MEDIUM-TERM

OIL & GAS

MARKETS

2011

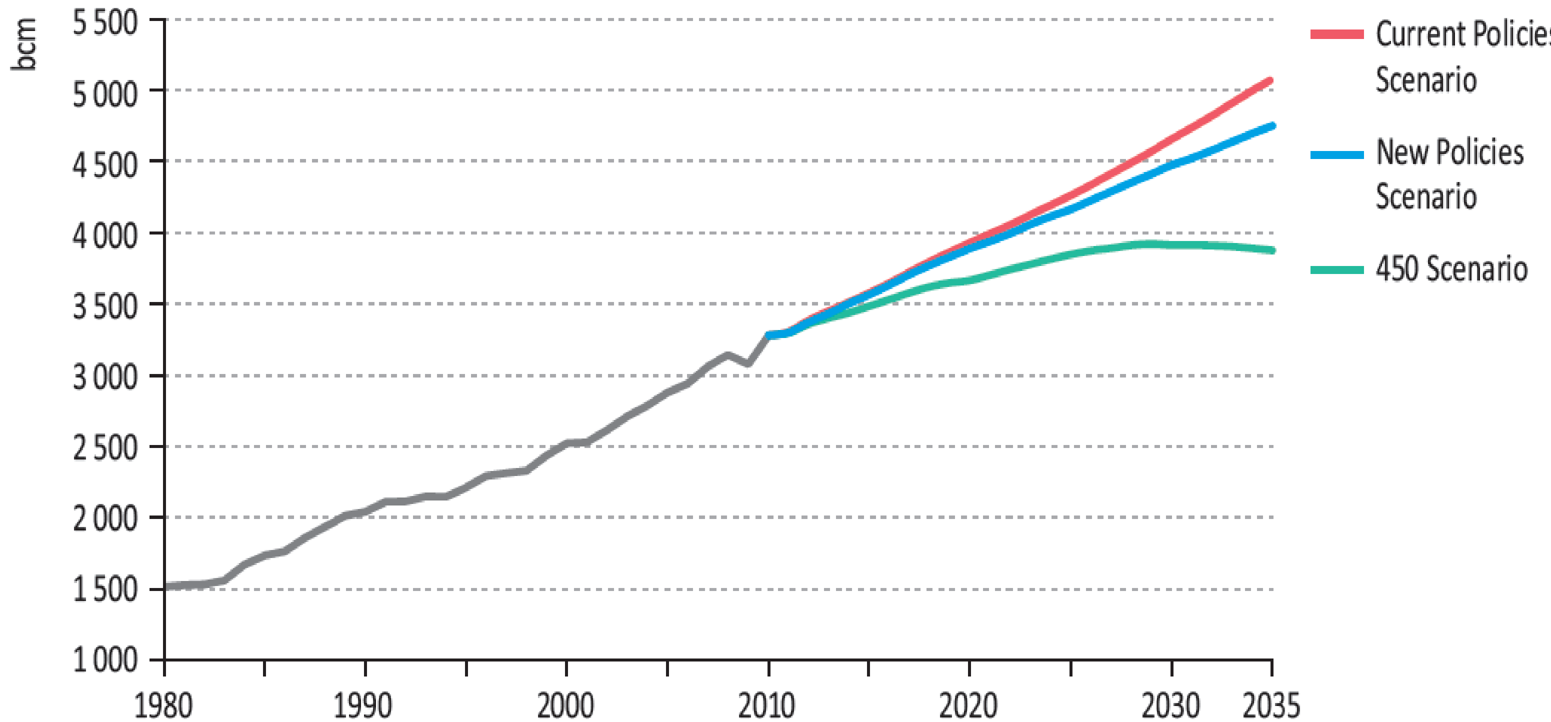
Global gas markets over the coming 10-20 years

