

External dimension of the EEP

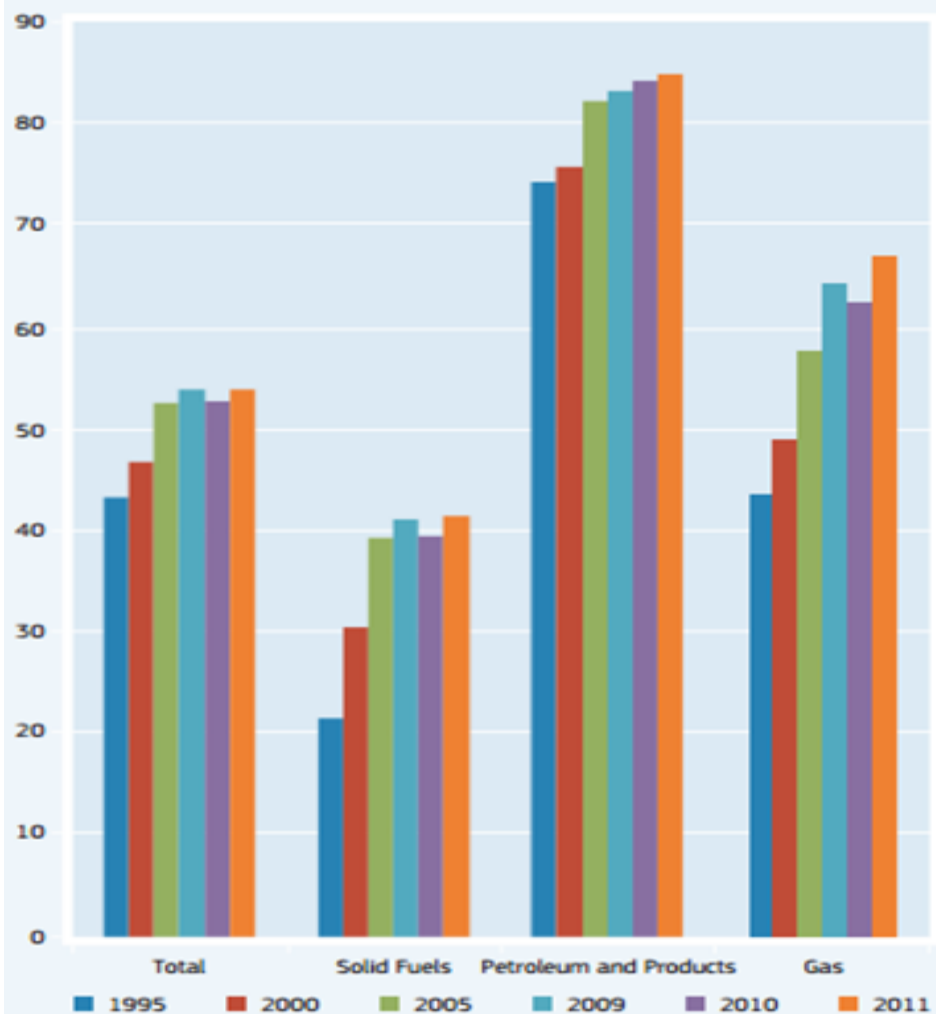
Filip Černoch
cernoch@mail.muni.cz

EU-27 Energy Import Dependency

By Fuel

Import Dependency (%)	1995	2000	2005	2009	2010	2011
Total	43.2%	46.7%	52.4%	53.8%	52.6%	53.8%
Solid Fuels	21.4%	30.5%	39.2%	41.1%	39.4%	41.4%
Petroleum and Products	74.3%	75.7%	82.2%	83.2%	84.1%	84.9%
Gas	43.5%	48.9%	57.7%	64.3%	62.4%	67.0%

EU-27 Energy Import Dependency – By Fuel, 1995-2011 (%)



Source: Eurostat, April 2013
Methodology and Notes: See Appendix 13 – No 1

Energy 'from abroad'

- To secure stable and reliable supplies of energy at affordable prices
- To improve relationship between consuming countries, producers and transit countries
- To strengthen the negotiating position of the EU by 'speaking with one voice'

- Limited supranationalisation – energy security as an issue of high politics. Issues outside of the reach of the EU. Weak position of EC
- Not clearly defined area – only vague and rather supportive powers of the European Commission

- Increasing importance due to the disintegration of Soviet Union, accession of new MS, Russia-Ukraine disputes...

