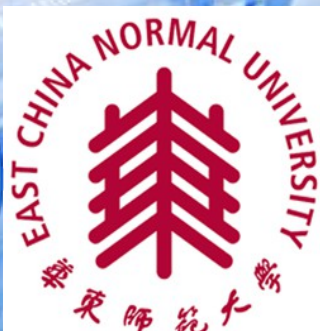


New dimension of EU energy security



Chen Xi
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Energy security as an IR concept

- 1973-1975-petroleum embargo and as a result, perception of energy security as a '**security of supply**'.
- 2 dimensions of energy security concept: **internal** (energy infrastructure, pipelines and investments) and **external** (guaranteed supply).
- **Wolfers A.** "Security as a significant concern about the conditions of existence".
- **IEA definition:** Energy security is an '*uninterrupted availability of energy sources at an affordable price*'.
- **Daniel Yergin:** "The purpose of energy security is to provide adequate, reliable energy supplies at reasonable prices in such a way as *not to endanger* the basic national values".
- **Florian Baumann:** "Any longer interruption of a steady and plenty flow of energy would massively harm a nation's economic output, political stability and the personal wellbeing of its citizens".
- **Buzan** and the issue of securitization; totally different approaches to the understanding of energy security.

Contradictions between member-states on EU energy strategy

1. *Greenpaper* 2000 and 2006. Key tasks:

- sustainability in the use of energy resources
- competitiveness of the energy market
- security of energy supplies.

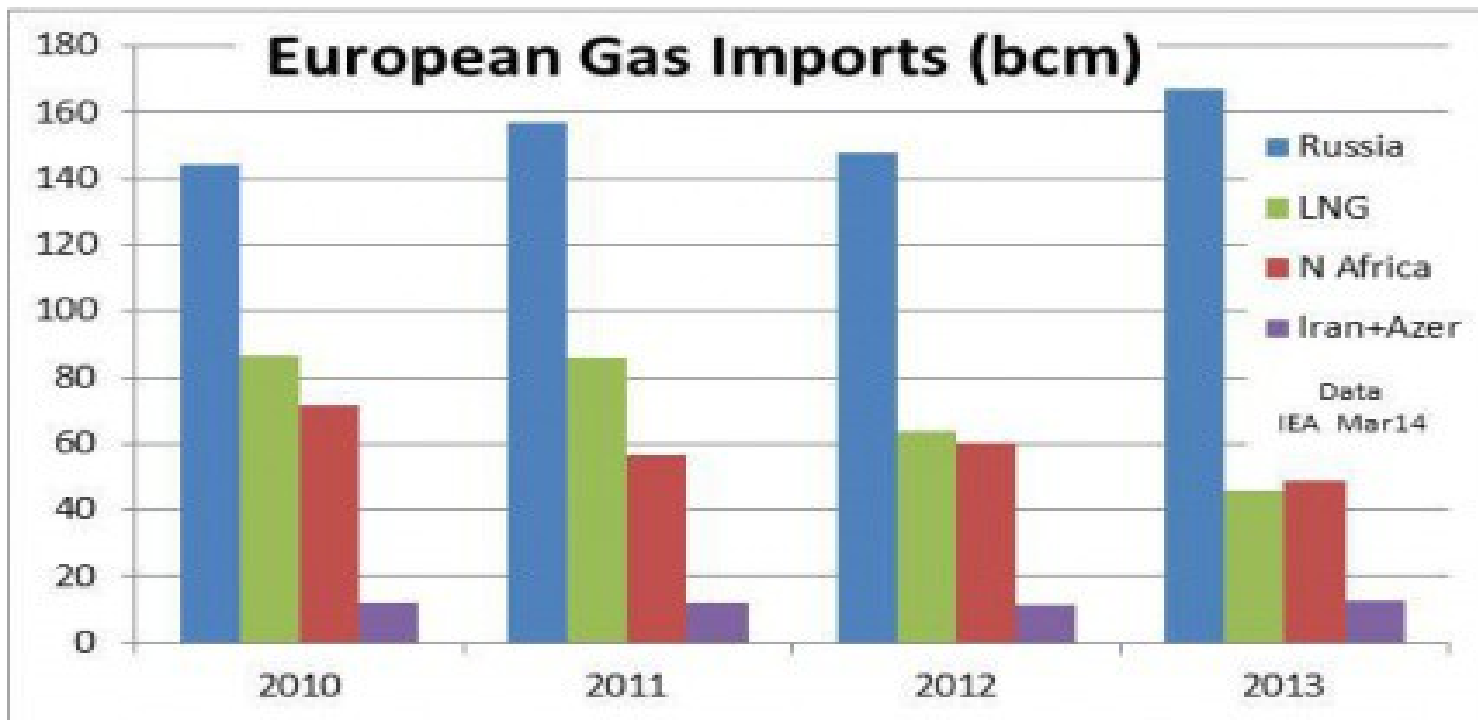
2. Poland as *main initiator* of EU common energy strategy.

- Wiciszkievicz and Meritet: lack of MS' interdependence and state control of energy sector.
- Barysz: no will to open energy market, that means that vertically integrated companies should be disintegrated and prioritized.

The drivers for reframing

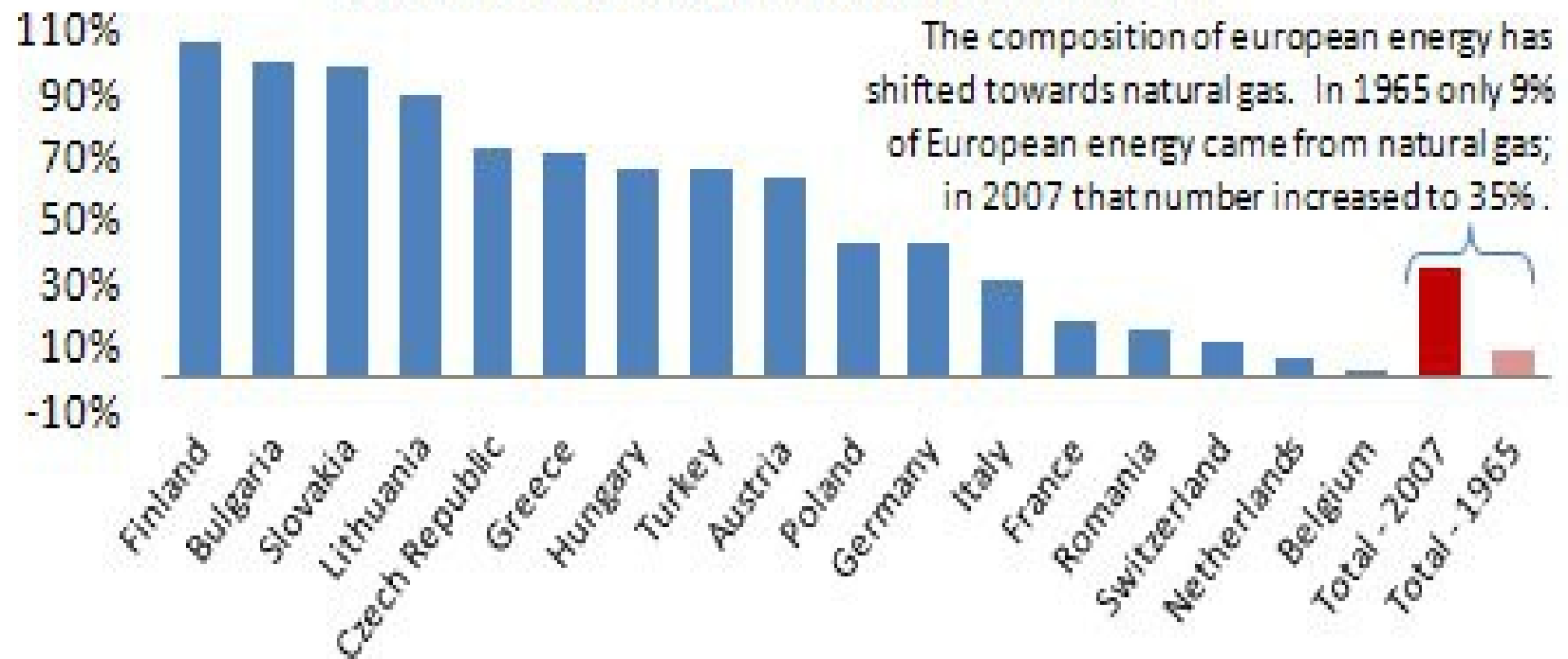
EU energy security:

- I. The deficit of the EU own energy resources



Russian Cold Shoulder?

