# EXTERNAL DIMENSION OF THE EEP

Filip Černoch
cernoch@mail.muni.cz

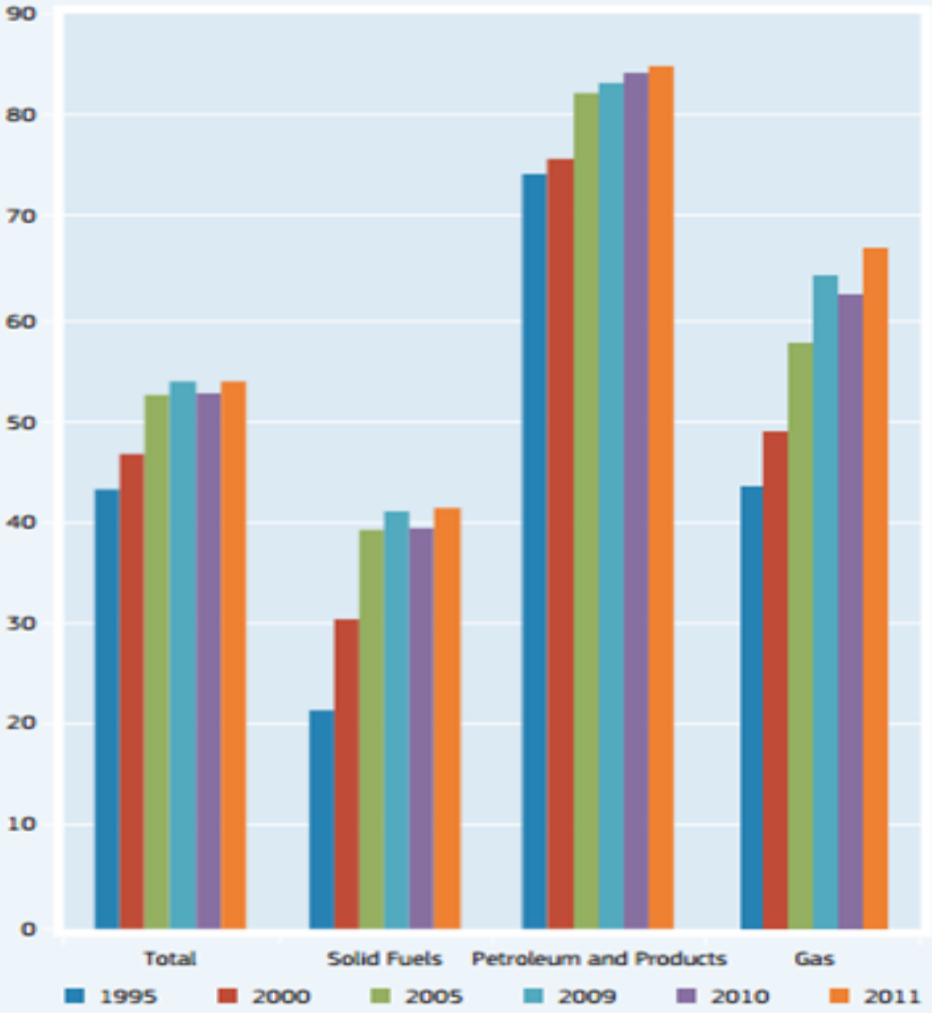
Energy policy of the EU

# 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 relationships between consuming countries, producers and tranzit countries.
- To strenghten the negotiating position of the EU by ´speaking with one voice´.

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

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

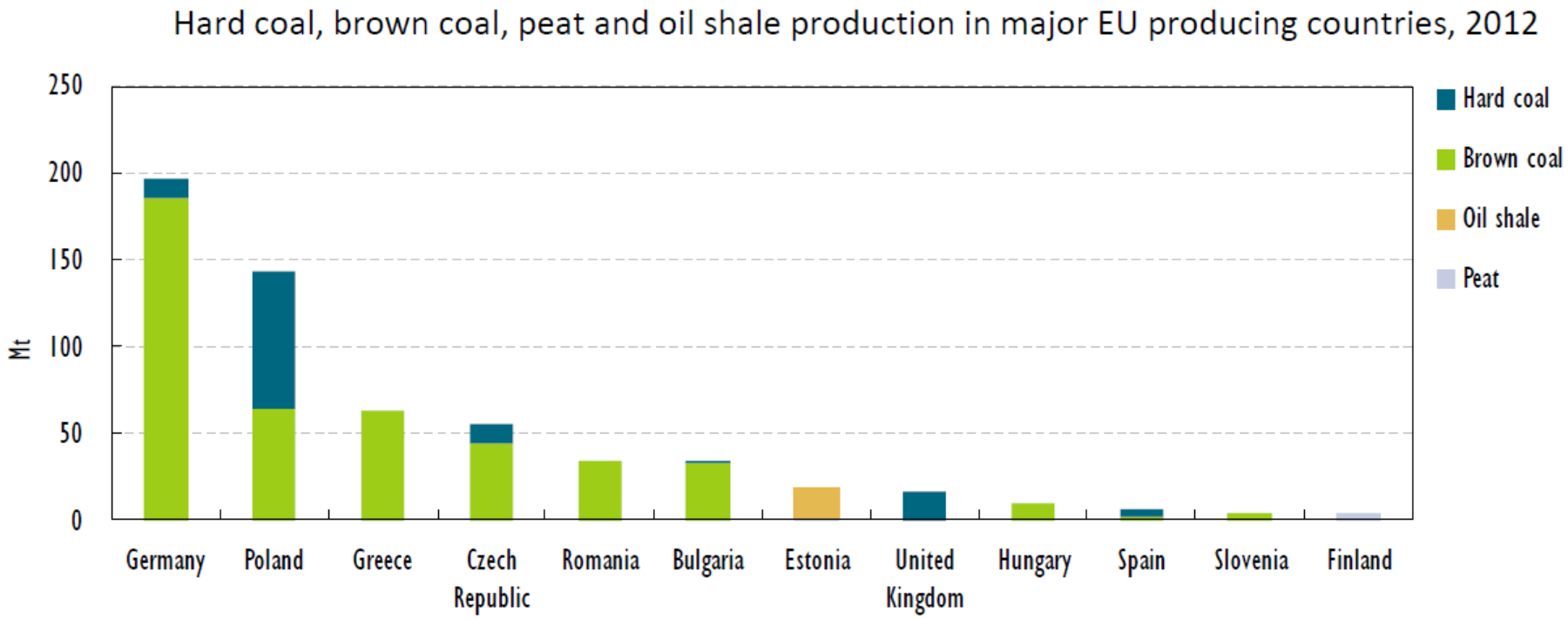
# Powers and tools of the EC

- Support of diversification
  - Diversification of fuels
  - Diversification of suppliers
  - Diversification of transit routes
- Strategic reserves of oil and gas
- Export of energy acquis communautaire
- Network of bilateral, multilateral and global treaties addressing (primarily or as a side-effect) an energy issues

