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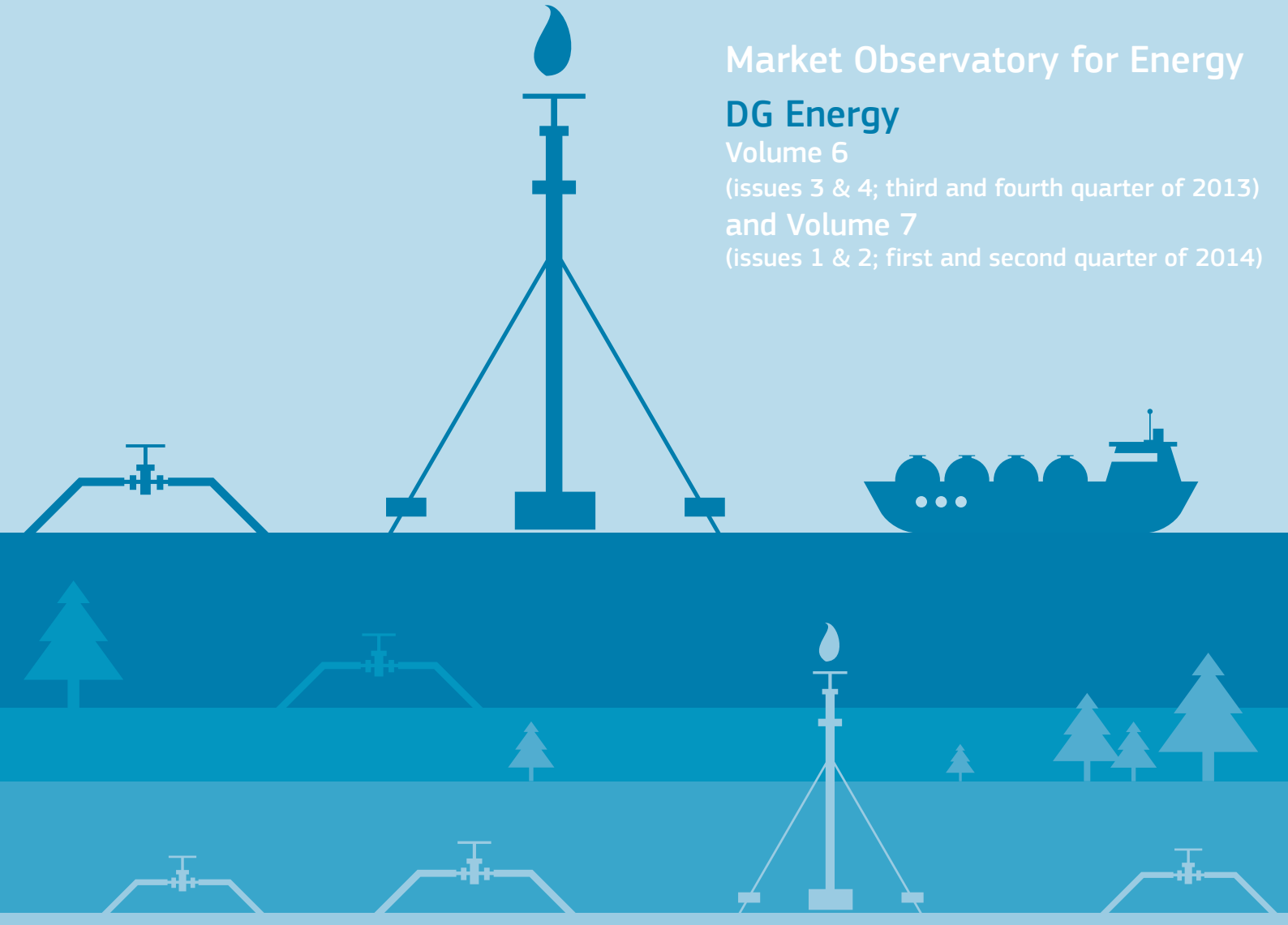

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Content

Highlights

- **Unseasonably cold weather during the first quarter of 2013 provided an important boost to gas consumption over a large part of Europe.** In contrast, the mild weather over the winter months of 2013/2014, coupled with only slight improvements in economic performance, resulted in relatively stable consumption levels during that period relative to the same period of the previous year.

- Against growing shares of coal and renewables in electricity production, **gas continues losing share in the power generation sector, having attained 12.4% of electricity production in the EU in 2013,** down from almost 16% in 2011.

- **By the end of the first half of 2014 the political situation in Ukraine had no observable impact on levels of imports of natural gas from Russia into the EU.** On the contrary, **by the first half of 2014, imports from Russia reached unprecedented levels**[1]. The situation highlights the importance of Russian gas for demand, but also for storage injection in the EU. **However, the growth in imports of natural gas from Russia in 2014 was considerably less than the preceding year.** Imports of piped gas from Russia into the EU grew by 7% between the first half of 2013 and the first half of 2014. In comparison, they had increased by 28% between 2013 and 2012, largely driven by the completion of Nord Stream in 2012. In contrast, **pipeline imports from Norway and North Africa fell between the first half of 2014 and the first half of 2013** (by, respectively, 5% and 14%).

- **Amid subdued demand for gas in the second quarter of 2014, LNG prices in Europe and Asia have fallen.** European and Asian LNG importers paid 20-30% less in the second quarter of 2014 compared to the first quarter of 2014. **LNG prices in Asia fell to levels unseen since Fukushima.**

- Nevertheless, LNG imports to the EU as a whole continued declining, albeit at a slower pace. **The 5% drop in LNG volumes observed in the first five months of 2014 was less significant than over the same period in 2012 and 2013.** Six of the eight LNG importing countries in the EU registered a decrease in total import volumes in the first five months of 2014 in comparison to the same period in 2013, while Spain and the Netherlands experienced growth in LNG volumes (+8% and +15%, respectively).

- In the 2005-2013 period, wholesale price formation in Europe has seen a continuous move away from oil-indexation towards more gas-on-gas competition. **As of 2013 gas-on-gas competition accounted for 53% of total gas consumption in Europe** though significant regional differences persist with no gas-on-gas competition in Southeast Europe and dominance of oil-indexation in the Mediterranean. Total **volumes traded** on European gas hubs in the twelve months to May 2014 remained relatively stable compared to the previous 12 months, but volumes **on the Dutch TTF and the German Gaspool registered remarkable growth.**

- **Day-ahead prices on European gas hubs fell significantly in the first half of 2014**, driven by lower demand for storage injection after a mild winter and weak Asian demand for gas in the second quarter of the year. The recent drop in spot prices has been especially pronounced in the UK. This, along with structural factors related to the electricity system of the UK, resulted in **a significant increase in the profitability of gas-fired power generation in the UK** in the second quarter of 2014 relative to the previous quarter. In comparison, markets on the continent have only experienced modest improvements in the profitability of electricity generated from gas.

- **Convergence in prices on European gas hubs has increased further in 2014.** The pace of price convergence on major European gas hub is a success of an ever growing integration of European gas markets. Improving transport capacity allows price signals to pass from more liquid and larger hubs in Northwest Europe to hubs in Southern Europe.

- In 2013, the EU **industry paid on average 8% more for gas than in the year before and households paid 3% more.** There are pronounced differences in the dynamics across different Member States. **The retail price differentials across the EU have slightly decreased** for both industrial and household consumers, but remain significant with the prices paid by end users in the most expensive Member States representing several times the price paid in the cheapest Member States. The ratio of the highest to the lowest retail prices in the EU is at around 4 in the case of households (taxes included) and around 2 in the case of industry (VAT and recoverable taxes excluded).

- Since the beginning of 2014 **the wholesale price differential between the EU and the US has fallen to a factor of two** due to a strong decline in hub prices in Europe, along with an increase in prices in the US. This is a marked decrease in the price differential from the preceding two years, when wholesale prices on the two sides of the Atlantic differed by a factor of three to four.

1. Physical flows to the following landing points: Velke Kapusany, Drozdowicze , Wysokoe, Mallnow, Greifswald-NEL, Nordstream Greifswald

1. Gas Consumption – Production – Imports

- After two years of decline, the EU's natural gas consumption remained relatively stable over 2013. Preliminary data from Eurostat[2] shows that consumption and net imports in 2013 were at approximately the same level as in 2012 (+1% and +1.3% year-on-year) with consumption at 13% below the peak levels of 2010 and at close to levels registered a decade ago. Data by Eurogas and the IEA shows a decline in gas consumption of, respectively, -1.4% (for the EU) and -0.7% (for OECD Europe, Turkey, Switzerland and Iceland), while Cedigaz and BP give figures for gas demand in the EU in 2013 at -1.1% and -0.8%.

- There have been significant variations in consumption across the EU: Eurostat data shows that while some large consumers such as Germany, France, the Netherlands and Poland registered growth in consumption in 2013 compared to 2012 (+9%, +3%, +2% and +1%, respectively), others like Spain, Italy and the UK saw a drop in consumption (-8%, -6% and -1%, respectively).

- In 2013, weather was an important determinant of natural gas consumption with unseasonably cold weather in large parts of Europe over the first two quarters of the year and in particular with the cold snap of March 2013. Without these exceptional weather conditions, European gas demand could have dropped more with high gas prices over the course of 2013 and modest economic performance, which has supressed industrial and power generation gas demand[3].

- Preliminary data from Eurostat show a drop in consumption of about 22% in the first quarter of 2014 and of net imports by 8% compared to the same quarter in 2013 with warm weather playing an important role. The drop in consumption in the first quarter of 2014 came after an almost 5% drop in consumption in the fourth quarter of 2013 relative to the same quarter the year before, again largely related to the mild weather.

- In 2013, production of natural gas in the EU stayed at levels close to those recorded in the preceding year. Production levels went down by 46% in the course of 5 years (2009 to 2013).

- Market analysis by grid operator GTS shows that in the first three months of 2014 Dutch gas output fell to its lowest level on record. The reasons are a production cap imposed by the Dutch government and low demand due to mild weather. On 17 January 2014, the Dutch government introduced a 3-year cap on production in a bid to limit the intensity of tremors that have hit the Groningen area[4]. Groningen is one of the largest fields in Europe producing around 70% of the gas supply in the Netherlands as well as supporting demand for L-gas in Germany, France and Belgium. The IEA estimates that the new limit means a 20% reduction of the total production of the Groningen field in 2014 and 2015 in comparison to 2013, causing European gas production numbers to plummet in 2014. IEA forecasts shows that it is likely that the Netherlands will become a net importer by the next decade[5].

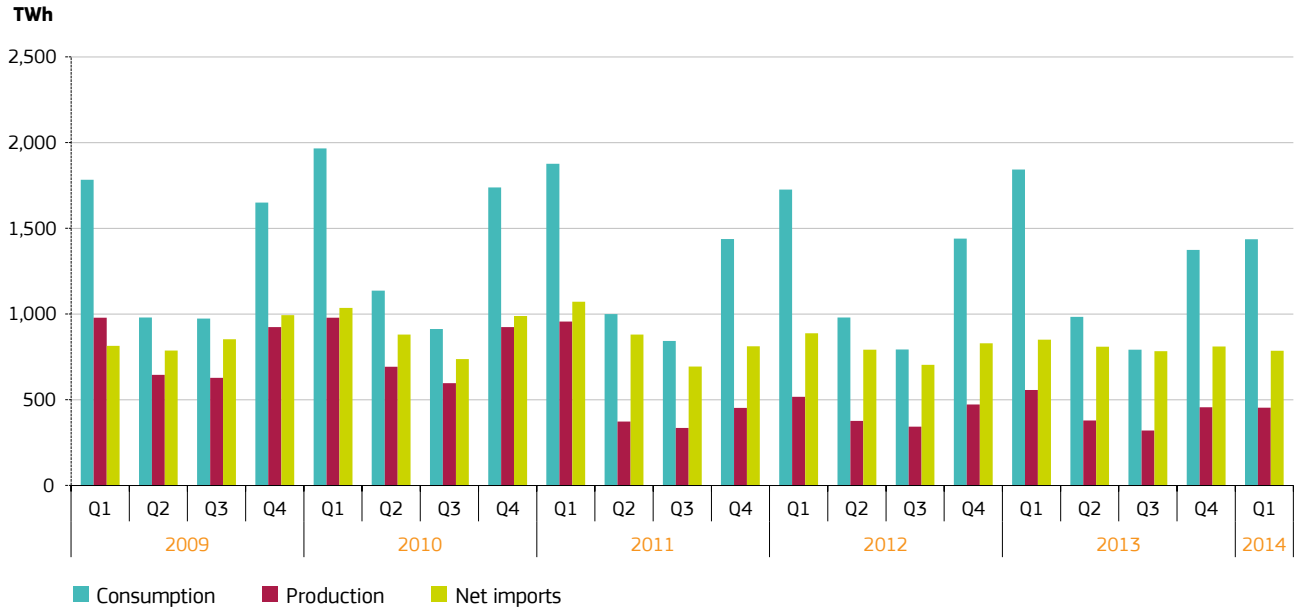
2. Data series nrg_103m as of 1 July 2014.

3. Weather is a crucial determinant of gas consumption because the residential and tertiary sectors are the largest users of gas in the EU (approximately 40% of gross inland consumption of gas in 2012), mainly direct use for heating and domestic hot water preparation for households and commercial buildings. Industrial gas demand covers heat generation and gas used as raw material, and the demand for electricity are determined by economic performance and the relative position of gas in the power sector.

4. ICIS Heren. European Gas Markets 2107 of 15 April 2014.

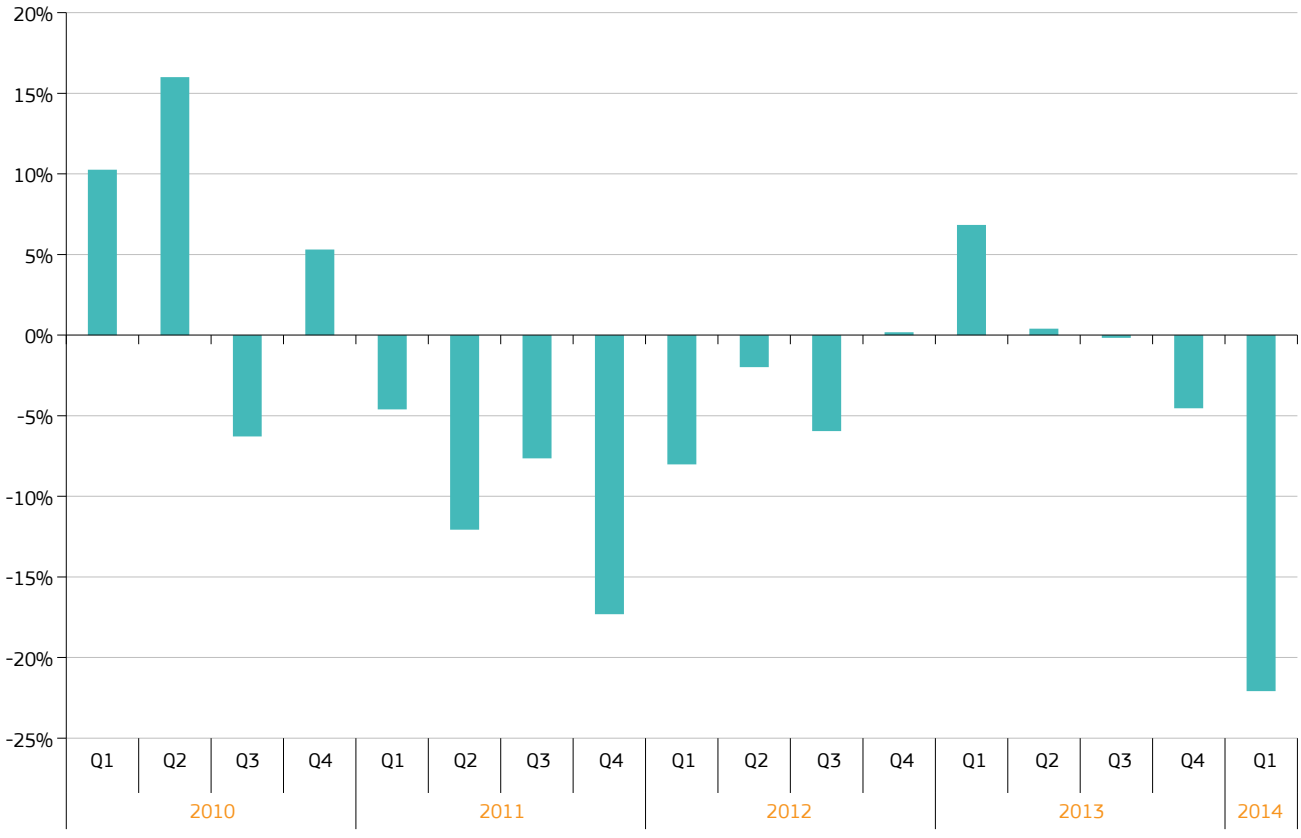
5. IEA. Medium-term gas market report 2014.

FIGURE 1 – EU GAS CONSUMPTION, IMPORTS AND PRODUCTION



Source: Eurostat, data as of 1 July 2014 from data series nrg_ind_103m. Net imports refer to imports minus exports. Note: Eurostat methodological change in reporting import volumes effective as of January 2013. Before January 2013 monthly import volumes of gas were reported on country-of-origin basis. After this date, they are reported on border basis.

