Quarterly Report on European Gas Markets

Directorate-General for Energy

EUROPEAN COMMISSION

- MARKET OBSERVATORY FOR ENERGY

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EUROPEAN COMMISSION
DIRECTORATE-GENERAL FOR ENERGY
DIRECTORATE A - General Policy
Unit A.1 - Energy policy, Programming & Observatory, Economic analysis & Infringements
Market Observatory for Energy

Dear readers,

Political unrest in the Middle East and the calamities that befell Japan in March were among the key issues that drove European natural gas markets in the first quarter of 2011. Markets were concerned with the implication of these events on the supply of gas: the former by the possible interruption of important gas pipelines and the latter by the likely diversion of EU-bound LNG cargoes to Japan in order to replace the shutting down of nuclear reactors in Fukushima and elsewhere. The decision of some Member States to reconsider the future of their nuclear plants happened probably too late in the observed quarter to have any significant impact on prices of gas delivered in Q1 2011.

European spot prices (hub and oil-indexed contract) appreciated by about 1 €/MWh in Q1 2011. Markets were relatively well supplied judging by storage levels which were higher than a year before. A number of short-lived production outages in Norway did not change that picture. Relatively mild weather conditions meant that winter demand for heating remained below 2010 levels. This reduction compensated the take-up of industrial demand. As a result, the Q1 2011 gross inland consumption in the EU remained stable at levels registered during the same period of the previous year.

At the same time the forward curve remained well into contango territory as the above-mentioned events provided a strong support for contracts which were further away from maturity. Events in Egypt, Libya and Japan as well as the reduction of electricity grid reserve margins resulting from the withdrawal of nuclear capacity drove year ahead prices from 23 €/ MWh in the beginning of January 2011 to 28 €/MWh by the end of March 2011.

The completion of the internal market for gas will probably take much longer if significant investments in physical connections are not made on time. The "*Focus on …*" topic of the current report provides insights into the specific challenges for gas networks and the toolbox offered to promote trans-European gas networks.

I take this opportunity to thank you, dear readers, for participating in the on-line survey of the *Quarterly Reports on European Gas Markets*. The replies we received were very encouraging and inspiring for our future work, where our objective is to keep the reports close to your needs.

For the editing team:
Dinko Raytchev

HIGHLIGHTS

- After a fourth quarter at the end of which low temperatures and low storage levels drove traded day-ahead prices of natural gas to levels last recorded at the beginning of 2009, prices by the end of Q1 2011 finished only slightly higher than the previous quarter. At the beginning of the first quarter, North Western European hubs traded in a tight range of between 22 and 23 €/MWh, while by the end of the quarter, the range remained tight at slightly higher levels: averaging between 23 and 24 €/MWh.

- The first quarter of 2011 was however far from uneventful for gas markets, and some volatility in natural gas prices did result from unrest in the Middle East and nuclear outages in Japan in the latter part of the quarter. The former threatened supplies of natural gas to Europe from the Middle East, while in the case of the latter the fear was of the potential impacts on EU supplies of the possibility of diversions of EU-bound flexible LNG imports.

- Middle Eastern exports of gas were affected in the form of the complete shut-down of Libyan supplies to Europe. This only had the potential to affect Italy to any significant degree, as the biggest importer of Libyan gas, though in the end additional supplies from Russia to Italy made up for the shortfall. More importantly, disruptions in Tunisia did not affect transiting Algerian supplies to Europe and unrest in Egypt did not lead to blockages of the Suez Canal, a key LNG supply route.

- Prices were also only temporarily affected by the fear that flexible LNG spot cargoes may be diverted to Japan. Later in the period it became evident that exports of LNG from Qatar could match the increasing demand from Japan in the short-term, supported by diversion of LNG from other parts of Asia, without any immediate impact on European LNG imports. Signs of continued healthy supplies of natural gas in the EU also reassured the markets, thereby containing price rises.

- In the last issue, it was observed that the rapid rise in traded day-ahead gas prices on European hubs in the fourth quarter of 2010 had contributed to a considerable narrowing of the gap between hub prices and border (Long Term Contract prices or LTC) prices. The situation by the first quarter was that day-ahead prices of European gas remained at levels close to oil-indexed LTC prices, while prices of LNG, though having increased, still remained relatively lower than other types of contracts.

- LNG prices have been kept relatively low of late as demand for LNG in the Atlantic market has subsided with lower dependence of the US on imports of LNG. The contango relationship that could be observed between Q1 day-ahead and forward prices is revealing of expectations that imports of natural gas to Europe will become tighter in the future, as natural gas grows world-wide in importance as an energy commodity.

QUARTERLY REPORT ON EUROPEAN GAS MARKETS

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A. Recent developments in the gas markets across Europe

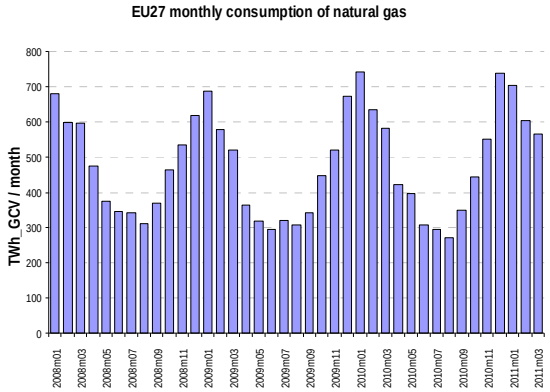
A.1 Gas consumption, production and imports

2011 first quarter EU gas consumption amounted to 1,872 TWh, above 2010 fourth quarter consumption levels of 1,734 TWh, though below levels of 1,957 TWh reached in the first quarter of 2010. To put these levels of consumption into context, it is interesting to note that the weather in Q1 2011 was close to average conditions, while January 2010 was colder than usual.

While Q4 2010 heating degree days[1] (HDDs) were significantly higher than the norm (indicating colder than normal weather conditions), the number of HDDs in Q4 is typically smaller than than those for Q1. For instance, there were altogether

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

1,485 HDD's in Q1 2011, compared to 1,264 HDD's in Q4 2010.



Source: Eurostat
Monthly imports for Portugal (October 2010 – March 2011) and France (March 2011) are estimated based on GDP data and heating degree days

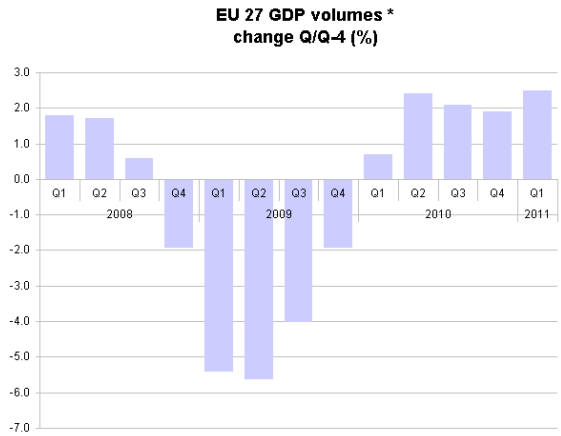
As the table below shows, the number of HDD's in January 2011 were close to the 25 year long term average, while in February and March 2011, the number of heating degree days slightly exceeded the long term average.

EU 27 Heating Degree Days in Q1
Values for 2009, 2010, 2011 and 1980 – 2004 average

	January	February	March
2009	555.66	476.34	405.00
2010	624.23	499.45	421.50
2011	551.74	509.88	423.14
LT avg.	545.97	471.03	412.40

Source : Eurostat /JRC

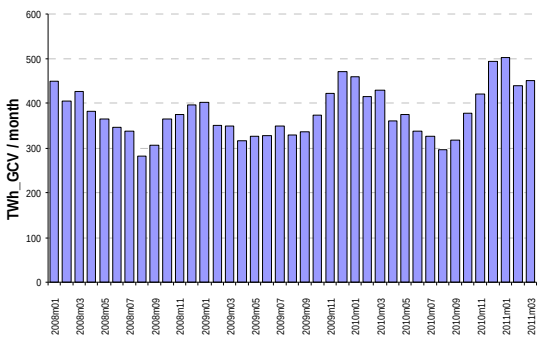
Other than the weather, another important driver of gas consumption was economic growth. In the first quarter of 2011, EU-27 GDP increased by 2.4% year on year, representing the highest rate of GDP growth since the end of the recession.



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

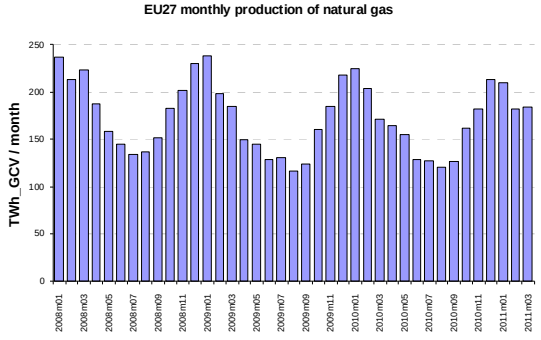
At 1,390 TWh, EU imports of natural gas in the first quarter of 2011 were higher than the preceding quarter (1,291 TWh), exceeding also the level reached in the equivalent quarter of 2010 (1,303 TWh).

Higher import levels in 2011 Q1 may well have resulted from expectations of higher demand for natural gas following the cold period particularly in the second half of 2010, which not only led to higher demand in the fourth quarter but also to higher and earlier-than-expected storage extractions.



Source: Eurostat
Monthly imports for Portugal (October 2010 – March 2011) and France (March 2011) are estimated based on GDP data and heating degree days

EU natural gas production levels in Q1 2011 were however following the downward trend of previous years: falling by 4% in Q1 year-on-year, compared to respective falls of 3% and 8% for the first quarters of the two preceding years.