# Coal security and supplies

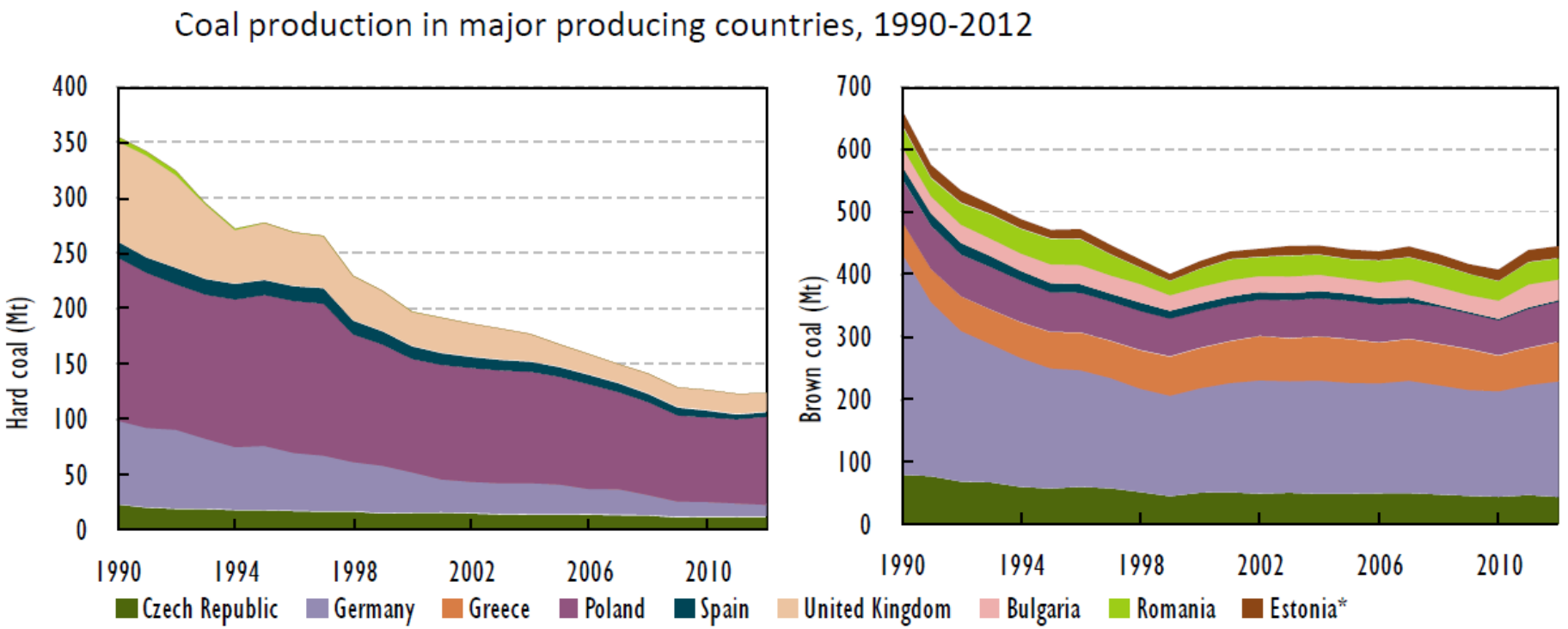
- 17,5% of the total primary energy supply. From 2002 slowly decreasing with return to the growth from 2009.
- Main source for electricity.
- In 2013 65% of total consumption of hard coal imported from outside of the EU. Brown coal produced and consumed locally.
- Still substantial indigenous production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

# Coal production




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

# Coal production




* 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.

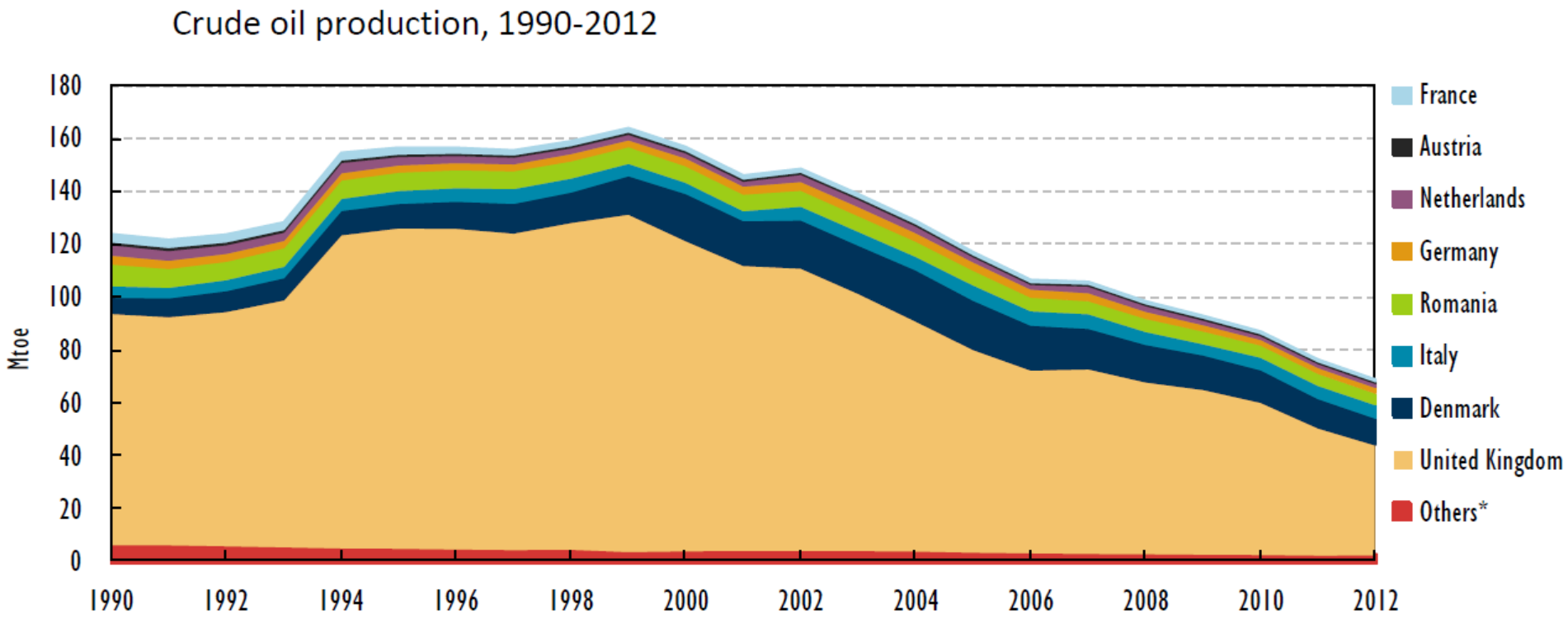
# Nuclear security and supplies

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

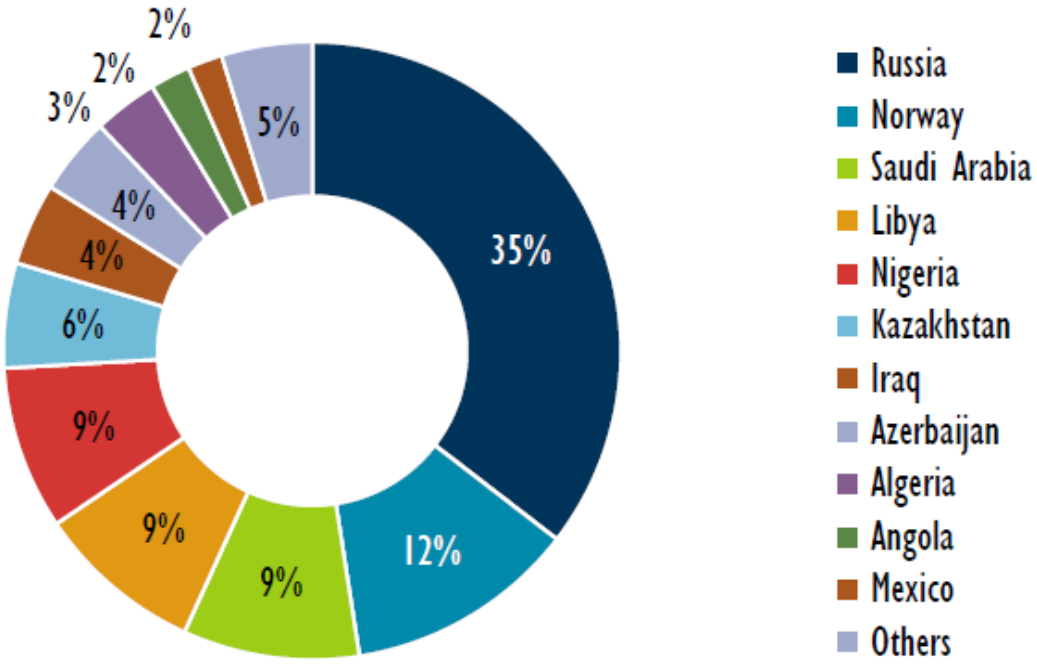
# Oil security and supplies




* *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.

