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GENERAL NEWS

1) POWER FIRMS BEMOAN COST OF ALTERNATIVE ENERGY PLAN

The Asahi Shimbun

April 5, 2003

Internet: <http://www.asahi.com/english/business/K2003040500226.html>

A new law designed to reduce the usage of global-warming fossil fuels took effect April Fool's Day, but electric power companies fail to see the humor in the extra costs involved. The Special Measures Law Concerning the Use of New Energy by Electric Utilities requires that the nation's 10 major electric firms sell a specific amount of electricity that is generated using alternative energy sources, such as wind or solar power. The Ministry of Economy, Trade and Industry has set annual nationwide targets to increase the supply of alternative electricity to 12.2 billion kilowatt-hours in fiscal 2010, or 1.35 percent of the total power supply, from the current share of 0.3 percent. The goal is to reduce emissions of carbon dioxide, a major contributor to the greenhouse effect.

Electricity retailers that are unable to fulfill their quotas, which are set higher each year, are required to purchase alternative electricity from other utilities to make up the difference. The law requires the Big 10 to supply a combined 3.28 billion kWh of such electricity in fiscal 2003. Firms that fail to meet their annual quotas will be fined up to 1 million yen. The cost burden involved in reaching the targets is the power companies' main concern. While traditional thermal power costs 7 yen per kWh, solar power carries a price tag of between 46 and 66 yen, wind power 9 to 14 yen and biomass generation, which burns wastes and other organic materials, costs 7-21 yen.

Tokyo Electric Power Co. (TEPCO), the world's largest private electric firm, estimates the new law will set it back an additional 7 billion to 8 billion yen in fiscal 2003 and up to 30 billion yen in fiscal 2010. TEPCO plans to take care of 60-70 percent of its fiscal 2003 quota using biomass energy, with the remainder to be filled by wind power generation from Hachijojima island south of Tokyo and surplus from 23,000 solar-powered households. A TEPCO official said the company hopes the amount of electricity from the three sources will help it barely satisfy the requirement. But at least TEPCO can reach the quota on its own. Most, if not all, of the other power companies will be forced to purchase alternative electricity from others to meet their legal obligations.

Kansai Electric Power Co. and Chubu Electric Power Co. plan to use biomass energy to fulfill part of their requirements, but are forced to consider buying electricity from Hokkaido Electric Power Co. and Tohoku Electric Power Co., which own enormous wind-generation plants, as well as independent power providers using alternative energy sources, to make up the rest. But wind generation, being at the mercy of weather conditions, is a notoriously fickle power source. Nevertheless, the industry ministry aims to increase the nation's total wind power generation capacity to 3 million kW in fiscal 2010 from its current 310,000 kW. To meet the targets, improving power transmission facilities is essential. Of course, it is also expensive, at an estimated 200 billion to 500 billion yen.

The question now being asked is who will shoulder the costs: the power companies, the independent alternative energy providers, the government or the public? The ministry has yet to make its position clear on the matter, but a hike in electricity rates is not out of the question. The ministry plans to review the policy after three years of implementation in fiscal 2006, but power companies argue that unless power generation costs are drastically lowered through technological innovation, the ministry should review the quota with an eye to lowering it.

2) EASY CASH BUT QUIET FIRST YEAR IN UK EMISSIONS TRADE

Planet Ark

April 4, 2003

Internet: <http://www.planetark.org/dailynewsstory.cfm/newsid/20374/story.htm>

LONDON - Britain's emissions trading scheme failed to balloon into a busy market in its first year although some companies made easy money from cutting greenhouse gases, dealers said yesterday. "In terms of being a liquid and efficient market it was far from being a success, but companies set up trading mechanisms and as a precursor to wider schemes there were lessons to be learned," said Atle Christiansen of analysts Point Carbon. The voluntary scheme, started in April last year, enables companies that cut greenhouse gas emissions above government agreed targets to sell allowances to those unable to meet the reductions. The emissions are blamed for global warming.

The British government hoped for a large uptake to help meet its commitments under the United Nations Kyoto Protocol on climate change, ahead of mandatory European Union trading from 2005 and possible global trading. It kickstarted the scheme with 215 million pounds (\$336.8 million) for 34 organisations, from Barclays Bank to London's Natural History Museum, that pledged to cut over four million tonnes of emissions over five years, either in-house by greater energy efficiency or by trading allowances. "A lot of people will be kicking themselves for not getting involved - it was a handout," said TFS emissions broker John Molloy. "It was double money - getting cash in the auction and then selling allowances at 12 pounds," he said.

Brokers said those companies selling early on would have made the most money, as prices steadily rose from five pounds (\$7.83) per tonne of carbon dioxide equivalent to a high of 12.50 in the first six months, before slumping on oversupply in the second to around three pounds. Likely candidates are chemical firms Ineos Fluor and DuPont, oil majors Shell and BP, UK Coal Mining and First Hydro, who all received the most allowances to sell. Just 10 companies made up 90 percent of the market, brokers say. Over half of the 34 direct participants have yet to trade. Some in the auction received money for easily achievable reductions in emissions - in return for about 53 pounds a tonne from the taxpayer.

Others may have made no extra reductions. Marks and Spencer, for example, agreed to a 2,060 tonne cut over five years - which brokers said could be done by turning off a few office lights - in return for 110,000 pounds (\$172,300). British Airways agreed to cut its emissions by 125,000 tonnes or 12 percent, which could be achieved by cutting flights. Or it could buy allowances on the market for much less than the 6.67 million pounds (\$10.45 million) it will receive from the government.

CLIMATE CHANGE LEVY

Apart from the 34 direct participants, almost 6,000 companies were expected to join trading, since they risk losing a hefty tax rebate on energy use under the Climate Change Agreement if they miss emissions reduction targets. Buying from these CCA companies saw prices soar last year, but demand did not pick up further as expected ahead of the mid-February 2003 deadline for industry sectors to comply with targets. Total traded volumes were under two million tonnes. Brokers said that these CCA participants had not been given enough information about trading and were now being given more time to comply. "It's been a good first year, with the exception that the CCA participants were not tuned up to get the benefits," said Molloy. "Everyone's in a learning curve."

The Department of Environment, Farming and Rural Affairs (DEFRA), in charge of the scheme, said they were still compiling data from the year and could not yet comment on

whether industry sectors had met their targets through the scheme. Dealers also said the lack of clarity over how the voluntary UK scheme would tie in with mandatory EU trading for carbon dioxide held back trade. 2003 is expected to be a quiet year, though on the plus side the UK now has valuable experience. "The challenge ahead is the EU trading directive, with consultation to develop the national allocation plan that defines who gets what from a finite amount of allowances - the UK trading scheme has prepared people for it," said trader Garth Edwards of Shell.

3) GREEN GROUPS SHUN CLIMATE STRATEGY WITH GOVERNMENT

Sydney Morning Herald

April 4, 2003

Internet: <http://www.smh.com.au/articles/2003/04/03/1048962882718.html>

Key green groups have pulled out of negotiations with the Federal Government on climate change policy, accusing it of misleading the public and bringing Australia to a "crisis point" on an urgent environmental issue. In a letter to the Environment Minister, David Kemp, three weeks ago, 21 environmental groups said it would be betraying their membership to continue discussions on the Government's Climate Change Forward Strategy. Members of the organisations - including the Australian Conservation Foundation, the Climate Action Network of Australia, Greenpeace and lobby groups in each state - accused the Government of trying to create the impression it was consulting with the environmental movement, which firmly opposes the strategy.

As recently as Tuesday, Dr Kemp released a statement charting the progress of the policy, saying "consultation between business, government of all levels, environmental organisations and the wider community is shaping the climate change agenda". The executive director of the Conservation Foundation, Don Henry, said Dr Kemp was "having a lend of the Australian public by suggesting the environmental groups are consulting with the Federal Government, when groups are alarmed and dismayed as to where the Federal Government is at on climate change". He said: "We're not going to be taken for dopes while you go ahead and continue to mislead the public about your disgraceful position on climate change."

Dr Kemp said the environment movement had adopted an all-or-nothing approach to climate change and wanted to exclude other voices from the debate. The climate change strategy was not complete, Dr Kemp said, and he regretted that the groups had "dealt themselves out of the process". "The Government has set up a democratic, inclusive process which seeks to involve everyone in the community," he said, adding he would be happy to reopen discussions with the groups. "The authors seem to think they have all the answers and no one else needs to be heard."

The co-ordinator of the Climate Action Network, Danny Kennedy, said groups had not received a reply from Dr Kemp since the letter was sent in mid-March. "How can they say we're consulting when we're not even talking?" Mr Kennedy said. While it was unfortunate that environmental groups would not be part of the policy process, Mr Kennedy said their concerns had so far been ignored. They would return to discussions with the Government if it considered a number of actions, including ratifying the Kyoto protocol, increasing a mandatory target for renewable energy and ending large-scale land clearing.

4) GLOBAL WARMING COULD TRIGGER MORE GLOBAL WARMING – VIA THE SEA

Eddie weekly summaries

April 4, 2003

Internet:

http://www.edie.net/gf.cfm?L=left_frame.html&R=http://www.edie.net/news/Archive/6846.cfm

US scientists have identified a link between methane eruptions from the sea floor and climate change. Warmer waters could trigger the release of deep sea methane, which could potentially escape into the atmosphere, adding to global warming. Scientists at the Woods Hole Oceanographic Institution (WHOI) have discovered historical evidence suggesting methane gas erupted from the seabed during rapid climate warming. In a study published in the latest issue of Science, Kai-Uwe Hinrichs and colleagues link the behaviour of the methane reservoirs to the global carbon cycle, an indicator of global warming and cooling. Fossils from methane-consuming bacteria found in Californian sediments deposited during the last glacial period, 70,000 to 12,000 years ago, suggest that large amounts of methane were repeatedly released from the seafloor during warmer weather.

Methane hydrate reservoirs under the seabed have been recommended as a potential source of energy. Current estimates suggest there are about 10,000 billion tonnes of methane stored beneath the ocean and on continents. Global warming could increase bottom water temperatures that would then trigger the release of methane hydrate into shallow waters. If even a small portion of the stored methane were to escape into the atmosphere, the resulting greenhouse warming would be catastrophic, warns the team. "We have a very poor understanding of the biogeochemical mechanisms that control production, destruction, and accumulation of methane in sediments underlying the ocean," says Hinrichs. "We need to understand the big picture of what drives methane and the carbon cycle and the actual impact of methane emissions from hydrates on climate."

5) CARBON IN THE BALANCE: FITTING FORESTS INTO CLIMATE CHANGE AGREEMENTS

Eddie weekly summaries

April 4, 2003

Internet:

http://www.edie.net/gf.cfm?L=left_frame.html&R=http://www.edie.net/news/Archive/6845.cfm

A mock space colony built by a Texas billionaire has joined a global network of testing sites measuring how much carbon forests can sequester. But while plant scientists work out how to keep forests from turning into carbon emitters, politicians and campaign groups wrangle over the details of carbon sink allowances. How will forests fit into the climate change equation, and will the world agree to sink its carbon differences?

How much carbon can a forest sink? At one level, we need to understand what's happening at the leaf scale, where a change in temperature or carbon dioxide levels can alter the rate at which leaves take up carbon, Howard Griffiths of the University of Cambridge told edie. But what happens in trees inside forests, where there may be an additional canopy effect, asks Griffiths.

A project run by Joe Berry at Biosphere Two is exploring just that. Smart forest management appears to be the key to building a stable carbon sink, where canopy shaping and fertiliser restrictions will keep trees hungry for carbon, Berry told edie. In the giant greenhouse globe built by American billionaire Ed Bass, Berry and his colleagues from the Carnegie Institution are increasing the levels of carbon dioxide to work out just how much carbon forests are willing to take up, and under what conditions. The good news is that the world seems to be witnessing an unprecedented fertilisation effect, where rising levels of carbon and nitrogen pollution – where nitrogen is a co-catalyst for photosynthesis – appear to be making trees

hungrier than ever for CO₂, says Berry. The average rate of plant fixing of carbon is going up by 0.5% a year. But will that be maintained when we start to limit nitrogen pollution?

The bad news, World Bank expert Robert Watson explained to a meeting of the Society of Experimental Biology, is that forests seem to switch naturally between acting as sinks and sources of carbon, varying by two gigatonnes of carbon emitted or absorbed per year. Without a means of continually monitoring regional background uptake of carbon, which we don't yet have, how will we know whether countries are simply capitalising on a natural phenomenon, or whether our carbon reduction projects are actually working, asks Watson.

Using forests as carbon sinks is also frowned upon European campaign groups, who see it as a 'cop out' or a way to cheat the system, says Watson. But if regulators ensure that legislation prevents 'scam' projects from being used, such as burning a forest down before growing it again, or using the devastation of a natural fire to build a forest, then there won't be a problem. If countries and businesses have to prove that they are putting money into genuine forest sinks, with a means of excluding natural influences such as nitrogen fertilisation and El Nino – also thought to affect carbon uptake - from the carbon credit calculations, then those projects will benefit both the environment and the finances of developing countries, something that campaign groups appear to be ignoring, says Watson.

But even if the world's vegetation works at maximum absorption, it will still only takes up a third of anthropogenic carbon, equivalent to two of the six gigatonnes emitted each year, John Grace of the University of Edinburgh told edie. Forests don't necessarily offer the highest potential sink for carbon. Other measures, such as injecting CO₂ into rocks, sediments and the sea, may prove more cost-effective and have more impact in the long term, says Grace. Nevertheless, some test sites are showing extremely promising results. Forests grown on arid land in Israel are taking up far more carbon than expected, around 1.8 tonnes per hectare, close to the world average of 2.3 tonnes per hectare, Dan Yakir of the Weizmann Institute of Science told edie. CO₂ appears to help plants make more efficient use of their limited water supplies, which is why the arid forests may be taking up so much CO₂, says Yakir

6) NO CHANCE' OF UK MEETING GREENHOUSE TARGETS

Guardian

April 3, 2003

Internet: <http://politics.guardian.co.uk/green/story/0,9061,929046,00.html>

The government has "no chance" of meeting its targets for cuts in harmful carbon dioxide emissions if current policies and market conditions remain in place, MPs warned today. A report from the Commons all-party science and technology committee - who have been looking into government efforts to steer industry away from over-use of fossil fuels and towards renewables like wind, wave and solar power - said "there is no prospect" of achieving the target of 10% renewable power generation by 2010. It also casts doubt on the goal of 20% use of renewables by 2020.

The report revealed that when the energy minister, Brian Wilson, was asked who was responsible for meeting the government's renewable targets, "his lame response was that it was a collective government responsibility along with Ofgem". The MPs said: "This increases our concern that the government's energy policy is too fragmented. "Brian Wilson seemed to agree with our suggestion that reforming a department of energy would help to solve this, stating that its abolition had been a political statement."

The MPs went on to say that, while they agreed with many of the sentiments of the energy white paper, they were also disappointed because it contained few practical policy proposals that gave any confidence that its targets and aspirations could be met. "It had ducked a central

issue - whether to provide a future for the nuclear power industry - and failed to give a lead. "On the specific issue of research, development and demonstration [RD&D], it makes all the right noises but fails to pledge any further investment nor provide any further direct incentives to industry to do so. "RD&D investment in the UK is set to remain at the bottom of the international league table."

The report calls for a renewable energy bill with UK-wide responsibility for coordinating and promoting RD&D in renewable energy and disbursement of funds for that purpose. It also calls for the replacement of the climate change levy and the renewables obligation with a unified carbon and renewable energy tax to be levied on the electricity generators, the yield from which should be hypothecated to the renewable energy authority.

7) SUING OVER CLIMATE CHANGE: THE DEBATE OVER GLOBAL WARMING IS GAINING A NEW DIMENSION: LITIGATION

BBC

April 3, 2003

Internet: <http://news.bbc.co.uk/2/hi/science/nature/2910017.stm>

The vast numbers affected by the effects of climate change, such as flooding, drought and forest fires, mean that potentially people, organisations and even countries could be seeking compensation for the damage caused. "It's not a question we could stand up and survive in a court of law at the moment, but it's the sort of question we should be working towards scientifically," Myles Allen, a physicist at Oxford University, UK, told the BBC World Service's Discovery programme. "Some of it might be down to things you'd have trouble suing - like the Sun - so you obviously need to work how particularly human influence has contributed to the overall change in risk," the scientist, who has worked with the UN's Intergovernmental Panel on Climate Change (IPCC), said.

In 2001, the IPCC's third climate change assessment report stated that it was "likely" - meaning a better than a two in three chance - that human activities were forcing the global climate to warm up. Some environmental lawyers believe this was a hugely significant step in paving the way to compensation claims against those responsible for climate change. "Civil courts usually require a 51% proof of certainty, which is an interesting issue in terms of scientific levels of proof - and legal levels of proof," stated Peter Roderick, a lawyer who works with Friends Of The Earth International. "I think there is no doubt at all now that the third assessment report has taken forward the legal significance of the science, and this next decade is going to see quite a lot of climate change cases around the world." 'Not practical'

Many, however, remain highly sceptical that, even if cases were brought, much could be proved. "I would question whether it's desirable, at least at the moment, to take legal action against parties," said Julian Morris, an environmental policy specialist with the International Policy Network.

Perhaps more flooding, but who do you blame? "Who is responsible? You face the problem of identifying the extent to which humanity has caused change in the first place. "Even if you actually attributed it to humanity, then you've got the problem of saying, 'well who was it?'" Dr Morris added that it would also be difficult to assess who would deserve to benefit from any legal action. "Who is going to be compensated? Is it going to be the six billion who are now supposedly at risk from the change in the climate? "Is it going to be a more concentrated group of people, i.e. those who live on flood plains? And how do you get compensation to those people practically? "The difficulties of obtaining compensation for several billion people at least, who might be worthy of compensation, would be enormous, and quite possibly would be larger than the benefits of setting up a system to enable that compensation to take place."

8) CLIMATE CHANGE: U.N. SCIENTISTS REBUT EMISSIONS PROJECTION CRITICISMS

UN Wire

April 2, 2003

Internet: http://www.unwire.org/unwire/util/category_search.asp?objCat=environment

Ten U.N. scientists writing in the next issue of Energy and Environment rebut criticisms published in The Economist of the Intergovernmental Panel on Climate Change's method for forecasting the economic development that drives industrial production and, consequently, emissions of the greenhouse gases scientists believe are behind global warming. According to IPCC projections from 2001, average world temperature could rise 2-8 degrees by the end of the century, largely because of rising emissions of greenhouse gases. Ian Castles of the Australian National University and David Henderson of Westminster Business School, in a critique published in The Economist, said the panel is basing emissions projections on inflated economic growth forecasts stemming from its use of market exchange rates, rather than purchasing power parity rates.

Ten U.N. experts led by Neboja Nakicenovic of the International Institute for Applied Systems Analysis, writing in Energy and Environment, defend the IPCC's use of market exchange rates, saying the World Bank and other such institutions use the rates in their forecasts. They add that economic development forecasts for certain countries are less important than other factors in determining future emissions. "Mr. Castles and Mr. Henderson have focused on constructing a 'problem' that does not exist," the U.N. experts write. "In terms of climate change, it doesn't matter where the carbon dioxide comes from," said one of the U.N. scientists, Hugh Pitcher of the U.S. government's Pacific Northwest National Laboratory. "In terms of who has to do what to deal with emissions, it matters a hell of a lot"

9) POWER SECTOR COULD CUT CO2 EMISSIONS 60 PERCENT

ENS AmeriScan

April 2, 2003

Internet: <http://ens-news.com/ens/apr2003/2003-04-02-09.asp>

WASHINGTON, DC, April 2, 2003 (ENS) - A new report from WWF finds that the U.S. power sector can cut carbon dioxide emissions nearly 60 percent by 2020 and reduce its dependency on fossil fuels by using available energy technologies and supporting innovative polices. The new peer reviewed analysis, released today by WWF, will provide the basis for a new initiative by the worldwide environmental organization.

This initiative, called "PowerSwitch!" challenges electric utilities to make specific policy and performance commitments that begin the transition to a CO2 free power sector. "U.S. electricity companies have the power to play a major role in solving the global warming problem, if they choose to take responsible steps to meet this risk," said Katherine Silverthorne, director of WWF's Climate Change Program. "To ensure that power companies take action while we still have time to avoid dangerous levels of global warming, WWF is challenging them to commit now to a clean energy future."

