eurogas

LONG TERM OUTLOOK FOR GAS DEMAND AND SUPPLY

2007-2030

Content

Executive Summary

Given the economic crisis and greater focus of energy policy on energy efficiency and renewables, expectations in respect of gas demand in the medium to long term are now lower than three years ago. Nevertheless, policy emphasis on the environmental friendliness and highly efficient technologies needed give gas a key role in a realistic EU climate policy, the goals of which cannot be achieved solely through increased use of renewables. Whether we consider the Base Case Scenario or the Environmental one, natural gas demand in the EU is still forecast to grow, by 14% to 23% until 2030, with most of the growth expected to come from power generation.

The current slump in demand is accompanied by strong supply pressure on European procurement markets, although most observers do not predict that the present excess supply situation will continue in the long term. Taking into account the increasing gas demand and decreasing indigenous gas production in Europe, the currently contracted gas supply cannot meet gas demand in the longer term and new imports are necessary from 2015 onwards.

The procurement challenge cannot be considered in isolation from global developments and the financial crisis has made investments more difficult in all segments of the chain. Fortunately natural gas reserves are abundant worldwide and Europe is in a relatively good geographical position to diversify gas supply.

The European gas industry is committed to provide European customers with reliable and diversified gas supplies, at competitive prices, within an effective and competitive gas market, to contribute to a sustainable energy policy. Any pragmatic road for a sustainable future has to involve a larger role for gas.

Methodology

Three years ago, the Eurogas Forecasting Task Force prepared and presented its 2007 long-term outlook. The developments and events which have occurred in the meantime call for a fundamental review of the outlook produced at that time. In the course of the update, it was especially necessary to determine the effects on gas demand in the EU to be expected as a result of energy policy goals of the EU (20x20x20 targets) and the economic crisis.

At the beginning of 2009, the Task Force discussed different options for continuing with future projections on gas demand and supply. Conceivable options included developing a 'Dedicated gas model for Eurogas', using the services or an existing energy model of a consultant, or conducting our own questionnaire based survey. The main advantages of the latter option, which had been used by the Task Force to date, were that the use of the expertise pooled within the Task Force would provide realistic estimates over the long term. It can be assumed, at least for the large consumer countries, that the demand estimates are based on models tailored to the specific conditions in the respective country.

As regards methodology and objectives, "political scenarios" must be assessed differently. The primary objective of such scenarios is to examine how the energy supply situation for the European Community could develop if the energy policy goals were to be achieved. They provide a valuable basis for assessing possible requirements for action in the context of energy policy discussions; of course, uncertainties remain with respect to their successful implementation.

In summer 2009, the Eurogas members were asked to report their expectations concerning supply and demand in their home markets until 2030 in a standardised questionnaire considering the following common assumptions:

- Europe-wide regulatory pressure for intensifying competition (gas and electricity),
- Continued development of economically viable gas infrastructure,
- New gas supplies not prevented from reaching market,
- In most countries, long-term contracts remain the main basis for supplies,
- Oil prices are the leading indicator in the energy market,
- Fuels are competing with each other,
- Upstream gas supply contracts with orientation to oil prices,
- Continuation of EU CO_2 Emissions Trading Scheme with full auctioning beyond 2012,
- Continuation and further development of energy policies and measures in place.

The balance of gas demand and supply is considered with reference to the following price levels expressed in real terms:

	2009 (1Q)	2015	2030
Oil ($/bbl)	50	60-70	80-100
Coal (€/t)	60	60-70	70-90
CO_2 (€/t)	15	20-30	40-50

In addition to this base case scenario a second one ("environmental scenario") has been examined in order to show to what extent natural gas can contribute more to a sustainable energy supply in the EU27 under the following assumptions:

- Faster economic recovery and GDP growth,
- More favorable energy policies towards natural gas,
- Natural gas prices competitiveness is ensured,
- CO_2 prices at the upper end of the assumed range.

