

# THE CARBON SEQUESTRATION NEWSLETTER

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August 2004

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## Sequestration in the News

**Spencer Abraham on “The Bush Administration’s Approach to Climate Change.”** In the July 30, 2004 issue of *Science*, energy Secretary Abraham discusses the steps the Administration is taking to address climate change, which include: Near-term policies and measures, advancing climate change science, and accelerating climate change technology development. Carbon capture and sequestration is cited as a central element of the Administration’s strategy. By Spencer Abraham, *Science*, July 30, 2004, Vol. 305, pp. 616-617.

**U.S. to Unveil Plan to Harvest Methane with 7 Countries.** The Bush administration announced an agreement with seven countries to slow global warming and harvest an otherwise wasted fuel by capturing emissions of methane from landfills, coal mines, and oil and gas fields and pipelines. Michael O. Leavitt, the administrator of the Environmental Protection Agency, said the administration would propose spending \$53 million over the next five years. He said the goal of the participating countries would be to inspect sites for leaks and, by 2015, capture nine million metric tons of the gas annually, to sell or to burn directly as a source of heat. *The New York Times*, July 28, 2004, <http://www.nytimes.com/2004/07/28/politics/28methane.html>. For more information visit the EPA’s methane web site at <http://www.epa.gov/methane/international.html>.

**Democratic National Convention goes CO<sub>2</sub> neutral using credits from coal mine.** The Boston Carbon Corporation (BCC) donated 27,000 Greenhouse Gas Certified Trading Credits (CTCs) to the Democratic National Convention (DNC). The credits offset the estimated 27,000 tonnes of CO<sub>2</sub> emissions generated by delegates, media, staff, and others as they traveled to and from Boston during the week of the convention. The credits donated by BCC to the DNC were created through the capture of fugitive methane gas from Jim Walter Resources, Inc., a coal mining company in Alabama. BCC Press Release, July 26, 2004, [http://biz.yahoo.com/prnews/040726/nem036\\_1.html](http://biz.yahoo.com/prnews/040726/nem036_1.html).

**Weyburn on the Discovery Channel.** An article on the Discovery Channel web site discusses carbon sequestration and monitoring at the Weyburn oil field. Using seismic reflection technology the Canadian geologists have been able to get an “ultrasound” image of the Weyburn oil field before and after injections of carbon dioxide. Said Don White of the Geological Survey of Canada, “We can actually watch as carbon dioxide spreads.” “Oil Fields: Cold Storage for Greenhouse Gases?” *Discovery News*, July 9, 2003, <http://dsc.discovery.com/news/briefs/20040705/oilfields.html>.

**Clean Coal Initiative linked to carbon dioxide capture.** The Department of Energy (DOE) announced it has received proposals for a new generation of clean coal projects, valued at nearly \$6 billion. “Industry has enthusiastically responded to the Department’s latest clean coal solicitation calling for technologies that would help make it possible for coal to remain a cornerstone of our domestic energy portfolio, particularly for power generation, and to continue that role into the long-term future,” Secretary of Energy Spencer Abraham said. The projects are described as “providing the technical foundation for the FutureGen Initiative” and “presenting opportunities to demonstrate potential readiness of energy technologies for carbon dioxide management.” *US Newswire*, July 26, 2004, <http://releases.usnewswire.com/GetRelease.asp?id=155-07262004>.

**Sequestration key, says UK scientist.** The UK could secure its energy supply for many decades if it could use its huge reserves of coal, according to several scientists speaking at the Royal Institution in London. Says professor Ian Fells, “There’s 10 times as much coal as the oil and gas reserves we have. The Russians told me they’re going to build more nuclear plants, because they can’t rely on oil and gas - and it’s their oil and gas we’re planning to rely on!...If we unlocked our coal it would transform the prospects for using fossil fuel, so carbon sequestration is the key to the future, together with those new nuclear plants.” “Carbon store ‘could free UK coal,’” *BBC News*, July 27, 2004, <http://news.bbc.co.uk/1/hi/sci/tech/3930245.stm>.

