

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

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Topics of presentation

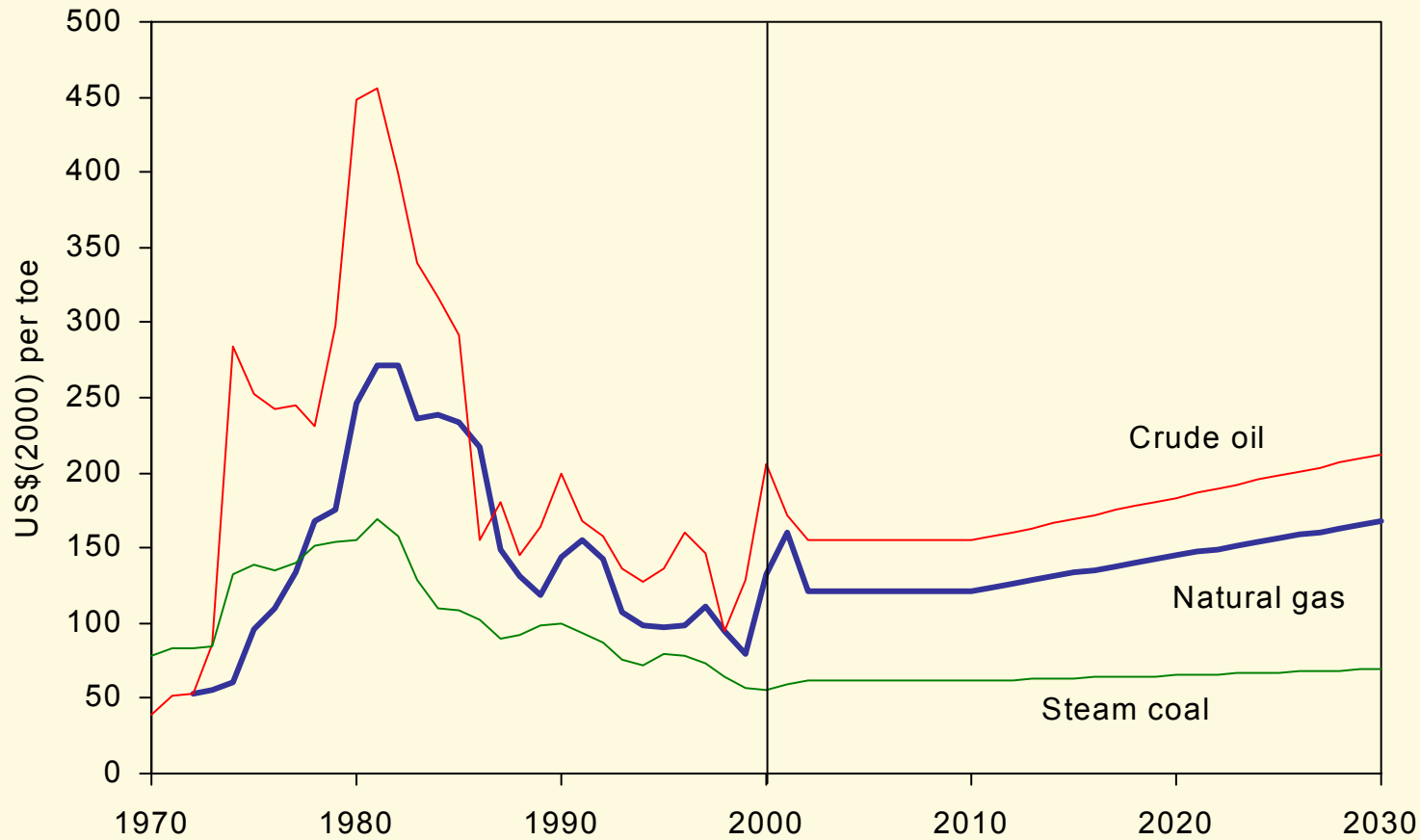
- Gas Supply Security of EU-30 in long run
- Gas demand and supply in EU-30 till 2030
- Import dependency and its risks
- Key concerns for EU regarding SoS
- Proposed actions for mitigating SoS risks
- Conclusions

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?

