THE CARBON SEQUESTRATION NEWSLETTER

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July 2003

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

Sequestration in the News

Carbon Sequestration Leadership Forum. Along with the U.S., delegations from thirteen countries and the European Union attended the June 23-25 inaugural meeting of Carbon Sequestration Leadership Forum (CSLF): Australia, Brazil, Canada, China, Colombia, India, Italy, Japan, Mexico, Norway, Russian Federation, South Africa, the United Kingdom, and the European Commission. A charter document was signed by countries wishing to be participatory members of the CSLF. "International carbon sequestration pact signed," ENS, June 25, http://ens-news.com/ens/jun2003/2003-06-25-09.asp#anchor3; also see DOE, http://energy.go

U.S. CO₂ strategy focuses on coal-fired plants. A press briefing held by Mike Smith, Assistant Secretary for Fossil Energy, and Scott Klara, Carbon Sequestration Project Manager at NETL, generated several articles covering the NETL Carbon Sequestration program efforts, the International Leadership Forum, CCP, Weyburn and FutureGen. "Power plants pose challenge for CO₂," *Inside Energy Extra*, June 16, 2003; also "Permanence Issues loom over CO₂ storage," *Air Daily*, June 17, 2003; "Bush's Climate Policy Touts Oil Recovery Technology," *Oil Daily*, June 16, 2003; and "Too much CO₂? Just pump it underground," *Christian Science Monitor*, June 24, 2003, http://search.csmonitor.com/2003/0624/p02s02-usgn.html

Climate Leaders program expands. EPA recognized fourteen companies in its Climate Leaders program, a voluntary initiative to encourage business to develop long-term climate change strategies. The partnership program has expanded to 41 businesses in two years. "Voluntary Partnership Expands," *US NewsWire*, June 12, 2003, http://releases.usnewswire.com/GetRelease.asp?id=128-06112003

Montana expresses interest as FutureGen site. In a document submitted to the DOE, Montana has offered both its university system and geological resources for FutureGen. Dave Gibson of the Governor's Office of Economic Opportunity was named project coordinator for Montana's involvement in FutureGen. "Montana makes pitch for hosting big federal project," The Associated Press State & Local Wire, June 21, 2003.

Launch of CO2CRC for greenhouse gas technologies. A new Cooperative Research Centre (CO2CRC) will research Australian CO2 capture and geological storage, taking over from the Australian Petroleum Co-operative Research Centre. Other article topics include Australia's efforts to shape the post-Kyoto agenda, climate change policy in Japan and the global reporting initiative. "AETF Review," Australasian Emissions Trading Forum, http://www.aetf.net.au/ContentStore/pdf/ReviewJunJul2003.pdf

Announcements

New: EPA Issues Preliminary Notice for State Innovation Grants. The EPA's Office of Policy, Economics and Innovation (OPEI) issued a preliminary notice of intention to solicit proposals for a 2003/2004 grant program supporting innovation by state environmental regulatory agencies. Reducing GHGs is identified as one of four priority issues in the EPA Innovation Strategy. Responses from state environmental regulatory agencies are due by July 11, 2003. EPA, June 11, 2003, http://www.epa.gov/innovation/stategrants/

Deadline extended for novel GHG management projects. The Department of Energy, partnered for the first time with the National Academy of Science's National Research Council (NRC), wants proposals for novel approaches to managing GHG emissions from fossil-fuel energy systems, particularly coal-fired power plants. Cost-sharing for these projects has been waived. Grant applications are due July 9. Solicitation DE-PS26-03NT41777, "Novel Approaches to the Management of GHGs from Fossil Fuel Energy Systems," http://www.netl.doe.gov/business/solicit/index.html

DOE seeks input on FutureGen plans. The U.S. Department of Energy published a notice in the Federal Register seeking public comments on plans to implement FutureGen. http://www.netl.doe.gov/coalpower/sequestration/futureGen/rfi.html

