International Pressures on European Energy Supplies: what are the natural gas issues?

Professor Jonathan Stern

Chairman and Senior Research Fellow, Natural Gas Research Programme, Oxford Institute for Energy Studies

BIEE Academic Conference, Oxford, September 19-20, 2012

The Context of European External Gas Pressures post-2008

Heighted concern about gas security because of:

- increasing import dependence of European countries
- Russia-Ukraine crisis of 2009
- unstable (worsening?) political situation in North Africa and the Middle East
- concern about potential demand levels in China and India
- much higher (oil and) gas prices and the possibility of a "gas-OPEC"

Contrast with domestic pressures: carbon reduction targets; regulatory policy under GTM and the Third Package

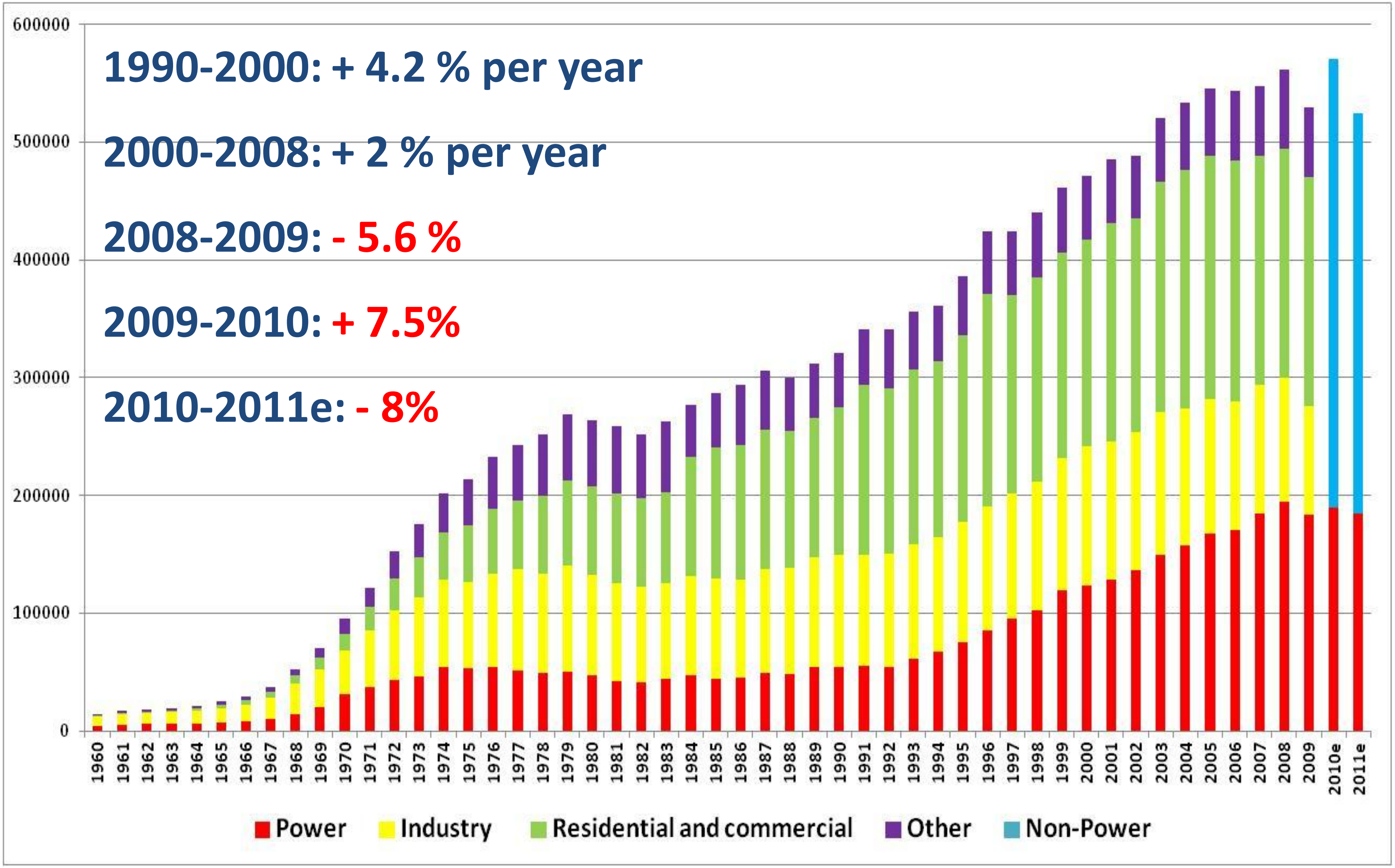
European* Gas Balance: 2010 (Bcm)

DEMAND	567	
PRODUCTION	301	
IMPORTS:	464 (81% pipeline, 19% LNG)	
LNG	87 (22% Algeria, 44% Qatar)	
PIPELINE	377 (50% intra- 50% extra-Europe)	
% of imports:	PIPELINE	TOTAL
NETHERLANDS	13	11
NORWAY	25	21
ALGERIA	8	14
RUSSIA (CIS)	35	28

