

# THE CARBON SEQUESTRATION NEWSLETTER

<http://www.netl.doe.gov/coalpower/sequestration/>

December 2003

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## *Sequestration in the News*

**NETL Solicitation Released.** November 21, 2003 - "Development of Technologies and Capabilities for Coal Energy Resources." Carbon Sequestration is listed as an area of interest with four subtopics: Direct Capture Technologies, Indirect Capture Technologies, Technologies for Mitigating Non-CO<sub>2</sub> Greenhouse Gas Emissions, and Monitoring, Verification and Risk Assessment for Carbon Sequestration Options. Contract Specialist: Debra Duncan. Proposals due February 24, 2004. Program Solicitation No. DE-PS26-04NT42023-0 <http://www.netl.doe.gov/coalpower/sequestration/>

**APEC CO<sub>2</sub> Capture and Geosequestration Request for Proposals (due January 5).** The Energy Working Group (EWG) under the Asia Pacific Economic Cooperation (APEC) forum has issued a request for proposals for a project, "Carbon Dioxide Capture and Geological Sequestration Potential of the APEC Region (Phase 2)." The year-long project will investigate the technical options, build capacity, and raise awareness for CO<sub>2</sub> capture and geosequestration within the APEC region. In 2002, EWG commissioned Phase 1, which was an inventory of potential geologic CO<sub>2</sub> storage sites. Both RFP's can be found on at <http://www.apecsec.org.sg/>. Further information on the Phase I project can be obtained from Dr. Frank Mourtis, Senior Advisor, Climate Change Technologies, Office of Energy R&D, Natural Resources Canada, Phone: 1-613-947-3482, e-mail: [fmourtis@nrcan.gc.ca](mailto:fmourtis@nrcan.gc.ca) and on the Phase II project from Mr. Joel Tu, APEC Energy Working Group Secretariat, Phone: +61-2-6213-7521; e-mail: [joel.tu@industry.gov.au](mailto:joel.tu@industry.gov.au).

**Speech by Energy Secretary Spencer Abraham Highlights Carbon Sequestration.** From the Secretary's remarks at the Clean Coal and Power Conference, "Coal is an energy winner with one glaring drawback: it is among the most environmentally problematic of all energy resources. We are here this week to continue the vital work of making coal into one of the cleanest of energy resources, and a valued contributor to a transformed energy future. . . Carbon sequestration has rapidly grown in importance to become one of this Administration's highest clean coal priorities. Our activities and our plans bear out the determination with which we are pursuing the promise of carbon sequestration. Current activities include 65 carbon sequestration projects across the country, funded with \$110 million in public and private funds." For the full speech, link to the U.S. Department of Energy's Fossil Energy website at: [http://www.fossil.energy.gov/news/speeches/03/03\\_sec\\_cleancoal\\_111703.html](http://www.fossil.energy.gov/news/speeches/03/03_sec_cleancoal_111703.html)

**CNN highlights Sleipner.** An article posted on CNN.com highlights the Sleipner project, in which CO<sub>2</sub> is captured from an offshore natural gas processing platform in the North Sea and injected into a saline formation below the sea floor. Statoil, the project operator, has found a profitable business model for CO<sub>2</sub> emissions reduction and is exploring the possibility of receiving CO<sub>2</sub> from onshore sources such as steel plants or coal-fired power plants. "If that solution adds up financially, it would be a dream scenario for Statoil," said Jan Karlsen, Statoil's senior vice president for gas sales. But he said it was too early to predict the practical and financial viability. Statoil's giant Snoehvit natural liquefied gas (LNG) project in the Barents Sea is due to come on stream in 2006 with the same [CO<sub>2</sub> capture] technology. "Statoil may profit from greenhouse gas storage," *Reuters*, November 19, <http://www.cnn.com/2003/TECH/science/11/19/greenhouse.gas.reut/>

