



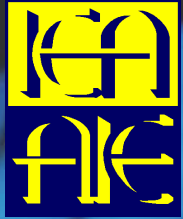
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LA SECURITE DES APPROVISIONNEMENTS DE GAZ EN EUROPE : LE JEU DES ACTEURS

Isabel Murray
Agence Internationale de l'Energie

7 JUIN 2007
ECOLE DES MINES DE PARIS



IEA-Russia Co-operation



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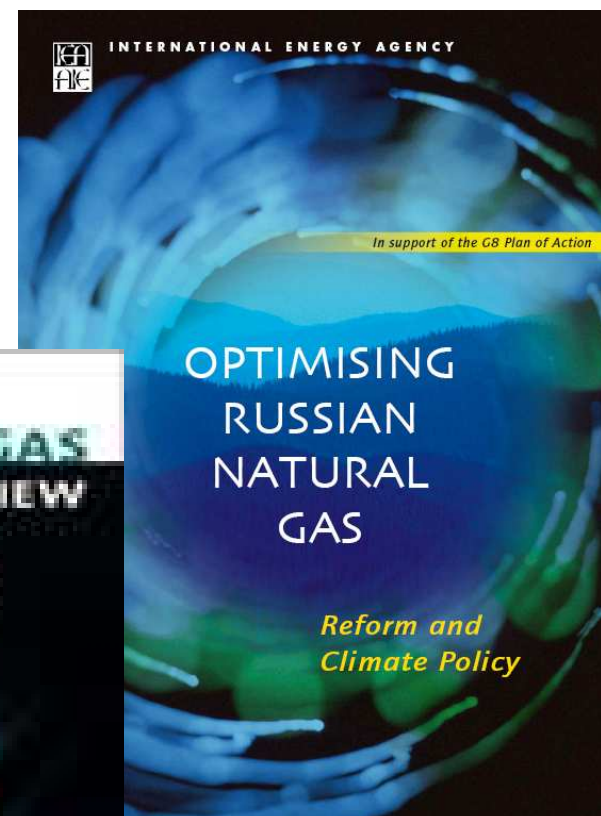
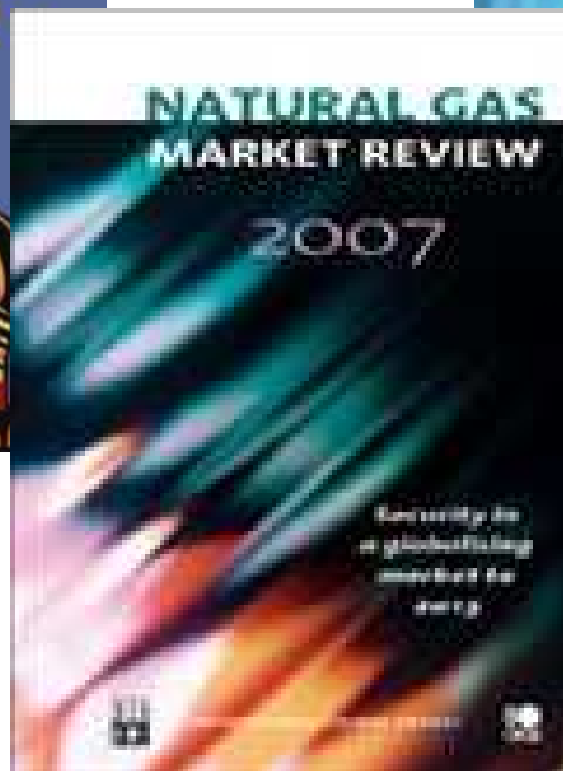
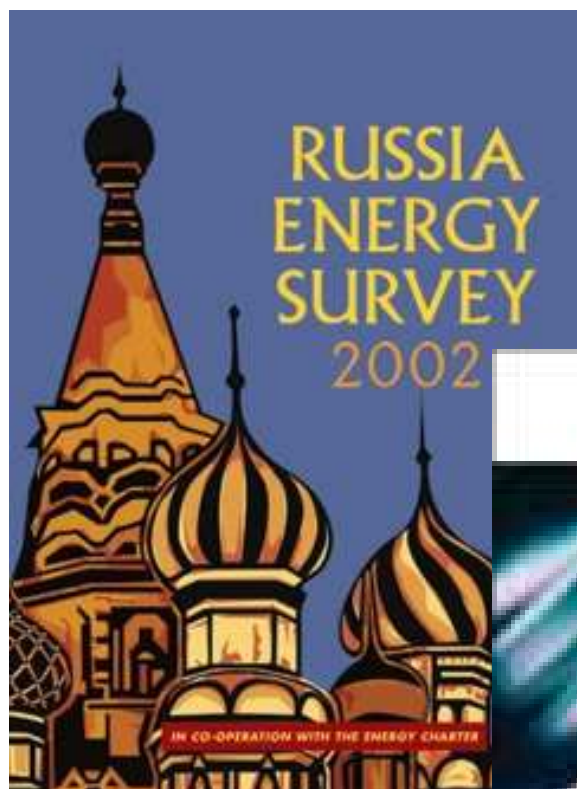
- **Memorandum of Understanding since 1994**
 - Renewed MOU with Ministry of Industry & Energy in April 2007 out to 2010
 - Ongoing MOU with State Statistics Service
 - Wide range of government and Industry contacts
- **Agency-wide activities:**
 - Energy Statistics
 - Energy Technology
 - ◆ Implementing Agreements
 - Energy Efficiency and Environment
 - Gas and Electricity Market Analysis
 - Oil Market Analysis
 - Coal Industry Advisory Board



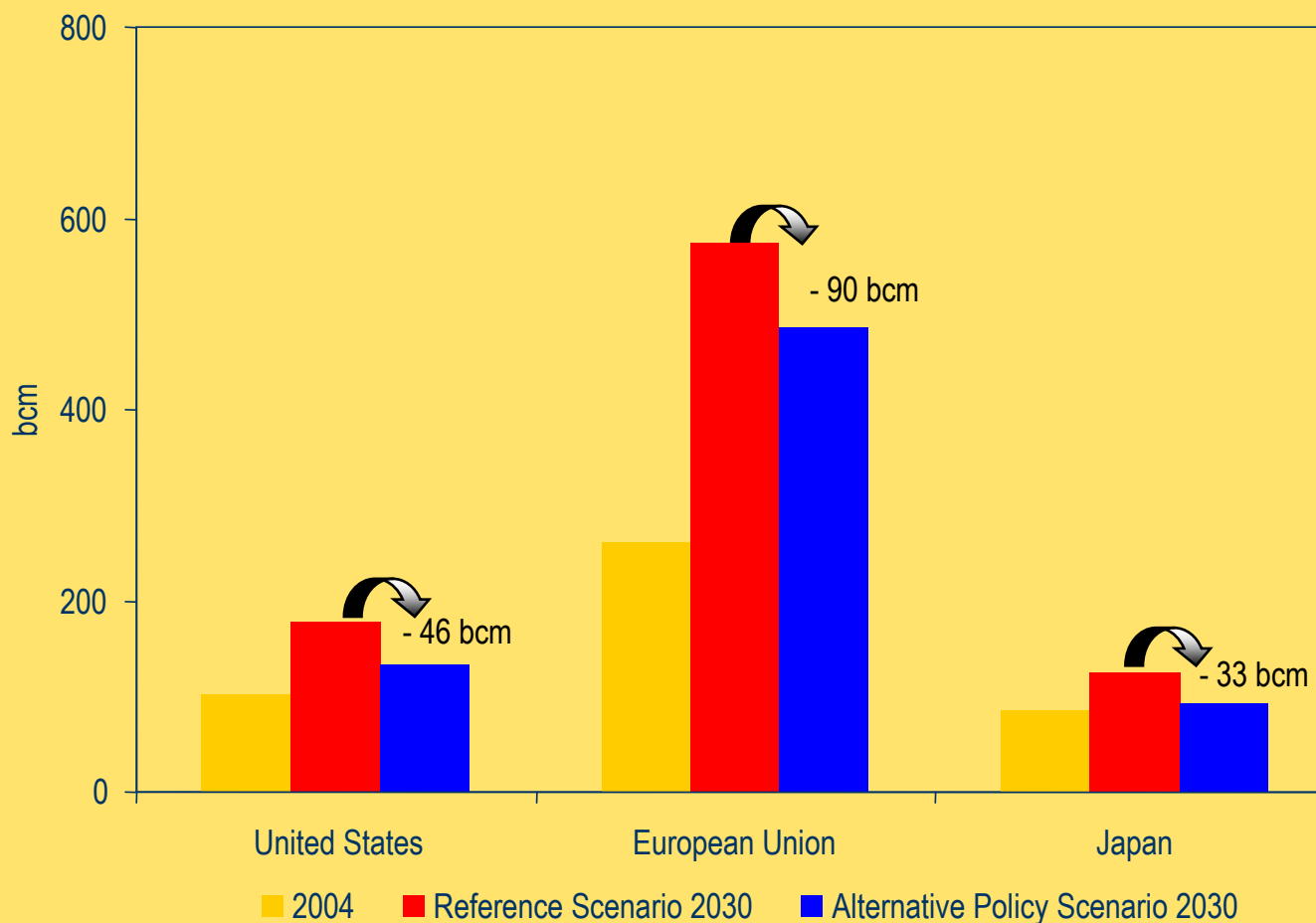
Relevant IEA Analysis

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The IEA/WEO Alternative Policy Scenario: Gas Imports, 2004-2030



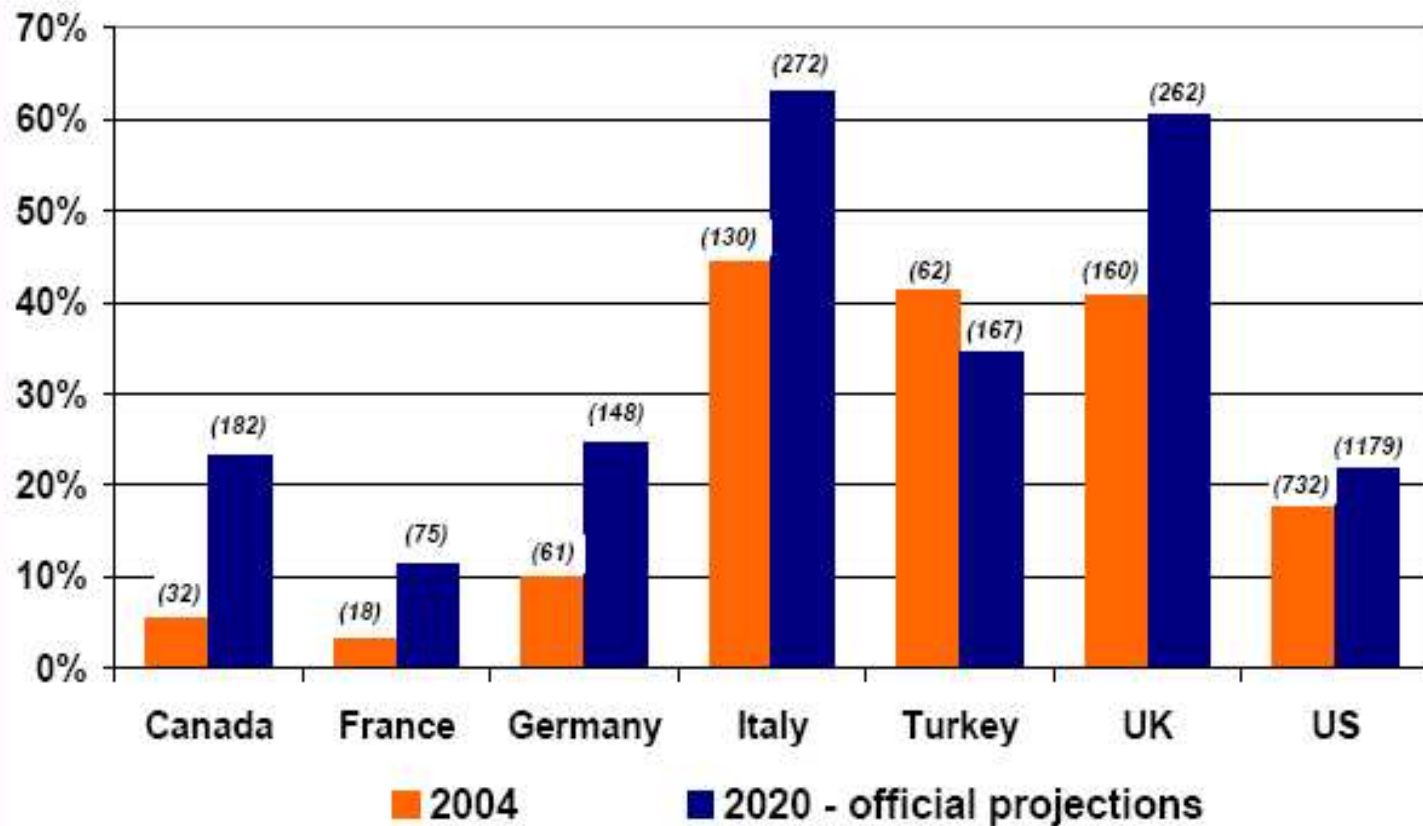
Gas imports in the main consuming regions are significantly lower in the APS compared with the RS

