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# Challenging Perspectives: US and EU Approaches to Climate Change

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### Introduction

2007 was notable for seeing the international community move further towards consensus on the scientific basis for action on climate change. This was underpinned by the commencement, at the Bali Conference in December, of a clearly defined comprehensive process to reach a more broad-based and effective agreement following the end of the first Kyoto commitment period in 2012. Nevertheless, it is plain that very significant differences remain between the US and the EU, and between the developed and developing countries, on issues such as the role of mandatory versus voluntary controls on greenhouse gas (“GHG”) emissions, which will inevitably prove challenging as the parties try to reach a mutually satisfactory and timely outcome.

During this period, the EU has also announced its own ambitious targets and proposals to tackle climate change by 2020, and over the longer term. In the US, Congress edged towards developing comprehensive national climate change legislation, even as a growing number of States continued to develop their own climate programmes, while the US Environmental Protection Agency (“USEPA”) struggled with the treatment of GHGs under existing law.

We discuss these and other recent developments in more detail below, but we begin this chapter by tracing the major events in the development of climate change policy from the points of view of the US and the EU. We then set out the main instruments by which these policies have been implemented in the two jurisdictions. The topic is broad and fast-changing; whilst we cannot claim to be comprehensive, our aim is to give an overview of US and EU perspectives on climate change.

### Background

In 1988 the Intergovernmental Panel on Climate Change (“IPCC”) was established by the UN Environment Programme and the World Meteorological Association to assess scientific, technological and socio-economic information relevant to understanding climate change. Both the US and EU participate in the IPCC. The IPCC has periodically published assessments, and its comprehensive Fourth Assessment Report appeared during 2007. The Summary for Policymakers of the Synthesis Report of the IPCC Fourth Assessment Report observed that “warming of the climate system is unequivocal” with “[e]leven of the last twelve years (1995 -2006) rank[ing] among the twelve warmest years in the instrumental record of global surface temperature (since 1850).” The summary further noted that “[m]ost of the observed increase in globally averaged temperatures since the mid-20th century is *very likely* due to the observed increase in anthropogenic GHG concentrations.”

2007 was the earth’s seventh warmest year on record, and the UK charted its warmest year since records began in 1659. Europe, Asia, Africa and Mexico all suffered from flooding and severe storms. By contrast, South China and Australia continue to experience their worst droughts on record. Such weather extremes appear to some to bear testimony to the impacts of man-made climate change. To others, these events are not related to such climate change but are evidence of the cyclical pattern of climate variability. Whatever the precise link, if any, to climate change, extreme weather events may heighten awareness and concern, provide an impetus for new policies from the international community, and help foster technological breakthroughs needed to meet the climate change challenge.

### Evolution of climate change policies

The US, in many ways, started the ball rolling in relation to climate change policies. Beginning in 1978 and continuing into the 1980s and 1990s, the US Congress enacted several laws giving direction and funding for climate change research and studies.

For example, the Global Climate Protection Act of 1987 established that US policy should be to increase worldwide understanding of the greenhouse effect, to foster international cooperation with respect to research of the greenhouse effect, to identify technologies and activities to limit mankind’s adverse effect on global climate, and to work toward multilateral agreements. It made the President “responsible for developing and proposing to Congress a coordinated national policy on global climate change” and the Secretary of State responsible for coordinating those aspects of US policy requiring multilateral diplomacy.

Subsequently, the United Nations General Assembly at its 1990 session set up an Intergovernmental Negotiating Committee for a Framework Convention on Climate Change (“INC/FCCC”) with a mandate to draft a convention. The INC/FCCC met in five sessions between February 1991 and May 1992, with the US hosting the first meeting in Chantilly, Virginia. That effort, in turn, eventually led to the adoption on May 9, 1992 at the UN Headquarters in New York of the United Nations Framework Convention on Climate Change (“UNFCCC”), in which the US played a leading role. Enshrined in the UNFCCC is a set of guiding Principles under which all Parties accept that they:

“should protect the climate system ... on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities”;

and that:

“the developed country Parties should take the lead in combating climate change and the adverse effects thereof”.

Specifically, the Parties should:

“take precautionary measures to anticipate, prevent or minimise the causes of climate change and mitigate its adverse effects ... , tak[e] into account that policies and measures to deal with climate change should be cost-effective so as to ensure global benefits at the lowest possible costs ... [and] take into account different socio-economic contexts, be comprehensive, cover all relevant sources, sinks, and reservoirs of greenhouse gases and adaptation, and comprise all economics sectors.”

The UNFCCC was signed by the European Economic Community (“EEC”), as it was then, in June 1992 at the UN Conference on Environment and Development in Rio de Janeiro. It was ratified by the EEC and its Member States in December 1993, and it entered into force on 21 March 1994, having received the requisite number of signatories.

The US also signed the Treaty at Rio in 1992. Under the US Constitution, an international treaty that is not “self-executing” binds the US only upon ratification by the President after the “advice and consent” of the US Senate, which requires a two-thirds majority vote. In late 1992, the Senate provided the necessary advice and consent with respect to the UNFCCC, but in doing so its Foreign Relations Committee noted that it did not understand the Convention as providing a basis for legally binding targets and timetables. After Senate action, the President ratified the treaty.

### The UNFCCC

The UNFCCC imposes various “commitments” on all the Parties, “taking into account their common but differentiated responsibilities and their specific national and regional development priorities, objectives and circumstances.” Governments must gather and share information on GHG emissions, national policies and best practices. They must launch national strategies for addressing GHG emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries. The Convention also requires annual inventory estimates of GHG emissions from developed countries.

In essence, the UNFCCC provides the basic architecture within which the world community agreed to work out how best to meet the climate change challenge, as opposed to any specific emission limits. The “ultimate objective” of the Convention and any related legal instruments that may be adopted “[are] to achieve, in accordance with the relevant provisions of the Convention, stabilization of [GHG] concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.” Such a level “should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened, and to enable economic development to proceed in a sustainable manner.” The “supreme body” of the UNFCCC is the Conference of the Parties (“COP”), which “shall keep under regular review the implementation of the Convention and any related legal instruments” that the COP “may adopt, and shall make ... the decisions necessary to promote the effective implementation of the Convention.” Ordinary sessions of the COP “shall be held every year unless otherwise decided,” and to date, there have been 13 COPs.

### The Kyoto Protocol

Adopted under the UNFCCC in December 1997, the Kyoto Protocol sets mandatory emission reduction targets for participating developed nations (known as Annex I Parties). These are to be achieved in the period 2008-2012, the so-called first commitment

period. For the period after 2012, the Protocol requires the Parties to begin a process, which, as discussed below, is currently underway, for considering the Annex I Party commitments to further emission reductions.

Whilst developed countries are subject to mandatory emissions reductions targets under the Protocol, developing countries are not. This is a result of the so-called Berlin Mandate which COP 1 adopted in 1995, and which the Protocol’s preamble now incorporates by reference. Thus, China and India do not have mandatory emission reduction targets even though they currently are amongst the largest global producers of GHGs. By some estimates, China already emits more carbon dioxide (“CO<sub>2</sub>”) than any other country, and by 2030, developing countries on the whole could account for over 50 percent of world-wide GHG emissions.

