Energy security and Europe where are we & what to do?

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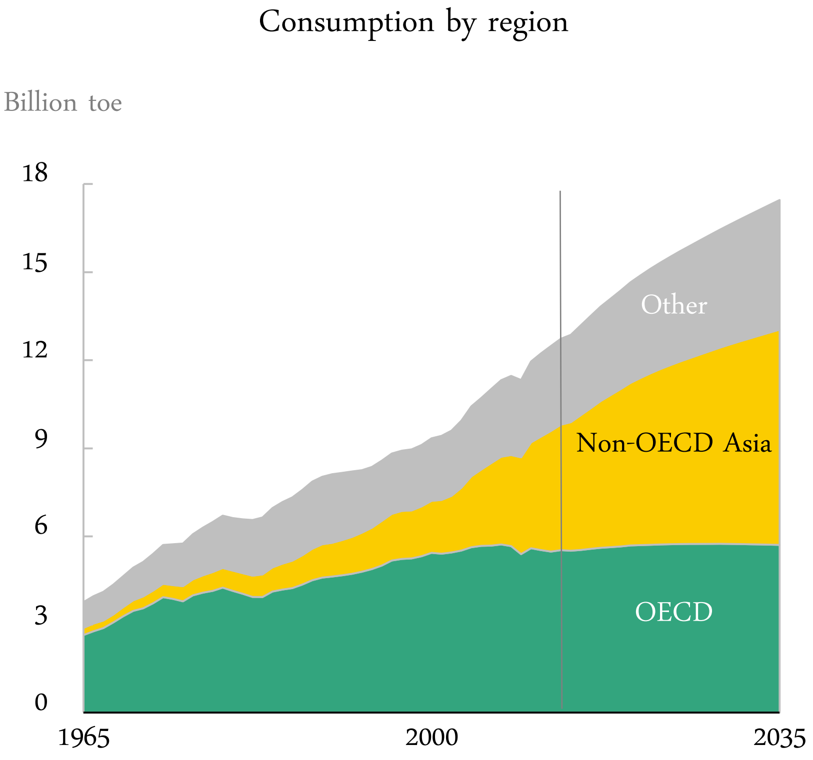
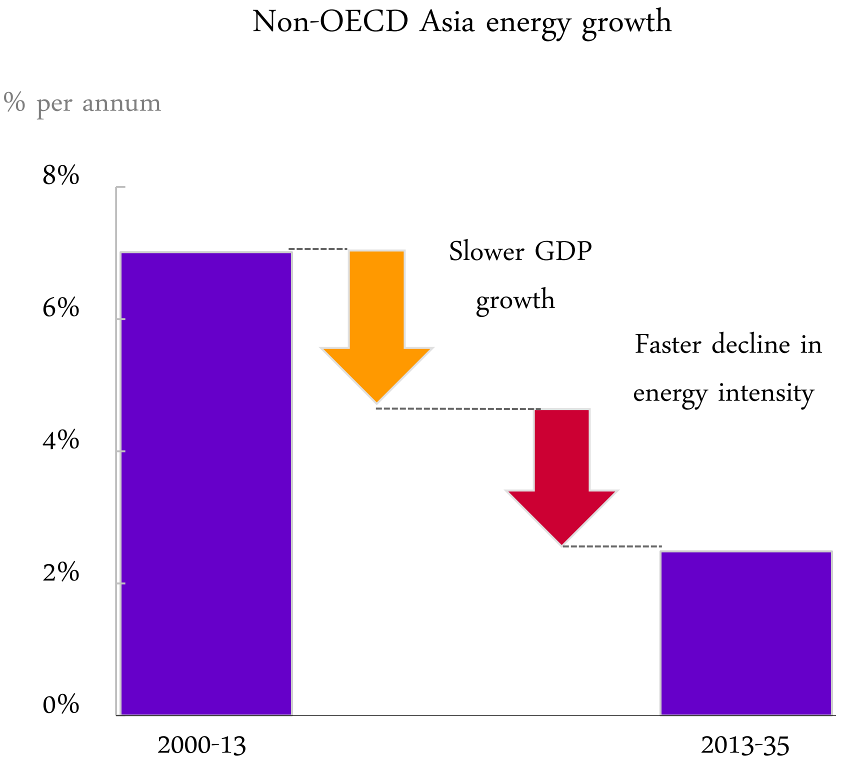
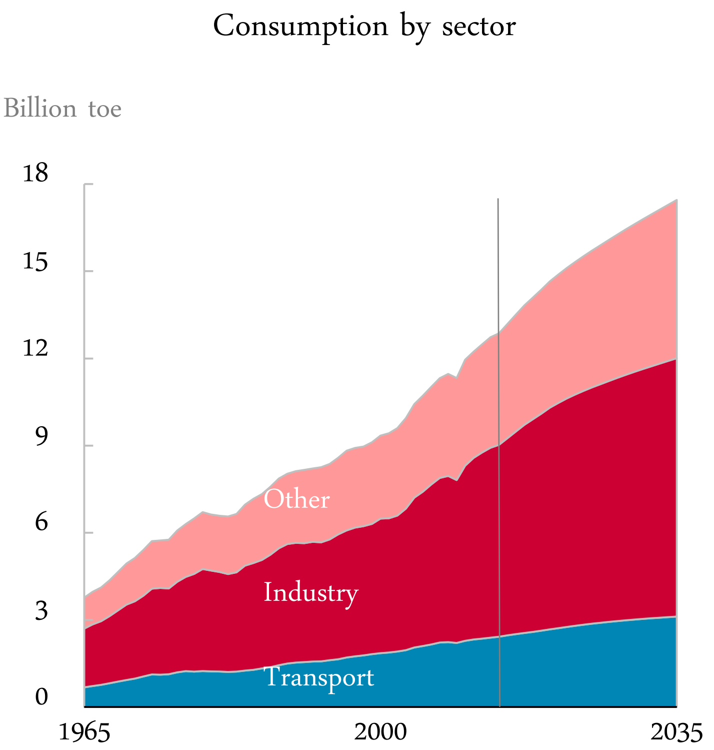
The PowerPoint syndrome

