

## Inside Energy

May 12, 2003

### Energy bill bumped from Senate agenda

Senate Republican hopes of completing action on a comprehensive energy bill by Memorial Day faded last week as the measure (S. 14) appeared to have been bumped off the Senate floor for the next several weeks by the press of other business, Republican aides said.

Senate debate on the bill, which began Tuesday, got off to a slow start — with only one amendment being offered and no votes taken — because of delays in filing and printing a report to accompany the bill.

Although the Senate had been expected to resume consideration of the energy bill later this week, Majority Leader Bill Frist, R-Tenn., did not include the energy legislation on the list of bills the Senate will consider on the floor this week. In a floor statement Friday laying out this week's schedule, Frist said the first few

days would be spent on a budget reconciliation bill that contains tax cuts aimed at spurring economic growth. After voting on that, Frist said he planned to bring up a bill to prevent the further spread of AIDS and a measure to raise the debt ceiling.

Asked about Frist's omission of energy, a Senate Republican cloakroom aide said it would be "one of those things out there that is able to be debated in between other things." But he added, "the chances of doing much on energy [next week] is pretty slim." A Defense Department authorization bill and a conference report on the reconciliation bill are on the agenda for the following week, he said. As for energy, "it's just one of those play it by ear things," he said. An Energy and Natural Resources Committee spokeswoman said Friday that "it's likely we

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### Senate panel to vote on 'Clear Skies' in June

Sen. George Voinovich, R-Ohio, chairman of the Senate subcommittee responsible for air legislation, said last week he plans in June to mark up legislation embodying the Bush administration's "Clear Skies" plan, but acknowledged that getting the bill approved by the panel would be difficult. Most Democrats and at least two Republicans on the committee support one of two rival bills that would mandate reductions of carbon dioxide in addition to the three pollutants addressed in the White House bill (S. 485).

Voinovich, chairman of the Environment and Public Works' clean air subcommittee, told reporters that some members of the committee — including a few Republicans — "just don't understand" the potential effects of a CO<sub>2</sub> cap, which were widely discussed at a hearing on Clear Skies Thursday. Two

Republicans, Sens. Lincoln Chafee, R-R.I., and Judd Gregg, R-N.H., are cosponsors of a four-pollutant bill (S. 843) authored by Sen. Thomas Carper, D-Del. Their support appears to limit Clear Skies support to the balance of the Republicans on the panel and Sen. Max Baucus, D-Mont., who has opposed legislation with a CO<sub>2</sub> mandate. Sen. Jim Jeffords, I-Vt., told *Inside Energy* Tuesday that the administration does not have the votes to move Clear Skies to the Senate floor.

Voinovich also told reporters Republicans have no plans to attach S. 485 to the energy bill (S. 14) pending in the Senate. However, if Jeffords or the Democrats try to attach a four-pollutant bill to the energy bill, Clear Skies would be offered as an alternative, he said.

Voinovich said before the June vote

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**CONTRACT OPPORTUNITIES****DOE picks company to PV project**

May 8 — The Energy Department announced that its National Renewable Energy Laboratory has awarded a subcontract to Energy Conversion Devices Inc., Rochester Hills, Mich., for a new solar manufacturing technology. The contract provides matching funds for an r&d program that would lower the manufacturing cost of solar cells. NREL will fund about \$3 million of the \$6-million subcontract. The project will concentrate on developing on-line diagnostic systems for a 30-megawatt photovoltaic manufacturing line. It is part of DOE's Photovoltaics Manufacturing Initiative.

**DOE seeks help with Kazakh project**

May 8 — The Energy Department plans to seek bids on a contract to support a spent nuclear fuel storage project in Kazakhstan. In a Federal Business Opportunities notice (DE-RP03-03SF22732), DOE said it will issue a request for proposals within days. DOE and Kazakhstan plan to place spent nuclear fuel from the Kazak BN-350 Fast Breeder Nuclear Reactor into dual-use transportation and storage casks, which will be shipped across the country for long-term storage. The contractor would help both nations in the planning and performance of the project. Contact: Stephen Law, (510) 637-1906; stephen.law@oak.doe.gov.

**DOE highlights hydrogen solicitation**

May 6 — The Energy Department's Office of Hydrogen, Fuel Cell, and Infrastructure Technologies is soliciting proposals for research projects that would test, demonstrate and validate technologies for fuel cell vehicles and their supporting facilities. In a notice (DE-PS36-03G093010), DOE said it expects to award a total of \$150 million to \$240 million to projects over several years, which must include an automobile manufacturer and an energy company as participants, who must agree to bear half of the projects' costs. DOE plans to allocate \$25 million of that

amount in FY-04 to as many as five projects. The winning projects could take several forms, including producing a fleet of hydrogen vehicles, building more fueling stations and testing fleets in a controlled environment, such as a military base, DOE said. "This solicitation is an important step toward fulfilling the president's vision that the first car of a child born today will be powered by hydrogen," Energy Secretary Spencer Abraham said in a statement. The deadline for proposals is Aug. 14. Contact: James Damm, (303) 275-4744; h2validation@go.doe.gov.

**MMS seeks study of oil spill impacts**

May 6 — The Minerals Management Service is seeking bids for a study of the potential social and economic effects of oil spills in areas of the Outer Continental Shelf where MMS plans to conduct oil and gas lease sales. In a Federal Business Opportunities notice (0103RP72184), MMS said it expects the project to cost \$50,000 to \$75,000. The deadline for proposals is June 9. Contact: Sharon Teger, Fax (703) 787-1022; Sharon.teger@mms.gov.

**Livermore promotes chemical sensor**

May 5 — Lawrence Livermore National Laboratory is seeking industrial partners to manufacture and market a portable sensor that can detect chemicals in water. The device, which LLNL says employs non-fluorescent optical sensing, could be used in medical and biological research, environmental monitoring, industrial hygiene and emergency response. The lab will accept replies until June 6. Contact: Connie Pitcock, (925) 422-1072; pitcock1@llnl.gov.

**Lab asks for industrial aid on cyclor**

May 5 — Lawrence Livermore National Laboratory is looking for industrial partners to market and manufacture a next-generation thermal cyclor for use in polymerase chain reaction systems. The lab will accept replies until June 6. Contact: Connie Pitcock, (925) 422-1072; pitcock1@llnl.gov.

**platts** Inside Energy

May 12, 2003

ISSN: 0-278-2227

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## CONGRESS

### White House offers bill tepid support, objects to overall cost, tax section

The Bush administration last week offered qualified support for energy legislation pending in the Senate, but called for the addition of several provisions and objected to the cost of the bill (S. 14) and a tax package expected to be attached to it during floor consideration.

