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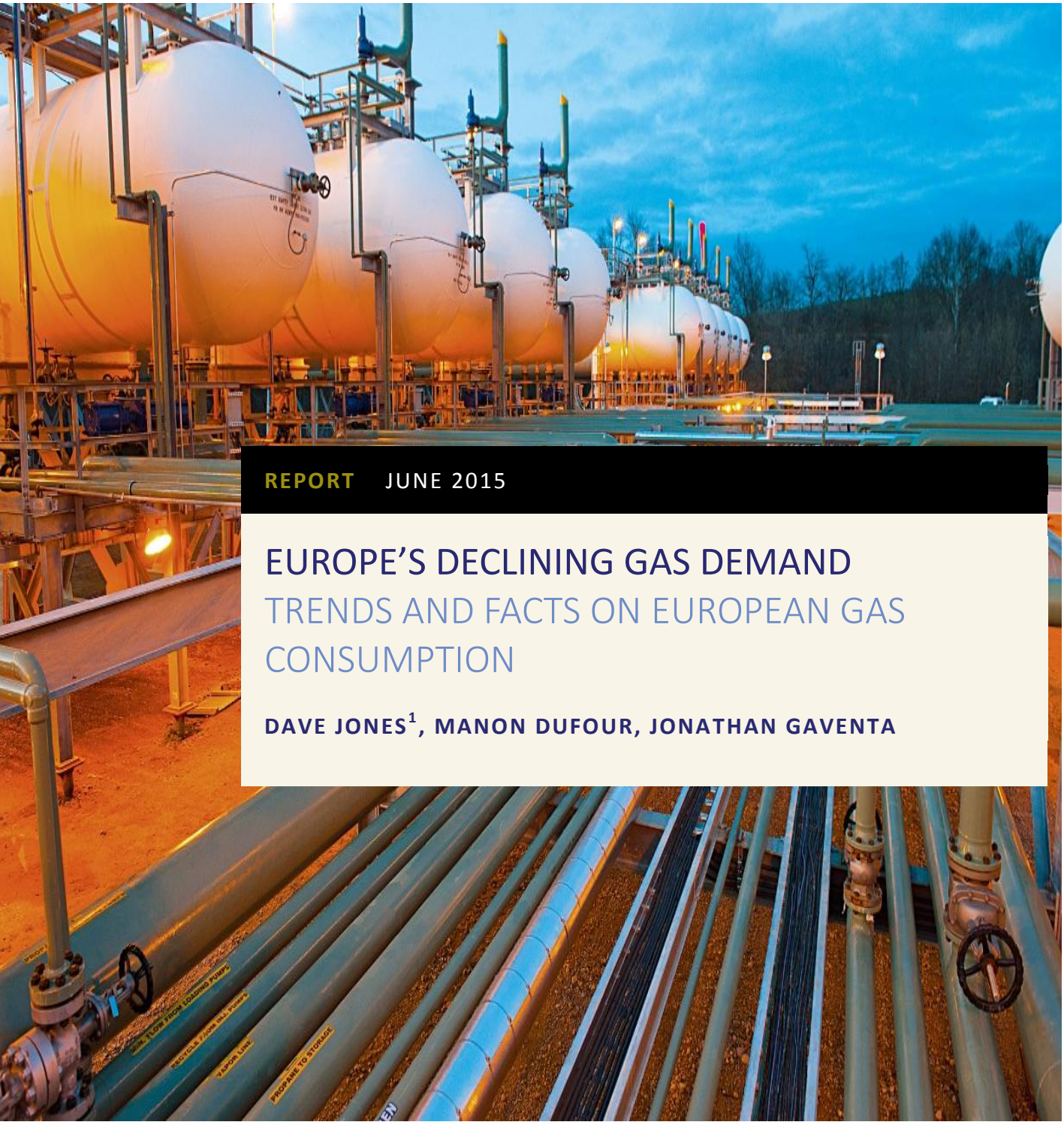

REPORT JUNE 2015

EUROPE'S DECLINING GAS DEMAND

TRENDS AND FACTS ON EUROPEAN GAS CONSUMPTION

DAVE JONES[1], MANON DUFOUR, JONATHAN GAVENTA

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[1] Dave Jones Consulting Ltd / Sandbag

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EXECUTIVE SUMMARY

Gas infrastructure has become a major focus for the EU. In response to energy security concerns, the European Commission is promoting new gas pipelines and LNG terminals, including through EU funds such as the Connecting Europe Facility and the European Fund for Strategic Investment. Behind these supply-side efforts, however, the realities of EU gas consumption are changing.

In contrast to official projections, EU gas demand is falling and is now 23% below its peak. This raises important questions about the economic viability of new gas import infrastructure and the risk of stranded assets. This briefing assesses recent trends in EU gas demand and the systematic overestimation of gas demand in official projections, and highlights implications for EU infrastructure investment and energy security.

Gas demand is falling. European demand for gas is falling. In fact, it peaked in 2010 and in 2014 EU gas demand was the lowest it had been since 1995. This is due to structural shifts to the European economy, changing consumption patterns and significant progress on energy efficiency.

75% of gas demand comes from just six European countries. Gas demand is not evenly spread across the EU. Germany, the UK and Italy consume more than half the EU's gas demand, and three quarters of the EU's total gas consumption comes from only six western European countries: Germany, UK, Italy, France, Netherlands and Spain. This means that the majority of Europe's gas demand occurs in countries with strong energy efficiency and renewables deployment programmes in place, which are likely to further decrease demand in future.

Countries most vulnerable to Russian gas supply disruptions represent less than 10% of European gas demand. Only 7% of gas demand comes from countries highly exposed to Russian imports (i.e. Share of Russian imports as in total gas consumption is more than two thirds: Bulgaria, Estonia, Czech Republic, Greece, Finland, Hungary, Latvia, Lithuania, Slovakia, Slovenia). This volume is equivalent to about a fifth of Russia's current exports to the EU. This shows that protecting the most exposed countries could be achieved through targeted action in these Eastern European countries.

Gas demand is falling across all sectors. Gas demand is falling in all three major sectors: power, industry and residential. In the power sector, EU gas demand has fallen by roughly a third since its peak in 2010. This is in the context of a reduction of total fossil generation (i.e. both coal and gas) of 20% since 2010. The main drivers have included falling electricity consumption due to increased energy efficiency and changing consumption patterns, in addition to a significant increase in renewable generation.

In the industrial sector, industrial energy efficiency and structural changes to Europe's economy have lowered industrial gas demand in Europe by an average of 1.2% per year since 2000. In the residential sector, energy efficiency programmes are leading to a fall in gas demand, particularly in Germany and the UK, which account for 45% of Europe's residential

gas demand. UK residential gas demand fell by 27% from 2005 to 2012 (on a weather-corrected basis).

Europe has a history of overestimating gas demand. The European Commission has had to lower its gas demand projections every single time it produced a new reference scenario since 2003. Projections of what gas demand will be in 2015 have decreased by 23% over the past 10 years – and the Commission is still forecasting 2015 gas demand to be more than 20% higher than the actual 2014 levels. Similarly, the upper end of the projected range produced by industry body Eurogas in 2013 is actually significantly lower than the lower end of their projections from 2010 – and their lowest projection from 2013 is still above current actual demand levels.

ENTSO-G, the body tasked with planning the EU gas pipeline network, has also overestimated gas demand. In its 2009 'Ten Year Network Development Plan', it foresaw an 8% increase in gas demand from 2010 to 2013. In reality, demand fell by 14% - a difference of 22%.

Most current projections still show an increase of gas demand. Despite these recent trends, most current projections still show an expectation of increasing gas demand. The upper-bound projection from Eurogas is for an increase in consumption of over 50% by 2035 compared to current levels, and even their lowest estimate represents a 15% increase on 2014. ENTSO-G's latest projections, used to plan gas pipeline investment, range from a 13% increase in EU gas demand to 2030 in its lowest scenario, to a 35% increase by 2030 in its high scenario. The potential for EU gas demand to continue to fall is not assessed. The European Commission's PRIMES reference scenario does show a slight decrease in gas demand to 2030, but still shows 2015 demand to be 22% higher than demand levels in 2014. By contrast, assessments for the European Commission suggests that if the agreed 2030 energy efficiency target of 27% is met, gas consumption will fall by 16% compared to the reference.

Conclusion: the risk of misevaluating future gas demand. The risk of misevaluating future gas demand in the EU has significant implications. The wrong diagnosis on EU energy security will lead to the wrong cure. An expectation of rising demand has led the EU's energy security strategy to focus on accessing new sources of gas, rather than on alternative approaches such as demand reduction or strengthening internal connections.

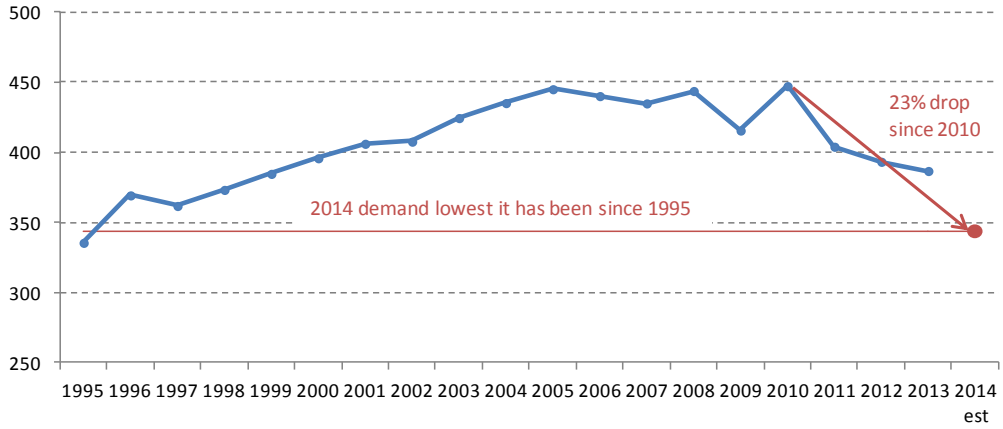
Inflated gas consumption projections can skew the economic evaluation of new projects. Gas infrastructure investments made in expectation of rising demand are at risk of becoming stranded assets if the increase in gas demand does not materialise. Public money (including through schemes such as the Connecting Europe Facility and European Fund for Strategic Investment) is at risk of being diverted to uneconomic projects as a result of unrealistic demand projections, leading to higher value projects in other sectors losing out. Overinvestment in gas infrastructure can also create 'lock in' to levels of gas consumption that are in conflict with the EU's decarbonisation goals.