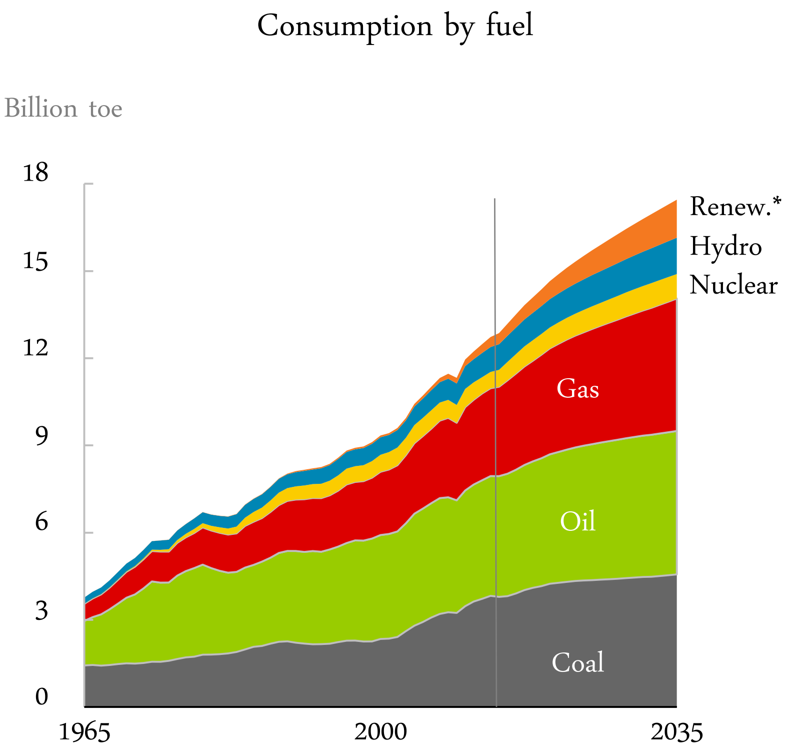
Global energy demand





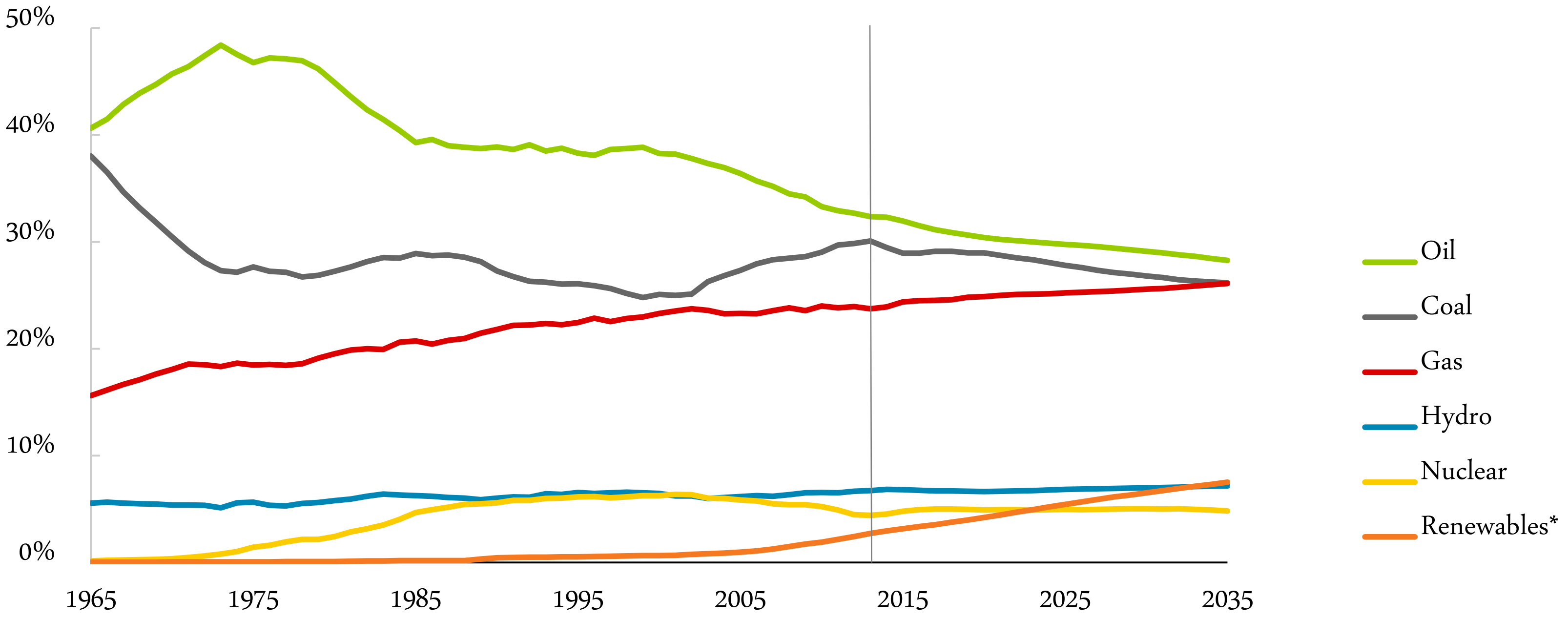
Global energy demand by sector and fuel





*Includes biofuels

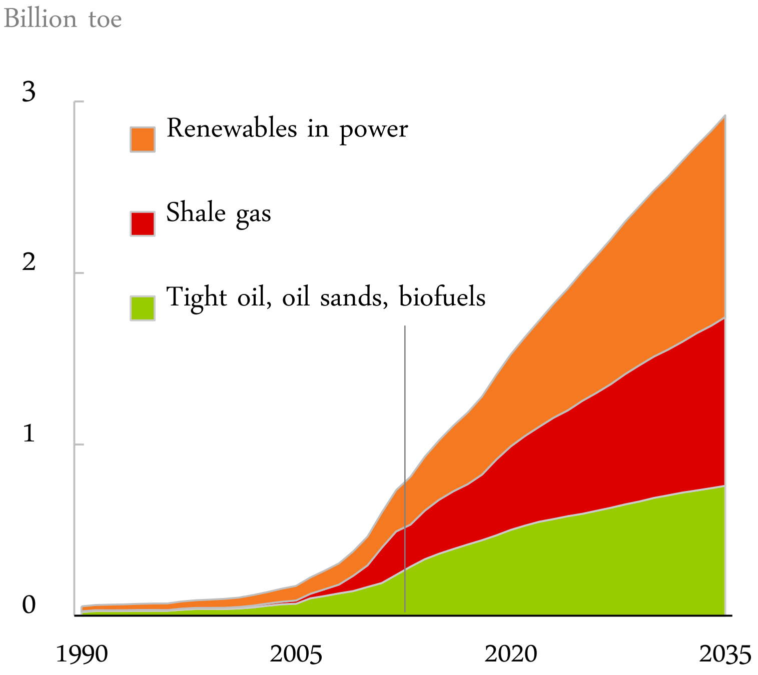
Shares of primary energy



*Includes biofuels

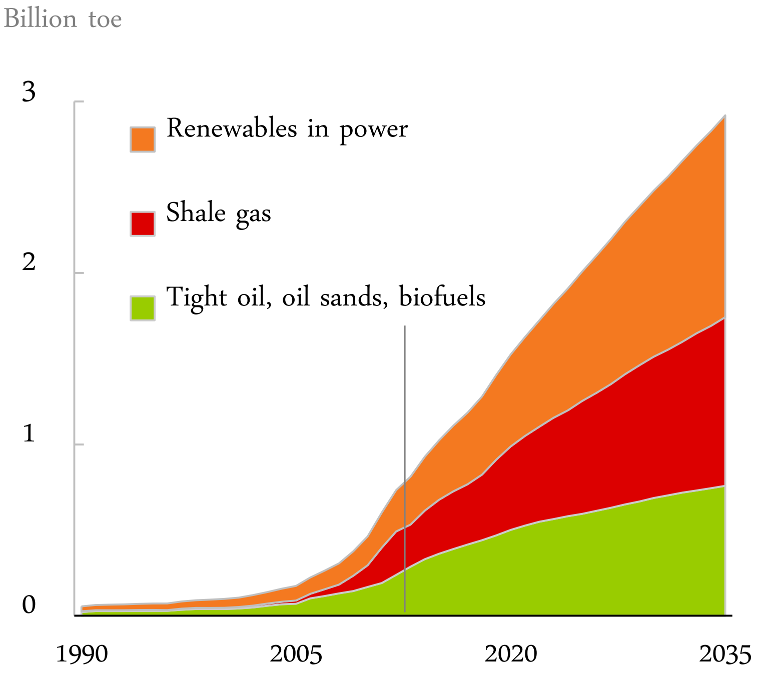
New sources of energy supply