In a statement of administration policy issued Thursday, the Office of Management and Budget called the bill "a step toward" balanced and comprehensive energy legislation and said many provisions are "largely consistent" with the administration's national energy policy.

The administration said it is "concerned about the significant direct and potential cost of S.14, including its cumulative appropriation authorization levels, which in several cases significantly exceed the president's budget and set unrealistic targets for future programmatic funding decisions. Moreover, we are concerned that the Finance Committee has approved tax provisions that cost more than \$15 billion over 10 years. This is almost double the President's proposed \$8 billion in incentives over the same period."

The Congressional Budget Office Wednesday released an estimate that puts the cost of the bill at \$52.6 billion over the next 10 years. According to CBO, the bill would increase direct spending for ongoing programs by about \$5.1 billion over that same period. CBO also estimates that the bill would increase revenues by \$820 million from 2004-2013.

Among the specific provisions in the tax package the administration opposed outright is a "price-floor subsidy" for a pipeline to bring natural gas from Alaska to the Lower-48 states. OMB said the price floor "would distort markets and could be very costly." The White House supports the construction of a "commercially viable" pipeline, the statement said, but believes "market forces should select the route and timing of the project." The energy bill would require the pipeline to be constructed along a route following the Alaska Highway.

The administration said it supports language in the bill to "increase production of traditional energy resources on the Outer Continental Shelf, federal onshore lands, and Indian lands." But, OMB said, "We are concerned that the annual trust asset evaluation of the activities of Indian tribes required by section 2604 will hinder the development of resources on Indian lands and is inconsistent with the principles of Indian self-determination and self-governance. In addition, the Administration would object to any coastal impact payments such as those authorized by the bill. Under current law, more than \$1 billion annually from OCS mineral leasing receipts is already shared with coastal and non-coastal states."

Provisions the administration would like to see added to the bill include a controversial measure to open Alaska's Arctic National Wildlife Refuge to oil and gas drilling. "Opening ANWR is not only key to making energy legislation truly comprehensive by increasing domestic production, but also to creating tens of

thousands of new jobs for American workers," OMB said. Senate Energy and Natural Resources Committee Chairman Pete Domenici, R-N.M., who supports drilling in ANWR, has said he will discourage senators from offering such an amendment because opponents have enough votes to sustain a filibuster.

The White House also sought the addition of language to the bill's electricity title to bring competition to the Tennessee Valley Authority's service area. "We urge the Senate to include the Tennessee Valley Authority consensus language to help the regional wholesale market develop in the Southeast," OMB said.

The administration "strongly supports" the electricity title's "provisions to provide open access for all generators to the transmission grid, repeal the Public Utility Holding Company Act which will increase investment in the energy sector, enhance consumer protection, and increase penalties for violations of law," the SAP said.

According to OMB, the White House would object to any amendments that seek to require power providers to generate a percentage of their electricity from renewable energy. The administration believes "these standards are best left to the States," OMB said, adding that "a national RPS could raise consumer costs, especially in areas where these resources are less abundant and harder to cultivate or distribute. We urge the Senate to support the President's proposal to extend and expand the renewable energy production tax credit as a more efficient means to expand renewable energy."

Other potential amendments that will draw opposition from the administration include proposals to add a climate change title and require increases in automobile fuel efficiency. "The administration is not convinced of the need for additional legislation that would attempt to limit or direct U.S. global climate change [policy], and will oppose any climate change amendments that are inconsistent with the President's climate change strategy," OMB said. In February 2002, the President Bush proposed to reduce the greenhouse gas intensity of the American economy by 18% over the next 10 years.

As for auto fuel efficiency, OMB said, "The Administration has recently taken action to improve fuel economy while protecting passenger safety and jobs. The National Highway Traffic Safety Administration (NHTSA) recently issued a final rule to implement the largest increase in light truck fuel economy standards in 20 years. NHTSA will be exploring possible reforms to the Corporate Average Fuel Economy (CAFE) program, including those recommended in the congressionally mandated National Academy of Sciences report on CAFE standards. We would oppose any amendments to legislate an arbitrary increase in CAFE standards which could reduce vehicle safety and eliminate auto sector jobs."

### Domenici wants block of time for votes on energy bill ... *(from page 1)*

won't be on the floor next week and we may not be on the floor the week after that." The Senate is in recess the week of May 26 for the Memorial Day holiday.

Because of a unanimous consent agreement requiring a report accompanying the bill to be available to senators 24 hours before the bill was officially brought up on the floor, the Senate was only able to begin debate on the measure, not offer

amendments to it. Sen. Charles Schumer, D-N.Y. — a strong opponent of the ethanol amendment — had indicated he would have objected to any attempt to waive that agreement.

The ethanol amendment was offered Friday by Frist and Minority Leader Thomas Daschle, D-S.D., and a handful of farm-state senators. It would require that 5 billion barrels of ethanol be blended with gasoline by 2012. It also would ban the gasoline additive MTBE within four years of the bill's enactment and remove the oxygen-content requirement for reformulated gasoline. The amendment mirrored legislation approved by the Senate Environment and Public Works Committee April 9.

Senate Energy and Natural Resources Committee Chairman Pete Domenici, R-N.M., told reporters Thursday that he was more concerned about the future schedule for the bill's consideration than its slow start. Domenici said he had asked Frist to set aside a solid week to focus on the energy bill. "Our concern is this schedule looks too botched up. We told the leader ... that we need a block of time." With a week, "we believe we can get a lot done," Domenici said.

Sen. Jeff Bingaman, D-N.M., told reporters Thursday, "It's clear the majority leader didn't really expect to make much progress [on energy] this week." And he agreed with Domenici that "we're going to need quite a few hours of floor time."

Bingaman said there are about the same number of amendments to the energy bill this year as there were last year when Democrats controlled the Senate. But he said, "The fact that we have been through this before" should mean it will take less time than the six weeks the Senate spent on energy legislation last year. That bill died in a conference committee with the House.

While some of his Democratic colleagues are so disenchanted with this year's bill that they have vowed to kill it, Bingaman said that he has some problems with the legislation, but would not support a filibuster of it.

"My approach is there are some things [in the bill] I don't like that I hope we delete; some I hope we can fix; and some I hope we can add," he said. Among the items he said hopes to delete is a provision authorizing DOE to help finance the construction of new nuclear power plants. He aims to balance the electricity title's repeal of the Public Utility Holding Company Act by giving the Federal Energy Regulatory Commission more authority to review utility mergers. And he hopes to add provisions to require that utilities generate a percentage of their electricity from renewable energy; establish a system to monitor greenhouse gas emissions; and boost the fuel economy of automobiles.