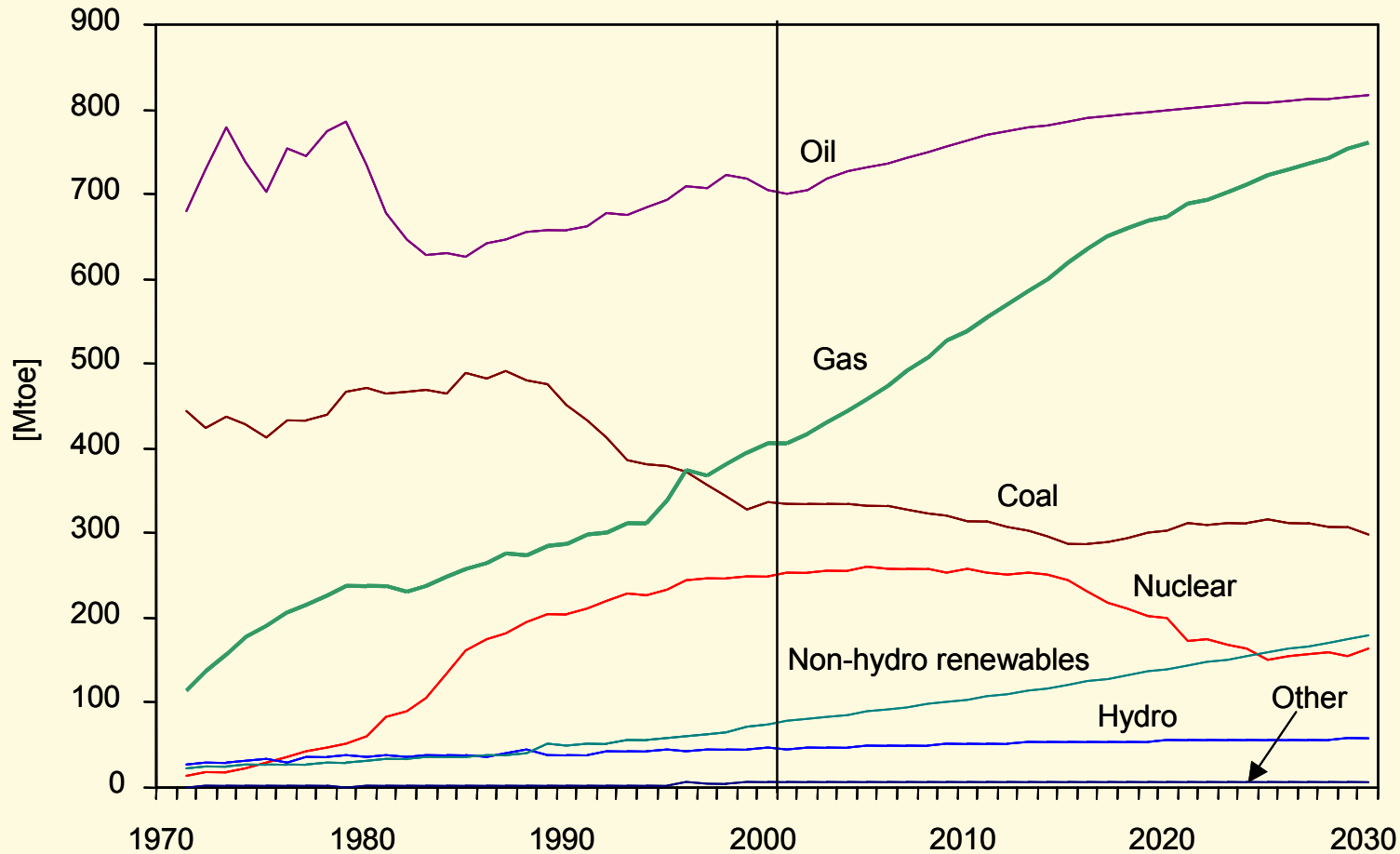
Assumed EU fossil fuel prices

source: IEA contribution



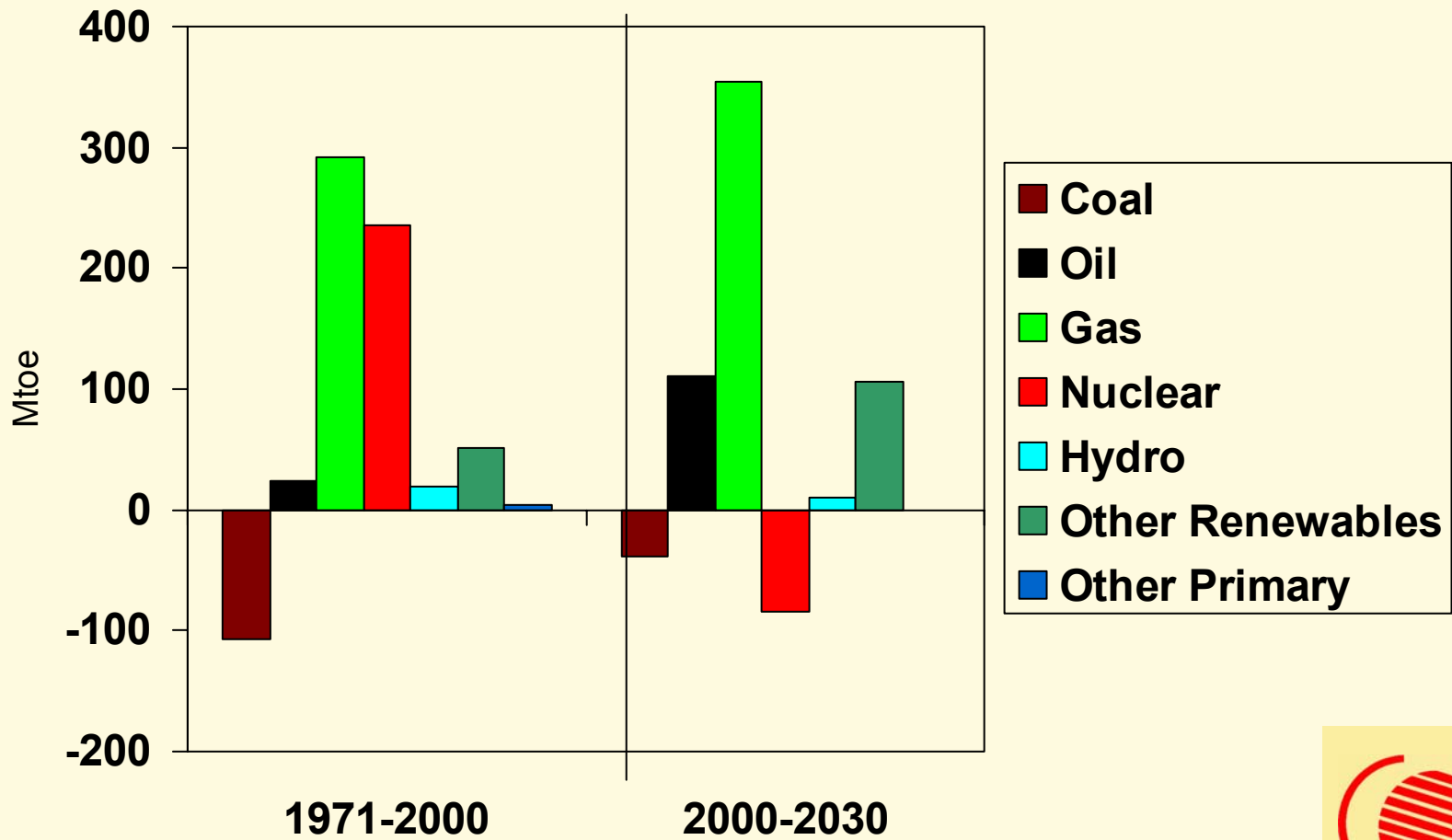
Primary Energy Demand EU-30 Reference Scenario