The report, entitled "The Path Towards Carbon Dioxide-Free Power: Switching to Clean Energy," notes that electricity production is responsible for some 40 percent of U.S. CO2 emissions, which are a key cause of global warming. WWF contends that its analysis outlines opportunities for the U.S. electricity sector to cost-effectively cut its CO2 emissions by increasing energy efficiency and using renewable energy. The measures suggested include the use of a diversified energy generation portfolio, which could reduce CO2 emissions by 59 percent by 2020.

WWF is also calling for adoption of complementary national policies that support the transition to clean energy. The organization believes these will increase cost effectiveness and encourage appropriate decisions in regard to capital investment. The PowerSwitch! initiative recommends that U.S. electric utilities support binding limits on national/power sector CO2 emissions and commit to other voluntary efficiency and renewable policies. There is no reason we can not have needed energy without the pollution that causes global warming, said Silverthorne. "It is time to harness the ingenuity and gumption that led America to put a man on the moon, eradicate polio, and revolutionize information technology to ensure that we surmount the greatest environmental threat of our time -global warming."

10) MORE U.S. COMPANIES LAUNCH CLIMATE CHANGE INITIATIVES

GreenBiz.com

April 2, 2003

Internet: http://www.greenbiz.com/news/news_third.cfm?NewsID=24336

WASHINGTON, D.C., April 2, 2003 - A growing number of U.S. corporations and states are taking actions aimed at sharply reducing emissions of carbon dioxide and other greenhouse gases that trap heat within the Earth's atmosphere. A group of the nation's biggest corporations recently launched a trading program to reduce their emissions of greenhouse gases and more than half the states have adopted voluntary or mandatory programs for reducing carbon emissions in recent years.

According to a report by the Energy Information Administration released in February, a total of 228 U.S. companies have voluntarily undertaken more than 1,700 projects to reduce or sequester greenhouse gases in 2001. The emission reductions equaled about 300 million metric tons of carbon dioxide equivalent, which represents more than 4 percent of total U.S. greenhouse gas emissions. Company emission reductions increased by about 20 percent compared to 2000 levels.

The creation last January of the Chicago Climate Exchange -- a program for reducing and trading greenhouse gas emissions -- marks the first time that major companies in multiple sectors have made a voluntary commitment to use market-based steps to cut emissions linked to global warming. The 14 founding members, which include American Electric Power, DuPont Company, Ford Motor Company, International Paper Company, Motorola and the city of Chicago, have agreed to reduce average greenhouse-gas levels from 1998 to 2001 by 4 percent over the next four years. Discussions are underway with more than 50 other potential members.

Exchange members will receive credit for emissions reductions above 4 percent, and can sell or trade these credits to other member companies that are having difficulty meeting this goal. The price of the credits would be set by bids on the exchange. NASD, a securities industry self-regulatory body, has been hired to monitor compliance by exchange members. A similar U.S. trading program, which is mandatory, has contributed to large-scale reductions in sulfur dioxide, a source of acid rain pollution. Chicago Climate Exchange Chairman Richard Sandor says that companies that have joined the exchange "really believe that a proactive approach to climate change advances everyone's long-term interests. It's simply good business."

A bipartisan bill being considered by the Senate Environment and Public Works Committee would require U.S. power plants and industries to set targets for limiting greenhouse emissions. In addition, U.S. companies operating internationally may face requirements for emissions cuts under the Kyoto Protocol, an international accord to reduce global greenhouse emissions through a system of legally binding limits on industrialized countries. The Bush administration has opposed any policy that mandates reductions in emissions, arguing that mandatory targets could harm economic growth.

In February, the Bush administration announced a program called Climate VISION, which stands for Voluntary Innovative Sector Initiatives: Opportunities Now. This partnership unites American businesses and the federal government in a coordinated effort to promote innovations and technologies to reduce the projected growth of the nation's greenhouse gas emissions. Under the program, participating industries, which include automakers, chemical companies, mining operations, electric power companies, and oil and gas companies, have voluntarily set a specific goal for reducing greenhouse gas intensity or increasing energy efficiency.

For example, the American Petroleum Institute has pledged to increase the aggregate energy efficiency of its U.S. refinery operations by 10 percent from 2002 to 2012. And the Edison Electric Institute and six other power sector groups, representing 100 percent of U.S. electricity generation, have pledged to reduce the power sector's carbon impact in this decade by the equivalent of 3 to 5 percent through increased natural gas and clean coal technology, increased nuclear generation, and expanded investment in wind and biomass projects.

Climate VISION is the cornerstone of President Bush's commitment to reducing the nation's greenhouse gas intensity -- the ratio of emissions to economic output -- by 18 percent in the next decade. The U.S. Department of Energy, which is coordinating the program, says the company initiatives also build upon progress made by the industrial sector in the past decade. The agency reports that from 1990 to 2001, while the economy grew by almost 40 percent, greenhouse gas emissions in the industrial sector were constant.

Many industry leaders have praised the administration for focusing on voluntary efforts rather than mandates to reduce greenhouse gas emissions. "By encouraging voluntary, cost-effective solutions, it will curb emissions without undermining our energy supply or putting the brakes on economic growth," said Thomas Kuhn, president of the Edison Electric Institute. At the same time, many U.S. states are taking efforts to mitigate climate change, according to a recent report by the non-profit Pew Center on Global Climate Change. Entitled "Greenhouse & Statehouse: The Evolving State Government Role in Climate Change," the report says states have a variety of interests in addressing climate change, including the potential for rising sea levels, the effect of changing climate patterns on agriculture and the need for stable, renewable energy supplies.

"The trend is unmistakably towards more states taking an active role in climate change," said Barry Rabe, a professor of environmental policy at the University of Michigan and chief author of the Pew report. He said that while there are obvious limitations to what can be done at the state level, "all of this could provide potential models for future action at the federal level." According to the report, 16 states have now enacted legislation requiring utilities to increase their use of renewable energy sources such as wind power or biomass in generating a portion of their overall electricity. Texas, for example, passed an energy restructuring bill requiring that 3 to 4 percent of its electricity come from renewable energy sources, especially wind power, by the end of the decade.

California has passed landmark legislation aimed at sharply reducing automobile and truck emissions of carbon dioxide and other greenhouse gases by 2006 -- legislation that could be a model for New York, New Jersey and other Northeast states. New Jersey, mainly due to concern of how sea level rise might affect this low-lying state on the Atlantic Ocean, has established a goal of reducing its greenhouse gas emissions to 3.5 percent below 1990 levels by 2005. State initiatives include obtaining signed pledges from several private companies as well as all of New Jersey's 56 colleges and universities to reduce their greenhouse gas emissions in line with the state goal. In 1993, Wisconsin began mandatory reporting requirements for large generators of carbon dioxide, giving state and reporting firms a clear measure of their emissions. Wisconsin is also developing a registry that will allow any firms

in the state to report reductions of carbon dioxide, with the intent of allowing them to obtain credit for reductions in any future federal or state greenhouse gas program.

Despite these initiatives, Rabe said funding is a primary barrier facing state-led efforts, and increasing budgetary pressures could imperil future climate change policies. He said there is also the potential that a "patchwork quilt" of state regulations and policies could increase compliance costs and create reporting and monitoring difficulties. "It's encouraging to see so much state activity," said Eileen Claussen, president of the Pew center. "But in the long run, state programs are no substitute for a comprehensive national policy."

11) INTERVIEW - ENERGY FIRMS BID TO BOOST UK GREEN CERTIFICATE TRADE

Planet Ark

April 2, 2003

Internet: <http://www.planetark.org/dailynewsstory.cfm/newsid/20337/story.htm>

LONDON - Energy companies in Britain are set to launch a standard trading contract designed to boost the country's flagging market for dealing in green certificates, the head of the project said yesterday.

A group of firms including Innogy (RWE.G.DE), Centrica (CNA.L), British Energy (BGY.L) and Powergen (EONG.DE) has drawn up a set of standard trading terms it hopes will kick-start a market marking its first anniversary yesterday and potentially worth hundreds of millions of pounds. "We hope to have a final document in a week or so," said Sue Wheeler, business development manager for renewables at Centrica, and chair of the group working on the contract. "The idea is that we need this framework in order to set the scene to develop this market and increase liquidity," she told Reuters.

The standard contract is for the trading of Renewable Obligation Certificates (ROCs), which verify the origins of electricity produced from specified renewable sources such as wind turbines. To comply with the government's Renewables Obligation power suppliers need to get their hands on enough ROCs - either by running their own green power plants or by buying certificates in the open market - to prove at least 4.3 percent of the power they sell this year (starting April 1, 2003) is from renewable sources.

Companies failing to get enough ROCs have to pay a punitive "buy-out" charge. The obligation forms part of the government's drive to boost the use of renewable energy as a way of curbing greenhouse gas emissions, a goal given high priority in a white paper on future energy policy published in late February. Ministers want renewable plants to provide 10 percent of the country's power by 2010. Last year renewables accounted for just 3.0 percent of the country's power and some analysts say the shortage of spare green power is one factor hindering trade in ROCs.

MANAGING THE RISKS

Wheeler said the new trading contract would help companies overcome some of the perceived risks involved in trading ROCs. "One of the features of the Renewables Obligation is that ROC's can be revoked after they have been issued," she said. This could happen if, for example, a power station granted ROCs on the basis that its furnaces burn a certain amount green fuel such as straw, uses too little straw in its fuel mix. Energy regulator Ofgem said recently it had revoked some ROCs granted to a waste-to-energy plant. Under the RMTA the liability for the invalid ROC, which could have been bought and sold several times since its issue, is passed back to the original holder of the certificate. "The liability goes back to the original seller, this gives security to the ROCs trade," said Wheeler.

She said several ROCs trades were going through each week in a market in which over 20 companies have been involved at various stages. She expected the number of deals to grow once companies have the new contract to underpin trades. "(The contract) will help give ROCs a proper price mechanism, this will help the whole renewables industry," said Wheeler. Banks, which track the ROCs market as part of their assessment of the risks involved in lending money to renewable energy projects, were aware of the move to launch a standard trading contract, she said.

12) DROUGHT A TIMELY REMINDER OF CLIMATE CHANGE - SCIENTIST

Stuff

April 1, 2003

Internet: <http://www.stuff.co.nz/stuff/0,2106,2370964a11,00.html>

Drought-stricken New Zealanders should look upon the big "dry" as a timely reminder of the coming climate changes, a senior American climate scientist says. The main way future climate change is likely to be felt in New Zealand is through changes in rainfall patterns, with more intense bursts of rain leading to floods, and prolonged dry periods causing drought, United States National Centre for Atmospheric Research senior scientist Kevin Trenberth said. Many parts of New Zealand are experiencing the worst drought in 30 years.

Dr Trenberth said there was a lot of evidence that climate change was real, including a global mean temperature increase, glaciers melting and a rise in sea levels. The recent bushfires in Australia were one example of a climatic event that could be linked to global warming: higher than average temperatures increased evaporation and caused particularly dry conditions leading to the fires. Dr Trenberth said the current El Nino drought on the South Island's east coast and in much of the central and lower North Island made it clear that drought could gut regional economies. "Increasing climate variability and longer dry periods with higher temperatures will likely increase in intensity in the future," Dr Trenberth said.

Globally, effects of climate change combined with world population growth would place increasing pressure on natural resources such as water. "Fresh water scarcity will become one of the biggest problems in the world," he said. "By 2050, the world population is predicted to be 9.3 billion, and 7 billion people in 60 countries will not have an adequate water supply". Even with big cuts to greenhouse gas emissions, the world was locked into some degree of climate change due to past and present emissions already in the atmosphere – particularly long-term sea-level rise. "We can't make climate change go away, but we can slow it down," he said. The international agreement to reduce greenhouse gas emissions, the Kyoto Protocol, was a step in the right direction. Dr Trenberth has been in New Zealand for the seventh International Conference on Southern Hemisphere Meteorological and Oceanography which finished at the weekend.

13) ENVIRONMENTAL EFFORT GAINS FORUM SUPPORT

China Daily

April 1, 2003

Internet: <http://www1.chinadaily.com.cn/cndy/2003-04-01/110204.html>

China's efforts to promote worldwide co-operation in addressing environmental problems related to climate change have been acclaimed by participants at an international forum on the issue. China is one of the countries that have been involved in the World Meteorological Organization's (WMO) urban research projects which aim to fight pollution, WMO Secretary-General Godwin Obasi said yesterday at the International Symposium on Climate Change. "I am delighted to see China's leadership role in and commitment to promoting world co-operation in environmental issues, especially those related to climate," Obasi said.

The global warming trend will continue in the next five to 10 decades. It is linked to the growth of greenhouse gases such as carbon dioxide in the atmosphere, according to meteorologists with the China Meteorological Bureau. As a result of warming, the global average sea level has risen by as much as 20 centimetres since the beginning of the 20th century, they said. The Chinese Government always attaches great importance to the issue of climate change and has been participating actively in international efforts under the United Nations (UN) and other international organizations, Vice-Premier Hui Liangyu said yesterday at the opening ceremony for the three-day symposium. China signed the UN Convention on Climate Change in 1992 and drew the country's Agenda 21 on sustainable development. It approved the Kyoto Protocol last year and has established the National Co-ordinating Group on Climate Change and National Climate Committee.

14) ECGD BOOTS RENEWABLE ENERGY SECTOR

Creditman

April 1, 2003

Internet: <http://www.creditman.biz/uk/members/news-view.asp?newsviewID=1662&id=1&mylocation=News&chksrc=NNow4251>

Some £50 million (GBP) of cover for the UK renewable energy sector is being made available by the Export Credits Guarantee Department (ECGD) to help developing countries limit greenhouse gas emissions from today (1 April). International Trade Minister Baroness Symons said: "This initiative strengthens ECGD's commitment to sustainable development by giving developing countries better access to renewable energy technology sourced from exporters and investors based in the UK." ECGD and the Department for Trade and Industry have been working in partnership with exporters, investors and overseas buyers to identify and support new renewable energy opportunities as part of a Government-wide drive to encourage the development of power generation from renewable resources both in the UK and abroad.

"The challenge is now on for British companies to put forward viable renewable energy projects that can be supported by ECGD," added Baroness Symons. ECGD has already received three applications from UK exporters in advance of today's announcement. From April 2003, ECGD will:

- make available cover for at least £50m of exports each year that meets its normal project and country underwriting criteria; and,
- participate in an outreach programme, run by DTI's Trade Promoters and the private sector, to stimulate exports of renewable energy goods to emerging markets to help overcome the low number of renewable energy applications for ECGD cover. This initiative, which was first announced in 2002 by the Prime Minister Tony Blair, will:
- encourage UK entrepreneurs to develop and then export renewable energy goods and services and to offer them insurance against the risks of non-payment;
- assist more overseas countries to meet their power generation requirements in a sustainable way by providing finance at attractive commercial rates linked to UK involvement; and,
- slow down the onset of, and possibly reduce the impact of, climate change resulting from greenhouse gas generation.

The UK Government's commitment to the promotion of sustainable development is reflected in ECGD's operations. ECGD looks for social and economic development combined with protection of the environment in all the projects to which it provides cover. The Government has produced a guide to UK companies entitled "Exporting Sustainable Energy Products and Services" which details how to get help with: market and technology information, financial assistance; marketing support; advice on markets abroad, and introductions into overseas markets. Copies of this guide are available by clicking on the Department of Trade and Industry's website www.dti.gov.uk/renewable.

ECGD, the Export Credits Guarantee Department, is the UK's export credit agency. A separate Government Department reporting to the Secretary of State for Trade and Industry, it has more than 80 years' experience of working closely with exporters, project sponsors, banks and buyers to help UK exporters of capital equipment and project-related goods and services. We do this by providing: - Insurance against non-payment to UK exporters; - Help in arranging finance packages for buyers of UK goods by guaranteeing bank loans; and, - Overseas Investment Insurance - a facility that gives UK investors up to 15 years' insurance against political risks.

15) ASIAN ENVIRONMENTAL EXPERTS DISCUSS CLEAN DEVELOPMENT

Utusan Malaysia Online

April 1, 2003

Internet:

http://www.utusan.com.my/utusan/content.asp?y=2003&dt=0402&pub=Utusan_Express&sec=Home_News&pg=hn_04.htm

KUALA LUMPUR April 1 - Sixty environmental officials and experts from 10 Asian countries opened a meeting here Tuesday to address issues on sustainable development goals and national priorities. The three-day Asia Meeting on Efficient Clean Development Mechanism (CDM) Operations served as a platform for South-South partnerships through information and knowledge-sharing. The director-general of the Economic Planning Unit (EPU) in the Prime Minister's Department, Datuk Seri Iskandar Dzakurnain Badarudin, said that the Malaysian government had set up a National Committee on Clean Development Mechanism to form a suitable framework in line with the CDM operations.

He told Bernama after opening the meeting that it focussed on two areas - energy and forestry. The CDM is one of the mechanisms under the Kyoto Protocol of the United Nations Framework Convention on Climate Change (UNFCCC) adopted in December 1997, which provides for an innovative way for cooperation between industrialised nations and developing countries to achieve climate protection. Iskandar said that the Malaysian National Committee would carry out the planning and implementation in the country once the country's framework was established and agreed upon. The highlights of the meeting are the country presentations on their respective experiences with CDM namely on structure and roles of the designated national authorities responsible for coordinating the activities.

Many of the participating countries are aware of the importance to devise effective strategies and policies to meet their respective countries' needs. The forum will deliberate on the processes and procedures of evaluating CDM activities and the sustainable development indicators and criteria for CDM project proposals that are relevant to local needs and challenges. It also aimed to direct private sector investments into emission-reduction projects in developing countries while promoting sustainable development. One of the assistance that the countries could use to support their CDM operations was the Prototype Carbon Fund (PCF), a public-private partnership aimed at catalyzing the market for project-based greenhouse gas emission-reductions. The PCF was launched by the World Bank in 2000. "The World Bank tries to demonstrate how to create an effective way, inform international communities, the developers, the countries how they can work easily ..." said Charles Cormier, senior training specialist in the World Bank Institute after the opening ceremony.

16) MORE OIL, LESS CO2

Bellona

April 1, 2003

Internet: <http://www.bellona.no/en/energy/hydrogen/29199.html>

During the Bellona Hydrogen Workshop in the EU parliament March 20th, Michael Austell of the INCO2 presented experiences from the US that indicates CO2 storage could give Norway more oil and gas. The workshop was arranged by Bellona and Member of Parliament Claude Turmes, and focused on the possibilities of CO2 storage in relation to the production of clean hydrogen. Bellona had invited expert J. Michael Austrell from INCO2 to lecture on the CENS project (CO2 for Enhanced oil recovery in the North Sea). The CENS project is owned by ELSAM, Denmark's largest producer of electrical power, and Kinder Morgan, a US energy company with vast experience in CO2 transport. The project is aiming to prepare for a CO2 infrastructure in the North Sea.

In the US the experience with CO2 injection is extensive, and CO2 has been used in the oil industry for almost 40 years for Enhanced Oil Recovery (EOR). The primary goal has never been to store CO2, but to take advantage of its ability to increase oil production. For this reason CO2 occurring in natural underground deposits has been primarily used. This is transported to oilfields where it is injected as a supercritical liquid in order to pressure up more oil. The largest CO2 pipeline network in the US is almost 1500 km long. The pipeline in the US is in a comparable scale to what is needed in the North Sea.

CO2 storage started in the US in the seventies because production started to drop and the oil prices were increasing. This situation is now taking place in the North Sea in relation to the oil production. The drop in oil production in the UK started two years ago, and is expected in the Norwegian sector within two years time.

Austell said that when pumping oil only 20-25% of the content in the field is produced in the first round. Then water is injected into the field to get up an additional 15-20% under secondary production. If CO2 is used as a third step one can pump up 6-15% of what originally was in the field. Austell says this means a 10-30% increase in the overall oil production from a field. This could lead to more vulnerable areas being spared from oil drilling. Today it is common to use natural gas to maintain pressure in the wells in the North Sea. Nearly half of the natural gas pumped up in the Norwegian sector is pumped back into the wells. A considerable part of this will not be possible to regain, he claims.

ELSAM is the owner of modern coal driven power plants in Denmark. These have an expected lifespan of 25-35 more years, and will continue to pump CO2 into the atmosphere as long as coal is being burnt. If these emissions are handled one can trap and deposit 90% of the amount of CO2 created. By handling the CO2 from two of Denmark's power plants, one captures half of the emissions required for Denmark to reduce, in order to fulfil their Kyoto-protocol. It is not only CO2 from combustion that is important to store. Just as important is the CO2 that naturally is coming up from the oil- and gas wells. On the Sleipner-field in the North Sea, Statoil deposits annually ca. one million ton CO2. Simple maths shows that this is equivalent to 2% of Norway's GHG emissions, and between a fourth and a third of what Norway must reduce before 2010.

