



Eurogas General Assembly My Vision: A Sustainable Way Forward

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A Look Back

Current Market Environment

Climate Protection

Natural Gas Image

Security of Supply

The Way Forward



**The European Gas Market
Eurogas Views On The Way Forward**

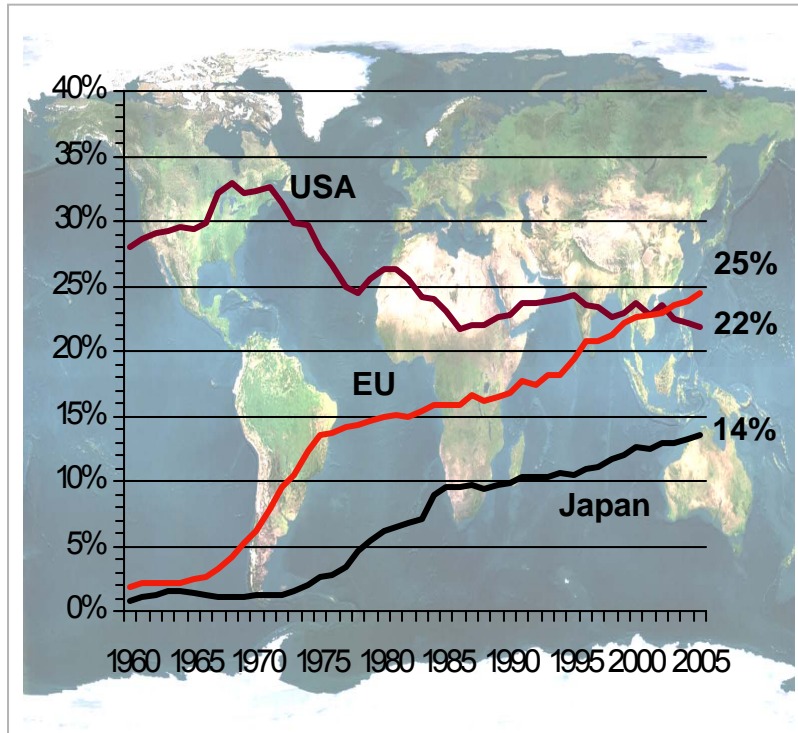


eurogas

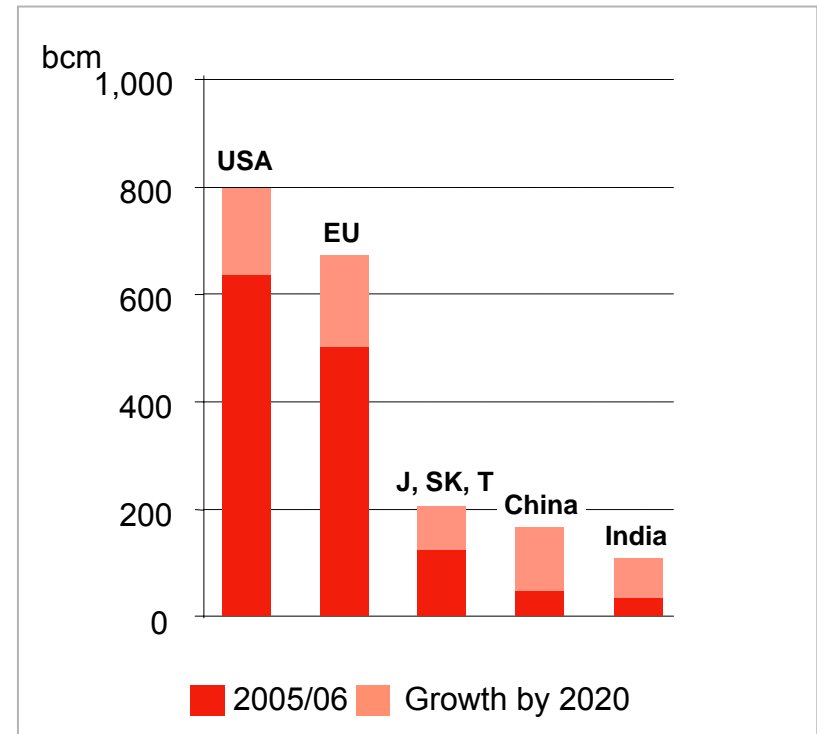


Natural gas has been and will be a success story...

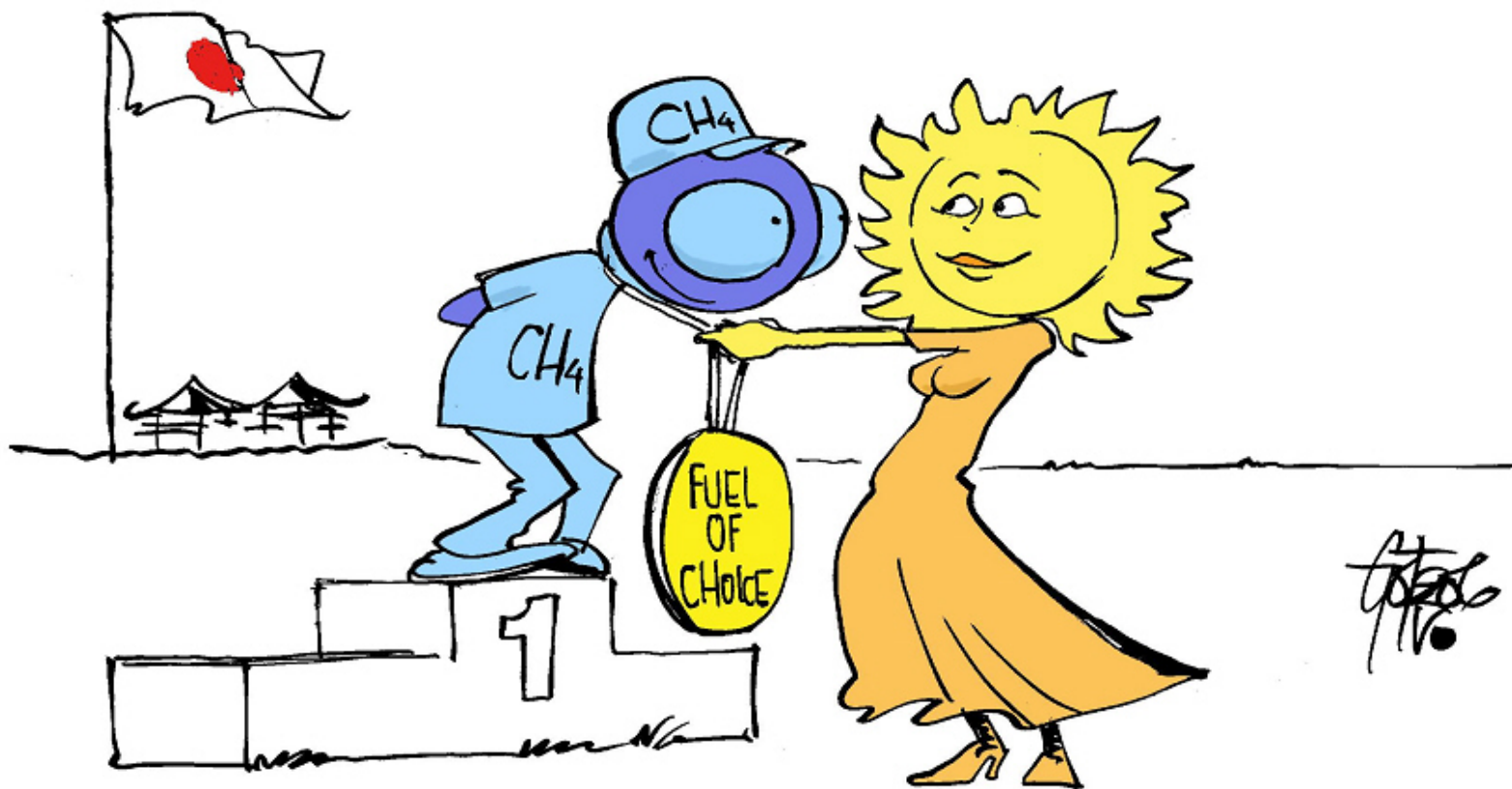
Development of natural gas shares in primary energy consumption