Anne-Sophie Corbeau

Senior gas expert

International Energy Agency

Gas has a bright future



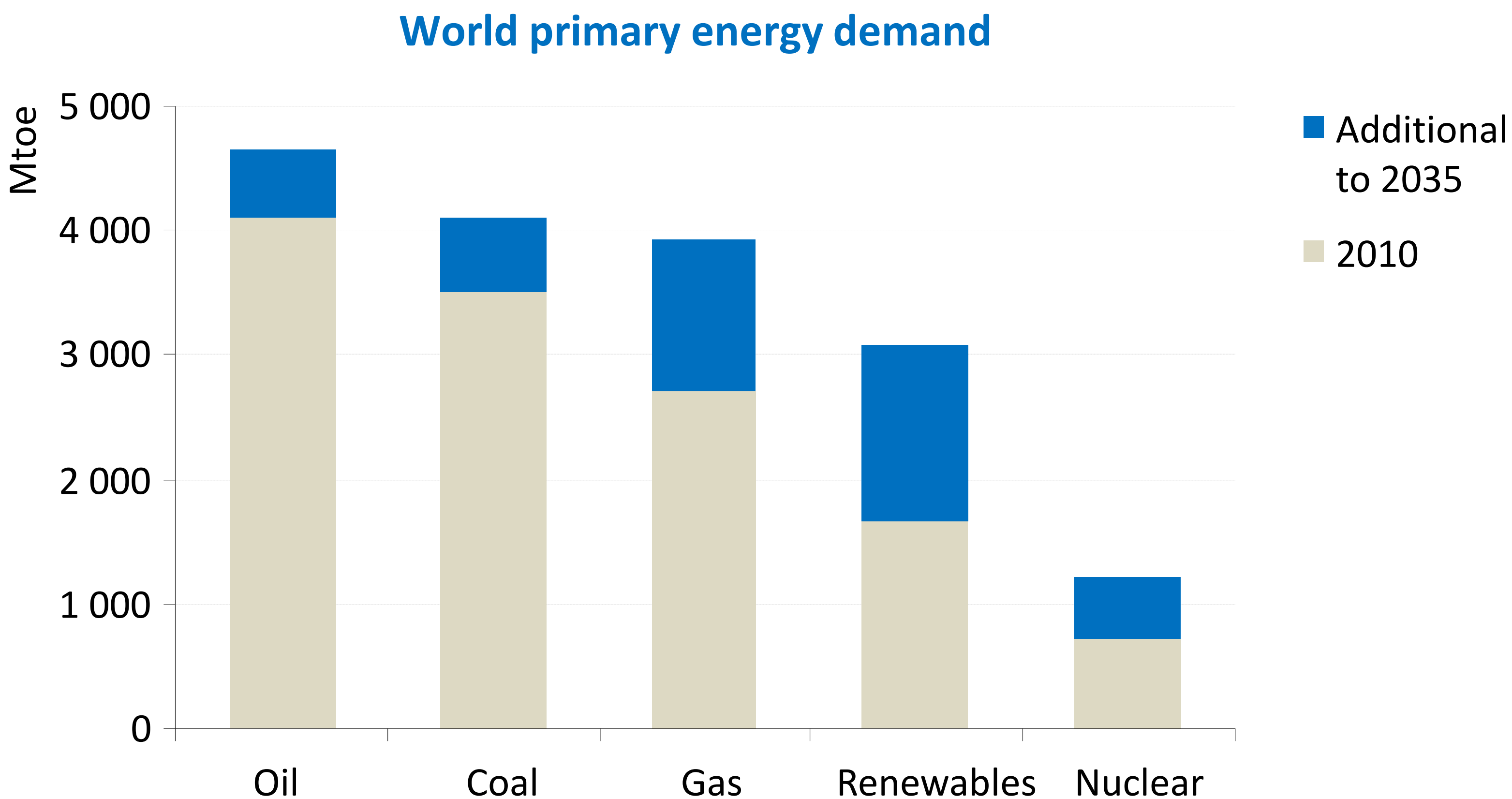
- **World gas demand is expected to increase in all scenarios**
  - **Most of the growth takes place in non-OECD countries**
- **But there are many disparities between the scenarios**
  - **Difference of 1.2 tcm by 2035 = US + EU demand together**
  - **4 times the world's LNG export capacity as of 2011**

MEDIUM-TERM OIL & GAS MARKETS 2011

iea

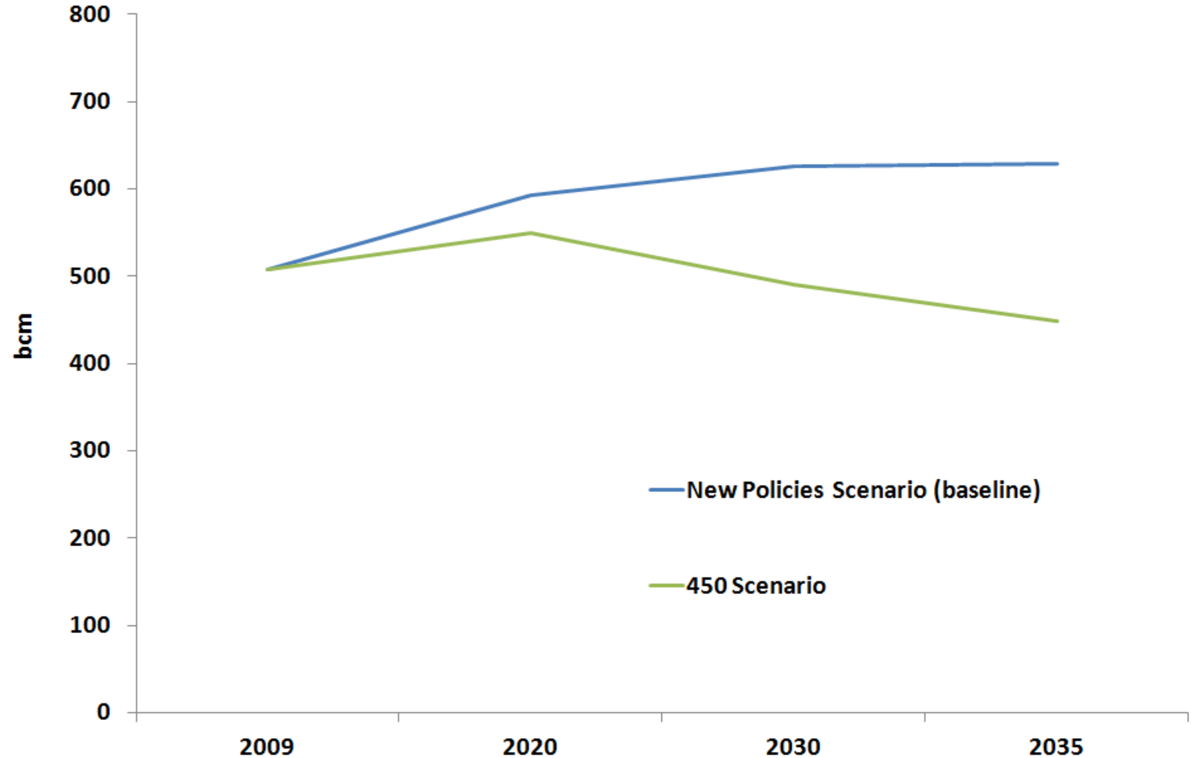
WEO 2011 New Policies Scenario

Gas and REN meet two thirds of incremental demand



- **Gas is the fastest growing fossil fuel (1.7%/y)**
- **Gas still ranks third, but the gap with coal goes down**