Even if CO2 leads to increased oil production, it does not add up if a value on avoiding CO2 emissions is not set. Austell mentions the Norwegian CO2 tax as one instrument to value the sequestered CO2. The CENS project is of the opinion that the value of avoiding CO2 emissions needs to be 20 - 25\$ pr. ton, before CO2 for EOR is financially sound. Austell closed his lecture by saying CO2 capture and storage is a tool to use while we wait for renewable systems to be built, and as long as we burn oil and coal. Austell estimates this to go on for another 25-35 years from existing facilities, but he says others are of the opinion that we will use coal long after this. The hydrogen society will evolve through first decarbonising fossil fuels that will require the storage of CO2 in geologic formations like oil and gas fields, he says. But once the hydrogen and CO2 infrastructures are built, the transition to renewable sources directly producing hydrogen will be much easier.

17) BRITAIN'S GREENHOUSE GAS EMISSIONS FELL LAST YEAR

Planet Ark

March 31, 2003

Internet: <http://www.planetark.org/dailynewsstory.cfm/newsid/20306/story.htm>

LONDON - Britain's emissions of greenhouse gases fell by 3.5 percent last year, keeping the country on track to meet its own pollution targets and those set out in the Kyoto Protocol on global warming, the government said. The drop in emissions, the first decrease for two years, was the result of lower energy consumption, due partly to warmer weather, said the Department of Trade and Industry (DTI) in a statement. The government's Climate Change Policy and more efficient use of energy had also played a role, the DTI said. "These figures are a real boost showing we are on track to break through our Kyoto targets, and on course to meet our Energy White Paper aim to cut the UK's carbon emissions by 60 percent from current levels by 2050," said energy minister Brian Wilson in the statement.

Britain's Kyoto target is to cut greenhouse gas emissions by 12.5 percent from 1990 levels by 2012. Data on last year's emissions levels suggested the proportion of Britain's electricity generated from renewable energy sources like wind and solar had risen to three percent from 2.8 percent in 2001, the DTI said. Britain sees greater use of renewable power as crucial to curbing carbon dioxide emissions. It wants renewables to produce 10 percent of the country's power by 2010, a target some analysts consider too ambitious in the face of problems gaining planning permission and financing for projects such as windfarms.

18) SCIENTISTS AWED BY CLIMATIC EFFECTS ON CROPS

Independent Online

March 31, 2003

Internet:

http://www.iol.co.za/index.php?click_id=31&art_id=qw1049096165864B252&set_id=1

Palo Alto - Climate trends have significantly affected crop yields in the United States, scientists believe. Researchers found that corn and soya bean production was boosted by warm, dry years in some areas and cool, wet years in others. When climate trends were removed from the equation, yield increases from improved management practices were 20 percent lower than previously thought.

David Lobell, one of the scientists at the Carnegie Institution of Washington in Stanford, California, said: "We found that climate is a surprisingly important factor in crop yield trends. Most future projections of food supply are based on recent trends in crop yield growth, ignoring the effects of climate. But our study shows that recent trends in climate have actually helped farmers' yields, so in terms of management we may not be doing as well as we have thought."

The researchers, who reported their findings in the journal Science, studied data on temperature, rainfall, sunlight, and crop yields throughout the US from 1982 to 1998. They found a region in the Midwest where yields increased during cooler, wetter years, and a smaller region including the Northern Great Plains where they rose during hotter, drier years. Fellow researcher Gregory Asner said if global warming increased temperatures in the principal corn and soya bean areas of the Midwest, the region's crop yields would be expected to fall. "According to our calculations, we can expect a 17 percent decline in yield of these crops for a one degree increase in growing-season temperature," he said. - Sapa-DPA

19) COMMISSION RESEARCH ON 'GREEN' PROCUREMENT POINTS THE WAY FOR LOCAL AUTHORITIES

Cordis

March 31, 2003

Internet: http://dbs.cordis.lu/cgi-bin/srchidadb?CALLER=NHP_EN_NEWS&ACTION=D&SESSION=&RCN=EN_RCN_ID:20001

EU funded research into the benefits of environmentally friendly procurement by Europe's local authorities has shown that if every public body switched to renewable electricity sources, the reduction in greenhouse gas emissions alone would be equal to 18 per cent of Europe's total obligation under the Kyoto protocol. This is just one example of the benefits highlighted by the RELIEF project, which is setting guidelines for local authorities to adopt a more environmentally friendly approach to the purchase of electricity, construction, information technology equipment, food and public transport.

The project is funded under the energy, environment and sustainable development section of the Fifth Framework Programme, and involves six local authorities in Denmark, Germany, Hungary, Sweden and Switzerland. EU Research Commissioner Philippe Busquin explains: 'Thanks to this data, public administrations can begin to make informed choices about their responsibility to the environment and to citizens' quality of life.'

The study, which runs until September 2003, not only seeks to highlight the environmental impacts of eco-friendly buying, but also the financial gains. The local authorities involved found that aside from the obvious benefits to the environment, eco-friendly products also proved to be high quality and cost effective. For example, the bodies concerned noticed significant savings on their energy bills after switching to renewable sources of electricity, and organic food in staff canteens proved to be as cheap as traditional food.

In order to drive home the benefits of such approaches, the RELIEF research team transferred the data of from their findings into 'person equivalents'. As a result, local authorities can see that if they all switched to renewable electricity, greenhouse gas emissions would be reduced by an equivalent of over seven million Europeans. Equally, the introduction of water saving taps and flushes across Europe would reduce water consumption equivalent to that of more than three million people, and providing organic food in all public canteens would represent a relief on water and soil equivalent to the impact of a city the size of Berlin, around 3.5 million people.

But the RELIEF researchers don't believe that the benefits would stop there. Using the example of energy saving computers, they say that a switch to such equipment in public bodies would reduce greenhouse gasses equivalent to that of 100,000 citizens. However, the high level of public procurement of computers would mean that such a move would push suppliers towards offering more and more green devices, and could result in a tenfold indirect reduction of greenhouse emissions. The challenge now for the RELIEF team is to promote the findings of their work, which they intend to do through training sessions, information dissemination, networking and joint procurement programmes across Europe.

The initiative will also be presented at the EcoProcura conference in Gothenburg, Sweden, from 8 to 10 September. 'The challenge for the public authorities now is to integrate the environment into their procurement policies, and to use their purchasing power to set a benchmark for suppliers [...] and set an example to private consumers,' said Mr Busquin. For further information, please consult the following web address:

<http://www.iclei.org/europe/ecoprocura/relief/index.htm>

20) EMISSIONS-TRADING GROUP SET TO LAUNCH

Globe and Mail

March 31, 2003

Internet:

<http://www.globeandmail.com/servlet/ArticleNews/TPStory/LAC/20030331/RCHIC/Environment/Idx>

WASHINGTON -- A year and a half ago, Bill Hamlin was shopping around for a crash course to prepare his company for the Kyoto Protocol. As head of environmental policy and emissions trading at Manitoba Hydro, he wanted the provincially owned utility to gain some real world experience -- to get its hands dirty in the business of buying and selling pollution. "We were looking for some practical experience in the pre-Kyoto period, especially in terms of how trading works and in the actual physical trading of emission reductions," Mr. Hamlin said. His search led him to a new U.S. pilot project called the Chicago Climate Exchange.

This spring, Manitoba Hydro will join a dozen other North American companies -- along with the City of Chicago -- in the startup of the world's first voluntary, market-based trading scheme to reduce greenhouse gas emissions. Ottawa is planning a similar, but government-mandated, system to help Canadian businesses reach the targets set out in the Kyoto treaty. "When we heard about the Chicago Climate Exchange and began talking with them, it was a good fit right from the beginning," Mr. Hamlin said. "We thought these folks were serious about solving environmental problems through market mechanisms."

The exchange, set to begin operations before the end of June, will allow participants to share the burden of meeting emission-reduction targets by buying and selling credits. Participants have already vowed to cut their emissions of six greenhouse gases by 1 per cent a year from a common baseline -- an average of their total output between 1998 and 2001 -- in each of the next four years. Companies can meet the reductions by making their operations more efficient or by logging on to the on-line exchange and purchasing greenhouse gas credits from other companies that have credits to spare. Ford Motor Co., Motorola Inc., E.I. du Pont de Nemours & Co. and American Electric Power Co. Inc. -- the largest power generator and the No. 1 greenhouse gas emitter in the United States -- are among the inaugural members.

Many more are waiting in the wings, according to exchange founder Richard Sandor. "We're in dialogue with approximately 80 different companies," said Mr. Sandor, an economist who teaches at Northwestern University in Chicago. "They are mainly American, but there are some significant Canadian and Mexican companies and Europeans with a North American presence." Mr. Sandor said the motives for signing up vary from company to company. Some want to persuade shareholders and customers that they are environmentally friendly; others have operated under a similar, but more constrictive, government-regulated cap-and-trade regime in Britain; and others, like Manitoba Hydro, want to learn the ins and outs of emissions trading before governments begin to regulate.

E.I. du Pont, for example, seeing the Kyoto Protocol on the horizon, decided to dole out between \$10-million (U.S.) and \$20-million a pop for pollution abatement systems in four of its plants, including one in Maitland, Ont., said David Findlay, vice-president of infrastructure at DuPont Canada Inc. The factories produce adipic acid -- a key ingredient of the nylon used in everything from carpets to car airbags. The factories used to churn out the potent greenhouse gas nitrous oxide, but the new systems trapped it inside massive columns and used a chemical reaction to break down the potentially damaging gas into harmless nitrogen and oxygen. "The primary motivation was to get more pro-active around environmental issues and to be in the forefront of the thinking and development of the solutions to these problems, rather than waiting for legislation to tell us what to do," Mr. Findlay said.

Then, of course, there is the looming burden of the Kyoto Protocol. Although the United States pulled out of the Kyoto treaty in March, 2001, many of the U.S.-based parties to the Chicago exchange have branches in Kyoto-signatory countries and want to prepare their entire operations to comply with its standards. For Canadian firms that fear they won't be able to keep pace with U.S. competitors that don't face the same standards, the Chicago system provides some comfort that American companies will bridge the gap on their own. But Don Dewees, an economist at the University of Toronto, warns that the Chicago group's commitments to reduce emissions are paltry when compared with Kyoto's stringent requirements.

"Does it give some comfort [to Canadian companies]? Yes. Does it level the playing field? No," Mr. Dewees said in an interview. Under Kyoto, Canada has committed to cutting emissions to 6 per cent below 1990 levels by the period between 2008 and 2012. With normal economic growth, the actual cuts needed will be closer to 25 or 30 per cent below 1990 levels, Mr. Dewees said. The Chicago participants lag far behind with their plans to cut a total of 4 per cent from an average of their 1998-2001 emission levels by 2006. But the Chicago group is getting into an increasingly popular game early. With Kyoto as the driving force behind it, there has been a brisk trade in the credits since the mid-1990s. Between 1996 and 2002, the nascent global emissions trading market saw contracts signed to trade 200 million tonnes of emissions with a total price tag of \$300-million to \$500-million, according to the World Bank. As Kyoto's rules come into sharper focus, the World Bank expects that market to skyrocket. Mr. Dewees said he doubts the Chicago exchange's voluntary system will work. "In most cases, voluntary actions turn out not to be enough. For problems we're seriously concerned about, ultimately we need to regulate."

21) OFFSHORE WIND IS KEY TO UK'S KYOTO REQUIREMENTS

SolarAccess.com

March 31, 2003

Internet: <http://www.solaraccess.com/news/story?storyid=3982>

Fleets of wind turbines located miles off the coastline of Britain will make a crucial contribution to the nation's energy future said Energy Minister Brian Wilson. Speaking at British Wind Energy Association's Offshore Wind 2003 conference held recently in London, the Energy Minister pledged strong support for the offshore wind industry, which would provide the key to meeting the government's environmental targets.

"The latest figures will show there was a significant drop in CO2 emissions last year," Wilson said. "Since 1990 our CO2 emissions have fallen by nine percent, and this is in spite of rising energy consumption and economic growth of over 30 percent. These figures confirm that economic growth need not be at the expense of the environment, and that we are on course to meet our Kyoto targets on combating global warming."

"However, there is no room for complacency," Wilson said. "The White Paper has set us on the target of cutting carbon emissions by 60 percent by the year 2050. We need a much bigger contribution from Renewable Energy, and there is ample evidence that the biggest new contributor to our renewables target is going to be offshore wind." The Minister underlined the Government's backing for offshore developments, with the announcement of £42 million (US\$66 million) in capital grants for projects around the British Isles:

- £4 million (US\$6 million) to National Wind Power for the Rhyl Flats project, North Wales;
- £10 million (US\$15.7 million) to Warwick Offshore Wind for the Barrow Offshore project, Cumbria;
- £10 million (US\$15.7 million) to GREP UK Marine for the Kentish Flats project, North Kent;

- £18 million (US\$28.3 million) to Offshore Energy Resources and Solway Offshore for the Robin Rigg project, Solway Firth.

These projects are among seven sites to have been awarded planning consent from the 19 identified for offshore development by the Crown Estate. Together the projects will create more than 500 wind turbines, generating 1,500 MW of electricity - or 1.5 percent of the UK's energy needs. The Minister used his speech as an opportunity to outline how the Department of Trade and Industry (DTI) would be allocating the bulk of the £60 million (US\$94.5 million) in additional funds promised for renewables in the Energy White Paper - with offshore projects receiving £40 million (US\$63 million). But Wilson warned there were "major obstacles" to be addressed if the UK was to grasp the benefits. One of the most significant of these was transmission, he said, with Britain needing to be 're-wired' to adapt to the age of renewables.

"Infrastructure is all," Wilson said. "There is no point in generating power unless we can ensure that it is capable of being carried to the markets which require it. The regulatory system must help our aspirations for Renewable Energy and not place obstacles in its way. I have no doubt that the private sector has the will to invest in renewables generation but they also have the right to expect that the regulatory framework will deliver the necessary investment to extend and update the grid, as a great national obligation."

22) REPORT CITES GLOBAL WARMING, URGES INDUSTRIAL NATIONS TO ACT NOW

Oakland Tribune

March 30, 2003

Internet: <http://www.oaklandtribune.com/Stories/0,1413,82~1865~1282713,00.html>

To avoid the dangers of global warming, the world's industrial nations must start producing at least three-fourths of their energy without releasing carbon dioxide pollution, a team of climate experts reported Friday in the journal *Science*. The study is one of the first to delve into the uncertainties of how much greenhouse gas the earth can handle before significant warming occurs, and the implications of those uncertainties for energy policy. Lead author Ken Caldeira, a climate modeler at Lawrence Livermore Laboratory, said the study suggests the United States and other nations will have to deploy wind turbines, nuclear power plants and carbon-capturing schemes at least 25 times today's rate.

After rejecting mandatory reductions of greenhouse-gas emissions under the Kyoto Treaty, the Bush administration has favored voluntary reductions to levels that will slow but not stop the accelerating buildup of carbon dioxide in the atmosphere. But the United States still is obligated under the 1992 U.N. Framework Convention on Climate Change, signed by President George H.W. Bush, to stabilize greenhouse gases in the atmosphere "at a level that would prevent dangerous anthropogenic interference with the climate system." The debate on balancing global warming and economic growth has been frustrated not just by overwhelming reliance on burning fossil fuels but on uncertainty in how much added carbon dioxide would cause "dangerous interference."

Most of the reason lies in the clouds. Clouds are a major mechanism for climate change, yet today's computer simulations of climate can't describe what they are doing in sufficient detail, Caldeira said. In the end, that means that when scientists double the amount of carbon dioxide in the atmosphere, they can't be certain whether the temperature will rise 2.7 degrees Fahrenheit or 8 degrees, or somewhere in between. So Caldeira and fellow climate scientists Atul Jain of the University of Illinois at Urbana-Champaign and Martin Hoffert at New York University looked at the best- and worst-case scenarios. They examined the mix of polluting and non-polluting energy sources one would need to keep the climate stable.

For the most conservative scenario, in which thousands of tons of added carbon dioxide translate into only a little warming -- about 3.6 degrees Fahrenheit, more than three-fourths of the nation's energy will have to come from non-polluting sources to stabilize the climate within this century. That amount of warming over 150 years translates into poleward migration of climate bands, with their associated ecosystems, at a rate of 25 feet a day, Caldeira said, in effect, the reverse of an Ice Age. If carbon emissions result in greater warming, about 8 degrees, then all of the world's energy will have to come from sources that do not emit carbon dioxide. "So in the long term, regardless of how sensitive climate is to CO2, we need to significantly reduce emissions below today's emission rates," Caldeira said. "We do know enough about climate today to say we need to make a transition to non-CO2 producing systems."

No such technologies are ready, however, for large-scale deployment at low cost, the study said. Given that it tends to take almost 50 years for new energy technologies to be developed and embraced in the market, the study suggests urgency. "We need to develop appropriate energy technologies now," the authors wrote. "I think wind has the potential to play a major role," Caldeira said. "The big problem with wind is it's intermittent." Nations also will have to look at replacing coal-burning plants with nuclear plants. Caldeira said that will require solving problems with waste disposal and increasing the world's stock of nuclear-weapons materials. In the meantime, scientists are looking at trapping carbon dioxide from power plants, cars and other sources, then stashing it in deep geologic caverns or in the ocean. So far, the environmental impacts and the likelihood of keeping the carbon dioxide locked away are unclear.

23) KYOTO PROTOCOL IS INEFFECTIVE AND EXPENSIVE

Rosbalt

March 29, 2003

Internet: <http://www.rosbaltnews.com/2003/03/29/61985.html>

MOSCOW, March 29. According to the opinion expressed at the 4th international conference entitled 'Russia's Participation in the Global Market Mechanisms under the Kyoto Protocol' by Nikolai Ratsiborinsky, an Advisor of the Foreign Ministry of Russia, Kyoto Protocol is ineffective and expensive.

Mr. Ratsiborinsky said that the Kyoto Protocol had been created in order to use market mechanisms 'to force world economy to switch to expensive cleaner technologies'. 'Overall', he continued, 'this is an ineffective and expensive mechanism intended to offset our common misfortune.' He added that despite the fact that this protocol had been ratified by 106 countries, 'there is no global effect'. Over 70 its members are developing countries incapable of serious commitments and sticking with common as opposed to individual responsibility, which is nothing. Such giants as the US and Australia have abandoned the protocol. 'This does not mean', Mr. Ratsiborinsky said, 'that Russia must also stay away from the Kyoto Protocol. It means that our country should cooperate with the US, Australia and developing countries to improve the situation'.

24) EU ENERGY TAXES WILL HAVE LITTLE IMPACT – BUT SHOULD US IMPORTS ALSO BE TAXED?

Edie weekly summaries

March 28, 2003

Internet:

http://www.edie.net/gf.cfm?L=left_frame.html&R=http://www.edie.net/news/Archive/6799.cfm

Finance Ministers have finally agreed on an EU energy taxation directive to curb the use of fossil fuels and encourage sustainable transport. But a European campaign group warns the directive is so watered down it will have little effect on energy prices and consumption. And with the US opting out of the Kyoto Protocol, will the EU have to consider border taxes to adjust for higher energy costs for its exports compared with lower ones for US imports? European Fiscal Commissioner Frits Bolkestein has declared his delight that the Council has finally reached an agreement on minimum taxes for energy, which will now be passed through the European Parliament.

The directive, which will enter into force in January 2004, will reduce distortions between taxes imposed in different Member States, and will even out taxation across oil, carbon, natural gas and electricity. The scheme is designed to allow the EU to slowly raise energy taxes across the board, but will also permit exemptions and discounts for energy intensive industries, renewable energy and sustainable transport. However, the European Environmental Bureau says it is deeply disappointed by the agreement, which has taken six years to come to fruition. The original proposal has been "drastically watered down" with a long lists of rebate and exemptions, effectively resulting in a directive that does no more than correct the EU minimum rates agreed in 1992 for inflation, says the EEB.