EU Energy Demand

The factors determining future energy demand in the EU27 include:

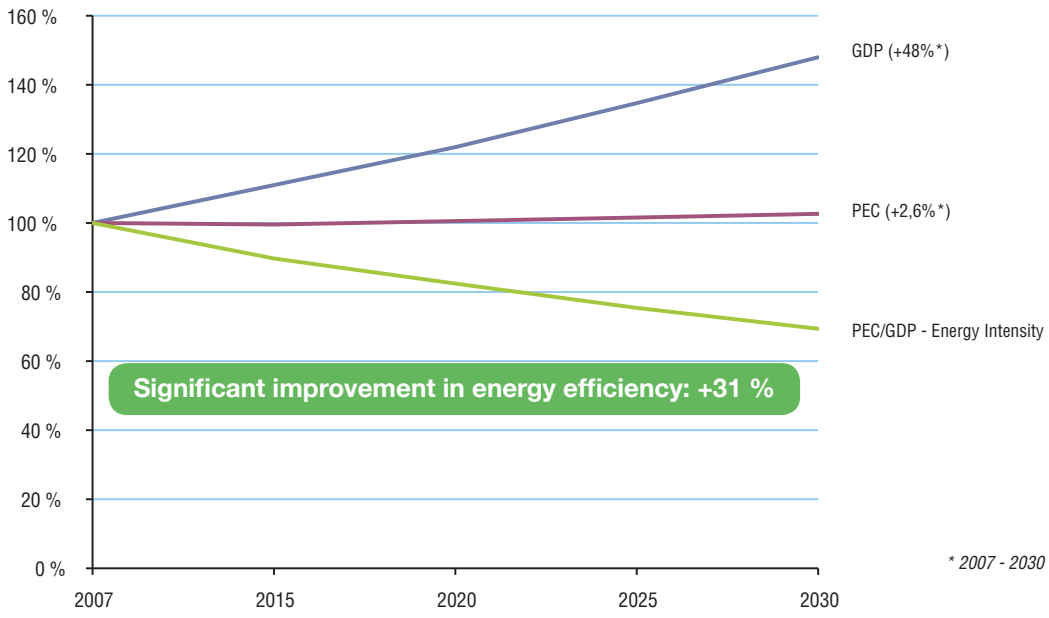
- Continued economic growth of 2% p.a. after the economic crisis has been overcome,
- Near stable population,
- Increased environmental awareness among politicians and consumers,
- Growing trend to save energy and to improve energy efficiency,
- Deliberations at the national level to use nuclear energy and expand the use of renewables.

It is assumed that energy consumption in the EU27 will grow only at the minimal rate of 0.1% per annum over the next 20 years. Investment in new energy efficiency efforts and climate change commitments by the EU will result in a significant 31% improvement in energy efficiency in the EU27. Energy scenarios developed with reference to a number of different objectives have one common message: fossil energy sources will remain the backbone of European energy supply over the next twenty years.

'Investment in new energy efficiency efforts and climate change commitments by the EU will result in a significant 31% improvement in energy efficiency in the EU27.'

Improvements in Energy Efficiency

EU27: Primary Energy Consumption, Gross Domestic Product, Energy Intensity



Share of Natural Gas in Primary Energy Consumption

Growing Market Share expected for Natural Gas

After years of almost uninterrupted growth, the European gas industry for the first time faced severe sales losses last year. According to the first estimates of Eurogas, EU gas demand dropped by 6.4% last year in comparison with 2008. One of the main reasons for this was the slow-down in industrial sales, which represent more than one third of EU gas consumption. Industrial consumers use natural gas mainly to generate process heat; any decline in industrial production therefore has a direct impact on gas demand in this sector. Key factors which reduced gas sales to power plants included the low demand for electricity and comparatively high gas prices during the first months of 2009.

In the opinion of the Task Force, it will take several years before gas demand reaches the highs recorded in previous years, for example in 2005. As a result of the economic crisis and the action taken in the meantime to reach EU targets, expectations concerning the long-term development of gas demand are now some 15 to 20 % lower than three years ago.

