

NATURAL GAS DEMAND AND SUPPLY

Long Term Outlook to 2030

1. Background

On different occasions, Eurogas is asked to present its views on the future of the European gas industry. The forecasts are mainly needed for conferences and bilateral discussions with European institutions. Until now, Eurogas has used IEA, Cedigaz and other available sources. It seems however increasingly necessary for the organisation to have its own consistent forecast available as well as being aware of other groups' views on the future trends of the European gas market.

For the purpose of this analysis, Eurogas set up a Forecasting Task Force (FTF). The main objective of the Task Force can be described as "evaluating and analysing the future role of natural gas in Europe".

2. Methodology

In Spring 2007, the Eurogas members were asked to report to Eurogas their expectations concerning supply and demand in their home markets until 2030 in a standardised questionnaire, based on their national policies in place.

3. EU Energy Demand

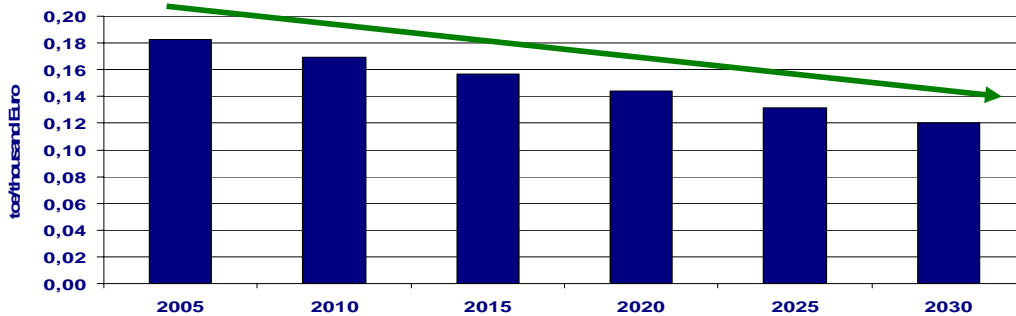
The factors determining future energy demand in the EU27 include:

- continued economic growth of more than 2% p.a.,
- hardly any rise in population,
- oil prices remaining at a high level,
- gas prices determined by market forces,
- increased environmental awareness in politics and among consumers,
- growing trend to save energy and to improve energy efficiency,
- thoughts at national level to use nuclear energy and expand the use of renewables.



Improvements in energy efficiency

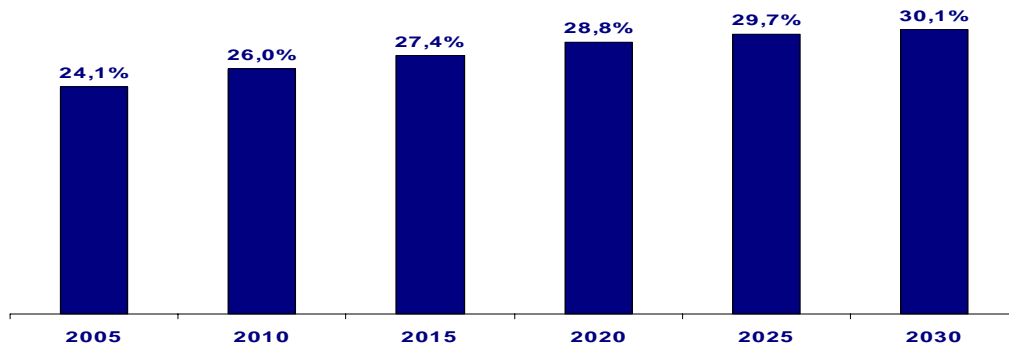
Energy Intensity in EU27: PEC to GDP



At 0.5% p.a., the increase in energy consumption in the EU27 over the next 25 years will be disproportionately low in comparison to other parts of the world (+ 1.6%). Investment in new energy efficiency efforts and climate change commitments by the EU will result in a significant 34% improvement of energy efficiency in the EU27. Energy scenarios developed under a number of different objectives have one common message: fossil energy sources will continue to be the backbone of European energy supply over the next twenty five years.

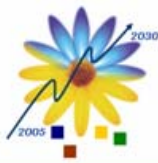
4. Growing market share expected for natural gas

Over the period the share of natural gas is expected to reach 30% of the Primary energy Consumption.