The campaign group is calling on the European Parliament to demand that some tax exemptions and some transition periods are lifted, and that a periodical rate review mechanism is clearly provided by the directive. Meanwhile, the Global Governance Project has released a new report, Implementing the Kyoto Protocol Without the United States: The Strategic Role of Energy Tax Adjustments at the Border. The report explores the possibility that the EU might have to set border energy taxes for US imports to compensate for much lower energy prices in the US, or set special rebates on energy-intensive EU exports to the US to adjust for higher energy prices in Europe, in particular for countries that are actively implementing the Kyoto Protocol.

Although the EU will have good justification for implementing measures such as an energy-added tax, with US energy prices likely remain a fifth to a third lower than EU ones, the EU is likely to come up against the World Trade Organisation's dispute settlement system following protests from other WTO members, says the report. But under the GATT agreement, the EU could argue that border taxes were necessary for exhaustible resources or for the protection of human health, according to two of GATT's articles.

25) IOWA TO HOST WORLD'S LARGEST WIND FARM

ENS

March 27, 2003

Internet: <http://ens-news.com/ens/mar2003/2003-03-27-09.asp>

DES MOINES, Iowa, March 27, 2003 (ENS) - A electricity company partly owned by billionaire Warren Buffett plans to build the largest wind farm on land anywhere in the world. A site has yet to be selected for the \$323 million wind project, but it will be somewhere on the windy expanse of northwest or northcentral Iowa. If approved by state agencies, the 310 megawatt project would be built by MidAmerican Energy Co. Based in Des Moines, Iowa, MidAmerican Energy is a unit of MidAmerican Energy Holdings Co., the majority of which is owned by Buffett's holding company Berkshire Hathaway Inc.

Information from the Department of Energy's National Renewable Energy Laboratories shows MidAmerican's new wind project with its 180 to 200 turbines will be the largest land based wind energy installation in the world when it is completed in 2006. Although wind is an intermittent generation source, MidAmerican said 310 megawatts of wind capacity provides enough electricity on average to power approximately 85,000 homes. The project is

in line with Iowa Governor Tom Vilsack's goal of making Iowa energy independent and a national leader in renewable energy. "I have challenged regulators, business professionals and utility companies in Iowa to work toward achieving 1,000 megawatts of renewable energy by 2010, which will require the addition of more than 500 megawatts of renewable energy facilities," Vilsack said. "I am pleased that MidAmerican is taking a leadership role in that effort."

MidAmerican also announced a plan to freeze its Iowa electric rates through 2010, while developing and constructing two other major generation projects already in progress. When the wind project is complete, MidAmerican Energy will own or have under contract in Iowa more than 435 megawatts of wind, biomass or hydroelectric energy - or 43 percent of Vilsack's goal of 1,000 megawatts of renewables. Iowa currently produces more than 400 megawatts of renewable energy, and the governor says Iowa is third in the nation, behind California and Texas, in the production of wind energy. "Environmentally friendly wind energy is available in abundance in northwest and north-central Iowa," said Floyd Barwig of the Iowa Energy Center in Ames. "I applaud MidAmerican for tapping into this natural resource and for seeking environmentally sound solutions to our state's growing energy needs."

26) CHINESE AND GERMAN COOPERATE IN WIND POWER PROJECT

China Peoples Daily
March 27, 2003

Internet: http://english.peopledaily.com.cn/200303/27/eng20030327_114085.shtml

A group of 50-plus Chinese and German experts, along with decision makers, gathered in Beijing Wednesday to discuss a pioneering wind power project in Central China's Hubei province, reported Thursday's China Daily. A wind power station will be constructed in Qiyue Mountain area in Lichuan County, 720 kilometers west of provincial capital Wuhan. The project is in cooperation with the German government under China's Clean Development Mechanism (CDM), said the paper.

The CDM, created as part of the Kyoto Protocol in 1997, aims to lower the overall cost of reducing greenhouse gas emissions released into the atmosphere, and to support sustainable development initiatives within developing countries. As the most populous developing nation in the world, China is cooperating with many foreign countries and international institutions to seek feasible ways of implementing CDM projects, and the utilization of renewable energy including wind power has top priority.

The wind power project in Hubei is the first one of its kind being prepared under the framework of the CDM, sources with the CDM said. With financial support from the German Ministry of Economic Cooperation and Development, a three-year study of wind conditions in Lichuan, which found the region has great potential for wind power projects, has resulted in plans for the construction of a medium-sized 20 million watts wind station. The station is subsequently to be expanded by an additional 50 million watts if warranted, said the paper. About 400 million watts of wind power capacity have been developed around China. In 2005, it will expand to 1.4 billion watts.

27) COUNCIL DECIDES KYOTO DOESN'T GO FAR ENOUGH

Vancouver Sun
March 26, 2003

Internet: <http://www.canada.com/vancouver/news/story.asp?id=E497DFB9-4C31-406B-B0C3-227460EE9E29>

The city of Vancouver is aiming to reduce greenhouse gas emissions by 20 per cent over the next decade -- well above the requirement of the Kyoto Protocol on global climate change. City council voted 10-1 Tuesday to find ways to reduce emissions in the city to 20 per cent below 1990 levels and set up a committee to oversee the task. Under the Kyoto Protocol, the federal government pledged Canada to cut greenhouse gases, blamed for accelerating climate change, to six per cent below 1990 levels by 2010.

But Dave Rudberg, head of the city's engineering department, told council that has been a challenge. "You would think a six-per-cent reduction would be fairly simple; however, we haven't done very well since 1990," he said. "In fact, there's been a 12-per-cent increase." He said the city's vehicle fleet is the biggest generator of emissions, but his department is looking at ways of reducing the number of cars and experimenting with electric and "hybrid" (gas and electric) vehicles -- one of which is being tested by Mayor Larry Campbell.

28) U.S. SCIENTISTS STORE HEAT-TRAPPING CARBON GASES UNDER GROUND

US State Department

March 25, 2003

Internet: <http://usinfo.state.gov/cgi-bin/washfile/display.pl?p=/products/washfile/topic/global&f=03032501.ggi&t=/products/washfile/newsitem.shtml>

The U.S. Department of Energy (DOE) has begun the first major field experiment in the United States to test whether underground geologic formations can be used to store heat-trapping greenhouse gas emissions, isolating them permanently from the atmosphere. According to a March 21 press release, over the last year researchers injected approximately 2,100 tons of carbon dioxide -- a potent greenhouse gas -- into a depleted oil reservoir of the Strata Production Company near Hobbs, New Mexico. The quantity of carbon dioxide injected in the New Mexico project is comparable to a single day of emissions from an average coal-fired power plant.

The researchers will now monitor the injected carbon dioxide plume as it "soaks" into the reservoir rock over the next 60 to 90 days. They will continue to monitor any changes in the mineralization of the rock for the next year. Scientists do not have good field data on how long the carbon dioxide is likely to remain in the reservoir or what physical or chemical changes might occur in the reservoir rock. The New Mexico project complements a larger sequestration field test under way at the Weyburn oil field in southeastern Saskatchewan, Canada, where DOE is joining more than 15 government agencies, universities and research institutions from around the world to monitor the capacity, movement and fate of carbon dioxide injected into a producing oil reservoir.

Carbon sequestration is a rapidly advancing area of study that has been singled out by President Bush as one of the most promising approaches for reducing the emission of greenhouse gases in the atmosphere. Information on DOE's Sequestration R&D Program can be found at the following Web site:

http://www.fossil.energy.gov/coal_power/sequestration/index.shtml

29) MINISTER STRESSES THE NEED TO CURB GLOBAL WARMING

Kenyan Broadcasting Corporation

March 24, 2003

Internet: <http://www.kbc.co.ke/story.asp?id=16053&categoryID=1>

Africa has been named as the most vulnerable continent from the impact of climatic changes brought about by global warming. The Minister for Environment Dr. Newton Kulunda said there was an urgent need to reduce the level of carbon dioxide in the atmosphere to reduce the threat posed by global warming.

Speaking during the World Meteorological Day celebrations in Nairobi, Dr. Kulundu said the increase in atmospheric concentration of green house gases had led to the threat of climate change. He lauded the National Meteorological and Hydrological Services for contributing effectively to socio-economic development in all relevant sectors including food, security, water resources and mitigation of natural disasters. He said his ministry was committed in afforestation and reafforestation of arid and semi arid areas to help curb environmental degradation. Dr. Kulundu said more than 70% of natural disasters in the world are related climate and weather.

30) CHANGES IN CLIMATE TO TRIGGER HEALTH PROBLEMS

People's Daily
March 24, 2003

Internet: http://english.peopledaily.com.cn/200303/24/eng20030324_113886.shtml

Global warming could greatly threaten people's health and daily life in the future, meteorologists said Sunday, which was World Meteorological Day. They noted that 40 to 50 percent of the world's population might be affected by some insect-transmitted diseases such as malaria and dengue fever in the future as the climate turns warmer. Global warming may bring rise to more plant diseases and insect pests in hot and humid areas, where people's health would be under great threat, especially in densely-populated areas, meteorologists said. "Changes in temperature and rainfall might probably change thoroughly the distribution of infectious diseases and viruses and enable them to extend to high-latitude areas and influence more people," said Zhu Changhan, chief research fellow on climate effects with China's National Climate Center.

Professor Ding Yihui, special adviser on climate changes with the China Meteorological Administration (CMA), shared a similar perspective with Zhu. "The discomfort brought to human beings by climate changes will also encourage the spread of some diseases, or even lead to death," Ding said. Analysts said people in developing countries will be subject to greater health threats in time of warming, considering their lack of medical facilities and medicines. "Global warming would bring its most negative consequences to the health of those living in impoverished areas," Ding added. More hot days are waiting ahead worldwide as the trend of global warming continues, incurring more heat-related diseases and deaths, according to the CMA.

However, global warming will reduce cold stress in temperate countries but increase their heat stress, said Godwin O.P. Obasi, secretary-general of the World Meteorological Organization. Experts said the warming climate would also reduce the mortality of people in middle to high latitudes caused by chilly cold during the winter. "Any changes in climate lay profound effects on the health, living environment and the daily life of people," said CMA Director Qin Dahe. "We have no time to lose to protect the global climate," he said.

31) THINGS HOTTING UP, SAYS GAS MAN

NZ Herald
March 22, 2003
Internet:

http://www.heraldsun.news.com.au/common/story_page/0,5478,6166720%255E421,00.html

AMID all the uncertainties of climate and global warming, Australia's pre-eminent meteorologist yesterday declared two certainties. Most of Australia would get hotter, and the greenhouse effect of a doubling in carbon dioxide concentration would cause global mean temperatures to rise by 1.5 to 4.5 degrees Celsius. John Zillman, outgoing director of the Bureau of Meteorology and leader for the past decade of Australia's delegation to the Intergovernmental Panel on Climate Change, said the scientific evidence of global warming was consistent and unarguable, despite the distortions of environmentalists and business.

"We are certain the world as a whole has got warmer, and we are pretty certain this is largely due to the greenhouse effect," Dr Zillman told a World Meteorological Day lecture in Melbourne. "The amount of global warming to be expected by the end of the century, as a result of greenhouse gas build-up, will significantly depend on the way that the major greenhouse gas-emitting countries respond individually and collectively to the threat of climate change." Dr Zillman, director of the Bureau of Meteorology since 1978, criticised the IPCC for failing to address the scientific basis for determining at what level greenhouse gas emissions interfere with climate and become dangerous. The IPCC had avoided such statements, believing them to be political. He also believes the recent drought was caused by natural variability of climate, rather than global warming, and that Australia should now concentrate on more effective management of its variable climate.

32) COMMISSION TO HELP DEVELOPING COUNTRIES MEET THE CHALLENGE OF CLIMATE CHANGE

Europaworld

March 21, 2003

Internet: <http://www.europaworld.org/week121/commissiontohelp21303.htm>

The European Commission has adopted a strategy to help developing countries meet the challenges posed by climate change. In its Communication entitled "Climate Change in the context of development co-operation", the Commission proposes an EU action plan aimed at integrating climate change concerns into EU development co-operation activities. Commenting on the adoption, EU Commissioner for Development and Humanitarian Aid Poul Nielson stated, "Climate change is as much a development problem as it is an environmental problem. Its adverse effects will disproportionately affect poorer countries with economies predominantly based on natural resources.

What's more, the ability of developing countries to adapt to climate change is undermined by a lack of financial resources, adequate technology and stable and effective institutions. The Commission is committed to assisting developing partners in reconciling their legitimate needs for economic development with the protection of the environment and sustainable use of resources. We believe the best way to do this is by addressing climate change concerns within EU development co-operation activities in complete coherence with the overarching objective of poverty reduction."

Environment Commissioner Margot Wallström added: "The developing countries are the most vulnerable to climate change and therefore deserve our full support in addressing this threat. The Kyoto Protocol offers them opportunities to combine efforts to combat climate change with the objective of economic development through the Clean Development Mechanism, as well as additional funding for measures to reduce emissions, adapt to climate change and build capacity. Our strategy today shows that we are willing to go further by making climate change an important cross-cutting objective for our development co-operation policy."

The Commission is proposing a strategy that assists EU partner countries in meeting the challenges posed by climate change, in particular by supporting them in the implementation

of the UN Framework Convention on Climate Change and the Kyoto Protocol. The Communication argues that climate change concerns and its potentially disastrous long term implications on, for example health, sustainable livelihoods and economic development in developing countries, need to be fully mainstreamed into EU development co-operation. Climate change concerns must be addressed, and it can and should be done in a way that is coherent with the overarching objective of poverty reduction. Beyond development co-operation, addressing climate change concerns is an integral part of the EU strategy for sustainable development as expressed before, during and in follow-up to the World Summit on Sustainable Development.

Four strategic priorities are identified: (i) Raising the policy profile of climate change, both among EU development policy makers and practitioners and in EU partner countries, (ii) Support to EU partner countries for adaptation to the adverse effects of climate change, (iii) Support to EU partner countries for mitigation of emissions of greenhouse gases causing climate change, and (iv) Capacity development in EU partner countries. The associated action plan translates the strategic recommendations into concrete actions whilst placing the emphasis on adaptation to climate change, capacity development and research.

Over 100 countries have by now ratified the Kyoto Protocol, including the European Community and its Member States as well as many developing countries. The Kyoto Protocol will enter into force once Russia has ratified. It offers important opportunities for sustainable development in developing countries through the so-called Clean Development Mechanism. It allows emission reductions through investments in developing countries to be credited to the investor in an industrialised country thereby providing an incentive for investments in developing countries. In the context of the Kyoto Protocol, three new funds will be created under the UN's Global Environment Facility to support climate-related measures in the developing countries, and the EU and several other developed countries have pledged €450 million per year by 2005 in additional support. Through this Communication, the Commission invites the European Parliament, Member States, civil society and other stakeholders to contribute to the formulation and implementation of a coherent and co-ordinated EU approach to climate change in the context of development co-operation.

See Also:

EU Climate Change Strategy Aids Developing Nations, ENS, March 18, 2003
<http://ens-news.com/ens/mar2003/2003-03-18-01.asp>

33) NO DUTCH MONEY FOR BUJAGALI DAM

All Africa
The Monitor (Kampala)
March 21, 2003
Internet: <http://allafrica.com/stories/200303210654.html>

The Dutch government has rejected a bid to buy the carbon credits from the Bujagali project. AES corporation, the developers of the project could have used the funds to finance its construction, which has been marred by controversy. The money would have been paid under the Clean Development Mechanism (CDM). Countries signatory to the Kyoto protocol are required to pay for carbon credits as a commitment to reduce global emissions. Last year AES proposed to the Dutch government to recognise the project as a source of carbon credits under the Clean Development Mechanism.

A Dutch government institution SENTER, sent officials here last year to access the project potential. PricewaterhouseCoopers was also contracted to carry out an independent audit of the project. SENTER had said it was ready to pay over \$6.5m per 1,000 tones of carbon for

10 years starting 2006. Mr Pieter van Geel, State Secretary for Housing, Spatial Planning and the Environment approved 18 climate projects in developing countries on 13 March. Bujagali was not among them. Efforts to talk to SENTER officials were futile but CDM officials said SENTER cited the controversy the project would have attracted. "The Dutch have decided not to contract Bujagali as a CDM project. Their explanation was that the "baseline" was not rigorous enough, but they were also worried about the controversy that the project would have attracted," Mr Ben Pearson an official from CDM said in an email.

The approved projects will now be submitted to the CDM Executive Board of the United Nations Convention on Climate Change (UNFCCC), for approval and registration, so that transaction of emission reductions can take place. This final step will take another six to nine months, SENTER said on their website. The World Bank also signed a \$4m similar deal with the West Nile hydropower project last year.

34) 'LIVING WITH FLOODS'

BBC

March 21, 2003

Internet: <http://news.bbc.co.uk/2/hi/science/nature/2869659.stm>

Several governments in the monsoon region of South East Asia have revised their official flood policies in order to promote the positive aspects of flooding. Floods are traditionally thought of as the most devastating of natural disasters, and this has led to policies of total flood prevention being attempted. But this can be highly costly, and could get ever more so with the more frequent and widespread flooding that might occur as a result of global warming. China spent more on flood defences between 1999 and 2003 than it had in 30 years previously. But now they have changed their view, stating earlier this year that "total flood control is not possible". And Vietnam's Rural and Agriculture Ministry has gone a step further - the country's official policy is now one of "living with floods".

FISH STOCKS

"The flood is only a disaster when it is too early, or too much, or doesn't come at all," Pham Thanh Hang, programme officer of the UN Development Programme, told the Third World Water Forum in Kyoto, Japan. She said the flooding of the Mekong was an essential part of life in rural Vietnam, providing the water from which the country's staple rice crop was grown. And after the Tonle Sap lake floods every year, the amount of fish obtained account for 10% of the country's entire GDP. Consequently, the government has been taking a number of measures to minimise the worst effects of floods, rather than simply trying to prevent them occurring at all. These have included schools built on stilts 10 metres into the air, and providing swimming lessons to children and parents.

URBAN ACTION

Ms Pham said that this was already having an effect. The number of children killed in flooding in 2002 was only just over 100, compared with above 500 in the 2000 floods. The shift in South East Asia from "flood management to flood control" has been backed by the Asian Development Bank (ADB). "Floods are only disastrous when people and property are in the way," Ian Fox, the principal project specialist at the ADB, told the forum. He said that while urban areas still needed high standards of flood protection, he argued for only minimum measures in rural areas, in order to "maximise the benefits of floods".

35) RUSSIA SET TO SIGN KYOTO PROTOCOL

ABC News Online

March 20, 2003

Internet: <http://www.abc.net.au/news/newsitems/s811071.htm>

Labor's Environment Spokesman, Kelvin Thompson, says he has met the Russian ambassador in Canberra to show Labor's support for Russian plans to ratify the Kyoto Protocol. Mr Thompson says the ambassador has told him the protocol will be signed at a conference on climate change in Moscow later this year. The Government has rejected ratifying the protocol because it believes the agreement is not in Australia's interests. Mr Thompson says Russia holds the key to the future of the protocol. "When Russia ratifies the protocol it will come into effect legally because it will meet both the criteria for the number of countries ratifying, we're already there, and the criterion for the percentage of greenhouse gasses emissions put out by the various countries," he said. "So Russia has assumed a pivotal role in this regard and I'm keen to see Russia ratify the protocol in order that it comes into force."

Mr Thompson says Australia's refusal to ratify the agreement on climate change has left it isolated from the views of the rest of the world. "I believe that this indicates again that Australia is out of step with attitudes towards the Kyoto protocol," he said. "It is only the United States and Australia of all the countries that are failing to support it."

36) GLOBAL GREENHOUSE AFFECTS AIR PRESSURE

Nature

March 20, 2003

Internet: <http://www.nature.com/nsu/030317/030317-6.html>

Global warming is redrawing the isobars on weather maps. Researchers have found that changes in air pressure over the past 50 years bear the fingerprint of human influence. This is the first report of a human effect on barometers, rather than thermometers. Most climate scientists agree that greenhouse gases produced by human activity have warmed the planet over the past century. Nathan Gillett of the University of Victoria, Canada, and his colleagues have shown that there is also a greenhouse effect on air pressure.

Changes in air pressure could have a big effect on climate. Air pressure controls the atmosphere's circulation, and therefore influences how moisture moves. Changes in circulation can alter rainfall, temperature, winds and storminess. For instance, changes in an air-circulation pattern called the North Atlantic Oscillation have been implicated in recent increases in rainfall over Scotland, reduced rain in Spain, and a drop in the number of cold snaps in France. These trends, and their impact on climate, could be stronger than we thought. Computer simulations of climate have underestimated the size of the change in air pressure, the researchers found.