Nevertheless, natural gas demand in the EU can still be expected to grow. Natural gas consumption in EU member states is expected to rise from 437 mtoe in 2007 to a range between 500 and 535 mtoe in 2030, which corresponds to an increase between 14% and 23%. The share of natural gas in European primary energy demand could rise from 24% in 2007 to 27%-29% in 2030 (18% in 1990). Most of the growth is expected to come from power generation.

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 fuel for the development of a sustainable energy future over the coming decades.

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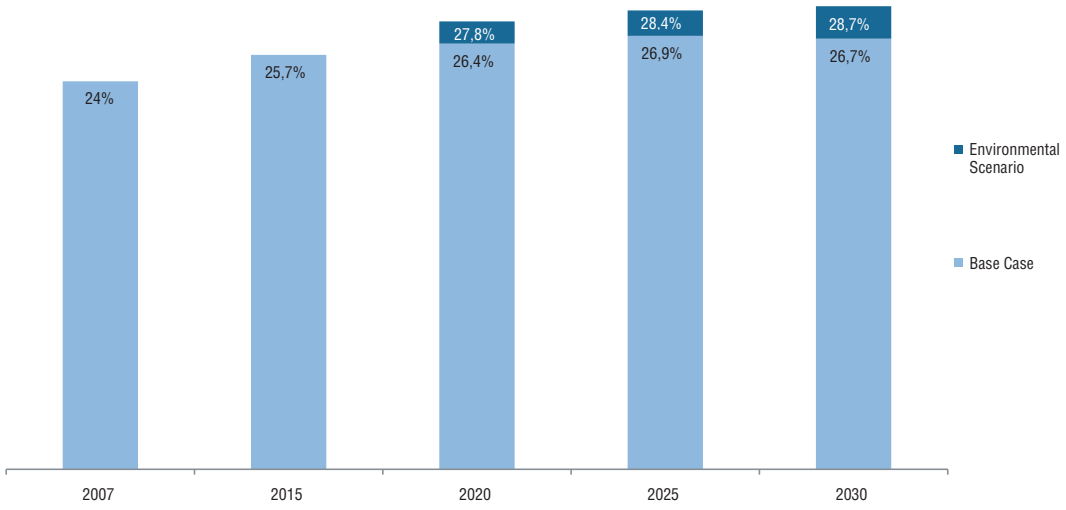
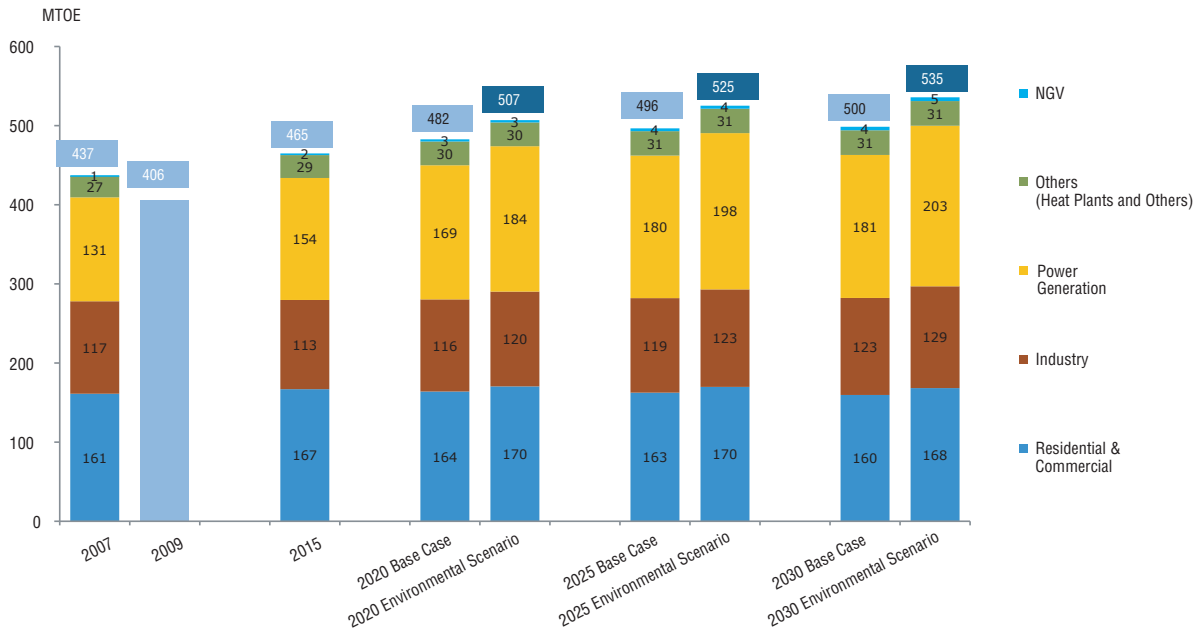
Rising Share of Natural Gas in EU27 in Primary Energy Consumption



