



The EU's response to climate change

CLIMATE CHANGE: A GLOBAL PROBLEM

Climate change is one of the greatest global environmental, social and economic threats. The principle that human induced changes in atmospheric concentrations of greenhouse gases is leading, and will continue to lead to higher average global temperatures is almost universally accepted amongst scientists. In its Fourth Assessment Report, published in 2007, the Intergovernmental Panel on Climate Change (IPCC) projected that, without further action to reduce greenhouse gas emissions, the global average surface temperature would be likely to rise by 1.8 to 4.0°C this century. Even the lower end of this range would take the temperature increase since pre-industrial times above 2°C, the threshold beyond which irreversible and possibly catastrophic changes become far more likely.

Global warming will exert an array of consequences on the environment and humanity. There are major implications for hydrological systems, global biodiversity, food production, health and infrastructure, to name a few. It is widely agreed that the impacts will not be distributed evenly, with some of the world's poorest countries the hardest hit and least able to cope. The projected impacts on Australia include the demise of the Great Barrier Reef and reduced agricultural productivity across much of southern and eastern parts of the continent.

The uncertainties in the science and in modelling and predicting the impacts of climate change are no excuse for inaction.

The European Union (EU) is at the forefront of international efforts to combat climate change and is committed to the United Nations Framework Convention on Climate Change (agreed in Rio in 1992) and its Kyoto Protocol. However Kyoto is only a first step. Far more ambitious action to reduce global emissions is needed after 2012, when the first phase of commitments under the Kyoto Protocol ends.

The EU's overarching objective is to ensure that global average temperature does not rise by more than 2°C above pre-industrial levels and it is committed to working at a global level to achieve this.

EU COMMITMENTS UNDER THE KYOTO PROTOCOL

The 15 countries that made up the EU when the Kyoto Protocol was adopted in 1997 have a joint commitment to reduce their combined emissions of greenhouse gases by 8% from 1990 levels in the Kyoto Protocol's first commitment period (2008–12). Since the signing of the Protocol, 12 more countries have become members of the EU. These new Member States are not covered by the EU15 target, but have their own target of -6% or -8% under the Protocol¹. However, all Member States are full participants in the EU Emission Trading Scheme.