# Oil security and supplies

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



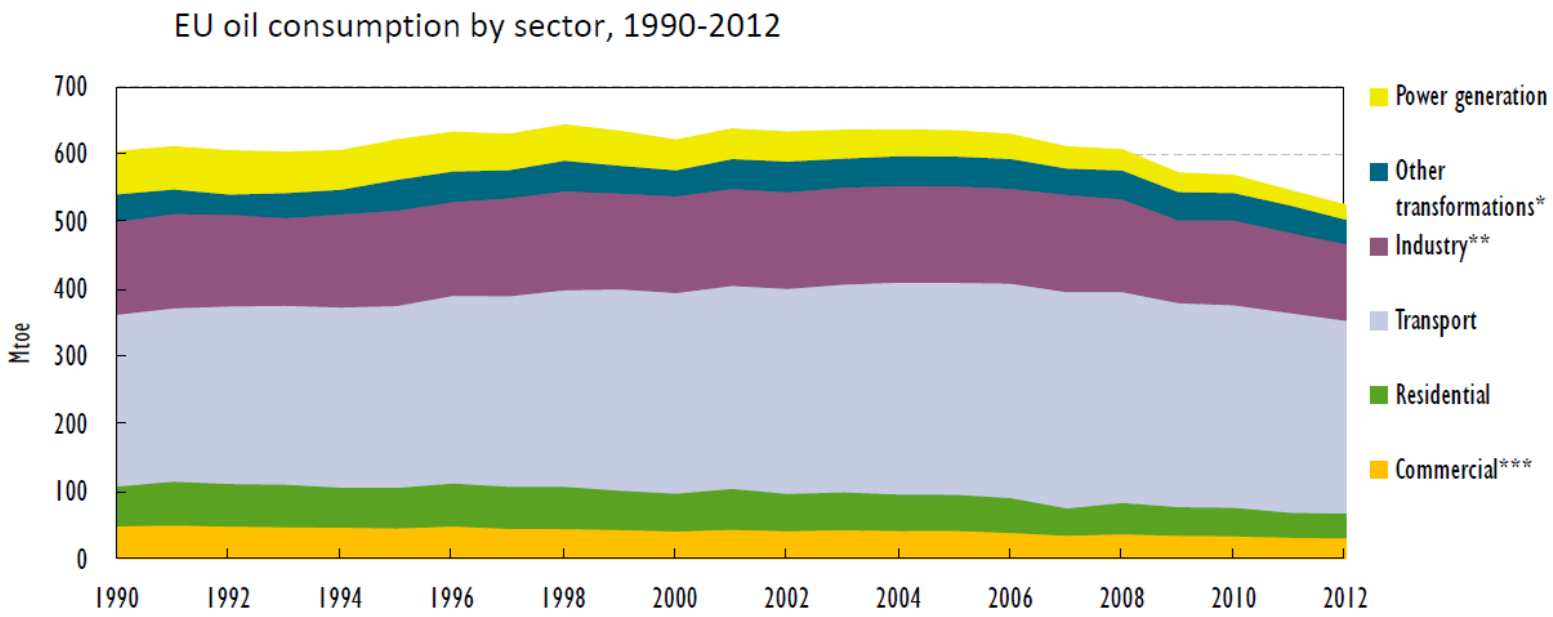

Source: Eurostat, May 2014

# Oil se


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
[a]All or most of the oil or gas moving through a given pipeline is from Russia.
Barents Sea
Murmansk
Varandey
Nadym
Yamal–Europe
Timan-Pechora basin
West Siberian basin
Pechora
Krasnoleninskaya
Proposed Murmansk pipeline routes
Ukhta
Northern Lights
Finland
Baltic Pipeline System (BPS)
Primorsk
St. Petersburg
Kirishi
Russia
Sweden
North Sea
U.K.
Estonia
Latvia
Ventspils
Yaroslavl'
Brotherhood
North Transgas
Butinge
Lith.
Rostock
Kaliningrad
Gdansk
MOSCOW
Samara
Germany
Belarus
Yamal–Europe
Northern Druzhba
Leipzig
Poland
PRAGUE
Czech Rep.
Yamal III
Southern Druzhba
Ukraine
Central Asia
Kazakhstan
France
Switz.
Slovakia
Austria
Hungary
Transgas
Soyuz
Atyrau
Tengiz
Adria
Brody-Odessa
Caspian Pipeline Consortium Project (CPC)
Omisalj
Romania
Odesa
Tikhoretsk
Kuryk
Novorossiysk
CPC terminal
Tuapse
Italy
Croatia
Bos. & Her.
Serbia and Mont.
Adriatic Sea
Caspian Sea
Black Sea
Blue Stream
Georgia
Baku-Sup'sa
Sup'sa
TBILISI
Turkm.
Bulgaria
Bosporus
South Caucasus
BAKU
Arm.
Azerbaijan
Istanbul
Samsun
Greece
ANKARA
Erzurum
Baku-Tbilisi-Ceyhan (BTC)
Turkey
Ceyhan
Tunisia

# 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 strenghtened.
  - RES electricity in energy sector.




Notes: TPES by consuming sector.

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

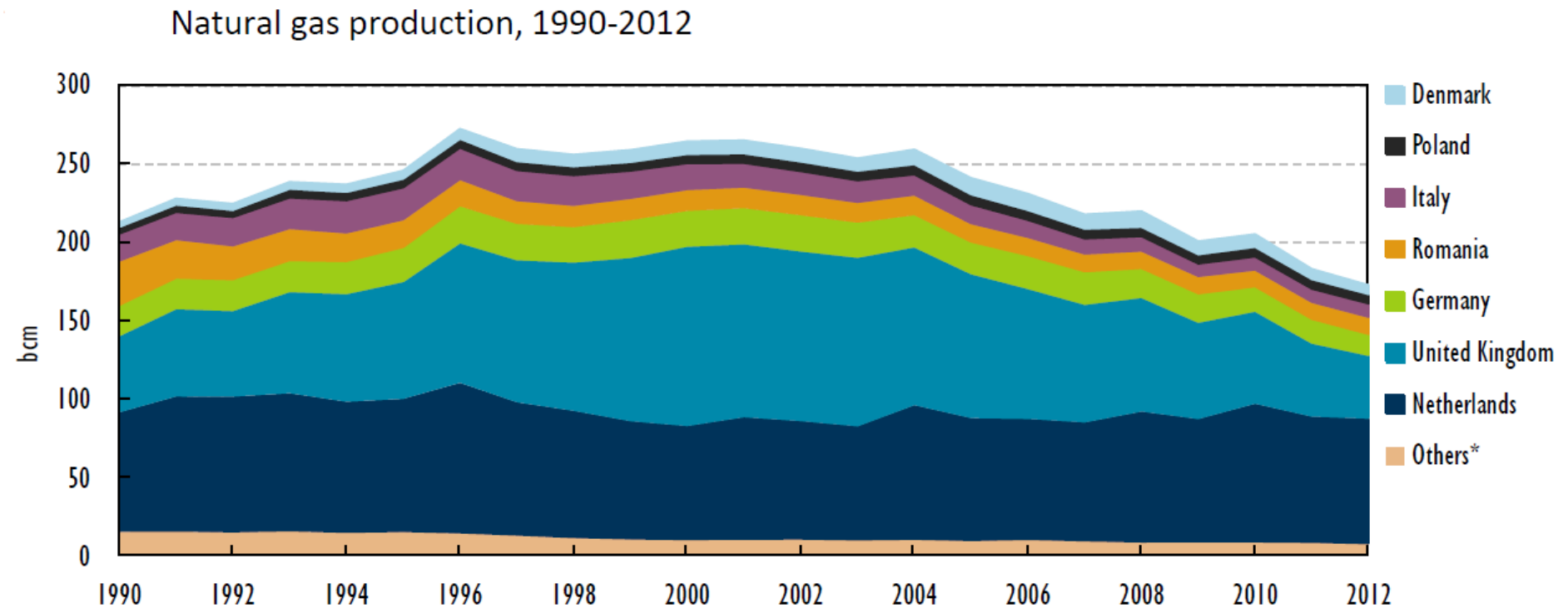
** *Industry* includes non-energy use.