Two DOE Solicitations. Carbon sequestration is mentioned in two broad procurement efforts: the DOE Small Business Innovation Research and the solicitation for grants in basic energy, biological and environmental sciences by the DOE Office of Science. http://sbir.er.doe.gov/sbir and http://e-center.doe.gov/

Sequestration in the News, Cont'd

Capture

Sequestration outlined as a necessary solution. Capture and geologic sequestration of power plant emissions is a reasonable way to curtail world CO₂ output, according to Dr. Lackner of Columbia University. The best long-term option, he claims, is to chemically neutralize the CO₂ to form insoluble carbonates. "A Guide to CO₂ Sequestration," *Science*, June 13 2003: 1677-1678. Also, "Is Sequestration The Only Way to Deal with Carbon?" *The Electricity Daily*, June 13, 2003.

MCCF to start testing capture technologies. The National Energy Technology Laboratory's Pittsburgh site is preparing to fire up the Modular CO₂ Capture Facility (MCCF), a facility to test carbon-capture technologies. NETL designed and constructed MCCF, which will operate in two ways. In flue gas form, it will mimic coal-fired combustion processes that generate electricity using coal, natural gas or a combination of the two. Burning 40 pounds of coal per hour results in a flue gas flow of 110 scfm. In fuel gas mode, the facility will simulate the gas composition found in advanced conversion systems, such as coal gasification. NETL reached a tentative agreement with Toshiba to test the company's carbon sorbent. "NETL sets up facility to gauge how carbon capture technologies stack up," *Inside Energy /with Federal Lands*, June 9, 2003.

Terrestrial

Senators consider terrestrial carbon sequestration. A Senate Commerce Committee heard from experts in Kansas on the role farming could play in future carbon trading markets. "Senators to consider crops for carbon storage at field hearing," Environment and Energy Daily, June 5, 2003, http://www.senate.gov/~commerce/hearings/witnesslist.cfm?id=795

USDA to reduce and sequester 12 million tons by 2012. The U.S. Department of Agriculture will consider GHG management practices when evaluating applications for conservation grants and subsidies. The department will offer financial incentives, technical assistance, demonstrations, pilot programs, education and capacity building. USDA also announced it will target 500,000 acres in the CRP toward hardwood tree planting beginning this summer. "Farmers who cut down gas to be rewarded," Associated Press, June 7, 2003, http://www.arkcity.net/stories/060703/com_0002.shtml "Veneman announces new incentives for GHG reduction and carbon storage," USDA, June 6, 2003, http://www.usda.gov/news/releases/2003/06/0194.htm and http://ens-news.com/ens/jun2003/2003-06-09-09.asp

Turfgrass captures CO2, **stores it in soil.** Soil scientists from the Agricultural Research Service and Colorado State University found that turfgrass in the Denver area stores CO₂ in the soil at a rate of roughly one ton carbon per acre per year. 16 soil records from golf courses, some of which go back 45 years, show that carbon is sequestered for up to 31 years in fairways and 45 years in greens. "Golf greens hide benefit, CSU researchers find," June 8, 2003 http://www.greeleytrib.com/apps/pbcs.dll/article?AID=/20030608/BUSINESS/306070023 Details can be found in the June issue of Agricultural Research magazine, http://www.ars.usda.gov/is/AR/archive/jun03/golf0603.htm

Review of the gaps in understanding ecosystem response to high CO₂. Two articles in *Environment International* address the need for research to understand terrestrial response to elevated CO₂ concentration and the possibility that escalating levels of CO₂ may serve as a selection pressure altering the genetic diversity of plant populations. "Impacts of elevated atmospheric CO₂ on forest trees and forest ecosystems: knowledge gaps," and "The long-term effects of CO₂ on natural systems: issues and research needs," *Environment International*; Volume 29, Issues 2-3, June 2003, http://www.sciencedirect.com/science/journal/01604120

Europe's large carbon sink. A team of scientists studying carbon storage in European biosystems report that ecosystem carbon stock transfers not detected by atmospheric models account for the gap between the small carbon-stock changes and the larger CO₂ uptake estimated by atmospheric models. They estimate a net carbon sink between 135 and 205 teragrams per year in Europe's terrestrial biosphere, the equivalent of 7 to 12% of the 1995 anthropogenic carbon emissions. "Europe's Terrestrial Biosphere Absorbs 7 to 12% of European Anthropogenic CO₂ Emissions," *Science*, Vol. 300, Issue 5625, 1538-1542, June 6, 2003.