Source: Cedigaz, 2011. * Europe = EU 27 + Norway, Switzerland, Central Europe and Turkey

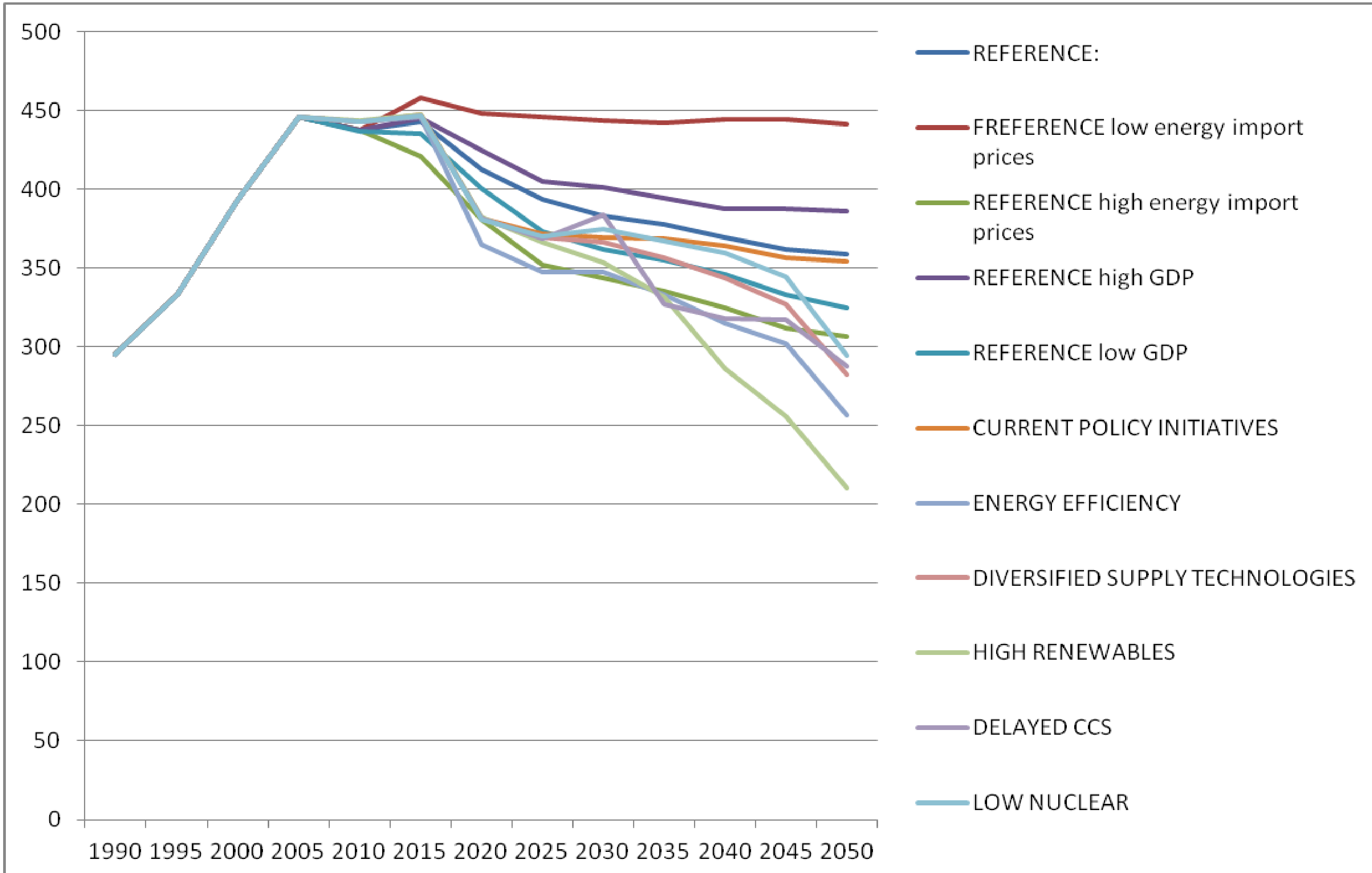
DOES EUROPE NEED ANY NEW GAS? IF SO WHERE AND WHEN?

Gas Demand in Europe 1960 – 2011, in mcm



Source: Honore (2010) and updates from IEA monthly service

EU Gas Consumption Under the 2050 Roadmap Scenarios (mtoe)



Falling Production + Increasing Demand = Increasing Import Dependence

- European conventional gas reserves are "running out"; production will decline in future; could unconventional gas change this?
- Rising demand – but not in 2008-11 – means that..
- An increasing proportion of Europe's gas will need to be imported in future

EU/OECD projections are that European import dependence will increase from around 33-50% today to 66-80% in 2020-30; is this a major security problem and if so, why?