A reality check is needed on EU gas demand and gas infrastructure investment plans. This briefing highlights the fact that energy efficiency and renewable energy deployment, changes in industrial demand, and reduced electricity consumption, have led to structural changes in Europe's gas demand. These changes now need to be fully incorporated into the EU's approach to energy security and to infrastructure investment.

CHAPTER 1
TRENDS IN EUROPEAN GAS CONSUMPTION – AN OVERVIEW

EU gas demand peaked in 2010 and reached its lowest point in almost two decades in 2014. EU gas demand has rapidly fallen since 2010: 2013 demand was 14% lower than 2010 levels, and this despite 2013 being colder than normal[1]. Demand fell by a further 11% in 2014[2], which was an exceptionally mild year. In 2014, gas demand was the lowest it has been since 1995 (Figure 1).

Figure 1: Gas demand in the EU28 (Mtoe)



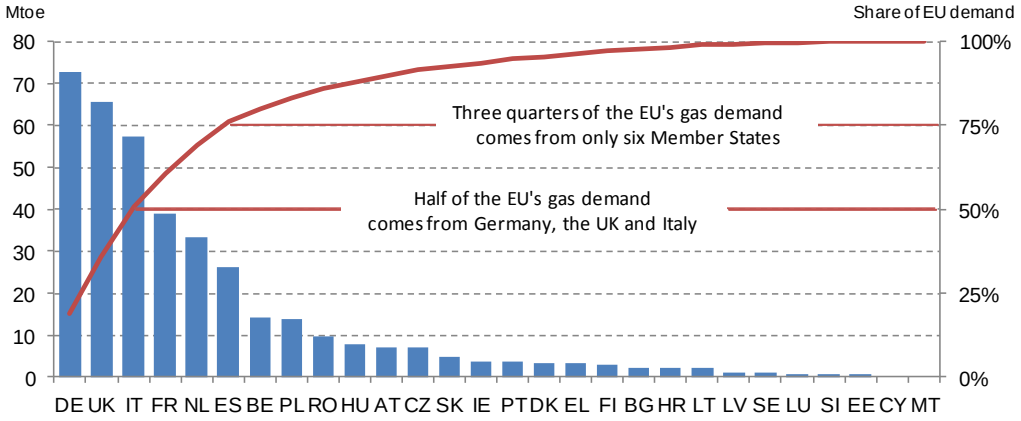
*Source: Eurostat, Eurogas, Sandbag, E3G. Data link **here**.*

Half of the EU's gas consumption comes from only three countries. The top six gas consumers – all in Western Europe – account for three quarters of total EU28 gas demand. Gas demand is far from being evenly spread across the EU. Germany, the UK and Italy consume more than half the EU's gas demand, and three quarters of the EU's total gas consumption comes from only six western European countries: Germany, UK, Italy, France, Netherlands and Spain (Figure 2). This means that the majority of Europe's gas demand occurs in countries with strong energy efficiency and renewables deployment programmes in place, which are likely to further decrease demand in future.

[1] See **Eurogas press release** on 2013 demand

[2] See **Eurogas estimate** on 2014 demand

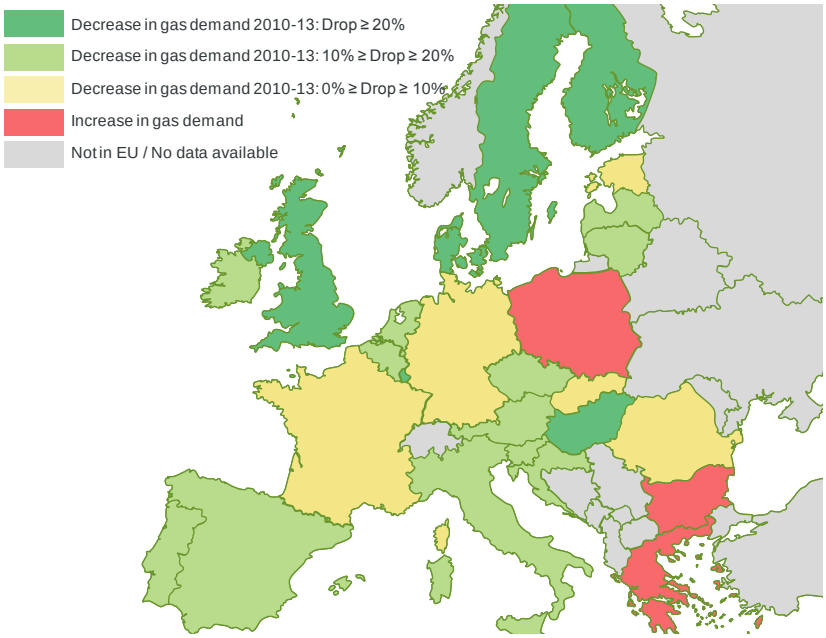
Figure 2: Member States' contributions to EU28 gas demand in 2013



Source: Eurostat, E3G.

Gas consumption is falling across Europe. Gas demand fell between 2010 and 2013 in all but three member states (Figure 3). Demand fell the most in Scandinavia with Swedish, Finnish and Danish gas consumption falling respectively by 35%, 25% and 25% over that time period. The UK, Hungary and Slovenia are next with falls of 23%, 21% and 20% respectively. Only Poland and Bulgaria have seen a growth in gas demand over the 2010-13 period with growth of 7% and 4% respectively. In Greece, gas demand was at 2010 levels in 2013. Eurogas estimated that every Member State saw a decrease in gas demand between 2013 and 2014, in great part because of mild temperatures[3].

Figure 3: Evolution of gas demand between 2010 and 2013 across the EU

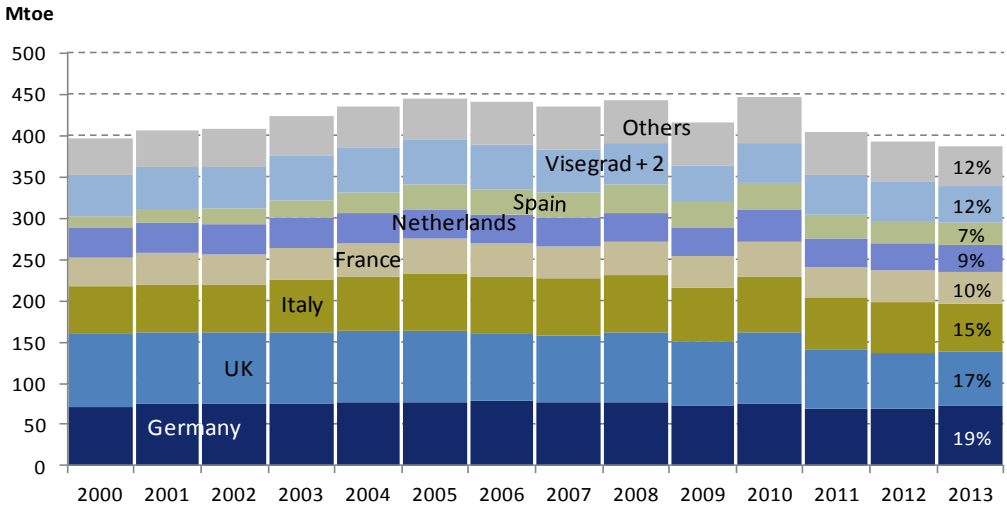


Source: Eurostat, E3G. Note: Missing data for Cyprus and Malta.

[3] See **Eurogas estimate** on 2014 demand

Eastern European gas demand, by comparison, is very small, with countries of the "Visegrad +2" group accounting for just 12% of EU28 gas demand. Poland is the largest use of this group (containing also Czech Republic, Slovakia, Hungary, Romania and Bulgaria), eight largest in the EU, but only represents 4% of EU28 gas demand. Scandinavia (Sweden, Finland, Denmark) represent 2% of EU28 gas demand, and the Baltic countries (Estonia, Latvia, Lithuania), 1%. The share of each country in the total European gas consumption has remained relatively stable over the past two decades, with variations of only a few percentage points (Figure 4).