FIGURE 2 – EU GAS CONSUMPTION Q/Q-4 CHANGE (%)

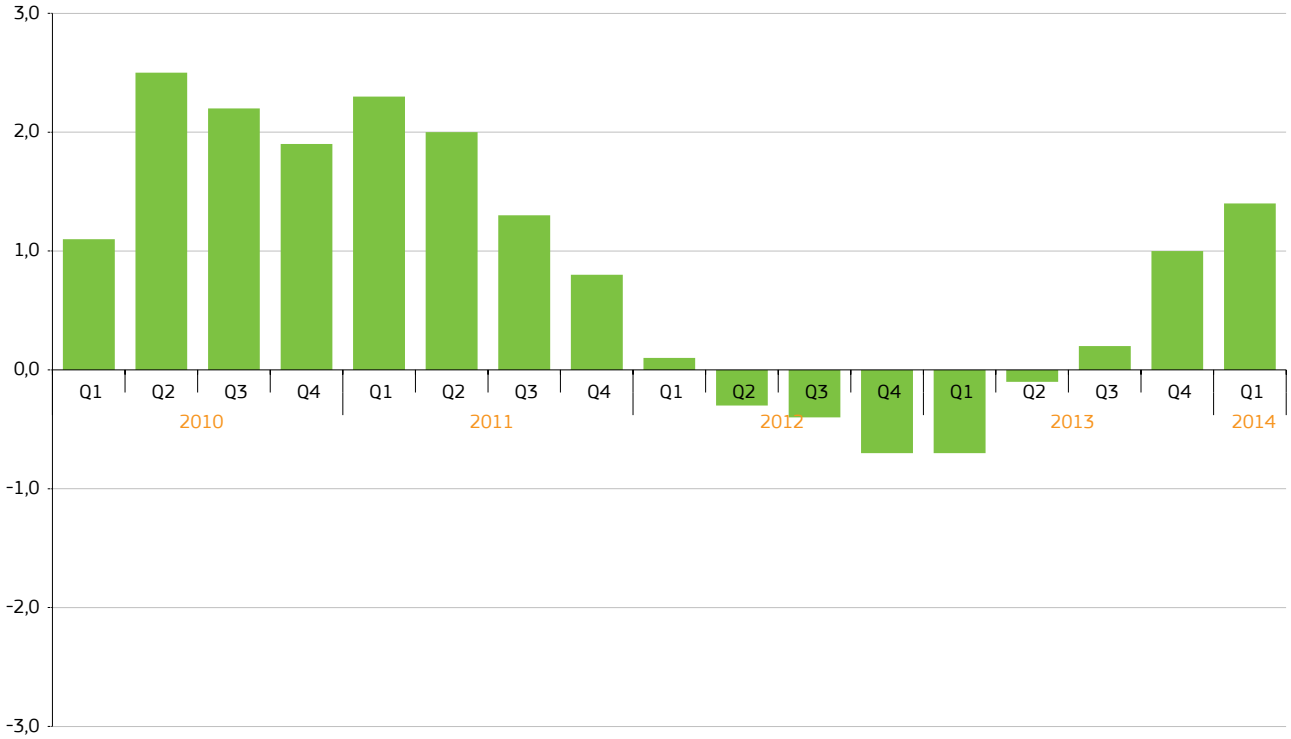


Source: Eurostat, data as of 1 July 2014 from data series nrg_ind_103m

- Economic performance is the other major determinant of gas consumption, alongside weather. In Q1 2014 seasonally adjusted Gross Domestic Product (GDP) of the EU rose by 1.4% compared with the same quarter of the previous year, after growing by +0.2% and +1%, respectively, in the previous two quarters.

- Gross value added by manufacturing was up 2.6% in Q1 2014 compared with the same quarter of the previous year, after growth of 2.1% in Q4 2013.

FIGURE 3 – EU GDP Q/Q-4 CHANGE (%)



Source: Eurostat

- Gas continues losing share in the power generation sector due to the interplay of a few factors: modest or no economic growth, translating into no or very modest growth in power demand; the growth of renewable electricity; the cheapness of coal relative to gas, along with low ETS price which have caused gas-to-coal switch in many markets.

- 2013 electricity consumption in the EU was down 2.3% in comparison to 2012 and in the first four months of 2014 electricity consumption was down 2.7% relative to the same period in 2013. On average across the EU, electricity from renewables (including hydro) accounted for close to 29% over the first quarter of 2014, in comparison to around 24% in the same quarter in 2013.

- In the six years between 2008 and 2013, gas consumption of power plants went down by a factor of more than 3 in Spain and by a factor of almost 2 in the UK. Italian power plants reduced the in-take by more than 13 bcm over the period. Across the UK, Italy, Spain, Belgium and France as a whole, in 2013 gas consumption in the power generation sector went down by 14.5% relative to 2012.

- This trend continued in the first half of 2014, with gas consumption of power plants down in all five markets observed (Italy, the UK, Spain, Belgium and France). In Belgium and France, the drop in the use of gas for power generation in the first half of 2014 exceeded 30% relative to the same period in 2013. Likewise, stronger output from the renewables sector crowded out a large share of gas-fired generation in Italy and Spain.

TABLE 1 – NATURAL GAS INTAKE IN THE POWER GENERATION SECTOR OF SELECTED EU COUNTRIES (BCM)

	2008	2009	2010	2011	2012	2013	H1 2014	H1 2014/H1 2013
Italy	33.4	28.7	29.8	27.5	24.2	20.1	7.9	-16%
UK	24.8	23.1	25.3	19.5	13.2	13.1	6.4	-8%
Spain	16	13.7	11.6	9.4	7.2	4.8	1.8	-12%
Belgium	n.a.	n.a.	n.a.	7.1	8.4	7.4	3.0	-32%
France	n.a.	n.a.	2.2	2.5	1.5	1.2	0.2	-73%

Source: Bentek/Platts

- Data from ENTSO-E reveals that between 2011 and 2013 the share of gas in electricity production across the EU fell from almost 16% to 12.4% and this fall has continued in the first quarter of 2014, when the share of gas in power generation was 11.4%. The combined share of hard coal and lignite in electricity production increased from 20.3% to 23.5% between 2011 and 2013. The share of hydro has grown from 10.6% to 12.8% and of renewables from 9.5% to 13.2% in the same period. The shares of nuclear and oil have remained stable.

- The IEA forecasts that gas consumption in OECD Europe will remain below the 500 bcm mark until 2019 and that 2014 will have the lowest demand in the forecast period, mainly due to the mild winter. Over time, demand recovery is expected to come from the power generation sector and industry, while residential demand is expected to decline in comparison to 2013 due to the maturity of the markets, declining population in many countries, energy efficiency requirements, alternative energy technologies (including for example heat pumps) and increasing cost of energy[6].

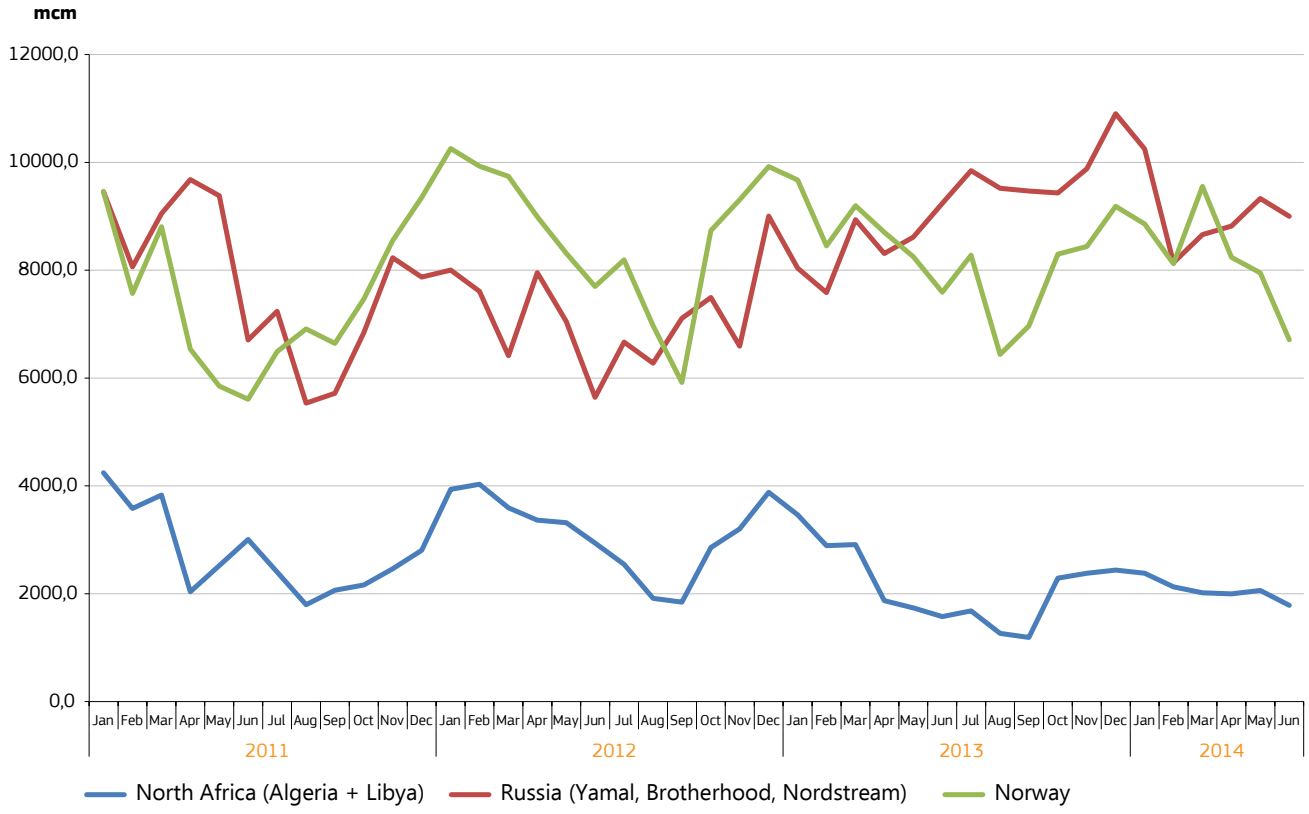
- When it comes to gas import flows, a closer look at the physical flow volumes of gas into the EU reveals that in the first half of 2014 Norwegian and North African physical flows fell in comparison to the volumes registered in the same period in 2013 (-5% and -14%), while imports of Russian gas increased by 7% in the same period, reaching levels unseen before. This comes on top of healthy growth of Russian flows already in the first half of 2013 compared to the first half of 2012 (+19%). Overall, in the course of 2013 Russian flows were up 28% year-on-year, while Norwegian flows were down by 4% over their peak 2012 values.

- The increase in physical flows from Russia came along reduced supplies from North Africa and subdued LNG volumes. Norwegian flows peaked in 2012 and have not reached similar values ever since. In fact, data on daily flows and on pipeline capacity[7] shows that Norwegian flows ran at above 75% of capacity in 44% of the days over the period between 2010 and end of June 2014. This is a very high utilisation rate as compared, for example, to Algerian and Libyan flows that only went above 75% of capacity in, respectively, 6% and 19% of the days over this period.

- As of the end of the second quarter of 2014, the political situation in the Ukraine has had no impact on the delivery of Russian gas through the different import routes. It has nevertheless increased the focus on the importance of Russian gas for meeting supply and filling gas storage.

6. IEA. Medium-term gas market report 2014
7. ENTSO-G capacity

FIGURE 4 – PHYSICAL PIPELINE FLOWS INTO THE EU



Source: Bentek/Platts.
Note: Russian flows include landing points Velke Kapusany, Drozdowicze , Wysokoe, Mallnow, Greifswald-NEL, Nordstream Greifswald, Norwegian flows include landing points Zeebrugge, Dunkerque, Dornum, Emden, St Fergus and Easington.

- In the period 1995-2012 the total demand for solid fuels in the EU went down by almost 20%, falling down in virtually all Member States. After a slump in 2009, coal demand started recovering, but as of 2013 consumption remained below pre-crisis levels and indeed about 15% below the levels in the mid-90s. Preliminary data on EU consumption of coal shows a drop of consumption in 2013 by 5% and a decrease in net imports – defined as total imports minus total exports – by 3% as compared to 2012. By far the largest part of solid fuels serves as transformation input to electricity, CHP and district heating plants, with smaller amounts going to coke ovens, blast furnaces and final energy demand.

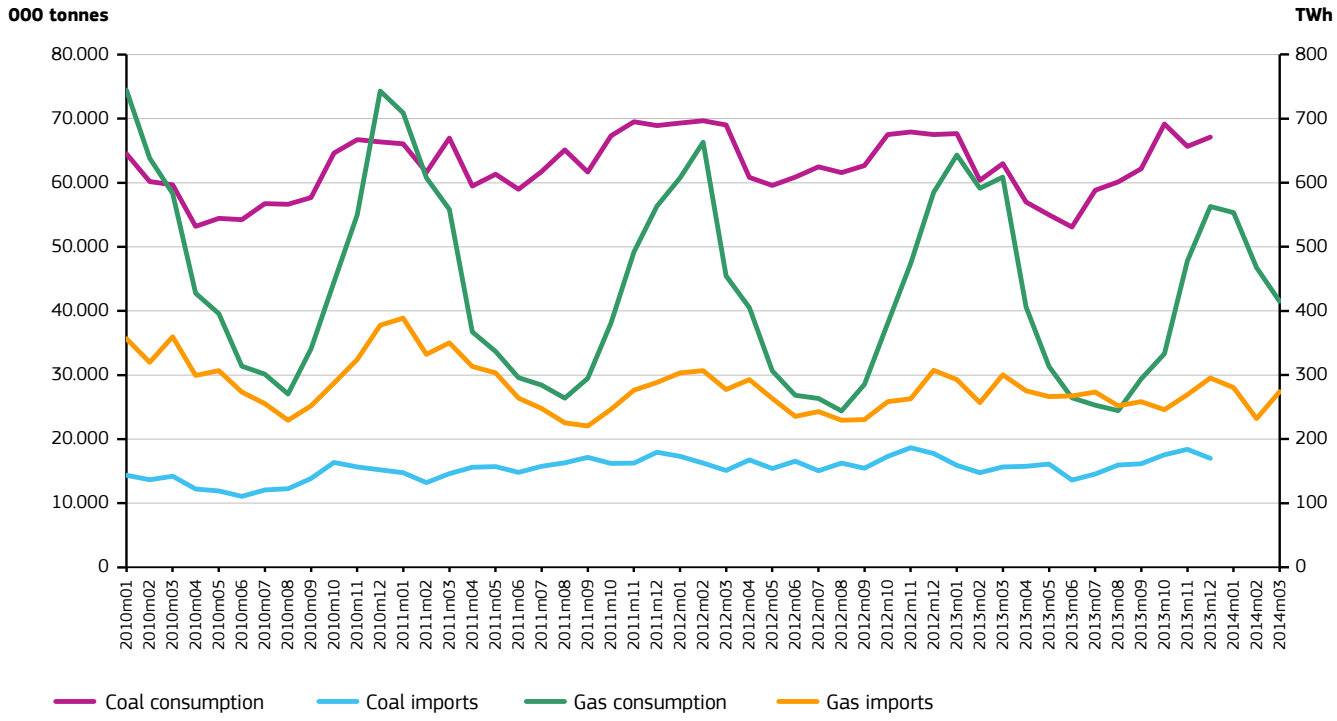
- Coal production in the EU fell by 7% between 2012 and 2013, with hard coal production registering an 11% drop as compared to a 6% drop in lignite production.

- In absolute values in 2013, coal import volumes from Russia went up by 22% and from Australia by 21% in comparison to 2012. Russia remains the largest exporter of coal to the EU, followed by Colombia and the US.

- In 2013, consumption of coal[8] increased by double digit numbers in Finland (+24%), Austria (+16%), Sweden (+13%), Lithuania (+10%) and Ireland (+10%) relative to 2012.

