



**United Nations Economic Commission for
Europe, Committee on Sustainable Energy**

**Energy Security Dialogue:
Strategic alliances for energy security**

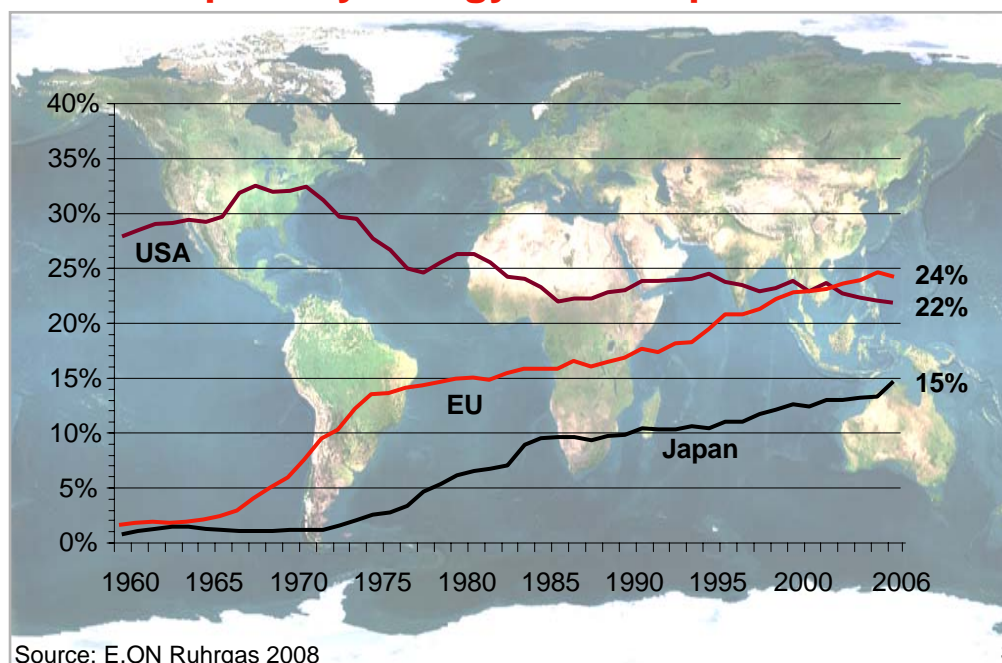
- The E.ON – Gazprom Case

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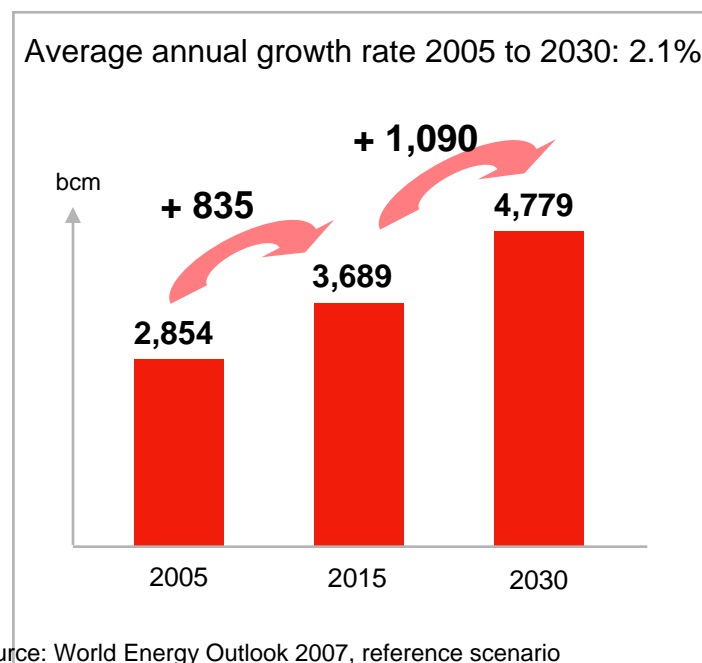
Geneva, 19th November 2008