Source: Eurostat.

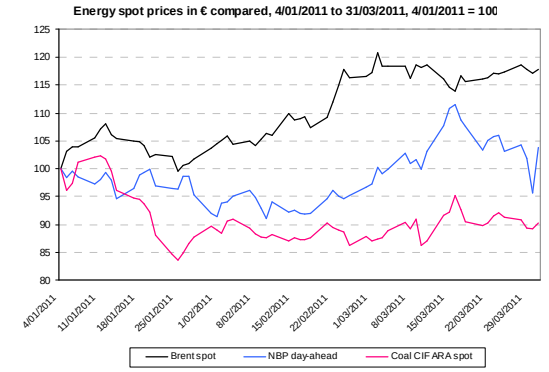
A.2 Wholesale markets

A.2.1 EU spot gas markets

A.2.1.1 Overview

After quite significant increases in the fourth quarter of 2010 across all energy commodities, the first quarter of 2011 was initially quite subdued, with falls in both the price of natural gas and coal over the course of January (see chart below). With news of increasing political unrest in the Middle East - in particular in Libya, with consequences both in terms of oil and gas supplies into the EU - both oil and gas prices then trended upwards, with coal prices (more responsive to Asian demand than to goings on in the Middle East) remaining relatively stable.

From the end of January to the beginning of March, it can be seen that the price of Brent and that of natural gas (as represented by NBP day-ahead in the graph below) increased in parallel, while that of coal (represented here by Coal CIF ARA[2]) continued to remain subdued.



Source: Platts.

Then from the 11th of March, when a tsunami off the Eastern coast of Japan led to a number of nuclear outages in the country, spot and forward prices of coal

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

and, to a larger extent, natural gas shot upwards over the course of a few days as the potential impacts on EU supplies of the possibility of diversions of EU-bound energy imports - especially of flexible LNG spot cargoes - were reflected in prices of the commodities.

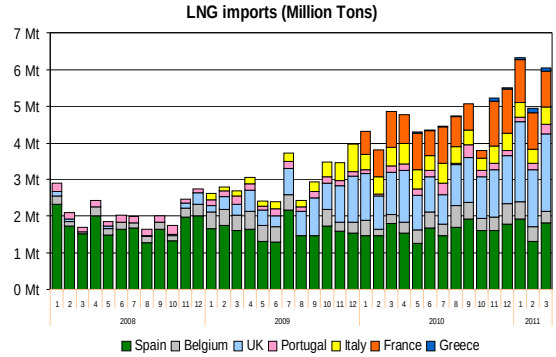
However, spot natural gas prices quickly came down again after it became evident a few days later that exports of LNG from Qatar could match the increasing demand from Japan in the short-term, supported by diversion of LNG from other parts of Asia, without any immediate impact on European LNG imports (see paragraph further below). It also appeared that Japan did not have sufficient immediately available gas-fired plant capacity to absorb significant volumes of LNG in the short-term.

Signs of continued healthy supplies of natural gas (in spite of a number of production outages in Norway throughout the quarter), in the EU also reassured the markets, further contributing to the consequent ease of spot prices of gas a few days after the Japan nuclear incident-led surge in prices.

Other than the threat of diminished supplies of piped gas and LNG from Northern Africa, the unrest in the Middle East also represented a potential threat to imports of Qatari gas to Europe[3]. There were however no such incidents in the first quarter of 2011.

[3] In particular, fears that protests in Egypt would affect the operability of the Suez Canal, a key route for LNG tankers

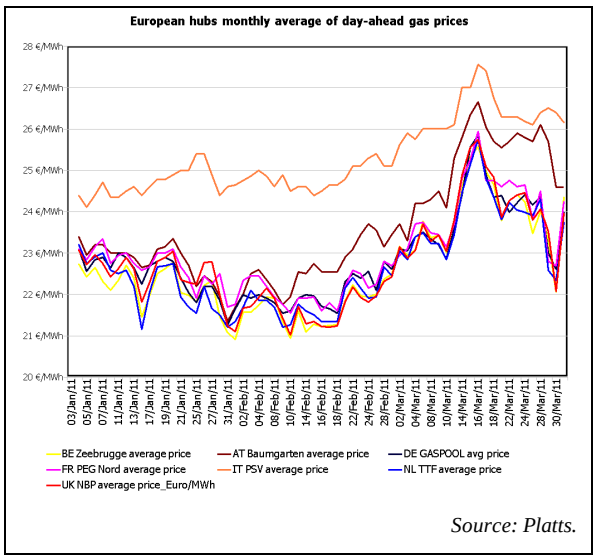
Thus, imports of gas in Q1 included plentiful supplies of LNG to the EU, with first quarter levels exceeding imports of LNG in the previous quarter by 20%. This was in spite of quite significant falls in imports in February, mainly in Spain and the UK, which nevertheless increased again in March to reach levels similar to January levels (even though natural gas consumption and import levels were generally much more subdued in March in comparison to January). Given that the nuclear outages occured in mid-March, there was in any case relatively little of Q1 left to observe much impacts on LNG imports into the EU in that quarter.



Source: Eurostat COMEXT
August and September 2009 data for Belgium are missing.
Italian data reported from January 2009.
French data reported from January 2010.

Plotting the evolution of the NBP-day head price alongside other European hub prices, (in the graph below) it can be seen that NWE (North-West European) hubs very much evolved in a similar fashion. Thus, first the Middle-East unrest, then the Japanese nuclear outages, provided support to prices during a quarter when prices initially looked to be following a downward trajectory, after a preceding quarter which had witnessed significant increases in prices mainly as a result of a

very cold weather, and low levels of gas storage.



Source: Platts.

As usual, the evolution and level of the Italian PSV was somewhat different to that of other hubs. Italy is in fact relatively more exposed to potential impacts on its natural gas imports by unrest in the Middle-East. It is the biggest EU importer of piped natural gas from Libya, which represents some 9% of total Italian imports, and it also imports around a quarter of its natural gas from Algeria.

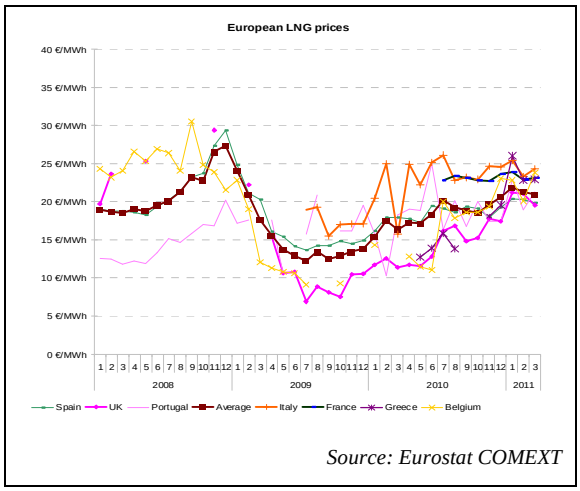
While there were no reports of disruption of flow of piped gas from Algeria in Q1 (Algerian gas flows through Tunisia and the Trans-Med pipeline), the conflicts in Libya provoked the total interruption of gas flows from the country via the Greenstream pipeline from the 22nd of February 2011 onwards. This represents a loss to Italy of 29 mcm/day out of total import capacity of 332 mcm/day.

The evolution of the Central Eurpean Gas Hub day-ahead price was also affected by these developments. Initially the Baumgarten contract traded at levels close to the NWE hubs until the beginning of February when it began trading on average at a +/- 1 €/MWh premium for the remainder of the quarter.

At the beginning of the first quarter, NWE hubs traded in a tight range of between 22 and 23 €/MWh, while by the end of the quarter, the range remained tight at slightly higher levels: averaging between 23 and 24 €/MWh.

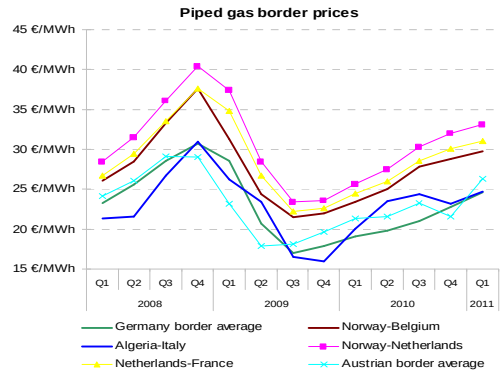
A.2.1.2 Gas contracts and pricing mechanisms

In comparison to day-ahead prices quoted on NWE hubs, monthly average spot LNG prices in the EU for the first quarter of 2011 traded in a price range of between 19 and 26 €/MWh, and averaged at 21.4 €/MWh for the period across the seven countries for which data is available. This was above the previous quarter's average price of 19.6 €/MWh, itself slightly higher than the average for Q3 of 2010 of 19.4 €/MWh.



Source: Eurostat COMEXT

Looking at a selection of Long Term Contract (LTC) oil-indexed border prices for piped gas in Europe, shown in the graph below, reveals an average price of 28.8 €/MWh for the quarter, from a range of between 24 and 33 € per MWh. This compares to average prices for the same selection of contracts of 26.4 €/MWh and 25.9 €/MWh in the two preceding quarters.

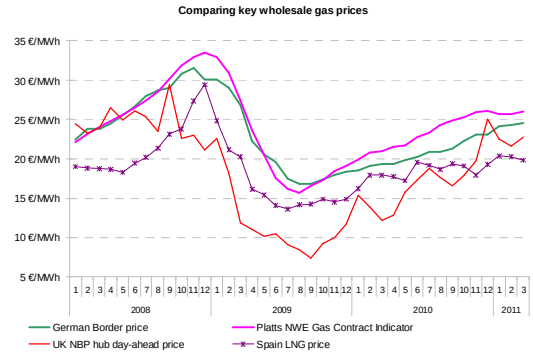


Sources: Gas Strategies, German Federal Office of Economics and Export Control (BAFA)

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..