8. Hard coal and lignite

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

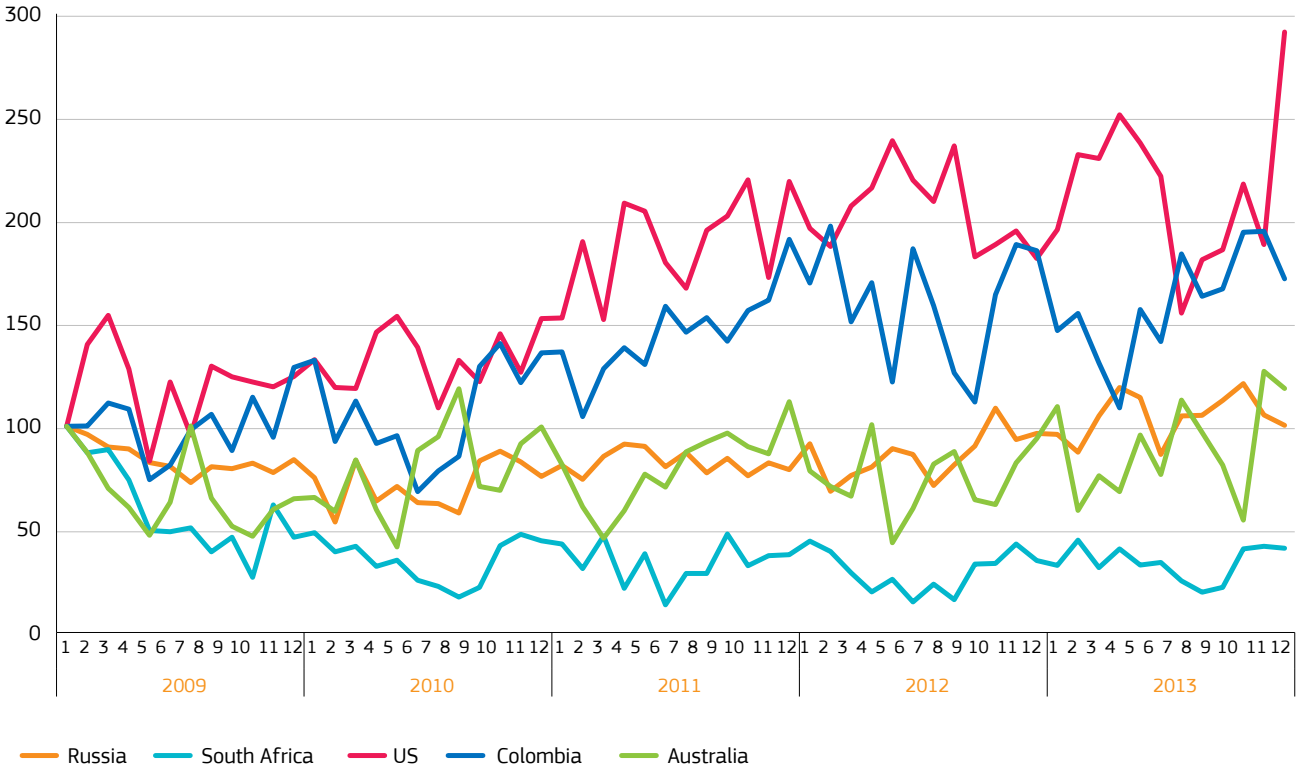


Source: Eurostat as of 1 July 2014. Left-hand scale: Coal. Right-hand scale: gas. Data for gas consumption and imports from Eurostat data series nrg__ind_103m. Data for coal consumption and imports from Eurostat data series nrg_ind_101m

- The International Energy Agency (IEA) considers that while the gas and coal price differential temporarily triggered a surge in coal demand in Europe, a steady decline in coal demand can be expected going forward. Thus, the increase in coal use in OECD Europe in 2012-13 is far from the historical peak and can be seen as a temporary spike caused by the relative competitiveness of cheap coal compared with expensive gas. The IEA expects coal consumption to decline during their outlook period (until 2018) as sluggish economic growth projections, increasing renewable generation and efficiency gains (including from replacing old coal plants with new plants) lead to shrinking demand[9].

9. IEA. Medium-term coal market report 2013.

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



Source: Eurostat, data series nrg_122m as of 1 July 2014.

2. Traded volumes on European gas hubs

- Total volumes traded on European gas hubs in the twelve months to May 2014 remained relatively stable compared to the previous 12 months: at 27,400 TWh there was a slight increase of 3.7%. The UK NBP hub remained the largest and most liquid hub in the EU and traded 11,714 TWh in the 12 months to May 2014, but saw a decrease of 13% in comparison to the previous 12 months. According to analysis by ICIS Heren, 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). Section 5.4 provides further analysis on the evolution of the share of gas-on-gas competition in comparison to oil-indexed volumes.

- In contrast, the Dutch TTF has become the focal point for continental gas and could eventually challenge the NBP for dominance over the European market. Traded volumes on the TTF went up by 28%, reaching 10,106 TWh in the year to May 2014.

- Traded volumes remained stable at the NCG in Germany (1,637 TWh in the year to May 2014) and increased by 15% on Gaspool (1,244 TWh). The sharply rising over-the-counter (OTC) traded natural gas volumes at the German hubs have attracted new players on the trading hubs over the past year. While NCG remains the more liquid hub, Gaspool has seen a stronger growth in the first half of 2014 compared to the same period of 2013. Gaspool's geographic location has allowed it to benefit from a growing appetite for hub gas in Central and Eastern Europe, where market participants turn to the neighbouring German market for economically priced gas and deals that require a certain degree of liquidity. While NCG seems to be their choice for hedging activities, Gaspool seems well suited for procuring gas for delivery into neighbouring countries[10].

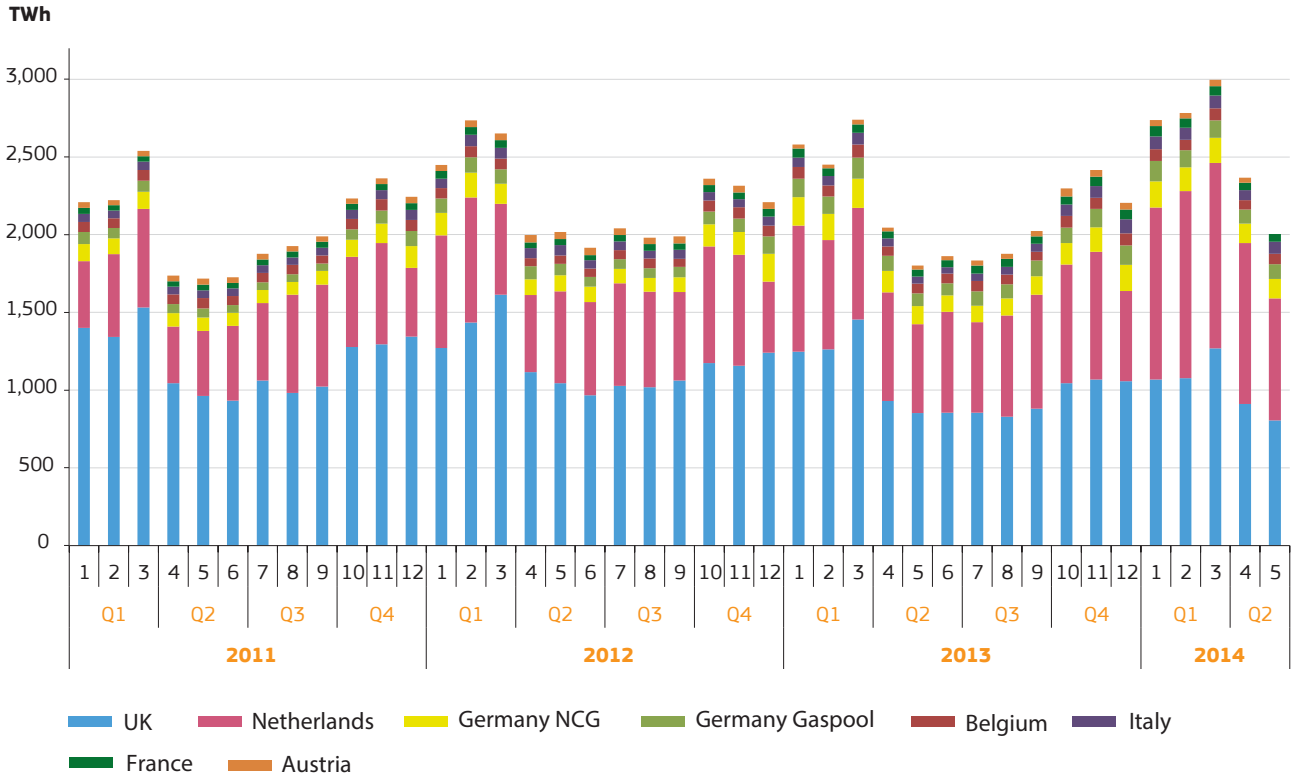
- Total volumes physically delivered on EU hubs over the twelve months to May 2014 remained relatively stable relative to the preceding twelve month period. Some hubs have seen stable or increasing levels; the most pronounced increase was in Zeebrugge (+17%).

- Market analysts see a positive outlook for spot markets with balancing business secure and growing, a rise in market-based balancing regimes, a need for flexibility and increasing spot market indexation bringing hedging business. Transparency is increasing and trade is spreading to new countries[11].

- Belgium's Fluxys, the UK's National Grid and the UK Interconnector pipeline operator – the TSOs involved in the operation of the physical Zeebrugge beach natural gas hub in Belgium – announced plans to transform the physical Zeebrugge beach natural gas hub into a virtual trading point for a new market zone from 1 November 2015. This will involve the creation of a new cross-border entry-exit zone encompassing the Zeebrugge area and the Interconnector to Britain, with the physical Zeebrugge beach hub transformed into a virtual trading point for the zone[12].

10. ICIS Heren. Rising German OTC volumes attract players to hubs. 2014
11. ICIS Heren. Gas hub development in Poland and the rest of Europe, Warsaw, May 2014.
12. ICIS Heren. European Gas Market 2107 of 15 April 2014

FIGURE 7 – TRADED VOLUMES ON EUROPEAN GAS HUBS



The chart covers the following trading hubs: UK: NBP (National Balancing Point); Belgium: Zeebrugge beach; Netherlands: TTF (Title Transfer Facility); France: PEG (Point d'Echange Gaz); Itay: PSV (Punto di Scambio Virtuale); Germany: GASPOOL and NetConnect Germany (NCG); Austria: CEGH (Central European Gas Hub)

Sources: National Grid (UK), GTS (Netherlands), Huberator (Belgium), Gaspool (Germany), NCG (Germany), GTTGaz (France), Snamrete (Italy), CEGH (Austria)

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. Previously TTF volumes were reported based on GTS nominations only; the figures have been now revised to also include OTC and exchange traded volumes.

3. LNG volumes

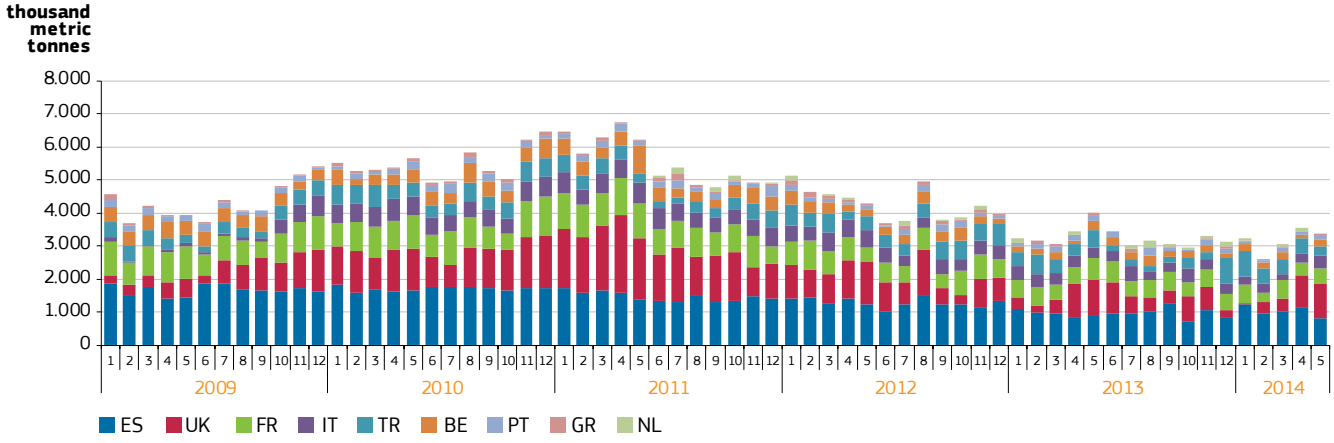
- LNG imports to the EU began falling in the second quarter of 2011 and this trend continued at a fast rate in 2012 and 2013. In 2013, LNG imports were 24% below volumes in 2012 and 42% below peak volumes in 2011. Over the first five months of 2014 imports volumes were 5% below volumes in the same period of 2013[13].

- Between 2012 and 2013 LNG volumes collapsed in Greece (-52%) and dropped significantly in most other LNG importing countries in the EU: UK (-33%), Belgium (-27%), Spain (-25%), Italy (-20%), France (-18%) over the same period. The only exceptions are Portugal (stable volumes) and the Netherlands (+37%).

- During the first five months of 2014 the downward trend continued albeit for most European importers at a slower pace. Overall for the EU, LNG imports were down by -5% over the same period the year before. While Spain and the Netherlands registered growth in import volumes (+8% and +15%, respectively), some importing countries registered a double-digit drop over the same period in 2013 (-34% each for Portugal and Greece, -22% for Italy, -18% for France). Imports were down by 9% in the UK and by 6% in Belgium.

- Along with weak demand for gas in the EU and growing global demand for LNG, the relative inflexibility of some European market participants bound by long-term contracts for pipeline gas with take-or-pay obligations may be another reason for the decreasing relative share of LNG in total imports in the EU and the low level of utilisation of LNG terminals.

FIGURE 8 – LNG IMPORTS TO EUROPE BY COUNTRY (THOUSAND METRIC TONNES)



Source: Thomson-Reuters, Waterborne

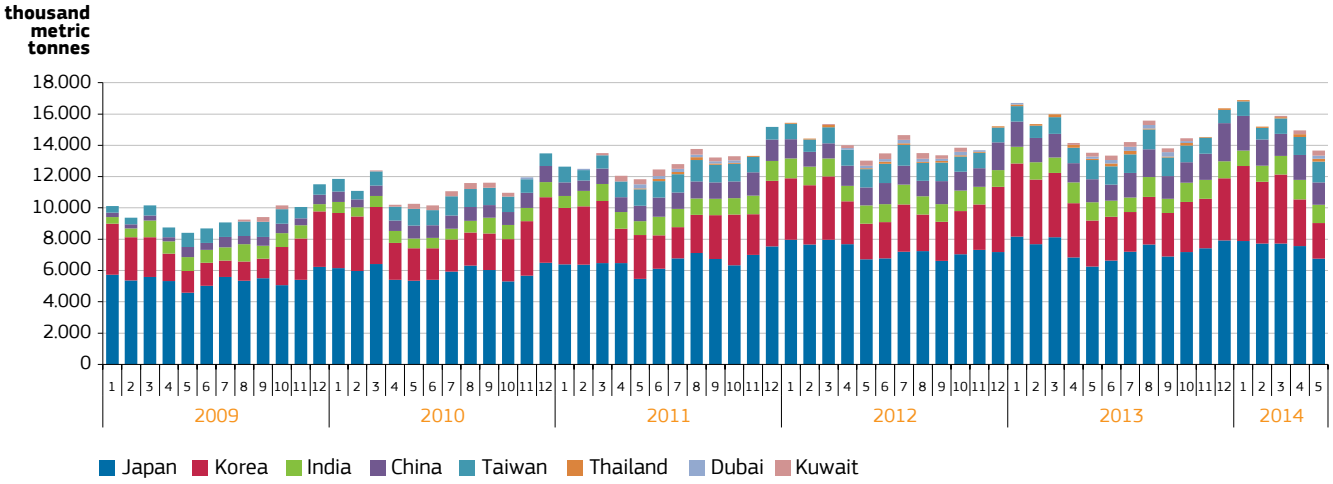
- The total regasification capacity of LNG terminals in Europe (excluding small scale LNG) is around 200 bcm/year while further terminals planned will increase total capacity to 275 bcm/year in 2022[14]. According to data from Thomson/Reuters, the utilisation rate of LNG terminals in the EU is currently around 25%. Estimations of the Council of European Energy Regulators are that 137 bcm of regasification capacity (73% of technical capacity) in the EU was not used in 2013. In terms of volume, 58 bcm of capacity was not used in Spain and 44 bcm in the UK, 15 bcm in France, 11 bcm in Netherlands, 8 bcm in Belgium, 6 bcm in Italy and 5 bcm in Greece.

13. Turkey included

14. See page 54 of the in-depth study on European energy security (SWD 2014/330 final/3) for LNG import capacities, import volumes and unused capacity by Member State

- In contrast to trends in the EU, global demand for LNG has been growing, especially in Asia, with the number of countries importing LNG growing (29 in 2013). China experienced a 26% increase in imported LNG volumes in 2013 in comparison to 2012 and South Korea an 11% increase. China brought three new re-gasification terminals on line in the course of 2013. In Latin America, Mexico, Brazil and Argentina experienced an impressive growth in LNG volumes between 2012 and 2013 (+70%, +53% and +26%, respectively). Latin American consumers normally do not have long-term contracts with suppliers and go after spot cargos usually used to replace reduced levels of hydropower generation.