**Presentation on FutureGen at the Lignite Energy Council's Annual Meeting.** Scott Klara, the Carbon Sequestration Technology Manager at NETL, set forth the potential benefits of DOE's FutureGen project at the plenary session of the Lignite Energy Council's Annual Meeting in Bismarck, ND. Said Harvey Ness, director of research and development for the Lignite Energy Council, "North Dakota, with over 800 years of lignite reserves, is in a perfect position for this new technology because lignite is more reactive than either bituminous or sub-bituminous coal during the gasification process," *DOE official outlines plans for emissions-free, coal-based energy plant*, November 14, 2003 <http://www.affordable-energy.org/news/default.asp>

**The New York Times** provides an overview of the global climate change issue and the enormous challenge of GHG emissions reduction. Carbon sequestration is mentioned as an option, "The technology for injecting carbon dioxide is straightforward, but scientists need better knowledge on suitable locations and leak prevention." "As Earth warms, the hottest issue is energy," *New York Times*, November 4, 2003, <http://query.nytimes.com/search/advanced?srchst=nyt> Type in "earth warms" in the main search field.

### Science

**Carbon Sequestering Phage.** Researchers from the Institute for Biological Energy Alternatives (IBEA), led by J. Craig Venter, Ph.D., have significantly advanced methods to improve the speed and accuracy of genomic synthesis. The research, accepted for publication and in press with the *Proceedings of the National Academy of Sciences*, was announced in Rockville, MD on November 13, 2003 at a press conference with Secretary of the Department of Energy, Spencer Abraham and Dr. Venter. IBEA researchers hope that by making synthetic organisms they can rapidly and effectively harness all energy in the organism toward either energy production, likely in the form of hydrogen, or carbon sequestration. "With this advance," Abraham said, "it is easier to imagine, in the not-too-distant future, a colony of specially designed microbes living within the emission-control system of a coal-fired plant, consuming its pollution and its carbon dioxide, or employing microbes to radically reduce water pollution or to reduce the toxic effects of radioactive waste." *Science Daily*, <http://www.sciencedaily.com/releases/2003/11/031117074518.htm>

**Current Greenhouse Gas Concentrations.** Oak Ridge National Laboratory has updated its information on the atmospheric concentration of CO<sub>2</sub> and other GHGs. The 2002 value for CO<sub>2</sub>, 372.3 ppm, is roughly 2 ppm higher than the 2001 value. The reported concentration is the average of measurements taken at Barrow, Alaska; Mauna Loa, Hawaii, American Samoa, and the South Pole. The different measurement sites provide one high altitude and one low altitude sample from the northern and southern hemispheres. [http://cdiac.ornl.gov/pns/current\\_ghg.html](http://cdiac.ornl.gov/pns/current_ghg.html)

### Technology

**Underground Gasification.** Oil and Natural Gas Corporation (ONGC) intends to work with Coal India Ltd (CIL) and Gujarat State Petroleum Corporation (GSPC) for its underground coal gasification (UCG) project, hoping to gain carbon credits. "India's ONGC to gasify coal as alternative feedstock," *Business Standard*, November 11, <http://www.business-standard.com/today/story.asp?Menu=22&story=27185>

**EPA Seeks Permitting Ideas that Address Priority Environmental Issues.** EPA's Office of Policy, Economics, and Innovation recently announced its 2003-2004 State Innovation Grant competition. The agency is looking for proposals from state agencies with the theme of innovation in permitting, or alternatives to permitting, that address priority environmental issues including reducing GHGs. States that are interested in applying for the 2003-2004 awards must submit a brief pre-proposal and budget to the program by January 7, 2004. For more information, visit <http://www.epa.gov/innovation/stategrants/jayletter.htm>

### Terrestrial

**Homegrown Carbon Farming.** In Kansas, farmers, Republicans and an environmental advocacy group are supporting the chance to gain carbon credits through agricultural carbon sequestration projects and land management techniques. "Plan gives US farmers a role in fighting global warming," *New York Times*, November 25, <http://www.nytimes.com/2003/11/25/science/earth/25CARB.html?ex=1070341200&en=c68a2eb55c62fa75&ei=5062&partner=GOOGLE>