PRESSURE SITUATION

The researchers studied records of air pressure at sea level dating back to 1948. They looked at three independent sets of measurements, and found that these data sets agree. Average air pressure has risen over the past five decades in the subtropical North Atlantic Ocean, southern Europe and North Africa. In other regions, such as the poles and the North Pacific Ocean, the pressures have dropped. "These trends will tend to make winters warmer, wetter and windier in northwest Europe", says Gillett. "Winters in much of western Canada and the USA will be milder, southern Europe will be drier, and Labrador and Greenland will have colder winters." These changes, in themselves, do not prove that emissions of greenhouse gases are to blame. They could be caused by natural variations in the Earth's climate.

To investigate whether human activities were the cause, Gillett's team compared their observations to four computer models of global climate. For each model, they simulated changes in greenhouse-gas concentrations and the amounts of dust in the atmosphere formed from sulphur-containing gases. Dust alters climate by scattering sunlight and influencing cloud formation. The models' predictions of air-pressure changes matched those from the real world - as long as human-induced greenhouse-gas emissions were included, the researchers found. Without these emissions, the two maps did not match. Models and measurements showed the same pattern of changes, but models underestimated their size.

37) WORLD WIND POWER MKT SEEN GROWING 11 PCT/YR TO '07

Reuters

March 20, 2003

Internet: <http://www.forbes.com/markets/newswire/2003/03/20/rtr912768.html>

COPENHAGEN, March 20 (Reuters) - The global wind power market is expected to grow by an average of 11.2 percent a year in the coming five years, independent Danish wind power consultancy BTM said in an annual industry survey issued on Thursday. Wind power accounts for less than one percent of global energy supply but the sector is growing fast as countries try to reduce greenhouse gas emissions, which many scientists say cause global warming. Production of wind power is expected to expand 24 percent this year to 8,965 megawatt (MW).

Looking beyond 2007, BTM said it expected wind power to account for nearly two percent of the world's electricity consumption by 2012. "Major drivers are economics, flexible mechanisms related to the Kyoto Protocol and an increase in electricity consumption," it said. BTM said a record 7,227 MW of wind-power capacity was installed worldwide in 2002, taking total capacity to over 32,000 MW, enough to power 16 million average European homes. Europe is still the driving force in the industry, accounting for 85.4 percent of global installed wind power MW in 2002. In the coming five years BTM expects Europe to decrease its share to 71 percent of the total 83,000 MW capacity seen available. Forecasts for the United States were more uncertain.

The U.S. market has slowed due to the uncertain status of the wind energy production tax credit (PTC), a key federal tax incentive to promote wind power. The world's five biggest wind turbine makers account for 75.6 percent of the global market, according to 2002 data. Denmark's Vestas Wind Systems <VEST.CO> lost nearly two percentage points of the world market to 22.2 percent, while Germany's privately owned Enercon's share grew to 18.5 percent from 15.2 percent in 2001. Denmark's NEG Micon <NEG.CO>, came in third with 14.3 percent, up from 12.8 percent. Spanish Gamesa <GAM.MC> was the world No. 4 wind turbine maker with a market share of 11.8 percent, up from 9.5 percent in 2001 while GE Wind, part of General Electric (nyse: GE - news - people), lost nearly four percentage points to 8.8 percent

38) REPORT WARNS OF THE HIGH COST OF CLIMATE CHANGE

Business Day

March 18, 2003

Internet: <http://www.bday.co.za/bday/content/direct/1,3523,1307737-6094-0,00.html>

CAPE TOWN Climate change looks set to cost the world an estimated \$300m a year, says a report by the World Conservation Union. This figure is equivalent to more than double SA's total national output last year. The scale of the problem is such that dealing with it can no longer be left to experts and scientists alone, the union says. The new report launched at the

Third World Water Forum, being held this week in Kyoto, Japan says "widespread involvement of society" is needed to cope with the growing uncertainty about future impacts of climate change. "Climate change already shows its impacts in increased climate variability. Reducing glaciers, thawing permafrost and changing rainfall patterns are already resulting in widespread damage, as the recent floods in Europe have shown. "The annual damage that may be incurred was recently estimated at \$300bn per year," the report says.

According to union adviser Brett Orlando, uncertainties about the effects of climate change are great. "Science alone cannot deal with this. To adapt to climate change, we need coalitions of politicians, scientists, managers and civil society to assess risks and identify responses," he said. Sapa-AFP

39) PASSENGERS FACE 'GREEN TAX' ON AIRLINE FUEL

Independent

March 15, 2003

Internet: <http://news.independent.co.uk/uk/transport/story.jsp?story=387242>

Britain took the first step on the road to taxing air travel for its contribution to global warming yesterday when the Treasury published a document discussing the idea. Although such a tax, which would mean a big rise in ticket prices and would hit low-cost airlines severely, is a long way off, the Government's decision to begin talking about it is significant. The move is in response to one of the biggest complaints of environmental scientists and campaigners – that governments across the world refrain from taxing aviation fuel, yet aircraft exhaust emissions are contributing more and more to the greenhouse effect. Carbon dioxide and other greenhouse gases from aircraft are not covered by the Kyoto Protocol, the international treaty governing efforts to fight climate change.

The document, Aviation and the Environment: Using Economic Instruments, published jointly with the Department for Transport, recognises that air transport has real environmental costs. Greenhouse gases from British airlines cost the country £1.4bn in 2000, which will rise to £4.8bn by 2030. UK civil passenger aviation produced 30 million tonnes, or 5 per cent, of Britain's carbon dioxide in the year 2000. By 2020 this will have gone up to 55 million tonnes, or between 10 and 12 per cent. The document invites opinions on how economic measures – such as taxes, trading permits, auctions of landing slots and government grants – could be used to encourage the industry to take more account of its environmental impact.

The Treasury stressed it was purely a "discussion document". A spokesman said: "We come with a totally open mind. There are no pre-conditions." Norman Baker, the Liberal Democrat environment spokesman, said: "This represents what is potentially a hugely significant change, and could be the first step to taxing aviation fuel, which is long overdue. Frankly, airliner tickets are too cheap." The responses will feed into the Air Transport White Paper, due later this year, which is to set out a "sustainable" aviation policy for the next 30 years. The Government has made proposals for increasing airport capacity in the South-east that have attracted criticism from environmentalists. "The Government should have looked at how to make the air industry pay for some of the enormous environmental damage it causes before it began its consultation on building new airports," Paul De Zylva of Friends of the Earth said. The aviation industry said higher taxes could harm the economy if they led to higher travel costs and a fall in demand. The Freedom to Fly Coalition, representing airlines, airports and trade unions, said £1bn of environment costs were already taxed via air passenger duty.

40) OIL GIANTS LEAD PUSH FOR KYOTO

The West Australian

March 14, 2003

Internet: <http://www.thewest.com.au/20030314/news/state/tw-news-state-home-sto91356.html>

CANBERRA. BP AND Shell head a list of eight leading Australian companies calling on the Federal Government to ratify the Kyoto Protocol. The two oil giants outlined their support in an unofficial survey of Business Council of Australia members released by Greenpeace yesterday. Of the 54 companies who returned the survey, eight were in favour of ratification and seven - including WA companies Woodside Petroleum and Western Power - said they did not support a change in the council's position, which at the time of the survey was opposed to ratification. The protocol is designed to restrict industry emissions to counter global warming. The influential business lobby group adopted a neutral stance towards Kyoto on February 28.

Twelve companies, including BHP Steel, ANZ and Qantas, said they were still developing their position and 27 declared themselves neutral. Australia's Kyoto Protocol target is to restrict emissions to 108 per cent of 1990 levels by 2008. Australia and the United States are the only developed nations that have not yet committed to ratifying the protocol, which is expected to come into force later this year with the ratification by Russia. The Federal Government argues that the exclusion of the US and developing countries in the protocol means ratification will cost jobs and hurt industry. However, in their responses to Greenpeace, Shell and BP threw their weight behind ratification. "Presently, the Kyoto Protocol is the only global game in town and it is likely to remain so for some time, despite its recognised deficiencies," Shell's response says. "Starting the process again would delay action for another decade and leave the world with an even larger legacy to tackle (and) we are pleased that the protocol looks likely to enter into force in the near future."

Greenpeace campaigner Gareth Walton said the survey showed only "a small group of companies with vested interests in fossil fuels and mining" were opposed. But business council greenhouse task force chairman Meredith Hellicar said the finding was inaccurate. "There is no single sector that has a unified view," she said. Leaked correspondence between BCA members shows some companies, including Esso and Boral, believe that publicly supporting Kyoto would run the risk of marginalising the BCA's influence within Government. Western Power spokesman Peter Winner said its view on Kyoto was more neutrality than opposition.

41) FINLAND'S GREENHOUSE GAS EMISSIONS SURGE IN 2002

Planet Ark

March 14, 2003

Internet: <http://www.planetark.org/dailynewsstory.cfm/newsid/20153/story.htm>

HELSINKI - The level of Finland's greenhouse gas emissions rose to a record high in 2002, partly due to a dry summer and autumn which reduced the use of hydropower, Statistics Finland (SF) said yesterday. According to preliminary data from the national statistics bureau, Finland's level of carbon dioxide emissions grew by three million tonnes in 2002 to 63 million, exceeding the Kyoto Protocol target by 17 percent or nine million tonnes.

"The growth in emission was mainly caused by lower production of hydropower and this being compensated for with electricity production with coal and peat," said SF in a statement. The data showed that production of hydropower slumped 18 percent in 2002, mainly due to low water reserves. Non-renewable fossil energy remained at more than half of the total energy used, while renewable energy totalled 23 percent, the data showed. The Kyoto Protocol has set a target to cut greenhouse gas emissions in 2008-2012 to the 1990 level.

42) CHINESE WIND FARM MAKES KYOTO PROFITS FROM DUTCH

Planet Ark

March 14, 2003

Internet: <http://www.planetark.org/dailynewsstory.cfm/newsid/20156/story.htm>

BEIJING - A wind farm in Inner Mongolia yesterday became the first Chinese renewable energy project to be selected by the Dutch government to help reduce the world's air pollution under the 1997 United Nations Kyoto Protocol. By producing electricity without emitting greenhouse gases such as carbon dioxide, then selling the credit it gets for keeping the air clean to the Dutch, the Huitengxile wind farm, northwest of Beijing, will pay for its own expansion. "At the moment that they prove they've reduced emissions, we'll begin to pay," the Deputy Manager of Carbon Credits at the Netherlands Ministry of Economic Affairs, Egbert Liese, told Reuters.

The Netherlands yesterday approved the first overseas sustainable energy projects it will fund in order to cut greenhouse gases under the Kyoto protocol. The Dutch will purchase emission credits through the 18 projects, which aim to cut carbon dioxide emissions by more than 16 megatonnes, the environment ministry said in a statement. Apart from China, the 18 projects which focus on sustainable energy and clean technologies, will take place in Bolivia, Brazil, Costa Rica, El Salvador, India, Indonesia, Jamaica and Panama. Under the 1997 Kyoto Protocol, countries are allowed to fund projects such as wind parks, biomass-powered energy plants and solar energy projects in developing countries and get credits toward up to half their goal in cutting emissions. The Dutch have undertaken to cut greenhouse gas emissions by six percent versus the level in 1990, during the period 2008 to 2012, with half the decrease realised outside the Netherlands.

China gets about 70 percent of its energy from burning coal making it home to some of the world's most polluted cities. China, as a developing nation, is not bound by the goals for restraining carbon dioxide emissions laid out in the Kyoto agreement, but Chinese support is crucial for its survival. It is the world's second largest producer of carbon dioxide emissions, and the United States, the greatest emitter of greenhouse gasses, has long cited the fact that China is not bound by the protocol as one reason why it will not ratify the deal.

43) GLOBAL WARMING IS DEPLETING OUR WATER SUPPLY

Independent Online

March 14, 2003

Internet:

http://www.iol.co.za/index.php?click_id=143&art_id=qw1047624660396B251&set_id=1

Hong Kong - Finding ways of combating worldwide water shortages caused by global warming is one of the questions expected to top the agenda at the third World Water Forum which gets underway on Sunday. Record droughts have parched crops, decimated flocks and turned once-picturesque landscapes to desolate brown as scientists warn that climate change will strain already limited fresh water supplies. "Water supplies are falling while the demand is dramatically growing at an unsustainable rate," the United Nations said in a report released to mark the International Year of Freshwater, ahead of Sunday's conference in Kyoto, Japan.

Global warming will in the future be responsible for one-fifth of global water scarcity because of its impacts on rainfall patterns, with more frequent and longer-lasting droughts baking wider expanses of land, the UN said in its report. A 2001 report by the Intergovernmental Panel On Climate Change (IPCC) found that the average surface temperature of the Earth has increased by 0.6°C over the course of the 20th century, which has led to a decrease in snow and glacier cover. And while precipitation has increased by half a percent per decade over

most of the middle and high latitude regions of the Northern Hemisphere, increases in rainfall in tropical countries are not evident.

"Over the 20th century there were relatively small increases in global land areas experiencing severe drought or severe wetness," the IPCC wrote. "In some regions, such as parts of Asia and Africa, the frequency and intensity of droughts have been observed to increase in recent decades." Such droughts have compounded the already dire circumstances for millions, many of whom live in arid climates and under impoverished conditions that limit their access to fresh water. A dry rainy season in eastern Ethiopia, for example, has threatened the lives of more than one million people - many of them children - as there is no way to irrigate even subsistence crops. Efforts to rebuild the central Asian nation of Afghanistan after 23 years of war have also been made more difficult by drought, with the water table in the capital, Kabul, dwindling at a rate of one metre every year. The UN has set itself a goal of reducing by one billion the number of people with limited access to fresh water by 2015, and ways of achieving that target will be discussed at the Kyoto forum. - Sapa-AFP

44) BP CUTS EMISSIONS BY 14PC IN SHARJAH OPERATIONS

Gulf News

March 14, 2003

Internet: <http://www.gulf-news.com/Articles/news.asp?ArticleID=80600>

Energy major, BP, slashed greenhouse gas emissions at its Sharjah operations by 14 per cent in 2002. Globally, it has overall reduced such emissions by 10 per cent, eight years ahead of the schedule it set for itself shortly after the 1998 Kyoto accords. Cost savings totalling \$600 million have also been effected globally, through improvements in efficiency, technology, and better energy management, the company said.

In Sharjah, real sustainable reductions in the third and fourth quarters of 2002 were achieved through a 'fuel gas to air' project, stated spokesman Reda Mohammed. "This saw all the fuel gas that was being vented into the atmosphere at wells, chemical injection pumps and wellhead actuators being ceased forever," he said. "This eliminated the last remaining significant sources of methane gas in Sharjah — a benefit that will also appear in the first three quarters of 2003."

Other initiatives here included the optimisation of a high pressure flare and reduction of purge gas to an old acid gas flare. Another scheme, named the compressor seal gas recovery project, has also helped cut methane emissions. The company's reduction in methane gas emissions has been a notable 35 per cent since 1998. Significant cuts in the emission levels of carbon monoxide, sulphur oxide, carbon dioxide and nitrogen oxide have also been achieved. "Our achievements in cutting emissions was not the result of a single initiative, but hundreds of different improvements carried through by our employees across operations in over 100 countries," noted Dr Michael Daly, Mideast president.

For instance, in Abu Dhabi, Adco has slashed methane emissions by 85 per cent after changing its corrosion inhibition pumps last year to solar powered electric motors. They were earlier driven by methane. Explaining the policies driving the energy major's environment policy, Dr Daly explained: "At its simplest level, it is akin to the owner of a lorry that belches black smoke thinking he is saving money by not having it fixed — but not only is this bad for the environment, but also represents faulty economising due to the wasted fuel, decrease in efficiency, wear and tear on the engine, and inevitable breakdown costs. "What we have done is to apply this same principle across all of our operations: refineries, chemical plants, ships, and even in our offices." Dr Daly also stressed the company's long-term commitment to continual reductions in greenhouse gas emissions, clarifying this is not a one-off project but an ongoing pledge that it is being adhered to around the globe

45) DUTCH ANNOUNCE FIRST CO2 TRADING PROJECTS FOR KYOTO

Planet Ark

March 14, 2003

Internet: <http://www.planetark.org/dailynewsstory.cfm/newsid/20152/story.htm>

AMSTERDAM - The Netherlands yesterday approved the first overseas sustainable energy projects it will fund in order to cut greenhouse gases under the Kyoto protocol. The Dutch will purchase emission credits through the 18 projects, which aim to cut carbon dioxide emissions by more than 16 megatonnes, the environment ministry said in a statement. The 18 projects which focus on sustainable energy and clean technologies, will take place in Bolivia, Brazil, China, Costa Rica, El Salvador, India, Indonesia, Jamaica and Panama.

Under the 1997 Kyoto Protocol, countries are allowed to fund projects such as wind parks, biomass-powered energy plants and solar energy projects in developing countries and get credits toward up to half their goal in cutting emissions. The Dutch have undertaken to cut greenhouse gas emissions by six percent versus the level in 1990, during the period 2008 to 2012, with half the decrease realised outside the Netherlands. A ministry spokeswoman declined say what the Netherlands would pay to fund the projects.

See Also:

Netherlands Approves 18 Climate Friendly Projects, ENS, March 13, 2003

<http://ens-news.com/ens/mar2003/2003-03-13-04.asp>

46) SHELL CHIEF DELIVERS GLOBAL WARMING WARNING TO BUSH IN HIS OWN BACK YARD

The Guardian

March 12, 2003

Internet: <http://www.guardian.co.uk/business/story/0,3604,912523,00.html>

Shell chairman Sir Philip Watts risks stirring up a controversy in America today when he calls for global warming sceptics to get off the fence and accept that action needs to be taken "before it is too late". At a presentation in Houston, the back yard of ExxonMobil, one of the most vocal antagonists to the Kyoto climate change treaty, the British oilman will say "we can't wait to answer all questions [on global warming] beyond reasonable doubt", adding "there is compelling evidence that climate change is a threat".

Sir Philip expresses deep concern about the growing gulf between Europe and America over climate change and other issues - most notably Iraq. His purpose, he says, is not to create further discord but to argue for both sides to work together to remove what he describes as "the lingering animosity". Shell and BP have been keen over the past couple of years to be seen as progressive on green issues while ExxonMobil has been labelled a fossil fuel dinosaur by environmentalists. President Bush refused to sign the Kyoto protocol on global warming and Texas - based ExxonMobil has been a significant cheerleader for this position - although it, too, has been researching renewable technologies.

Sir Philip's speech at the opening of a new Shell Center for Sustainability at Rice University in Houston shows the group's determination to be seen as a moderniser. "We know that greenhouse gas emissions from human activities ... largely burning fossil fuels ... bring about long-lasting atmospheric changes likely to affect climate. And our world does appear to be warming. "There are huge uncertain ties about the risks and the impact. Further research is essential. But we can't wait to answer all questions beyond reasonable doubt. There will always be uncertainty which we need to cope with."

Shell has "seen and heard enough" to believe there is a problem related to the burning of fossil fuels. Because of this "we stand with those who are prepared to take action to solve that problem ... now ... before it is too late ... and we believe that businesses, like Shell, can help to bridge differences that divide the US and Europe on this issue". Shell has been pushing ahead with its own investments in wind, solar and other renewable fuel sources but still believes that hydrocarbons will not become scarce at least until 2025 - and probably quite long after that. And Sir Philip argues that "sustained expansion of renewable energy" will only start after developments in energy storage around the same period of 2025. It will be only by the middle of this century that renewables will take a serious grip on energy supply, possibly providing a third of the world's needs by 2050.

Sir Philip argues there is no quick fix, with many hurdles to overcome before renewables can offer affordable mass energy. "Flying over for this speech, I had the distinct impression that the Atlantic is getting wider. Today the focus of that rift is on Iraq. But differences over environmental issues have hardened attitudes," Sir Philip argues. "With a \$30bn footprint in the United States and a similar presence in Europe, we have a vested interest in the best possible relations on both sides of the Atlantic," he adds.