FIGURE 9 – LNG IMPORTS TO ASIA

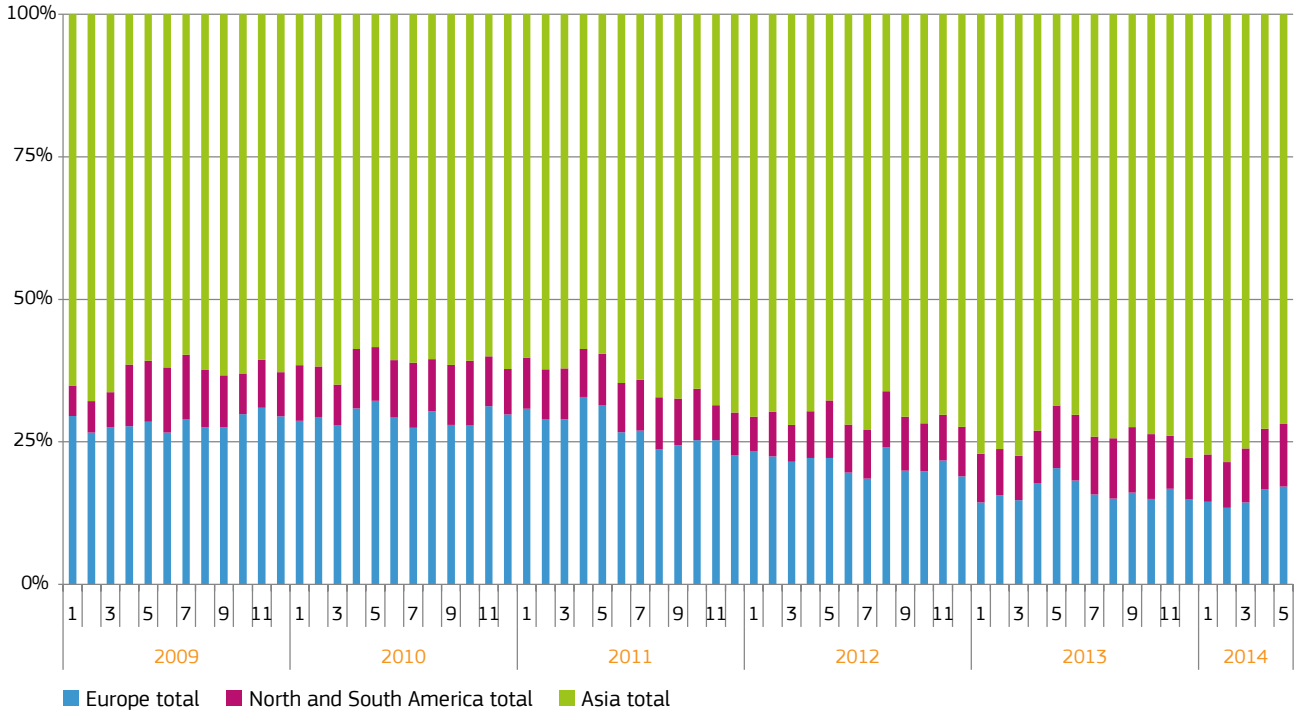


Source: Thomson-Reuters; Waterborne

- Against booming demand from Asia and increasing demand from Latin America, LNG supply has been relatively stable. This has been caused by a combination of factors, including declining output either due to a decline of the producing fields or to competition from domestic markets of historical LNG suppliers such as the United Arab Emirates, Indonesia, Egypt, Nigeria, Libya. It thus comes as no surprise that in 2013 global LNG trade stalled for a second year in a row, growing by only 0.3%. This is in contrast to the increase in global inter-regional trade (+3%) and of global pipeline imports that went up, boosted by European import resurgence, which in turn came as a consequence of a decline in domestic production and dwindling LNG imports[15].

15. IEA. Medium-term gas market report 2014.

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.

- In the period 2009-2013 the share of Europe in the global LNG market went down by 13 percentage points: from 29% in 2009 to 16% in 2013. Destination clauses in LNG contracts have served to lock supplies to Europe, whereas in a genuine spot market those supplies would probably have been delivered to Asia instead.

- Against a background of falling gas demand re-exports of LNG have gained speed in Europe, whereby LNG importers can take advantage of arbitrage opportunities by selling LNG to a higher-priced market. The IEA estimates that about 5.7 bcm was re-exported in 2013, amounting to around 2% of the global LNG market, with 95% coming from Europe and going to Asian and Latin American countries. Spain and Belgium started re-exporting in 2011, with France, Portugal and the Netherlands starting later. At present, only the UK, Italy and Greece have not started re-exports yet.

- In periods of high spot prices the Europe-Asia price differential significantly exceeds the shipping costs to Asia (around 2.5-3 USD/mmbtu). Over the course of 2013 the EU-Asia LNG price differential was at about 5 USD/mmbtu[16]. Apart from shipping costs, re-exports face a number of logistical constraints and associated costs. Logistical factors and infrastructure challenges such as reloading times, energy lost via boil-off and how long gas can be kept in terminal before it needs to be discharged, mean that a premium well above shipping costs is needed for re-exporting to happen. Reloaded cargoes are sometimes also shifted to higher price European markets (mainly Italy and Turkey). The price differential is lower in these than in Asian markets, but so are the shipping costs[17].

- In fact, the sharp decline in Asian prices in Q2 2014 (details in chapter 5.1) has reduced the arbitrage possibilities in diverting European supply and some importers such as the Netherlands and Spain have experienced positive growth in LNG imports. The decline in LNG prices in Asia has also put into question the consensus on existing global tight markets in the coming years fuelling discussions on oversupply due to relative price inelasticity of e.g. Qatari supplies. If an oversupply situation develops, surplus LNG could land on the LNG spot market, boosting liquidity and sending price signals on European hubs.

16. Figure 14 in chapter 5.1. shows the incentive to re-load cargos by comparing for instance the Japanese LNG spot price with the NBP hub prices.

17. Timera Energy. Will European LNG reloads continue, 2013.

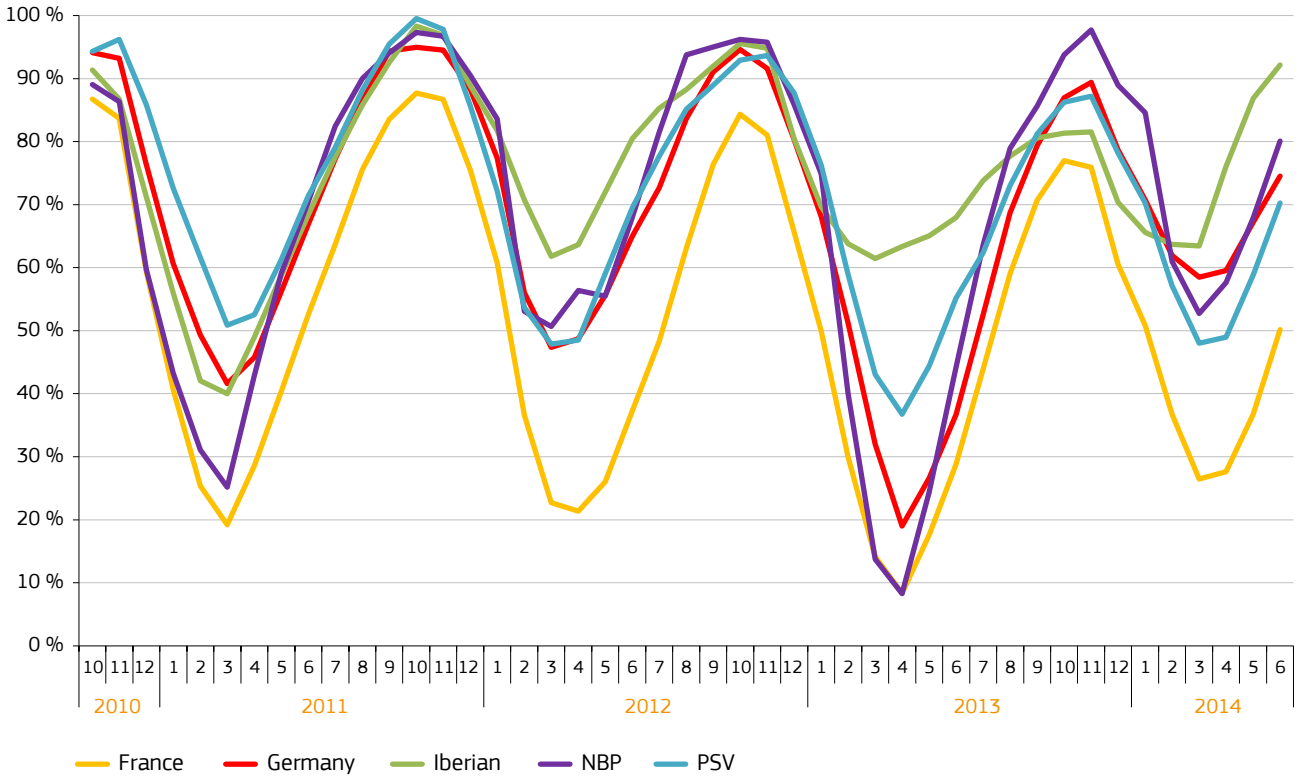
4. Gas Storage and heating degree days

- The mild weather in the first half of 2014 resulted in higher storage levels in comparison to previous years and allowed for the storage injection season to start earlier. At the end of June 2014, storage levels across the EU were 66% full.

- By the end of June 2014 the large majority of countries and regions reviewed had higher storage levels than at the end of June in any of the previous three years, in most cases above 65%. The exceptions are Hungary, Poland and Portugal, even though in the case of Poland and Portugal storage levels are at 69% and 73% at the end of June 2014. As of the end of June, Hungary's storage was full at around 33% or 2 bcm.

- In its 2014 summer outlook, the European transmission system operator for gas, ENTSOG, shows that the European gas network is sufficiently robust in most parts of Europe to enable planned maintenance in order to ensure infrastructure reliability in the long term, and stock levels of at least 90% ahead of the upcoming winter. The report also confirms the dependence of Central and Eastern Europe on Russian gas for both meeting gas demand and injection in storages, the dependence of the Iberian Peninsula and Southern France on LNG imports to achieve high stock level and the reliance of high stock level at the end of the season in Denmark and Sweden on the use of interruptible capacity from Germany.

FIGURE 11 – GAS STORAGE LEVELS AS % OF MAXIMUM GAS STORAGE CAPACITY

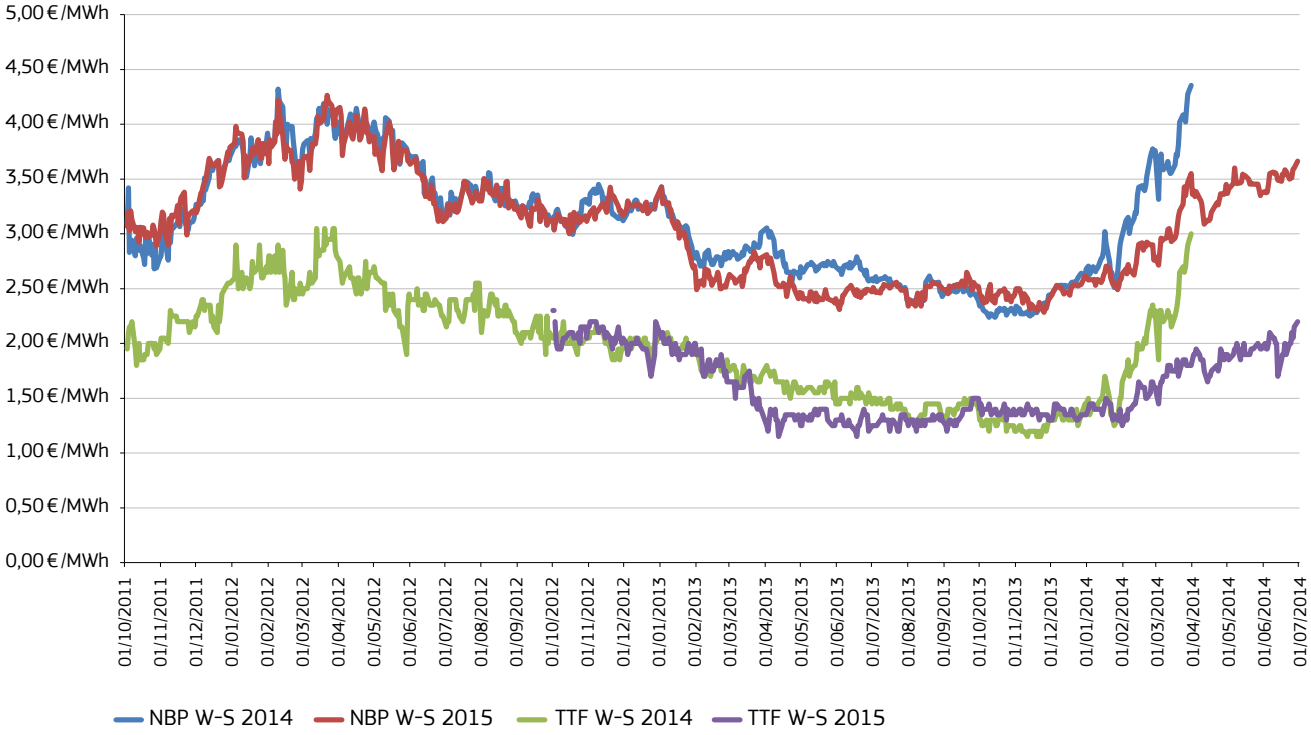


Source: Gas Storage Europe, Thomson-Reuters

- 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 as the market's perception of the value of storage does not necessarily account for security of supply benefits.

- Data on seasonal spread between winter and summer contracts on the major hubs, such as the NBP, TTF and Zeebrugge, shows that the seasonal spread fell over the course of 2013 but started going up in the first quarter of 2014 with the slump in summer 2014 gas prices.

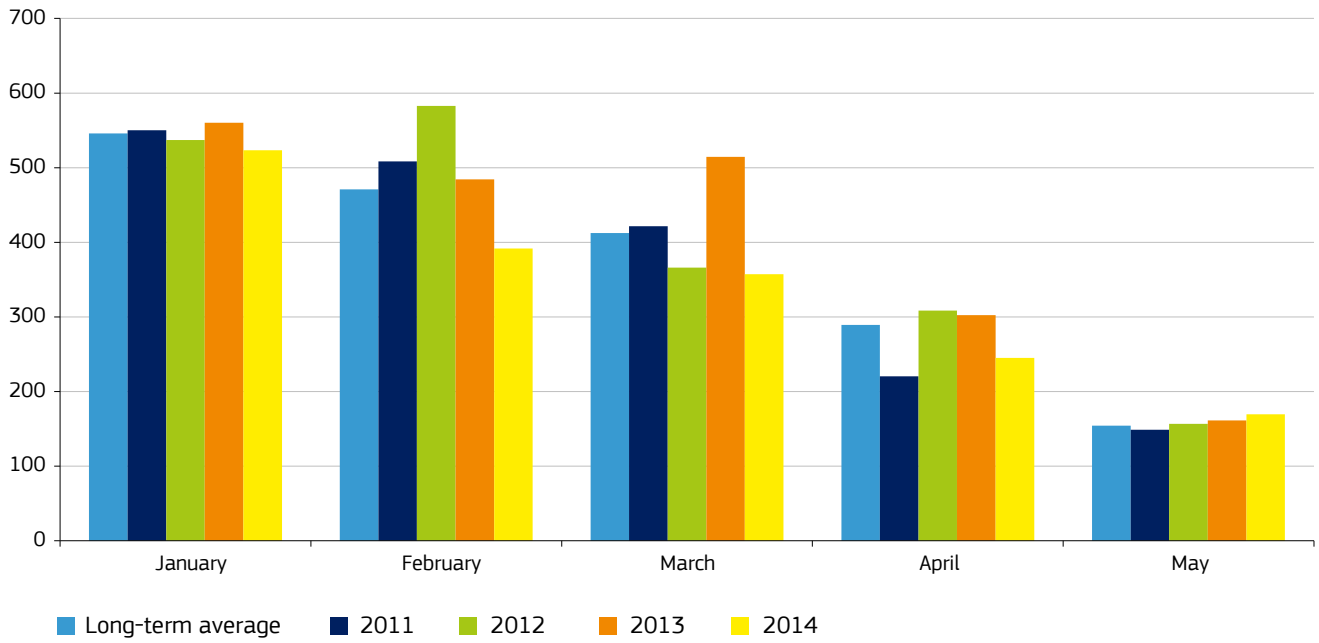
FIGURE 12 – WINTER-SUMMER SPREADS IN THE DUTCH AND BRITISH GAS HUBS



Source: Platts

- Weather is a major determinant of gas consumption. Warm weather played an important role in the subdued gas demand over the first five months of 2014. The number of heating degree days in the first three months was almost 17% below the number of heating degree days in the same period of 2013 and was also down in each month over the first quarter of 2014 compared to the value in any of the preceding three years and in comparison to the long-term average.

FIGURE 13 – HEATING DEGREE DAYS IN THE EU (HDDS)



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

5. Wholesale Gas prices

5.1 International comparisons

- Wholesale prices cover a wide range of gas price formation mechanisms. In liberalised and traded markets, the wholesale price would typically be the hub price, while in many countries where gas is imported, the border price is used as a proxy. Where gas is supplied from domestic production and with no international trading, often the wholesale price is approximated to the well-head or city-gate prices as generally the wholesale price is likely to be determined somewhere between the entry into the main high pressure transmission system and the exit points to the local distribution companies or very large users[18]. For this reason, comparisons of wholesale prices need to be treated with caution.

- 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. Interestingly, the price differential has gone down, in particular over the second quarter of 2014.

- Over the course of 2013 wholesale buyers on the UK's NBP – traditionally the lowest priced hub in the EU - paid around 3 times more than consumers on the Henry Hub in the US. Roughly the same ratio was observed between Henry Hub and the German border price. Prices on the Henry Hub started going up in December 2013 and exceeded 5 USD/mmbtu in February 2014, staying just below it in the following months.