But the EU story is not always one of growth…



Source: IEA, WEO 2011

- In the NPS scenario, EU gas demand is expected to grow from 508 bcm in 2009 to 593 bcm in 2020 and 629 bcm by 2035
  - The power generation sector remains the main driver for growth
- But it would actually go down by 12% in the 450 scenario
  - Why? Less energy used, more renewables and more nuclear

Europe: cyclical and structural limits to gas demand

- The Eurozone crisis
- Decreased competitiveness of gas versus coal due to oil indexation
- Continuous push on renewables
- Along with mild weather in 2011

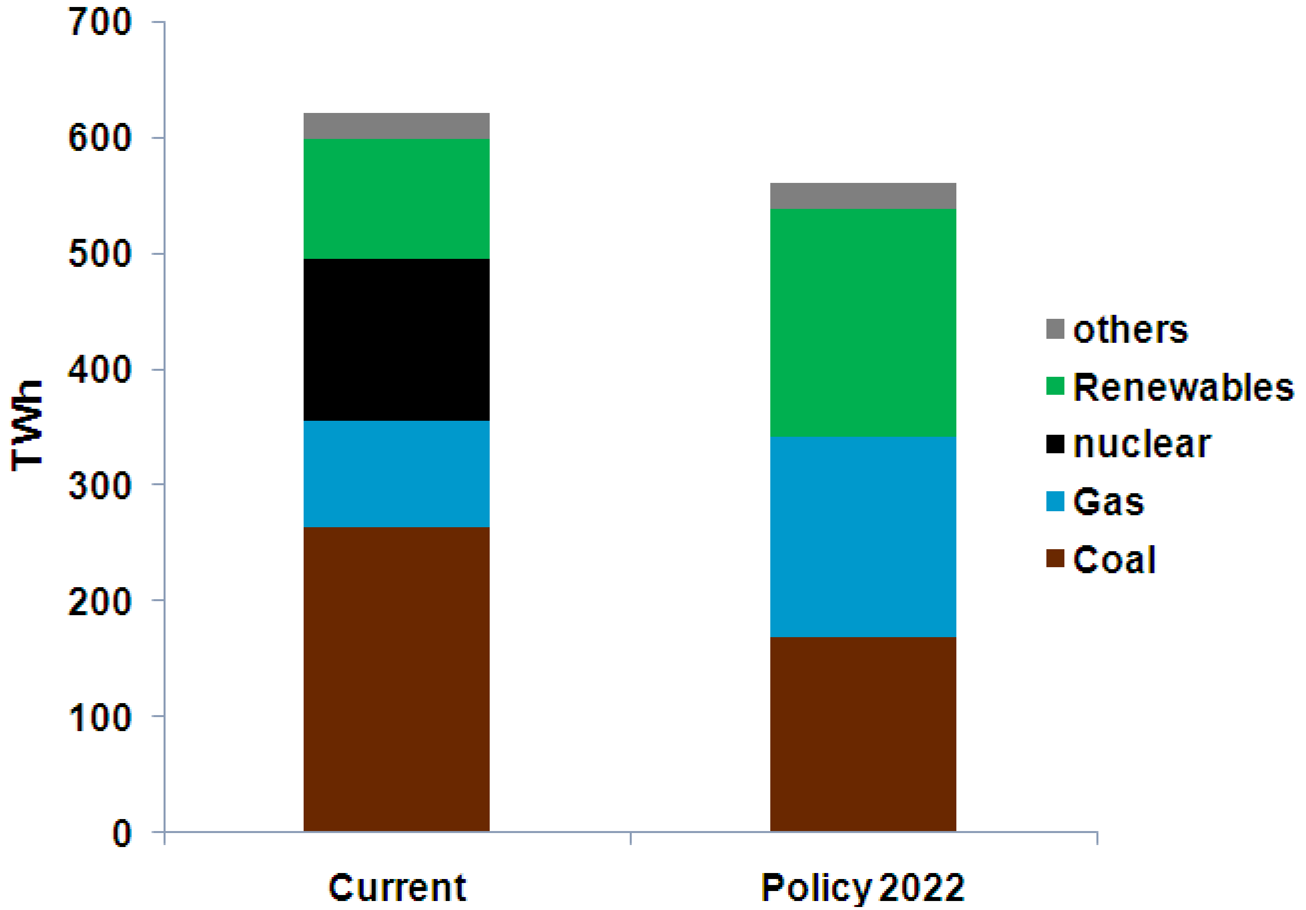
Led to a major (-8%) demand decline over the first 10 months of 2011

Is a reversal in sight?