The following graph shows a selection of different wholesale price contracts for natural gas in the EU for a closer comparison.

In the last issue, it was observed that the rapid rise in traded day-ahead gas prices on European hubs in the fourth quarter of 2010 had contributed to a considerable narrowing of the gap between hub prices and border prices. As the graph above demonstrates, the rise of the NBP was such that at one time at the end of the quarter, it even exceeded the average German border price.



Sources: Eurostat COMEXT, Platts, German Federal Office of Economics and Export Control (BAFA)

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 the first quarter of 2011, prices of traded day-ahead gas on the NWE hubs on the whole receded somewhat, though not significantly, from their 2010 highs, supported as they were by events in the Middle-East and Japan as described above[4]. The situation by the first quarter was therefore that day-ahead prices in European gas remained at levels close to oil-indexed Long Term Contract prices, while prices of LNG, though having increased, still remained relatively lower than other types of contracts.

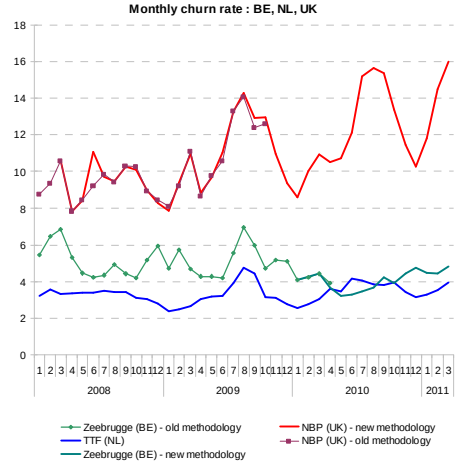
LNG prices have been kept relatively low of late as demand for LNG in the Atlantic market has subsided with lower dependence of the US on imports of LNG[5].

Developments in liquidity in the first quarter of 2011 did not represent a

[4] An analysis of average quarterly prices, reported in the next section for each market, reveals in fact an increase in prices in Q1 2011 from Q4 2010 levels

[5] See previous reports for more detailed comments.

departure from what has been observed recently. Churn rates[6] at the Zeebrugge and TTF hubs remained at just above or below 4, as in the previous quarters, while seasonal variations in the NBP churn rates could be observed, with liquidity increasing again to reach 16 falling to a level below 12 in the last quarter. Such an increase in the churn rate can be expected for a hub which experiences quite marked seasonal variations in physically delivered volumes along with more constant levels of total energy traded. In spite of those variations, a clear trend upwards in liquidity can be observed for the NBP in the chart below.



Sources: Huberator (BE), Gas Transport Services (NL), National Grid (UK), Platts.

Note: changes in methodology were implemented from November 2009 for NBP and from January 2010 for Zeebrugge.

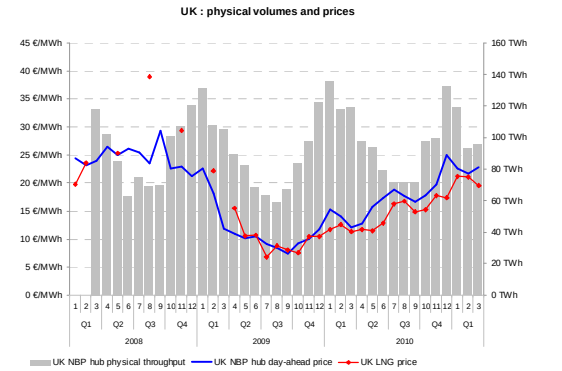
[6] The churn rate is an indicator of the liquidity of a market/ hub. It represents the ratio between the total volume of trades and the physical volume of gas consumed in the area served by the hub.

A.2.1.3 Regional markets

North and South Western Europe

United Kingdom

Physical day-ahead volumes on the UK's National Balancing Point (NBP) in Q1 2011 fell relative to the previous quarter, after increasing by an impressive 54% between Q3 and Q4. Volumes were also below Q1 2010 (-17%) levels.



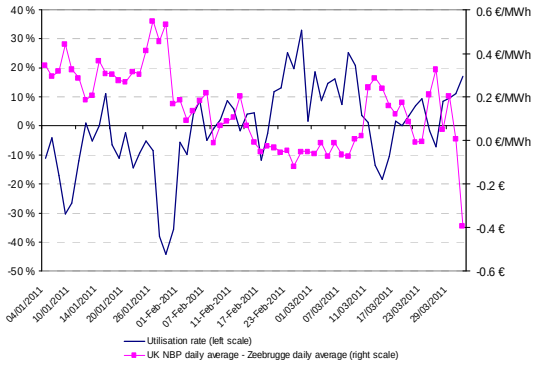
Sources: National Grid (UK), Platts, Eurostat COMEXT.

While average monthly NBP spot price reached a peak in December 2010 of 25 €/MWh, the average price for the fourth quarter of 20.9 €/MWh was less than that for Q1 2011 of 22.3 €/MWh. In comparison to previous quarter averages of monthly prices of 17.7, 15.3 and 13.8 €/MWh respectively for each of the three preceding quarters of 2010, it can be observed that the trend was clearly one of increasing prices.

This was also the trend for monthly averages of prices for UK deliveries of LNG, which reached a historical high of 21.2 €/MWh in January 2011 and averaged

20.6 €/MWh over the first quarter, well in excess of a fourth quarter average of 16.8 €/MWh. The gap between UK hub spot and LNG price was therefore narrowing in the first quarter of 2011.

Price differentials between the NBP hub and the Zeebrugge hub, linked by the two-way flow Interconnector, was reversed for a few weeks in the middle of the quarter, with corresponding flow direction reversal during the period, such that natural gas from the cheaper UK hub during that period was being sent to the higher price continent.



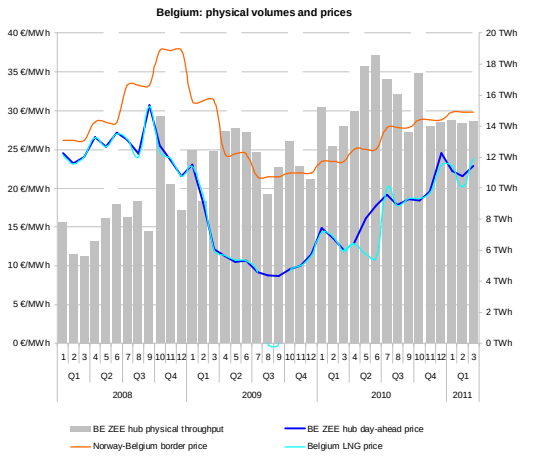
Sources: Interconnector, Platts

By and large though, flow in the first quarter of 2011 was UK bound, as the UK NBP traded at a premium to the Zeebrugge hub during most of the quarter. To recall, relatively lower prices at the UK NBP hub compared to other European hubs during the second and third quarters of 2010 had led to high levels of gas exports out of the UK into continental Europe. At the beginning of the fourth quarter, gas continued to flow from the UK to the continent via Belgium, but the flow rate decreased progressively as the discount of NBP day-ahead gas to the Zeebrugge day-ahead was slowly reduced.

Belgium

2011 first quarter physical volumes delivered at the Belgian Zeebrugge hub (ZEE) were roughly in line with the equivalent quarter of the previous year, and somewhat less than volumes recorded in Q4 of 2010 (-6%).

The trend of prices on the ZEE hub was very much in line with other NWE hubs, similarly affected by events in the Middle-East and, especially, concerns about possible LNG diversions to Japan. As for the NBP hub, the ZEE day-ahead reached a historically high monthly average price in the fourth quarter (of 24.5 €/MWh), while the average price for the quarter (22.2 €/MWh) exceeded that of the previous quarter (20.8€/MWh).

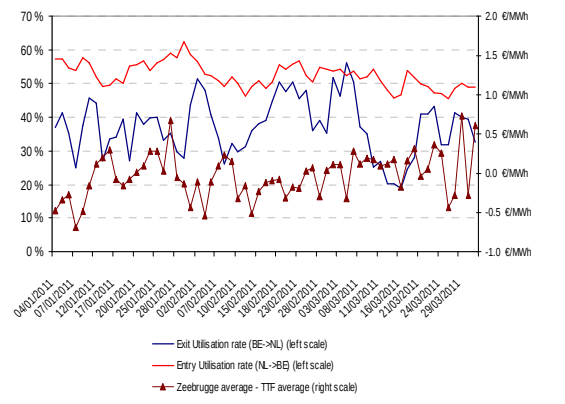


Sources: Huberator (BE), Platts, Eurostat COMEXT, Gas Strategies.

In comparison to Belgian hub spot prices, spot LNG deliveries to Belgium continued to stay very much on par with the

Zeebrugge day-ahead, on a monthly average basis. LTC piped gas from Norway also continued to exceed both hub and LNG prices, though the gap has been progressively reducing during the course of 2010, as commented in previous reports.

The graph below provides a comparison in the evolution of the relationship between gas flows and day-ahead prices on the Belgian and Dutch TTF hubs in the first quarter of 2011. It shows that the flow of gas between the Netherlands and Belgium remained steady, while that between the Netherlands and Belgium was much more variable. The price relationship between the two hubs was not clear-cut, with frequent changes in the relative position of one to the other, such that neither market could attract sustainable demand on account of being a relatively lower-priced area for any significant length of time.