Natural Gas Demand by Sector

EU27 Natural Gas Demand Outlook by Sector



Residential and commercial sector

In the residential and commercial sector, gas consumption has steadily increased in line with the expansion of infrastructure and the associated rise in the number of gas users. Over the last 12 years, gas consumption has seen annual growth of 1.5% to 160 mtoe. Gas currently holds a market share of approx. 35 %, which makes it the market leader in this sector. In future, the population of the EU27 will grow only moderately. In some countries it is even likely to fall. Further market penetration in this market segment will also slow down considerably. The reasons are as follows: firstly, high market penetration has already been reached in some major gas consuming countries; in the course of time, other countries will also gradually reach 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 for 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. In the Base case scenario Eurogas expects gas sales to peak in 2015 and then to fall slightly back to the current level.

Given a faster market penetration of highly efficient heating technologies, such as condensing boilers combined with solar energy, micro-cogeneration, gas heat pumps and ultimately fuel cells, the contribution made by gas to supplying the space heating market could be kept stable in the long run at a level of 170 mtoe.

Industrial sector

Gas currently accounts for 31 % of industrial final energy consumption (excluding industrial power stations) and is thus a major source of energy in this market, too. This sector has traditionally been successful in energy conservation. Given the strong international competition facing European industry, the sector had to adapt and reduce its production costs. This explains the continuous investments needed for renewing production plants. This trend is likely to continue in the future. As a result, the increase in energy consumption due to production developments will largely be cancelled out by efficiency-improving investments in plant modernisation and replacement.

In this sector, the price of energy plays an important role and gas will only be in a position to expand its market share and its sales volumes at the expense of oil and coal if it can be supplied at competitive prices. Depending on economic developments and the price competitiveness of gas, gas sales to industry could increase slightly to 123-129 mtoe in 2030.

Power generation

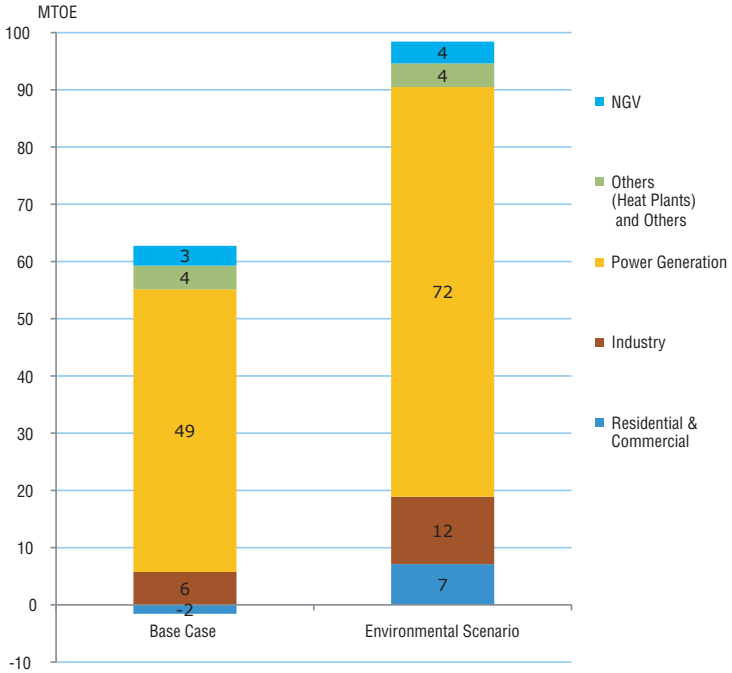
The role of natural gas for power generation has increased significantly since the 1990s, especially because of developments in the UK, Italy and Spain. Today, gas-fired power stations produce one fifth of the electricity in the EU27 (7.5% in 1990).