Gas demand in 2005/06 and growth until 2020



... our unique product ...



... but the current market environment is a challenge

Climate change debate



Security of supply debate



EU market integration



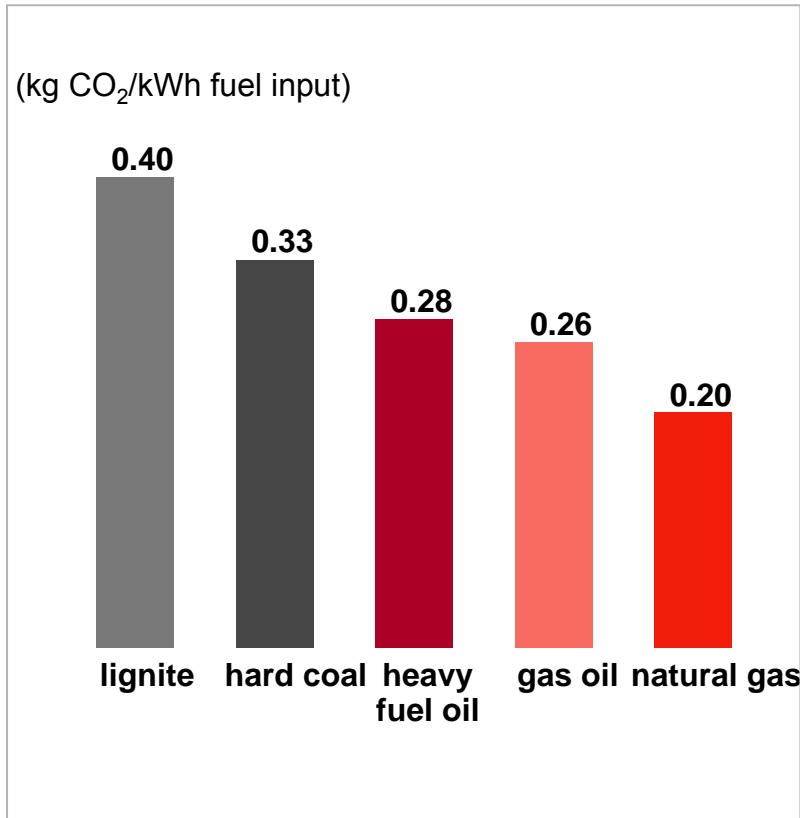
EU move into competitive world



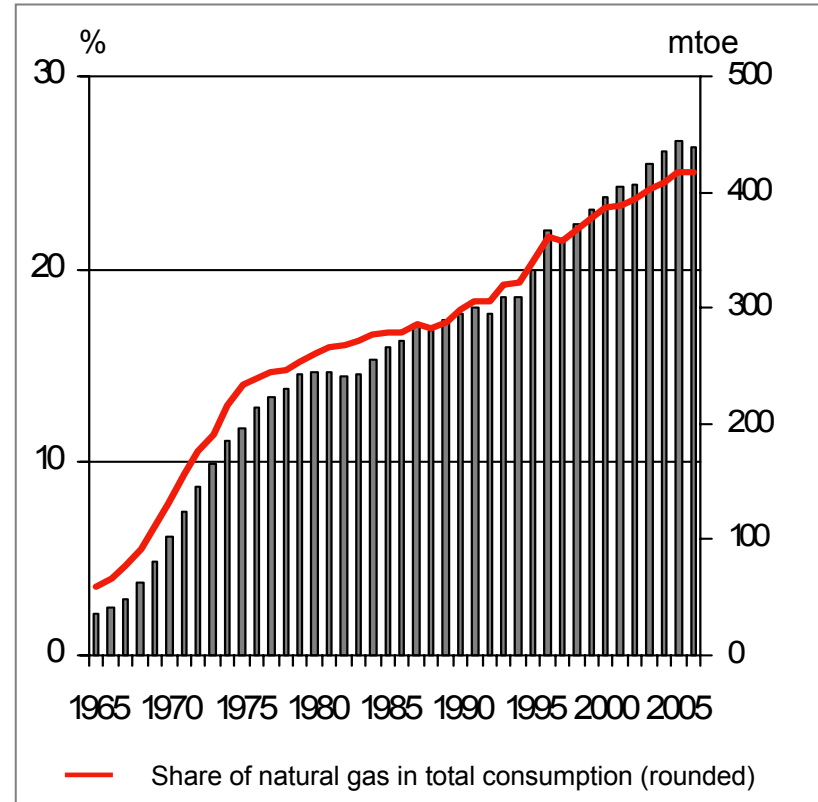
Challenges for energy companies

Natural gas will play a key part in attaining EU targets

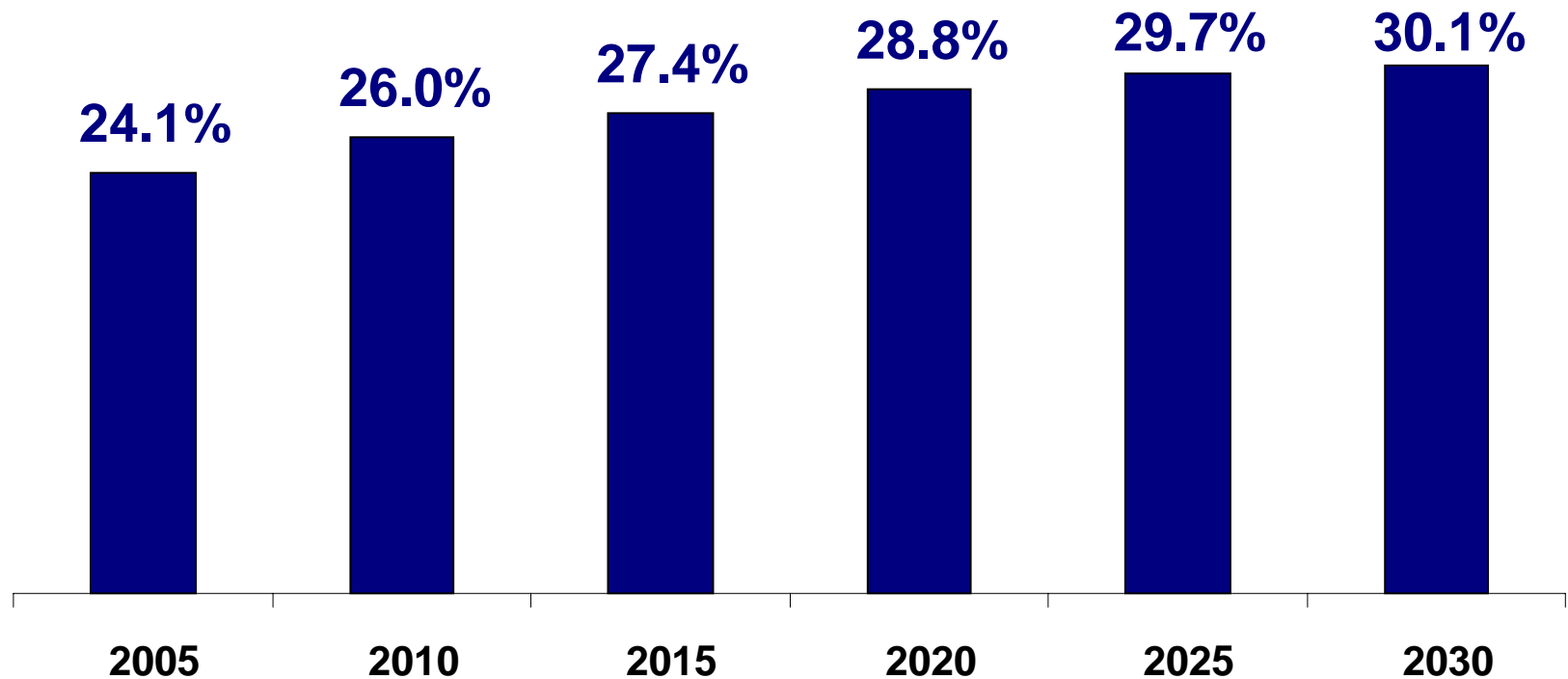
CO₂ formed by the combustion of fossil fuels



EU-27: Natural gas consumption and share of natural gas in total energy consumption



Eurogas: Share of natural gas in PEC in EU-27



Examples of climate protection initiatives

Transportation

- Optimization of the operation of the Russian natural gas transmission system

Energy Efficiency

- Development of combined-cycle power plants, gas-fuelled heat pumps, tumble dryers, patio heaters, gas fires, ...