Climate warming raises net primary productivity. Using nearly two decades' worth of data on climate and vegetation (1982 to 1999), a team of scientists found that globally, shifts in rainfall patterns, cloud cover, and warming temperatures allowed a 6 percent increase in the amount of carbon stored in trees, grass, shrubs, and flowers. Amazon rain forests accounted for nearly half the increase seen globally over the 18-year period, owing mainly to decreased cloud cover. "Climate-Driven Increases in Global Terrestrial Net Primary Production from 1982 to 1999," *Science*, Volume 300, Number 5625, Issue of 6 Jun 2003, pp. 1560-1563. "World's vegetation is cleaning more carbon from skies," *The Christian Science Monitor*, June 6, 2003, http://search.csmonitor.com/2003/0606/p02s02-usgn.html?related

Sequestration in the News, Cont'd

Terrestrial cont'd

Soil erosion reduces soil organic carbon. According to soil scientist R. Lal of Ohio State University, soil erosion has impacted the global carbon cycle through a combination of mineralization and carbon export of the soil organic carbon (SOC) pool. The amount of total carbon displaced by erosion on the earth may be 4.0–6.0 Pg/year. With 20% emission due to the mineralization of the displaced carbon, erosion-induced emission may be 0.8–1.2 Pg C/year on the earth. "Soil erosion and the global carbon budget," *Environment International*, Volume 29, Issue 4, July 2003, pages 437-450 http://www.sciencedirect.com/science/journal/01604120

In-situ soil carbon measurement field work proposal funded. A new field work proposal with Brookhaven National Laboratories has been funded to develop a mobile soil carbon analyzer system. The Fossil Energy/NETL funded project will miniaturize and create a mobile version of an existing system which measures the carbon content in a static volume of soil. Using inelastic neutron scattering technology, the system is capable of scanning a volume of soil, either static or mobile, to determine the mass of carbon. The project will also investigate the use of the system to measure other soil nutrients such as nitrogen and phosphorous, indicators of soil fertility. National Energy Technology Laboratory, June, 2003.

Trading

Manitoba CO2 exchange. Manitoba is formally pursuing the creation of a commodities exchange to buy and sell GHG emission credits. "Manitoba to create GHG exchange," Canadian Press/The Globe and Mail, June 18, 2003, http://www.globeandmail.com/servlet/story/RTGAM.20030618.wmanitoba0617/BNStory/National/

Trading carbon through projects. This article covers GHG trading in general, and introduces the story of Mark Trexler, who developed the world's first agroforestry carbon sequestration project, the AES/CARE Guatemala Agroforestry and Carbon Sequestration Project. "Adventures in smog trading," *Salon*, June 4, 2003, http://www.salon.com/tech/feature/2003/06/04/carbon_emissions/index_np.html

GT Energy trades CO₂ under the EU scheme. GHG GT Energy announced its first trade under the EU emissions trading scheme (EU ETS) between two European utilities. "Second Public CO₂ Emissions trade completed," Point Carbon, June 23, 2003, http://www.pointcarbon.com/article.php?articleID=2302

Policy

Maine adds a state law for carbon constraints. Gov. John Baldacci signed the first state law in the US to set specific goals and a timeline to reduce CO₂ emissions. "Climate change law to be first in nation," Portland Press Herald, June 25, 2003, http://www.pressherald.com/news/state/030625climate.shtml

A Japanese fossil energy tax in the works. Japan's Environment Ministry may levy a tax on fossil fuel importers or refiners in an effort to curb GHG emissions and energy spending, Nikkei English News reported. "Japan plans fossil fuel tax," Nikkei English News, June 25, 2003, http://quote.bloomberg.com/apps/news?pid=10000101&sid=aCWrilzt09Hw&refer=japan