**Study finds that Certain Types of Trees are more Effective at Transferring Carbon to Soil.** Root replacement rate, not faster growth, is most effective at transferring carbon to soil. Trees with durable roots transfer less carbon to the soil, according to research funded primarily by DOE. As reported in *Science* magazine (Nov. 21), scientists from DOE's Argonne National Laboratory, Oak Ridge National Laboratory and two universities measured the longevity of roots – the source of some of the carbon that would be transferred by decay into the soil – in forest plots infused with computer-controlled CO<sub>2</sub> simulating mid-century air. "Pine forests have slow root replacement which decreases the potential to accumulate carbon in the soil in the short-term," said lead author Argonne Roser Matamala. [http://www.eurekalert.org/pub\\_releases/2003-11/dnl-tr112003.php](http://www.eurekalert.org/pub_releases/2003-11/dnl-tr112003.php) More information is available at <http://www.anl.gov>.

**Canadian Government plans to Encourage Private Sustainable forests.** The Canadian government announced an investment of \$20 million in the Forest 2020 Plantation Demonstration and Assessment initiative to encourage the planting of fast-growing hardwood trees on non-forested rural private lands. The Government of Canada has committed more than \$3.7 billion to climate change programs and to the development of leading-edge technologies. "Canada to invest \$20 million in trees," *Canada NewsWire*, November 27, <http://www.newswire.ca/en/releases/archive/November2003/27/c7271.html>

**Tropical Rainforests: Disturbance in dry Seasons Leads to Carbon loss in wet Seasons.** Researchers based in Brazil and the U.S. found that older Amazon rainforests experiencing drought or other natural disturbances may release more carbon than they take up. Disturbances that kill trees can lead to higher levels of CO<sub>2</sub> released when the dead wood breaks down in wet seasons. This contrasts with studies finding that carbon loss generally increases in dry seasons. See "Disrupted forests 'release more carbon,'" *SciDev.net*, UK, <http://www.scidev.net/news/index.cfm?fuseaction=readnews&itemid=1126&language=1> or the original publication, *Science* 302, 1554 (2003), <http://www.sciencemag.org/cgi/content/full/302/5650/1554?ijkey=dew6hPmY3O6P6&keytype=ref&siteid=sci>

### Ocean

**Effects of CO<sub>2</sub> in Ocean Water Described.** Increased CO<sub>2</sub> in the oceans would result in decreased pH levels of seawater, resulting in dramatic physiological effects on many species, says Brad Seibel, assistant professor of marine biology at the University of Rhode Island. "Shallow-living organisms like shelled mollusks and corals are already being affected by the growing levels of CO<sub>2</sub> in the atmosphere. As atmospheric CO<sub>2</sub> diffuses into the upper layers of the water, it inhibits the ability of shellfish to form shells and causes coral reefs to dissolve. "Marine biologist says carbon dioxide injection in deep sea would alter ocean chemistry..." *Science Daily*, November 17, 2003 <http://www.sciencedaily.com/releases/2003/11/031118072844.htm>

### Trading

**Standards for Carbon Accounting.** The International Accounting Standards Board (IASB) has published comments on its proposals for GHG emissions accounting. These include the EU emissions trading scheme. "Bean-counters mull using market value of carbon in accounts," International Accounting Standards Board, November 11, <http://www.iasb.org.uk/cmt/0001.asp?s=10139245&sc={A9BF8163-EA9D-466F-AB3F-D0EDDD2D3F22}&n=4209>

### Policy

**EU team to visit Russia, Iran, China, Japan in bid to save Kyoto pact.** A spokesperson said that the "troika" delegation aims to find out where countries stand on Kyoto. "For us the Kyoto protocol is the platform. We are interested in having allies in other countries, so that that they do not withdraw from the protocol too," Iran's environment chief Masoumeh Ebtekar appeared on television after meeting the delegation, speaking on behalf of the Group of 77, a coalition of developing countries. "The group believes the main responsibility (for global warming) lies with industrial and developed countries," she said. "Iran discusses Kyoto protocol with EU delegation" [http://www.ananova.com/business/story/sm\\_264384.html](http://www.ananova.com/business/story/sm_264384.html) <http://www.planetark.com/dailynewsstory.cfm?newsid=10449>