Power Demand Growth to 2020

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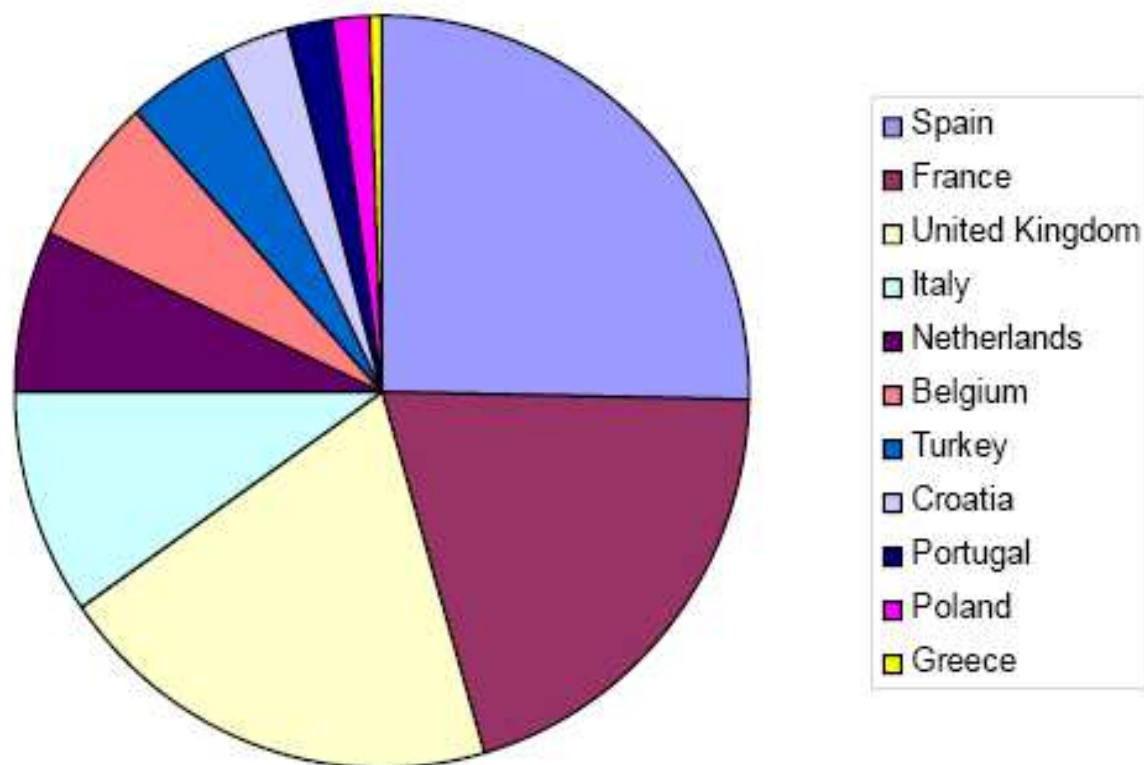
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2015

Shares of gas-fired power generation (TWh)



European LNG capacity more than doubles by 2010 (from 100 to 220 bcm)

European LNG capacity (Existing and planned)

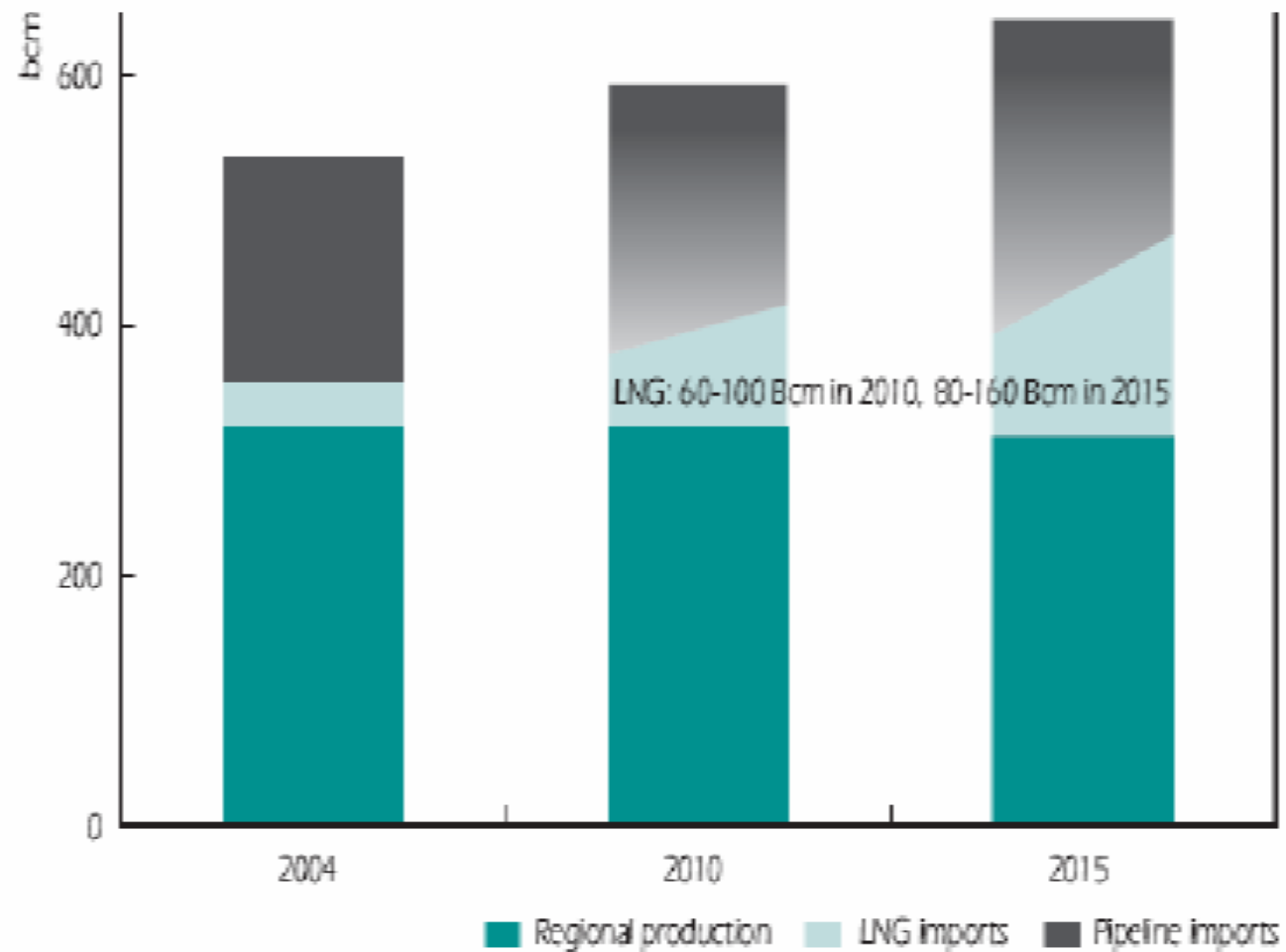




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Russia-Europe Trade Affects the Global Gas Balance



Source: World Energy Outlook 2006, IEA; Natural Gas Information 2006, IEA.



Russia is One Supply Concern Among Many for the Global Market...