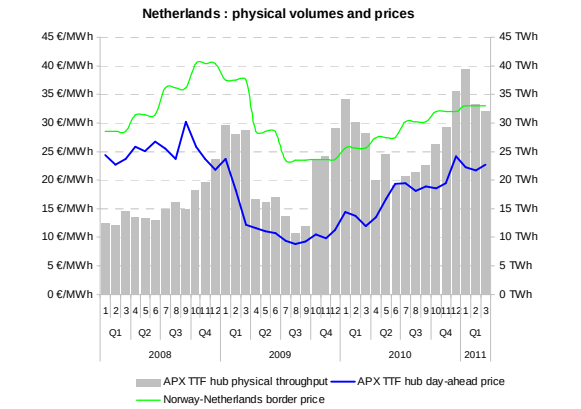


Sources: ENTSO-G, Fluxys, Platts

Netherlands

Unlike the Belgian and UK hubs, Q1 2011 physical throughputs of gas on the Dutch TTF hub increased on a quarterly and yearly basis. 104 TWh of gas were delivered in the area served by the TTF hub in the first quarter of 2011, compared to 91 TWh in the previous quarter, and 93 TWh in Q1 2010.

Day-ahead prices followed the same trend to that noted for the Belgian and UK hubs, registering a 2011 first quarter average of monthly prices of 22.3 €/MWh, compared to 20.7 €/MWh in the previous quarter: levels which were very much comparable to the Belgian and UK hubs.



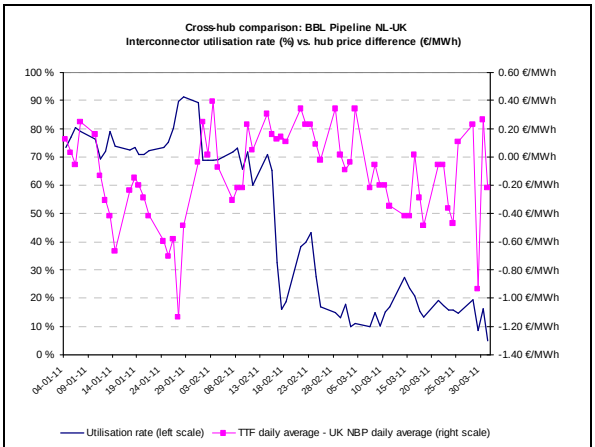
Source: Platts, Gas Strategies.

The first quarter of 2011 did not bring about a significant difference in the relationship between the Dutch day-ahead price and the price of LTC piped gas from Norway[7]. Compared to the previous quarter the gap was progressively reduced, such that the LTC price was some 50% dearer than the day-ahead price, compared

[7] Norway is the main importer of gas into Netherlands. Its share represents less than 25% of the Dutch consumption, the remaining of the demand being covered by domestic production.

to upwards of 150% in the second and third quarters of 2009.

Looking at the graph below, it can be seen that in comparison to the NBP day-ahead, the TTF day-ahead generally traded at a discount to the UK hub in January 2011, such that the flow of gas from Netherlands to the UK was high during that month. For the remainder of the quarter however, the Dutch spot price was dearer than the UK spot price, with a consequent significant drop in the utilisation rate of the unidirectional BBL UK-bound pipeline.



Sources: BBL Company, Platts

Reverse flow gas from the UK via BBL

In February 2011, gas line operator BBL Company began to auction interruptible capacity to reverse flow gas from the UK to the Netherlands for the months April to June 2011. Before then, gas could only flow through the BBL pipeline from the Netherlands to the UK, as physical reverse flow was not possible due to pressure differences and the lack of compression at the UK end.

This will enable virtual transfer of gas from the UK NBP trading hub to the Dutch TTF trading hub by cancelling out physical flows from the Netherlands to the UK through the BBL pipeline, and will therefore enable better responsiveness of flows between the Netherlands and the UK to meet demand in those markets.

Germany

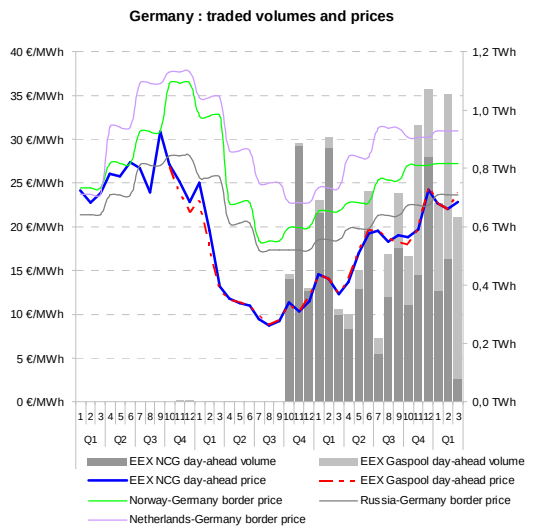
Combined traded volumes on Germany's NetConnect (NCG)[8] and Gaspool[9] hubs for Q1 2011 amounted to 2.4 TWh, which was slightly less than the 2.5 TWh traded in the previous quarter. The highly volatile evolution of traded volumes on these German hubs can be observed in the graph below. It shows too that in spite of maintaining a comparatively high level of traded volumes in Q1 relative to previous quarters, day-ahead volumes recorded at the NCG in March were lower than any of the previous months for which data was available. German traded volumes remain modest compared to other hubs in North Western Europe.

The evolution of NCG and Gaspool hub day-ahead prices in the first quarter of 2011 was comparable to that reported for other NWE hubs, averaging respectively 22.5 and 22.9 €/MWh in the first quarter of

[8] NCG is formerly known as *E.ON Gastransport (EGT)*.
[9] Gaspool is formerly known as BEB. The new market area started on the 1st of October 2009.

2011, compared to 20.9 and 20.8 €/MWh in the previous quarter.

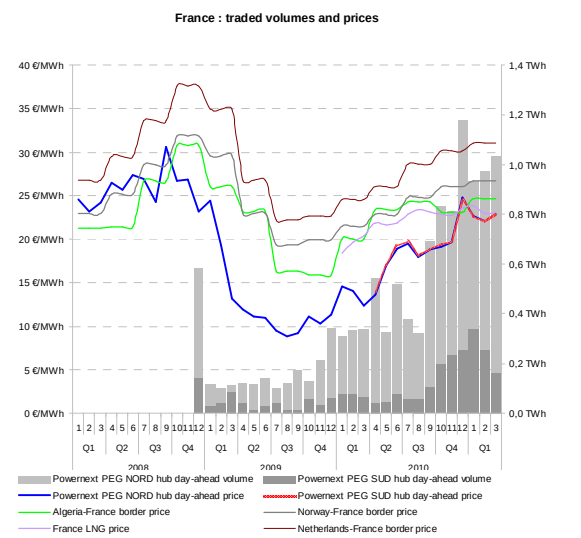
The graph also displays the evolution of a number of German border prices, alongside the German traded prices. It shows that the price of Russian gas paid by Germany remained competitive compared to hub prices, while the price of Dutch gas was highest, and that of Norwegian gas was between Dutch and Russian gas. Imported gas from the Netherlands continued to trade at a level exceeding 30 €/MWh, as was already the case in the third and fourth quarters of 2010.



Source: Platts, Gas Strategies.

France

Volumes traded on France's Powernext Point d'Echange de Gaz (PEG) Nord and Sud increased both on a quarterly and yearly basis (by respectively 5% and 195%), reaching a quarterly level of 3.7 TWh.



Source: Platts, Gas Strategies, Eurostat COMEXT

With regard to prices, Powernext assessments of PEG Nord and PEG Sud day-ahead prices reveal very stable levels throughout the quarter, with monthly average prices across both hubs registering levels of between 22.04 and 22.9 €/MWh.

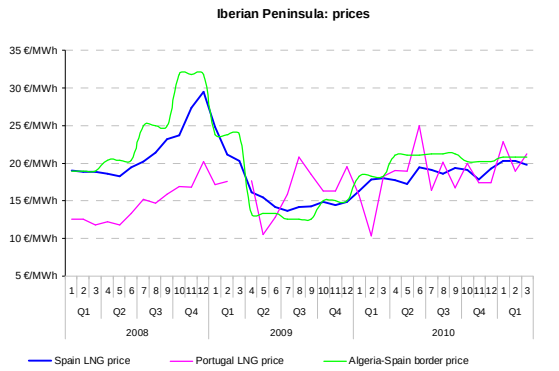
In comparison to other price mechanisms, LTC prices of imported gas at the French border were at relatively comparable levels to German border prices in the case of gas from Norway and the Netherlands, these being much less competitive than supplies from Algeria, or indeed to prices of LNG gas deliveries to France.

As was also the case for other NWE hubs, all gas contracts experienced (average quarterly) price increases in the first quarter of 2011, relative to the previous quarter. In the case of France specifically, hub prices experienced the highest increases, while LNG prices remained stable. At an average quarterly price of 23.3 €/MWh, the price of LNG imports paid in France in Q1 exceeded that of the

UK, Spain, Belgium and Portugal, but was less than that paid by Italy and Greece.

Iberian Peninsula

Some two thirds of natural gas supplies to Spain and Portugal come in the form of LNG. The price paid for LNG in the Iberian Peninsula was therefore a key determinant of the cost of imports of natural gas in that region of the EU.



Sources: Eurostat COMEXT, Gas Strategies, Platts.