47) CONCERNS ABOUT CLIMATE CHANGE NOT CONFINED TO SCIENCE AND TECHNOLOGY - MINISTER

Daily News

March 12, 2003

Internet: <http://www.dailynews.lk/2003/03/12/new22.html>

My concerns about climate change are not only confined to science and technology. I represent an electorate in Central Part of Sri Lanka and I have shared the frustrations of our people when they lose their harvest due to unpredictable weather patterns. I have shared even greater miseries of people, which are indirectly caused by changes in climate such as flash floods and landslides, which are becoming more and more common in some parts of my electorate said the Minister of Science and Technology Keheliya Rambukwella.

He made these observations when he made the keynote speech during the banquet hosted in connection with the Intergovernmental Panel on Climate Change (IPCC) Expert Consultative meeting on the subject of Climate Change and Sustainable Developments in the IPCC AR 4. Minister Rambukwella said he is privileged to address a gathering to discuss a set of recommendations for action in order to mitigate adverse effects of climate change, Action to be taken for a better tomorrow, actions to safeguard the people. A commitment every human being owes to the society and he wishes to place on record that the guidance and recommendations is being eagerly awaited.

He added as a layman to this deep and important subject, he wishes to inform that Sri Lanka too have been in the forefront of problems due to climate change. Long drought periods, gusty winds, heavy rains, flash floods, coastal erosion, bleaching of corals are all beginning to plague our country and its people and in turn their lives. The green mantle that provided a buffer between us the living organisms and adverse effects of climate changes have gradually dwindled down leaving us totally exposed and vulnerable to the naked blasts and ill effect of climate change. Climate change was coming for along time. Minister Rambukwella also said in the past we did not take it very seriously. It has now come to a point that we cannot ignore it any longer as it has now reached alarming and unacceptable limits. It has unfortunately started affecting us at a time when we are also making serious efforts to deal with other aspects of our civil society which are also equally important.

In addition to the foregoing, the spread of epidemic diseases, vector born diseases, problems of pests and diseases, drop in crop production, Bio-diversity, drop in hydro-power production

have all reached alarming proportions and we are beginning to feel very tired and only to realise that the available capabilities and methodologies are inadequate to cope with the situations - leave aside mitigation. While some of us understand a few adverse effects of climate change, there are many others, a large component of our society who live in rural areas, who have little or no knowledge of these problems that are global in nature.

They have not the slightest knowledge that these will soon affect them more than many others who possess technological capabilities in dealing with such situations. We believe the agenda you produce for partner countries as a result of this consultation will embody convening senior scientists in these Technical and Technological areas to combat identified priority areas for action. His Ministry will give the necessary leadership to co-ordinate a National Program and he wished to place on record that he will be personally interested in providing the necessary Political leadership to such an action oriented programme.

48) NZ PLAYS ROLE IN RESEARCH TO IMPLEMENT TRADE IN KYOTO CREDITS

Stuff

March 12, 2003

Internet: <http://www.stuff.co.nz/stuff/0,2106,2323532a7693,00.html>

New Zealand's Energy Federation is co-ordinating World Energy Council (WEC) research to reduce greenhouse gas emissions in the Asia Pacific region. The first study in the programme involved promoting foreign investment in the Tararua Windfarm Project in return for carbon credits. Future studies are likely to allow wealthy nations to earn "credits" for greenhouse gas reductions by helping poor countries with energy projects that reduce emissions. Energy Federation chairman Rob Whitney said the government's allocation of carbon credits to Trustpower's proposed 36 megawatt (MW) extension of its existing 32MW Tararua wind farm and to a new 40-80MW wind farm proposed by Meridian was a positive result from this research.

The research was carried out for the Energy Federation by CRL Energy Ltd, the former research arm of state coal company Solid Energy, which is itself being separately funded by the Government to find ways to produce hydrogen from coal efficiently. Mr Whitney said the New Zealand Government decision to provide carbon credits to the two wind farms would pave the way for other greenhouse gas reduction projects around the Pacific. Energy Minister Pete Hodgson said earlier this week the wind farms would create electricity without the release of harmful greenhouse gases caused by gas and coal-fired power stations. It was unlikely the wind farms would be economically viable if carbon credits were not provided, but they could deliver emissions reductions of up to one million tonnes of carbon dioxide between 2008-2012. The two projects will roughly triple New Zealand's current wind generation capacity of just under 40MW.

Dr Whitney said that CRL Energy investigated whether the Tararua project could proceed using a Kyoto Protocol mechanism that allowed for carbon emission credits to be sold to overseas investors as soon as the New Zealand Government develops policies to allocate carbon credits. "These wind farms and any future New Zealand projects ... to reduce greenhouse gas emissions can now become a reality," he said. Promissory notes for Kyoto Protocol emission units would be allocated to the companies financing the wind farms, depending on the final amount of generation involved. CRL Energy was already tackling the next study on behalf of the Energy Federation and WEC – a wind farm in the Northern Philippines and a geothermal plant in the Southern Philippines.

This study was looking at using a fast-track clean development mechanism (CDM) to provide developing countries with credits for reducing emissions in small scale projects for up to

15MW energy generation. CRL Energy would calculate and validate the carbon dioxide emission reductions and evaluation of the proposed fast-track process. The two projects will be discussed with Philippine government officials later this year. "Both projects are expected to generate carbon dioxide savings by displacing coal, oil and other fossil-fuel generations," Dr Whitney said in a statement. If approved, the certified emission reductions could then be sold to developed countries to help finance the projects and help the developed country meet its Kyoto targets, said the leader of the CRL Energy analysts, John Kessels.

49) PLAN TO STORE GREENHOUSE GAS EMISSIONS UNDERGROUND

ABC News Online

March 11, 2003

Internet: <http://www.abc.net.au/news/newsitems/s803348.htm>

Geoscience Australia (GA) says it may be possible to store greenhouse gas emissions from Australia's power plants and gas fields underground. GA spokesman Dr John Bradshaw says 65 potential sites have been found across Australia where carbon dioxide can be safely injected and stored. Dr Bradshaw says the space is large enough to store 1,600 years of annual gas emissions giving Australia time to develop new technologies. He says the gas can be stored in a liquid state. "What we are doing will be injecting it into similar reservoirs which will be deep saline water-saturated reservoirs and the Co2 will dissolve into the formation water in the reservoirs and/or mineralogically change within those reservoirs and be trapped permanently," Dr Bradshaw said.

50) DEVELOPING COUNTRIES VULNERABLE TO CLIMATE CHANGE - EXPERTS

Daily News

March 10, 2003

Internet: <http://www.dailynews.lk/2003/03/10/new15.html>

The three-day International Expert Conference on "Climate Change and Sustainable Development" of the Intergovernmental Panel on Climate Change (IPCC) concluded in Colombo on Friday with a Public Symposium where the highlights of the consultation was shared with the public. The experts meeting noted that poorer developing countries would suffer more from the impacts of extreme weather events and that developing countries like Sri Lanka was highly vulnerable to the consequences of climate change. Dr. Rajendra Pachauri, Chairman IPCC addressing a media briefing before the concluding sessions said that the meeting was in the process of developing the Fourth Assessment Report which would encompass within its structure integration of key linkages between climate change and development (including poverty and equity issues).

Dr. Pachauri also said that if steps are not taken to address the main contributory factor, namely greenhouse gases (GHGs) the global temperature could increase causing a sea-level rise by about 50 cm by 2100. Though Sri Lanka has been traditionally a model of sustainable development, there are factors within, which are extremely vulnerable to the future impacts of climate change and needs to be addressed. Prof. Mohan Munasinghe, Vice Chairman of IPCC and Energy Advisor to the Government of Sri Lanka said that there were five sensitive areas for Sri Lanka which would have an impact due to Climate Changes, i.e. Crops and Agriculture; Water Resources; Coastal Zones with potential sea level rise where erosion will be under threat; Extreme Weather situations with increased possibility of more droughts; Vulnerability to Malaria and other water-borne diseases.

Professor Munasinghe also noted that Sri Lanka on its part have already taken steps to cope with Climate Change impacts to the development sectors such as agriculture, plantations,

forestry, tourism etc. through mitigation and adaptation. Dr. Martin Parry and Dr. Bert Metz, Co-Chairmen respectively of Working Groups 2 and 3 of IPCC also addressed the media briefing. The Expert Meeting was organised for the IPCC by the Munasinghe Institute for Development (MIND) and the Department of Meteorology.

OPINIONS/STATEMENTS

51) EQUITY KEY TO CLIMATE ACTION by Kenichi Oshima

The Asahi Shimbun

April 4, 2003

Internet: <http://www.asahi.com/english/international/K2003040400273.html>

The author is an associate professor at Ritsumeikan University and guest researcher for The Asahi Shimbun Asia Network

"Preventing dangerous climate change is an equity issue." That was the message in a position paper distributed Oct. 31, 2002, the penultimate day of the United Nations Framework Convention on Climate Changes' 8th session of the Conference of the Parties (COP8) in New Delhi. The paper, headlined "Preventing Dangerous Climate Change," was distributed by the Climate Action Network (CAN), a group of nongovernment organizations worldwide. Emissions of carbon dioxide and other greenhouse gases continue to increase around the world. Unless nations start to cut such emissions in the next 20 years, the paper warns, "The resulting sea level rise over a few centuries could eliminate whole island countries in the Pacific and Indian oceans and elsewhere, and overwhelm Bangladesh."

Developing nations are the main victims of harmful gases, which are released mostly by advanced industrialized nations. To rectify this injustice, and ensure the equity upon which CAN is insisting, countries must take action now. At a minister-level meeting the same day, a German delegate said: "Germany will reduce greenhouse gases by 40 percent from the 1990 level by 2020. We will also provide 1 billion euros to developing countries over five years." Instead of requiring developing nations to cut harmful emissions immediately, the delegate proposed talks on long-term measures. But a number of developing nations refused, saying they weren't even ready to discuss the issue. Developing countries have reason to distrust advanced nations.

The United Nations Framework Convention on Climate Change, signed in 1992, states that developed nations, which have largely created the causes of global warming, have a greater responsibility toward the environment. It called for advanced nations to reduce emissions to 1990 levels by 2000, and provide financial and technological aid to developing countries. Despite these provisions, advanced nations have actually increased emissions by 8.4 percent in the 10 years through 2000, and they have yet to offer sufficient aid to developing countries. Making matters worse, energy consumption is expected to grow in developing nations such as China and India, where economic development has been pronounced. Given the massive amounts already released by developed nations, the Earth can't take much more. The focus of international talks in the wake of COP8 is to create a global framework, one including developing nations, to cut emissions worldwide. The concept of equity will be key in these discussions.

Each nation's contribution to global warming needs to be calculated as accurately as possible. Based on those numbers, each country's responsibility for reducing greenhouse gases should be allocated equitably. Such efforts to create an international consensus based on scientific data have been ongoing since before COP3 in 1997. At the suggestion of Brazil, 13 organizations worldwide divided the world into four regions: OECD countries, the former eastern Europe; Africa, South America and the Middle East; and Asia. According to results announced at COP8, developed nations were to blame for 40 to 50 percent of the world's

emissions. Asia, which accounts for 60 percent of the world's population, was responsible for 25 percent of global emissions. The arguments forwarded and deals struck by developed nations have been far from equitable.

The Kyoto Protocol, signed at COP3, calls for emissions reductions between 2008 and 2012 of 8 percent in Europe, 7 percent in the United States, and 6 percent in Japan, compared with 1990 levels. These numerical targets were determined by political compromise, and are based on no objective data whatsoever. It is my belief that nations should assume an equitable share of responsibility toward the environment. This concept should apply to all environmental problems, not just global warming. Japan achieved rapid economic growth in the 20th century by abusing massive amounts of natural resources throughout Asia and moving factories to other Asian nations. The first step toward equity would be for Japan to study its role in environmental destruction in Asia and take measures to fulfill its obligations to the region.

52) 6 CRITICAL AREAS MITIGATE PACIFIC CLIMATE DISASTERS CONFERENCE WORKS TO BRING SCIENCE, POLICY TOGETHER by Eileen Shea

Pacific Daily News

April 3, 2003

Internet: <http://www.guampdn.com/news/stories/20030403/lifestyle/42875.html>

Eileen Shea is the Climate Projects coordinator of the East-West Center in Honolulu. Previously, she was the founder and executive director of the Center for the Application of Research on the Environment, and served as deputy director of the Climate and Global Change Program of the U.S. National Oceanic and Atmospheric Administration.

Disasters caused by water and weather have increased dramatically over the past two decades, leaving no doubt that the Earth's climate is in a state of flux. In the Pacific region alone, the number of people affected by weather-related disasters has shot up 65-fold in the past 30 years. And until recently, not even scientists understood in detail how these phenomena operated or how to predict them. But now that scientific knowledge regarding climate variability and its effects is advancing so rapidly, Pacific island communities have an opportunity to shape the future. To do so, they must move past being victims and embrace the challenge to be planners who are preparing for the inevitable consequences of climate variability and change.

New knowledge about these phenomena can be put to use only if dynamic partnerships between science and society can be created. Scientists must recognize their obligation to develop information that meets the needs of decision-makers. Public- and private-sector officials must, in turn, make their decisions in light of this new and increasing knowledge. The breakthrough in emphasizing planning rather than reaction was highlighted in two major international conferences that brought together more than 200 scientists, policy-makers, private-industry representatives, academic researchers and other stakeholders.

The result is a planning document called "Preparing for a Changing Climate: The Potential Consequences of Climate Variability and Change for the Pacific Islands." Recognizing that a proactive approach must include specifics on how to improve Pacific islanders' capacity to adapt to a climate in flux, the conferees identified six critical areas in which there are opportunities to build resilience:

* Provide access to fresh water. "Water is gold," observed one Pacific island participant. Measures that address the adequacy and long-term stability of island water resources are critical.

* Protect public health. Even slight changes in climate and the environment can create welcoming conditions for infectious diseases. Priorities: improvement of health-care facilities and related education; emphasis on preventative care; and improvement of water resources and sanitation facilities to eliminate disease breeding grounds.

- * Ensure public safety in extreme events and protect community infrastructure. Moving from reactive disaster-response systems to a comprehensive emergency management approach that is anticipatory.
- * Promote wise use of coastal and marine resources. Management approaches should recognize that ecosystems are dynamic and should be able to respond rapidly to changes in resource abundance.
- * Sustain tourism. The tourism industry depends on the health of an island's natural resources -- coral reefs, forest ecosystems and beaches.
- * Sustain commercial and subsistence agriculture. The participants encourage Pacific islanders to diversify crops, protect against invasive and alien species, establish comprehensive land-use management policies, and develop more resilient agricultural systems that are less susceptible to damage from storm, drought, and salt-water contamination.

Perhaps the most important conclusion reached by the participants was that the process should continue with the goal of developing practical steps to close the gap between climate science and decision-making. A climate risk-management framework would encourage the disaster management community to tackle disaster mitigation and preparedness from a new angle. Climate adaptation should be a central component of sustainable community planning and economic development strategies. Those who acknowledge and anticipate changing climate conditions can plan to adapt to them, thus reducing the vulnerability of Pacific island ecosystems, communities, and businesses.

53) WORLD METEOROLOGICAL DAY 2003 Address by Joke Waller-Hunter Executive

Secretary, United Nations Framework Convention on Climate Change

March 24, 2003

Internet: <http://unfccc.int/press/stat2003/jwh240303.pdf>

Joke Waller-Hunter is the Executive Secretary, United Nations Framework Convention on Climate Change

I am extremely pleased to make a contribution to the celebration of the 2003 World Meteorological Day, an event that each year provides for a moment of reflection around the world, on the purpose of the work performed every day by a very large number of professionals, especially in meteorological and hydrological services. It was the work of these professionals that contributed to the improvement of the quality of weather forecasts, to the better understanding of climate, and then provided the basic data that allowed us to perceive that climate is not only variable, naturally, but also that it is changing in an unprecedented measure due to human action. The patient work of scientists in all countries to push forward the frontiers of predictability of the state of the atmosphere, in addition to the development of the spacebased observational capability and the technological progress in high-performance computing, slowly but surely resulted in the advancement of our capacity to predict the weather and the short term climate variability. It also laid the foundation for the science of climate change.

The World Meteorological Organization and its predecessor, the International Meteorological Organization, have been a most useful forum for the international coordination of meteorological and more recently hydrological activities throughout the world for over a century now. The early realization that weather in any place depends upon what happens in the atmosphere elsewhere in the world has helped greatly in shaping a truly world-wide cooperation, which is the basis for the modern thinking about our climate. The International Geophysical Year in 1958, together with the dawn of the space age, have increased our ability to observe the planet as a whole, and in particular its constantly changing patterns.

It was not long ago that the countries of the world decided to prepare, through WMO, climatological atlases of the world, with the patient compilation of 30 years of data and the manual preparation of maps. Those beautiful volumes somehow conveyed the idea that we finally knew everything about climate that we ever needed to know. At the same time, the World Meteorological Organization in its glossary, has long defined climate as being the statistics of the elements of the atmosphere, without prejudging whether those statistics were stationary in time or not. The ultimate validation of the predictions of climate change must necessarily include the demonstration of our ability to reproduce the recent evolution of climate, including its natural variability and the anthropogenic change resulting from the emission of greenhouse gases at rates higher than nature can deal with. The decision by the Executive Council of the World Meteorological Organization and the Governing Council of the United Nations Environment Program to establish the Intergovernmental Panel on Climate Change in 1988, was a historically decisive one.

There is no doubt that the governments of the world continue to take the work of the IPCC into account while formulating their policy positions regarding climate change. The careful assessments of the status of scientific knowledge made by thousands of scientists working under the framework of the IPCC, have progressively led governments to deal with climate change through a combination of mitigation measures aimed at limiting the anthropogenic change of climate, and adaptation measures aimed at reducing the effects of change. In spite of the on-going debate on how exactly to do this, and most importantly, what should be done by each country, let us recall that the United Nations Framework Convention of Climate Change (UNFCCC), is a very much universal international treaty. This can and should be interpreted as a clear signal of the consensus among the nations of the world that, for the sake of the future generations, we all have a responsibility for working even harder towards the achievement of the ultimate objective of the Convention: "to achieve, in accordance with the relevant provisions of the Convention, stabilization of greenhouse gas 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".

It is evident that the issue of climate change is not a problem that can be solved speedily nor immediately. We know that climate will continue to change, and that efforts will continue to be aimed at mitigating and adapting to it. Still, action is required as a matter of urgency. We now know that the effect of today's greenhouse gas emissions will change the climate many decades into the future, both because of the time lag in the removal of carbon dioxide from the atmosphere and because of the long time it takes to warm the oceans. Conversely, it is also true that current emission reductions will take a long time to limit the change in the climate. Hence action is urgent. We have to develop less carbon intensive means of satisfying our requirements for personal comfort, transportation and mechanical work. This will imply a change in the existing infrastructure in industrialized countries and the choice of a sustainable path for developing countries.

There are many facets to the sustainability of development. Climate change is one of them. While we cannot expect that the core development issues will be solved by climate change policies it is possible to affirm that development policies that do not take climate change concerns into account will turn out to be unsustainable. Successfully dealing with climate change and development hinges on the capacity at the national level to pursue the integrated management of natural resources in the context of development planning. The energy sector is especially critical. Policies here must clearly take into account the requirement for a less carbon intensive energy matrix. For a very large portion of mankind, the availability of fresh water is almost a question of survival. The double challenge of managing increasingly scarce water resources and taking into account the changes in precipitation due to climate change must become an integral part of development policies in the future. The 3rd World Water

Forum has just been concluded in the city that gave its name to the protocol under the convention, Kyoto, a unique opportunity to address inter-linkages.

Much remains to be done, but progress is being made. It is expected that the Kyoto Protocol to the Convention will enter into force this year, in view of the commitment by the Government of the Russian Federation to seek its ratification by Parliament. When this condition is met, the Clean Development Mechanism established by the Protocol will become an important practical exercise in international cooperation aiming at ensuring a more sustainable path of development. Under the CDM, specific projects in developing countries are already being designed. They will assist in promoting sustainable development in these countries. Concurrently, they will contribute to emission reductions that industrialized countries must realize in order to meet their commitments under the Kyoto Protocol. CDM projects have begun to attract the attention of the private sector in industrialized countries. Over time, this project-based experience may naturally become part of development strategies of developing countries. In future, the work of meteorological and hydrological observers, in addition to contributing to better forecasts and therefore to better informed socio-economic development, will be increasingly relevant to reducing the uncertainties on the magnitude of climate change and, very importantly, on the regional aspects of climate change.