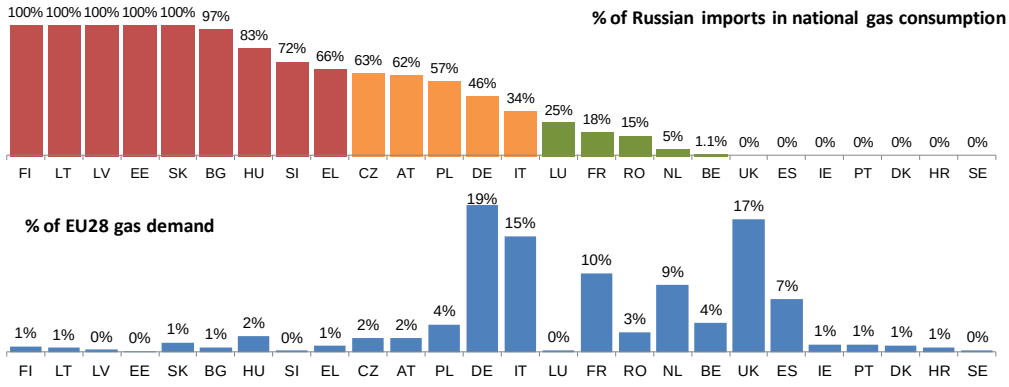
Figure 4: Member States' contribution to EU28 gas demand, 2000-2013



Source: Eurostat, E3G. Note: Visegrad + 2: Poland, Czech Republic, Slovakia, Hungary, Romania, Bulgaria.

Member States most dependent on Russian gas imports only represent 7% of total European gas demand. Latvia, Lithuania, Estonia, Finland and Slovakia are fully reliant on Russia for their gas use; Bulgaria, Hungary, Slovenia and Greece are dependent on Russia for more than two thirds of their gas consumption. These countries are particularly vulnerable to disruptions in Russian gas supply (Figure 5). However their collective needs only represent about a fifth of Russia's gas exports to Europe, and a volume is equivalent to a third of the EU's gas storage capacity.

Figure 5: % of Russian imports in national gas consumption and % of EU28 gas demand

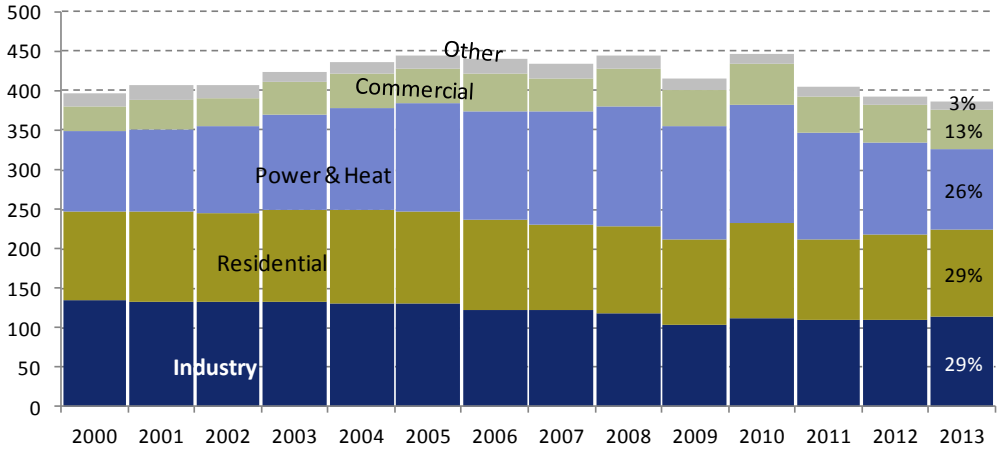


Source: Eurostat, Eurogas, E3G. Note: Cyprus and Malta were not included for lack of data.

The industrial, residential and power & heat sectors constitute the main components of European gas demand. Their respective contributions, although always significant, have changed in accordance with Europe's structural shifts and economic woes over the past 20 years. In 1995 industrial gas consumption represented more than a third of total European gas demand whilst the power sector represented only a fifth. Conversely, low industrial output during the economic crisis led to a drop in industrial gas demand to 25% of the total consumption while the power sector's share rose to 34%.

Gas demand in 2013 was split fairly equally across power generation (26%), industry (29%) and the residential sector (29%). In addition, the commercial sector accounted for 13%; only 3% demand lies in other sectors such as transport, agriculture and forestry (Figure 6).

Figure 6: EU28 gas demand by sector (Mtoe), 2000-2013



Source: Eurostat data, Sandbag, E3G. Note: see appendix for author's sector definition.

The importance of the industrial, residential and power & heat sectors as drivers of gas demand varies across Europe. The UK, where individual gas boilers are commonplace, uses the largest share of its gas in the residential sector: 41% of total consumption, 12% point above the European average. The Eastern European countries of the "Visegrad +2" group use relatively more gas in the industrial sector, and less on power & heat, than other European countries: 37% on average on industry, 19% on power, against European averages of 29% and 26%. In the power sector, Poland and France are the smallest users in relative terms, with only 9% and 11% of their gas consumption going to their power & heat sector due to the large share of coal and nuclear power generation in these two countries (see Figure 7 & Figure 8).

Figure 7: Gas demand per sector for largest European gas consumers, for 2013

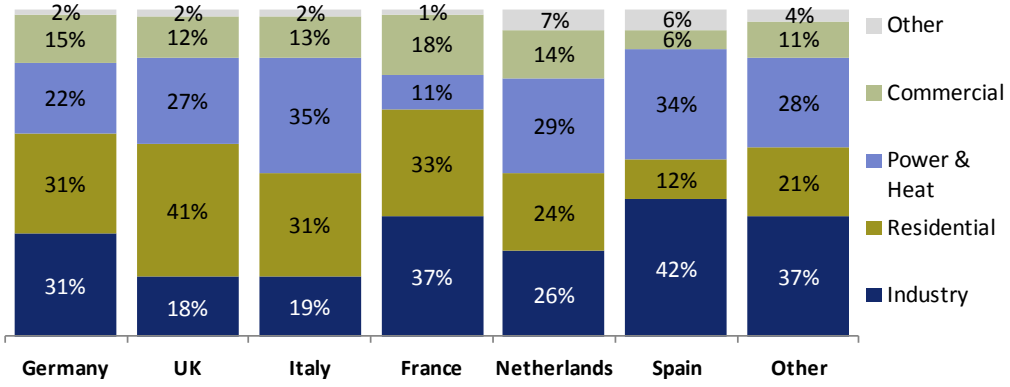
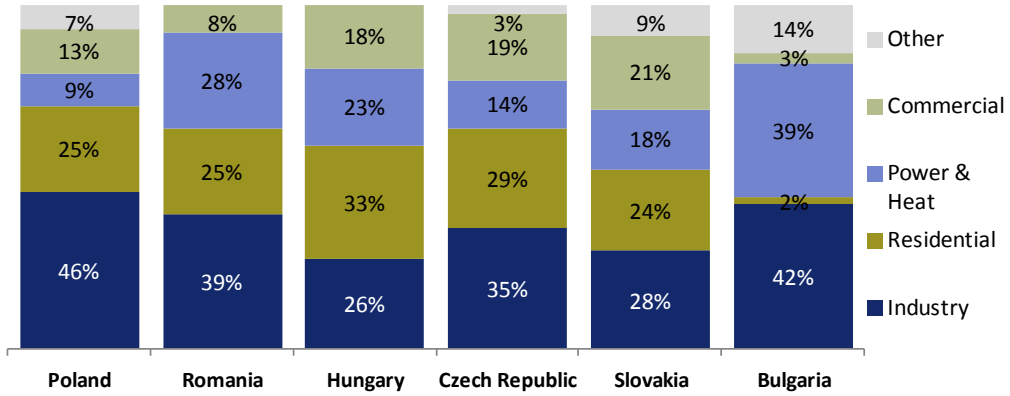


Figure 8: Gas Demand per sector for the "Visegrad+2" countries, for 2013



Source: 2013 Eurostat, data split by sectors

2013 gas demand is on par with 2000 levels, with similar geographical and sectoral splits. Despite an increase of 10% between 2000 and 2010, gas demand dropped to 2% below 2000 levels by 2013. Power & heat, and residential demand levels were virtually the same in 2013 compared to 2000. A 15% fall in industrial demand was compensated with a significant increase in the commercial sector (+64%) (Figure 9). Geographically, the variations were extremely small. Most noticeable changes were a 71% increase in gas consumption from Spain, mainly offset by a 25% drop in UK demand (Figure 10).

Figure 9: Change in sectoral gas demand in the EU28 between 2000 and 2013

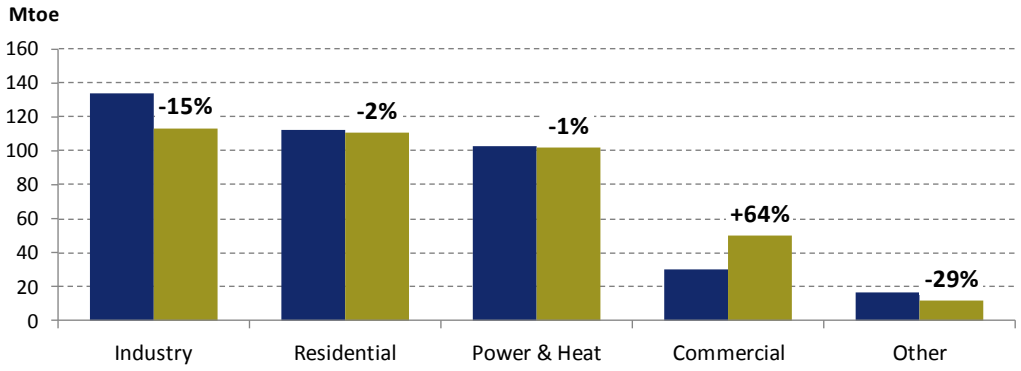
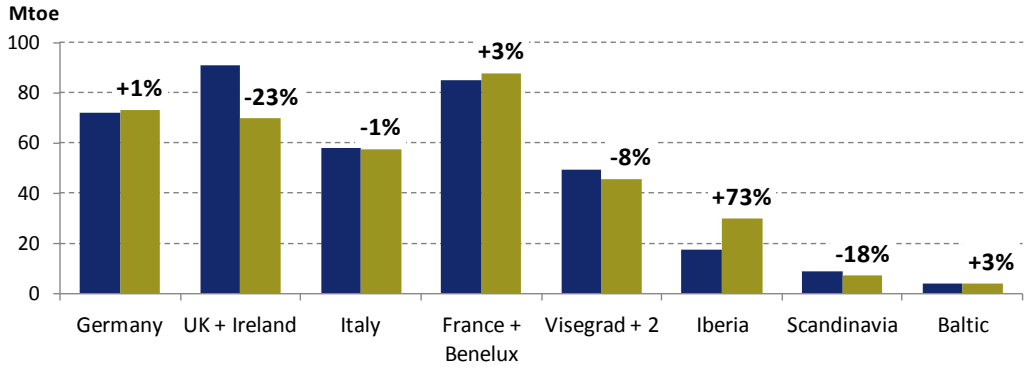


Figure 10: Change in gas demand per region between 2000 and 2013



Source: Eurostat, Sandbag, E3G

CHAPTER 2
INDUSTRIAL GAS CONSUMPTION

Industrial gas demand accounted for 30% of all European gas demand in 2013. The main industrial gas users in Europe are Germany, France, the UK and Spain – accounting for more than half of the EU's industrial gas demand. With Italy, the Netherlands and Poland, they represent three quarters of the EU's industrial gas demand for 2013 (Figure 11).