*** *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 for LNG, higher exposure to price differentials between Asia, North America and the EU.

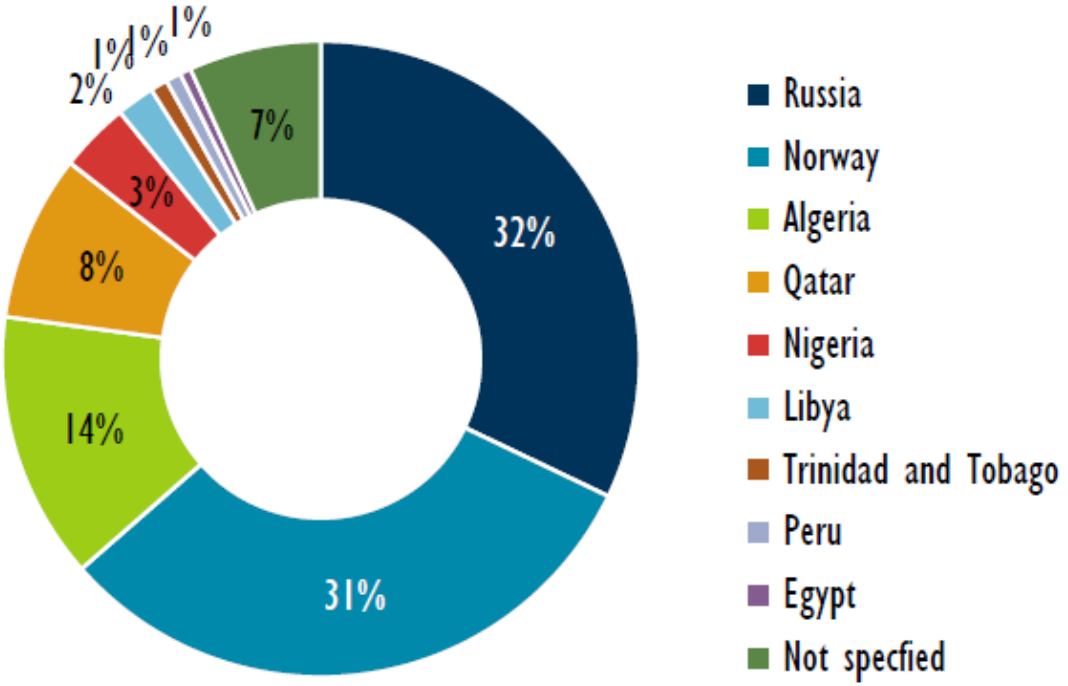
# Gas security and supplies




* *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 security and supplies

Gas imports to the European Union, 2012

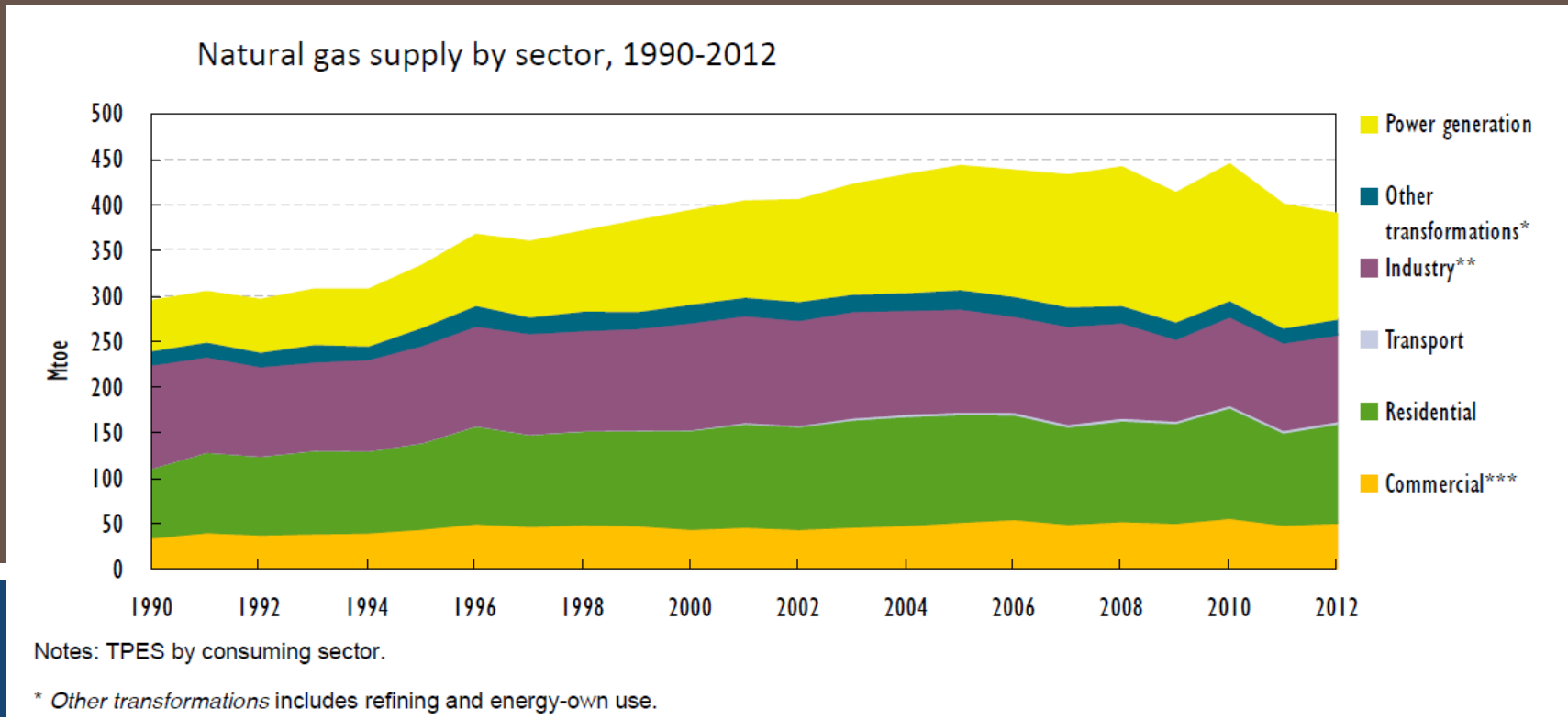



Source: Eurostat, 2014.

# Gas security and supplies

# Gas security and supplies

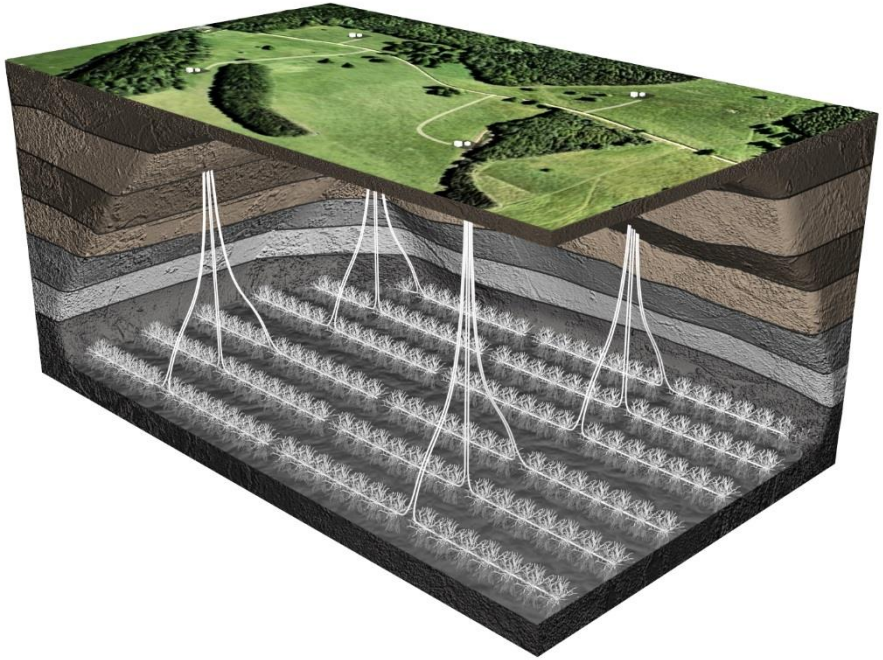
- A high security concerns
- In power generation could be replaced by RES or coal or nuclear.
- Indigenous production? (still substantial reserves in the North Sea) + unconventional sources (shale gas).



