_343m (subject to revisions). Data for gas consumption and gas imports for the first quarter of 2013 for Germany from the IEA. Data for coal consumption and imports from Eurostat data series nrg_ind_101m. No data on coal imports and consumption in Spain in January and February 2013, in Italy in January 2013, in Austria in March 2013 (as of 19 July 2013).

3. As of 15 July 2013 there is no data on coal imports and consumption in Spain in January and February 2013 and in Italy in January 2013.

FIGURE 6 - EU HARD COAL IMPORTS – FIVE LARGEST EXPORTERS (INDEX, JANUARY = 100)

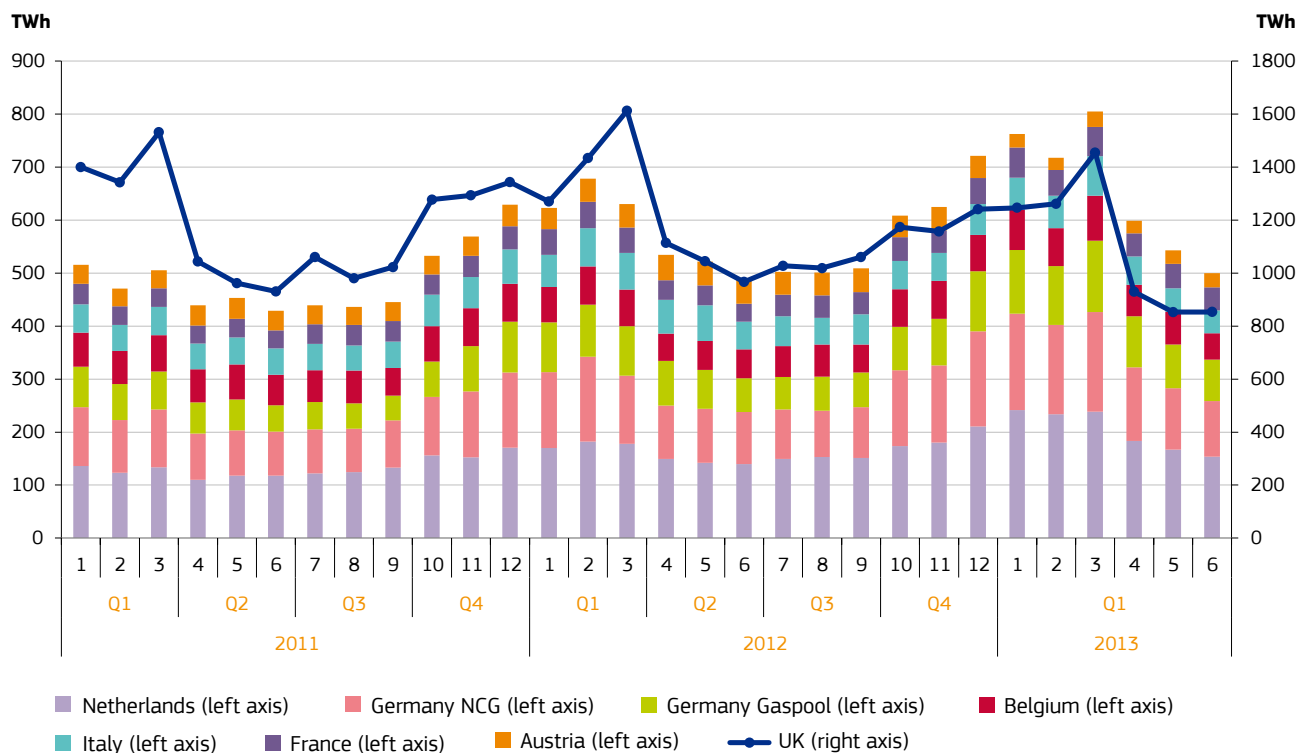


Source: Eurostat, data series nrg_122m as of 19 July 2013. No data on coal imports and consumption in Spain in January and February 2013, in Italy in January 2013, in Austria in March 2013 (as of 19 July 2013).

2. Traded volumes on European gas hubs

- Total volumes traded on European gas hubs in the first half of 2013 remained relatively stable compared to the same period in 2012: at 10,530 TWh there was a slight decrease of 3.6%. The UK NBP hub – the largest and most liquid hub in the EU – traded 6,600 TWh, compared to 1,218 TWh on the Dutch TTF hub and a total of 1,520 TWh on the two German hubs (622 TWh on Gaspool and 898 TWh on NCG).
- Relative to the same period of 2012, three of the continental hubs – Netherlands's TTF and the two German hubs Gaspool and NCG – saw growth in traded volumes of 27%, 23% and 22%, respectively. Traded volumes on NBP dropped by 11% relative to the first half of 2012. ICIS Heren points that NBP traded volumes have been going down ever since they hit a record high in 2011 as traders have shifted volumes to mainland hubs and the Intercontinental Exchange (ICE).
- Total volumes physically delivered on EU hubs over the first half of 2013 increased by 5% relative to the same period in 2012. The increase was most pronounced in Zeebrugge, Gaspool and NCG: +48%, +14% and +13%, respectively.
- ICIS Heren reports of increase in trade volumes on the Polish gas hub, with 142 deals in the first quarter of the year and volumes reaching 156 MWh in March 2013 and possibly the first over-the-counter transaction delivered to the virtual point on 28 May. Wholesale trade of Polish gas has only been possible since the end of 2012. The gas exchange was launched in December 2012 on the Polish Power Exchange (PolPX) and initially wholesale trade was only allowed through the country's energy bourse.
- The Hungarian gas exchange was launched in January 2013, but initially had only two members as Hungary's regulations prevented firms registered abroad from operating on the exchange. This changed in June 2013, when the country's energy regulator granted limited trading licenses to three foreign trading companies. This will allow them to start trading in the near future, but excludes the right to sell gas to customers not on the exchange.

FIGURE 7 - TRADED VOLUMES ON EUROPEAN GAS HUBS



Sources: National Grid (UK), GTS (Netherlands), Huberator (Belgium), Gaspool (Germany), NCG (Germany), GTTGaz (France), Snamrete (Italy), CEGH (Austria). As of 15 July 2013: no data on volumes traded on Gaspool and PSV in June 2013.

The chart covers the following trading hubs:

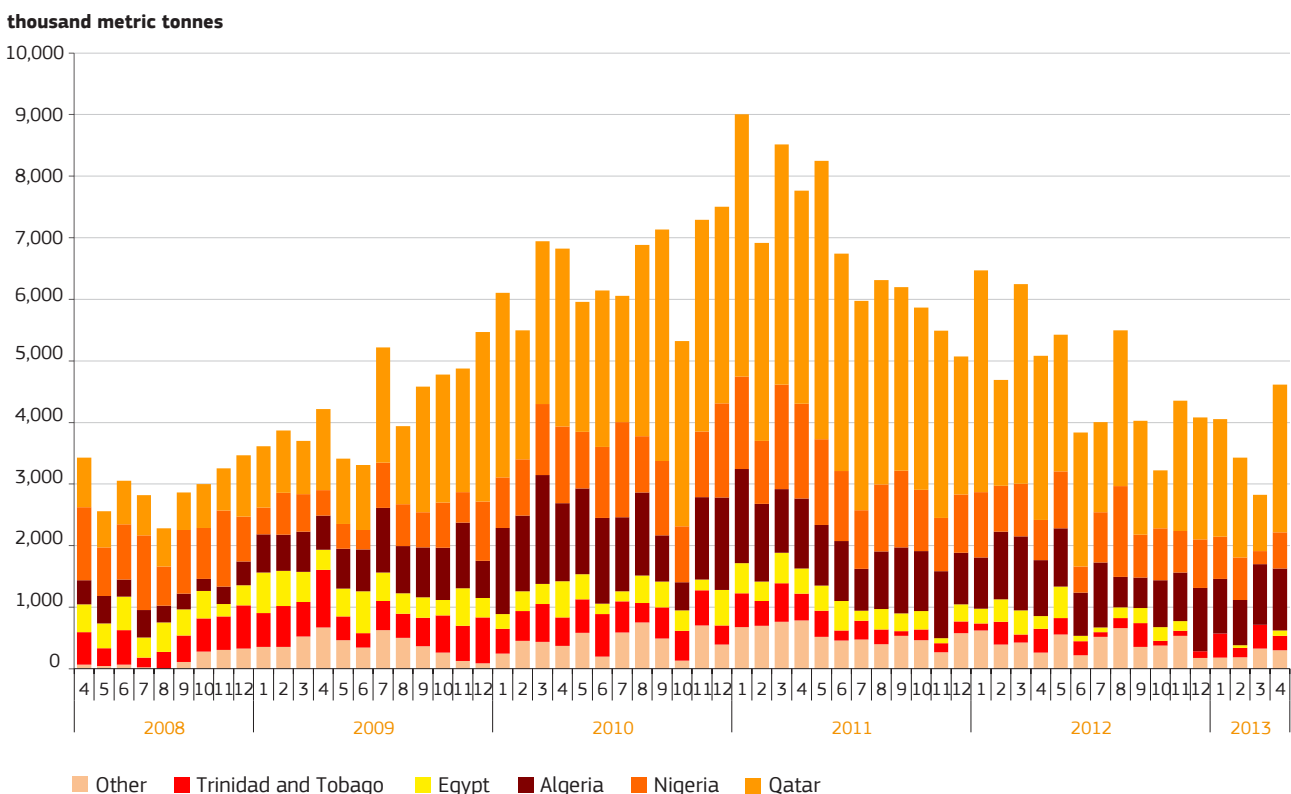
UK: NBP (National Balancing Point); Belgium: Zeebrugge beach, ZTP and ZTPL; Netherlands: TTF (Title Transfer Facility); France: PEG (Point d'Echange Gaz); Italy: PSV (Punto di Scambio Virtuale); Germany: GASPOOL and NCG; Austria: CEGH (Central European Gas Hub)

Note: CEGH volumes after January 2013 are not directly comparable with the values before that date due to the entry into force of entry/exit system

3. LNG volumes

- LNG imports began falling in the second quarter of 2011 and this trend continued in 2012 and in the first four months of 2013. As reported in the previous issue of this report, LNG volumes went down by 31% in 2012 relative to 2011. The first four months of 2013 saw a drop in LNG import volumes of 34% relative to the same period in 2012. LNG import volumes went down by more than half compared to the peak of LNG imports (first four months of 2011). Imports from Qatar, Nigeria and Algeria went down by 39%, 34% and 10%, respectively, in the first four months of 2013 relative to the same period in 2012.
- LNG imports into the UK, Belgium and Greece halved in the first four months of 2013, compared to the same period in 2012; the drop was in the range of 20-30% for Spain, Italy and France. Looking at the peak months of LNG import volumes (first four months of 2011), the decrease is even larger (-71% in the UK, -65% in Belgium and in excess of 50% in France and Italy).