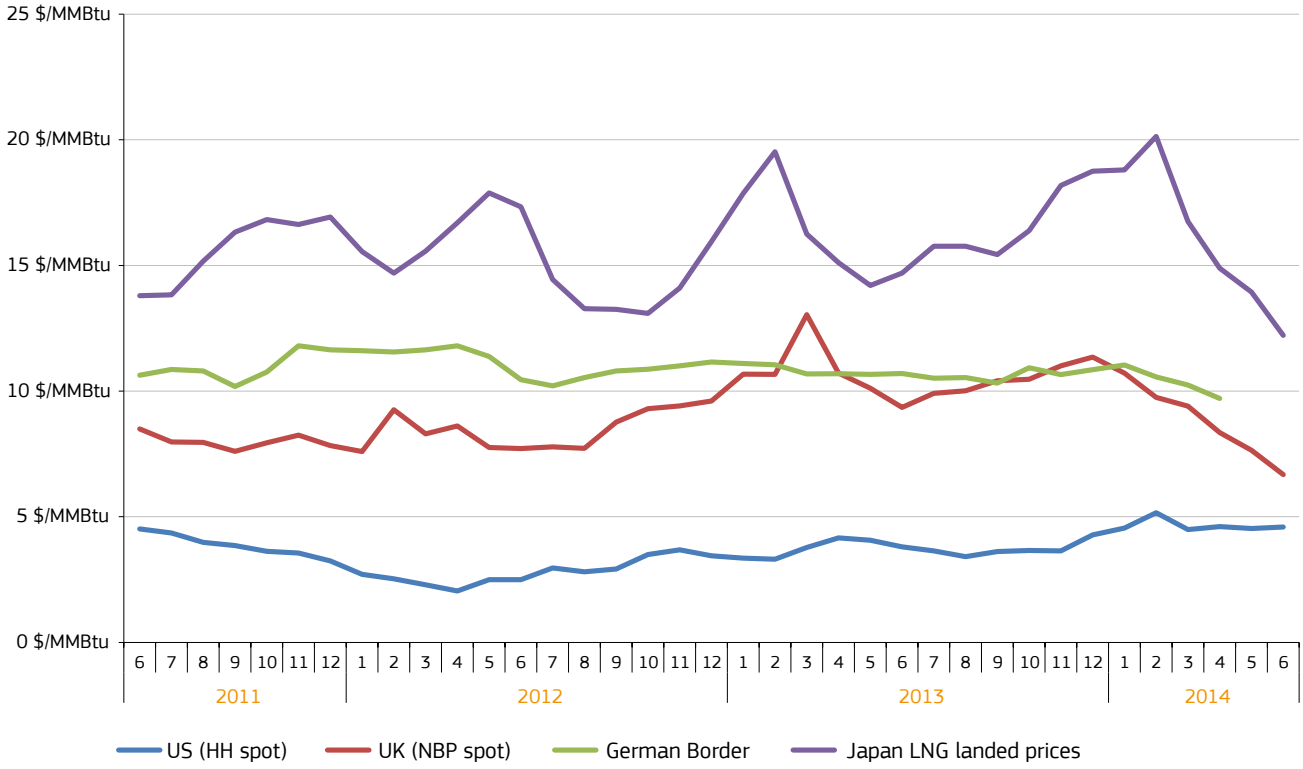
- As a result, the price differential between the US on the one hand and the UK and Germany on the other has been of the order of a factor of 2 since the beginning of 2014 – compared to a factor of 3-4 in the course of the previous two years.

- LNG prices in Japan reached 20 USD/mmbtu in February 2014, but have gone down by 40% since then, reaching low levels of around 12 USD/mmbtu, unseen since Fukushima. The wholesale gas price differential between the US and Asia has narrowed down from average of 4.5 times over the course of 2013 to 3.5 times in the first half of 2014, returning broadly to pre-Fukushima levels.

- Japan – the world's largest importer of LNG – is considering a return to nuclear power, albeit on a slower timeline than previously expected. This, along with a slowdown in Chinese growth, may put downward pressure on the price of LNG in East Asia.

18. International Gas Union. Wholesale Gas Price Survey 2014.

FIGURE 14 – INTERNATIONAL COMPARISON OF WHOLESALE GAS PRICES



Sources: Platts, Thomson Reuters, BAFA

- Looking at LNG prices in competing markets of the EU, Korea and Japan, one can observe a significant drop in the second quarter of 2014, to levels unseen in the last years. Indeed, on average in the second quarter of 2014 Spain and France paid 32% less for LNG than in the first quarter of the year, while the UK paid 26% less and Belgium 22%.

- While Korea and Japan continued to buy LNG at a premium to the rest of the world, in the second quarter of 2014 the gap between landed prices in these two markets and in European countries has decreased. Prices in Japan, Korea and China went down by a quarter in the second trimester of 2014 in comparison to the previous quarter, going below 12 USD/mmbtu in the second half of June 2014.

- In June 2014, the differential between the average landed price of Spain and the UK on the one hand and of Japan, Korea and China, on the other was at 3.7 USD/mmbtu, down from 4.5 USD/mmbtu in June 2013[19]. The IEA estimates that gas would stay in Europe if the Asian premium narrows down to 2.5 USD/mmbtu, which is close to the estimated shipping costs Europe-Asia.

- The IEA does not see the decline in Asian spot markets as permanent phenomenon because of a number of structural issues and short-term factors. The overwhelming majority of LNG trade in Asia is under long-term oil-indexed contracts at prices much higher than current reported spot prices. Gas markets around Asia Pacific are not sufficiently transparent or liquid. LNG storage is expensive and requires special equipment, which means that relatively small changes in the supply and demand balance can trigger broad swings in spot prices.

- Short-term factors that have contributed to the decline in Asian prices include weak growth of demand for power in Japan against robust growth of coal and renewables. This has led to stabilising gas import needs of Japan even in the absence of a nuclear restoration. Korea also experienced an unusually warm winter in 2013-2014. On the supply side, ExxonMobil's Papua New Guinea LNG project started ahead of schedule putting volumes on the spot market before its long-term exports contracts become operational.

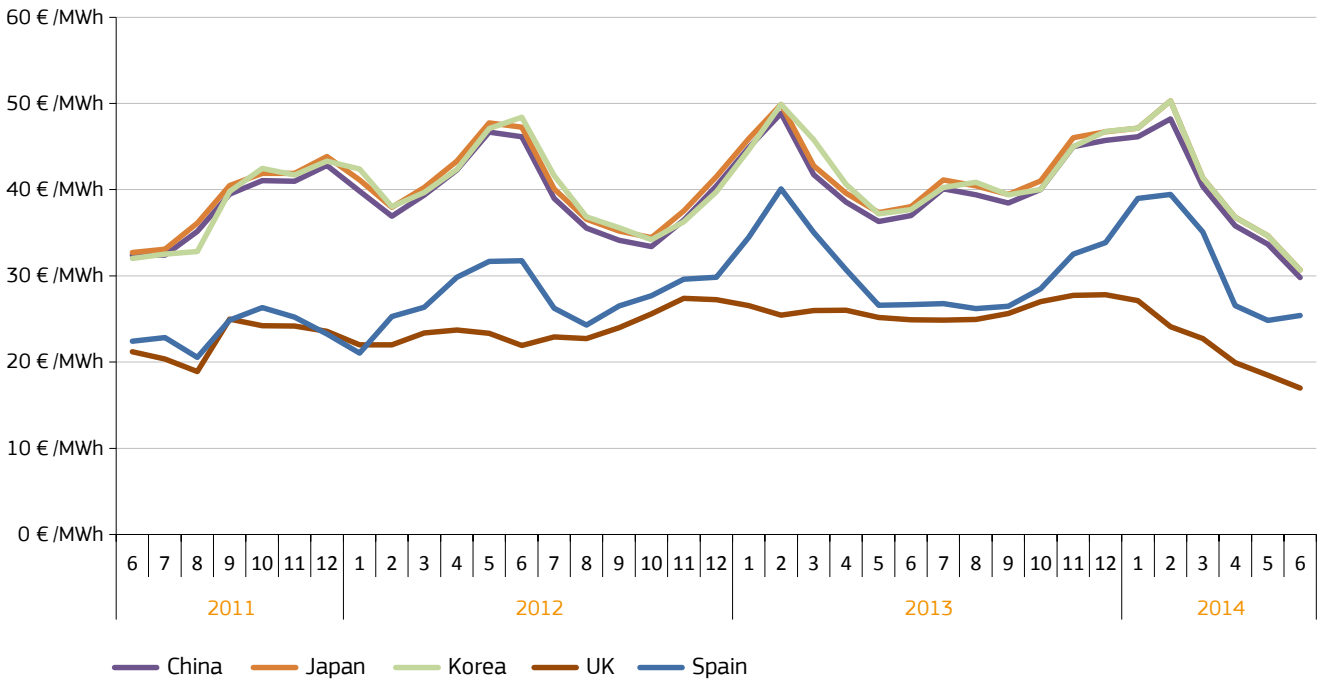
- As of June 2014, the Department of Energy in the US has granted eight approvals for exporting domestically produced LNG to non-FTA countries[20]. Whether US gas reaches the EU would depend on the difference between the price on the destination market and the US hub price, plus the liquefaction plant tolling fee, the LNG shipping cost and the destination market re-gasification fee. The OIES estimates the costs of transporting US LNG to Europe at 1.3 USD/mmbtu and to Asia at 3 USD/mmbtu[21].

19. Simple average, not weighted for volumes.

20. See http://energy.gov/sites/prod/files/2014/08/f18/Summary%20of%20LNG%20Export%20Applications.pdf

21. Henderson, J, 2012. The potential impact of North American LNG exports. Oxford Institute for Energy Studies, 2012, NG 68.

FIGURE 15 – LNG PRICES IN THE EU AND ASIA



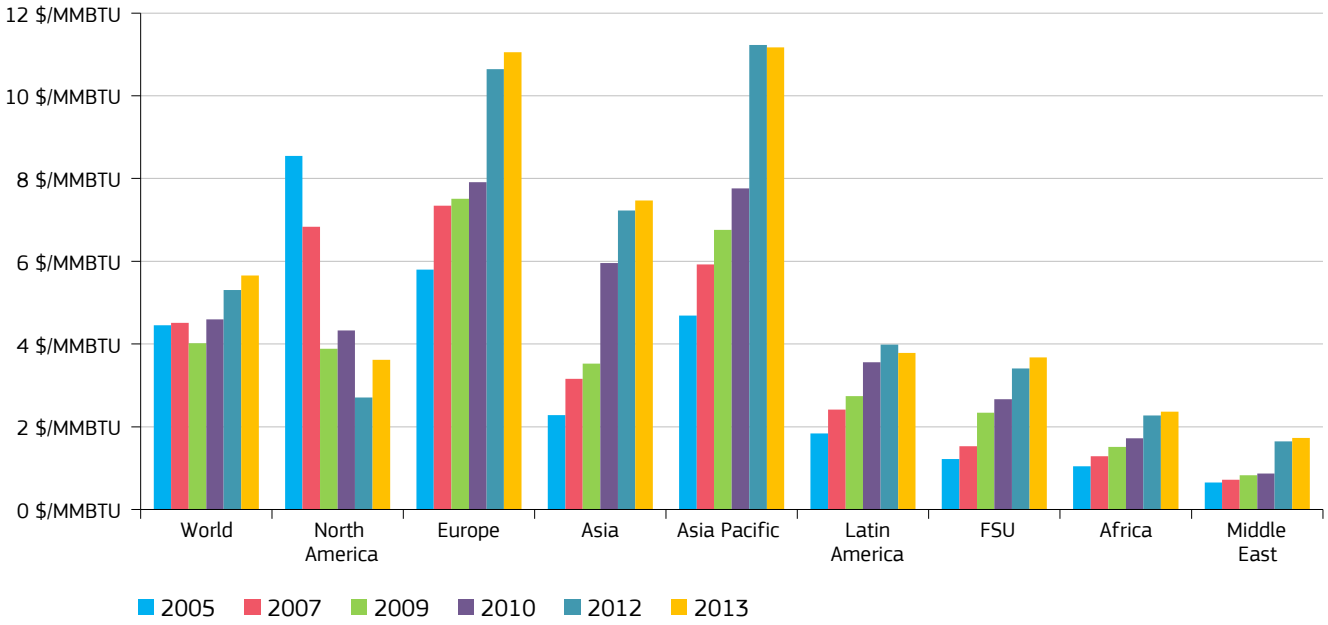
Note: Landed prices for LNG.

Source: Thomson-Reuters Waterborne

- The International Gas Union 2014 survey on wholesale price mechanisms confirms that since 2007 Asia Pacific and Europe have cemented their position as the world regions with the highest wholesale gas prices. It needs to be emphasised that the Asia Pacific region includes both large LNG importers such as Japan, South Korea and Taiwan, as well as producer countries such as Malaysia, Indonesia and Australia where gas is priced three to four times lower than in the importing countries of this regional grouping.

- In the case of North America, prices in 2013 were more than twice below their 2005 levels and despite having increased between 2012 and 2013, they remain below the levels in Asia, Latin America and the Former Soviet Union. Only the Middle East and Africa – where subsidies are often applied or prices are held down to or below the cost of production and transportation – have lower prices than North America.

FIGURE 16 – WHOLESALE PRICE LEVELS BY WORLD REGION: 2005-2013



Source: International Gas Union and Nexant 2014

Note: Asia refers to the India sub-continent plus China, while Asia Pacific refers to the rest of Asia plus Australasia. Asia Pacific includes big LNG importers (Japan, South Korea, Taiwan), along with producer countries such as Malaysia, Indonesia and Australia where gas is priced three-four times lower than in the importing countries of this regional grouping. Europe includes the EU, Turkey, Norway, Switzerland, Bosnia, FYROM and Serbia. North America includes Mexico

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

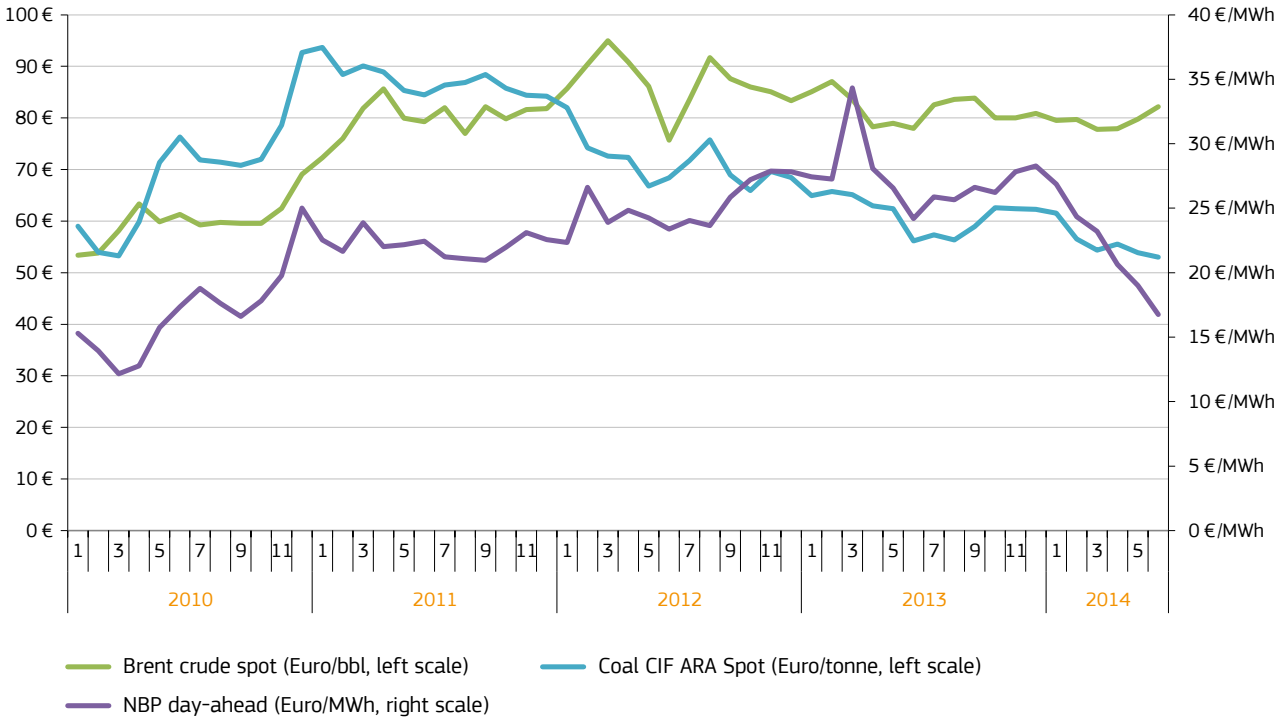
- As highlighted in recent issues, the different price dynamics between the various energy commodities that prevailed over most of 2012 and 2013 have been important in defining demand. EU coal demand and imports have been sustained as prices for the commodity have been falling. In contrast, demand for natural gas has been falling as prices have been rising.

- Over the course of 2012 and 2013, there was a clear decoupling between coal prices on the one hand and oil and gas prices on the other. Over 2012, the price of gas on the NBP went up more steeply than the price of Brent oil (+14% and +9%, respectively, in 2012 in comparison to 2011), whereas the price of coal went down by almost a fifth in the same period. In 2013, a similar trend was observed with the NBP average annual day-ahead price up by 9% in comparison to 2012[22], compared to falls in the prices of Brent and in ARA coal over the same period (-6% and -14% compared to 2012).

- In contrast, in the first half of 2014, NBP day-ahead prices went down by 17% compared to the preceding six months. At the same time the drop in Brent and ARA coal was -2% and –6%, respectively.

22. This increase is at +6% if the March 2013 price spike is excluded.

FIGURE 17 – SPOT PRICES OF OIL, COAL AND GAS IN THE EU



Source: Platts

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 2009 until the end of June 2014. In the last 2.5 years there has been a remarkable convergence in the day-ahead price on European gas hubs. The difference between the highest and the lowest priced hub has gone down from an average of more than 6 Euro/MWh over the course of 2009-2011 to around 4 Euro/MWh over the course of 2012 and 2013[23].

- In the first half of 2014 the price difference between the lowest and the highest priced hub was above 4 Euro/MWh, but excluding the French PEG Sud hub this differential was at a modest 1.7 Euro/MWh and indeed around only 1 Euro/MWh over the first quarter of 2014. The pace of price convergence is the success story of an integrated European gas market. Improving transport capacity access has allowed price signals from larger and more liquid hubs in Northwest Europe to increasingly be transmitted to hubs in Southern Europe.