Three states sue the U.S. Federal government over CO₂. Connecticut, Maine, and Massachusetts sued the federal government to force it to regulate CO₂ emissions. The lawsuit alleges that CO₂ emissions contribute to global warming and should be governed as a "criteria pollutant" under the Clean Air Act, which would oblige the U.S. EPA to set allowable atmospheric levels as it currently does for ozone, lead, sulfur dioxide, and other forms of pollution. *New York Times*, June 5, 2003, http://www.gristmagazine.com/forward_id=1199

Canada to lay out plans for Kyoto implementation. Over the next few weeks, the Canadian government will publish more concrete plans of how it intends to implement the Kyoto Protocol on reducing greenhouse emissions. "Canada to release further details on implementing Kyoto Protocol," AFP, June 10, 2003, http://www.terradaily.com/2003/030610214307.dypr9x2j.html

U.S. and Italy agree to cooperate on climate change science and technology. Joint scientific activities include advanced energy technologies including carbon capture and sequestration. "Joint Statement of the United States and Italy on Climate Change Science and Technology," U.S. Department of State, June 17, 2003, http://www.state.gov/r/pa/prs/ps/2003/21655.htm

Events

August 19, The Monitoring, Evaluation, Reporting, Verification and Certification of GHG Emissions: Energy-Efficiency Projects Workshop, Seattle, Washington. Registrants of the 2003 International Energy Program Evaluation Conference are invited to attend. http://www.iepec.org/workshop_vine.htm

September 7-11, **American Chemical Society National Meeting**, New York, NY. Advanced technical session entitled: "CO₂ sequestration: advanced technologies for predicting and monitoring isolation performance" http://www.chemistry.org/portal/a/c/s/1/neworleans2003.html?DOC=meetings\newyork2003\03NYearly.html

September 15-19, Twentieth Annual International Coal Conference, Pittsburgh, PA. http://www.engr.pitt.edu/pcc/

September 21-23, **21st Annual Hart World Fuels Conference: The Future of the Refining and Automotive Industries:** Understanding the Impact of Technology and Policy Change, Washington, DC. Contact: Tel. 301-354-2045 or 1-800-872-3835 Fax: 301-424-7260 Email: registration@worldfuels.com, http://www.cvent.com/

September 22-23, Coal: A Sustainable Future, Pittsburgh, Pennsylvania. http://www.coalmarketingdays.platts.com/

September 21-23, **Emissions Marketing Association (EMA) 7th Annual Fall Meeting & International Conference**, Miami, Florida. Poster presenters and speakers should submit abstracts by June 13, 2003. http://www.emissions.org/conferences/fallconference03/default.html

October 14-17, Innovative Methods for Emission-Inventory Development and Evaluation workshop, Austin, TX. The workshop is being organized by North American Research Strategy for Tropospheric Ozone (NARSTO) at the University of Texas, Austin. http://www.cgenv.com/narsto/EmissionsWorkshop.html

November 2-6, **The 12th International Conference on Coal Science**, Cairns Convention Centre, Cairns, Australia. Topics include: Global warming, GHG emissions, CO₂ mitigation and sequestration. http://www.aie.org.au/iccs/

November 16-21, **The American Institute of Chemical Engineers annual meeting,** San Francisco, CA. The Environmental and the Catalysis and Reaction Engineering divisions will sponsor two "GHG Sequestration Technology" sessions. http://www.aiche.org/Annualapp/previewmodule/grouplist.asp?groupcode=09&

November 17-18, **Climate policy after 2012**, Ghent, Belgium, arranged by the Ghent University. For information e-mail johan.albrecht@rug.ac.be

February 8-11, 2004, **A GTI Conference & Exhibition, Natural Gas Technologies II,** Phoenix, Arizona 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 CO₂ sequestration technologies. Contact: paul.reneau@gastechnology.org