Natural gas – a story of ongoing growth and success

Natural gas share in primary energy consumption

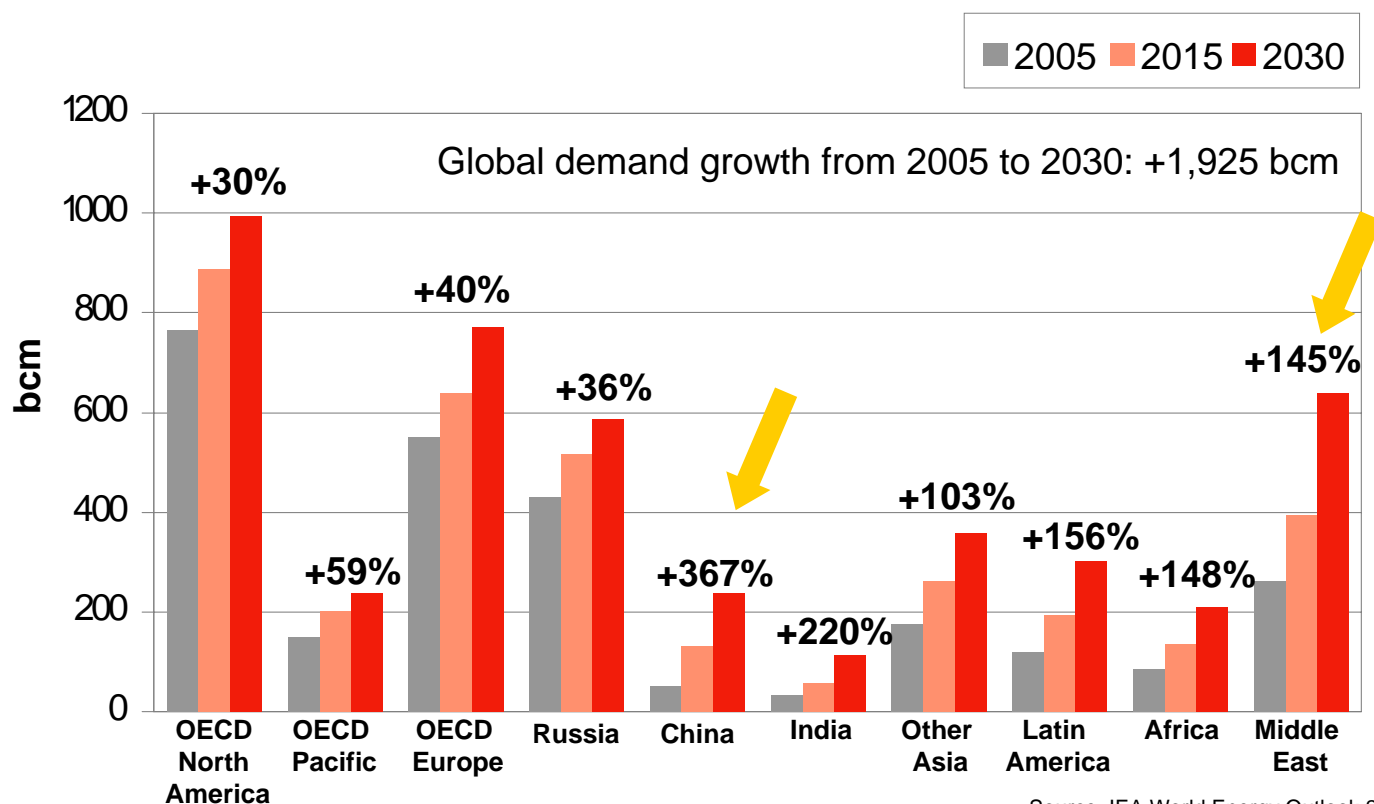


Expected natural gas demand worldwide



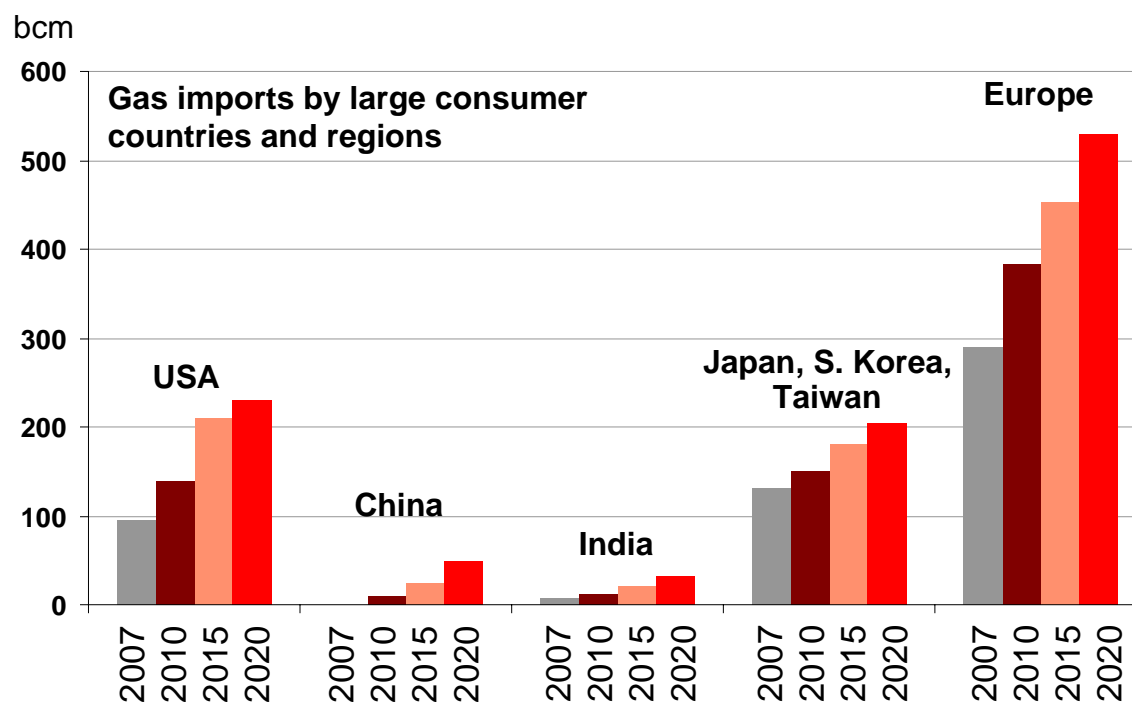
- Following the first oil crises in the early 1970s, natural gas managed to substantially increase its market share in Europe within a few years. Since then, it has taken about a quarter of the market.
- According to the IEA, global demand for natural gas will increase by 1,925 bcm until 2030.

