



# Energising Europe

Industry, researchers and governments all have a role to play in meeting the EU's climate objectives, says **Andris Piebalgs**

Up to the late 1990s, low oil and energy prices without carbon constraints created the conditions for a European economy highly dependent on fossil fuels. At the same time these conditions acted as a brake to innovation and investments in new energy technologies. Since the end of the 1990s, environmental concerns and increased European energy dependence on oil shifted the trend.

The share of renewables in final energy consumption increased from 7.6 per cent to 8.5 per cent from 2000 to 2005. The use of renewables has progressed rapidly in electricity, following the introduction of national indicative targets and progress has begun in renewables in transport. However, in heating and cooling, which is not covered by European legislation, little progress has been made.

Making the energy system more sustainable and secure is thus one of the greatest challenges for Europe. The EU energy and climate package proposed in January 2008 seeks to effectively address these challenges. It sets ambitious targets for 2020, including cutting EU greenhouse gas emissions by 20 per cent, reducing energy use by 20 per cent and boosting renewables to 20 per cent of the EU's overall final energy consumption.

The commission's strategic energy technology (SET) plan proposed in November 2007 offers a blueprint for Europe to develop a world class portfolio of affordable, clean, efficient and low emission energy technologies. The SET plan reinforces coherence between national, European and international efforts, with member states able to coordinate policies and programmes. The process will benefit from the SETIS system and the European energy research alliance bringing together national research institutes. European industrial initiatives will move towards more rapid deployment of technologies. Priority areas are offshore wind, solar, bio-energy, CO<sub>2</sub> capture, transport and storage, smart electricity grids and nuclear fission.

In 2007 the installed capacity of wind energy was 50 gigawatts (GW), enjoying a growth rate of 25 per cent per year over the last few years. Under the SET plan implementation action, the sector has agreed to deliver 12 to 14 per cent of EU electricity consumption by 2020 which represents in terms of installed capacity 180 by that time. This would reduce costs for both offshore and onshore, increase competitiveness, and achieve progress especially as regards large scale grid integration for offshore wind.

The electricity grid will have to adapt and accommodate new and large amounts of electricity delivered by renewable energy sources. The main objective is to develop an efficient, reliable, flexible, accessible and cost-effective European electricity grid which will allow, inter alia, the large uptake of renewable energies.

CO<sub>2</sub> capture and storage technologies (CCS) can significantly reduce CO<sub>2</sub> emissions from power generation, industry and the production of synthetic transport fuels. CCS could reduce CO<sub>2</sub> emissions from coal and natural gas use in these sectors to near zero. All the individual elements needed for CCS have been demonstrated, but there is an urgent need for an integrated full-scale demonstration plant. The energy strategy for Europe foresees up to 12 large-scale demonstration projects to be launched for coal and gas-fired power plants by 2015.

The bioenergy sector is a complex sector addressing a multitude of sources and delivering products for electricity, heating and transport markets. Research in the domain of the "second generation biofuels" is currently one of the cutting edge areas of energy technology together with biorefineries that can help decrease the price of biofuel by offering the possibility of making several additional products simultaneously from the same feedstock.

Technology is vital to achieve the EU energy and climate change policy objectives. The impact of the SET plan is mainly related to the development mechanisms and instruments to achieve the 2020 targets and the need to anticipate the development of the technologies, by accelerating their deployment. The potential is definitively there. It is now essential to unlock it and find the appropriate ways to work for industry, research and government to work together to achieve our common targets. ★

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