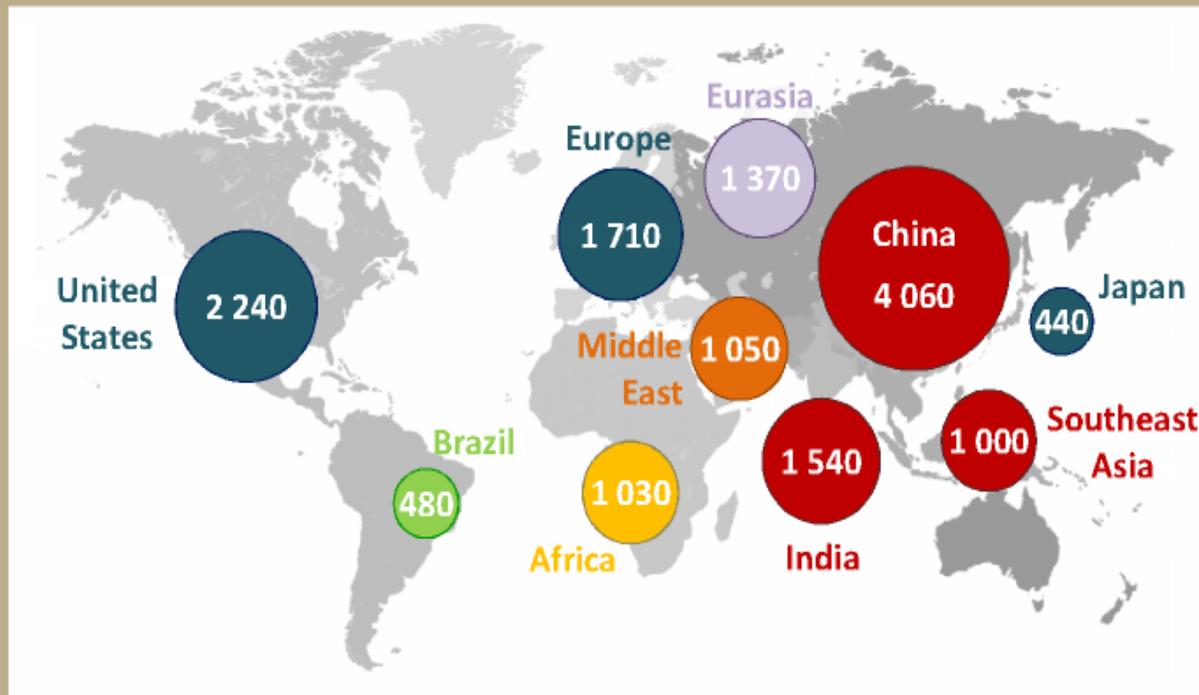
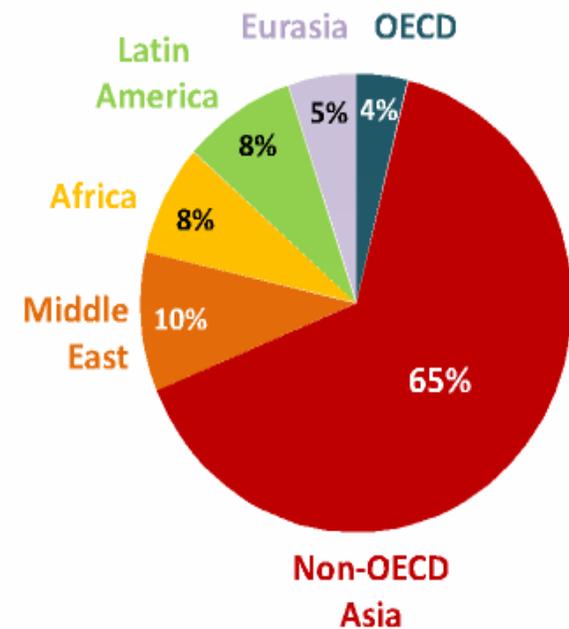


And what does consumption **growth** look like in 2035?: but Coal is King !!!

Primary energy demand (2035)

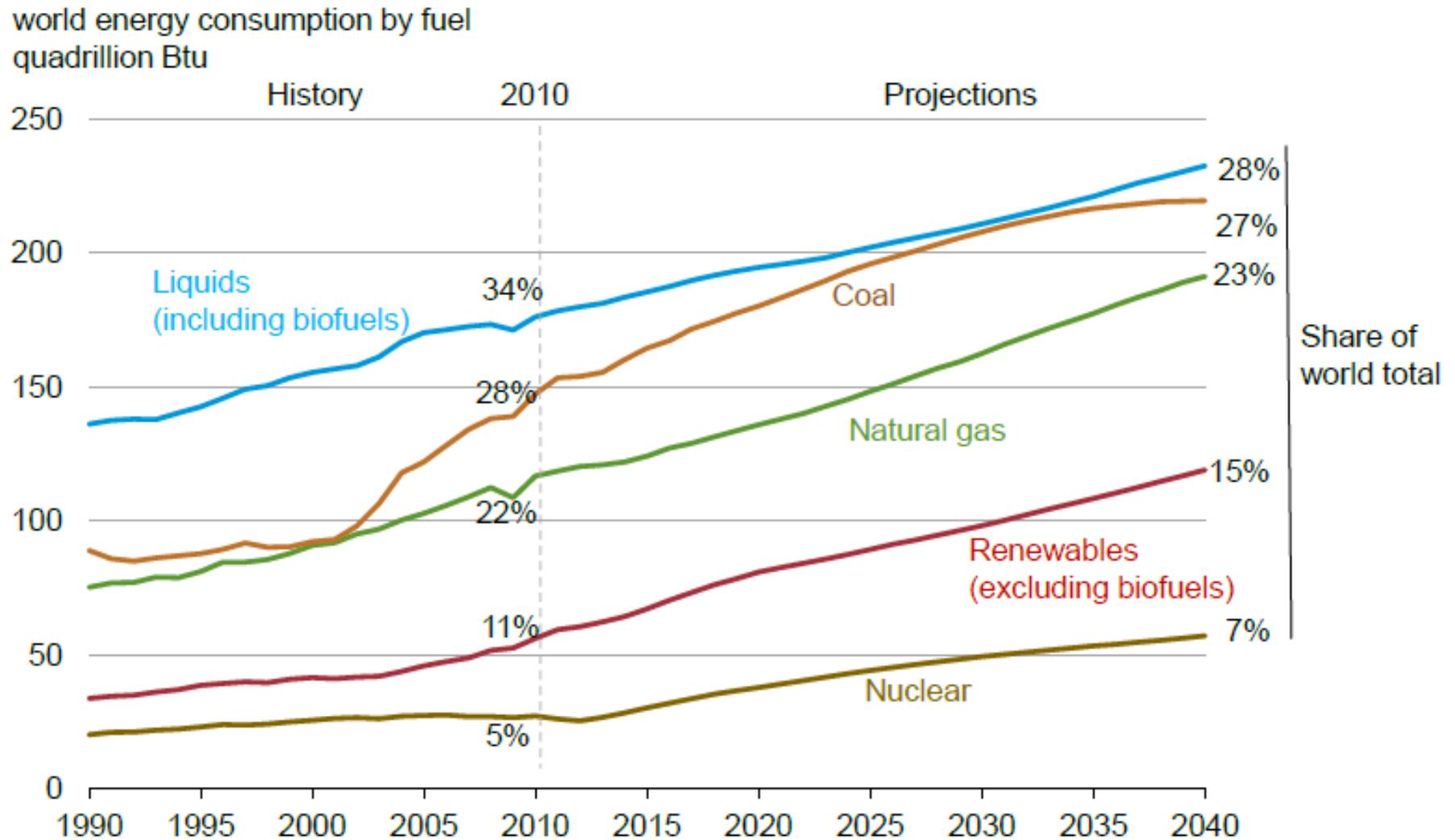


Share of global growth (2012-2035)



Source: IEA Databases

Energy use in real terms and future projects (always wrong)



Source: EIA, International Energy Outlook 2013



ENSURING
universal access
TO MODERN ENERGY
SERVICES.



DOUBLING THE GLOBAL
RATE OF IMPROVEMENT IN
energy
efficiency.



DOUBLING THE SHARE OF
renewable energy
IN THE GLOBAL
ENERGY MIX.

The present perception if it concerns Natural Gas

Global level **Market Growth**

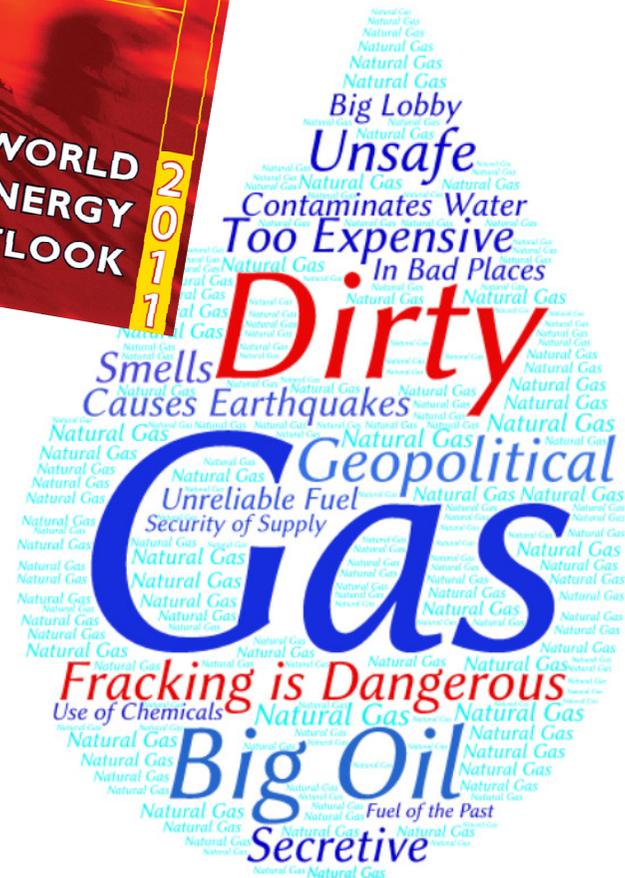
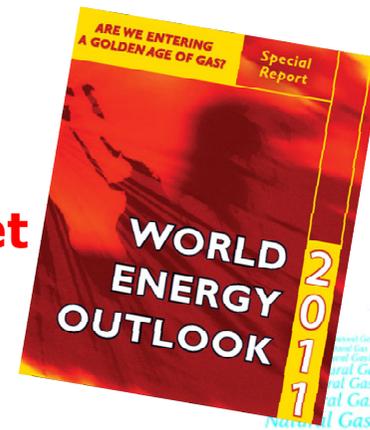
Methane leakages
Flaring (tight oil/shale gas)
Its fossil

European level **Deemed Market**

Its fossil; its should be
Has a political dimension
Its expensive (coal is king)

National Level (Dutch an example?)