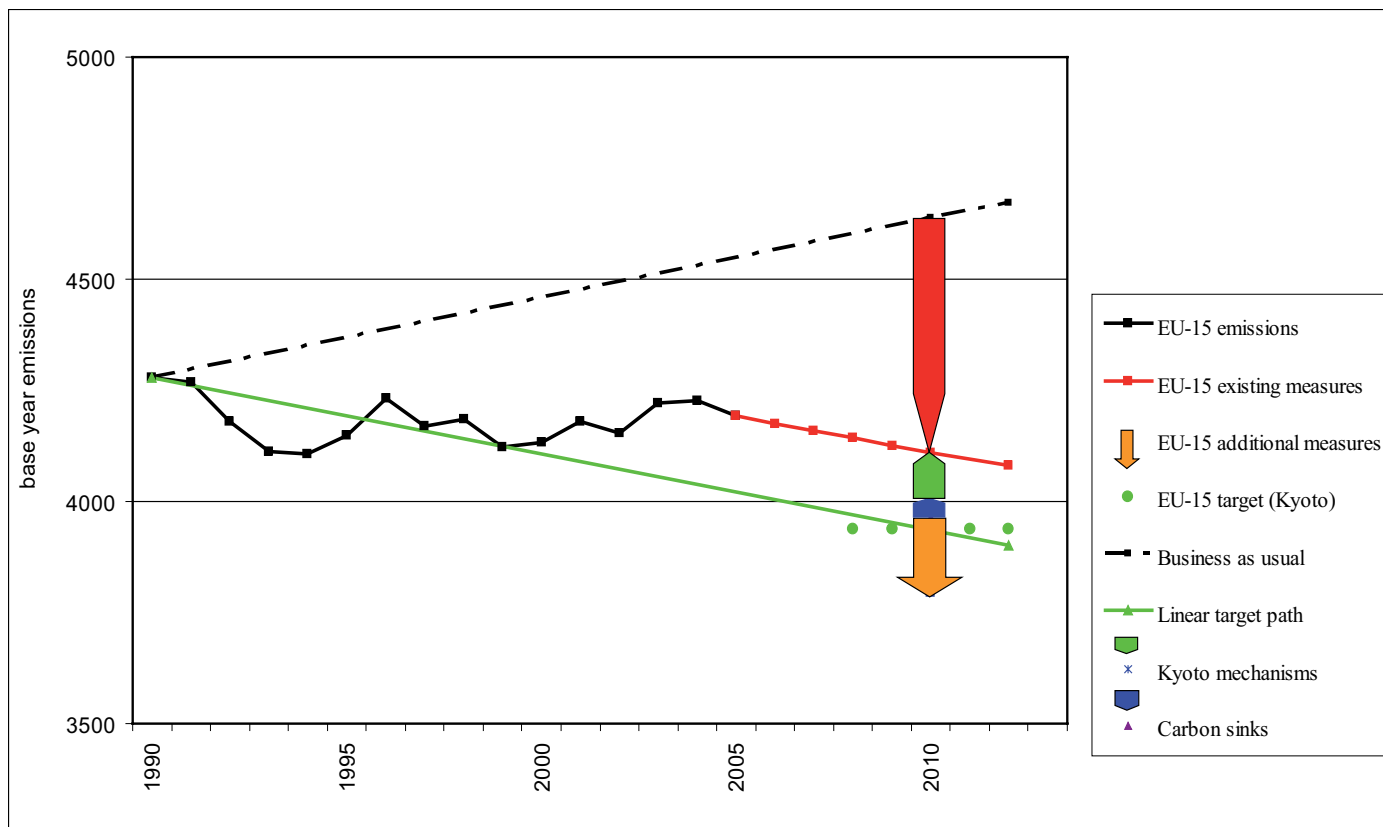
Member State	Kyoto target
EU-15 joint commitment, <i>within which the following internal targets have been set:</i>	-8.0 %
Austria	-13.0 %
Belgium	-7.5 %
Denmark	-21.0 %
Finland	0 %
France	0 %
Germany	-21.0 %
Greece	+25.0 %
Ireland	+13.0 %
Italy	-6.5 %
Luxembourg	-28.0 %
Netherlands	-6.0 %
Portugal	+27.0 %
Spain	+15.0 %
Sweden	+4.0 %
UK	-12.5 %
Bulgaria, Czech Republic, Estonia, Latvia, Lithuania, Romania, Slovakia, Slovenia (each)	-8.0 %
Hungary, Poland (each)	-6.0 %
Cyprus, Malta	no target
<i>Developed countries as a group</i>	-5.0 %
Australia	+8.0 %

Table 1: Targets 2008–12 under Kyoto Protocol and EU effort sharing



Within the target embraced by the EU15, individual Member States also have their own targets (*see Table 1*), but these are targets in the framework of the EU's joint commitment. This joint commitment allows some EU countries to increase their emissions, while others reduce them significantly. This process takes into account the differing levels of development and expected rates of each of the individual countries. The contributions of each Member State towards achieving the 8% reduction target are set down in EU law and are legally binding. It is therefore appropriate to assess the EU's overall Kyoto Protocol performance on the basis of the performance of all, and not a few individual Member States.

Several years on, and after a strong push to develop the policies and measures needed, monitoring data and projections indicate that the EU is on track to meet its Kyoto commitment. This is achieved through the use of policies and measures already in place, and with some new measures now being discussed and to be put in place at the European and national levels, it also takes into account the use of carbon sinks and the Kyoto Protocol's flexible mechanisms (Joint Implementation and Clean Development Mechanism).



Source: European Commission

NB: many initiatives to reduce emissions under the European Climate Change Program (phase 1) are only just starting to 'come online' in 2006-08, so the major reductions foreseen from these programmes are only just beginning to have an effect and so are not yet accounted for in reduction measures such as in the above chart.