German moratorium:

Even with policy success, gas will be needed to deliver CO_2 reductions

German electricity mix with 10% demand reduction, no nuclear, 35% renewables and CO_2 at the target level



Why China is interested in natural gas

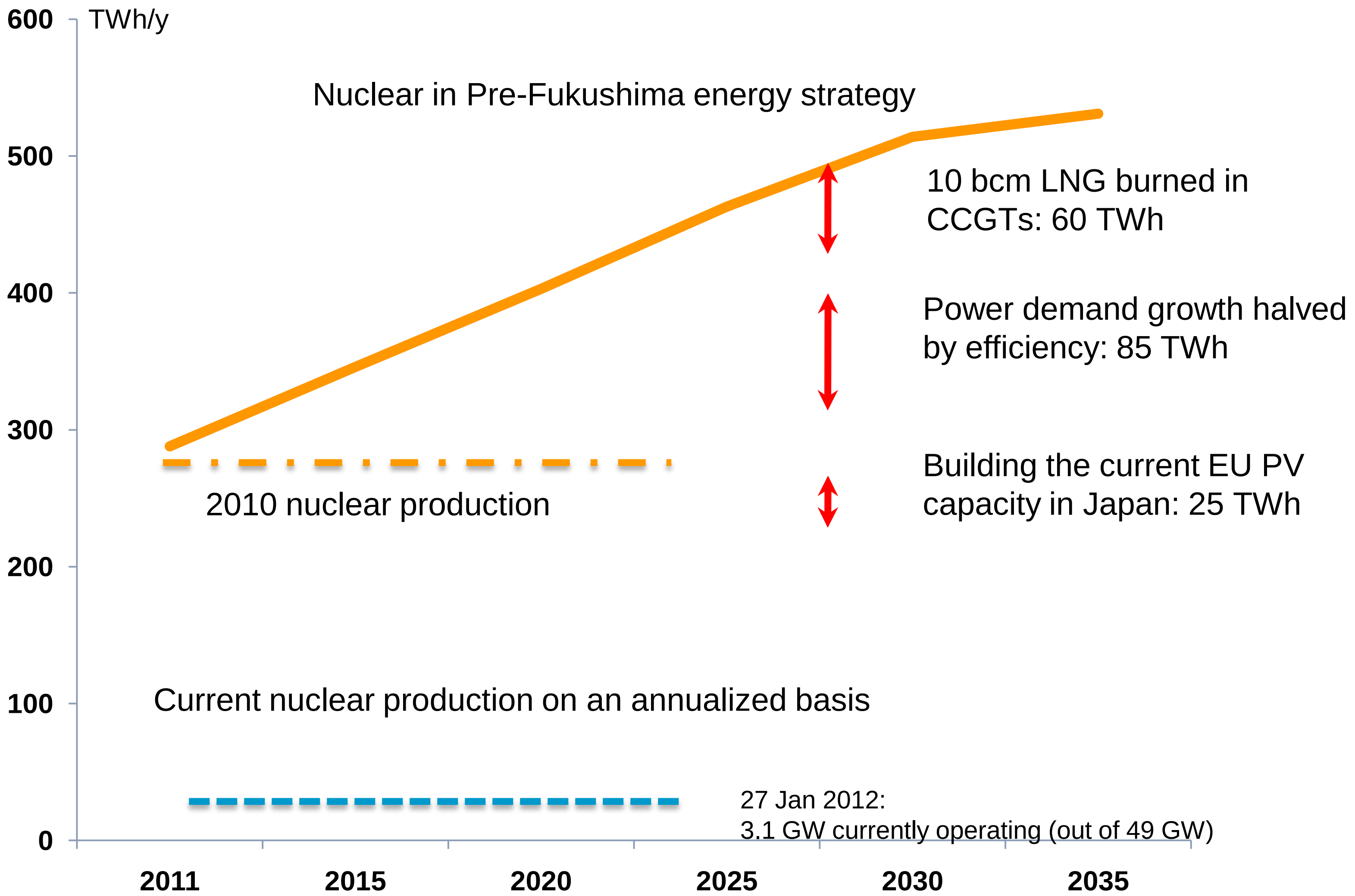
Environmental impact

- **China's gas demand will increase to 500 bcm by 2035 compard to 130 bcm in 2011**
- **Plans to reach 260 bcm by 2015…**
- **They will need new sources of supply**