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 depend on the growth of electricity consumption, the energy policy (mainly nuclear) of the individual countries, the integration of renewables into power generation and the evolution of the European CO_2 Emissions Trading Scheme. The price relativity of gas to coal and oil as well as the prices for CO_2 will determine the load factor at which gas-fired power generation may or will be operated. For our analysis, we have assumed that the current national nuclear policy will continue to be pursued in the future.

Demand increase by sector between 2007 and 2030:

The dominant role of gas to power is evident.



Looking at the chart presenting the contribution of each sector in the total demand increase in absolute terms, Eurogas expects the largest increase in gas consumption to come from power generation (from 131 mtoe in 2007 to 181-203 mtoe in 2030). The annual growth rate in this market segment during this period is expected to be 1.4-2%, which means that power generation would increase its share from 30% (2007) to 36-38% of total gas demand in 2030.

Gas offers considerable potential for reducing CO_2 emissions in power generation at low cost.

- Compared to conventional coal fired generation, it only generates 40%-50% as much carbon per kWh.
- CCGTs are an environmentally attractive option while renewables are being developed to widespread commercial scale. Combined-cycle turbines are quick and relatively cheap to build.
- Natural gas plants can be operated very flexibly and can be expanded with easier public acceptance.
- Because of its flexibility, gas is an ideal back-up for renewable energy by compensating for the inherent intermittency of wind and solar power operations.

(1) Source: NGVA Europe statistics - June 2009

Against this backdrop, there have been calls to exploit the environmental benefits of natural gas in this segment to an even greater extent with a view to achieving ambitious climate protection targets.

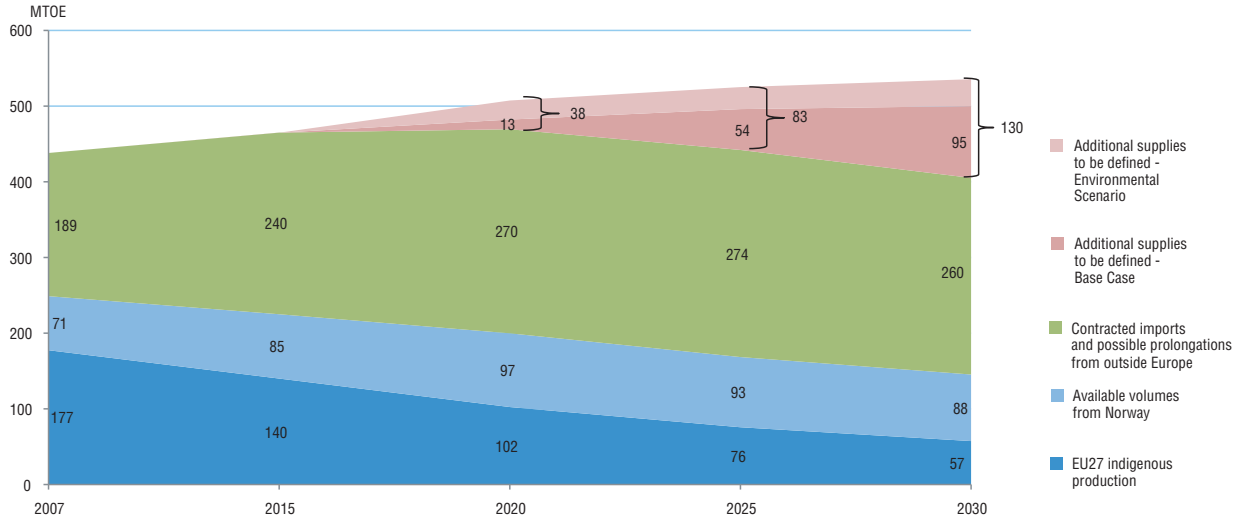
In such a scenario combined with high CO_2 prices, the expected gas demand for power generation in the EU27 might be at the upper end of the forecast range.