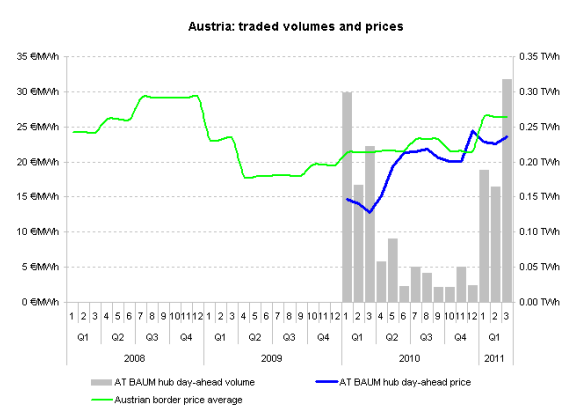
For now, this represents an advantage given the relative cheapness of LNG compared to other price mechanisms. Relative to other importers of LNG, both Spain and Portugal pay low prices for their LNG imports. In the first quarter of 2011, the average quarterly price paid for LNG in Spain (of 20.2 €/MWh) was less than any of the six other Member States for which LNG prices were reported in this publication, while prices of LNG in Portugal (of 21.04 €/MWh) exceeded only Spain and the UK (20.6 €/MWh).

The price of LNG deliveries to Portugal did however increase on average by 15% since the last quarter, while that paid in Spain increased by 7%, which was comparatively much more than the price increases experienced in Italy and France (of only 1%), though much less than UK price increases (of 22%).

Central and Eastern Europe

Austria

Q1 2011 traded volumes (of 0.67 TWh) at Austria's Baumgarten hub were a great deal higher than in the previous quarter (0.095 TWh), though these continue to represent a very small amount relative to Austrian natural gas consumption (which equalled 35 TWh in Q1 2011).

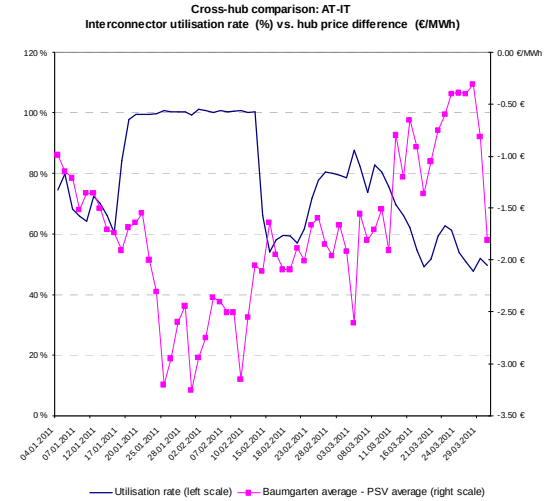


Sources: Platts, Gas Strategies

The evolution of the average quarterly price in Baumgarten was in line with other European hubs in terms of direction, as it increased in Q1 compared to Q4 (reaching 23 €/MWh, compared to 21.5 €/MWh in the previous quarter), although it remained above NWE hubs in terms of magnitude.

For a number of weeks during the quarter, the utilisation rate of the Austria-Italy interconnector was at maximum capacity, which may well have put pressure on

Austrian prices. It should be recaledl that utilisation was high during the fourth quarter of 2010 in order to compensate for lost imports of gas from Northern Europe as a result of the outage of the Transitgas pipeline. The Transitgas pipeline began flowing gas into Italy again at the end of December after five months of outage, which explains the reduced utilisation at the beginning of Q1 2011.



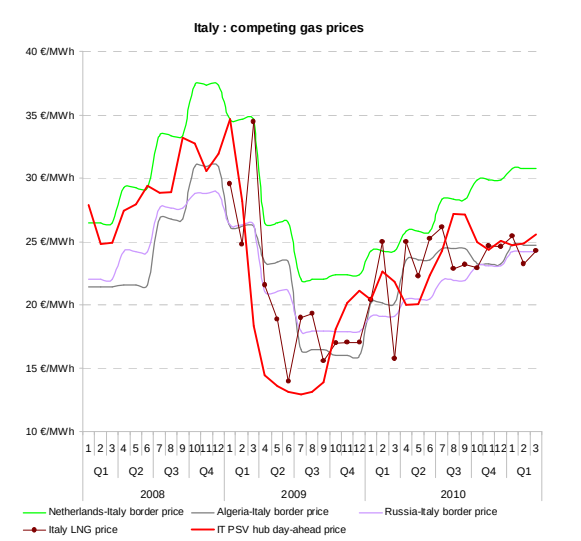
Sources: TAG, Platts

Italy

As had already been the case in the previous quarter, the price of the day-ahead gas contract at Italy's Punto di Scambio Virtuale (PSV) was relatively stable over the course of the first quarter. Quarterly averages of 25 €/MWh in Q1 and 24.8 €/MWh in Q4 compare to a Q3 quarterly average high of 26.2 €/MWh. The PSV day-ahead which typically trades at a few Euros per MWh above NWE hubs thus followed a different direction to NWE hubs, which recorded increases in quarterly average prices.

The relative stability of the PSV day-ahead contrasts with the relative exposure of the Italian market to the unrest in the Middle East, commented upon in the overview section above. This could be explicable by the fact that cuts in Libyan supplies (representing some 9% of Italian imports), were compensated throughput the quarter by increased supplies of Russian gas coming in through the Tarvisio import route on the Austrian-Italian border.

More importantly, unrest in the Middle East did not disrupt supplies of Italian imports of Algerian gas coming via Tunisia, which represent a quarter of the Italian natural gas imports.



Sources: Eurostat COMEXT, Gas Strategies, Platts

Compared to other gas contracts, the correction in the price of the Italian day-ahead since Q3 meant that some 5 €/MWh seperated traded gas to LTC gas from the Netherlands in Q1. The PSV day-ahead level in Q1 was however close to other

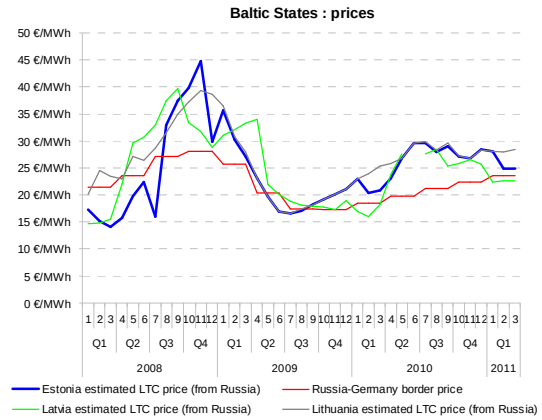
price references such as LTC Russian and Algerian gas prices and LNG deliveries to Italy, which were among the highest prices for LNG across the seven Member States for which LNG prices are reported in this publication.

Baltic States

Estimations of LTC prices of Russian gas to the different Baltic States of the EU for the first quarter of 2011 reveal a continuation of the downward trend in prices of Russian gas. All three states had already experienced a drop in the average quarterly price in the fourth quarter relative to the third quarter. In Q1 of 2011, both Estonia and Latvia experienced further falls.

This was in contrast to general LTC contracts in NWE as well as other European markets, which continued increasing in Q1. The average quarterly price of Russian gas paid in Estonia and Latvia in Q1 was 25.9 and 22.5 €/MWh, relative to 27.4 and 26 €/MWh respectively in the preceding quarter.

In comparison, the average monthly German border price paid in Q1 was 23.6 €/MWh.

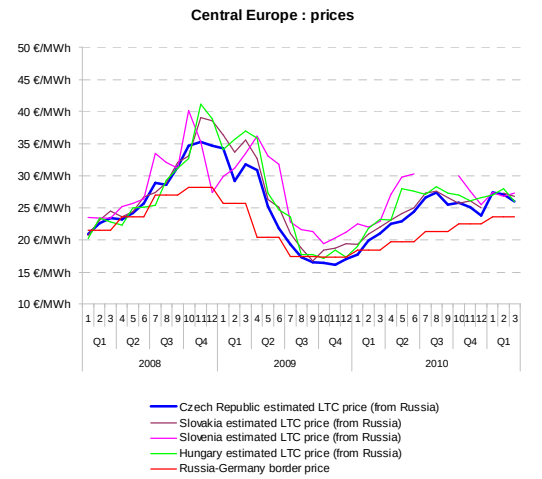


Sources: Eurostat COMEXT, Gas Strategies.

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.

Other Central EU Member States

The estimated monthly average LTC price of Russian gas in Central EU Member States in the first quarter of 2011 ranged from 22.2 €/MWh in Slovakia to 27.1 €/MWh in Slovenia.

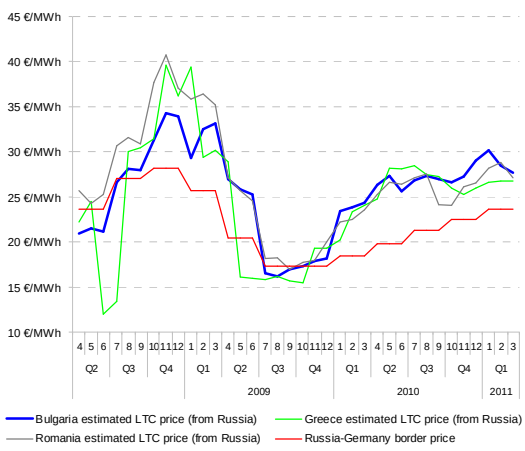


Sources: Eurostat COMEXT, Gas Strategies.

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. Q3 2010 Slovenian border prices are not included as these are being reviewed.

Other South-Eastern EU Member States

The average quarterly price of Russian gas in South-Eastern EU Member States varied between 26.7 €/MWh in Greece and 28.7 €/MWh in Bulgaria. On a quarterly basis, all three countries (Romania included) experienced increases in prices in Q1 2011 relative to the previous quarter, with Romania experiencing an increase of 2.5 €/MWh, registering an average quarterly price in the first quarter of 2011 of 28 €/MWh.



