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The New Security Environment for European Gas

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Recently Published Research

- **Natural Gas Demand in Europe – the importance of power generation,** Anouk Honore
- **The 2007 Russia-Belarus Gas Agreement**, Katja Yafimava and Jonathan Stern
- **US Natural Gas Prices: scenarios to 2015,** Michelle Foss
- **Gas-OPEC: a distraction from important issues of Russian gas supply to Europe,** Jonathan Stern
- **The Potential Contribution of Natural Gas to Sustainable Development in South Eastern Europe,** Aleksandar Kovacevic
- **Is there a rationale for the continuing link to oil product prices in Continental European gas contracts?** Jonathan Stern
- **Italian Gas Market Liberalisation,** Alberto Cavaliere
- **Ukraine's Gas Sector,** Simon Pirani

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THE OLD SECURITY ENVIRONMENT

- Reserves: where are they, are they enough for 10, 20, 50,100 years?
- Technology: do we have/could we develop technology to bring pipeline and liquefied natural gas to markets: deep water, long distance
- Cost versus price: could projects be developed at a cost which would be covered by the prices which buyers/ customers would be willing to pay?
- How would we deal with the “supply gap” which would evolve over the next 10-20 years?
- How to cope with increasing dependence on gas imports from outside the EU

Many of these issues have not gone away but the context is different

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Components of the "New Security Environment" For European Gas

- Foreseeable limits on all European supply and pipeline imports (Russia, Algeria)
- Little likelihood of significant Middle East/ Caspian pipeline supplies
- Worsening geopolitics: Russia and Middle East
- Atlantic/global competition for LNG supply
- Possible development of a "Gas-OPEC"
- Domestic security – storage – becomes increasingly important

Without major changes: no growth in European gas demand post-2020

Indigenous European Gas Supplies

Present knowledge of UK, Norwegian, Dutch and other Continental European gas reserves, suggests that indigenous European production will not increase beyond 2010, and are likely to decline after that date; this decline is likely to accelerate after 2015

There is still time for this to change but little expectation that major new gas will be found

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Russian Gas Production 2001-06

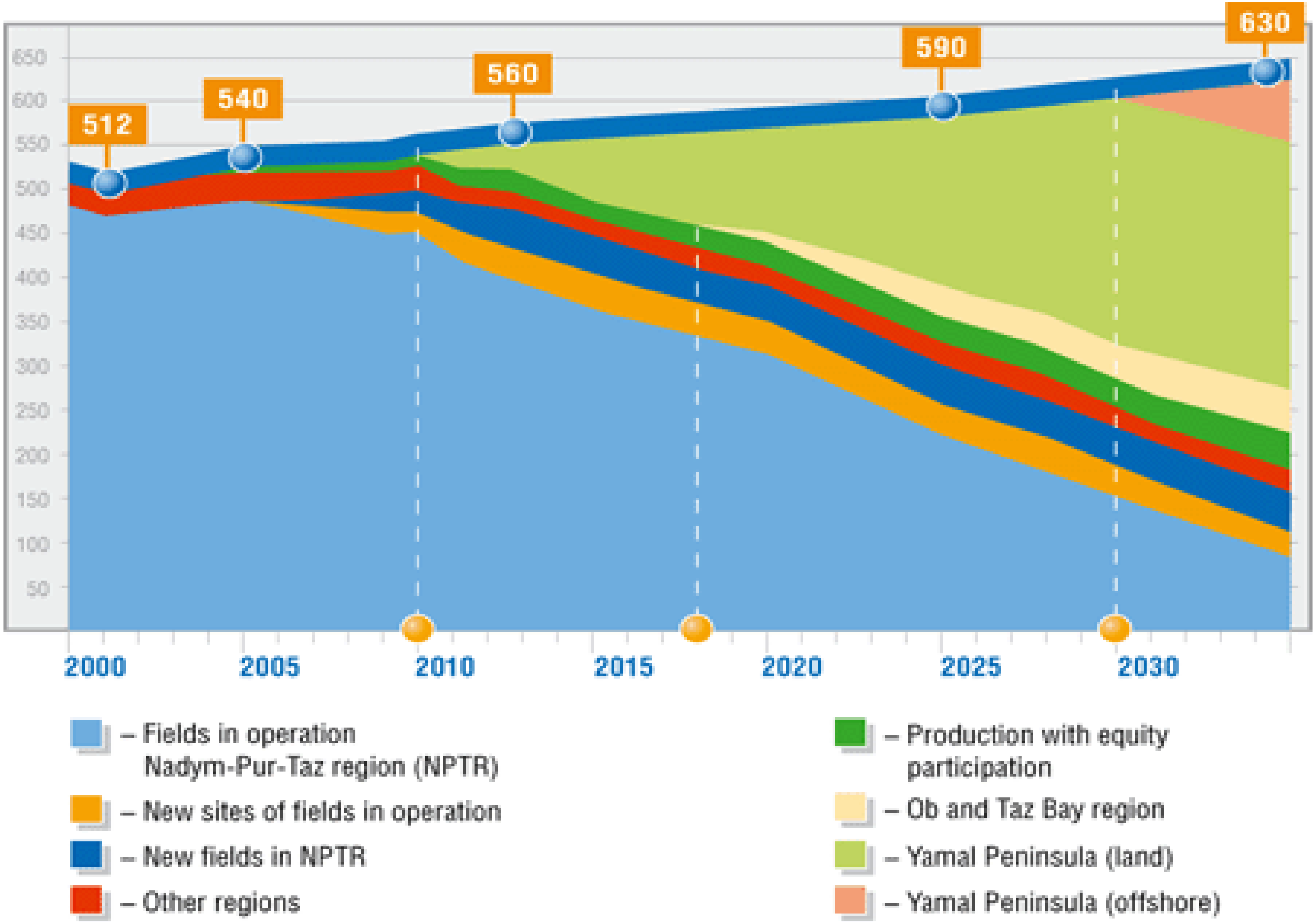
	2001	2002	2003	2004	2005	2006*
GAZPROM	512.0	522.0	540.1	545.1	547.9	551
OTHER PROD'ERS	69.2	73.0	80.3	88.4	92.2	105
TOTAL	581.2	595.0	620.4	633.5	640.8	656.2