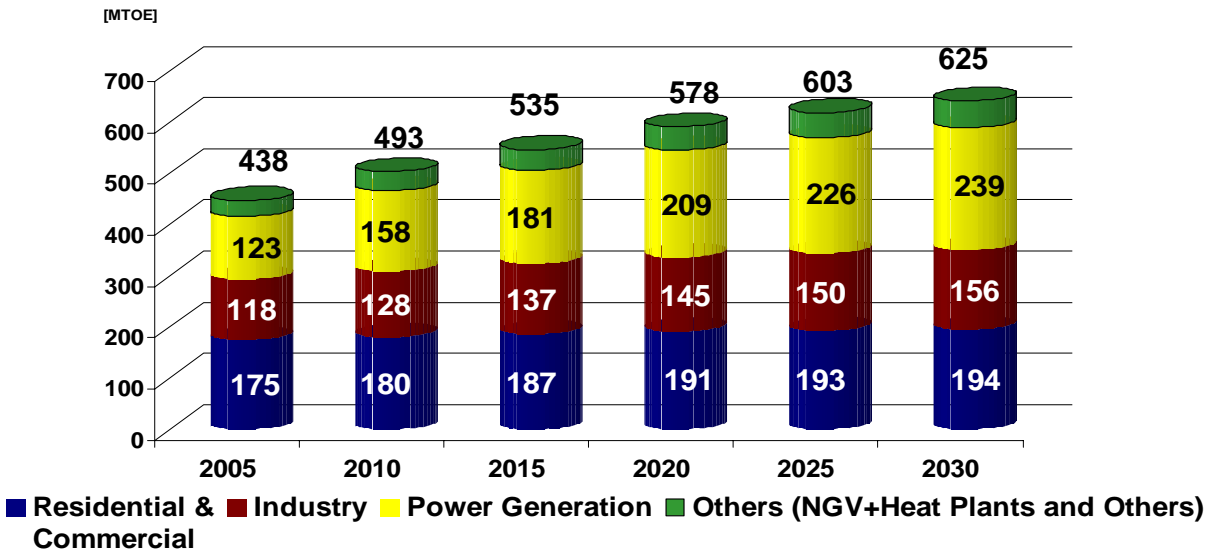
Because of "its green properties" and highly efficient application technologies, natural gas will remain the fuel of choice and will continue to make a growing contribution to energy supply in the EU27. Natural gas can play an important role as a bridging fuel to a sustainable energy future over the coming decades. Natural gas consumption in EU member states is expected to increase from 438 mtoe in 2005 to 625 mtoe in 2030, which is an increase of 43%. The share of natural gas in the





European primary energy demand will rise from 24% in 2005 to 30% in 2030 (18% in 1990). At 60% of the total demand increase, most of the growth will come from power generation.

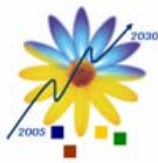
EU27 Natural Gas demand outlook by sector



4.1 Residential and commercial sector

In the residential and commercial sector, gas consumption has steadily increased in line with the expansion of the infrastructure and the associated rise in the number of gas users. Over the last 15 years, gas consumption has seen a 2.8% growth p.a. to 175 mtoe. Gas currently holds a market share of approx. 35 %, which makes it the market leader in this sector. In 2005, approx. 80 million homes in the EU27 were supplied with gas. In the future, the population in the EU27 will grow only moderately. In some countries it is even likely to decrease. Further market penetration in this market segment will also slow down considerably. The reasons are, firstly, there is already high market penetration in some major gas consuming countries, as over time other countries will also reach gradually saturation in the residential and commercial market. Secondly, the low population density, settlement structures and topographical conditions in some countries set relatively narrow economic limits to greater market penetration. Further factors likely to limit gas demand include the improved energy efficiency of buildings, either through the implementation of better thermal insulation standards or the use of new heating systems with higher energy efficiencies or, in some countries, increased competition from renewables. All these factors are likely to slow down volume growth quite substantially. Until 2030, Eurogas expects gas sales to increase by only 0.4%/a to 194 mtoe.



