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POLICY

- 1.1. Challenges 2005-2006: Kyoto's Timetables, UN Red Tape Count Against Africa
21 December 2005, Inter Press Service (Johannesburg)

By Stephan Hofstatter: Africa stands to access hundreds of millions of dollars for clean energy projects and for adapting to adverse effects of climate change after this month's pivotal talks on global warming in Montreal, Canada. But commentators warned this window of opportunity was closing fast. The major breakthrough in Montreal after two weeks of tense negotiations was a commitment to hold formal talks on setting targets for greenhouse gas emission reductions after 2012, when the current compliance round set by the Kyoto Protocol expires. Montreal was the first conference of signatories since it came into force after Russia came on board in Feb. 2005. This is of particular importance to Africa because it secures the 'cap and trade' system launched in Europe early 2005 that encourages dirty companies in rich countries to invest in renewable energy in poorer countries through the Clean Development Mechanism (CDM). "This is a significant victory in the context of these highly contested negotiations," said Richard Worthington of the South African Climate Action Network (SACAN). "While overall progress to limit global greenhouse gas emissions is still unacceptably slow, these outcomes offer the possibility of multilateral actions, within the shrinking window of opportunity, sufficient to avert a climate chaos that would give rise to hundreds of millions of environmental refugees." Kyoto compels over 30 developed countries that ratified it to cut emissions to five percent below 1990 levels by 2012. Companies or countries not meeting targets are allowed to buy tradable pollution credits, generated by companies meeting targets or by investing in CDM. The 2012 agreement is crucial

because credits, measured in units of one tonne of carbon dioxide or its greenhouse gas equivalent trading at market value, would become worthless without long-term certainty on mandatory emissions cuts. The United States pulled out of Kyoto meeting in Japan in 2001, arguing the targets would harm its economy and were unfair because they did not apply to developing countries, including economic giants such as China, which is likely to exceed U.S. emission levels in two decades. At Montreal the United States endorsed a non-binding 'dialogue' on future plans to curb emissions only after a clause was inserted specifically excluding negotiations leading to new commitments. Most commentators believe the United States will sign up once the Bush administration vacates the White House. Developing countries, who account for 80 percent of the world's population but consume only 20 percent of its energy, agreed to begin talks on future commitments. These may include intensity targets, which is emissions per unit of economic activity. The move is considered a major concession and increases U.S. international isolation. Environmentalists at Montreal were disappointed no fixed timeframe for implementing the agreement or new targets were set. But binding decisions include ensuring there is no continuity break in compliance periods. A task force on future commitments was established and will start work in May 2006. New targets are likely to be substantially higher than the current 5 percent reduction. There is broad scientific consensus cuts of 60-80 percent will be needed just to stabilise greenhouse gas levels, and hence global climate. "Now that we've sent a major signal to the carbon markets that these will continue to grow after 2012 it should unlock a significant and increasing quantity of CDM projects," said Steve Sawyer of Greenpeace International. The potential opportunities are staggering. The Paris-based International Energy Agency has estimated 16 trillion dollars will need to be invested in the world's energy systems in next 25 years. At least two trillion dollars will go to renewables. But right now Africa is poorly positioned to take advantage of this windfall, partly because the rules of the game are rigged against the continent. Ken Newcombe, a senior World Bank official who pioneered carbon trading, says the EU has discriminated against Africa by prohibiting investment in forestry and agriculture projects for which Africa has the most potential -- to count as pollution credits, as allowed by Kyoto. "It's effectively a trade barrier against the poor," he said. The EU has agreed to review this position and it is likely afforestation and carbon saving land use practices will be included in the post-2012 commitment period. Kyoto's timetables and UN red tape also count against Africa. Most CDM investments are in major energy projects with 3-5 year planning cycles. To count towards the 2008-2012 compliance periods, projects had to be registered between 2000 and 2005. But few African countries have national CDM certification authority yet, a prerequisite for registration with the UN board. "This locks much of Africa out of the benefits of CDM," said Lwazikazi Tyani, who heads South Africa's CDM authority. She says it is imperative for all African countries to set up these authorities without delay or risk seeing the billions being invested in clean energy going elsewhere for the next compliance round. The disparities so far are enormous. UN figures released in October show only two percent of the world's share of validated CDM projects are in sub-Saharan Africa, compared with 26.5 percent for India alone (out of 43.3 percent for Asia and Pacific) and 51.7 percent for Latin America. South Africa has Africa's first fully registered project, a low-cost housing settlement near Cape Town powered by renewable energy, and many more in the pipeline. The project sold its first 10,000 credits to the British government at the Group of Eight (G8) summit in Gleneagles, Scotland, in July. The G8 comprises Britain, Japan, Italy, Germany, the United States, Canada, France and Russia. South Africa is now looking at exporting its CDM expertise to the 14-nation Southern African Development Community (SADC). "We are planning to hold workshops next year to build CDM capacity in the region," explained Tyani. She warned African projects risk being locked into unfavourable deals, with buyers wanting to make future investments dependant on being offered cheap pollution credits. "Some buyers will try to trick project developers and we need to train them to guard against this," she said. Project developers must also ensure there is real technology and skills transfer from investors, Tyani said. CDM is expected to grow rapidly in SADC, which has good potential for energy efficiency projects in mining centres Botswana, Namibia and Zambia. Landfill, transport and renewable energy projects will also feature strongly. South Africa's electricity utility Eskom, a major power exporter in the region, has already indicated the Montreal decision gives it the market certainty needed to go ahead with many of its CDM projects waiting in the wings, but declined to put a price tag on investments. This year Eskom posted almost seven billion dollars in revenue from Jan. 2004 to Mar. 2005, generating 247 million tonnes of carbon dioxide emissions. In the end, the lack of political stability and enforceable regulations, especially in the financial and electricity regulation sectors, scares many potential CDM investors away from Africa. "Africa's investment climate has been making strong improvements over the last 15 years or so, as has the political climate following the establishment of Nepad (New Partnership for Africa's

Development)," argues environmental consultant William Greene. "Unfortunately many countries in Africa remain prone to long-term political and economic uncertainties, which can act as a disincentive for investment." Another breakthrough at Montreal was the recognition that climate change is inevitable and people living in the world's poorest region, Africa, need more resources to adapt it. The Intergovernmental panel on 'Climate Change' has described Africa as "the continent most vulnerable to the impacts of projected change because widespread poverty limits adaptation capabilities". Up to 70 percent of the continent's population depends on agriculture, the sector most vulnerable to climate shifts, for employment and subsistence. Southern Africa will be particularly hard hit. The Hadley Centre in Britain, one of the world's top climate prediction institutes, projects surface temperature increases for the subcontinent of 3.8 degrees centigrade in summer and 4.1 degrees centigrade in winter by 2080. The world average is 3.4 degrees centigrade. The centre expects more droughts in Angola, Namibia and South Africa, and more flooding in Tanzania, Zambia, Zimbabwe, Mozambique and the Democratic Republic of Congo (DRC). The World Bank's Newcombe estimated four billion people worldwide are affected by natural disasters today, up from two billion in 1990. "The funds available for adaptation are symbolic in relation to the challenge," he said. Environmentalists welcomed the Montreal decision to launch a five-year work programme for adaptation. This includes the first financing framework to fund adaptation research and disaster management. "This outcome was very positive for us," said Lester Malgas of the NGO South North that operates in Brazil, Indonesia, Bangladesh and South Africa. "There will now be more funds available to help poor communities in Africa adapt to climate change whether they are small-scale farmers or subsistence fishermen," he said. But, once more, time is running out. The deadline for submissions on how the adaptation fund should be run expires in mid Feb. 2006. "Africa will have to move on this if it wants to have a voice," said SACAN's Worthington. "We can't miss another opportunity."

