An Outlook on the European Gas Market

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October 2006

The full report may be downloaded at: www.elsevier.com

(Energy Policy – ”Prospects of the European gas market”)

Part of the Pathway Project

Mapping and analysing global fuel markets with special focus on EU

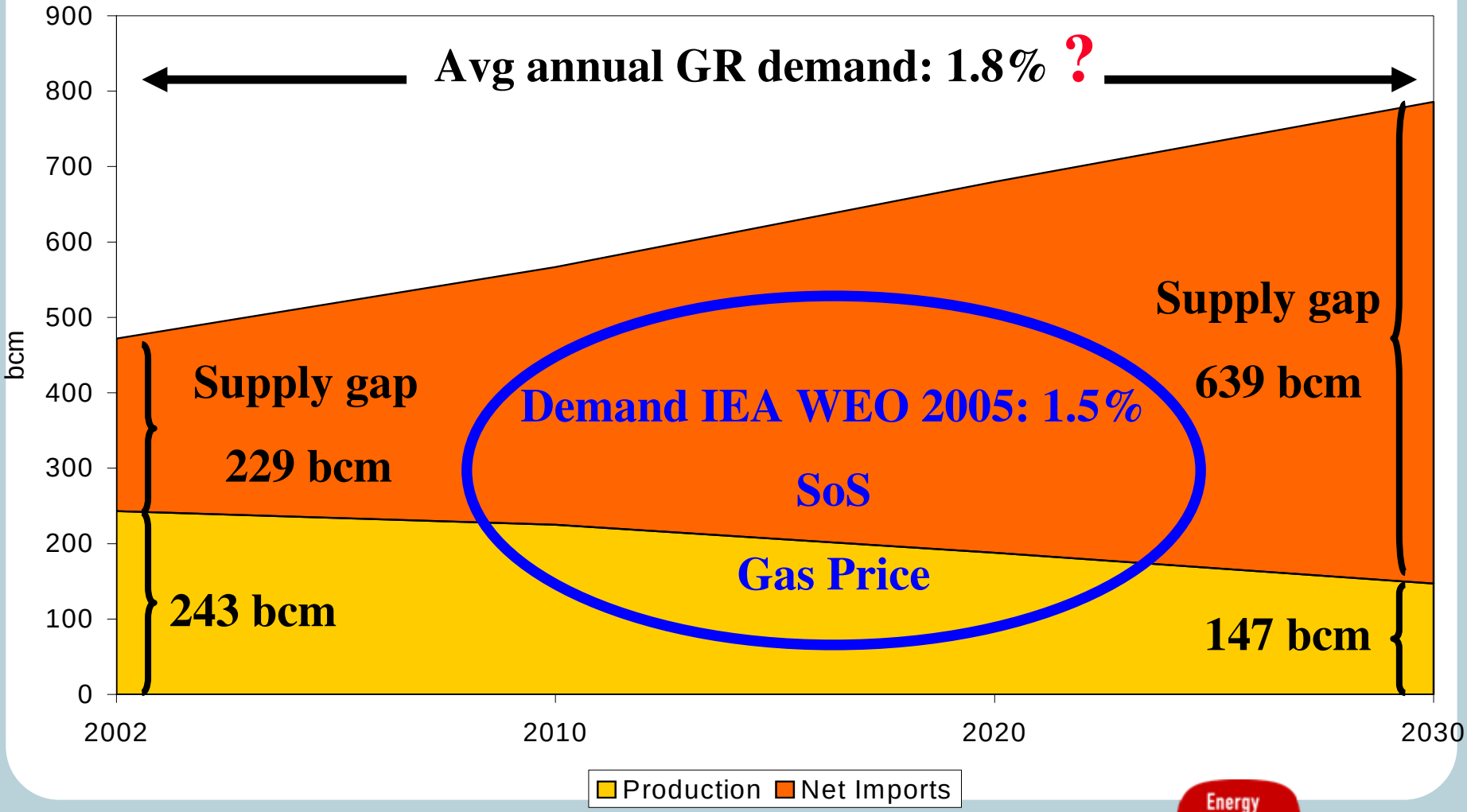
Overall conclusions

- Continued expansion of gas in the power sector up to 2010-12
- Gas demand post 2012 politically governed
- EU gas production will continue to decline but nevertheless abundant supplies
- New suppliers and transport routes enhancing SoS in the short-term
- Timely long-term investments along the entire fuel chain crucial - at the same time pressure is increasing on long-term contracts
- Increased dependency on import and on Russia and Middle East, on oil and gas and thus even for electricity & heat
- Fundamentals point to that the gas price is likely to go down around 2008 and Russian (possibly not Gazprom) gas loosing market share in the medium term (even as a function of increasing production costs)