The Protocol also introduced three so-called flexible mechanisms by which Annex I countries could meet their obligations. These are known as (1) Joint Implementation (“JI”), under which compliance may be achieved through emissions reduction projects between Annex I parties (Article 6); (2) the Clean Development Mechanism (“CDM”), which allows for emissions reductions projects to be implemented in non-Annex I countries (Article 12); and (3) emissions trading (Article 17), under which credits generated by JI or CDM projects or surplus allowances in countries over-achieving under new Kyoto obligations can be bought and sold on the market.

The Kyoto Protocol represents the point at which the EU and US parted ways on how best to combat climate change.

Six months before the Kyoto Protocol was adopted at COP 3 in 1997, the US Senate voted 95-0 for a “Sense of the Senate Resolution” (S. Res. 98), known as the “Byrd-Hagel Resolution,” which said the US should not sign “any protocol to, or other agreement regarding,” the Convention that did not include mandates for “new specific scheduled commitments to limit or reduce” GHG emissions by developing countries “within the same compliance period” as developed countries, or that “would result in serious harm to the economy” of the US. Despite the Senate resolution, then Vice-President Al Gore signed the Kyoto Protocol in New York in 1998. Neither former President Clinton nor President Bush sent the treaty to the Senate for its advice and consent to ratification.

Across the Atlantic, the EU adopted the Kyoto Protocol in December 1997, and by 31 May 2002, the EU and all its Member States had ratified the Protocol. Under the Protocol, participating industrialised countries are required to reduce their emissions of six GHGs: CO<sub>2</sub>; nitrous oxide; methane hydrofluorocarbons (“HFCs”); perfluorocarbons (“PFCs”) and sulphur hexafluoride (“SF<sub>6</sub>”). Emissions of these substances must be reduced on average to 5.2 percent below the 1990 levels during the first commitment period from 2008 to 2012.

The Kyoto Protocol was ratified, accepted or approved by countries responsible for 61.6 percent of CO<sub>2</sub> emissions from developed countries, and having passed the threshold of 55 percent, the Protocol entered into force on 16 February 2005. The US, which alone accounts for 36.1 percent of the industrialised nations’ CO<sub>2</sub> emissions is notably absent from the Protocol’s ratifiers. Australia also did not initially sign the Protocol but Paul Rudd, the newly elected Prime Minister of Australia, symbolically ratified the Kyoto Protocol as the first official act of the new government in December 2007.

### Bali Talks - COP 13 and COP/MOP 3 - Post 2012 Scenario

Given the difficulties surrounding the negotiation of the Protocol

itself, and the approaching “deadline” of 2012, a continuing major focus of the Parties in 2007 was developing a stronger framework for the post-2012 period. The effort bore fruit in December 2007 at the Bali conference, which incorporated COP13 under the UNFCCC and COP/MOP3 under the Kyoto Protocol. At Bali, the UNFCCC Parties endorsed the Fourth Assessment Report of the IPCC as setting out the scientific basis for action on climate change, and produced a two-track process towards a new international agreement. Generally referred to as the Bali “Action Plan” or “road map”, the tracks call for work sessions in 2008 and 2009 with the objective of developing decisions on how to address future emissions that can then be adopted in December 2009 at Copenhagen, Denmark. Each track is to be conducted by separate ad hoc working groups, with the following aims and participants:

- The Kyoto Protocol track is designed to address “Further Commitments” for those developed countries which are already subject to the Kyoto Protocol (which does not include the US). This will involve consideration of emissions reduction commitments for the post-2012 period.
- The UNFCCC track is designed to address “Long-Term Cooperative Action” and is to be conducted by developed and developing countries with “a long-term goal for emissions reductions”. This process will involve all of developed country UNFCCC Parties, including the U.S., as well as developing countries such as China, Indonesia, India and Brazil. It will address “national/international action on mitigation of climate change”, including “consideration” of “quantified” emission limits and reduction “objectives” for all developed UNFCCC Parties and “mitigation actions” by developing country Parties “in the context of sustainable development”. Among other things, the UNFCCC process will consider sector-specific actions and various approaches including opportunities for using markets in connection with mitigation actions, “bearing in mind different circumstances of developed and developing countries.”

For developing countries, the UNFCCC track also emphasises enhanced action on adaptation to climate change, along with technology development and transfer, including removal of obstacles to, and providing financial and other incentives for, developing countries to gain access to environmentally sound technologies. Inherent in this latter objective is the issue of access to intellectual property rights, which are generally under the control of the private sector, but which developing countries would like to obtain with the help of developed country governments.

The use of the term “mitigation actions” for the UNFCCC process provides both vagueness and flexibility for developed and developing countries as. Absent from the UNFCCC process, at the insistence of not only the U.S., but also Australia, Canada, Japan, and the Russian Federation, is any reference to a specific emission reduction percentage, such as was urged by the European Union and the developing countries. By contrast, the Kyoto Protocol process conclusions do refer to the need for developed country Parties to meet the EU’s target reduction percentage of 25-40 percent below 1990 levels by 2020. Also absent from the Bali Action Plan, at the insistence of the developing countries, is the word “negotiation”. Instead, the road map provides for a “comprehensive process”.

Both of the Bali tracks are ambitious. Only two years are allowed for the processes, with progress to be formally reviewed in December 2008. The progress review will therefore take place before the next U.S. President takes office, and the process is scheduled to be completed less than one year into his or her Administration. A further constraint on the timetable is that the UNFCCC provides that any amendment or Protocol must be provided to the Parties “at least six months before the meeting at which it is proposed for adoption”. Within the brief time available, many contentious issues must be resolved, including somehow

addressing “mitigation actions” by all emitting countries.

Business leaders in Europe have expressed disappointment that the Bali roadmap does not provide greater certainty as to the eventual impact of the processes. The Bali roadmap is nonetheless significant in that it sets out a commitment to engage for the first time in a “comprehensive process” for a new climate framework that affects all UNFCCC countries, and that will include a post-2012 agreement, within a defined time-frame.

From the US perspective, the two tracks preserve the US position that there is a diversity of approaches for addressing climate change and the “essential role of technology”. For the EU the agreement means that the US is engaged in a multilateral approach under the Convention for dealing with climate change issues.

## US Climate Change Policy

### Existing US Programmes on Climate Change

Through 2007, the prevailing US view at the Federal level continued to be that the imposition of regulatory controls on GHG emissions beyond those now in effect, such as vehicle fuel economy standards, is at best premature, and given the potentially significant burden to the US economy, would be an unacceptable cost without a commensurate return. According to a 1998 study by the Energy Information Administration, a division of the US Department of Energy (“USDOE”), the implementation of the emissions limits proposed for the US under the Kyoto Protocol could lead to a 4.21 percent decrease in US gross domestic product (“GDP”).

