

# Resource Nationalism and Energy Markets Globalization

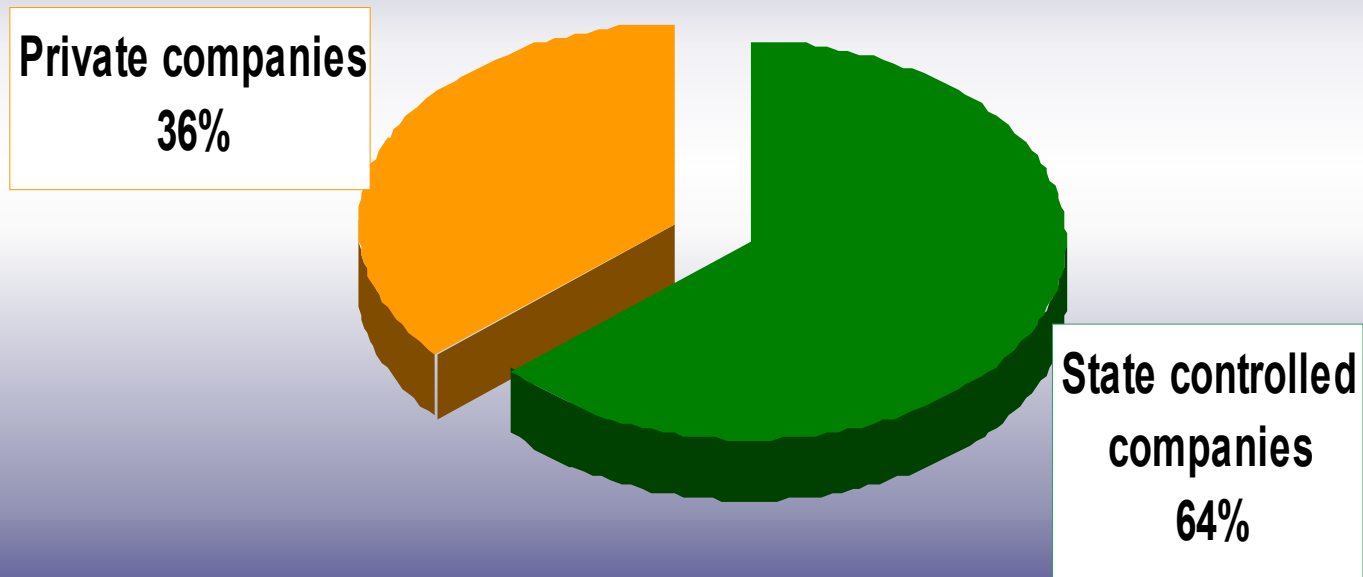
**Elena Telegina**

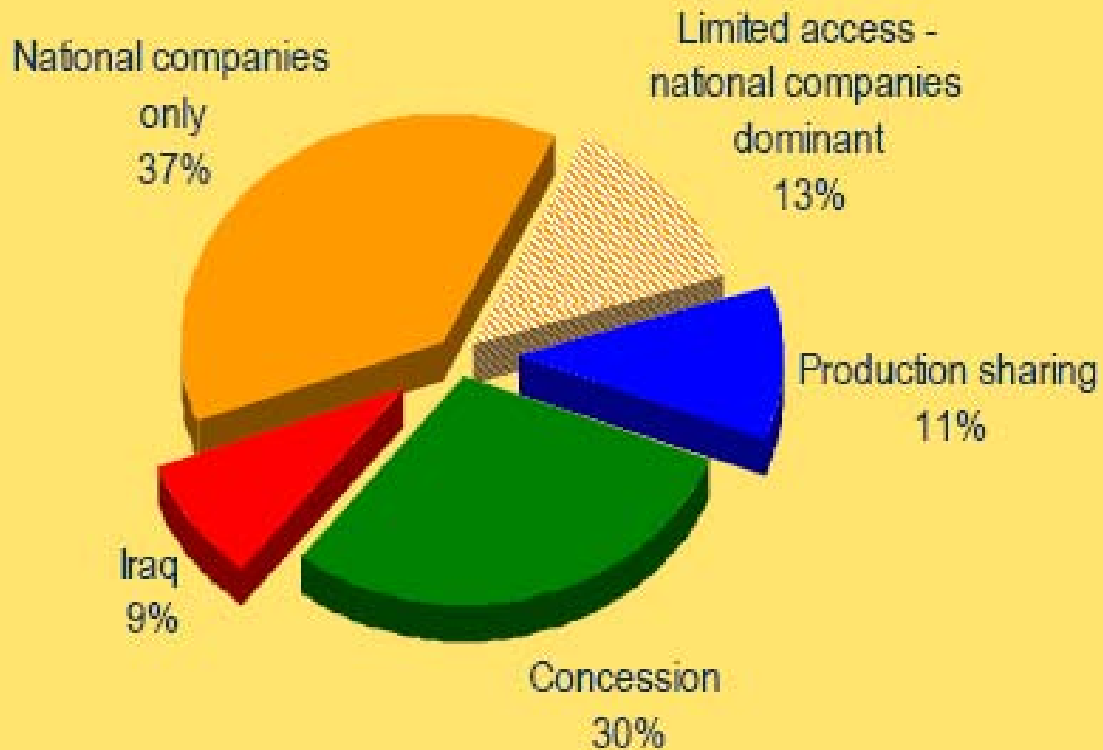
**Director of the Institute of Geopolitics and Energy  
Security of Russia**