1.2. Riding the wave of 'new' Kyoto

19 December 2005, Courtesy Jamaica Observer

Ronald Sanders: One of the most important conferences for the future of mankind was held in Montreal, Canada last week-the United Nations Conference on Climate Change. It recorded some success despite the position of the United States. The countries, represented at the conference agreed to extend a climate pact, called the Kyoto Protocol, beyond 2012 when it was due to expire. This is good news for the Caribbean even though many governments in the region were not represented at a high level at the meeting. It is good news because climate change is linked to the violent hurricanes and other disturbing weather that the region has been experiencing in recent years with dreadful consequences. If the Caribbean is to capitalise on this movement in Montreal, climate change must become a priority of policy development and a key part of the work of foreign ministries. The breakthrough in Montreal occurred largely because the governments of the European Union (EU), Japan and Canada support the protocol and the lowering of gas emissions that hurt the environment. It was their active work, supported by developing countries, that resulted in ministers agreeing to launch new, open-ended discussions on ways to fight global warming despite objections from the US. The Kyoto Protocol sets out limits by which industrialised countries must reduce greenhouse gas emissions and five other gases by 2012. The US is not a signatory to the protocol since the administration of President George W Bush withdrew the US after the former government of President Bill Clinton had signed it. Now, with the decision in Montreal, the protocol will not expire and countries, which have signed it, will be held to lowering these emissions. However, this will not include the US. Therefore, before the world starts cheering at what happened in Montreal, it has to be recalled that the US alone accounts for about 25 per cent of gas emissions that are linked to climate change. So major polluters are still in business with no internationally binding restriction. Among those countries with no restriction are China and India who have no targets under Kyoto and who say that rich industrial states, such as the US, have to take the lead in cutting emissions because they have already developed their economies with coal, oil and gas. Now, they argue, it is the turn of the large developing countries. On the other hand, both President Bush and a significant membership of the US Congress contend that China and India ought to be included among the countries that are restricted since their industries would be competing against US companies on an uneven playing field. There is merit in both arguments, but the perceived short-term national interests of countries should not be paramount over the long-term interest of the world as a whole. Further, when climate change is evidently adversely affecting countries in the Caribbean and the Pacific and even coastal communities in Canada, Europe and Asia, the issue should not be one for barter. In this regard, the governments

of the United States, Australia, China, India and Brazil, who are major emitters of harmful gases, need to be engaged by the rest of the global community-including the Caribbean -to persuade them to compromise in the wider global interest. The argument that the US economy would be harmed if the US cut back on its greenhouse gas emissions is a not a position supported by former US President Bill Clinton. Indeed, Mr Clinton turned up at the Montreal Conference at the invitation of a Canadian group to declare Mr Bush's position to be "flat wrong". Well, what does all that mean? Simply, that if the entire world-but especially the US and other large countries-does not do something fast and together about greenhouse gas emissions, climate change will destroy many countries, and kill many more hundreds of thousands of people over the next few years. This is bad news for everyone, but especially bad for the Caribbean which has been battered by hurricanes continuously now for ten agonising years, with a prediction of a further 20 years to come. It is time for Caribbean governments to ratchet up the issue of climate change on their foreign policy agenda. For climate change will affect everything: more frequent and powerful storms in the region will turn away investment, particularly in the crucial tourism industry on which the region has become highly dependent; hurricane devastation, flooding caused by greater rainfall, and stronger earthquakes will damage economies so continuously that recovery will be a struggle; and, of course, the lives and livelihoods of the Caribbean people will be gravely affected.

1.3. India must show leadership on climate change

17 December 2005

By Prafull Bidai: THE world can breathe a sigh of relief that more than 150 countries agreed at the Montreal climate conference to hold further talks to counter global warming. So the Kyoto Protocol, agreed under the 1992 United Nations Framework Convention on Climate Change, is secure — despite opposition from the United States, which accounts for 24 of the world's greenhouse gas emissions. Under Kyoto, 36 industrialised countries must reduce emissions by 5.2 (over 1990 levels) by 2008-2012. At Montreal they agreed to make deeper cuts post-2012. China and India, with their gargantuan appetite for energy, agreed to play an active role in future talks, but accept no targets. Montreal's message, that the world's future lies in clean and sustainable technologies, was so powerful that even the US blinked and returned to the conference after walking out. Washington now says it'll join exploratory talks for a non-binding agreement. While significant, Montreal's gains shouldn't be exaggerated. It took the best of the world's climate scientists and environmentalists a quarter-century to highlight the significance of climate change. The Kyoto targets are so meagre that it would take 30 such protocols just to stabilise GHG concentrations at twice their level at the time of the Industrial Revolution! The Protocol also exempted developing countries from emission cuts, including large polluters like China, India and Brazil. Major Northern emitters like the US and Australia stayed away from Kyoto altogether. Drastic worldwide GHG emissions cuts are an absolute imperative. Humanity has been living off the globe's natural capital and has wrought enormous environmental changes. The potentially most destructive change is the rise in the globe's average temperature by almost 10C since the Industrial Revolution. The resultant melting of polar icecaps has generated more heat and raised sea levels. This has altered the world's complex climate, including different streams, winds, submarine currents, circulation systems and rainfall. The effects are already visible-through the 2003 heat wave, which killed 35,000 in Europe, not to speak of last winter's freak snowfall in Dubai, and a doubling of the ferocity of hurricanes everywhere over 30 years. South Asia too has been affected — witness Mumbai's extraordinary 944 mm rainfall on July 18, and more frequent cyclones in the Bay of Bengal. The United Nations Environment Programme estimates that in 2005 alone, global warming caused damage equivalent to \$200 billion. Indian scientists say that climate change wrought a drop in India's agricultural output in 2002-03 and 2003-04. Wheat yields fell 20-40 , and mustard yields by 50-70 , in 2002-03. The World Health Organisation says climate change annually causes five million cases of illness and more than 150,000 deaths. Some of the world's poorest countries will suffer a doubling of deaths from malaria, diarrhoeal diseases and malnutrition by 2030 owing to climate change. Low-lying countries face the grimmest prospect. The FCCC's Intergovernmental Panel on Climate Change estimates that global temperatures will rise by 1.4 to 5.80C by 2100. This will raise sea levels by 88 cm. Entire countries like Maldives will disappear. Tragically, the worst-affected will be the world's least polluting countries: island-nations on the Pacific and Indian Ocean coastlines and in sub-Saharan Africa. Alarming forecasts for India come from a recent Indo-British scientific study. This predicts a temperature rise of 3 to 40C in India, causing droughts in the North and Northeast, and floods in the Ganga, Godavari and Krishna basins. The worst threat to the subcontinent comes from the rapid