On climate change, he said he expected some senators to "offer a bold attempt to cap emissions." While he said he might support that, he did not expect it would succeed.

Asked whether he expected the electricity deal struck among committee Republicans to hold on the Senate floor, Bingaman said, "there's some confusion among senators" about the effect of the measure's postponement of the FERC's standard market design proposal. A closer look at that provision, he suggested, might convince more senators to oppose it.

As for rumors that Republicans may file a cloture motion to limit debate and require amendments to be germane to the bill, Bingaman said, "it is very, very premature to talk about cloture.

There hasn't even been an opportunity for anyone to offer amendments."

### **Some Democrats want to kill bill**

Sen. James Jeffords, I-Vt., and several Democratic senators vowed at a press briefing Wednesday to do everything they could to block the bill. They criticized the Republican-crafted bill for relying on traditional energy sources to the detriment of renewable energy. Schumer said that he and Sen. Dianne Feinstein, D-Calif., have prepared more than 100 amendments to the ethanol provisions. "We plan to go through every one," he said.

Because of the costs to transport ethanol from the farm states where it is made, Schumer said, coastal states like New York and California should be exempted from the ethanol mandate. "We are concerned that the ethanol mandate will drive up the price of gasoline for consumers, have mixed environmental results and do little to lessen America's dependence on foreign oil," Feinstein, Schumer and six other senators wrote in a letter to their colleagues. "Moreover, this mandate is simply unnecessary and amounts to a new hidden gas tax." The letter was also signed by Sens. John McCain, R-Ariz., Hillary Clinton, D-N.Y., Edward Kennedy, D-Mass., Fritz Hollings, D-S.C., Patrick Leahy, D-Vt., and Jack Reed, D-R.I.

Meanwhile, Sen. Barbara Boxer, D-Calif., said coastal state senators would battle against a provision in the bill that would require the Interior Department to conduct an inventory of oil and gas resources in the Outer Continental Shelf, including areas that are off-limits to drilling. "This would blow a hole into these moratoria we've had for all these years," Boxer said. "If we have to talk for days [to get the proposal removed from the bill], we will." [New Jersey's senators filed a bill Thursday to block drilling off their state (related story p.6).]

Boxer also said she will offer an amendment to strike the ethanol provision's waiver of liability, known as the "safe harbor," for ethanol manufacturers. She said opponents of the waiver lost narrowly on a similar amendment to last year's energy bill.

Domenici said he did not believe Schumer would follow through on his threat to offer more than 100 second-degree amendments to the ethanol provision. "Ethanol is a godsend to this bill and to farmers," Domenici said. As for senators who are attempting to kill the ethanol title, Domenici said, "They are fighting not just this bill. They're fighting a big cause."

### **\$52 billion price tag**

Asked about a Congressional Budget Office estimate that the bill would cost \$52.6 billion over 10 years, Domenici said, "I'm not really concerned about that. That means to me a challenge to the executive branch and us to regularly take a look each year at which parts we want to get implemented [and] put some money in" for those programs.

Committee Staff Director Alex Flint said Tuesday that he expected seven issues to "dominate" the Senate's consideration of the energy bill. Among the amendments likely to consume a significant amount of time on the floor, Flint said, are measures to: require increased blending of ethanol in gasoline; mandate that

utilities generate a percentage of their electricity from renewable energy; raise Corporate Average Fuel Economy standards for automobiles; give FERC increased authority to review utility mergers; and require actions to reduce emissions of greenhouse gases.

Flint also said he expected the bill's electricity title in general to be the subject of much debate. Ultimately, though, he said he expected the deal crafted by Domenici to hold. "My impression is the electricity deal struck in committee has held well. It is an artful balance." While it postpones FERC's ability to issue its proposed standard market design proposal, "we do not prescribe changes in the Federal Power Act that would limit FERC," Flint said. In addition, the bill contains protections for utilities' current customers or "native load," but also requires utilities to provide access to their transmission lines at rates comparable to what they would charge themselves. "I think it very well may represent the middle ground on electricity," he said.

Flint acknowledged that there are amendments to the electricity title that — if adopted — "would upset the balance" of the deal. They include amendments on native load, open access and SMD provisions. Amendments on transparency of natural gas and electricity sales, and additional fines and penalties for market manipulation, would not hurt the balance, he said.

#### **Anti-SMD bill to be offered**

Sen. Richard Shelby, R-Ala., said Thursday he intends to offer an amendment to the electricity title that would cripple FERC's plan to standardize electricity markets. The energy bill currently would prohibit FERC from issuing its SMD until July 1, 2005. Shelby told reporters that he planned to offer an amendment similar to legislation he has introduced (S. 954) that would prevent FERC from issuing its SMD rule unless it is approved by Congress or a state or region consented to it. It would also prohibit FERC from regulating bundled retail sales of electricity and would provide additional native load protections for utilities.

Shelby suggested that his amendment would attract "a sizable block of votes." But he said he had not yet conducted a vote count, adding, "I'm just interested in the merits at this point." Shelby said he "wouldn't support the [energy] bill" as currently written. "If, at the end of the day, the bill creates a situation, or helps create a situation where FERC would go with SMD to the detriment of my ratepayers — absolutely not." He also objected to the measure's failure to open the Arctic National Wildlife Refuge to oil and gas drilling.

Flint said he anticipated that "hundreds of other [amendments]" would be offered that could be disposed of relatively quickly. While he said Senate floor action on the bill might spill over into June because of the number of other bills the Senate plans to consider at the same time, Flint said, "We see absolutely no reason this bill won't be completed on the Senate floor." According to Flint, "it's not the number of amendments, it's the duration of debate on contentious amendments" that determines how long it will take to complete action.

He said he did not include a proposal to open ANWR to oil and gas drilling as "a high priority" because pro-drilling advocates do not have the 60 votes to cut off a threatened filibuster. In a "nod to pragmatism," Flint said, "We are not counseling anyone to try and include ANWR" in the bill. While Domenici supports

drilling in ANWR and "given the opportunity, would leap at it," Flint said, "he does not see an opportunity on this bill."

Of all the controversial amendments expected to be offered, Flint was least certain about the outcome of the debate on climate change. "There are a number of groups of senators meeting to discuss approaches to climate change," he said. Domenici "is involved in at least two sets of discussions" on the topic.

Although the Senate last year adopted a renewable portfolio standard requiring utilities to generate 10% of their electricity from renewable energy, Flint said, "I do not think an RPS will be attached to this bill." According to Flint, a renewable energy mandate "is inconsistent with Senator Domenici's philosophy on how you ensure diversity of supply."