European Dependence on Russian Natural Gas



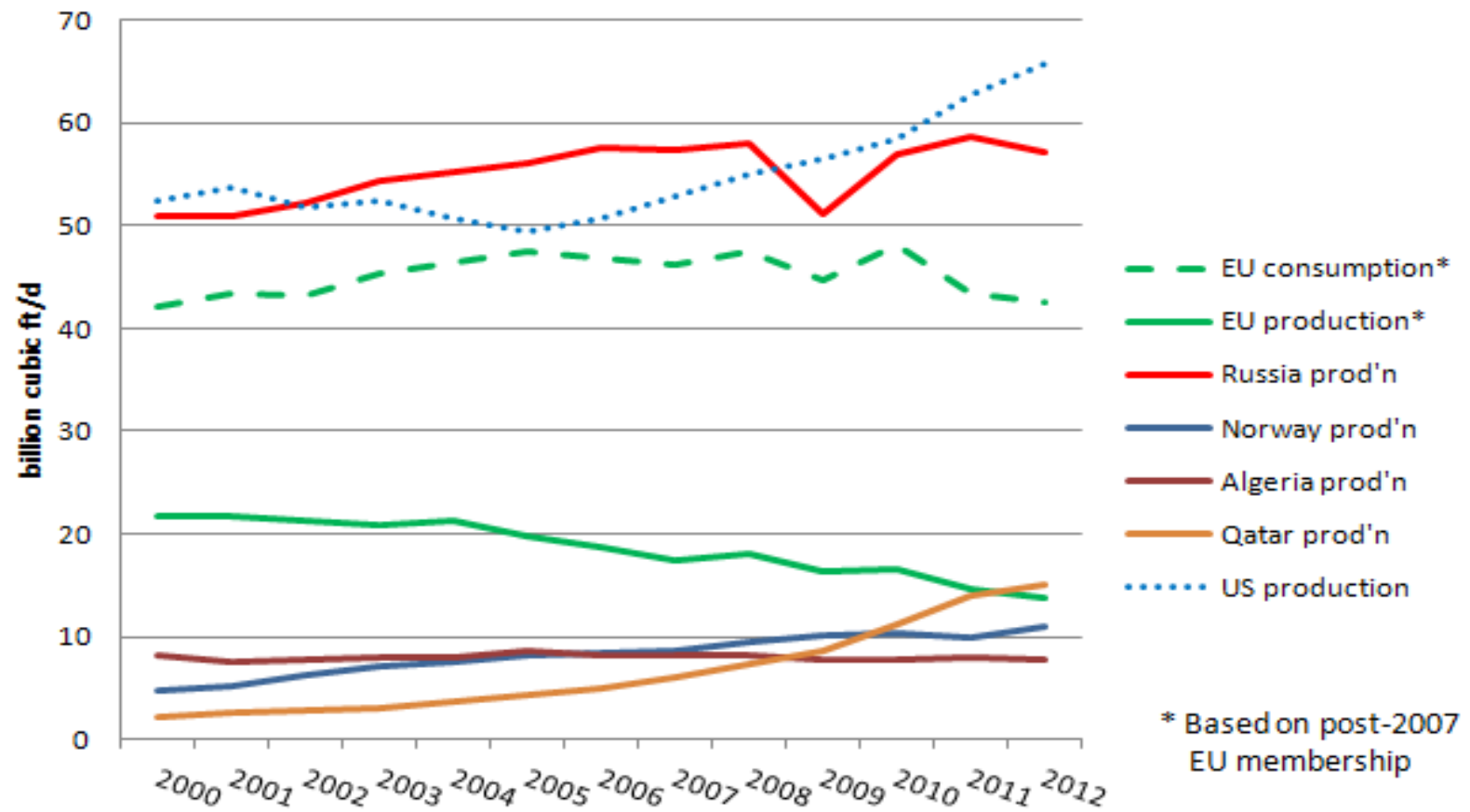
- Country's Natural Gas Consumption coming from Russian Sources: 2007
- Europe & Eurasia Energy Consumption coming from Natural Gas

www.cfr.org/cgs

Author: Paul Swartz

Europe's Natural Gas Situation, 2000-2012

Source: BP Statistical Review



II. Ukrainianenergy crises in 2005 and 2009

III. Belaruspetroleum crisis 2006 (the blockage of petroleum pipeline 'Drujba')

IV. TheEU enlargement of 2004 and 2007. Case of Poland

V. Crimeanreintegration and its implication on EU-Russia energy relations(reverse supplies to Ukraine ?)

Blacksea region



6 coastal states with territory
about 20 mln square km and
population 300 mln people

***Black Sea
Economic Cooperation(BSEC)***



Member states of BSEC:

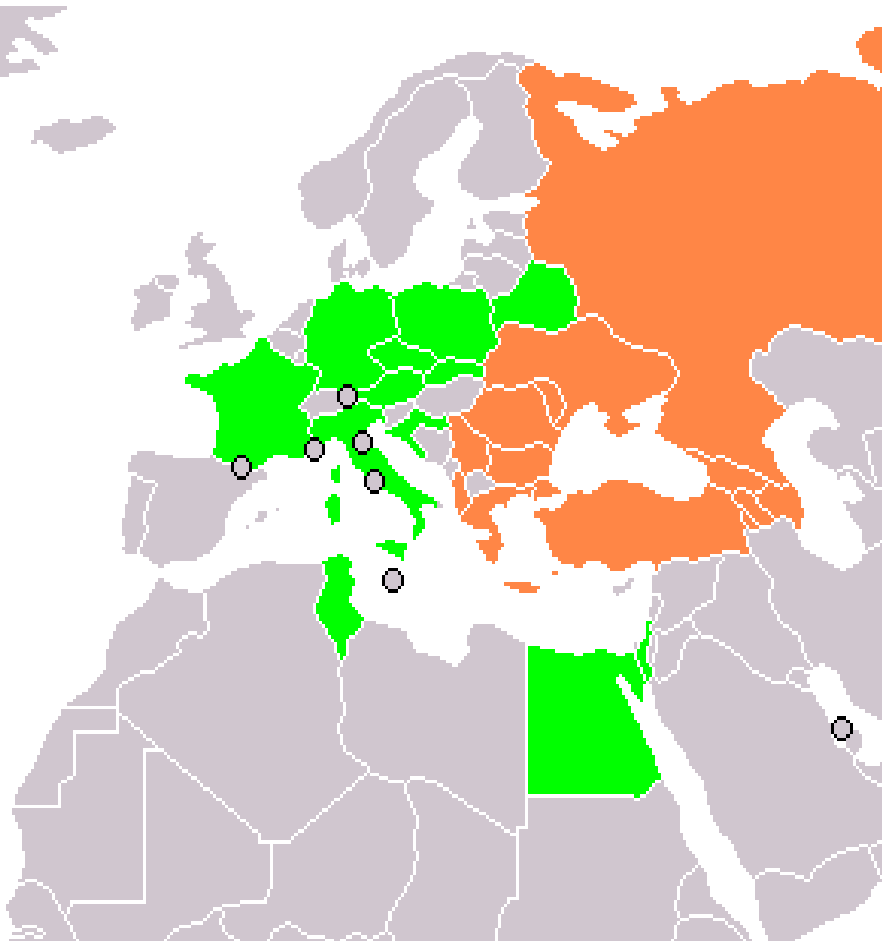
Azerbaijan, Albania, Armenia, Bulgaria, Greece,
Georgia, Moldova, Russia, Romania, Serbia, Turkey,
Ukraine.

Observer states BSEC



Headquarter is in Istanbul.

BSEC unites countries, which are involved in
institutionally highly developed international structures.
BSEC is concentrated on economical aspect of
integration.



Proposed measures of stimulating of cooperation



Energy: creation and development of energy supply

in to Europe, «Blue stream». In this connection it is necessary to

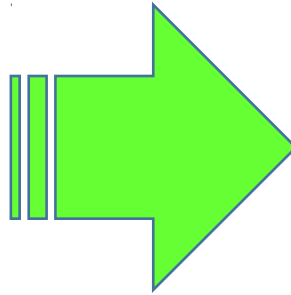
- conclude agreements on cooperation at the highest level,
- harmonize laws in each country of region
- provide border cooperation,
- transform common energy market.

Transport: to form a transport map of the Black Sea and coastal areas,

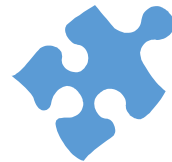
- to create transport corridors - ring around the Black Sea and the New Silk Road (Europe-Caucasus-Asia),
- to improve the regional transport system.



- The Black Sea region constantly rendered and has a large impact on international agenda.
- But however, its significant energy and transport capacity is unused.



So it is crucially important to cooperate in the Black and Caspian Sea region, in the dialogue process may be achieved compromise on energy supplement and transport issues.