melting of icecaps on the Tibetan plateau and the receding of Himalayan glaciers. That's where seven of Asia's greatest rivers, including the Indus, Ganga and Brahmaputra originate. The likely effects — floods, followed by long-term droughts — will be devastating. All this calls for urgent measures which go far beyond Kyoto. Kyoto must be defended against ecologically irresponsible governments, like Washington. But Kyoto is both grossly inadequate and flawed. Besides mandating paltry GHG reductions, it encourages carbon trading-through a system of "credits", which polluting Northern corporations can buy cheap through "clean development mechanism" projects in the South. Most such projects are unworthy. A Dutch study indicates that they will at best reduce GHG emissions by 0.1 — well below even the Kyoto target! The world must reduce emissions by 80 over 30 years. To achieve this, it must shift to non-fossil fuel, renewable and environmentally sound energy; move away from energy-intensive agriculture; and conserve water. This means huge cuts in consumption in the North, but also in fast-growing Southern economies. It's simply dishonest for major Southern emitters like India and China to argue that the North accounts for three-fourths of GHG emissions; their own per capita emissions are below the global average (4.1 tonnes of CO₂); and so they needn't undertake reductions. The global average is unacceptably high. China and India are fast approaching it — although they are below the US's criminal level of 20 tonnes. There are huge consumption disparities between rich and poor in the South. The Indian elite is increasingly adopting Northern consumption-intensive lifestyles. It's unethical for it to hide behind the poverty of the people — only to feed its monstrous appetite for SUVs (fuel-guzzling sport-utility vehicles with their truck-level emissions) and air conditioners, shop in glittering malls, and generate US-level per capita wastes. India must change its unsustainable growth-model. Each time its economy grows by 6 , GHG emissions rise by 8 . This must stop. India had seized the initiative at the world's first major conference on the environment, at Stockholm in 1972. It must now show leadership in rolling back climate change. It must rescind the odious environmental deal it signed in July with five high-emission countries like the US, China, Japan and Australia. It must try to bring "environmental rogues" into the FCCC process. And it must set a positive example by proposing emission-reduction standards for the South with due regard to an equitable sharing of global environmental resources. The Indian government's domestic task is clearly cut out: ban SUVs, steeply raise taxes on air conditioners and other high-energy gadgets, discourage private transport, and promote renewables. That's the way India can make a worthy contribution to the world. Praful Bidwai is veteran Indian journalist and commentator. He can be reached at bidwai@bol.net.in.

1.4. Kyoto Protocol confirmed as the only game in town 12 December 2005, AFP

byline: Richard Ingham: Critics damn it for a long list of reasons and it has been declared dead several times, but the Kyoto Protocol emerged stronger than ever after the Montreal conference on climate change that ended here Saturday. In a meeting that was gruelling and dramatic even by the extraordinary standards of past years, the UN pact for tackling greenhouse gases saw off a series of assaults and defiantly set its eyes on new horizons. Gathering against a backdrop of ever-starker scientific warnings about global warming, Kyoto's 159 members approved crucial decisions on strengthening the treaty's mechanisms. They also agreed to launch negotiations from next May on cutting greenhouse gas pollution beyond 2012, when the present Kyoto pledges run out. The agreement will lift a dark shadow of uncertainty that had fallen over the fledgling market in carbon dioxide (CO₂), an important Kyoto device set up to leverage cuts in emissions. But it equally sent two in-your-face messages to the United States, a bitter opponent of Kyoto as well as the world's worst carbon polluter, accounting by itself for nearly a quarter of global emissions. It told President George W. Bush that his rival format for tackling global warming -- a mix of voluntary emissions cuts, smart energy technology and "partnerships" with Asia-Pacific nations -- has failed to sap any support for Kyoto and its cap-and-trade format. And it warned US politicians and businesses that, if the protocol's machinery works as well as its supporters claim, American corporations will lose out on the profits that can be reaped from the global carbon cleanup, so long as their country stays outside the Kyoto club. Any US return to Kyoto is clearly impossible so long as Bush, who dramatically abandoned the treaty in 2001, remains in office. And even after his departure in January 2009, there is likely to remain a groundswell of hostility to Kyoto in the United States. To meet Kyoto's benchmarks requires industrialised countries to impose tougher fuel efficiency standards, regulations on CO₂ emissions and laws to encourage use of renewable energy. Such measures will be opposed by the US fossil-fuel and auto lobbies and by many American consumers, fearful of being wacked in the wallet. But, a few

years from now, another decision made at Montreal could well help to coax the US back into the Kyoto fold. This one, made under the UN Framework Convention on Climate Change (UNFCCC), of which the United States remains a member (as opposed to Kyoto, of which it is not), calls for a non-binding "dialogue" on long-term emissions cuts among all parties. The US delegation fought bitterly against this process, suspecting it to be the thin edge of a Kyoto wedge, or at the very least yet another disaster-in-the-making for the US image. For all these big successes in Montreal for Kyoto and its supporters, the path ahead for the treaty remains sown with pitfalls. Just as 2005 showed off Kyoto's strengths, 2006 may well show its weaknesses. Veterans of the Kyoto process are bracing for another battle of national interests next year as negotiations are launched for the post-2012 round of cuts. Huge political and economic interests will be at stake. How big should the cuts be? Who will make them? In short, how should the pain be shared? The most explosive question is how much, or even if, China and other fast-growing populous countries such as India and Brazil, should join industrialised countries in making pledges to cut their emissions. The haggling can be expected to run until 2008 at least, diplomats warn. Another looming problem is whether the EU countries, Japan and Canada will be able to deliver on their famous promises on making emissions cuts by 2012, as compared to their pollution levels of 1990. Most of them are on track for missing the target by a wide margin, a failure that would destroy the argument, sustained by greens for more than a decade, that Kyoto despite its complexity can deliver the goods. Put these spoiling factors together, add the realisation that the world's biggest polluter will be getting a free ride while the others will be told to clean up their act -- and there is little surprise why so many climate scientists shake their heads and say it's all too little, too late. This article is reproduced with kind permission of Agence France-Presse (AFP).