- The French PEG Sud hub remains an exception to this convergence. While the PEG Nord hub in France is well connected to Northwest Europe and prices have converged as a result, PEG Sud does not follow. This is due to a combination of factors such as constraints on the North-South link within France, flows through the French-Spanish border and LNG import flows (the south of France relies more heavily on LNG than the north).

- Apart from the stable convergence, day-ahead gas prices on European hubs have fallen to 16-17 Euro/MWh, mostly down by about a third from their values in January 2014 in all hubs and down 8-10 Euro/MWh between January and June 2014.

- Part of the reason for this development is the weaker than usual demand for storage injection – that typically supports summer prices – after a mild winter and spring across Europe. In addition, market analysts also point to the linkage between Asian LNG prices and European hub prices. Weak Asian LNG demand over the second quarter of 2014 and falling spot prices have resulted in an increase in LNG flow into European hubs. This has been partly due to a decline in the diversion of European supply given low Asian spot price levels and partly due to the fact that LNG flow is relatively price insensitive in times of low prices due to limited production flexibility[24].

23. During the cold snap in March 2013 the difference between the highest and the lowest day-ahead price went above 6 Euro/MWh. With the end of the cold snap – and of the first quarter – day-ahead prices on European gas hubs started converging again.

24. Timera Energy. Gas hub pricing in a state of flux, July 2014.

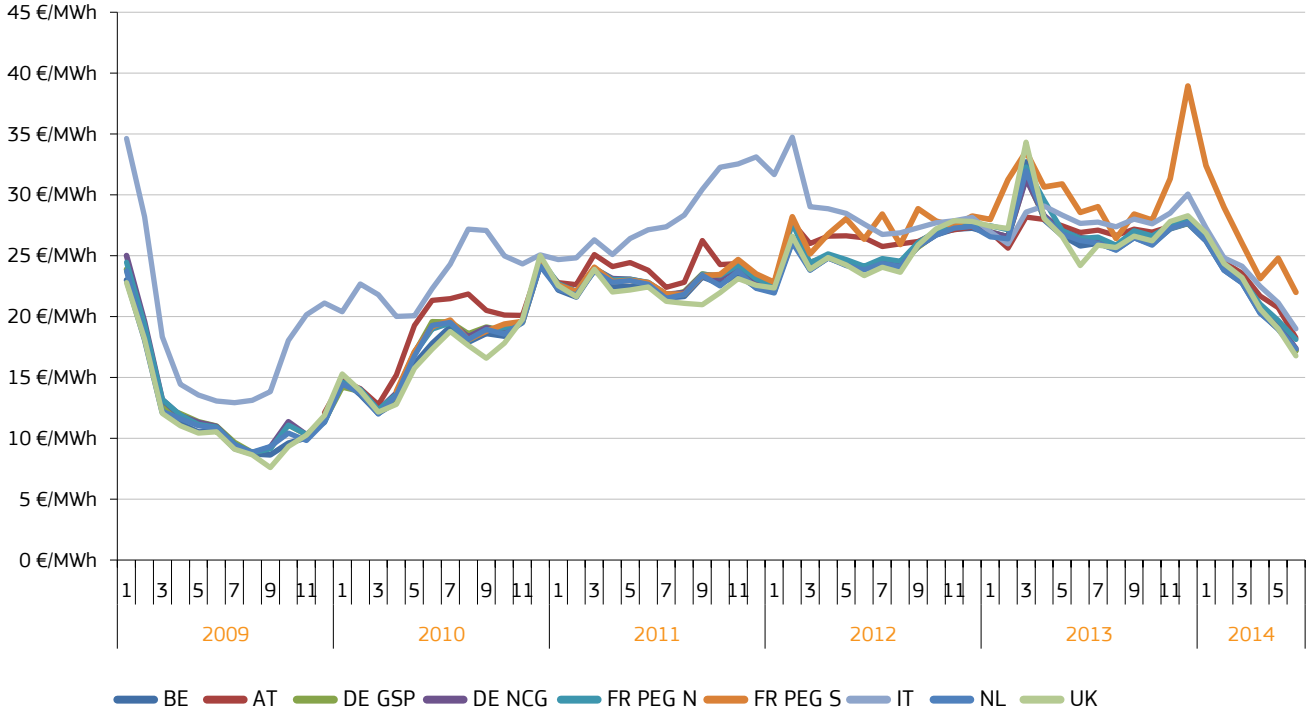
- In previous issues of the quarterly reports on European electricity and gas markets we have been monitoring the impact of declining coal prices along with weak carbon prices and rising gas prices on the competitive advantage of coal over gas-fired power generation – measured by developments of clean dark spreads and clean spark spreads – in the UK and Germany (see the quarterly reports on European electricity markets in the first two quarters of 2013 and over 2012).

- The second quarter of 2014 brought a change in the UK, where clean spark spreads - measuring the profitability of gas-fired generation - almost tripled in comparison to the first quarter of 2014 (from around 3.2 Euro/MWh to 8.7 Euro/MWh in the second quarter). At the same time clean dark spreads, measuring the profitability of coal-fired generation, have fallen by almost a third in the same period (down from around 27 Euro/MWh to 21 Euro/MWh in the UK). In other words, the gas price drop in the first half of 2014 has been eroding the competitive advantage of coal fired generation over gas in the UK.

- The improvement of clean spark spreads has not been so pronounced elsewhere: for example, in Germany, the Netherlands and Belgium clean spark spreads have barely moved towards positive values. The latest issue of the Quarterly Report on European Electricity Markets provides further analysis of regional markets.

- Factors that underpin the larger rebound of UK gas-fired plant profitability and the fact that UK combined cycle gas turbines (CCGTs) are systematically more profitable than their continent peers include the lower price of gas on the UK gas hub, a relatively higher price for power in the UK linked to tighter supply and demand conditions, as well as the doubling as of 1 April 2014 of the Carbon Price Support[25].

FIGURE 18 – WHOLESALE DAY-AHEAD GAS PRICES ON GAS HUBS IN THE EU



Source: Platts

- As a rule, the hub prices give a fair representation of the supply and demand conditions in different trading areas. Market participants are using the available trading opportunities to make sure prices are aligned. As shown in Table 2, the operation of the gas markets improved significantly in the last couple of years, as demonstrated by the decrease of flow against price differential (FAPD) events[26] that measure irrational adverse flows.

25. Further details at https://www.gov.uk/government/publications/carbon-price-floor-reform

26. Flow against price differentials (FAPDs): By combining daily price and flow data, Flow Against Price Differentials (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 natural gas systems. With the closure of the day-ahead markets (D-1), the price for delivering gas in a given hub on day D is known by market participants. Based on price information for adjacent areas, market participants can establish price differentials. Later in D-1, market participants also nominate commercial schedules for day D.

An event labelled as an FAPD occurs when commercial nominations for cross border capacities are such that gas is set to flow from a higher price area to a lower price area. The FAPD event is defined by the minimum threshold of price difference under which no FAPD is recorded. The minimum threshold for gas is set at 0.5 €/MWh.

After the day ahead market closes, market participants still have the opportunity to level off their positions on the balancing market. That is why a high level of FAPD does not necessarily equate to irrational behaviour. In addition, it should be noted that close-to real time transactions represent only a fractional amount of the total trade on gas contracts.

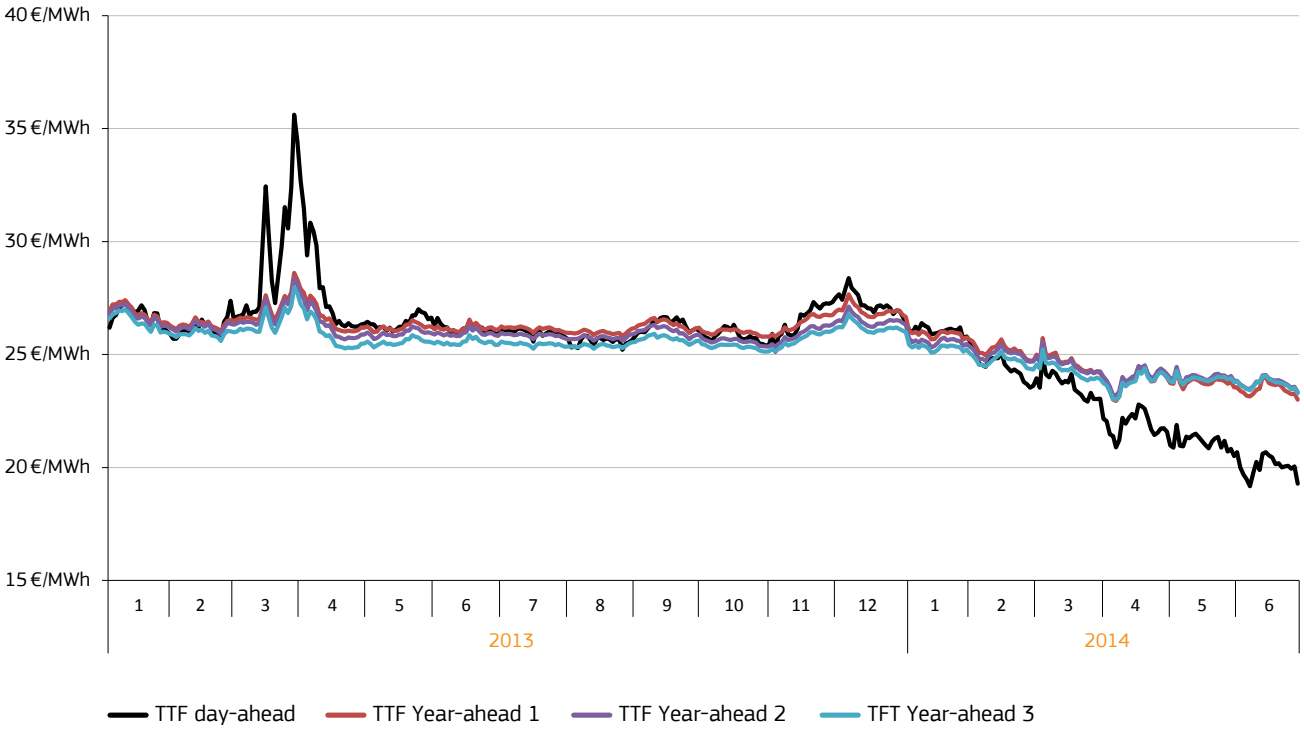
TABLE 2 – FLOW AGAINST PRICE DIFFERENTIAL (FAPD) EVENTS BY SELECTED ADJACENT AREAS

	2011	2012	2013
# observations / year	251	248	251
BE-NL	25	6	13
BE-UK	4	17	7
NL-UK	83	28	28
FR PEG Nord – FR PEG Sud	2	1	0
AT-IT	0	0	0
AT-DE	133	112	6
Average FAPD events selected	**41**	**27**	**9**

Sources. (1) Price data: Platts; (2) Flow nomination data: Fluxys, BBL, ENTSO-G TP. Calculations of the European Commission.

- Figure 19 looks at the development of forward prices one, two and three years ahead in comparison to the developments of day-ahead prices on the Dutch TTF. As can be seen, contracts exhibit a slight contango, whereby closer to maturity contracts have a lower price than the contract which is longer to maturity on the forward curve. This may signal the expectations of market participants that the current slump in spot prices will be temporary rather than structural.

FIGURE 19 – 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

- According to IGU, gas-on-gas competition refers to a situation whereby the price is determined by the interplay of demand and supply for gas and is traded over a variety of different periods (daily, monthly, annually, etc). Trading can take place at physical hubs (such as Henry Hub in the US) or notional hubs (such as the National Balancing Point in the UK) and futures markets develop (e.g. ICE or NYMEX). IGU includes in this category spot LNG and bilateral agreements in markets where there are multiple buyers and sellers.

- In the period 2005-2013 wholesale price formation in Europe has been continuously moving away from oil-escalation (oil-indexation) to gas-on-gas competition and as of 2013 gas-on-gas competition accounted for 53% of total gas consumption in Europe[27]. This general trend reflects multiple factors, including the replacement of imports of natural gas volumes under oil-indexed contracts by imports of spot gas and growing volumes traded at hubs, as well as renegotiations of the terms of contracts to include hub/spot price indexation (sometimes fully indexed to spot prices) and reduction of take-or-pay levels.

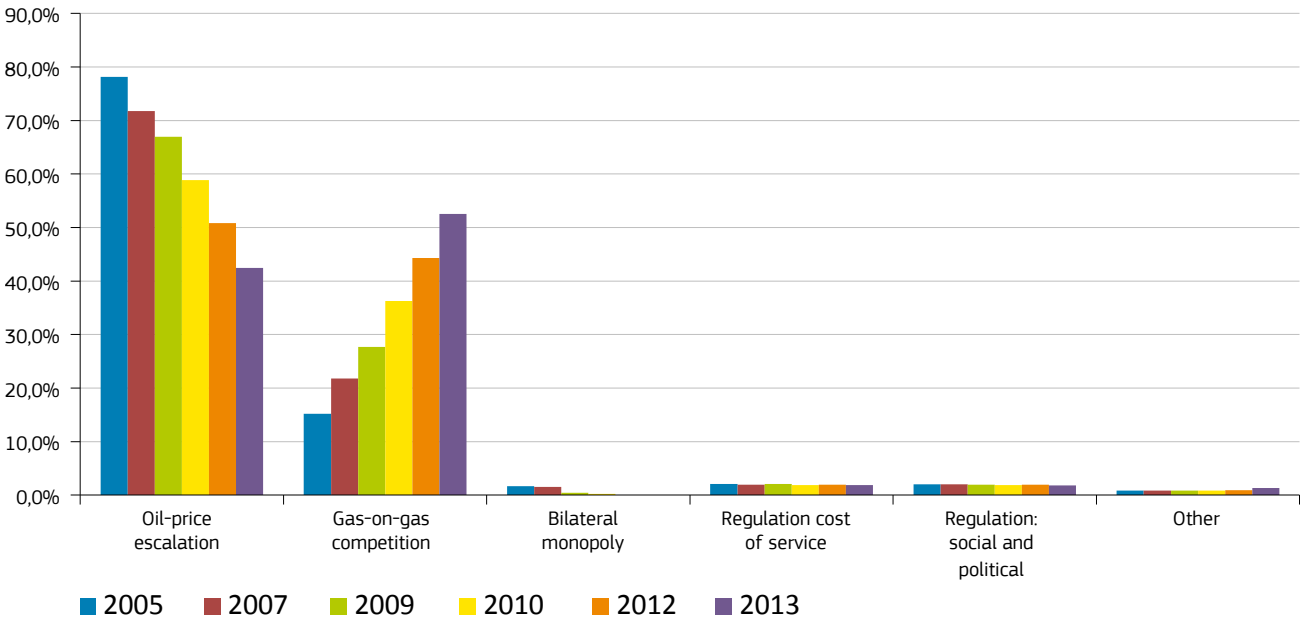
- At the same time, it needs to be emphasised that the move towards gas-on-gas competition is not universal across Europe. Analysis of the International Gas Union (IGU)[28] shows that in North-West Europe[29] gas-on-gas competition accounted for about 80% of consumption in 2013. Central Europe[30] also recently experienced a move towards gas-on-gas competition which accounted for about 50% of consumption in 2013 mainly due to increased volumes of spot gas, often from Germany and with some elements of contract negotiation. In contrast, the Mediterranean[31] is still dominated by oil-indexed contracts (85% of consumption in 2013), with gas-on-gas competition only in the form of spot LNG cargos, and a change in pricing of domestic production in Italy. There is no gas-on-gas competition in Southeast Europe[32].

- With oil-linked long term contract prices becoming increasingly uncompetitive and European utilities, exposed to competition from hubs, losing significant amounts of money, a number of re-negotiations have already taken place[33]. Statoil and Gasterra have been adapting to hub pricing in Northwest European markets (even with a Statoil-Eni arbitration that commenced in August 2013). According to OIES, Sonatrach of Algeria is believed to have made few concessions and is in arbitration with many of its customers[34].

- The Italian Eni secured new contract terms with Gazprom in May 2014, including what was described by Eni as an important change in the price indexation to fully align it with the market. EON and the Polskie Gornictwo Naftowe i Gazownictwo withdrew their arbitration cases against Gazprom when settling price disputes in 2012 while the court proceedings were completed in 2013 with RWE as the tribunal ordered reimbursement for past payments and a spot-price link in the supply formula. Milan-based Edison expects its arbitrations with Gazprom and Eni to be completed in a few months, while GDF Suez plans to renegotiate a supply contract with Gazprom next year[35].

27. In the survey by the International Gas Union and Nexant Europe refers to....
28. International Gas Union. Wholesale Gas Prices Survey 2014. A Global Review of Price Formation Mechanisms 2005 to 2013.
29. Belgium, Denmark, France, Germany, Ireland, Netherlands, the UK
30. Austria, Czech Republic, Hungary, Poland, Slovakia, Switzerland
31. Greece, Italy, Portugal, Spain, Turkey
32. Bosnia, Bulgaria, Croatia, FYROM, Romania, Serbia, Slovenia.
33. See chapter 5.4 of the quarterly report on European gas markets, volume 6, issue 2, second quarter of 2013.
34. Rogers, H. and Stern, J. 2014. Challenges to JCC Pricing in Asian LNG Markets. Oxford Institute for Energy Studies (OIES) paper 81 of February 2014.
35. Bloomberg, GDF Suez to Review Gazprom Gas Contract in Market Push, 4 June 2014.