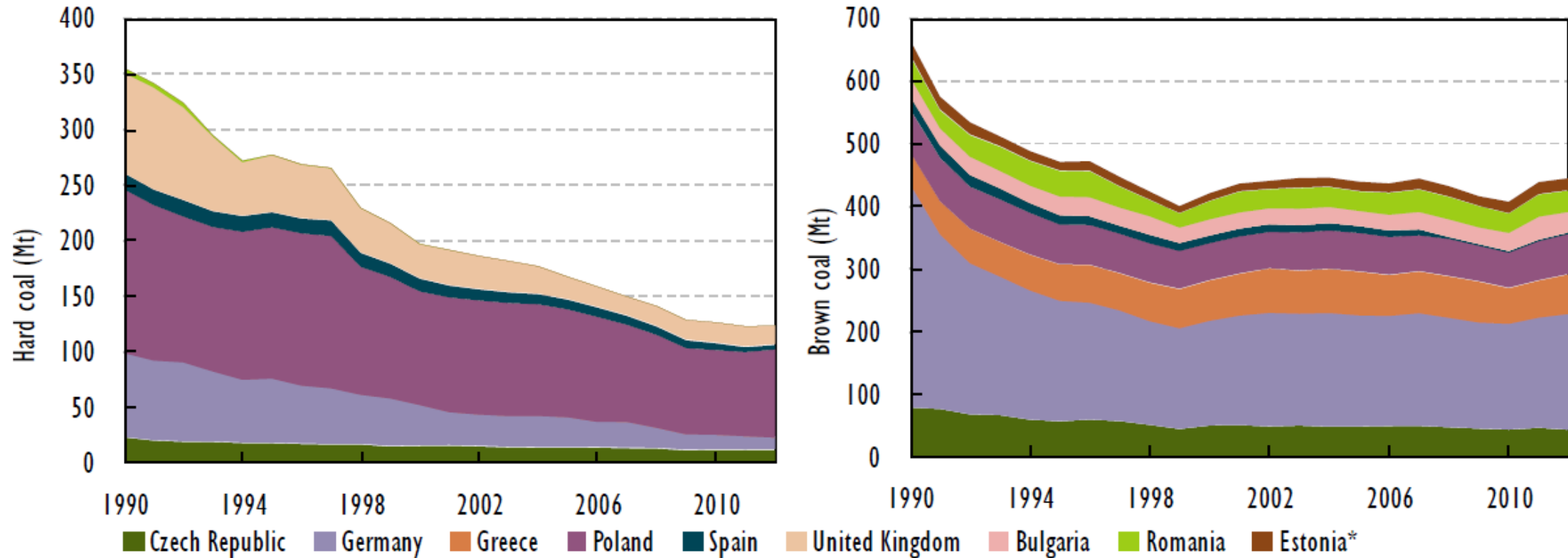
Powers and tools of the EC

- Support of diversification
 - **Diversification of fuels**
 - Diversification of suppliers
 - Diversification of transit routes
- Strategic reserves of oil and gas
- Export of energy acquis communautaire via network of bilateral, multilateral and global treaties covering (to some extent) energy issues
- IEM

Coal security and supplies

- 17,5% of the total primary energy supply. From 2002 slowly decreasing with return to the growth from 2009
- Main source for electricity
- In 2013 65% of total consumption of hard coal imported from outside of the EU. Brown coal produced and consumed locally
- Still substantial indigenous production – security benefit
- Environmental problems (CCS)
- EU focuses on environmental impacts and state aid
- = **not a security issue**

Coal production in major producing countries, 1990-2012



* Data for Estonia is for oil shale.

Sources: IEA (2014a), *Energy Balances of OECD Countries*, OECD/IEA, Paris, IEA (2014b), *Energy Statistics of Non-OECD Countries*, OECD/IEA, Paris.

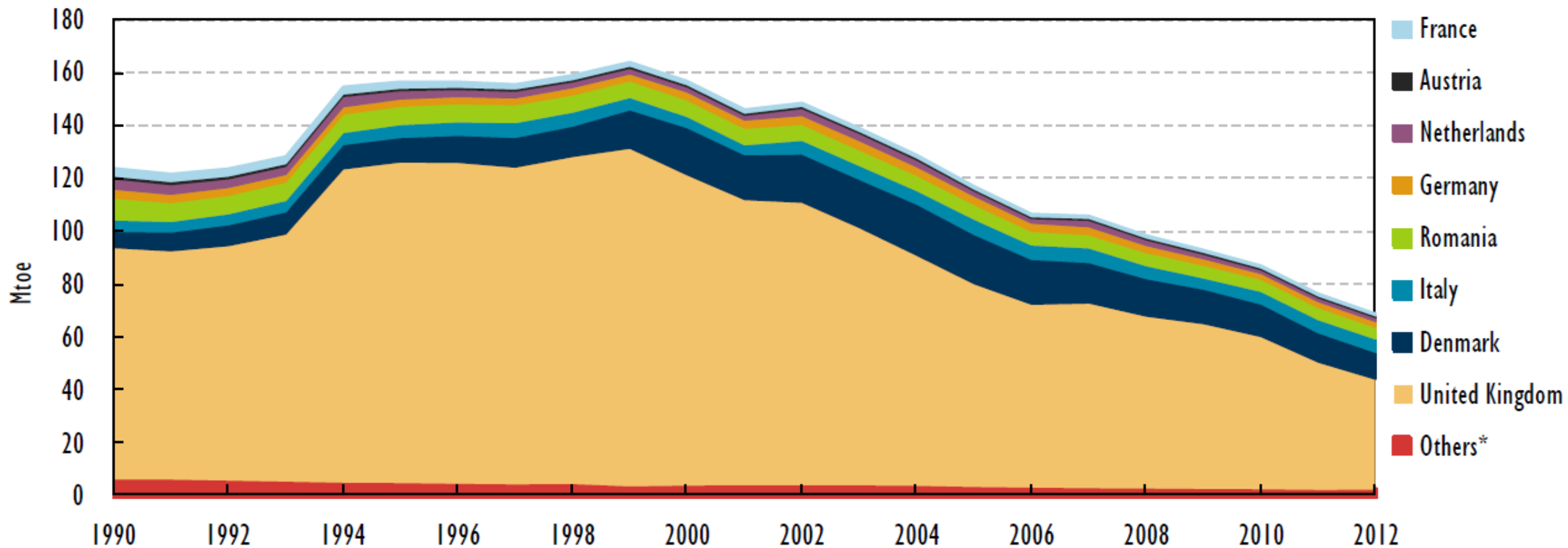
Nuclear security and supplies

- 27% of the total electricity generated in the EU. 56 NPPs (131 reactors) in 14 MS
- Nuclear energy **not a security problem**:
 - Diversification of supplies
 - Mining (1/2 half of the production from Canada, Australia, Niger, Kazakhstan, Russia, Namibia) and yellow cake production
 - Enrichment (to raise the proportion of the uranium-235 isotope). Countries with A-bomb technology
 - Fabrication
 - High energy content of fuel – Temelin (2x10⁵5MW) – about 4m²/y
- Megatons to Megawatts