Thus, the preferred approach in the US for implementing the UNFCCC has been to pursue a variety of voluntary measures. In 2002, for example, President Bush launched his US Global Climate Change Initiative, which was intended to reduce GHG intensity, or the total GHG emissions per unit of GDP, by 18 percent between 2002 and 2012. Among the Bush Administration’s initiatives were public-private partnerships, supporting research and development, bilateral and multi-lateral agreements and programs to spur economic growth in the developing world.

Whilst the US does not at present have a comprehensive GHG regulatory programme, it does impose various requirements that have the effect of reducing GHG emissions. The best example is probably the US Corporate Average Fuel Economy (“CAFE”, pronounced “café”) programme, which since 1975 has required the US Department of Transportation (“USDOT”) to set average fuel economy standards on a miles per gallon basis for new passenger cars and light trucks. The standards are mandatory, and violations may result in penalties. Because CO<sub>2</sub> is an unavoidable byproduct of the combustion of gasoline, the amount of gasoline burned is directly related to the amount of CO<sub>2</sub> emitted by a motor vehicle. So while the CAFE standards are stated in terms of miles per gallon, they are enforced in terms of CO<sub>2</sub> grams per mile, which are measured and converted by prescribed USEPA procedures to miles per gallon.

### US Reporting of GHG Emissions

Currently, the sole Federal requirement to report GHG emissions is set out in a law that was enacted with the Clean Air Act Amendments of 1990. It requires only the US electric power industry to submit annual reports of its CO<sub>2</sub> emissions. Pursuant to the Energy Policy Act of 1992, the USDOE also has been maintaining a voluntary reporting system for reporting emissions of CO<sub>2</sub>, methane, nitrous oxide, halogenated substances and other radiatively enhancing gases and for issuing an annual inventory of

GHG emissions by six economic sectors.

A provision inserted into the omnibus budget package for 2008, however, directs USEPA to propose rules for a mandatory GHG reporting programme covering all economic sectors and to finalise those rules by June 2009. Details as to who is to report and how often are left to USEPA. The Agency thus must develop a reporting scheme without knowing how the US will be addressing GHGs in the future.

### Prospects for US Federal Regulation of GHG Emissions

The November 2006 Federal elections saw the Democratic Party win effective majorities in both the Senate (51-49) and in the House of Representatives (233-202). For GHG mitigation, the immediate result was to re-invigorate Congressional debate, especially since several of the new House and Senate leaders pledged to make climate change a high priority for the 110th Congress.

In the Senate and House, a number of different climate bills have been introduced since the start of the 110th Congress in January 2007. Of those, the so-called "Lieberman-Warner" bill, S. 2191, has advanced the furthest. As approved by the Senate Environment and Public Works Committee, it would cut US GHG emissions by nearly 70 percent below 2005 levels by 2050 through an emissions trading system largely targeted at "upstream" sources. The portion of emission allowances to be auctioned would rise steadily from 22.5% in 2012 to 70.5% from 2031 to 2050. The full Senate is expected to consider the bill in 2008.

No bill has advanced as far in the House, despite Speaker Nancy Pelosi's (D-Calif.) goal of having climate legislation brought to the floor by July 4, 2007. John Dingell (D-Mich.), the Chairman of the key House Committee on Energy and Commerce launched in 2007 an "in depth" examination of climate change so as to "develop and, if at all possible, enact a sound and effective public policy" that is "economy-wide" and "environmentally and economically responsible". The Committee intended to prepare "white papers" addressing various climate policy questions, but issued only one in 2007 because it was fully occupied in the development and enactment of energy legislation, including CAFE amendments. A second paper was issued in early 2008, and the Committee, after holding additional hearings, was planning to consider legislation in the spring of 2008.

The omnibus budget package for 2008 did include a Sense of Congress Resolution calling for enactment of a national mandatory GHG programme with "market-based limits and incentives" to "slow, stop, and reverse" emission growth "at a rate and in a manner" that "will not significantly harm" the US economy and will "encourage comparable action by other major trading partners and key contributors to global emissions". The resolution does not make law; it merely expresses Congress's opinion.

Nevertheless, efforts to enact a national climate change regulatory program in the US during 2008 face an uphill climb. The positions of many in the two houses remain unclear, and seem likely to turn, not on political party affiliation, but on regional and economic issues as the substantive and procedural details emerge and the legislative process unfolds. While many Democrats and Republicans are expressing concern about global warming and the need to address it domestically, many also represent states that produce coal, steel, cement, and oil and natural gas or otherwise have particular economic interests in the matter. There will be concern about the nature of any requirements, their costs and their impacts on energy diversity, security, consumers and small business. Questions continue to arise as to whether mitigation should be focused upstream or downstream and whether to target one economic sector (like electric utilities or transportation or some

entities therein), multiple sectors or the entire economy. The "Lieberman-Warner" bill, for example, purports to be economy-wide, but in reality does not address emissions from some economic sectors such as agriculture and residences. Also at issue is the relationship of any national programme to State and regional climate change measures, such as are discussed below, that may impose regulatory controls on the same economic sectors

Remembering how the Byrd-Hagel resolution signaled the death knell for the Kyoto Protocol in the US largely over the failure to include commitments for developing countries, Congress will likely have to wrestle with potential effects on the US manufacturing base and export of jobs. S. 2191, for example, would require other major emitters to take comparable action or else importers of GHG-intensive manufactured items from those countries would need to submit emissions credits.

Beyond all that, Congress will need to consider the availability and effects of control measures. For some sectors (such as electric utilities) increasing energy efficiency and switching to natural gas—much of which is imported from Canada and which is used in manufacturing and residential heating—are the only near- and mid-term solutions to controlling CO<sub>2</sub> emissions. Over the longer-term, it will be necessary to develop climate-neutral non-hydro renewables, to increase nuclear capacity and to implement such technologies as carbon capture and geologic sequestration coupled with clean coal generation. The new technologies offer a promise of solutions, but an offer that may not be realized until the 2020-2035 timeframe. Even then, there is no assurance of success, particularly in the case of carbon capture and geologic sequestration, which will likely face regulatory and other hurdles under both Federal and state laws.

Whether there are enough votes in 2008 to end debate and move measures to the floor, pass them, and then move them through a House-Senate Conference is uncertain, especially since the Bush Administration appears to be maintaining its long-standing opposition to cap-and-trade proposals that cut across multiple sectors. If legislation could make it through both the House and the Senate without the Administration's support, a veto would be a possibility. In that case, a two-thirds majority vote would be needed in both the House and Senate to pass climate legislation.

Complicating the picture still further are the 2008 US elections and the Bali roadmap. As a practical matter, campaigning will slow down work on legislation. Some proponents of controls even believe that they should wait until after the 2008 elections because they expect to then be in a stronger position to enact more rigorous controls. There also are concerns about the US enacting a regulatory programme that might be inconsistent with any future international agreements developed pursuant to the Bali roadmap.