MEDIUM-TERM OIL & GAS MARKETS 2011

iea

Japan: future of nuclear might have large impact on gas demand

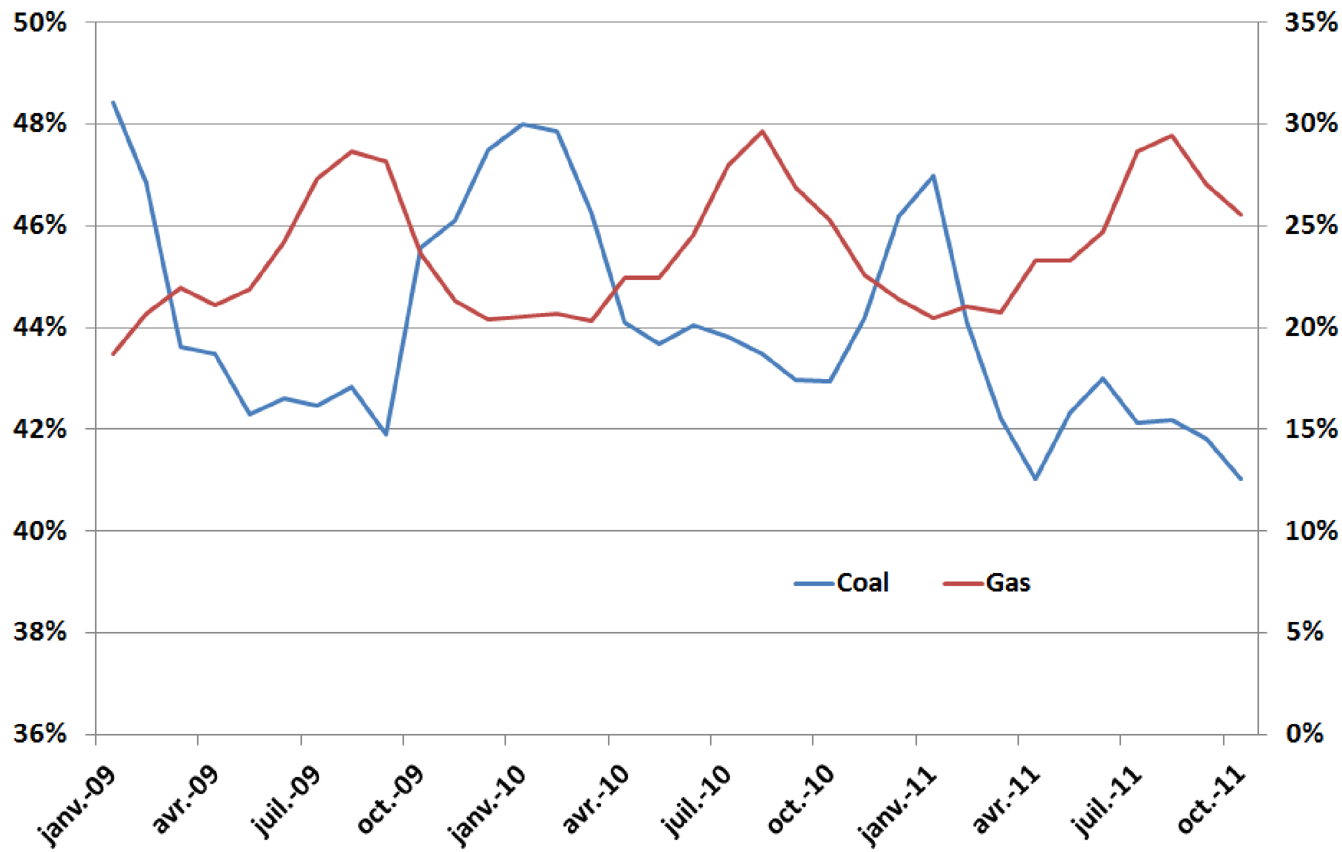


MEDIUM-TERM OIL & GAS MARKETS 2011

US power sector

The taste of things to come?