Source: IEA Study for Engaged



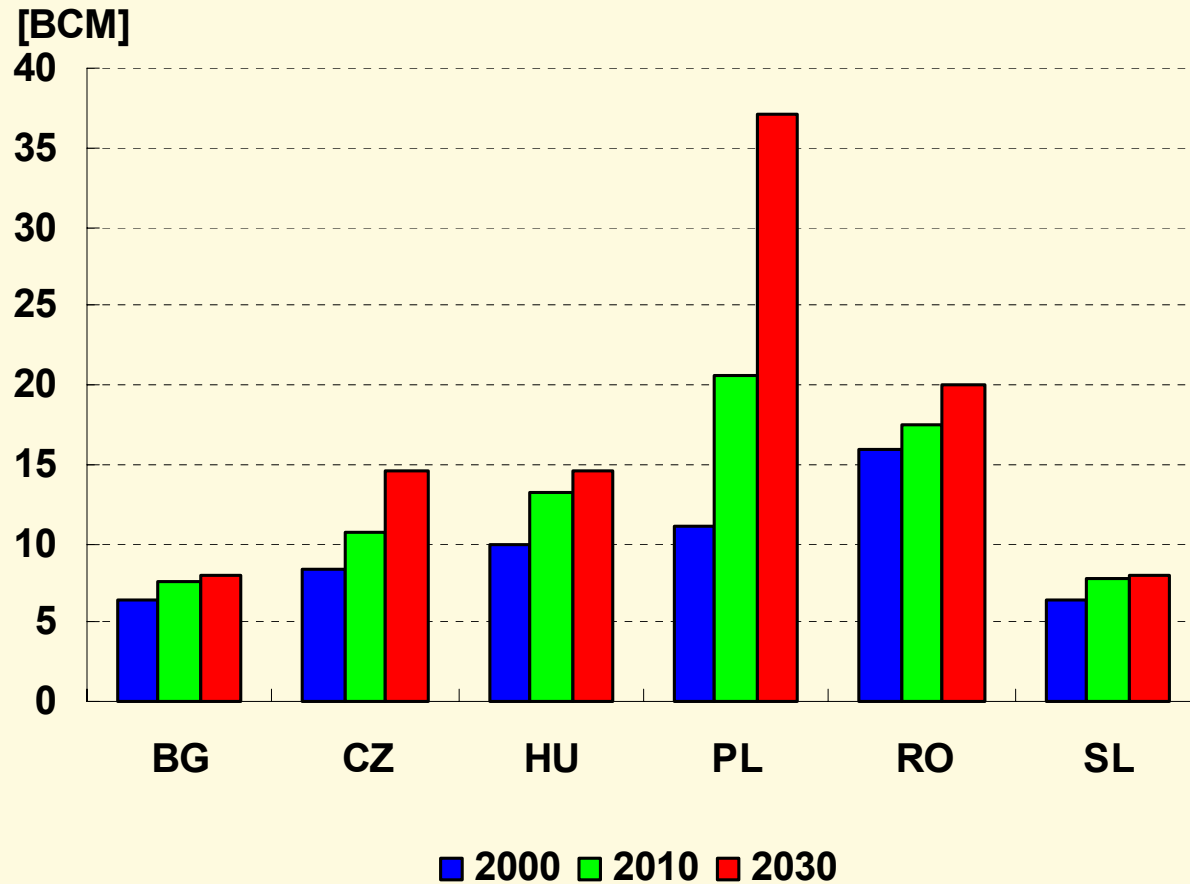
Changes in Primary energy demand

Reference scenario IEA for Engaged

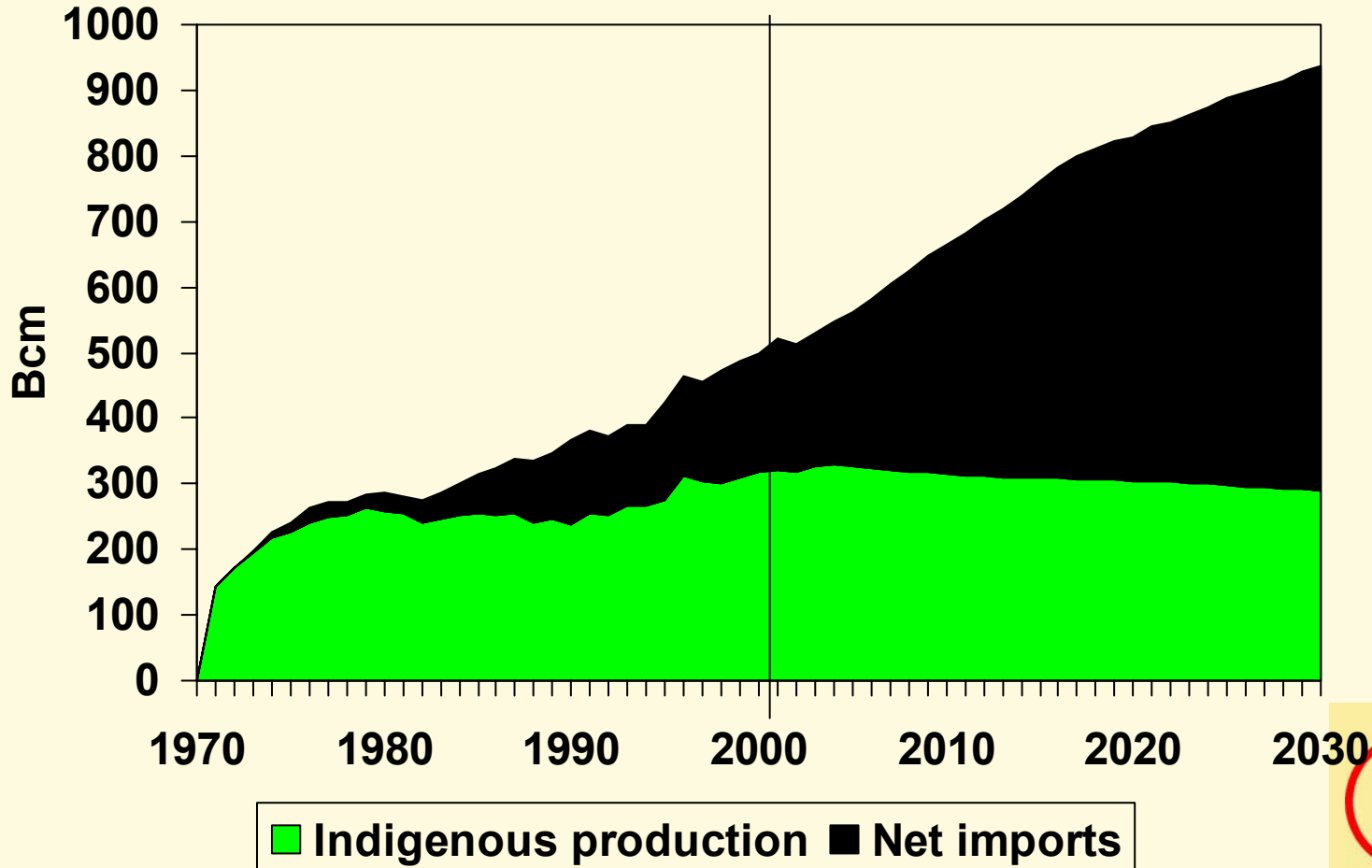


Gas demand key CEE countries