The emissions inventory compiled by the European Environment Agency for 2006, the latest year for which complete data is available, shows that EU-15 emissions dropped by 0.8% from 2005, taking emissions to 2.7% below their levels in the base year (1990 in most cases). This puts the EU-15 well on track to meeting its Kyoto Protocol target of keeping average emissions between 2008 and 2012 at least 8% below base year levels.



The 0.8% drop in EU-15 emissions between 2005 and 2006 contrasted with an increase in GDP of 2.8% over the period, meaning that the EU has succeeded in further decoupling emissions from economic growth.

THE BALI ROADMAP

The European Union welcomes the agreement reached at the UN climate change conference in Bali to start formal negotiations on a climate regime for the post-2012 period and on a 'Bali Roadmap' that sets out an agenda for these negotiations.

The conference set an end-2009 deadline for completing the negotiations to allow time for governments to ratify and implement the future climate agreement by the end of 2012, when the Kyoto Protocol's first commitment period ends. The decision explicitly acknowledges the findings of the recent scientific assessment by the UN Intergovernmental Panel on Climate Change (IPCC) and recognises that deep cuts in global emissions of greenhouse gases will be required to prevent global warming from reaching dangerous levels.

The conference also took important decisions on several other issues, including launching demonstration projects to reduce deforestation, finalising arrangements for a fund to help developing countries adapt to the impacts of climate change, and scaling up financing for transfer of technology to developing countries.

President José Manuel Barroso welcomed this agreement: "We have worked hard to achieve this result. It is a very important step forward. Europe is determined to contribute all it can to move forward also in the future. I appeal to all our partners to take these commitments seriously and to act swiftly. Indeed there is only one planet. Together, developed and developing countries can reach success."

"The Bali conference has produced a breakthrough in the fight against climate change," said Francisco Nunes Correia, Portuguese Environment Minister and current EU Council president. "The way is now clear for the international community to start negotiations to reach a global climate agreement by the end of 2009. EU leadership has been key to securing this successful outcome and ensuring that the latest scientific recommendations from the IPCC will be taken into account in this process."

Stavros Dimas, European Commissioner for Environment, added: "These were tough negotiations but we have succeeded in agreeing on a roadmap for negotiations that meets the European Union's main demands. We have agreed to start negotiations that will not only discuss commitments for developed countries, including the United States, but also actions by developing countries. We have also agreed to work on a shared vision. Now the real hard work must begin. It is essential that the agreement to be worked out over the next two years is ambitious enough to prevent global warming from reaching dangerous levels."

THE EUROPEAN CLIMATE CHANGE PROGRAMME

The EU has been taking serious steps to address its own greenhouse gas emissions since the early 1990s. In March 2000, the European Commission launched the European Climate Change Programme (ECCP), which led to the adoption of a wide range of new policies and measures designed to help the EU meet its target for reducing emissions under the Kyoto Protocol. The first ECCP ran from 2000 to 2004 and helped identify the most environmentally effective and most cost-effective policies and measures that could be taken at European level to cut emissions.

The ECCP builds on existing emissions-related activities at EU level, for instance in the field of renewable energy and energy demand management. The ECCP is a multi-stakeholder consultative process that has brought together all relevant players, including the European Commission, national experts, industry and NGOs. Stakeholder involvement is an essential element of the ECCP because it enables the programme to draw on a broad spectrum of expertise and helps to build consensus, which facilitates the successful implementation of the resulting policies and measures.

The first ECCP examined an extensive range of policy sectors and instruments with the potential to reduce greenhouse gas emissions. Eleven working groups were established in the following areas, each identifying options and potential for reducing emissions based on cost-effectiveness:

- Emission Trading;
- Flexible mechanisms under the Joint Implementation and Clean Development Mechanism initiatives;
- Energy supply;
- Energy demand;
- Energy efficiency in end-use equipment and industrial processes;
- Transport;
- Industry (with sub-groups on fluorinated gases, renewable raw materials and voluntary agreements);
- Research;
- Agriculture;
- Sinks in agricultural soils; and
- Forest-related sinks.