Import Dependence: theories of "unreliable and nasty foreigners"

- "unreliable foreigners": unable to maintain installations properly
- "nasty foreigners": likely to cut supplies for commercial and political reasons
- distant foreigners at the end of long pipelines: the more unreliable (and nasty?) they are likely to be
- Diversify imports for commercial and security reasons

Arguments predicated on domestic supplies being more secure than imports, but is this true?

GEOPOLITICS: Russian Supplies

- Natural gas relations between Russia and Europe have a highly political character with huge sensitivities on both sides
- When existing long term contracts bring Russian exports up to 200 Bcm (~145 Bcm in 2010) – a limit on exports could be reached from the European side because of:
  - fears of over-dependence and Russian political leverage: gas supplies and Gazprom downstream ownership
  - Russian gas availability for Europe
- Nord and South Stream pipelines: resolve security problems or create new threats?

2009 Ukraine crisis was a turning point; DG Comp 2012 proceedings against Gazprom could be another

Russian Gas Transit Routes to Europe

Nord Stream Gas Pipelines

First line commissioned November 2011; second line – October 2012; discussion of Nord Stream 3 and 4

South Stream Pipelines

South Stream: final investment decision now depends on cost/profitability and politics

GEOPOLITICS: Middle East and North African (MENA) Supplies

- OECD fears of Islamic fundamentalism, war on terror etc
- Problematic situation in Iraq
- Worsening relationship with Iran – UN sanctions
- Israeli-Palestinian/Lebanese deadlock
- 2011 "revolutions" in North Africa – a regional phenomenon?

Why is there no discussion of threats to European gas supplies due to these pressures eg Libya-Italy, Iran-Turkey?

LNG: Very Useful Diversification Strategy

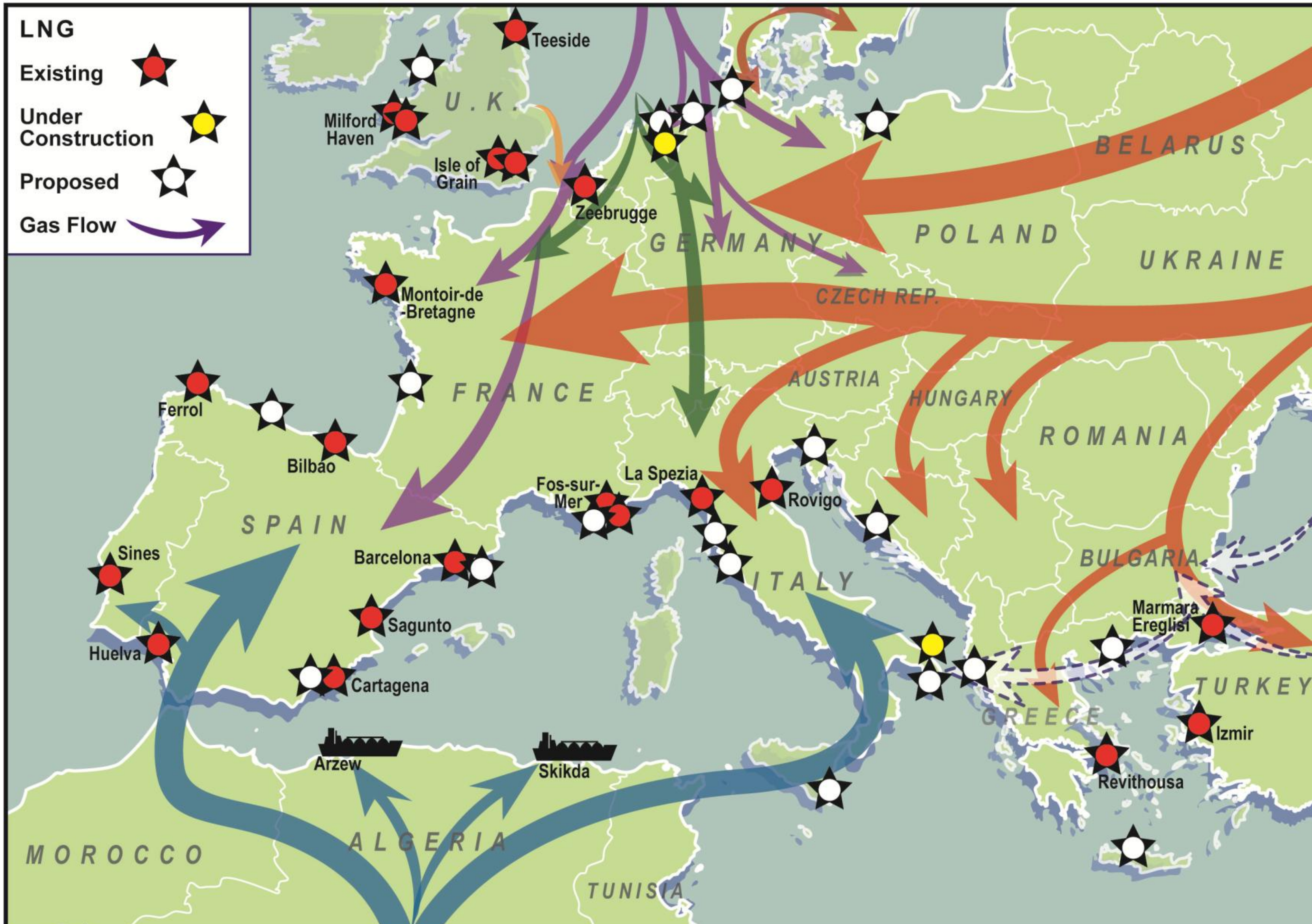
- Allows access to a variety of sources
- Can also serve as a storage facility
- Allows flexibility in case of uncertain demand

