

Available sources and vectors of energy in the EU

Euro-CASE Conference - Energy Independence for Europe

Jean-Arnold Vinois

DG Energy: Acting Director, Directorate B – Internal Energy Market

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Agenda

Changing picture of the energy sources in the EU

EU policy – impact on sources and vector of energy

Long-term decarbonisation objectives – Roadmap 2050

Pivotal role of infrastructure



The primary energy mix of the Union: diversified on EUlevel but significant national differences





Source: Eurostat



Evolution of the primary energy mix in the EU-27 over the last 15 years





Decreasing domestic production, combined with demand increase, leads to increasing import needs





Source: Eurostat



Oil, Gas, Coal: origin of imports in the EU27

Share of import of oil, gas, coal in the EU27, 2010, %





Sustainability policy and its impact on the fuel selection in the energy sector

Share of new power capacity installation in the EU, 2011

Generation Capacity, MWe



- In 2011, renewable capacity represented around 70% of the annual power capacity addition
- Since 2008, renewable capacity installations have represented more than half of all new installed capacity



Public acceptance has a key impact on the national energy policy

Fracking technology

François Hollande Says 'Non!' to Fracking

Wall Street Journal, 6 November 2012

Iran will have the capacity to boost gas exports to Turkey and other European countries once the 6th cross country gas pipeline come on stream

German Government to Oppose Fracking

Spiegel, 5 July 2012 Berlin is opposed to plans to use the controversial fracking process to extract natural gas in Germany, SPIEGEL has learned. Government ministers are "very sceptical" about the technology, which environmentalists claim can pollute groundwater.

Nuclear energy

Germany Approves End to the Nuclear Era

It's official: Germany's "Energy Revolution" has begun. The country's parliament on Thursday passed a series of laws that will push forward the phase-out of nuclear plants and promote renewable energies

Italians Vote No to Berlusconi

Spiegel, 14 June 2011

The Italians have cast their ballots – and for the second time in just a few weeks, Prime Minister Silvio Berlusconi was left holding the short stick. The country voted against nuclear energy and against the privatization of waterworks. But it has also become clear that the country has tired of its leader.

Source: press search



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Why energy policy matters for Europe



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1 Significant increase of the oil and gas import bill in the EU

Cost of net imports of oil and gas in the European Union





2 Dependence on imports is likely to grow



Today, Europe imports more than half of the energy it uses. If nothing changes, our dependence on fossil fuel imports will rise by 2030.

* Business as usual scenario based on 2009 figures Source: European Commission



3 Around 80% of GHG associated with the production, transformation and use of energy

GHG Emissions per sector in the EU-27, 2010





The EU energy system will need substantial investment to get fit for 2020 and beyond



NB: approximative figures, mainly from DG ENER calculations based on data from PRIMES, ENTSOs, KEMA etc.



Main pillars of EU energy Policy since 2007





Energy policy recent development



Third Internal Energy Market Package

European Energy Programme for Recovery

EEPR

ETS

Directive

Renewables

Directive

2008/9

Regulation on security of gas supply

Energy Strategy 2020



Energy Infrastructure

Package

2010

Network Guidelines & Connecting Europe Facility

Trans-European

External Energy Policy Communication



Energy 2050 Roadmap Energy Efficiency Directive



Renewables Communication

IGA Decision

Nuclear Stress Tests Communication

Internal Energy Market Communication

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The Energy Roadmap 2050 is a basis for developing a long-term policy framework Supported by scenario analyses

European Council

- EU objective for 2050 GHG emissions down to 80-95% below 1990 levels
- Looks forward to elaboration of a low-carbon 2050 strategy – a framework for longer-term action in energy and related sectors

Aim of the roadmap

- Give more certainty to governments and investors
- Explore routes towards a low-carbon energy system by 2050 which improve competitiveness and security of supply
- Basis for developing the 2030 policy framework and concrete milestones with MS, EP and stakeholders



Scenarios explore routes to decarbonisation of energy system

Current trends scenarios	 Reference scenario (as of March 2010) Current Policy Initiatives (as of April 2011) → 40% GHG reduction by 2050
Decarbonisation scenarios	 High Energy Efficiency Diversified Supply Technologies High RES Delayed CCS Low Nuclear → 80% GHG reduction



Rethinking EU Energy Markets



Achieving the EU internal energy market as an immediate action

Benefits of the EU market:

- Optimization of the use of EU resources
- Integration of RES
- Ensuring collective security of supply
- Smartening energy grids
- Empowering consumers
- Improving energy efficiency



The next step for the EU is to define the 2030 framework for energy

- The immediate priority is to implement the EU's **2020 Energy Strategy**
 - 20 percent reduction of GHG emissions (vs 1990)
 - 20 percent share of renewable energy
 - 20 percent energy savings (vs BAU)
- The next step is to define the EU's 2030 framework for energy:
 - Do we need a single CO2 reduction target? Do we need to supplement it with other targets such as renewables? Do we do nothing?
- Three no regrets options for the longer term strategy:



Source: European Commission



Natural gas role in the transition to a decarbonized energy economy

Global availability and distribution of reserves

 \checkmark Less CO₂-intensive fossil fuel



Gas-to-power is a suitable backup solution for RES

Restricted choice of fuel for thermal power generation

Increasingly transparent pricing (i.e. development of gas hubs)



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Infrastructure is at the heart of our energy and climate policy goals



Included under the flagship initiative "Resource efficient Europe"





Infrastructure priorities: electricity

BEMIP

North South interconnections in Western Europe

North South interconnections in Central and South Eastern Europe

Northern Seas Off-shore grid

"Smart grids"





Infrastructure priorities: Gas, Oil and CO2 transport

Southern Corridor

BEMIP

North-South interconnections in Western Europe

North-South interconnections in Central and South Eastern Europe

Oil security of supply in Central Eastern Europe





Conclusions

- Is energy everything? (President Wilson)
- EU energy policy taking shape vs. national policies
- Does the energy mix move fast enough to timely achieve decarbonisation?
 - » Diversification of sources increasing
 - » Infrastructure building too slow