But beyond 2008, prospects for a comprehensive national climate programme currently appear strong. All of the leading contenders for the Democratic and Republican Party presidential nominations have voiced support for a national GHG cap-and-trade programme.

Apart from climate specific measures, Congress did enact a comprehensive energy bill in 2007 that President Bush signed in December. The "Energy Independence and Energy Security Act" is designed to increase energy efficiency, to expand the mandate for use of renewable fuels and to increase CAFE standards for new cars and light trucks to 35 miles per gallon by model year 2020. It also forbids any Federal agency from entering a contract for any alternative or synthetic fuel unless lifecycle GHG emissions are less than or equal to emissions from the equivalent conventional fuel from petroleum.

While Congress continues to consider new programmes, proponents of mandatory control are trying to force the regulation of GHGs under existing US laws, especially the Clean Air Act

("CAA"). For example, USEPA denied a petition in 2003 for a rulemaking under the CAA to limit some GHGs from motor vehicles. In doing so, the Agency concluded that "it cannot and should not regulate GHG emissions from cars", that "the CAA does not authorize regulation to address global climate change" and that CO<sub>2</sub> is not an air pollutant under US environmental law. Environmental organisations and several states appealed that decision in the court system. On USEPA's side were three industry groups, some labour organisations and several other states. In 2005, the reviewing court held that USEPA properly had denied the petition, with the three judges who heard the case issuing three separate opinions. The US Supreme Court then agreed to hear an appeal of the case, which was argued in November 2006. The Court held in April 2007 that greenhouse gases were "air pollutants" as defined in the CAA and that USEPA had failed to follow the statutory criteria in deciding not to regulate them. The Court remanded the case back to USEPA for further consideration consistent with the rulings.

In response to the decision, President Bush issued an executive order directing DOE, USEPA and the US Department of Transportation to coordinate on regulatory emissions of greenhouse gases from vehicles and fuels. USEPA announced that it intended to issue a proposed rule on GHGs from vehicles and fuels by the end of 2007, but that did not happen. Any such rulemaking is expected to include a finding as to whether or not greenhouse gases from new motor vehicles "cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare . . .". The Agency must make such an affirmative "endangerment finding" before regulating mobile sources under the CAA, but doing so could open the door to regulation of GHGs from stationary sources, which could have broad implications for states, businesses and existing air permit programmes. Whatever happens, court challenges by all sides are a likely result.

Also before USEPA is California's petition for a waiver under the CAA to implement its own GHG limits on vehicles. The CAA generally allows states to follow either the Federal motor vehicle standards or adopt California's more stringent version. At least one dozen states have indicated they would implement California's GHGs standards for motor vehicles. But USEPA must first grant a preemption waiver, and the Administrator has announced that the Agency was denying California's request because of the more stringent CAFE requirements in the 2007 energy law. California and a number of other states have filed suit against USEPA, even though the Agency had not yet issued its final decision as of mid-February.

Other petitions ask USEPA to regulate GHG emissions from off-road engines and from ocean-going ships, while environmental groups have requested that climate concerns be addressed in proceedings to develop CAA permit limits for electricity generating plants and refineries. Going beyond the CAA, they have asked the US government to take climate change into account in protecting endangered species. Meanwhile, a coalition of shareholders, environmental groups and state officials has petitioned the US Securities and Exchange Commission to clarify what climate information must be included in corporate disclosures.

### State Regulation of GHGs

At least seventeen individual states in the US have adopted state-wide GHG emission targets. Meaningful state programmes could possibly help the US reduce its overall GHG contribution to global emissions and serve as laboratories for national initiatives, or they could end up in conflict with a national programme.

California's efforts continue to draw the greatest attention, as Governor Schwarzenegger (R) aggressively pushes climate

measures. In 2006, California enacted AB 32, the California Global Warming Solutions Act. The Act codifies the Governor's emission reduction targets by committing the state to reach 2000 emission levels by 2010, 1990 levels by 2020 and 80% below 1990 levels by 2050. Mandatory caps for significant sources will start in 2012. In many ways, the Act is like a traditional environmental statute in that it leaves most of the details to the California Air Resources Board ("CARB") and authorises CARB to impose civil or criminal penalties. To date, CARB has identified near-term measures to be implemented by 2010, set the 1990 emissions baseline, established a state-wide cap for 2020, and developed a reporting programme. In 2008, CARB will be developing a detailed strategy for reducing emissions in a "scoping plan" that is expected to examine an emissions cap-and-trade programme. For the power sector, the State energy and public utility commissions have issued an interim proposal recommending that such a programme target "deliverers of electricity to California", including generators, retail providers and marketers. Also on CARB's agenda are climate guidelines for land-use planning and project development.

To help meet the State's targets, Governor Schwarzenegger ordered a 10% reduction in GHG emissions from transportation fuels by 2020. California thus will develop "low carbon fuel standards", which are expected to include market trading. Compliance options also may include increasing sales of E10 or E85 and sales of plug-in or hybrid cars.

Apart from individual state efforts, multi-state initiatives are continuing to grow. On the East Coast, the ten member states of the Regional Greenhouse Gas Initiative ("RGGI") have agreed in a memorandum of understanding ("MOU") to a cap-and-trade programme for CO<sub>2</sub> from power plants. Emissions are capped from 2009 through 2014 and then reduced by 2.5% per year so that overall emissions would be 10% less than the baseline apportioned to each state by 2020. Limited emission offsets may be used for compliance, with the number and geographic source tied to price. Each participating state is developing its own implementing regulations. The programme is to start in January 2009, and at least five members are planning a 2008 auction. Under the MOU, the states must auction at least 25% of their CO<sub>2</sub> allowances (and use the proceeds for energy efficiency, mitigating costs to customers and administration), but at least five members to date have pledged to auction all or nearly all of them. Sceptical observers already have been questioning whether the revenues will, in fact, be dedicated to the uses set out in the MOU.

In the West, seven states (including California) and two Canadian provinces are planning to release a multi-sector GHG cap-and-trade programme in 2008. This Western Climate Initiative ("WCI") has set its goal as an aggregate emissions reductions of 15% below 2005 levels by 2020.

In the Midwest, another six states and a Canadian province have entered a greenhouse gas reduction accord. During 2008, the members plan to establish reduction targets, time-frames and a cap-and-trade agreement with a model rule. The Midwestern accord is thought to be significant because it accounts for a larger portion of US GHG emissions than either the RGGI or the WCI states, and because most electricity in the region is generated by coal-fired plants.

In all, 23 states are signatories to regional GHG cap-and-trade agreements. Another 12 states and the District of Columbia are observers.

A group of over 30 states, plus several Canadian provinces and Mexican states, is working on a "bottom-up" Climate Registry in which entities would report emissions from various individual sources. Its objectives include leveraging state resources to support multiple state and regional policy goals and to implement a policy-neutral repository. Scheduled to be operational in 2009, the registry

could provide a common framework for future mandatory regulatory programmes. More than 50 “founding reporters” have joined by agreeing to report their emissions and submit to third-party verification.

