

# THE KEY TRENDS OF GAS SUPPLY

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The EU Directives from 1998 (no.30), 2003 (no.55) and 2009 July (no.73) had led to many fundamental changes like:

- **System responsibility**

In the past, the system was managed within a single vertical integrated company (E.g. Romgaz).

Today is segmented, fragmented and dependant of the interaction of many.

- **Power shift**

A significant changes in many countries (E.g. Germany Nord Stream, Romania – new power plant Petrom – OMV installed power 870 MW).

### •Aggregation

The aggregation of the gas volumes for the national market and for the European gas market has become more complex/complicated.

The gas will be available as required by all the users – sufficient quantity, efficient price, physically exactly where needed, continuously, in due time, etc.

### •Resources of supply and infrastructure

The main resources of conventional gas distribution are Russia, Iran, Qatar, UAE, and Turkmenistan (cca. 30%).

The unconventional resources inside and outside of EU countries : pipeline – transit and national – interconnection with LNG terminal.

**Gas market** oriented on growth, now must react more flexibly to uncertain demand trends and ensure long term security in the context of falling supply or consumption.

Two main aspects should be on top:

- Market structure – how the market is organized and what measure should be taken (e.g. cross-border infrastructure).
- Crisis management – political discussion about the desired degree of security of supply in the event of crisis.