source: EU-30 study



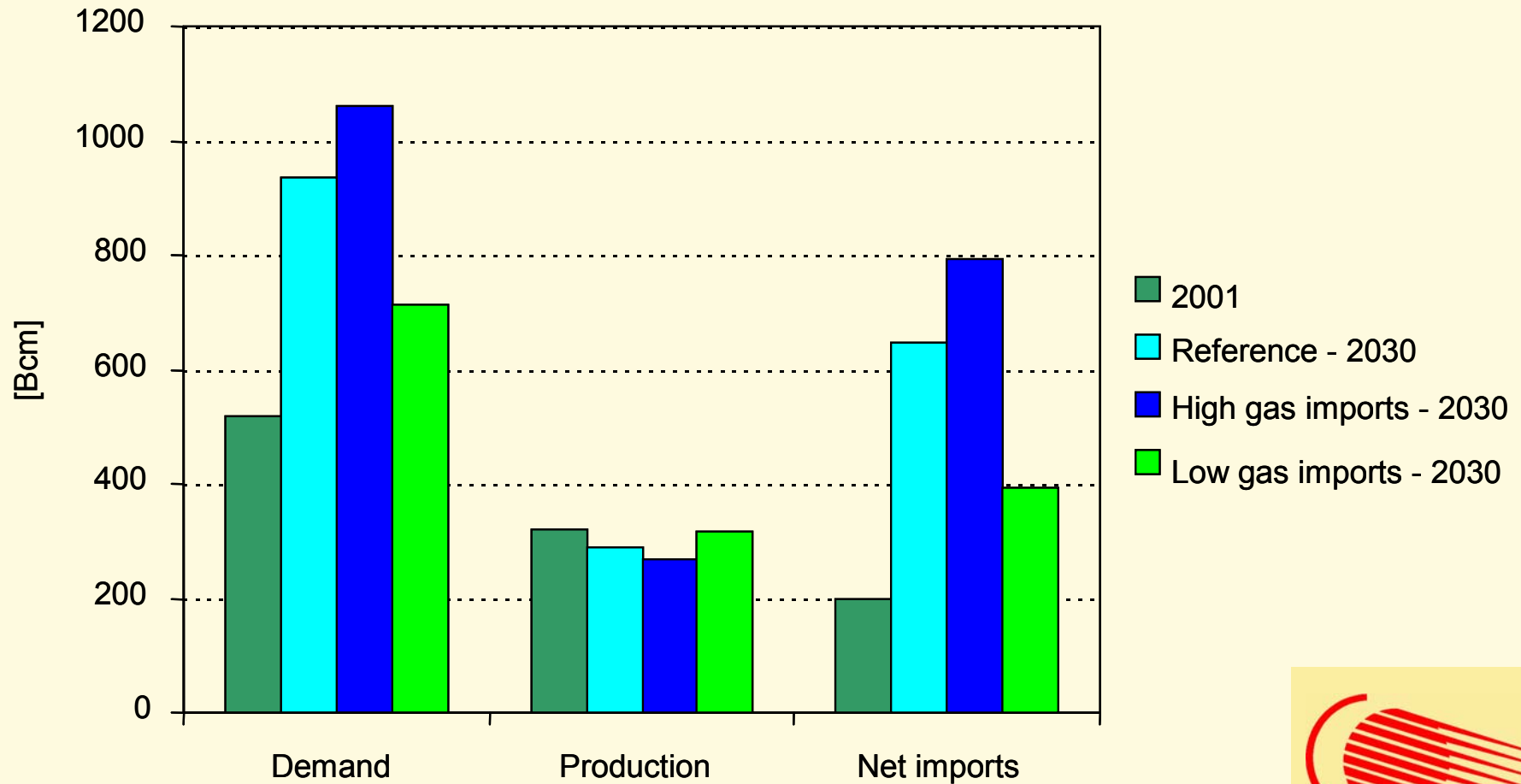
Gas Supply in EU-30



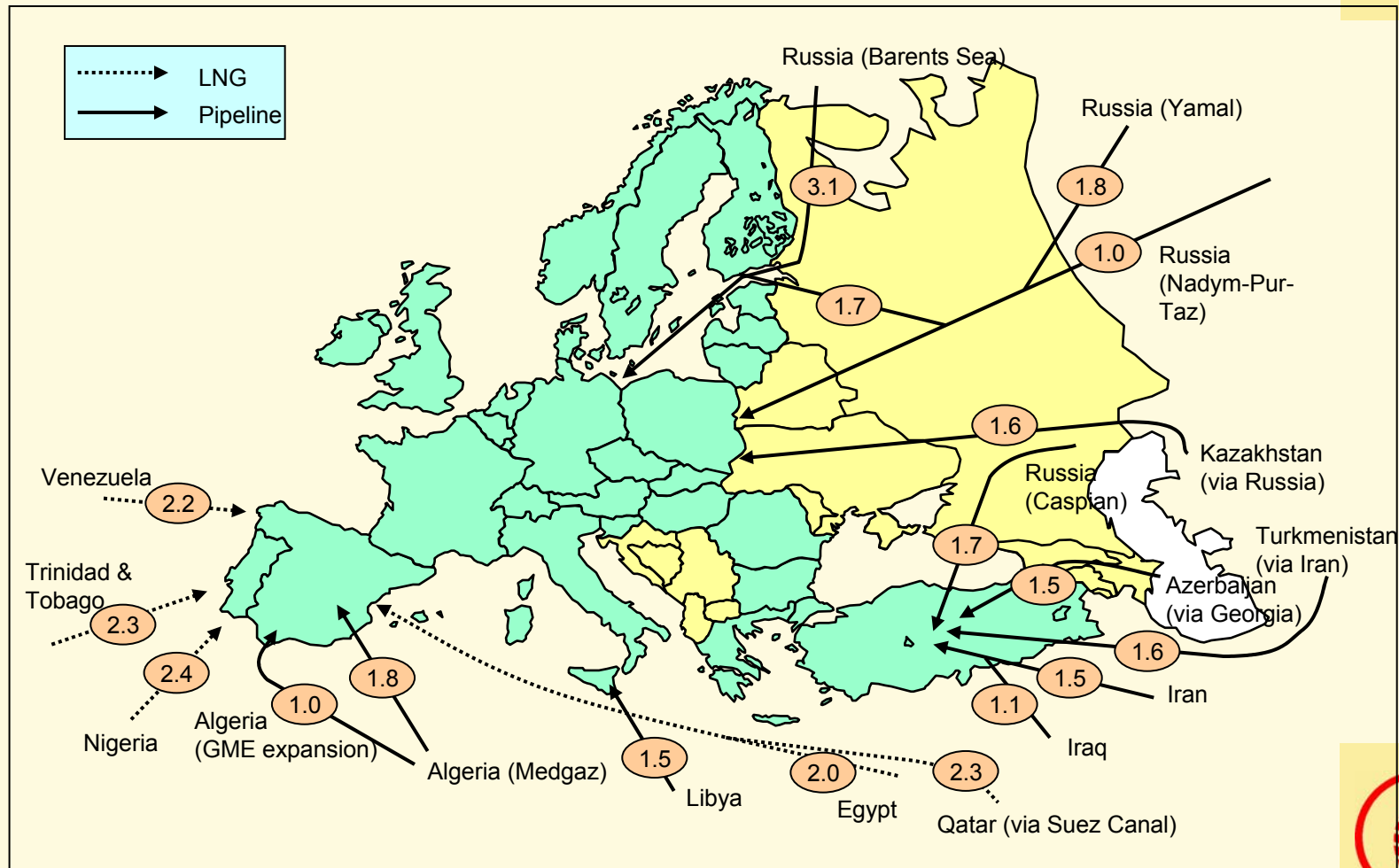
Natural gas demand and imports

EU-30 region

source: IEA sub-study for Engaged