ENERGY AND EMISSIONS

2.1. Panama jungle power plan worries environmentalists

21 December 2005, Reuters

By Mike Power: A plan by Panama and Colombia to link power grids through a remote jungle is worrying environmentalists and indigenous groups, who fear it would benefit rebels, loggers and a flesh-eating parasite. In a summit last week in Mexico, leaders from Central America and Colombia agreed to an energy integration project to help reduce dependency on oil imports. That includes linking up power grids from Mexico to Colombia via Panama's Darien Gap, where Central and South America meet. Colombia and Panama's leaders have agreed to look at building a transmission line through the dense Darien jungle and will decide in 2006 whether to go ahead and which route to take. Environmentalists warn the project will require cutting a path of at least 130 feet wide through virgin rainforest, allowing people and diseases to enter and pass through one of the world's most unspoiled wildernesses. The Darien Gap hosts more than 900 different mammals and birds, including endangered species such as the spectacled bear and puma, along with over 2,000 plant species. Environmental engineer Scott Muller, co-author of a U.N. ecosystem assessment on the neighboring Kuna Yala region, says the plans are a time bomb. "Once there is access, deforestation will explode," he said. Isaac Castillo, general manager of Panama's electrical transmission company ETESA, denies damage will be substantial. "All human activity has an impact on the environment," he said. "We will take steps to mitigate them in some cases and avoid them in others." The Darien Gap marks the only break in the road linking Alaska with Argentina and acts as a bio-barrier for diseases such as foot-and-mouth, which is absent north of Colombia. Screw worm, a parasite that eats the living flesh of humans and animals, is controlled by a U.S.-funded program throughout the continent and the Caribbean. Disturbing the ecosystem could help it spread northward, say environmentalists.

2.2. Gas Emissions Reached High in U.S. in '04

21 December 2005

By Andrew C. Revkin: American emissions of greenhouse gases linked to global warming reached an all-time high in 2004, rising 2 percent from the year before, the Energy Department said, nearly double the average annual rate measured since 1990. The department's Energy Information Administration, in a report issued Monday, also raised earlier government estimates of emissions for 2003, pushing that year past 2000 into second place. No estimates were available for United States emissions in 2005, although energy experts say increased economic growth this year is likely to make

it another record-setter. The increases in 2003 and 2004 followed a brief dip in emissions in 2001 and 2002. Government officials said that decline reflected a slowdown in the economy, the departure of some manufacturing industries overseas, and emissions cuts in other industries. Less than two weeks ago, Bush administration officials at climate-treaty talks in Montreal repeatedly cited the short-lived drop in emissions after 2000 as evidence that President Bush's climate policy, using voluntary measures to slow growth in the gas releases, was working. In its report, the energy agency said that while overall emissions were growing, the rate of growth continued to slow relative to economic growth, and so remained on the track set by Mr. Bush. Yesterday, Lord Rees, the president of the Royal Society, an independent British scientific academy similar to the National Academies in the United States, said the new American data showed that all industrialized countries needed to intensify efforts to cut emissions. He noted that Britain's emissions had also risen in the last two years. Lord Rees said that the two countries and the other members of the Group of 8 biggest industrialized nations clearly had to do more to live up to a statement they issued at a summit meeting in Scotland in July, in which they resolved to act with "urgency" to reduce greenhouse gas emissions. "We should not underestimate the challenge of achieving economic growth whilst reducing emissions, and the United States is not the only country that is struggling to do this," Lord Rees said in a statement. "But it seems unlikely that the present U.S. strategy of only setting emissions targets relative to economic growth, reducing so-called greenhouse gas intensity, will be enough." Carbon dioxide, the main greenhouse gas generated by humans, remains an unavoidable byproduct of burning the fossil fuels that underpin modern life. Other powerful greenhouse gases include methane, which leaks from landfills and gas pipelines, and nitrous oxide, released mainly from fertilizer use in large-scale farms. The gases are measured collectively in tons of carbon dioxide by converting the heat-trapping capacity of each gas into the amount of carbon dioxide that would have the same warming effect. By this measure, total American emissions of the six major greenhouse gases in 2004 added up to the equivalent of 7.1 billion metric tons of carbon dioxide, up 2 percent from 6.98 billion metric tons in 2003. Emissions in 2000 were 6.97 billion tons, the agency said. The energy agency's greenhouse gas report is online at eia.doe.gov/environment.html.

2.3. Seven US States Sign CO2 Plan in Break with Bush

21 December 2005, Planet Ark, Reuters

Seven northeastern US states have signed the country's first plan to create a market for heat-trapping carbon dioxide by curbing emissions at power plants, New York Gov. George Pataki said on Tuesday. In a break with fellow Republican President George W. Bush, Pataki helped create the Regional Greenhouse Gas Initiative, in which participating states agree to curb emissions starting in 2009, with cuts in emissions starting in 2016. Bush pulled out of the Kyoto Protocol on global warming in 2001, saying it would hurt the US economy. He backs voluntary, not mandatory, cuts in production of greenhouse gases that most scientists believe warm the earth. Environmentalists and growing ranks of carbon dioxide brokers hope one day the northeastern states will link with western states such as California to create a national greenhouse gas emissions market. Pataki, who initiated RGGI in 2003, is widely thought to be aiming for the Republican nomination for the 2008 presidential election. "In the face of the Bush administration's adamant refusal to cut heat-trapping pollution, this is a bold act of bipartisan leadership," said Dr. Peter Frumhoff, a climate expert at the Union of Concerned Scientists. Pataki said in a statement on Monday that RGGI will curtail CO2 emissions and spur development of new technologies to reduce US dependence on foreign oil. Other members of the RGGI are Connecticut, Delaware, Maine, New Hampshire, New Jersey, and Vermont. Membership is open to other US states. The states in early 2006 will issue for public review a draft of a memorandum of understanding on the plan that they signed on Monday. Each state then must proceed with required legislative or regulatory approvals to adopt the program. Market: The United States, the world's largest producer of greenhouse gases, created the idea of emissions markets but lags other rich nations in developing them. The Kyoto pact, ratified by 156 nations, created a greenhouse gas market in the European Union earlier this year. In that market, industrial plants that have cut carbon emissions can sell credits to those that have not. A similar Kyoto-created market will open in Canada next year. US emissions brokers said RGGI should create a vibrant market by allowing power plants to mostly invest in clean energy projects, such as methane burning at landfills and wind farms. "Essentially everybody (power plants) under RGGI will be short credits," said Andy Ertel, president of Evolution Markets, a New York based emissions broker. "That will lend itself to being more of a project-oriented market rather than a domestic version of the European Union's market, in which

participants trade a lot of pure allowances for carbon." Stakeholders' short positions in RGGI will be created by a rule in which at least 25 percent of a state's CO2 allowances will be dedicated to energy efficiency and new clean energy technologies. Smaller RGGI: Under RGGI, emissions of CO2 from power plants in the seven states beginning in 2009 would be capped at current levels of about 121 million tons until 2015. The states would then slowly reduce emissions, aiming for a 10 percent reduction by 2019. Massachusetts and Rhode Island quit the program earlier this month, saying it would raise power prices. But some utilities, perhaps wanting to prepare for future carbon regulations, applauded the plan. KeySpan Corp. and Public Service Enterprise Group support the RGGI, while Dominion Resources Inc. and NRG Energy have come out against it. The RGGI's own studies suggest that the plan could boost electricity bills by as much as \$30 a year, but bills could be eventually cut through increased efficiency of clean energy projects.