'Gas offers considerable potential for reducing CO_2 emissions in power generation at low cost'

If today natural gas vehicles in EU amount to around 780 000 vehicles[1] (and 1 MTOE of Natural Gas consumption), they have the potential to reach a fivefold increase if the right political environment and coordinated support of all stakeholders are in place.

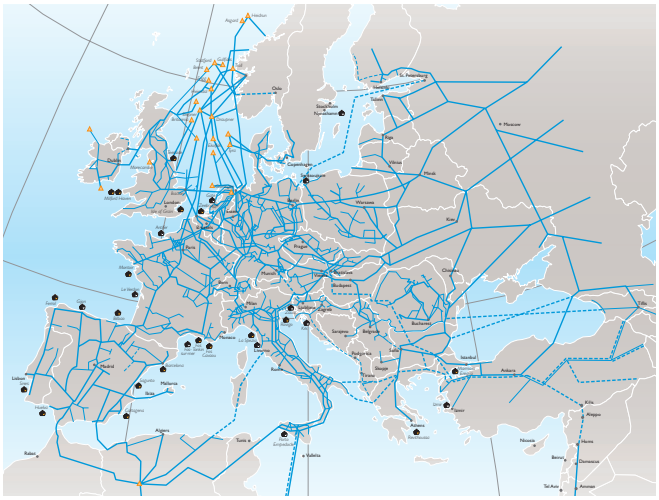
Supply

EU27 Supply Outlook



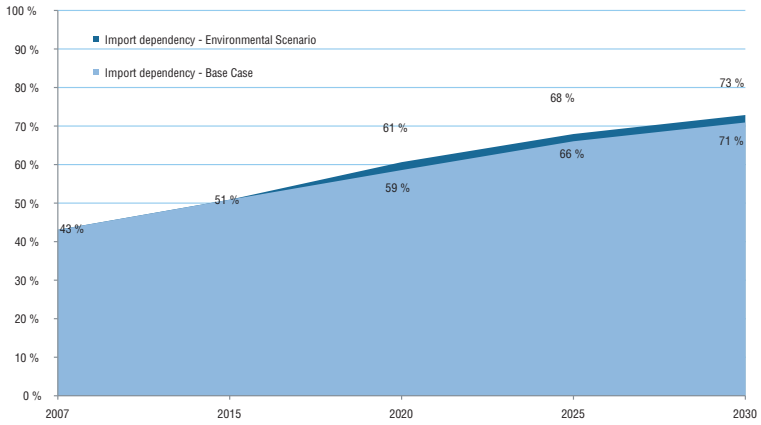
The slump in gas demand in Europe last year has created the current oversupply in the gas market. Besides the cost reduction in shale gas production in the USA has changed the global gas balance. Until a year ago the American gas market showed an increasing gap in gas supply for the coming years. The only way to fill this gap seemed to be LNG leading to new investments in LNG liquefaction plants all over the world. The investment decisions for these projects were already taken some years ago, when it was assumed that gas demand would continue to grow. However, shale gas is filling the gap in the USA now and part of the new LNG is entering the European gas market strengthening the oversupply. Substantial volumes of spot gas are made available in some European hubs causing unprecedented peaks of liquidity and low prices. It will take probably a few years before gas demand will have been recovered and the gas balance will be more in equilibrium.

However, most market players and observers do not predict that the present excess supply situation will continue in the long term or that a proactive approach to securing gas supplies for the future will become unnecessary. On the contrary, indigenous gas production in Europe will further decline. We expect that the current production in Europe (including Norway) will decrease from 250 mtoe in 2007 to 200 mtoe in 2020 and 145 mtoe in 2030. Taking into account the increasing gas demand and the gradually declining indigenous production the currently contracted gas supply cannot meet gas demand in the longer term and so new imports will be necessary from 2015 onwards. Today European gas production (including Norway) accounts for 55% of supplies to the European gas market. In 2030 the EU gas market will need around 70% from regions outside Europe.