Recent Publications

Carbon capture & sequestration monitor. Investigative reporting on international, federal and state government programs as well as innovative technologies. http://www.exchangemonitor.com/carbon news.pdf

Non-permanent sinks and sequestration insurance. This paper discusses the practicality and potential difficulties of the insurance approach for addressing non-permanence of sequestered carbon stocks and the validity of CERs generated. Two main options on how to address non-permanence have been proposed: temporary credits and insurance of emission reduction credits. "Can Permanence be insured? Consideration of some Technical and Practical Issues of Insuring Carbon Credits from Afforestation and Reforestation," The Hamburg Institute of International Economics, http://www.hwwa.de/Publikationen/Discussion_Paper/2003/235.pdf

Four sequestration-related reports released by the OECD/IEA Annex I Expert Group. These papers were released at the 18th meeting of the United Nations Framework Convention on Climate Change Subsidiary Body in Bonn: "Forestry projects: lesson learned and implications for CDM modalities;" "Policies to Reduce GHG Emissions in Industry - Successful Approaches and Lessons Learned: Workshop Report;" "Evolution of Mitigation Commitments: Some Key Issues;" and "Technology Innovation, Development and Diffusion." http://www.oecd.org/env/cc

Proceedings from the U.S.-Japan Workshop on Global Change. The climate and water workshop held January 15-17, 2003, covers discussion of the water cycle as it relates to terrestrial carbon sequestration. "Proceedings of the Tenth U.S.-Japan Workshop on Global Change: Climate and Water," USGCRP, May 30, 2003, http://www.usgcrp.gov/usgcrp/Library/watercycle/us-japan-jan2003workshop-may2003draft.htm

Recent Publications

Policy report calls for carbon restrictions and sequestration research. Experts on opposite sides of the ideological spectrum released a report calling for the U.S. to cut carbon emissions by a third over the next 25 years. The report, issued by the Energy Future Coalition, calls for more research on carbon sequestration, market-based incentives, and accelerated federal efforts to prove the effectiveness of geologic sequestration. The lead authors Gray and Podesta, also co-authored an article published in the July/August edition of *Foreign Affairs*. "Political Opposites Join In Appeal For U.S. Carbon Cuts, Reduced Oil Use," *The Energy Daily*, June 19, 2003.

Energy policy paper in Foreign Affairs journal. This paper recommends a U.S. energy policy to address three challenges: security, environment, and energy access to the poor. It calls for "initial, modest restrictions of carbon emissions" combined with a 10- to 15-year transition period to develop a program of incentives for low- or zero-carbon energy technologies to fight global warming. "The Future of Energy Policy," Timothy Wirth, Boyden Gray, and John Podesta, *Foreign Affairs*, July/August 2003, http://www.foreignaffairs.org/20030701faessay15410/timothy-e-wirth-c-boyden-gray-john-d-podesta/the-future-of-energy-policy.html

Industrialized countries' emissions to grow. The emissions of CO₂ and other GHGs from Europe, Japan, the US and other industrialized countries could grow by 17 percent from 2000 to 2010, despite measures in place to curb them, according to a new United Nations report. The developed world as a whole (highly industrialized plus transition countries) will see its emissions increase by 10% from 2000 to 2010. The report is an official UN document entitled Compilation and Synthesis of Third National Communications. "Rich countries' GHG emissions ballooning," *ENS*, June 9, 2003, http://ensnews.com/ens/jun2003/2003-06-09-02.asp "Rich countries see higher GHG emissions. Upward trend set to continue," UNFCCC, June 3, 2003, http://unfccc.int/press/prel2003/pressrel030603.pdf

The Kyoto-Marrakech system. An analytical paper by RIIA covers carbon markets established under the Kyoto mechanisms, business approaches to climate policy, the US position on climate change, regime development, prospects for the Kyoto system, and negotiations over further commitments. "A Strategic Assessment of the Kyoto-Marrakech System: Synthesis Report" Briefing Paper No. 6, Royal Institute of International Affairs, The Sustainable Development Programme, June 2003, http://www.riia.org/index.php?id=69&PHPSESSID=a51a995c040234fa0bb45bcf90e84385