BUT:

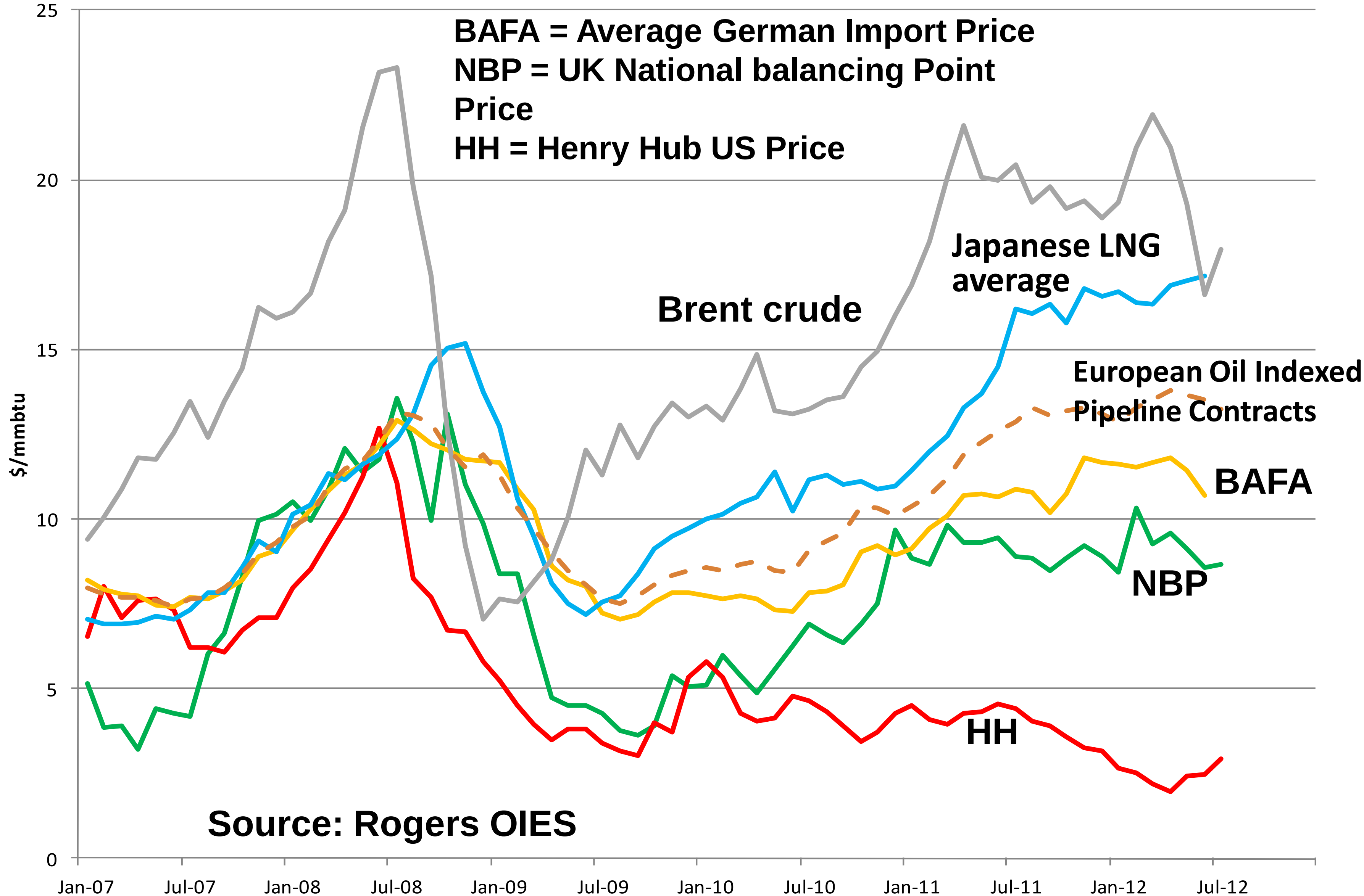
- In a global market, other countries may be able to bid supplies away by higher prices
- Winter requirements particularly at risk from rich countries