**Member of the Board, Russian Union of Oil Exporters  
Doctor of Economics, Professor**

**Nice, November 29–December 1, 2007**

## CONTROL OVER PRODUCTION OF REMAINING COMMERCIAL RESERVES NATURAL GAS



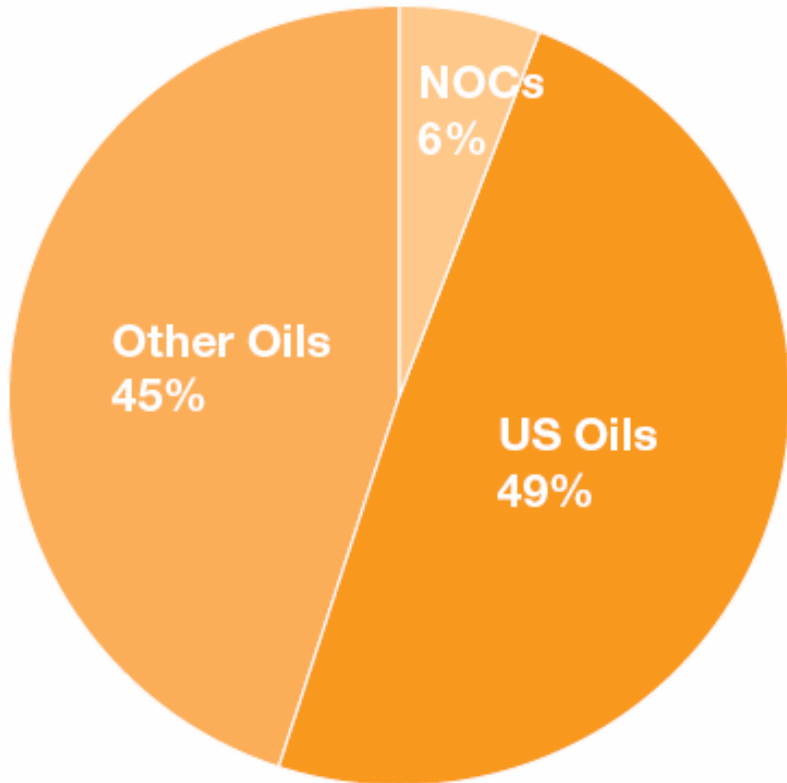


Total reserves = 1 290 billion barrels

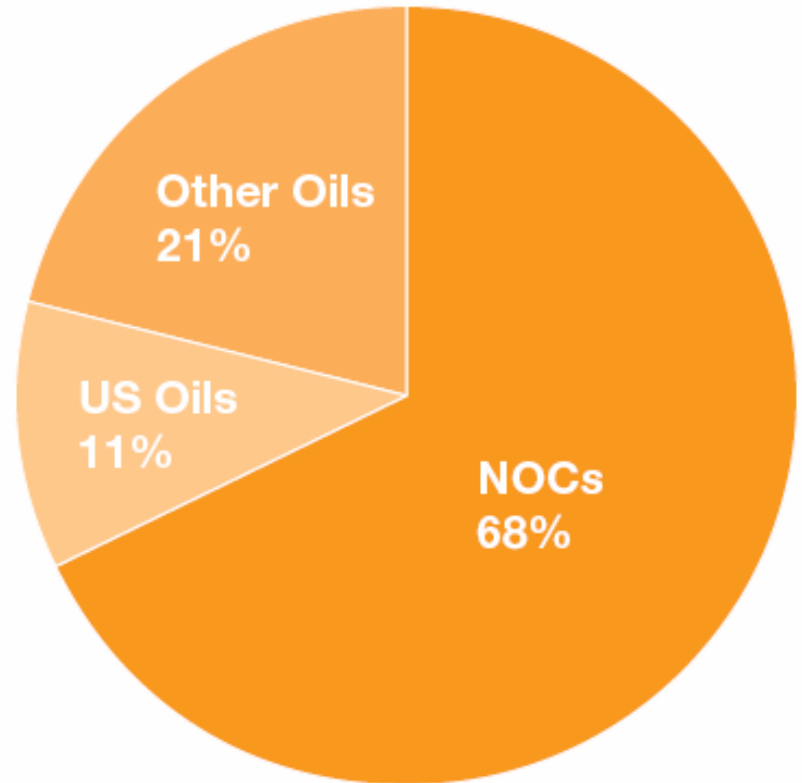
*Access to much of the world's remaining oil reserves is restricted*