Oil security and supplies

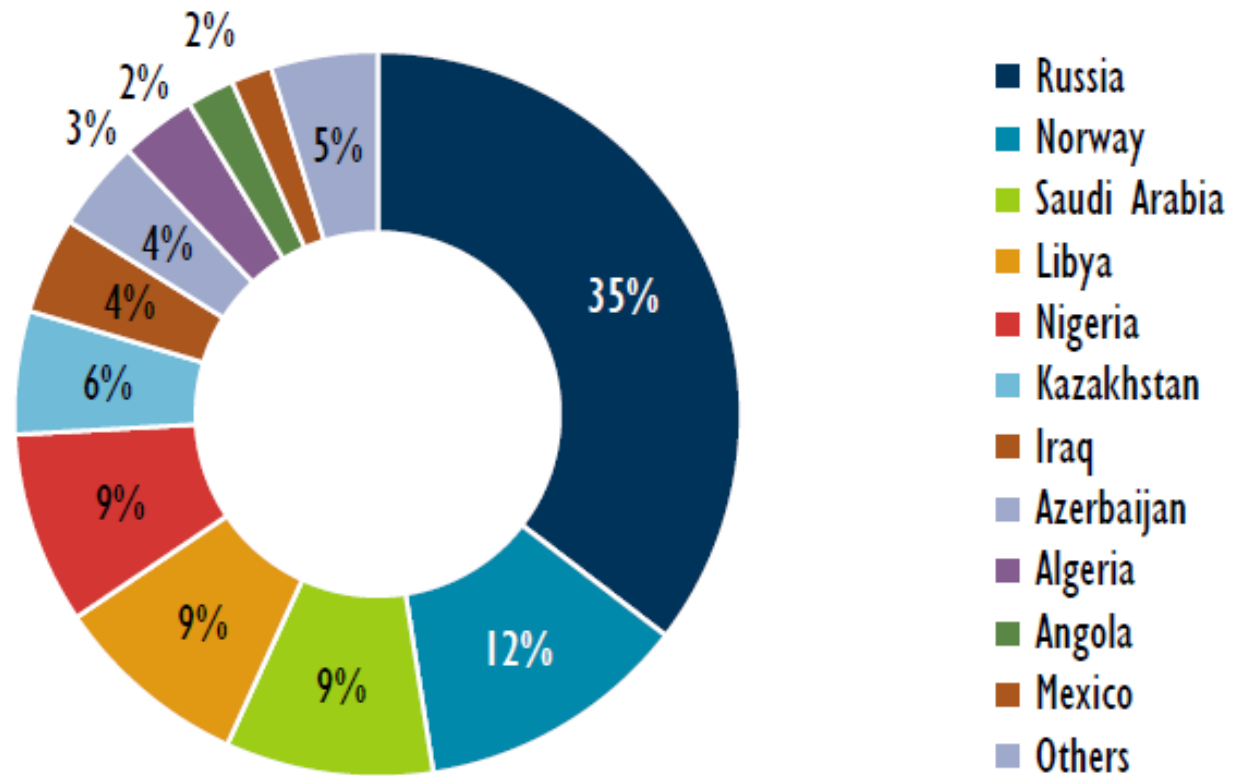
- 32% of the total primary energy supply
- Indigenous production of crude has been falling faster the decline in consumption. (Norway?)
- = **oil considered as a security** (dependency on exporting countries) **problem**
- Also problem of competitiveness – European refineries face substantial restructuring (low margins and low utilisation rates) due to the decreasing regional demand and increased competition from Middle East, Asia, USA
 - 15 of them closed between 2008-2014 – 8% decrease in processing capacity of the EU
- Increasing dependence on import of oil products

Crude oil production, 1990-2012



* *Others* includes other EU member states which produced crude oil each year. In 2012, Belgium, Estonia, Finland, Ireland, Luxembourg, Portugal, Slovenia, Sweden, Cyprus**, Latvia and Malta did not produce crude oil.

Imports of crude oil to the EU by country of origin, 2012



Source: Eurostat, May 2014

Primary Russian Oil and Gas Pipelines to Europe (U)

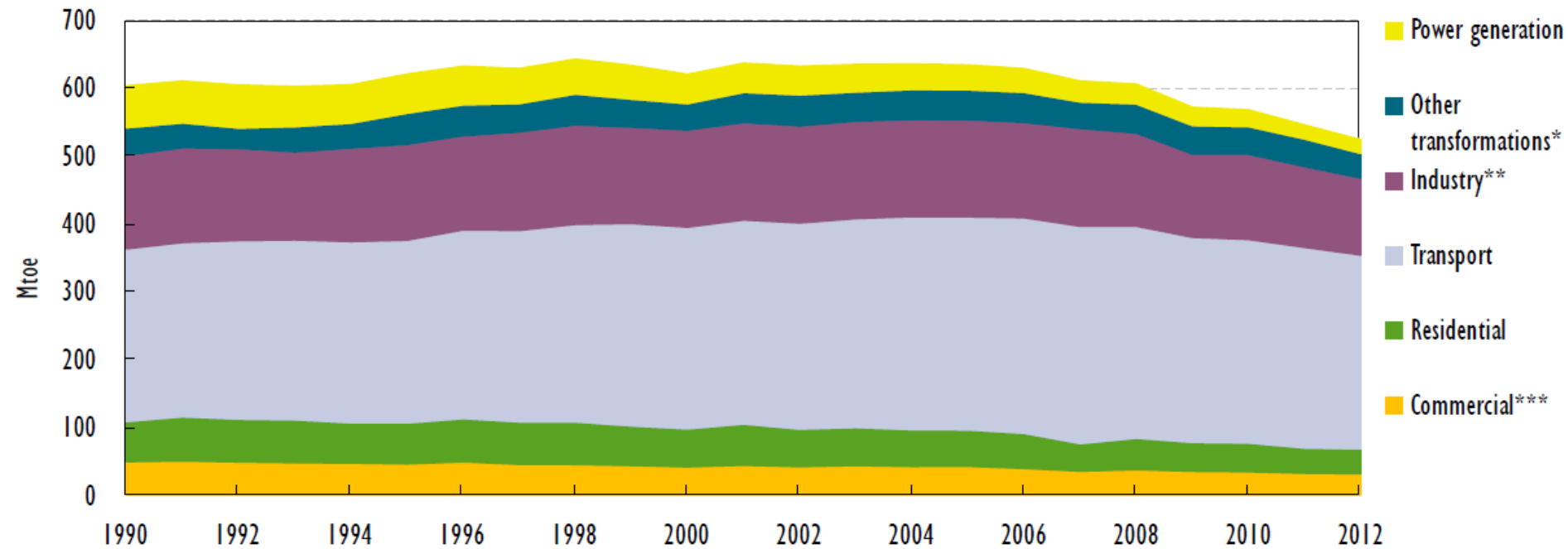


Oil security and supplies

- Difficult to replace – mainly in transport and petrochemistry
- Support of usage of RES instead of oil
 - Biofuels – Energy and climate package – 10% of biofuels (RES) in transport in every MS by 2020. Later on strengthened
 - RES electricity in energy sector

Oil security and supplies

EU oil consumption by sector, 1990-2012



Notes: TPES by consuming sector.