2.4. China firms, World Bank in \$930 mln emissions deal

20 December 2005, <http://www.ndtv.com/> > <http://www.ndtv.com/>

By Stuart Penson: (Reuters) - Two private Chinese chemicals firms and the World Bank on Monday launched the world's biggest single project to cut greenhouse gas emissions in a deal worth nearly \$1 billion, the World Bank said. The move comes as experts predict China will become the world's biggest polluter over the next 25 years, overtaking the United States as it builds hundreds of new power stations to feed its rapidly growing economy. "The Government of China attaches a high priority to participation in global efforts under the Kyoto Protocol," said Ju Kuilin, Deputy Director General of China's International Department at the Ministry of Finance, in a statement issued by the World Bank. "We are glad that it has been possible to bring forward this project, which we expect will make a significant contribution to these efforts, with two companies from Jiangsu Province," he was quoted as saying. Under the \$930-million contract the Chinese firms will cut millions of tonnes of emissions at chemicals plants in China's Jiangsu Province. The reductions will earn credits that the World Bank will buy on behalf of foreign governments and firms which need extra credits to help meet Kyoto Protocol targets on reducing greenhouse gas emissions. China has not been set reduction targets under Kyoto. The World Bank said Jiangsu Meilan Chemical Co. Ltd., and Changshu 3F Zhonghao New Chemicals Material Co. Ltd, in Jiangsu Province are expected to achieve annual reductions of about 19 millions tonnes of carbon dioxide equivalent. The project will focus on capturing HFC-23, one of the most potent greenhouse gases blamed by many scientists for global warming and climate change, said the World Bank.

2.5. Ford Calls for Broad Discussion On Carbon-Dioxide Emissions

20 December 2005, The Wall Street Journal

By Joseph B White: Ford Motor Co., in a move urged by environmental groups, will embrace the concept of stabilizing global carbon dioxide, in what appears to be a first for a major auto maker. But Ford won't commit to achieving a specific target for higher fuel economy in its vehicles. Instead, the auto maker's chairman and chief executive, William Clay Ford Jr., will call for a "broader discussion" about how to reduce carbon-dioxide emissions across the economy, said Niel Golightly, Ford's director of sustainable business strategies. Ford will "recognize a societal goal of achieving climate stabilization," said Mr. Golightly. Ford will support a goal of stabilizing atmospheric carbon dioxide at 550 parts per million. Currently, carbon dioxide is at 380 parts per million and is on the rise, Ford said. Scientists who have studied rising atmospheric carbon-dioxide levels have predicted that if global economies continue on their current track, atmospheric carbon dioxide could rise to as much as 1,000 parts per million, creating the potential for harmful climate and environmental changes, Mr. Golightly said. In a report scheduled for release today, Ford is expected to outline the potential impact on its business of climate change and related world-wide energy issues. The auto maker -- which recently said it would put greater emphasis on more fuel-efficient gasoline-electric hybrid engines -- prepared the paper in response to a shareholder resolution that was withdrawn after Ford committed to publishing the report. A spokesman for Ceres, a coalition of investors and environmental groups, said investors plan to file a resolution with General Motors Corp. next week urging the auto maker to prepare a report similar to Ford's. "It's the first time an auto company has taken a comprehensive view of the financial risks from global warming," said Ceres President Mindy Lubber, who is also director of the Investor Network on Climate Risk. At a time when Detroit auto makers have been hinting they could use a helping hand from Washington, Ford's decision to embrace at least the

concept of more-vigorous action on global warming could put the auto maker at odds with the Bush administration. The White House has argued that the Kyoto treaty on climate change could hurt the U.S. economy. But Ford's statement calling for "market-based" strategies to stabilize global carbon-dioxide levels puts it in a league with several other big multinational corporations that have recently tried to find a middle ground in the climate debate. "Regulation is not going to walk backwards on anything related to energy or carbon," Mr. Golightly said. "There's a hiatus in the U.S. But anywhere else, there is a pretty strong push on various frameworks" for carbon regulation. Mr. Ford, who has described himself as an environmentalist, also is looking to burnish Ford's image as a progressive corporation dedicated to social responsibility and innovation. Ford's report got enthusiastic early reviews yesterday from leaders of the Union of Concerned Scientists and Ceres. "They are highlighting that climate change is real, and that we need strong action," said Kevin Knobloch, president of the UCS.

2.6. We'd rather keep the lights on than be green

11 December 2005, The Sunday Times

byline: Irwin Stelzer: The 189 nations and 8,000 delegates gathered last week in Montreal at the Climate Change Conference faced an ugly reality: most of the countries that promised to cut their greenhouse gas emissions to meet their Kyoto treaty obligations have failed to do so. It seems that job-creating economic growth trumps environmental concerns, especially given the uncertainty surrounding the presence and causes of global warming. Besides, developing countries such as India, China, South Africa and Brazil have shown no inclination to join, although richer countries agreed in Montreal to increase their incentives to cut emissions. Indeed, when the energy crunches come, politicians quickly shed their green clothes. This week the Opec oil cartel hinted that its members might cut production to keep the price of crude oil above \$60 a barrel. That sent consuming countries' policymakers into a spin. They want Opec to pump more, not less, oil to feed their thirsty cars, trucks and factories, and to heat the homes of those who have not switched to natural gas. Oh yes, that oil will produce more greenhouse-gas emissions -but that's a problem for another international conference. Then there is natural gas. Suddenly the politicians are less concerned about the emissions resulting from the burning of natural gas than about shortages that might force some factories to shut down during periods of peak use of that relatively -but only relatively -clean fuel. Hell hath no fury like that of a workman (read, voter) laid off because his government's energy policy has resulted in a supply shortage. Which brings us to renewable energy. Wind and solar energy will play an increasingly important role in meeting the world's growing need for energy, but they cannot replace the huge amounts of energy produced by coal-and gas-fired power stations and by nuclear plants. Besides, these sources are not without consequences for the environment witness the opposition of Tony Blair's supporters to the construction of a wind farm in his constituency. This reduces the options to three: clean coal technology, conservation, and nuclear power. America is pioneering the first of these options, which may well be the most important if China goes ahead with plans to build hundreds of coal plants -and American firms, indeed, build the 90 plants they now say they have on the drawing board. As for conservation, it remains an important factor. Because vehicles have become more efficient, and factories more energy-stingy, energy use per unit of GDP has declined sharply. That enabled the American economy to shrug off high oil and petrol prices that in an earlier time combined with some inept policy reactions to produce severe economic downturns. Then there is nuclear, the new darling of policymakers, to the glee of GE, Westinghouse and others eager to end a decades-long drought of orders. Britain, which now gets about a fifth of its electricity from its ageing nuclear plants, is about to go through the trauma of yet another energy-policy review, with Blair eager to reopen the nuclear option before all save one of its existing plants are decommissioned in 2023. In America, at least eight companies have announced that they intend to pursue construction licences, but none has yet committed itself to building a new nuclear station. One of the utility industry's shrewdest and most successful operators told me that until the waste disposal problem was solved, he would restrain his engineers, who were champing at the bit to get started on another round of nuclear plant construction. That problem is far from a solution. The best site for depositing the waste is Yucca Mountain, unfortunately in Nevada, the home state of the powerful minority leader of the Senate, Harry Reid, who has sworn to prevent the use of that site. Result: stalemate. Unless, of course, some of the companies that are considering building nuclear plants decide they can continue to store the waste in the hundreds of ponds that dot the American landscape, to the increasing consternation of Homeland Security officials. If any of the potential sponsors of new plants do go forward, the best