# World Oil Production

1970

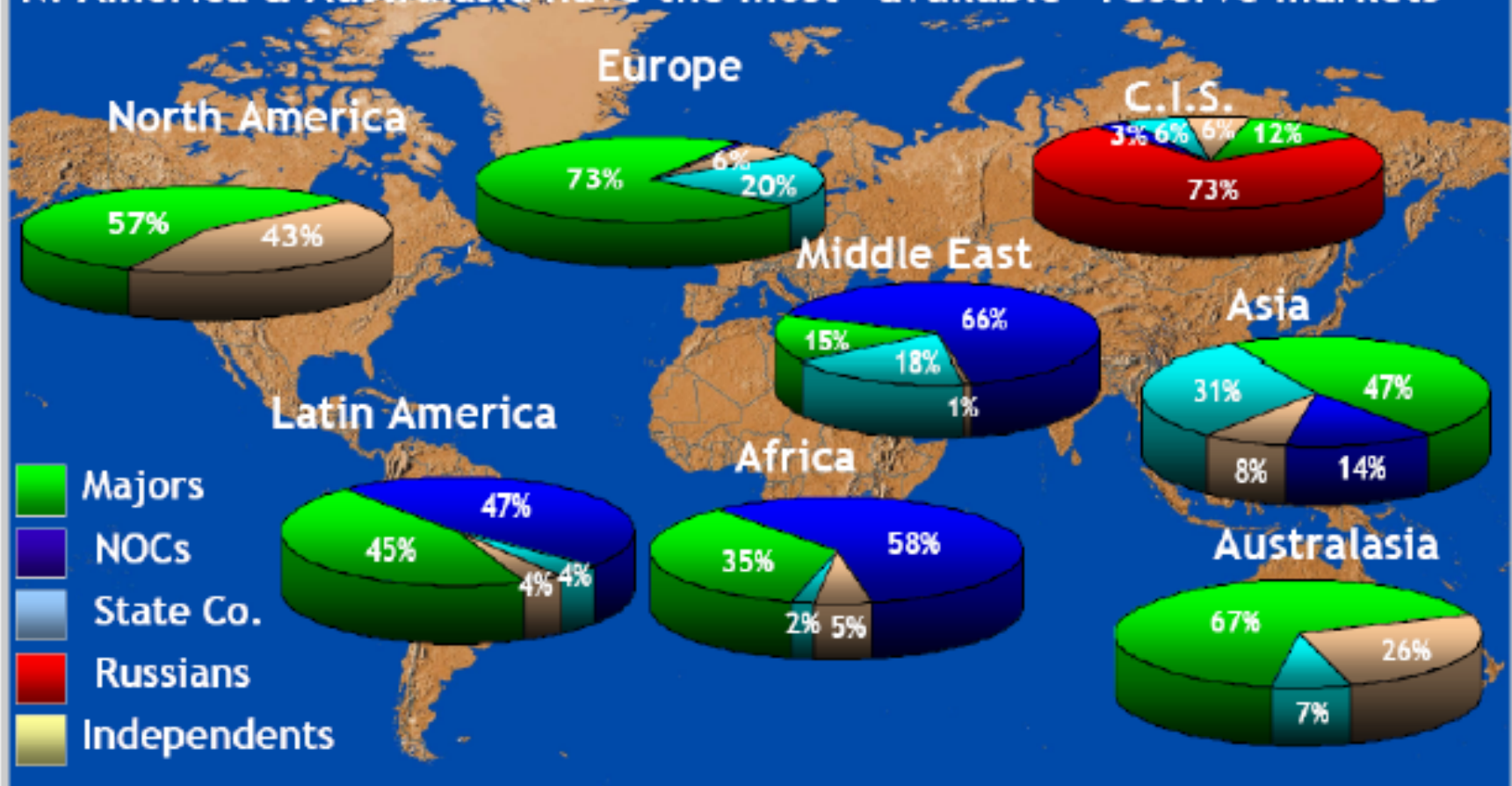


2005



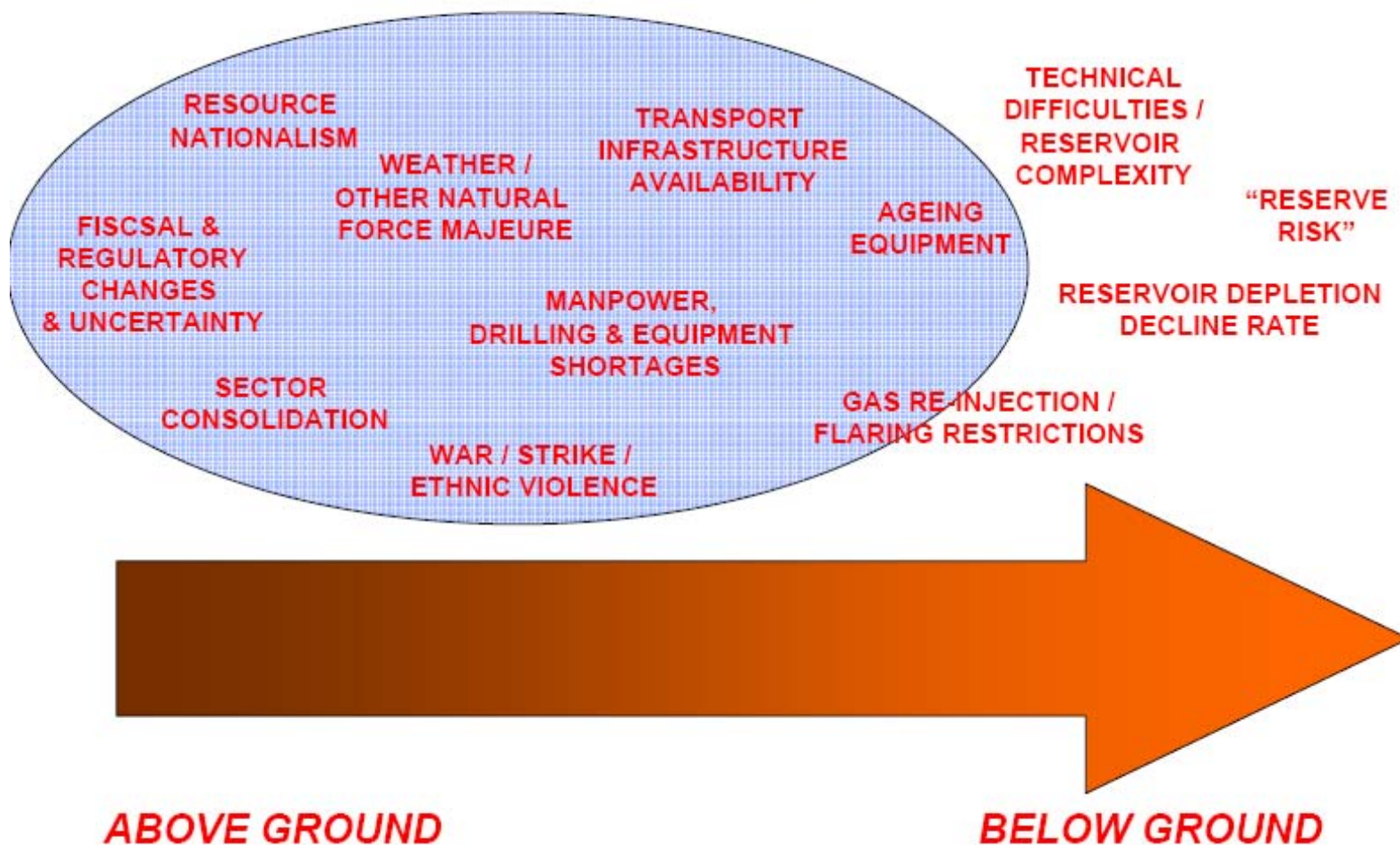
# Changing Competitive Landscape Increasing State Control of Resources

Ownership of reserves varies significantly by region: Europe, N. America & Australasia have the most “available” reserve markets