Shares of coal and gas in the power generation

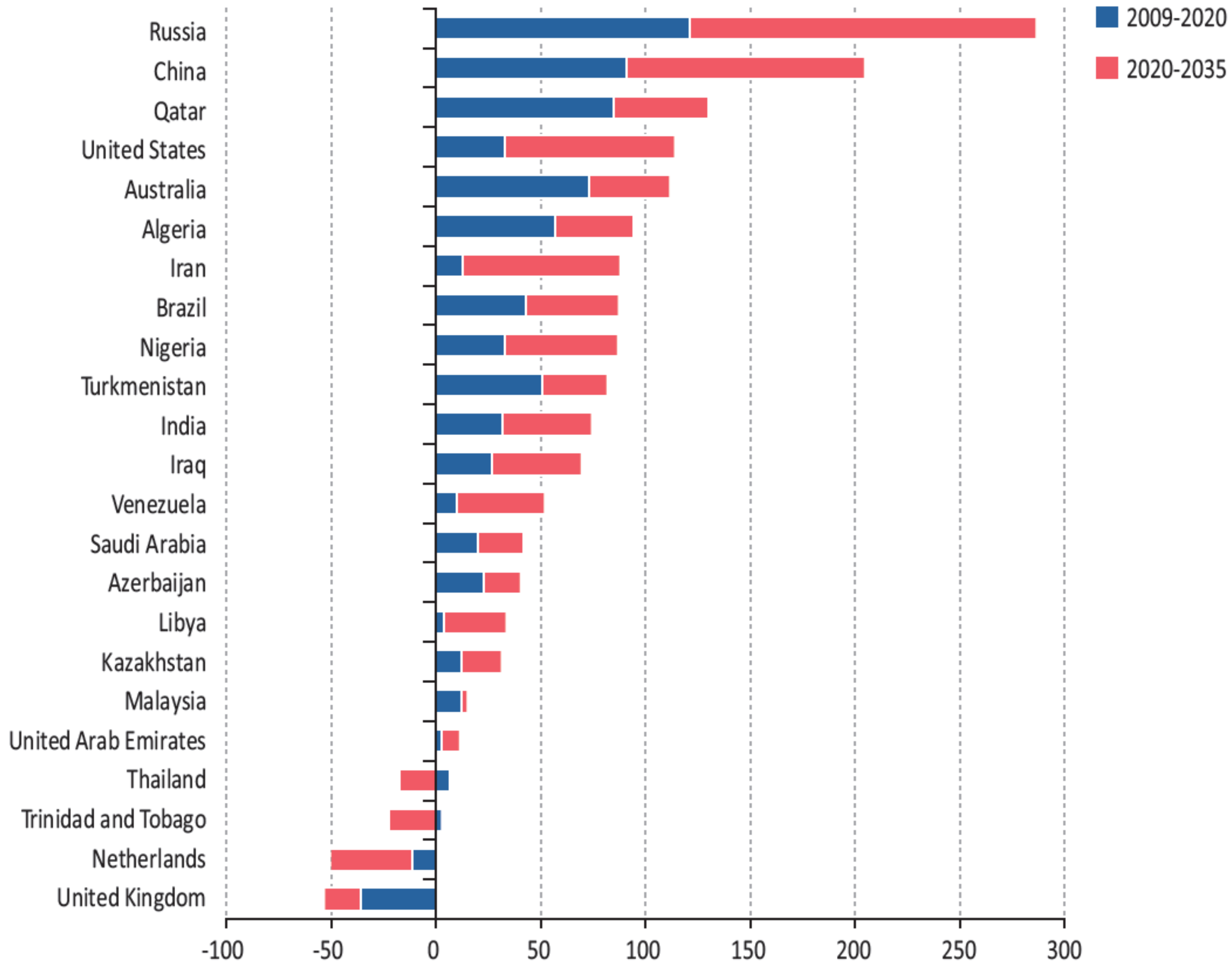


MEDIUM-TERM OIL & GAS MARKETS 2011

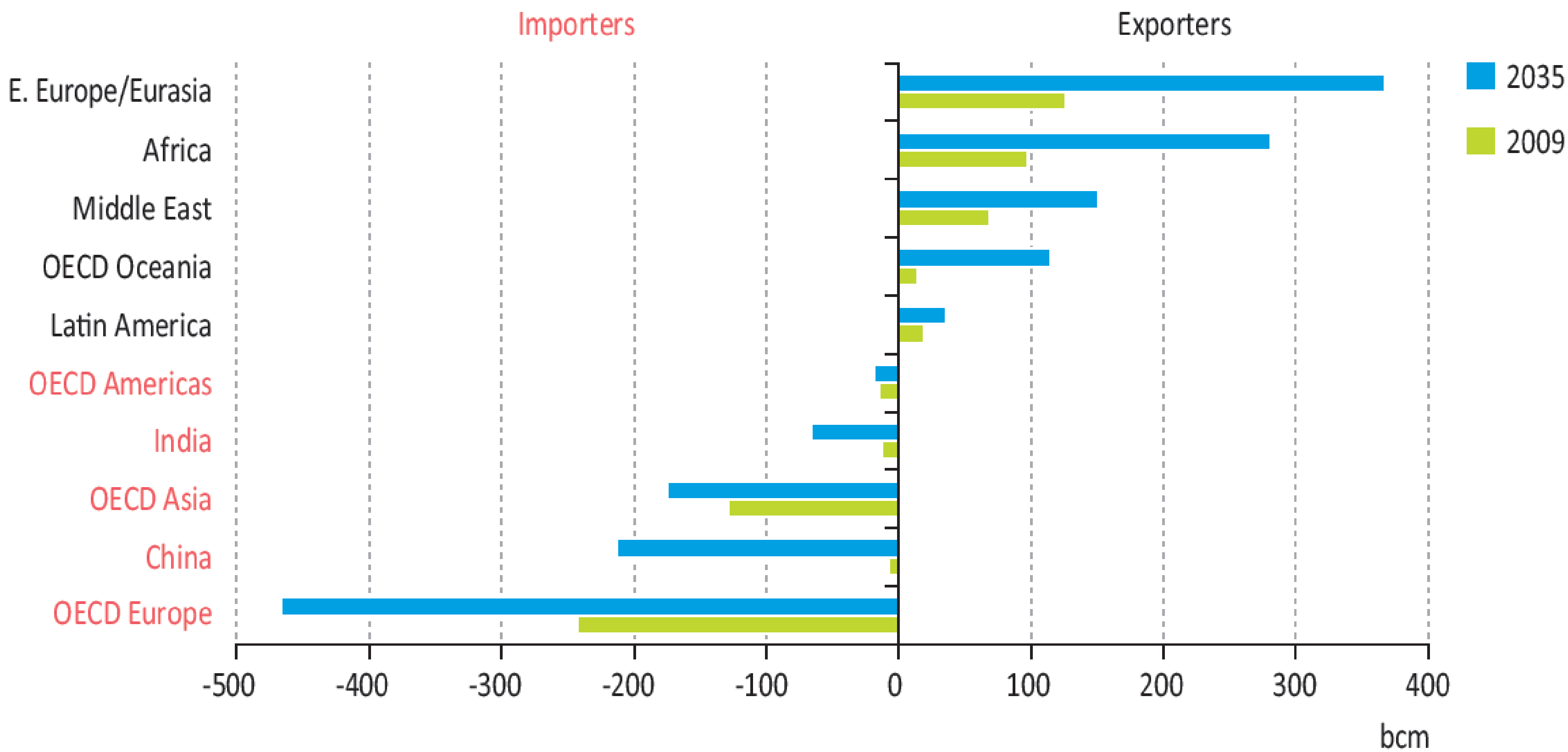
iea

Russia remains the largest gas producer

Changes in annual production



International trade is bound to increase



- China, Europe and OECD Asia are by far the largest importers
- Additional exports will come from FSU, Africa and the Middle East

Shale gas in Europe: slower ramp up than in the United States

- Geology less favorable than in the US
- Higher population density
- Lack of an onshore industry tradition – skilled labor, service companies etc.
- But: shale gas competes with oil indexed import gas at 3 times the Henry Hub price

MEDIUM-TERM OIL & GAS MARKETS 2011

Russia set for greater diversity of gas export markets

This map is for illustrative purposes and is without prejudice to the status of or sovereignty over any territory covered by this map.