guess is that the earliest plant might come on line in 2016. That plant will probably be in the south, where competition has not replaced old-style regulation, meaning that the owners of these facilities would be shielded from the competition with fossil fuels that prevails in electricity markets in other parts of the United States. Meanwhile, attention is focused on Finland, where a new model Areva EPR (evolutionary pressurised reactor) is under construction by TVO (Teollisuuden Voima Oy). Most American companies are less enthusiastic than their European counterparts: they say the Areva EPR is 33% more costly to build than the technologies on offer from GE and Westinghouse, and is well behind competing models in securing the necessary approval of the Nuclear Regulatory Commission. Approval for the Areva EPR design probably won't come until 2009. In the end, the prospects for nuclear power will depend heavily on three things: the forecast price of competing fossil fuels; the expected cost of the carbon permits that users of coal, natural gas and oil must buy; and the extent to which governments streamline licensing approvals and, very likely, subsidise nuclear power. The subsidies might take the form of government guaranteeing the price of the nuclear-generated electricity, or making a convincing promise to bear the costs of waste disposal and decommissioning. It would also depend, of course, on the risk tolerance of investors who have seen American companies take ruinous losses on plants built during the last wave of enthusiasm for nuclear power. Irwin Stelzer is a business adviser and director of economic policy studies at the Hudson Institute. He has served as a consultant to many energy companies and advises a leading developer of wind farms. - stelzer@aol.com. Copyright 2005 Times Newspapers Limited.

CLIMATE IMPACTS

3.1. Pollutants ward off global warming, study finds

22 December 2005, The Guardian

Ian Sample: Cutting air pollution could trigger a greater surge in global warming than previously thought, suggesting future rises in sea level and other environmental consequences have been underestimated, climate scientists report today. The warning comes after researchers investigated the effect of fine particles known as aerosols on climate change. Aerosols - particles smaller than one hundredth of a millimetre - are churned out from factory chimneys, from the burning of fossil fuels and forest fires, although sea salt and dust particles swept up by desert storms add to levels detected in the atmosphere. Because the particles are so light, they remain aloft for long periods, where they cool the Earth by reflecting radiation from the sun back out to space. Higher levels of aerosols lead to the formation of brighter clouds made up of smaller water droplets, which reflect still more of the sun's warming radiation. Cutting down on aerosols by improving air quality means that the Earth will in future be less shielded against the sun's rays. Writing in the journal *Nature* today, scientists at the Meteorological Office and the US government's National Oceanic and Atmospheric Administration report that climate models used to predict future global warming have badly underestimated the cooling effect of aerosols. "We found that aerosols actually have twice the cooling effect we thought," said Nicolas Bellouin, a climate modeller at the Met Office. The consequence is that as air quality improves and aerosol levels drop, future warming may be greater than we currently think." Dr Bellouin's study suggests that even by conservative estimates, climate models have got the impact of aerosols on the climate wildly wrong. "The discrepancy between the models and our observations is not good news," he said. The scientists used images from a US satellite called Modis to look at how much sunlight aerosols in the atmosphere reflect back to space on cloud-free days. Using another satellite called Toms, they were able to separate readings for the effect of smaller aerosols produced by natural processes from those produced by human activity. Scientists had assumed that the amount of sunlight reflected by aerosols from industry and fuel burning was tiny compared to the extra reflective cloud cover they caused, but Dr Bellouin's research suggests the processes are equally important. Dr Bellouin says climate scientists will have to plug the new information into their models before they can be sure of the implications for global warming. One possibility is that while the latest study shows scientists have underestimated the so-called direct effect of aerosols reflecting the sun's rays, they may have overestimated the indirect effect they have on cloud cover, meaning the overall error of climate models would not be serious. Earlier this year, Peter Cox at the Centre for Ecology and Hydrology in Winfrith, Dorset, warned that if the cooling effect of aerosols turned out to be greater, it could trigger faster global warming. "It's quite a bizarre thing, because the last thing you want to suggest to people is that it would be a good idea to have dirty air, but as far as climate change is concerned, that's right. Everyone would be getting asthma, but the environment would be

cooler. "That said, the direct effects of air quality, particularly in urban areas, are so important to human health, that it would be crazy to think of anything other than health damage," he said. If the Met Office calculations are right, they suggest the atmosphere's temperature is also more responsive to carbon dioxide than scientists believe. "If the cooling influence of aerosols is larger, it implies that the warming from the carbon dioxide must be larger than we think to match the warming we've seen in the past 100 years. "And if that's the case, future climate change will be more than we have expected with air quality improvements," he said.

3.2. Pollution May Slow Warming; Cleaner Air May Speed It, Study Says

22 December 2005, Bloomberg

Pollution may be slowing global warming, researchers are reporting today, and a cleaner environment may soon speed it up. Writing in the journal *Nature*, an international scientific team provides evidence suggesting that a reduction in haze from human causes may accelerate warming of the earth's atmosphere. The researchers said pollutants had held down the rate of global warming by absorbing and scattering sunlight. "If people clean up the air, more warming will come blazing through," Jim Coakley, a professor of atmospheric sciences at Oregon State University in Corvallis, said yesterday in a telephone interview. *Nature* selected Dr. Coakley to write a commentary on the study. The scientists, who work for government agencies in Britain and the United States, made the finding after adding satellite-based measurements of haze to computer models estimating the consequences of industrial emissions of aerosols, or airborne particles. Haze scatters and absorbs some sunlight, keeping it from reaching the ground, and this cooling effect is stronger than many scientists had believed, the study says. The cooling offsets about one-third of the warming from the use of fossil fuels and other manmade causes, the study says. "Consequently, continued aerosol emission controls may lead to a stronger warming than current model predictions," the researchers wrote. Global temperatures are already about seven-tenths of a degree Fahrenheit higher than they were in the 1880's, Dr. Coakley said, and expected further warming may mean that within decades, summers will be about a month longer than they are now. The new estimate of the cooling effect of haze is at the high end of ranges cited by the Intergovernmental Panel on Climate Change, a study group created by the United Nations Environment Program and the World Meteorological Organization. But Dr. Coakley noted that the science was still complicated and that other factors remained to be measured, including the cooling effect of sunlight reflections from water droplets associated with haze, as distinct from the haze itself. Reducing haze would eliminate the droplets and remove yet another source of cooling, he said. "This is a brave effort," he said of the new report. "But let's see what others come up with now." In 1995, Paul Crutzen, Mario Molina and F. Sherwood Rowland received the Nobel Prize in Chemistry for explaining how the ozone shield, which screens out harmful radiation, is damaged by industrial gases.