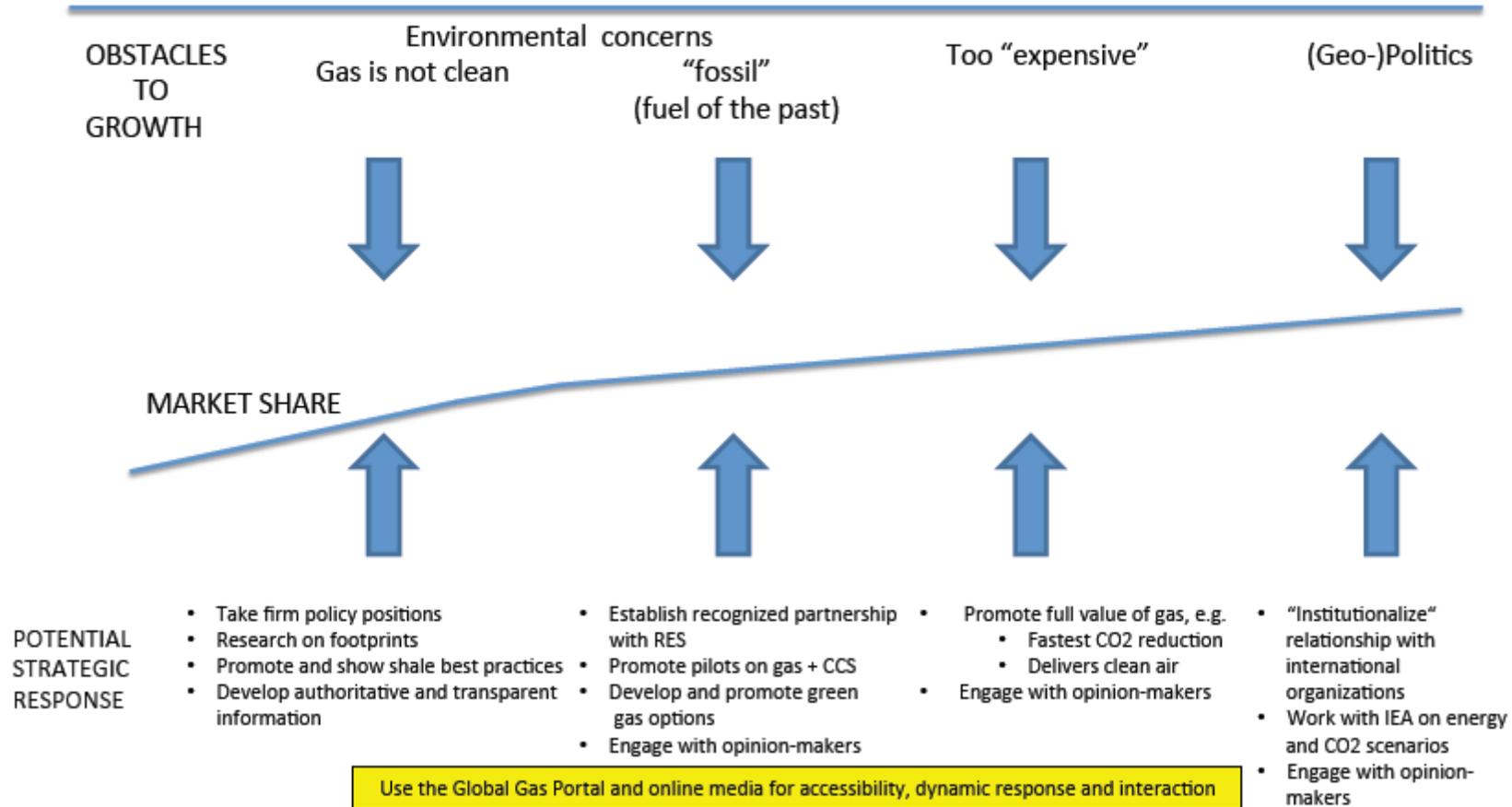
Its fossil
Political and unreliable
Renewable has priority
Dutch disease



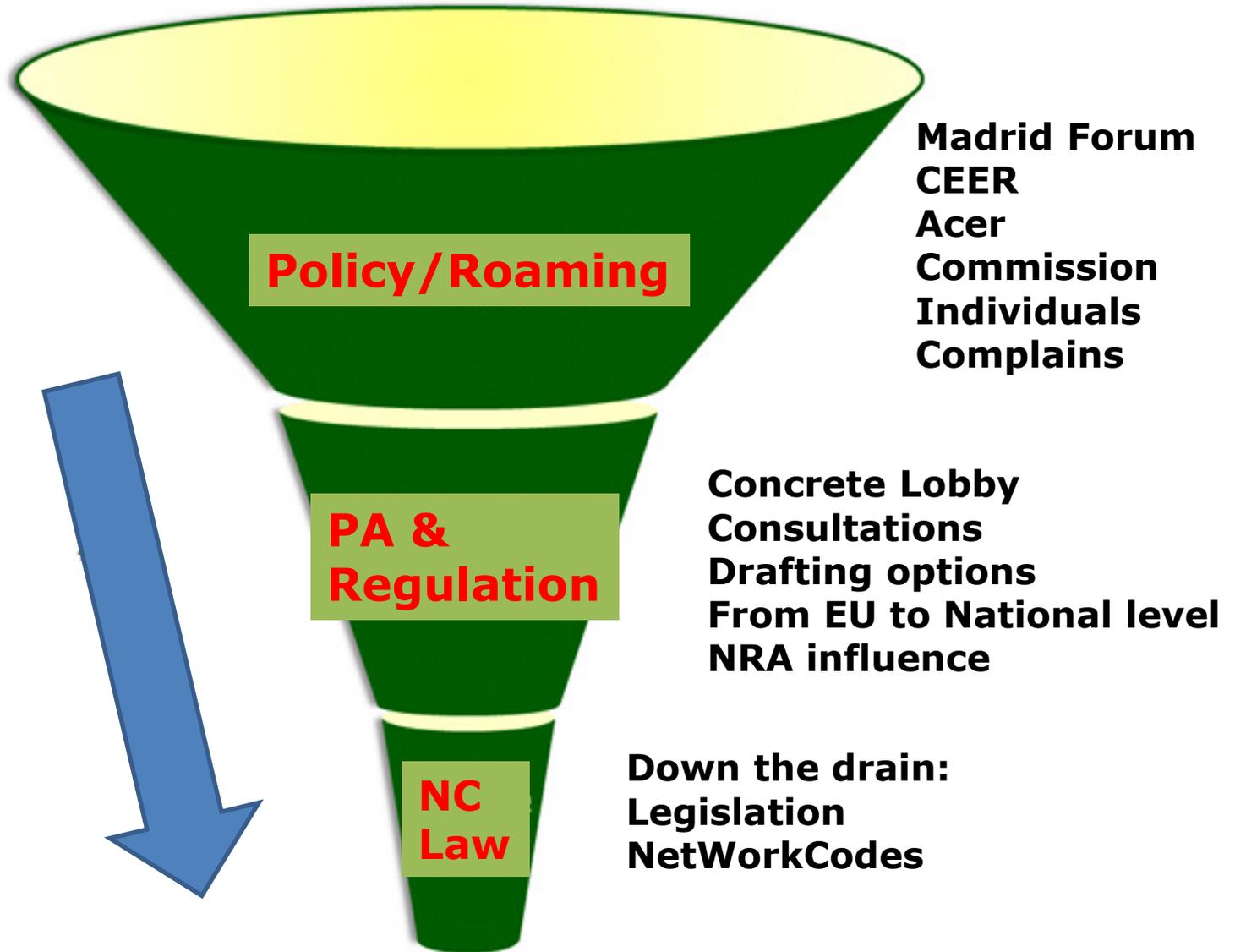
Energy is politics and for Europe the Natural Gas Sector is hit hard



THE VALUE PROPOSITION – A COORDINATED, EFFECTIVE AND PROACTIVE STRATEGIC RESPONSE (TASK FORCE 3 CONTRIBUTION)

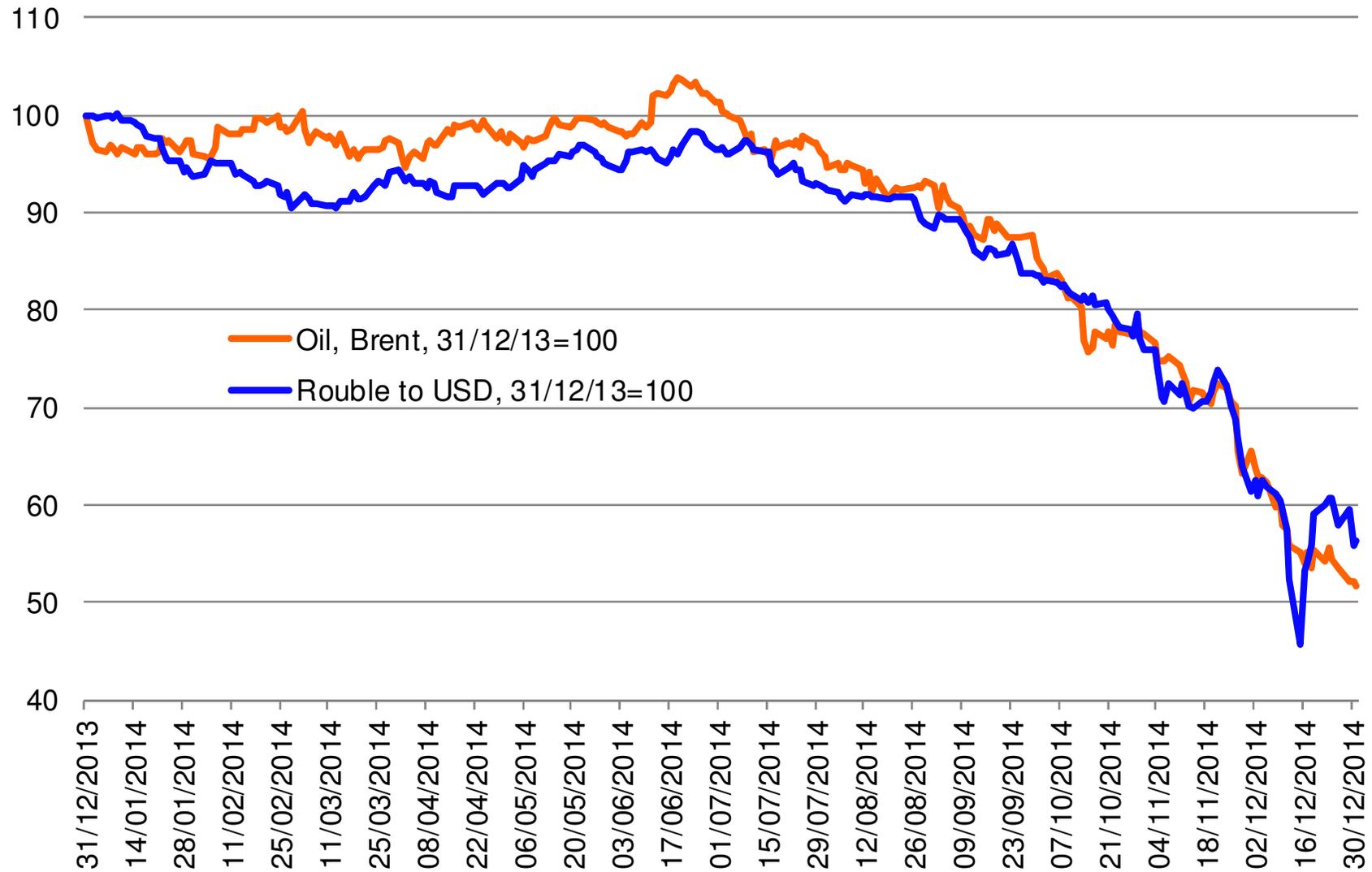


The way from Policy to NetWorkCode !