* *Other transformations* includes refining and energy-own use.

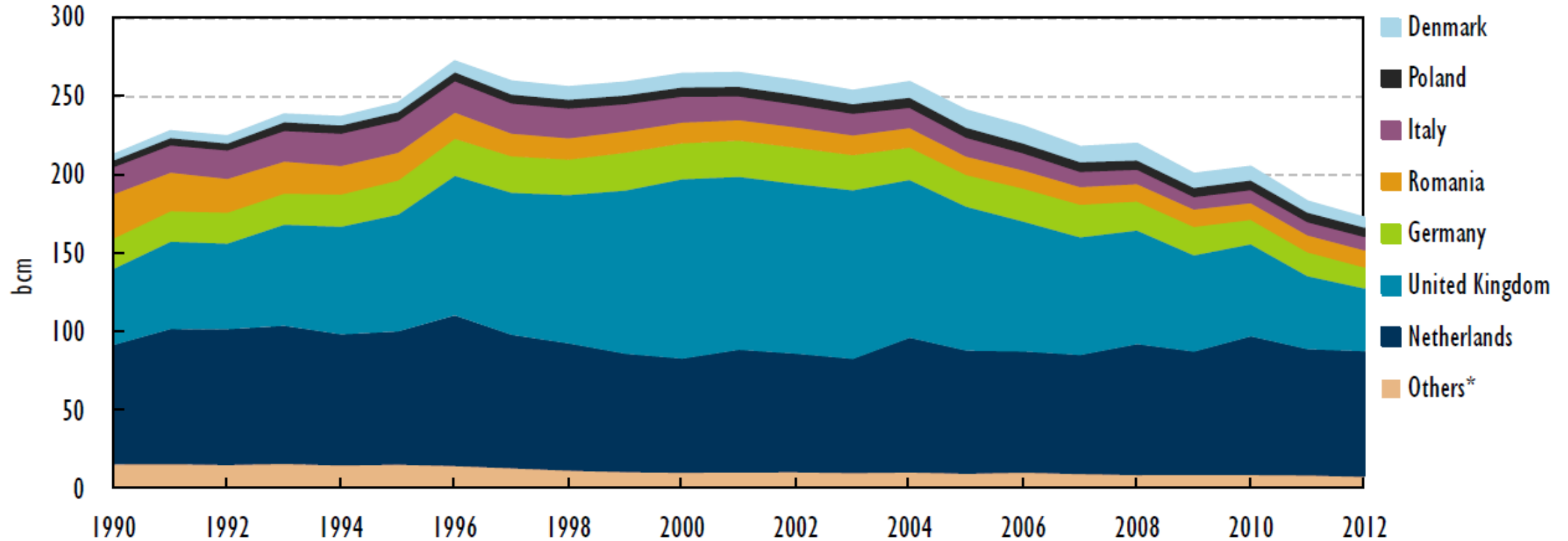
** *Industry* includes non-energy use.

*** *Commercial* includes commercial and public services, agriculture/fishing and forestry.

Gas security and supplies

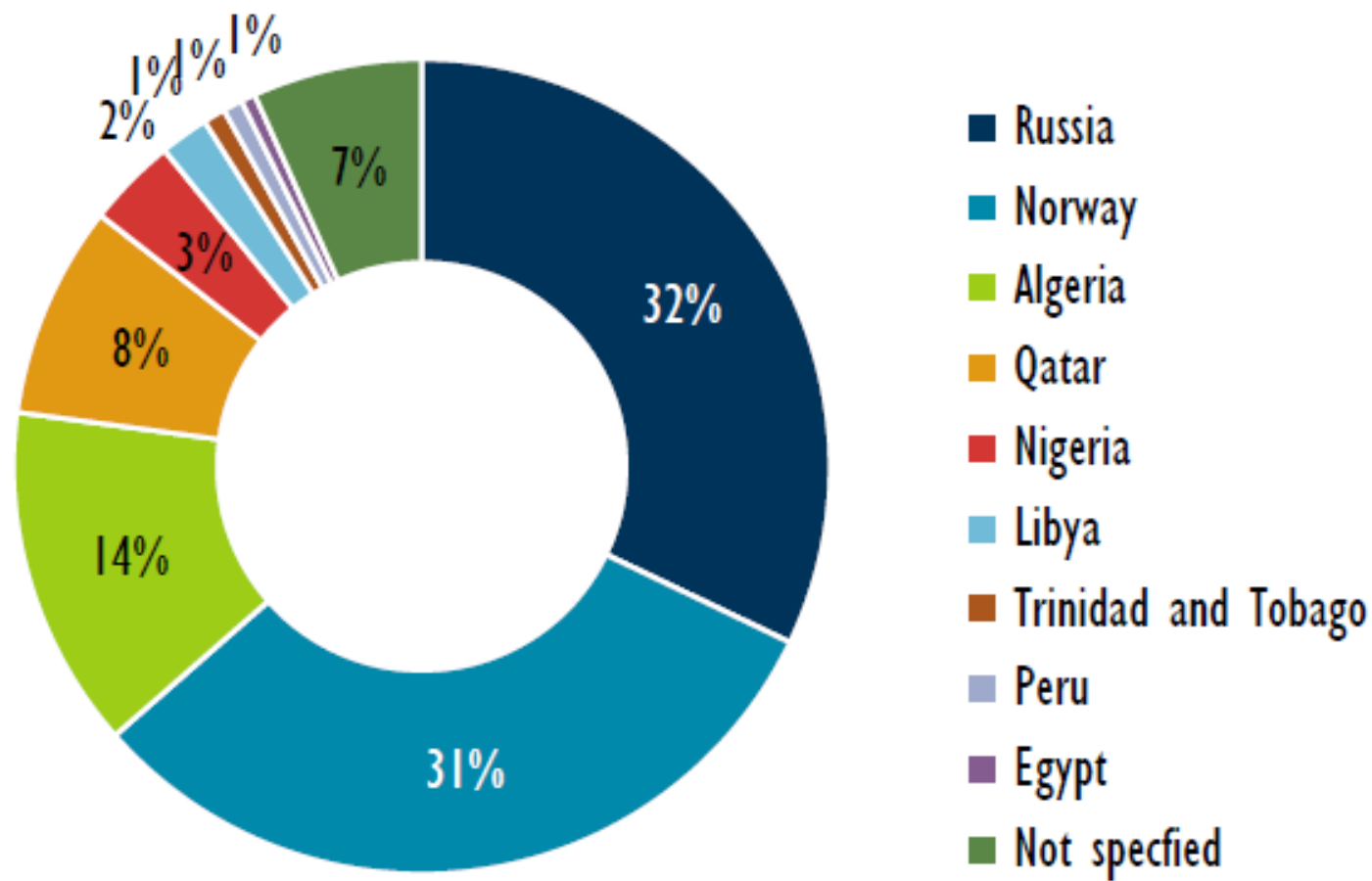
- 23,9% of the total primary energy supply
- Peak in demand in 2010, now plateaued (slightly decreasing)
- Dependence on fixed pipelines – low flexibility
- Ensuring security of gas supply and limiting import dependency a priority = **a high security concerns**
- A growing competition due to LNG, higher exposure to price differentials between Asia, North America and the EU