The many state (and even local) initiatives have been generating some support for nationwide controls in the hope that Congressional action will prevent businesses operating across state lines from having to deal with a nightmare of inconsistencies and restrictions on commerce. It does bear keeping in mind, however, that Congress typically has chosen not to preempt state environmental initiatives, but instead generally allows states to adopt rules more stringent than Federal requirements. Indeed, some of the climate bills introduced in the 110th Congress expressly include that feature. On the other hand, Congress is unlikely to permit the states to establish programmes that raise revenue by auctioning allowances to any sector that also is covered by a national programme such as S. 2191.

### Civil claims for GHG emissions

Another question pending in the US is whether civil liability can be used to impose GHG controls. Eight states, along with New York City and several environmental groups, sued five utilities that allegedly account for 10 percent of overall US emissions on the grounds that their emissions are creating a Federal common law public nuisance. Ruling that the case presented a non-justiciable political question for the Executive Branch and Congress, the court dismissed the case; the petitioners have appealed.

Other recent US liability claims relating to climate change include nuisance lawsuits brought for damages by California against automobile manufacturers and by Hurricane Katrina victims against chemical and oil companies whose GHG emissions allegedly strengthened the storm. Both were dismissed, and appeals are pending.

### Non-Governmental Initiatives

In addition to governmental programmes, various groups in the US are pushing their own private initiatives with respect to GHGs. One of the best known is the Chicago Climate Exchange, which is a self-regulating exchange intended to gain experience with GHG trading schemes and raise public awareness. Members originally made legally binding commitments to reduce their GHG emissions by four percent below the average of their 1998-2001 baselines prior to 2006. The programme has been extended for an additional four years with a reduction target of 6% below baseline. In 2007, 22.9 million metric tonnes of CO<sub>2</sub> were traded on the Exchange.

On January 22, 2007, a few US manufacturers, power companies and environmental groups formed the US Climate Action Partnership (“USCAP”) to urge implementation of a mandatory Federal climate emissions trading system. Members include General Electric, Alcoa, Caterpillar, Duke Energy, NRDC, Environmental Defense, Pew Center, BP America, DuPont, Ford Motor Company and World Resources Institute, among others. The group has issued general recommendations for US legislation, including emission targets of 100-105% within five years, 90-100% within ten years and 70-90% within 15 years.

Finally, in early 2008, Citi, JPMorgan Chase, and Morgan Stanley announced the formation of “The Carbon Principles”. Developed in consultation with power companies and environmental groups, the principles are meant to help evaluate and address carbon risk in coal plant investment. When power companies select high CO<sub>2</sub> emitting technologies, the signatory banks have agreed to follow an enhanced diligence process.

## EU CLIMATE CHANGE POLICY

### EU climate action and renewable energy package

On 23 January 2008, the EU Commission announced a significant package of EU-wide targets and proposals to reduce GHG emissions and boost renewable energy (the “**EU Climate Change Package**”). The targets were, in large measure, already adopted by EU heads of state at the European Council in March 2007 (endorsing proposals made by the Commission earlier in 2007). However, the EU Climate Change Package describes how the Commission now proposes that these ambitious targets should be achieved.

The legally binding targets proposed by the Commission are:

- a reduction in overall emissions of at least 20% below 1990 levels by 2020. This would be increased to 30% by 2020 if other developed countries agree comparable efforts under the Bali roadmap on a replacement for the Kyoto Protocol;
- an increase in the share of total energy consumption of 20% renewables by 2020;
- a 20% increase in energy efficiency; and
- a target of 10% for use of biofuels in vehicle fuel by 2020.

In order to meet the overall emissions reduction target the Commission proposes that sectors within the EU Emissions Trading Scheme (described further below) must make a reduction of 21% below 2005 levels, and that the target for all other sectors be divided between Member States based on GDP/capita ranging from -20% to +20% of 2005 levels (so that some countries will be permitted an increase in emissions).

The EU Climate Change Package is likely to have a significant impact on the regulation of emissions and renewable energy within the EU across a wide range of areas in order to achieve these targets. The Commission’s package is complex and wide-ranging, but the path to a lower-carbon economy is now firmly being mapped. We have set out below the current position in relation to a number of these areas, together with the potential impact of the EU Climate Change Package.

### EU Emissions Trading

As mentioned above, the Kyoto Protocol envisages three market-based flexible mechanisms for reducing CO<sub>2</sub> and other GHG emissions: emissions trading, JI and the CDM. These mechanisms are implemented in Directive 2003/87/EC (the “**Emissions Trading Directive**”) and Directive 2004/101/EC (the “**Linking Directive**”).

The European Emissions Trading Scheme (“**EUETS**”) applies to energy-intensive companies across the EU’s 27 Member States. These include over 10,000 steel factories, power plants, oil refineries, paper mills and glass and cement installations across Europe accounting for nearly 50% of the EU’s total CO<sub>2</sub> emissions and 40% of total GHG emissions. In October 2007, the Commission announced that agreement had been reached to link the EU-ETS to national trading schemes in Iceland, Norway and Liechtenstein (members of the European Economic Area), bringing the total number of countries covered to 30.

The EUETS is a mandatory scheme which establishes a cap on emissions of CO<sub>2</sub> from the subject sectors. The scheme began operating on 1 January 2005 and is the world’s largest market in GHG allowances. The first phase of the scheme operated from 2005 to 2007, and the second phase from 2008 to 2012 (coinciding with the first commitment period under the Kyoto Protocol) has now commenced.

The EU scheme works on a cap-and-trade basis. In other words, a limit (or cap) is placed on the amount of emissions that can be released from regulated sources. Allowances, which permit a fixed amount of a pollutant to be emitted, are issued to polluters. These allowances can be traded on the open market. At the end of each compliance period, each producer of emissions must own allowances which account for all of the emissions it generated for that period.

Currently, each Member State sets a cap on CO<sub>2</sub> emissions for each installation covered by the scheme. This is done via National Allocation Plans (“NAPs”). Each installation will then be allocated allowances for the particular commitment period in question. At the end of each year, each installation must present an audited emissions inventory to its government and will surrender allowances equivalent to its emissions for that year.

In effect, each installation has three options: it can meet the cap, reduce emissions below the cap and sell or bank its excess allowances, or let its emissions remain above the cap and purchase extra allowances on the market to account for the difference. Excess allowances can be sold on the market to another company, or they can be banked and used or sold in future years.

A number of exemptions to the EUETS are allowed, e.g., certain sectors are currently altogether excluded, notably aviation, a major GHG contributor, although legislation to bring the aviation sector into the system is currently progressing through the legislative process. Member States can also apply to exclude individual plants and, in exceptional cases (e.g., very low winter temperatures) additional emissions allowances can be issued by national authorities.