Shale gas

Europe could also develop its shale-gas reservesbut...

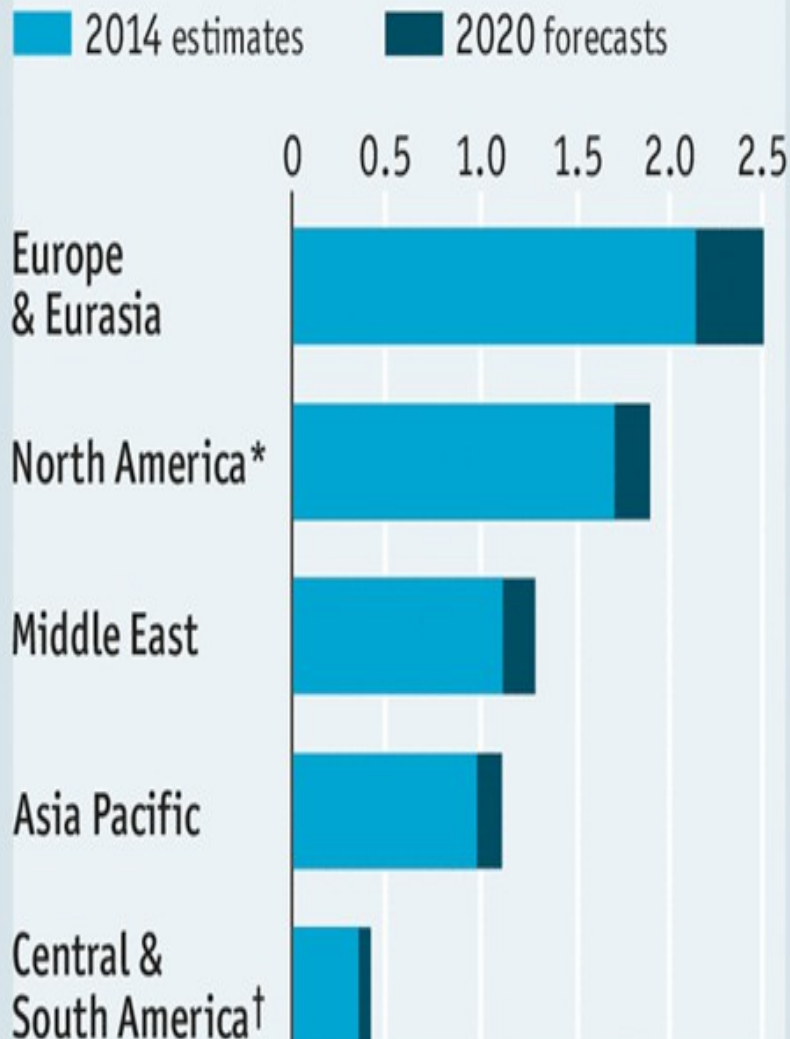
- there are not the panacea enthusiasts would like to believe.
- The EU's Joint Research Centre puts Europe's technically recoverable unconventional-gas resource at 11,700bcm, about a quarter of America's.
- Law, public opinion and a lack of drilling and exploration kit make European shale gas harder to get out.

Perspectives in LNG

- Europe has the capacity to import a lot more LNG; its 2013 LNG imports, 45.7bcm, were much lower than the 2011 peak of 86.5bcm.
- The problem here is inelastic supply: the countries which export LNG cannot simply churn out more of the stuff; the plants which liquefy the gas cost billions of dollars, so they tend already to be running at full blast. And most of what they make they are already selling, at high prices, in Asia.
- Japan needs LNG to keep the lights on, having shut down its nuclear power plants after the Fukushima disaster.
- China is trying to burn less coal because of public anger at air pollution. Europe might be able to find another 10bcm of LNG, analysts reckon, but it would pay about twice what Russian pipeline gas currently costs.

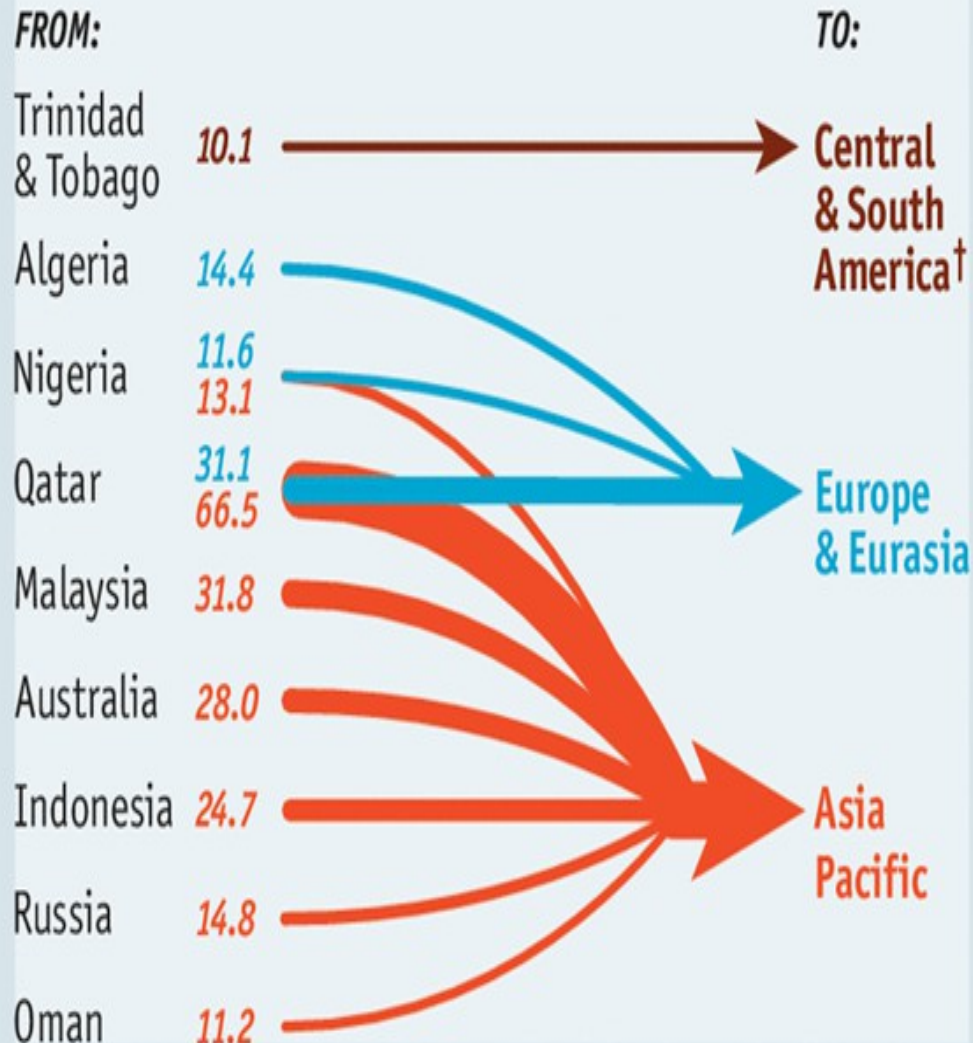
Taps and trails

Regional natural gas production, trn cubic metres



Source: BP, EIA

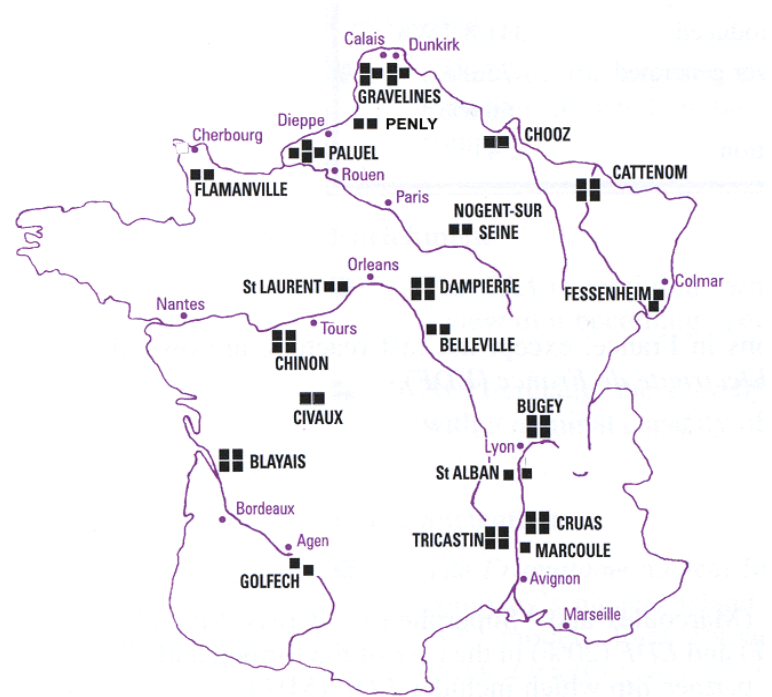
Liquefied natural gas exports‡, bn cubic metres, 2012



*Includes Mexico †Excludes Mexico ‡Over 10bn cubic metres

Nuclear Power in France

- France derives over 75% of its electricity from nuclear energy ([the highest percentage in the world](#)). This is due to a long-standing policy based on energy security.
- It is the world's largest net exporter of electricity due to its very low cost of generation, and gains over EUR 3 billion per year from this.
- It has been very active in developing nuclear technology. Reactors and fuel products and services are a major export.
- About 17% of France's electricity is from recycled nuclear fuel.