An example, from SoS guidelines, just by limited consultation to a new set of SoS regulation.

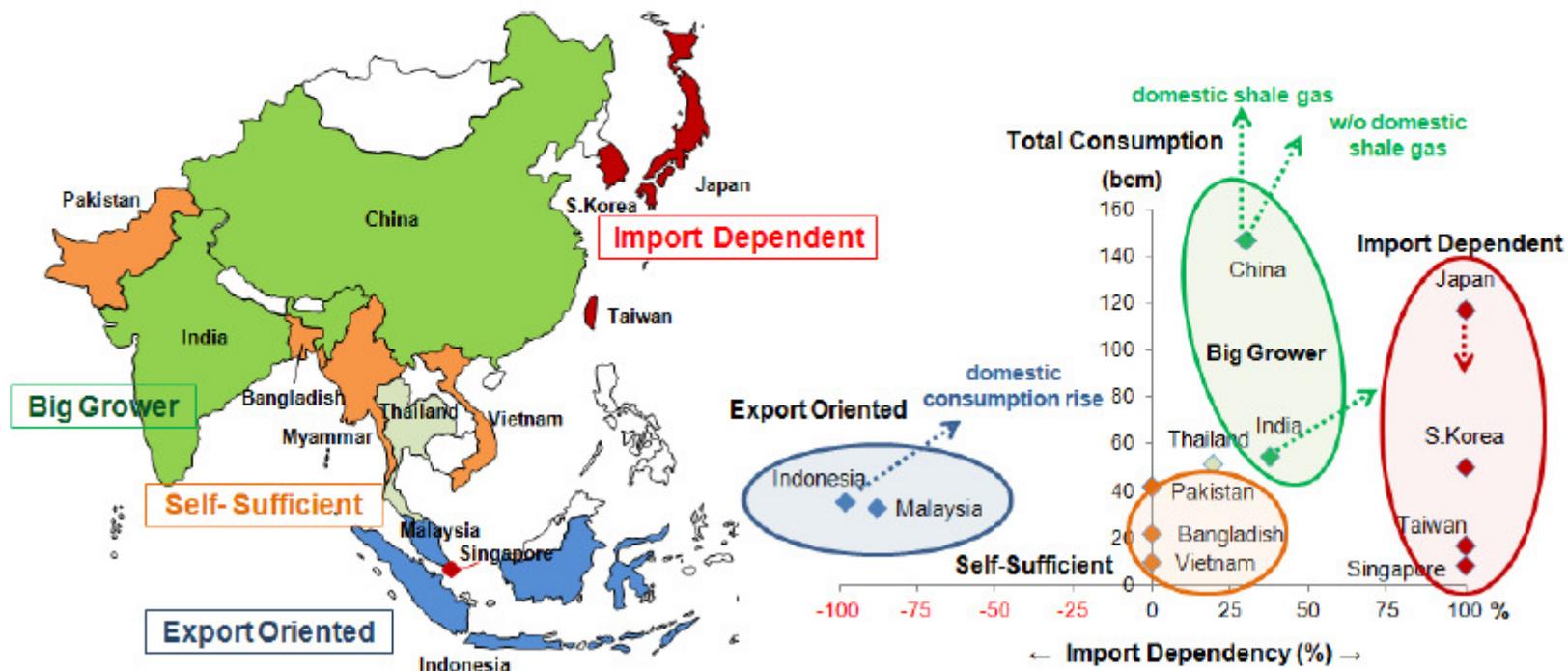
Some are hit hard and the key is: where is the bottom



Source: ecowin, Bloomberg, ING calculations

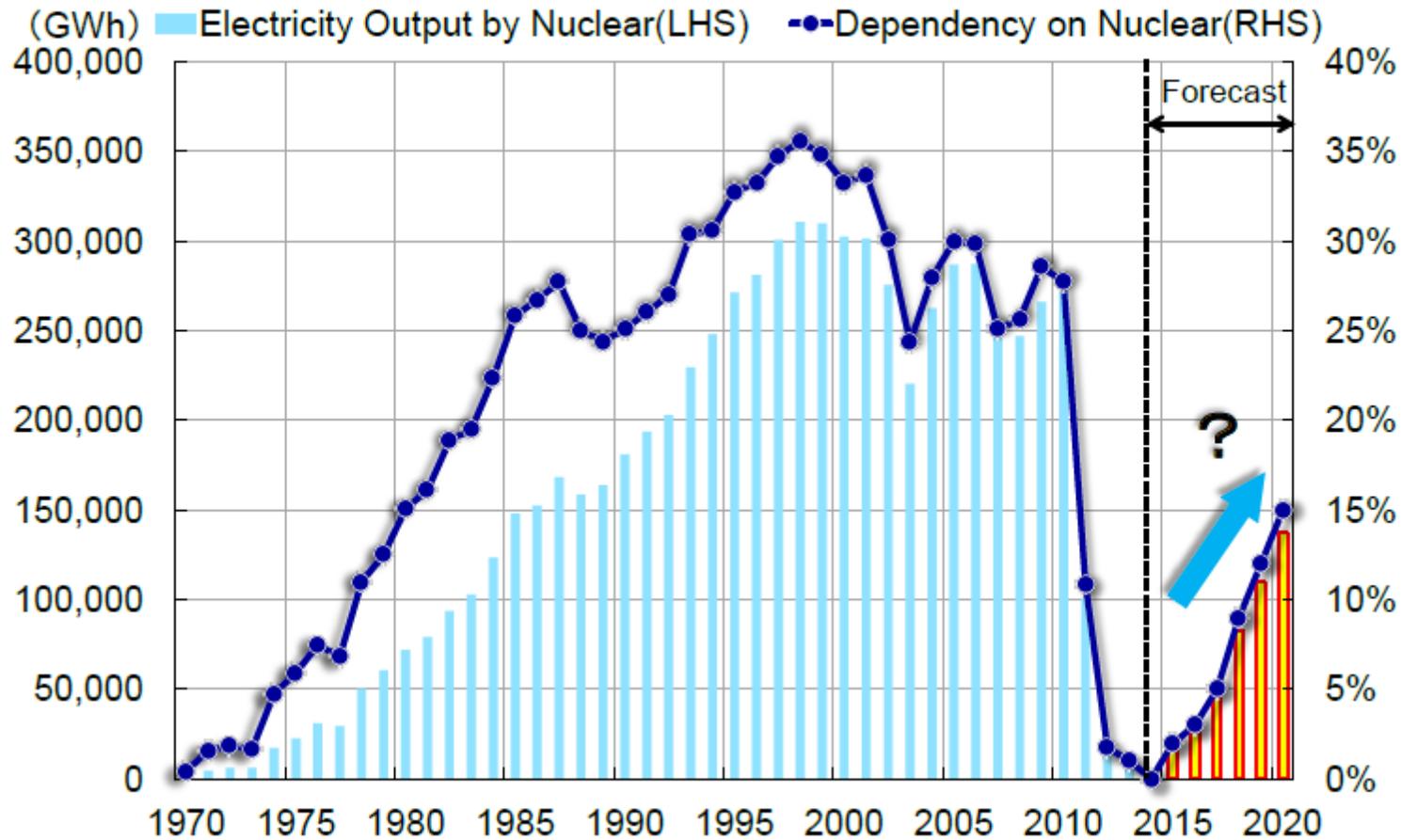
Natural Gas Demand in Asia: Key Countries (Japan, Korea, Taiwan + China & India)

<Asian countries' positions (Natural gas Self Sufficient and Import Dependency)>



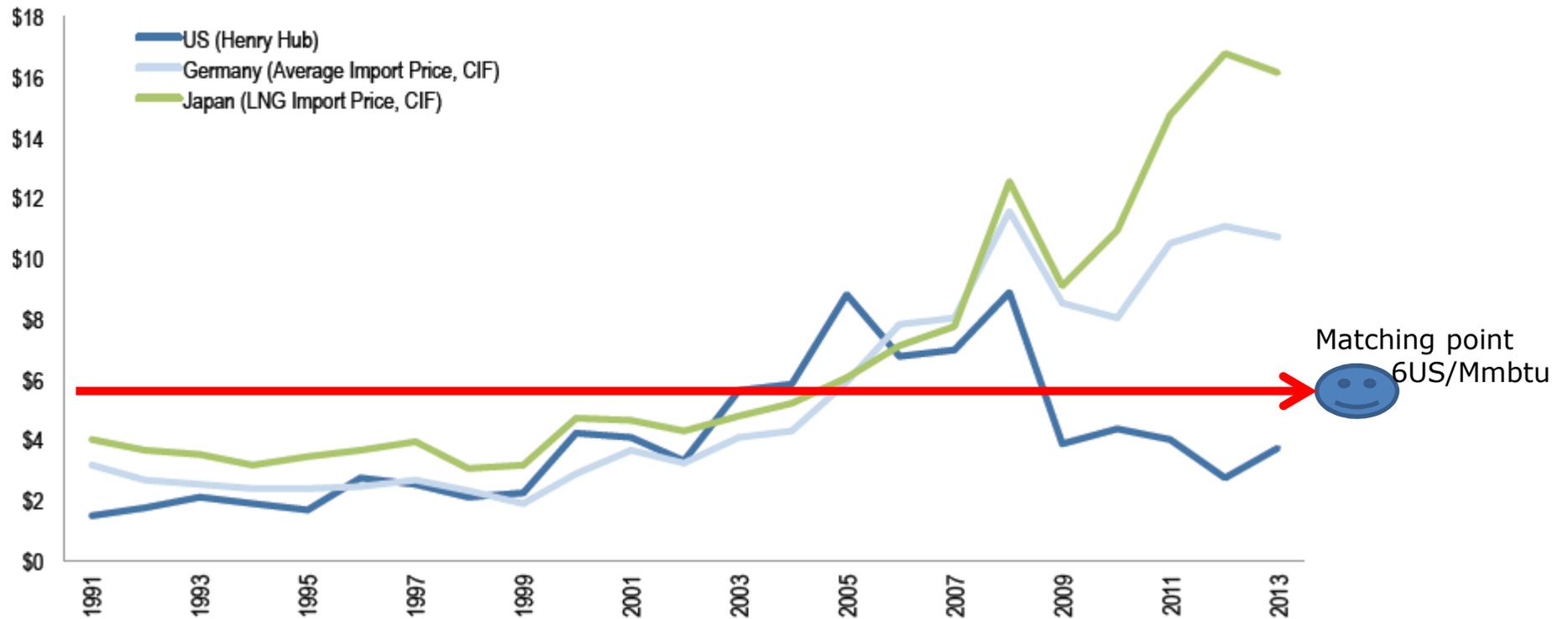
(Source: SCGR, based on "BP Statistical Review 2014")