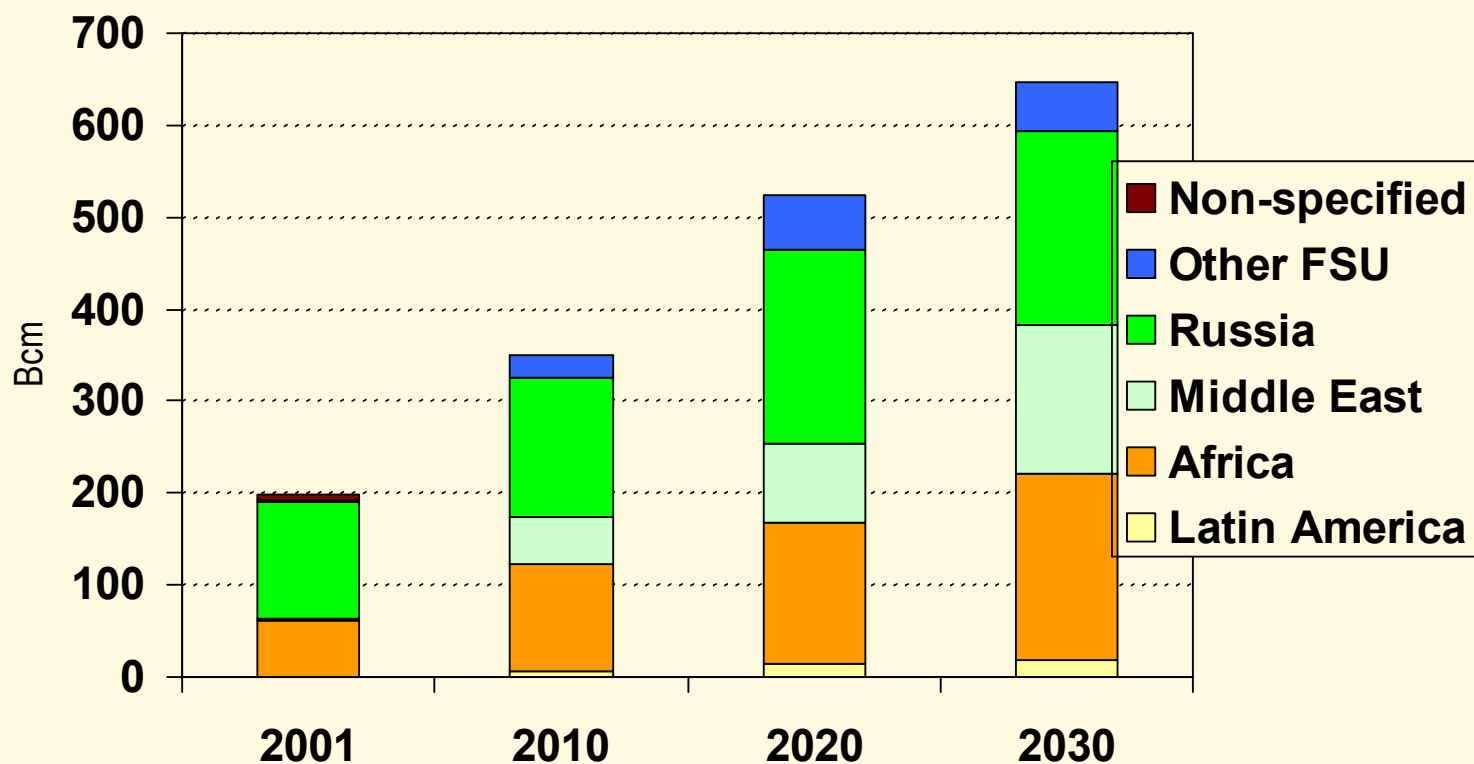


Supply costs estimates new supplies to EU borders 2010/15



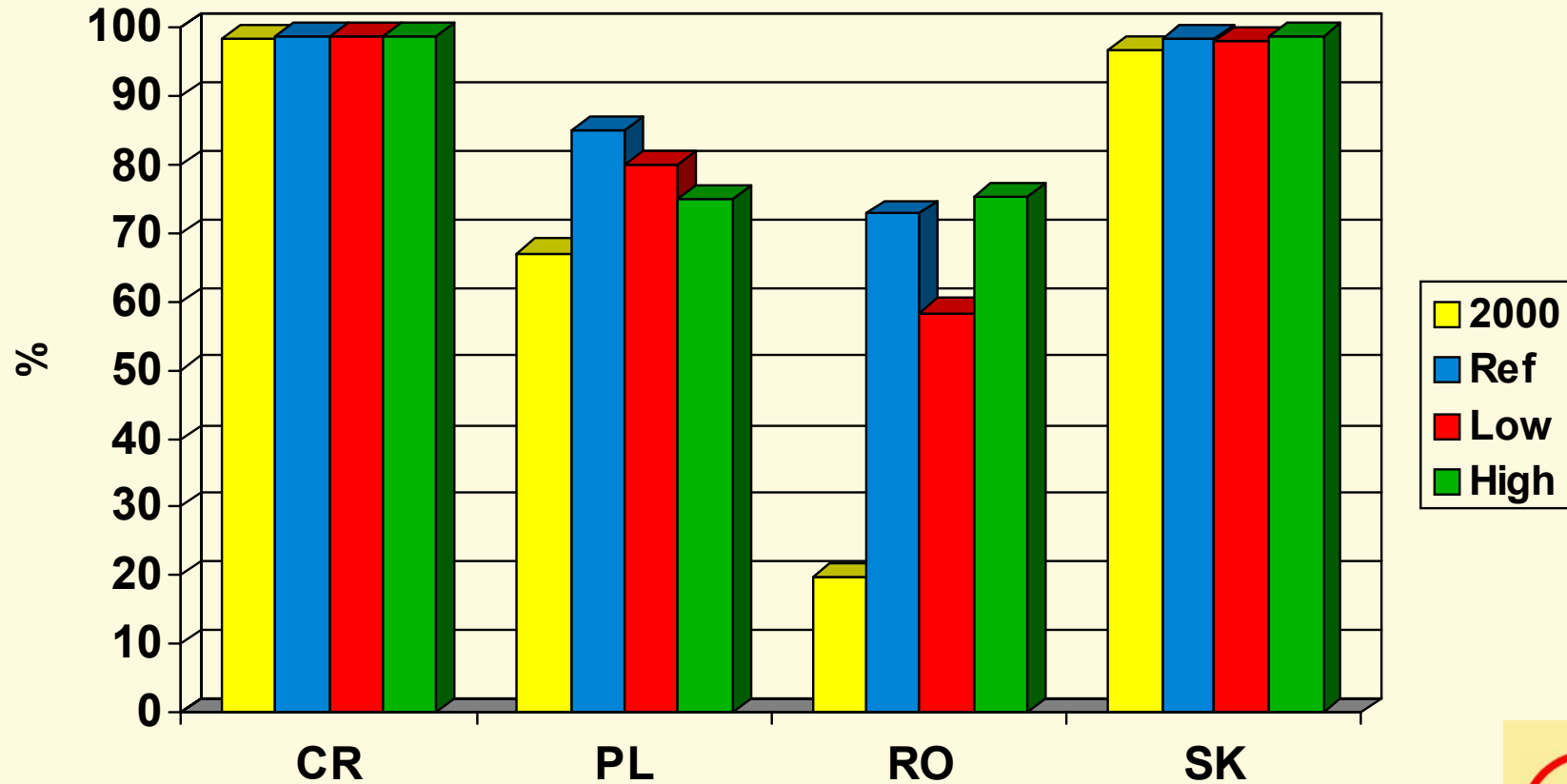
Net gas imports EU-30 per region of origin