Production

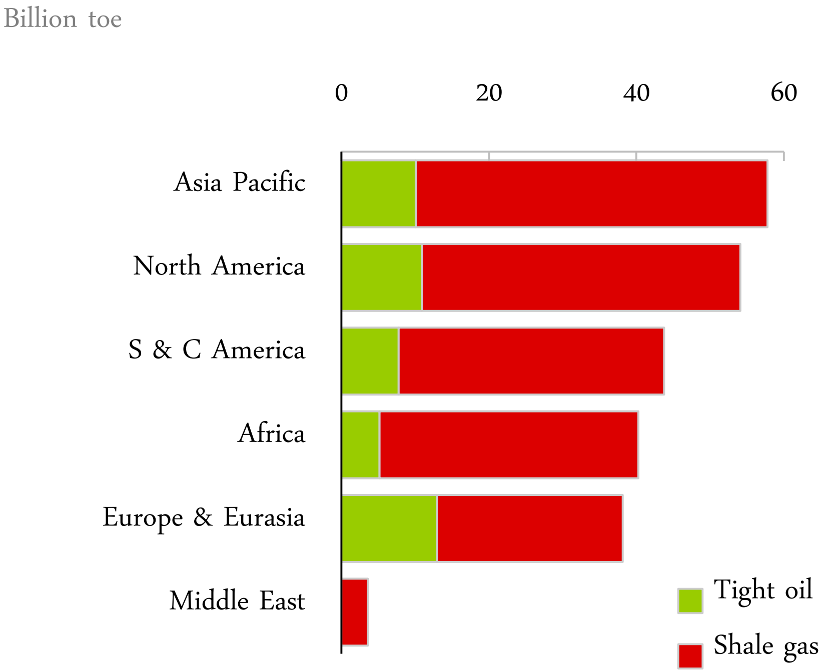


New sources of energy supply

Production



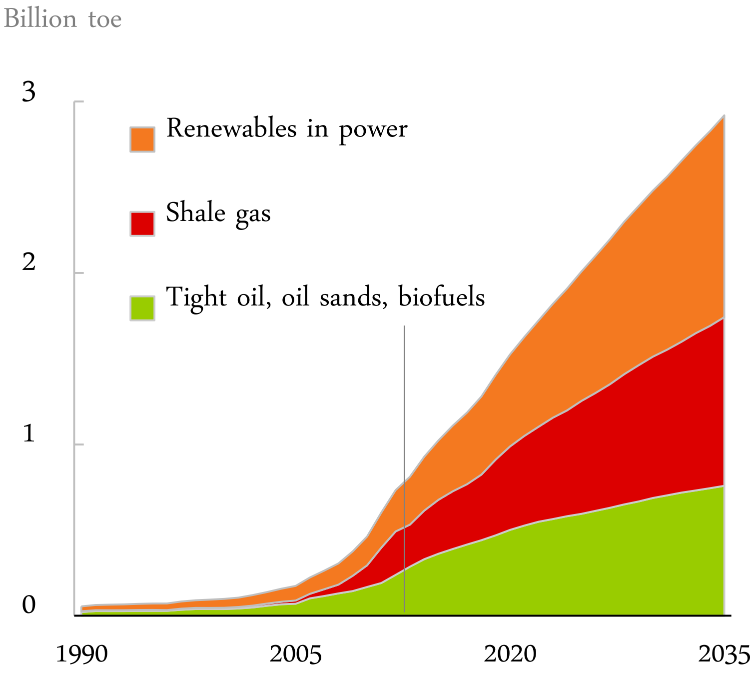
Technically recoverable resources



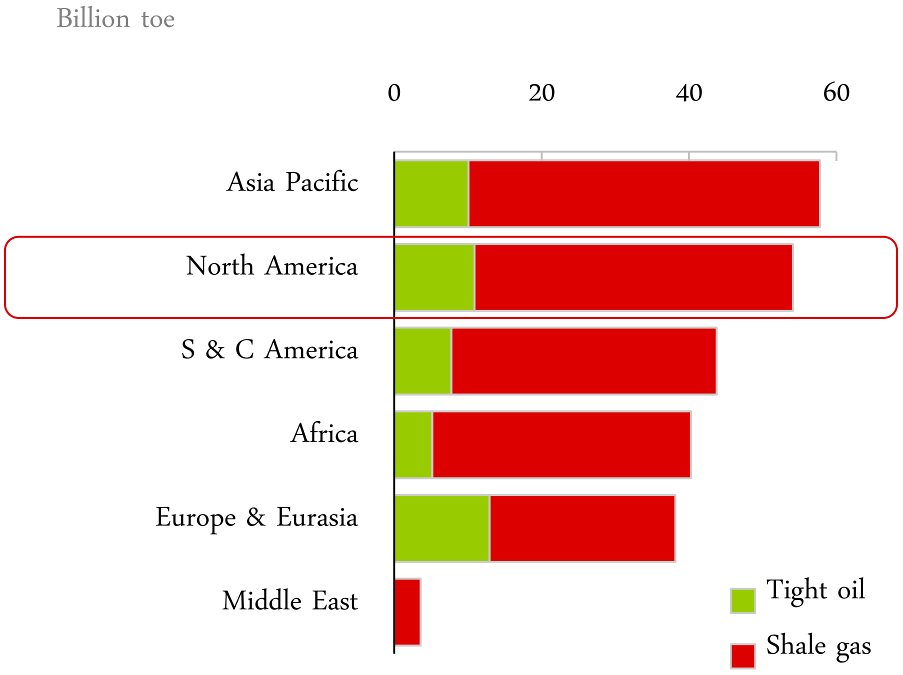
Source: © OECD/IEA 2014

New sources of energy supply

Production

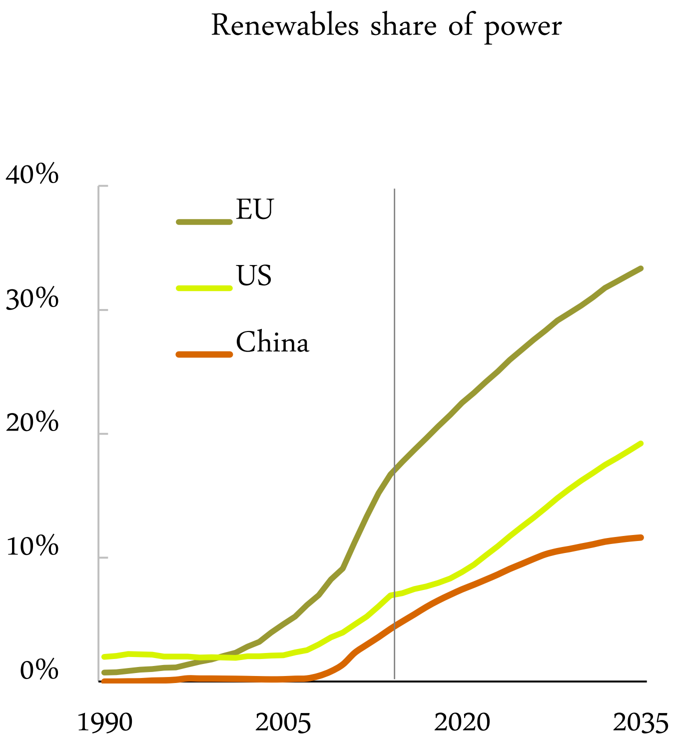