Japanese Nuclear Power Generation



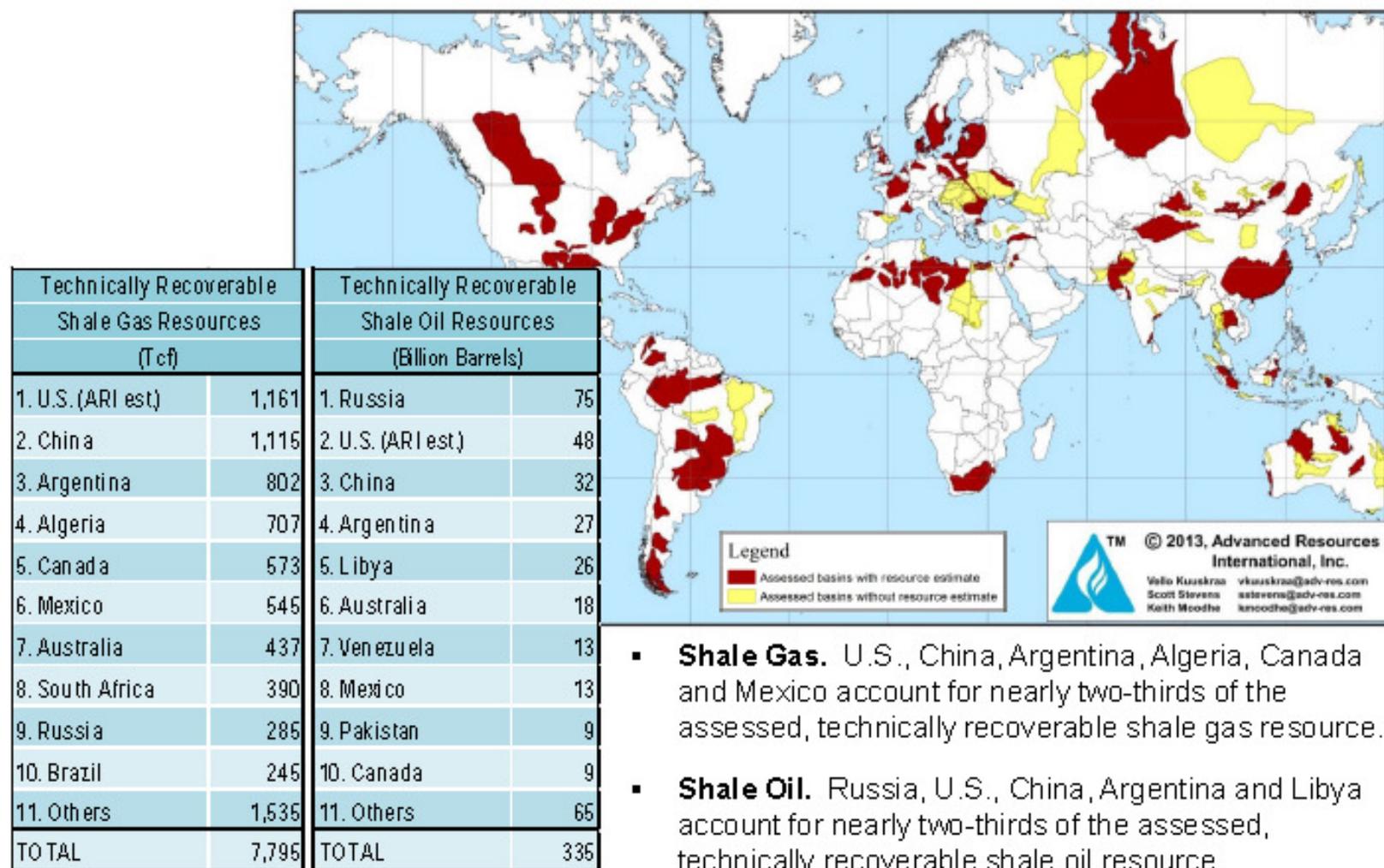
(Source: SCGR, based on Federation of Electric Power Companies of Japan)

Figure 3: Natural gas prices by region
USD per mmBtu



Source: BP Statistical Review of World Energy 2014.

Self sufficient is one of the key words: USA an example SHALE



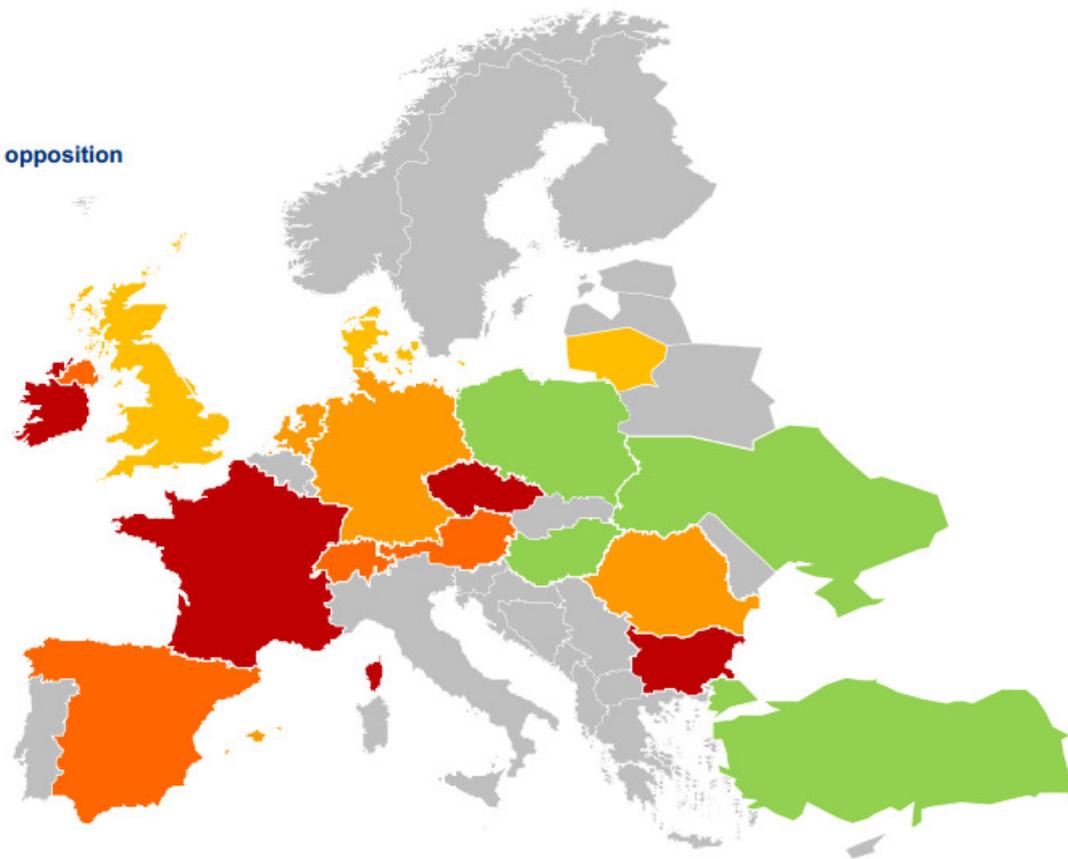
Shale gas potential in Europe

Support for unconventional gas varies widely across Europe and strong opposition has led to moratoriums in some countries

Level of support and opposition for unconventional gas across Europe

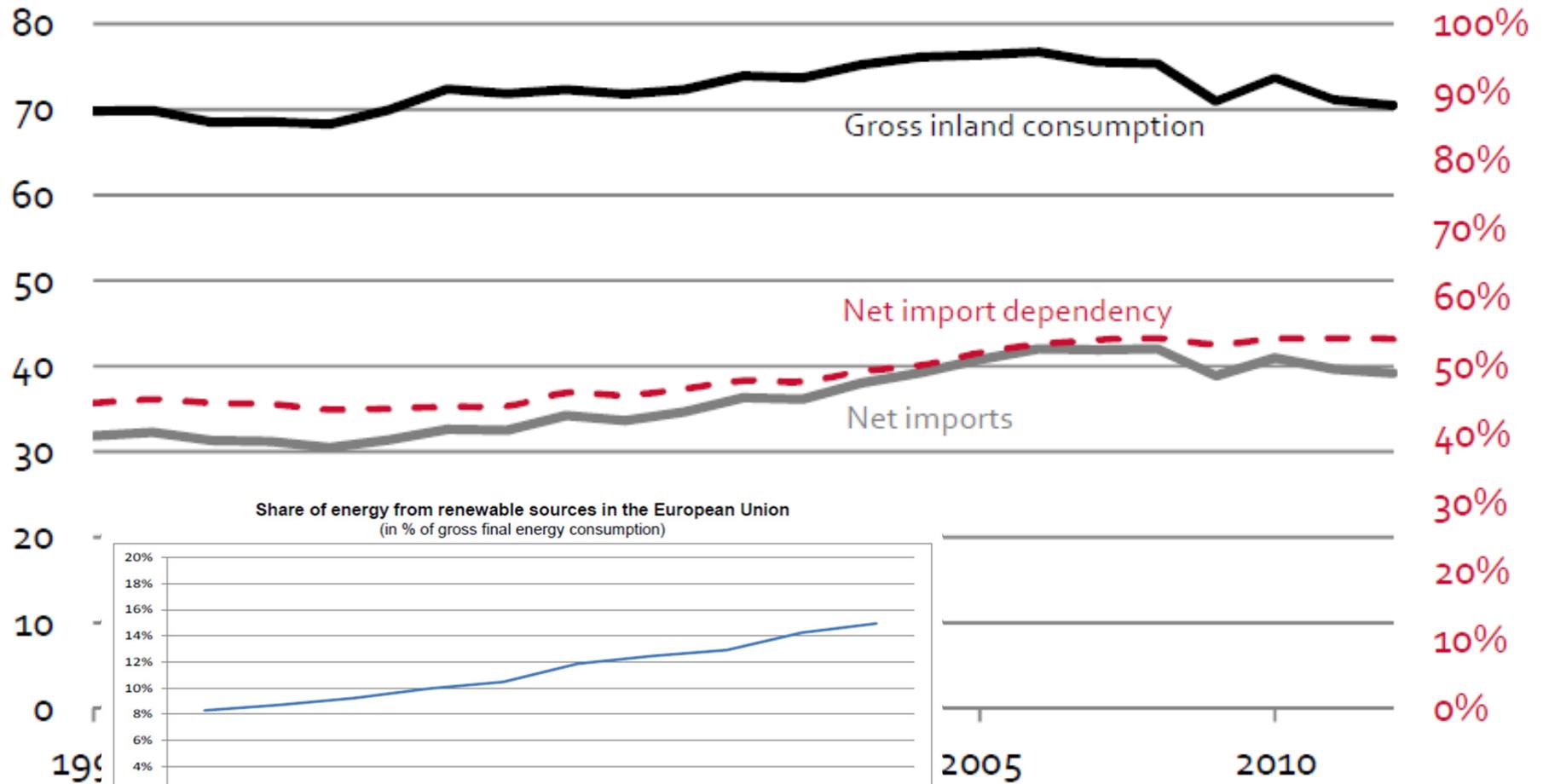
Environmental status

- Strong opposition
- Wide opposition
- Generally supportive, some opposition
- Political support
- Political & public support



