EUROPEAN ENERGY ROADMAP 2050[1]

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On 15 December 2011, the European Commission adopted the Communication "Energy Roadmap 2050". According to the communication "Energy Roadmap 2050" (COM 2011/885) the EU is committed to reducing greenhouse gas emissions to 80-95% below 1990 levels by 2050 in the context of necessary reductions by developed countries as a group. In the Energy Roadmap 2050 the Commission explores the challenges posed by delivering the EU's decarbonisation objective while at the same time ensuring security of energy supply and competitiveness. The Energy Roadmap 2050 is the basis for developing a long-term European framework together with all stakeholders.

Rather than presenting one strategic option, the Energy Roadmap 2050 describes seven different scenarios. Every scenario is based on a different energy mix, combing varying shares of renewables and the importance given to energy efficiency and new technologies such as carbon capture and storage. Irrespective of the particular energy mix chosen, there are a number of common elements in all decarbonisation scenarios: the demand for renewable energy will grow and energy savings will be crucial. At the same time the role for electricity will increase, capital investments will increase and the fossil fuel bill will decrease.

Main conclusions of the 2050 Energy Roadmap

The main outcomes of the 2050 energy road map, presented in Figure 1, are listed as follows:

1. Gas will stay high in some sectors – such as the power sector – over a longer period.
2. Nuclear power's contribution to the energy mixtures will remain to the busness-as-usual levels.
3. Renewables take a center stage. The share of renewable energy (RES) will rise substantially, achieving at least 55% in gross final energy consumption in 2050.
4. The Energy Roadmap 2050 shows that the energy consumption will be reduced by 2050 by at least 32 percent to the peak in 2005

Energy prices forecast in Europe

If investments are postponed, they will cost more and create greater disruption in the longer term. For Europe, the Commission already analyzed in its "Roadmap to a competitive low-carbon economy" (March 8, 2011) the following absolute figures: Investment expenditure increases by around 100 billion Euro per annum for the 20 year period from 2030 – 2050, without comparably decreasing the investment before 2030. Ac-

[1] The main reference of this article is the European MEMO 11/914

cording to IAE' 2011 World Energy Outlook, for every US Dollar of investment not made in the power sector before 2020, an additional 4.3 USD would need to be spent after 2020 to compensate for increased emission.

Another main outcome of the Energy Roadmap 2050 regarding the energy price forecast in Europe is the fact that energy costs will rise anyway and will be roughly at the same level as if Europe was not to do anything. In case of the business as usual scenario, the total energy system cost - including fuel, electricity and capital costs, investment in equipment, energy efficient products - could represent 14.6% percent of European GDP in 2050 (compared to 10.5% in 2005). If current policies continue, investments will not be achievable in heavy infrastructure as in the decarbonisation case, but higher fossil fuel costs will be faced as gas and petrol prices are estimated to rise due to an increase in world-wide demand. By contrast, in the case of the decarbonisation scenarios higher upfront investment is needed but less fossil fuel.

Electricity prices in Europe will continue rising until 2030, as capital, grid and fuel costs will rise and auctioning payments will increase. After 2030, electricity prices will stabilize or decrease, because less operational costs will be needed for electricity production which in turn will have a positive impact of prices. These operational costs include emissions trading system allowances and fossil fuels.

Energy as a driving force of development in Europe

The energy system transformation will drive growth and employment in a wide range of sectors, from construction, renewable energy, power generation and transmission, energy efficient appliances and vehicles, and has the side-benefit of a reduced external fuel bill. Additionally, the transformation will make Europe less dependent on external energy supplies. It is up to Europe to ensure a strong industrial base ready to take advantage of these opportunities. The European Union is working continuously to convince partners to move towards greater decarbonisation worldwide in a common effort.

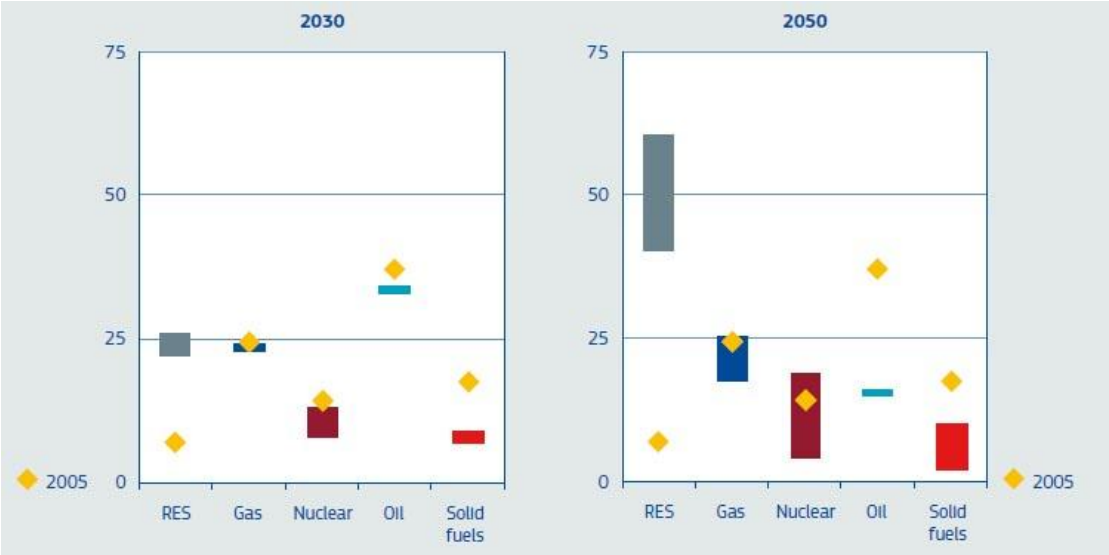

Figure 1: EU 2030 and 2050 range of fuel shares in primary energy consumption
compared with 2005 outcome (%)