**New EPA administrator.** Michael Leavitt, the Utah governor chosen by President George W. Bush to run the Environmental Protection Agency, was sworn in on November 6, 2003. Mr. Leavitt tunders an environmental philosophy, Enlibra, which derives from Latin roots and means "moving toward balance," emphasizing collaboration over confrontation. <http://www.epa.gov/adminweb/adminbio.htm>

**Rate of Fossil Fuel use Many Times Higher than Rate of Replacement.** According to calculations by ecologist Jeff Dukes of Carnegie Institution of Washington, Stanford, less than one part in 10,000 of decomposing organic matter becomes oil. By applying that ratio he estimates that in 1997 we burned fossil fuels equivalent to more than 400 times the amount of plant matter produced on Earth in the same year. Modern ways to convert biomass into fuels such as ethanol are relatively efficient, but it would still take nearly a quarter of all the plants on Earth to replace the fuel used in 1997. Dukes, J. S. "Burning buried sunshine: Human consumption of ancient solar energy," *Climatic Change*. A summary of the full article is contained in *Nature*, October 29 2003, "Calculations illustrate fossil-fuel crisis," |Homepage|<http://www.nature.com/nsu/031027/031027-3.html>

**Canadian Government, DuPont Canada Inc. agree on GHG emissions reduction plan.** DuPont Canada has signed a Memorandum of Understanding with the Canadian government committing to reduce the GHG emissions intensity of nylon intermediates production by 15% by 2012. This target reflects recognition for early action taken by DuPont since 1997 and is consistent with government commitments to not disadvantage firms who have taken steps to reduce greenhouse gas emissions. "Canada and Dupont sign climate change agreement," Point Carbon, November 20, <http://www.pointcarbon.com/article.php?articleID=2794&categoryID=147>

**World Bank Advised to not Finance new Coal and Oil Projects.** An independent review commissioned by the World Bank recommends that the bank consider pulling out of financing all coal and oil projects in developing countries based on greenhouse gas emissions and other environmental impacts. One bank official said the report's recommendations were unlikely to gain support within the bank's governing board, which will make the final decision on what proposals to adopt after receiving advice from management. "It doesn't seem to make much sense to me to concentrate on limiting small developing countries' oil production in order to try to achieve goals on climate change," the bank official said. "World Bank advised to pull out of oil and coal financing," *Financial Times* November 20, <http://news.ft.com/servlet/ContentServer?pagename=FT.com/StoryFT/FullStory&c=StoryFT&cid=1069132010677>

**US Investors Seek Disclosure of Risks from Climate Change.** Eight U.S. state and city treasurers and comptrollers and two major labor pension fund leaders called on the U.S. Securities and Exchange Commission (SEC) to increase corporate disclosure of the risks posed by climate change to investors. <http://www.pointcarbon.com/article.php?articleID=2839&categoryID=147>

**Atmospheric Methane Stabilizing.** The U.S. and Dutch researchers who measured the change in methane levels said they found evidence that human actions appeared to be the cause, specifically the near shutdown of oil and gas extraction after the disintegration of the Soviet Union. Old production methods released vast streams of the gas from leaking pipelines, uncapped wells and the like. Newer, less leaky methods are slowly being adopted. "Methane in atmosphere stabilizing," *Seattle Times*, [http://seattletimes.nwsource.com/html/nationworld/2001798935\\_methane23.html](http://seattletimes.nwsource.com/html/nationworld/2001798935_methane23.html)

**Netherlands and the EU Carbon Market Interactions.** The Energy research Centre of the Netherlands (ECN) released a new report "The Interaction between the EU Emissions Trading Scheme and Energy Policy Instruments in the Netherlands - Implications of the EU Directive for Dutch Climate Policies." The report finds that once the EU ETS becomes operational, the all other policies to reduce CO<sub>2</sub> emissions of the participating sectors will be rendered ineffective and actually increase the overall costs of meeting the cap. The full report: <http://www.ecn.nl/library/reports/2003/c03060.html> Policy Brief: <http://www.ecn.nl/library/reports/2003/c03096.htm>

