

Geological storage of carbon dioxide (CO₂)

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In a communication entitled “Europe's climate change opportunity”, the Commission recalls that 2007 marked a turning point for the European Union's climate and energy policy. Europe showed itself ready to give global leadership: to tackle climate change, and to face up to the challenge of providing secure, sustainable and competitive energy.

Two key targets were set by the European Council:

- 1) A reduction of at least 20% in greenhouse gases (GHG) by 2020 – rising to 30% if there is an international agreement committing other developed countries to "comparable emission reductions and economically more advanced developing countries to contributing adequately according to their responsibilities and respective capabilities";
- 2) A 20% share of renewable energies in EU energy consumption by 2020.

The European Council agreed that the best way to reach such ambitious goals was for every Member State to know what was expected, and for the goals to be legally binding. This meant that the levers of government could be fully mobilised, and the private sector would have the long-term confidence required to justify the investment needed to transform Europe into a low-carbon, high energy efficiency economy.

At the United Nations Climate Change Conference in Bali in December 2007, the European Union was able to play a pivotal role in securing agreement on the roadmap towards a new comprehensive agreement on cutting emissions to be reached by 2009.

The next step is to translate the European Union's political direction into action. The package of measures proposed by the European Commission thus represents a coherent and comprehensive path to preparing Europe for the transition towards a low-carbon economy.

The proposals rest on **five key principles**:

- 1) The targets must be met: to assure Europeans of the reality of change, to convince investors to invest, and to show the EU's seriousness of intent to partners worldwide. The proposals must therefore be effective and strong enough to be credible, with mechanisms for monitoring and compliance in place;
- 2) The effort required from different Member States must be fair. In particular, some Member States are more able than others to finance the necessary investments. The proposals must be flexible enough to take account of Member States' different starting points and different circumstances;
- 3) The costs must be minimised: with a design tailor-made to limit the price tag of adaptation for the EU economy. The costs of change and the consequences for the Union's global competitiveness, employment and social cohesion need to be kept at the forefront in designing the right structure;
- 4) The EU must drive on beyond 2020 to further reduce greenhouse gases to meet the target of halving global emissions by 2050. That means stimulating technological development and ensuring that the system can benefit from newly available technologies;

- 5) The EU must do everything possible to promote a comprehensive international agreement to cut greenhouse gas emissions. The proposals are conceived to show that the Union is ready to take further action as part of an international agreement, and will establish more ambitious targets in the reduction of greenhouse gas emissions (stepping up from the 20% minimum target to a more ambitious 30% reduction).

In its Communication, the Commission lists the main instruments to achieve the set objectives:

Updating the Emissions Trading System (ETS): the European Union Emissions Trading System has proved a pioneering instrument to find a market-based solution to incentivise cuts in greenhouse gas emissions. However, a review of the ETS has shown that it needs to be strengthened and updated if it is to meet its new objectives.

Reducing greenhouse gas emissions beyond the ETS: since the revised ETS will only cover less than half of the GHG emissions, an EU framework is needed for national commitments to cover the remaining emissions – covering areas like construction, transport, agriculture, waste and industrial plants falling under the threshold for inclusion in the ETS. The target for these sectors would be a 10% reduction in emissions from 2005 levels, with specific targets for each Member State .

Promoting renewable energy: today, the share of renewable energy in the EU's final energy consumption is 8.5%. An increase of 11.5% is needed on average to meet the target of 20% in 2020. Member States enjoy different possibilities to deploy renewable energy, and the efforts required to reach the 20% share of renewable energy in the EU's overall energy consumption need to differ between the Member States. The Commission's proposal is based on a methodology according to which half of the additional effort is shared equally between Member States. The other half is modulated according to GDP per capita. The European Council also decided to fix a specific minimum target for sustainable biofuels of 10% of overall petrol and diesel consumption.

The role of energy efficiency: the EU goal of saving 20% of energy consumption by 2020 through energy efficiency is a crucial part of the puzzle. It would save the EU some € 100 billion and cut emissions by almost 800 million tonnes a year. Transport, buildings and more efficient power generation, transmission and distribution all offer opportunities which need to be stimulated through a mixture of legislation and information. Product standards can be used to bring more efficiency to a wide range of goods, from televisions to cars and heaters to streetlights. Better labelling also plays an important role.

Looking beyond 2020 - galvanising the potential for deeper cuts in emissions: over the past ten years, technology has developed swiftly. Renewable energy technologies are making wind and solar energy more commercially viable than ever before. Energy efficiency is now being mainstreamed into products. But this process must be accelerated if Europe's goals for climate and energy are to be met and if the commercial potential of these technologies is to be exploited to the full. Climate change and energy have been earmarked as likely primary areas on which the European Institute of Technology could focus its attention.

Carbon capture and storage (CCS): for Europe, the target of halving 1990 GHG emissions by 2050 will never be met unless the energy potential of coal can be exploited without increasing emissions. That is why the European Council backed early action to make CCS the technology of choice for new power plants, including the setting up of up to 12 demonstration plants by 2015. European legislation is needed to provide the right framework for CCS to work in the internal market and factor the benefits of CCS for the ETS.

Bringing about change: to meet the EU's goals at minimum cost, the Commission's proposals build on the experience of the Emissions Trading System and leave the market to drive as much as possible. It also

retains as much flexibility for national decision as possible within the constraints of specific national targets. Member States should have the freedom to determine their own energy mix and to promote renewable energy in different ways. Lastly, new state aid guidelines will provide a framework setting out how Member States can use aid to promote a higher level of environmental protection, notably in the field of energy.

The particular needs of energy-intensive industries: energy-intensive industries face a particular challenge during the transition to a climate-friendly economy. A comprehensive international agreement would address this problem. However, in the absence of such an agreement, or of significant unilateral action by competitors in energy-intensive sectors, the EU must take action to ensure a level playing field. Consequently, the Commission's proposals put in place provisions to allow action to be taken.

The capacity to invest: the European Council recognised that the ambition of the proposals will make real demands on all Member States. The Commission has therefore carefully assessed the economic impact of the proposals against the capacity of each Member State to make the investment required. With the overall cost to the European economy estimated at just under 0.5% of GDP by 2020, the Commission believes that no Member State should be asked to make an investment which diverges too far from this broad average. With this in mind, the specific requirements asked of each Member State have been modulated to allow for a realistic level of investment from lower-income Member States.