Natural gas production, 1990-2012



* *Others* includes other EU member states which produced gas in each year. In 2012, Belgium, Estonia, Finland, Luxembourg, Portugal, Sweden, Cyprus**, Latvia, Lithuania and Malta did not produce gas.

Gas imports to the European Union, 2012



Source: Eurostat, 2014.

Primary Russian Oil and Gas Pipelines to Europe (U)

- Oil pipeline
- - - Proposed oil pipeline
- Gas pipeline
- - - Proposed gas pipeline
- Russian-dominated pipeline^a
- Tanker terminal

0 500 Kilometers
0 500 Miles

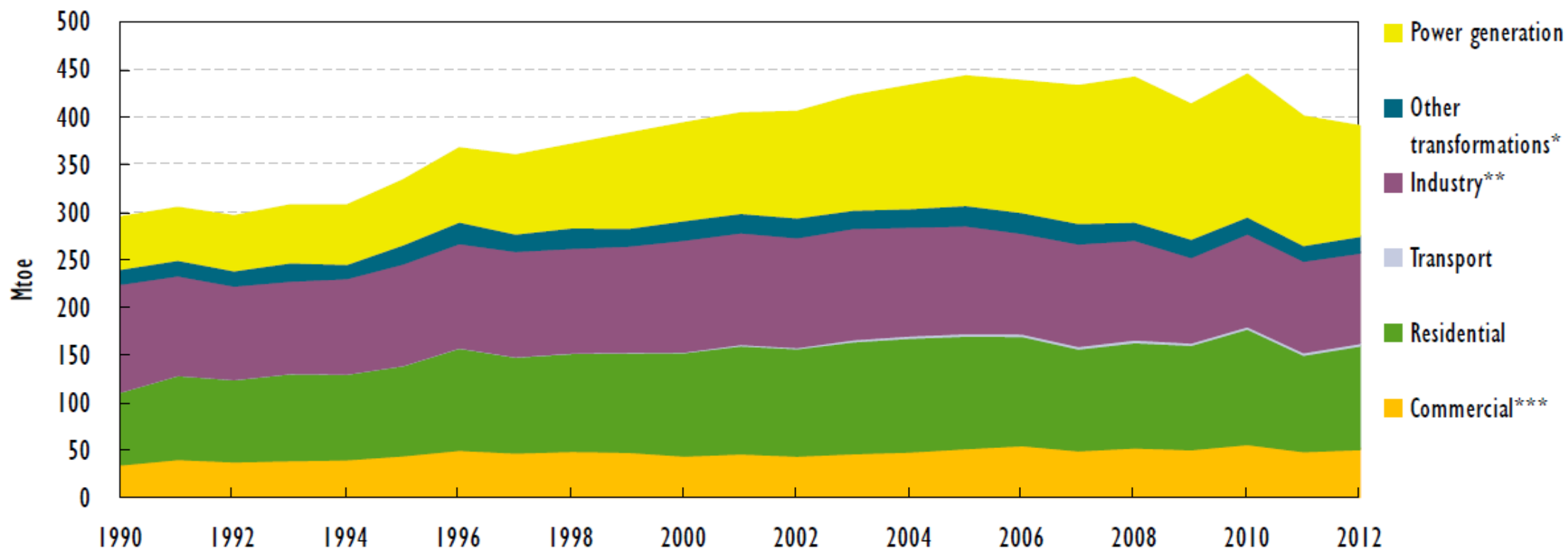
^aAll or most of the oil or gas moving through a given pipeline is from Russia.



Gas security and supplies

- A high security concerns
- In power generation could be replaced by RES or coal or nuclear
- Indigenous production? (still substantial reserves in the North Sea) + unconventional sources (shale gas)

Natural gas supply by sector, 1990-2012



Notes: TPES by consuming sector.