**Carbon emissions must be halved, says Australian science chief.** Chief Scientist, Robin Batterham, said Australia must halve its greenhouse gas emissions by 2050. Dr. Batterham said he supported the Federal Government’s decision not to ratify the Kyoto protocol on climate change because the reductions it set were not high enough. “I’m talking about enormous reductions - 80 percent by the end of the century,” Dr Batterham said. “Fifty percent by 2050, I think, is realistic.” Batterham said consumers needed to use energy more efficiently while industry must explore technologies that would allow them to deal with their emissions, which includes geosequestration. *Sydney Morning Herald*, July 19, 2004, <http://www.smh.com.au/articles/2004/07/18/1090089038120.html?oneclick=true#>.

This newsletter is produced by the National Energy Technology Laboratory and presents summaries of significant recent events related to carbon sequestration. If you’d like to join the e-mail distribution list, email [majordomo@list-manager.netl.doe.gov](mailto:majordomo@list-manager.netl.doe.gov) with “subscribe sequestration” in the body of the message. We encourage you to pass this along to interested persons. Contact: Scott Klara, [scott.klara@netl.doe.gov](mailto:scott.klara@netl.doe.gov).

### Eight States, New York City Sue Five Utilities Over CO<sub>2</sub>.

In an unprecedented global warming action, eight states and the city of New York sued five major electric utilities, asking the court to order the companies to reduce their emissions of carbon dioxide by 3 percent per year for 10 years. "There is no dispute that global warming is upon us and that these defendants' carbon dioxide pollution is a major contributor," New York Attorney General Eliot Spitzer said at a press conference. "Others are taking action to reduce emissions and these companies could also do so by building cleaner energy sources." *Energy Daily*, July 22, 2004. Other articles on this topic are as follows: "US Power Companies to be Sued Over CO<sub>2</sub> Emissions," Point Carbon, July 21, 2004, <http://www.pointcarbon.com/article.phparticleID=4134&categoryID=147>; "New York City and 8 States Plan to Sue Power Plants," *The New York Times*, July 21, 2004, <http://www.nytimes.com/2004/07/21/national/21pollute.html>; "AEP facing environmental lawsuits," *American Business Daily*, July 21, 2004, <http://www.mlive.com/business/ambizdaily/bizjournals/index.ssf?/base/abd-0/1090471201230650.xml>; "New Lawsuits Put Top Global Warming Polluters in the Legal Crosshairs," NRDC Press Release, July 21, 2004, <http://www.nrdc.org/media/pressreleases/040721a.asp>; "Editorial: A mighty important nuisance," *The Cincinnati Post*, July 22, 2004, <http://www.cincypost.com/2004/07/22/edit07-22-2004.html>; and "Greenhouse 'polluters' taken to court," *news@nature.com*, July 22, 2004, <http://www.nature.com/news/2004/040719/full/040719-12.html>.

## Announcements

**NETL Solicitation: Development of Technologies and Capabilities for Coal Energy Resources.** The solicitation calls out four Areas of Interest including carbon sequestration (which has four separate subtopics: direct capture, indirect capture, mitigating non-CO<sub>2</sub> GHGs, and MMV/Risk Assessment); power systems advanced research; coal fuels and hydrogen; and advanced gasification. **Program Solicitation** due October 5, 2004, No. DE-PS26-04NT42249, <http://www.netl.doe.gov/business/solicit/main.html#42249>.

### U.S. – New Zealand Climate Change Partnership Update.

Six new projects were announced in Washington DC under the New Zealand – United States bilateral climate change partnership. The new projects announced are: A study of global methane emissions, the rescue and digitization of historic climate data, work on carbon dioxide sequestration in coal seams, work to develop new materials for the hydrogen economy, work on nitrous oxide emissions from grazed pastures, and the hosting of a joint event with Australia to work with developing countries in the Pacific on climate observation. U.S. State Department Press Release, July 15, 2004, <http://www.state.gov/r/pa/prs/ps/2004/34411.htm>.

## Science

**Amazon burning makes Brazil a leading CO<sub>2</sub> emitter.** The Brazilian Government is expected to publish an inventory of Brazil's greenhouse gas emissions in the coming months. The inventory is anticipated to show that Brazil produces around 300 million metric tons of carbon dioxide-equivalent a year, 200 million of which comes from logging and burning of the world's largest tropical forest. This discovery challenges the view that the Amazon serves as the "lungs of the world" by converting carbon dioxide into oxygen. Instead, it will show that a large majority of Brazil's greenhouse gas emissions come from smoke linked to deforestation of the Amazon, and not fossil fuels which are the main culprit in most countries. *Reuters*, July 19, 2004, <http://www.alertnet.org/thenews/newsdesk/N19350587.htm>. See also, "Data Show Amazon Still 'Lungs of the World'," from *Reuters*, July 30, 2004, <http://www.planetark.com/dailynewsstory.cfm/newsid/26334/story.htm>.