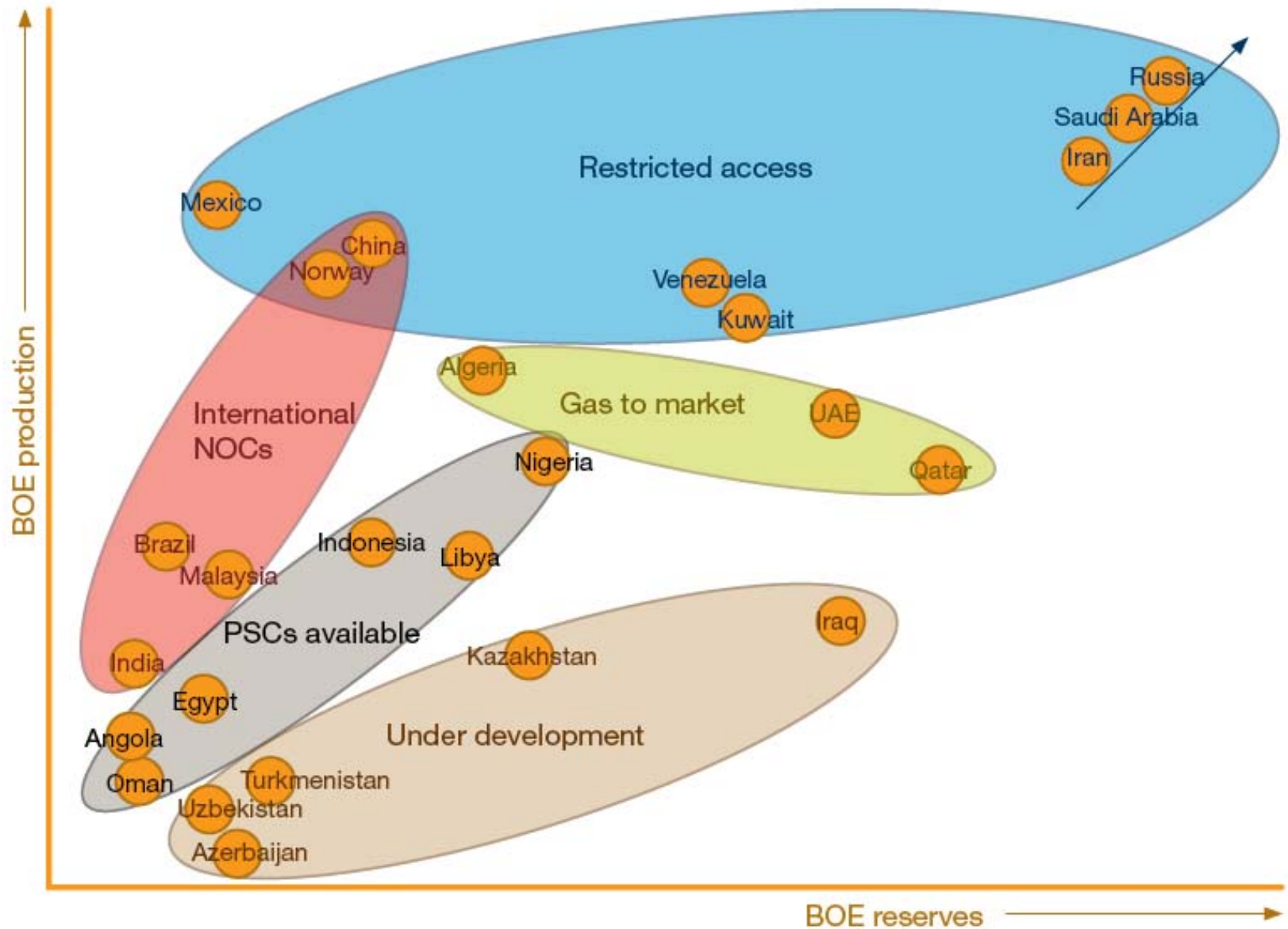
# Upstream Supply Risks Predominate

MTOMR forecast sees above ground risks exceeding below ground risks



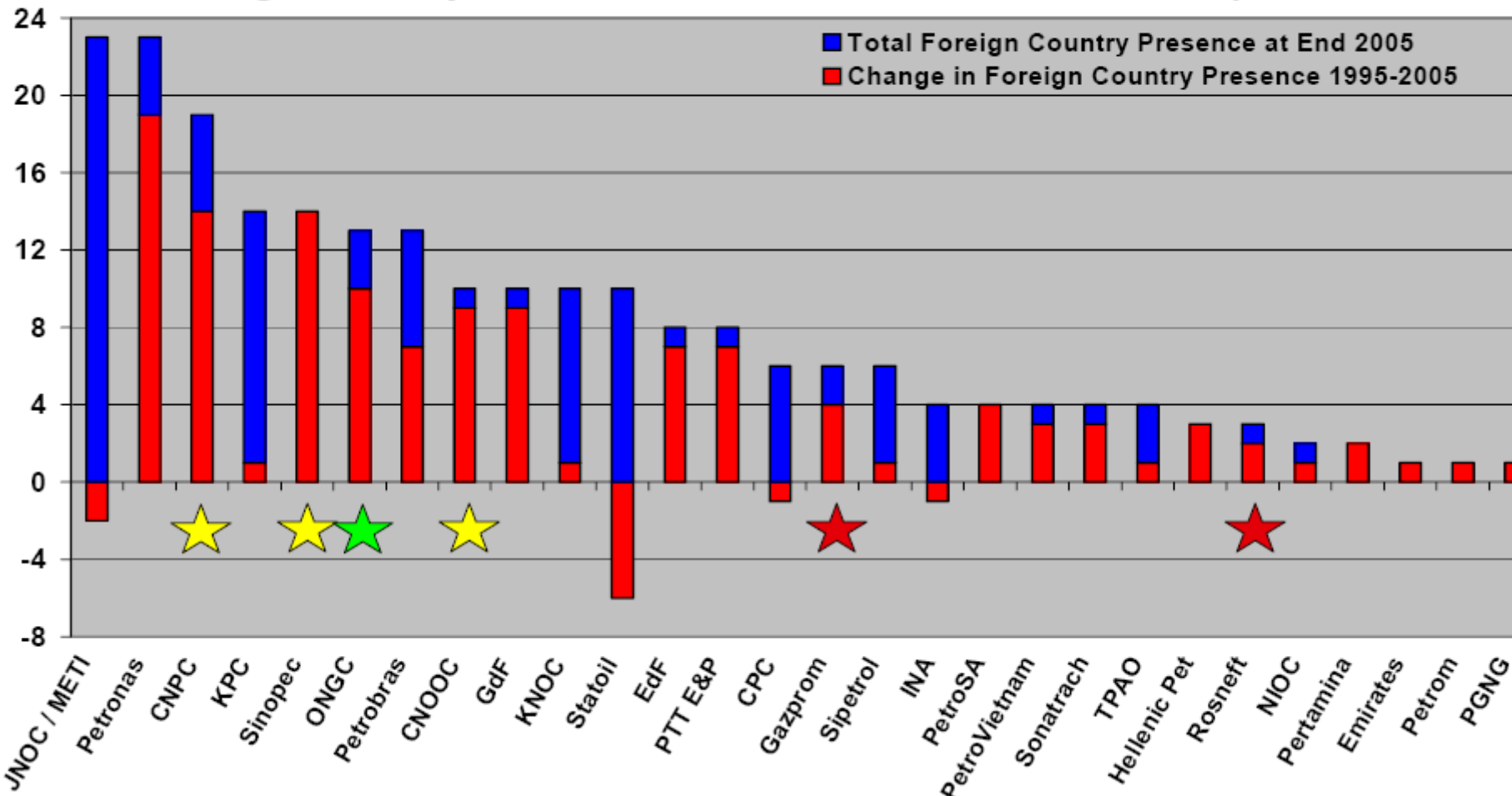
# Top 25 Countries with NOCs (2005)