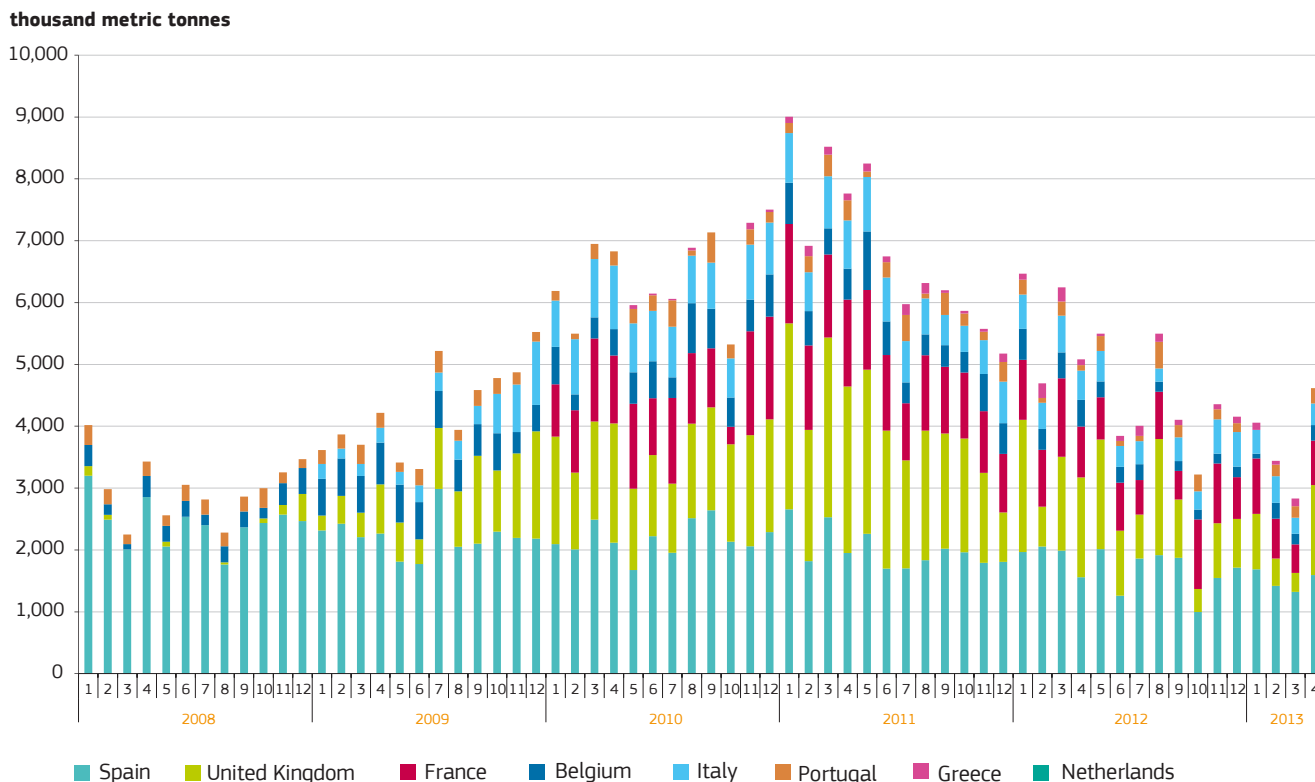
FIGURE 8 – EU LNG IMPORTS BY COUNTRY OF ORIGIN



Source: Eurostat COMEXT

- In its 2013 Medium-term gas market report the IEA reports a big increase in re-exports in Spain and Belgium, whereby LNG importers have taken advantage of arbitrage opportunities by selling LNG to higher priced markets, but have to respect contractual obligations of unloading the LNG tanker at the originally planned destination. Re-exports from Belgium and Spain appear to have more than tripled between 2011 and 2012, reaching 1.6 bcm and 1.7 bcm, respectively. France re-exported 0.2 bcm in 2012 and Portugal 0.1 bcm. Note that not all regasification terminals have the technical capacity of loading the initially unloaded LNG back into the tanker.

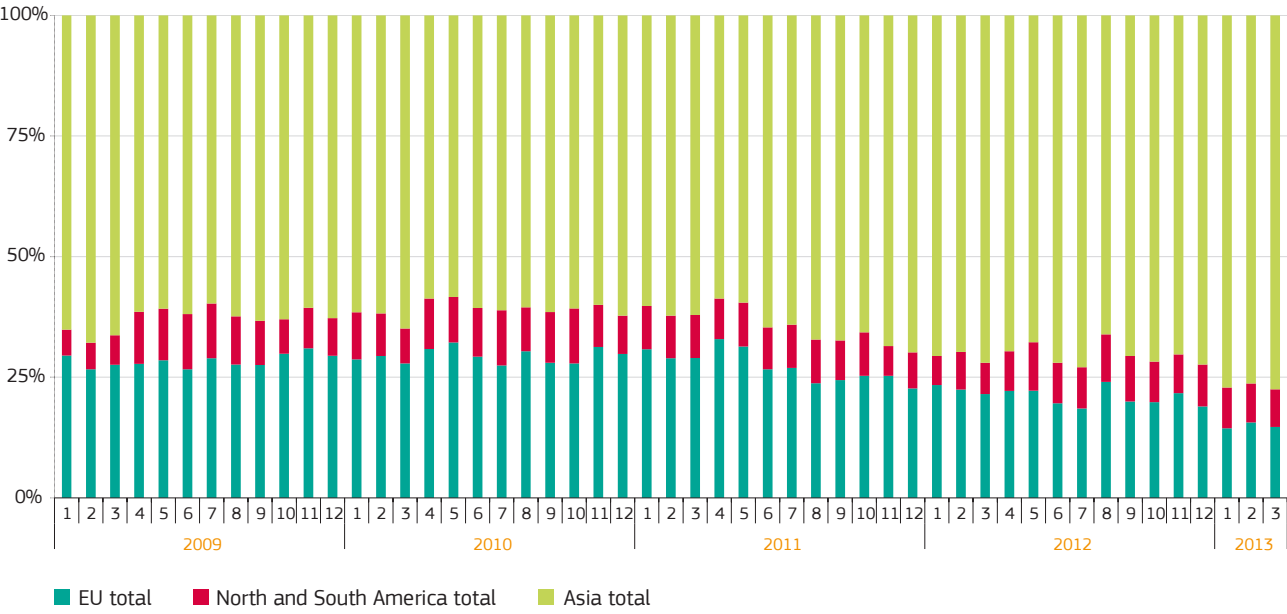
FIGURE 9 - EU LNG IMPORTS BY MEMBER STATE



Source Eurostat COMEXT Italian data reported from January 2009. French data reported from January 2010.

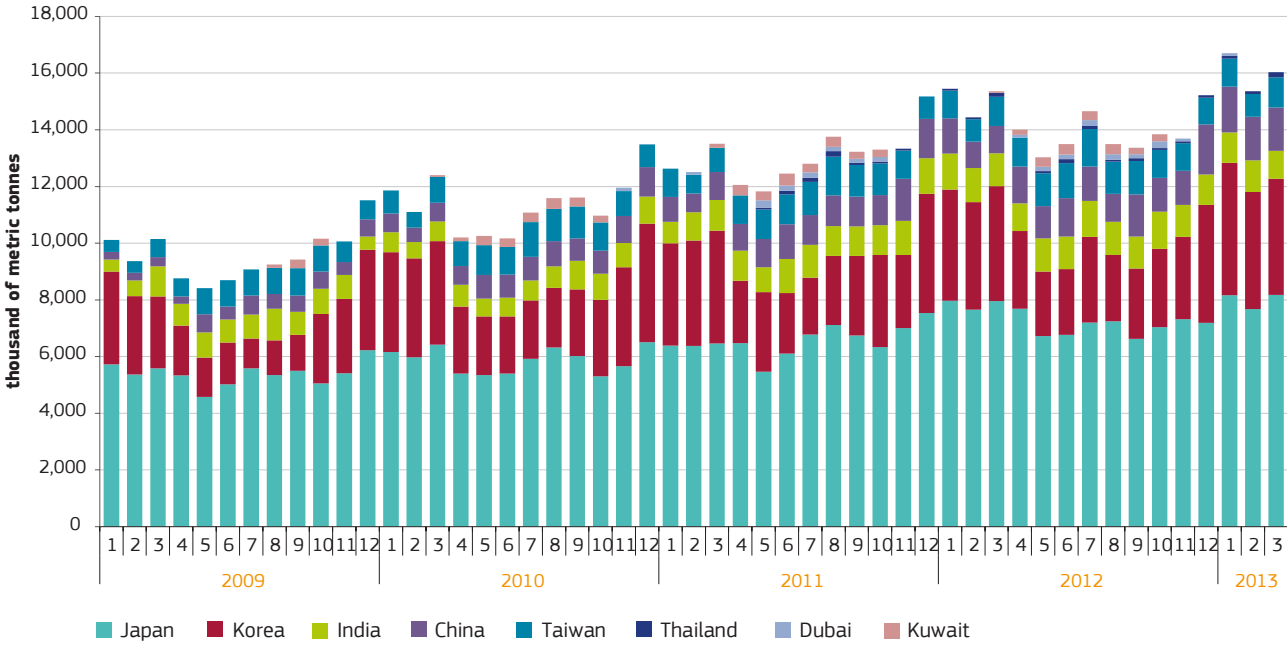
- Despite these trends, in absolute terms LNG imports in April 2013 went up to levels exceeding 4.6 million metric tonnes, not seen since August 2012. The biggest beneficiary was the UK, where LNG imports more than tripled between March and April 2013 (though from a very low base in March), as well as Belgium and France, which each experienced 50% increases in LNG import volumes between March and April 2013.
- April is the traditional shoulder month in Asia with demand for LNG going down from winter peaks and freeing cargos for European destinations. Platts reports that April 2013 was the busiest month for LNG terminals in the UK since August 2012. While Eurostat COMEXT data on import volumes of LNG for May 2013 is not available as of mid-July 2013, the continuing shoulder season in Asia may have allowed Europe to attract more cargos over May too, depending also on the spreads between Europe and South America.
- The IEA reports that in 2012 global LNG trade declined, by 2%. This decline occurred for the first time since 2008. The IEA forecasts unprecedented tightness in LNG markets over the course of 2013 and 2014 with incremental LNG demand from Asia exceeding the little additional LNG capacity expected to come online. This may change from 2015 onwards, depending on Australian LNG projects underway.
- Over the first three months of 2013, the EU's share in global LNG imports was 15% and the share of Asia was 77%, compared to 21% and 70%, respectively, in 2012.
- LNG imports to different countries in Asia, as presented on Figure 11, increased by 6% relative to the same period in 2012. Import volumes to Japan remained relatively stable, while volumes to Korea went up by 10% and to China by almost 50%.