*preliminary

Source: Gazprom

Gazprom's production is stable (declining); other producers are the key to growth

Gazprom's Production Projection to 2030



Source: Gazprom

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Gazprom's Exports to Europe

- Long term contracts extended 20-30 years with all West European buyers well before expiry dates: legally binding agreements under international arbitration with liquidated damages
- Gazprom Marketing and Trading establishes presence in north west Europe trading (not just Russian) gas and other products
- Nord Stream pipeline(s) progressing
- South European pipeline under study

Gazprom is not behaving as if it is short of gas for export to Europe, rather it is short of reliable transportation capacity

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Nord Stream Gas Pipeline

Gas Pipelines From the Caspian Region

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Disastrous Decline of European (and US) Relations with Russia: current views of European politicians/political commentators

- Putin does not share European democratic or market values: free elections/media, private o'ship
- Russians cannot be trusted to respect rule of law or legal contracts – corruption/governance issues
- Growing centralisation/state ownership and government control of energy means that…
- Russia will use oil and gas as a weapon against European and other countries in order to achieve political and commercial objectives
- Russia is supporting a gas cartel to attack EU interests

Europe needs to limit gas/energy imports, and downstream investments from Russia

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Disastrous Decline of Russian Relations with Europe (and the US) : views of Russian politicians/political commentators

- European governments are hypocritical about "democratic values" and the rule of law; there is one set of rules for themselves and their friends, and another for all others
- Western countries were happy when Russia was weak (in the 1990s) but are now uncomfortable with reassertion of legitimate Russian interests
- EU is now dominated by anti-Russian new Member States
- EU Competition regulators have tried to undermine long term gas contracts/security
- Russian investments in EU gas industries are subject to unfair discrimination

Russia will not allow western countries to dictate its domestic or international agenda

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Likely Russian Gas Trends to 2020

- Russian gas supplies will be tight for the next several years – possibly until 2015 – until large scale Yamal gas supplies become available
- This will affect the Russian market but not Europe because of long term contract commitments
- Russian gas market moves towards "European-level" pricing will reduce the profitability gap between the markets
- No large scale additional export contracts will be signed for the foreseeable future because of Russian availability problems and European security concerns

During the 2010s, it will no longer be profitable for Russia to expand exports to Europe

GEOPOLITICS: Middle East Supplies

- OECD fears of Islamic fundamentalism, war on terror etc
- Worsening (or at least not improving) situation in Iraq
- Worsening relationship with Iran – UN/US sanctions
- Israeli-Palestinian/Lebanese problems