Demand

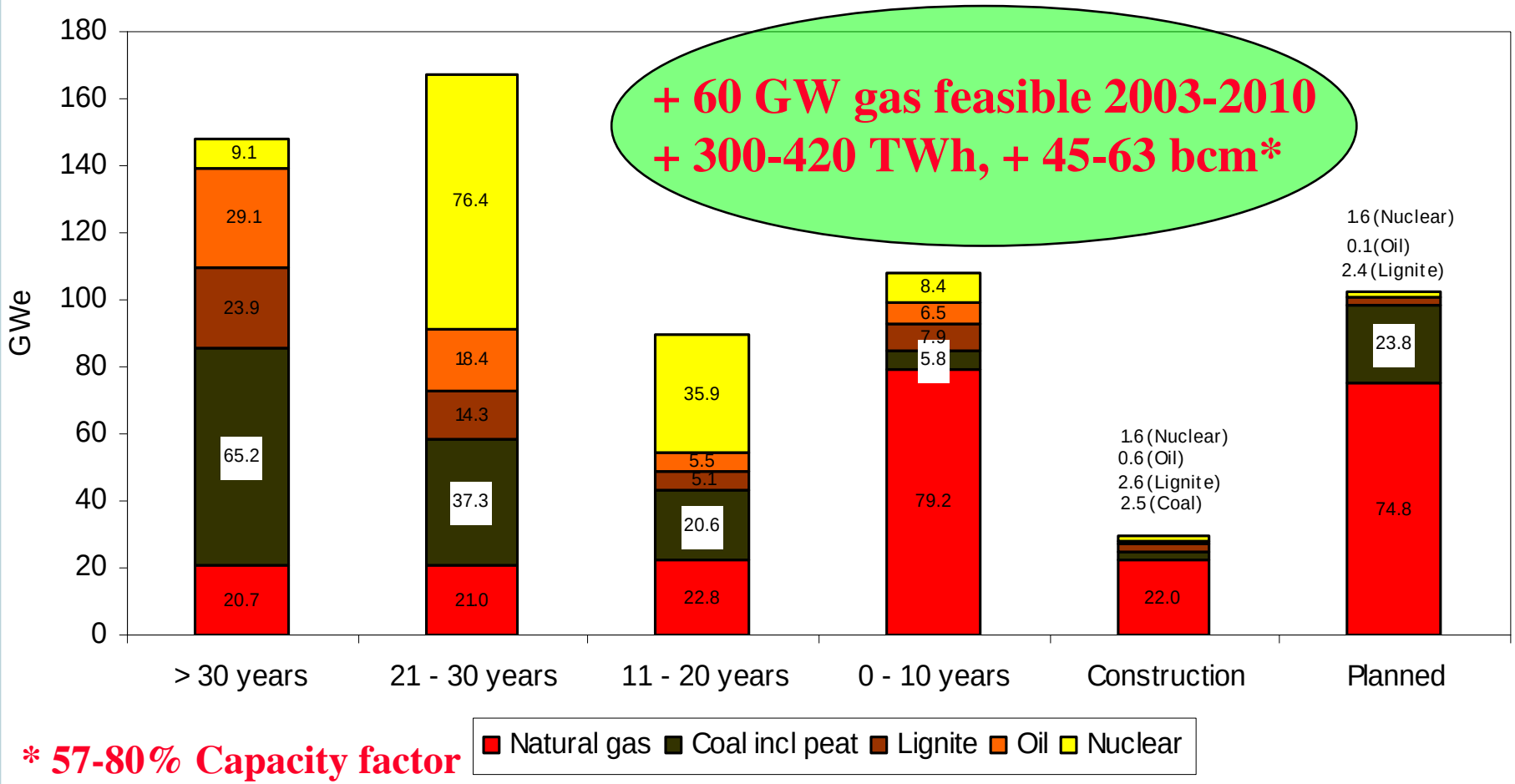
Projected demand and supply gap 2002-2030, bcm

(IEA WEO 2004)



Capacity by fuel and age thermal power plants EU 25

(excluding biomass, source: Chalmers Power Plant Database)