Price security becomes a major issue

European LNG Terminals

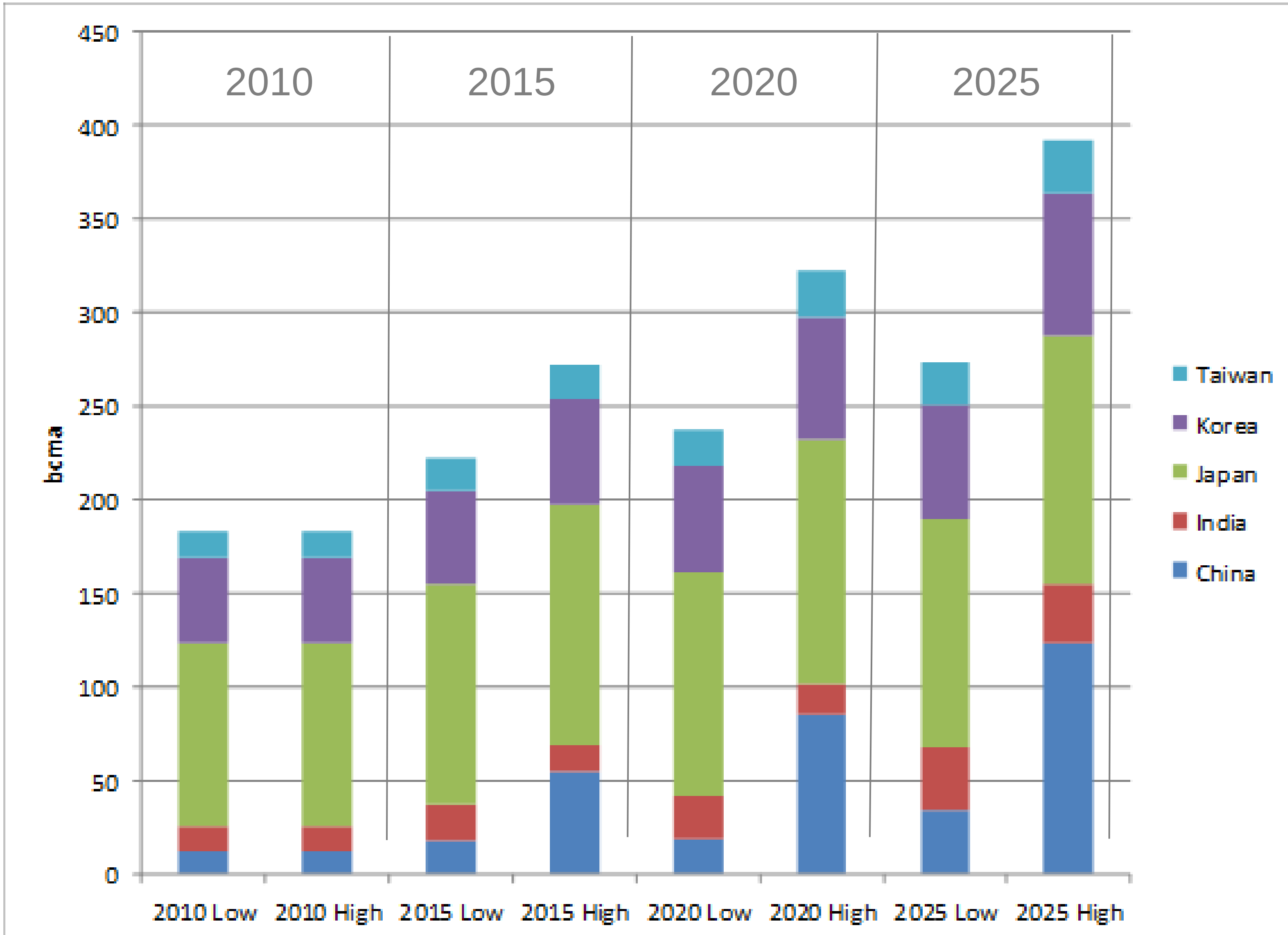


Asian LNG prices are far higher than those in Europe



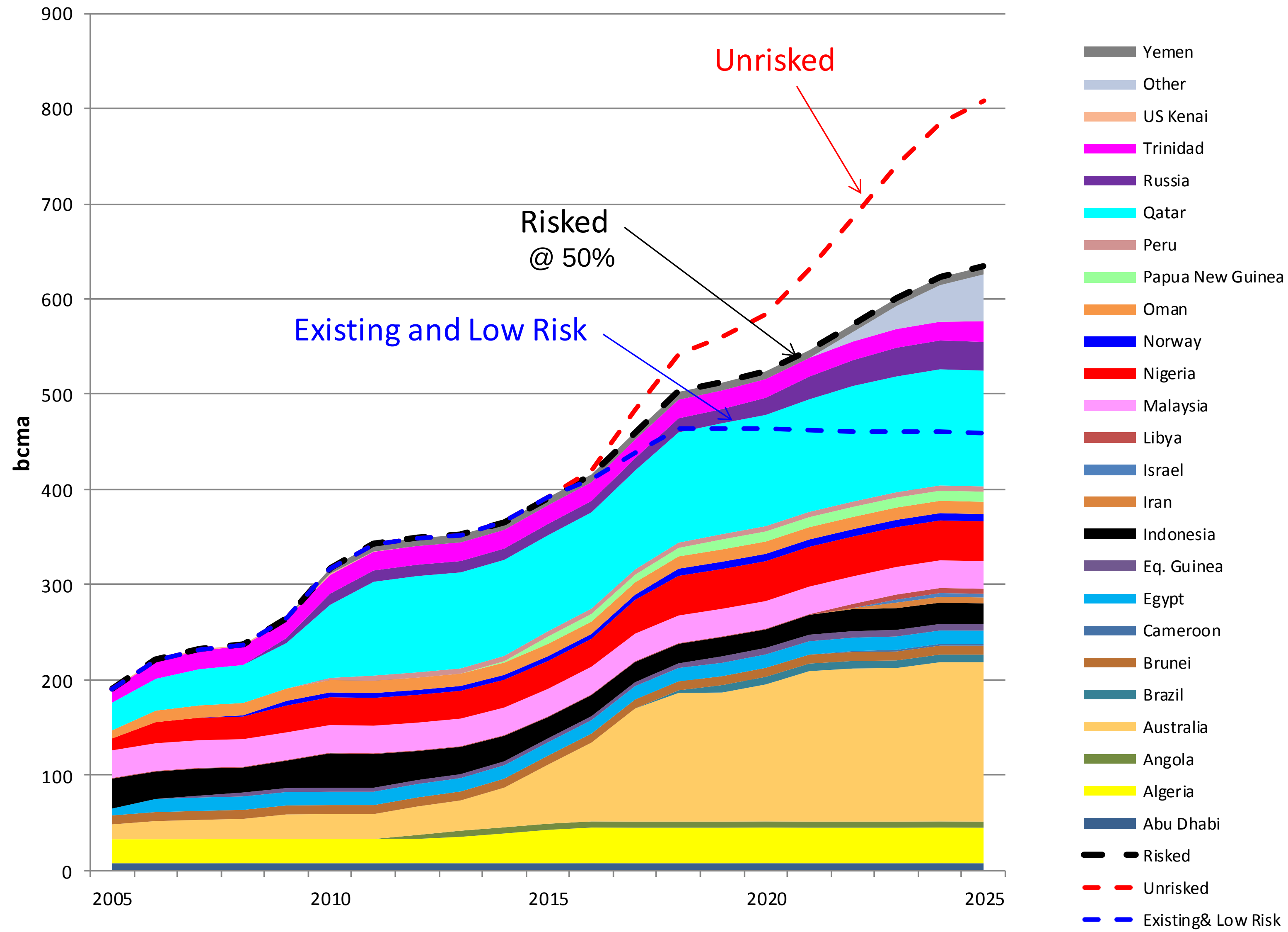
Potential Asian LNG Imports 2010-25

Source: Rogers OIES



LNG Supply 2005 – 2025

(Excluding Possible US & Canadian Projects)



Source: Waterborne LNG, D. Ledesma, H. Rogers

GECF: an organisation with momentum?