Adaptation to climate change will require the forecast of seasonal variability, and its change. Such forecasts currently have very coarse resolution and significant uncertainties at the spatial and temporal scales at which development planning is done. Efforts are urgently required to improve those space and time scales, pushing the forecasts closer to the limits of predictability. Maintaining and improving the observational networks, as well as making sure they evolve to include the variables directly associated with climate change will be a constant challenge to governments. But it is a challenge that must be accepted and dealt with. The ongoing effort to consider the adequacy of the Global Climate Observing System in relation to the requirements of the UNFCCC is receiving increased attention of governments in meetings of the COP and its subsidiaries. The Parties to the United Nations Framework Convention on Climate Change, in its Article 5, engaged in a full participation in the establishment and operation of the Global Climate Observing System (GCOS). The Parties agreed to "...support international and intergovernmental efforts to strengthen systematic observation". In this regard the Convention stresses importance of capacity building in the area of systematic observation, and commits Parties to "take into account particular needs and concerns of developing countries, and cooperate in improving their capacities to participate in the effort" (Article 5).

As a result, the Conference of the Parties to the Convention and its Subsidiary Bodies have repeatedly considered the issue of strengthening the global observing systems relevant to climate change, including the invitation to the Secretariat of the Global Climate Observing System and the agencies participating in the Climate Agenda to undertake various activities to this end. The Fourth Conference of the Parties to the Climate Change Convention, in 1998, was made aware of the fact that the number and quality of atmospheric data from systematic observations were declining. As a consequence, it decided to organize regional workshops, to develop specific proposals to address deficiencies in the climate observing networks, and to identify the capacity-building and funding requirements in developing countries, in order to enable them to collect, exchange and utilize data on a continuing basis in pursuance of the Convention commitments.

Under the United Nations Framework Convention on Climate Change, all Parties are required to submit periodically national communications containing a report of the actions taken to deal with the climate change issue. It is now required that the Parties include, as a specific item, a report on their actions in the development of the Global Climate Observing System. There will be an increasing number of observations, beyond the classical meteorological and hydrological observations, that must become part of the observational routine in the future. In

coordinating the development of the future GCOS, I expect that WMO will help design observational systems that include, for instance, the atmospheric concentration of radiatively active gases and substances, and the amount of carbon that the atmosphere stores in the terrestrial biosphere.

It is of paramount importance that the data not only be collected but also that they be made part of global data sets. The full use of the data can only be ensured after they are fully assimilated with the help of global and regional models of climate change. The rising interest on the part of all countries to learn more about their vulnerabilities in the face of climate change, and the design of strategies to adapt to it can only be satisfactorily fulfilled if there is climatological data for each and every country properly collected and processed. The tradition of WMO in promoting the international exchange of observational data must be put to work to face the new challenges brought about by the emergence of the climate change issue. We know that increasingly stronger measures are necessary, both in mitigating and adapting to climate change. Such stronger measures must be based on the best evidence that can be produced. This will add to the demand for observational data and for modeling results, in support of future negotiations

I am aware of the fact that there is a tradition for the statements made during the World Meteorological Day to be distributed to meteorologists and hydrologists around the world, through the national services. I could not miss this opportunity to commend and to thank the professionals around the world who are today working on taking observations, transmitting them and modeling our atmosphere and oceans. They deserve our highest recognition for the relevance of their work on the issue of climate change and therefore for our common future.

54) WORLD METEOROLOGICAL DAY, Message by H. E. Jan Kavan, President of the 57th Session of the General Assembly

United Nations

March 23, 2003

Internet: <http://www.un.org/ga/president/57/pages/speeches/statement230303-Climate.htm>

Today we celebrate World Meteorological Day and this year the special theme is: "Our Future Climate." Weather forecasting has come a long way in recent decades. It has evolved from guesswork based on human observations to scientific predictions based on observations in space, on the sea and on land. Advances in complex mathematical weather prediction techniques, through computerized collection, processing, and dissemination of meteorological and oceanographic information, have allowed for better precision in the immediate and medium term forecasts. The weatherman of today has the tools to predict the climate in the short run and also the ability to model future climate scenarios. Meteorological data, collected for centuries, are now the fundamental base for predictions regarding our future global climate.

The great importance of monitoring, and managing our climatic conditions is understandable when we consider that natural disasters claim about 250,000 lives annually and cause between 50 to 100 billion dollars in property damage with multifarious direct and indirect consequences. Weather forecasts play an important role in early warning and contribute to disaster mitigation. The World Weather Research Programme, under the aegis of the very successful World Meteorological Organization, continues to expand and deepen its knowledge, thus contributing to the International Strategy for Disaster Reduction. The dedicated work of generations of meteorologists has also produced strong scientific evidence linking the increasing number of certain natural disasters to global climate change.

Although the different aspects of global climate change are questioned and debated at all levels throughout the international community, there is, without any doubt, evidence that the acceleration in climate change patterns is attributable to human activity. Member States, as

well as the international community, now have to deal more and more with extreme weather patterns. Sometimes these events are short-lived, extremely violent and very visible such as floods, extreme winds, heat waves and droughts. But we need to focus our attention also on long-term consequences including the increase in temperature, rise in sea levels and melting of glaciers. So how will our future climate evolve and how will it affect us, if now tens of millions of persons are affected each year by hydro-meteorological disasters and extreme climatic changes, with catastrophic effects in environmental, economic and social terms? And these trends are increasing. It is true that so far one answer to this concern lies in adaptation and in decreasing vulnerability of affected societies. But it is also evident that States have to take definitive steps to reverse the negative trends.

In this regard I would like to refer to the positive achievement of reversing the damage to the ozone layer. This demonstrates that the international community can be successful indeed when working together. International collaboration to manage the damaging emissions of greenhouse gases on our planet will be essential in tackling the question of how our future climate will evolve. We have to seek the active participation of all the 185 Members of the World Meteorological Organization. There is the need to find strategies regarding promising ways of reducing carbon dioxide and other damaging emissions and to develop and adopt renewable energy sources. Because we all know that this issue cannot be left indefinitely blowing in the wind.

55) “OUR FUTURE CLIMATE” WMO CALLS FOR TIMELY GLOBAL ACTION ON CLIMATE

World Meteorological Organization

March 23, 2003

Internet <http://www.wmo.ch/web/Press/Press687.doc>

Geneva, 23 March 2003 – We are all stakeholders in our future climate. It is to the benefit of all nations to work together to better understand our climate in order to adapt to it, and to prevent and mitigate any adverse impact. Recent occurrences of floods, tropical cyclones, droughts and other extreme weather- and climate-related events could well be glimpses of what a change in climate could bring upon us. The future cost of inaction to protect climate is expected to exceed by far the cost of timely action. This is stressed in the message of the Secretary-General of the World Meteorological Organization (WMO), Professor Godwin O.P. Obasi, to the international community on the occasion of the World Meteorological Day (23 March 2003).

“The measures contemplated in mitigating climate change so far are inadequate to protect our future climate”, according to Prof Obasi. “The international community should commence action now through the United Nations Framework Convention on Climate Change (UNFCCC) and its Kyoto Protocol to adequately curtail the emission of greenhouse gases into the atmosphere, and other measures to reduce uncertainties in climate projections. For these purposes, WMO and the National Meteorological and Hydrological Services will continue to take a lead role in addressing key scientific and technical issues.”

WMO continues to strengthen its programmes in the pursuit of three major goals. A first objective is to improve systematic weather and climate observations and to reconstruct past climate periods. Prof Obasi states that, while advances have been made in observations from meteorological and environment satellites, essential in situ observational networks in many developing countries have deteriorated due to a lack of resources. In addition, more data are needed also from polar and oceanic areas, for better quantitative assessments of climate extremes.

A second major objective is to refine climate modeling in order to reduce the uncertainties inherent in long-term climate prediction. Climate models must be further developed to better

simulate regional impacts of climate change as well as changes in the frequency and intensity of extreme weather events. Prof Obasi adds that such progress will be relevant also to the work undertaken by the Intergovernmental Panel on Climate Change (IPCC) for its Fourth Assessment Report. The Report, scheduled for 2007, will place emphasis on regional impacts of climate change and appropriate mitigation and adaptation strategies.

The third objective is to ensure that advances in climate science benefit all people and contribute to sustainable development. WMO therefore assists countries in the application of climate data and seasonal forecasts for water management, agriculture and disaster mitigation. “The international framework for the coordination of national and international efforts to address climate change should be strengthened,” Prof. Obasi stresses, “so that research results, observational data and information and other resources may be used to the greatest overall advantage”. He calls, in particular, for the necessary support to be given to the activities of National Meteorological and Hydrological Services.

The changes in climate observed over the last decades will continue, presenting urgent and growing challenges to many aspects of our lives, including health. Addressing those challenges in his message, Prof Obasi warns that “The most immediate threats to humankind relate to increased variability in the intensity and frequency of storms and other extreme weather- and climate-related events such as floods and droughts, heat waves in major urban areas and the impact of sea-level rise on low-lying coastal regions”.

Already, over the last ten years, the number of disasters of hydrometeorological origin has increased significantly. Worldwide, recurrent drought and desertification seriously threaten the livelihood of over 1.7 billion people who depend on the land for most of their needs. The 1997/1998 El Niño event, the strongest of the last century, is estimated to have affected 110 million people and cost the global economy nearly US\$ 100 billion. Statistics compiled from insurance companies for the period 1950-1999 show that the major natural catastrophes which are mainly weather-, water and climate-related caused estimated economic losses of nearly US\$ one trillion. A leading reinsurance company estimates global warming impacts could cost US\$ 300 billion annually by 2050.

Current projections show little change or a slight increase in the amplitudes of El Niño events over the next 100 years. But with higher temperatures, the extremes of floods and drought generally associated with El Niño events could be more severe.

56) CLIMATE CHANGE: IMPACTS AND OPPORTUNITIES by Pete Hodgson, Address to New Zealand Water and Wastes Association's '2003 Environment Summit', Duxton Hotel, Wellington

New Zealand Government

March 18, 2003

Internet: <http://www.scoop.co.nz/mason/stories/PA0303/S00298.htm>

Mark Twain is quoted as saying that everybody always complains about the weather, but nobody ever does anything about it. If he were still alive he might be pleased by the current international effort to do something about the weather — or more accurately the world's climate. In December 2002 New Zealand ratified the Kyoto Protocol. We joined more than 100 countries, representing over two thirds of the world's population, in seeking to reduce the rate of global warming. I'm here to talk about why the Government has ratified the Protocol, how New Zealand will meet its Protocol obligations and the impact the Protocol will have on this country and the world. But first let me congratulate the New Zealand Water and Wastes Association for your part in reducing greenhouse gas emissions.

About 6% of New Zealand's methane emissions come from landfills. And since 1990 gross methane emissions from landfills have increased about 17%. But thanks largely to the efforts

of Association members in diverting organic waste and capturing emissions, New Zealand's net methane emissions from landfills have decreased since 1990 by close to 20%. That is a useful achievement and a profitable one for the waste management business. The use of landfill gas to generate electricity shows how innovative waste management makes economic sense.

A report on new renewable energy sources done for the Ministry of Economic development last year estimated the potential for new landfill gas generation in the coming decade at 13 megawatts, or 100 gigawatt-hours a year at low cost. That is a small but useful source of energy for the nation, revenue for waste managers and reduced greenhouse gas emissions. New Zealand needs more businesses to wake up to the opportunities that arise from the transition to a low-emission economy. By ratifying the Protocol New Zealand is committed to reducing greenhouse gas emissions to 1990 levels, on average, over the five years 2008 to 2012 — assuming the Protocol comes into force. We have accepted this commitment because there are compelling environmental and economic reasons for New Zealand to support international action on climate change. This country owes its status as a developed nation to a stable, equable climate that is ideal for pastoral farming. This means climate change is, profoundly, an issue of economic security for this country.

Do not be fooled by sceptics. Climate change is already happening. The evidence extends from the bleaching of coral reefs throughout the Pacific, to the retreat of glaciers in the Southern Alps, to the crumbling of homes and roads in Alaska as the permafrost melts. For those who, like myself, like making decisions on scientific evidence the next speaker, Dr Greg Ayers will provide you with a feast of scientific information. Climate change is also a problem worth solving. It is true that New Zealand receives some initial agricultural benefits from a warmer climate, with possible increases in the growth rate and range of some crops. There will be opportunities in those changes, and we would be foolish not to make good use of them when they occur.

But floods and droughts are expected to become more frequent and more extreme. Biosecurity will come under increasing pressure from subtropical pests and diseases. Sea level rises would create problems with saltwater intrusion into groundwater, as well as threatening infrastructure through eroding coastlines. Further problems with water supply and infrastructure would arise from higher rainfall in the west of the country and drier conditions in the east. New human health risks would arrive from pests and diseases, such as dengue fever, that presently thrive in warmer countries. Native species would be also threatened by climatic changes in what remains of their habitats.

Climate problems can be very, very expensive. Flooding costs this country an estimated \$125 million a year, not counting the millions spent on flood protection measures and insurance. In 1997, floods cost our agricultural industry an estimated \$1 billion. The worldwide reinsurance sector, has sounded repeated warnings that the growing numbers of weather-related disasters are becoming less and less insurable. The costs of inaction on climate change are essentially inestimable, but there is good reason to expect they would be huge. And because global warming is a cumulative process, the costs only magnify with time. Doing nothing is not the low-cost option. Remember too that we are a major supplier of food to world markets, many of them sophisticated and increasingly influenced by perceptions of environmental integrity. A positive response to climate change will underscore that integrity. But ducking responsibility on climate change will not go unnoticed. Neither can we duck our responsibilities towards our Pacific Island neighbours, many of whom are likely to be hit much harder by the effects of climate change.

If we accept that the question is not whether to do something about climate change, but what to do about it, then we are confronted with the Kyoto Protocol. Climate change is a global problem, which means concerted international action is the only remedy. And the Protocol is

simply the only concerted international action on offer. The Government has adopted a broad package of policies to enable New Zealand to meet its Protocol emissions target. There will be a price on emissions from 2008. An emissions charge on fossil fuels will increase their cost relative to other energy sources. The beauty of pricing emissions to achieve reductions is that it works. An emissions charge lowers the relative price of lesser emitting processes and technologies and encourages their greater use.

Importantly, an emissions charge induces companies to make emission cuts where they are cheapest. Firms can therefore decide how they will reduce emissions, or simply pay the emissions charge. As the emissions charge is to change behaviour rather than to raise revenue the Government will be recycling charge revenue back to those from who it was collected. The mechanisms for revenue recycling are still being determined, but the Government is committed to making recycling happen. In creating an emissions charge the Government recognises that for some firms the cost would threaten their competitiveness with producers from countries with less rigorous climate change policies. Such “at risk” firms will be able to enter a Negotiated Greenhouse Agreement with the Government, under which they will receive an exemption from the charge in exchange for moving towards world’s best practice in emissions management.

The Government will also be supporting initiatives to encourage emissions reductions, through what we are calling a Projects mechanism. We have an open mind on the kinds of initiatives that will qualify, providing they meet the fundamental criterion that they are not just business as usual. They might be projects involving individual firms, groups of firms, or industries. They might involve innovations at the smokestack end of a business, or in energy supply or other inputs. The first example of how Projects will work was announced just a couple of weeks ago. The Government has agreed to provide carbon credits to the electricity generators Meridian and TrustPower, in recognition of the emission reductions that will arise from two new wind farms. The companies get financially valuable credits – or more precisely, at this stage, promissory notes for those credits. The Government gets the comfort that those windfarms will reduce New Zealand’s future need for thermal generation and the greenhouse gas emissions it causes.

Those two deals came early, because those companies were quick off the mark. Others will come forward when we launch an exploratory Projects round some time around the middle of this year. The projects mechanism is important to New Zealand for more than just climate change. I hope it will play a key role in determining our energy future. The extent that new renewable electricity generation is brought on in the years ahead will determine our ability to deal with the uncertainties due to the winding down of Maui. The same dual role is played by the National Energy Efficiency and Conservation Strategy. If we achieve the target of a 20 percent improvement in energy efficiency by 2012, we will have cut by a third our estimated excess of business-as-usual greenhouse gas emissions over our Kyoto target. We will also have improved our ability to maintain secure energy supplies by starting to decouple economic growth and growth in energy demand.

Because responding to climate change means changing behaviour, the Government is committed to providing relevant information on emission reduction — and helping councils, businesses and individuals to make use of this information and bring in changes. These initiatives include partnerships with Local Government New Zealand through a “Communities for Climate Protection” programme that will begin in July this year. Initially this will involve partnerships with 10 leading councils in a voluntary programme for local government to help measure and reduce emissions. If you would be interested in joining in this programme then please contact Local Government New Zealand. I want to close by stressing again the opportunities that the Kyoto Protocol presents. The Protocol will change our energy use habits for good, by accelerating the shift away from finite fossil fuel resources

to renewable energy and encouraging more efficient use of fossil fuels while they remain important.

The countries that ratify the Protocol will be those where the sustainable energy technologies of the future are most rapidly developed and adopted. The Kyoto stragglers will risk being spectators to growth and innovation elsewhere. In the post-Kyoto world there will be international demand for new technologies, and improvements to existing ones, that reduce greenhouse gas emissions and make more efficient use of energy. Industrial processes, consumer products and agricultural technologies will be redesigned. There is no reason why New Zealand should not be a country that originates and profits from such advances. This is particularly true concerning agricultural technologies: no other developed nation has a greenhouse gas profile as heavy in agricultural emissions as we do, which means none has the same incentive to develop processes and technologies for reducing agricultural emissions. I hope that the members of the Water and Wastes Association will continue to be amongst the innovators in responding to these opportunities. Your record suggests that you will — and that you will profit from the experience. Thank you for your attention

57) U.S. POLICY ON SUSTAINABLE DEVELOPMENT, ENERGY AND CLIMATE CHANGE by Paula J. Dobriansky, Under Secretary of State for Global Affairs Address to the Shell Center for Sustainability

Rice University, Houston, Texas

March 13, 2003

Internet: <http://www.scoop.co.nz/mason/stories/WO0303/S00243.htm>

Paula J. Dobriansky is the US Under Secretary of State for Global Affairs. This is an extract from her speech, please refer to the full text version online at:
<http://www.scoop.co.nz/mason/stories/WO0303/S00243.htm>

Today, I want to share my thoughts on the Administration's approach to sustainable development.

CLIMATE CHANGE

Let me now say a few words about the Administration's energy and climate change policies. This Administration is focused on climate change and we are committed to addressing this issue. As in Johannesburg, however, we seek to produce results, and not just to produce agreements that burden economic growth while failing to place the emphasis on long-term solutions. Addressing global climate change will require the combined effort of all nations over the course of this century, as well as major advances in the underlying science. We need what I would call a Revolution in Energy Affairs - that is the development and deployment of newer and cleaner energy technologies that will help us address climate change. In turn, development of these technologies depends on continued strong economic growth. Growth is the solution to climate change, not the cause of it -- because nations with growing economies are nations that can afford to invest in the research, development and deployment of modern, cleaner technologies while promoting energy efficiency.

Recognizing this reality, last February President Bush announced an ambitious and forward-looking climate and energy plan. The plan has three basic components: first, to slow the growth of greenhouse gas emissions; second, to work with other nations to develop an efficient and effective global response to this long-term challenge; and last, but not least, to pursue assertively new technologies and better science that will give us the means to take prudent and balanced action in the future. Let me begin with the first component. To slow the growth of our greenhouse gas emissions, the President has set a national goal of reducing U.S.

greenhouse gas intensity -- that is greenhouse gas emissions per dollar of GDP -- by 18% over the next 10 years. Like an absolute emissions target, an intensity reduction of this magnitude requires real effort. Unlike an absolute emission target, an intensity target will not inadvertently hurt our economy. Nor will it give us credit for emissions reductions occasioned by economic hardship.

The President's goal is a 30% improvement over business-as-usual. This goal translates into more than 500 million metric tons in cumulative savings of carbon-equivalent emissions in the United States over the entire decade -- equivalent to taking some 70 million cars off the road. Focusing on greenhouse gas intensity sets us on a path to slow the growth of greenhouse gas emissions, and, as the science justifies, to stop and then reverse that growth. To meet this goal, last month the Administration unveiled the Climate VISION program. Under Climate VISION 12 major industrial sectors, along with the membership of the Business Roundtable, have agreed to meet ambitious commitments to reduce their greenhouse gas emissions in the coming decade. This program, along with other industry based programs, such as the improved reporting of emissions, demonstrate our near-term commitment to moving the United States onto a glide path to real reductions in greenhouse gas emissions, while not harming economic growth. In addition, the President's new budget includes support for some longer-term commitments. These include tax credits for the purchase of hybrid and fuel cell vehicles, for residential solar heating systems, for energy produced from landfill gas, for electricity produced from alternative energy sources, and for combined heat and power systems.