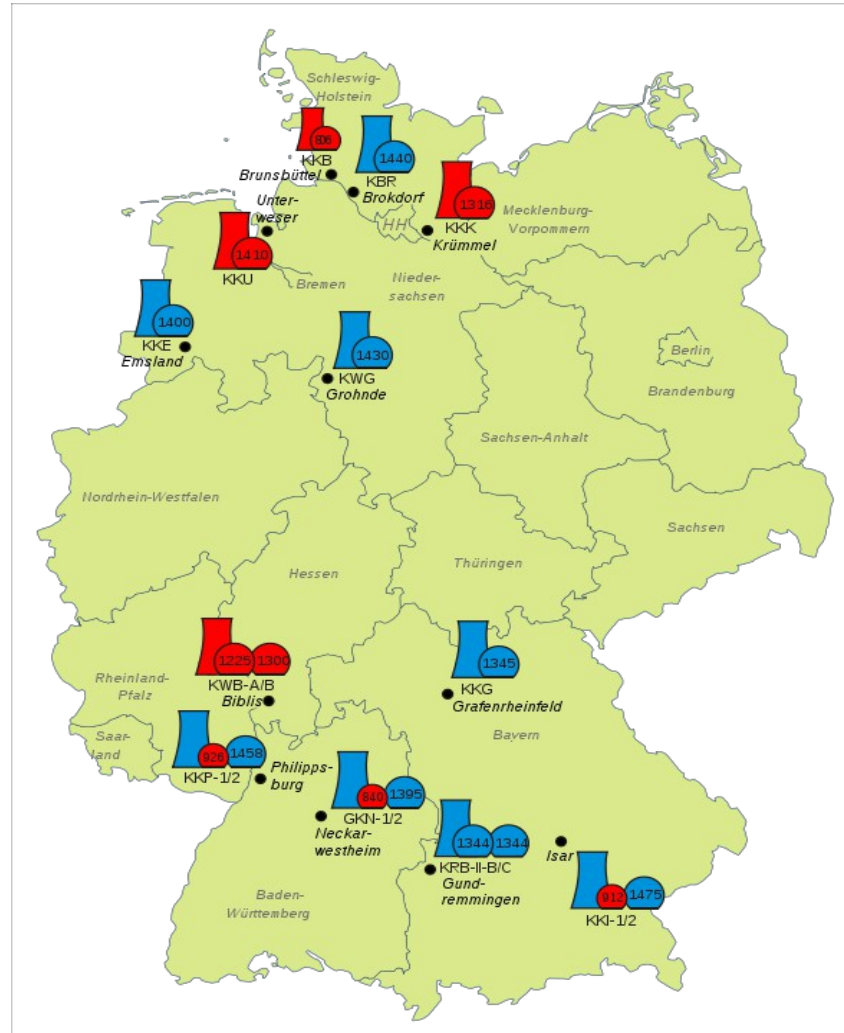


Nuclear Power in Germany

Nuclear power in Germany accounted for 17.7% of national electricity supply in 2011, compared to 22.4% in 2010.

The anti-nuclear movement in Germany has a long history dating back to the early 1970s, when large demonstrations prevented the construction of a nuclear plant at Wyhl.

Within days of the March 2011 Fukushima nuclear disaster, large anti-nuclear protests occurred in Germany. Protests continued and, on 29 May 2011, Merkel's government announced that it would close all of its nuclear power plants by 2022.



Closures and phase-out

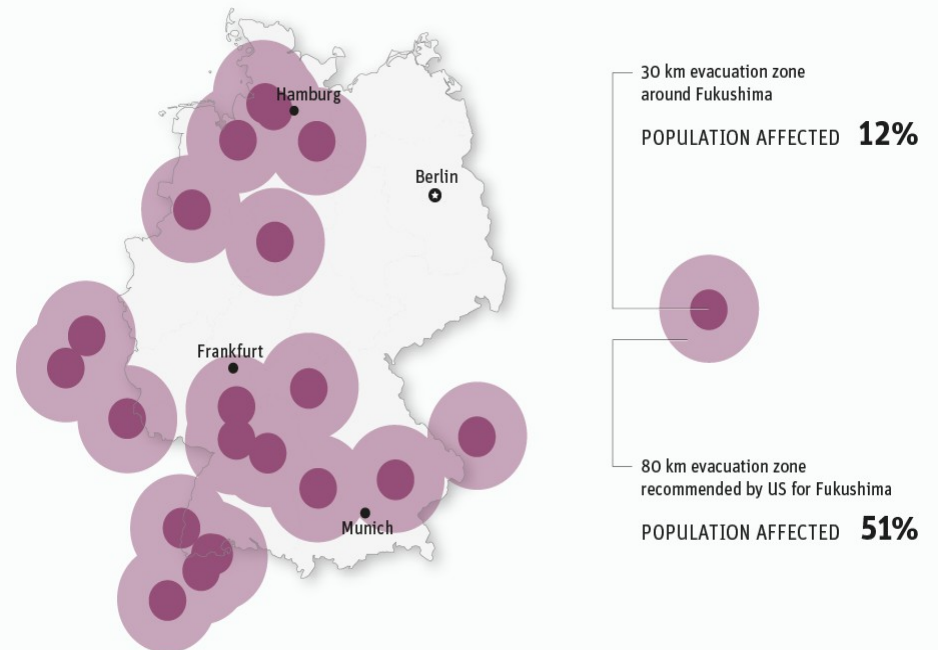
Chancellor Angela Merkel said the nuclear power phase-out, previously scheduled to go offline as late as 2036, would give Germany a competitive advantage in the renewable energy era:

"As the first big industrialized nation, we can achieve such a transformation toward efficient and renewable energies, with all the opportunities that brings for exports, developing new technologies and jobs".

Recognizing the danger of nuclear power

30/80 km zones around nuclear reactors in Germany and nearby reactors of neighbouring countries

Source: <http://opendata.zeit.de/atomreaktoren>



Comparison

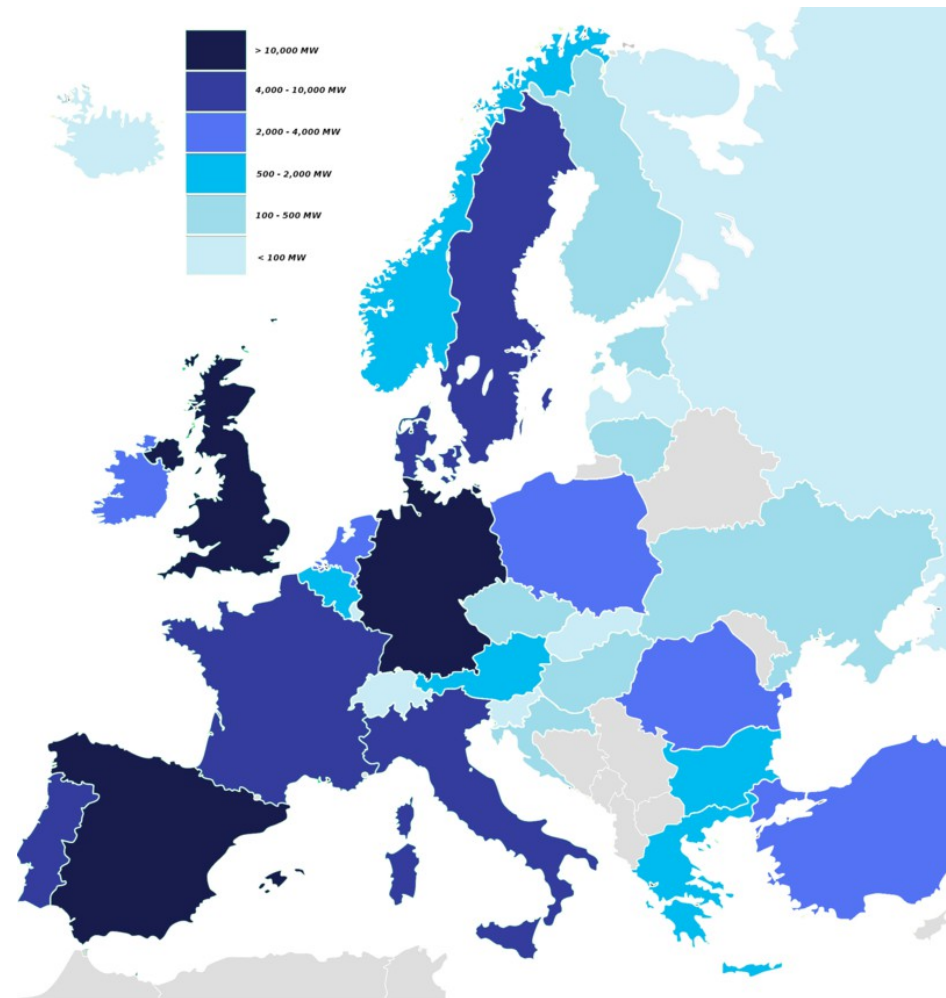
- Nuclear power is the primary source of energy in France.
- Électricité de France (EDF) — the country's main electricity generation and distribution company – manages the country's 59 nuclear reactors. EDF is substantially owned by the French Government, with around 85% shares in government hands.
- As of 2012, France's electricity price to household customers is the seventh-cheapest amongst the 27 member European Union, and also the seventh-cheapest to industrial consumers.
- France was the biggest energy exporter in the EU in 2012, exporting 45TWh of electricity to its neighbors.
- France's nuclear power industry has been called "a success story" that has put the nation "ahead of the world" in terms of providing cheap energy with low CO₂ emissions.
- Germany's decision to phase out its nuclear power plants by 2022 has rapidly transformed it from power exporter to importer.
- The German government's 180-degree turn in nuclear policy has helped breathe new life into Europe's energy industry -- though not always to Germany's benefit. The country has gone from being an energy exporter to an energy importer practically overnight, which brings along with it a number of negative consequences for its economy, consumers and security.