- **Net gas exports rise substantially from 190 bcm in 2010 to close to 330 bcm in 2035, bolstered by an expansion of gas trade links with China**

China becomes the main market for Turkmenistan gas

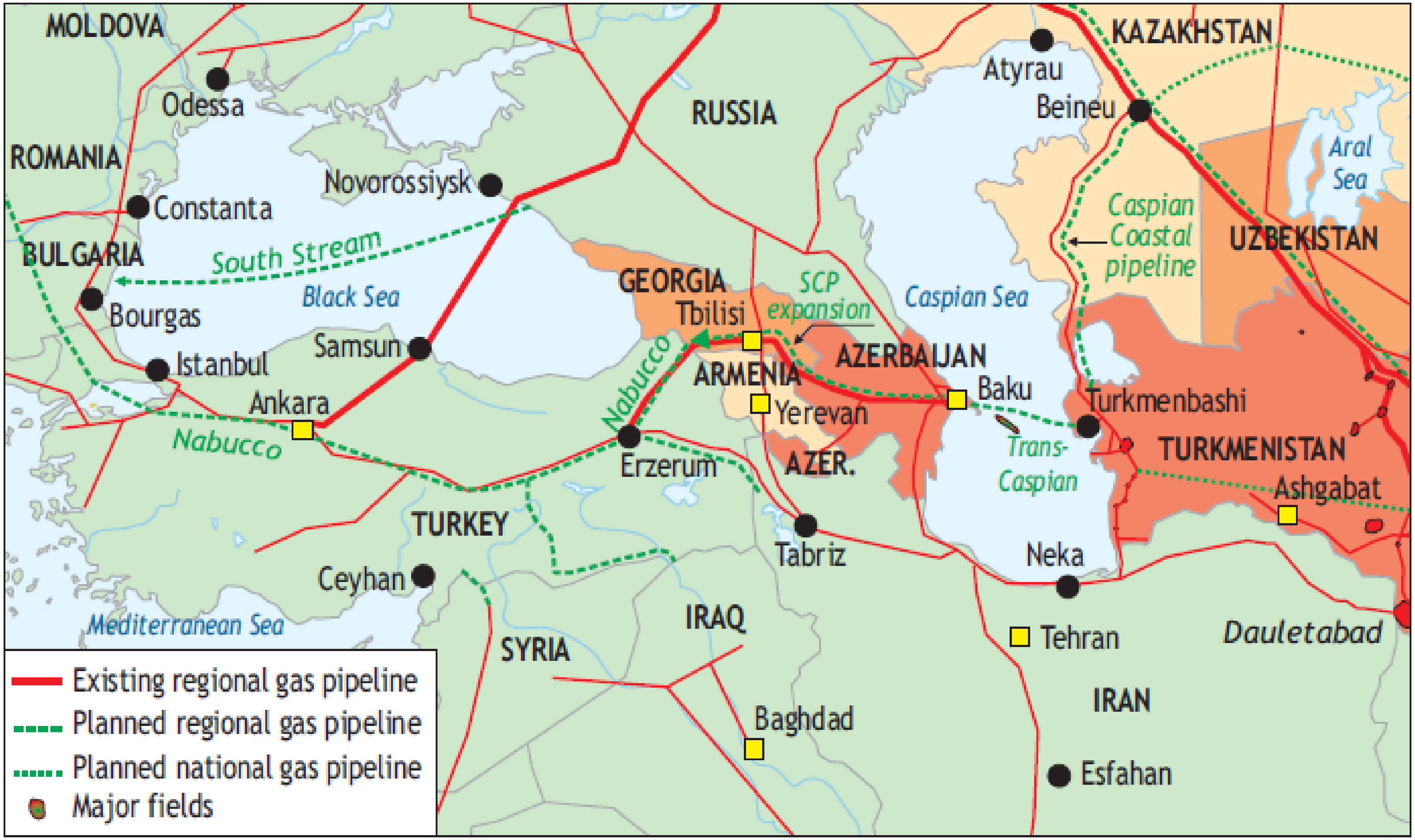
The boundaries and names shown and the designations used on maps included in this publication do not imply official endorsement or acceptance by the IEA.

- **The Turkmenistan-China pipeline has shifted the centre of gravity of Central Asia's gas sector eastwards, but uncertainty remains over markets for offshore Turkmenistan gas**

MEDIUM-TERM OIL & GAS MARKETS 2011

iea

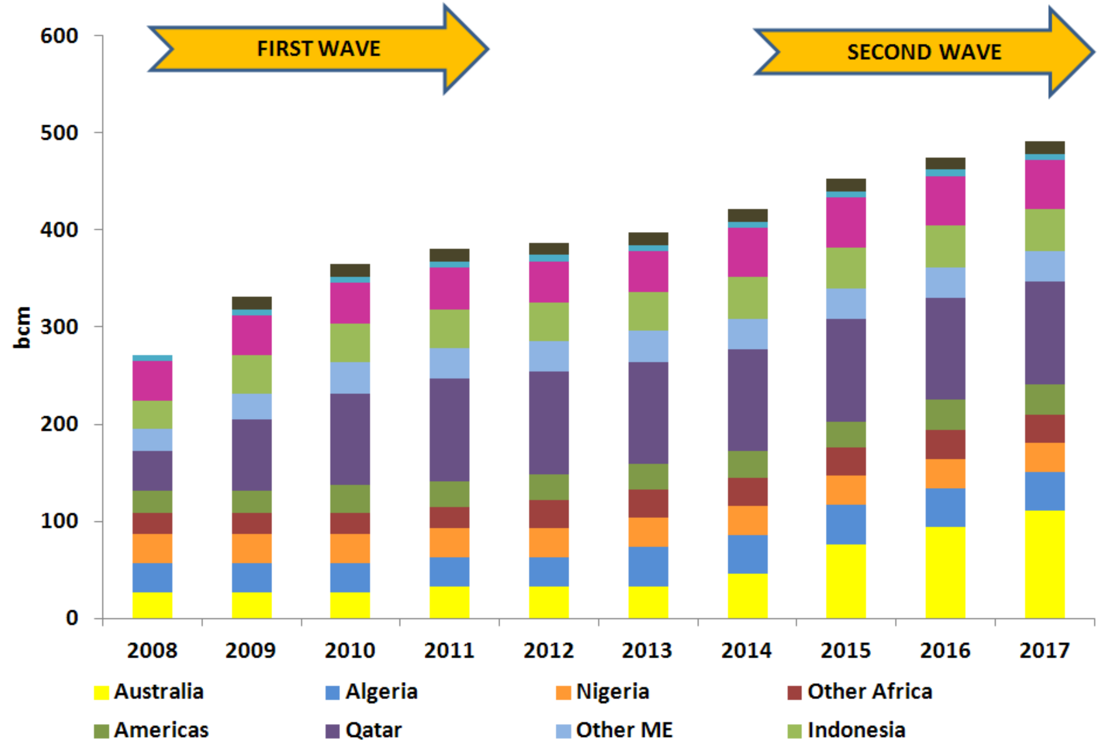
Expanding supply along a southern corridor to European markets