**CO<sub>2</sub> uptake into the Oceans from the Atmosphere.** Two articles in *Science Magazine* present results from analysis of data obtained through the World Ocean Circulation Experiment/ Joint Global Ocean Flux Study. One study finds that increased CO<sub>2</sub> uptake into the ocean may have negative impacts on shell-forming species. Another study indicates that feedback loops may reduce the rate of CO<sub>2</sub> uptake into oceans over the next few decades, a change that could increase pressure to mitigate anthropogenic emissions. For the original articles see R.A. Feely et al., "Impact of Anthropogenic CO<sub>2</sub> on the CaCO<sub>3</sub> System in the Oceans," *Science*, July 16, 2004, Vol. 305, pp. 362-366; and C.L. Sabine et al., "The Oceanic Sink for Anthropogenic CO<sub>2</sub>," *Science*, July 16, 2004, Vol. 305, pp. 367-371. The following are synopses from the popular press: "Carbon Dioxide Emissions May Harm Ocean Life," *Reuters*, July 15, 2004, <http://www.reuters.co.uk/newsArticle.jhtml?type=scienceNews&storyID=5685015&section=news>; "High Carbon Dioxide Levels Turning Oceans More Acidic," *ENS Newswire*, July 19, 2004, <http://www.ens-newswire.com/ens/jul2004/2004-07-19-02.asp>; "Sea survey measures acid increase: Oceanic carbon sinks herald bad news for wildlife," *news@nature.com*, July 15, 2004, <http://www.nature.com/news/2004/040712/full/040712-14.html>; and "Study: Ocean absorbing excess carbon dioxide," *CNN*, July 15, 2004, <http://www.cnn.com/2004/TECH/science/07/15/ocean.carbondioxide.ap/index.html>.

**Climate change affects deep sea life.** The remote and lightless deep-sea floor has long been thought to be protected from events on the surface, such as global warming. But it now seems that climate change impinges on the rhythm of life on the seabed after all. According to work done by Henry Ruhl and his colleagues, "The climate may be affecting deep sea communities as rapidly as terrestrial or shallow-water systems." In an article appearing in *Science*, researchers report that the sea cucumber, *Elpidia minutissima*, showed up in many photos taken of the ocean floor in the years before El Niño, when food was scarce. But it practically disappeared when disturbances wrought by the system apparently increased the food supply. By contrast, a white cucumber that is normally rare, *Scotoplanes globosa*, thrived in plentiful times. *news@nature.com*, July 22, 2004, <http://www.nature.com/news/2004/040719/full/040719-13.html>. For the original article see, Ruhl H. A., and Smith K. L., *Science*, 305: 513 - 515 (2004).

## Sequestration in the News, Cont'd

### Geology

**Study of Coal Absorption Isotherm Measurement.** Several laboratories conducted CO<sub>2</sub> absorption isotherm measurements on a series of coal samples to determine reproducibility of results and identify factors causing any differences. Improved isotherm measurement techniques can enable CO<sub>2</sub> sequestration in coal beds. “An Inter-laboratory Comparison of CO<sub>2</sub> Isotherms Measured on Argonne Premium Coal Samples” has been posted on the NETL Reference Shelf: <http://www.netl.doe.gov/coalpower/sequestration/Resources/refshelf.html>.

### Technology

**How to Estimate Forest Carbon for Large Areas from Inventory Data.** Determining the level of carbon stocks in forest ecosystems has become a concern of governments, businesses, and many organizations. This article provides examples of inventory-based calculations and identifies resources that are available for analysts and planners to develop large-scale carbon estimates consistent with totals for U.S. forests. James E. Smith et al., *Journal of Forestry*, Jul/Aug 2004, Vol.102, Iss. 5; pg. 25-31.

### Ocean

**Iron Seeding Just Doesn't Pay.** Another article summarizing the results of the many DOE-sponsored iron seeding experiments says the hypothesis that iron seeding would create a photosynthetic bloom is correct, but it is far less economical than expected. The breakeven point for sequestration programs is \$10 per ton of carbon dioxide; according to this article, the models based on the iron-seeding experiments still put the cost at \$100 or more. *The Scientist*, July 5, 2004, [http://www.the-scientist.com/yr2004/jul/research1\\_040705.html](http://www.the-scientist.com/yr2004/jul/research1_040705.html).