Renewable Energy



What is renewable energy ?

- Renewable energy sources include **wind, solar (Solar Photovoltaics and solar thermal energy), hydro-electric and tidal power** as well as **geothermal energy and biomass**.
- In 2012, installed wind power capacity in the European Union totalled 105,000 megawatts (MW) - enough to supply 11.4% of the EU's electricity. 11,895 MW of wind power was installed in 2012 alone, representing 26.5% of new power capacity.
- The EU wind industry has had an average annual growth of 15.6% over the last 17 years (1995-2011).



• Wind power installed in Europe in 2012

Europe 2020 strategy

- One of the targets for the EU in 2020 is that there should be 20% of energy from renewable sources.

The 2020 climate and energy package

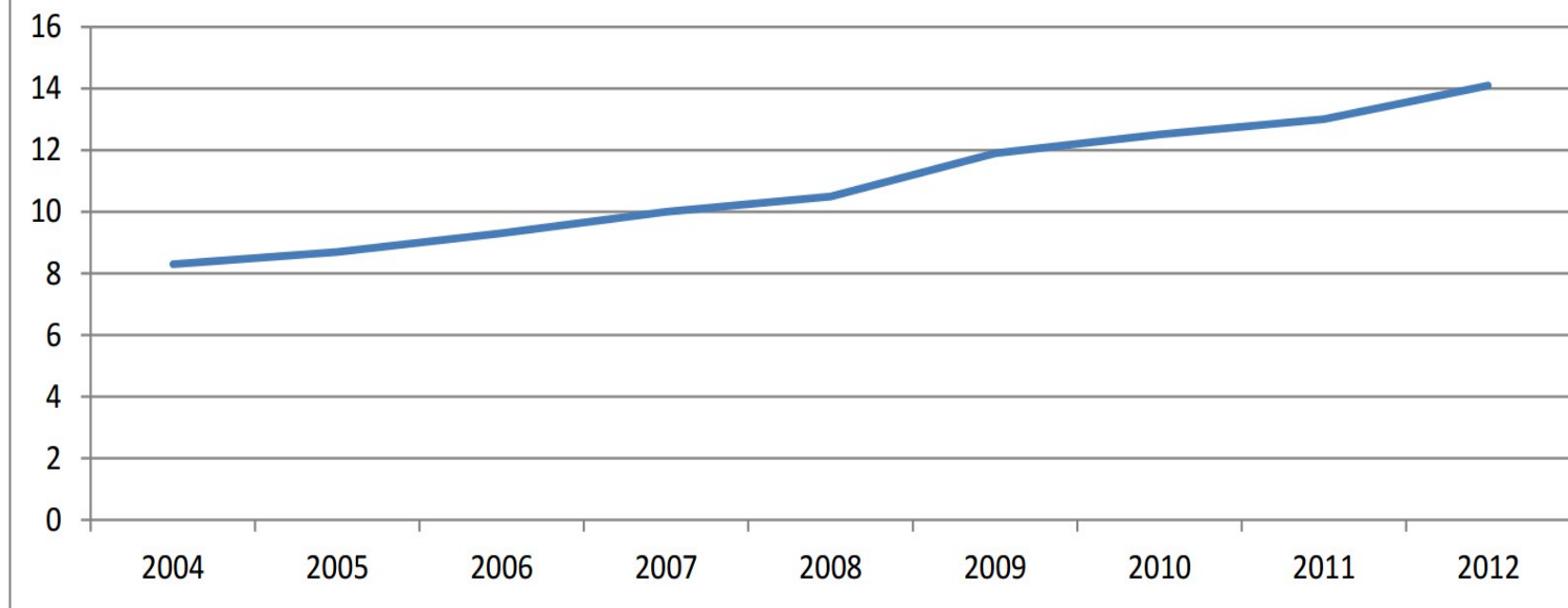
- One of the three key objectives for 2020 is raising the share of EU energy consumption produced from renewable resources to 20%;

2030 framework for climate and energy policies

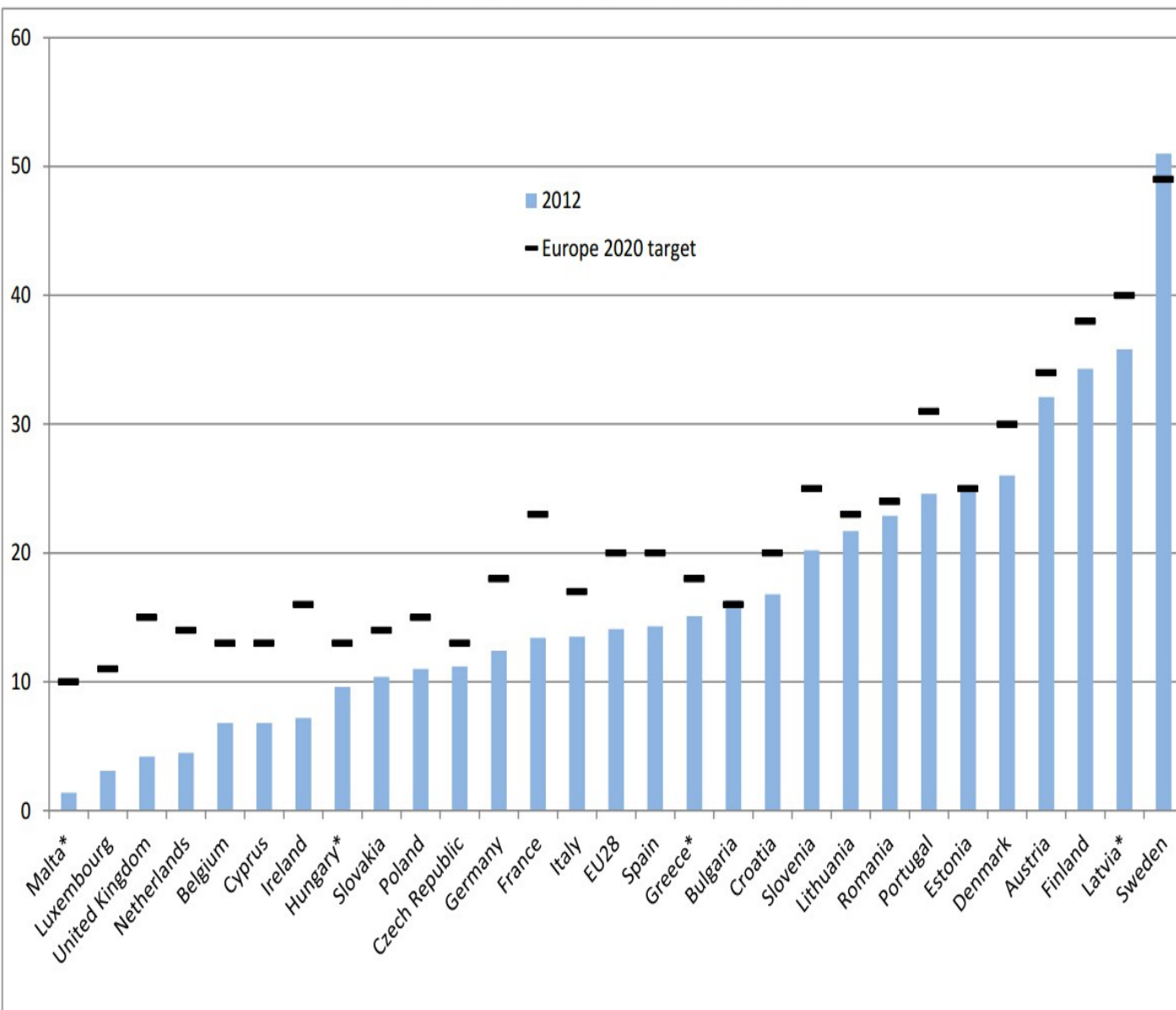
- The Commission proposes an objective of increasing the share of renewable energy to at least 27% of the EU's energy consumption by 2030.