MEDIUM-TERM OIL & GAS MARKETS 2011

iea

The next wave of LNG supply is almost entirely dominated by Australia



- **Over the next 6 years, most of the new LNG is expected to come from Australia**
  - **If it arrives on time**
  - **This LNG is not going to be cheap**
- **Only the US seems to be in a position to challenge this if Cheniere's project (15 mtpa) moves forward**

MEDIUM-TERM OIL&GAS MARKETS 2011

The Arab Spring and Gas supply

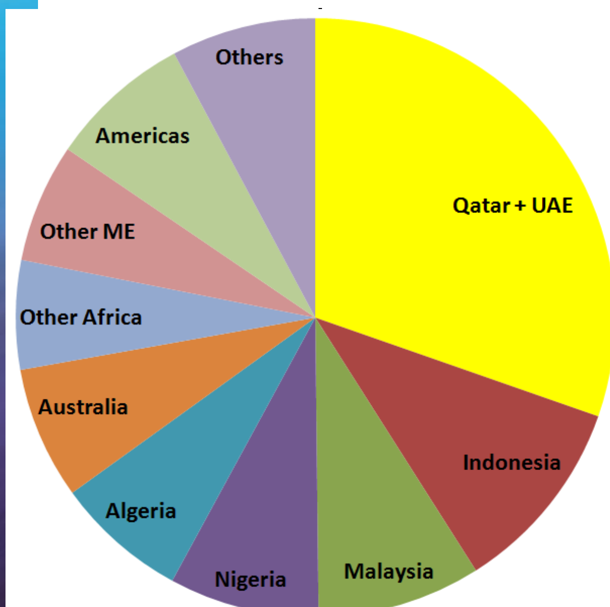
- Interruptions and security issues with Libya (pipe, LNG), Egypt (pipe to Israel), and Yemen (LNG)
- No issues with Algeria, Qatar and Egyptian LNG
- Probably a higher priority for using gas for domestic development
- Iran ?

LNG and security of gas supply

- **Advantages**
  - **LNG is flexible, does not depend on one producer**
  - **LNG can provide short-term relief (sometimes at a cost) if import infrastructure is there**
  - **LNG available under long-term or short-term, can sometimes be redirected**
  - **Twice as much regasification capacity as liquefaction capacity**

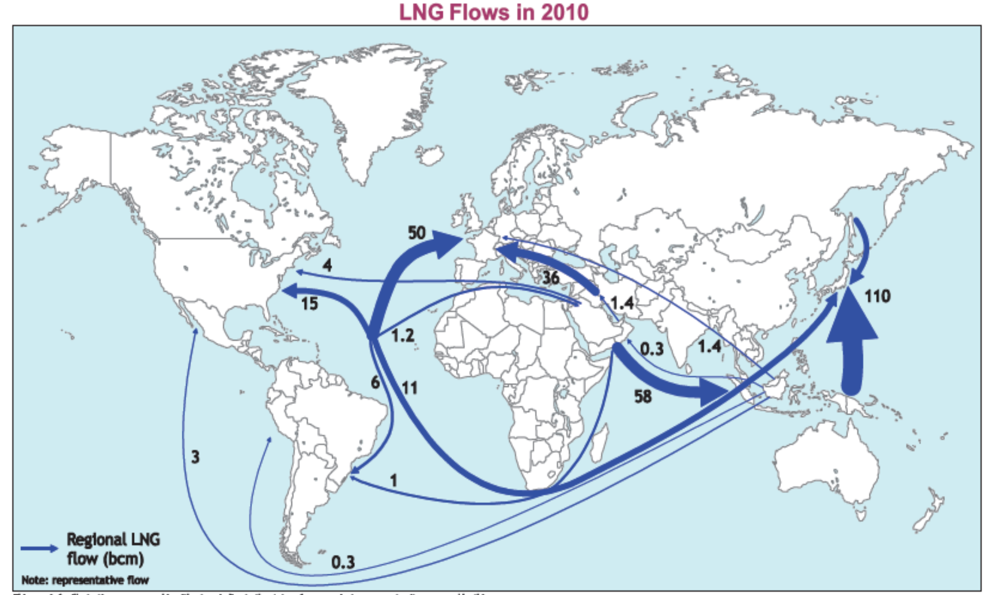
- **Potential issues**

Increasing importance of Qatar, which holds most of the flexible LNG



Dependency on some maritime routes

LNG Flows in 2010



MEDIUM-TERM OIL & GAS MARKETS 2011

Thank you for your attention

Anne-Sophie.Corbeau@iea.org