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Europe



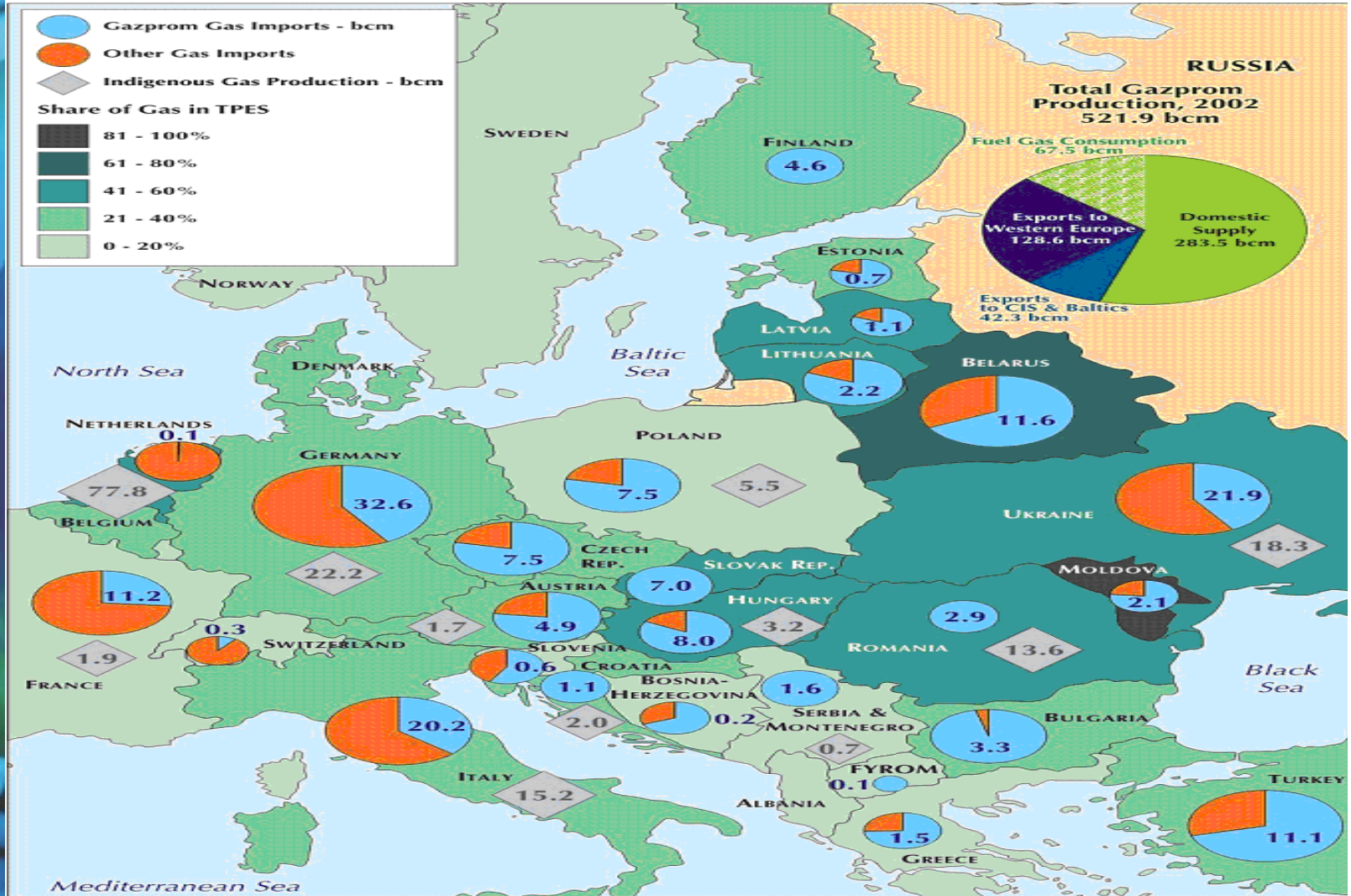


European Dependence on Russian Gas

27% of Russian gas to Europe, 14% to CIS, 59% used domestically

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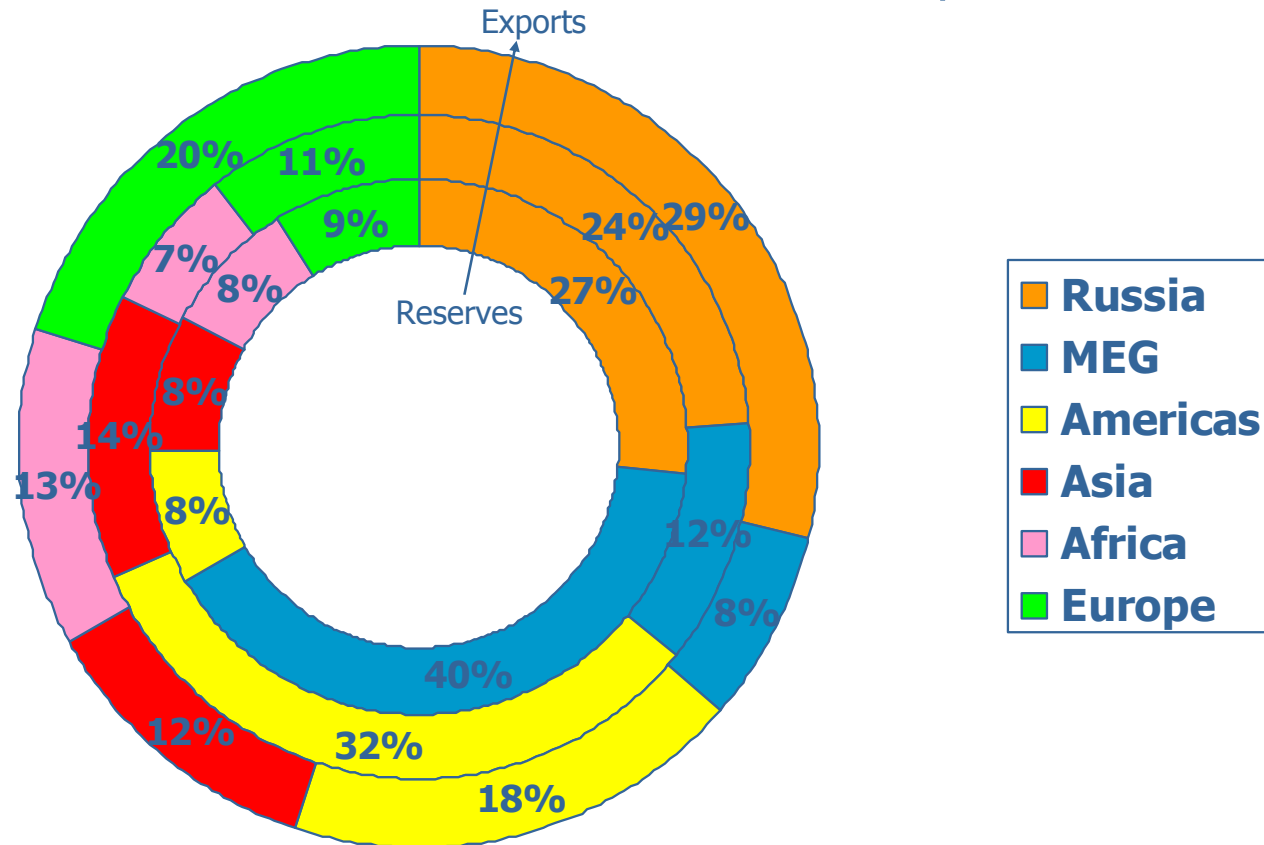
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Not a question only of gas reserves... Timely investment is key...

Reserves = 47.8 tcm, Production = 656.2 bcm, Exports = 237.2 bcm



Russia holds the world's largest gas reserves and produces and exports more gas than any other country

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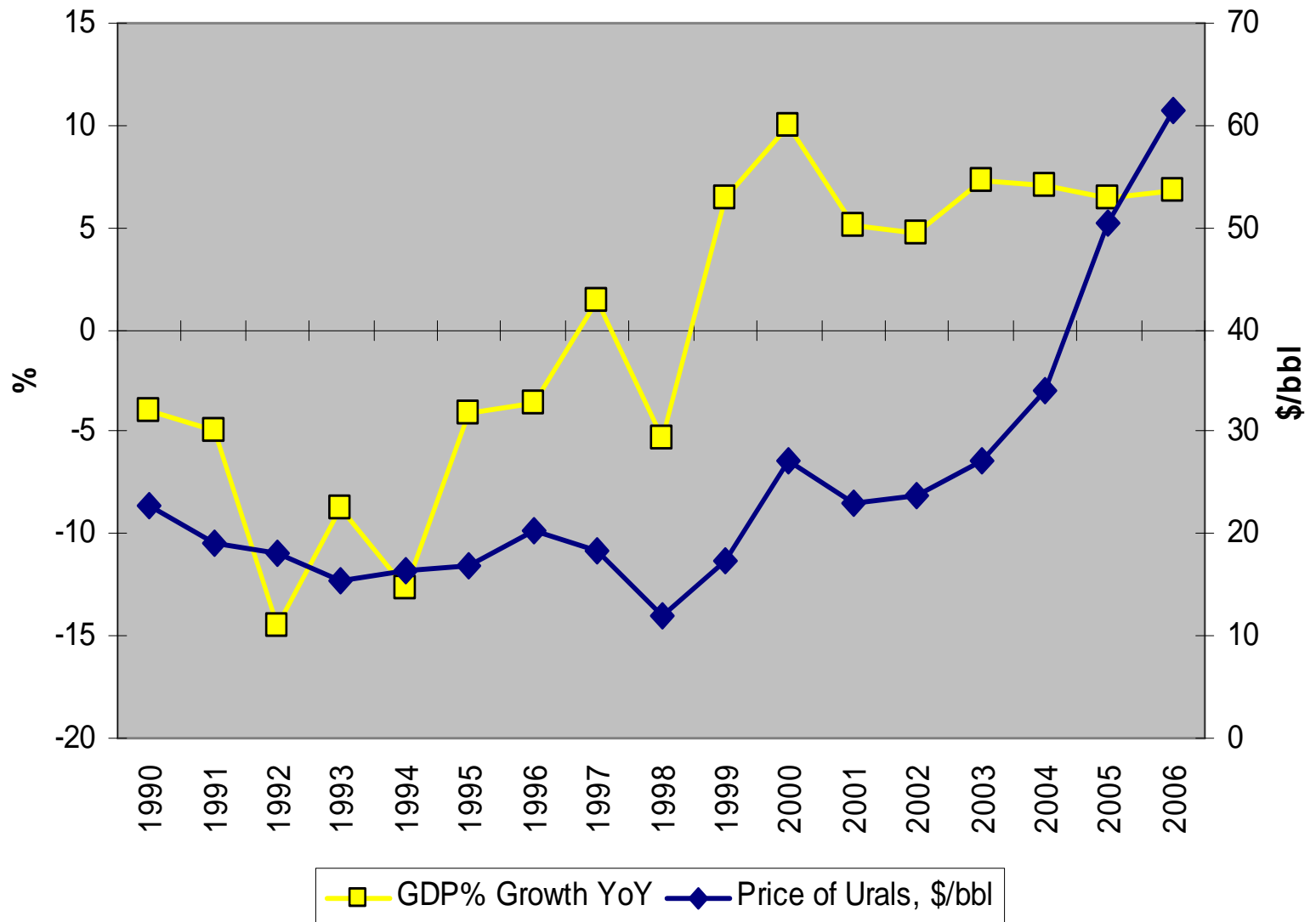
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The Impact of International Oil Prices on Russian GDP

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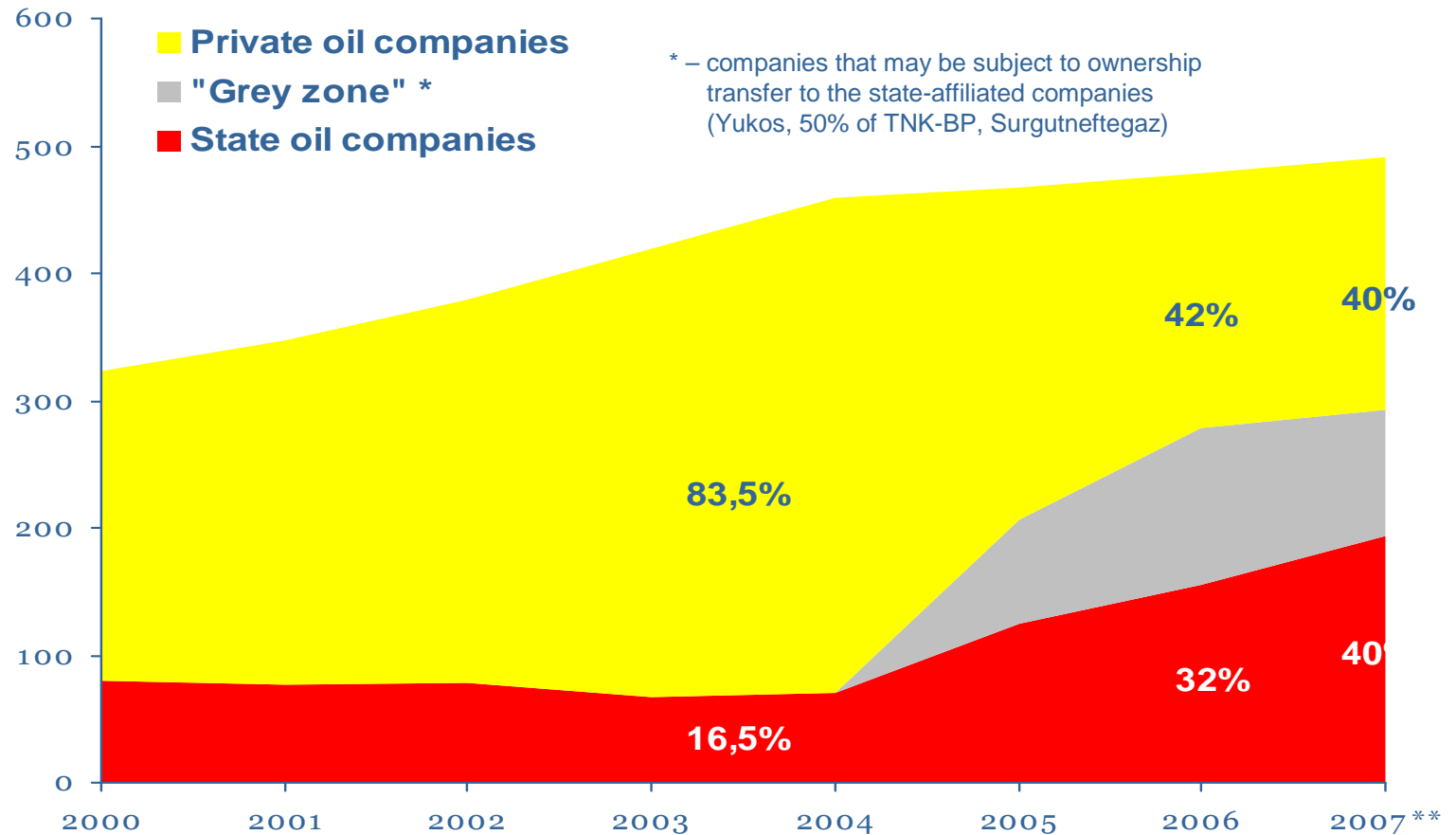
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'Re-nationalisation' in Russian Oil

But Has Rosneft the Capital to Fund Upstream Expansion after Costly Acquisitions?