FIGURE 10 - WORLD LNG IMPORTS BY REGION



Source: Thomson-Reuters; Waterborne. EU total includes Spain, the UK, France, Italy, Turkey, Belgium, Portugal, Greece and the Netherlands.

FIGURE 11 - LNG IMPORTS TO ASIA

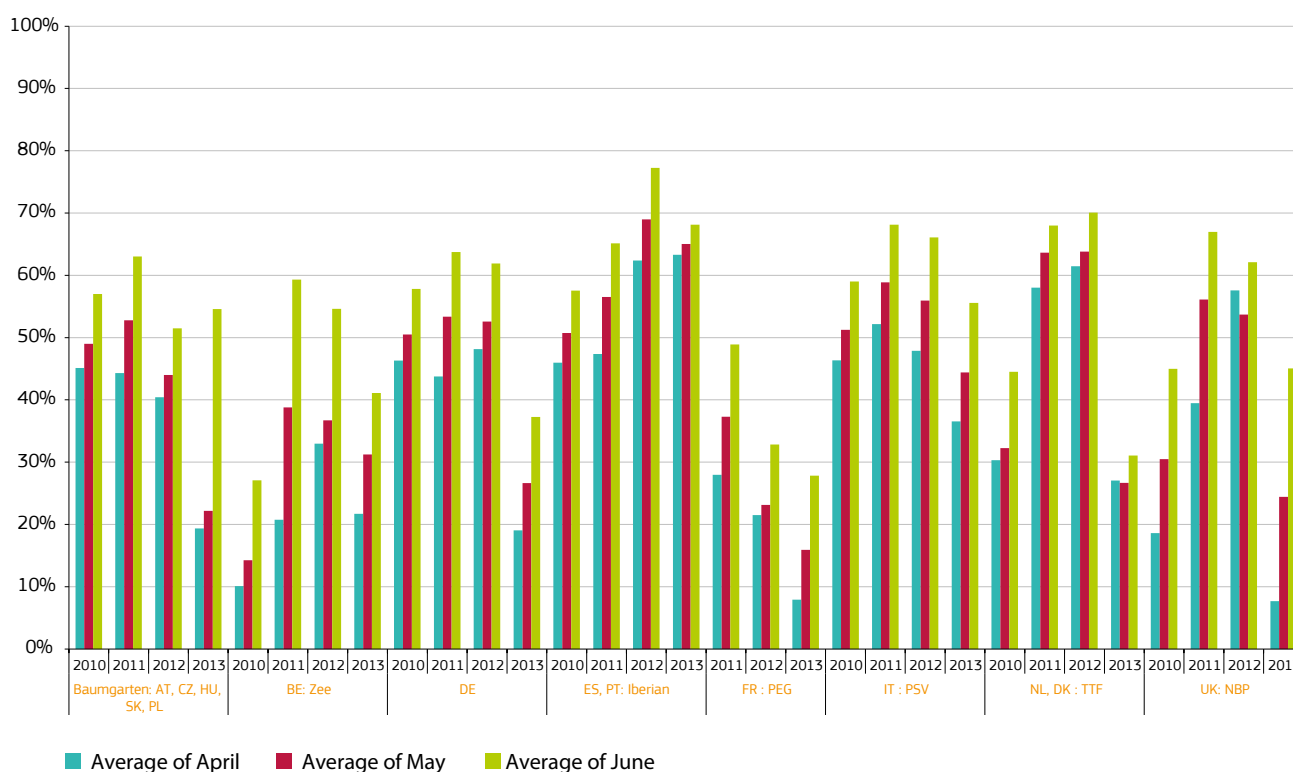


Source: Thomson-Reuters; Waterborne

4. Gas Storage and heating degree days

- The chart below provides a comparison of the storage levels for the second quarter of the years 2009-2013 in the various regions covered by the EU's hubs.
- The cold snap of March 2013 along with tight LNG supply led to very low storage levels in the beginning of the second quarter of 2013. On average across the EU, storage sites were below 25% full in April, reaching levels as low as 10% at the beginning of the month in the UK and France. This is in sharp contrast with the same time in 2012 when across the EU storage sites were on average 45% full.
- At the main Rough storage site in the UK, injections began on 12 April, a month later than in 2012. Mid-April saw the start of injections in Germany and France, with the pace of injections often at unprecedented level for April, reflecting the need to inject strongly to meet necessary inventory levels before the start of the next season. By June, on average storage levels reached 40% and the year-on-year gap had been narrowing.
- The summer supply outlook 2013 of the European transmission system operator for gas, ENTSOG, shows that gas injections at the beginning of the current summer have been higher than usual and that sites could still be completely restocked by 30 September in most European zones. The outlook also identified the strong influence of LNG and Russian pipeline gas supply on the stock levels in Eastern Europe, the Iberian peninsula and southern France. It has to be noted that the summer supply outlook has a 100% injection target used in the assessment when the aggregated stock levels were 88% and 93% at the end of summer 2012 and summer 2011, respectively. Very high demand and reduced LNG sendout led to record storage withdrawals for this time of year across Europe.

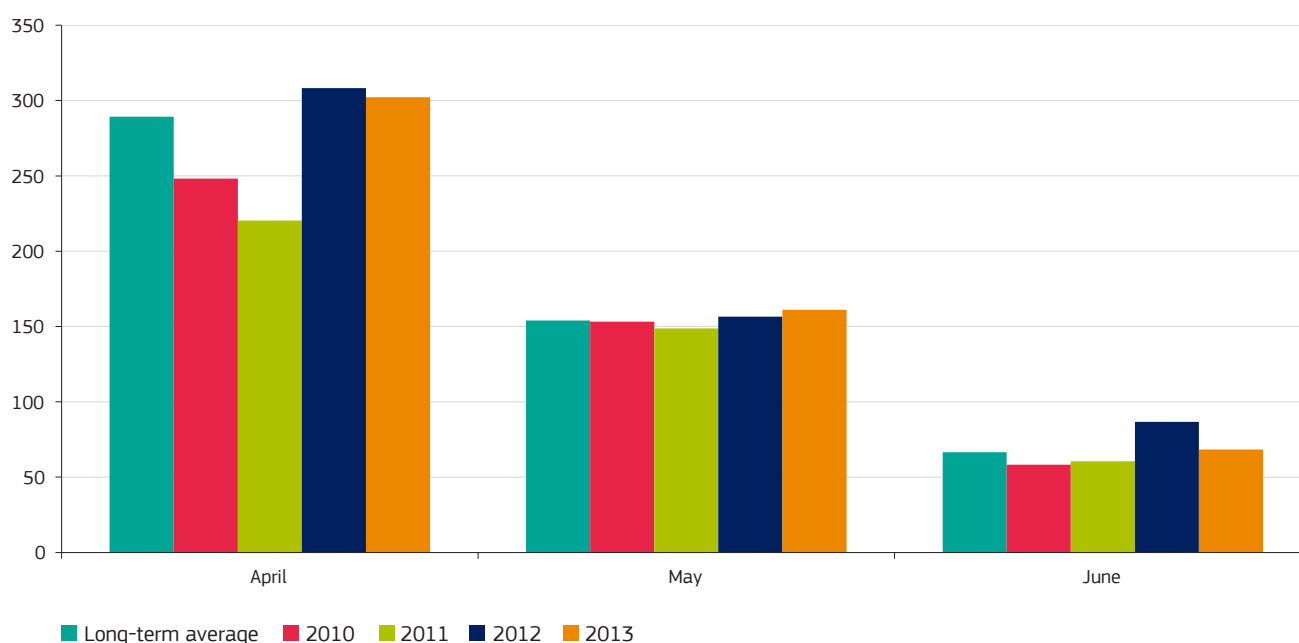
FIGURE 12 - GAS STORAGE LEVELS IN GAS REGIONS IN 2012 IN % OF MAXIMUM GAS STORAGE CAPACITY



Source: Gas Infrastructure Europe

- As reported in previous issues, the falling price differential between winter and summer gas in recent years and comparatively high injection fees in some countries have reduced the financial incentive to inject into storage and has driven general decreases in storage levels. Low storage levels create conditions for price spikes during the winter months.
- ICIS Heren reports that the French TSO GRTGaz requested that shippers increase the amount of gas injected into storage to avoid a supply deficit this winter, while pointing that from the start of April until 5 July the average premium of winter'13 contract to the month-ahead was 1.161 Euro/MWh, well below the premium at the same time last year of winter'12 to month-ahead (3.038 Euro/MWh).
- Analysts point to the mismatch between the need for storage for security of supply purposes and the market's perception of its value. Low storage availability may make prices prone to spikes during the winter season.
- In May and June, temperatures for the EU expressed in heating degree days did not show significant differences from long-term averages. In continuation to the cold snap of March 2013, temperatures in April 2013 remained below the long-term average temperatures for that month with heating degree days in April above the long-term average, though below values registered in April 2012.