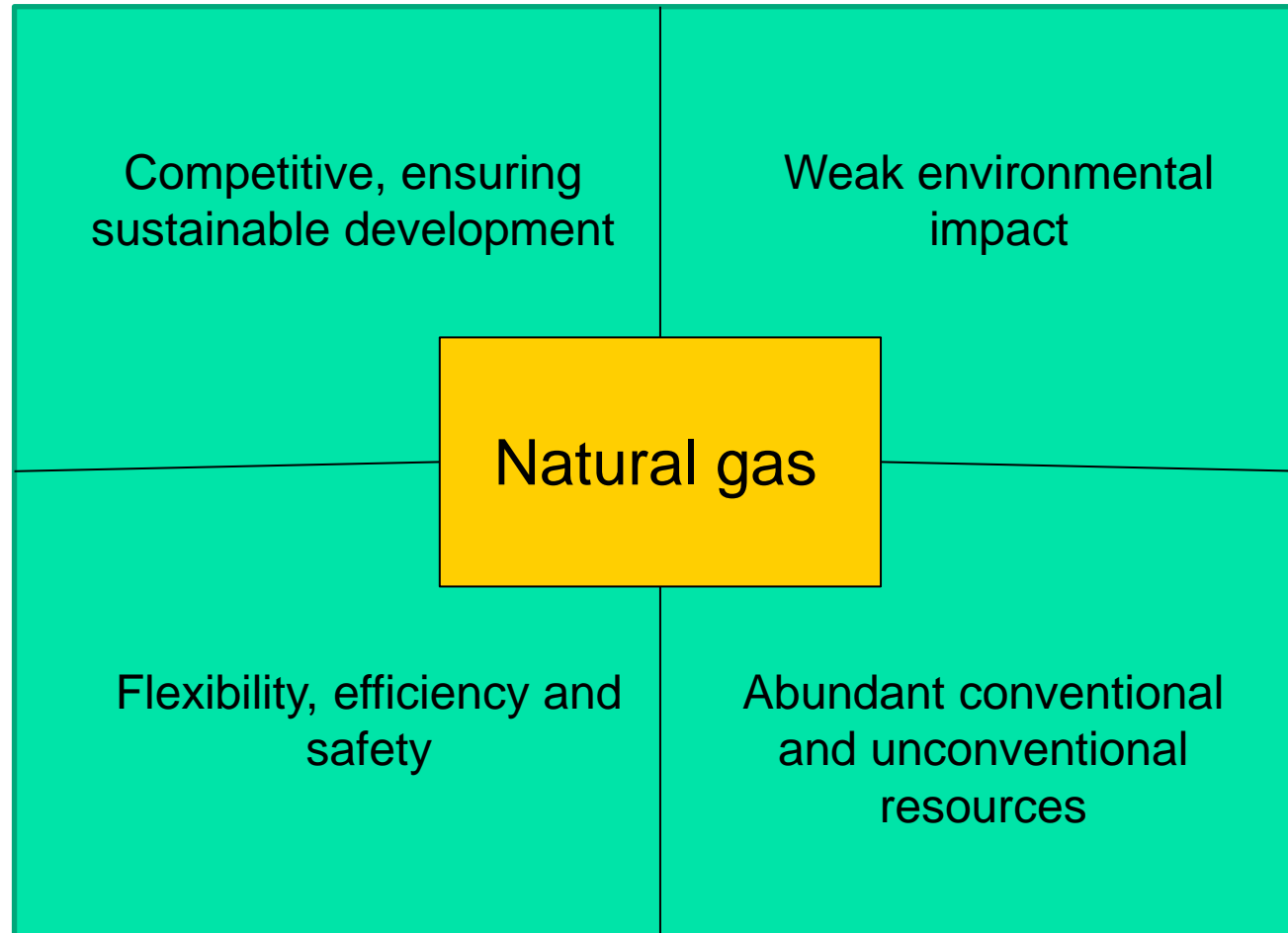
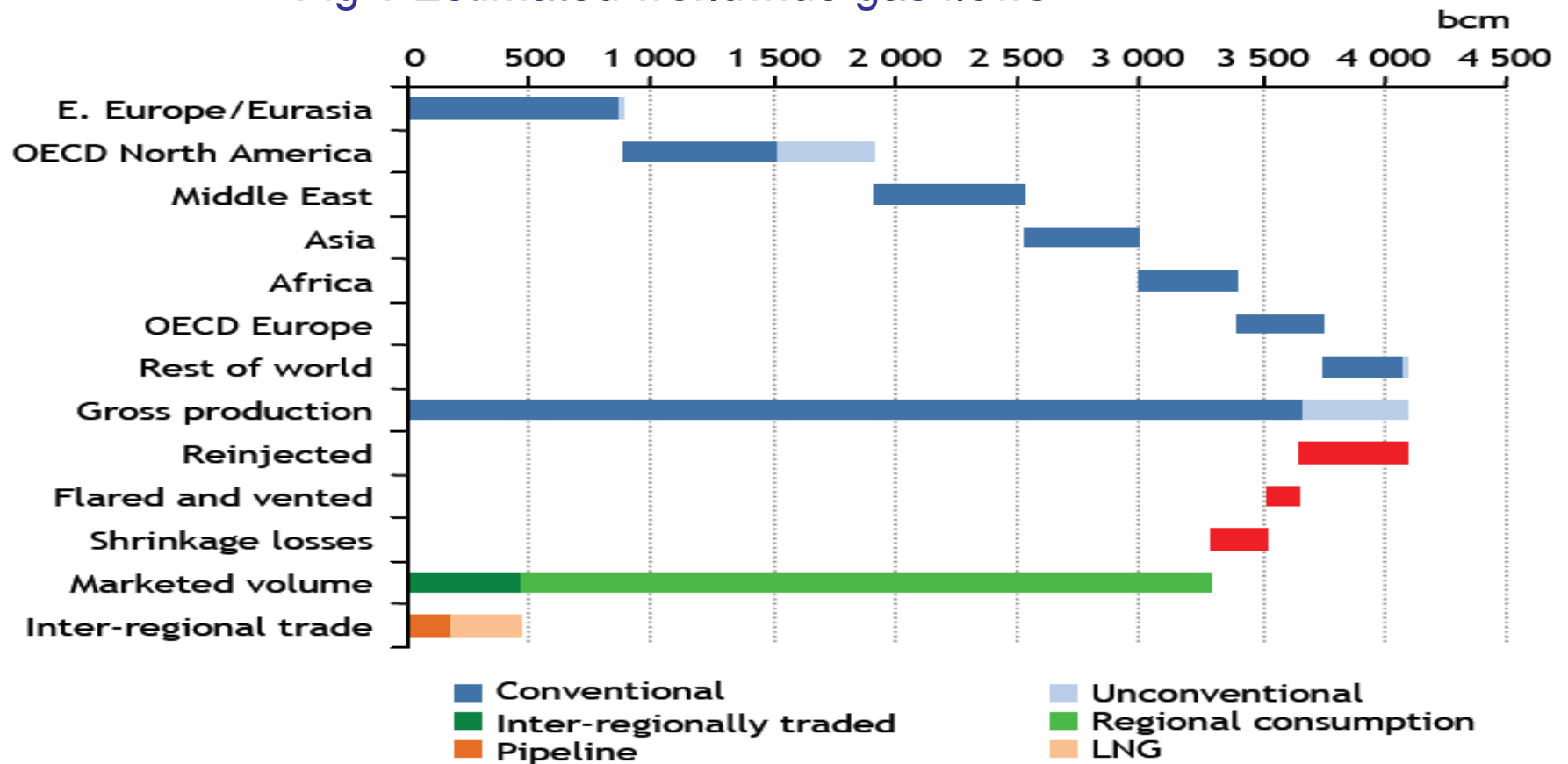


Fig.1 Estimated worldwide gas flows



***~ The factors determining future energy demand in the UNECE region 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 renewable.