Annual crude oil output in Russia by ownership, mt per year



** – 2007 estimate based on current company production trends

From Milov/Institute of Energy Policy



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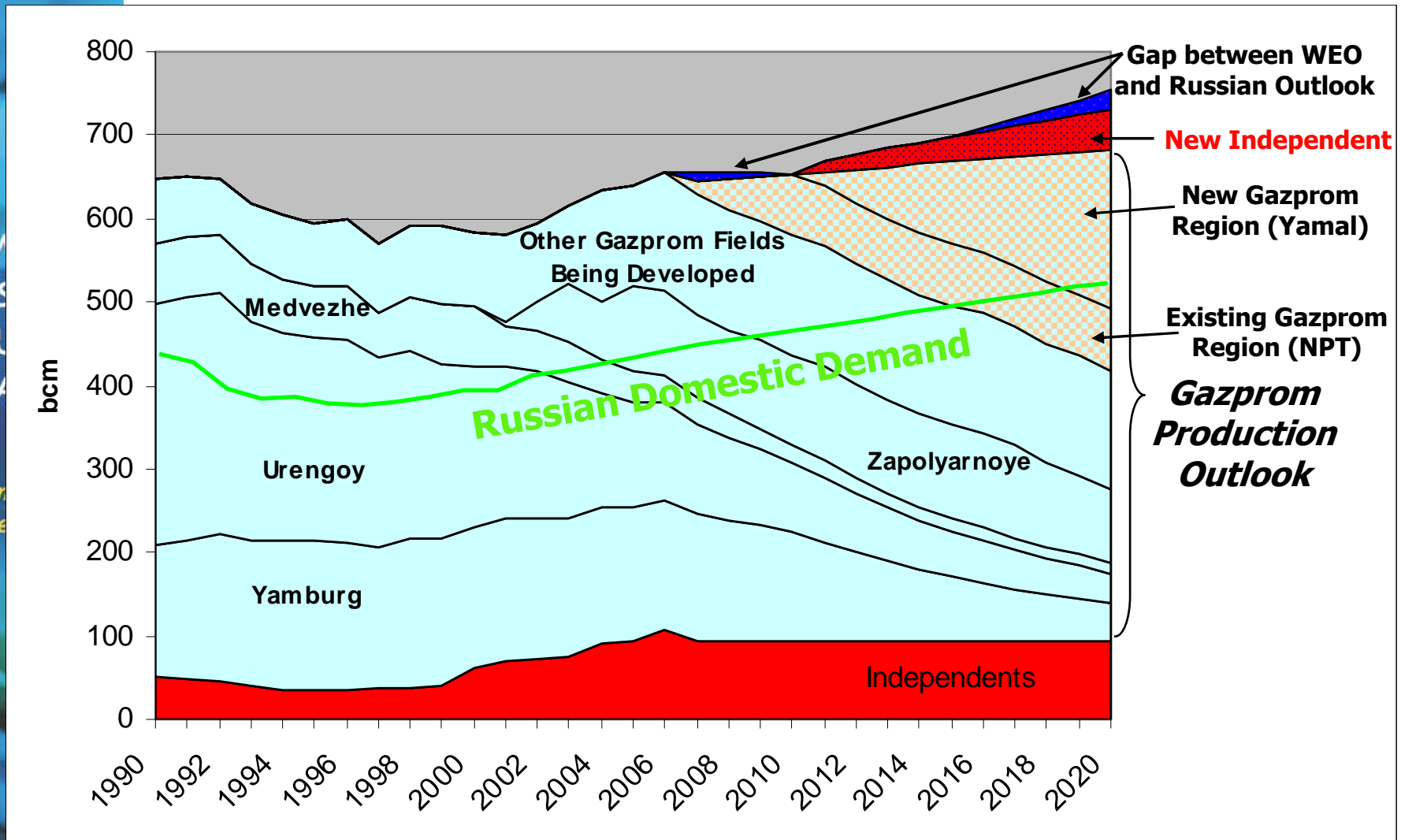
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Factors Affecting Russian Upstream Investment

	Positive	Negative
Redistribution/'renationalisation' of assets. Rosneft/Gazprom debt & distraction from core activities		X
Slow decision making on new export routes (Environmental issues, reserves...)		X
Ministry of Natural Resources review of licenses and companies' compliance		X
Work on the legal and fiscal regimes (differentiation, greenfield promotion, offshore tax breaks, but also placing strategic fields/areas off limits for foreign operators)	X	



Russian Gas Supply Outlook



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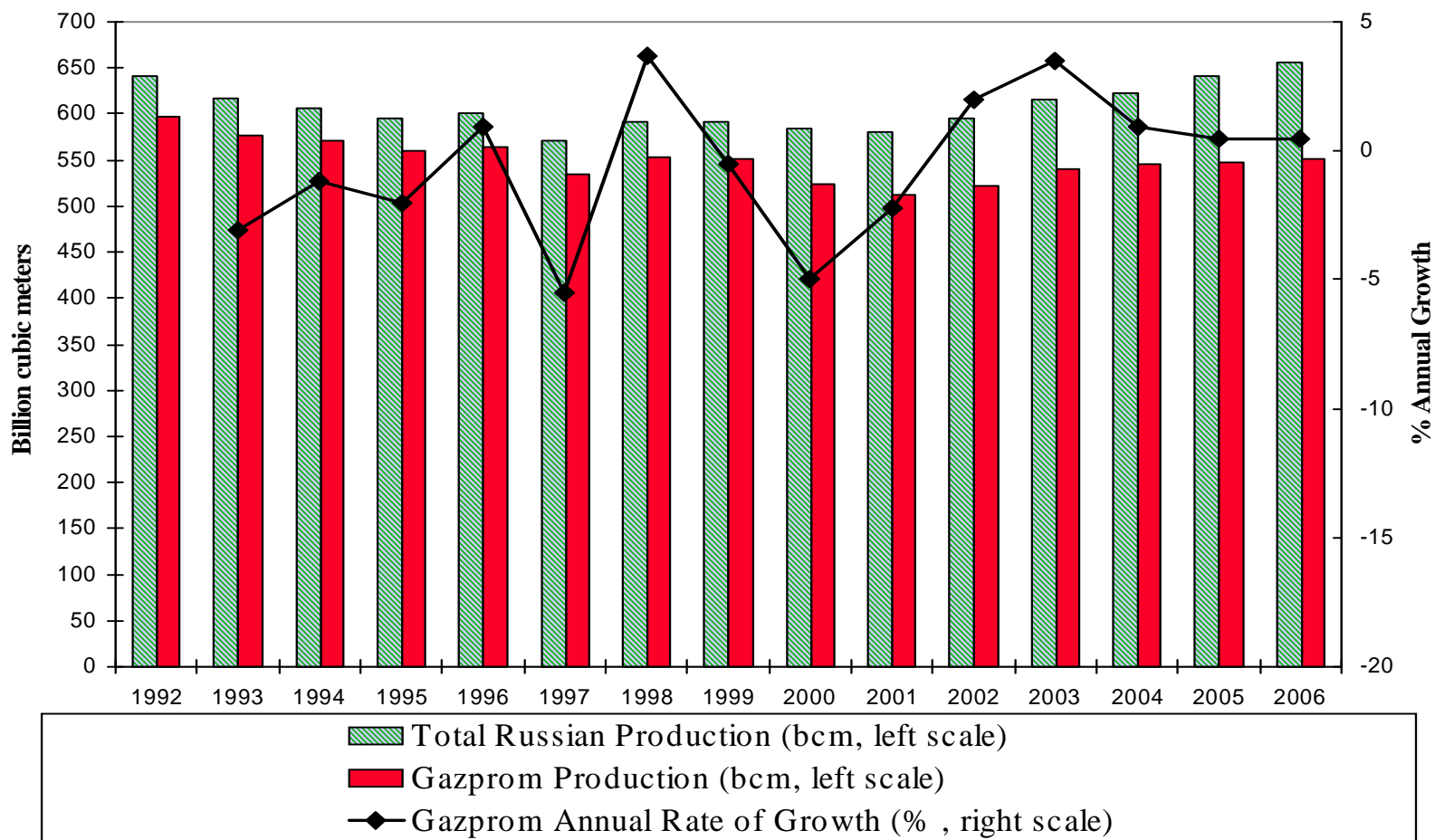
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Recent Gazprom Supply Growth Record is Patchy at Best





Tug of War for Caspian Gas But Development Lags Glut of Pipeline Plans

New Turkmen-Kazakh-Russian deal seems to bind Turkmen gas closer to Russia
On current development plans, insufficient firm Turkmen gas for this plus
alternative eastbound and westbound exports

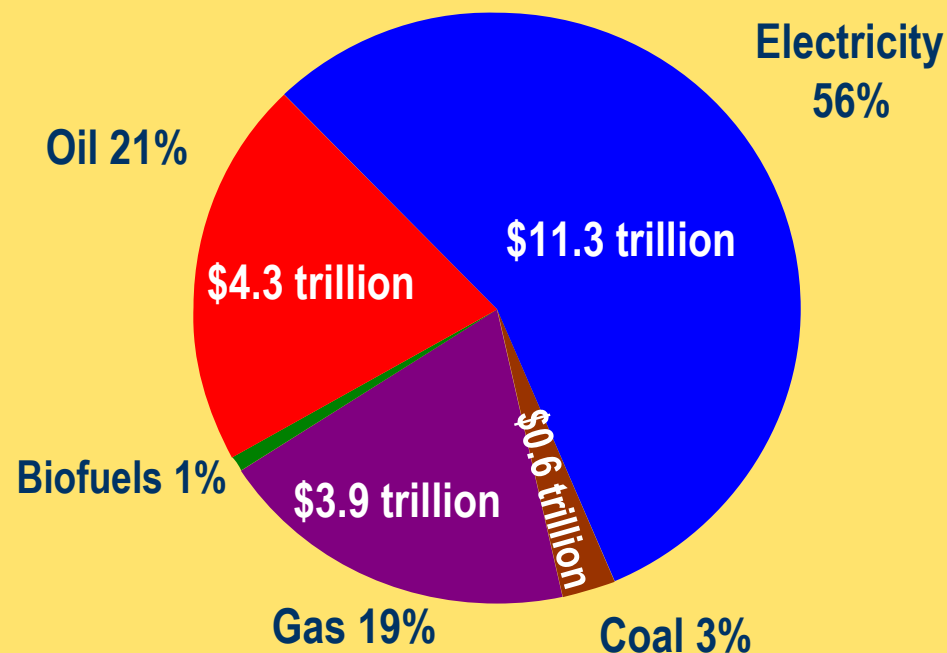


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Reference Scenario: Cumulative Investment, 2005-2030

\$20.2 trillion (in \$2005)