Natural gas demand growth is expected to continue in all regions of the world



- The largest percentage increase in gas demand until 2030 will come from China and India.
- The highest absolute increase in demand is expected to come from the Middle East.

Import dependency is expected to increase in all large consumer regions

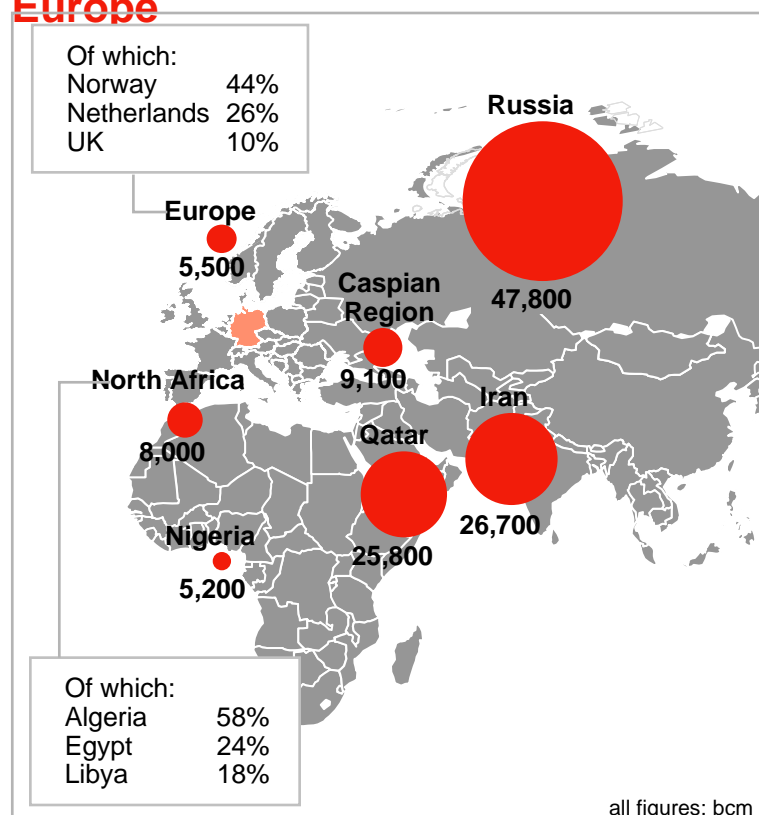


Year	Import dependency of EU27
2007	61%
2010	70%
2020	84%

Source: E.ON Ruhrgas, Wood Mackenzie, BP Statistical Review of World Energy, 04/2008