Source: Eurostat COMEXT, Gas Strategies.

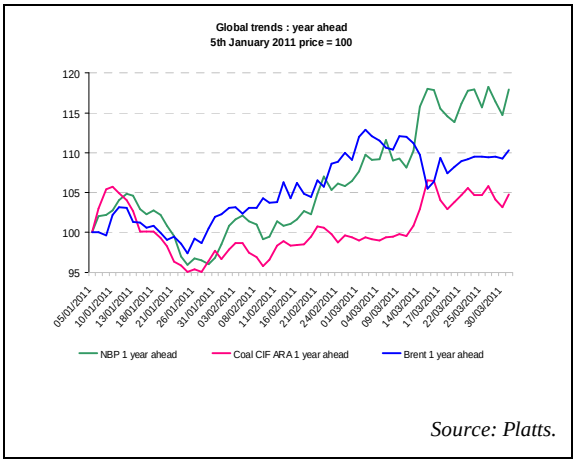
Border prices are estimations of prices of piped gas imports paid at the border, based on information collected by customs agencies, and is deemed to be representative of long-term oil-indexed gas contracts.

Observing the evolution of the estimations of LTC prices of Russian gas to these Member States in the graph below, in comparison to the average German border prices (for LTC gas from various sources), it is interesting to note the increasing gap that could be seen during the course of 2010, which was then reduced to a certain extent in the latter part of the year. This observation was also valid for prices of Russian gas in Baltic and central European countries (see preceding charts).

A.2.2 EU forward gas markets

Though the prices of energy commodities increased significantly throughout 2010 on the back mainly of increasing demand supported by a recovering economy, it appears that they were set for further increases, according to expectations communicated by forward prices.

After an initial period when one year forward prices fell during the course of January, the uncertainty with regard to future supplies of gas brought about by the Middle-East crisis led to expectations of ever increasing prices in the year to come.

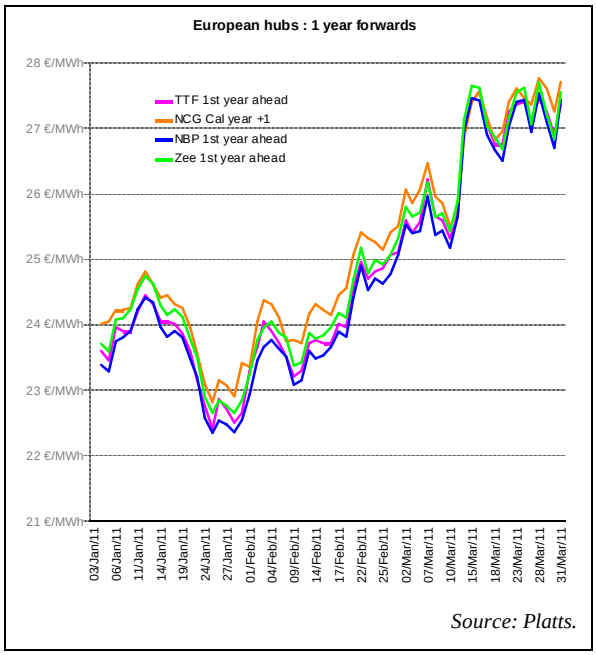


Source: Platts.

This was especially true as regards gas, following expectations of probable diversions of flexible LNG from Europe in order to supply Japan following the nuclear outages. The clear rising trend in forward gas prices (see graph below) was in part due to expectations of LNG diversions in the coming year, which could in turn reduce gas supplies to the EU. Another

important factor pushing up gas prices was the uncertainty around nuclear energy in the EU in after the events in Japan in mid-March. One example of that was the German decision to shut down seven nuclear power plants following the incident at Japan's Fusushima nuclear power station.

Examining price expectations one year hence more closely, it can be seen that by the end of the first quarter, NWE hub gas for delivery by March 2012 fetched a premium compared to day-ahead prices amounting to around 4 to 5 €/MWh, which represents approximately 20% more than NWE day-ahead prices at end Q1 2011.



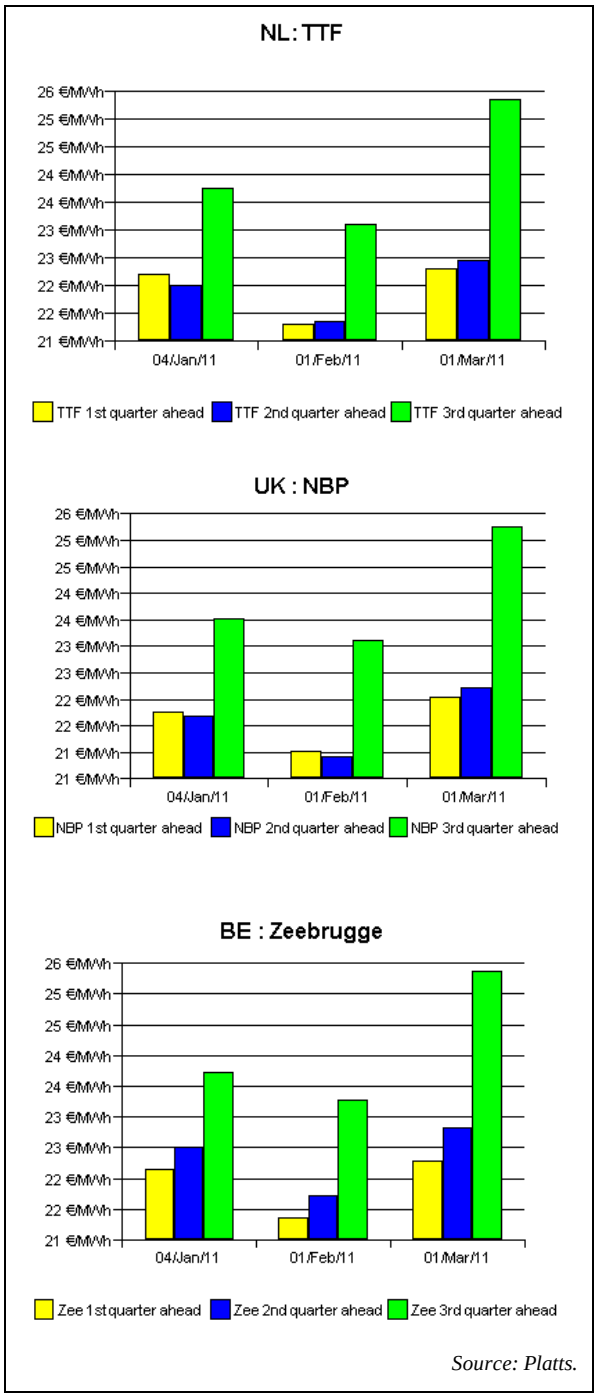
Source: Platts.

The charts further below also show a rising trend in one to three quarter-ahead prices in various European hubs, with higher prices being demanded, the further ahead the quarter. It can also be seen that as the quarter wore on, prices for all quarterly contracts increased further, which illustrates continuously growing expectations of inflation in natural gas prices.

As a result, the forward gas curve remained firmly in contango[10] territory. The next series of charts actually underestimate the contango effect as they reflect the situation on the forward curve at the beginning of each Q1 month, thus pre-dating the nuclear incidents in Japan.

The charts reflect the growing uncertainty with regard to Middle-Eastern gas supplies going forward on the one hand, combined with expectations of growing demand due to cooler temperatures in second and third quarter ahead contracts.

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



Source: Platts.

A.2 Retail markets

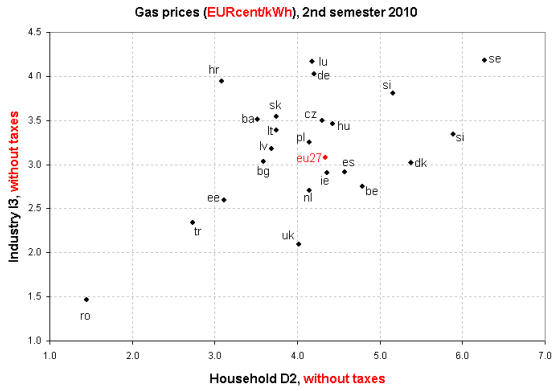
A.2.1 Price levels

The first two charts below show prices of natural gas paid by households and industrial customers in the 2nd half of 2010. For both household and industrial customers prices of median level annual consumption bands (corresponding to household consumption band[11] D_2 and industrial consumption band I_3) are illustrated here[12]. The first chart shows gas prices without taxes (net prices) in the EU Member States, Croatia and Turkey. The second chart shows prices including all taxes (gross prices)[13].

[11] It should be noted that the indicative Eurostat categories of household and industry consumers are not necessarily representative of the average customer for a given Member State due to different consumption patterns across the EU.

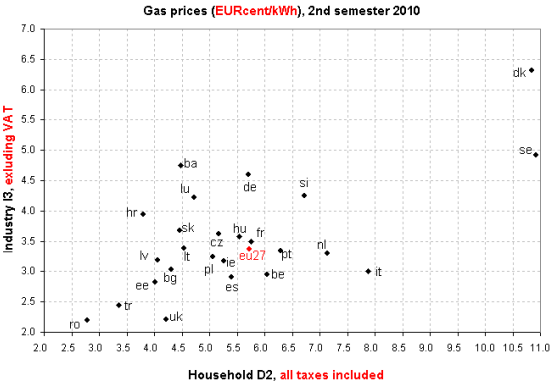
[12] Eurostat only provides data on retail market prices on a biannual basis. For this reason the QREGAM alternates between reporting on prices for median level consumption bands consumers in the first and third quarter and on prices for low level annual consumption band consumers in the second and fourth quarter of a given year.