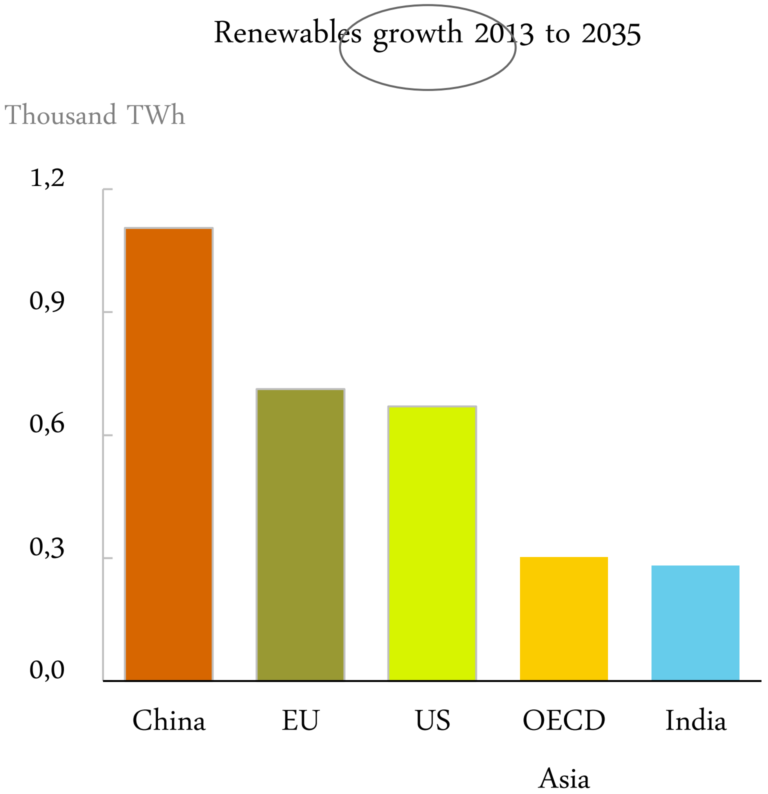
Technically recoverable resources



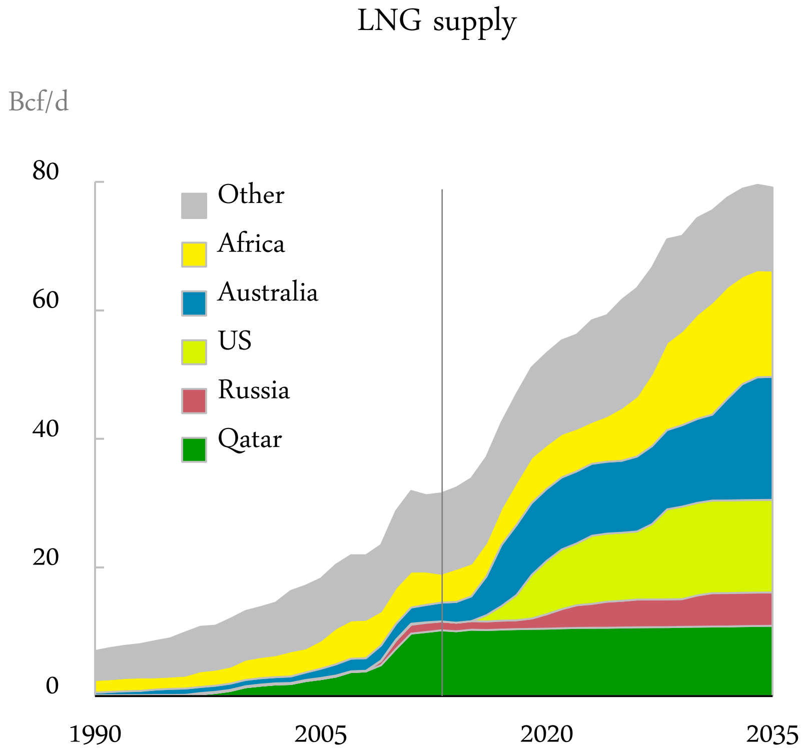
Source: © OECD/IEA 2014

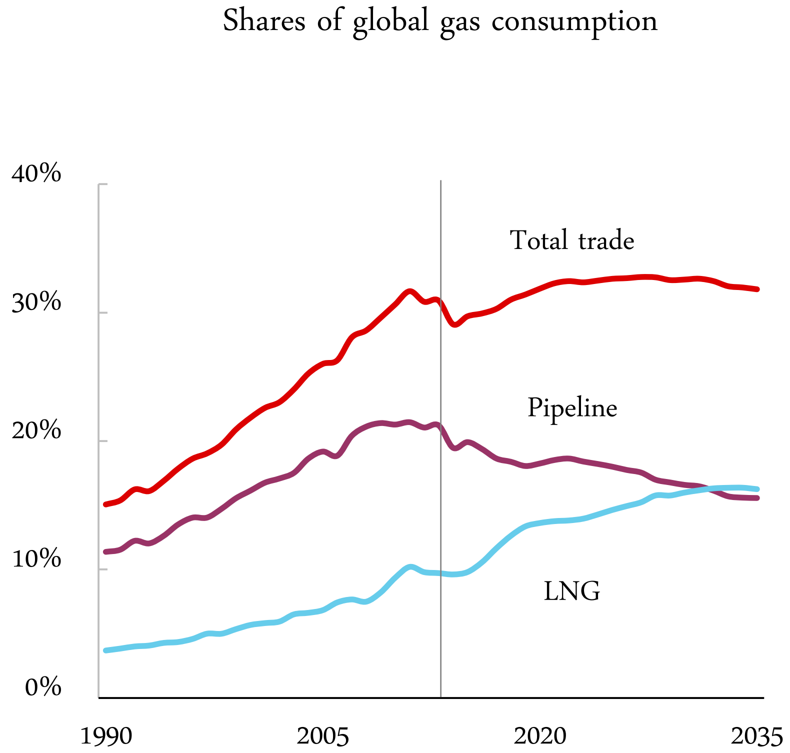
Renewables in power generation



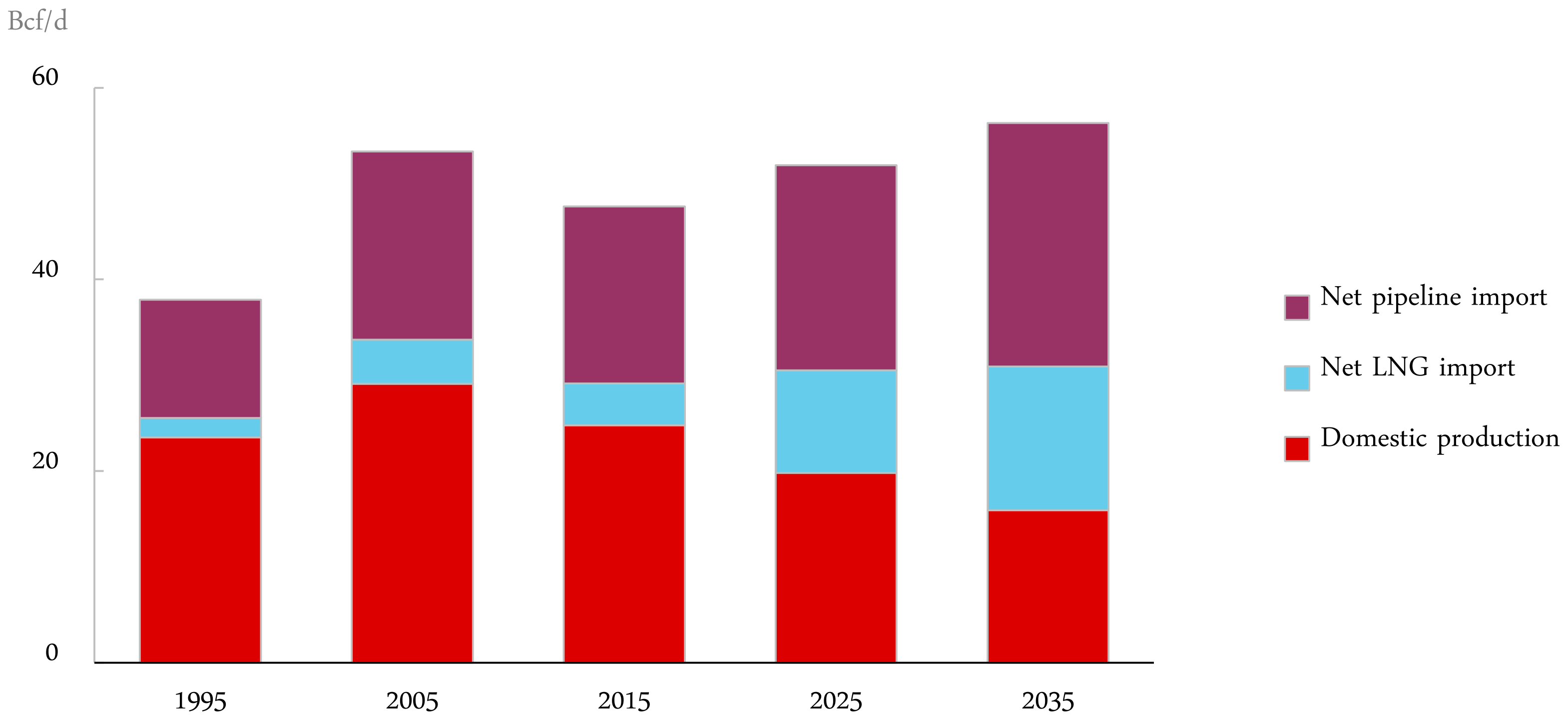


Growth of LNG





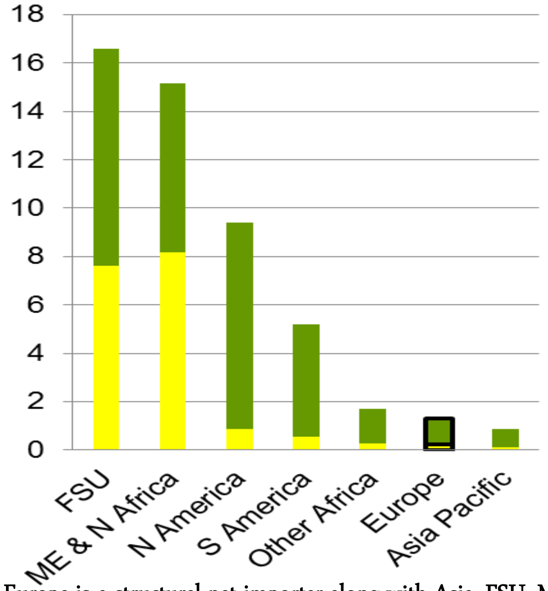