Share of energy from renewable sources, EU28

(in % of gross final energy consumption)



Share of energy from renewable sources per Member State (in % of gross final energy consumption)



The largest increases during this period were recorded in Sweden (from 38.7% in 2004 to 51.0 % in 2012), Denmark (from 14.5% to 26.0%).

The highest shares of renewable energy in final energy consumption in 2012 were found in **Sweden** (51.0% of energy from renewable sources in gross final consumption of energy), **Latvia** (35.8 %), **Finland** (34.3%) and **Austria** (32.1%), and the lowest in **Malta** (1.4%), **Luxembourg** (3.1%), the **United Kingdom** (4.2%) and the **Netherlands** (4.5%).

In 2011, **Estonia** was the first Member State to reach its 2020 target and in 2012 also **Bulgaria** and **Sweden** (16% and 49%).

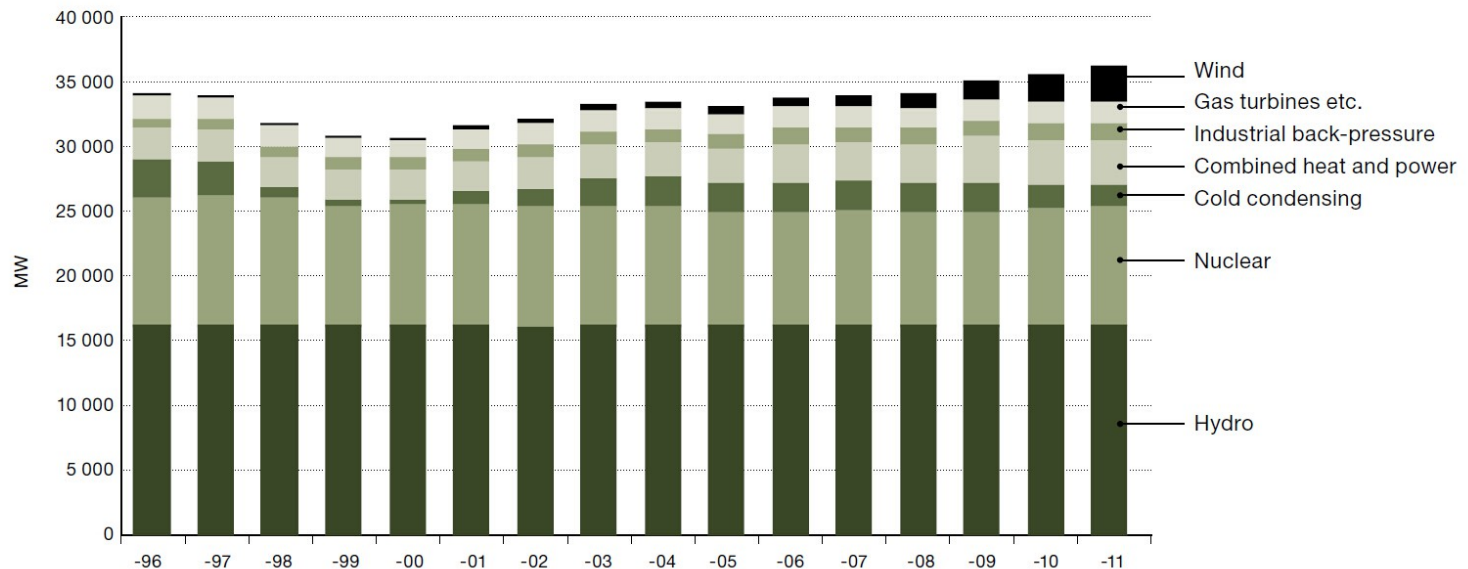
There are about 2,000 wind power stations in Sweden,
providing 7.1TWh of electricity during 2012.



Sweden's total installed capacity in December 2011

Hydroelectric power	Wind power	Nuclear power	Thermal power
44%	8%	26%	22%

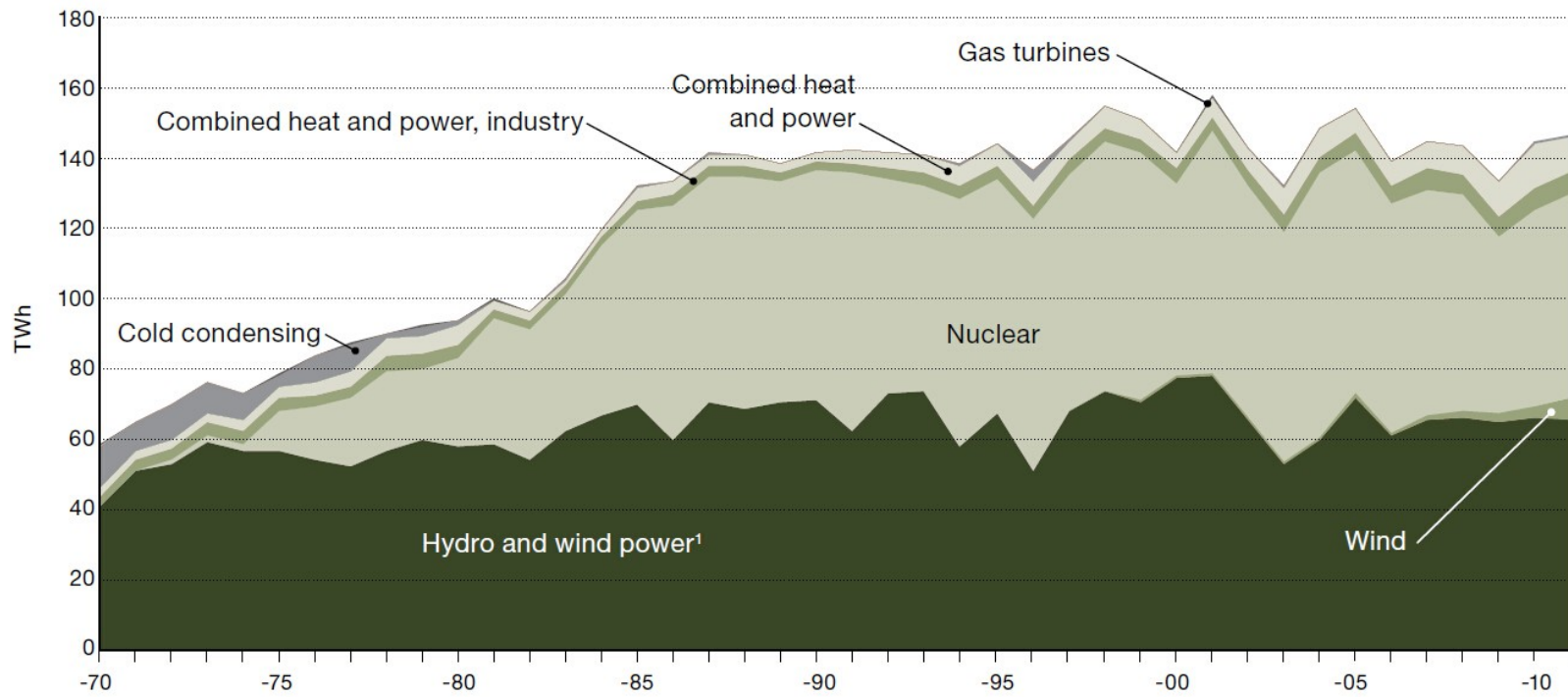
Figure 17 Installed electricity production capacity in Sweden, by type, 1996–2011, MW



Source: Svensk Energi.

