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Energy Security Policy



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The principles

- Why does energy security matter?
- Why won't the market deliver adequate security?
- How can investment be incentivised?

Current EU policy

- Liberalised (but not very competitive) markets
- Unbundling
- The 2020 – 20 – 20 package

The (new) economic realities

- Non-conventional gas
- Smart technologies, and electric cars
- The costs of wind
- The economic depression

WHAT'S NEXT?

I. Why energy security matters...

- Systems
- Complimentarity and competitiveness
- Role in the economy

⇒ A basic requirement of a modern economy

II. Market failures

- Sunk costs
- Excess supply not provided by markets (the missing money problem)
- Market power \Rightarrow less supply
- Networks are natural monopolies
- Major externalities

\Rightarrow Multiple market failures

III. Incentivising investment

- Capacity = insurance which must be paid for
- Long term contracts carry sunk costs
- Long term network and storage regulation
- The RAB-based model

⇒ **Capacity market with full auctioning**

I. Liberalisation

- Not the same thing as competition
- Switching has investment as well as transactions costs
- Encourages M&A and market power

And...

- EU has allowed major consolidation

⇒ Worst of both worlds

II. Unbundling

- Does not make much difference to competition
- Creates conditions for move to EU grids
- Renewables and intermittent generation breaks down the distinction between generation and networks
- (Smart) meters need to stay with networks

III. The 2020 – 20 – 20 package

- 2020 is short term
- 2020 – 20 – 20 is obviously a political not an economic concept
- 20% renewables target is *very* inefficient
- EU ETS is short term, volatile and low price

And...

- Undermines security of supply

The (new) economic realities

I. Non-conventional gas

- Changes the game
- US – 100 years+ supplies
- LNG XXX to US ↓
- Poland and shale gas
- Europe-wide methane

⇒ **Plenty of gas, low prices, diminished Russian power...**

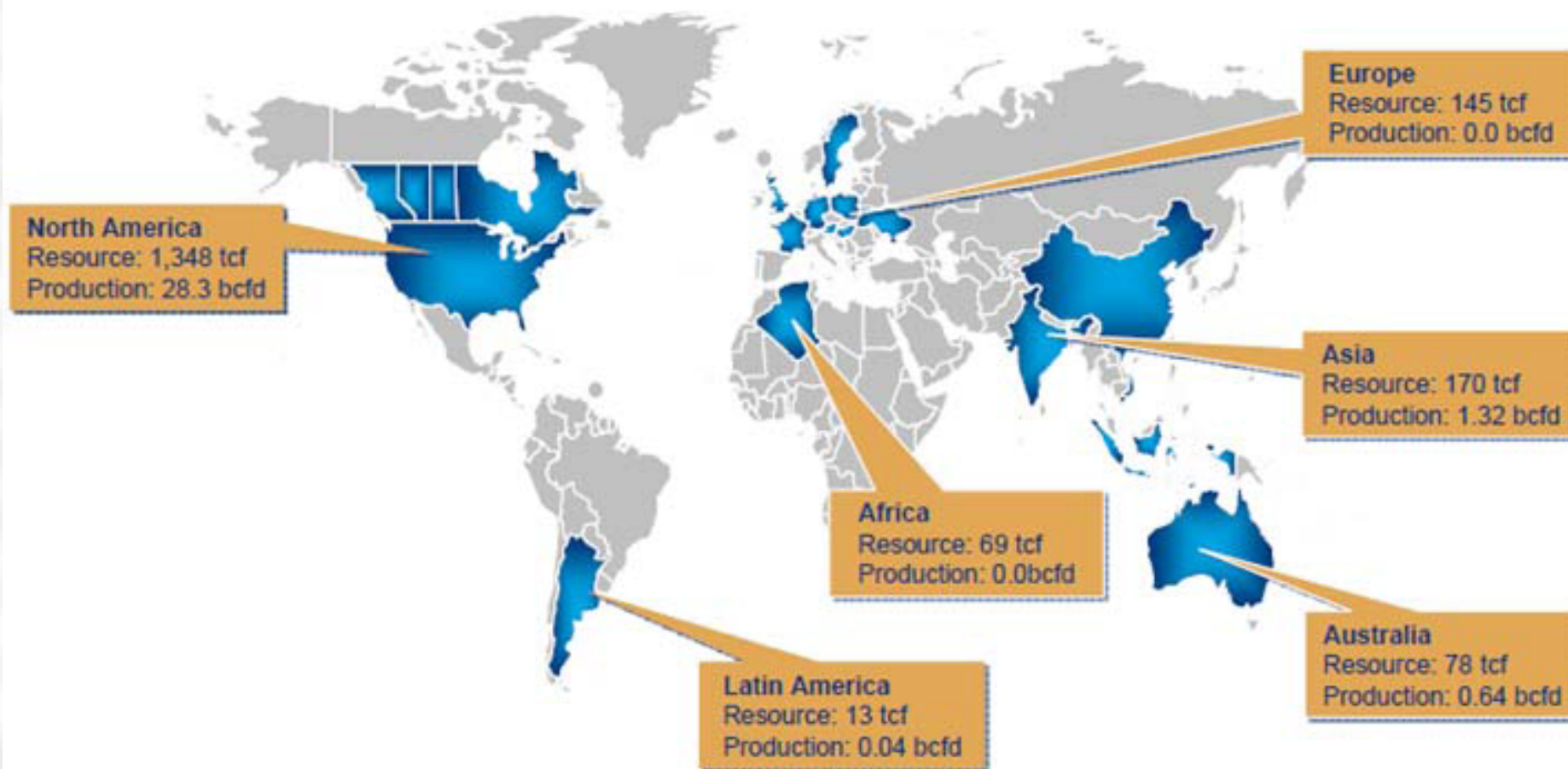
⇒ **Nuclear & renewables look more expensive...**