The second component of the President's climate change plan is international cooperation. It is critical to involve developing countries as well as developed nations in an effective global response to climate change. Over the last year, the State Department has initiated action-oriented, climate change dialogues with more than 14 nations and regional entities which together represent more than 75% of the world's greenhouse gas emissions. In addition, we are increasingly pursuing multilateral ventures in energy R&D on a range of technologies that may revolutionize the way we use energy by the middle of this century. Reaching out to the countries that emit most of the world's greenhouse gas emissions -- especially developing countries -- is critical. One of the flaws of the Kyoto Protocol is that the developing countries have no obligations. Consider for example, that by 2020 China and India alone are projected to have more greenhouse gas emissions than the United States or Europe. Developing nations already account for a majority of the world's net greenhouse gas emissions. Clearly they need to be part of the solution for the future.

Yet, it would be unfair -- indeed, counterproductive -- to condemn developing nations to slow economic growth or no growth by insisting that they take on impractical and unrealistic greenhouse gas targets. Many developing countries share our views on the need for a different approach, one that will address climate change in the context of economic growth and development. The greenhouse gas intensity approach President Bush put forward gives developing countries a yardstick for progress on climate change that recognizes their right to economic development -- a goal that, unlike that of the Kyoto Protocol's, -- takes account of differing levels of economic growth in differing circumstances.

The third component, as I said, is advancement in science and technology. Absolutely key to our diagnosis and treatment of the climate issue is the need for breakthroughs in new energy technologies as well as better climate science. Our robust R&D on climate science -- equal to the rest of the world combined -- helps us understand better the potential degree, magnitude, distribution and other uncertainties surrounding the phenomenon of climate change. We have also expanded our investment in developing and deploying cleaner energy technologies both domestically and internationally. Only by such an assertive approach can we expect to achieve the ultimate goal of stabilizing greenhouse gas concentrations. Perhaps the most exciting element in our climate and sustainable development agenda is a series of recent

Presidential energy policy and technology initiatives announced last month. These initiatives involve new technologies to first, capture greenhouse gas emissions, second, to promote hydrogen, and third, to promote nuclear fusion research in the future. The initiatives offer a continuum of new energy technologies out to 2050. Altogether these developments have profound implications for our foreign policy and our long-term economic prosperity.

Just two weeks ago, Secretary Powell, Energy Secretary Abraham, EPA Administrator Whitman, myself, and others, met with the President to announce the Administration's new Carbon Sequestration Initiative. Carbon capture and storage presents a promising technological approach for removing CO₂ produced during the combustion of fossil fuels before it can enter the atmosphere. This initiative has two elements. The first element is a multilateral initiative called the Carbon Sequestration Leadership Forum that is designed to bring together 14 countries to promote research in the area. The goal will be to develop cost effective technologies to separate, capture, transport and store carbon dioxide from fossil energy, particularly coal. A major international kick-off conference is scheduled for late June in Washington, DC. The second element of the carbon sequestration initiative is a \$1 billion, public-private effort to construct the world's first fossil fuel, emissions free power plant. The plant, known as Future Gen, will be a living prototype of carbon capture and storage, and it will produce both electricity and hydrogen. This is a particularly important technology for many developing countries that will continue to depend on coal for electricity for decades to come. For them, this will be a critical public health tool. For the world, it will be a part of the answer for addressing the challenge of climate change. If the United States and other industrialized nations do not lead in developing these technologies, no one else will.

The President also launched his hydrogen fuel initiative this year. The goal of this initiative is to accelerate our transition to a hydrogen economy, working closely with the private sector. In addition to \$500 million currently planned for FreedomCAR, the President's new effort will mean a total of \$1.7 billion over the next 5 years to develop hydrogen powered fuel cells, hydrogen infrastructure, and advanced automobile technologies. If we develop this technology successfully, a child born today will have the choice to buy an emission-free car whose only byproduct is water vapor. It would be hard to overstate the energy security, public health, and climate change implications of such a transformation in transportation technology. Finally, on nuclear fusion, the President directed us earlier this year to rejoin negotiations on the International Thermonuclear Experimental Reactor (ITER). This initiative positions the United States on the cutting edge of efforts to explore the scientific and technological feasibility of fusion energy. These new technologies, which I have described -- carbon sequestration over the coming decade; hydrogen over the coming generation; and nuclear fusion out to 2040-50, underscore the President's commitment to lead the world on climate change -- and our view that the sine qua non to stabilizing greenhouse gas emissions is developing new, clean energy technologies.

Our activities provide an important path to the long-term goal we share with Kyoto Protocol countries of stabilizing greenhouse gas emissions. Our approach fleshes out a parallel path that does not obstruct or hinder Kyoto. Indeed, technology breakthroughs ultimately will be the deciding factor as to whether the objective of the UN Framework Convention on Climate Change can be reached. Our leadership in developing these new energy technologies will go a long way towards promoting a better future for the world. One need not try too hard to imagine a world where the over 3 billion people in Asia and Africa have access to cleaner energy -- which promotes economic growth and development; while minimizing or eliminating the emission of greenhouse gases into the atmosphere. In this world the poorest people in the most remote parts of the world, will have, for the first time in some cases, the power necessary to bring them clean water, to improve the amount of crops they can grow in their fields; and to generate the electricity that will heat and cool their homes. In short to bring them the energy that will help their communities develop and lift their people out of poverty.

This is the promise of the Revolution in Energy Affairs, and will be one of the key successes of this Administration's energy policy.

58) CAPTURING CARBON? Interview with Patricio Bernal, Executive Secretary of UNESCO's IOC

UNESCO

March 12, 2003

Internet:

http://portal.unesco.org/en/ev.php@URL_ID=10326&URL_DO=DO_TOPIC&URL_SECTION=201.html

Patricio Bernal is the Executive Secretary of UNESCO's International Oceanographic Commission. Interview by Maria Hood and Susan Schneegans, first published in UNESCO's science newsletter, A World of Science vol 1 N°2, January-March 2003. See also: www.unesco.org/science

The amount of carbon dioxide (CO₂) in the atmosphere has been rising steadily since the beginning of the industrial age. As one of the most important 'greenhouse gases', atmospheric CO₂ is a major contributor to global warming. Recent initiatives to slow the rate of warming, such as the Kyoto protocol, focus on reducing emissions (eg. from factories and automobiles). But what if we could simply store the excess CO₂ for centuries until some other solution is found? New technologies are making it possible to 'capture' excess carbon from the atmosphere and store it in geological reservoirs or perhaps even the deep sea. Could this buy us precious time in which to adopt cleaner energy sources or would we simply be leaving a time-bomb for future generations? Scientists are not yet able to say what environmental impact this so-called "carbon sequestration" would have. In the meantime, the political and economic stakes are high and the debate has become a passionate one.

The Intergovernmental Oceanographic Commission of UNESCO (IOC) with the Scientific Committee on Oceanic Research (SCOR) have set up an Advisory Panel on ocean carbon dioxide, in order to ensure that decision-makers and the general public have access to an unbiased picture of worldwide research on ocean carbon sequestration. A major symposium on "The Ocean in a High CO₂ World" has recently been scheduled for March 2004 to pool present scientific knowledge in order to determine whether – and at what levels – increasing carbon dioxide will affect the oceans, with their marine life and coral reefs. In this interview, Patricio Bernal, Executive Secretary of UNESCO's IOC, sets out some of the issues.

IS THERE A PROVEN LINK BETWEEN CLIMATE AND CARBON?

We know from glacier records that there is a correlation between carbon levels in the atmosphere and climate. At the start of the last Ice Age some 50,000 years ago for example, atmospheric CO₂ levels were low. Today, the climate is going through a naturally warm period; this, combined with the burning of fossil fuels and biomass, as well as land-use changes, over the past two centuries, has sent atmospheric CO₂ concentration in the atmosphere to levels never seen before. (i) Present carbon levels are now higher than this planet has experienced for at least the last 20 million years. Human activity is releasing something like 7 Gigatons of carbon per year into the atmosphere. And the excess carbon is not going to disappear. Even if all the countries around the world were to implement the 1997 Kyoto Protocol, which calls for them to bring CO₂ emissions down to below 1990 levels by 2012, it would not solve the problem of the existing excess, although it would limit the future accumulation of CO₂ which in itself would be a major achievement.

WHAT DOES THIS MEAN?

We are heading for an increase in hurricanes, floods, droughts and other disturbed weather patterns, together with a rise in sea-level and the melting of glaciers and permafrost which store two-thirds of the Earth's freshwater reserves. The difficulty for scientists today is to distinguish the effects of the naturally occurring cyclical disturbances caused by El Niño and La Niña oscillation, for example, from those caused by global warming.

BUT WHY STORE CARBON IN THE OCEANS?

Faced with the stark reality, even the International Panel on Climate Change has admitted that we may have to consider what it calls 'carbon management strategies' to complement reductions in greenhouse gas emissions. One option is to store the excess carbon on land; this is already being done in deep geological formations, abandoned mines and the like.

But it is the oceans that have the greatest natural capacity to absorb and store carbon. On an annual basis, the surface of the ocean absorbs about 30% of the carbon in the atmosphere, less during El Niño years. But over very long timescales, of thousands of years, as much as 85% is absorbed by the oceans. The ocean contains an estimated 40,000 billion tons of carbon, as compared to 750 billion tons in the atmosphere and about 2200 billion tons on land. This means that, were we to take all the atmospheric CO₂ and put it in the deep ocean, the concentration of CO₂ in the ocean would change by less than 2%. Experiments have shown that, up to a depth of 3000 m, liquid CO₂ tends to rise to the surface because it is less dense than the surrounding seawater. At 3000 m, on the other hand, it turns into a solid, ice-like substance that is denser than the surrounding water. One method being considered is that of injecting liquid CO₂ into the sea floor. Another is to store it in disaffected oil wells.

The trouble is that, even if theories abound – including that CO₂ stored at a depth of 3000 m would not come in contact with the atmosphere for 200 years – it is all conjecture. We simply don't know what the consequences would be over the long term. The IOC's main concern is making sure that sound, unbiased scientific findings are available to the general public and policymakers to address these issues when decisions will have to be made. One of the principle scientific concerns is what will happen naturally if we do nothing to reduce atmospheric CO₂ levels: the pH of the surface ocean will decrease, causing the water to become more acidic. This will affect the chemistry of the surface ocean where most marine organisms live. We don't yet understand how the ecosystem will respond to this slow, natural invasion of CO₂. This concern has led some scientists to suggest that it may be less damaging to take CO₂ out of the atmosphere and inject it directly into the deep ocean where only a small fraction of marine organisms live. The problem is that these organisms living in the deep ocean would be particularly affected because of the rapid change in their environment and the fact that their slow metabolisms make it very difficult for them to adjust to changes. And what would be the effect on the atmosphere if, some 100 or 200 years from now, an enormous quantity of accumulated CO₂ buried in the deep ocean began to slowly leak back into the surface ocean and into the atmosphere?

WHAT ELSE ARE YOU 'WATCHING'?

Iron fertilization research, for example. In many parts of the ocean, phytoplankton growth is limited by the lack of an essential micro-nutrient, iron. A number of private companies are trying to stimulate phytoplankton growth to up to 30 times the natural rate so as to create what might be termed ocean carbon sinks, much along the same principle as the forests being promoted as carbon sinks on land. The concept is not a new one. Oceanographer John Martin became famous in the 1970s by declaring 'Give me a ton of iron and I'll produce the next Ice Age'.

Iron is found in dust, which is best carried into the atmosphere in dry, arid conditions. Not surprisingly, it is the Sahara and Sahel deserts that contain most of this dust, which prevailing winds blow over the Atlantic to the Caribbean and north-eastern Latin America. Scientists estimate that fertilizing the entire Southern Ocean with iron would only reduce atmospheric CO₂ levels by about 20–30% over a century. More seriously, it would lead to significant ecological perturbations. When organisms die, their decomposition consumes oxygen. Creating an unnatural abundance of decomposing organisms would lead to low oxygen levels that could be devastating to marine life.

IS IT ETHICAL TO PURSUE RESEARCH IN SUCH A CONTROVERSIAL AREA?

The best argument against ocean carbon storage would be to prove that it is environmentally unsound. However, we mustn't be naïve. Carbon trading is a profitable business. The only thing holding back many potential traders from storing carbon in the ocean tomorrow is the cost of the technology.

WHAT DO YOU THINK OF GREENPEACE'S ROLE IN PUTTING A STOP TO AN ENVIRONMENTAL IMPACT ASSESSMENT IN NORWEGIAN WATERS LAST AUGUST?

It was misguided in my view. I share Greenpeace's concern that high concentrations of CO₂ may harm deep marine organisms (ii). We don't know today what ultimate effects a slow invasion of CO₂ would have on the ecosystem composition and food-chain. But in preventing a consortium of research institutions from Norway, the USA, Canada, Australia and Japan from carrying out an assessment that might have substantiated Greenpeace's claims, the environmental group was shooting itself in the foot. We need to get the debate out into the open. After all, in the final analysis, whether or not the world resorts to ocean carbon storage will be a societal decision.

The Norwegian government has called for more international debate on ocean carbon storage. This is what the Member States of the IOC are trying to promote within the Watching Brief. We have set up the Brief to provide governments, industry and the general public with access to the results of unbiased research. Via the Watching Brief on the web (iii) and as an active observer and participant in research, the IOC is fulfilling an advisory and advocacy role. The Norwegian government bowed to pressure from the environmentalists out of concern that it might be trespassing international marine law. Does this mean that CO₂ is considered a pollutant? According to the Office for the London Convention (iv), there is no unanimity on the issue of whether fossil fuel-derived CO₂ should be regarded as industrial waste. This causes a legal void, since the various treaties and conventions governing dumping in the oceans only refer to 'industrial wastes'. The London Dumping Convention bodies should look into the matter.

IOC's Watching Brief also documents the legal aspects of ocean carbon storage. There is a plethora of legal instruments – the United Nations Framework Convention on Climate Change, the United Nations Law of the Sea, Kyoto, etc. – but these government treaties have no power of enforcement; that poses a real problem. The Scientific Group of the London Convention recently developed a Waste Assessment Framework which would require a full environmental impact assessment before a permit could be delivered for CO₂ dumping. This is a step in the right direction but it is insufficient.

IN THE ABSENCE OF A COERCIVE LEGAL INSTRUMENT, ISN'T THERE A DANGER THAT OCEAN CARBON STORAGE WILL BE SEEN AS A PERMIT TO POLLUTE?

Yes, there is a very real danger that it will make us more irresponsible rather than less so. We should be moving towards cleaner fuels at a much faster rate. Everyone knows that, within the next few decades, fossil fuels will begin to run out and we shall be forced to adopt alternative sources of energy. The USA for example depends on fossil fuels for approximately 85% of its energy needs and these are growing every year. Despite the urgency, the proposed target of attributing a 10% market share to renewable energies was still rejected by governments at the World Summit on Sustainable Development in Johannesburg last September.

Industry has invested considerably in research on alternative energy sources. At the Johannesburg Summit, everybody could see a number of BMW hydrogen-powered cars on display. The problem is that industry receives little government support to invest in renewable energies and conversion from petrol-driven to 'clean' cars has a huge cost. Governments should be providing incentives, such as tax rebates, and investing in the necessary infrastructure. It's not a technological problem but a political one. Prototype cars driven by liquid petroleum gas, compressed natural gas, hydrogen (i.e. water vapour) and the like have been around for decades.

ARE THERE GROUNDS FOR OPTIMISM?

Over the centuries, we have engineered an artificial world for ourselves, to the point where more than 60% of the natural landscape is of our own making. The temptation has always been to engineer a new world rather than to respect the boundaries of the existing one. With ocean carbon storage, we must beware of the same compartmentalized reflexes which have been our undoing in the past. Take the example of DDT. Paul Muller was awarded the Nobel Prize for medicine or physiology in 1948 for discovering the effectiveness of DDT as an insecticide, notably against malaria-bearing mosquitoes. Only after DDT had been put to extensive use was it realized that many species of insects had developed resistance to it and that it had a high toxicity towards fish and animals – upon which DDT was banned in many countries.

Instead of considering our planet as a whole made up of interdependent systems, we are always tempted to look for simple solutions to complex problems. We forget that the atmosphere, land and oceans are three sides of the same triangle, that what we do to one will affect the other two. I do believe we are making progress – physics, chemistry and biology are beginning to be integrated into a single conceptual model to deal with planetary processes - but there is a long way to go. We must tread carefully with ocean carbon sequestration; take the time. We need to get our science right. As technology progresses, the consequences of our acts are becoming harder to correct – or even to anticipate.

(i) In the pre-industrial world, atmospheric CO₂ concentrations oscillated on roughly 100,000 year cycles between 180 parts per million by volume (ppmv) during glacial periods and 280 ppmv during interglacial periods. We are now at an unprecedented 370 ppmv.

(ii) See for example: <http://archive.greenpeace.org/politics/co2/co2dump.pdf>

(iii) <http://ioc.unesco.org/iocweb/co2panel/sequestration.htm>

(iv) Convention for the Prevention of Marine Pollution by Dumping Wastes and Other Matters, 1972 and 1996 Protocol

59) REAL LEADERSHIP NEEDED TO HELP REDUCE ENERGY BILLS by David Suzuki

ENN

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With natural gas prices skyrocketing this winter, people aren't just shuddering from the cold — they're quaking at the thought of coming energy bills. Indeed, Albertans are already demanding that Premier Klein open the coffers again and hand out rebates to help consumers through the tough times. But that's not really an answer, is it? The money goes to the utilities and gas companies, but nothing changes. It's merely a Band-aid solution that further entrenches our dependence on fossil fuels. The real answer is for governments — both federal and provincial — to show some real leadership and take steps that will protect citizens in the long term.

Such steps are long past due. Imagine, for example, how much better off Canadian consumers would be today if the federal government had previously worked with provinces to set new, energy-efficient building code guidelines for homes. Improved standards, called R2000, have existed for years and can save homeowners 30 to 40 percent on energy bills. Similar standards, called C2000, are also available for commercial buildings. However, despite of the advantages of these standards and the benefits they would provide to Canadians, no province has yet adopted them as the minimum building code for new construction. R2000 homes cost only slightly more to build and pay for themselves in a few years through efficiency (and comfort!). But most homes are built by developers, not homeowners, and developers have little incentive to make homes more energy efficient. That's why better building codes are so important.

New building codes won't help Canadians with existing homes, but a national building retrofit program would. Most people know that better insulation, caulking, and weather stripping can greatly reduce energy bills, but many don't know where to start or can't afford the up-front costs. A program to help homeowners find and eliminate energy leaks would save Canadians money, create jobs across the country, and again reduce our dependence on fossil fuels. Toronto already has a successful program called Green\$aver that has helped thousands of citizens and saved them money. It's the kind of program that should be instituted nationally. Analysts say that increased demand for natural gas, largely because of the cold winter, is pushing prices up. But there's another culprit too: tar sands. Extracting crude oil from the sands takes plenty of energy, mostly in the form of natural gas. As tar sands projects expand, demand for natural gas will continue to increase dramatically, driving prices up at home while most of the extracted crude is exported to feed the voracious American appetite for oil. Think about that when you pay your gas bill.

Of course, some of that oil is used to make gasoline for Canadian vehicles, especially SUVs, which are permitted to burn more fuel and pollute more. Because of these loopholes, the average new vehicle today burns more gasoline than the average new vehicle did back in 1980! It doesn't have to be this way. If the federal government has the courage to set higher fuel-efficiency standards, it will cost us less to fill up at the pump and our air will be cleaner. The federal government recently committed nearly C\$2 billion to help meet the Kyoto Protocol and reduce the greenhouse gas emissions that are causing climate change. But these funds are largely unallocated. There is no commitment to improve public transit, create new building code guidelines, or start a national retrofit program. Each of these programs would help us meet our Kyoto targets, and they would save Canadians money.

It would be a terrible shame if the Kyoto money was spent on spurious technologies, studies, committees, and more pilot projects designed to appease big industry groups. Real solutions already exist. At a time when Canadians are crying for relief from energy prices, let's give them something to look forward to: genuine, long-term solutions that will help take the sting out of our energy bills for good.