One of the most important and innovative initiatives to have resulted from the first ECCP is the EU Emission Trading Scheme (EU ETS), launched on 1 January 2005, which has become the cornerstone of EU efforts to reduce emissions cost-effectively. Each of the 27 EU Member States has also put in place its own domestic actions that build on the ECCP measures or complement them.

The second phase of the European Climate Change Programme, ECCP II, was launched in October 2005. New working groups were established, covering carbon capture and geological storage, carbon dioxide (CO₂) emissions from light-duty vehicles, emissions from aviation, and adaptation to the effects of climate change. In addition, there were two further working groups: one to assess the implementation of the ECCP I policies and measures and their effects in terms of emission reductions, and another to undertake a review of the EU ETS. These have resulted in a number of proposals now being developed and implemented.

THE EU EMISSION TRADING SCHEME

In January 2005, the European Union Greenhouse Gas Emission Trading Scheme (EU ETS) commenced operation as the largest multi-country, multi-sector greenhouse gas emission trading scheme in the world. The EU ETS has become the cornerstone of the EU's climate change policy. It involves mandatory caps on emissions from around 11,500 large energy-intensive installations throughout the EU, accounting for around 2 billion tonnes of CO₂ or about 45% of the EU's total CO₂ emissions.

Under the EU ETS, Member States draw up National Allocation Plans for each trading period (e.g. 2005-08), which give each installation in the scheme a certain number of allowances to emit a corresponding amount of CO₂. The National Allocation Plans have to be based on objective and transparent criteria, including a set of common rules that are laid down in the legislative framework establishing the ETS. This includes taking into account the Member State's individual emission reduction target under the burden sharing agreement, how the Member State is tracking to meet this target, the potential for each installation to make emission reductions, and any plans to use credits from the Kyoto Protocol's flexible mechanisms. The European Commission assesses the plans on the basis of these rules, as well as EU rules on state aid and competition, and has the power to require changes or even to reject a plan altogether.

Currently, the EU ETS covers 30 countries, including non EU participants Norway, Iceland and Liechtenstein.



MORE INFORMATION

European Commission's climate change homepage - http://ec.europa.eu/environment/climat/home_en.htm

EU Emission Trading Scheme - <http://ec.europa.eu/environment/climat/emission.htm>

Commission Communication on limiting global climate change to 2°C - http://ec.europa.eu/environment/climat/future_action.htm

EU action plan on energy - http://ec.europa.eu/energy/energy_policy/index_en.htm

EU ETS phase 1 – lessons learned

The first phase of the EU ETS runs from 2005-08 and has been designed to act as a “learning by doing” phase. Transactions under the EU ETS were valued at about €19 billion (or \$A32bn) in 2006, making it a major driving force for the global carbon market. This pilot phase of the EU ETS phase has allowed government, industry and all those who provide services to build and learn what works best. Many other governments and industry groups around the world are looking to the EU ETS example, including those from Australia.

This initial phase has shown clearly where improvements can be made, for example in the data available on which to base the initial allocation of emission allowances, which is being addressed. There was a drop in price in the first trading phase, largely due to an over-allocation of emission allowances. When the initial allocations were made before the beginning of the first trading period, there was no verified data on actual emissions in the EU, so the allocations were based on ‘best available’ data. Thanks to the reporting required under the ETS, the verified data is now available and has been used by the European Commission, to ensure that allocations in national plans it approves for the second trading period which runs from 2008 to 2012 ensure scarcity. Another factor influencing the supply and demand of allowances has been the early reduction in emissions, with one study which estimating a reduction of up to 7% of total emissions in the first 18 months of the scheme, far more than had originally been anticipated (study by Ellerman and Buchner, 2007).