Sources of gas supply to Europe



Europe is gas resource poor relative to size of population and economy

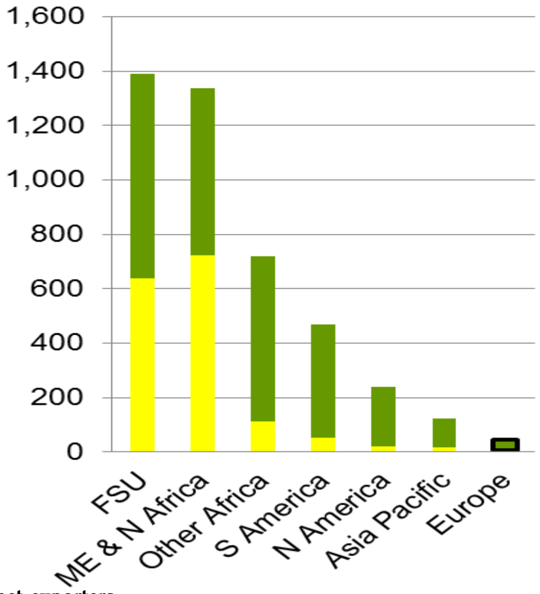
Reserves/resource <u>per head of 2010 population</u>

Tcf per million population



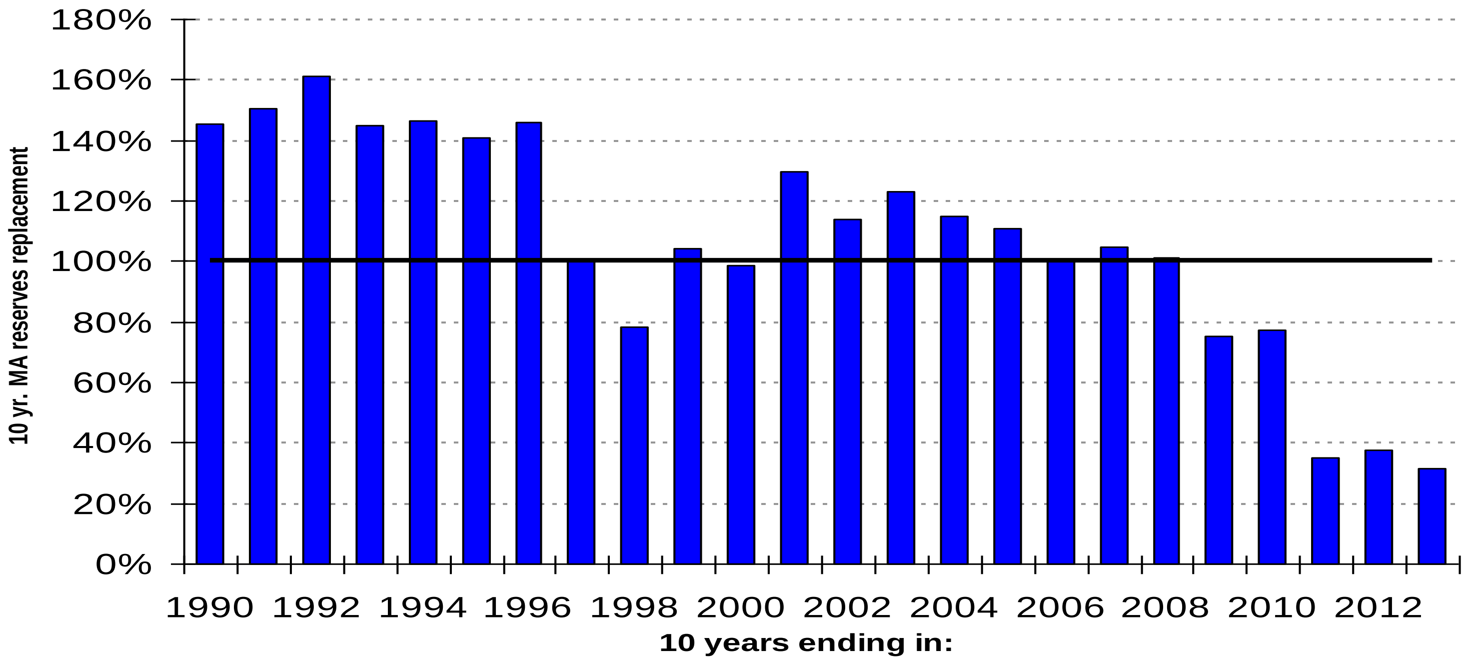
Reserves/resource <u>per unit of 2010 GDP</u>