### Terrestrial

**How costly are carbon offsets? A meta-analysis of carbon forest sinks.** In this study, meta-regression analysis is used to examine 981 estimates from 55 studies of the costs of creating carbon offsets using forestry. Baseline estimates of costs of sequestering carbon through forest conservation are US\$ 47–US\$ 260/t C (\$13–\$71/t CO<sub>2</sub>). Tree planting and agroforestry activities increase costs by more than 200%. When post-harvest storage of carbon in wood products, or substitution of biomass for fossil fuels in energy production, are taken into account, costs are lowest. Average costs are greater when appropriate account is taken of the opportunity costs of land. *Environmental Science & Policy*, Volume 7, Issue 4, August 2004, Pages 239-251, <http://www.sciencedirect.com/science/article/B6VP6-4CNJDX-3/1/de60547fa8ae035e7d525c8126a28c>.

**Carbon Farming Potential in Western Australia.** This paper describes opportunities arising from greenhouse gas abatement and in particular the development of carbon sinks as a result of land-use change. There is a large potential carbon sink in Western Australia through both the reforestation of farmland (maximum potential sink estimated to be 2,091 Mt CO<sub>2</sub>-e, across 16.7 Mha of cleared farmland) and the destocking of pastoral lands (an estimated 3,072 Mt CO<sub>2</sub>-e in biomass and soils for a 20-year period following 100% destocking). Analysis was based on carbon prices between \$5–15/t CO<sub>2</sub>e. *AETF Review*, June/July 2004, <http://www.aetf.net.au/ContentStore/pdf/ReviewJunJul2004.pdf>.

**Tillage-induced carbon dioxide loss.** In the 1990s, Don Reicosky happened onto a concept – tillage-induced carbon dioxide loss – that has gained him a global audience in the past few years. While working on a project to use CO<sub>2</sub> emissions to determine how fast corn plants died after a killing frost, Reicosky observed an elevated CO<sub>2</sub> concentration on a bare field that was downwind of a field being plowed. When he measured the CO<sub>2</sub> on the freshly plowed area, the infrared gas analyzer maxed out in 15 seconds. According to Reicosky, “One of the bottom line, main points is that the amount of CO<sub>2</sub> released is directly proportional to the volume of soil disturbed in a tillage operation.” For more details see “Minnesota scientist travels world discussing carbon loss in farmland,” in *Agweek*, July 20, 2004, <http://www.aglink.com>.

**Carbon Sequestration and Pigs?** A graduate student study at the University of Saskatchewan shows the addition of swine manure to soil has a variable, but usually beneficial, effect on soil organic matter content. Adding organic matter to the soil improves the soil's structure or tilth and increases its nutrient storage capacity while, at the same time, increasing carbon sequestration. July 15, 2004, <http://www.thepigsite.com/LatestNews/Default.asp?AREA=LatestNews&Display=7872>.

### Trading

**CCX Reached 1 Million Tons of Carbon Dioxide Traded.** 130,000 metric tons of CO<sub>2</sub> was traded on the Chicago Climate Exchange (CCX) during the month of June, taking the total volume traded since the December launch past one million tonnes. The majority of trades in June were for 2006 allowances, which traded between \$0.88 and \$0.99 per tonne. CCX News, July 1, 2004, [http://www.chicagoclimatex.com/news/CCXPressRelease\\_040701.html](http://www.chicagoclimatex.com/news/CCXPressRelease_040701.html).

### Strong Upward Trend in EU Emissions Trading Scheme.

Having dropped more than a euro following the European Commission's approval of eight allocation plans, the price for CO<sub>2</sub> allowances has now climbed up past the pre-approval level nearing €9.00/tonne (US\$10.85). Point Carbon, July 19, 2004, <http://www.pointcarbon.com/article.php?articleID=4126&categoryID=279> (subscription required).

