# REDUCING THE CLIMATE CHANGE BILL

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As stated in the Stern report, "the benefits of strong and early action far outweigh the economic costs of not acting" against climate change. The EU has taken the world lead in developing policies to fight against climate change. Such policies must not only be effective in achieving their targets but also cost-effective in this task. The design of internal EU and international climate change policies and the extent to which other countries will join the EU in implementing climate policies determine the magnitude and the distribution of the costs of fighting climate change.

Early, effective and cost-efficient policies are crucial to achieving the objective of keeping future temperature changes below two degrees celsius. This implies the concentration of efforts in two areas:

- Reducing greenhouse gas (GHG) emissions should be the main focus of climate change policies. A functioning carbon market should be the central element of such policies. Any other complementary instrument such as the use of renewables or the setting of standards should be designed in order to contribute efficiently to the main goal.

- A broad post-Kyoto international agreement involving as many countries as possible should be sought. Its guiding principle should be common but differentiated responsibility.

The European Commission recently proposed a new regulatory package to reduce carbon emissions by 20 percent, increase the share of renewables to 20 percent of the energy consumed and achieve a 10 percent share of biofuels in total transport fuel consumption.

The European Commission proposal substantially improves the design of the EU Emissions Trading Scheme (ETS) and increases the sectoral scope of carbon mitigation policies. However, the proposal fails to establish priorities between the objective of emissions reduction and the target for renewables (and biofuels). This implies that reaching this renewables (and biofuels) target might become, at some point, an obstacle rather than an instrument to reduce GHG emissions. A clear prioritisation of targets and measures is necessary in order to make the main target - ie a reduction of GHG emissions - attainable.

A priority item on the EU agenda is to come up with the design of a post-Kyoto agreement that manages to attract as many countries as possible and is, in particular, sensitive

to developing countries' demands. The feasibility and success of EU climate policies rely heavily on the conclusion of such an agreement.

The short-term economic impact of climate policies and the incentives to free-ride might prevent governments from adopting first-best policies. This reduces the incentives of other governments to implement stricter climate policies in order to minimise the competitive disadvantage to their industry. There are several economic dimensions affected by climate change policies.

## CLIMATE POLICIES HAVE AN ECONOMIC IMPACT

Climate change policies affect economic growth. The Stern review[1] estimates that the impact of stabilising atmospheric emissions at 500-550 ppm would represent about 1 percent of GDP by 2050. The Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report estimates that the undiscounted cost of stabilising CO2 emissions at 450 ppm (which is roughly equivalent to the EU target of keeping the temperature rise below two degrees) would be around 0.6 percent of GDP in 2030.[2] Such figures are based on the assumption that countries adopt the appropriate measures that allow them to reduce carbon emissions at the lowest cost and that they do not have incentives to free-ride. But the cost could be twice as much if policy inefficiencies and market imperfections are taken into account.[3] The cost of climate change policies does not only depend on the objectives of such policies but also on the policies themselves.

Climate change polices also affect the terms of trade. Carbon pricing schemes (such as the EU ETS) have an impact on competitiveness. The asymmetric implementation of carbon-pricing schemes places at a disadvantage firms (especially in carbon-intensive industries such as cement, steel or aluminium) located in countries which price carbon, and might give them an incentive to relocate to countries with laxer environmental regulation. But this is not the only concern. Even where action is taken on a more uniform collective basis, concern remains that different countries will be affected differently by carbon-pricing policies, owing to differences in competitive advantage and product specialisation.[4]

Climate change policies can have an inflationary effect. Electricity producers need emissions permits to generate electricity. Whether these are given to them for free or are auctioned, the companies will incorporate them as a cost and are likely to pass them on

1. Stern, N., (2006). Stern Review Report on the Economics of Climate Change. Cambridge: Cambridge University Press.
2. IPCC, (2007). "Climate Change 2007 - Mitigation of Climate Change Working Group III contribution to the Fourth Assessment Report of the IPCC".
3. Bosetti, V., C. Carraro, E. Massetti and M. Tavoni, (2007). "Optimal Energy Investment and R&D Strategies to Stabilise Greenhouse Gas Atmospheric Concentrations", CEPR Discussion Paper 6549.
4. See Delgado, J., (2007). "Why Europe is not carbon competitive". *Bruegel Policy Brief*. www.bruegel.org. Issue 2007/05.

to electricity consumers. Also, most renewable resources currently require a premium on the electricity price in order to be competitive. Setting a target for energy production from renewable sources increases the cost of generating electricity. According to the European Commission the impact on energy prices of the climate package proposed last January would be between 4.5 and 6.8 percent depending on the scenario.[5] Finally, the growing use of cereals, sugar, oilseed and vegetable oils to produce ethanol and biodiesel and the fact that such production is heavily subsidised might introduce major distortions in the pricing of food.

Climate change policies have an impact on public accounts. Climate policies can be a source of public revenue via taxes but also a source of expenditure via support to climate change research, investment in R&D or tax breaks. Governments' fiscal imbalances can be affected by climate policies if climate related revenues are not sufficient to finance climate spending. A carbon market may not be sufficient to meet the climate targets and additional measures requiring public funds might be needed.