Total electricity production in 2011			
hydro power	nuclear power	wind power	biofuelled and fossil based production
45	40	4	11

Figure 18 Sweden's electricity production, by type, 1970–2011, TWh



Source: Swedish Energy Agency and Statistics Sweden.

Note: 1. Hydro power and wind power were quoted jointly until 1996, after which wind power was quoted separately.

Table 4. Bulgarian Renewable Energy Resource

Resource		Solar	Wind	Hydro (Large + Small)	Geothermal	Biomass and Waste
Total Resource Avail- able	ktoe	12 955 000	75 000	2 276	326	3 608
	TJ	544 110 000	3 150 000	95 587	13 856	151 534

Bulgaria

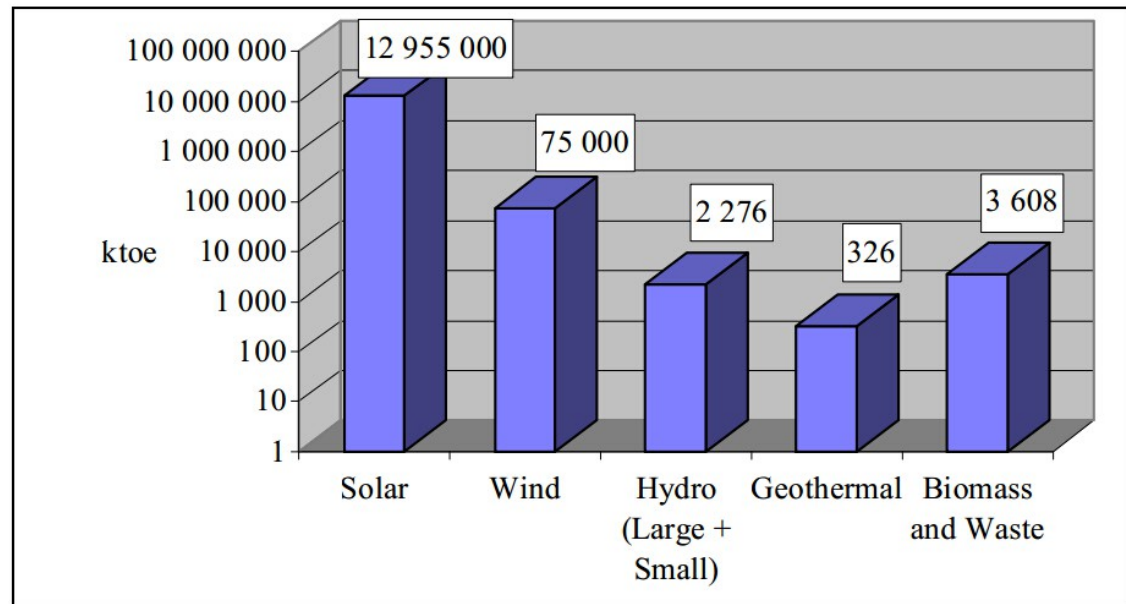
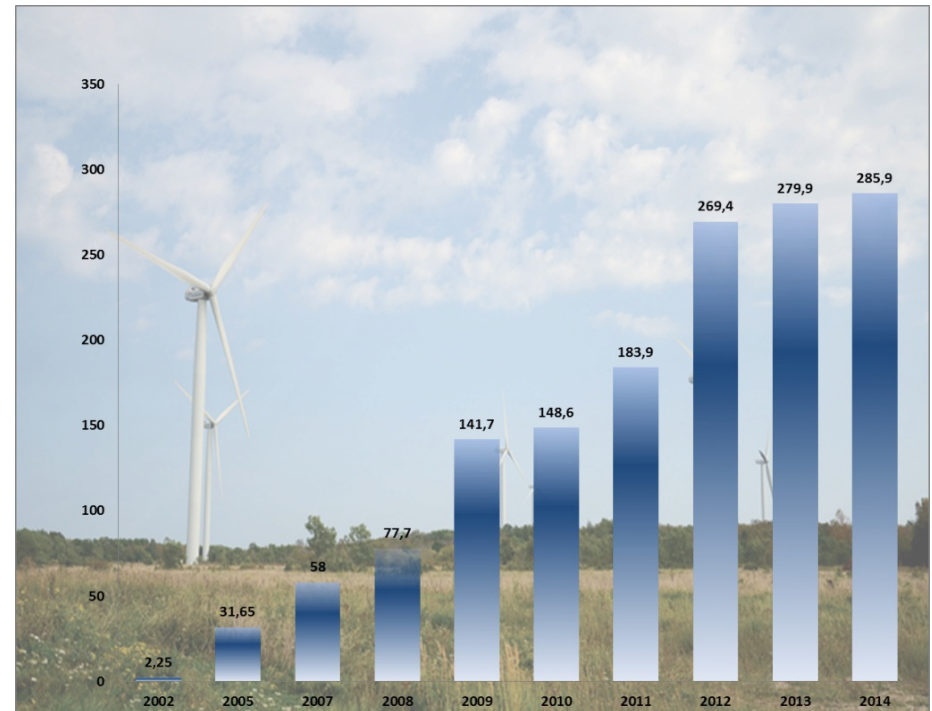
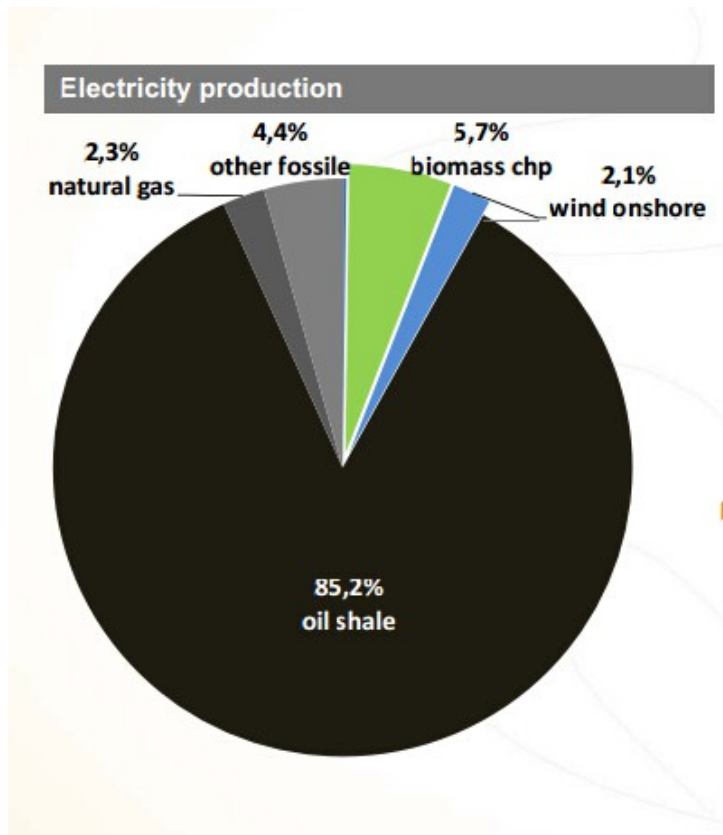
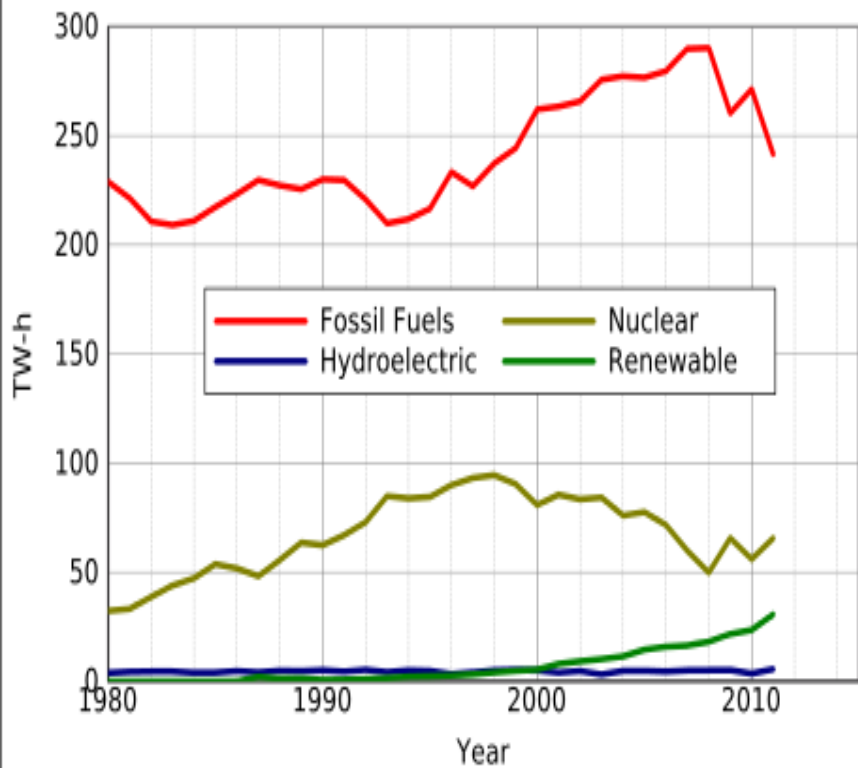