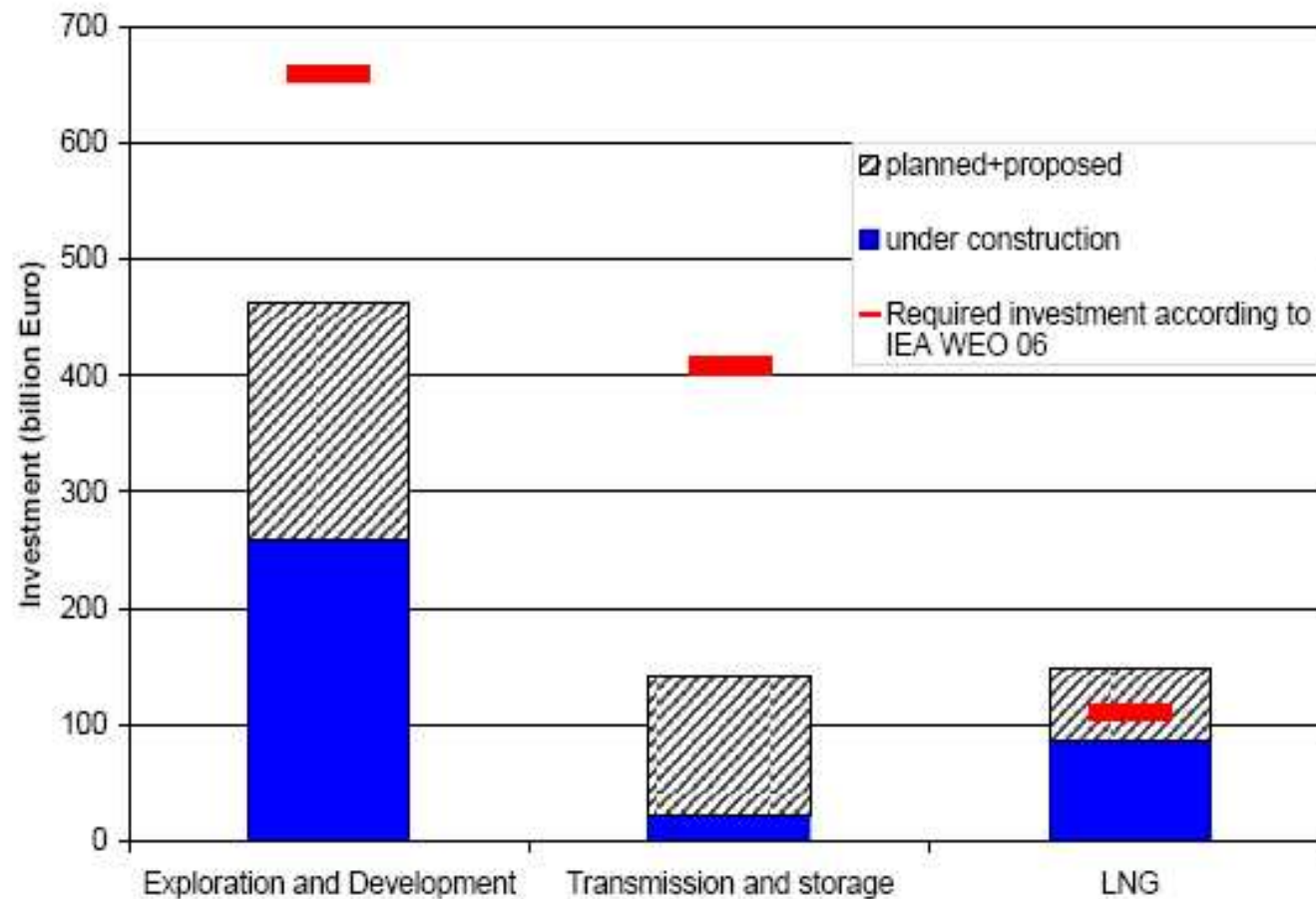


Investment needs exceed \$20 trillion – \$3 trillion more than previously projected, mainly because of higher unit costs

Risk of Global Under-Investment to 2015

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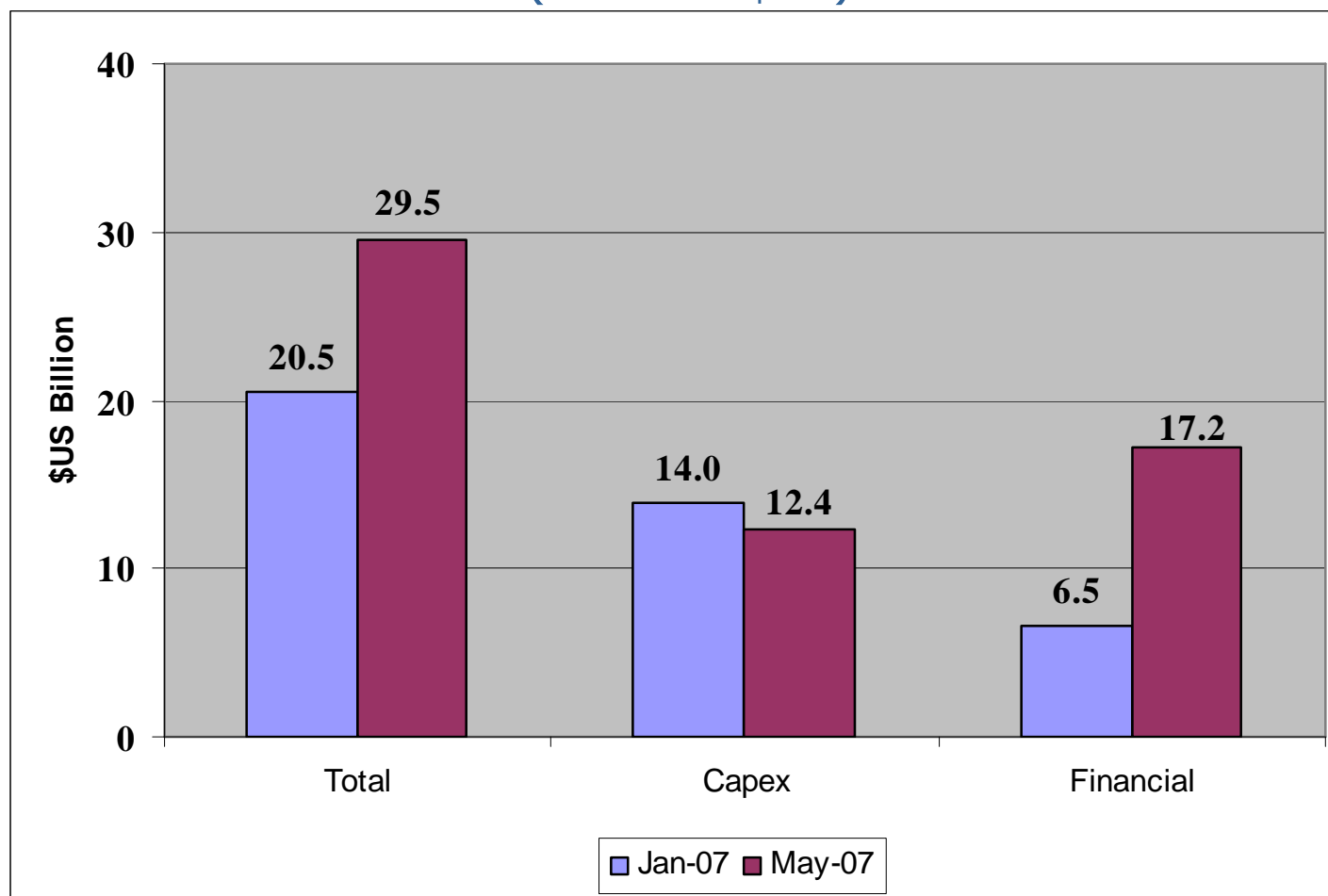


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Is Gazprom Investing Enough Upstream?

Changing Structure of Gazprom's investment program for 2007
(in billion \$US)



Source: Gazprom

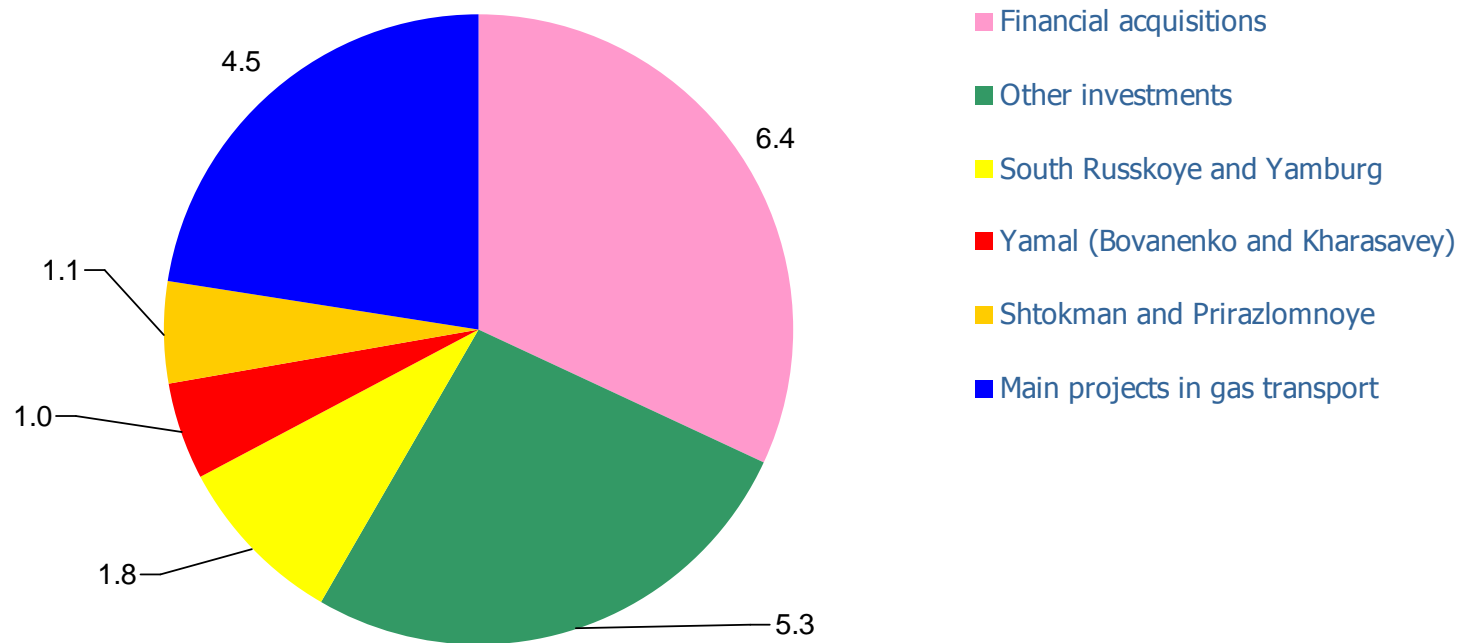


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Is Gazprom Investing Enough Upstream?

Structure of Gazprom's investment program for 2007
(in billion \$US)



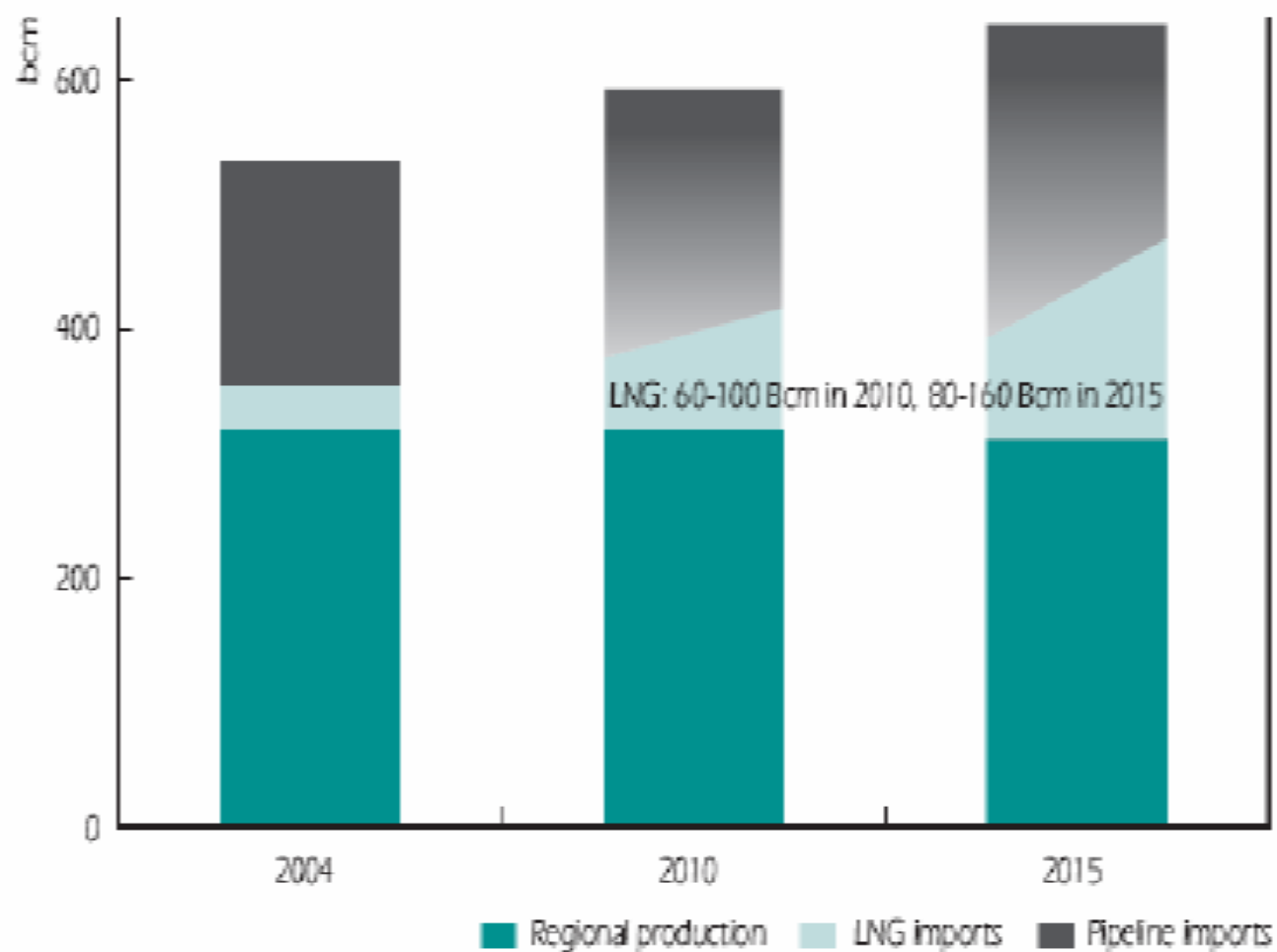
Source: Gazprom, Milov/Institute of Energy Policy