As well as its importance in reducing greenhouse emissions within the EU, the EU ETS is also important because of its effect on the global carbon market, in particular through the purchase of credits for Joint Implementation (JI) and Clean Development Mechanism (CDM) credits. The EU ETS is expected to provide a market for individual companies to purchase JI and CDM credits of up to 1.3 billion tonnes over 2008-12, in addition to those purchased by governments to meet their national emission reduction targets. Use of CDM also provides the opportunity to demonstrate clean technology in developing countries, support sustainable development, and engage developing countries in international action to reduce emissions.

EU ETS Phase 2

The European Commission has now approved the National Allocation Plans, which set the cap for each country, for the second trading period of the EU ETS (*see Table 2*), which coincides with the first commitment period under the Kyoto Protocol (2008-12). The Commission made significant cuts to some National Plans proposed by Member States, which illustrates that the Commission is taking the allocation of allowances very seriously. It is also taking measures to ensure scarcity in the trading period which began on 1 January 2008.

In addition to the reduced number of allowances, there will be several other important changes to the EU ETS during the second trading period including:

- an increase of auctioning of allowances to up to 10% of a Member State’s total allowances;
- an extension to include greenhouse gases other than CO₂ via an ‘opt-in’ procedure;
- a more harmonised scope of the scheme (e.g. to combustion installations and chemical crackers);
- improved handling of market-sensitive data;
- revised rules on monitoring, reporting and verification; and
- linkage to the Norwegian ETS from January 2008.

A proposal is also being debated for the inclusion of emissions from aviation from 2011 for flights within the EU, and from 2012 for flights that either depart or touch down in the EU.

*“Slowing or even reversing the existing trends of global warming
is the defining challenge of our age.”*

Ban Ki Moon, UN Secretary General in launching the IPCC Fourth Assessment Report

Table 2: EU ETS - National allocation plans for 2nd Trading Period 2008-2012

Member State	1st period cap	2005 verified emissions	Proposed cap 2008-2012 by Member States	Cap allowed 2008-2012 (in relation to proposed) by Commission	Additional emissions in 2008-2012 ²	JI/CDM limit 2008-2012 in % ³
Austria	33.0	33.4	32.8	30.7 (93.6%)	0.35	10
Belgium	62.1	55.58 ⁴	63.3	58.5 (92.4%)	5.0	8.4
Cyprus	5.7	5.1	7.12	5.48 (77%)	n.a.	10
Czech Rep.	97.6	82.5	101.9	86.8 (85.2%)	n.a.	10
Denmark	33.5	26.5	24.5	24.5 (100%)	0	17.01
Estonia	19	12.62	24.38	12.72 (52.2%)	0.31	0
Finland	45.5	33.1	39.6	37.6 (94.8%)	0.4	10
France	156.5	131.3	132.8	32.8 (100%)	5.1	13.5
Germany	499	474	482	453.1 (94%)	11.0	20 ⁵
Greece	74.4	71.3	75.5	69.1 (91.5%)	n.a.	9
Hungary	31.3	26.0	30.7	26.9 (87.6%)	1.43	10
Ireland	22.3	22.4	22.6	22.3 (98.6%)	n.a.	10
Italy	223.1	225.5	209	195.8 (93.7%)	n.k. ⁶	14.99
Latvia	4.6	2.9	7.7	3.43 (44.5%)	n.a.	14.99
Lithuania	12.3	6.6	16.6	8.8 (53%)	0.05	20
Luxembourg	3.4	2.6	3.95	2.5 (63%)	n.a.	10
Malta	2.9	1.98	2.96	2.1 (71%)	n.a.	Tbd
Netherlands	95.3	80.35	90.4	85.8 (94.9%)	4.0	10
Poland	239.1	203.1	284.6	208.5 (73.3%)	6.3	10
Portugal	38.9	36.4	35.9	34.8 (96.9%)	0.77	10
Romania	74.8	70.8	95.7	75.9 (79.3%)	n.a.	10
Slovakia	30.5	25.2	41.3	30.9 (74.8%)	1.7	7
Slovenia	8.8	8.7	8.3	8.3 (100%)	n.a.	15.76
Spain	174.4	182.9	152.7	152.3 (99.7%)	6.7	ca. 20
Sweden	22.9	19.3	25.2	22.8 (90.5%)	2.0	10
UK	245.3	242.4	246.2	246.2 (100%)	9.5	8
TOTAL	2256.2	2081.56	2257.74	2038.63 (90.3%)	54.61	-