Flint asserted that this year's energy bill is "substantially different" than one approved by the Senate when Democrats controlled the chamber last year. This year's bill, he said, "contains significant incentives for increased oil and gas production, including on the Outer Continental Shelf, in Alaska and onshore. The nuclear energy provision — which authorizes the Energy Department to finance up to half the cost of several nuclear power plants and calls for the construction of a new hydrogen-producing nuclear plant in Idaho — is "notably different," he said. Unlike last year's bill, S. 14 authorizes \$1.8 billion for President Bush's initiative to advance the development of hydrogen fuel cell vehicles. And the electricity title, he said, "is very different" than last year's. "The scope of this year's bill and last year's bill are similar," he said. "But clearly the way in which individual issues are addressed is quite different."

A coalition of environmental groups Tuesday urged the Senate to defeat the bill, which they characterized as "wretched." "It's a "dirty, dangerous energy bill ... that harms our economy, harms consumers and takes us in the wrong direction," the Natural Resources Defense Council's Debbie Sease said at a press briefing.

While hundreds of amendments are expected to be offered to the bill, Sease said the measure cannot be fixed to the satisfaction of environmentalists. "They're starting from a very deep hole and the best thing to do is kill the bill." Nevertheless, the groups are advocating several amendments, including the addition of a requirement that utilities generate a percentage of their electricity from renewable energy; a requirement that industry register emissions of greenhouse gases; and a proposal directing the president to implement measures to reduce oil consumption by 1 million barrels/day by 2013 from what levels are otherwise expected to be. According to the Sierra Club's Dan Becker, Bingaman and Sen. Arlen Specter, R-Pa., are expected to offer the latter as an alternative to CAFE.

Asked about such a proposal, Flint said it is "an intriguing notion to allow the president to identify where it is most efficient" to make reductions. "On the other hand," he said, some senators would be concerned about "the unintended consequences" of the proposal and the uncertainty of where the reductions would be made.

Flint said he expected amendments to be offered to strike the nuclear plant financing provisions, as well as the authorization to build a plant in Idaho. He defended the former against charges that it is subsidizing a mature industry. "Until someone

can demonstrate that the political environment has changed and someone will spend their own capital on a plant, some sort of incentive needs to be provided." He said the cost of the nuclear provision is "a significantly smaller use of taxpayer funds than the solar and renewable energy tax incentives" approved by the Senate Finance Committee. The tax package is expected to be offered as an amendment toward the end of the floor consideration.

Flint predicted that "within a relatively short time of convening "a House-Senate conference committee on the bill, "there will be a conference agreement." — *Lira Behrens*

## McCain says interest groups keeping climate language out of energy bill

Sen. John McCain, R-Ariz., conceded last week that there is "no chance" a climate change bill he wants to offer to the energy bill will be approved by the Senate.

"Every special interest in America is lining up against it ... [and] special interests control the agenda," McCain told reporters Wednesday after chairing a Senate Commerce Committee hearing on the Bush administration's climate change r&d plan. "But we've got to have a debate."

McCain plans to offer as an amendment a bill (S. 139) he has cosponsored with Sen. Joseph Lieberman, D-Conn., that would establish a mandatory carbon dioxide reduction program under a cap-and-trade emissions trading system. "I suspect this will be the beginning of a long battle to change the administration's climate change policies," McCain said. He said he believes there is "overwhelming scientific evidence" that global warming is occurring and that human activities are a major contributing factor.

"Clearly, it is time for the nation to demonstrate real leadership and make some notable progress on this critical

issue," McCain told the hearing. "I do not believe any energy legislation can be truly meaningful unless it seeks to address climate change."

While campaigning for president, then-Texas Gov. Bush said he would support mandatory CO<sub>2</sub> reductions. But once in office, the president reneged on that promise and proceeded in March 2001 to withdraw the United States from the Kyoto Protocol. The treaty required significant cuts in emissions of CO<sub>2</sub> and other greenhouse gases, based on 1990 emissions levels.

McCain told reporters he would "probably not" support the energy bill because it does not address climate change, but he added that there are "a whole lot of [other] reasons" why he would oppose the measure. The Senate began debate on the bill Tuesday (*related story p.1*)

The Commerce Committee hearing featured a panel of scientists who generally agreed with McCain's overall assessment of the global warming issue, including the role played by human activities. But after the hearing, McCain said he was frustrated by the reluctance of scientists to express their conclusions with more "certainty."

Richard Alley, Penn State University professor of geosciences, said there is a "wealth of evidence that indicates climate change is likely and that it is occurring, in part, because of human influence." But as far as being certain, Alley said, "I always believe there is more to learn." Alley added that the lack of absolute certainty does not preclude taking action to address global warming. "As a human being, you have to act in uncertainty," Alley said.

McCain told Alley that opponents of action "will say, you see, scientists aren't sure. It makes it more difficult for me to ask my colleagues to vote for a [CO<sub>2</sub>] cap-and-trade system."

## Clear Skies' effect on fuel switching dominating debate ... (*from page 1*)

he would hold a third hearing on Clear Skies to focus on pollution-control technologies and the "financial stability of utilities" that are required to install such technologies on their plants under the Clean Air Act. He said he is "firmly committed" to getting the bill enacted this Congress. Senior administration officials have called for passage this year, fearing difficulty during campaign season next year.

Along with the support of most Republicans on his panel, Voinovich — who state is home to one of the largest coal-fired utilities and many manufacturing firms — is concerned that enacting CO<sub>2</sub> limits would crush the coal industry and large industrial energy users, decimating the economy. President Bush shares this view and ended United States involvement in the Kyoto Protocol in 2001 for this reason.

The main concern for most senators on the panel is how multi-pollutant legislation, aimed at reducing power plant pollution, will affect coal and natural gas. Republicans believe Carper's bill and Jeffords' more aggressive four-pollutant bill (S. 366) would cause electricity generators to abandon coal for natural gas, which would cause shortages and spikes in the prices of gas and electricity, harming many parts of the economy.

After testifying before the subcommittee, Deputy Energy

### N.J. senators seek permanent drilling ban

New Jersey's two senators Thursday introduced legislation to permanently ban gas and oil drilling off the state's coast. The proposal is in response to a provision in the energy bill, now being debated on the Senate floor, that would direct the Interior Department to inventory all potential offshore oil and gas resources (*related story p.1*).

The energy bill (S. 14) would allow the use of seismic surveys and other exploration technologies that "could negatively impact coastal and marine areas," according to a statement released by Sens. Jon Corzine and Frank Lautenberg, both Democrats. Language included annually in appropriations bills bans leasing in most offshore areas, including New Jersey.