***~ The natural gas's share of the energy mix worldwide is growing and the fuel will become more important.***

The share of natural gas is expected to reach 30% of the primary energy consumption.

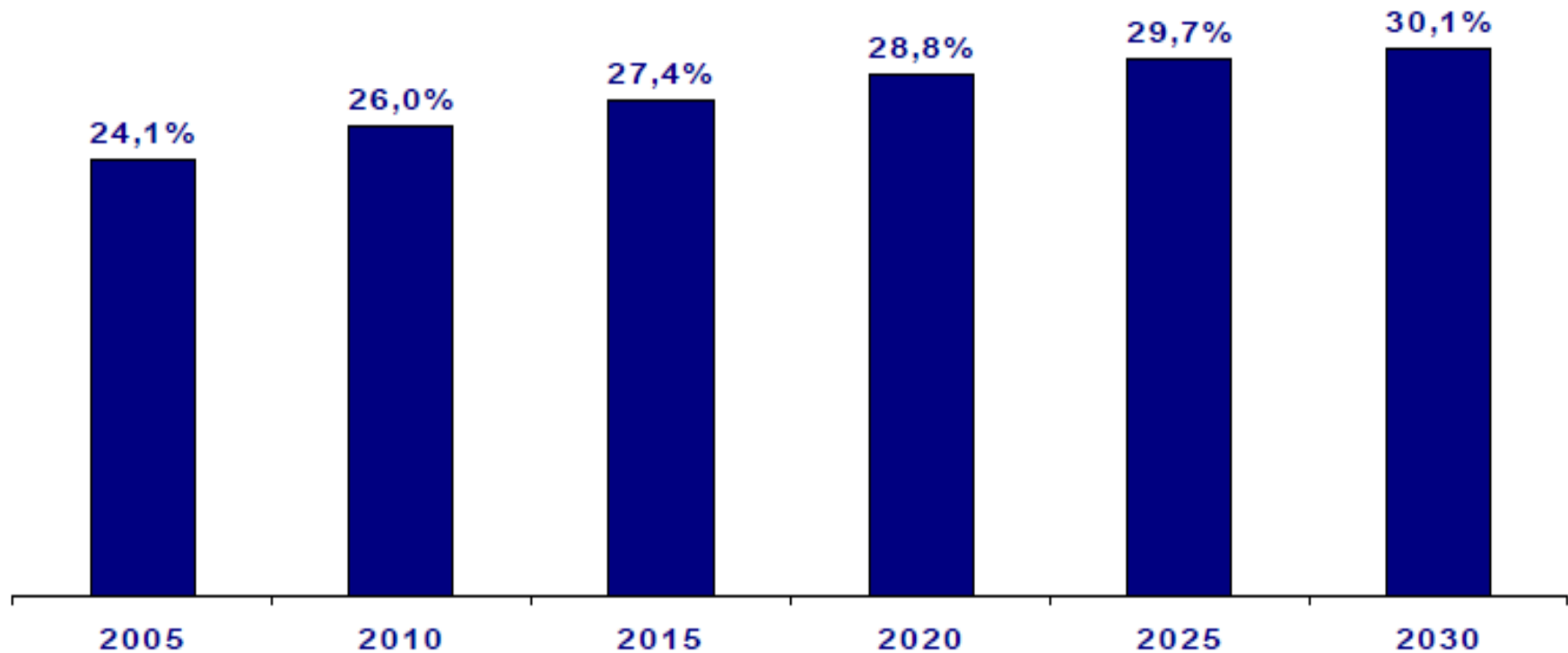
Because of “its green properties” and highly efficient application technologies, natural gas will remain the fuel of choice and will continue to make a growing contribution to energy supply in the EU region.

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%.



Fig. 2 The market share expected for natural gas



~ **The residential, assimilate 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 EU region were supplied with gas.

In the future, the population in the UNECE region will grow only moderately.

In some countries it is even likely to decrease and further market penetration in this market segment will also slow down considerably.