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

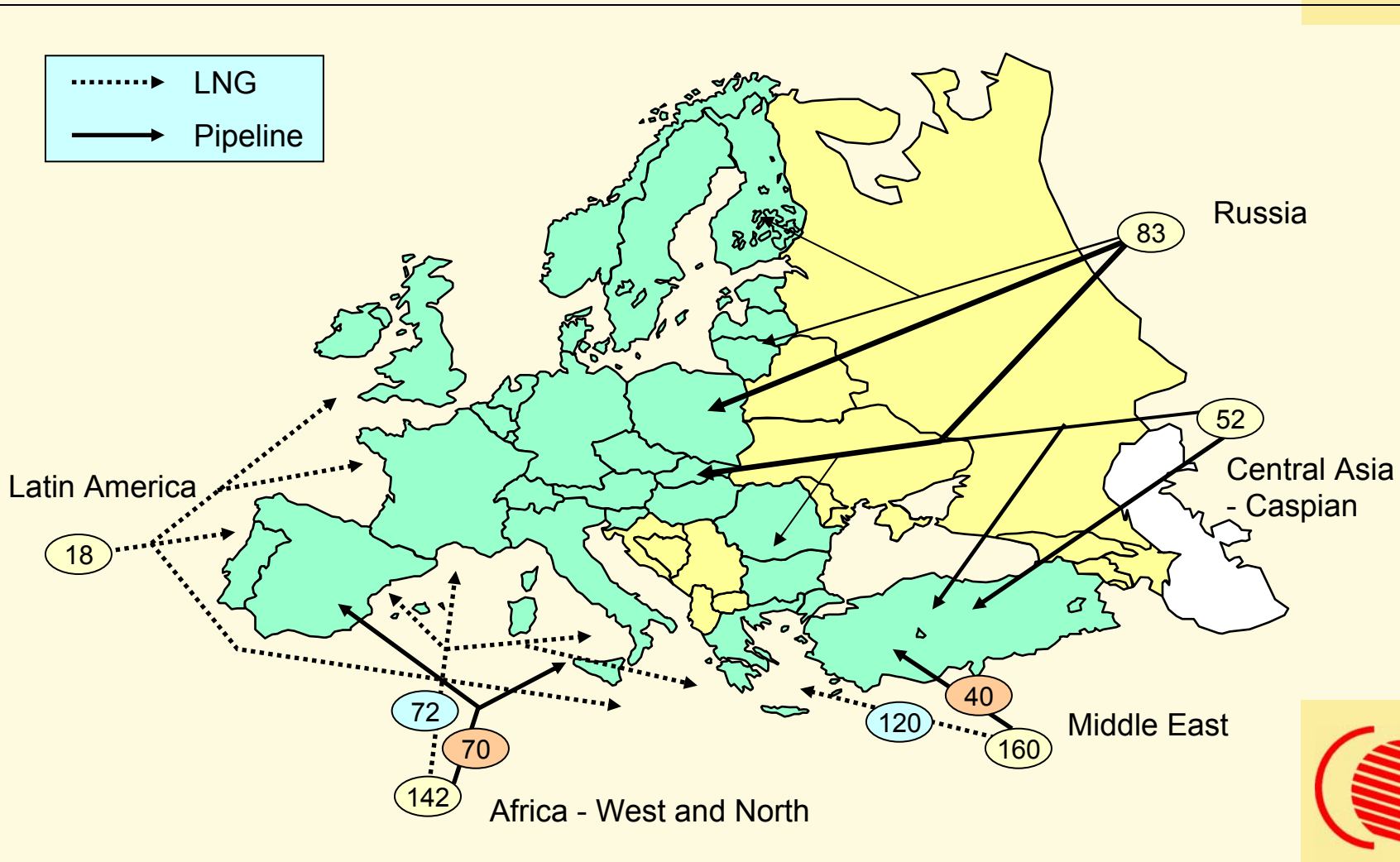
- EU Green paper 2000: Opening up discussions
- Communication 2002 on “Security of EU Gas Supply” → Amended gas Directive adopted June 03 with:
 - Full market opening July 2007
 - Legal unbundling transmission July 04 and 07
 - Network access regulated prices
 - Obligation MS to monitor SoS
 - Minimum 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