In addition, leasing is prohibited in most offshore areas until 2012 under an executive order issued by President George H.W. Bush and renewed by President Clinton.

Meanwhile, Sen. Susan Collins, R-Maine, urged Senate Energy and Natural Resources Committee Chairman Pete Domenici, R-N.M., to remove the inventory language from the energy bill. The provision threatens the existing moratorium on drilling in Georges Bank, a major commercial fishing ground that stretches from Cape Cod to Nova Scotia, Collins said.

Secretary Kyle McSlarrow said the administration “got the message” from the Senate that the White House needed to do more on climate change. But mandating CO<sub>2</sub> cuts in legislation, such as in the Democratic bills, would force the United States to “walk away willy-nilly from a whole industry,” he said, referring to the expected harm to coal.

McSlarrow told the panel that the administration is very concerned about natural gas prices and supply, with or without air legislation. He said the Energy Department is concerned that a hot summer this year would limit the traditional buildup of gas in storage, resulting in shortages and prices spikes next winter. Preliminary results from a forthcoming National Petroleum Council report on gas supply, demand and technology, requested by Energy Secretary Spencer Abraham last year, show a “looming problem,” McSlarrow said.

Clear Skies would cause U.S. gas demand to grow about 1 trillion cubic feet more than expected by 2025, bringing total demand to 36 trillion cf by that time, he said. Four-pollutant bills would “put more pressure” on the gas supply, the deputy secretary said, though he did not provide an estimate of how much more gas would be needed under Carper’s or Jeffords’ bills.

Along with the administration’s changes to the New Source Review rules, Clear Skies would bring “reasonable and achievable” progress on air quality, McSlarrow said. “What we should be concerned with is this: uncertainty, delay and litigation — which are the chief hallmarks of the current process under the Clean Air Act — are not likely to produce greater environmental benefits,” he said in support of Clear Skies. “They instead are likely to lead to more costly solutions, and they risk affecting the energy fuel mix in ways that are unwarranted and unforeseen.”

The “scary thing” with the four-pollutant bills, McSlarrow said, is that “we don’t understand” whether pollution-control technologies would be able to meet a CO<sub>2</sub> target. He urged Voinovich and Carper, the only two senators at the hearing, to take CO<sub>2</sub> off the table until advanced control technologies are available to the market.

Carper said his bill, with its CO<sub>2</sub> cap, would only cause an additional 3% shift in demand from coal to gas and cost 2% more than Clear Skies. “Those are costs worth assuming,” he said, because a four-pollutant bill would provide certainty to generators and investors. Without such a bill, Carper argued, investors will not be willing to invest in coal-based utilities. The Jeffords bill, he conceded, requires “probably more [in emissions reductions] than utilities can do.”

McSlarrow said completing electricity restructuring would help spur investment in cleaner plants. “As confidence is gained that the system is reliable and capable of coping with high demand for electricity, there will increasingly be less need for restrictive and prescriptive regulation. And that is the point when much-needed investment is likely to be attracted — investment in new technologies, and in improved generation and transmission facilities that produce additional energy and environmental benefits. When the opposite is true, when uncertainty reigns, when reliability is questioned, when prices seem detached from market forces — investment vanishes,” he said.

Environment Committee Chairman James Inhofe, R-Okla., said the electricity mix remains his biggest concern. Even with

Clear Skies, Inhofe said the concern is whether there will be a shift in the type of coal used. Illustrating the division between members of the panel, Jeffords, ranking member of the full committee, said “there will be plenty of natural gas to meet the projected growth in demand for electricity.”

One industry analyst who testified, Steve Thumb of Energy Ventures Inc., painted a bleak picture for U.S. gas supply meeting demand. He said domestic production has fallen for the last six quarters, representing a 6% loss in daily capacity; wells on average are only lasting three years, instead of the former average 10-year lifespan; and emerging sources, like liquefied natural gas and Alaska North Slope gas, are risky and require long lead times. Major new sources like Prudhoe Bay and Canada’s MacKenzie Delta will not come on-line until at least 2009, and even then, said Thumb, the areas will mainly just help the United States keep up with the growth in demand.

Energy and Environmental Analysis Inc. President Joel Bluestein said to avoid exacerbating gas prices, lawmakers should require a gradual phase-in of the emissions caps. “A gradually implemented multi-pollutant program that rewards the development and implementation of new technology could promote a more balanced mix of power generation assets and help avoid over-reliance on gas.”

Bluestein did not lend his support to any of the bills, but said all would help clean coal, as would an increase in gas prices. — *Michael Schmidt*

## Hydrogen storage poses key challenge for fuel cell vehicles, official says

The biggest technical challenge for President Bush’s initiative to speed the development of hydrogen fuel cell vehicles involves the storage of hydrogen on board vehicles, the Energy Department’s assistant secretary for energy efficiency and renewable energy, David Garman, said last week.

At a Senate Commerce, Science and Transportation Committee hearing on the initiative Wednesday, Garman said, “the physical nature of hydrogen makes it difficult to store without a lot of weight and bulk. Weight and bulk are the enemy of automakers.” According to Garman, the method of storing hydrogen today is to compress it, which requires a robust tank. DOE is looking at chemical hydrides and carbon nanotubes as media in which to store hydrogen without high pressure.

The other big hurdles to meeting the president’s goal of having hydrogen fuel cell vehicles available in the market by 2015-2020 are bringing down the cost of producing hydrogen and lowering the cost of fuel cells and improving their durability, Garman said. “I probably worry most about storage than any of the others,” he said. “We’re going to need a technology breakthrough” on storage. “All the others we can do without technology breakthroughs.”

Asked by a reporter after the hearing how DOE hoped to avoid the pitfalls of its previous alternative fuel vehicle program in the hydrogen initiative, Garman said hydrogen fuel cell vehicles would offer car buyers more features than other AFVs, such as compressed natural gas and ethanol-fueled vehicles.

"The real difference is ... what is really the incentive to buy a natural gas vehicle? It costs more; it's more difficult to refuel; you get less back when you sell it; it operates like current vehicles. It's not something new," Garman said.

In contrast, a hydrogen fuel cell vehicle "confers advantages," including "the torque and acceleration of electric motors," he said. According to Garman, "it's a much simpler car, it's easier to build."

An auto company that currently offers 40 conventionally fueled vehicles built on 20 different platforms, he said, could with hydrogen fuel cell vehicles offer 40 different vehicles on one or two different platforms. "It lowers the cost to consumers and enhances performance."