The purpose of the Linking Directive is to link the EUETS with the Kyoto project mechanisms: JI and CDM. It allows operators in the EUETS to meet their targets by using credits gained from JI and CDM projects abroad, in place of emissions cuts in the EU. Through CDM, developed (Annex I) countries can acquire “certified emissions reductions” (“CERs”) by investing in GHG mitigation projects in developing countries. These CERs can then be off-set against emissions reduction targets in the Annex I country. There are three critical elements to CDM projects: they must result in a net reduction of GHG emissions in the developing country; they must contribute to sustainable development and they must comply with the CDM rules (outlined in the Linking Directive).

JI, on the other hand, allows Annex I countries to meet their Kyoto targets by investing in projects which reduce emissions in other developed countries. In practice, this is likely to result in JI projects being developed in the accession EU countries and former Soviet Union countries (so-called “economies in transition”) and paid for by western European countries. The sponsoring governments receive “emission reduction units” (“ERUs”) that can be off-set against their targets. The recipient states receive foreign investment and advanced technology, but will not receive ERUs.

The Linking Directive has been met with some resistance from Non-Governmental Organisations (“NGOs”) who are concerned it will undermine the EUETS by diverting investment outside the EU. NGOs have called for the capping of credits from Kyoto project mechanisms and limiting the use of credits gained to application in sustainable energy projects that actively contribute to sustainable development in the host country. The Directive itself does not cap such credits, but a cap is set on the use of credits under each Member State’s own NAP.

The 8% reduction target which applies to the original 15 EU Member States in the period up to 2012 does not apply to the 10 accession states which joined the EU in May 2004, or to Romania and Bulgaria which joined on 1 January 2007. Under the Kyoto Protocol, each of the new Member States has its own target of between 8 percent and 6 percent below a given base year (1990 or

earlier). Cyprus and Malta have no targets. Almost all of the new Member States have seen their GHG emissions decline substantially in recent years due to the closure of energy-intensive industries following the collapse of the former Soviet bloc. Consequently, most are on course to meet or surpass their reductions targets.

Although the EUETS is accepted as a highly innovative policy instrument, its success during Phase I was mixed. Supporters of the EUETS argue that Phase I was always intended as a learning by doing phase and the real test of its effectiveness in curbing CO<sub>2</sub> emissions will only be seen over the period 2008-2012.

Some of the criticisms were as follows:

- while the EUETS has established a price for “carbon”, carbon prices have not yet resulted in a significant degree of fuel switching or changes in investment patterns towards clean technologies;
- the free allocation of allowances to power generators has led to windfall profits and higher energy prices as the notional “costs” were passed through to customers;
- the short-term (to 2012) nature of the EUETS may have created a financial incentive for power generators to delay investment in new plants and keep old plants running longer; and
- the market was long on allowances which led to accusations that Member States were too generous in their allocations and this led to volatility in the market and ultimately a collapse in the price of Phase I allowances to virtually zero.

The Commission responded to these criticisms during 2007 by making significant cuts in the NAP’s of most Member States for Phase 2 of the EUETS, which led to the price of Phase 2 allowances remaining relatively stable. The Commission also proposed in December 2006 that aviation will be included in the EUETS. On 20 December 2007 EU Environment Ministers reached political agreement that aviation should be included in the EUETS with effect from 2012 in respect of both flights within the EU and flights to and from the EU. This proposal has met with opposition at an international level, but is continuing to progress through the legislative procedure.

### Proposed changes to the EU-ETS

In January 2008, as part of the EU’s Climate Change Package, the Commission proposed further wide-ranging changes to the EUETS to take effect from 2013 (when Phase 3 of the scheme will commence). These include:

- changes to the design of the scheme, including setting a single EU-wide cap instead of national caps, so that NAP’s would no longer be required. Instead, allowances would be allocated or auctioned on the basis of harmonised EU-wide rules. It is proposed that the amount of the cap would decrease by a fixed amount of 1.74% each year from 2013 onwards;
- increased use of auctioning rather than free allocation of allowances - the power sector would be subject to full auctioning from the commencement of Phase 3 and other sectors would be subject to auctioning of approximately 60% of allowances in 2013 rising to 100% by 2020 (subject to protection for certain sectors at risk of “carbon leakage” referred to below);
- the length of each phase will be increased from the current 5 years to 8 years to enable longer term planning (so that Phase 3 will run from 2013 until 2020);
- widening coverage to include GHGs other than CO<sub>2</sub>, e.g., nitrous oxide, from some sectors;
- increasing the number of sectors to be covered, including petrochemicals and ammonia and aluminium production;



- recognition of carbon capture and storage (“CCS”) in the scheme (so that allowances are not required for emissions which are captured and stored), as discussed further below; and
- enabling linking the further regional or national schemes, including with the US state schemes.

The Commission also stated as part of the Climate Change Package that credits from CDM and JI Projects bought in the period up to 2012 can be used post-2012, and estimates that more than one-third of emissions reductions required in the period 2013-2020 will be met with these credits.

A provision of particular significance to industry is that some sectors will continue to receive up to 100% of allowances for free, where they are subject to a significant risk of “carbon leakage”; i.e. that international competitive pressures could force production to relocate to non-EU countries without constraints on emissions. The Commission proposes to identify the affected sectors by 2010, and these will then be reviewed every three years.

### Energy efficiency

Under the EU Climate Change Package the Commission has reiterated its target of improving energy efficiency so as to enable Member States to achieve a 20 percent reduction in energy use by 2020 compared to today’s energy use. The Commission states that, if achieved, this would result in savings of €100 billion and 780 million tonnes of CO<sub>2</sub> per year. This commitment builds on the EU’s 2006 Energy Efficiency Action Plan and refers to a number of proposed measures including the increased use of fuel efficient vehicles and public transport, tougher standards for appliances and improved efficiency of electricity and heat generation and distribution. It would also be necessary to improve the energy efficiency of existing and new buildings in line with the Energy Performance of Buildings Directive (2002/91/EC). The Commission also envisages an international agreement with OECD and key developing countries to restrict the use of energy-inefficient products and set common approaches for saving energy. According to the International Energy Agency (“IEA”), improved energy efficiency could reduce current global CO<sub>2</sub> emissions by 20 percent.

A further component of the EU’s policy in this area is Directive 2006/32/EC on energy end-use efficiency, under which Member States are required to submit National Energy Efficiency Action Plans presenting national strategies for achieving energy savings targets. The first such plans were submitted to the Commission in June 2007.

### Renewable energy target

The existing Renewables Directive (Directive on the Promotion of Electricity from Renewable Energy Sources in the Internal Electricity Market (2001/77/EC)), requires Member States to achieve a target of 12 percent of gross energy consumption sourced from renewable technology by 2010. In the 2008 Climate Change Package, the European Commission has reiterated its commitment to increase the level of renewable energy in the EU’s overall energy mix by setting a legally binding target of 20 percent by 2020. However, the current share of renewables across the EU is only around 8.5 percent (with individual countries varying from virtually zero to 39.8 percent in the case of Sweden). Member States face a challenge in that there is an immediate need for large scale renewable energy projects whilst costs are still very high.