**Japanese Climate Policy NGO News.** Kiko Network, a Japanese environmental NGO network, will selectively translate articles on Japan's climate policy into English. Currently, three articles are available, including the "Ministry of Environment Carbon Tax Proposal," and the "Government's Basic Energy Plan." (2003.11.6). <http://www.jca.apc.org/kikonet/english/hot-topics.html>

December 9, **Carbon Management Workshop** hosted by the Society of Petroleum Engineers. Sessions on "Enhanced Oil Recovery Using CO<sub>2</sub> Floods" and "Carbon Sequestration in Oil and Gas Reservoirs and GHG Credits." Field trip to Amerada's Seminole CO<sub>2</sub> Facilities on Dec 10<sup>th</sup> <http://www.spe-pb.org/?pg=co2>

December 8-12, **AGU Fall meeting**, San Francisco, CA. A special sequestration section, "Geophysical field studies and techniques applied to underground storage of GHG emissions in all phases of site characterization, injection and storage operations and monitoring," <http://www.agu.org/meetings/fm03/>

December 10-12, **CO<sub>2</sub> Geologic Sequestration for Emission Control**, Midland, TX. A precursor to the annual "CO<sub>2</sub> Flooding Conference" sponsored by the University of Texas of the Permian Basin (UTPB), [www.spe-pb.org/default.asp](http://www.spe-pb.org/default.asp) <http://www.spe-pb.org/?pg=co2>

January 20-22, 2004, **Energy partner using soil carbon sequestration to offset GHGS**, College Station, TX. [http://ageco.tamu.edu/faculty/mccarl/acs/CASMGs\\_CONF\\_send.HTM](http://ageco.tamu.edu/faculty/mccarl/acs/CASMGs_CONF_send.HTM)

February 8-11, 2004, **A GTI Conference & Exhibition, Natural Gas Technologies II**, Phoenix, AZ Cosponsored by the U.S. Department of Energy's National Energy Technology Laboratory's Strategic Center for Natural Gas Methane emissions detection, GHG management and CO<sub>2</sub> sequestration technologies. Contact: [paul.reneau@gastechnology.org](mailto:paul.reneau@gastechnology.org)

February 25-27, 2004, **The WestStart Clean Heavy-Duty Vehicle Conference**, Palm Springs, CA. Web site: <http://www.calstart.org/programs/chdvc/index.php?p=programs#>

March 28-April 1, 2004, **ACS Spring meeting**, Anaheim, CA. A special sequestration symposium, "Carbon Dioxide Capture and Sequestration". Contact: Mercedes Maroto-Valer [mmm23@psu.edu](mailto:mmm23@psu.edu) or Dan Fauth Daniel.Fauth@netl.doe.gov. <http://oasys.acs.org>

April 13-15, 2004, **15th Annual Earth Technologies Forum**, Washington, DC. Co-sponsored by the International Climate Change Partnership (ICCP), and the Alliance for Responsible Atmospheric Policy, and in cooperation with the U.S. EPA, the UNEP, the UNDP, U.S.DOE, U.S.AID, Environment Canada, Industry Canada, Japan Ministry of Economy, Trade and Industry, Australian Greenhouse Office, Netherlands' Reduction Plan for the Non-CO<sub>2</sub> GHGs, World Council for Sustainable Development, IETA, and over 90 endorsing associations and organizations. <http://www.earthforum.com>

April 18-21, 2004, **American Association of Petroleum Geologists meeting**, Dallas, TX. AAPG has asked for sessions on critical scientific results relevant to the subject of the potential for geological CO<sub>2</sub> sequestration to impact the fossil fuel economy. Contact Nicholas Woodward and Susan Hovorka, Co Chairs, [nick.woodward@science.doe.gov](mailto:nick.woodward@science.doe.gov) and [susan.hovorka@beg.utexas.edu](mailto:susan.hovorka@beg.utexas.edu), CO<sub>2</sub> Sequestration Sessions (DEG) <http://www.aapg.org/meetings/dallas04/index.html>