3.3. Polar bears drown as ice shelf melts

18 December 2005, The Sunday Times

Will Iredale: Scientists have for the first time found evidence that polar bears are drowning because climate change is melting the Arctic ice shelf. The researchers were startled to find bears having to swim up to 60 miles across open sea to find food. They are being forced into the long voyages because the ice floes from which they feed are melting, becoming smaller and drifting farther apart. Although polar bears are strong swimmers, they are adapted for swimming close to the shore. Their sea journeys leave them vulnerable to exhaustion, hypothermia or being swamped by waves. According to the new research, four bear carcasses were found floating in one month in a single patch of sea off the north coast of Alaska, where average summer temperatures have increased by 2-3C degrees since 1950s. The scientists believe such drownings are becoming widespread across the Arctic, an inevitable consequence of the doubling in the past 20 years of the proportion of polar bears having to swim in open seas. "Mortalities due to offshore swimming may be a relatively important and unaccounted source of natural mortality given the energetic demands placed on individual bears engaged in long-distance swimming," says the research led by Dr Charles Monnett, marine ecologist at the American government's Minerals Management Service. "Drowning-related deaths of polar bears may increase in the future if the observed trend of regression of pack ice continues." The research, presented to a conference on marine mammals in San Diego, California, last week, comes amid evidence of a decline in numbers of the 22,000 polar bears that live in about 20 sites across the Arctic

circle. In Hudson Bay, Canada, the site of the most southerly polar bears, a study by the US Geological Survey (USGS) and the Canadian Wildlife Service to be published next year will show the population fell 22% from 1,194 in 1987 to 935 last year. New evidence from field researchers working for the World Wildlife Fund in Yakutia, on the northeast coast of Russia, has also shown the region's first evidence of cannibalism among bears competing for food supplies. Polar bears live on ice all year round and use it as a platform from which to hunt food and rear their young. They hunt near the edge, where the ice is thinnest, catching seals when they make holes in the ice to breath. They typically eat one seal every four or five days and a single bear can consume 100lb of blubber at one sitting. As the ice pack retreats north in the summer between June and October, the bears must travel between ice floes to continue hunting in areas such as the shallow water of the continental shelf off the Alaskan coast — one of the most food-rich areas in the Arctic. However, last summer the ice cap receded about 200 miles further north than the average of two decades ago, forcing the bears to undertake far longer voyages between floes. "We know short swims up to 15 miles are no problem, and we know that one or two may have swum up to 100 miles. But that is the extent of their ability, and if they are trying to make such a long swim and they encounter rough seas they could get into trouble," said Steven Amstrup, a research wildlife biologist with the USGS. The new study, carried out in part of the Beaufort Sea, shows that between 1986 and 2005 just 4% of the bears spotted off the north coast of Alaska were swimming in open waters. Not a single drowning had been documented in the area. However, last September, when the ice cap had retreated a record 160 miles north of Alaska, 51 bears were spotted, of which 20% were seen in the open sea, swimming as far as 60 miles off shore. The researchers returned to the vicinity a few days later after a fierce storm and found four dead bears floating in the water. "We estimate that of the order of 40 bears may have been swimming and that many of those probably drowned as a result of rough seas caused by high winds," said the report. In their search for food, polar bears are also having to roam further south, rummaging in the dustbins of Canadian homes. Sir Ranulph Fiennes, the explorer who has been to the North Pole seven times, said he had noticed a deterioration in the bears' ice habitat since his first expedition in 1975. "Each year there was more water than the time before," he said. "We used amphibious sledges for the first time in 1986." His last expedition was in 2002, when he fell through the ice and lost some of his fingers to frostbite.

3.4. The weather in 2026

From *The World* in 2006 print edition

Philip Eden: The climate has changed since we first published, in 1986. How will it change over the next 20 years? "How can you predict what the climate will be like in 20 years' time when you can't even get tomorrow's forecast right?" That is the usual response from the layman to the climatologist expounding the latest theory on climate change. Put it this way: forecasting tomorrow's weather is a bit like estimating how much loose change you will have in your pocket or purse in 24 hours' time. It is the result of many small transactions, often inter-related, most of them entirely predictable at such short range: a visit to the cashpoint, buying groceries, pocket-money for the kids, and so on. Foreshadowing changes in the climate over a long period is more akin to calculating the household budget over a year or more: the daily transactions hardly matter, whereas much more important are out-side influences, many of which are predictable but some of which may be quite unexpected. Climatologists believe they understand most but not all of these "forcing factors" and are therefore able to make broad-brush, qualified assessments of where the world's climate may go in coming decades. We can get a feel for the direction the climate is taking by looking back 20 years. During that period the mean temperature of the lowest layer of the atmosphere, where human beings live, has increased by 0.4°C. The warming has not been even: the northern hemisphere has warmed more than the southern hemisphere, the continents more than the oceans, the polar fringes more than the core of the Arctic and Antarctic, and Europe more than North America. In Europe (excluding the Mediterranean basin) there were twice as many heat-related deaths in two weeks in August 2003 than there had been in the 20 previous years put together. In September 2005 both the geographical extent and the mean thickness of Arctic Ocean ice reached record low levels. The warming seems to be accelerating. Computer models indicate a rise in temperature, averaged globally, of 0.5-1.0°C between 2006 and 2026. We can expect the hemispheric and continent/ocean differentials to continue, though not necessarily the transatlantic one, so substantial further warming is likely over both Europe and North America. In the Arctic basin sea-ice may vanish altogether in the summer by the 2020s; this will probably generate a dynamic of its own. For the time being energy in the form of