Tcf per $2011 trillion



- **Europe is a structural net importer along with Asia. FSU, Middle East and Africa are structural net exporters**
- Europe may have material unconventional gas resources but no clear commercial discoveries as yet and policy is generally not supportive of rapid development

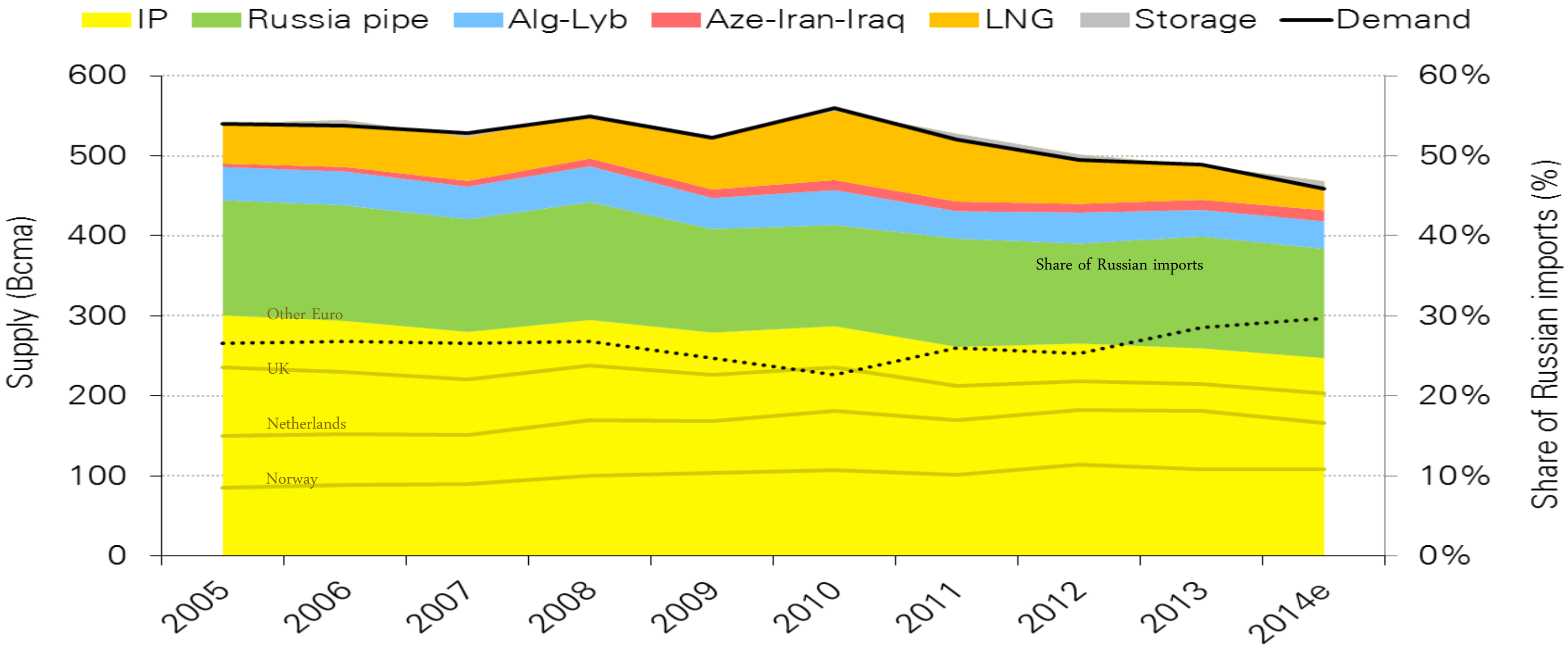
Since 2000, Europe has replaced less than 40% of gas production with new proved reserves additions



Source: BP Statistical Review

Dependence on Russian gas has grown with declining indigenous production, lower North African exports and diversion of LNG to Asia/Latin America

Read area chart on the left-hand side axis – Right-hand side axis is only for share of Russian gas over total European imports



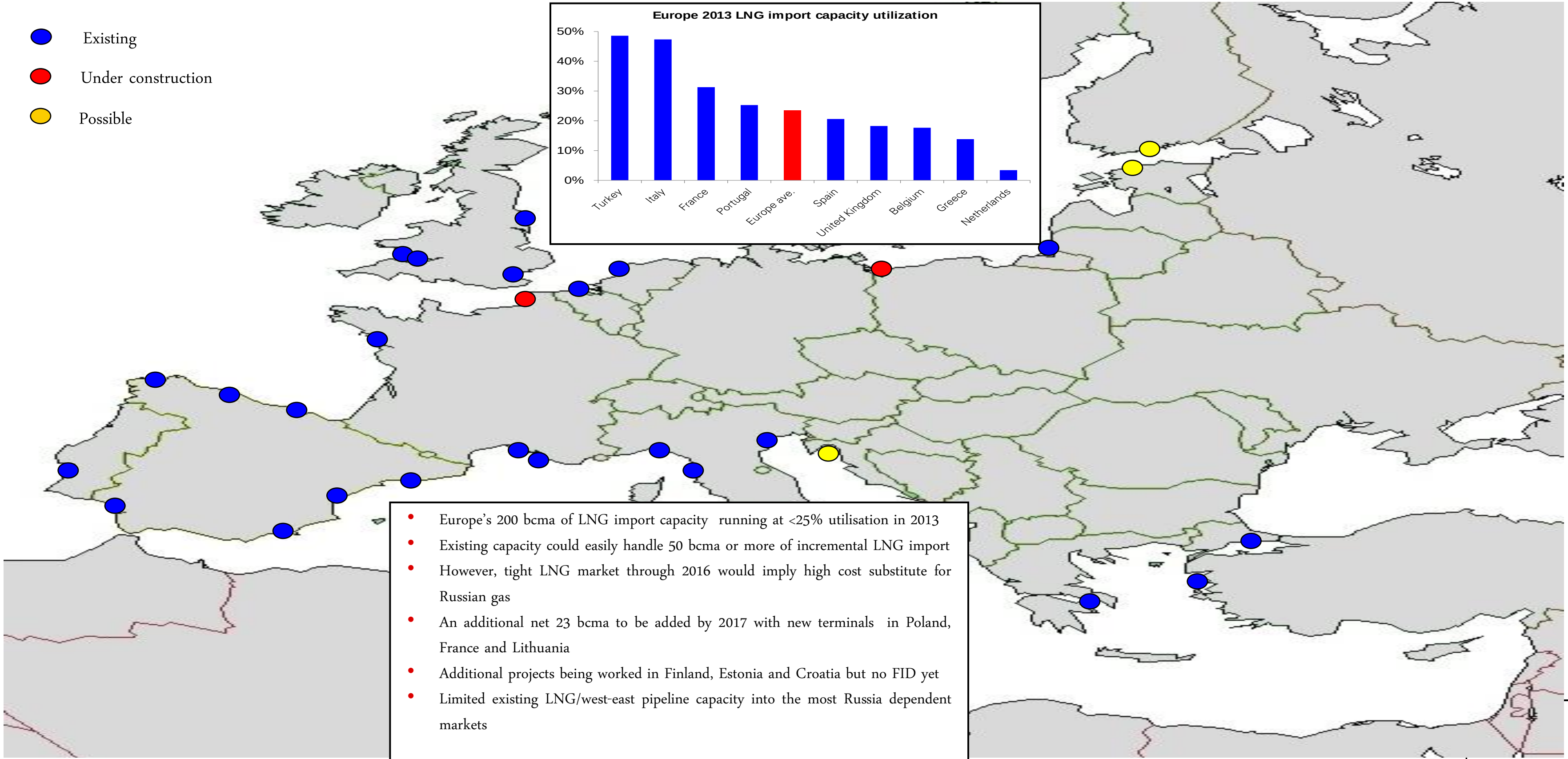
Source: Country national statistics, BP Stats Review