**END NOTES**

1. except for Cyprus and Malta which have no targets
2. The figures indicated in this column comprise emissions in installations that come under the coverage of the scheme in 2008 to 2012 due to an extended scope applied by the Member State and do not include new installations entering the scheme in sectors already covered in the first trading period.
3. The JI/CDM limit is expressed as a percentage of the member state's cap and indicates the maximum extent to which companies may surrender JI or CDM credits instead of EU ETS allowances to cover their emissions. These credits are generated by emission-saving projects carried out in third countries under the Kyoto Protocol's project-based flexible mechanisms, known as Joint Implementation (JI) and the Clean Development Mechanism (CDM).
4. Including installations which Belgium opted to exclude temporarily from the scheme in 2005
5. The German national allocation law contains a figure of 22 %, which relates to the allowances allocated free of charge, rather than the total cap.

FUTURE ACTION

EU ETS Phase 3 and sectors not covered by EU/ETS - post 2012

On 23 January 2008, the European Commission adopted a proposal designed to amend the current EU ETS Directive. The main changes are as follows:

- There will be one EU-wide cap on the number of emission allowances instead of 27 national caps. The annual cap will decrease along a linear trend line, which will continue beyond the end of the third trading period (2013-2020).
- A much larger share of allowances will be auctioned instead of allocated free of charge. It is estimated that around 60% of the total number of allowances will be auctioned in 2013, and this proportion will increase in later years.
- Harmonised rules governing free allocation will be introduced.
- Part of the rights to auction allowances will be redistributed from the Member States with high per capita income to those with low per capita income in order to strengthen the financial capacity of the latter to invest in climate friendly technologies
- A number of new industries (e.g. aluminium and ammonia producers) will be included in the ETS; so will two further gases (nitrous oxide and perfluorocarbons).
- Member States will be allowed to exclude small installations from the scope of the system, provided they are subject to equivalent emission reduction measures.



From 2013, the total number of allowances should decrease annually in a linear manner. The starting point of this line is the average total quantity of allowances (phase 2 cap) to be issued by Member States for the 2008-12 period, adjusted to reflect the broadened scope of the system from 2013. The linear factor by which the annual amount shall decrease is 1.74% in relation to the phase 2 cap.

The starting point for determining the linear factor of 1.74% is the 20% overall reduction of greenhouse gases compared to 1990, which is equivalent to a 14% reduction compared to 2005. However, a larger reduction is required of the EU ETS sector because it is cheaper to reduce emissions in the ETS sectors. The division that minimises overall reduction cost amounts to:

- a 21% reduction in EU ETS sector emissions compared to 2005 by 2020;
- a reduction of around 10% compared to 2005 for the sectors that are not covered by the EU ETS.

The 21% reduction in 2020 results in an ETS cap in 2020 of a maximum of 1720 million allowances and implies an average phase 3 cap (2013 to 2020) of some 1846 million allowances and a reduction of 11 % compared to the phase 2 cap.

All absolute figures indicated correspond to the coverage at the start of the second trading period and therefore do not take account of aviation, which will be added towards the end of the second trading period, or the other sectors that will be added in phase 3. While the great majority of allowances has been allocated free of charge to installations in the first and second

trading periods, the Commission believes that auctioning of allowances should be the basic principle for allocation from the third phase onwards.

This is because auctioning best ensures the efficiency, transparency and simplicity of the system and creates the greatest incentive for investments in a low-carbon economy. It best complies with the “polluter pays principle” and avoids giving windfall profits to certain sectors that have passed on the notional cost of allowances to their customers despite receiving them for free.

What will happen now with the proposal?

The proposal must be approved by both the Council of the EU and the European Parliament to become law. The Commission hopes that a final decision adopting the modifications to the Directive will be taken by 2009.