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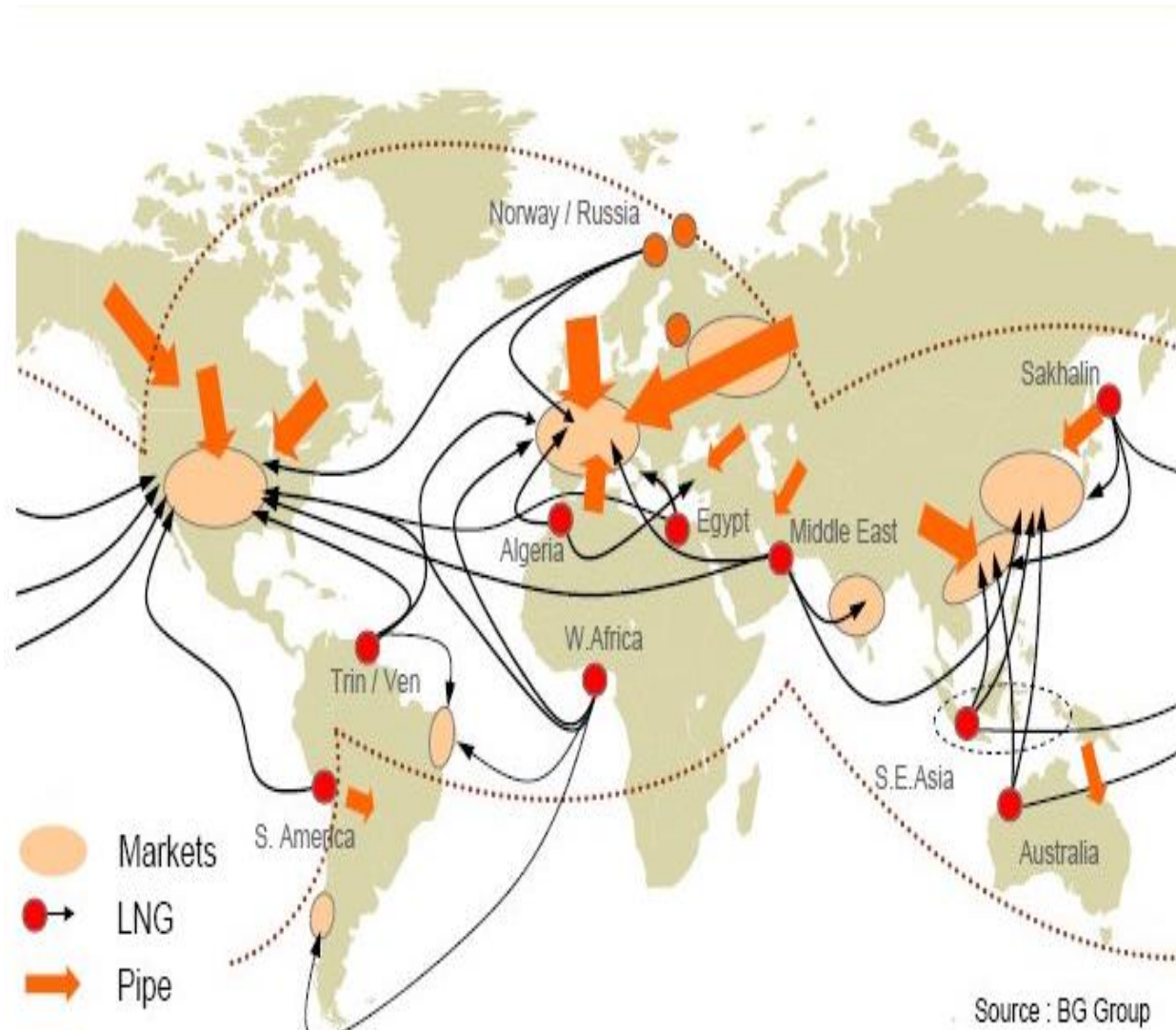
Unconventional gas

- Abundant reserves – in the Netherlands, UK, Denmark, Romania, Poland, France, Germany, Bulgaria, Sweden, Spain
- Europe (470 tcf) vs. USA (1685 tcf)
- Environmental concerns
 - Gas itself is clean, but the exploration could be a problem
 - Consumption of water – 280 000hl/one dril. 0,5 – 2 % of this water consists of drilling chemicals
 - 2-4 ha/one drilling pad (up to 30 drills) 3-6km between pads
 - Trafic – one dril = 700-2000 trucks (one every 4 min. during construction)
 - Earthquakes (seismic activity)