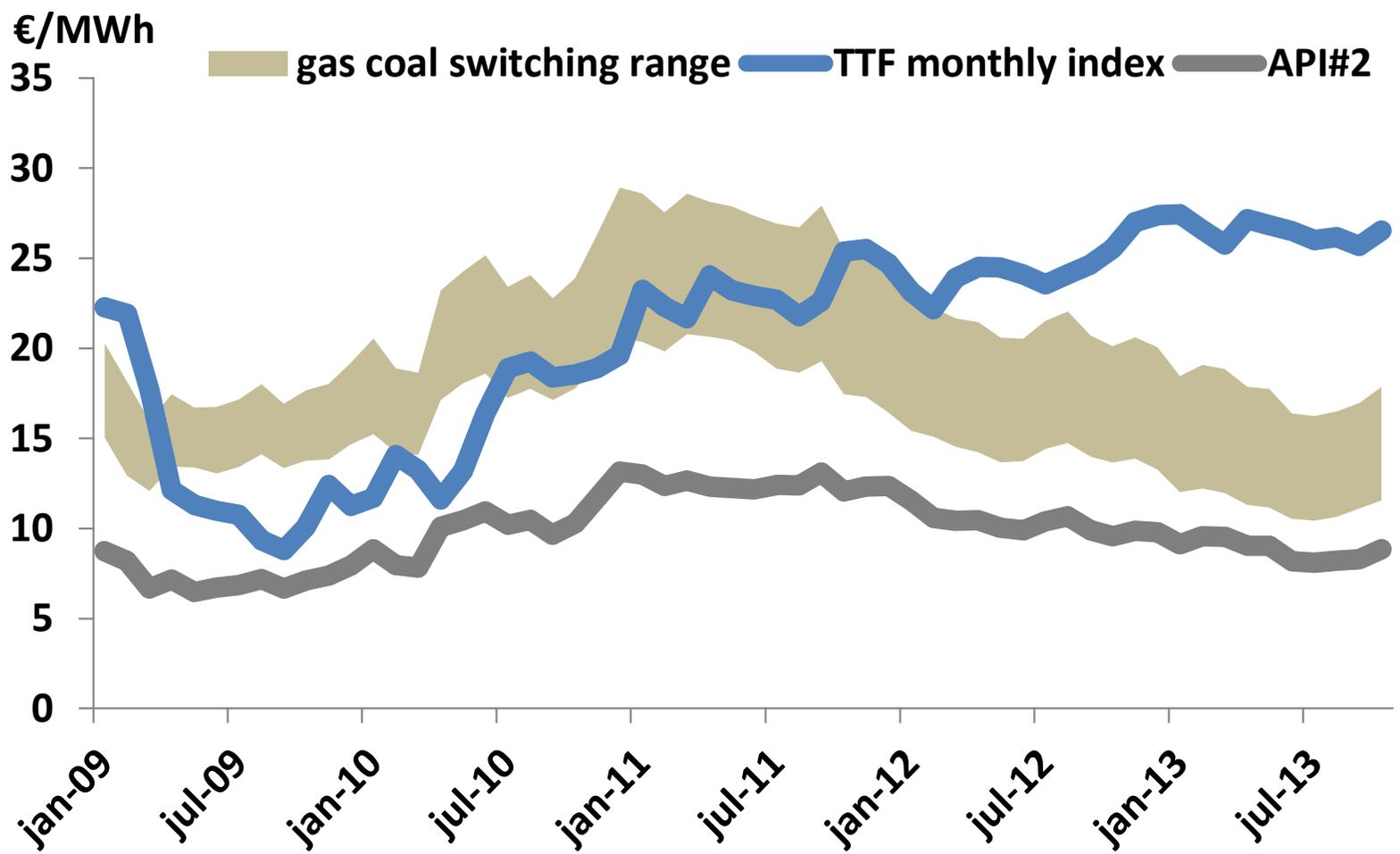
Source: Wood Mackenzie

Primary energy demand/net imports in Europe [EJ/year]



The aim of the EU energy policy: dependency should go down!

And natural gas lost competitiveness in (residual) power generation at European level: coal is King !!!!



**Coal is presently cheap: EU is using coal for Power
King is Coal, also in Europe.**

Sources: Bloomberg, The Intercontinental exchange

In global competition: Europe is expensive overall Global industrial players, energy intensive!; move away.

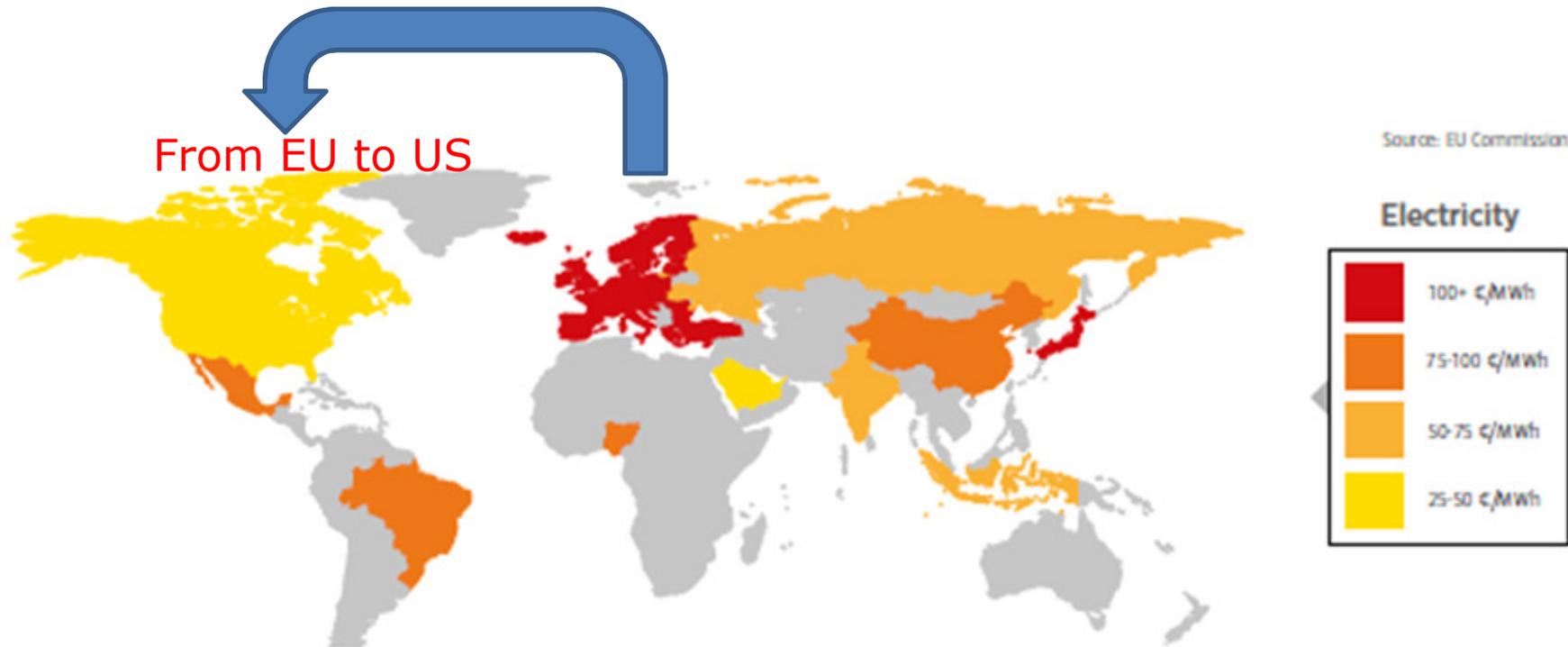
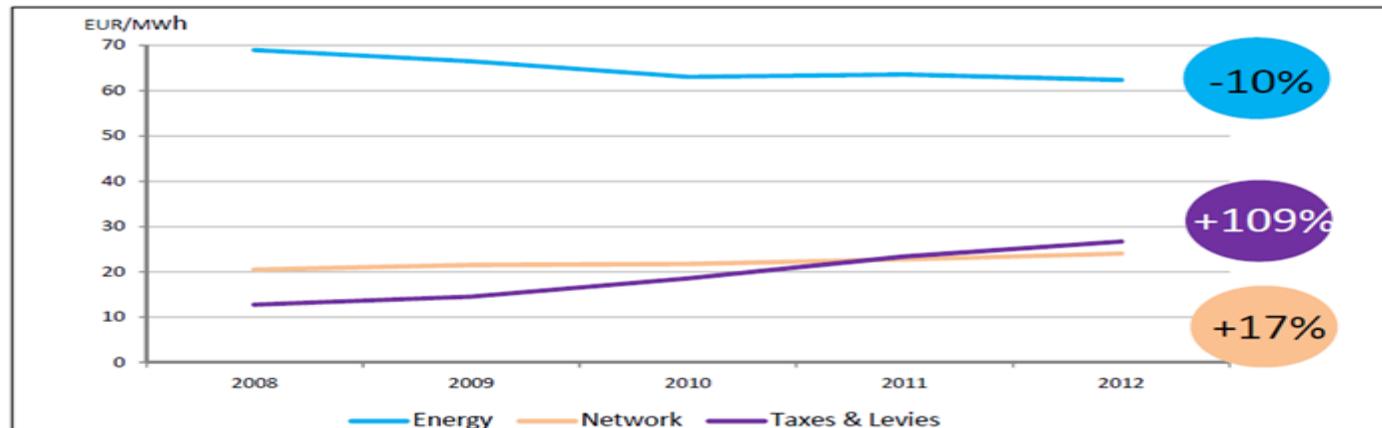
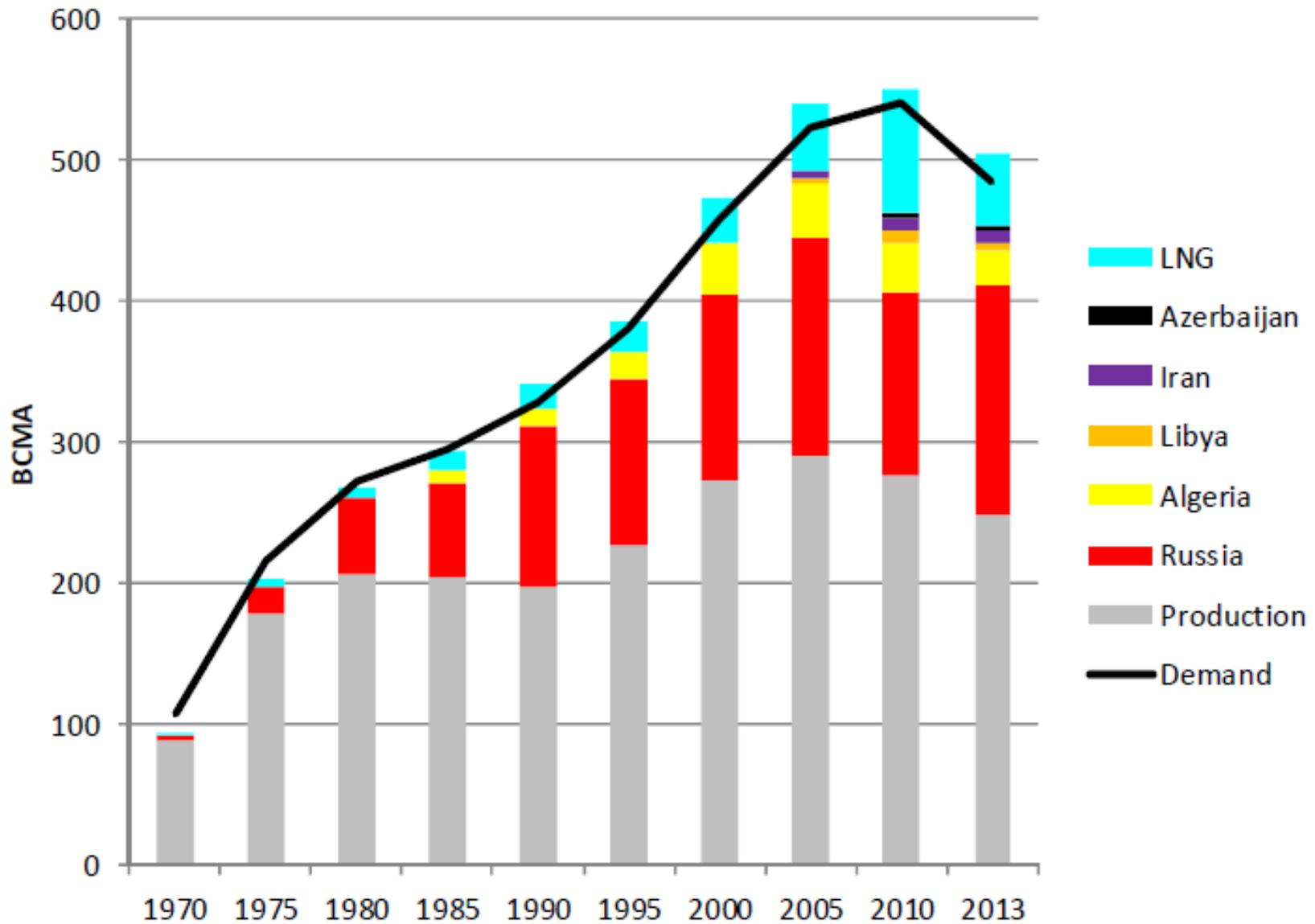