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

Major gas reserves are in reach of Europe



Projects and necessary investments

- **Ormen Lange + Langed pipeline**
 - Approx. \$13 bn + \$3 bn (~20 bcm/a)
 - In operation since 2007
- **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)**
 - Approx. \$11 bn (~55 bcm/a)
- **Nabucco Pipeline (Caspian region)**
 - Approx. \$11 bn (~ 30 bcm/a)
- **Qatargas II LNG integrated project**
 - Approx. \$13 bn (~ 20 bcm/a)

Markets as well as the investment environment in the gas industry have become more complex in recent years

„Old Gas World Order“

- Stable political framework
- Established players along the value chain
- Stable investment and growth
- Balanced risk sharing between producers and importers

- **Relatively stable market conditions**
- **High perceived security of supply**

„New Gas World Order“

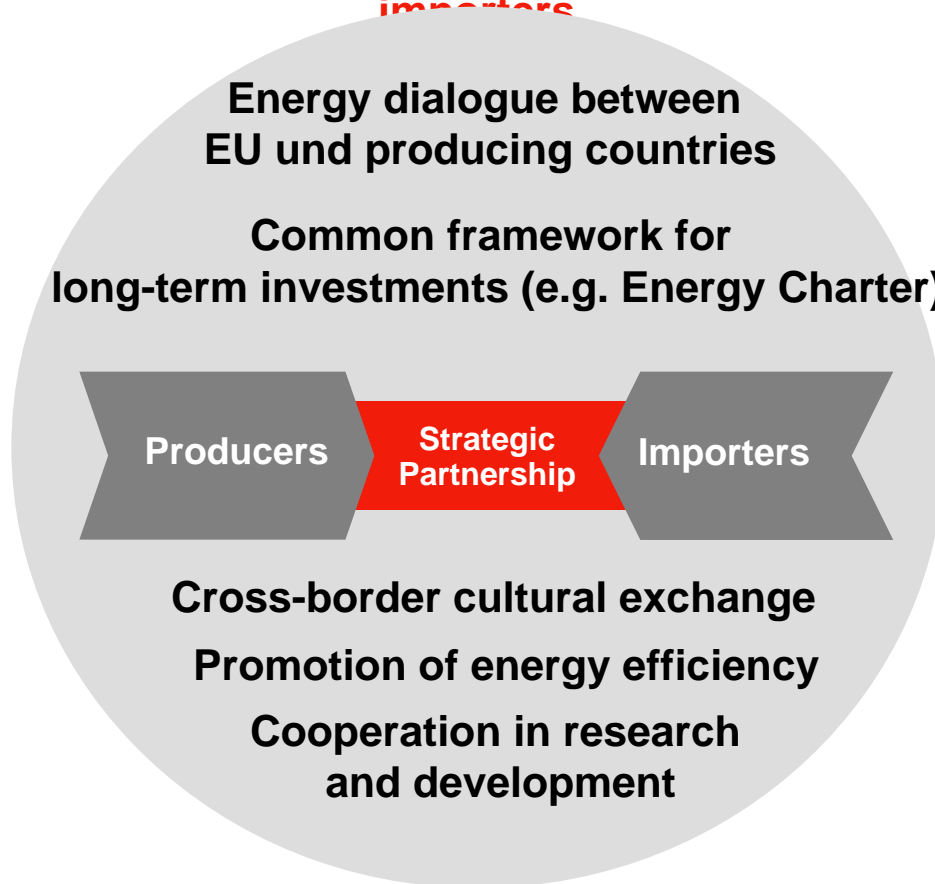
- EU Regulation and Unbundling
- New players
- Gas producers and importers active along whole value chain
- Natural gas increasingly perceived as political tool

- **Increasing market complexity**
- **Growing concerns about security of supply**