Import dependency

EU27 Import Dependency from outside Europe



Fortunately natural gas reserves are abundant worldwide. The global proved reserves account for 185 trillion m^3 with a reserve to production (R/P) ratio of more than 60 years(2). The relative good geographical position enables Europe to diversify gas supply. Although Russia will stay the main supplier for Europe, African countries and the Middle East will provide Europe with increasing quantities of gas. Besides it's not impossible that potential shale gas reserves in Europe will strengthen its supply position to some extent. There is a general consensus in the industry that at best, and in a medium-long term perspective, unconventional intra-EU production would not exceed 20 or 25 mtoe per year.

However, the procurement challenge cannot be considered in isolation from global developments. The increasing demand for natural gas in the longer term (the IGU/IEA estimate a global growth from 2600 mtoe now up to around 3700 mtoe in 2030), will intensify the competition for global gas reserves on international markets. Moreover, the financial crisis has made investments more difficult in all segments of the chain. Delay of projects, reconsideration of transportation facilities and storages, are someexamples.

To guarantee future security of supply, actions are required in the following areas:

- Take measures to maximize natural gas production and recovery from indigenous sources.
- Support development of new technologies for exploration and exploitation.
- Create stable and competitive fiscal and regulatory regimes.
- Improve infrastructure, new supply routes to Europe and LNG terminals.
- Develop measures to facilitate planning and permitting processes for major projects, whether pipelines or other infrastructure.
- Encourage research and development into biogas production, distribution and final use.

The European gas industry recognizes the importance of fostering long term relationships with major suppliers, transit countries and key partners in the EU as well as with multilateral organizations and frameworks.

It is the companies' responsibility to conduct commercial relations with producing and transit countries. Institutional dialogue is also essential with the purpose of providing a framework for increased co-operation on a range of issues to achieve necessary political assurances from the countries concerned.

A long term approach is essential to put natural gas in a position where it can play its role as the most ideal fuel in a future sustainable energy supply.

(2) Source: BP

Conclusions

- Given the economic crisis and the even greater focus of energy policy in recent years on energy efficiency and renewables, earlier expectations in respect of gas demand have to be lowered. Nonetheless, there are still good prospects for gas expanding its position in the EU energy market in the medium to long term.
- Environmental friendliness and highly efficient technologies in all areas of energy supply give gas a key role in a realistic EU climate policy, the goals of which cannot be achieved solely through increased use of renewables.
- Its "green qualities" make gas attractive in direct utilisation in homes and businesses, in centralised power generation, in local CHP plant (including micro-CHP), and - in some member states - in the transport sector too.
- The current slump in demand is accompanied by strong supply pressure on European procurement markets. Experts do not predict that the present excess supply situation will continue in the long term.
- It is expected that imports to Europe will rise in order to compensate for the impending fall in domestic European production and to supply additional gas.
- The procurement challenge cannot be considered in isolation from global developments. The increasing demand for gas worldwide will intensify the competition for global gas reserves on international markets.
- The European gas industry emphasises the importance of fostering long-term relationships with major suppliers, transit countries and key partners in the EU as well as with multilateral organisations and structures.

Any pragmatic road for a sustainable future has to involve a larger role for gas.

Gas is more than a 'bridge fuel' because it will continue to play a major role in a lower-carbon world.

Objectives of Eurogas:

- To help improve knowledge of natural gas, of its performances and of its use;
- To promote the development of natural gas in Europe particularly in the legal, economic, technical and scientific areas, to prepare studies and to promote cooperation within the gas industry;
- To promote the smooth functioning of the European internal gas market and to take stance on issues of interest to the European natural gas industry with respect to international and supra-national organizations including, but not limited to the European Institutions and to public opinion.

Membership of Eurogas:

Eurogas is a Brussels based non-profit making organization and has the following members:

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