Figure : Retail electricity prices for industrial consumers – 2012



Evolution of industrial price components in 2012

European Demand and Supply Sources: 1970 – 2013



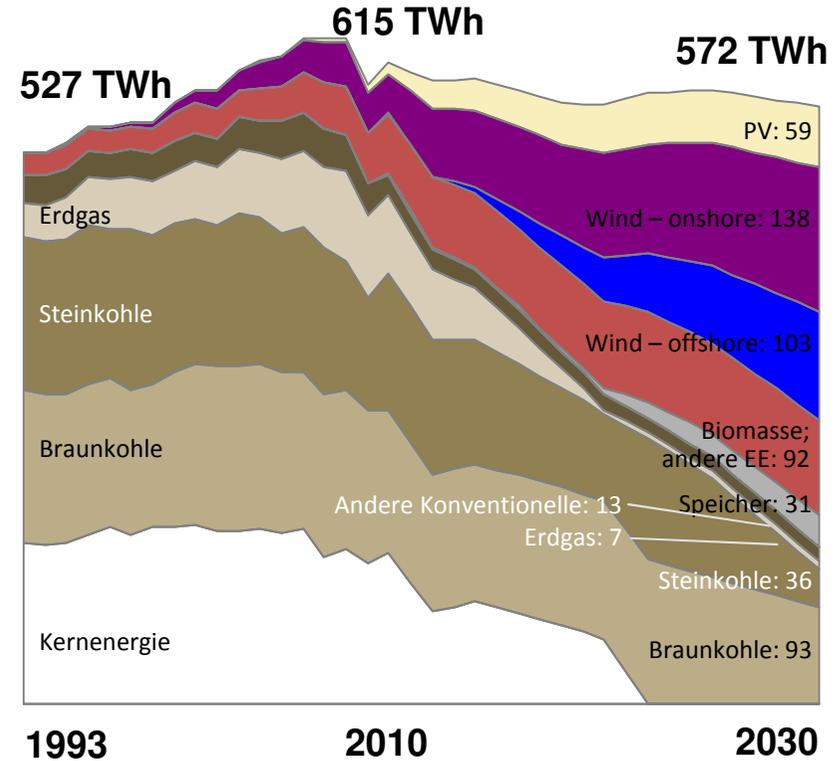
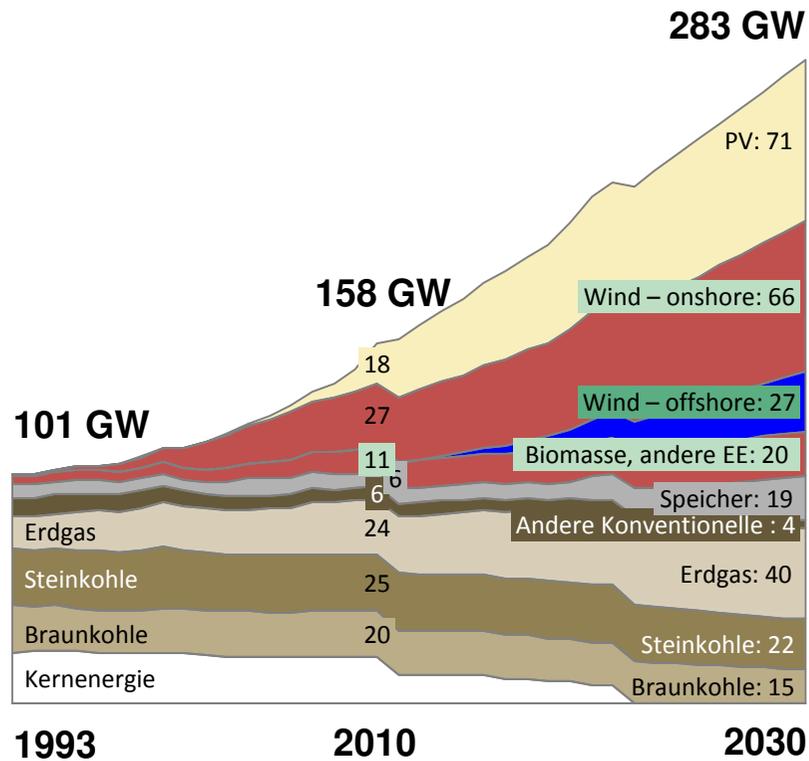
Last couple of years the sector lost 50 Bcm/y within the power sector

German capacity coverage and future energy needs

Installed capacity

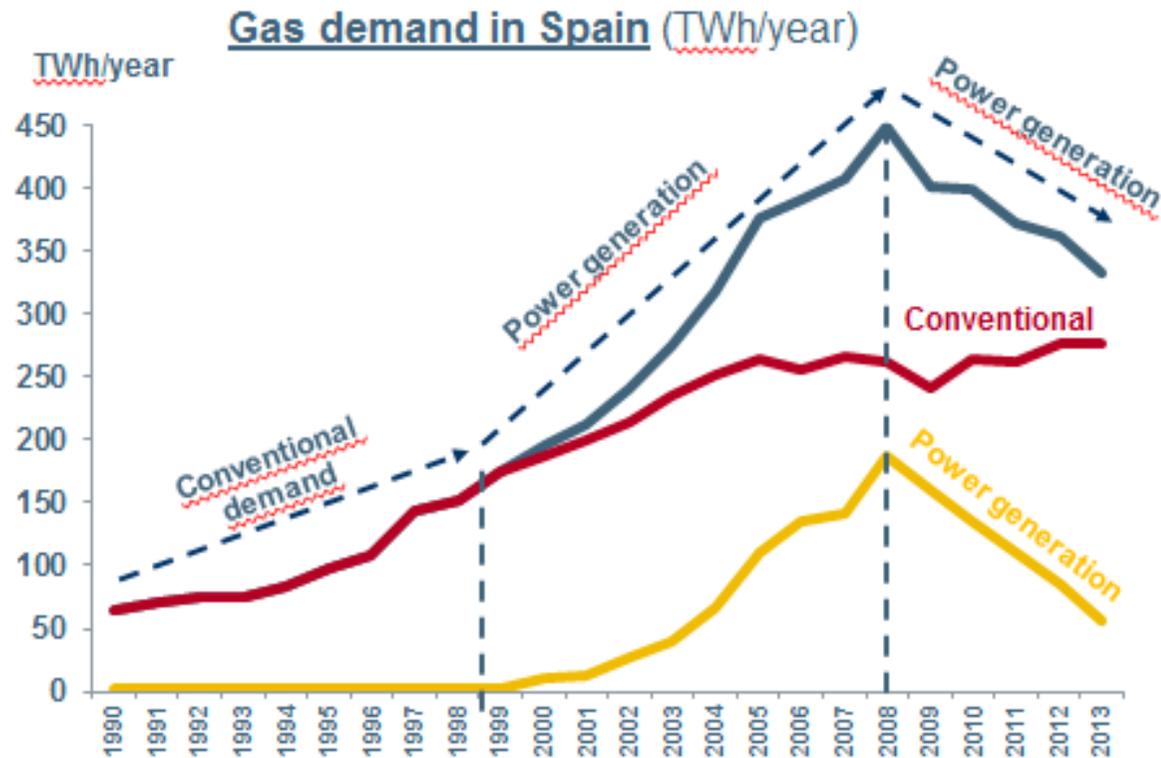
Electricity production

Szenario für konstanten Nettostromverbrauch zur weitgehenden Erreichung der Klimaschutzziele



Quelle: BCG-Trendstudie 2030+, Szenario "Zielerreichung Klimaschutz"

Spanish gas demand evolution

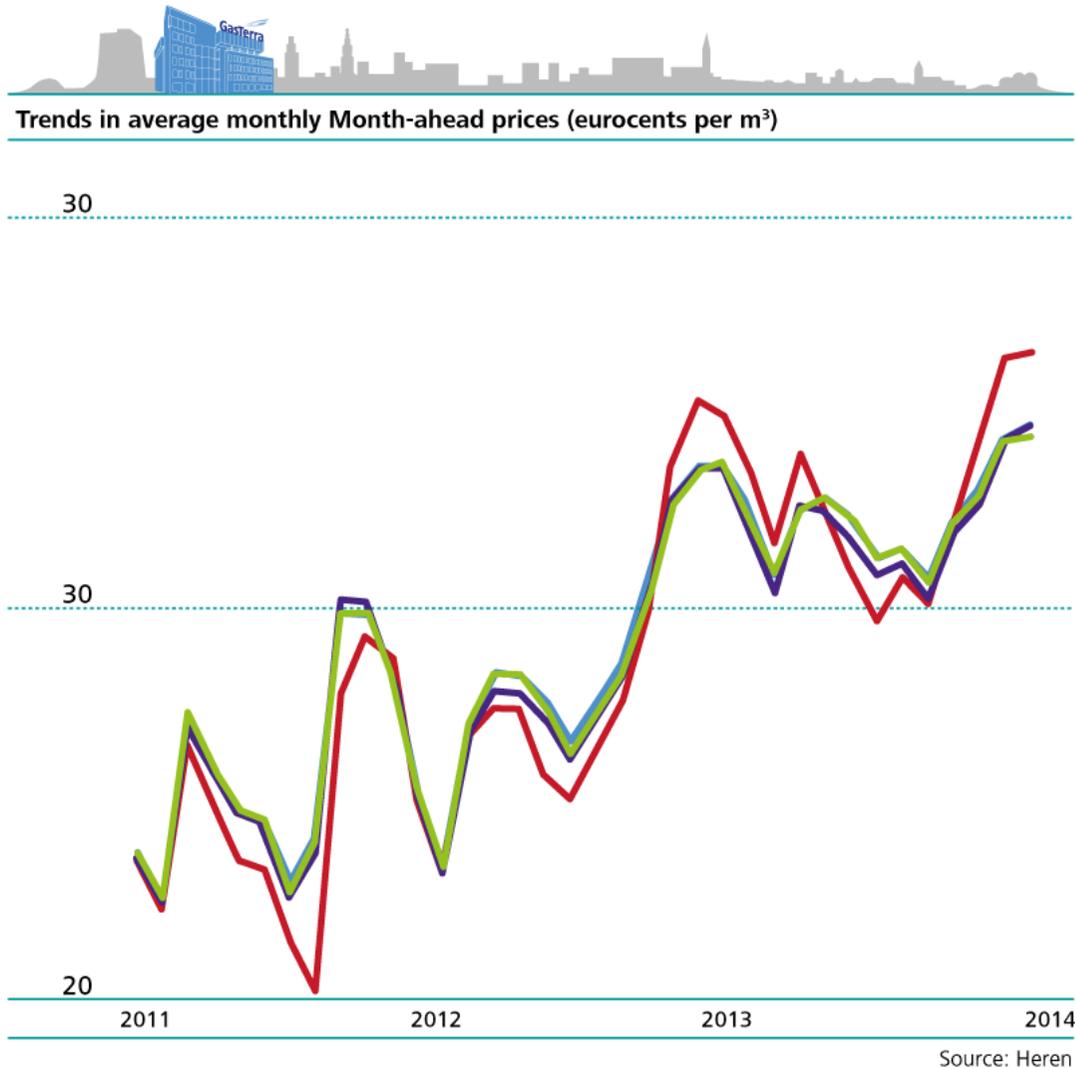


Gas demand for households, commercials and industrial consumers has increased despite the economic crisis