Costs and politics mean that gas exporters will increasingly prefer the flexibility of LNG over pipeline gas

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Gas Pipelines From the Caspian Region

Nabucco: a Possible Caspian Pipeline

Source: OMV

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European Supplies from North Africa

African Gas Exports to Europe

IMMEDIATE ADDITIONAL SUPPLY:

- **Medgaz and Galsi – the only new dedicated pipeline gas for Europe**
- **Significant LNG developments: Nigeria, Egypt, Equatorial Guinea, Angola(?), Libya(?)**

BUT LOOMING PROBLEMS OF FUTURE EXPORT AVAILABILITY DUE TO:

- **Rapidly increasing domestic demand**
- **Endemic political instability**

African LNG exports are as well-positioned for North American markets as for Europe

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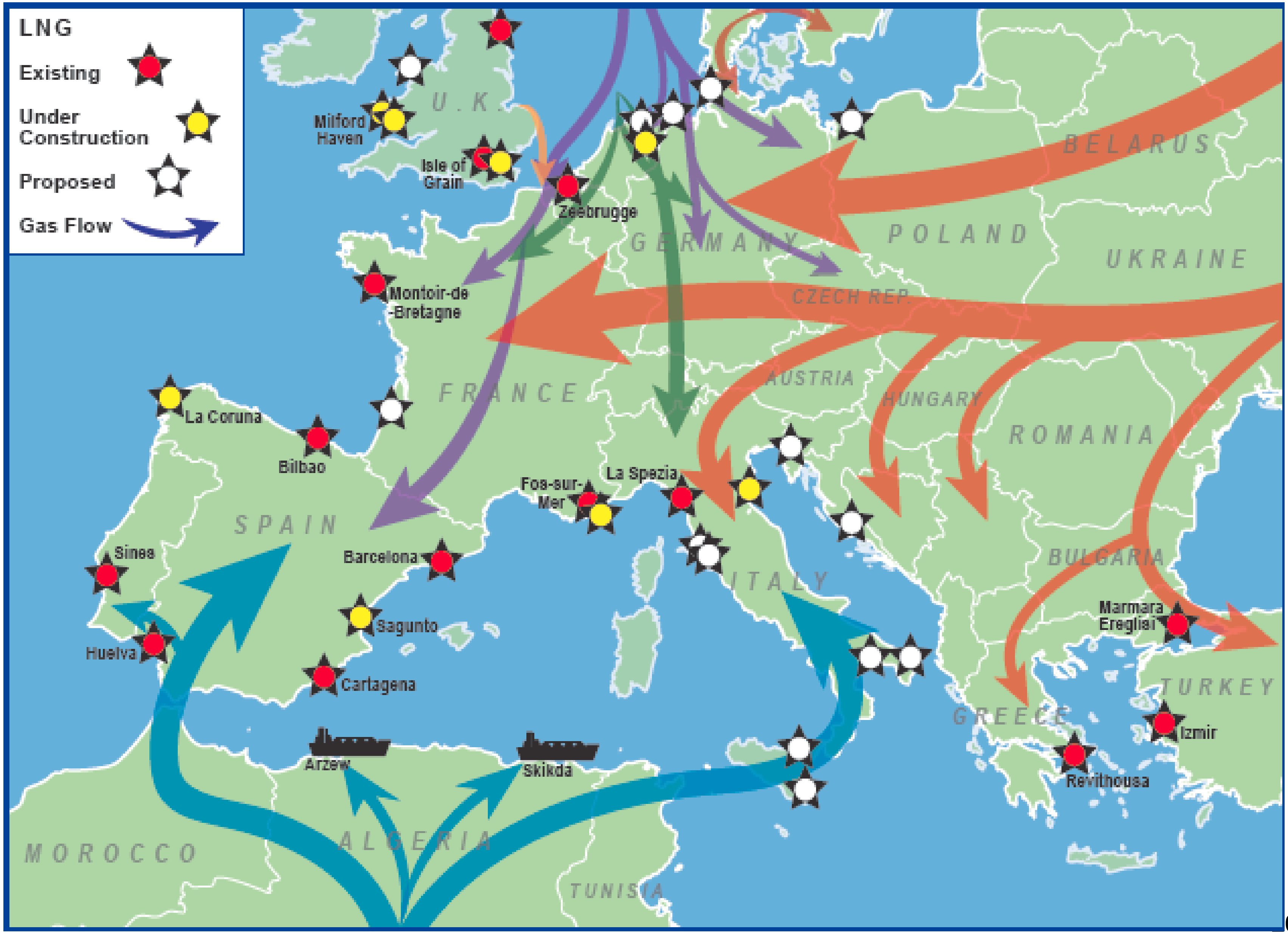
European LNG Terminals