Figure 4. Bulgarian Renewable Energy Resource

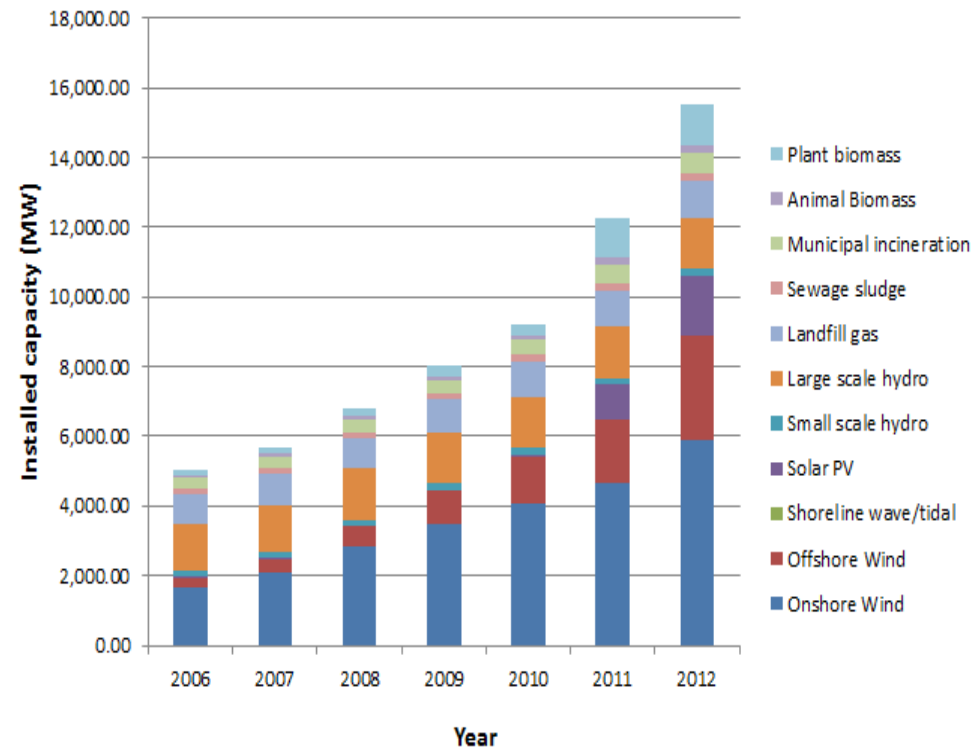
Estonia : Electricity output from biomass, the biggest source of renewable energy, increased by 15 percent last year and Wind output rose 23 percent due to three new wind parks in 2013.



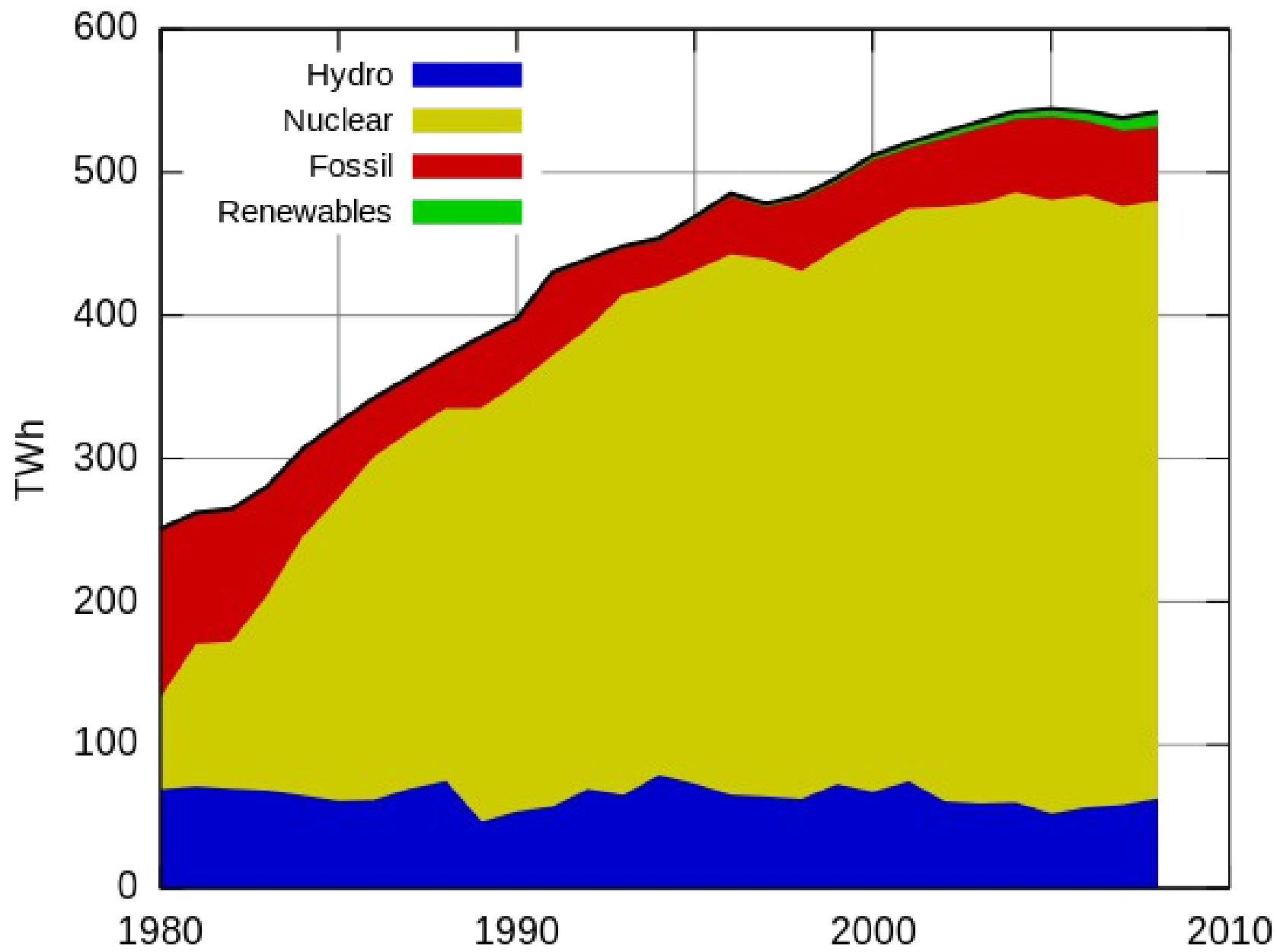
Electricity Production in United Kingdom



UK renewables installed capacity



Electricity Production in France



What's the difference?

In the EU-wide average, 59% said this goal was "about right" and another 14% called it "too modest." Only 17% said it was "too ambitious."

1. Different conditions in different countries, especially the natural resources.
2. Bulgaria and Estonia want to be independent from Russia.

1. There is a conflict between the EU's policy and nation's interest.
2. There are renewable resources as an alternative option to solve the energy crisis of EU, such as Sweden.

Table 2 Import / export of electricity between Sweden and neighbouring countries, 2011, TWh

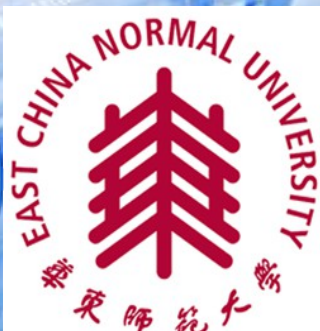
TWh	Import / to Sweden	Export / from Sweden
Norway	7,1	7
Finland	4	6,1
Denmark	2,8	5,3
Germany	0,6	2,1
Poland	0,3	1,5
Total	14,8	22

Conclusions:

- EU is far from common energy policy, that gives **no way to conduct** efficient energy policy and to effectively respond to new challenges.
- Renewable energy resources seem to be the only successful solution of the issue of energy security in **a foreseeable future** in case of a huge money contribution
- Reducing Europe's dependence on Russian gas is possible—but it will take **time, money** and sustained **political will**.
- Perspectives for Russia in case of **no modernization and liberalization, investments and new routes** are not very positive.
- Desecuritization is necessary for healthy cooperation btw. actors. It depends on lobbying activity and technocracy decisions (**epistemic communities** and **advocacy network**).

Thank you for attention!

New dimension of EU energy security



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