FIGURE 13 - EU 27 HEATING DEGREE DAYS (HDDs)



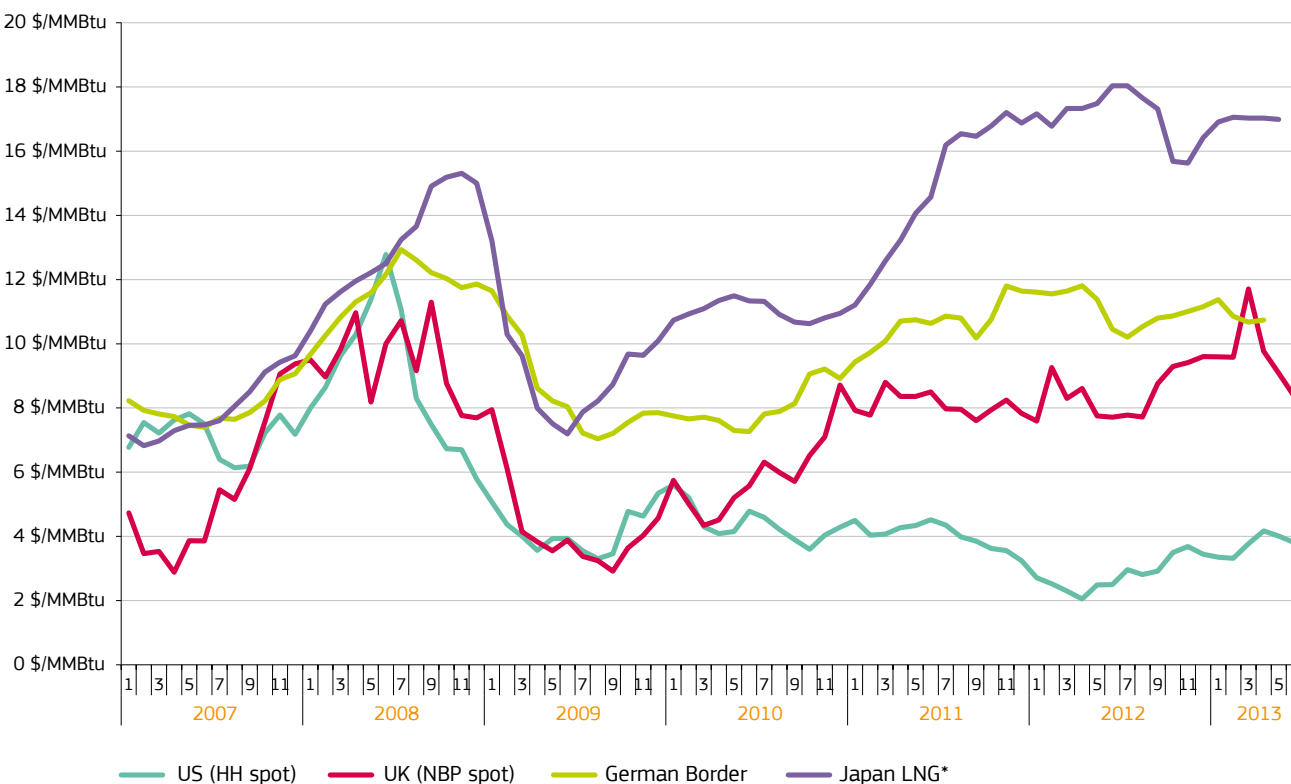
Source: Eurostat/JRC. The colder the weather, the higher the number of HDDs.

5. Wholesale Gas prices

5.1 International comparisons

- The relative evolution of the benchmark UK NBP and US Henry Hub spot prices, along with LNG prices for Japan and the German border price, illustrate the continuing variation among global wholesale prices for natural gas. Overall, on average in Q2 2013 wholesale consumers on the UK's NBP – traditionally the lowest priced hub in the EU, which however in March 2013 experienced a price spike (see previous issue of this report) – paid more than double the price paid by consumers on Henry Hub in the US. The gap between Henry Hub in the US and German border prices was even larger, with German border prices almost three times higher than Henry Hub prices over the first four months of 2013.
- LNG prices in Japan over the first four months of 2013 were on average 55-70% above NBP and German border prices and four and a half times higher than US Henry Hub prices.

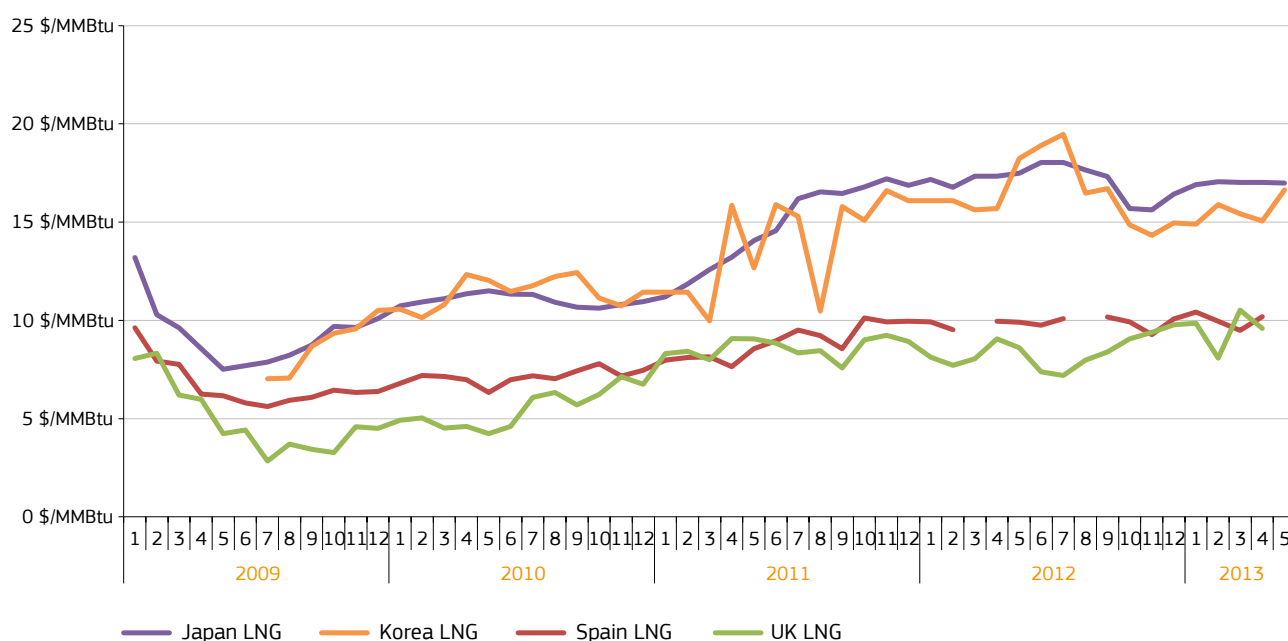
FIGURE 14 - INTERNATIONAL COMPARISON OF WHOLESALE GAS PRICES



Sources: Platts, Thompson Reuters

- After the price spike on the NBP in March 2013 pushed spot prices to record highs (42 €/MWh on 22 March 2013) and above the German border price, NBP spot prices went down sharply to levels comparable to the third and fourth quarter of 2012. In April 2013 – the last month of data available at the time of writing on German border prices – NBP prices were 10% below German border prices. Since then, NBP prices went down by 15%.
- Looking at LNG prices in competing markets of the EU, Korea and Japan, one can observe that Korea and Japan remained attractive markets to LNG exporters in the second quarter of 2013. The price premium paid by Japan and Korea relative to EU LNG remains large with prices at about 35-50% over the first four months of 2013. The average price paid for LNG in Korea was estimated at 15.33 USD/MMBtu over the first four months of 2013 and that in Japan was estimated at 17.01 USD/MMBtu. Platts points to sustained weak demand from North Asian LNG end-users over the shoulder months of April and May and point to little signs of recovering in June despite the start of the traditionally stronger summer season in North Asia (July-September) with consumption increasing on the back of higher power demand resulting from greater air-conditioning use.
- Forecasting unprecedented tightness in global LNG markets in the period until 2015, the IEA points that Europe is the most likely region to see further declining LNG imports. Sustained price differentials between Europe and Asia are preventing Europe from competing with Asian markets.

FIGURE 15 - LNG PRICES IN THE EU, US, JAPAN AND KOREA



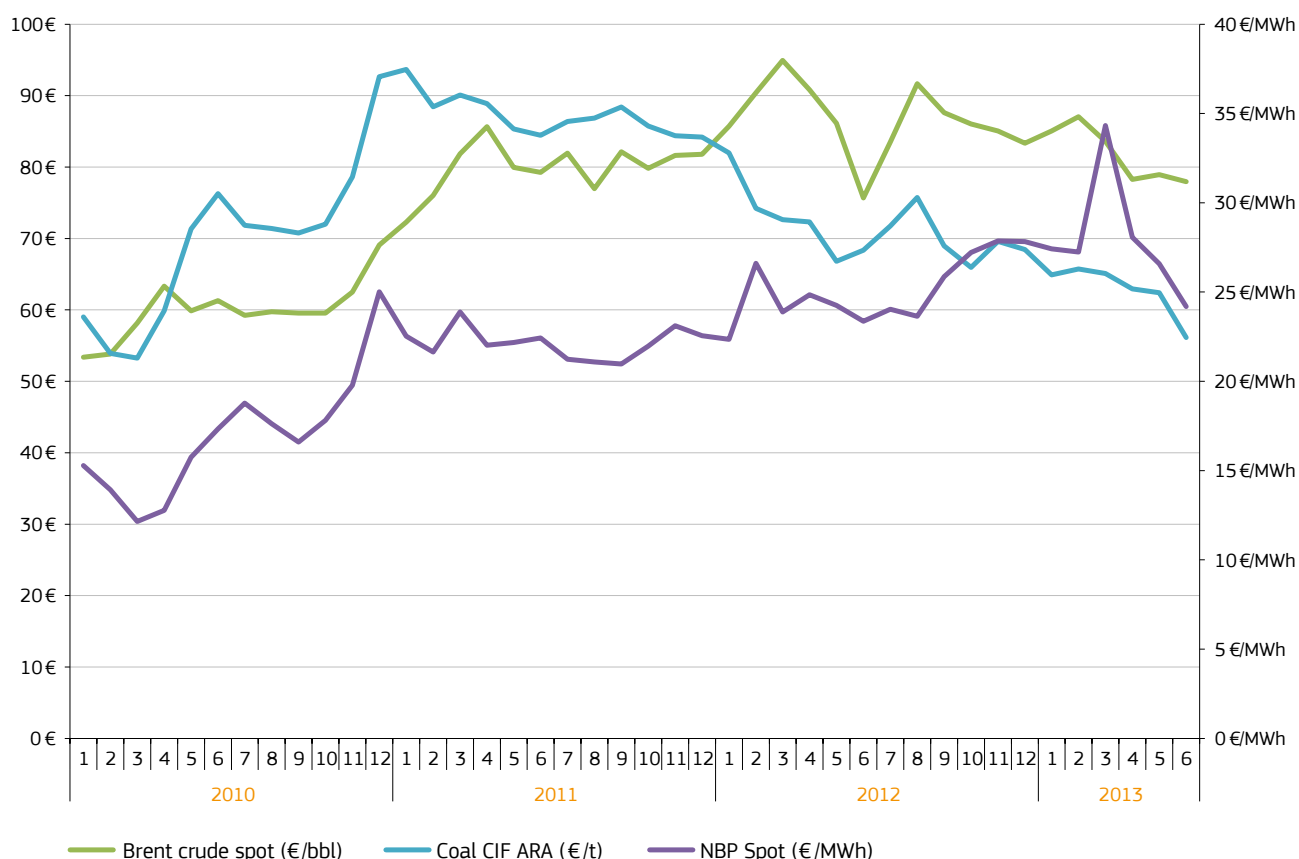
Note: Prices for Japan are average price estimates from the largest suppliers (Qatar, Malaysia, Indonesia, Nigeria, Australia). Prices for Korea are average price estimates from the three largest suppliers (Qatar, Indonesia and Oman). Prices for Spain and the UK are based on customs data.