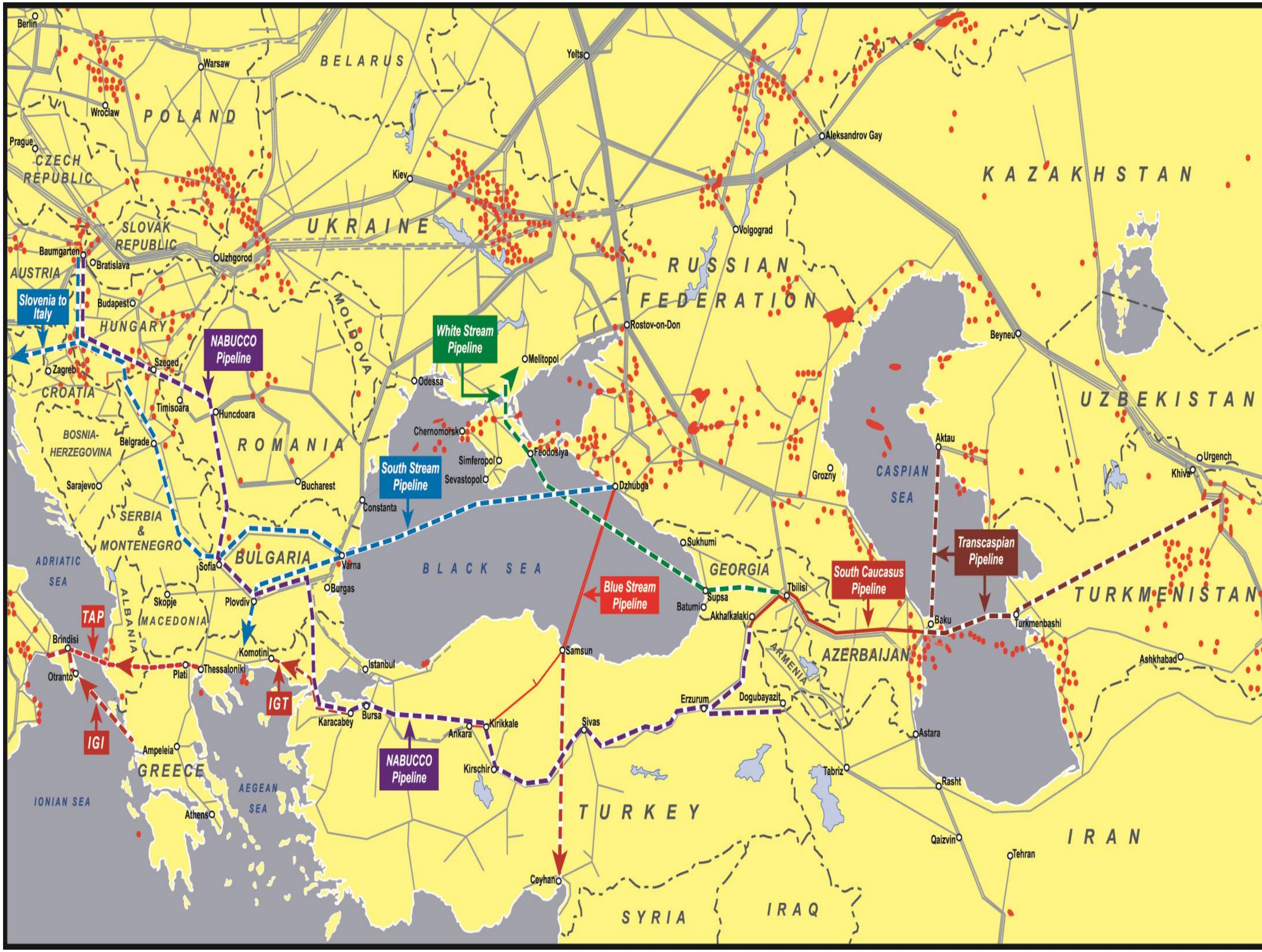
- So far not an "OPEC-type" organisation but a "discussion forum"
- Strong objections to EU (and national) liberalisation on grounds of:
  - No consultation with exporters
  - Attack on existing contracts and revenues
  - Problems of financing without LT contracts
- Signs at the 2007 meeting that the Forum was becoming more serious about studying issues such as pricing

A long way to go before anything like an OPEC-type organisation is possible

Current Distractions from Important European Gas Issues

- The Southern Corridor
- Shale gas in Europe

"Southern Corridor" Gas Pipelines



Pipeline Gas From Middle East/Caspian Region: the "Southern Corridor"

- there is a 30 year history of proposed pipeline projects with the Iran-Turkey pipeline as the only success but it has a very bad contractual/security track record;
- (domestic and) international political problems with Iran have prevented pipeline and LNG trade over the past 30 years;
- Azeri gas will provide the early gas;
- Turkmenistan: trans-Caspian problems;
- Iran/Iraq: security problems

Maximum of 10 Bcm/year available prior to 2020; large scale (ie 100 Bcm/year) currently unrealistic

Unconventional Gas Production Outside North America in 2011 (Bcm)

	LatAm	Europe	MENA	FSU	Asia	Australia
CBM		<1		<1	2	6
Tight	2		>3	20	35	
Shale						
TOTAL	2	<1	<3	21	37	6