### Rocky Mountain Institute Joins Chicago Climate Exchange.

Rocky Mountain Institute (RMI) has joined the Chicago Climate Exchange, Inc. (CCX). As an Associate Member, RMI will quantify its greenhouse gas emissions each year, then purchase through the CCX market an equivalent amount of carbon dioxide credits to offset its emissions. RMI will then permanently retire the purchased credits from the CCX market, effectively mitigating the Institute's impact on global climate change. “RMI is excited to work toward climate neutrality with its carbon emissions, both for the environmental benefits and the business case it will help us promote,” said RMI CEO Amory Lovins. *Greenbiz.com*, July 28, 2004, [http://www.greenbiz.com/news/news\\_third.cfm?NewsID=26994](http://www.greenbiz.com/news/news_third.cfm?NewsID=26994).

### Policy

#### **Russian Economic Advisor Intensifies Anti-Kyoto Campaign.**

Russian presidential economic advisor Andrei Illarionov called the Kyoto Protocol an "undeclared war against Russia" at a Moscow press conference, but he did not rule out the possibility that Russia will ratify. Point Carbon, July 9, 2004, <http://www.pointcarbon.com/article.php?articleID=4075&categoryID=147>.

**UK Adds Transport to GHG Target.** The UK Government decided to include transport in its self-imposed target of reducing greenhouse gas emissions by 20 percent by 2020, drawing aviation into the emissions trading arena. "Climate change curbs Darling's plans," *The Guardian*, July 13, 2004, <http://politics.guardian.co.uk/green/story/0,9061,1259883,00.html>. See also "British Airlines to spend millions on emissions allowances," Point Carbon, July 15, 2004, <http://www.pointcarbon.com/article.php?articleID=4104&categoryID=147>.

**FAIR 2.0 Now Available.** FAIR 2.0 supports policy makers in assessing the environmental and cost implications of various international climate regimes for differentiation of future mitigation commitments. The new version now includes: an extension of the total regions, all greenhouse gases, the IPCC SRES emission scenarios, new climate regimes, and a new abatement costs model (multi-gas). A special demo version can be downloaded free of charge from the FAIR website at <http://www.rivm.nl/fair/>.

**2 Million Euro Fine or Complete Shutdown for Non-Compliance with Kyoto.** The Spanish Government is making it clear that though it has negotiated and tried to please everybody in the National Allocation Plan (NAP), it intends to force compliance. Companies who do not comply with the required obligations face severe sanctions: fines from 50,000 to two million euros, a complete or partial closedown of the installation, or two year suspension of the permits given to the infringing company. Point Carbon, July, 14, 2004, <http://www.pointcarbon.com/article.php?articleID=4098&categoryID=279> (subscription required).

### Events

August 9-13, 2004, **24th Annual ESRI International User Conference**, San Diego Convention Center, San Diego, California. For the current conference agenda, visit [www.esri.com/uc](http://www.esri.com/uc). For registration questions, contact ESRI at 909-793-2853, extension 1-1363, or [ucregis@esri.com](mailto:ucregis@esri.com).

August 10-11, 2004, **The 2004 Nebraska Grazing Conference**, Kearney, Nebraska. Provides a forum for the discussion of grazing strategies and management. Topics and presenters include, "Carbon Sequestration in the Great Plains," Martin Kleinschmit, Center for Rural Affairs and a Nebraska farmer. For more information, contact the Center for Grassland Studies by phone (402) 472-4101, e-mail [grassland@unl.edu](mailto:grassland@unl.edu) or access information and a registration form online at [www.grassland.unl.edu](http://www.grassland.unl.edu).

August 20-28 2004, **32nd International Geological Congress, Including Topical Symposium T09 – Future of Energy and Resources**, Florence, Italy. Contacts: Scientific Secretariat, Chiara Manetti, Borgo Albizi, 28 - 50121 Firenze, Italy. Tel/Fax: +39 055 2382146 [casaitalia@geo.unifi.it](mailto:casaitalia@geo.unifi.it); Organizing Secretariat, Newtowns, Via Augusto Righi, 8 50019 Sesto F.no - Firenze, Italy Tel: +39 055 33611 Fax: +39 055 3361250/350 [secretariat@32igc.org](mailto:secretariat@32igc.org) [www.32igc.org](http://www.32igc.org).

September 5-9, 2004, **7th International Conference on Greenhouse Gas Control Technologies**, Vancouver BC, Canada. GHGT-7 is being organized by University of Regina, Natural Resources Canada, and the IEA GHG R&D Programme. [www.ghgt7.ca](http://www.ghgt7.ca). Contact: GHGT-7 Conference Secretariat, Ted Morris, Suite 150, 10 Research Drive, Regina, SK. S4S 7J7, Canada. Tel: +1 306 337 2290 Fax: +1 306 337 2301 [secretariat@ghgt7.ca](mailto:secretariat@ghgt7.ca).