Source: Thompson-Reuters Waterborne, Eurostat Comext, European Commission estimations

5.2 Comparisons between oil, gas and coal prices in the EU

- There has been a clear decoupling between coal prices on the one hand and oil and gas prices on the other since 2011. The decoupling appears to have been slowing down over the second quarter of 2013, when the prices of all three commodities went down respective to the first quarter of the year (-8% for Brent crude, -11% for the NBP spot after the price spike of March 2013, -7% for coal).

FIGURE 16 - SPOT PRICES OF OIL, COAL AND GAS IN THE EU



Source: Platts

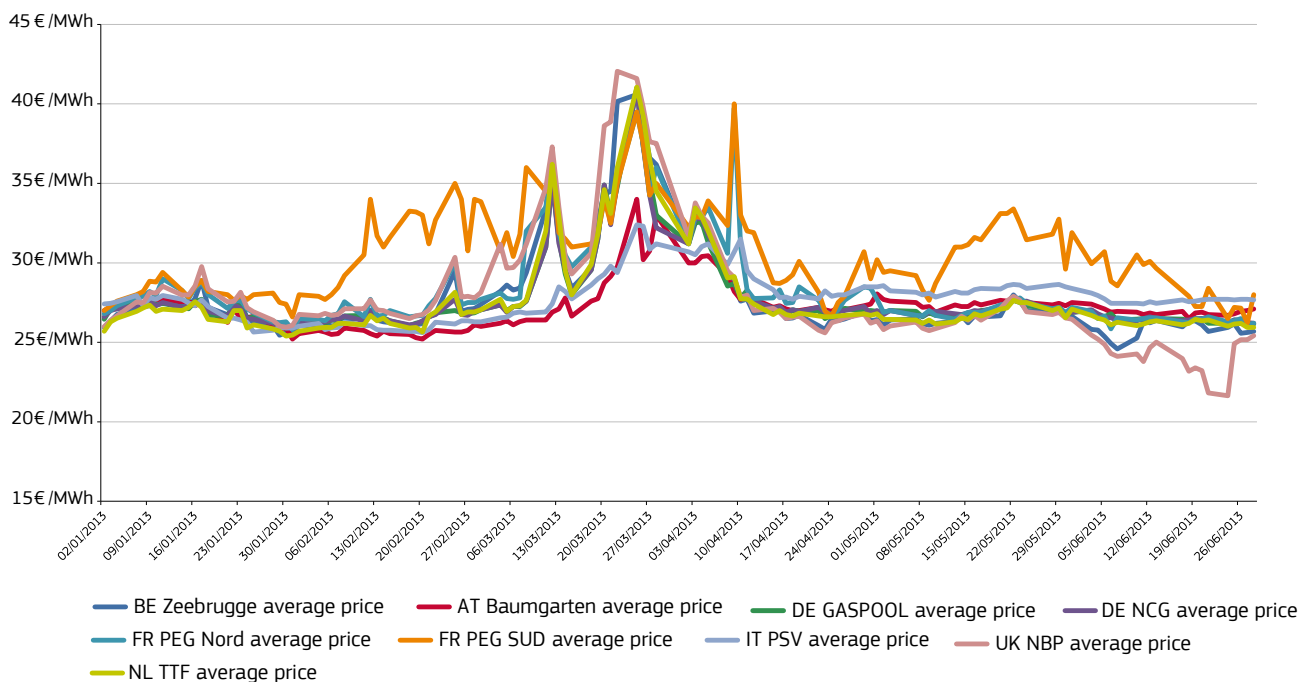
- As highlighted in recent issues, the different price dynamics between the various energy commodities that have prevailed over most of 2012 has been important in defining demand. EU coal demand and imports have been sustained as prices for the commodity have been falling. In contrast, demand for natural gas has been falling as prices have been rising.
- Coal-fired power generation remained profitable in the second quarter of 2013 as shown by the evolution of clean dark spreads in Germany and the UK, while gas-fired power generation continued to record negative margins. In Germany, continuously falling power prices drove spark spreads even more in the red and eroded the profitability of coal fired generation (though positive on a quarterly average). In the UK, coal fired generation remained highly profitable, and gas fired generation also remained above zero with gas prices falling more abruptly than the power price (see the latest issue of the Commission's Quarterly Report on Electricity Markets for more details).

5.3 Wholesale gas prices on gas hubs in the EU

- The graph below shows the evolution of European hub day-ahead natural gas prices in the period from January 2012 until the end of June 2013. Over the last quarter of 2012 and in January 2013, there was a remarkable convergence in those prices with the difference between the highest and the lowest day-ahead hub price in the range of 1-2 Euro/MWh.
- This changed during the cold snap in March 2013, when the difference between the highest and the lowest day-ahead price went above 6 Euro/MWh. With the end of the March cold snap – and of the first quarter – day-ahead prices on European gas hubs started converging again.
- Over the month of April, on average the difference in day-ahead prices between the highest priced hub (PEG Sud) and the lowest priced hub (TTF) went to 2.7 €/MWh. Over April and May 2013 the difference in day-ahead prices was below 1 €/MWh, if excluding the French PEGs and the Italian PSV. June saw some renewed divergence with a drop in NBP day-ahead prices.

- Until mid-April, the NBP was at a premium over Zeebrugge prices and the UK- Belgium Interconnector pipeline was flowing volumes in the UK. Platts notes that during shoulder months such as April and October, premium-markets and flows oscillate frequently.
- In June NBP day-ahead prices went to low levels (24.19 Euro/MWh on the average for June) unseen since August 2012. This was due to a combination of factors, in particular low demand in the UK, high imports from Norway as Norwegian flows were diverted to the UK due to maintenance on Norpipe (3-24 June) that flows Norwegian gas to Germany, and the planned annual maintenance of the Interconnector (12-27 June) that resulted in the inability to ship gas from the UK in the second half of the month to the European mainland. Earlier in June the Interconnector saw soaring flows towards higher priced Zeebrugge.
- These factors widened the spread between NBP and TTF to about 2 €/MWh in June 2013. As pointed by ICIS Heren, this gave ample opportunity to refill storage sites, especially as Britain was receiving additional gas from Norway because of the closure of the Norpipe to Germany for annual maintenance. The abundant supply in the UK could not be flowed into Belgium, so Zeebrugge day-ahead prices did not follow falls registered in the UK. With the return of the Interconnector flows, TTF day-ahead prices went down to less than 26 €/MWh during the last days of June, narrowing the spread with NBP to below 1 €/MWh.
- Against high temperatures in mid-June, strong supply levels and weak oil prices, day-ahead prices on the two German hubs went down relative to the two preceding months and stayed below 27 €/MWh for almost all days in June. Maintenance on Norpipe and works on Nord Stream in June reduced supplies to Germany, leading to increased imports from Belgium and the Netherlands and sourcing of additional volumes of Russian gas through Ukraine.
- PEG Sud day-ahead prices went down in late June, reaching levels below 28 €/MWh and narrowing the price premium to Peg Nord. Analysts point to the influence of strong supply in the south with strong LNG flows from the two Marseille terminals, as well as lighter maintenance on the north-south link. Analysts state that the unprecedented pace of storage injections in April, almost largely irrespective of the price, contributed to PEG Nord becoming the second highest priced market after the PSV. Meanwhile, starting in early June GRTGaz offered additional firm capacity north-south by optimising unused storage injection capacity.
- Platts highlights the sharp decline in demand for heating⁴, typical in spring, as a key factor in bringing down prices and driving an adjustment in supply portfolios.

FIGURE 17 – WHOLESALE DAY-AHEAD GAS PRICES ON GAS HUBS IN THE EU



Source: Platts

- Over March one-year forward prices on the four hubs presented in Figure 18 were in strong backwardation, which gradually weakened in April. Over May and June one-year forward prices moved to a slight contango, with slight differences between current and one-year forward prices. One-year forward prices remain lowest on TTF and NCG.