In order for all Member States to make serious progress in this area and shift niche renewables production into the mainstream, the EU Commission has proposed a new draft renewable energy Directive as part of the 2008 Climate Change Package. The new draft

Directive sets out national targets for each Member State, determined partly on the basis of GDP/capita, so that richer countries are given a higher target. Member States which have already made significant progress in the last few years are given a slight reduction in their target. The targets do not take into account countries’ potential renewable energy resources as this would have placed a disproportionate burden on poorer countries. Countries which face significantly increased targets as a result include the UK, which must increase its share of renewables from around 2% to 15%. The Directive also sets out an “indicative trajectory” specifying the time-scales within which Member States are expected to take measures to achieve the targets (with the prospect of infringement proceedings against Member States if steps are not taken). Member States will be required to adopt national action plans to achieve the targets. Policies will need to take account of different national circumstances, such as the nature of each Member State’s energy mix.

A final key feature of the proposals on renewables - and one which may play a significant role - is that Member States which are on course to achieve their 2020 targets will be allowed to sell renewable certificates (known as “Guarantees of Origin”) in respect of energy produced from renewable sources to those Member States which are falling behind (for example because they have more limited renewable energy resources).

The Commission estimates that, including measures in relation to biofuels, its renewable energy targets will cost €13 - €18 billion and lead to savings of 600 - 900 million tonnes of CO<sub>2</sub> per year

### Biofuels

The proposed renewable energy Directive also sets out a binding target of 10 percent for the use of sustainable biofuels for vehicles across the EU by 2020. This is intended to give particular impetus to the development of the biofuels sector in order to reduce dependency on oil. A flat rate across the EU is proposed in order to ensure consistency in fuel specifications and availability.

The biofuels target is controversial: green groups have long lobbied against this target as they say that biofuels are a threat to sustainable development. In response, the Commission has announced the establishment of sustainability criteria including a minimum level of greenhouse gas savings and biodiversity requirements, such as preventing the use of protected areas or other land with high biodiversity value for the production of biofuels.

In terms of investing in biofuels, the key to success will be providing assurances as to the environmental integrity of the product throughout its life cycle.

### Carbon Capture and Storage (“CCS”) and sustainable fossil fuel technologies

CCS includes a range of technologies for capturing CO<sub>2</sub> from power generation and other processes and injecting it into geological formations for long-term storage to prevent its release to the atmosphere. Though some way off, CCS is a technology with vast potential - particularly in the UK and Norway which have the benefit of huge potential storage capacity in depleted oilfields under the North Sea - and in Germany and France, which are also developing demonstration projects. CCS is seen as having particular promise in relation to the development of clean coal power generation. Half of the EU’s electricity is supplied through the use of coal and gas. As coal produces substantially higher CO<sub>2</sub> emissions than gas, the development of cleaner coal generation will be necessary. This is particularly important in view of the IEA’s

projection that internationally the amount of electricity produced from coal is anticipated to double by 2030.

To help promote CCS technology, the Commission has proposed a new regulatory framework designed to remove legal barriers to its implementation as part of the 2008 Climate Change Package. As mentioned above, one of the key features of the proposal is that installations using CCS would not be required to purchase allowances under Phase 3 of the EUETS, in order to encourage deployment of the technology. Other elements of the proposal include the creation of a permitting regime for storage of CO<sub>2</sub>, obligations relating to operation, closure and post-closure (including monitoring, reporting and financial security for operators); the application of existing rules (e.g. IPPC) to capture and transportation of CO<sub>2</sub> and the removal of legal barriers, e.g. through amendments to water and waste legislation. The Commission has also put forward measures to encourage the development of demonstration projects, and hopes that commercial deployment of CCS will begin around 2020 and increase substantially thereafter. It has discounted making CCS compulsory for the moment, as the technology is not sufficiently developed, but has said that the possibility may be reconsidered in future.

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### State Aid

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As a further component of the EU Climate Change Package, the Commission has issued revised guidelines on state aid for the environment (which replace previous guidelines issued in 2001). The revised guidelines set out new criteria which the Commission will apply in deciding whether to give approval in respect of state aid for measures which improve environmental protection, including through emissions reduction and renewable energy. Approval is required for state aid in such cases to ensure that competition is not distorted and that environmental objectives will be achieved. The revised guidelines allow for an enhanced range of state aid and a higher level of support in appropriate cases.

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### The European Climate Change Programme ("ECCP")

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The 2008 EU Climate Change Package builds on the ECCP, which was established in June 2000 with the aim of identifying the most environmentally-friendly and cost-effective ways to enable the EU to meet its targets under the Kyoto Protocol. Some estimates put the cost of complying with the Kyoto Protocol at around 0.06 percent GDP or 3.7 billion Euros. The following summarises some additional components of the ECCP not already discussed above:

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### Mechanisms for monitoring emissions

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EU Decision 280/2004/EC establishes mechanisms designed to monitor GHG emissions in the Member States. Its purpose is to ensure that information reported by the Community to the UNFCCC Secretariat is complete, accurate and comparable. The Member States and the Community must devise, publish and implement national and Community programmes for reducing their anthropogenic emissions and enhancing removals by sinks of all GHGs controlled by the UNFCCC and the Kyoto Protocol.

National programmes should include information on the effect of national measures on emissions and removal of GHGs and national projections for CO<sub>2</sub> and other GHG emissions for 2005, 2010, 2015 and 2020. The Member States must establish national inventory systems for estimating GHG emissions on their territory, and must issue reports to the European Commission by 15 January each year. These reports should include final data on emissions of carbon

monoxide, CO<sub>2</sub>, methane, nitrous oxide, HCFCs, PFCs, sulphur hexafluoride, sulphur dioxide, nitrogen monoxide and volatile organic compounds during the year preceding the last two years.

These mechanisms will enable the Commission to make an annual evaluation of the progress made throughout the Community towards achieving the commitments made under the UNFCCC, the Kyoto Protocol, and the targets set out in the EU's 2008 Climate Change Package.

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### Competitive energy market

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One of the central aims of the new EU energy and climate change policy is the liberation of the EU energy market. The creation of an internal energy market is considered to be a necessary condition not only to competitive energy prices, but also to releasing the huge investments needed to boost energy efficiency and renewables.

The Commission has identified the need to unbundle the ownership and/or operation of electricity generation from network companies enabling the price of carbon to be signalled by a competitive economy, free from monopoly activity. The Commission has also called for stronger independent regulatory control to achieve the objectives of this policy. A new package of legislative proposals for the energy sector aimed at further promoting these objectives was announced by the Commission in September 2007.

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### European Strategic Energy Technology Plan

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The European Commission presented its European Strategic Energy Technology Plan ("SET-Plan") in November 2007. The SET-Plan sets out how the EU aims to achieve cheaper clean energy and to ensure that European industry will gain global leadership in the growing low carbon technology sector by accelerating the development and implementation of these technologies. The EU's long-term goal envisages that by 2020 cost-effective technologies will have to be in existence to make the 20 percent emissions reduction and renewables targets a reality. This would include the roll-out of large off-shore wind projects and second generation biofuels. By 2030, power will increasingly need to be sourced from low carbon emission fossil fuel power plants with CCS and other low carbon technologies. Priorities will include the development of biofuels, off-shore wind projects and photovoltaic technology that become fully competitive alternatives to fossil fuels. The benefits of fuel cells and hydrogen technologies will need to be further exploited, in particular for use in the transport sector. By 2050, the process of converting European energy production to a clean system with low CO<sub>2</sub> emissions should be completed.