Gas demand for power generation has been reduced due to the economic crisis and the energy policy measures that promote renewable energy sources without control and national coal used

Gas demand has been affected by the economic crisis and by uncontrolled energy measures that promote renewable energy sources and national coal

Average monthly Month-ahead prices

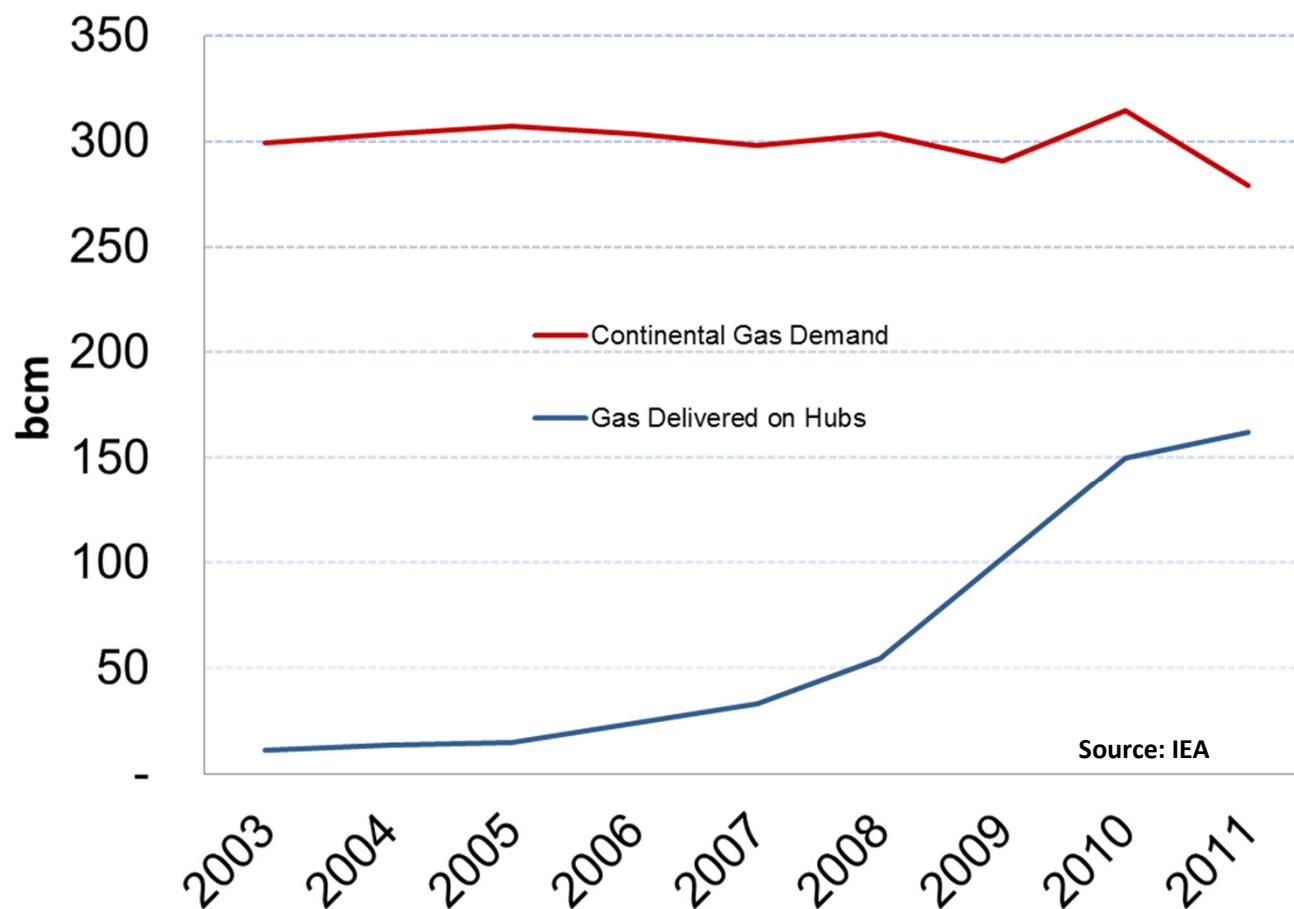


- NBP
- NCG
- TTF
- Gaspool

Same slope: PSV
Warsaw
Moscow ?

Law of one price: if market is liquid: but no 'room' for transmission

Physical volume on European Hubs



Continent: Austria, Belgium, France, Germany, Italy, Netherlands

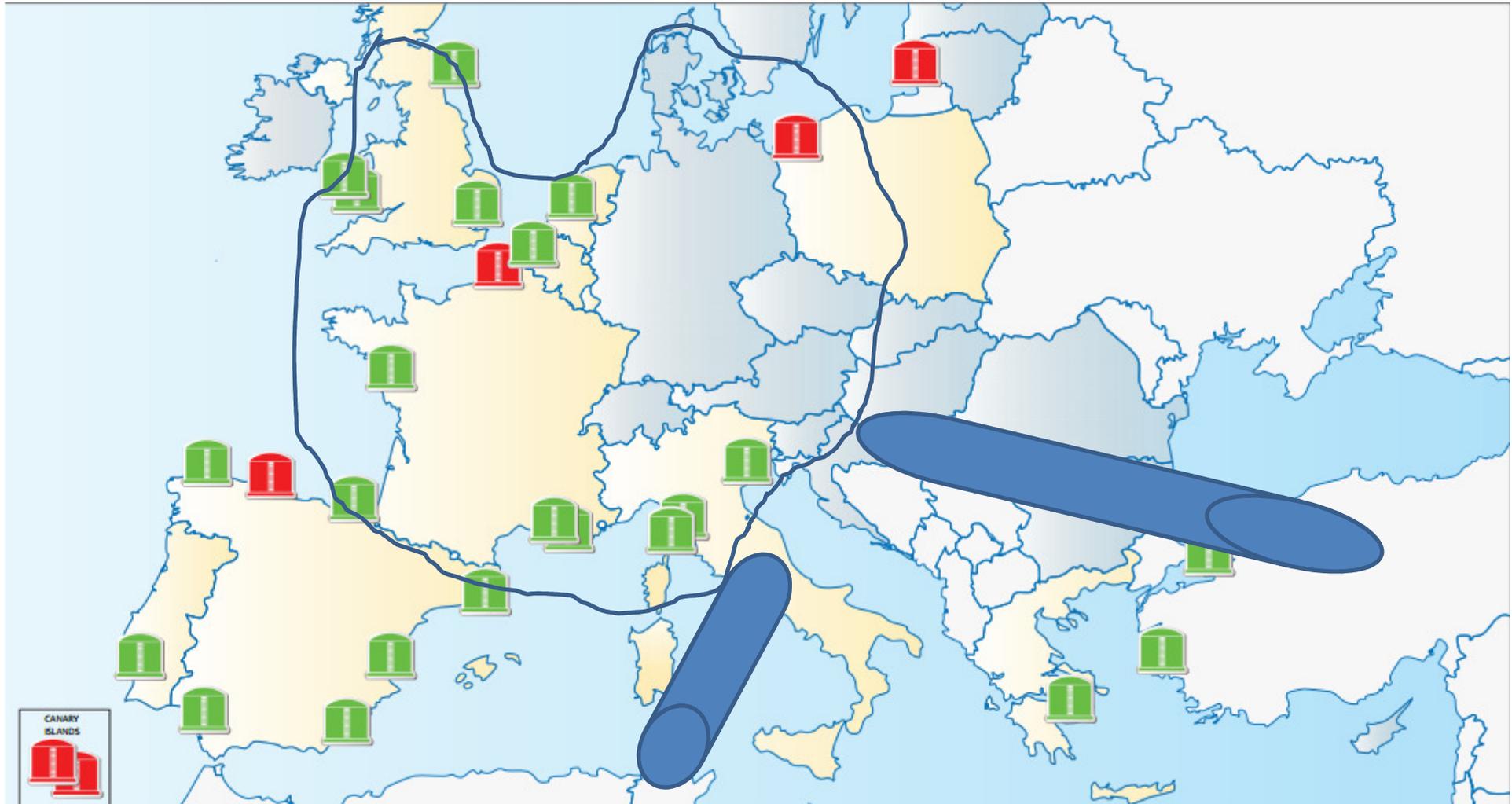
**Physical gas deliveries on hubs increased to over 80% of gas demand in physical markets:
the more spot: middle-man in trouble; margins evaporate.**

EXISTING

 22 LNG Terminals (197 bcm/y)

UNDER CONSTRUCTION / COMMITTED

 6 LNG Terminals (32 bcm/y)



**The relevant liquid market will be step by step larger: to the East and South: MENA
More network is needed including interconnections and new HUB's: regulated business
South Corridor is the interconnector towards the EAST: Ankara HUB (Iran, Kurdistan, etc)
To the MENA region: an EU priority and establishing a MENA Hub: Algiers or Tripoli**

Price Level Determination by Hubs (irrespective of indexation!)