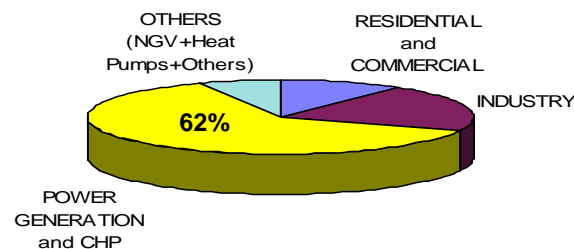


4.2 Industrial sector

Gas currently accounts for 33 % of industrial final energy consumption (excluding industrial power stations) and is thus a major source of energy in this market, too. This sector is traditionally successful in energy conservation. Given the strong international competition facing the European industry, the sector had to adapt and decrease its production costs. This explains the continuous investments necessary to renew the production plants. This trend is likely to continue in the future. That means: the increase in energy consumption due to production developments will largely be cancelled out by efficiency-improving investments in plant modernisation and replacements.

In this sector, the price of energy plays an important role and only if natural gas can be supplied at competitive prices would gas be in a position to expand its market share and its sales volumes at the expense of oil and coal. On this assumption and with some support from emissions trading, gas sales to industry could be increased by some 1%/a to 156 mtoe until 2030.

4.3. Power generation



The role of natural gas for power generation has increased significantly, ever since the 1990s, particularly because of developments in the UK, in Italy and Spain. Today, gas-fired power stations produce one fifth of the electricity in the EU27 (7.5% in 1990). Various special factors must be borne in mind when assessing the future use of gas in power generation. In this particular field, the present situation for gas is extremely heterogeneous due to diverse natural conditions as well as economic and political decisions in the individual member states.

Further developments in this sector may depend on the energy policy (mainly nuclear) of the individual countries, the integration of renewables in electricity generation and the evolution of the European trading scheme. The price of gas will determine the load factor in which gas-fired power generation may/will be used.





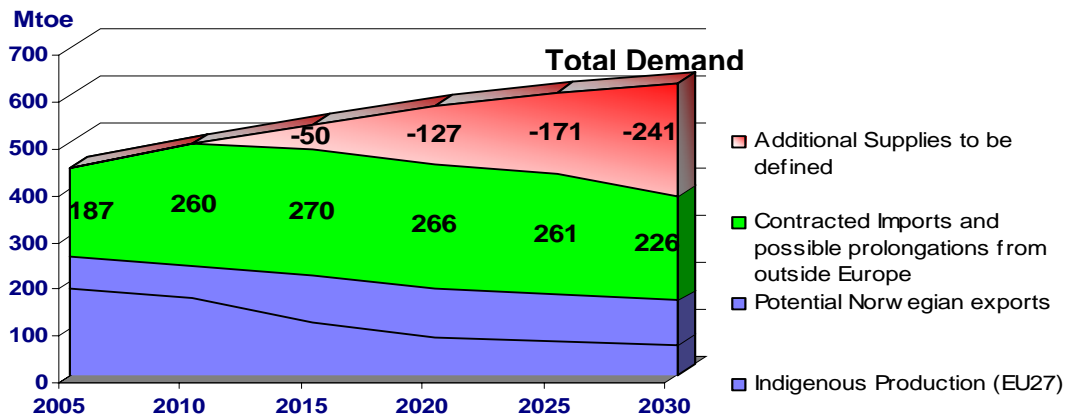
The main competitors of natural gas are coal and oil as well as renewables. For our analysis, we have assumed that the current stated national nuclear policy will continue to be pursued.

Eurogas expects the largest increase in gas consumption to come from power generation (from 123 mtoe in 2005 to 239 mtoe in 2030). The annual growth rate in this market segment during this period is expected to be 2.7%, which means that power generation should increase its share from 28% (2005) to 38% of total gas demand in 2030.

The reasons for the expected growth in the power sector are well known, notably the environmental benefits of gas over coal, the shorter plant construction times and the highly efficient technology.

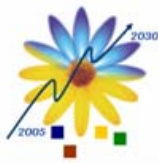
Despite these positive trends however, future demand increase may not be as strong as forecasted above, because of higher and more volatile natural gas prices, the effect of environmental protection measures, the increased use of renewables in power generation and in the heat market, a possible revival of nuclear energy and the greater climate change awareness. These concerns reflect an increasing uncertainty regarding future gas demand.