September 13-17, 2004, **The International Pittsburgh Coal Conference**, Osaka Japan. Industrial Ecology topics include: life cycle studies of coal conversion plants; Industrial ecology of emission trading; and planning future energy plants, <http://www.engr.pitt.edu/pcc>. Topics: <http://www.engr.pitt.edu/pcc/04AbstractTopics.htm>.

September 18 - 22, 2004, **2004 Ground Water Protection Council Annual Forum, Recognizing Ground Water as a Critical Component of Our Ecosystem**, Charleston, South Carolina. Preliminary agenda includes presentations by DOE and EPA: "Status of Research Efforts Regarding Geo-sequestration of CO<sub>2</sub>: DOE Efforts" and "Regulatory Consideration for Geo-sequestration of CO<sub>2</sub>: EPA Perspective." For more information visit [www.gwpc.org](http://www.gwpc.org).

September 21-23, 2004, International workshop **Climate Change and Forest Sector: Clean Development Mechanism in Tropical Countries**, Seoul, Korea. The overall objective of the workshop is to promote the development of carbon markets through the implementation of clean development mechanism (CDM) forest activities such as afforestation and reforestation of degraded forest land in the tropics. For more information visit <http://www.ee-forest.org/eng/main.htm>.

September 30-October 1, 2004, An Expert Workshop on **"Greenhouse Gas Emissions and Abrupt Climate Change: Positive Options and Robust Policy"**, Paris, France (IEA Meeting Room 2). The Workshop Mission Statement is "To address the policy implications of potential abrupt climate change." For details and registration visit [www.accstrategy.org](http://www.accstrategy.org).

October, 15-16, 2004, **Ninth European Ph.D Workshop on International Climate Policy**, Viterbo, Italy. The workshop is open to Ph.D. students and researchers from all disciplines working on different aspects of International Climate Policy. It offers a forum to present and discuss (preliminary) Ph.D. research ideas and results. Further information on the workshop is available on the following websites: [http://gaia.agraria.unitus.it/phd\\_ws9](http://gaia.agraria.unitus.it/phd_ws9); <http://www.ku-eichstaett.de/Fakultaeten/WWF/Lehrstuehle/WWF/icpl/>. For registration, please contact Lucia Perugini ([perugini@unitus.it](mailto:perugini@unitus.it)). Registration closes on September 10th, 2004.

## Events, Cont'd

November 3-5, 2004, **Climate Change and Business**, Auckland, New Zealand. Seven partner organizations are putting together a conference on the business opportunities arising from climate change. For further information, see: <http://www.climateandbusiness.com/>.

November 7-12, 2004, **American Institute of Chemical Engineers (AIChE) Annual Meeting**, Austin, TX, Session 09005, Greenhouse Gas Sequestration Technology. Proposals covering technologies for (1) separation and capture, (2) transport, and/or (3) long-term sequestration (geologic, terrestrial, etc.) of greenhouse gases are especially desired. CO<sub>2</sub> is the focus, but technologies specific to other greenhouse gases (CH<sub>4</sub>, N<sub>2</sub>O, etc.) are also welcomed. Proposals to Present (PTP) technical papers can be submitted at <http://www.aiche.org/annualapp>.

January 16-20, 2005, **Chapman Conference on the Science and Technology of Carbon Sequestration**, Bahia Resort Hotel, San Diego, CA. The goal of this conference is to bring together scientists, engineers, and others who study long-term sequestration of carbon as a way of reducing potential global warming. For more information see <http://www.agu.org/meetings/cc05acall.html>.

## Recent Publications

### U.S. Greenhouse Emissions Increased Moderately in 2003.

U.S. carbon dioxide emissions from burning fossil fuels increased by 0.9 percent in 2003, according to preliminary estimates released by DOE's Energy Information Administration (EIA). Since emissions actually declined in 2001 and grew at moderate rates in both 2002 and 2003, the emissions still remain below 2000 levels. EIA attributes the growth in 2003 to a number of factors, including increased heating demand during a cold winter, an increase in the number of U.S. homes, increased energy use in the commercial sector, and a shift in electric generation from natural gas to coal and oil, which emit more carbon. In October, the EIA will release a full inventory of greenhouse gas emissions in 2003. The preliminary estimates are on EIA's web site at: <http://www.eia.doe.gov/oiaf/1605/flash/flash.html>. EIA press release: <http://www.eia.doe.gov/neic/press/press238.html>.