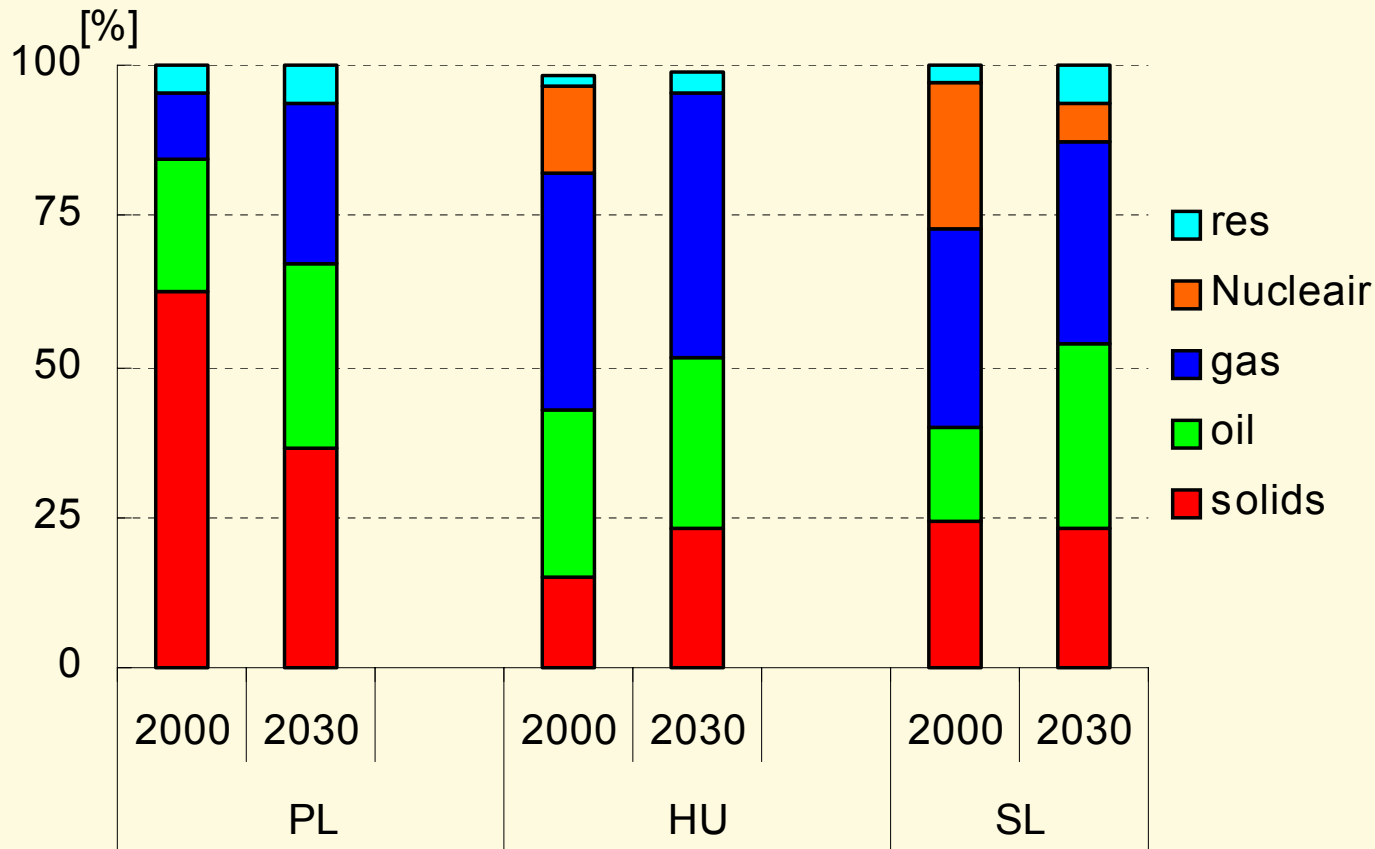


Implications supply infrastructure in 2030 (Bcm)



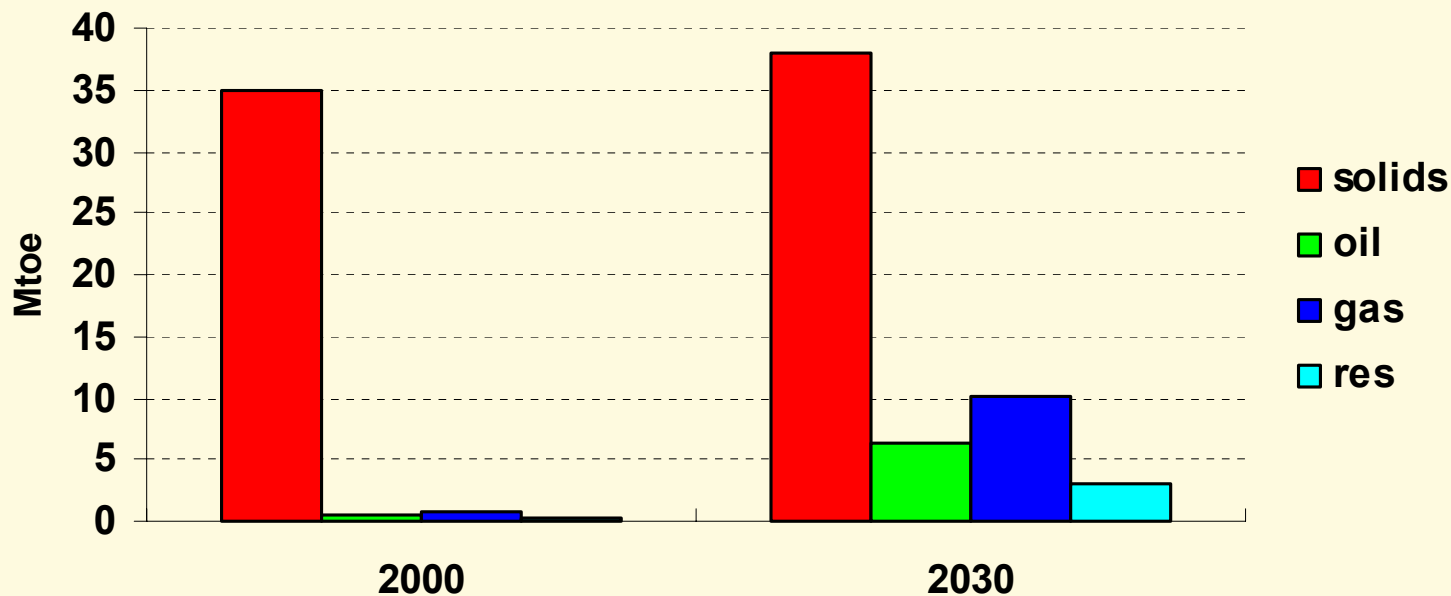
Structural change fuel consumption Poland, Hungary and Slovakia