FIGURE 18 – ONE YEAR FORWARD GAS PRICES ON GAS HUBS IN THE EU



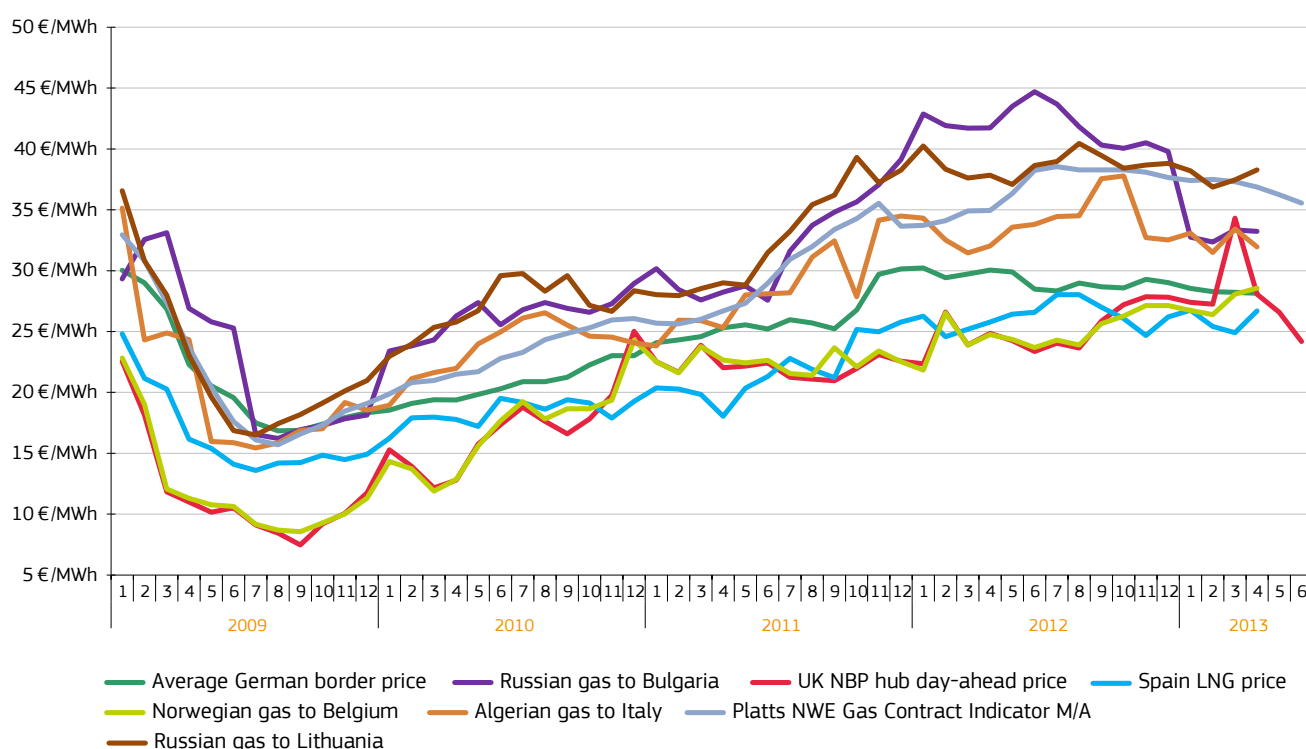
Source: Platts

5.4 Comparing the prices of different contracts for gas in the EU

- A comparison of different contracts of natural gas prices shows a great deal of variation in levels and in dynamics. The first four months of 2013 saw a significant drop on the wholesale price estimates of Russian gas to Bulgaria (~20% in the first four months compared to a 2012 average) and a slight drop in price estimates of Russian gas to the Czech Republic (5%) and Lithuania (-3%).
- As already discussed in the previous issue of this report, spot prices on NBP - which traditionally are the lowest in Europe - skyrocketed in March 2013, temporarily exceeding the average German border price and even the usually much higher priced Russian imports to Bulgaria and Algerian imports to Italy. May and especially June 2013 saw NBP take once more its position of lowest priced hub in Europe with a drop in average day-ahead prices on NBP between March and June of more than 10 €/MWh.
- Once the price spike on NBP was over, the German border price resumed its convergence towards the NBP spot price. Over 2012 and the first four months of 2013 there was an increasing divergence between the German border price and the level of theoretical pure oil-indexed price for gas, with the gap going up from 7.25 €/MWh over 2012 to almost 9 €/MWh over the first four months of 2013. This convergence seems to confirm the results of an ICIS Heren study of industrial and independent gas buyers on the German market that shows that of the 24 companies that participated in the study 79% have all or part of their gas volumes linked to hub prices, with a growing percentage of hub-indexed volume within companies' portfolios in 2012 relative to 2011.

- The gap between the German border price and the estimations of typically much higher priced deliveries has been exhibiting diverse dynamics: in the case of Russian deliveries to Bulgaria, the premium of the estimated wholesale price for Bulgaria over the German border price decreased from almost 13 €/MWh over the course of 2012 to less than 5 €/MWh in the first four months of 2013. A different case is that of Russian deliveries to the Czech Republic and Lithuania, where the premium over the German border price has been stable at around 8-9 €/MWh. In April 2013, Russian deliveries to Bulgaria were estimated at 33.2 €/MWh, to Lithuania at 38.3 €/MWh and to the Czech Republic at 35.13 €/MWh.

FIGURE 19 – COMPARISON OF EU WHOLESALE GAS PRICE ESTIMATIONS

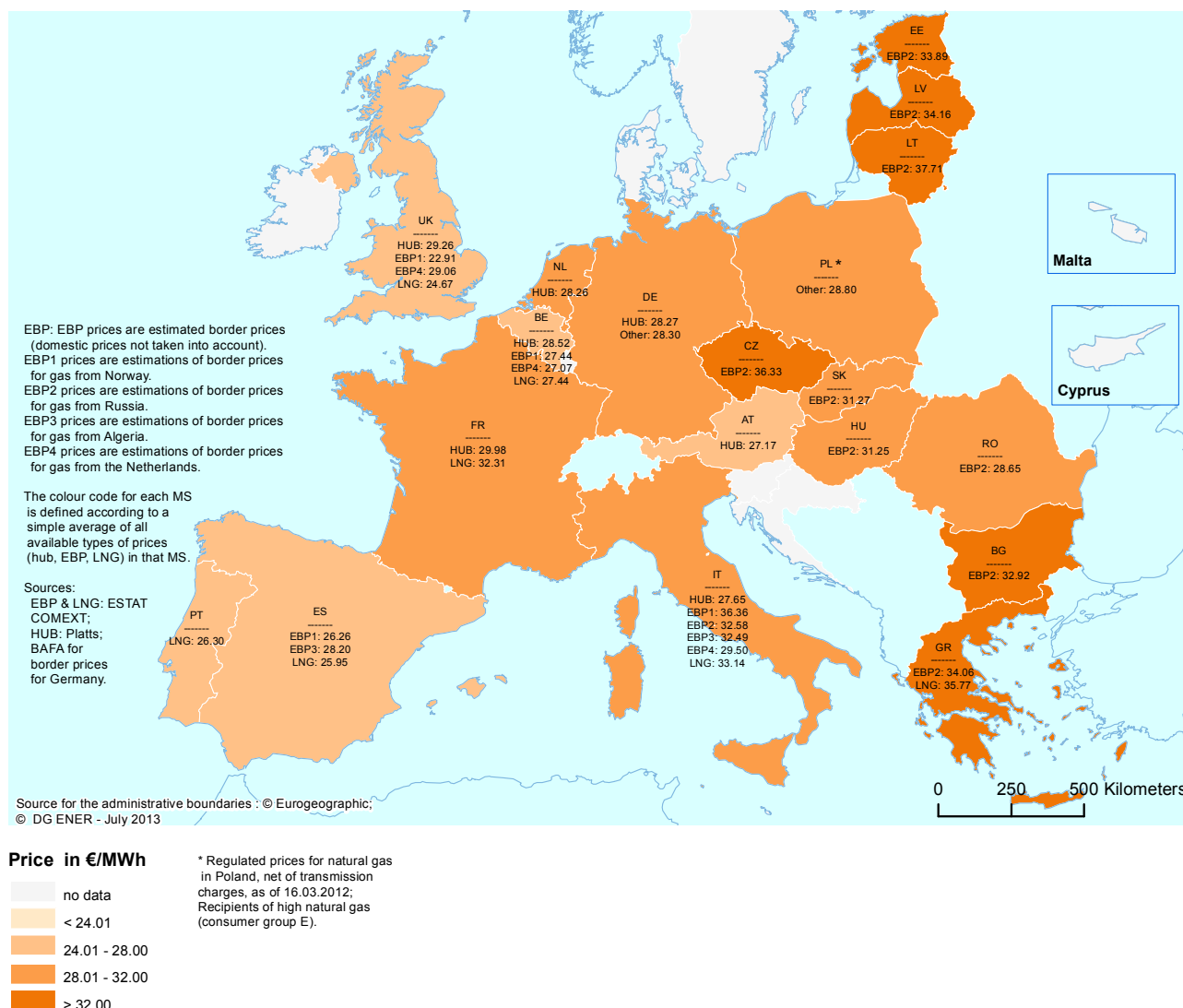


Source: Eurostat COMEXT, European Commission estimations.

Note : Border prices are estimations of prices of piped gas imports paid at the border, based on information collected by customs agencies, and is deemed to be representative of long-term oil-indexed gas contracts.

- Over the last few months of 2012 and the first two months of 2013, there was an increasing divergence between on the one hand the level of theoretical pure oil-indexed price for gas (approximately 37€/MWh in this period) and, on the other hand, the price estimates for some higher priced deliveries, in particular Russian deliveries to the Czech Republic and especially to Bulgaria now significantly below the theoretical pure oil-indexed contract. Algerian deliveries to Italy were estimated at 31.95 €/MWh, down by 4% in the first four months of 2013 relative to the average 2012 estimates.
- The price of LNG in Spain continues to be competitive for the EU's largest importer of LNG, even if it is no longer below the NBP hub price (as it was in the fourth quarter of 2012 and the first four months of 2013).

FIGURE 20 – COMPARISON OF EU WHOLESALE GAS PRICES



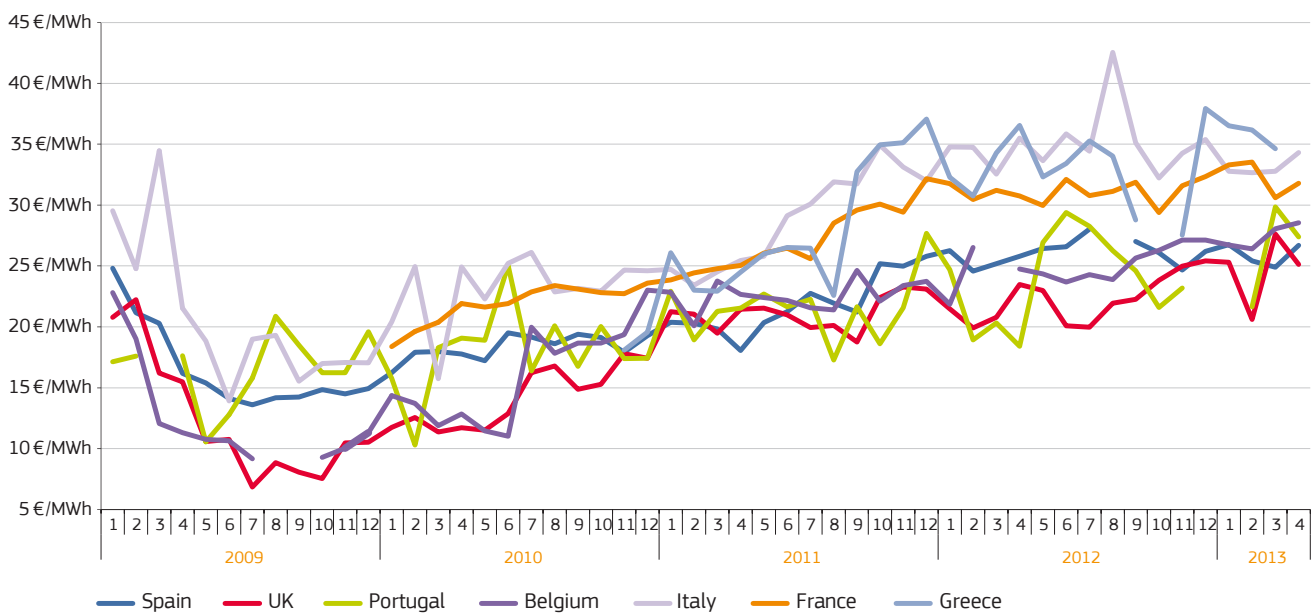
Note: Border prices are estimations of prices of piped gas imports paid at the border, based on information collected by customs agencies, and is deemed to be representative of long-term oil-indexed gas contracts.