Currently available AFVs "don't give consumers a reason to buy" them without mandates or "their own personal concern for the environment," Garman said. "I don't see people getting as excited about AFVs" as hydrogen vehicles.

The subject of avoiding the problems encountered in the AFV program came up at a DOE meeting earlier Wednesday on the department's decision not to require private and local fleets to buy AFVs.

The Energy Policy Act of 1992 directed DOE to decide by 2000 whether it was necessary to require private and local fleets to acquire AFVs in order to meet the act's "petroleum replacement" goals. Under a court order to comply with the EPACT directive, DOE determined in March that a private and local fleet mandate was not necessary because it would contribute little toward meeting the goals — which the nation has fallen far short of meeting.

EPACT called for 10% of motor fuel demand to be supplied by "replacement fuels" by 2000 and 30% by 2010. DOE said in its March 4 notice of proposed rulemaking announcing its decision that "DOE believes that extraordinary measures would be required to achieve the current goal of 30% petroleum replacement by 2010."

DOE's decision "will result in a reverse and decline" of alternative fuel use, the head of a Virginia coalition of cities and businesses that encourages the use of alternative fuel vehicles told DOE. "A number of cities joined [DOE's Clean Cities program to encourage the use of alternative fuels] because they anticipated future mandates" said Nic van Vuuren, executive director of the Hampton Roads Clean Cities Coalition. But "as it became clear that [a private and local fleets mandate] would be backburnered," he said, "instead of moving forward, municipalities are doing less and less."

Paul Smith, energy and environment counsel for the American Automobile Leasing Association, said replacement fuels now account for 3% of motor fuels. "That indicates that the EPACT goal for 2010 is essentially unreachable," he said. According to Smith, if DOE had required private and local fleets to buy AFVs, it might contribute only a 0.2% to 0.8% increase in replacement fuel use.

David Robertson, immediate past president of the National Association of Fleet Administrators, agreed with DOE that "the number of fleets that would be covered are too small to result in an appreciable increase in the use of alternative fuels." According to Robertson, "the cost of infrastructure is too high, despite the best efforts of the Clean Cities program." He asserted

that "the original goal of EPACT was lofty but not practical. We commend DOE for recognizing the realities, as disappointing as they may be."

Dana O'Hara, a DOE technical manager on the hydrogen program, asked Robertson, "aren't we going to have a similar problem" with President Bush's hydrogen initiative? Robertson responded, "The PR is going better" for this initiative than for the EPACT alternative fuel program. — *Lira Behrens*

## Hydrogen fuel cell funds may show up in transportation measure: Jeffords

Funding for hydrogen fuel cell r&d, already included in energy legislation in both houses of Congress, is also likely to be part of a multi-billion-dollar highway bill lawmakers have named a priority, according to a senior member of the Senate committee drafting the bill.

Senate Environment and Public Works Committee ranking member Jim Jeffords, I-Vt., said last week he supports including funding for hydrogen r&d in the six-year reauthorization of the transportation bill, considered a must-pass bill on Capitol Hill, and indicated that the Bush administration's proposal for a five-year, \$1.8-billion program is not enough to jump start a "hydrogen century." Jeffords, addressing the U.S. Hydrogen Energy Coalition Tuesday, said he supported a 10-year r&d initiative of \$4 billion to \$5 billion that would focus on producing hydrogen from renewables. [Separately, Sen. Joseph Lieberman, D-Conn., said he preferred a \$6.5-billion effort (*related story p.9*).]

"Over time [hydrogen] will become less expensive than traditional fuels," Jeffords said, stating a view which runs counter to what some experts have said: that hydrogen will always remain more expensive than fossil fuels because reforming adds another step to the production process. Still, those experts say, hydrogen would provide other benefits, like improved air quality, that may make paying a premium palatable.

Senior Energy Department officials expect natural gas to be the main source of hydrogen for years to come, and have also expressed interest in using coal and nuclear power plants for this purpose. The president's hydrogen fuel plan, unveiled earlier this year (*IE*, 3 Feb, 1) is aimed at tackling the supply issue, and the administration is funding a demonstration project that would determine whether a clean coal plant could generate hydrogen and capture its own emissions.

Jeffords said the White House's plan to use nuclear and fossil fuels as a hydrogen source is a flaw in an otherwise sound plan. He said the United States should make every effort to produce hydrogen using wind, solar, biomass and geothermal energy. Hydropower was not mentioned by Jeffords, but the senator, quoting novelist Jules Verne, spoke of water as being the "coal of the future."

Rep. Lynn Woolsey, D-Calif., also backed the idea of using renewable energy to generate hydrogen, arguing the United States would not be able to "chart a new energy strategy" if the country continues to choose fossil fuels over alternatives. "Right now, we can produce hydrogen, but the main source of domestic hydrogen today is fossil fuels," Woolsey told the coalition.

“That has to change. We need to invest our resources in finding ways to produce hydrogen through renewable sources and with a sustainable method.”

Woolsey, a member of the Science Committee, has introduced legislation (H.R. 1343) directing DOE to minimize the production of hydrogen from fossil fuels.

Jeffords said he would also like the roads bill, the Transportation Equity Act for the 21st Century, known as TEA-21, to deal with the issue of how the highway trust fund is funded when hydrogen begins to diminish gasoline use. The trust fund is replenished by the federal tax on gasoline.

Congress is expected to reauthorize the highway bill for six years. The chairman of the Senate committee, James Inhofe, R-Okla., has said the bill is his top priority this year.

## Lieberman confronts Bush energy plan, backs advanced clean coal, fuel cells

Sen. Joseph Lieberman last week became the first Democratic candidate for president to offer a national energy plan, and made the centerpiece of his proposal reducing U.S. oil imports and keeping Alaska's Arctic National Wildlife closed to oil and gas drilling. The Connecticut senator also touted a \$6.5-billion fuel cell r&d plan and a \$15-billion initiative to bring advanced coal technology to the market, both more aggressive than efforts supported by President Bush.

In a speech to Resources for the Future in Washington Tuesday, Lieberman said as president he would push the United States to reduce dependence on foreign oil by “nearly two-thirds” within 10 years. To do this, he would establish a national fuel efficiency standard giving automakers the “latitude” to save at least 2 million barrels of oil a day within 10 years. “This will put us on a path to the day when we won't have to use a single drop of foreign oil if we don't want to,” he said.

The proposal does not call for higher Corporate Average Fuel Economy standards. But Lieberman said U.S. vehicles could meet a 40-mile-per-gallon efficiency standard with existing technology.