Natural Gas Vehicles

- Promotion of use of modern natural gas-fuelled vehicles
- Objective to develop nationwide gas filling station network

Bio Natural Gas

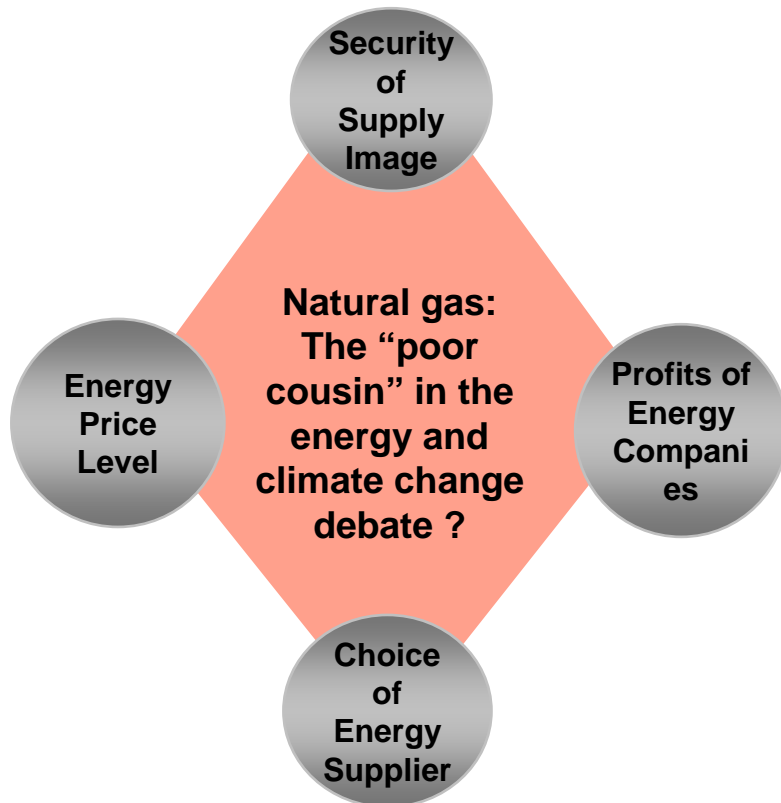
- Production of bio natural gas with enhanced efficiency and extended applications compared to (unprocessed) biogas

Fuel Cells

- Fuel Cell Initiative (manufacturers, supply companies) to pool know-how for innovative fuel cell technology

However, there are two sides to the image of natural gas in the current energy debate

Points of concern and criticism:



Key Facts:

Security of Supply Image

- Abundant gas reserves
- Diversified supplies

Energy Price Level

- Increase mainly determined by international energy price developments
- Global competition does not allow decoupling from global trends