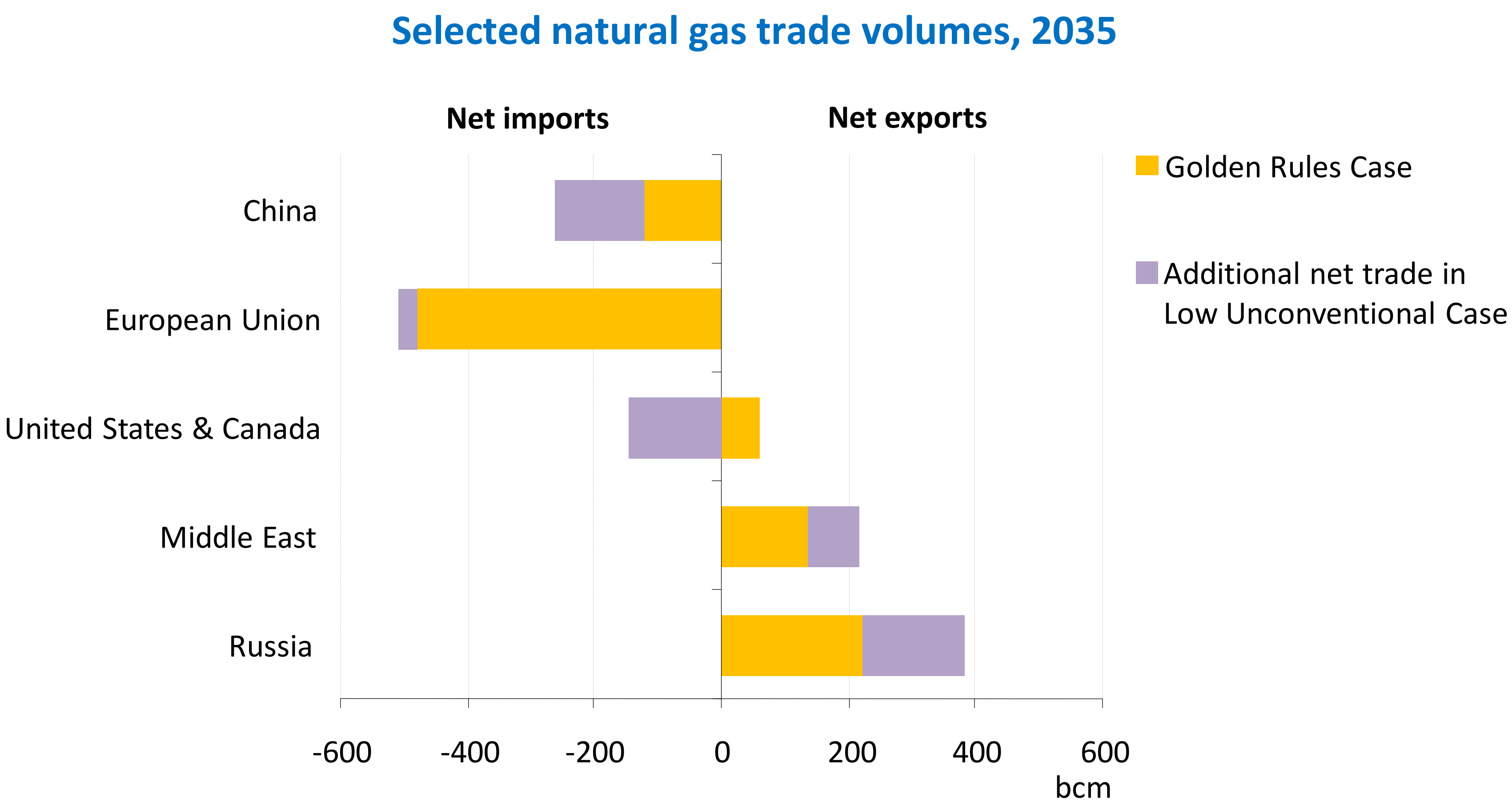
Global shale gas production outside North America – zero

Global unconventional gas production outside North America <70 Bcm

Global gas production outside North America 2625 Bcm

Source: IEA, *Gas: Medium-Term Market Report 2012*, p.67.

Impact of Unconventional Gas in 2035
(source IEA)



Gas trade in the Low Unconventional Case is up 30%, some trade patterns are reversed, gas prices are higher & the position of the main conventional exporters reinforced

Conclusions

- European-wide gas analysis misses important national issues: in some countries, gas can become a "default fuel" in the event of other options failing
- Demand will increase in only a few countries, but imports will increase – at least over the next decade
- Pre-occupation with security issues of Russian gas is highly political and remains important
- Most important issues are price formation and price level both in Europe and elsewhere in the world – these will determine much about supply, demand, trade and security

Markret conditions in Europe and elsewhere are changing all the time, complicating even short term projections

OIES Published Work: www.oxfordenergy.org

- Gas with CCS in the UK – waiting for Godot? Howard Rogers
- Economic Recession and Natural Gas Demand in Europe – What Happened in 2008 – 2010? – Anouk Honore
- Algeria's Shifting Gas Export Strategy: Between Policy and Market Constraints – Hakim Darbouche
- The Transition to Hub-Based Gas Pricing in Continental Europe – Jonathan Stern & Howard Rogers
- Does Gas Need a Decarbonisation Strategy? The Cases of the Netherlands and the UK – Floris van Foreest
- The Impact of Import Dependency and Wind Generation on UK Gas Demand and Security of Supply to 2025 – Howard Rogers
- Can Shale Gas be a Game-changer for European gas markets? – Florence Geny
- The Impact of a Globalising Market on Future European Gas Supply and Pricing: the Importance of Asian Demand and North American Supply – Howard Rogers
- **Natural Gas Markets in the Middle East and North Africa – eds. Bassam Fattouh & Jonathan Stern**
- **The Transit Dimension of EU Energy Security: Russian gas transit across Ukraine, Belarus and Moldova – Katja Yafimava**
- **The Pricing of Internationally Traded Gas – ed. Jonathan Stern (forthcoming)**

[Bold – Books]