In order to achieve these long-term goals, the SET-Plan proposes a new system of joint strategic planning, more effective implementation through a series of industry initiatives, increased resources, and enhanced international co-operation. The Commission intends to put forward further proposals on the financing of low-carbon technology by the end of 2008 (leveraging private investment including private equity and venture capital), and a European Energy Technology Summit will be held in 2009 to review progress.

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### Nuclear energy

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The use of nuclear power has been one of the ways in which Member States have been able to reduce their CO<sub>2</sub> emissions. Whilst each Member State chooses the extent to which they rely on nuclear energy, any decrease in its use that may occur in the future will need to be accompanied by the phasing-in of other low-carbon energy sources. Future EU policy will seek to develop the most

advanced framework for nuclear security and safety which will also focus on nuclear waste management and decommissioning.

### EU external relations

It is projected that by 2030 EU Member States will consume less than 10 percent of the world's energy. The EU, in its efforts to secure energy supplies and curb the negative effects of climate change, will therefore seek the cooperation of its international partners. An effective EU external energy policy is under development and will pursue, amongst other priorities, a number of international agreements, including the above-mentioned energy efficiency agreement and the post-2012 climate regime.

### Fluorinated gases

In 2003, the European Commission proposed a Regulation (COM (2003) 492) intended to reduce the EU's emissions of fluorinated gases, namely HFCs; PFCs and SF<sub>6</sub>. Without regulation, emissions of these gases are forecast to increase to around 98 million tonnes of CO<sub>2</sub> equivalent by 2010. The Commission's initial proposal would have been an "internal market" measure, meaning that controls would have to be implemented identically across the EU. However, the policies planned and implemented in some individual Member States go further than the proposed Regulation. Accordingly, the proposed Regulation will now apply only to stationary applications and mobile air-conditioning units will be regulated by a Directive. This proposed Directive will be an "environmental legal measure" rather than an internal market measure. Environmental legal measures need not be implemented identically across Member States. Therefore, individual Member States will have the option to implement legislation which goes further than the Directive's minimum requirements if they so wish.

### GHGs and waste

Landfill, which remains a highly popular means of disposing of waste in the EU, is a significant contributor to GHG emissions. In the UK, for example, 100 million tonnes of waste are landfilled each year. One tonne of biodegradable waste is estimated to produce between 200m<sup>3</sup> and 400m<sup>3</sup> of gas as it decomposes. Landfill gas is typically 50% methane, a potent GHG with 21 times the global warming potential of CO<sub>2</sub>.

Because of the potential harm that is associated with landfill operations, special restrictions are placed on landfills under EU law. Under the Waste Framework Directive 2006/12/EC (which consolidates amendments to the original Framework Directive dating from 1975), methods of waste disposal must be prioritised in terms of their environmental impact and the method with the smallest impact is to be preferred. Member States must prohibit the uncontrolled discarding, discharge and disposal of waste and promote the prevention, recycling and conversion of wastes with a view to their reuse. Landfilling usually falls at the bottom of the waste disposal hierarchy.

The Landfill Directive 99/31/EC is intended, by way of stringent operational and technical requirements, to reduce air and other emissions from landfill sites in line with the Waste Framework Directive. Article 4 requires that all landfill waste be classified as hazardous, non-hazardous or inert and all hazardous waste must go to sites classified for hazardous waste landfill. Waste going to landfills must be pre-treated. The Landfill Directive imposes limits on the amount of biodegradable municipal waste which can be

landfilled, with the aim of reducing the quantity of gaseous emissions from landfill sites. The limits imposed on the UK are: the reduction to 75% of the total amount by 2010; a reduction to 50% of the total amount by 2013 and to 35% by 2020.

Individual Member States have also implemented measures, in line with the objectives of the Landfill Directive, to reduce landfill bi-products. The UK, for example, has placed a "landfill tax" on landfill operations which aims to encourage the increased collection of methane generating waste for energy recovery and environmental control. The standard rate of the tax (for non-inert waste) in 2007/8 was £24 per tonne of waste. The rate has been significantly increased each year since 1999 and is set to increase by a further £8 per tonne each year until at least 2010/11. Landfilling has traditionally been considered one of the cheapest ways to dispose of waste. The aim is to raise the landfill tax in order to limit the number of companies who elect to landfill their waste because of the financial cost.

### PPC

EU Directive 96/61/EC on Integrated Pollution Prevention and Control (the "IPPC Directive") regulates certain "installations" in the energy, metal processing, mineral and chemical industries as set out in Annex I of the Directive. Its purpose is to achieve integrated pollution prevention and control within these industries and it lays down measures designed to reduce or prevent emissions, including emissions of GHGs. Though not specifically introduced to address climate change, it aims to prevent or mitigate all forms of pollution and encourage energy efficiency. Under Article 4, new installations may not operate without a permit, which must be granted by the relevant Member State in accordance with the Directive. Member States should impose conditions on the permits to ensure that a high level of protection for the environment is achieved (Article 9). This includes specifying suitable emissions release monitoring requirements and placing limits as on the quantities of emissions released. The European Commission published a proposal for a new Directive on 21 December 2007 which will simplify and consolidate the IPPC Directive and six related Directives (including Directives relating to large combustion plants and waste incineration) into a single consolidated regime. As part of this process, Member States will be required to apply stricter and more consistent standards (known as best available techniques) to individual plants, and the regime will be extended to include medium sized combustion plants.

### Conclusion

As we have discussed above, EU and US views on how to tackle global climate change have been characterised by widely divergent opinions on the importance of technology, the economic costs, the role of developing countries and the nature and importance of binding multilateral reductions targets with or without trading mechanisms.

However, with the coming into force of the Kyoto Protocol, the acceptance by the Kyoto Parties that medium to longer-term targets are likely to be more difficult to achieve than the first commitment period Kyoto targets, and the involvement of developing countries in the Bali process under the Convention track, the opportunity to move the climate change agenda forward has arisen. The goal of 2009 for the adoption of a decision by the COP in Copenhagen is very ambitious, given the scope of the issues to be resolved. Swift progress along the dual-track process commenced at Bali is critical in order to enable the Parties to reach agreement early enough to

ensure that the next commitment period seamlessly follows the end of the Protocol's first period of 2008-2012 without a gap.

The agreement by the US to engage in a multilateral dialogue over the two-year period of 2008-09 is regarded in the EU as key to

achieving a new consensus on how to tackle climate change. It remains to be seen whether that dialogue enables the EU, the US and other UNFCCC Parties to achieve more concrete proposals for bridging the climate divide in 2008 and beyond.



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