**New CICERO report available.** The report is based on a comprehensive and structured literature review of key issues associated with long-term goals for climate policy, and to the framework for implementing climate policy. The study provides a basis for working with global climate policy after 2012, whether the Kyoto Protocol enters into force or not. "Climate policy beyond 2012: A survey of long-term targets and future frameworks." Report 2004:02; CICERO, Oslo; 51pp. For details and download visit [http://www.cicero.uio.no/publications/detail.asp?publication\\_id=2776](http://www.cicero.uio.no/publications/detail.asp?publication_id=2776).

**Harvested Wood Products.** A new paper on, "Approaches for inclusion of harvested wood products in future GHG inventories under the UNFCCC, and their consistency with the overall UNFCCC inventory reporting framework," is now available at [http://www.joanneum.at/iea-bioenergy-task38/hwp\\_july\\_2004.pdf](http://www.joanneum.at/iea-bioenergy-task38/hwp_july_2004.pdf).

**New Online Book.** "Lessons Learned from Workshop on Novel Approaches to Carbon Management: Letter Report" is available for viewing at <http://www.nap.edu/catalog/11047.html>. The report presents an assessment of the workshop, the solicitation process, and the NRC role. In addition, recommendations are provided for improving the process for subsequent DOE carbon management initiatives.

**Western Europe cuts greenhouse gases.** Emissions of greenhouse gases have fallen in Europe's most industrialized countries, according to new figures. A report by the European Environment Agency (EEA) shows that production of six key climate-warming gases dipped in 2002 after two dispiriting years of increase. The release of the gases, which include carbon dioxide, methane, and nitrogen dioxide, fell by 0.5% in the European Union (EU) from 2001 to 2002, the report says. *newe@nature.com*, July 16, 2004, <http://www.nature.com/news/2004/040712/full/040712-19.html>. To download the report, "Annual European Community greenhouse gas inventory 1990-2002 and inventory report 2004 Technical report No 2/2004," visit [http://reports.eea.eu.int/technical\\_report\\_2004\\_2/en](http://reports.eea.eu.int/technical_report_2004_2/en).

**New Guide on Addressing Financial Risks and Opportunities from Global Warming.** According to the Guide, emerging limits on global warming pollutants, both in U.S. states and worldwide, are creating new pressures to reduce emissions and are opening new markets for cleaner technologies – creating both risks and opportunities for companies and their investors. "Analyzing climate risk is a new and important challenge for investors, fund managers and corporations. This guide is intended to show how they can coordinate their efforts to achieve better disclosure, better outcomes and more certainty in addressing what until recently was considered an 'off-balance sheet' risk," said Doug Cogan, author of the guide. "The Investor Guide to Climate Risk" is available at [www.ceres.org](http://www.ceres.org) and on the INCR web site at [www.incr.com](http://www.incr.com).

## Legislative Activity

**The 'Target List'.** In this op-ed piece, columnist Anne Applebaum writes about The Climate Stewardship Act and lobbying in Washington. *The Washington Post*, July 14, 2004; Page A19; <http://www.washingtonpost.com/wp-dyn/articles/A48220-2004Jul13.html>.

**House panel reviews energy, mining advances.** The House Subcommittee on Energy and Mineral Resources held an oversight hearing June 15, 2004 on "Advances in Technology: Innovations in the Domestic Energy and Mineral Sector." "We can produce energy and protect the environment at the same time," Subcommittee Chairman Barbara Cubin (R-WY) said. "We don't have to choose between one or the other. New technologies allow us to place unprecedented emphasis on things like clean coal and renewable fuels and make energy security and protection of the environment no longer mutually exclusive." Witnesses testified about the potential for enhanced oil and natural gas production from sequestration of carbon dioxide in hydrocarbon reservoirs. *Bend.com*, July 15, 2004, [http://www.bend.com/news/ar\\_view%5E3Far\\_id%5E3D16772.htm#no-hash](http://www.bend.com/news/ar_view%5E3Far_id%5E3D16772.htm#no-hash).