# Unconventional gas

- Abundant reserves – in Netherland, 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 an issue.
  - 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).

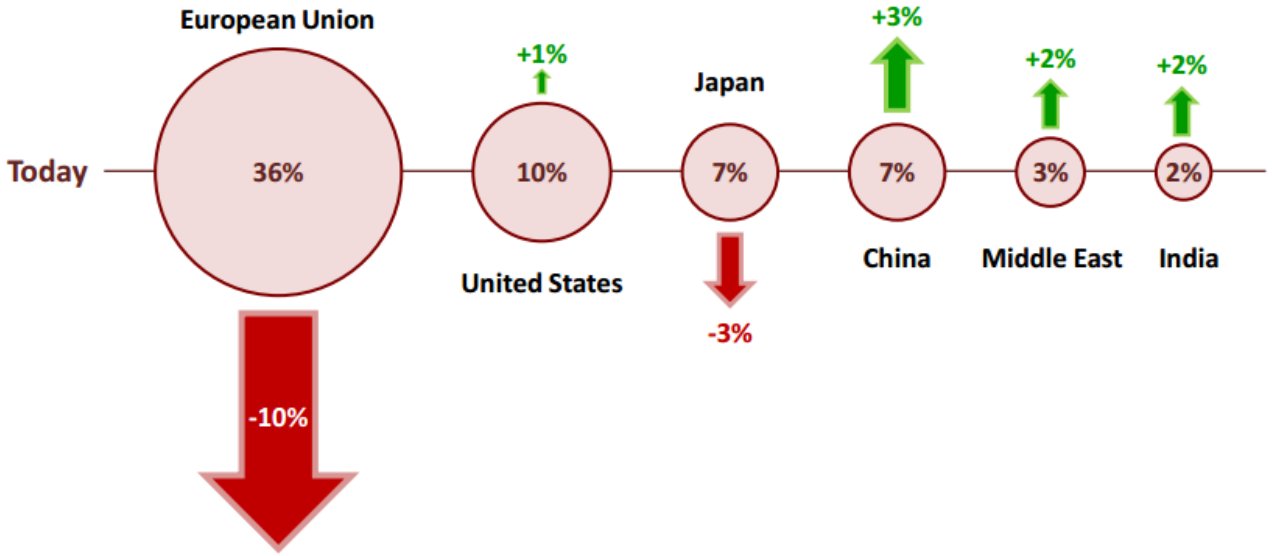
# Unconventional gas



# Unconventional gas

- Shale gas can dramatically lower import dependency and price of gas, resulting in lower consuption of coal.
- Legislative uncertainty and public concern limit the exploration and production of shale in the EU.
  - Offshore Safety Directive 2013/30/EU
  - January 2014 – EC presented non-legislative and non-binding recommendations(minimum guidance to MS)

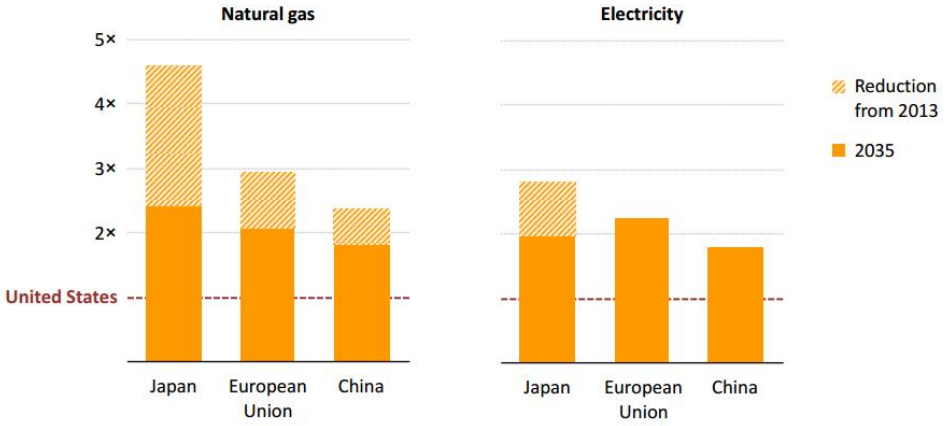
## Share of global export market for energy-intensive goods