The largest share of European industrial gas demand comes from the chemical and petrochemical sector, with 17% of the total, with Germany, France, Italy and the Netherlands representing two thirds of this sector's gas demand. Upstream oil and gas is the second largest subsector with 14% of European industrial gas demand (Figure 12).

Industrial gas demand peaked in 2000, and fell by 15% from 2000 to 2013, equivalent to an annual decrease of 1.3%/yr on average (CAGR). The main two deviations from the trend happened in 2008-10, when demand fell by 4.5% during the recession, and when demand bounced up 3.8% in 2013. Interestingly, virtually all this increase in 2013 was from a year-on-year increase in gas demand in France. Eurogas estimates that overall French gas demand fell 16% in 2014, which indicates the increase is likely a one-off occasion (Figure 11).

Industrial gas demand fell despite a rise in European industrial production. Gas demand fell by 15% while European industrial production rose by of 2% throughout that period (Figure 13). Energy efficiency improvements, structural shifts in the European industry and rising gas prices were important drivers in the fall in industrial gas demand.

> Industrial production shifted to less gas-intensive sectors. Although industrial production in total rose by 2% from 2000 to 2013, production fell substantially in high gas-consuming sub-sectors - notably oil and gas extraction (-58%), iron and steel (-8%), and paper (-9%) (Table 1). This happened largely in the UK and Italy.

> Secondly, efficiency improved significantly. The drivers for this are gas prices which have increased by 76% from 2005 to 2013 (Figure 14), technological advancements and roll-out of best practice. In the report "Energy Trends to 2050", the European Commission estimates there were large energy efficiency increases in industry through 2000 to 2010 – annually of 1.4% for iron and steel, 2.0% for non-ferrous metals, and 3.3% for chemicals, (see Table 2).

In all subsectors except oil and gas extraction, the fall in gas demand is larger than the fall in production, suggesting large efficiency improvements. Other drivers could also be structural changes to the industry, such as changes to products (e.g. different chemicals produced), or changes in processes (e.g. less gas used in to steel production, as replaced by coke).

Subsectors were impacted differently. The "Other" subsector fell the most (-38%), which was due to big drop in demand in the textile and transport equipment industry. Gas demand from the iron and steel (-30%), pulp and paper (-22%), upstream oil and gas (-21%), oil and gas extraction (-21%), and non-metallic minerals (-21%) industry also fell by more than a fifth.

Conversely, gas demand from the construction and refineries sectors more than doubled over 2010-2013 (Figure 15).

Geographically, the drop European industrial gas demand came mostly from two countries: the UK (down 45%) and Italy (down 41%), where the collapse in industrial gas demand happened steadily throughout the last 13 years. In both the UK and Italy, the falls were spread across all subsectors – i.e. large-scale deindustrialisation, rather than the collapse of a specific industry, although falling production on the UK oil and gas sectors explains 32% of the UK's fall (Figure 16).

Table 1: Changes in industrial production and industrial gas demand per sector, 2000-2013

Subsector	Change in gas demand	Change in production
Iron & Steel	-21%	-58%
Non ferrous metals	-30%	-8%
Chemicals	-19%	+11%
Non metallic minerals	-22%	-9%

Source: Eurostat

Table 2: Energy intensity of European industries, 2000-2010

Average annual change of energy consumption per unit of physical industrial output (%) over 2000-2010	
Iron & Steel	-1.42%/yr
Non ferrous metals	-2.02%/yr
Chemicals	-3.30%/yr
Non metallic minerals	-0.88%/yr
Pulp and paper	+0.5%/yr
Food, drink and tobacco	-0.60%/yr
Engineering	-1.40%/yr
Textiles	-3.22%/yr

Source: European Commission, **Trends to 2050**

Figure 11: Industrial gas demand in the EU28, per country, 2000-2013

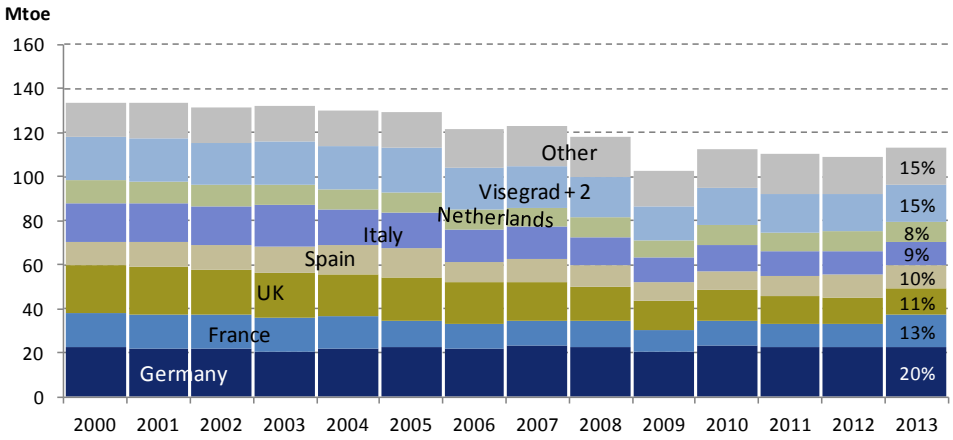


Figure 12: Industrial gas demand per industrial sector, 2013

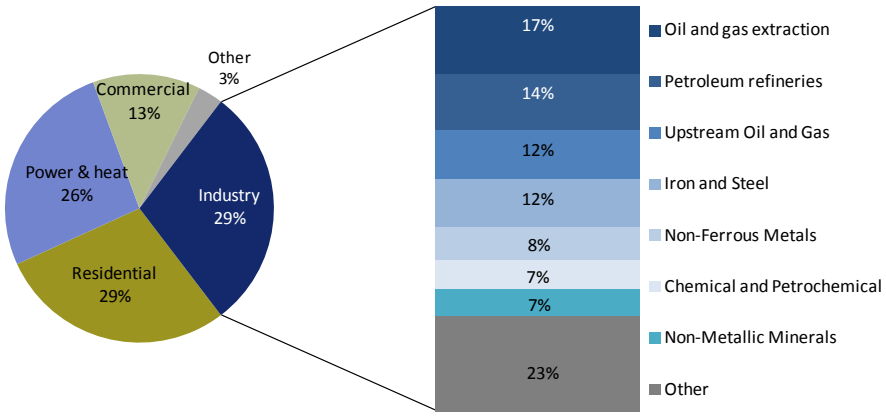


Figure 13: European industrial production and industrial gas demand in the EU28, 2000-2013

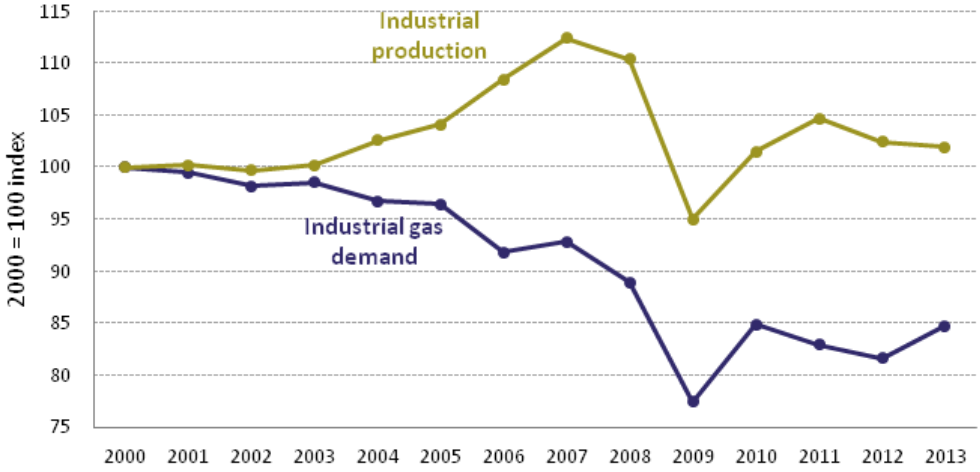


Figure 14: EU27 gas prices for medium-size industries

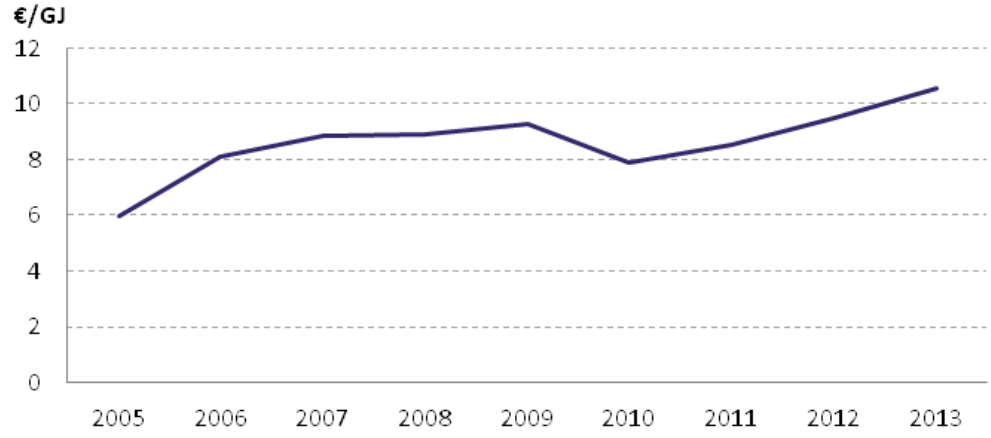


Figure 15: Evolution in industrial gas demand per industrial sector in the EU28, 2000-2013 (Mtoe)