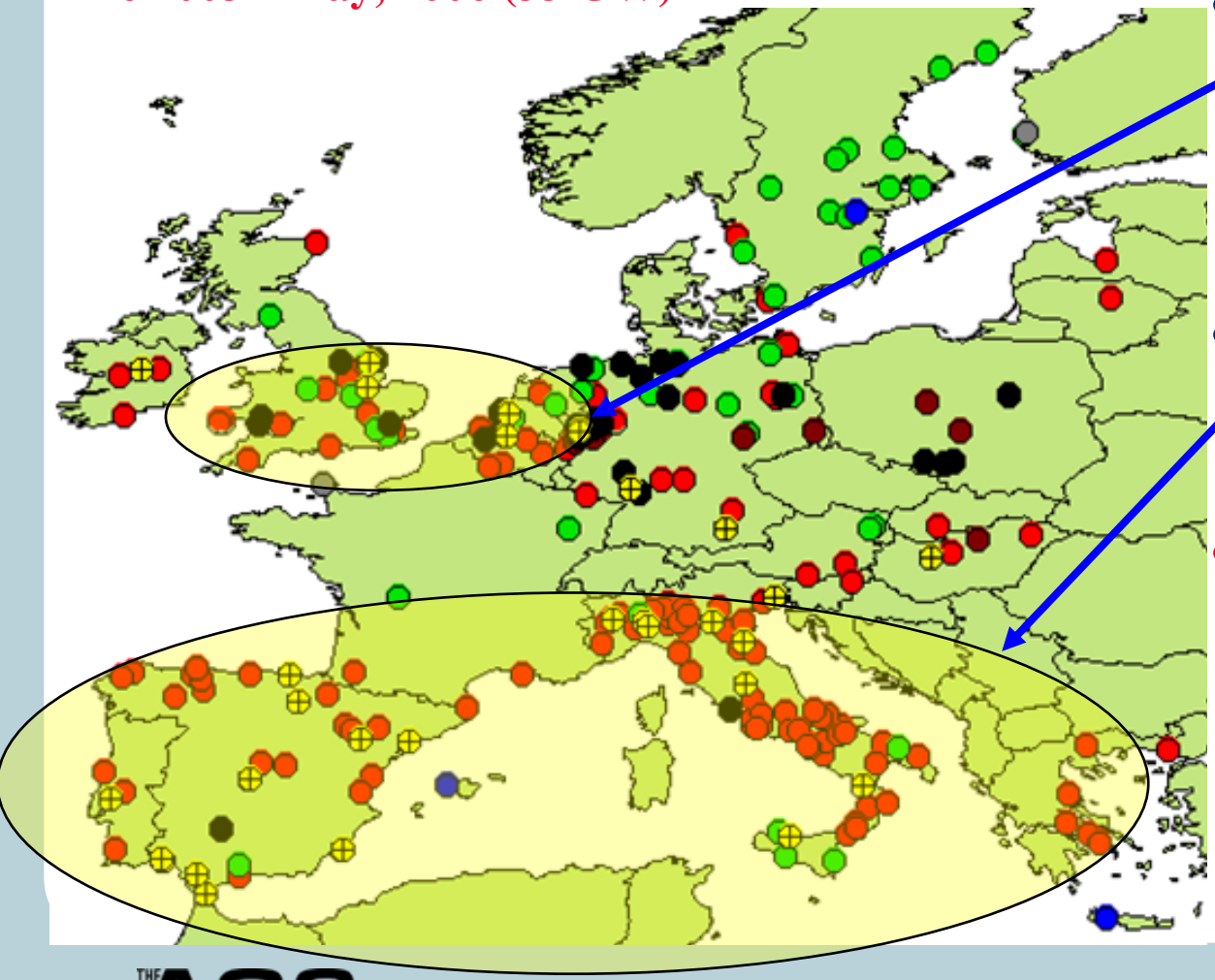


*** 57-80% Capacity factor**
60% efficiency, 40 MJ/m3

Distribution Planned Plants by fuel EU-25

(same colour code as previous slide, includes bio, source: Chalmers PP db)

Crossed yellow dots: CCGT's on line 2003 - May, 2006 (33 GW)



- Northern gas zone
  - Declining gas production (+ some increase in demand)
- Southern gas zone
  - Increasing demand
- **North Africa and Norway competitive edge on key growth markets**

However, gas demand power sector after 2012 will depend on several factors

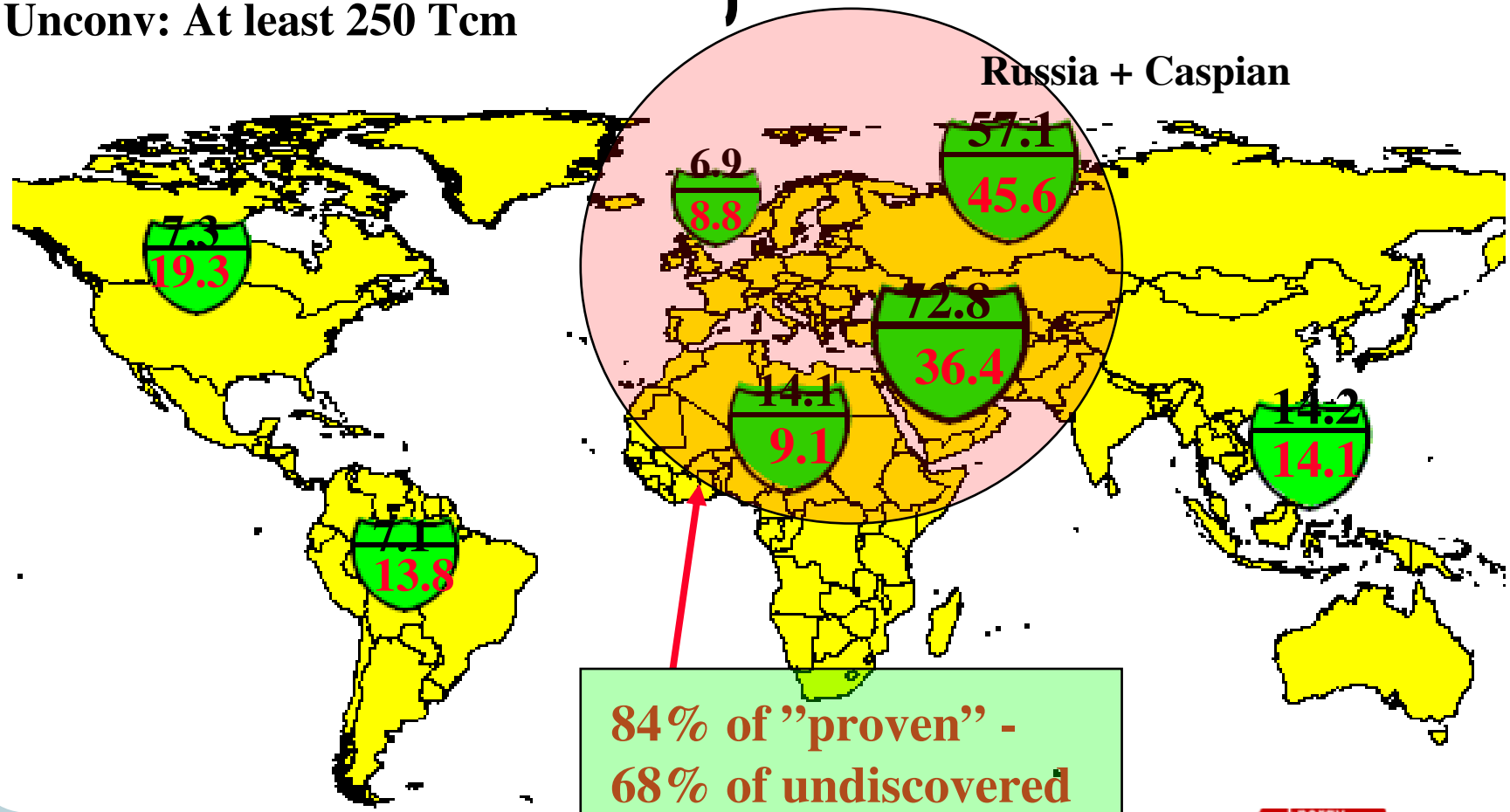
- **CO_2 emission restrictions post 2012**
- **Nuclear phase-out**
- **Coal & CO_2 storage vs gas**
- **Renewables & Demand Side Management (DSM)**