National-level sustainable forestry assessment. Australian-PROFOR Summary of the IPF/IFF Proposals for Action is a tool intended to facilitate national-level assessment of progress and priorities for action toward sustainable forest management. The summary presents the more than 270 proposals for action, and includes references to the Convention on Biological Diversity's expanded forest biodiversity work programme. "Launch of the Australian-PROFOR Summary of the IPF/IFF Proposals for Action at UNFF-3," The Department of Agriculture, Fisheries and Forestry of Australia (AFFA) and the Program on Forests (PROFOR) at the World Bank, June 2003, http://www.profor.info/pubs/austproforsum.htm

Costs and GHG emissions of energy technologies. A study comparing the electricity generation costs of various current commercial technologies with technologies expected to become commercially available within the coming decade evaluates the GHG emissions resulting per kWh of electricity. A range of fossil fuel alternatives (with and without physical carbon sequestration), were also compared with the baseline case of a pulverised coal, steam cycle power plant. "Carbon emission and mitigation cost comparisons between fossil fuel, nuclear and renewable energy resources for electricity generation," *Energy Policy*, 31 (13, 2003): 1315-1326, http://www.sciencedirect.com/science/journal/03014215

New information on the NETL website. A new article entitled "Integrated collaborative technology development program for CO₂ sequestration in geologic formations" has been posted on the NETL website Reference Shelf. NETL, June 25, 2003, http://www.netl.doe.gov/coalpower/sequestration/pubs/articles/ECMGEOLOGIC.pdf
A Frequently Asked Questions (FAQs) page has also been posted, June 17, 2003, http://www.netl.doe.gov/coalpower/sequestration/faqs.html

Survey of U.S. public opinion on climate change. The University of Oregon's national survey shows that 88 percent of Americans who know of global warming want action taken to reduce GHGs and support the Kyoto Protocol. "American Opinions on Global Warming," Sustainable Development International, June 9, 2003, http://www.sustdev.org/industry.news/2003/09.06.03-3.shtml

Integrating mitigation and adaptation. According to this article, integrating mitigation and adaptation to climate change is more effective as an approach than either perspective alone. "Possible responses to global climate change: integrating mitigation and adaptation," *Environment*, 45 (5, 2003).

Long-term future economic benefits of mitigation efforts. Resources for the Future authors Richard Newell and William Pizer found that incorporating discount rate uncertainty into climate change calculations almost doubles the expected present value of mitigation benefits. They show that when the future path of the discount rate is uncertain and highly correlated, the distant future should be discounted at significantly lower rates than suggested by the current rate. "Discounting the distant future: how much do uncertain rates increase valuations?," *Journal of Environmental Economics and Management*, Volume 46, Issue 1, July 2003, pages 52-71, http://www.sciencedirect.com/science/journal/00950696

Recent Publications, cont'd

Ancillary benefits of a carbon tax. Actions to slow atmospheric accumulation of GHGs would reduce conventional air pollutants yielding "ancillary" benefits that tend to accrue locally and in the near-term. Using a detailed electricity model linked to an integrated assessment framework to value changes in human health, Resources for the Future authors find a tax of \$25 per metric ton of carbon emissions would yield NOx-related health benefits of about \$8 per metric ton of carbon reduced in the year 2010 (1997 dollars). Total ancillary benefits of a \$25 carbon tax are \$12-\$14. "Ancillary benefits of reduced air pollution in the US from moderate GHG mitigation policies in the electricity sector," *Journal of Environmental Economics and Management*, 45 Issue 3, June 2003, pages 650-673, http://www.sciencedirect.com/science/journal/00950696

EMA conference summary. The EMA Spring Meeting provided a review and assessment of U.S. legislation and regulatory developments, carbon sequestration projects, mercury emissions control proposals, renewable energy credit trading and recent energy and emissions developments in the Western States. "The emissions marketing Association's 7th annual spring meeting summary report," The Emissions Marketing Association, June 17, 2003, http://www.emissions.org/publications/summary_reports/summaryreport2003_spring.pdf