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North American Gas and Atlantic Basin LNG

- **North American production is declining, can production be stabilised in a price environment of \$3-6, \$8-10/mmbtu?**
- **lead times for Alaskan/Canadian Arctic supplies are 10-20 years; commercial/ environmental/regulatory obstacles**
- **LNG will be the principal source of incremental gas until Arctic gas arrives; 130 Bcm of potential regasification capacity means that….**
- **The US will be a major competitor in Atlantic Basin LNG markets BUT…**

Attempts to project North American price developments have been <u>COMPLETELY WRONG</u>

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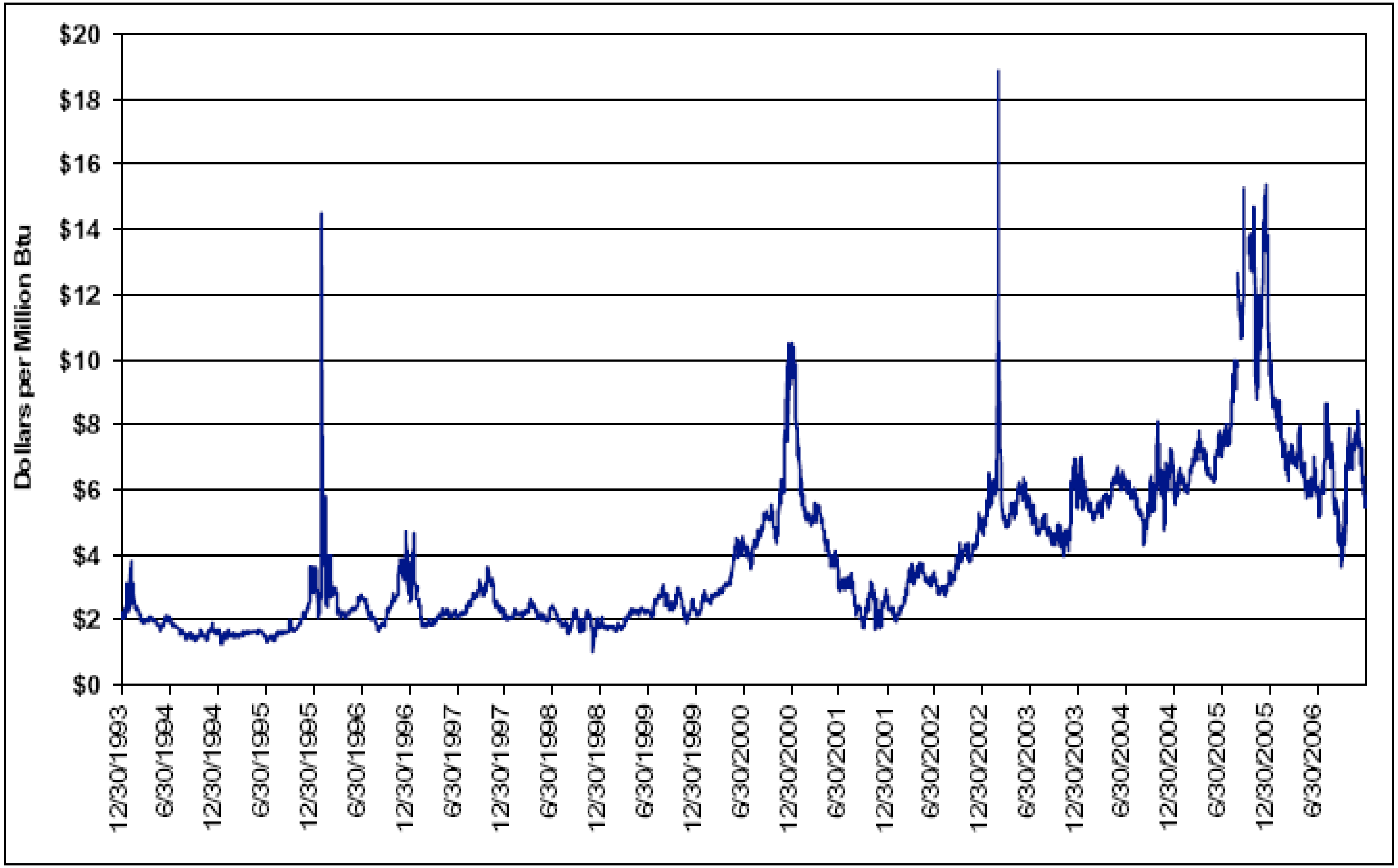
US Natural Gas Prices 1993-2007 $/mmbtu