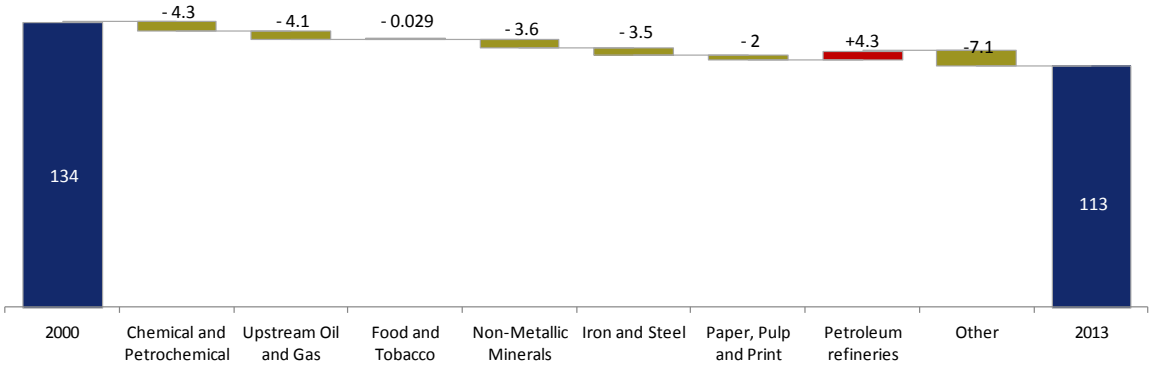
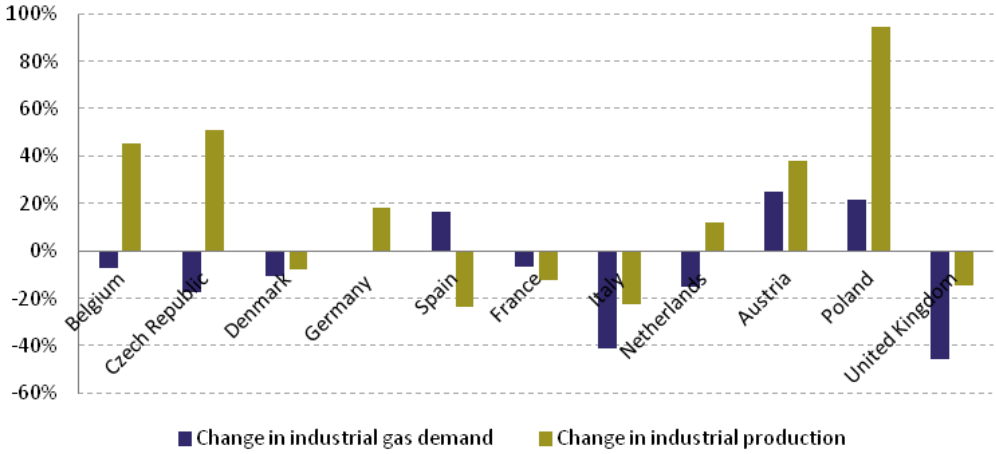


Figure 16: Changes in industrial gas demand and industrial production per country, 2000-2013



Source: Eurostat, Sandbag, E3G

CHAPTER 3
POWER & HEAT GENERATION

Power sector gas demand accounted for 26% of all European gas demand in 2013. A third of the demand comes from Italy (20%) and the UK (17%) (Figure 17). With Germany, the Netherlands and Spain, they account for more than 70% of total power & heat gas demand for the EU. Germany, France and Eastern Europe all have below-average levels of power sector gas demand for their size – Germany and Eastern Europe because of their heavy reliance on coal, and France for its heavy reliance on nuclear.

A 48% increase in power & heat gas demand from 2000 to 2008 was fully offset in only three years between 2010 and 2013. Power & heat sector gas demand fell below 2000 levels in 2013. Sandbag estimates that demand fell by an additional 8.4% between 2013 and 2014. The power sector gas demand was 1% lower in 2013, as compared to 2000 (Figure 18).

The biggest drops were seen in Italy and the UK, accounting for 44% of the drop, but gas demand fell in all countries over 2010-2013, apart from Poland, where it increased by 2% (Figure 19).

The main drivers for falling gas demand are falling electricity demand, increasing renewable generation, and gas-to-coal switching in the merit order. These trends are present in all countries.

> European electricity demand fell by 0.8%/yr on average during 2010-2013, despite rising GDP (Figure 20). Sandbag estimates that power & heat gas demand fell by 2.6% in 2014.

> Renewables generation increased by 67% from 249TWh in 2010, to 418TWh in 2013. Although Germany had the largest increase, 73% of this growth was outside Germany, with almost all countries increasing renewable generation to some extent (Figure 21). According to the European Wind Energy Association[4], 205GW of wind and solar were installed in Europe in 2000 to 2014. Of this, 108GW was installed alone in 2010 to 2013 inclusive.

> In 2010, gas generation was significantly cheaper than coal generation. However, gas prices significantly increased, and Sandbag finds that gas-fired generation was more expensive than coal generation almost every day in 2012 and 2013. This meant that coal generation increased in 2011 and in 2012, despite falling electricity demand and rising renewable generation, leading to a further drop falls in gas-fired generation (Figure 22). In 2013, coal generation fell due to the closure of coal-fired power stations closed as mandated by EU rules.

Gas demand decreased exclusively for main power stations and some CHP plants; demand from auto-producers or district heating stayed constant through this period. Gas demand is further split into subsectors – main plant, CHP, auto-producers and district heating. Only 35%

[4] http://www.ewea.org/fileadmin/files/library/publications/statistics/EWEA-Annual-Statistics-2014.pdf

of the total gas demand in 2013 comes from main gas-fired power stations. The remaining 65% of demand may be subject to operational constraints limiting their ability to follow market price signals: e.g. third party heat contracts, feed-in-tariffs for CHP, direct heat feed into onsite industrial processes, or district heating.