SUPPLY

Abundant resources

”Proven”(black): 180 Tcm
Yet to Find (red): 147 Tcm? (1996)
Reserve growth? 103 Tcm? (1996)
Unconv: At least 250 Tcm

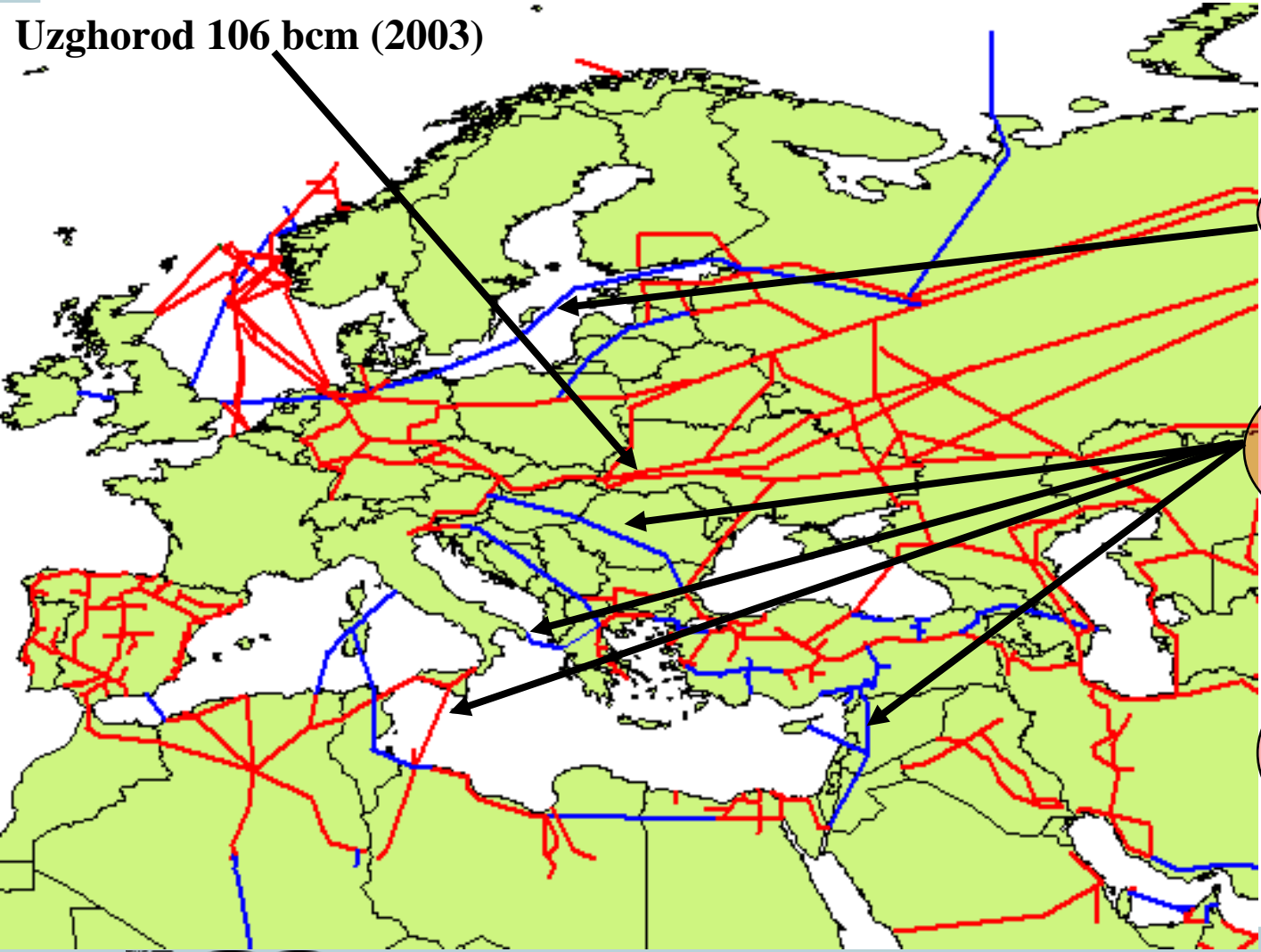
Consumption: 2.8 Tcm (2005)



84% of ”proven” -
68% of undiscovered

EU import capacity – pipelines

(Red in operation, blue under construction/planning)