[13] In the case of industrial consumers prices without VAT are presented as gross prices while industrial consumers are subjects to VAT reimbursement and VAT free prices better represent the prices they actually pay.



Source: Eurostat

Range for annual consumption of :
Household group D2 : [5,56 MWh – 55,6 MWh] ;
Industry group I3 : [2,77 GWh – 27,8 GWh];
Note. Data for Austria, Cyprus, Finland, Greece, Malta are not available



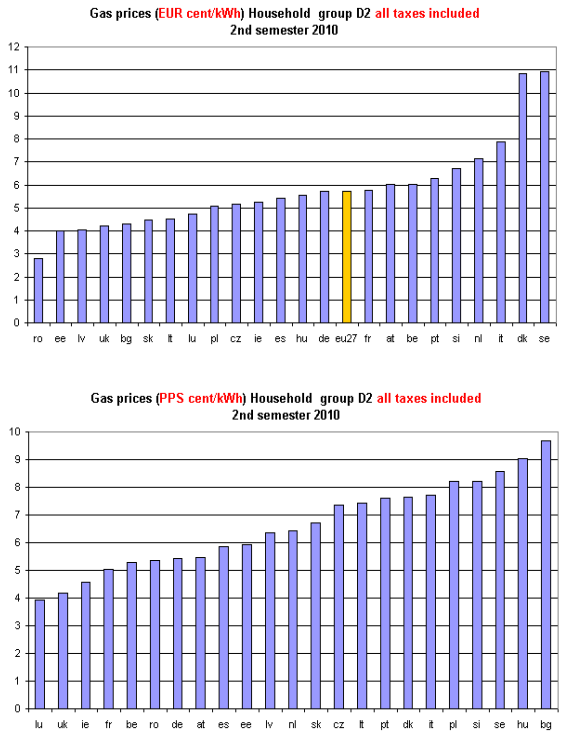
Source: Eurostat

Range for annual consumption of :
Household group D2 : [5,56 MWh – 55,6 MWh] ;
Industry group I3 : [2,77 GWh – 27,8 GWh];
Note. Data for Austria, Cyprus, Finland, Greece, Malta are not available

In the second half of 2010 the ratio of the highest and the lowest gross household natural gas price among the EU Member States was 3.9, being identical to that of the first half of 2010.

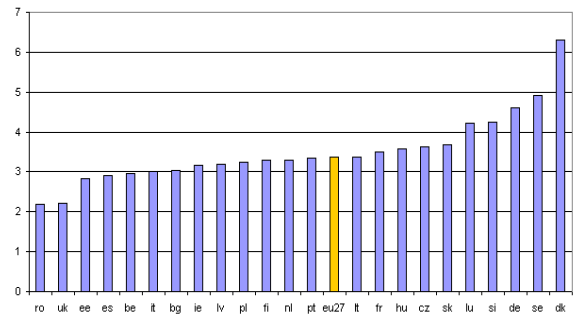
In the case of industrial consumers this ratio grew from 2.7 to 2.9 during the two semesters of 2010. The difference between the cheapest and the most expensive Member State for household consumers amounted to 8 €cent/kWh, while in the case of industrial consumers prices varied in a narrower range of 4 €cent/kWh in the second half of 2010.

The EU-27 average of household gas prices in consumption band D_2 stood at 5.7 €cent/kWh. The highest prices could be observed in Sweden and Denmark (10.9 €cent/KWh and 10.8 €cent/kWh, respectively). On the other hand in Romania prices were lower than 3 €cent/kWh. With the exception of Slovenia gas prices in the countries that joined the EU in the past decade were lower than the EU-27 average. The UK, Luxembourg and Germany also belonged to the group of relatively cheap countries.



Household group D2 : [5,56 KWh – 55,6 KWh];
Data for Cyprus, Finland, Greece and Malta are not available
Source: Eurostat

When correcting for purchasing power by measuring prices in PPS[14], Sweden and Slovenia could still be found in the group of the five most expensive countries. In contrast, Bulgaria turned out to be the most expensive country. This development mirrors to a certain extent the situation on the Bulgarian wholesale market as reported in the previous section. Generally, calculations of prices for gas in PPS renders gas prices in 'New Member States' more expensive than in absolute terms and eliminates the distinction between 'old' and 'new' Member States in the ranking order.

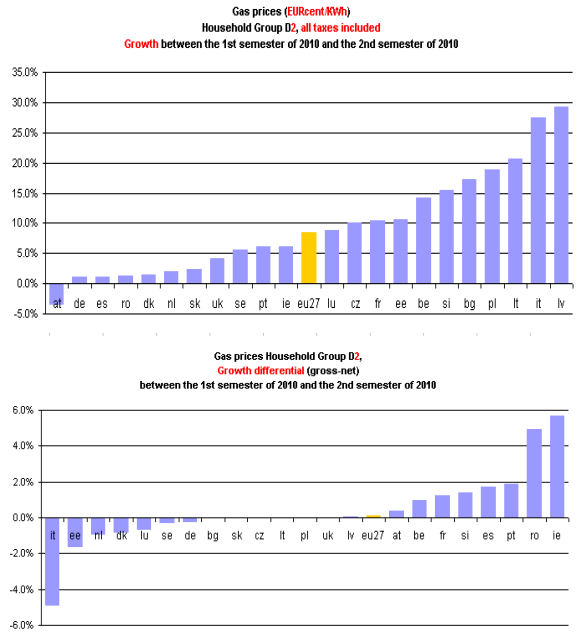


Industry group I3 : [2,77 GWh – 27,8 GWh];
Data for Austria, Cyprus, Malta and Greece and are not available
Source: Eurostat

The price dispersion of industrial gas prices in the EU Member States was smaller than in the case of household consumers. There were fourteen countries in the EU-27 block where prices were in the range of 3-4 €cent/kWh. Similarly to the household consumers the highest industrial consumer prices could be observed in Denmark and Sweden (6.3 €cent/kWh and 4.9 €cent/kWh, respectively) and the lowest ones in Romania (2.2 €cent/kWh). The EU average stood at 3.4 €cent/kWh in the second half of 2010.

A.2.2 Price evolution

As the next chart shows there were significant household gas price increases in many European countries in the second half of 2010. The EU-27 price rise was 8.4% on average, while there were ten MSs where a household consumers faced a double-digit increase. Prices grew in Latvia, Italy and Lithuania (29%, 28% and 21%, respectively). Austria was the only EU country where prices went down (-3.4%). This retail price increase in many EU Member States must have been related to the appreciation of wholesale gas prices that started a couple of months before on the European markets.

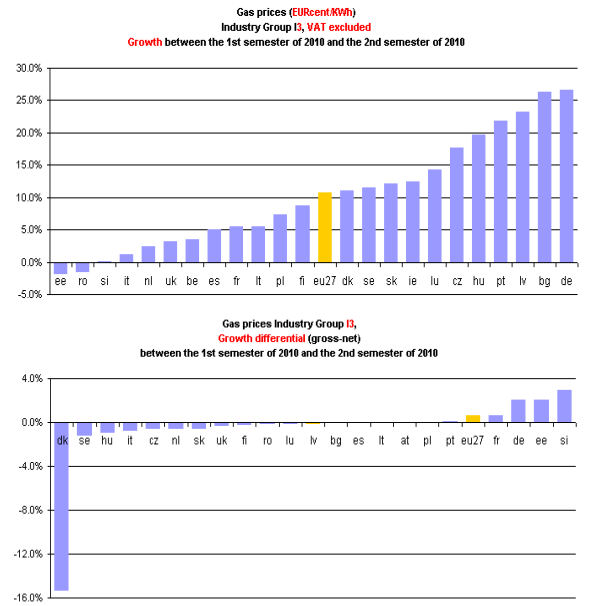


Household group D2 : [5,56 MWh – 55,6 MWh];
Data for Cyprus, Finland, Greece and Malta are not available
Source: Eurostat

[14] Purchasing power standards

While in Italy changes in the taxation mitigated the impact of the increase in net prices (gross prices grew by 4.9% less than the net prices), in Ireland and Romania tax changes provided for an additional factor that drove up household consumer prices (by an 'extra' rise of 5.7% and 4.9%, respectively).

Similar tendencies could be observed in the case of the industrial consumers. On EU average industrial gas consumers had to pay 10.7% more for each kWh of gas. The increase in natural gas prices was especially high in Germany, Bulgaria, Latvia and Portugal (above 20% in all of these countries).



Industry group I3 : [2,77 GWh – 27,8 GWh];
Data for Austria, Cyprus, Malta and Greece and are not available
Source: Eurostat

In Slovenia, Estonia and Germany changes in the indirect taxation contributed to higher increase in gross prices (by more than 2% in each country), while in Denmark gross prices grew by 15% less than the net prices. This huge difference points to significant changes in the indirect taxation between the first and the second half of 2010 in Denmark.

