Gas Supply Security in Europe in the long term: Some key issues

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Topics of presentation

- Gas Supply Security of EU-30 in long run
- Gas demand and supply in EU-30 till 2030
- Import dependency and its risks
- Key concerns for EU regarding SoS
- Proposed actions for mitigating SoS risks
- Conclusions
Drivers for Natural gas demand in Europe

• Greenhouse gas and other pollutants reduction policies
• Higher efficiency in power & heat generation by CHP, CCGT etc
• Lower capital costs and shorter building times → lower investment risks etc
• Question : Will supply be able to meet demand with acceptable SoS risks levels?
Assumed EU fossil fuel prices

source: IEA contribution
Primary Energy Demand EU-30
Reference Scenario
Source: IEA Study for Engaged
Changes in Primary energy demand
Reference scenario IEA for Engaged

Coal
Oil
Gas
Nuclear
Hydro
Other Renewables
Other Primary

Mtoe

Gas demand key CEE countries

source: EU-30 study
Natural gas demand and imports
EU-30 region
source: IEA sub-study for Engaged
Supply costs estimates new supplies to EU borders 2010/15
Net gas imports EU-30 per region of origin

source: IEA contribution
Gas import dependence in CEE’s per scenario from 2000 to 2030

source: Engaged study
Investments needs for gas-supply infrastructure to 2030

• Investments of around $ 500 billion needed in EU
• Investments of $ 190 billion for outside EU
• Long lead times, high risks investments
• Investments in LNG, pipelines, storage, new and existing transit capacity and connections e.g.:
  - Russia/Baltic/North Sea pipeline
  - Russia/Ukraine/Belarus pipeline
  - Austria/Iran Nabuco pipeline
  - Connections in CEEC’s
  - LNG facilities, Spain, Italy, France, UK
Key questions concerning SoS in Europe

• How to manage the increasing reliance in EU-30 on gas supplies from remote areas→EU-30 import share rises to 60-80 % in 2020/30. Many countries even 100%
• How to close the “demand-supply gap” and create more flexibility in supply, routes and suppliers, to EU markets
• How to reduce the uncertainties for investors on the:
  - Transition to competitive more liquid downstream gas markets
  - Changes in type of financing and contracting of gas projects
  - Regulatory changes and differences in the EU-30
  - Gas bubble in short term vs supply gap in long term
  - Volatile gas demand prospects, gas and oil prices
EU policies in reducing energy SoS and investment risks

• EU Green paper 2000: Opening up discussions
• Communication 2002 on “Security of EU Gas Supply” → Amended gas Directive adopted June 03 with:
  - Full market opening July 2007
  - Legal unbundling transmission July 04 and 07
  - Network access regulated prices
  - Obligation MS to monitor SoS
  - Minimum output quality standards
  - Stimulate investment in storage capacity
  - Flexibility in long term contracts
  - Solidarity mechanism and cooperation in enlarged EU-30

• TEN Guidelines and other stimulating transmission connections support programmes Inogate and MEDA
Conclusions

• Dialogue and cooperation EU with the key suppliers such as Russia and Algeria
• Stimulate investment in alternative gas supply routes and connections in EU-30
• Secure inter-operability of gas networks in EU-30 and implement EU policies on SoS
• Create a stable economic and investment climate and allow for longer term contracts
• More backing of EU and Investment banks for cross-border large pipeline projects
Implications supply infrastructure in 2030 (Bcm)

- **LNG**
- **Pipeline**

- Russia
- Central Asia - Caspian
- Middle East
- Latin America
- Africa - West and North

Numbers represent supply infrastructure capacity in Bcm.

- 83
- 52
- 120
- 40
- 160
- 142
- 72
- 70
- 18
Structural change fuel consumption
Poland, Hungary and Slovakia
source: EU-30 study
Structural change fuel input power sector Poland

source: EU-30 study

![Bar chart showing fuel input changes from 2000 to 2030 for Poland's power sector. The chart indicates a significant increase in solids and gas usage compared to oil and renewables.](chart.png)
Structural Change Fuel input
Final Demand Poland

source: EU-30 study
Gas demand scenarios to 2030
source: Engaged study for DG TREN
Current Barriers to gas demand growth in CEE

- Uncertainties regarding:
  - Economic growth/world economy
  - Prices oil & gas supplies/world market
  - Liberalisation & transition of gas markets in EU
  - Investment in connections, services such as balancing and storage and thus creation of fully mature gas market

- Insufficient policies and regulations favouring long term structural change energy sector

- Limited gas import suppliers: SoS and competition

- Gas bubble in short run vs supply gap in long run

- Lack of availability of investments for developing the required gas infrastructure between consumers and more remote production locations
Recent EU Gas Market studies

• European Energy & Transport Trends EU by NTUA for EC, January 2004

• World Energy Outlook update for EU-30 by IEA for Engaged study, October 2003

• Engaged study by ECN & others EU, IEA institutes for DGTREN, December 2003
General EU policy objectives

• Strengthening the competitiveness of the Internal Energy Market in an enlarged EU

• Development of environmentally sound & sustainable energy markets

• Enhance Security of Supply in an enlarged Europe

• Modernisation Energy Systems in partner countries
Key assumptions for projecting gas demand in EU-30

IEA WEO update for EU-30 2000-2030:

- Population growth 0.25% pa in 2000-2030
- GDP growth 2.3/2.0/1.6% pa in 2000-2030
- Fuel prices oil from 28/23$ (gas 3.0/3.6$ per Mbtu) in 2000/01 → 29$/boe (gas 3.8$ in 2030)
- Coal prices flat $39/metric ton, after 2010 rising to $44 in 2030
- Ratio gas-to-oil price 0.93 in 2001 to 0.70 in 2030

• Current policies on decommissioning nuclear plants, energy efficiency, renewables, greenhouse gas reduction and other environmental policies in EU MS
Future EU events on promoting DER/RES

• First International Conference on the Integration of Renewable Energy Sources and DER, 1\textsuperscript{st}-3\textsuperscript{rd} December 2004, Brussels
• Organisers: IRED cluster DG projects
• Objectives: Sharing knowledge of EU projects with USA, Japan and OECD
• Info: www.conference-on-integration.com