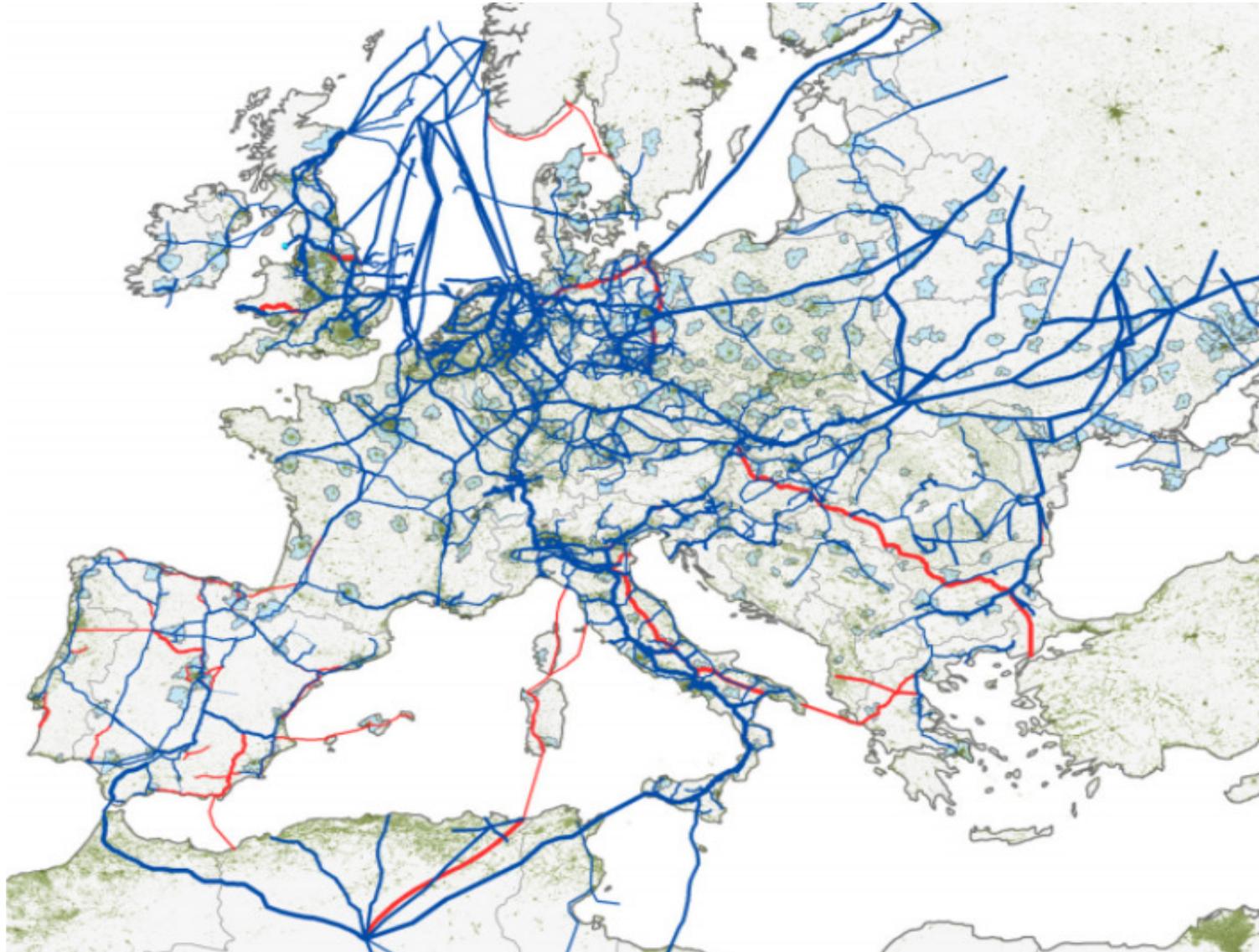
Relevance of gas hub pricing for Wholesale Prices in Europe



- > Gas hubs determine market prices to 100% in North-West Europe
- > Some Central European and Mediterranean countries are still in a transition phase
- > Only South East Europe lags behind
- > **Note: frequently, if there is no (national) hub, proxy pricing is used**

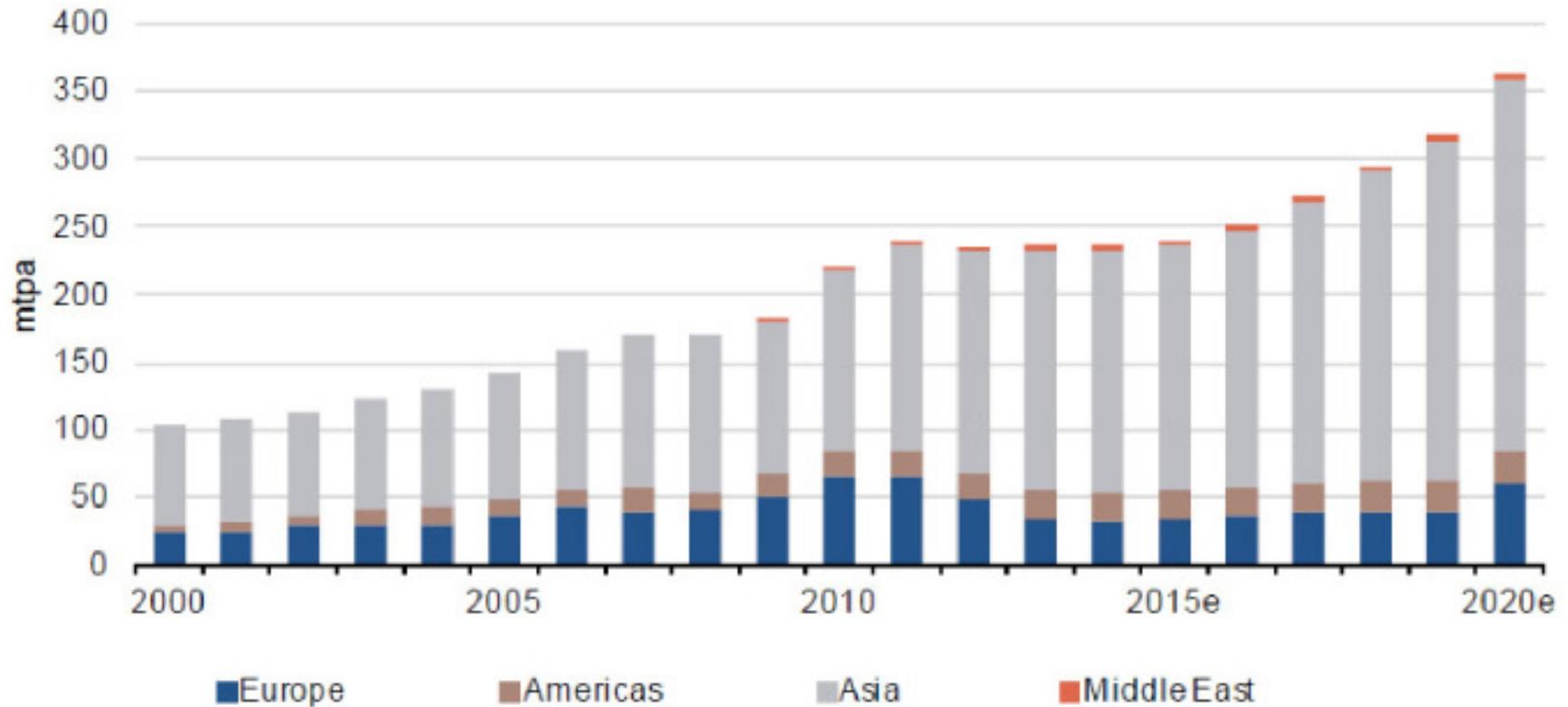
- Gas Hubs are price setter
- Transition phase
- Gas Hubs have no dominant role

When it comes to gas: Expansive infrastructure



EU will not be a real LNG player: short term/balancing

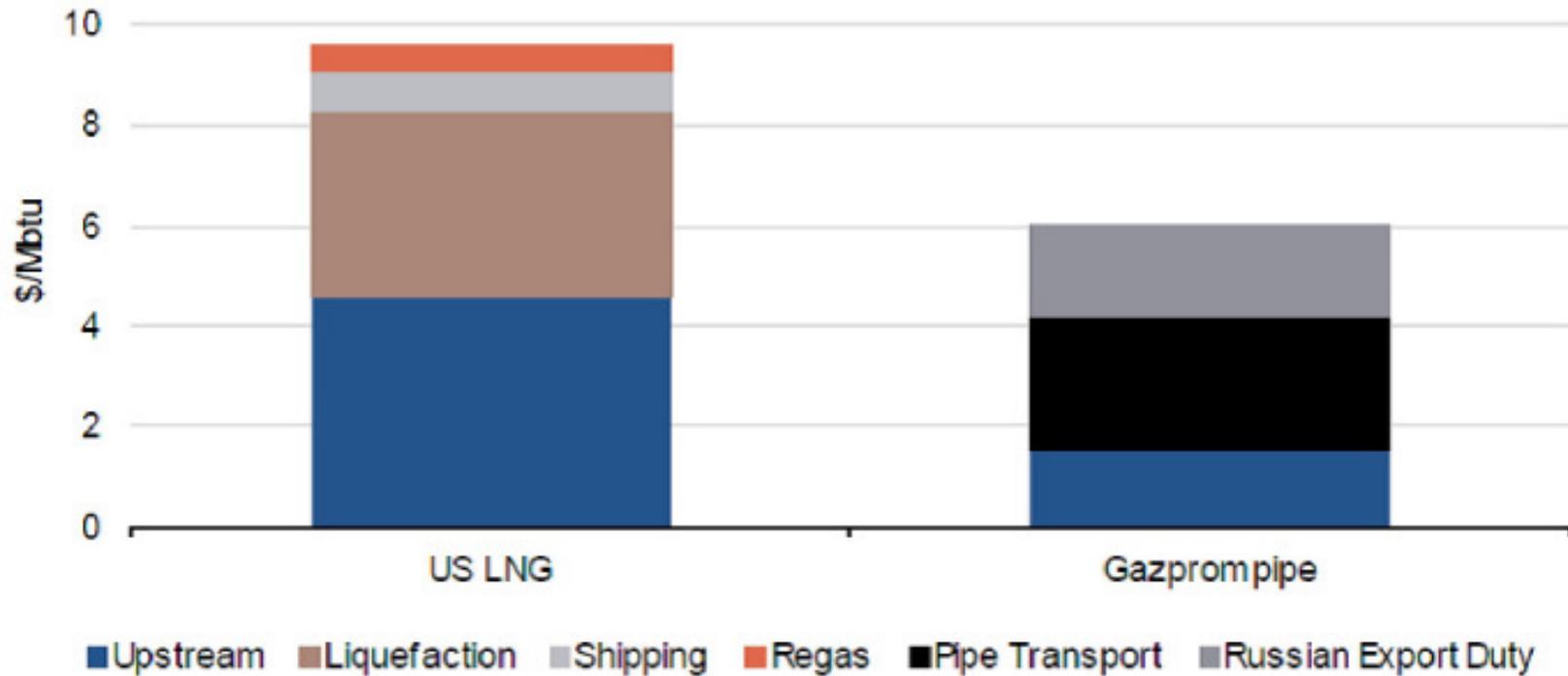
LNG demand 2000-2020e



Source: SG Cross Asset Research/Commodities, GIIGNL for historical data

Reason for this: simple, a matter of cost structure.

US LNG vs Gazprom pipe 2020e cost



Source: SG Cross Asset Research/Equity



In conclusion

Be prudent as industry in Europe: no methane leakage and flaring (past!); enough technical solution to be prudent.

Be transparent, CO2 footprint and EITI ruling

Be aware: politics are active in the line of SoS, at least in EU the general issues could easily be redirected in legal setting and forwarded NC (like SoS was a guideline and than a Directive: sudden!!!!)

Europe is part of the rest: money is global and LNG is getting more than before global, but is EU global competitive?

Scenario's have been supporting, more than before it are all black swans dealing with the changes of the sector.

Communicate over figures and facts, be careful with framing and be aware of present volatile European polity making.