- In a decision on the 27th of June 2013 on a case involving RWE's Czech subsidiary (formerly RWE Transgas) and Gazprom, the International Court of Arbitration of the International Chamber of Commerce adjusted Gazprom's price long-term contract formula to include gas market indexation. The court ruling involves reimbursements to payments made to Gazprom since May 2010. Analysts commented that this was the first court ruling to impose spot pricing on Gazprom. So far Gazprom's strategy has been limited to offering retroactive discounts in its existing contracts, rather than fundamental changes in the terms of its contracts, i.e. in terms of oil indexation or take or pay clause. With regard to new contracts however, not contract renegotiations, it appears that Gazprom is apparently willing to accept spot indexation in its future gas contracts.
- Meanwhile, Gazprom is conducting a new round of gas talks with a number of its key European clients, including Eni and GDF, to revise down prices under long-term oil-indexed contracts. Deputy CEO Alexander Medvedev said he expected retroactive gas price adjustments amounting to 800-900 million USD in 2013, adding that the price discussions envisage no increase in the share of spot prices in the gas price. Mr Medvedev stated that the spot prices' share remains at around 7% of the company's total gas price portfolio, which is based on a basket of oil product prices.
- In late June, Eni announced that it has negotiated a 7% price reduction from Gazprom and agreed with Sonatrach to import less Algerian gas until the end of 2014, making it likely that Russian deliveries will account for a larger share of the Italian energy mix and that it will rely on the TAG (Trans Austria Gas) pipeline during unseasonably cold weather. Meanwhile, at the end of April, Italy's second largest gas importer Edison won an arbitration case against Algerian producer Sonatrach to have its long-term gas contract price lowered.

5.5 LNG prices in the EU

- Estimated monthly average spot LNG prices in the EU in the first four months of 2013 traded within a price range of between 25 and 35 €/MWh for the seven countries for which data is available. As with piped gas imports, there is wide variation in prices paid for LNG in the EU.
- On average, over the first four months of 2013, LNG prices went up by 10-11% in the UK, Portugal and Belgium relative to 2012 average levels, by 8% in Greece and by 4% in France. Over the same period LNG prices went down by 6% in Italy and were stable in Spain.
- The UK, Spain and Belgium continue to pay less for LNG than Italy, France and Greece. Estimated LNG prices in Portugal appear rather volatile, but generally belong to the lower-price group. In April 2013 LNG price estimates for the UK and Spain were around 25 €/MWh, while those for Italy and Greece they were in the range of 33-35 €/MWh.

FIGURE 21 - LNG PRICES IN EU MEMBER STATES

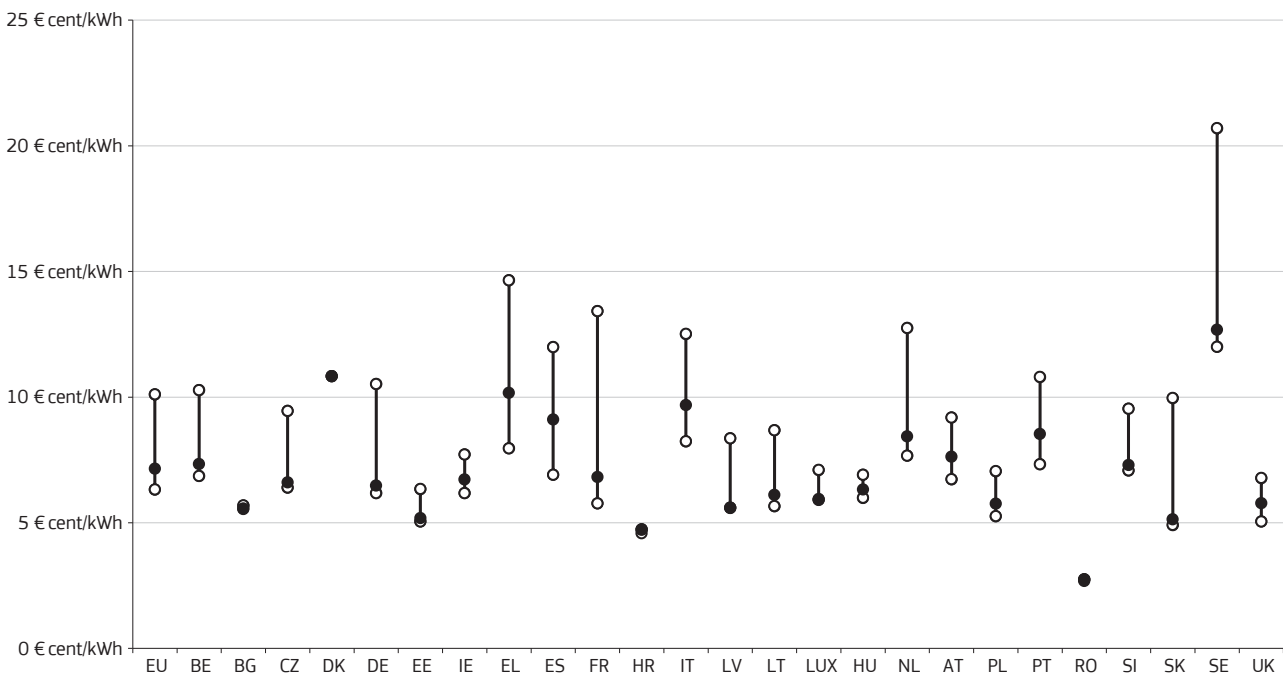


Source: Eurostat COMEXT, European Commission estimations.

6. Retail gas prices in the EU

- A comparison of retail gas prices across the EU continues to reveal significant differences, with the prices paid in the most expensive Member States representing several times the price paid in the cheapest (even if we exclude taxes and duties).
- In almost all Member States, there are significant differences in the range of retail prices paid by household and industrial consumers in different consumption bands. Figure 22 below shows the range of retail prices (including all taxes) reported for the three household consumption bands in each Member State, also denoting the retail price in the mid-consumption band D2 (black dot).
- As can be seen, there are large differences in prices among household consumer groups in almost all Member States. The most pronounced differences are in Sweden, France and Greece. Bulgaria, Denmark, Croatia and Romania report a uniform retail price across all household consumption bands. Generally, the prices for households in the middle-sized consumption band are in the lower part of the range.

FIGURE 22 - RETAIL GAS PRICE RANGES IN EU MEMBER STATES FOR HOUSEHOLDS (ALL TAXES INCLUDED), SECOND HALF OF 2012



The black dot denotes the retail price in consumption band D2.

Source: Eurostat.

Band D1 : Consumption < 20 GJ

Band D2 : 20 GJ < Consumption < 200 GJ

Band D3 : Consumption > 200 GJ

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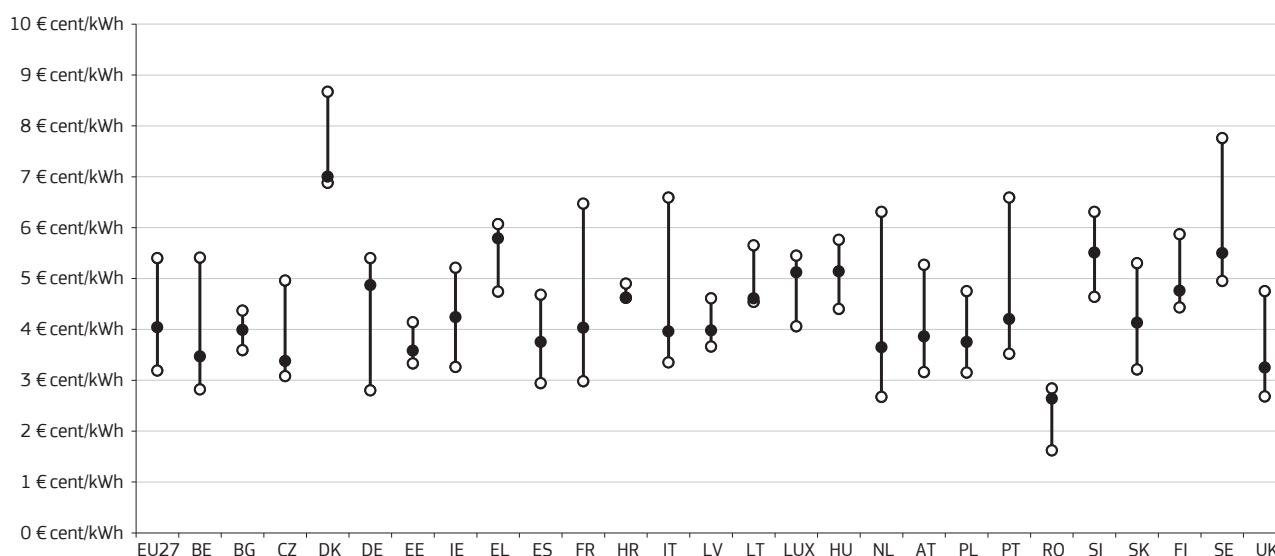
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- In the case of industrial consumers, the ranges in retail prices (excluding VAT and other recoverable taxes) are much more uniform across Member States. The largest differences in the prices paid by industrial consumers with different annual consumption occur in the Netherlands, France and Portugal. On figure 23, the black dots on each vertical line denote the price paid by industrial consumers in consumption band I3, which – with the exception of a few Member States (Germany, Greece, Luxembourg, Romania) – is in the lower part of the highest-to-lowest range.