Avoid non-EU transit

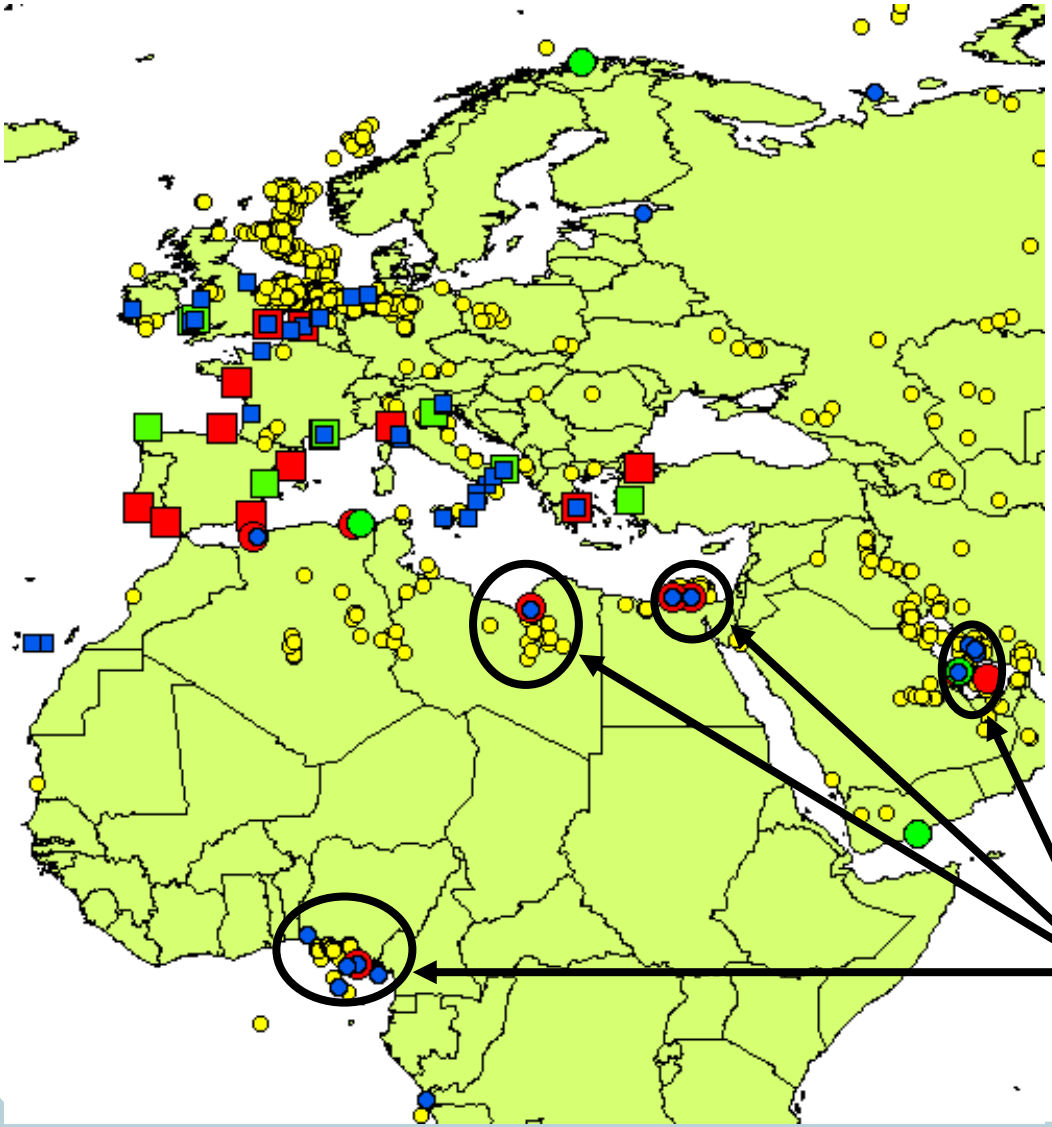
Increase number of suppliers/routes

Enhancing Security of Supply

THE AGS

Energy Pathways Flagship Program

EU import capacity - LNG (Squares: Import terminals, Circles: LNG plants, Red: In operation, Green: Under construction, Blue: Under planning, Yellow circles: Gas fields)