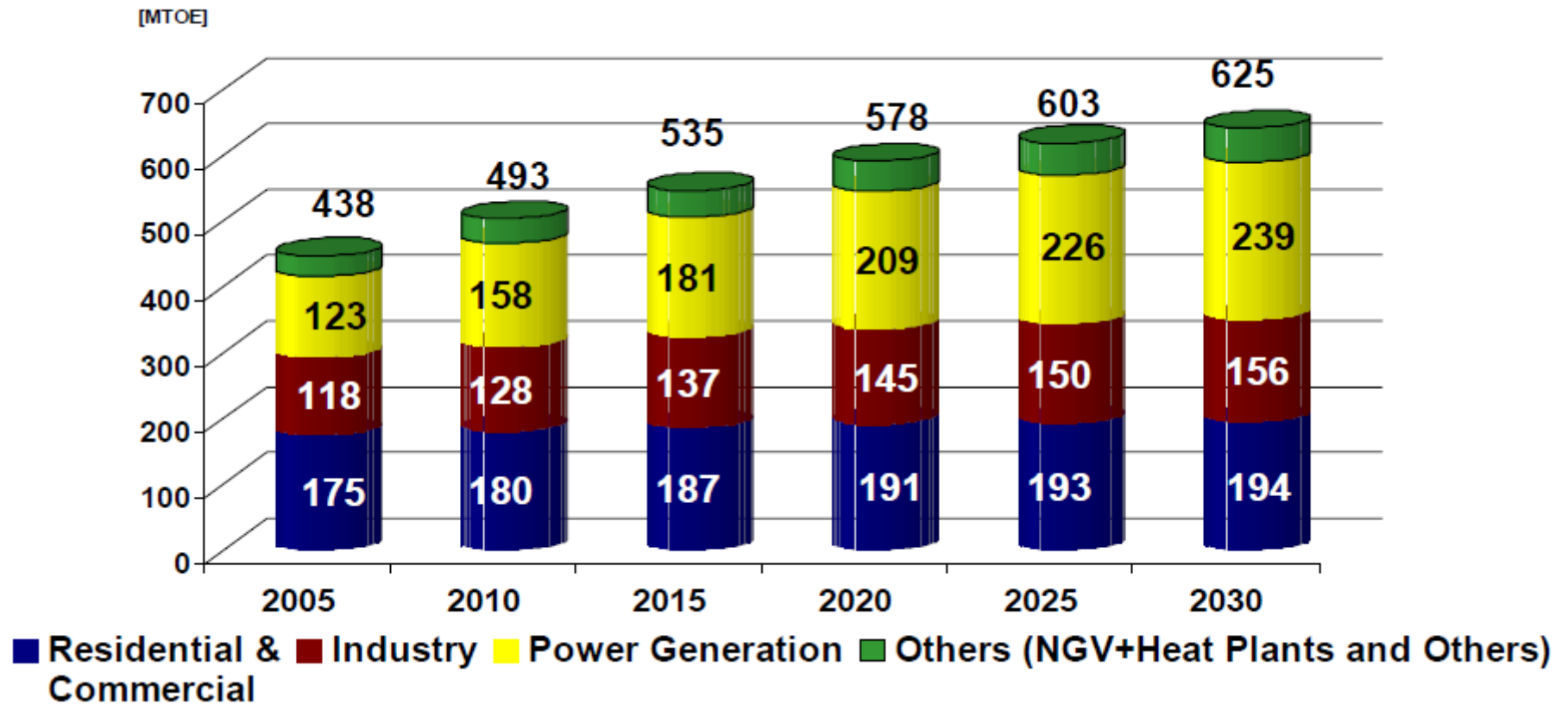
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The reasons are, firstly, there is already high market penetration in some major gas consuming countries, as over time other countries will also reach gradually saturation in the residential and commercial market.

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 renewable.

Fig. 3 Natural gas demand by sector



## ~ *Industrial*

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 and 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 modernization 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.

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~ *The role of natural gas*

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 EU (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 renewable 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.

Natural gas power plants can increase the grid's flexibility as a whole and provide dedicated backup generation to individual wind and solar plants.

Natural gas is increasingly asserting its role as the bridge fuel of choice along the road of the implementation of renewable and carbon-free sources of energy.



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

The largest increase in gas consumption can 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.