latent heat is absorbed throughout the summer by the melting process in the Arctic, maintaining cold conditions there and preventing the ocean temperature from climbing more than a degree or so above zero. If all the ice were routinely to disappear by late July, that energy absorption would halt, the Arctic Ocean would warm by several degrees, delaying the onset of ice formation in the autumn. The change in temperature distribution in the Arctic would also affect ocean currents in the Atlantic, which would in turn influence the atmospheric circulation in the region. These knock-on effects are very difficult to model on the computer because we have no detailed measurements from previous such occurrences. However, one could postulate a poleward shift in the Atlantic depression track, and that would leave much of Europe—Scotland, Iceland and Norway excepted—with less rain in all seasons and much more prone to water shortages. Tropical revolving storms (variously known as hurricanes, typhoons and cyclones) have been regarded as particularly sensitive to a changing global climate. These storms can develop only where the sea-surface temperature exceeds 26°C. Although their frequency has increased sharply, especially in the Atlantic/Caribbean, this may be part of a natural 60-year cycle: there were previous peaks in the 1880s and 1940s. Still, a warming climate will probably result in storms which are both longer-lasting and more intense, and which may develop in areas hitherto largely immune—offshore Brazil, for instance. And although their frequency may decrease between now and 2026 in line with the natural cycle, this may be partly offset by an extension of the season. Remember, too, that the coastal fringes threatened by these storms, from Texas to Taiwan, Florida to the Philippines, are increasingly urbanised and susceptible to huge human and economic losses. Climate, it was once said, is average weather. That is not so. The climate of a given place is described by the extremes as well as the averages. Even if the world's climate were static there would be dozens of natural disasters every year. With a rapidly changing climate, the next 20 years will be a white-knuckle ride: droughts, floods, heatwaves and hurricanes will probably occur more frequently (affecting regions that were previously untouched) and be longer-lasting. Even the mundane will change: in 2026 the ordinary day-to-day weather where you live will be different—almost certainly warmer, possibly drier but in other places possibly wetter—than it is today.

3.5. Study: Climate change may melt permafrost

26 December 2005, http://seattlepi.nwsourc.com/national/1501AP_Permafrost_Study.html

The Associated press: Climate change could melt the top 11 feet of Alaska permafrost by the end of the century, according to a new study. The federal study applied one supercomputer climate models to the future of permafrost. Under the most extreme scenario outlined, warming temperatures could thaw the top 11 feet of permafrost near the ground surface in most areas of the Northern Hemisphere by 2100, altering ecosystems across Alaska, Canada and Russia. "If that much near-surface permafrost thaws, it could release considerable amounts of greenhouse gases into the atmosphere, and that could amplify global warming," said lead author David Lawrence, with the National Center for Atmospheric Research. "We could be underestimating the rate of global temperature increase." A permafrost researcher at the University of Alaska Fairbanks, however, disagrees that the thaw could be so large. Alaska's permafrost won't melt that fast or deep, said Vladimir Romanovsky, who monitors a network of permafrost observatories for the Geophysical Institute. If air temperatures increase 2 to 4 degrees over the next century, permafrost would begin thawing south of the Brooks Range and start degrading in some places on Alaska's Arctic slope, he said. But a prediction that melting will reach deeply over the entire region goes too far, he said. The computer climate model didn't consider some natural factors that tend to keep the permafrost cold, Romanovsky said. For example, deeper permafrost, largely untouched by recent warming at the surface, would have an influence. Lawrence said he hopes to collaborate with Romanovsky to fine-tune future studies to deal with those deeper layers. Permafrost - earth that remains frozen year-round - lies under much of Alaska, Canada and Siberia. It can be more than 1,000 feet deep on the Arctic slope. Ground melting is only one clue that Arctic climate change may be speeding up. In September, the polar ice cap shrank to its smallest extent in 25 years of monitoring by satellite. Tundra has been greening up. NASA recently reported that 2005 may top 1998 as the Earth's warmest year on record. The permafrost simulations came from some of the most detailed climate models ever made, Lawrence said. Using supercomputers in the United States and Japan, it calculated how frozen soil would interact with air temperatures, snow, sea ice changes and other processes. The study was published Dec. 17 in the journal Geophysical Research Letters and presented earlier in the month at a science conference in San Francisco.

PUBLICATIONS

4.1. Household consumption and the environment

EEA Report No 11/2005, published at: http://reports.eea.eu.int/eea_report_2005_11. Abstract: A renewed policy focus on sustainable consumption and production (SCP) can be observed, both at the global level and in Europe. With an aim to provide input for European policy-making, this report analyses the environmental effects of household consumption in Europe. We have identified four consumption categories that form a major part of our total consumption expenditure and for which the environmental effects are either large or increasing rapidly. These are consumption of food and drink; housing; personal travel and mobility; and tourism. The negative environmental effects of our consumption do not only occur in Europe, but also in other regions of the world, mainly as a result of resource extraction, production, processing and transportation of the goods we consume in Europe, and as a result of our personal travel and tourist activities. Attaining more sustainable consumption and production patterns is a common challenge that involves all actors, including public authorities at all levels, business and consumers.

4.2. Review of New Zealand climate change policy

The New Zealand Government has released the report of a review of climate change policy. The Review was requested in mid 2005, and was delivered to the Government on 9 November 2005. The Review was conducted by relevant Government officials and led by the Ministry for the Environment. Copies of the report can be downloaded here: <http://www.climatechange.govt.nz/resources/reports/policy-review-05/index.html>.

ANNOUNCEMENTS

5.1. Invitation for comments - JI project in Russia

DNV Certification is currently making a determination of the "Methane Emissions Avoidance in Kursk gas distribution network" project in the Russian Federation. The project seeks to improve the Kursk regional gas distribution network by reducing methane leaks from the system. This will be accomplished by activities that will detect, measure and repair leakages at gas regulator stations in the natural gas system operated by the company Kurskgas. We herewith invite comments from Parties, stakeholders and observers in accordance with the JI rules and modalities. Comments may be provided during a period of 30 days until 28 January 2006 on the DNV Climate Change webpage <http://www.dnv.com/certification/climatechange/Projects/ProjectList.asp>. After that the project is closed for comments, but the project documentation is still available for review.

5.2. Invitation for comments – JI project in Bulgaria

TÜV Industrie Service GmbH TÜV SÜD Group is currently making a determination of the "Energy efficiency investment programme at Svilosa Pulp Mill", Bulgaria. Purpose of the project is the implementation of a series of energy efficiency measures to reduce Company's energy consumptions and greenhouse gas emissions. i.E. Installation of frequency control drives on electric motors, Installation of a back pressure steam turbine. The overall objective of the JI project is to generate Emission Reduction Units (ERUs) reducing about 825,000 tonnes of CO2 in the period 2007-2012. Svilosa AD is a wood processing Company whose main final products is bleached sulphate pulp. TÜV Industrie Service GmbH TÜV SÜD Group herewith invites comments from Parties, stakeholders and observers in accordance with the JI rules and modalities. Comments may be provided during a period of 30 days on our webpage: http://www.netinform.net/KE/Wegweiser/Guide2.aspx?ID=1482&Ebene1_ID=26&Ebene2_ID=394&m ode=0.

5.3. Invitation for comments – JI project in Bulgaria

DNV Certification is currently making a determination of the "Rehabilitation of Dolna Arda Hydropower Cascade, Bulgaria" project. This project, proposed as Joint Implementation (JI) project between