Source: *NGI's Daily Gas Price Index* ,Intelligence Press

United States is an "unpredictable" LNG competitor

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The Pacific Region: a global LNG competitor for Europe?

- Short term Indonesia supply crisis means that traditional Pacific buyers – Japan and Korea (possibly Taiwan) will compete for Middle East supplies and for marginal/ seasonal cargoes from other Atlantic Basin suppliers
- China and India will not dominate Pacific (and certainly not global) LNG trade and will only peripherally compete with Europe for gas.

Projections of "a global LNG market" are ahead of reality but the trend to <u>greater global competition</u> is real

An OPEC for gas? Or for LNG?

- Gas Exporting Countries forum created by objections to EU (and national) liberalization
- A chaotic organisation with unstable membership and mandate BUT…
- April 2007 meeting lent credibility to GECF as Russians now fully on board BUT
- Prime movers are LNG exporters: Algeria, Qatar, Trinidad, therefore an organisation for LNG exporters is more likely than gas exporters

Only Iran (a net gas importer) and Venezuela (not a gas exporter) have favoured a "price setting" organisation

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Gas Security: perceptions versus empirical evidence

- **Widespread assumption that imported gas is less secure than domestic supplies and infrastructure has little empirical basis**
- **The most serious gas security incident in Europe in 2006 was not the Russia-Ukraine crisis:**
  - **the fire at the UK's Rough storage reservoir in February**
  - **Uncertainties in Italy caused by a colder than usual winter**
- **How much gas has ever been stopped by "political instability"?**

Ageing and unreliable infrastructure may become a very important problem

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Storage Dilemmas: commercial and strategic

COMMERCIAL:

- **Security criteria: 1 in 20/1 in 50 – WHY? Analysis or tradition?**
- **Market-driven or regulation-driven and who pays? In the UK, "the market" did not give signals until too late; planning obstacles were a big problem**

STRATEGIC:

- **Who decides to release; in what circumstances – *force majeure* or market?**
- **Does it prevent commercial storage?**

Security arguments on storage are confused with commercial and competition arguments

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European Gas Supply/Demand Cycles over the Next Decade

- Shortage cycle is ending in 2007 with arrival of new pipeline gas and LNG supply
- Surplus cycle likely from 2008-12 (maybe up to 2015) depending on power demand and Atlantic Basin LNG, BUT…
- Prices may stay high because of oil linkage and lack of liberalisation and competition
- Winters may still see high prices

Supply/demand balance suggests that period up to 2012/15 will be a time of surplus but post-2015 (and especially 2020) new large scale sources of gas are not clear

Current Messages from Many (Most?) European Politicians and Media to Gas Suppliers – especially Russia

- We don't like you
- We don't trust you
- You are the main cause of European gas supply security problems

What is the gas industry doing to counter these messages?

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The New Gas Security Environment: emerging producer/exporter perspectives

- **Increased exports are no longer desirable due to:**
  - **increasing domestic demand**
  - **higher export prices which means reduced need for revenues**

- **LNG exports will be preferable to dedicated pipeline gas to Europe because of:**
  - **Greater arbitrage possibilities in higher value markets**
  - **Less political exposure to Europe**

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Longer Term Consequences of the New Security Environment

THERE IS STILL TIME FOR KEY ELEMENTS OF THIS ENVIRONMENT TO CHANGE; EVEN IF THAT DOES NOT HAPPEN, THERE WILL BE NO ENERGY DISASTER IN EUROPE, BUT:

- **there cannot be any significant increase in gas-fired generation in Europe post-2020 which means that…**
- **other forms of generation will need to be developed**
- **switching from coal to gas will not be possible ie no short term carbon fix**
- **after 2020, European gas demand will not increase and may decline ie gas becomes a “sunset industry”**