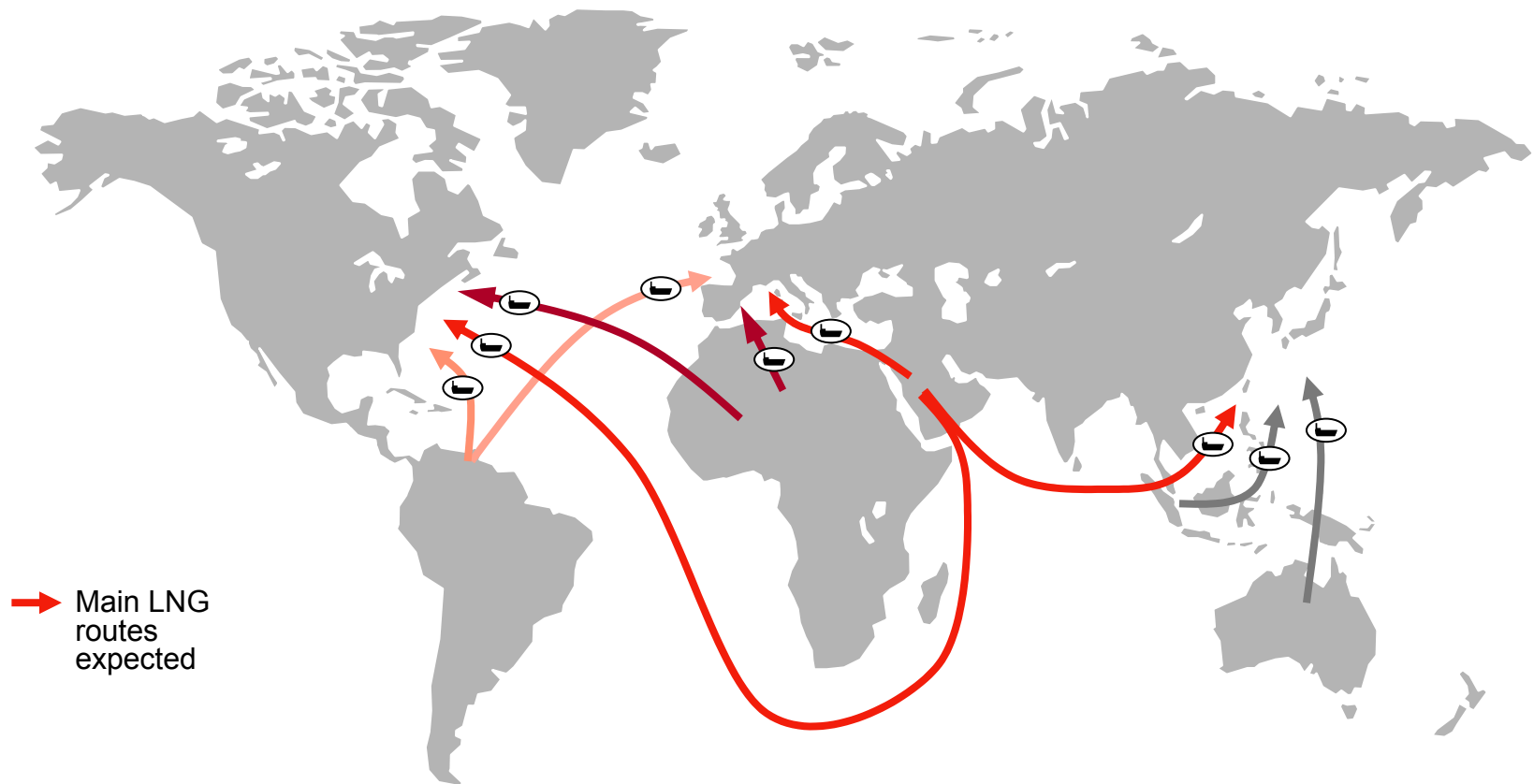
Profits of Energy Companies

- Increase in absolute terms, but: strong European players necessary vis-à-vis producers’ oligopoly
- Adequate return on investment necessary to obtain capital from investors for further investments
- No return outside industry range

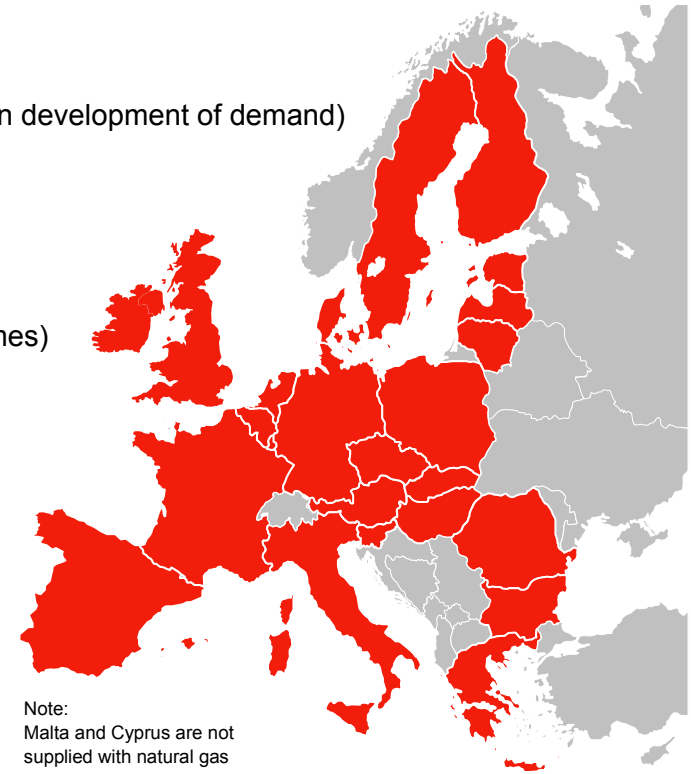
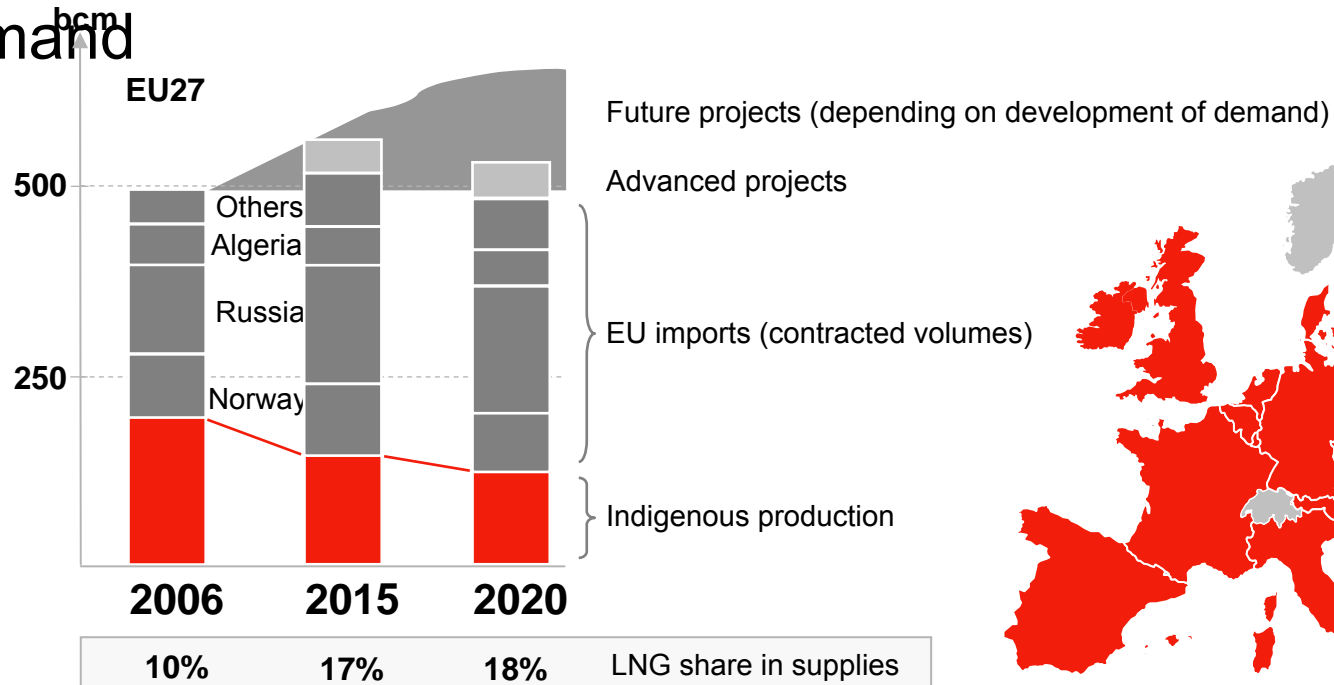
Choice of Energy Supplier