In addition to relying on auto efficiency to reduce oil use, Lieberman said he would support \$6.5 billion in fuel cell r&d spending, which is significantly more than the White House's five-year \$1.7-billion effort to spur a hydrogen-based economy. He said he would also support using clean diesel — “a technology that we have right now, that shows great promise, and that meets our strict air quality standards.” He said he opposed mandating that all U.S. gasoline be blended with ethanol, a proposal expected to be approved as part of the energy bill now pending in Congress.

The senator called the president's proposal to allow drilling in ANWR “hollow and wrong-headed,” and said it would do little to reduce oil imports. Lieberman said the president “invited oil companies to write his energy policies” and said he would not hesitate if elected “to take them [big oil companies] on.”

He also panned the White House for being “too willing” to let oil companies drill on public lands. Lieberman said he would use a “higher standard” before allowing development on U.S. lands.

The senator said he would look to the deep waters of the

Gulf of Mexico for new sources of oil and gas; offer tax credits to keep marginal producers working; and promote liquefied natural gas in an effort to obtain gas from Latin America.

Lieberman also said his administration would spend \$15 billion on an advanced clean coal plant using integrated gasification-combined cycle technology to generate electricity cleanly and produce hydrogen. The coal plant would also be able to sequester its carbon dioxide emissions, Lieberman said. He told reporters his proposal would not exclude other clean coal technologies. Bush's coal initiative is a \$2-billion, 10-year clean coal program. The administration in February announced a plan to spend \$1 billion to demonstrate a near zero-emissions coal gasification plant, called FutureGen, that would produce hydrogen and sequester CO<sub>2</sub> (*IE*, 3 March, 1).

Lieberman called for a renewable energy mandate that would require utilities to generate 20% of their electricity by 2020 using biomass, solar and wind power. He also said he would support U.S. re-entry into the Kyoto Protocol, the climate treaty that Bush pulled the United States out of in 2001.

— Michael Schmidt

## House OKs nanotechnology legislation, votes down energy research proposal

The House overwhelmingly approved legislation last week authorizing a \$2.4-billion federal nanotechnology r&d initiative, including \$265 million for the Energy Department's nanotech programs next year, but narrowly rejected an amendment that would have added the production of clean and inexpensive energy to the goals of the bill.

By a 405-19 vote, the House passed the Nanotechnology Research and Development Act of 2003 (H.R. 766), which would provide \$879 million in funding for DOE initiatives on nanotechnology — the study and manipulation of matter at the atomic and molecular levels — over the next three years, including construction of five nanoscience research centers at DOE labs. More broadly, the legislation would build on and expand the current National Nanotechnology Initiative, which includes DOE, the National Science Foundation, the Commerce Department, NASA and the Environmental Protection Agency.

H.R. 766 received bipartisan support from the House Science Committee, which approved the bill earlier this month (*IE*, 5 May, 7), and on the House floor. But amendments on four topics sparked debate: how much emphasis clean energy r&d should receive; whether to establish one or more research centers on nanotech; whether to create citizen panels to provide input on nanotech policy; and whether the toxicological effects of nanotech research should be considered.

Science Committee Chairman Sherwood Boehlert, R-N.Y., spoke out against the amendments, noting that the administration opposed them and arguing that the measures would deny the White House and federal agencies flexibility in implementing nanotech policies.

An amendment offered by Rep. Chris Bell, D-Texas, would have made producing clean, inexpensive energy a goal of federal nanotech policy. Nanotechnology offers the promise of “cheap and relatively pollution-free” energy sources, Bell told House

members, by cutting the cost of photovoltaic cells by 10 to 100 times as well as by reducing the cost of lighting. He said his amendment “would pinpoint that energy is very much deserving of further study.” Science Committee ranking Democrat Ralph Hall, also of Texas, supported Bell’s amendment, saying, “It’s simple and is consistent with the rest of the bill.”

But Rep. Judy Biggert, R-Ill., strongly opposed the measure. “The purpose of this bill is to ensure [federal] coordination and collaboration,” she said, noting that the legislation already included funding for DOE programs. The amendment, Biggert said, “doesn’t add anything new and will only tie the administration’s and the agencies’ hands.” The House rejected the amendment in a 217-207 vote, largely along party lines.

Another amendment that Bell proposed would have required toxicological studies as part of federal efforts to assess the potential societal and ethical impacts of nanotech. That amendment also failed, going down to defeat by a vote of 214 to 209.

Likewise, Rep. Eddie Bernice Johnson, D-Texas, introduced an amendment that would have directed the National Science Foundation to set up citizen panels to “allow the public’s voice to be heard during the development of the technology, not after it’s been introduced.” Boehlert said he had been assured by the White House that meetings of the President’s Council of Advisors on Science and Technology — the federal panel likely to be assigned responsibility for assessing the implications of nanotech development — would include opportunities for public participation. Johnson withdrew her amendment, and the House later approved a measure that allows NSF to establish citizen panels but does not require them under law.

H.R. 766 now goes to the Senate, which is considering similar legislation (S. 189) introduced by Sens. George Allen, R-Va., and Ron Wyden, D-Ore. Senate Commerce Committee Chairman John McCain, R-Ariz., has put S. 189 on the fast track for consideration, and committee staff expect the panel to mark up the legislation in the next few weeks. “I’m optimistic that the bill will be on the president’s desk in the near future,” Boehlert said during the House debate. — *David Jones*

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## ELECTRIC POWER

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### Federal court rules DOE broke NEPA in granting cross-border grid permit

Power producers could have a tougher time importing electricity from Mexico after a federal court decision last week involving two plants owned by two U.S.-based generation companies.

The U.S. District Court for the Southern District of California ruled Monday that the Energy Department violated the National Environmental Policy Act by failing to fully analyze the impacts of its decision to issue permits for the construction and operation of transmission lines linking two Mexicali, Mexico, plants — one owned by Sempra Energy, the other by Intergen — to an electricity substation in California.

Judge Irma Gonzales said DOE’s decision not to prepare an environmental impact statement was illegal because there was substantial controversy over the transmission project’s impacts on air and water resources. Gonzales also ruled that DOE’s analysis was inadequate because it did not appropriately consider cumulative impacts to air and water, or the impacts of carbon dioxide or ammonia emissions.

“There is an increasing trend to build power plants in Mexico to supply the United States with energy, and this decision establishes that our federal government must first analyze all potential environmental impacts and consider alternatives with environmental safeguards instead of just issuing permits as requested by the energy corporations,” said Bill Powers, an attorney with Border Power Plant Working Group, which sued DOE.

Julia Olsen, an attorney with Wild Earth Advocates, which supports the lawsuit against the government, added, “This decision sends a strong message to the Bush administration that any attempt to expedite permits for the importation of energy to the United States from power plants being constructed just south of the border in Mexico, without first complying fully with U.S. environmental laws, will be rejected.”