FIGURE 20 – WHOLESALE PRICE FORMATION MECHANISMS IN EUROPE: 2005-2013



Source: International Gas Union and Nexant 2014. Note: IGU defines domestic production in Romania as regulation cost of service (around 10 bcm) and domestic production in Poland, Hungary, Croatia and Bulgaria as regulation social and political (below 10 bcm). The category 'other' includes some 6.5 bcm gas used in enhanced oil recovery and refineries in Norway.

- A comparison of different contracts of natural gas prices shows a great deal of variation in levels and, in some cases, in dynamics. Over the course of 2013 prices of most of the contracts that we report or estimate went down in comparison to 2012, including the German border price and Algerian pipeline gas to Spain (-6% each), Algerian gas to Italy (-2%), Russian gas to the Czech republic, Bulgaria and Lithuania (-13%, -9% and -3%, respectively).

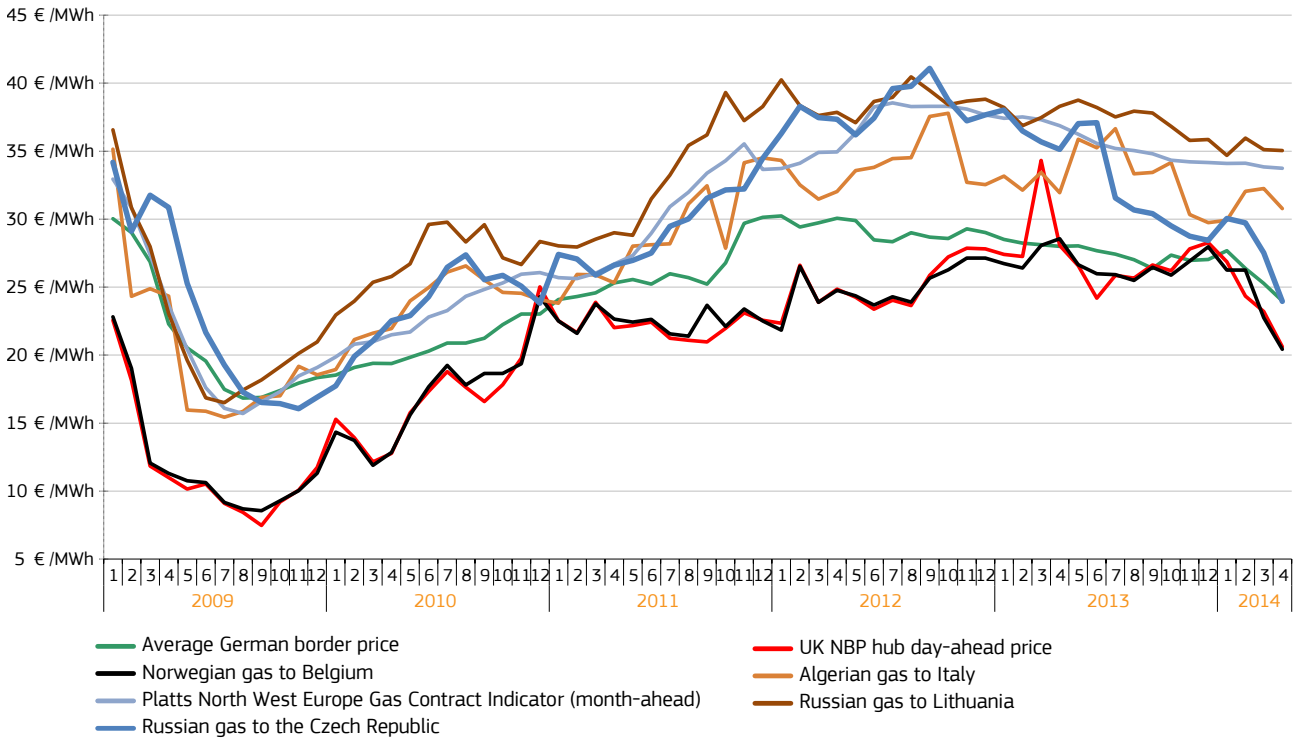
- The convergence between the German border price and spot prices on the NBP - which traditionally are the lowest in Europe – continued in 2013. Indeed, for five months of the year German border prices were at levels below NBP day-ahead average prices, including at the time of the price spike in March 2013, but also in April, September, November and December.

- The German border price and level of theoretical pure oil-indexed price for gas (Platts North-West Europe Gas Indicator in the figure below) were increasingly diverging, with the gap going up from an average of 7.5 Euro/MWh over 2012 to 8.2 Euro/MWh in 2013 and remaining at similar levels over the first four months of 2014. This seems to confirm the results of a recent study by the Germany association of energy consumers (VEA) that over the past six months the price of gas delivered under supply contracts dropped by 2.6%, with the gap between the most expensive and the cheapest contract remaining rather high at 5.1 Euro/MWh or 16.7%[36].

- Over the first four months of 2014 there was an increasing divergence between on the one hand the level of theoretical pure oil-indexed price for gas (approximately 33.95€/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 that are now significantly below the theoretical pure oil-indexed contract. In contrast, our estimates of the border prices for Lithuania remain slightly above the theoretical pure oil-indexed price.

36. The association compared 15 supply contracts with a runtime of 12 months, starting from 1 April 2014. The study focussed on relatively high-priced all-inclusive packages, which contain the price of transport and a service charge. Study quoted in ICIS Heren. European Gas Markets 2108.

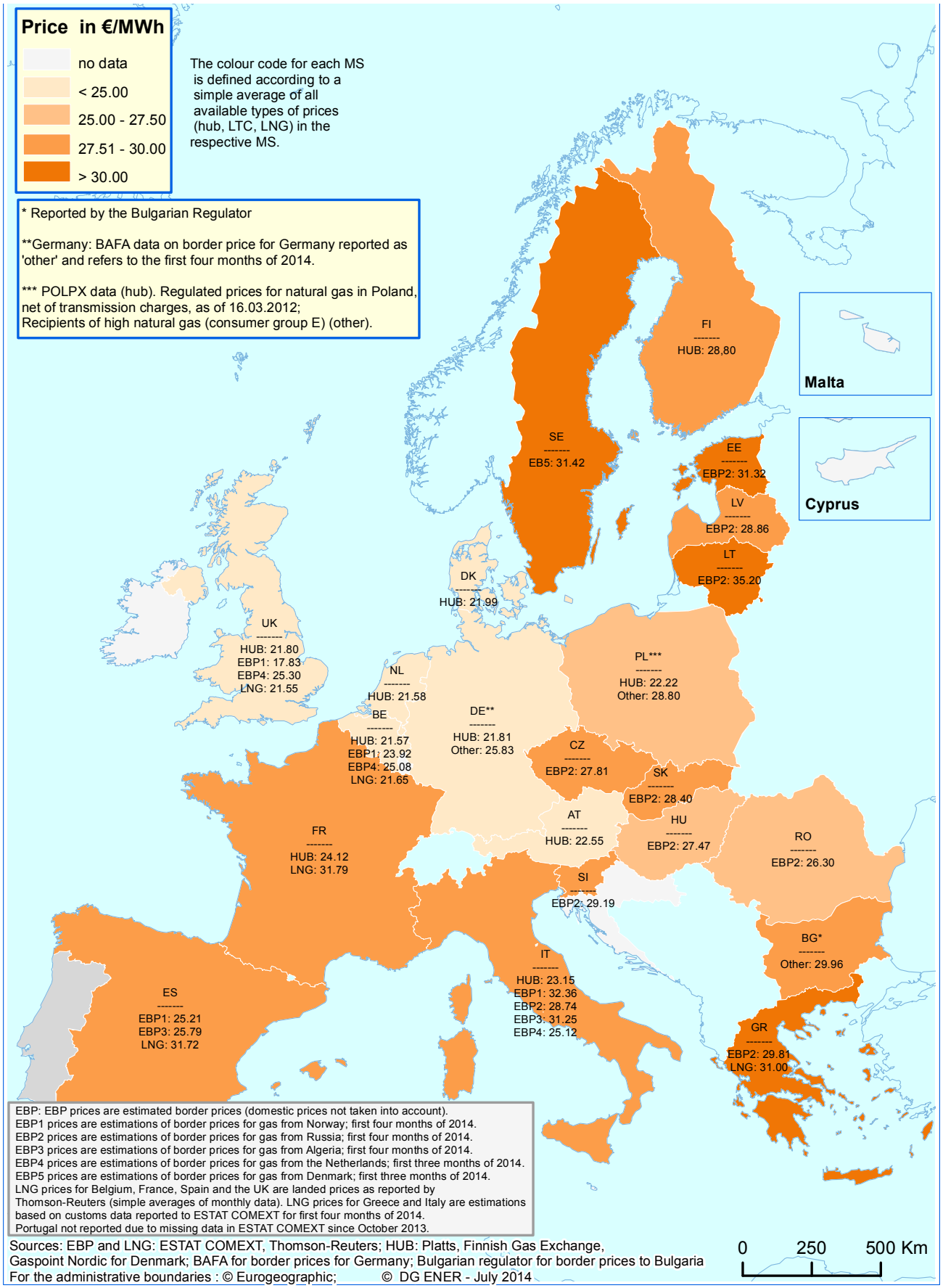
FIGURE 21 – . COMPARISON OF EU WHOLESALE GAS PRICE ESTIMATIONS



Source: Eurostat COMEXT and European Commission estimations, BAFA, Platts, Bulgarian regulator (prices until end of 2013, European Commission estimates for Bulgaria for the first four months of 2014)

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.

FIGURE 22 – COMPARISON OF EU WHOLESALE GAS PRICES DURING THE FIRST HALF OF 2014



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.

6. Retail gas prices in the EU

- A comparison of retail gas prices across the EU shows that significant differences persist, 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). This is illustrated in Figures 23 and 24 and in the maps at the end of this chapter.

- While the ratio of lowest-to-highest gas retail prices in the EU remains significant – around 4 in the case of households and around 2 in the case of industry[37] – the gap between the highest and the lowest prices paid across the EU has indeed decreased over the course of 2013, after peaking in 2012. Generally the gap between the highest-priced and the lowest priced country is largest in the smallest consumption bands.

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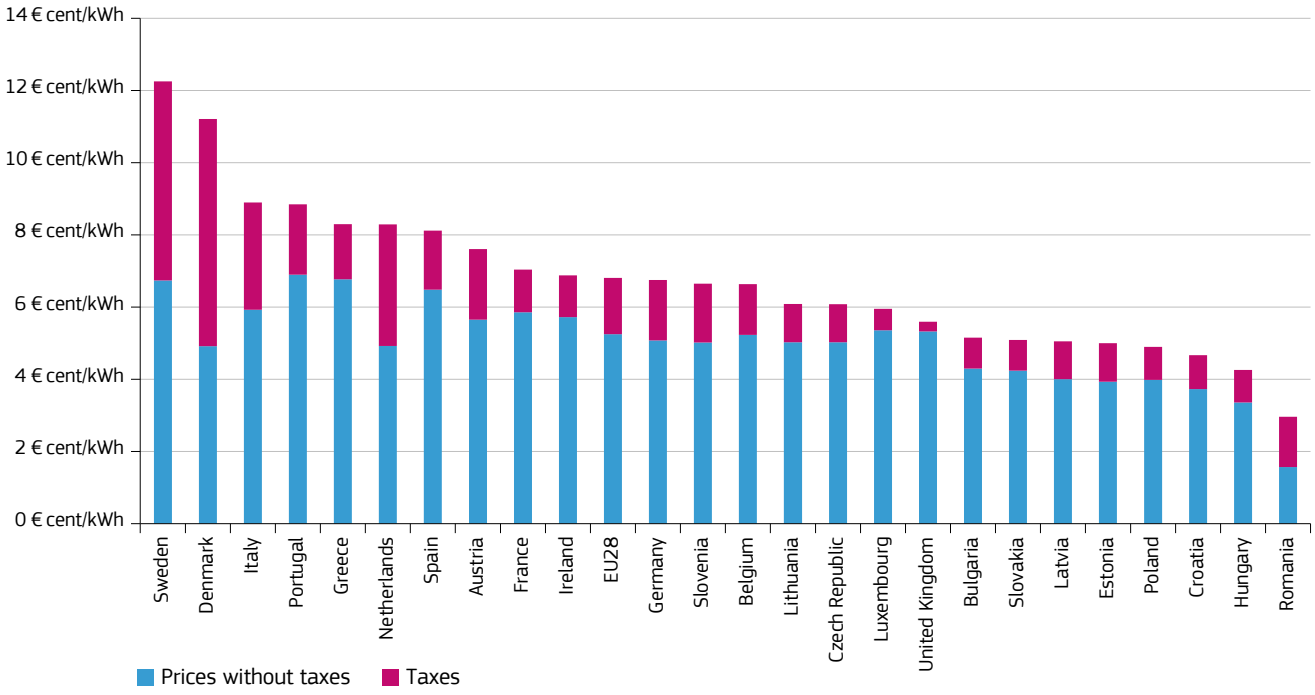
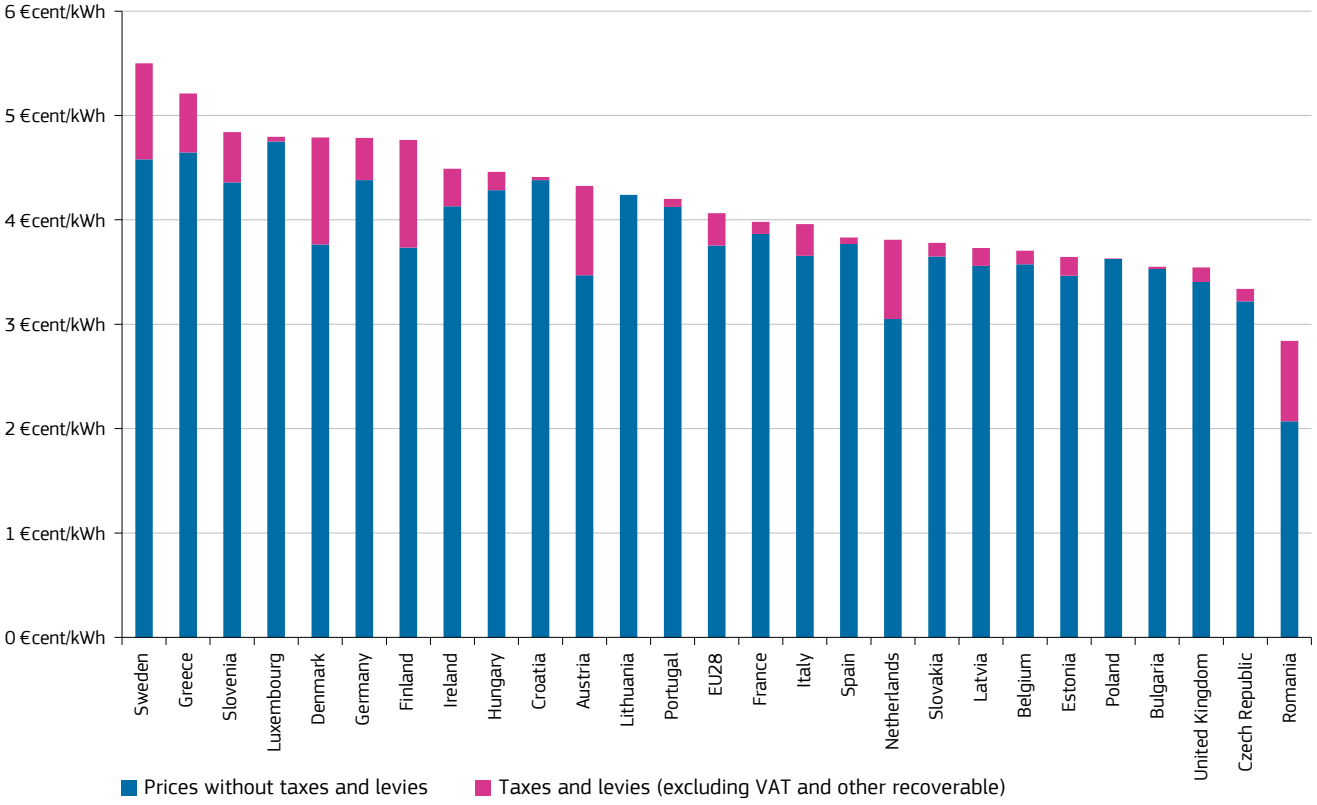
FIGURE 23 – RETAIL GAS PRICES IN THE EU MEMBER STATES FOR HOUSEHOLDS (ALL TAXES INCLUDED), AVERAGE FOR 2013



Source: Eurostat, consumption band D2: 5.56 MWh < Consumption < 55.6 MWh

37. All taxes included in the case of households, excluding VAT and other recoverable taxes and levies in the case of industry. The ratio highest-to-lowest retail price in the EU changes across consumption bands – in the second half of 2013 it was between 3.7 and 5.4 in the case of households and between 1.89 and 2.85 in the case of industry (excluding the largest consumption band I6, where very few Member States report).