- Increasing number of competitors
- Easier network access

Europe's gas supply is facing global competition – developing LNG market will spur competition



Europe is currently well diversified, but import dependency is growing – Need for future projects depending on uncertain demand

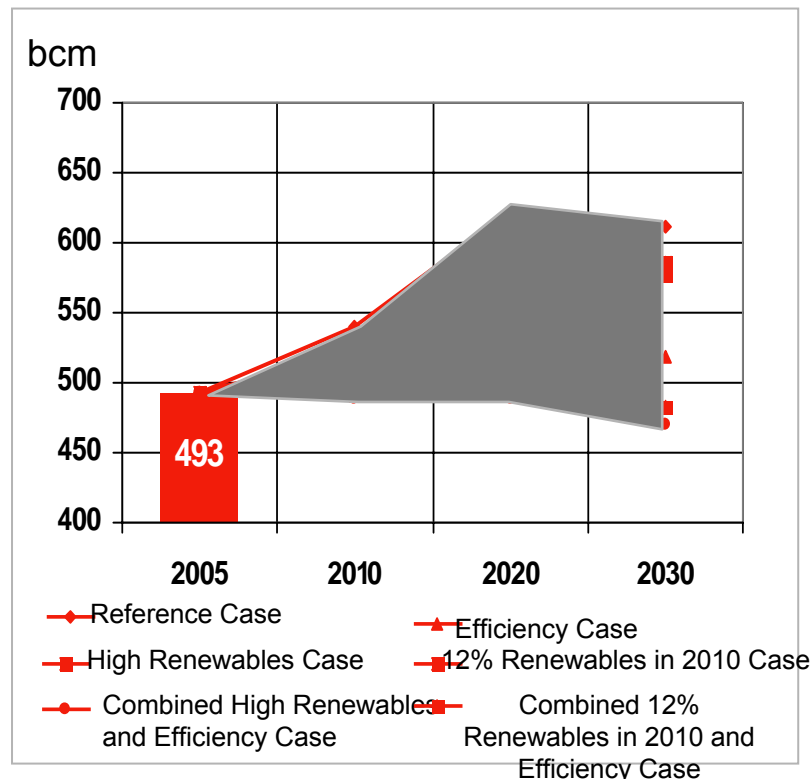


provisional data for 2006; 1 m³ = 11.5 kWh
 *) e.g. Nigeria, Egypt, Qatar (2006)
 Basis for imports: Contracted volumes, prospective contract prolongations and prospective other imports

- Due to a significant decline in indigenous production and market growth, Europe's dependence on imports will grow.
- LNG expected to significantly increase its share in supplies until 2020.

Various factors lead to high demand uncertainties in long-term supply planning process

Gas demand scenarios for the EU-27 (2006)



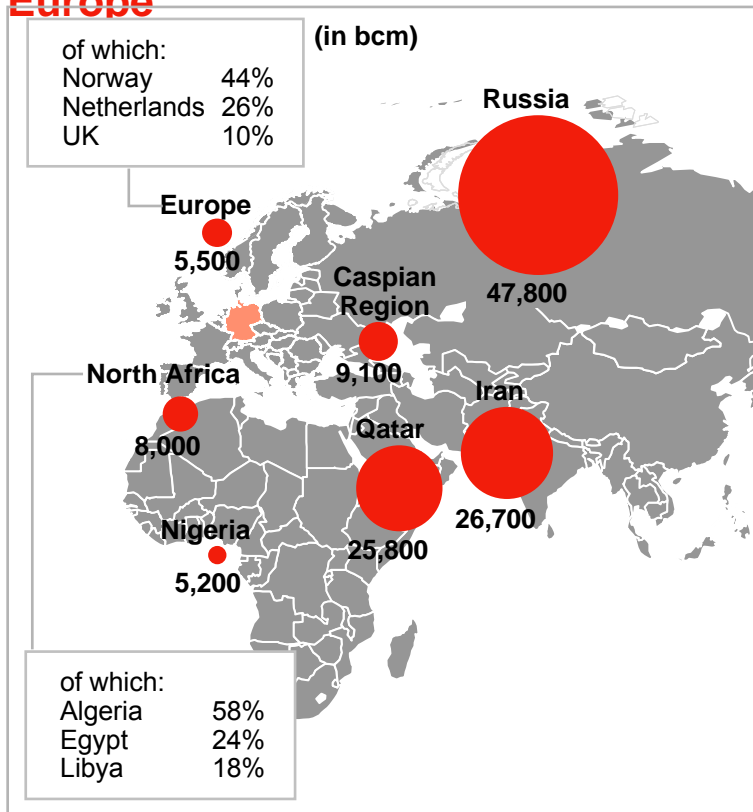
Source: European Commission 2006, European Energy and Transport Trends to 2030, Scenarios on energy efficiency and renewables (2006).

Uncertainties in the development of gas demand:

- **Competitiveness** of gas prices
- **Security of supply image**
- **Economic growth**
- Impact of **nuclear energy and renewables** on demand for fossil **power generation**
- Impact of **energy efficiency measures** on energy demand
- Impact of **obligations to use renewables**
- **Supranational climate protection measures**
(European Emission Trading Scheme, negotiations for a post-Kyoto Protocol)

Gas potential for Europe abundant, but supplies require huge and timely investments along the value