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Russia-Europe Trade Affects the Global Gas Balance

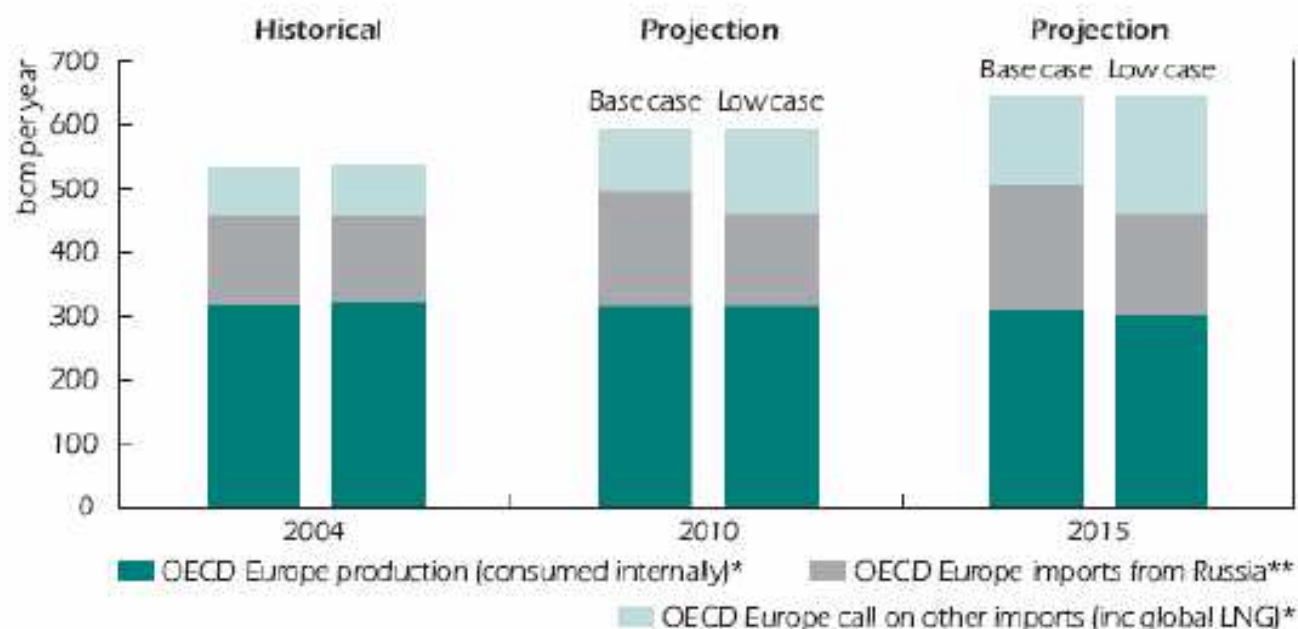


Source: World Energy Outlook 2006, IEA; Natural Gas Information 2006, IEA.

Russian/Europe Trade Affects Global Gas Balance

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Source: IEA.

* Information from Supply/Demand section.

** Base case: Russian Government Energy Strategy (2003) total projected exports to IEA Europe.

** Low case: IEA scenario based on restrained investment.

Note: We have assumed total Russian exports per Russian Government Energy Strategy (2003) less 77 bcm of Russian gas flows to countries other than OECD Europe for all future periods (Russia supplied 77 bcm to these countries in 2005). We assume that Chinese export plans made in 2006 do not form part of this 2003 Energy Strategy.

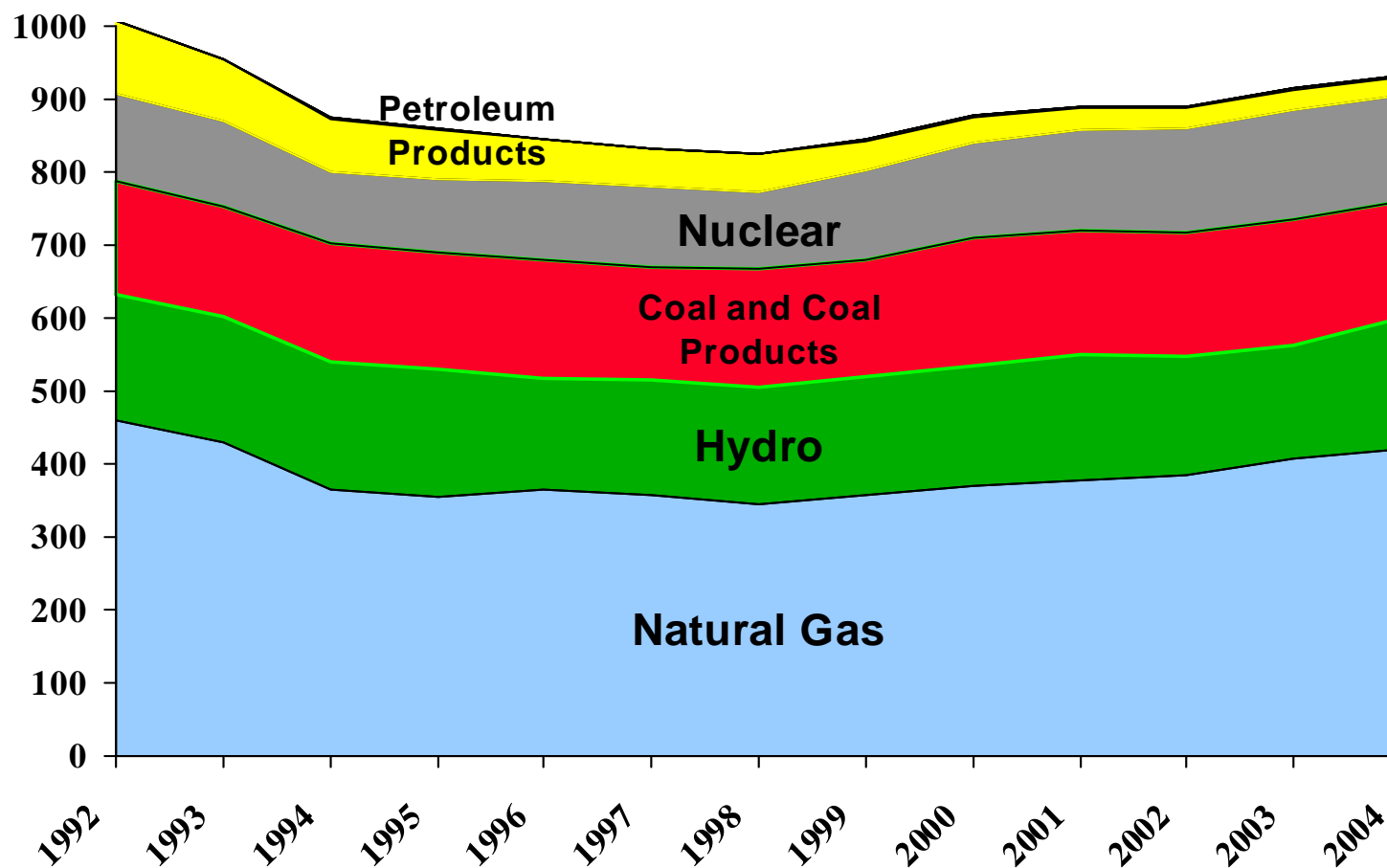




Russia's Electricity Generation by Energy Source, GWh

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Outlook for Russian Primary Energy Demand

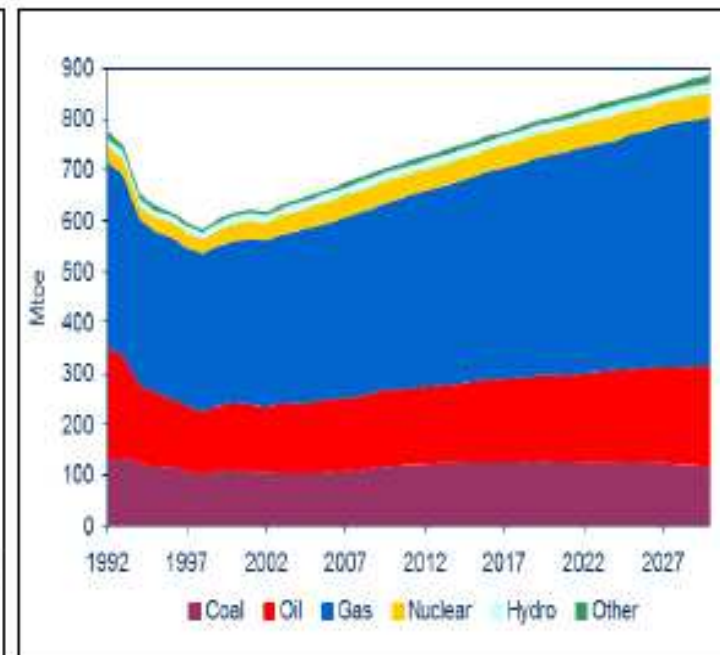
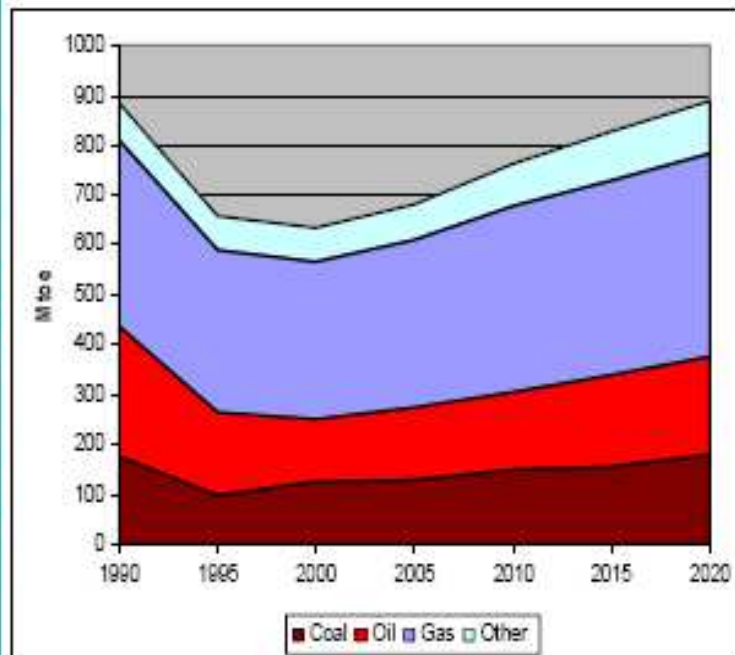
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■ Energy Strategy to 2020 (2003):