Non-conventional gas

- 3 types:
 - i. Tight sands
 - ii. Coal bed methane
 - iii. Gas shales
- As-yet-undeveloped unconventional reserves estimated at 4,000 to 16,000 tcf*
- Adds 60% to 240% on top of 2008 world proven gas reserves
- 2005 = 44% of US total gas production

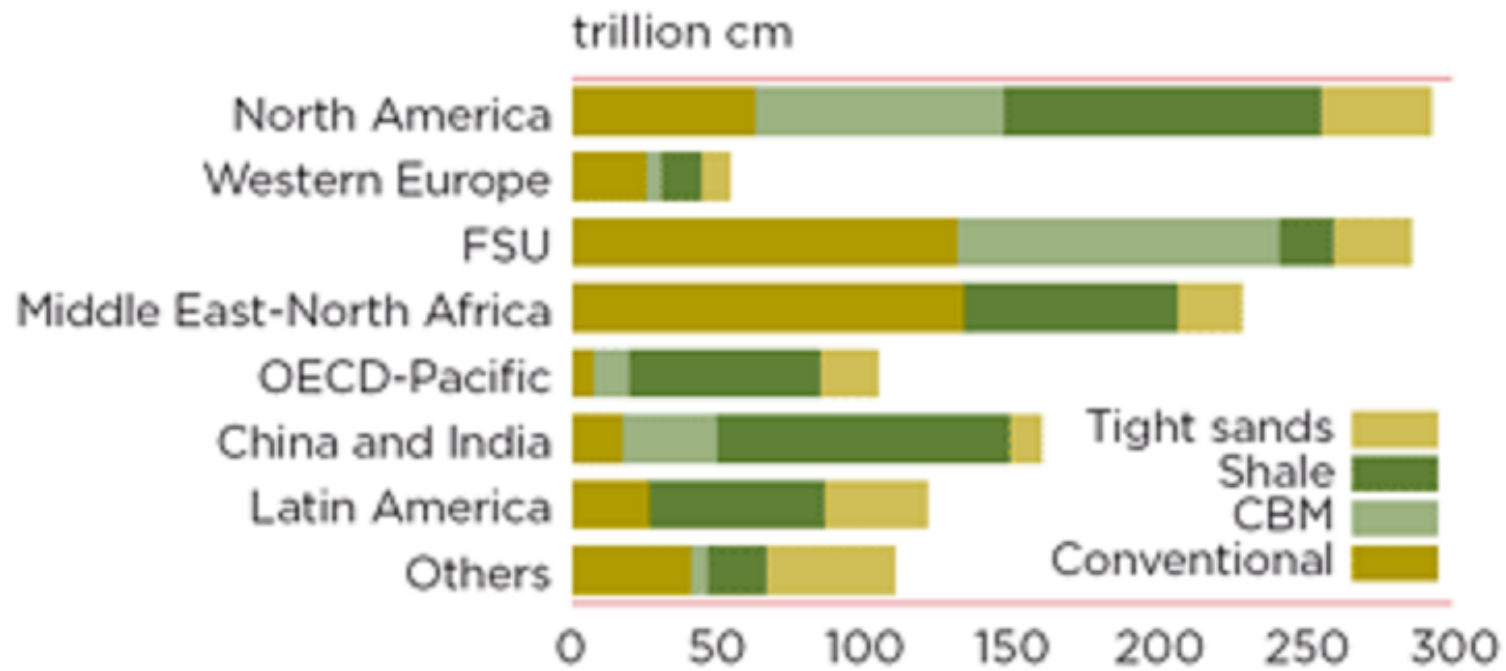
* Source: IHS CERA

Global unconventional gas



Conventional vs non-conventional resources

Figure 2: Ultimately recoverable gas resources



Source: International Energy Agency; BP

II. Smart technologies and electric cars

- Another game changer
- Smart meters (in distribution) revolutionise the demand side
- Electric cars raise electricity demand
- Electric cars store electricity
- Electric cars match renewables intermittency

And then...

- Batteries

⇒ Post 2020 very different structures

III. The costs of wind

- Going up not down
- Offshore has significant cost disadvantages (including maintenance)

⇒ **Before 2020 at least, better coal → gas**

IV. The economic depression

- Demand much lower
- Prices lower
- Investment lower

AND

- Cost of capital higher
- Voter appetite for paying high (green) bills is lower

And possibly...

- Fall back in China
- Long period of quasi-recession in Europe
- Further demand falls

And finally...

- 20% CO2 target easily met

What's next?

- Major rethink of EU renewables policy
- EU ETS remains weak (CO2 emissions low)
- Slow nuclear take-up

⇒ **Major dash-for-gas**

Further information:

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Helm, D R, Smale, R and Phillips, J, (2007) "Too Good To Be True? The UK's Climate Change Record", December.

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