Major gas reserves are in reach of chain

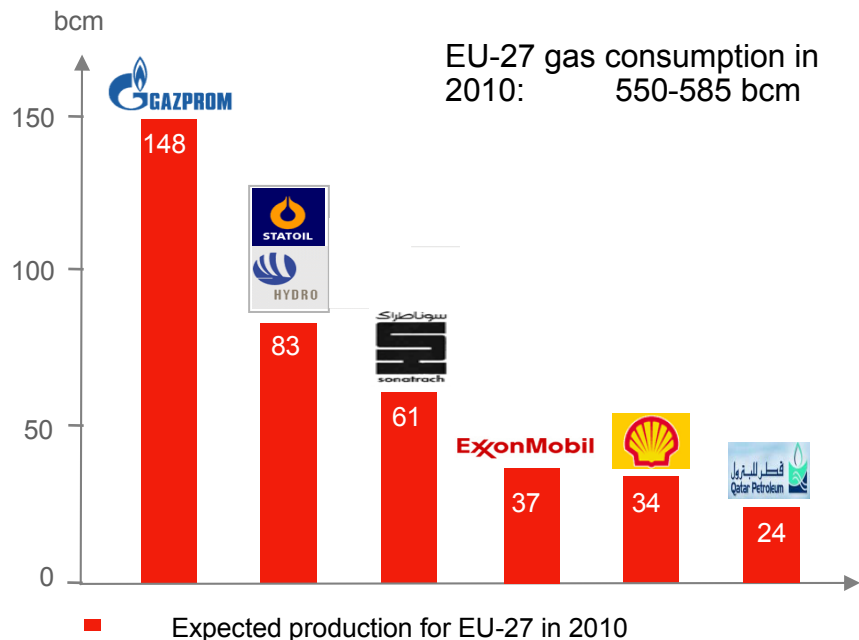


Typical investments required

- **Russia until 2020**
 - New Russian pipes: ~\$55 bn
 - Upgrade existing pipes: ~\$67 bn
 - Pipes to Europe: ~\$15 bn
- **Shtokman Offshore Field (Russia)**
 - approx. \$14 bn (first project phase, ~23 bcm/a)
 - 70 – 90 bcm/a possible
- **Nord Stream (Russia)**
 - at least \$7 bn (~55 bcm/a)
- **Ormen Lange + Langeled pipeline**
 - approx. \$7 bn + \$3 bn (~20 bcm/a)
- **Nabucco Pipeline**
 - approx. \$7 bn (~ 30 bcm/a)
- **Qatargas II LNG integrated project**
 - approx. \$13 bn (~ 20 bcm/a)

Gas potential for Europe controlled by a handful of strong producers

“Big 6” produce approx. 66% of the gas supplies needed in the EU-27 in 2010



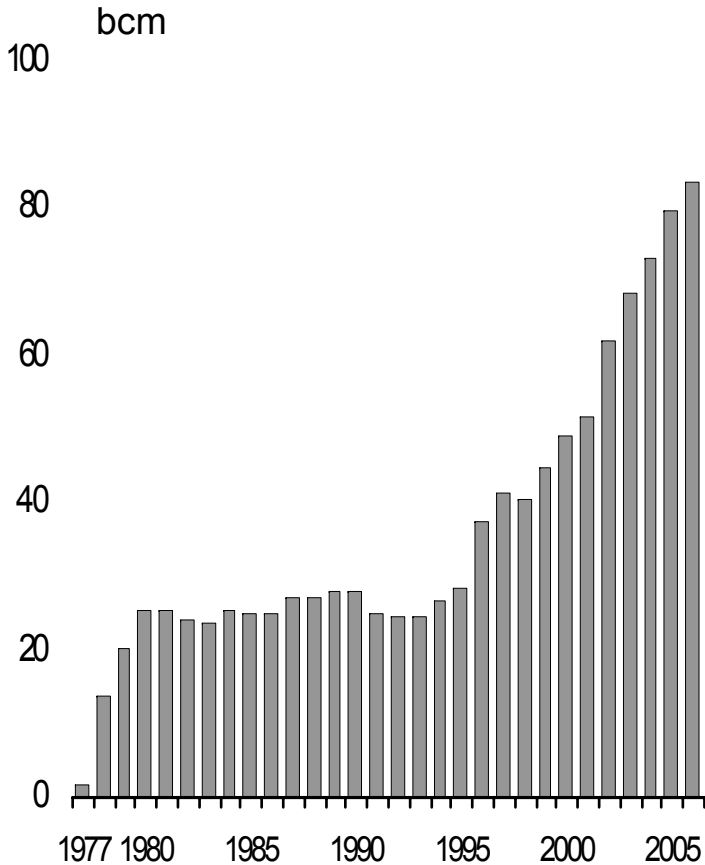
Source: 2005 company reports, own estimates.

Natural gas procurement instruments and strategies

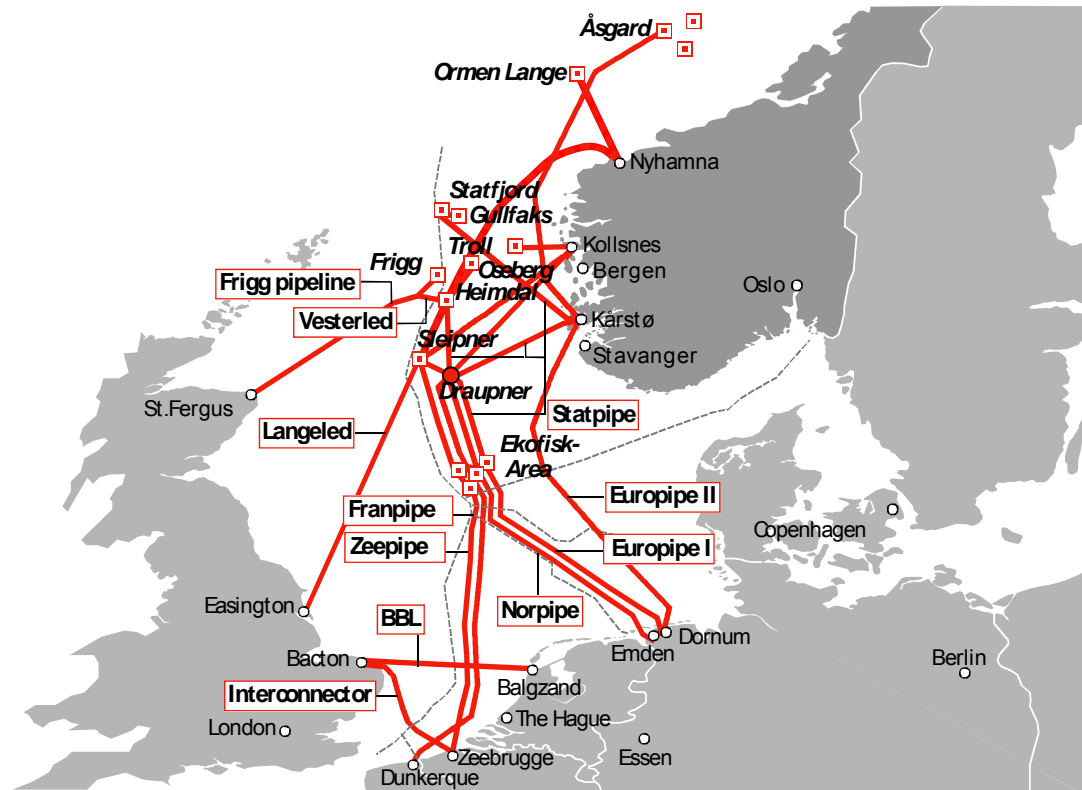
- Long-term supply contracts remain indispensable
- Competitive pricing / price mechanisms also needed in future
- Co-existence of long-term contracts and spot market / open trading points
- Strong import companies needed because of
 - growing size of projects
 - increasing demand uncertainties