## Relative Positions for Reserves and Production

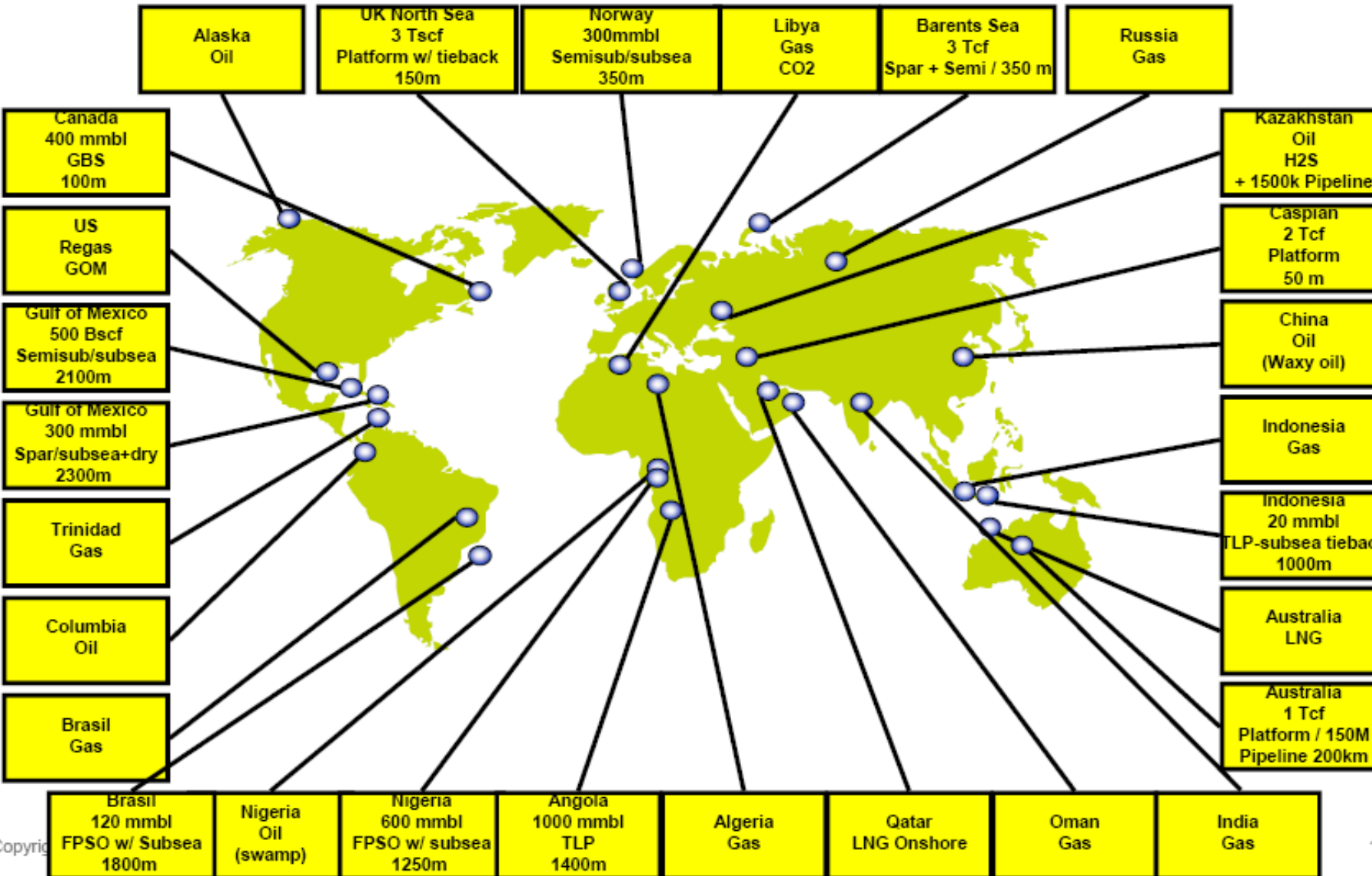


# Changing Competitive Landscape

## Foreign Country Presence of State-Controlled E&P Companies

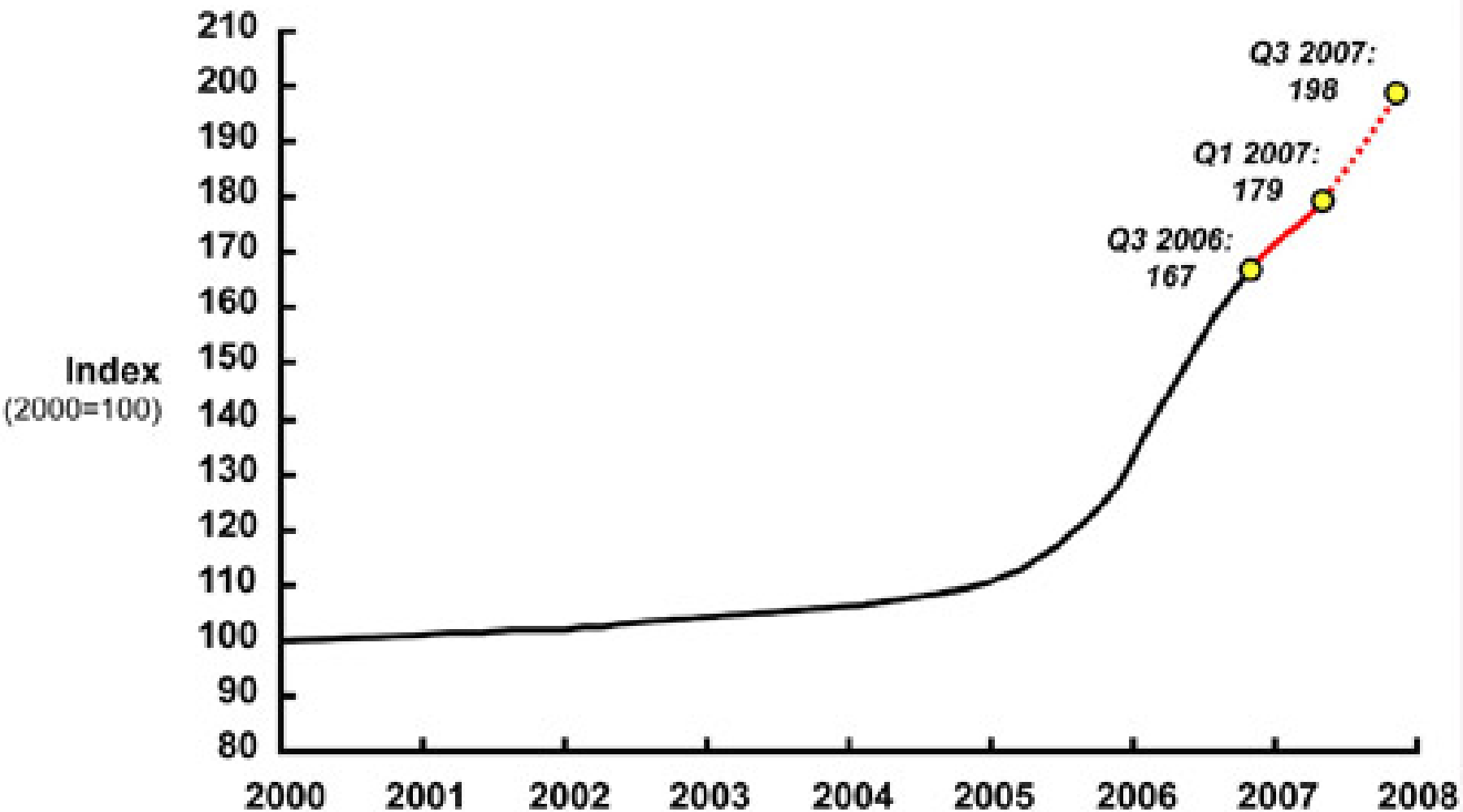


# Total Portfolio



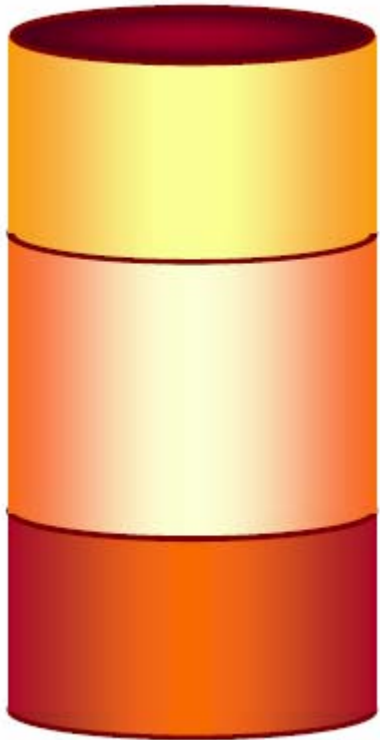
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# IHS-CERA Upstream Capital Costs Index