B. Storage

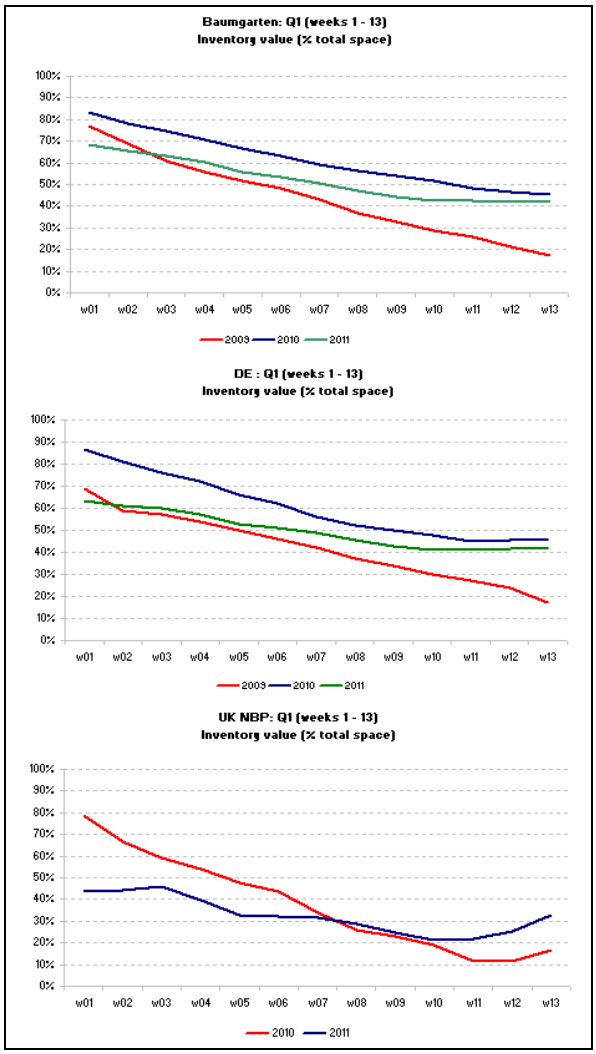
The fourth quarter of 2010 began with a situation of relatively low storage levels at a number of hubs[15]. In addition, the fourth quarter saw higher than expected demand for natural gas due to severe weather conditions especially in the latter part of the quarter.

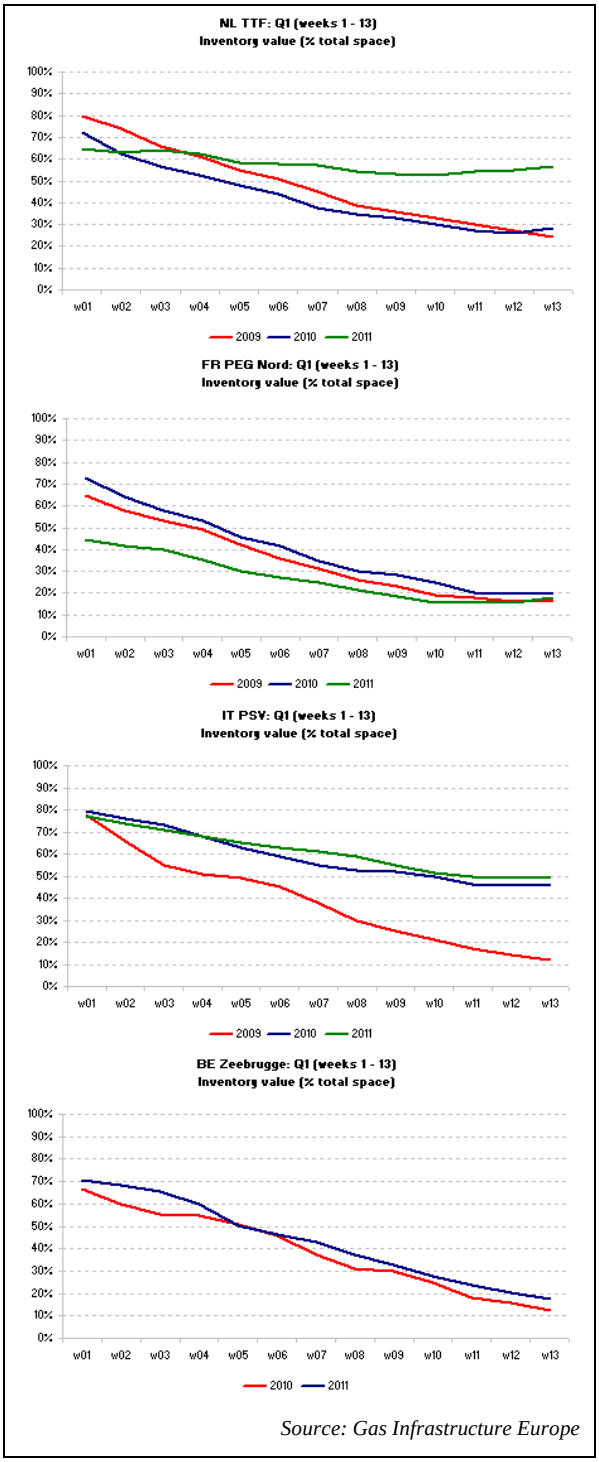
The consequence of both these situations combined was that by the end of the fourth quarter storage levels had decreased considerably in a number of markets, much before the end of the cold season. It can indeed be seen in the graphs below that at a number of hubs, storage levels at the beginning of Q1 2011 were below preceding years.

There was therefore concern by market participants over whether the necessary gas supplies could continue to be maintained during the remainder of the cold season in Q1, and this added to the price pressures of both the day-ahead and the near-term forward curve in Q4. Such concerns were however dispersed during the course of the first quarter as warmer than normal temperatures meant that levels of demand for natural gas were relatively low for that time of year, unlike at the end of 2010.

[15] The months of September and October usually mark the end of the summer injection period during which storage refilled in preparation for the cooler months ahead.

This contained storage withdrawals to the point that some opportunistic reinjections took place. This development was incentivised the contango situation of day-ahead and near term hub prices. As a result, by the end of the quarter storage levels in a number of hubs were in fact higher than usual for this time of year, thereby completely reversing the situation at the beginning of the quarter.





Source: Gas Infrastructure Europe

C. *"Towards a new EU approach on energy infrastructure support"*

The European Commission outlined the energy infrastructure priorities for 2020 and beyond (EIP) and the new approach envisaged for the EU support of energy infrastructure for the period 2014-2020 in the Communication of 17 November 2010. This section provides insights into the specific challenges for gas networks and the toolbox offered to promote trans-European gas networks.

Within the horizon of the next 10 years the European energy system will go through a major transformation process in terms of technology, R&D and networks. By 2014/15 the internal market for gas and electricity is to be completed and isolated regions integrated, by 2020 the climate and energy targets of 20% renewable energy in the energy mix as well as greenhouse gas savings need to be fulfilled. Energy networks will be the backbone of this energy revolution.

The lack of interconnections between the national and regional gas markets is a major obstacle for business and consumers to reap the full benefits of an integrated network and energy market. With declining gas and oil production in the EU, the EU import dependency is going to grow. Many countries in the EU depict a high market concentration at the wholesale gas markets and are depending on one single supplier without access to diversified supplies.

New gas interconnections, LNG terminals and storages are needed for security of supply, sustainability and system resilience; to increase the diversification of sources, routes and suppliers thus enhancing competition to bring down end consumer prices. The developments on the electricity side will have an impact on the needs for gas networks and vice-versa. Gas-fired power plants are expected to be important as back-up of intermittent electricity generation from renewable sources.

With regards to gas, the EU infrastructure priorities relate to the diversification with the construction of the Southern Corridor; linking isolated regions, like the Baltic States and the Iberian Peninsula to the EU gas network and the reinforcement of the North-South interconnections in Central Eastern and South-South East.

The Commission estimates investment needs for regulated energy networks (gas, electricity and CO2) of almost 200 billion Euros for 2020. In the gas sector, planned investment in new gas transmission and import pipelines, storages and LNG terminals is in the order of 70 to 90 billion Euros.[16]

Limited public acceptance of new infrastructure, lengthy national permit granting procedures, uncoordinated and different investment approval regimes, render cross-border projects even more complex, in particular if

[16] The latest TYNDP Gas 2011 gives aggregated cost estimate of 89 bn Euros.

these projects involve different costs and benefits for the local population or new technologies and numerous local initiatives. At the same time, national tariff regulation does not always reflect the EU wide or regional benefits or project risks linked to the use of innovative technologies.

A new approach for the promotion of trans-European energy networks is needed. For those projects of European significance, a special regime is envisaged to accelerate permit granting procedures and public acceptance, to create an incentivising framework for private and public investment on the basis of enhanced cross-border cost allocation and incentives in the regulatory framework as well as financial support from the EU.

Based on the EU infrastructure priorities, concrete projects of common interest are to be selected across the EU in cooperation with the Member States, national regulators and network operators. Regional clusters will support this approach, such as within Baltic Energy Market Interconnection Plan (BEMIP) the Baltic region or the new initiatives of the North Seas Countries' Offshore Grid Initiative (NSOCGI) and the North-South High-Level-Group and other regional initiatives.

In order to enhance the acceptability of infrastructures, Europe needs to take along its citizens and raise awareness, explain the benefits, but also the costs of new projects, listen to legitimate concerns and objections of stakeholders and, most of all, be transparent at every step of the process. While respecting the full participation of the citizens as well as the competences and high standards of environmental impact assessment and democratic participation, the Commission aims to achieve greater legal certainty and clarity on the timing for the delivery of the permitting decision. A "one-stop-shop" approach which is already in place in some Member States may enhance the coordination of national procedures.

Finally, projects of common interest will be able to have access to market-based innovative instruments and direct support. The European Council of 4 February 2011 underlined that the EU will need to make solidarity operational by supporting a limited number of projects of common interest in order to allow the benefits to go to all Member States. On 29 June 2011 the Commission has presented the new "Connecting Europe Facility" with 9.12 bn Euros dedicated to energy networks to upgrade the TEN-E programme for the period 2014-2020. The CEF moves the TEN-E programme from feasibility support towards a comprehensive financing instrument combining market-based and innovative financing instruments by exploiting synergies between the different EU financing instruments in the key network sectors, energy, transport and ICT.

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