## Who has the energy to compete?

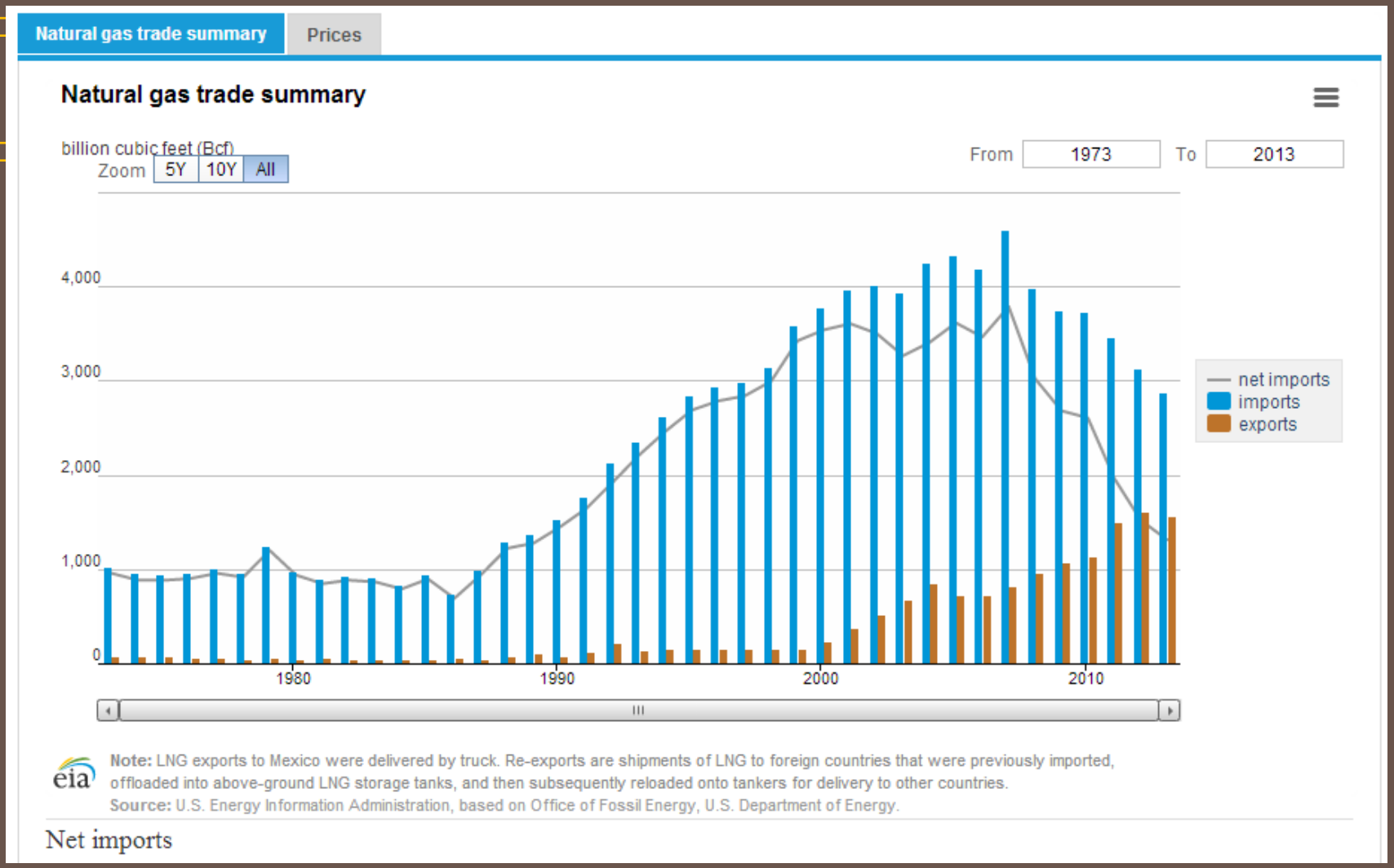
WORLD ENERGY OUTLOOK 2013

### Ratio of industrial energy prices relative to the United States

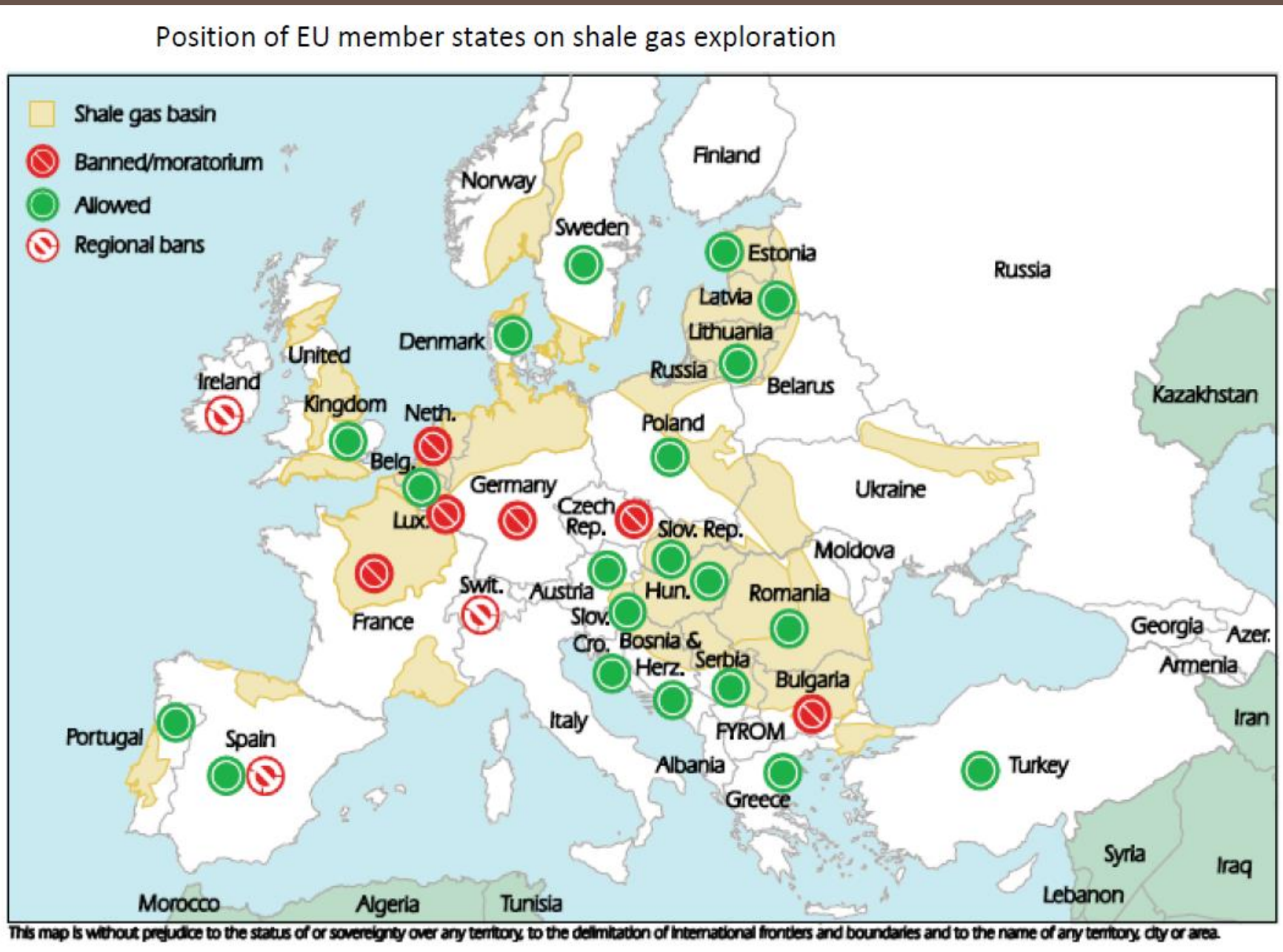



***Regional differences in natural gas prices narrow from today's very high levels but remain large through to 2035; electricity price differentials also persist***