Source: Cambridge Energy Research Associates.  
70113-3\_2210

# Enhancing oil recovery leads to necessity to invest in research and development



**Now oil recovery rate is in average 35%**

**With new technologies it can be raised from 40 to 70%**

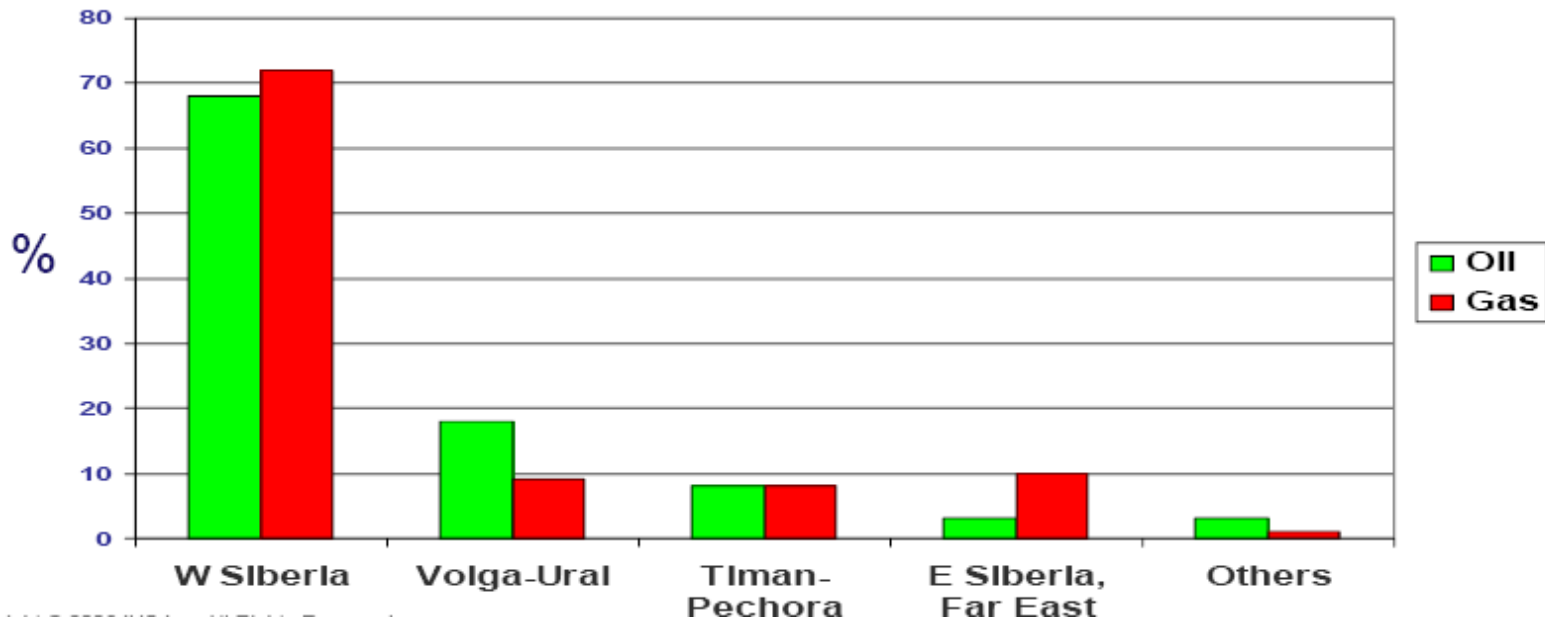
**Unrecoverable oil under modern technologies**

**At modern rate of reserves enhancing oil recovery for 1%,  
adds 1 year of production**

# Russian Remaining Recoverable Reserves

- **Oil**
- Proven+Probable reserves (ABC1): 120 B bbl
- R/P ratio: 36 years
- Growth potential (C2): 50 B bbl

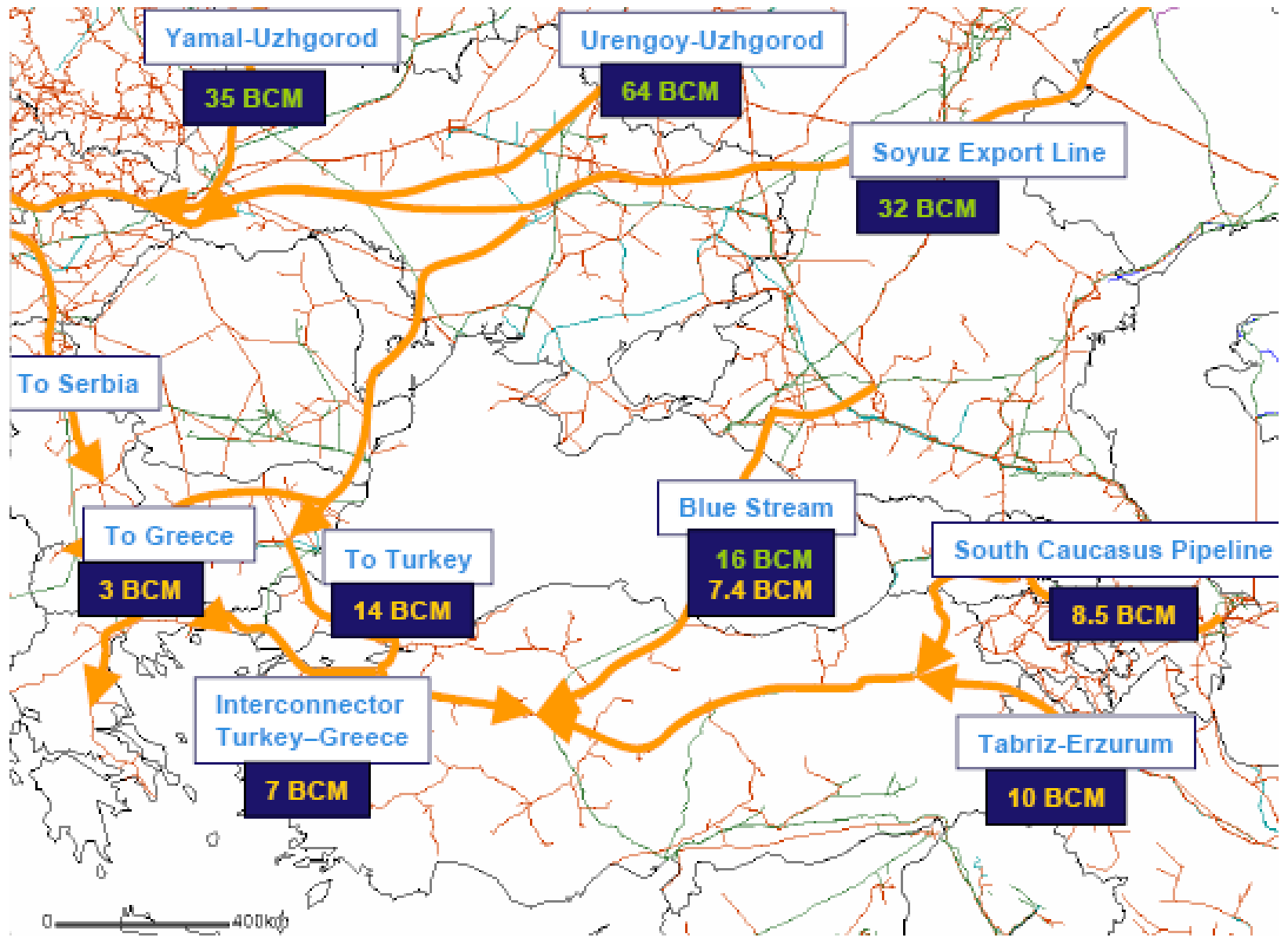
- **Gas**
- Proven+Probable reserves (ABC1): 1,600 Tcf (30% of total world gas res.)
- R/P ratio: 72 years
- Growth potential (C2): 600 Tcf