Figure 17: Power & heat sector gas demand in the EU28, by country

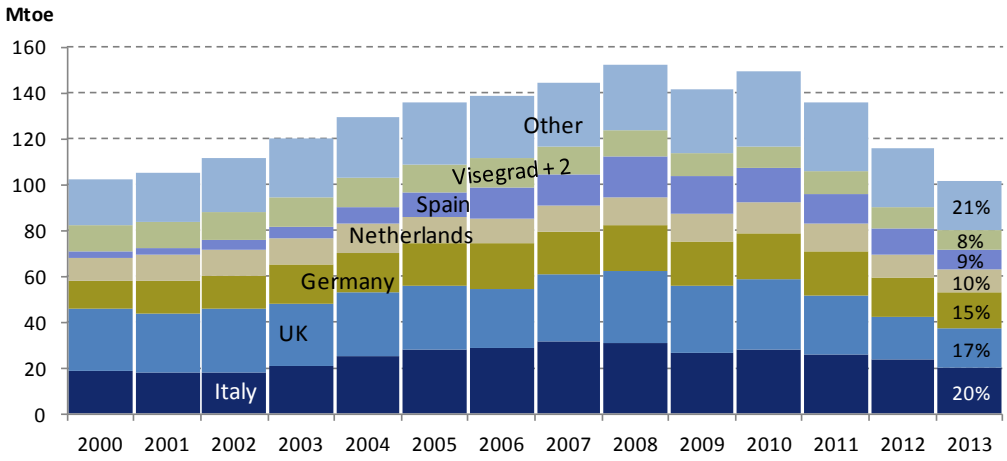


Figure 18: Power & heat sector gas demand in the EU28, 1990-2014

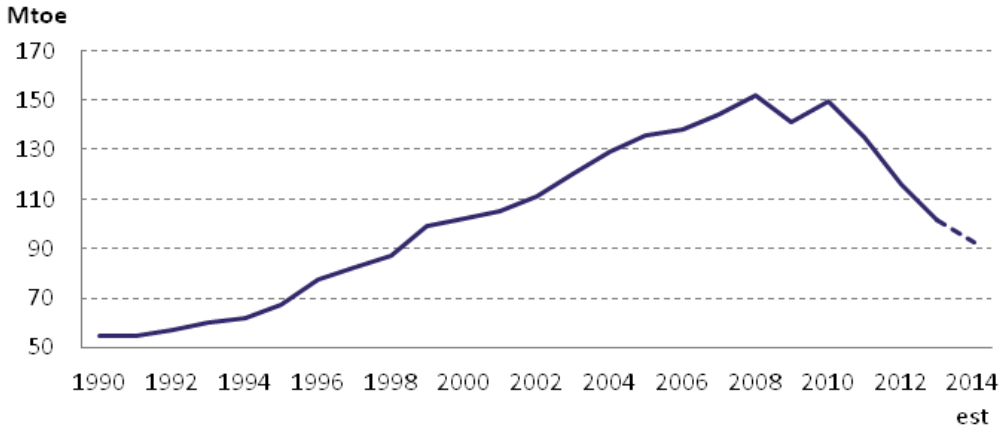


Figure 19: Fall in European power & heat gas demand per country, 2010-2013

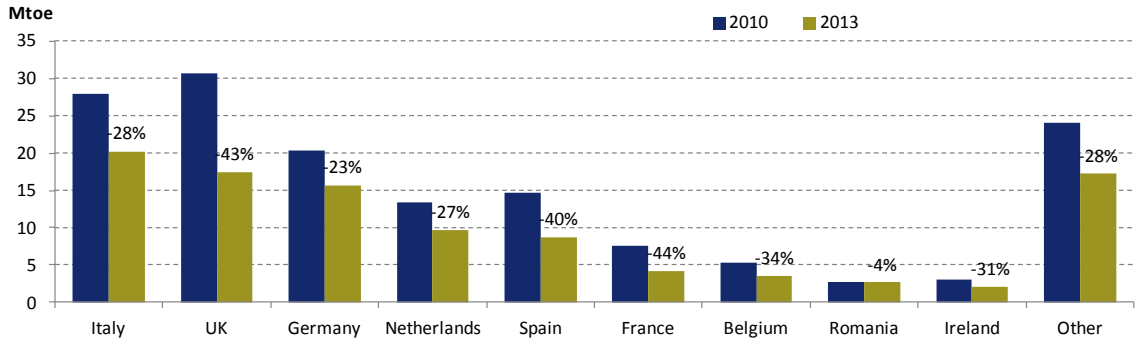


Figure 20: EU28 electricity consumption and GDP

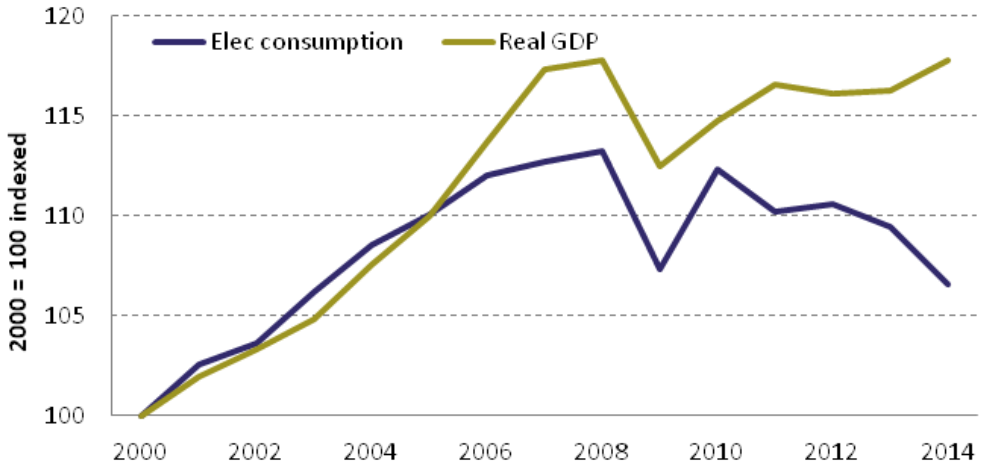
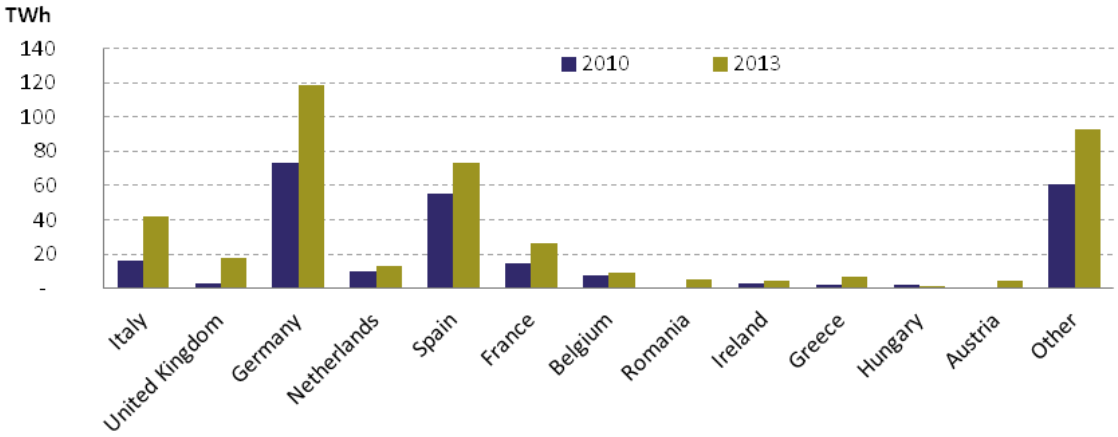
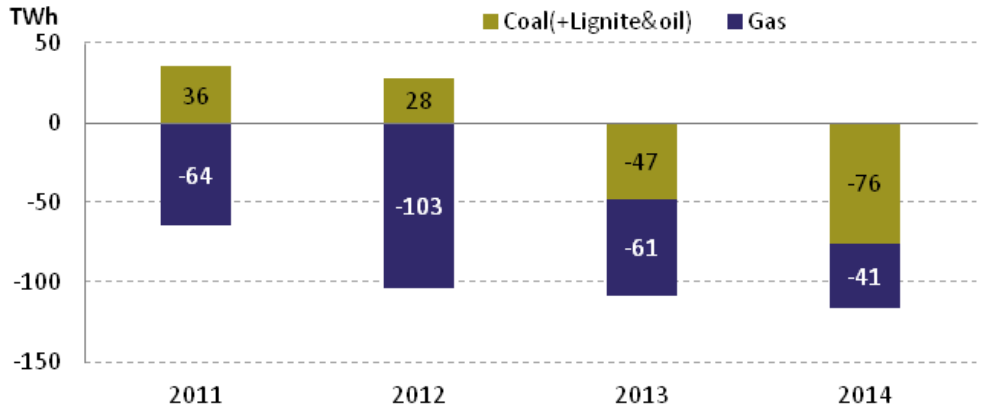


Figure 21: Increase in renewable generation per country, 2010-2013



Source: Eurostat, Sandbag, E3G

Figure 22: Fossil-fuel fired power generation in the EU, year on year change, 2011-2014



Source: ENTSO-E, Sandbag, E3G

CHAPTER 4
RESIDENTIAL GAS CONSUMPTION

Residential gas demand accounted for 29% of all European gas demand in 2013. The UK alone accounted for a quarter of European residential gas demand, and Germany a fifth. With Italy, France and the Netherlands, they account for 80% of total European residential gas demand (Figure 23).

Residential gas demand peaked in 2010 and fell by 9% from 2010 to 2013, despite 2013 being colder than normal. Sandbag estimates that residential gas demand fell further by 20% between 2013 and 2014 due to record mild weather (Figure 24). Residential gas demand is particularly sensitive to temperatures, as most residential gas is used for space heating.

Residential gas demand in 2013 was 2% lower than in 2000 as increases in Spain and Italy were compensated by large drops in the UK and France (Figure 25).

The fall in residential gas demand is falling in great part due to energy efficiency improvements in the UK and Germany, countries which account alone for 45% of residential gas demand. Gas prices for medium-size households have increased by 62% from 2005 to 2013, which also contributed to suppressing demand (Figure 26).

Figure 23: Residential gas demand in the EU28, per country, 2000-2013

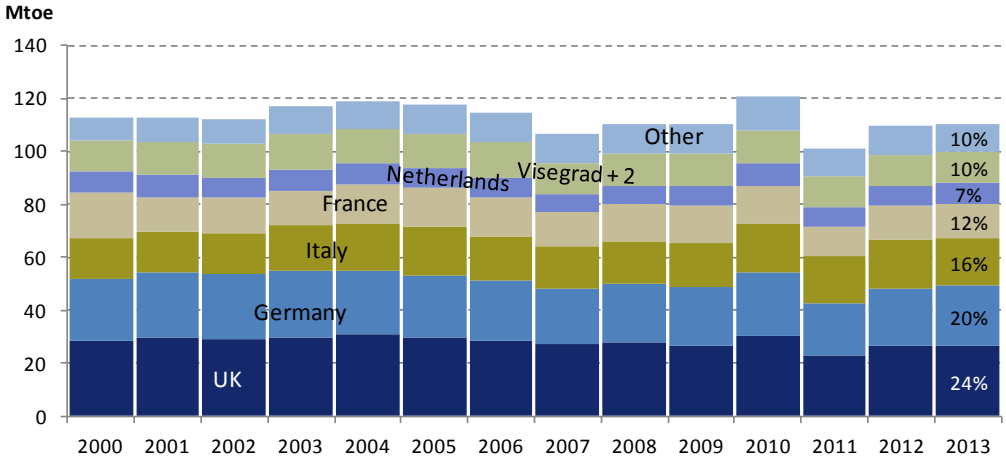


Figure 24: Residential gas demand in the EU28, 1990-2014

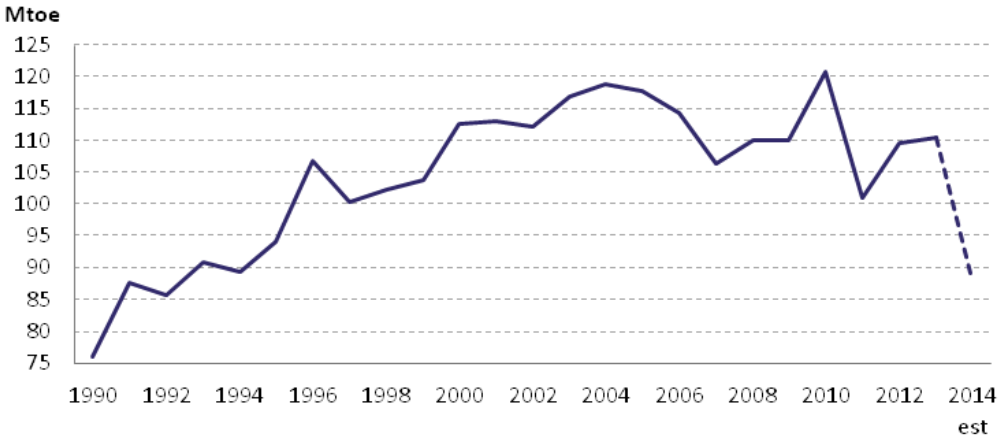


Figure 25: Evolution of residential gas demand per country, 2000-2013 (Mtoe)