# Unconventional gas



# Unconventional gas

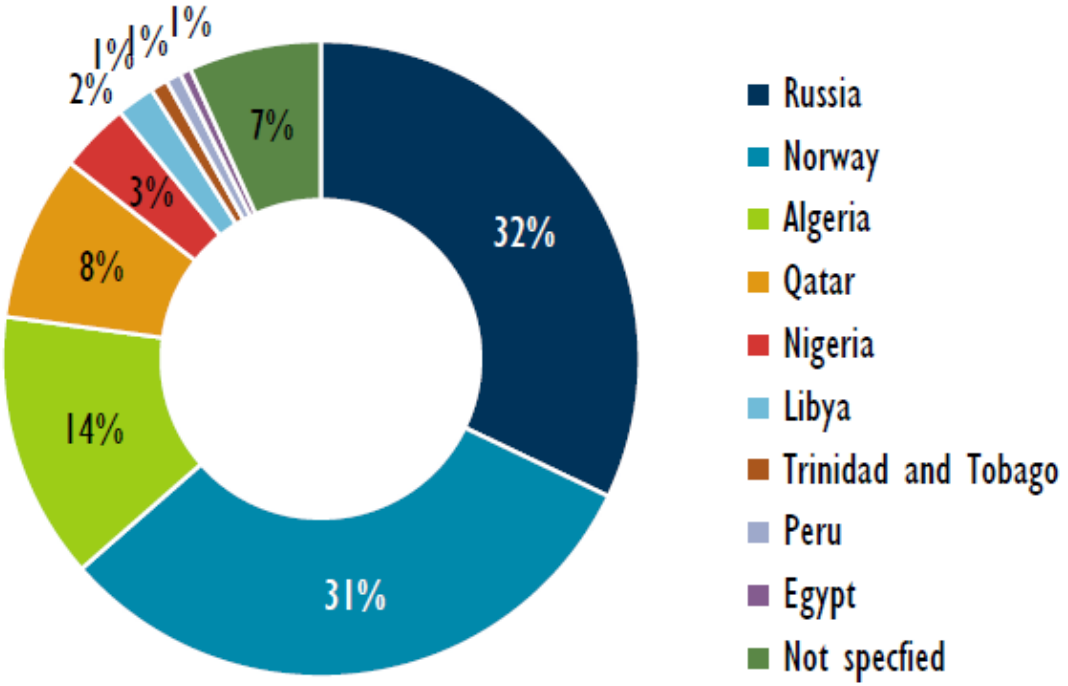


# Powers and tools

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

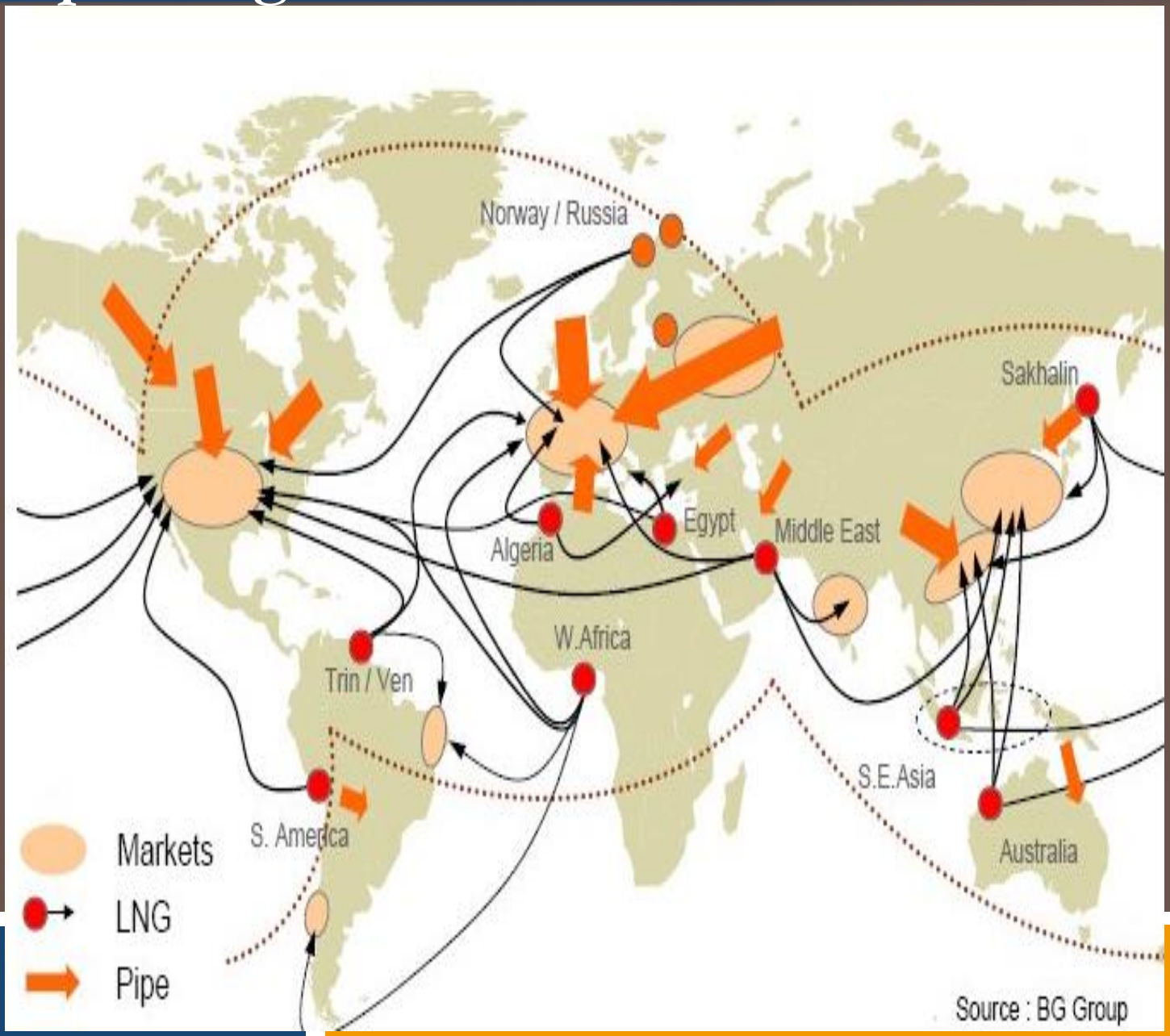
# Gas import to the EU

Gas imports to the European Union, 2012



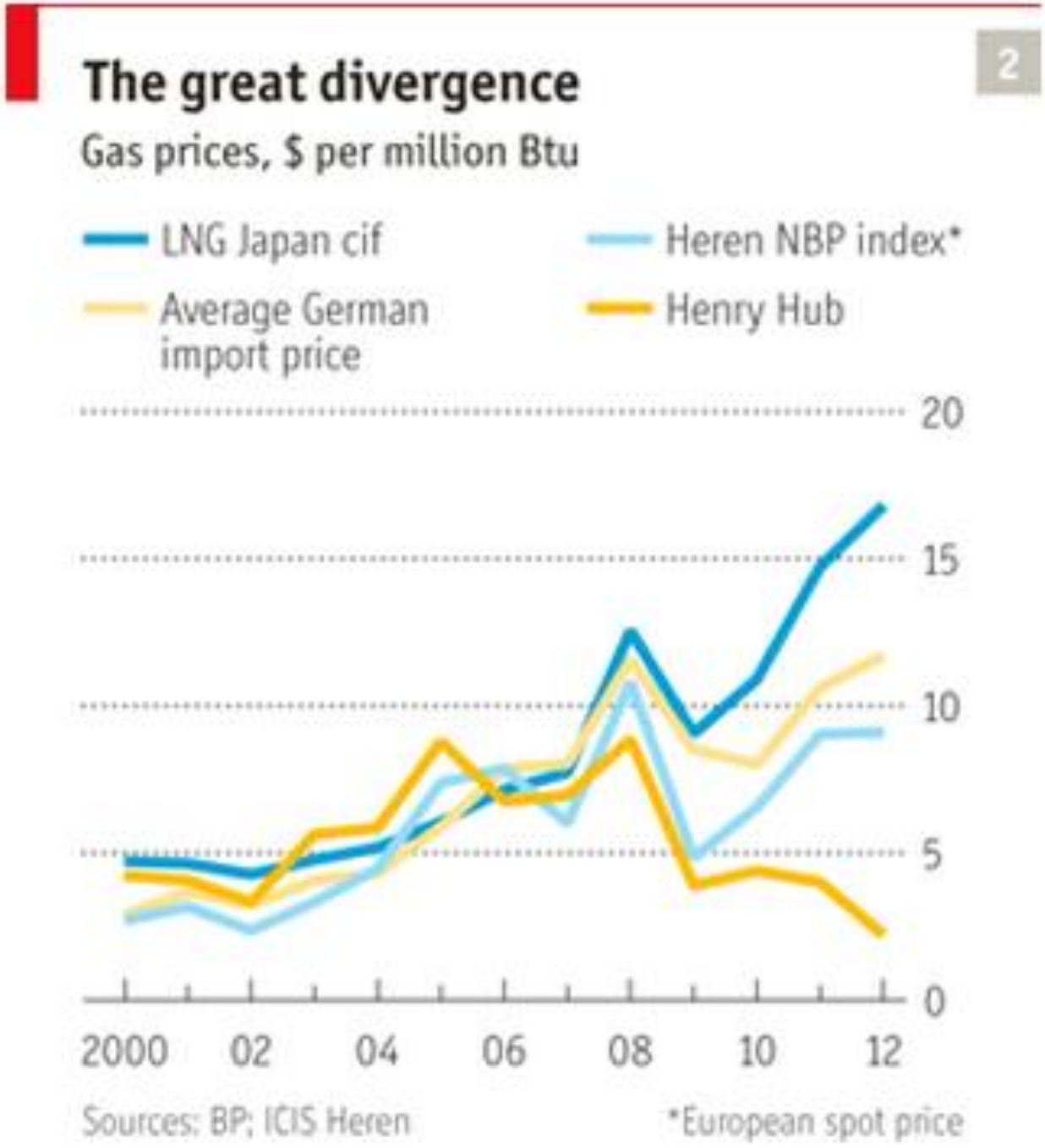

Source: Eurostat, 2014.

# Pipeline gas and LNG



# LNG

- In 2013 19 LNG terminals. Since 2008 new terminals in France, UK, the Netherlands and Italy. Three new are to be commissioned by 2015 (Lithuania, Poland – NS interconnection, France). Financial support from the EU funds.
- TPA applied.