CO₂ emission trading and CHP. According to this position paper, emission trading will hurt the growth of combined heat and power installation. Co-published by COGEN Europe, Climate Action Network Europe, Confederation of European Paper Industries, World Alliance for Decentralized Energy and the WWF. "Emission trading and CHP: Modifications of the EU directive are necessary," http://www.cogen.org/Downloadables/Publications/Leaflet_CHP_and_ET_June2003.pdf

Climate Policy sequestration-relevant articles. The Elsevier journal *Climate Policy* Issue 3 (2) contents include: "Replacing carbon lost from forests: an assessment of insurance, reserves, and expiring credits;" "A conceptual framework and its application for addressing leakage: the case of avoided deforestation;" and "The climatic impacts of land surface change and carbon management, and the implications for climate-change mitigation policy." *Climate Policy*, June 2003, http://www.climatepolicy.com

Presentations from two OECD workshops. Papers from the OECD Global Forum on Sustainable Development: Emissions Trading and Concerted Action on Tradeable Emissions Permits (CATEP) Country Forum are available online. OECD Climate Change, June 2003, http://www.oecd.org/env/cc

Legislative Activity

Bush administration may work with Democrats on carbon constraint ideas. White House official indicated for the first time that the Bush administration may negotiate with a mainly Democratic contingent in the Senate that wants CO₂ limits made part of the president's multi-pollutant bill. At the Senate Environment subcommittee on clean air's third hearing on the administration's "Clear Skies" proposal, the acting chairman of the Council of Economic Advisers, Randall Kroszner, made clear the White House opposes a CO₂ cap but would work with senators that support one to get the president's multi-pollutant bill (S. 485) enacted. "White House may bargain on carbon cap with senators opposed to 'Clear Skies'," *Inside Energy,* June 9, 2003. Statements from the hearing are available online, Senate Environment and Public Works, June 5, 2003, http://epw.senate.gov/stm1_108.htm#06-05-03

Alaska senator recognized for carbon leadership. The Democratic Leadership Council (DLC) named House Democratic Leader Ethan Berkowitz (D-Anchorage) as the organization's "New Democrat of the Week" of June 16, 2003. Berkowitz was selected for his sponsorship of House Bill 196, a bill to authorize State research in carbon sequestration. "Berkowitz Named "New Democrat of the Week" Carbon sequestration bill wins national attention for Alaska" DLC Press Release, June 16, 2003.

Introduced in May: Healthy Forests Restoration Act of 2003, HR 1904, May 21, 2003, http://thomas.loc.gov/cgi-bin/bdquery/z?d108:h.r.01904:

To enhance energy conservation and research and development, to provide for security and diversity in the energy supply for the American people, and for other purposes, HR 6, April 29, http://thomas.loc.gov/cgi-bin/bdquery/z?d108:h.r.00006: Clean Smokestacks Act of 2003, HR 2042 May 8, 2003, http://thomas.loc.gov/cgi-bin/bdquery/z?d108:h.r.02042: Energy Tax Incentives Act of 2003, S.1149, May 23, 2003, http://thomas.loc.gov/cgi-bin/bdquery/z?d108:s.01149:

Introduced in April: Global Change Research and Data Management Act of 2003, H.R. 1578 Udall (D-CO), http://thomas.loc.gov/cgi-bin/query/z?c108:H.R.1578:

Clean Air Planning Act of 2003, S.843 Carper (D-DE), http://thomas.loc.gov/cgi-bin/query/z?c108:S.843: Department of Energy Catalysis Research and Development Act, Bingaman (D-NM), http://thomas.loc.gov/cgi-bin/query/z?c108:S.873:

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 with "subscribe sequestration" in the body of the message. We encourage you to pass this along to interested persons. Contact: Sarah Forbes, sarah.forbes@netl.com, or Scott Klara, klara@netl.doe.gov.

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