April 25-30, 2004, **CALL FOR PAPERS, EGU – 1st General Assembly**, Nice/France. BG 12 Regional greenhouse gas budget of the terrestrial biosphere. The session is addressed to researchers working on surface fluxes of direct and indirect greenhouse gases. The session will also focus atmosphere and ecosystem exchange processes, feed-backs and trade offs, and implications for climate change mitigation measures in the terrestrial biosphere. Co-Sponsorship: CarboEurope  
Submission of abstracts: Deadline for Receipt of Abstracts: 11 January 2004. Please see [http://www.copernicus.org/EGU/ga/egu04/abstract\\_submission.htm](http://www.copernicus.org/EGU/ga/egu04/abstract_submission.htm)

May 2-6, 2004, **CALL FOR PAPERS, Third Annual Conference on Carbon Sequestration**, Alexandria, VA. Abstracts due February 4, 2004. <http://www.carbonsq.com>

May 10-14, 2004 **2nd World Conference and Technology Exhibition on Biomass for Energy, Industry and Climate Protection**, Rome, Italy, <http://www.conference-biomass.com/>

June 7-10, 2004, **Working for Clean Air in Clearwater, CALL FOR PAPERS**, Clearwater, FL. The U.S. EPA and the Emissions Inventory Improvement Program are co-sponsoring the 13th annual international symposium on emission inventories. The technical program committee is interested in applications of new technologies, including emissions related to climate change. Abstracts due December 1, to Sally Dombrowski, [dombrowski.sally@epa.gov](mailto:dombrowski.sally@epa.gov). <http://www.epa.gov/ttn/chief/conferences.html>.

June 24-26, 2004, **Greenhouse Gas Emissions and Abrupt Climate Change**, most likely Paris. The Conference will be linked to three publications: a special issue of the *Journal of Mitigation and Adaptation Strategies for Global Change*; published on the IIASA web site; and an assessment of the conference's purposes and outcomes will be published in a 2005 book. Coverage will be of interest to research and policy communities involved both with climate change risk assessment and response strategy and with sustainable forestry, sustainable rural development, bio-energy systems and CO<sub>2</sub> capture and storage. Funded by the United Nations Foundation and its affiliate, the Better World Fund. <http://www.iiasa.ac.at/~oberstei/fff/index.html?sb=3D1>

September 5-9, 2004, **GHGT-7 CALL FOR PAPERS**, Vancouver, Canada. GHGT-7 is being organized by University of Regina, Natural Resources Canada, and the IEA GHG R&D Programme. Abstracts should be submitted online by December 31<sup>st</sup> to the conference website: [www.ghgt7.ca](http://www.ghgt7.ca) <http://www.ieagreen.org.uk/GHGT7CfP.pdf>

## Recent Publications

### **EIA: U.S. GHGs emissions grew 0.5 Percent in 2002.**

DOE's Energy Information Administration (EIA) announced that U.S. GHG emissions increased 0.5 percent in 2002. Carbon dioxide emissions, which increased by 0.8 percent, were offset by decreases in methane, mostly from captured landfill gas, and nitrous oxide emissions, due to reduced emissions from agriculture. The U.S. economy grew by 2.4 percent in 2002, which means that the greenhouse gas intensity decreased by 2.1 percent. The full report is available as a 665-KB PDF file at: <ftp://ftp.eia.doe.gov/pub/oiaf/1605/cdrom/pdf/ggprt/057302.pdf>

**Understanding Climate Change Feedbacks**, National Research Council, "According to estimates generated by current climate models, more than half of the warming expected in response to human activities will arise from feedback mechanisms internal to the climate system." This paper develops a strategy to understand, model, and monitor feedback processes. <http://www.nap.edu/catalog/10850.html>

**Environmental Science & Policy Journal.** The December issue contains the article "The role of scientific uncertainty in compliance with the Kyoto Protocol to the Climate Change Convention." <http://www.sciencedirect.com/science/journal/14629011>

**Next Steps for the Global Climate Regime - Deeper Inclusion of Developing Countries' Interests.** This paper argues that we need to return to the basic principles outlined in the Framework Convention on Climate Change in searching for a north-south bargain on climate change, and its original stated goals of sustainable development. "Climate negotiations beyond Kyoto: developing countries concerns and interests," *Climate policy* 3 (3, 2003)