Linking Emissions Trading Schemes

The international linking of emissions trading schemes, in principle, increases opportunities for abatement and lowers overall costs of mitigation. The EU will explore linking opportunities with any developed-country mandatory schemes capping absolute emissions, so long as the host country has ratified the Kyoto Protocol and the schemes are compatible.

Australia/New Zealand - European Union Cooperation

The European Commission is engaging with Australia and New Zealand at the highest levels to discuss climate change, energy security, emissions trading, and research collaboration.



INTEGRATED CLIMATE CHANGE & ENERGY PACKAGE

In January 2007 the European Commission set out proposals and options for keeping climate change to manageable levels in its Communication *“Limiting Global Climate Change to 2 degrees Celsius: The way ahead for 2020 and beyond”*. The Communication proposes a set of actions for the EU and proposals for global action to enable the world to limit global warming to no more than 2°C above pre-industrial temperatures. To meet this objective, global greenhouse gas emissions would need to peak before 2025 and then fall by up to 50% by 2050 compared to 1990 levels.

The European Commission believes that this ambitious goal is both technically feasible and economically affordable. The benefits of achieving this will far outweigh the costs. But to meet this goal, developed countries as a group would need to reduce their greenhouse gas emissions by 30% relative to 1990 levels by 2020, and by 60-80% by 2050. **In March 2007, EU Heads of State and Government made an independent commitment to reduce its emissions by at least 20% by 2020, and will raise this to 30% if other developed countries commit to comparable efforts.** This commitment ensures that the carbon market will continue beyond 2012, and encourages investment in emission reduction technologies and low carbon alternatives.

The Commission has also estimated that, to meet the 2°C global target, developing countries would need to reduce their rate of emissions growth now. Deforestation would need to be stopped within two decades and then reversed.

The Commission’s Communication is part of an integrated climate and energy package. In March 2007, EU leaders also adopted an EU Action Plan on Energy, which sets out concrete actions to achieve a competitive, sustainable and secure energy system coupled with a major reduction in greenhouse gas emissions by 2020. The actions include:

Cutting energy consumption by 20% through a major improvement in the energy efficiency of a wide range of appliances and equipment;

- Increasing renewable energy sources’ share of energy consumption to 20%, from around 7% in 2007;
- Raising biofuels’ share of petrol and diesel to 10%, from around just 1% in 2007;
- Adopting a policy framework to ensure and promote environmentally safe use of carbon capture and geological storage (CCS) technology, with the aim of deploying CCS technology in new fossil-fuel power plants, if possible by 2020. The European Commission aims to encourage the construction of 12 large scale demonstration plants in Europe by 2015.

BIOFUELS

Concerns have been raised about whether biofuel production is sustainable. Whilst biofuels are a crucial part of renewable energy policy and a key solution to growing emissions in the transport sector, they must not be promoted unless they are produced sustainably. Although the majority of biofuels currently consumed in the EU are produced in a sustainable manner, the concerns are legitimate and need to be addressed. The Directive therefore sets out stringent environmental sustainability criteria to ensure that biofuels that are to count towards the European targets are sustainable and that they are not in conflict with our overall environmental goals. This means that they must achieve at least a minimum level of greenhouse gas savings (35%) and respect a number of requirements related to biodiversity. Among other things this will prevent the use of land with high biodiversity value, such as natural forests and protected areas, being used for the production of raw materials for biofuels.

This integrated climate and energy package will drive greenhouse gas reductions and modernise Europe’s energy system to prepare it for a low carbon future. This will include the strengthening and extension of the EU ETS, as already mentioned, measures to limit emissions from transport and increase energy efficiency in buildings, and a focus on research and development to enable the deployment of clean technologies and to increase the understanding of climate change and its impacts.

This strategy was endorsed both by the European Parliament and by EU leaders at the March 2007 European Council. The European Council invited the Commission to come forward with concrete proposals, including how efforts could be shared among Member States to achieve these targets.

An integrated climate change and energy package, **Climate Action: Energy for a Changing World**, released in January 2008 encompassing these ideas, is the reply to that invitation.

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