Shift in paradigm

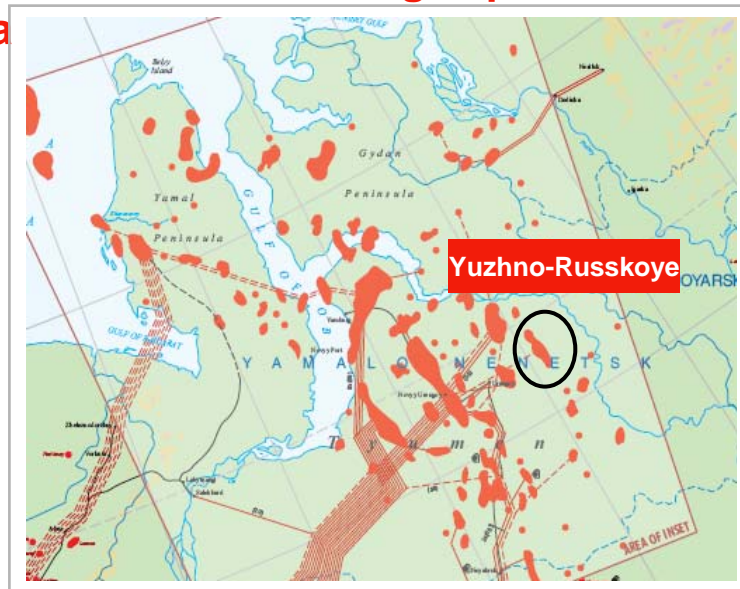
Cooperation and strategic partnerships are essential to secure infrastructure investments and diversification of supplies

Different levels of cooperation between producers and importers



Partnerships in upstream projects significantly contribute to the necessary investments in the development of new gas fields

E.ON acquires a stake in Yuzhno Russkoye and contributes to gas production in Russia



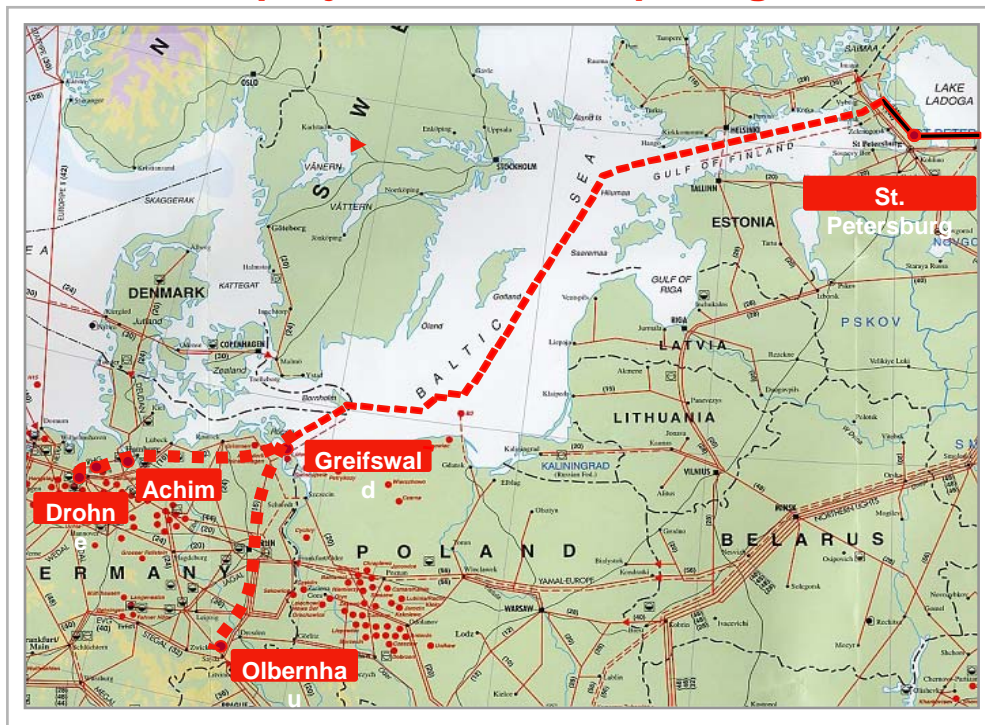
- Joint development of Yuzhno Russkoye via OAO Severneftegazprom (SGNP)
- **Shareholders of SGNP:**
Gazprom (50% + 2 shares), E.ON and BASF Wintershall (25% - 1 share each)

- **Reserves:** 600 billion m³
- **Expected Plateau Production:** 25 bn. m³/a
- **Start of production:** 2007
- **Expected lifespan of production:** > 25 years

Strategic partnerships enable the realisation of projects such as Nord Stream and enhance security of supply in Europe



Nord Stream is the largest infrastructure project in the European gas business



- **Length (offshore):**
1.220 km
- **Capacity:**
55 BCM (2 lines with 27,5 BCM each)
- **Completion of the first line:**
According to plan - in 2011
- **Completion of the second line:**
According to plan – in 2012
- **Shareholders:**
OAO Gazprom (51%), Wintershall Holding AG (20%), E.ON Ruhrgas (20%), Gasunie (9%)
- **Estimated investment:**
~7.4 bn €