Natural gas from Norway

Increasing exports



Offshore pipeline system



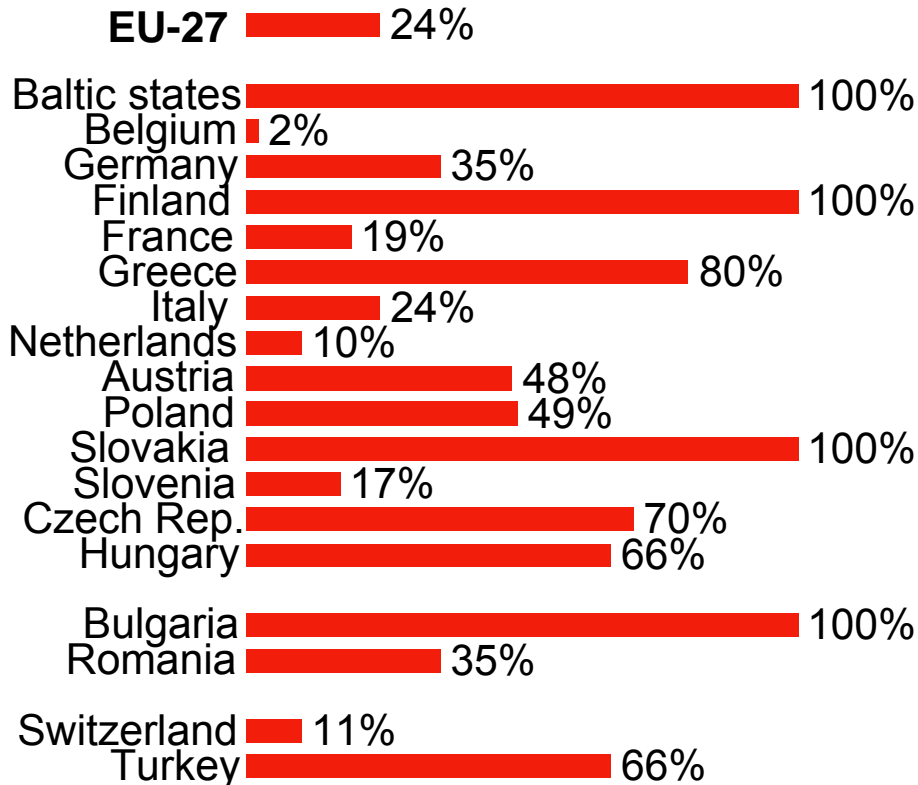
■ gas deposits

— gas pipeline

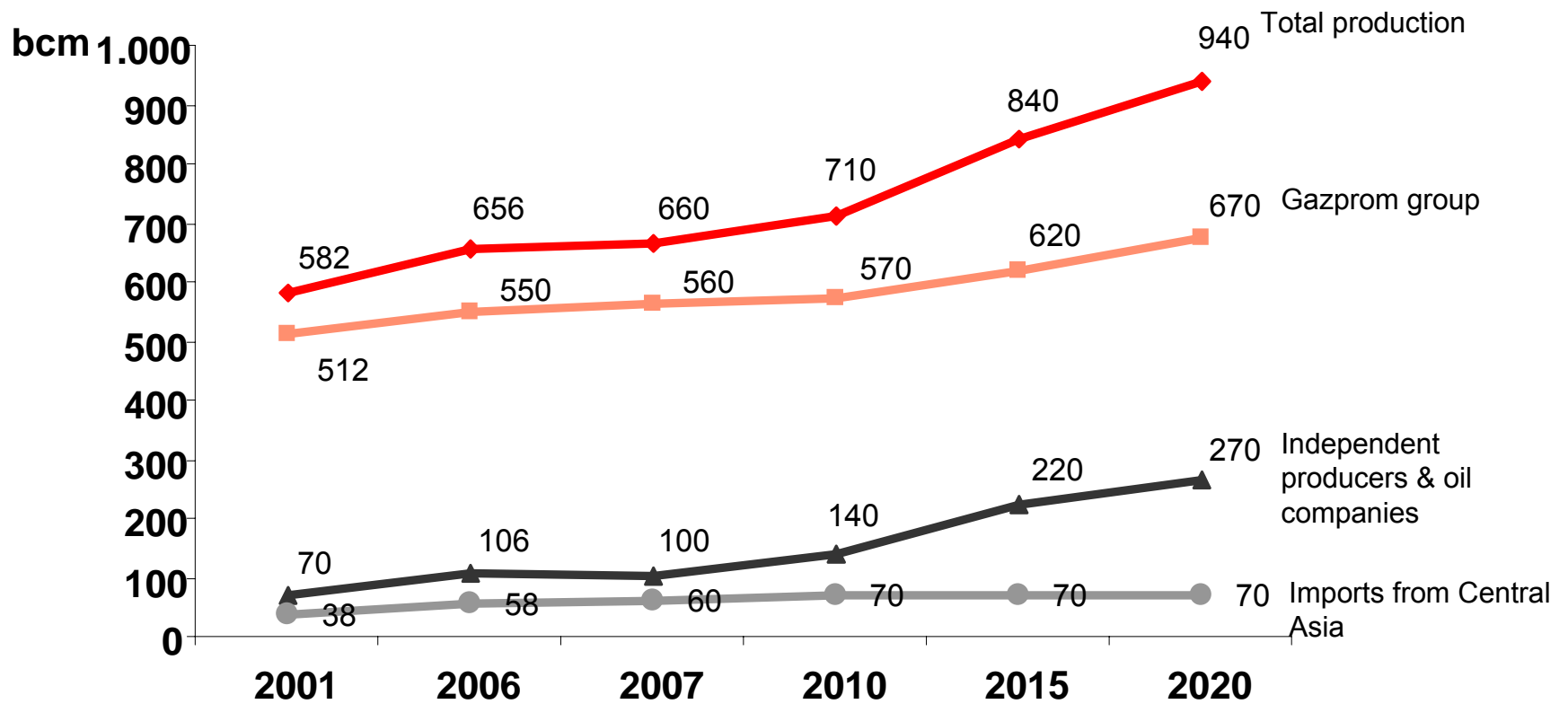
--- limits of North Sea sectors

Gas from Russia for Europe

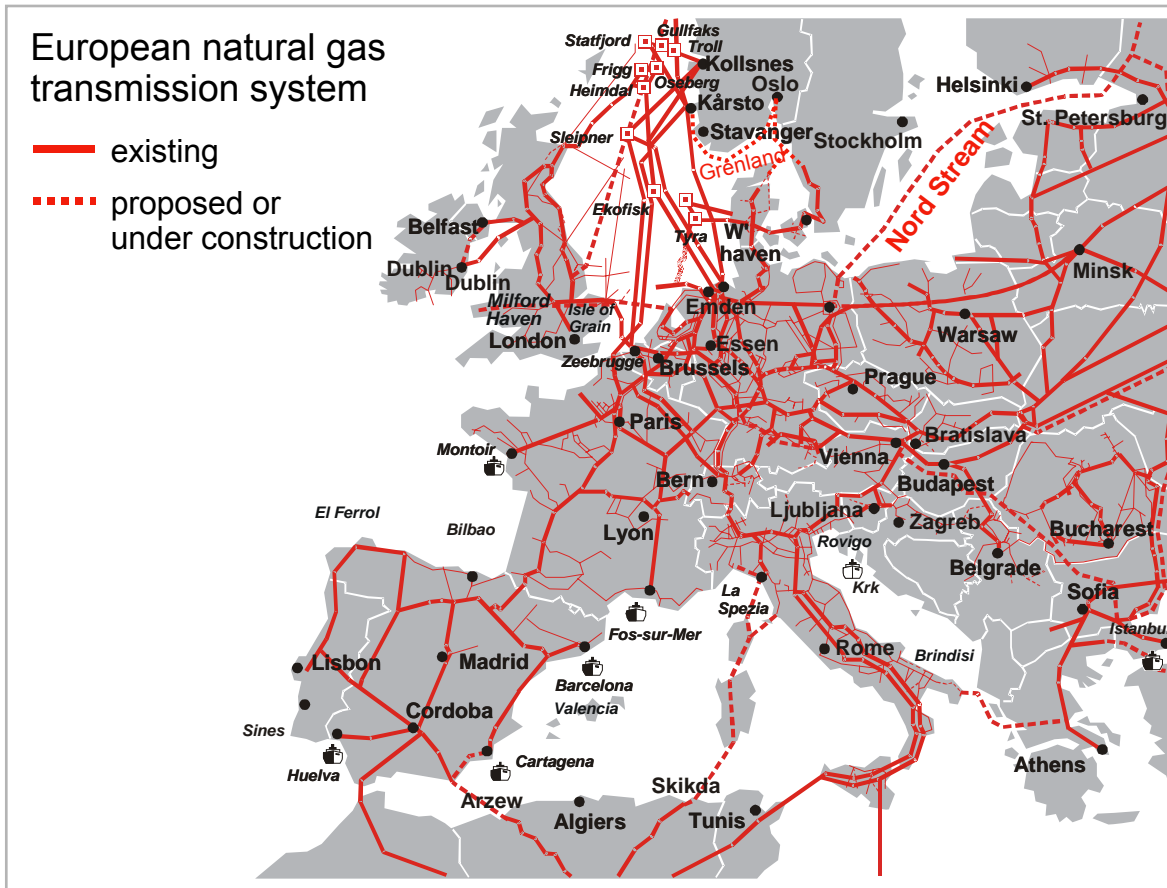
Percentage shares of Russian natural gas (in 2006) Pipeline system



Russia: Expected gas availability still growing with increasing participation of independent producers



Nord Stream – advanced major gas pipeline project as part of the European natural gas transmission system



- New import pipeline to secure supply of Germany and other North-West European countries (length offshore: 1,200 km)
- Planned starting date for 1st line with an initial capacity of 27.5 bcm/a in 2010
- 2nd Nord Stream line doubling capacity to 55 bcm/a in 2012
- Shareholders:
Gazprom 51 %,
E.ON Ruhrgas and
Wintershall 24.5 % each
- In future, E.ON Ruhrgas and Wintershall will hold a share of 20 % once Gasunie (9%) has joined the project

Further pipeline projects to link supply sources and European gas markets are under construction or discussion

Nabucco

- Proposed gas pipeline to move Caspian and Middle Eastern natural gas from eastern Turkish border to Austria (capacity app. 30 bcm)


South Stream

- Pipeline project to move Russian gas to Italy and Austria (early project phase)

Turkey-Greece-Italy Interconnector

- Pipeline project to import natural gas from the Caspian Sea region to Italy (via Turkey and Greece)





EU Policy Single Energy Market

There is a high alignment between EU vision and E.ON view – apart from EU position towards OU/ISO

✓	Security of Supply	<ul style="list-style-type: none"> • Improvement of supply security • Improvement of market interconnection by: <ul style="list-style-type: none"> • improved coordination between network operators • European coordination of big infrastructure projects
✓	Market Integration	<ul style="list-style-type: none"> • harmonization of technical standards
✓	Trade	<ul style="list-style-type: none"> • Improvement of market liquidity and market entrance
✓	Regulation	<ul style="list-style-type: none"> • Harmonization of competencies of national regulators within the EU, esp. cross-border issues
⚡	Unbundling	<ul style="list-style-type: none"> • Enforcement of unbundling: <ul style="list-style-type: none"> • OU (Ownership Unbundling) preferred by EU • ISO (Independent System Operator)