Powers and tools

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- IEM

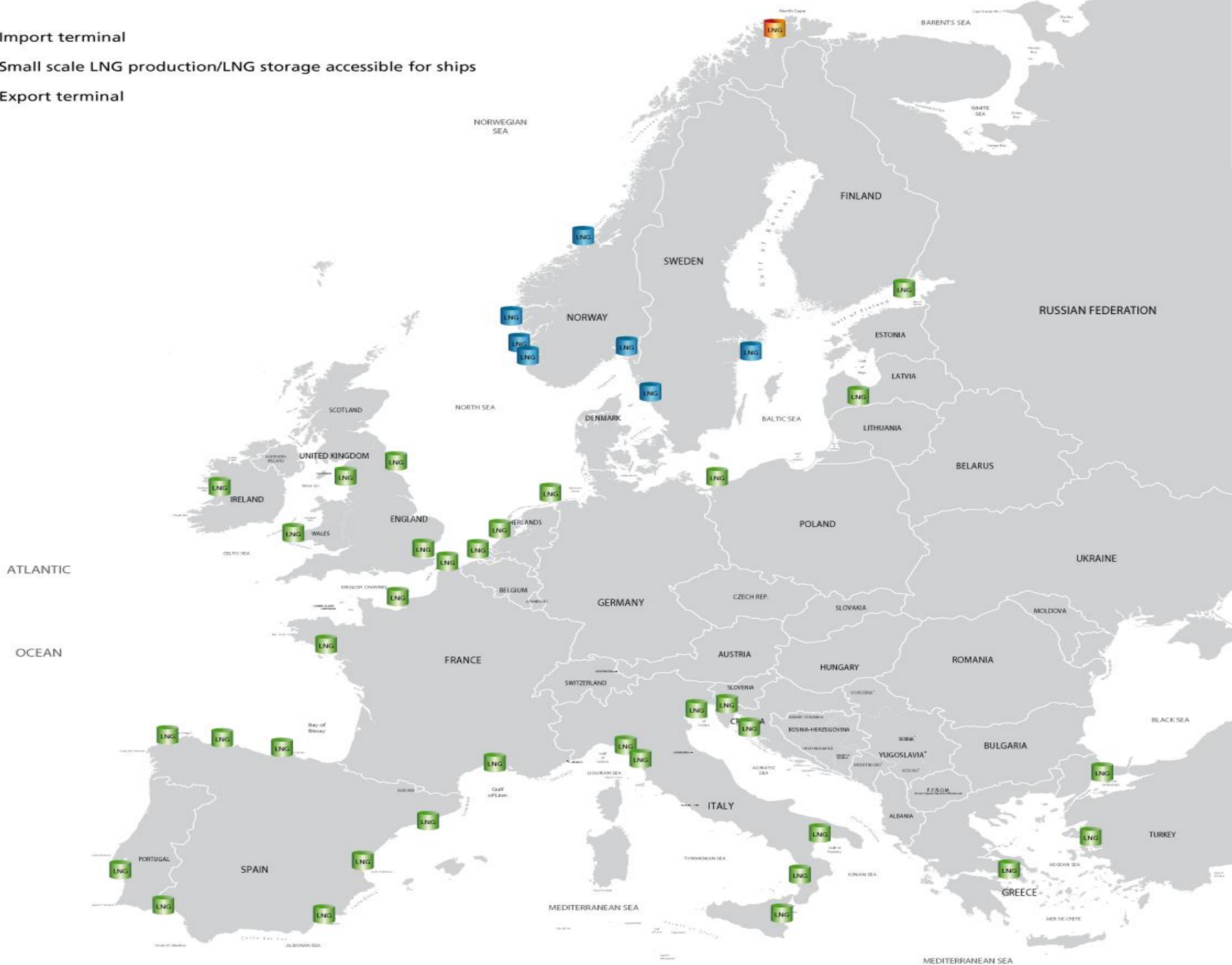
Pipeline gas and LNG



LNG

- In 2013 19 LNG terminals. Since 2008 new terminals in France, UK, the Netherlands and Italy. Three new commissioned (Lithuania, Poland – NS interconnection, France). Financial support from the EU funds
- TPA applied

-  Import terminal
-  Small scale LNG production/LNG storage accessible for ships
-  Export terminal



Powers and tools

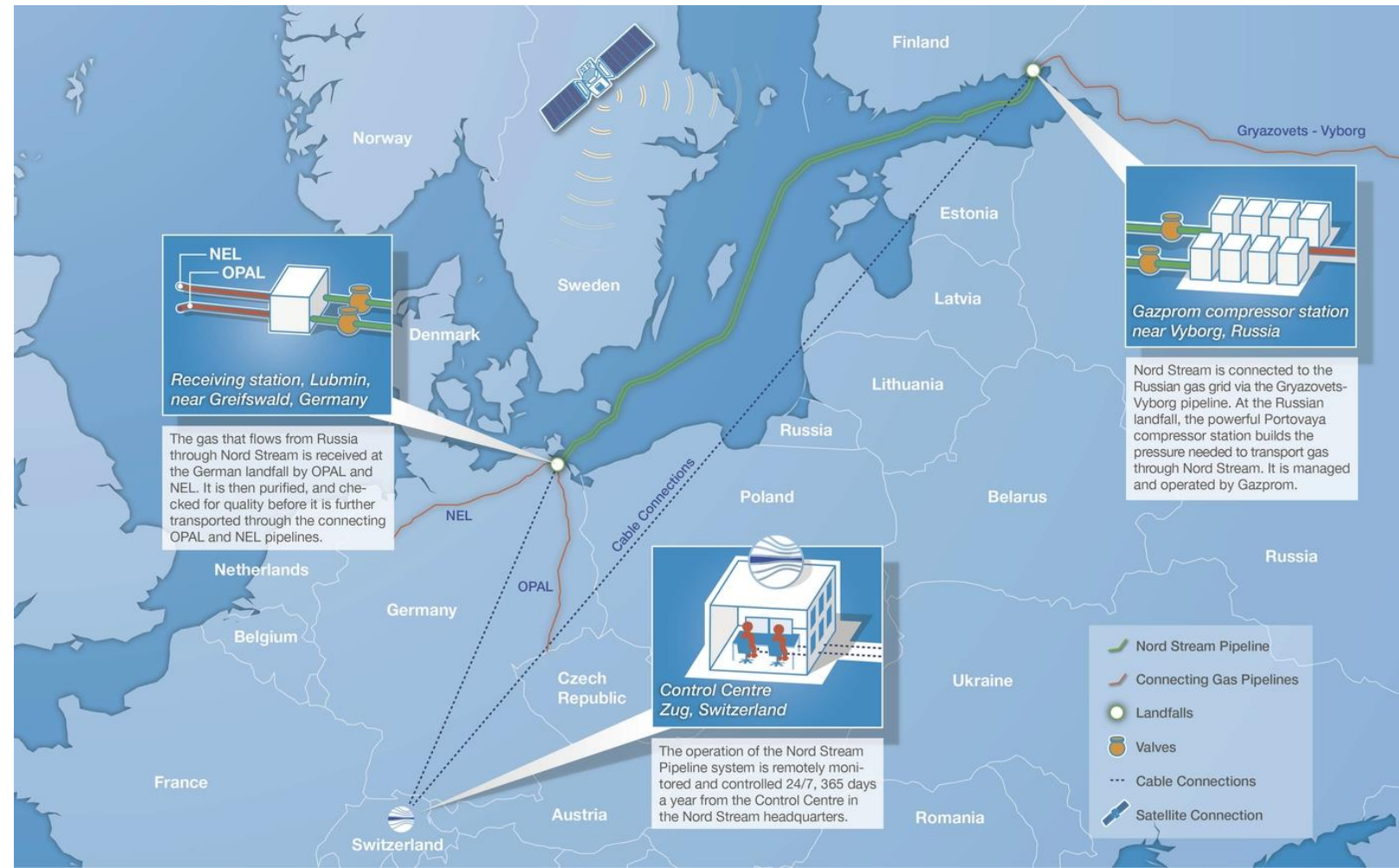
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Russia-Ukraine gas crisis 2009