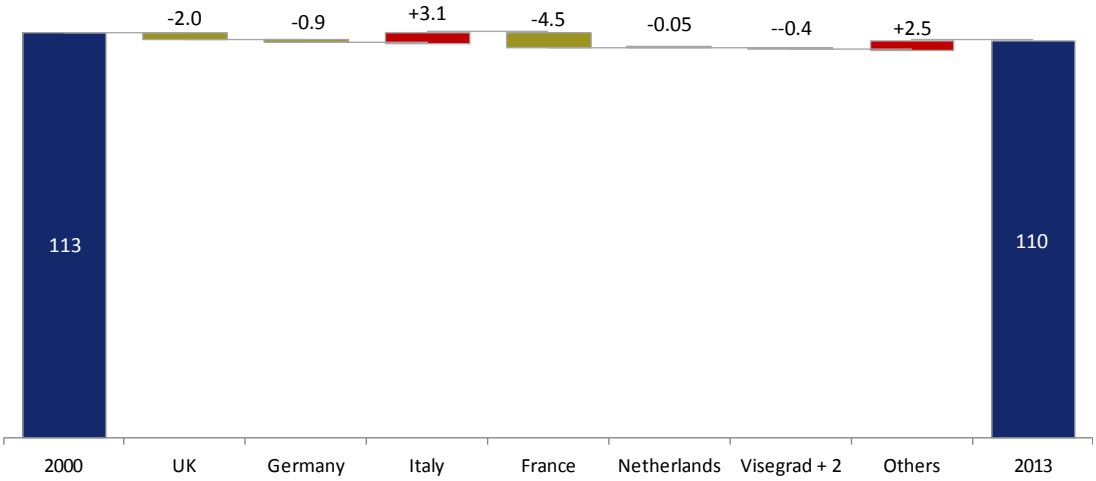
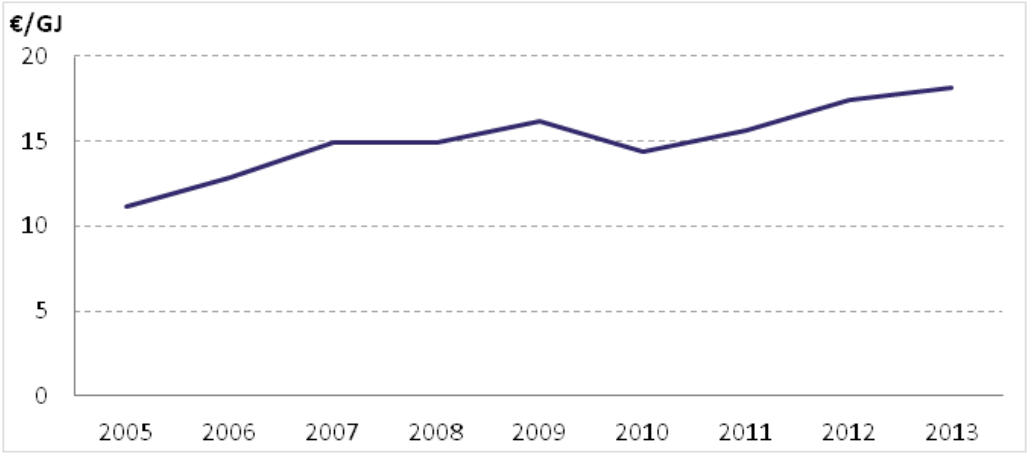


Figure 26: Gas prices for medium-sized households in EU27



Source: Eurostat, Sandbag, E3G.

CHAPTER 5
HISTORICAL DEMAND FORECASTS

Europe has a history of overestimating gas demand. Historical forecasts have consistently revised down their European gas demand growth. The European Commission's Energy Trends reports, using a model called PRIMES, produce Europe's flagship official forecast which feeds into EU policy-making. The European Commission has had to lower its gas demand projections every single time it produced a new reference scenario since 2003. Projections of what gas demand will be in 2015 have decreased by 23% over the past 10 years (Figure 27).

The European Commission is not alone in these overestimations. ENTSO-G, the European Network of Gas System Operators, is tasked with planning the EU gas infrastructure network through regularly updated "Ten-Year Network Development Plans". In its 2009 edition, it foresaw an 8% increase in gas demand from 2010 to 2013; demand actually fell by 14% over this time period - a difference of 22% pt (Figure 28).

Similarly, the upper end of the projected range produced by industry body **Eurogas** in 2013 is significantly lower than the lower end of their projections from 2010 – and their lowest projection from 2013 is still above current actual demand levels (Figure 29).

Three of the largest oil and gas majors also publically release bullish demand forecasts. Exxon, BP and Shell all extrapolate existing trends rather than looking for fundamental shifts in gas use which would impact future consumption. They thus have significantly overestimated current gas demand, and are now revising down their forecasts:

> Exxon produces forecasts for European gas demand for 2025 and 2040. Both figures were revised down by 9% this year, from 22 quadrillion BTUs (584Mtoe) in the 2013 forecast[5] to 20 quadrillion BTU (504Mtoe) in the 2015 forecast[6] for both 2025 and 2040.

> BP's Energy Outlook has revised down their forecast for gas demand in Europe and Eurasia for 2015 by 11% in just 2 years (Figure 30).

> Shell forecasted in 2012 that European gas demand would grow by 10% from 2010 to 2020[7]. By 2013, it had fallen 14% relative to 2010.

Despite these obvious inconsistencies, most current projections still show an increase in gas demand. The upper-bound projection from Eurogas is for an increase in consumption of over 50% by 2035 compared to current levels, and even their lowest estimate represents a 15% increase on 2014. ENTSO-G's latest projections, used to plan gas pipeline investment, range from a 13% increase in EU gas demand to 2030 in its lowest scenario, to a 35% increase by 2030 in its high scenario. The potential impact of a fall in EU gas demand is not assessed.

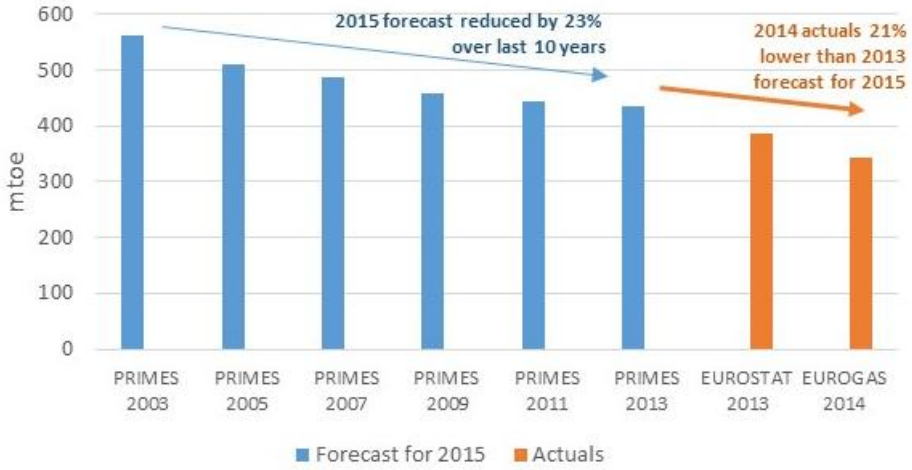
[5] **http://www.slideshare.net/MarcellusDN/exxonmobil-2013-the-outlook-for-energy-a-view-to-2040**

[6] **http://corporate.exxonmobil.com/en/energy/energy-outlook/download-the-report/download-the-outlook-for-energy-reports**

[7] Presentation "Strong Global Gas Demand underpins Shell's strategy", October 2012

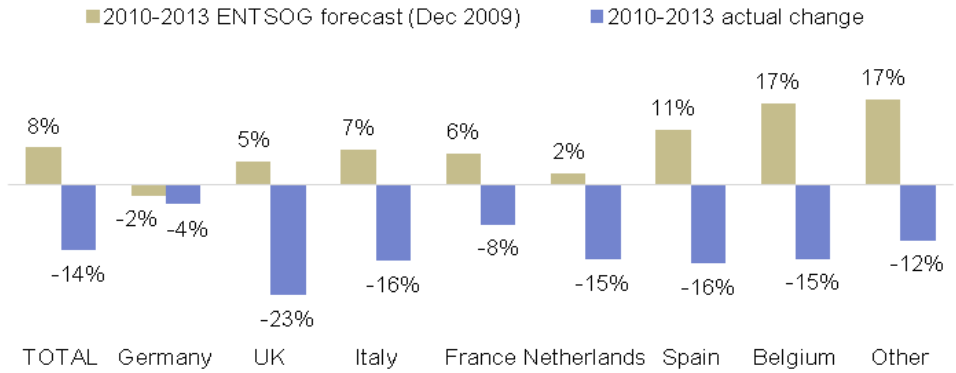
The European Commission's PRIMES reference scenario does show a slight decrease in gas demand to 2030, but still shows 2015 demand to be 22% higher than demand levels in 2014 (Figure 31). By contrast, assessments for the European Commission show that if the 2030 energy efficiency target of 27% is met, gas consumption will fall by 16% compared to the reference.