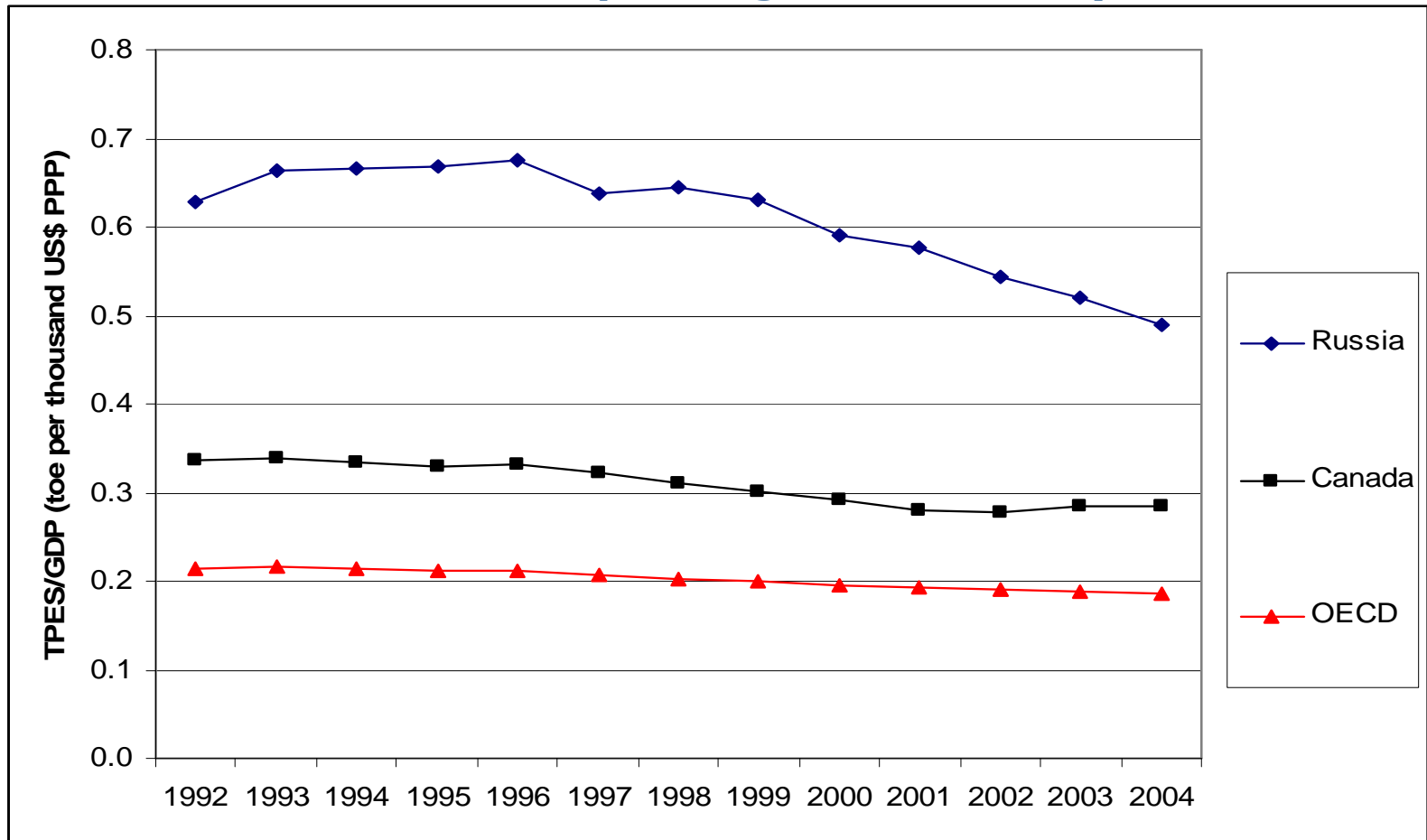
- Russian energy demand is projected to grow steadily, with natural gas remaining the dominant fuel





Russia's Relative Energy Efficiency

**Big improvements, scope for more,
but domestic price signals will be key**



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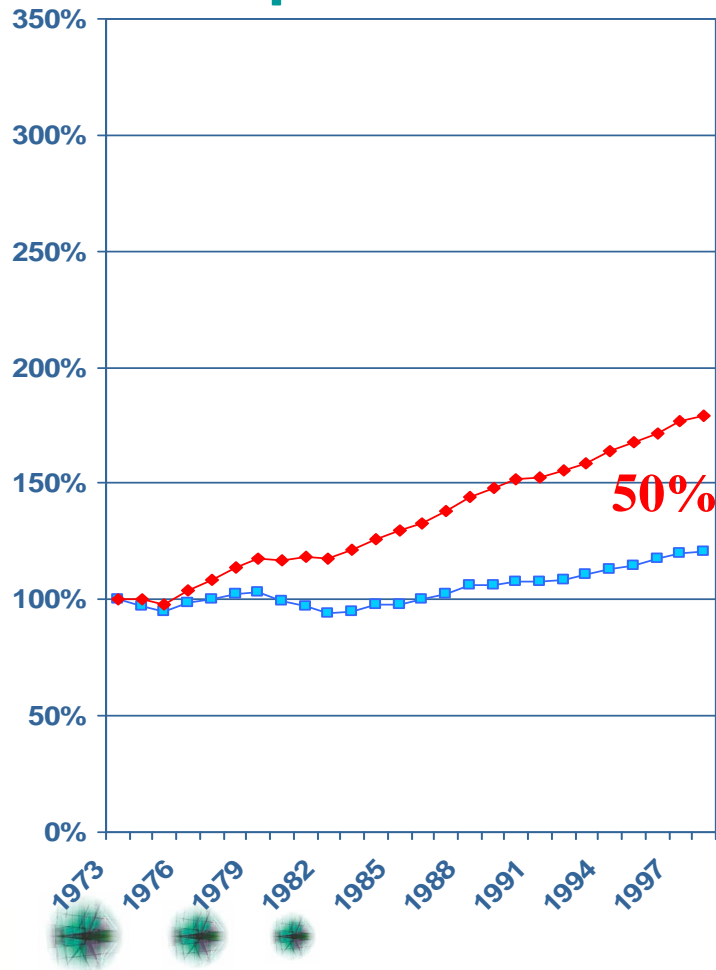
IEA Country Experience (1973-1998)



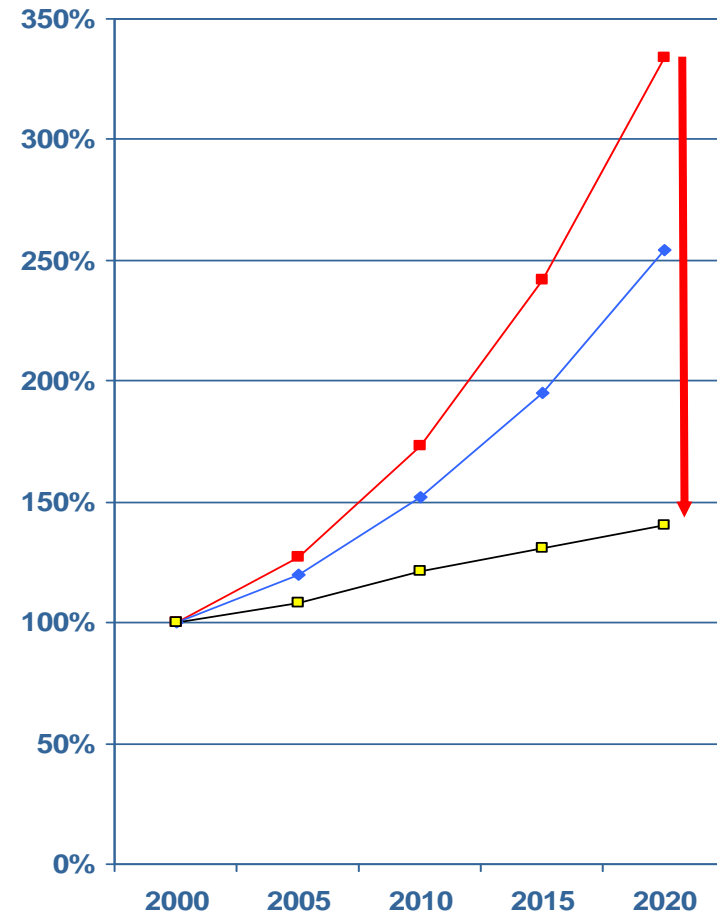
Russian Energy Strategy Goals: (2003-2020)



Realized Energy Savings Through Effective Policy Implementation



Similar Scale to IEA Savings Can IEA Experience help Russia?