Smaller contract volumes, less up-front investments

Flexible

Arbitrage

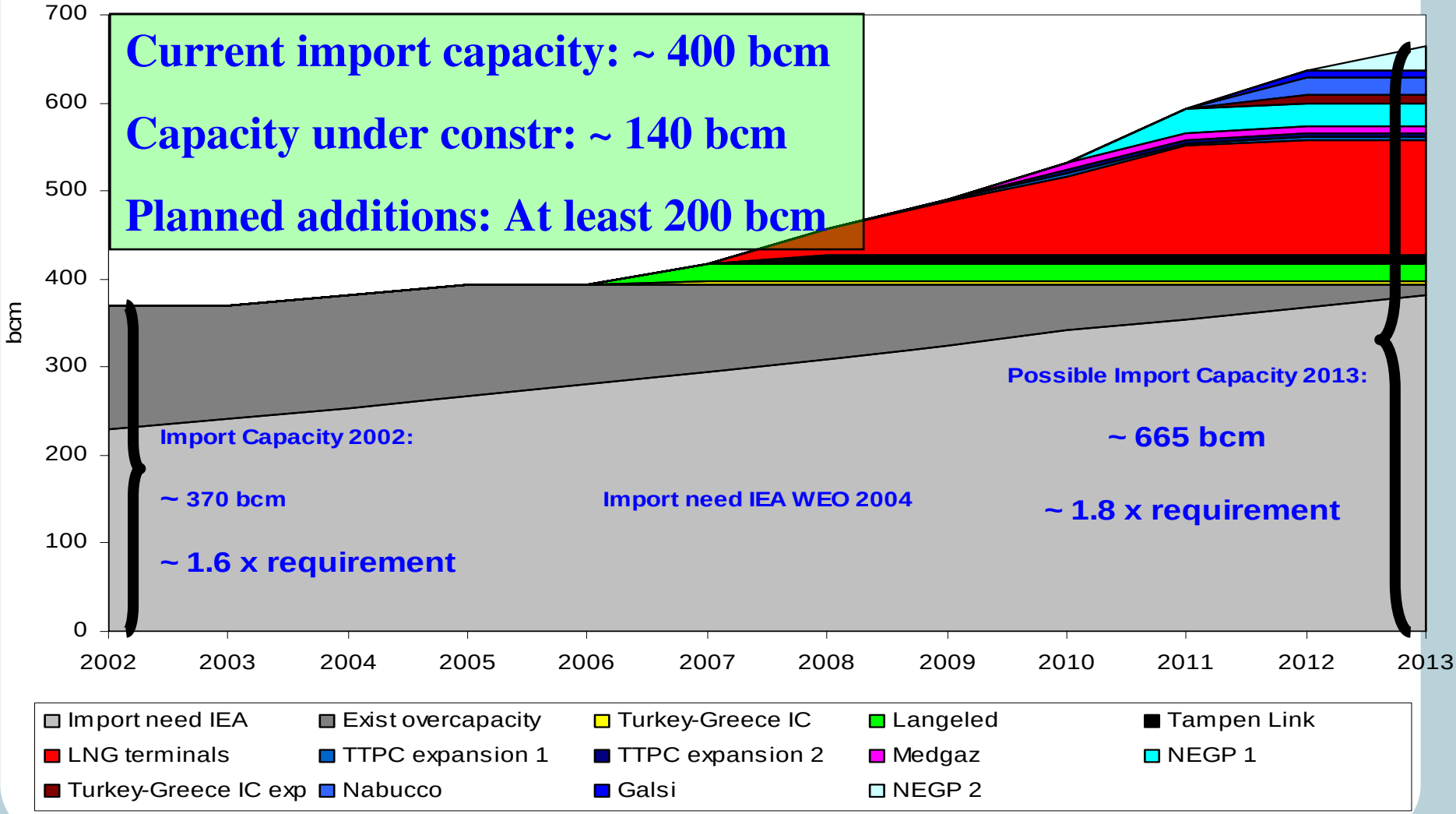
Increase number of suppliers and transport routes

Enhancing security of supply

Emerging suppliers

Sufficient import capacity in the near-term

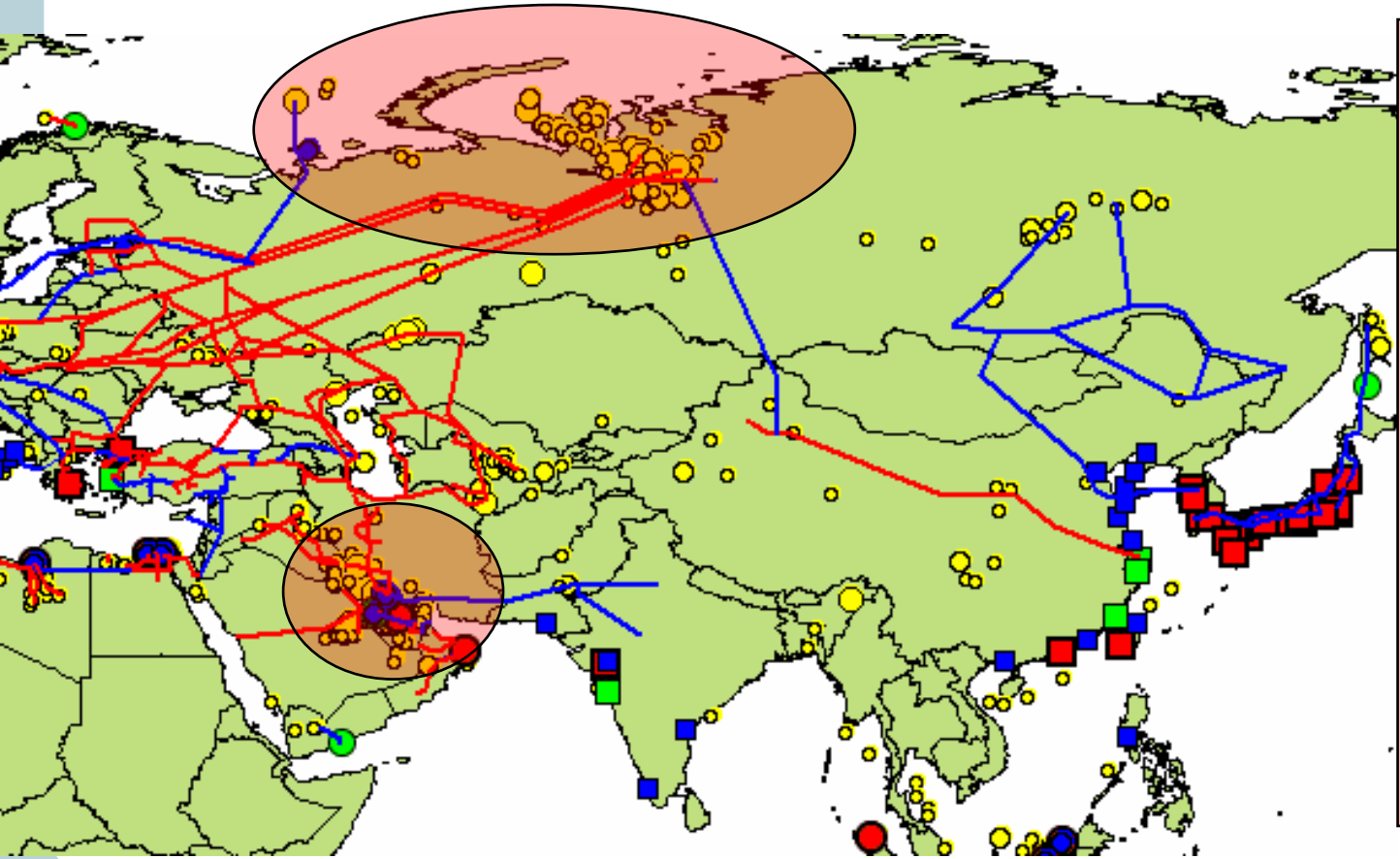
(Sources: Chalmers Fuel db, IEA WEO 2004)