Figure 27: European Commission PRIMES forecast for 2015 vs actuals



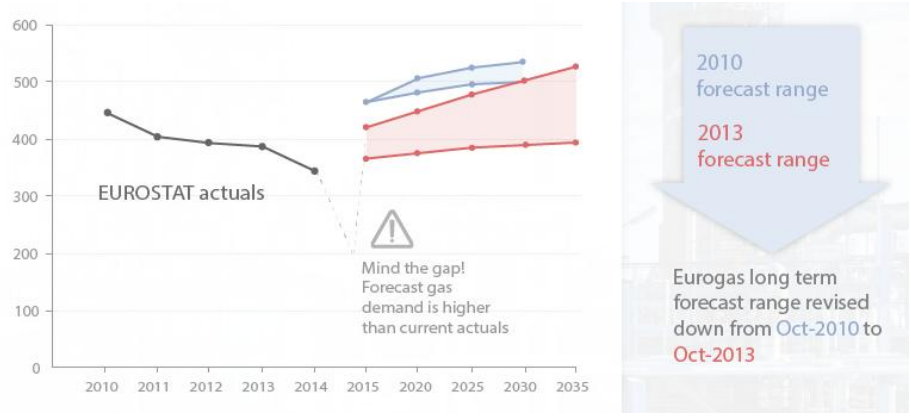
Source: European Commission, Sandbag, E3G

Figure 28: ENTSO-G TYNDP gas demand forecast versus actuals



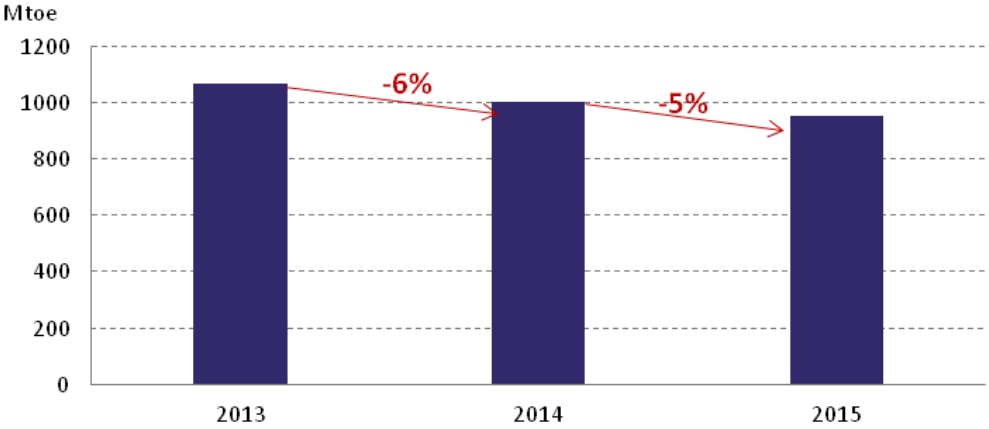
Source: ENTSO-G, Sandbag, E3G

Figure 29: Eurogas demand forecasts (Mtoe)



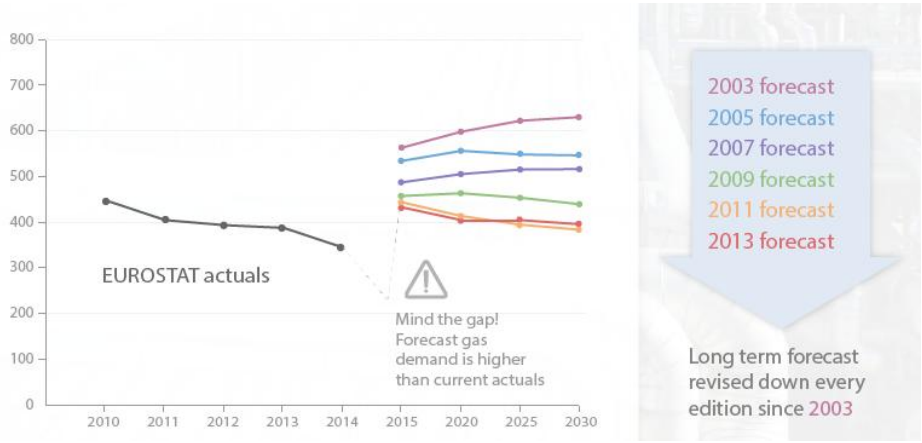
Source: Eurogas, Sandbag, E3G

Figure 30: BP forecast for European and Eurasian gas demand in 2015



Source: BP, Sandbag, E3G

Figure 31: European Commission EU27 gas demand forecasts (Mtoe)



Source: European Commission, Sandbag, E3G

APPENDIX

The following table details the sector split used in this report.

Eurostat definition	Sector definition	Subsector definition
Transformation input	-	
Transformation input in Coke Ovens	Other	Other
Transformation input in Gas Works	Other	Other
Transformation input in Patent Fuel Plants	Other	Other
Transformation input in BKB / PB Plants	Other	Other
Transformation input in Coal Liquefaction Plants	Other	Other
Transformation input in For Blended Natural Gas	Other	Other
Transformation input in Gas-to-Liquids (GTL) Plants (Transformation)	Other	Other
Non-specified Transformation input	Other	Other
Transformation input - Conventional Thermal Power Stations	-	-
- Transformation input in Main Activity Producer Conventional Power Stations	-	-
- - Transformation input in Main Activity Producer Electricity Plants	Power & Heat	Power stations
- - Transformation input in Main Activity Producer CHP Plants	Power & Heat	CHP
- Transformation input in Autoproducer Conventional Power Stations	-	-
- - Transformation input in Autoproducer Electricity Plants	Power & Heat	Power stations
- - Transformation input in Autoproducer CHP Plants	Power & Heat	CHP
Transformation input - District heating plants	Power & Heat	District heating
- Transformation input in Main Activity Producer Heat Plants	-	-
- Transformation input in Autoproducer Heat Plants	-	-
Transformation output	Other	Other
- Transformation output from Coke Ovens	Other	Other
- Transformation output from Blast Furnaces	Other	Other
- Transformation output from Gas Works	Other	Other
Consumption in Energy Sector	-	
Own Use in Electricity, CHP and Heat Plants	Other	Other
Consumption in Oil and gas extraction	Industry	Oil and gas extraction
Consumption in Petroleum Refineries	Industry	Petroleum refineries
Consumption in Coal Mines	Other	Other
Consumption in Patent Fuel Plants	Other	Other
Consumption in Coke Ovens	Other	Other
Consumption in BKB / PB Plants	Other	Other
Consumption in Gas Works	Other	Other
Consumption in Coal Liquefaction Plants	Other	Other
Consumption in Liquefaction (LNG) / regasification plants	Other	Other
Consumption in Gas-to-liquids (GTL) plants (energy)	Other	Other
Consumption in Non-specified (Energy)	Other	Other
Distribution Losses	**Industry**	**Upstream Oil and Gas**
Energy Available for Final Consumption	-	-

Final Non-energy Consumption	Industry	Upstream Oil and Gas
Final Non-energy Consumption - of which Non-Energy Use In The Petrochemical Sector	-	-
Non-energy use in Industry sector	-	-
Non-energy use in Transport Sector	-	-
Non-energy use in Other Sectors	-	-
Non-energy use in Industry, Transformation & Energy Sectors	-	-
Final Energy Consumption	-	-
Final Energy Consumption - Industry	-	-
- Iron and Steel	Industry	Iron and Steel
- Non-Ferrous Metals	Industry	Non-Ferrous Metals
- Chemical and Petrochemical	Industry	Chemical and Petrochemical
- Non-Metallic Minerals	Industry	Non-Metallic Minerals
- Mining and Quarrying	Industry	Other
- Food and Tobacco	Industry	Food and Tobacco
- Textile and Leather	Industry	Other
- Paper, Pulp and Print	Industry	Paper, Pulp and Print
- Transport Equipment	Industry	Other
- Machinery	Industry	Machinery
- Wood and Wood Products	Industry	Other
- Construction	Industry	Construction
- Non-specified (Industry)	Industry	Other
Final Energy Consumption - Transport	Other	Other
- Rail	-	-
- Road	-	-
- Domestic Navigation	-	-
- Consumption in Pipeline transport	-	-
- Non-specified (Transport)	-	-
Final Energy Consumption - Other Sectors	-	-
- Residential	Residential	Residential
- Fishing	Other	Other
- Agriculture/Forestry	Other	Other
- Services	Commercial	Commercial
- Non-specified (Other)	Other	Other
Statistical Difference	Other	Other
From Other Sources - of which From Oil Products	Other	Other
From Other Sources - of which From Natural Gas	Other	Other
From Other Sources - of which From Renewables	Other	Other
Other Sources - of which From Coal	Other	Other