WWW.IEA.ORG

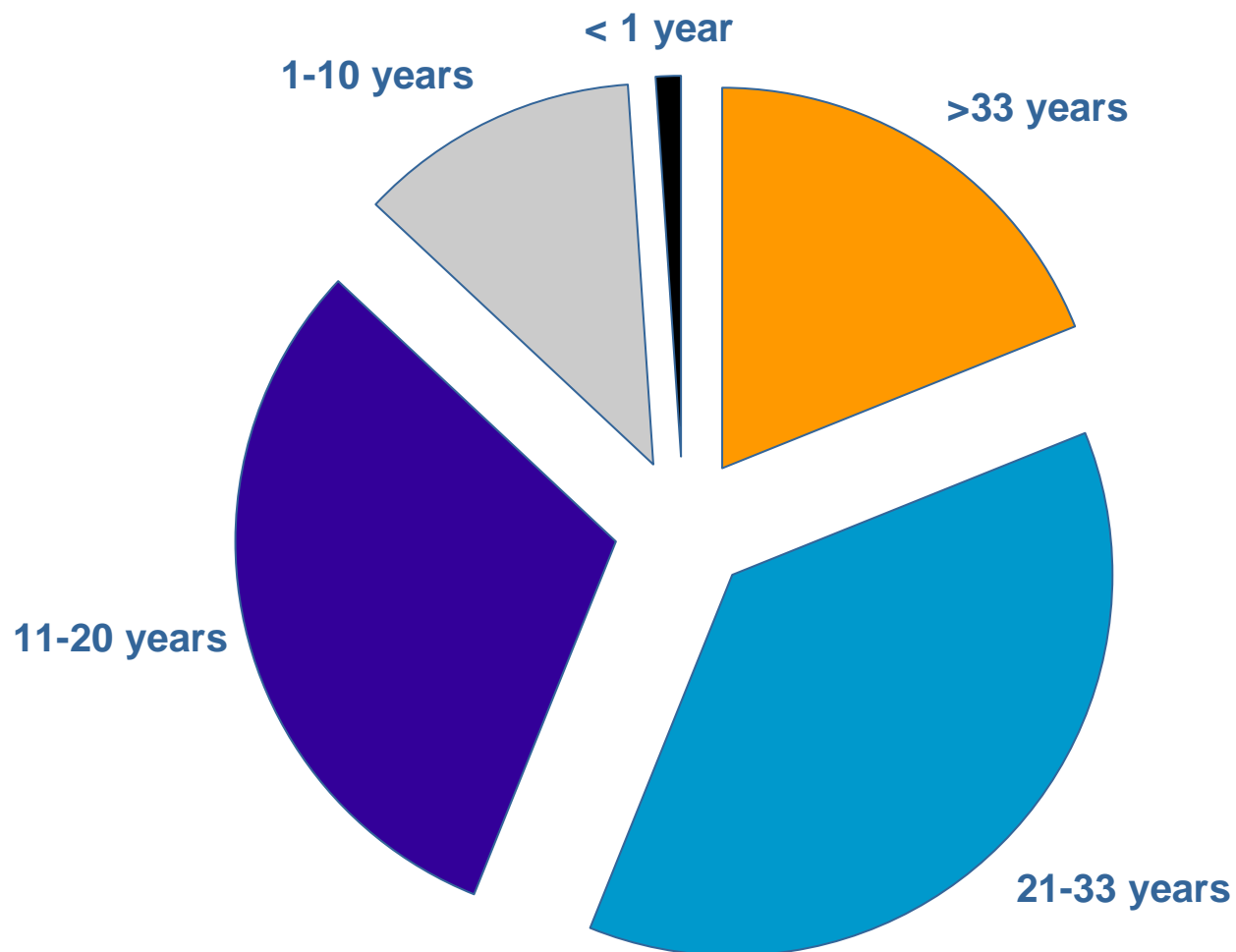
In support of the
G8 Plan of Action



Age of Gazprom Trunk Lines

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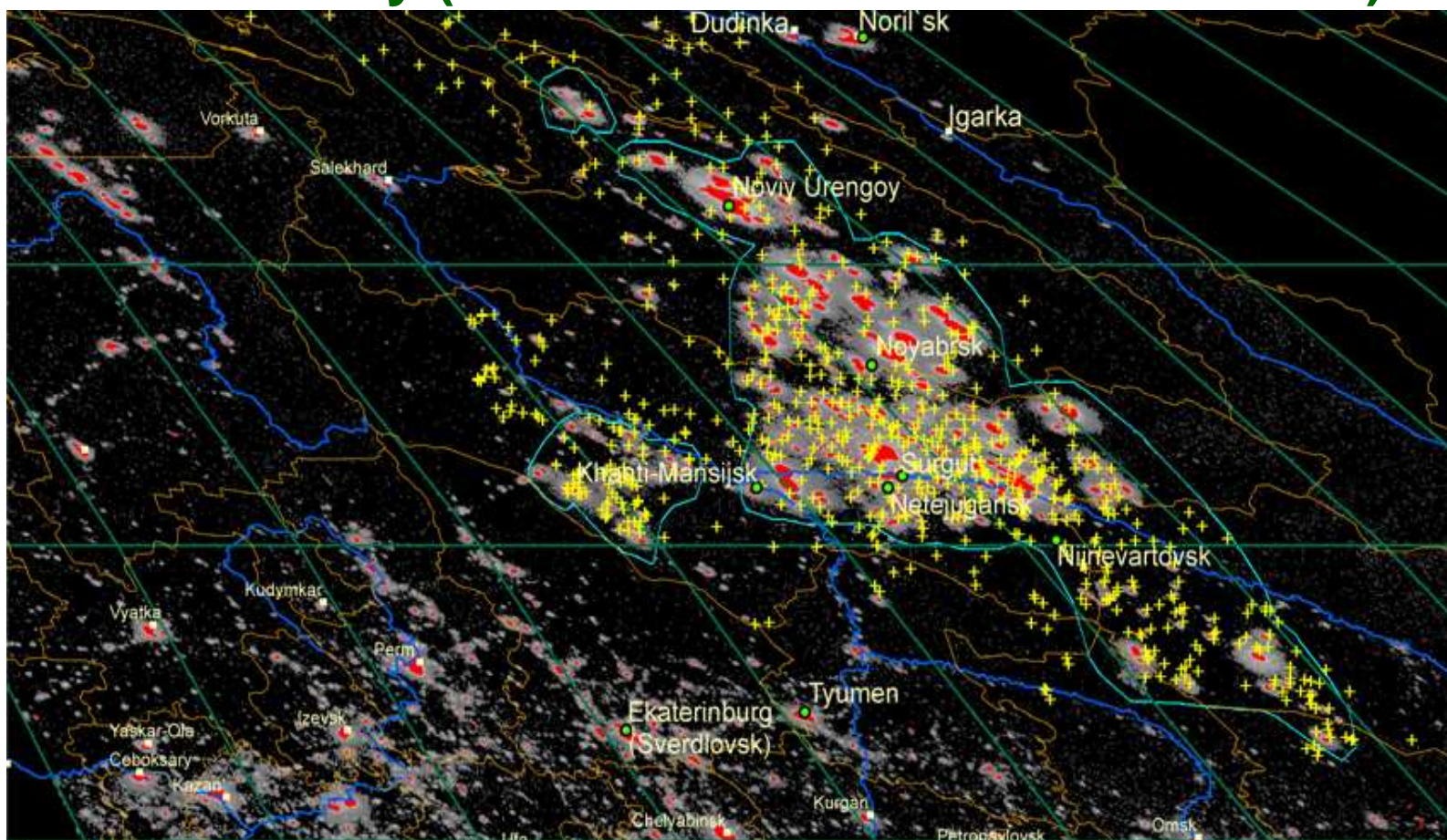


Source: Gazprom



IEA / NOAA Satellite image calibration study: West Siberia

- Preliminary estimates indicate flaring of 60 bcm
- Uncertainty (technical / environmental factors)



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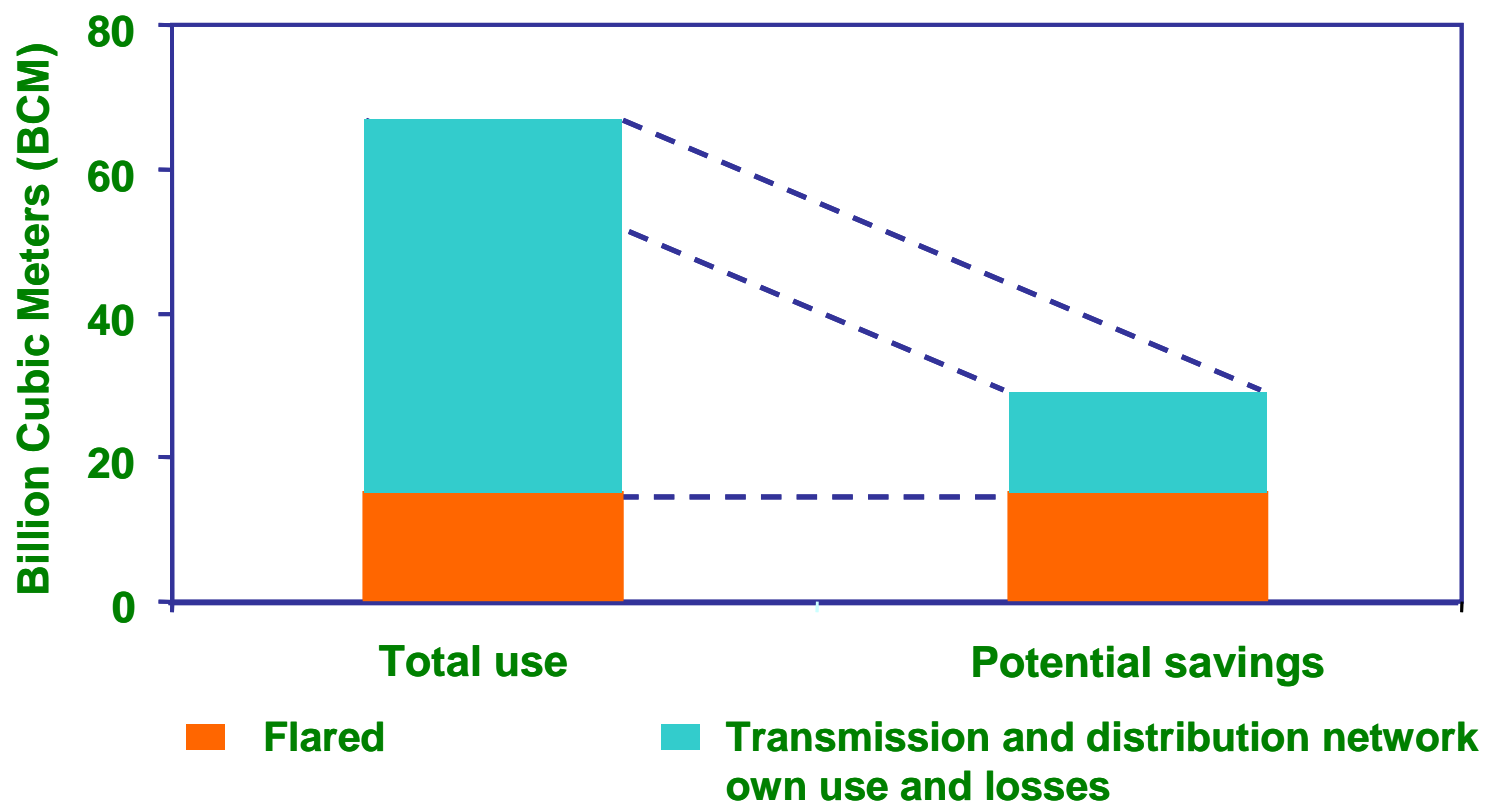
- More data is needed in Russia / globally © OECD/IEA - 2006



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Potential Savings Too in Russian Gas Transmission & Distribution plus Reduced Flaring



IEA Estimates based on 2004 data

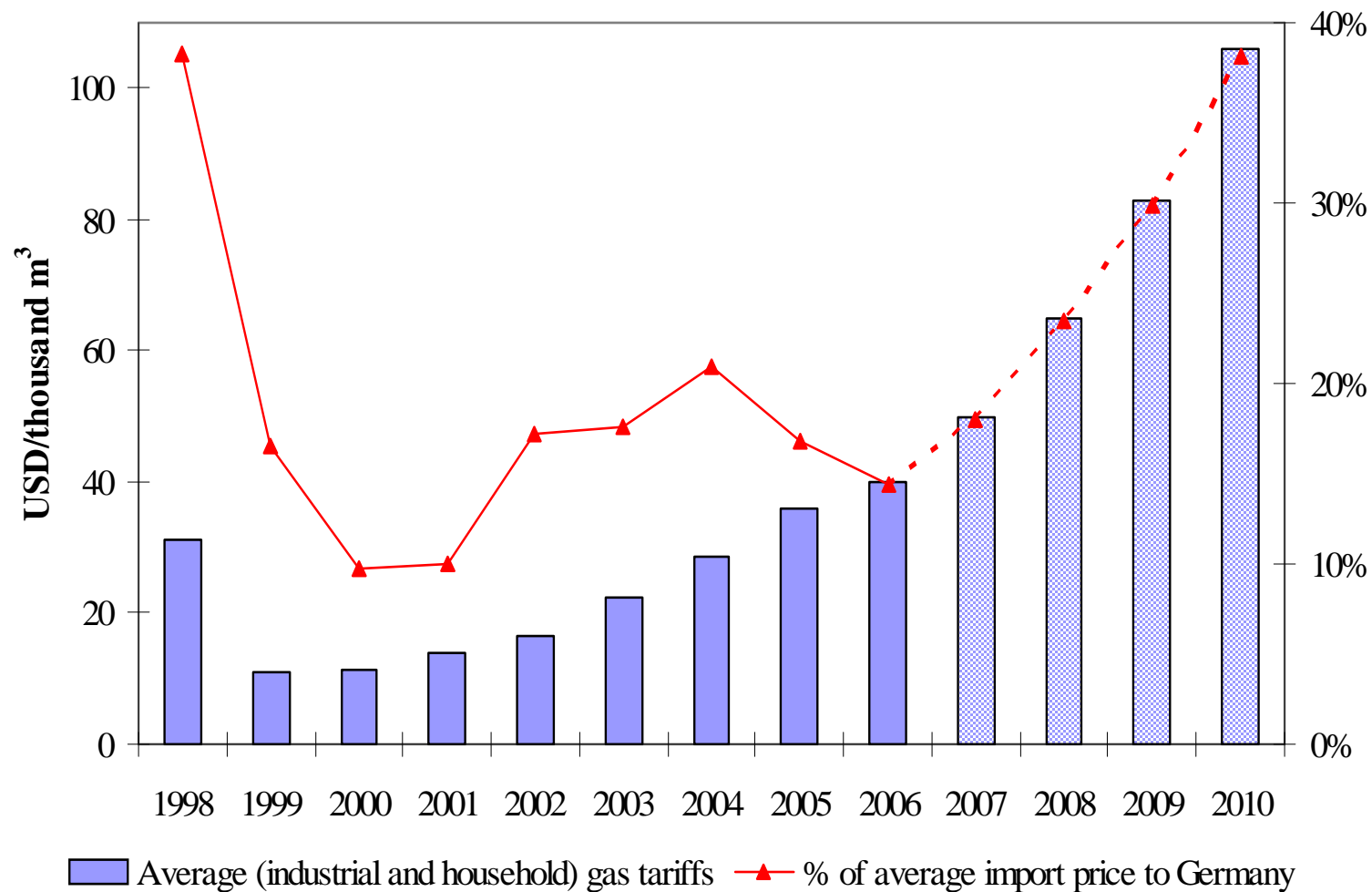
Annual savings could be at least 30 BCM
(over 20% of Russian exports to OECD Europe)



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Domestic Gas Prices on the Increase Will this be Possible?





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Merci !!!

Questions?

isabel.murray@iea.org