OU: No adequate approach to reach the EU target of a secure and competitive energy market

- Delivers no additional benefits compared with effective legal unbundling and clear regulation
- No empirical evidence for:
 - lower network charges or consumer prices
 - enhanced investment
 - enhanced cross-border cooperation
 - enhanced reliability of the infrastructure
- Discriminates private companies vis-à-vis state owned companies
 - No equal conditions for all market players → no level playing field → distortion of competition
- Turns gas companies into “entities without assets” and weakens position of European suppliers

ISO+: No real alternative

- Deprivation of all ownership rights leaves no alternative to grid sell-off because asset owner
 - would have to finance the ISO's investment (or agree on 3rd party financing) without any influence on investment planning and guarantee that investment is efficient
 - could not optimize his business within incentive regulation
 - would have to assume complete liability
 - would be reduced to a purely financial shareholder
- ISO+ is de facto OU and legally not admissible
- Integrated companies have intrinsic interest not to damage their image; contrary, a potential sell-off would entail the risk of foreign, extremely profit-oriented investors neglecting network maintenance/investments
- ISO+ is not compatible with introduction of incentive regulation (e.g. DE)

→ **Like OU, the ISO+ model neither leads to market integration nor to a single**

E.ON promotes the EU energy agenda and has specified its strategic direction

**Active promotion
of EU energy agenda**

E.ON's "competition initiative":
Promotion of competition and EU market integration

**Optimized group
set-up**

Implementation of cross-regional structures:

- Unified Trading Unit
- Unified Fossil Generation New Build Unit
- Unified Renewables & Climate Protection Unit

**Updated investment &
growth program**

For 2007 – 2010 total investment of € 60 bn including:

- Acquisition of Endesa Assets/Viesgo
- Generation new build program
- € 10 bn in upstream activities, LNG, storage, gas networks
- Extension of European generation capacity by 50% by 2010
- Extension of gas storage capacity in NW Europe and of gas upstream position
- Reduction of specific carbon emissions by 50% by 2030

**Ambitious operational
targets**

e.on

Ruhrgas

Eurogas General Assembly

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