Common projects in new fields of business deepen the relationship between producers and importers

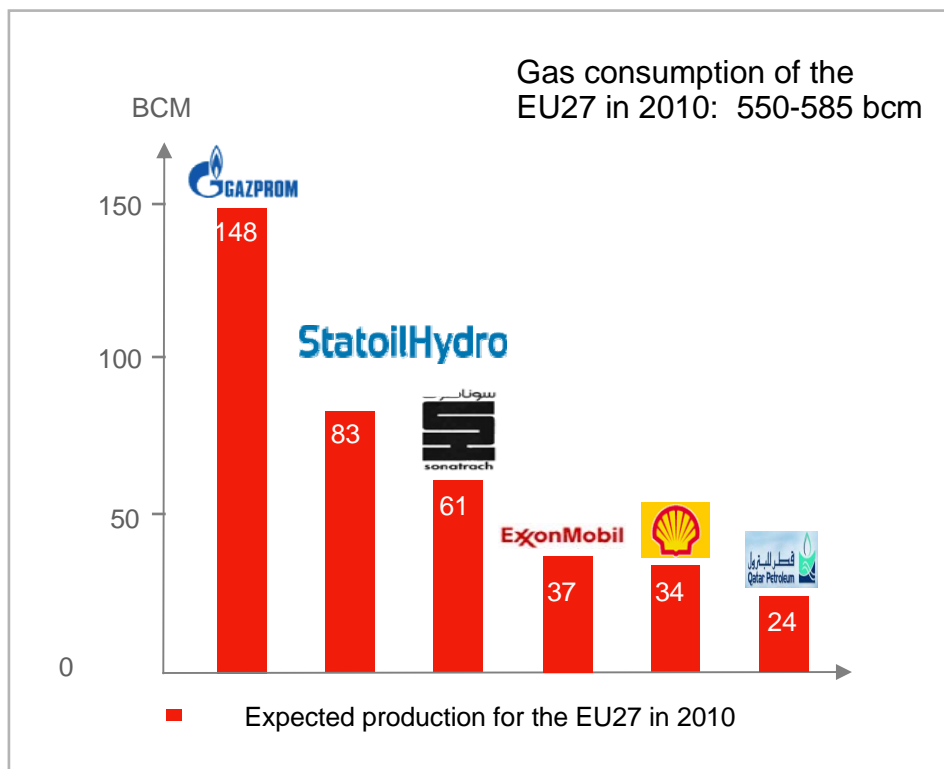
In February 2008 E.ON and Gazprom signed a Memorandum of understanding about the joint construction and operation of a gas fired power plant in Lubmin, Germany



- **Location:**
Lubmin (Germany)
- **Type of power plant:**
CCGT
- **Planned Capacity:**
1200 MW
- **Completion of the second line:**
According to plan – in 2012
- **Possible start of operations:**
2012
- **Shareholders:**
OAO Gazprom (50%), E.ON (50%)

In addition to a close relationship with traditional suppliers strategic alliances with future supply regions are indispensable

„Big 6“ produce approx. 70% of the gas volumes needed in the EU27 in 2010



Source: Company Reports, own research

Potential future supply regions


Caspian region:

-  Azerbaijan
-  Kazakhstan
-  Turkmenistan
-  Uzbekistan

Middle East:

-  Iran
-  Syria

Africa:

-  Equatorial Guinea

Joint UNECE-EBC project on sustainable energy policies develops a common understanding of the term “security of supply”

Objectives

- In-depth research on energy security risks, their mitigation and financial markets
- Survey of energy security risk perceptions
- Establish a group of experts on energy security risks

Method and time horizon

- Delphi study based on scenarios
- Large sample of UNECE member-states, energy companies and financial institutions (to include OPEC, China, India and Japan if possible)
- Phased study with a total time horizon of three years time

Current activities

- Design and verification of methodology
- Identification of energy security risks
- First phase of the has been completed

Summary / Conclusion

Current situation:

- 1 Worldwide natural gas demand is projected to increase significantly until 2030**
- 2 Supply for Europe is abundant but huge investments are required to mobilise supplies**
- 3 Markets have become more complex and today's investment climate is more challenging**

Cooperation and strategic partnerships become even more important than in the past

Deepening existing and establishing new partnerships along the whole value chain fundamentally contributes to long-term security of supply



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