FIGURE 23 - RETAIL GAS PRICE RANGES IN EU MEMBER STATES FOR INDUSTRIAL USERS (EXCLUDING VAT AND OTHER RECOVERABLE TAXES), SECOND HALF OF 2012



The black dot denotes retail price in consumption band I3.

Band I1 : Consumption < 1 000 GJ

Band I2 : 1 000 GJ < Consumption < 10 000 GJ

Band I3 : 10 000 GJ < Consumption < 100 000 GJ

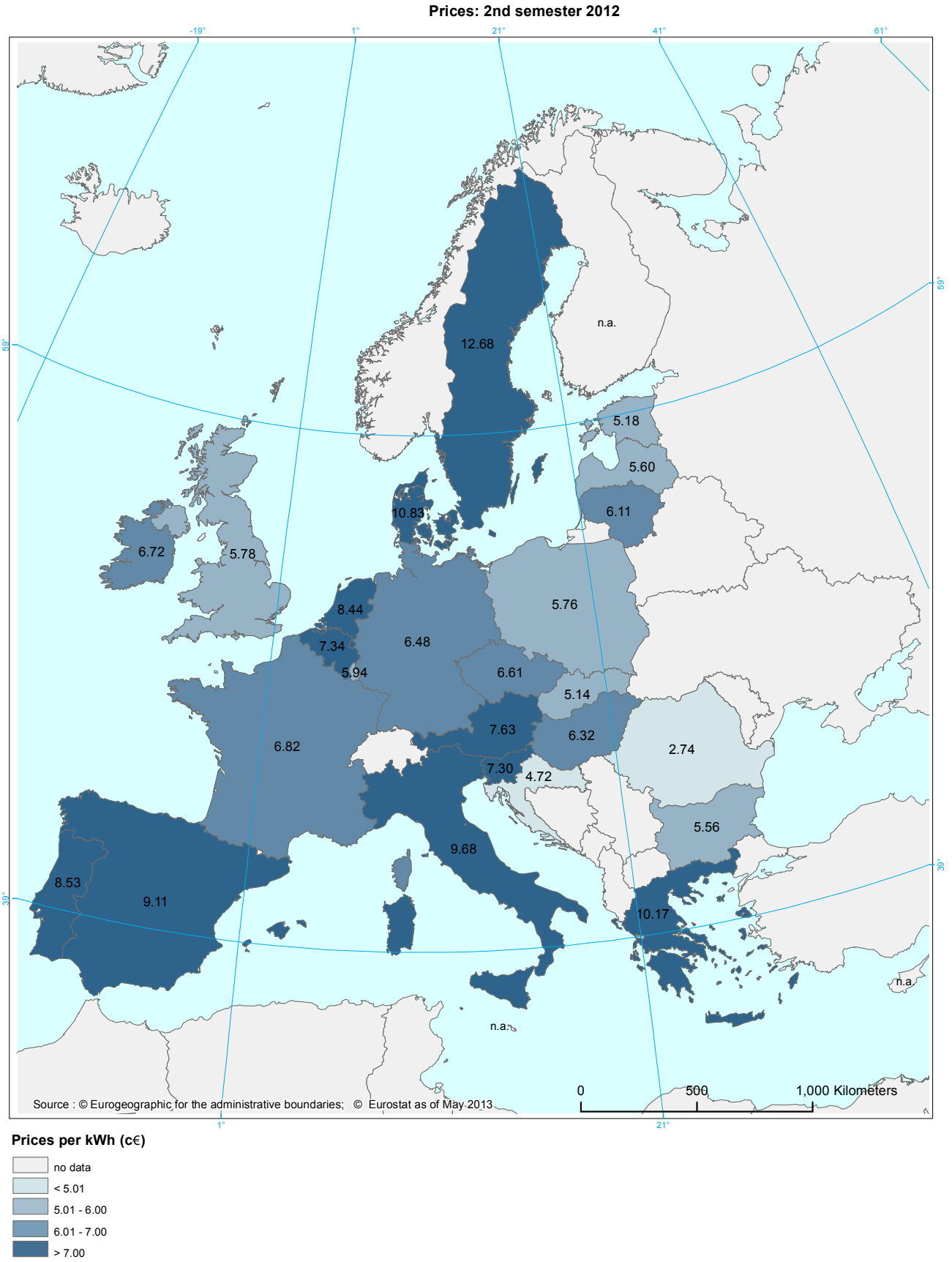
Band I4 : 100 000 GJ < Consumption < 1 000 000 GJ

Band I5 : 1 000 000 GJ < Consumption < 4 000 000 GJ

Band I6 : Consumption > 4 000 000 GJ

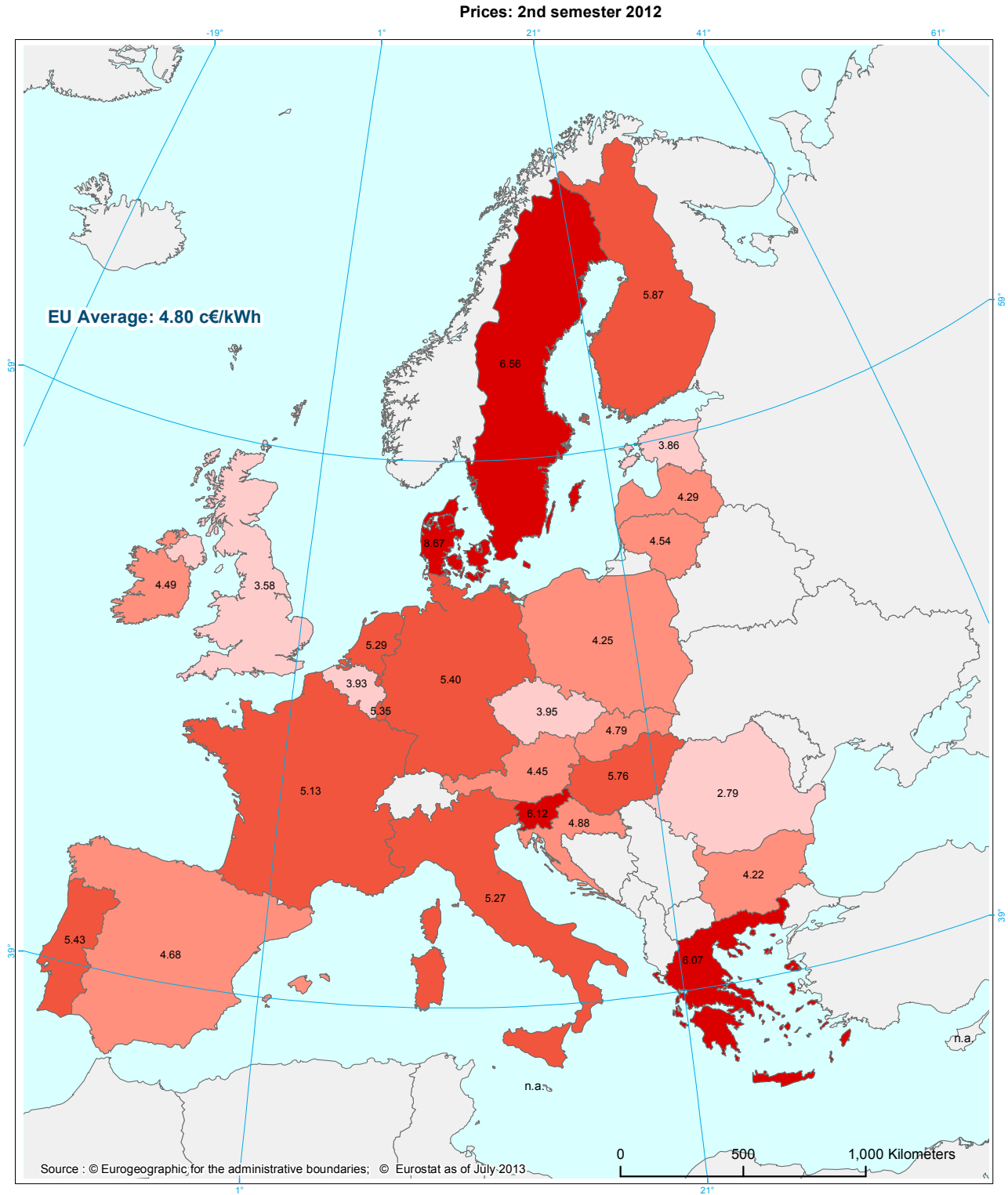
- One interesting development is that the availability of cheaper gas on European hubs seems to be motivating regulators to include spot indexation in regulated retail tariffs. The Italian regulator AEEG recently ruled that regulated retail prices must be linked 20% to TTF between April and the end of September 2013 and 100% as of 1 October 2013. In France, regulated tariffs are required by law to reflect the mark-up of the long-term contracts held by historical suppliers. ICIS Heren further quotes a recent audit by the French regulator CRE of GDF SUEZ's supply contracts, which showed that the proportion of hub indexation in the company's long-term contracts was likely to be at least 40% in 2013. The government accepted CRE's suggestion to adjust the regulated tariff formula to reflect the rising level of hub indexation.

FIGURE 24 - RETAIL GAS PRICES IN EU MEMBER STATES FOR HOUSEHOLDS



Band D2: 5.56 MWh < Consumption < 55.6 MWh

FIGURE 25 - RETAIL GAS PRICES IN EU MEMBER STATES FOR INDUSTRIAL CONSUMERS



Band I2: 0.278 GWh < consumption < 2.778 GWh

7. Glossary

Backwardation occurs when the closer-to-maturity contract is priced higher than the contract which matures at a later stage.

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

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

Flow against price differentials (FAPDs): By combining hourly price and flow data, FAPDs are designed to give a measure of the consistency of economic decisions of market participants in the context of close to real time operation of electrical systems.

With the closure of the day-ahead markets (D-1), the prices for each hourly slot of day D are known by market participants. Based on the information from the power exchanges of two neighbouring areas, market participants can establish hourly price differentials. Later in D-1, market participants also nominate commercial schedules for day D. An event named 'flow against price differentials' (FAPD) occurs when commercial nominations for cross border capacities are such that power is set to flow from a higher price area to a lower price area. The FAPD chart in this quarterly report provides detailed information on adverse flows, presenting the ratio of the number of hours with adverse flows to the number of total trading hours in a quarter.

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. These quantitative indices are designed to reflect the demand for energy needed to heat a building.

LNG sendout expresses the amount of gas flowing out of LNG terminals into pipelines.