Natural gas-fired power plants need less time to be constructed (approx. 2 years) compared to coal-fired power plants (approx. 4 years), and nuclear power plants, respectively (approx. 6 years).

Nuclear plants have serious disadvantages, in terms of investment, as the projects take a longer time to be designed, constructed and commissioned and the regulation framework is rather volatile.

The short time necessary for building natural gas-fired power plants is a very strong reason for the companies to make investment decisions and low specific investment expenditure.

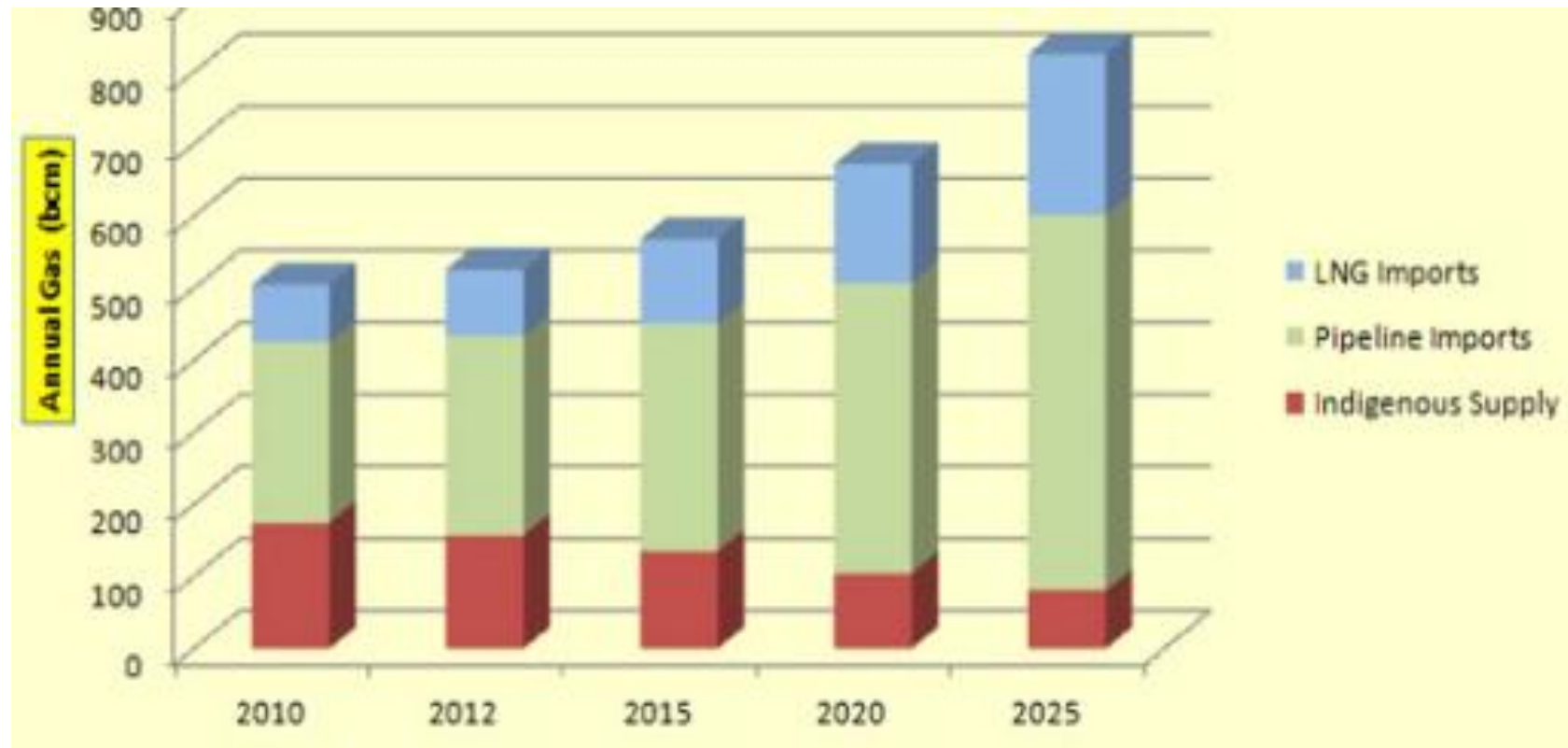
## *~ Domestic production*

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.