Europe has significant, under-utilized LNG import capacity

Existing

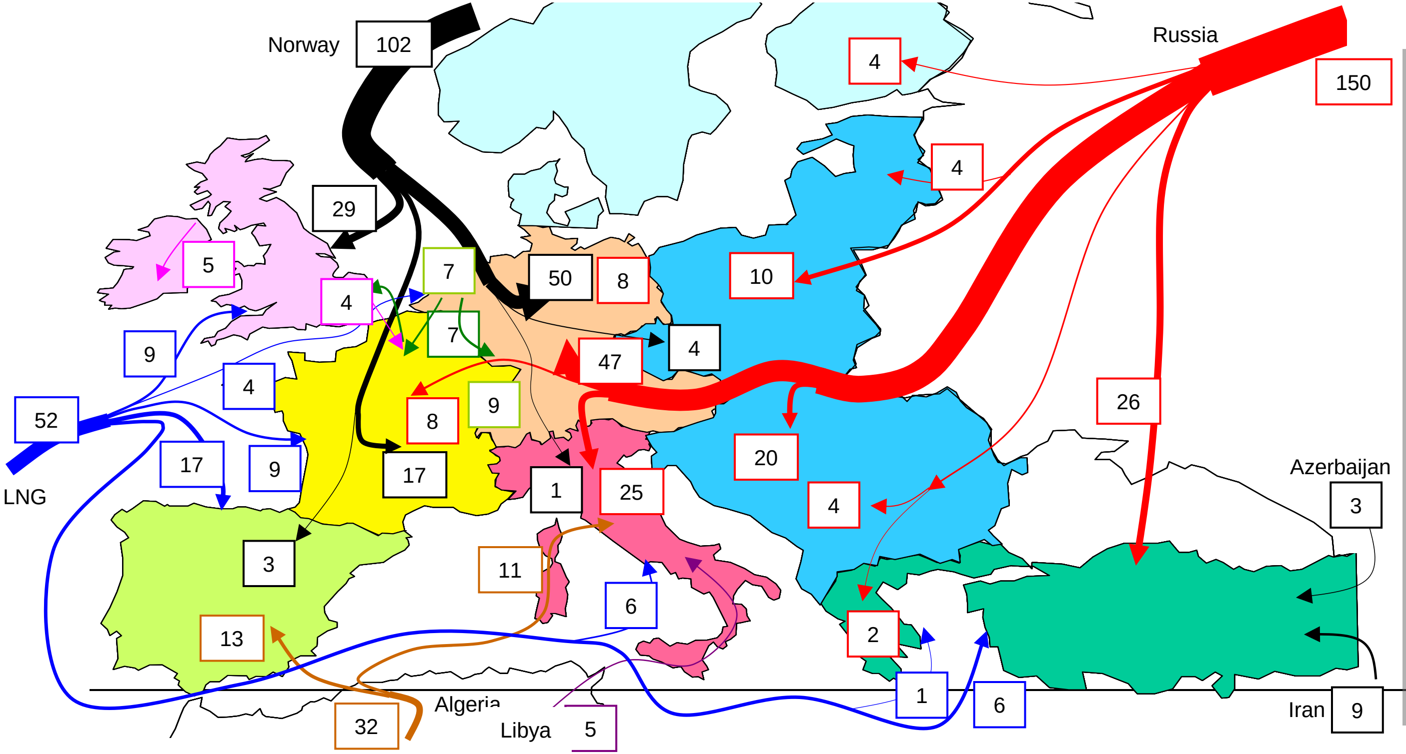
Under construction

Possible



- Europe's 200 bcma of LNG import capacity running at <25% utilisation in 2013
- Existing capacity could easily handle 50 bcma or more of incremental LNG import
- However, tight LNG market through 2016 would imply high cost substitute for Russian gas
- An additional net 23 bcma to be added by 2017 with new terminals in Poland, France and Lithuania
- Additional projects being worked in Finland, Estonia and Croatia but no FID yet
- Limited existing LNG/west-east pipeline capacity into the most Russia dependent markets

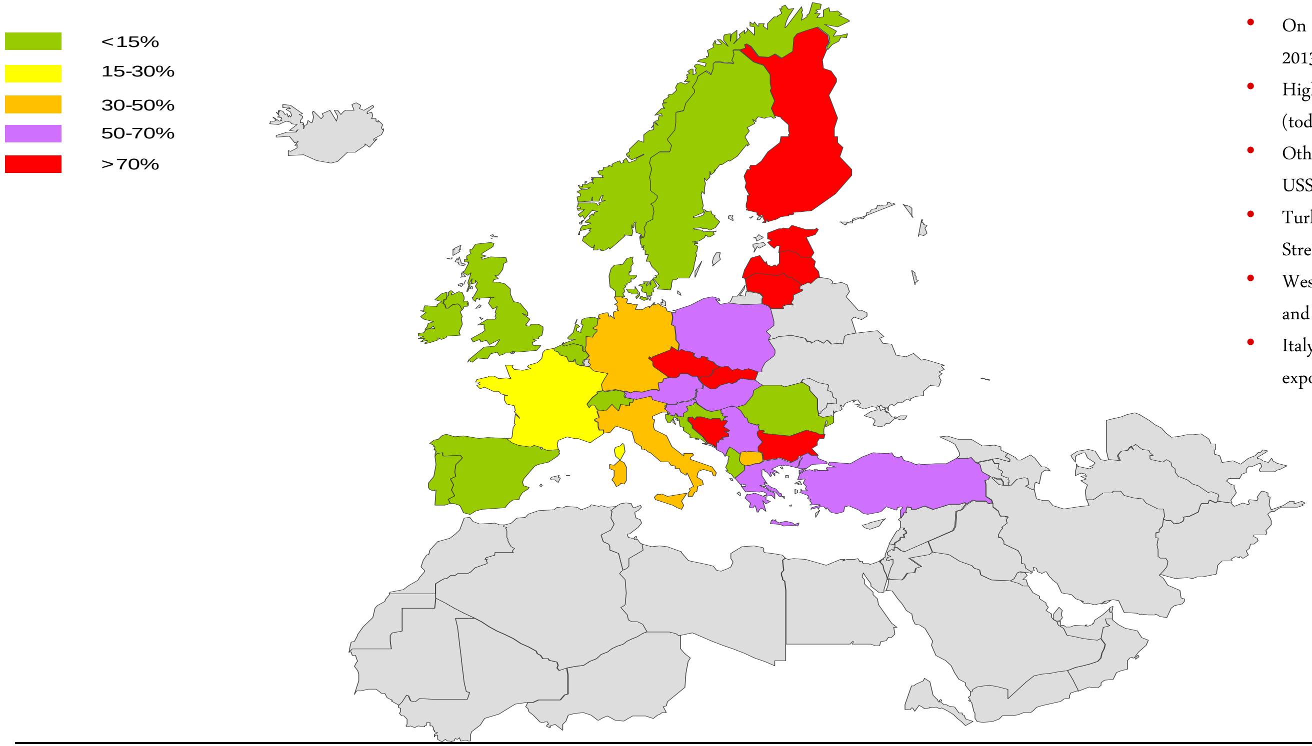
European gas trade flows (bcm) show dominance of a few key suppliers