source: EU-30 study



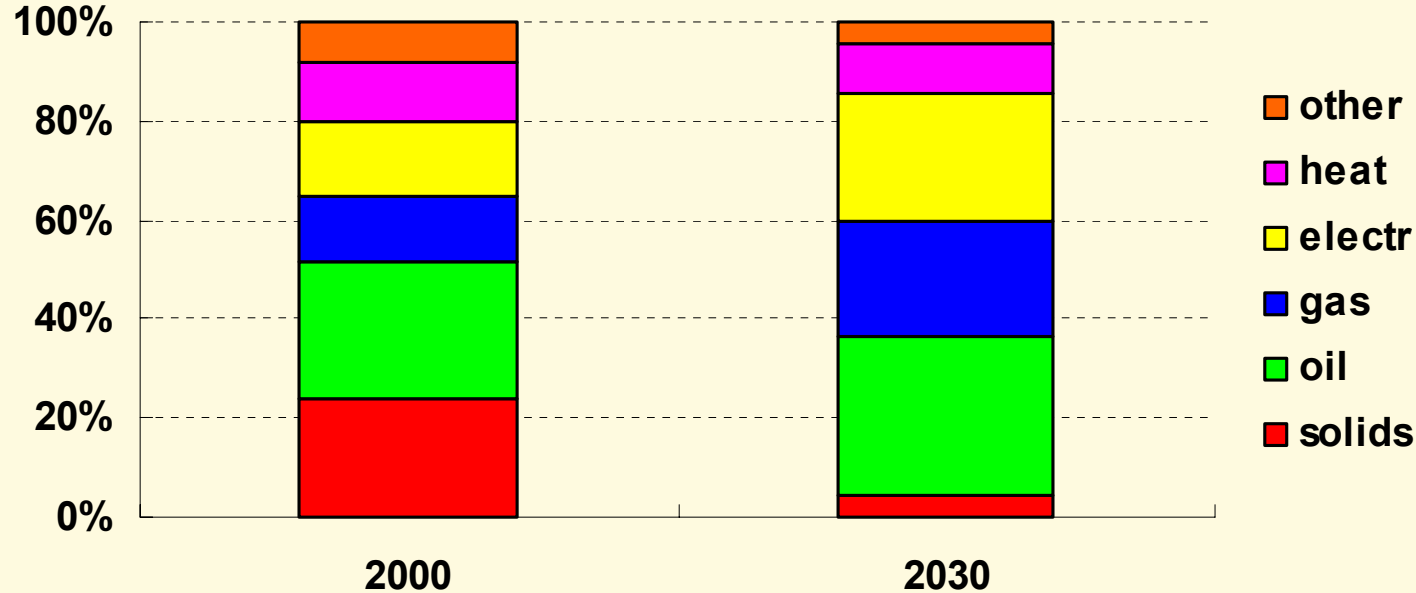
Structural change fuel input power sector Poland

source: EU-30 study



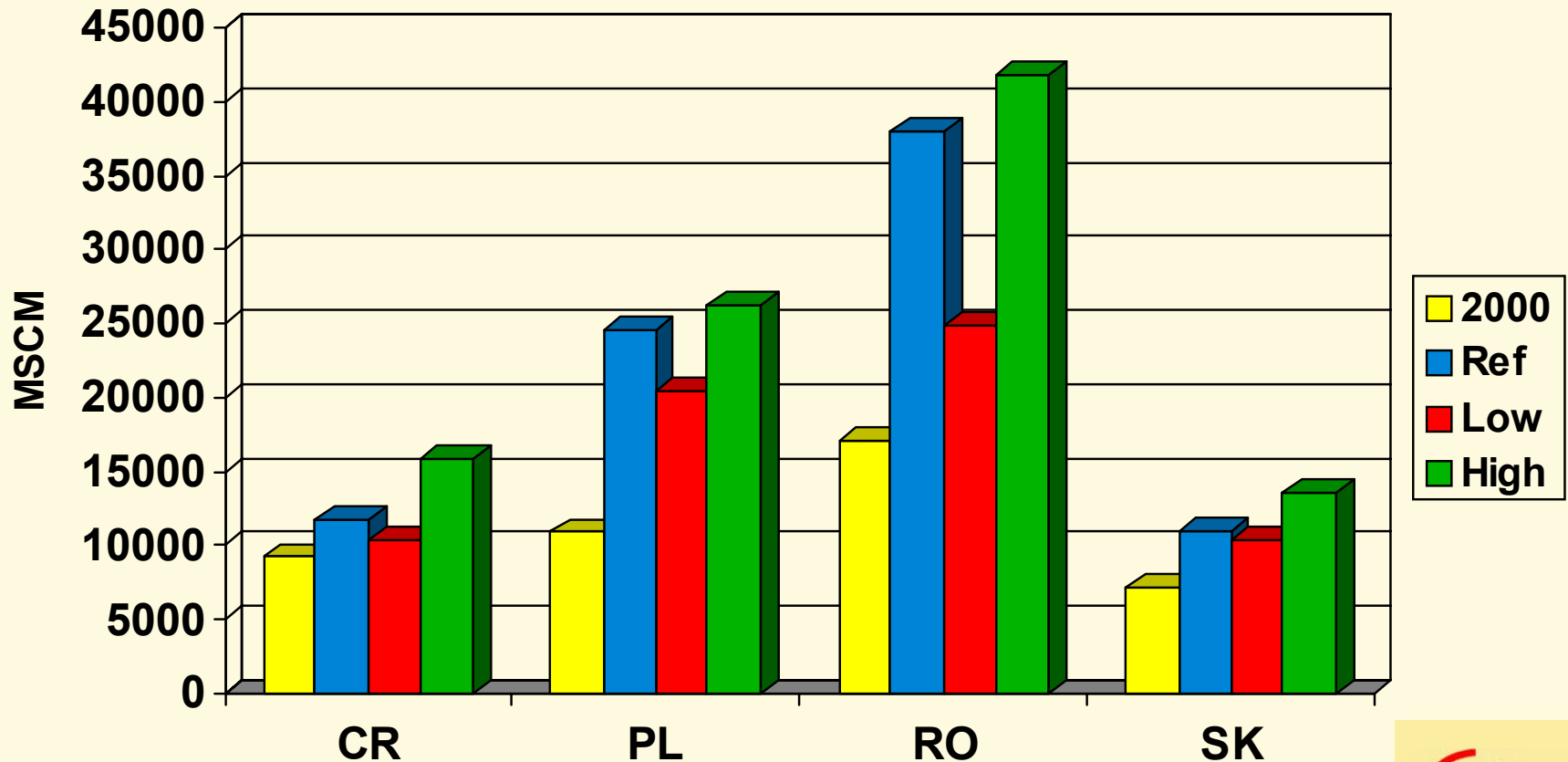
Structural Change Fuel input Final Demand Poland

source: EU-30 study



Gas demand scenarios to 2030

source: Engaged study for DGTREN



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, 1st-3rd 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