## COST-EFFICIENT CLIMATE POLICIES CAN MINIMISE THE ECONOMIC IMPACT OF FIGHTING CLIMATE CHANGE

With the aim of reducing the economic impact of climate change policies, the EU must combine an effective and cost-efficient internal policy agenda focused on the reduction of GHG emissions with the completion of a broad, global post-Kyoto agreement.

As far as EU climate policies are concerned, our recommendations are the following:

- Reducing GHG emissions should be the focus of EU climate policies. A cap-and-trade scheme such as the ETS is an efficient way of curtailing emissions at the minimum cost. However, since the implementation of a cap-and-trade scheme might not be feasible to all sectors (given the heavy monitoring requirements and the complex implementation), it could be supplemented by other tax instruments in sectors not covered by the ETS.

- Guaranteeing effectiveness and cost efficiency should be the driving force of EU climate change policies. Flexible market-based instruments allow the global cost of meeting the targets to be minimised and are easily adaptable to changing scenarios.

- The coverage of carbon pricing schemes (ie carbon markets and carbon taxes) should be as wide as possible. This not only increases the effectiveness of carbon pricing schemes (by covering a larger share of emissions) but also gives more flexibility in cutting

5. European Commission, (2008). "Impact Assessment on the Package of Implementation Measures for the EU's Objectives on Climate Change and Renewable Energy for 2020". Commission Staff Working Document SEC(2008) 85/3.

emissions across sectors at the lowest cost, and reduces the competitive distortions across countries and sectors.

- Allocation of emission permits should be consistent within sectors across countries irrespective of firms' location. If the allocation of free permits is decided at national level, the outcome is likely to distort production and investment decisions: carbon-intensive industries might adopt such decisions based on the amount of emission permits they are allocated free at each location. Auctioning should be the preferred mechanism to allocate emission permits in order to guarantee efficient allocation. Auctioning also allows collection of additional revenues which can be used to finance other climate change policies.

- Other policies such as obligations related to renewables and biofuels, regulation of transport, etc. should be instrumental in achieving the main target of cutting GHG emissions and should not constitute an obstacle to meeting this main target. Better integration of climate change objectives and other relevant policy areas such as energy, transport, building or agriculture is desirable. In doing this, the cost-benefit of any complementary measure should be carefully analysed to make sure that it contributes efficiently to the main target.[6]

- Objectives have to be long-term. Intermediate targets might be necessary in order to facilitate monitoring and implementation of policies but should be flexible enough not to constrain the drive for longer-term goals.

- The degree of uncertainty surrounding the process both on the climate side and on the technology side entails flexible policy design that does not rely on a single set of assumptions and is adaptable to a changing environment.

- Price intervention should be avoided since prices provide the appropriate signal for investment and consumer behaviour. High prices of carbon intensive energy sources such as oil and coal create incentives to use renewables. Windfall profits derived from the pass-through of carbon prices on to electricity prices can be "recovered" via auctioning of emission permits. The impact on prices can be relaxed through complementary policies such as further energy liberalisation, trade and agricultural policy (in the case of biofuels).

- Governments should carefully evaluate the public revenues and expenditure originating from climate policies in order to guarantee a balanced budget. National instruments should not interfere with carbon markets.

6. See McKinsey, (2007). "A Cost Curve for Greenhouse Cost Reduction", The McKinsey Quarterly, for a cost-based ranking of alternatives to reduce carbon emissions.

An international global climate agreement also has to be achieved, respecting some basic principles:

- The involvement of a large number of countries in a global climate agreement is necessary not only to reduce the total costs of reaching any global (or local) target but also because developing countries are set to be major emitters in the near future. It should therefore be a priority for industrialised countries, and especially for the EU, to establish the appropriate conditions for involving as many countries as possible under the principle of common but differentiated responsibility. Such conditions might involve gradual commitments by developing countries starting with relatively limited emissions cuts.

- A global market for carbon replicating the European ETS but on a larger scale would not only reduce the total costs of reducing GHG emissions, but would also help to level the playing field between countries, thus addressing concerns about the potential differential impact on competitiveness of climate change policies. Other accompanying measures and financial transfers which constitute relatively cheap ways of cutting emissions, such as preventing deforestation, might also be desirable.

- The use of the project-based market mechanisms established under the Kyoto Protocol – the Clean Development Mechanism and the Joint Implementation Projects – should be promoted in order to facilitate the involvement of developing countries and to reduce the cost of cutting emissions. However, the conditions under which such projects qualify should be clearly established in order to make sure they are effective in reducing GHG emissions.

- The asymmetric application of climate policies can place firms located in countries with stricter regulation at a competitive disadvantage. A comprehensive global agreement would remove such asymmetries. However, in the absence of such an agreement, the requirement for imports to participate in the carbon market is preferable to exclude most affected sectors from the carbon market (which would reduce the effectiveness of the carbon market) or to generous grandfathering of emission allowances in such sectors (which would not provide incentives to such sectors to reduce their emissions).