The great divergence
2
Gas prices, $ per million Btu
LNG Japan cif
Heren NBP index*
Average German import price
Henry Hub
20
15
10
5
0
2000
02
04
06
08
10
12
Sources: BP; ICIS Heren
*European spot price

# Powers and tools

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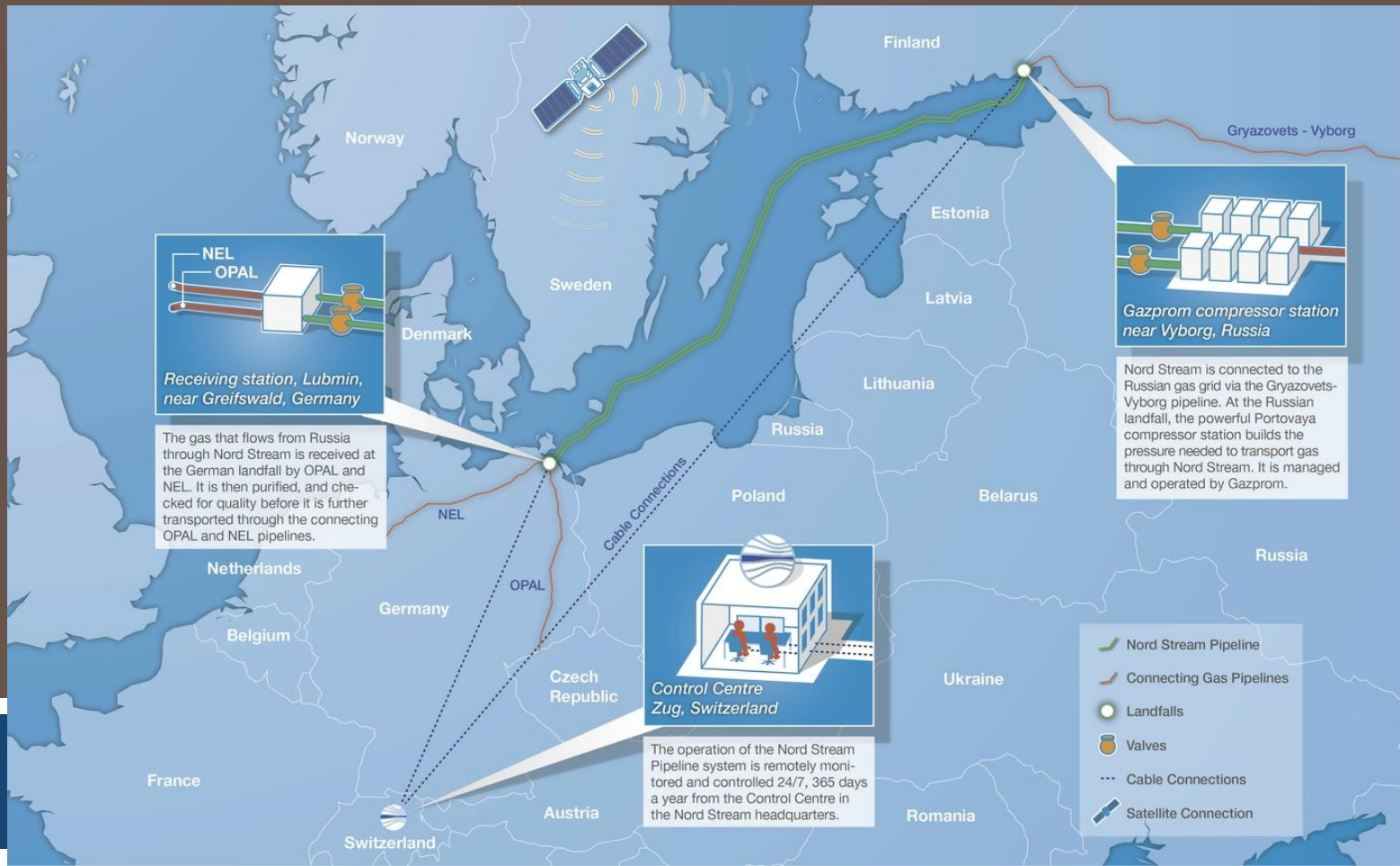
# Primary Russian Oil and Gas Pipelines to Europe (U)

# 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 no interconnections.
- Wake up call for the EU, investments into the reverse flows, storage capacities, debate about new import pipeline.

# 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

# Powers and tools

- Support of diversification
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  - Diversification of transit routes
- Strategic reserves of oil and gas
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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…).

# Instruments of the external dimension of the EU energy policy

- Support of diversification
  - Diversification of fuels
  - Diversification of suppliers
  - Diversification of transit routes
- Strategic reserves of oil and gas
- Export of energy acquis communautaire
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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<br>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<br>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 | EU closest neighbors<br><br>Currently, the membership consists of the Balkan states, Ukraine and Moldavia<br><br>The observing status is held by Turkey, Norway a Georgia |
| 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<br><br>(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 | Signed by 51 countries worldwide<br>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) |
| Kyoto Protocol | Signed and ratified in total by 191 countries worldwide, excluding the USA |
| International Energy Forum (IEF) | Includes the states which represent approximately 90% of the world oil and gas demand and offer<br>Members are the IEA and OPEC states, China, Russia |
| G8 and G20 | 8 and 20 richest countries in the world |

# Export of legal framework

- Energy Charter
  - EU, CIS countries (without RF), central Asian states, Azerbaian, Georgie, 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….

# External dimension and internal market

- EC vs. Gazprom
- September 2011 EU antitrus 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).

# 2030 climate and energy targets

22.-23. Oct 2014 – European Council on 2030 climate and energy policy framework

The EU´s proposal: 40% reduction of GHG emissions with binding national targets. Adopted.

- To be revisited after Paris in Dec 2015
- *„MS with a GDP per capita below 60% of the EU average may opt to continue to give free allowance to the energy sector up to 2030".*
- NER300 facility upgraded to NER400 facility, covers also low-carbon investments in manufactoring sectors.
- 2% of EUAs set aside to address „particularly high additional investment in low income MS" – bellow 60% of the EU average.
- 10% of EUAs to countries whose GDP per capita do not exceed 90% of the EU average in 2013.

# 2030 climate and energy targets

The EU´s proposal: 40% reduction of GHG emissions with binding national targets. Adopted.

- Free allowances to industry at risk of carbon leakage
- EU ETS sector – Market Stability Reserve may start before 2020 (Fr, UK, Ger)
- Non-ETS sector – targets from 0-40% based on relative GDP per capita and cost-effectivenes, MS can trade these targets amongst themselves.
- Some MS may swap reductions in the non-ETS sector for reductions in the ETS sector.

# Polish case

- 80% electricity produced from coal
- 100 000 miners, more than 240 mining trade unions.
- Import of the cheap coal from Russia (10% of consumption)
- In the first half of 2014 companies lost around 250 million euros. According to the Centre for Social and Economic Research between 2010 – 2013 this sector received 5,5 bn euros of state aid.
- 4/5 coal companies state runned. The only private one is also the only one making profit.
- Electricity market divided between 4 vertically integrated companies that belong to the State Treasury.

# 2030 climate and energy targets

The EU´s proposal: binding aim of 27% of RES in the EU´s energy mix. No individual targets. Adopted.

- The agregated aim is not to be translated into the nationally binding targets.

The EU´s proposal: binding or nonbinding agregated target of 30%, no individual targets. – Softened, only 27% target.

- The agregated aim is not to be translated into the nationally binding targets.

# 2030 climate and energy targets

- Interconnections
  - Spain and Portugal failed to get a committment of binding 15% interconnection target. Commission will take ´urgent measures´to ensure at least 10% electricity interconnection capacity (notably the Iberian Penisula, Baltic States) no later than 2020.