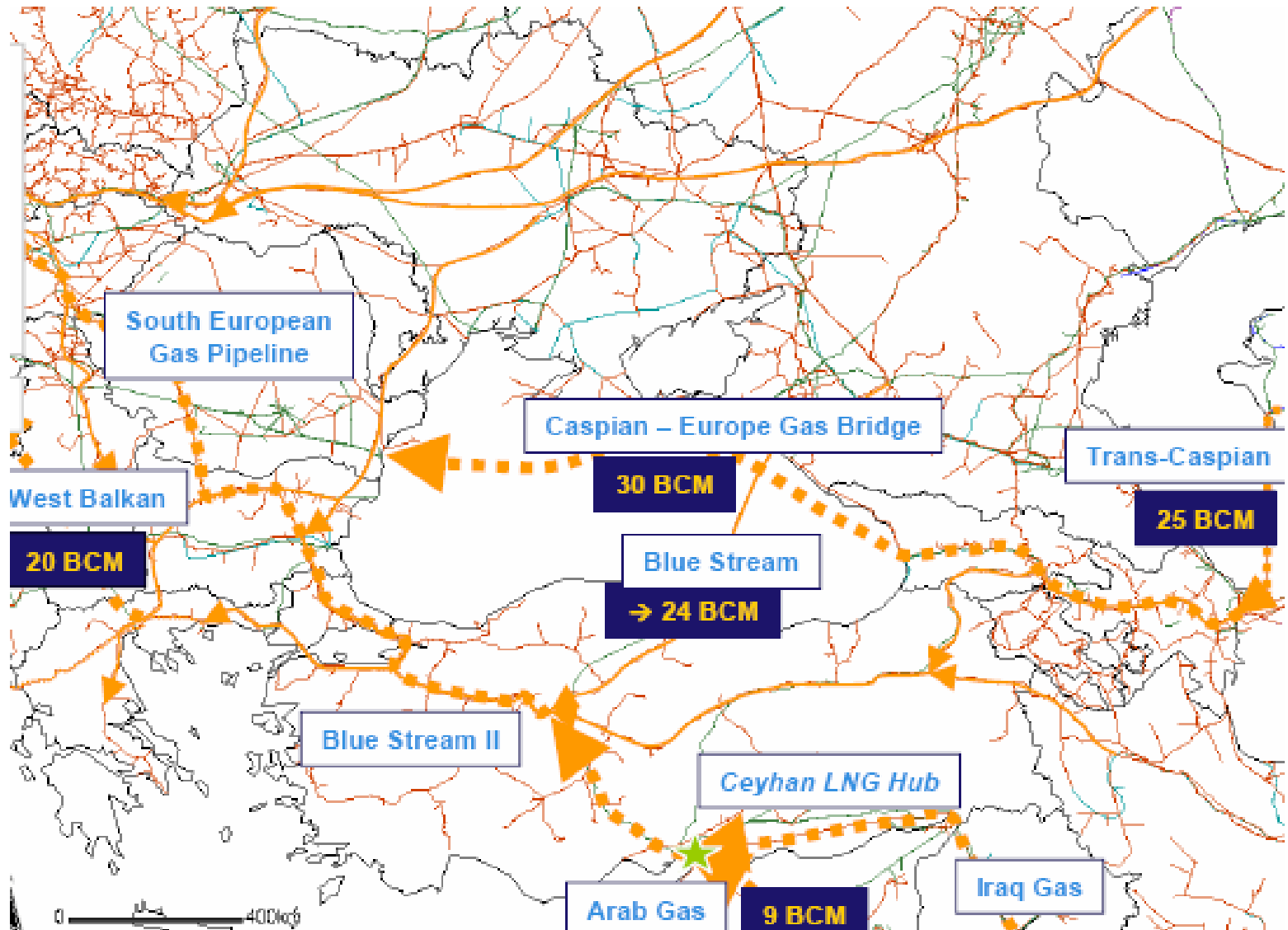
# Russian Hydrocarbon Reserves



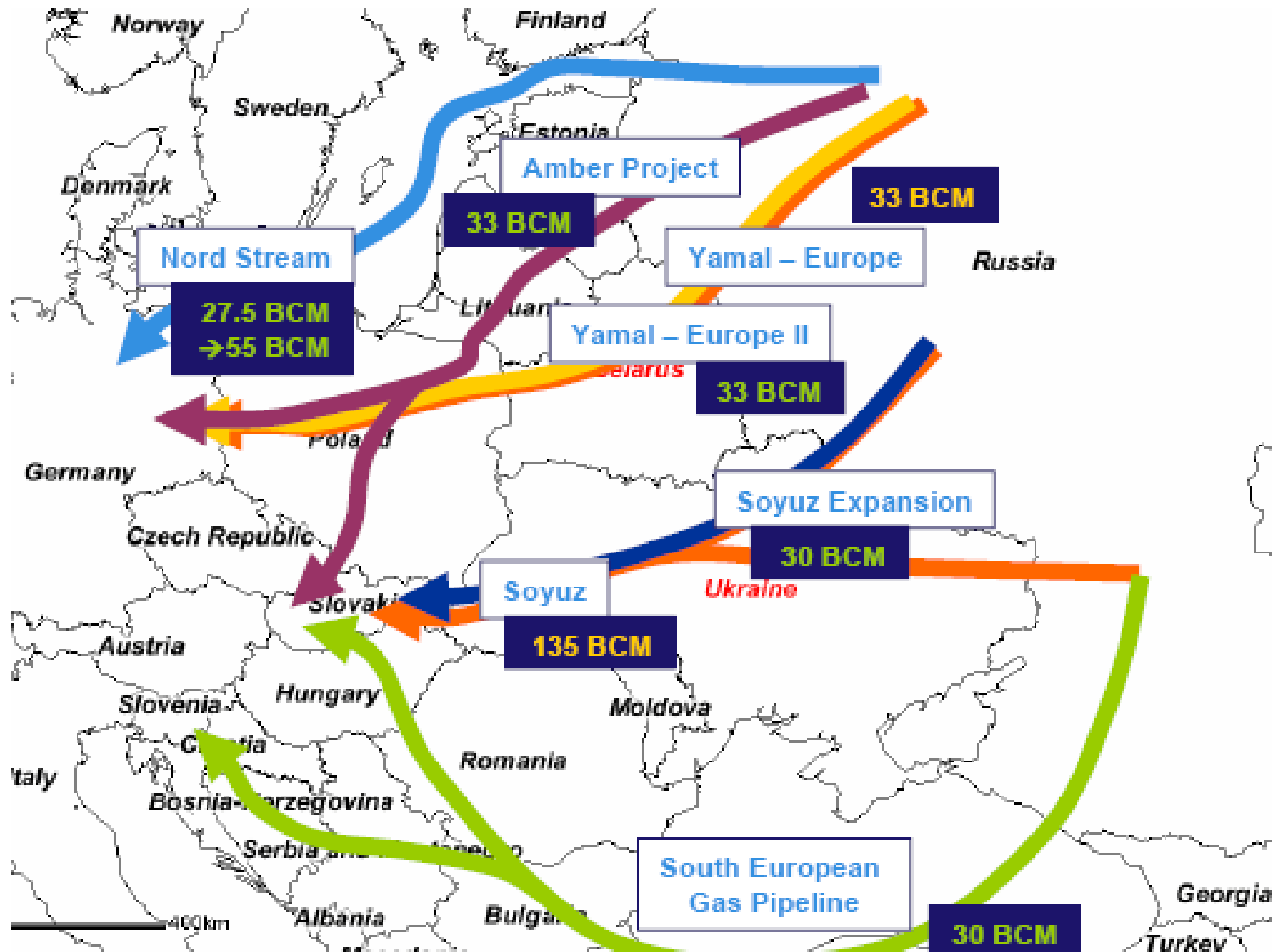
# CIS Gas Supply Infrastructure: Current Status