- 1.1.2009 Russian exports to Ukraine cut off, problems in 16 EU MS and Moldova for 2 weeks (7.-20.1.2009). Part of the Balkans in a humanitarian emergency, economic damages
 - 15% of EU supplies via the Brotherhood pipeline
- The missing 5bcm could be replaced by supplies in the EU gas market (storages in Germany, Austria and Italy), but there were no interconnections
- Wake up call for the EU, investments to reverse flows, storage capacities, debate about new import pipelines

Nord Stream

- Nord Stream (2 lines of 55 bcm/y) is not restricted by TPA but both OPAL (50 % of its 35 bcm/y) and NEL (35 % of its 20 bcm/y) are
- Supported by the EU (just fraction of costs)



South Stream

- 63 bcm/y. Controlled by Gazprom Export
- Two legal issues:
 - Unbundling (OAO Gazprom and OOO Gazprom export + South Stream Bulgaria – different legal entities)
 - TPA



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Activities of the commission - reserves

- Strategic reserves of crude oil and petroleum products – Directive 2009/119/EC – MS are obliged to ensure a total level of oil stocks corresponding to the 90 days of average daily net imports or to the 61 days of average daily inland consumption, whichever of the two quantities is bigger
- Regulation No 994/2010 concerning measures to safeguard security of gas supply
 - resolves the situation in case when the single largest gas infrastructure of country fails, which is the so called N-1 scenario. In such case, the regulation obliges the MS to ensure the supply for protected customers (mostly households + hospitals...)

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Instruments of the external dimension of the EU energy policy

Instrument	Partners
Bilateral cooperation	
Energy dialogue	Brazil (since 2007), China (since 2005), India (since 2004), Iraq (since 2010), Norway (since 2005), Russia (since 2000), The South African Republic (since 2008), Ukraine (since 2005), USA (since 2006)
The bilateral agreements of different sorts treating the economic cooperation in total, including the power industry – for example Partnership and Cooperation Action (PCA), Free Trade Agreement (FTA), Stabilization and Association Agreements.	EU economic partners across the world PCA agreements were signed by the majority of CIS countries and represented the foundational element of the Deep and Comprehensive Free Trade Area Agreements, that is, of the instrument set by the Eastern Partnership
The memorandums of understanding associated with cooperation in the field of power industry (MoU)	EU partners in the field of power industry, including Ukraine and the states from the Caspian Region The memorandums represented the first level of the intensified energy relations

Instruments of the external dimension of the EU energy policy

Multilateral cooperation	
Energy Community	<p>EU closest neighbors</p> <p>Currently, the membership consists of the Balkan states, Ukraine and Moldavia</p> <p>The observing status is held by Turkey, Norway and Georgia</p>
European Neighborhood and Partnership Instrument (ENPI)	17 neighboring states
Energy Charter Treaty	Oil producers assembled under the OPEC
Cooperation with the Gulf Cooperation Council	
Baku Initiative (INOGATE, TRACECA)	EU Assistance Program for Turkey and CIS members states (Russia is the observer)
Black Sea Regional Energy Centre (BSREC)	11 states from the Black Sea Region
Caspian Development Corporation (CDC)	Companies from the Caspian Region
Union for the Mediterranean, Barcelona Process	16 states located along the Mediterranean coastline in the North Africa, Middle East and Balkan

Instruments of the external dimension of the EU energy policy

Global cooperation	
Energy Charter Treaty	<p>Signed by 51 countries worldwide</p> <p>In reality, a vast number of countries active in the energy market remained out of this structure (for example, Norway, Australia did not ratify the document, Russia withdrew in 2009)</p>
Kyoto Protocol	<p>Signed and ratified in total by 191 countries worldwide, excluding the USA</p>
International Energy Forum (IEF)	<p>Includes the states which represent approximately 90% of the world oil and gas demand and offer</p> <p>Members are the IEA and OPEC states, China, Russia</p>
G8 and G20	<p>8 and 20 richest countries in the world</p>

Export of legal framework

- Energy Charter
 - EU, CIS countries (without RF), central Asian states, Azerbaijan, Georgia, Turkey.
 - International agreement creating framework for cross-border cooperation in the energy. Covers trade, transit, investments (Yukos' tax evasion), energy efficiency. Legally binding with dispute resolution mechanisms
 - 1991 Energy Charter declaration
 - 1994 legally binding Energy Charter Treaty (plus Environmental protocol). Building strongly on GATT and WTO rules. 51 parties

Export of legal framework

- Energy Community (2006)
 - EU, Albania, BIH, FYROM, Montenegro, Serbia, Kosovo. Moldova, Ukraine, Turkey and Norway as observers
 - Extending the (energy) acquis of the EU to countries of SEE. Common regulatory framework in energy (security of supply, energy efficiency, RES, third liberalisation package), environment and competition
 - Problems with opening of members to competition, with subsidies, unstable investment climate, insufficient measures to protect environments, state regulation of prices...

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External dimension and internal market

- EC vs. Gazprom
- September 2011 EU antitrust officials made unannounced inspections of the energy companies in 10 CEE MS
- September 2012 – EC opened formal proceedings against Gazprom for allegedly violating EU competition rules (abusing its dominant position in CEE's gas supply markets)
- Three potentially anticompetitive practices:
 - Market partitioning (destination clauses)
 - Barriers to supply diversification (breaching of TPA principle)
 - Unfair pricing (long-term take-or-pay contracts, oil indexation)

Sources

- IEA (2014): Energy Policies of IEA Countries – The European Union.