Key points:

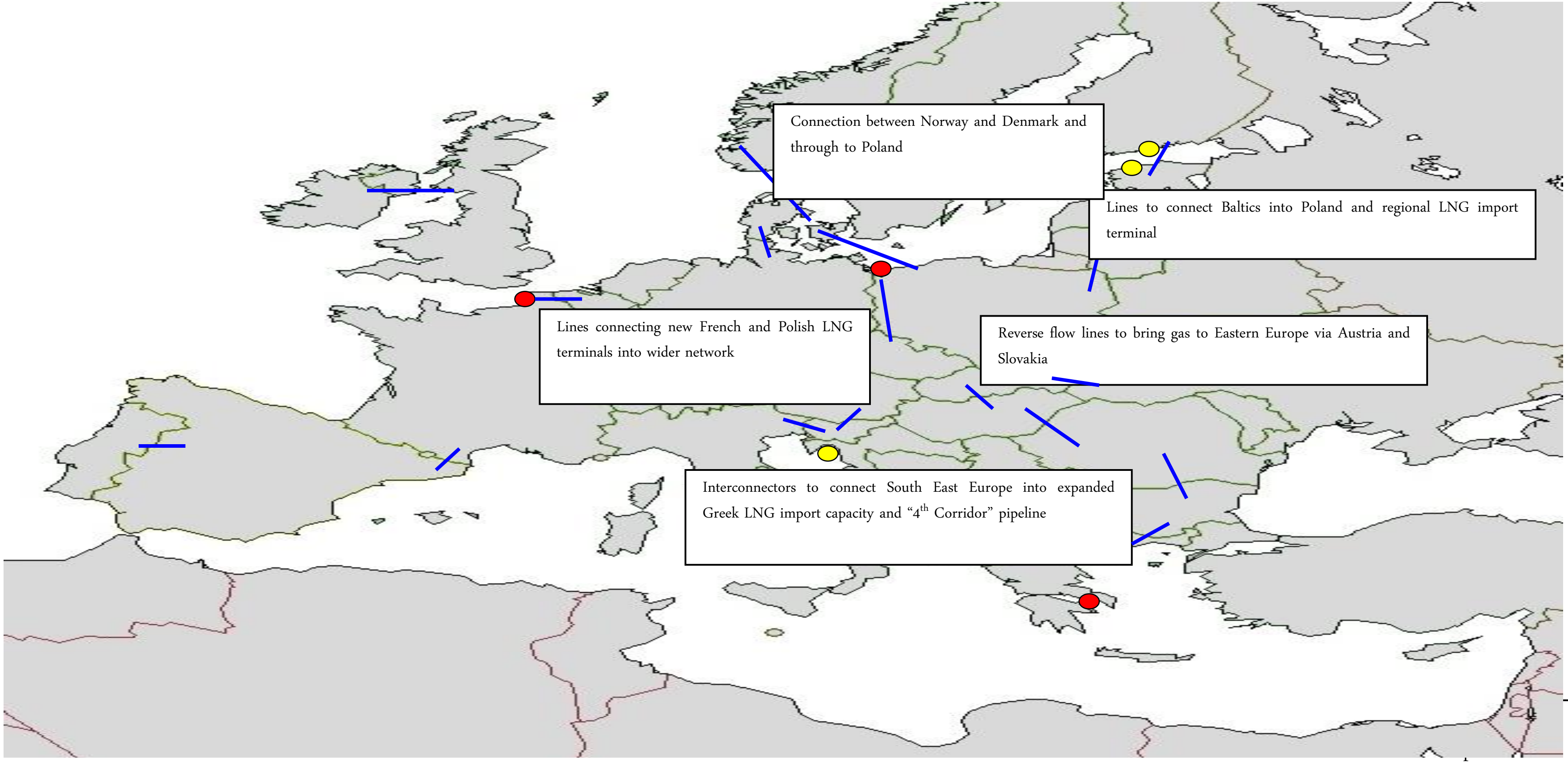
- Russia supplies around 30%of Europe's gas and is the dominant supplier to Central & Eastern Europe. Gazprom's strategy is to gain direct access to markets via Nord Stream and associated pipelines
- Norway is the #2 supplier with direct access to the UK and continental European markets and a willingness to supply trading hubs when contract takes are down
- Algeria is a major supplier to Iberia and Italy via both pipeline and LNG but is supply constrained
- LNG supply is cyclical and is mainly supplied to countries on the periphery of Europe with the largest markets being Spain, the UK, France and Turkey

Dependence on Russian gas (Russian imports as share of consumption) is much higher in eastern/central Europe



- On average, Europe ~30% dependent on imported Russian gas in 2013
- Highest dependence in Baltic countries and Finland that lack access (today) to alternative supply
- Other countries with high dependence had strong trade ties with USSR historically
- Turkey is also strongly dependent on both direct supply (via Blue Stream pipeline) and transit supply via Ukraine
- West European countries more dependent on Norwegian/Dutch gas and LNG
- Italy has become more dependent on Russian gas with declining exports out of Algeria and Libya

EU publicly funded "Connecting Europe Facility" focused on expanding interconnection in Eastern Europe



In conclusion

Energy Union:

- ✓ Energy security, solidarity and trust
- ✓ **A fully integrated European energy market**
- ✓ Energy efficiency contributing to moderation of demand
- ✓ Decarbonising the economy
- ✓ Research, Innovation and Competitiveness

- Completing the internal market for gas and electricity should be THE top priority (interconnection, reverse flows, fuel switching, LNG re-gas, a proper supervision of regulators, renewable energy backup systems, gas storage

- Energy mix can remain MS sovereign decision this is not the issue but interconnection should be part of the EU project

- Price is an element of energy security: Gas and electricity prices should not be a vector for financing all kind of other policies: don't get confused between cost and price !

Thank you