**Climate Change: Solutions to Require Massive Technology.** A recent report published by the Pew Center states that achieving substantial reductions in carbon dioxide emissions will require replacement or retrofitting of hundreds of electric power plants and tens of millions of motor vehicles. Additionally, upgrades will have to be made to hundreds of millions of household appliances, building systems and factory equipment. "Sometimes the diffusion [of new technology] is ignored in favor of the flashy R&D programs, and you need both," added Vicki Arroyo, director of policy analysis at the Pew Center. <http://www.pewclimate.org/>

**Comparative State-level Policy on Forestry Sequestration.** This report compares the approaches of the governments of Japan, Canada, and the European Union member countries toward using terrestrial carbon sinks to meet their respective Kyoto Protocol carbon reduction targets under Articles 3.3 and 3.4. Japan appears likely to rely most heavily on forest and biological sinks to meet its Kyoto targets, while Canada will not. For the EU, the role of sinks is likely to be even smaller, with sinks playing no role for some EU countries. The final decisions have not yet been made for any of these countries. "Forest Carbon Sinks: European Union, Japanese, and Canadian Approaches," Resources for the Future, October 2003, <http://www.rff.org/rff/Documents/RFF-DP-03-41.pdf>

**Oxford Review of Economic Policy.** The current issue focuses on climate change. Articles included are: The Assessment: Climate-Change Policy; The Social Cost of Carbon and its Policy Implications; Fiscal Interactions and the Case for Carbon Taxes Over Grandfathered Carbon Permits; The Tradable-Permits Approach to Protecting the Commons: Lessons for Climate Change; Carbon Trading in the Policy Mix; Credible Carbon Policy; and The Kyoto Protocol: A Review and Perspectives. Oxford University Press, <http://www.oxrep.oupjournals.org/current.shtml>

**UN Global Environment Facility Publications on Adaptation and Sustainable Development.** The UNDP GEF will launch two climate change related publications during the UNFCCC Ninth Conference of Parties in Milan, Italy. The "Adaptation Policy Framework" (APF) is produced under the auspices of the UNDP-GEF Capacity Development and Adaptation Cluster. The second publication, by the Global Environment Facility's Small Grants Programme (SGP), "Responding to climate change, generating community benefits," sets out lessons and experiences that have emerged from a decade of SGP's portfolio of community-based climate change projects. Please contact Bo Lim, Senior Technical Advisor, Capacity Development and Adaptation, ([bo.lim@undp.org](mailto:bo.lim@undp.org)) or Stephen Gitonga, [stephen.gitonga@undp.org](mailto:stephen.gitonga@undp.org), Climate Change Programme Officer, GEF Small Grants Programme Download the APF documents at [www.undp.org/cc/apf\\_outline.htm](http://www.undp.org/cc/apf_outline.htm).

**Transportation and GHG Reduction.** The Transportation Research Board released "Travel Matters: Mitigating Climate Change with Sustainable Surface Transportation." The report examines how greenhouse gas emissions from transportation may be reduced, and the capacity of public transportation to mitigate greenhouse gas emissions. [http://gulliver.trb.org/news/blurb\\_detail.asp?id=2071](http://gulliver.trb.org/news/blurb_detail.asp?id=2071)

## Legislative Activity

**Senate Energy Bill Dead for This Year.** After much effort and negotiation, consideration of the energy bill by the U.S. Senate has been postponed to 2004. <http://www.washingtonpost.com/wp-dyn/articles/A11687-2003Nov24.html>

**House Hearing on GHG control technologies.** David Conover, director of the Climate Change Technology Program (CCTP), and DOE Deputy Assistant Secretary George Rudins testified at a November 6 House Science Subcommittee hearing. They brought the committee up to date on carbon sequestration and Future Gen. "Lawmakers question Bush climate change policies, priorities," *Platts Coal Outlook*, November 10, 2003, Vol. 27, No. 45.

*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 [major-domo@list-manager.netl.doe.gov](mailto:major-domo@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, [klara@netl.doe.gov](mailto:klara@netl.doe.gov).*