5. Supply



While gas demand in Europe will rise by 43% by 2030, domestic production will decrease. Today European production (incl. Norway) accounts for 59 % of supplies to EU gas markets and is expected to drop to a third by 2020 and to a quarter by 2030. Against this background, the European gas industry has already contracted gas deliveries from regions outside Europe that fully cover the foreseeable demand in the medium term. It is not until 2015 that a substantial gap emerges between demand and the supplies coming from European production or imported from outside Europe.





The proportion of additional supplies needed will gradually widen from 10% in 2015 to 22% in 2020 and to approx. 39% in 2030. This is not a fundamentally new phenomenon, but reflects the long-term supply situation: the further one looks into the future, the larger the volumes still needed are considered to be.

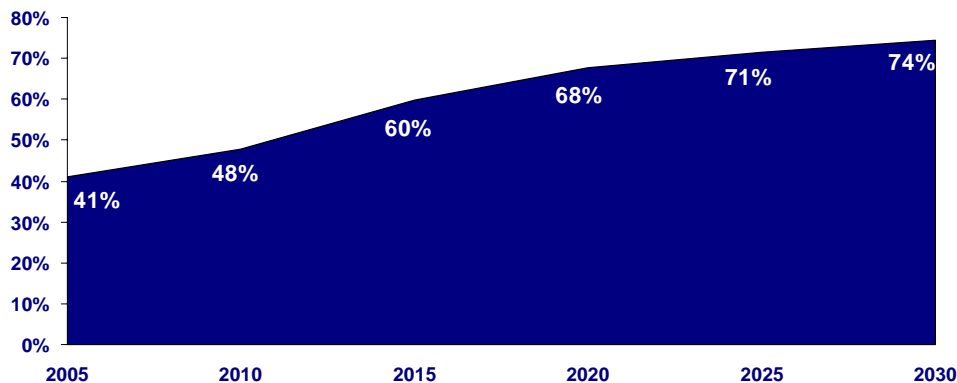
Consequently, the European gas industry is now focusing its gas procurement especially on the period after 2015.

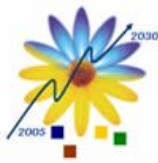
Today, it can basically be assumed that for the European gas industry, which is becoming ever more dependent on imports, there are sufficient gas reserves available in the long run in countries which are accessible in terms of transmission distances. They include Russia, countries on the Gulf and in North and West Africa. Of the world's proven recoverable gas reserves totalling 181.46 trillion m³ with a static life of 63 years, 75 % are located in such countries situated at a favourable distance from Europe. Nevertheless, new additional gas will come from more distant regions and from fields that are increasingly difficult to develop with the consequence of rising production and transport costs.

Taking into account the growing gas demand world wide and the decreasing indigenous production in Europe, it will require a huge effort and substantial investments of the suppliers to mobilise this gas in time.

Besides, when assessing supply options, it has to be kept in mind that competition for supplies will become far stiffer on international procurement markets. Other regions like North America and South-East Asia with its emerging economies will increasingly compete for gas on the world market.

EU27 import dependency from outside Europe





Having strengthened its competitive position in comparison with pipeline gas over long distances LNG will globalize the gas market and open further potential gas sources for Europe. LNG is a fast growing sector in the world gas market. Global LNG shipments rose by approx. 12% last year to around 181 mtoe/y. In 2006 LNG imports in Europe rose to almost 52 mtoe/y, representing a share of 11% of the total gas market.

A number of new LNG terminals are under construction, while existing terminals are expanded. The regasification capacity in Europe will double from 69 mtoe/y to 142 mtoe/y in 2010. In the long term LNG could represent 25% of the total EU supplies.

To make all the necessary additional volumes available to Europe, substantial investments are needed in the medium to long term. Over the period, it is estimated that 221 Billion euro of investments will be needed in the European gas sector¹. These investment needs exist at all stages of the supply chain: exploration and development, transmission systems incl. LNG infrastructure as well as storage capacity.

Despite the increasing importance of short term contractual agreements, long-term supply contracts will remain the backbone of the European gas supplies. For one thing, long-term import contracts provide the requisite security and prospects for investments totalling billions of euros in the upstream sector and they ensure that new import infrastructures are fully utilised.

Whether or not it proves possible in the future to mobilise gas reserves and direct them towards European markets finally depends on the general framework for the energy industry on sales markets, on the availability of investments as well as on how the market value obtainable for gas develops in the course of time.

¹ EC forecasts