FIGURE 24 – RETAIL GAS PRICES IN EU MEMBER STATES FOR INDUSTRIAL USERS (EXCLUDING VAT AND OTHER RECOVERABLE TAXES), AVERAGE FOR 2013



Source: Eurostat, Consumption band I3: 2.778 GWh < Consumption < 27.778 GWh

- Across the EU as a whole, retail gas prices for households increased by 3% between 2012 and 2013[38]. Households in 10 Member States paid less for gas in 2013 than they did in 2012[39], with the fall varying between -1% (Slovakia) and more than -10% (Slovakia, Hungary and Greece[40]). Households in 13 Member States paid more for gas in 2013 than the previous year[41] with the increase ranging from +2% in the UK, Luxembourg, Italy and Denmark to +11% in Portugal. Household retail prices in Sweden and Austria remained roughly unchanged.

- Looking at industrial retail prices, industrial gas prices went up by 8% between 2012 and 2013[42]. Retail gas prices in 11 Member States decreased in this period – between -1% in Croatia and -14% in Slovenia[43]. Industries in 12 Member States paid more for gas in 2013 than in 2012[44] – between +1% in Denmark, France and Sweden and +26% in Germany. Industrial retail prices in Finland, Estonia and Austria remained roughly unchanged.

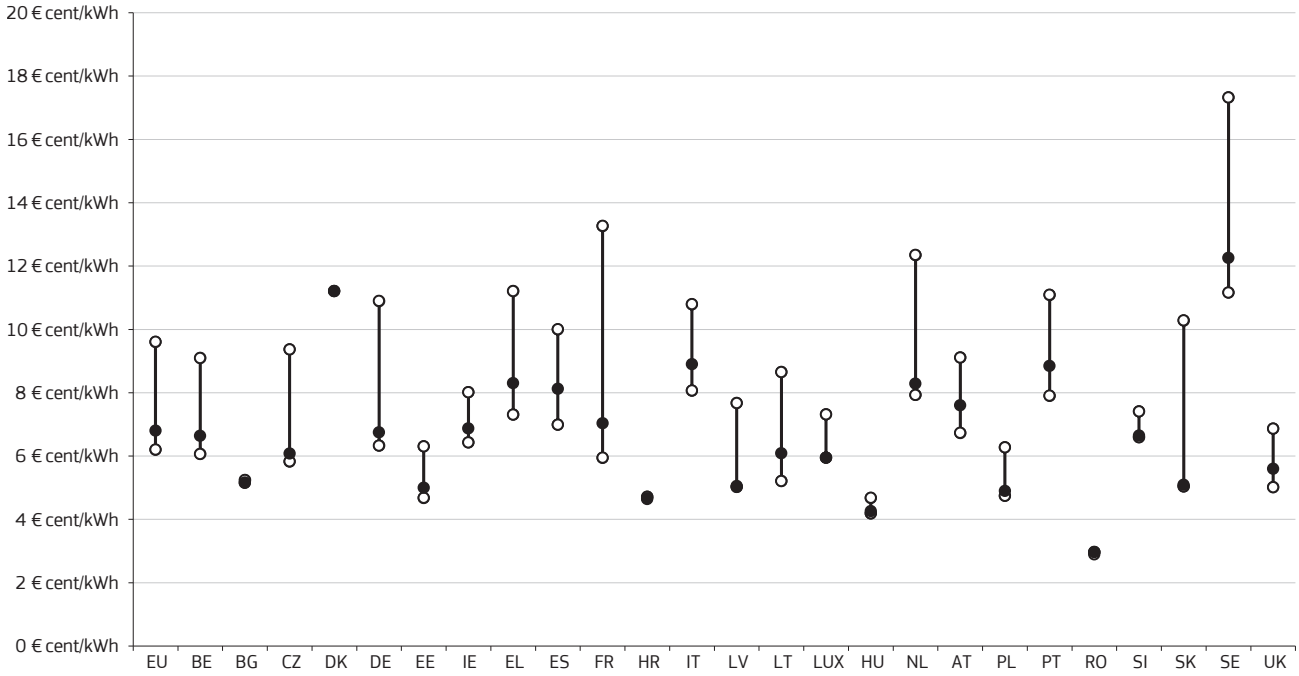
- Furthermore, in almost all Member States, there are significant differences in the range of retail prices paid by household and industrial consumers in different consumption bands. Figure 25 below shows the range of retail prices (including all taxes) reported for the three household consumption bands 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 France, Sweden, Slovakia, Germany and the Netherlands. 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.

- In the case of industrial consumers, the ranges in retail prices (excluding VAT and other recoverable taxes) are much more uniform across Member States (Figure 26). The largest differences in the prices paid by industrial consumers with different annual consumption occur in Denmark, Portugal, the Netherlands, Italy and France. In Figure 26 below, 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, Croatia, and Romania) – is in the lower part of the highest-to-lowest range.

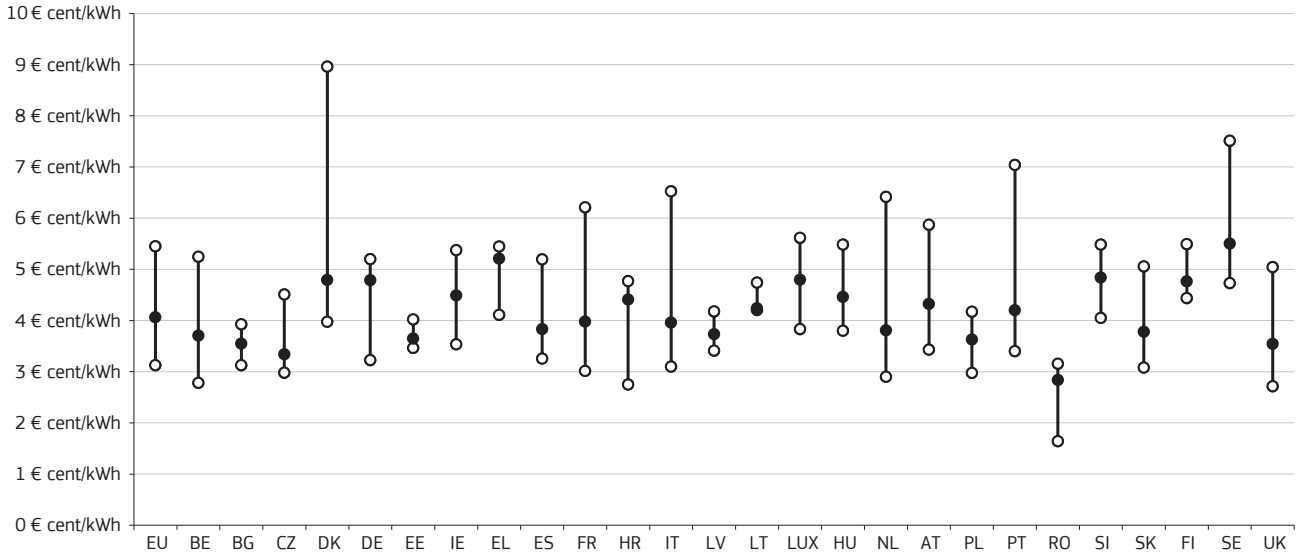
38. Consumption band D2, all taxes included, annual prices calculated as a simple average between the two semi-annual data points. Eurostat as of 28 August 2014.
39. Belgium, Bulgaria, Czech republic, Estonia, Greece, Latvia, Hungary, Poland, Slovenia and Slovakia.
40. Greece only reports gas prices since the second half of 2012.
41. Denmark, Germany, Ireland, Spain, France, Croatia, Italy, Lithuania, Luxembourg, Netherlands, Portugal, Romania and the UK.
42. Consumption band I3, VAT and other recoverable taxes excluded, annual prices calculated as a simple average between the two semi-annual data points. Eurostat as of 28 August 2014.
43. Bulgaria, Czech republic, Greece, Croatia, Italy, Latvia, Lithuania, Luxembourg, Hungary, Slovenia and Slovakia.
44. Belgium, Denmark, Germany, Ireland, Spain, France, Netherlands, Poland, Portugal, Romania, Sweden, and the UK

FIGURE 25 – GAS PRICE RANGES IN EU MEMBER STATES FOR HOUSEHOLDS (ALL TAXES INCLUDED), AVERAGE FOR 2013

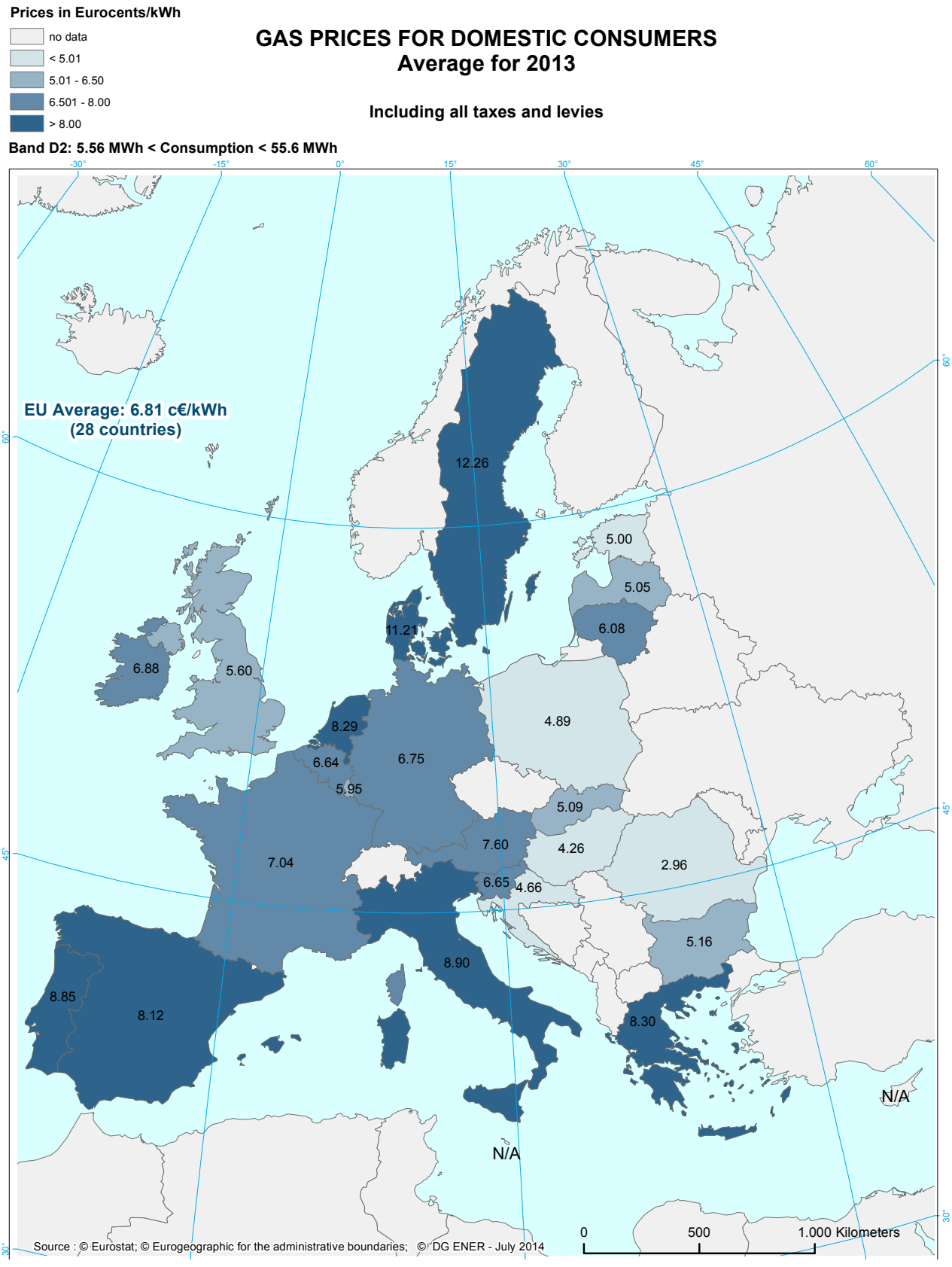


The black dot denotes the retail price in consumption band D2.
Source: Eurostat.
Band D1 : Consumption < 20 GJ
Band D2 : 20 GJ < Consumption < 200 GJ
Band D3 : Consumption > 200 GJ

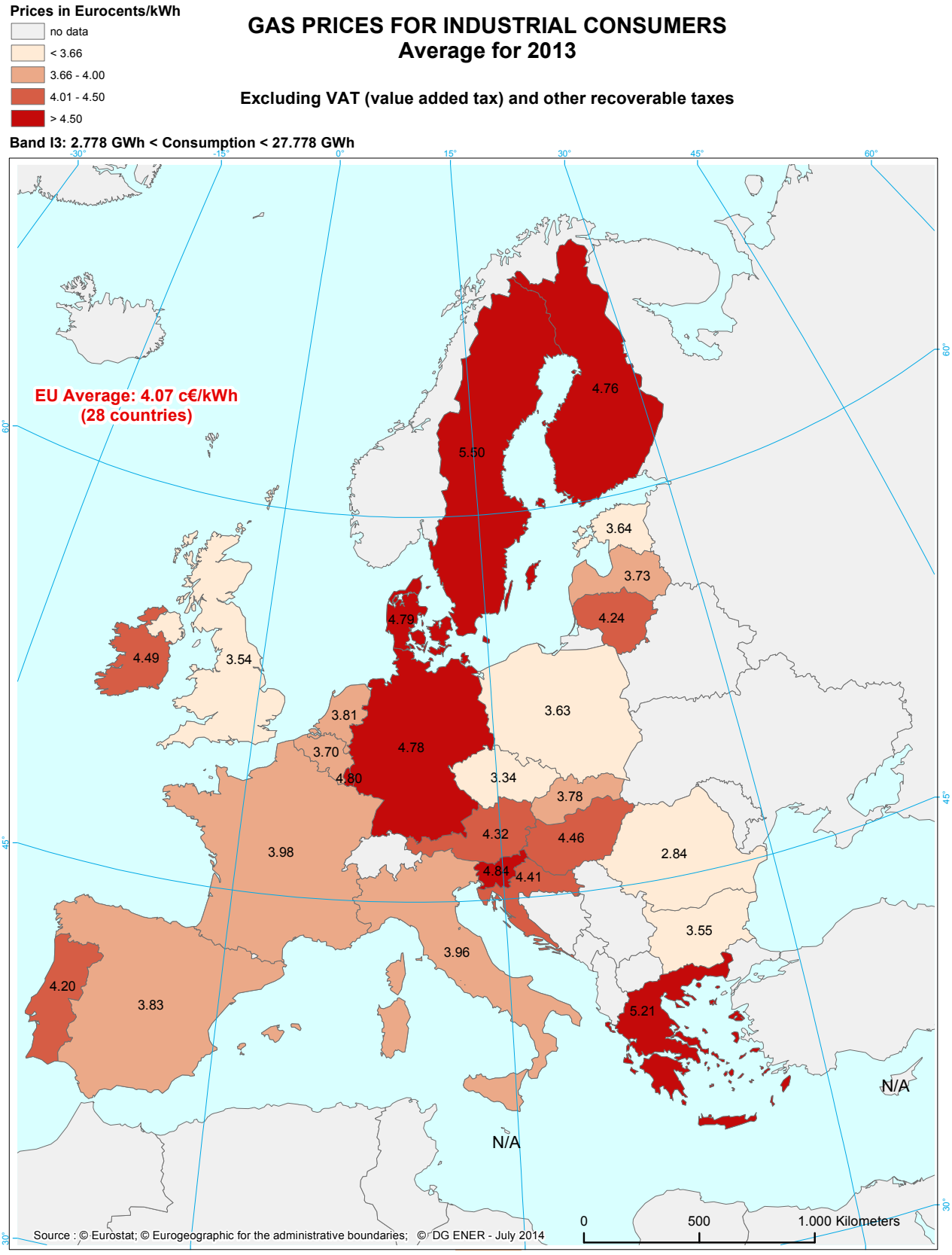
FIGURE 26 – GAS PRICE RANGES IN EU MEMBER STATES FOR INDUSTRY (EXCLUDING VAT AND OTHER RECOVERABLE TAXES), AVERAGE FOR 2013



MAP 1 - RETAIL GAS PRICES IN EU MEMBER STATES FOR HOUSEHOLDS



MAP 2 - RETAIL GAS PRICES IN EU MEMBER STATES FOR INDUSTRIAL CONSUMERS



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 daily price and flow data, Flow Against Price Differentials (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 natural gas systems. With the closure of the day-ahead markets (D-1), the price for delivering gas in a given hub on day D is known by market participants. Based on price information for adjacent areas, market participants can establish price differentials. Later in D-1, market participants also nominate commercial schedules for day D. An event labelled as an FAPD occurs when commercial nominations for cross border capacities are such that gas is set to flow from a higher price area to a lower price area. The FAPD event is defined by the minimum threshold of price difference under which no FAPD is recorded. The minimum threshold for gas is set at 0.5 €/MWh. After the day ahead market closes, market participants still have the opportunity to level off their positions on the balancing market. That is why a high level of FAPD does not necessarily equate to irrational behaviour. In addition, it should be noted that close-to real time transactions represent only a fractional amount of the total trade on gas contracts. The FAPD chart provides detailed information on adverse flows. It has two panels: The first panel estimates the ratio of the number of days with adverse flows to the total number of trading days in a given period. It also estimates the monetary value of energy exchanged under adverse flow conditions (mark-up) compared to the total value of energy exchanged across the border. The mark-up is also referred to as «welfare loss». A colour code informs about the relative size of FAPD events in the observed sample, going from green if less than 10% of traded days in a given period are FAPDs to red if more than 50% of the days are FAPDs. The second panel gives the split of FAPDs by sub-category of pre-established intervals of price differentials. It represents the average exchanged energy and relative importance of each sub-category on two vertical axes.

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.