Fig. 4 Gas demand and supply forecast for Europe



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***~ LNG is a fast growing sector in the world gas market***

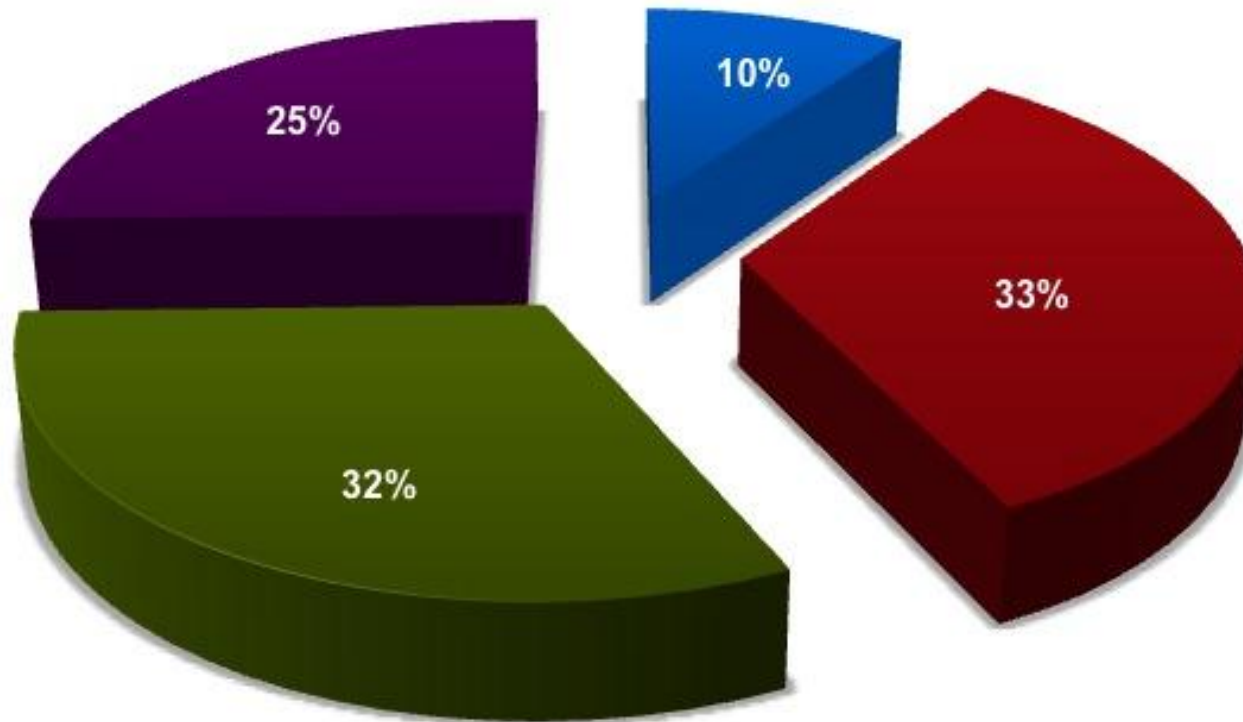
The proportion of additional supplies needed will gradually widen from 10% in 2015 to 22% in 2020 and to approx. 39% in 2030.

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.

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.

Fig. 5 Supply sources for Europe

■ From LNG ■ From Russia ■ North Sea ■ Onshore Production



Global LNG shipments rose by approx. 12% last year to around 181 mtoe/year. In 2006 LNG imports in Europe rose to almost 52 mtoe/year, representing a share of 11% of the total gas market.

Despite the increasing importance of short term contractual agreements (spot contract), 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 in the upstream sector and they ensure that new import infrastructures are fully utilized.

Like the US until recently, most UNECE countries are also highly dependent on the importation of natural gas, while in addition, they rely heavily upon a single, large supplier – namely, Russia.

Together with concerns over the reliability of transit routes and the relative volatility of gas prices in the past, these factors have made energy security a top priority for this countries. As a result, the development of unconventional energy resources, such as shale gas, has increasingly been viewed as a potential solution for the region.

With strong governmental and public support for shale gas development, and significant proven shale gas reserves, Poland is considered to be the most favorable market in the region for shale gas production, which –as in Romania and Lithuania – will essentially be driven by the economics.





UNECE



***~ Natural gas will play a very important part in supporting the sustainable economy development.***

Economical growth is generated by natural gas industry through:

- Horizontal development of some complex activities, used for equipment, facilities, goods and services production;
- Safety, flexibility and consistency in energy supply;
- Minimum impact on environment;
- Substantial budget income through royalties and diverse taxes.

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**Thank you for your attention!**