# Potential Projects

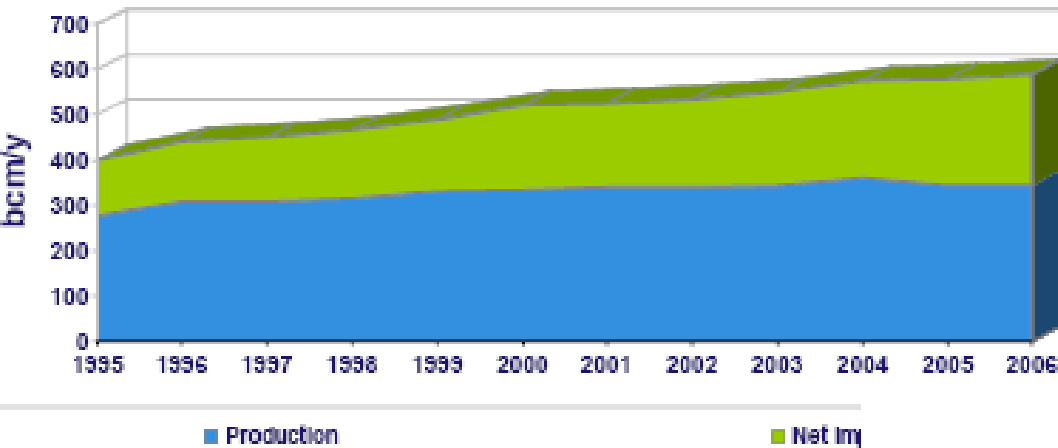


# Russia to Europe Options

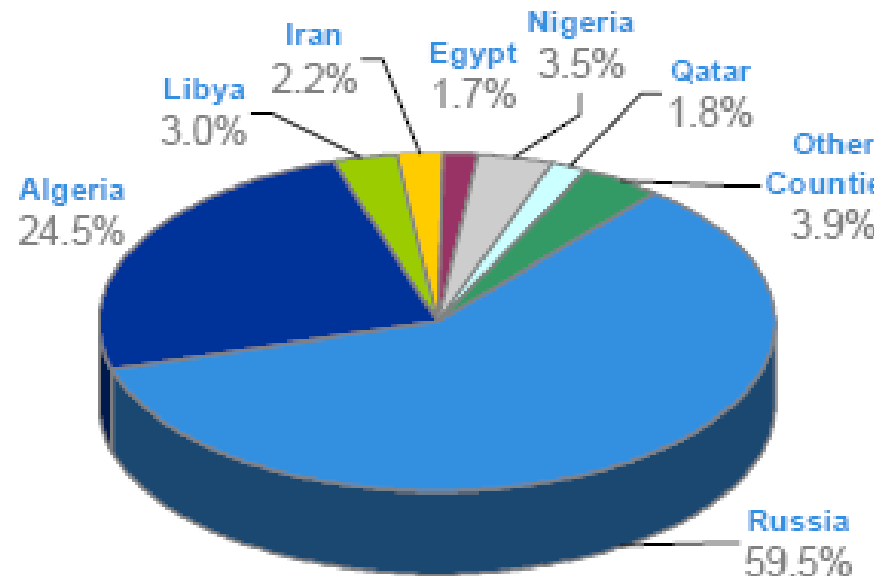


# European Natural Gas Supply Overview

European Gas Supply



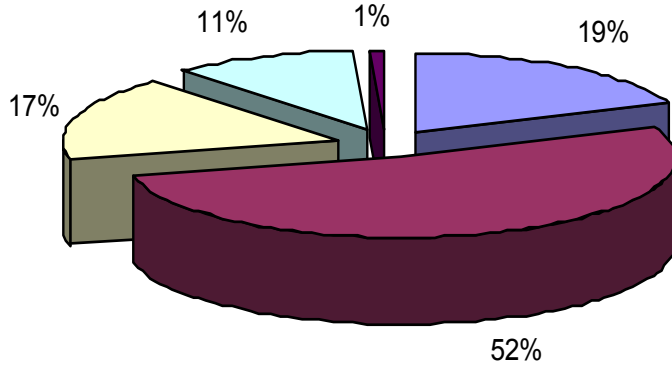
2006 European Gas Imports by Source



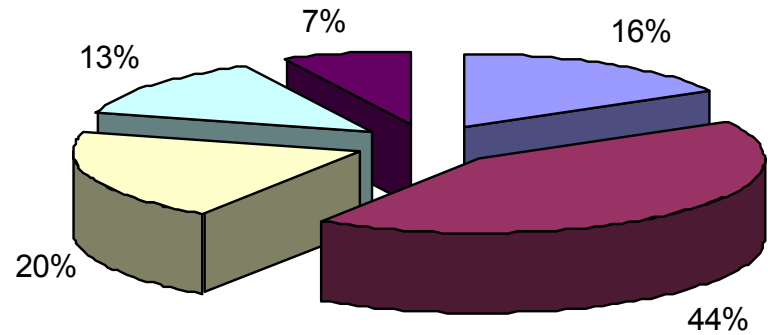
Russia accounts for about 60% of gas imports equivalent to one-quarter of total consumption.

# Russia's Energy Balance to 2030

2005



2030



■ oil ■ gas ■ coal ■ nuclear and hydro ■ other (alternative)

# Main Gas Pipeline Projects

Projects	Investment required
<b>Yamal-Europe Pipeline</b>	\$14 billion Estimated \$2 billion to construct Yamal II
<b>Kovykta Gas Pipeline</b>	More than \$ 12 billion
<b>Shtokman Field (Barents Sea)</b>	Investment estimated between \$15 and \$25 billion
<b>Nord Stream</b>	Total cost - \$ 6 billion
<b>Sakhalin II</b>	\$1.1 billion for Phase I; \$8.9 billion for Phase II
<b>South Stream</b>	\$14 billion

- **Russia has an impressive reserve base and a great exploration potential that allow the country to remain an important oil/gas supplier.**
- **Russian liquid production increased an average 5% annually during the last five years.**
- **With a liquid output of 9.6 MM b/d in 2006, Russia has become one of the two biggest oil producers of the world.**
- **Russia holds 30% of the remaining global proven gas reserves.**
- **Russia gas exports cover 24% of EU gas supplies and 60% of EU gas imports.**
- **The E&P scene is dominated by powerful Russian majors, but foreign companies (majors, large and small independents) continue to show a high interest.**

**Geo-political risks – rise of resource nationalism – pose a significant challenges to industry’s ability to balance supplies with demand.**

**Despite supply diversification projects (most requiring considerable capital investment in infrastructure), Russia will maintain a dominant role in the European gas supply picture as indigenous production declines.**