Long-term supply

Russia, Iran, Qatar 56% of global gas reserves

Increased dependency on oil, gas, electricity & heat



Russian Gas

20-22 bcm natural depletion annually

Barely profitable domestic markets

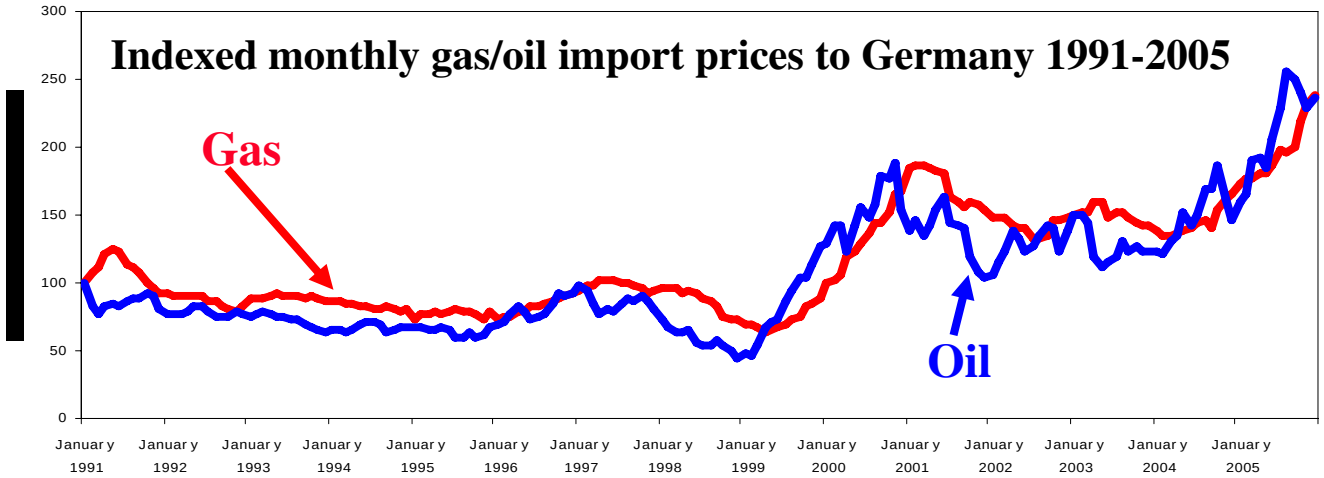
Increasing gas production costs

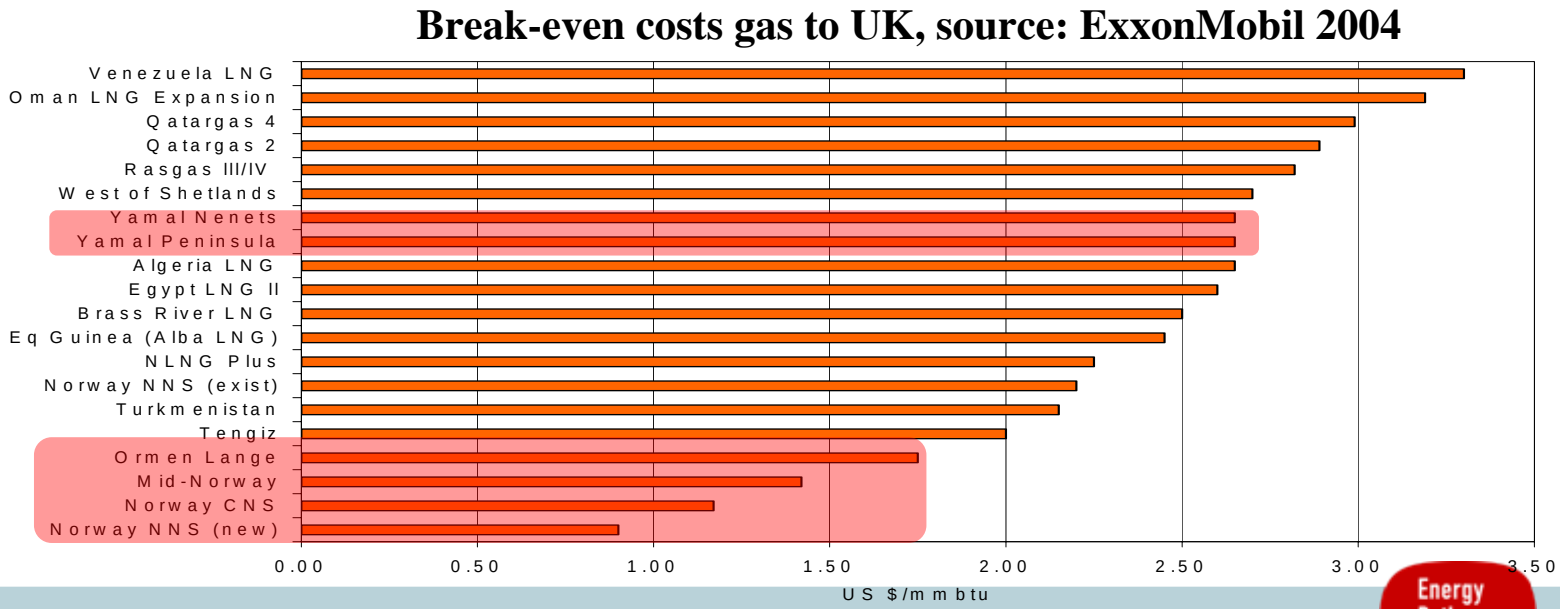
Not competitive on European markets

Extremely sensitive to lower gas prices

Price of natural gas

Linkage to oil, impact of more LNG and distance to markets





Major determinants gas price

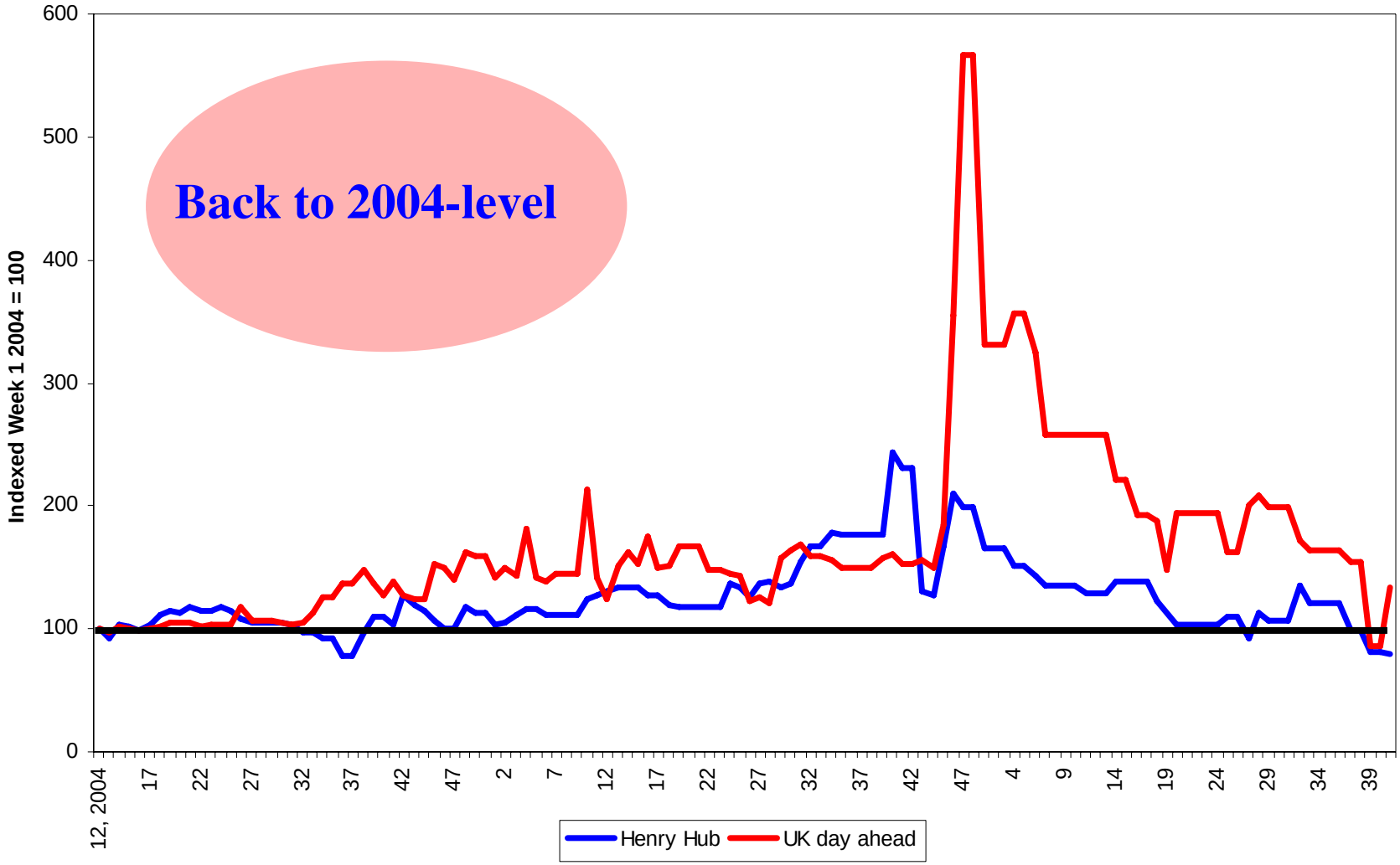
- Oil price
  - Exploration, development and production costs rising, global production capacity and refinery capacity likely to regain some strength
- EU Gas supply/demand balance
  - Norway will supply ~ 120 bcm and Algeria at least 65 bcm in 2010
  - Russia supplied 132 bcm in 2005 targeting 150 bcm in 2010
  - EU buyers signed long-term contracts with **other** suppliers for at least 80 bcm

Import requirement 2010 (IEA WEO 2004): 340 bcm!

  - Significant overcapacity in the UK expected between 2008-2011, Asian demand not developing as expected

Russian gas above ToP and LNG will become marginal gas – Price Review Clausules coming into force but Russia cannot sell at a loss - LNG may be redirected but where?

Indexed UK and US gas prices March 2004-Oct 2006



Thank you

Financial support by the Chalmers Environmental Initiative and Vattenfall AB is greatly appreciated