The court has set a June 16 date to hear arguments concerning the next phase of the lawsuit, which will determine what DOE will have to do to comply with NEPA. Marcello Mollo, an Earthjustice lawyer who is also involved in the case, said that the plants are not barred from using the transmission line under the court decision, but environmental groups may seek an injunction on the citing permits, effectively preventing the plants from transmitting power into the United States while DOE does another environmental impact assessment.

A spokesman for DOE said the agency does not comment on litigation.

Beginning June 1, InterGen plans to export to the United States 560 megawatts from its 1,060-megawatt Mexicali plant, while Sempra Energy plans to sell all its Termoelectrica de Mexicali plant’s 600 megawatts into the United States.

Intergen spokeswoman Sarah Webster said Tuesday that the company plans to begin commercial operation of its plant June 1, as scheduled, unless the court directs the company to do otherwise. She also said her company has not had time to completely review the ruling. Sempra did not return calls for comment.

### Bonneville dams in limbo after ruling finds agency failing to protect fish

Bonneville Power Administration marketing operations were put in limbo after a federal judge ruled Wednesday that Northwest efforts to protect endangered salmon do not meet requirements of the Endangered Species Act.

The National Marine Fisheries Service developed the biological opinion that determines how salmon are protected. A spokesman for the service said the agency must determine whether to appeal the ruling by U.S. District Court Judge James Redden.

The judge’s ruling, made in Portland, Ore., also opens the

door for environmentalists to again demand that four Snake River dams producing 1,000 megawatts of power marketed by BPA be demolished so more fish can survive.

"The plan was declared illegal and the Bush administration will have to come up with a new plan. The old plan was a product of the Clinton administration. Partial removal of the four dams is the surest and best way to help fish populations to recover," Jan Hasselman, an attorney for the National Wildlife Service said. The environmental group was one of several that filed a lawsuit that Redden based his decision.

The court has set a hearing for May 16 to listen to different parties on how to proceed.

BPA said it does not know if hydro generation would be affected by the ruling. The judge could allow the current biological opinion to remain in place until a new plan is released, BPA said.

The current biological opinion was issued in 2000 and focuses on improvements to salmon habitat, hatchery operations and harvest limitations. Many of the improvements will take place away from the dams in habitat controlled by other federal and state agencies. The court said there was no guarantee that off-site mitigation would occur in future years, a violation of the ESA.

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## EMISSIONS

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### DOE, industry split with green groups over carbon sequestration strategies

Differences between the Energy Department and the energy industry on the one hand and environmental groups on the other over what steps the federal government should take to promote carbon capture and storage to limit climate change were readily apparent at a DOE-sponsored conference last week.

In a cordial but frank exchange of views, speakers at the Second Annual Conference on Carbon Sequestration: Developing and Validating the Technology Base to Reduce Carbon Intensity, illustrated the gap between officials with DOE and energy companies, who favored r&d and voluntary measures to prevent carbon releases into the atmosphere, and public interest group activists, who called for more rapid progress in controlling and reducing CO<sub>2</sub> emissions. The conference, which drew more than 450 participants, was held May 5-8 in Alexandria, Va.

While all parties agreed that carbon sequestration offers enormous benefits, even the title of the conference showed their differences over how to achieve those gains. "Carbon intensity" refers to the Bush administration's policy of tying increases in carbon releases to economic growth, a policy the White House and DOE say is needed to prevent controls on CO<sub>2</sub> from damaging the economy. Many environmentalists, in contrast, are urging industrial nations to cut back their CO<sub>2</sub> emissions, as proposed in the Kyoto Protocol, which the Bush administration abandoned.

White House science adviser John Marburger III called sequestration "an important tool for reaching the goal of

reducing carbon intensity." He said the administration is looking at storing carbon underground and underneath the oceans, using captured CO<sub>2</sub> to boost oil recovery, and exploring alternatives to burning fossil fuels, such as the international fusion energy experiment known as ITER, which DOE rejoined this year after abandoning it for several years. In addition, the White House has set a 2007 target for launching a satellite for measuring and monitoring carbon in the atmosphere, which will allow scientists to better analyze CO<sub>2</sub> data, he said.

Under Secretary of Energy Robert Card highlighted DOE's plan to build a prototype 275-megawatt coal-burning plant that would produce hydrogen, capture carbon and generate just 10% of a typical plant's emissions, a project called FutureGen. "Our overarching strategy is to produce carbon-free hydrogen power" while taking "coal power plant efficiency to the next level," he said.

Card acknowledged that alternatives to burning coal and oil face an uphill battle in the short term. DOE supports r&d on new technologies, but as valuable as these technologies might be, he said, "they are competing with abundant and inexpensive fossil resources." Many economies depend on oil, he said, adding that "sudden success in replacing fossil fuels would lead to disruptions in developed and developing nations."

#### Potential as a 'soft landing'

Carbon sequestration, Card suggested, "may be the soft landing the world is hoping for." But current technologies for capturing and storing carbon have yet to be proven practical, and carbon sequestration projects are not universally popular, he said, noting that scientists had proposed sequestering carbon off the coast of Hawaii, and "the citizens of Hawaii didn't think it was a very good idea."

To promote international voluntary partnerships to foster carbon capture and storage, DOE's Fossil Energy division and the State Department are teaming up to launch the Carbon Sequestration Leadership Forum, Card said. The forum will involve 13 countries "where the consumption or production of fossil energy is particularly important. We'll be exploring with other countries what their price points are for implementing these [sequestration] technologies. FutureGen is part of this, but not all of it," he said.

Card expressed hope that China and India would join the forum. "If they don't participate," he said, "the results will be less than they could have been."

Former National Mining Association president Richard Lawson, who is now chairman of the Energy, Environmental and Security Group, an energy services firm, cautioned attendees not to rush headlong toward CO<sub>2</sub> sequestration policies and technologies. "The discussion is still in its very early stages," he said. "It's way too early to make choices. What is the right way to sequester? I'd argue we don't know yet. For right now, let's just sequester. Let's find out how long we can sequester in biomass. Let's find out whether we can sequester in oceans."

In response to a question about the Kyoto pact, Marburger said, "It's too early to say whether other countries will achieve the [CO<sub>2</sub>] reduction targets in the agreement," but added that information he had seen indicated that only two countries had

taken steps to meet their goals. He dismissed Kyoto as an “unrealistic agreement that would’ve had profound negative consequences for our economy.” The New York Times reported last week that only two countries in Europe, which is a strong supporter of Kyoto, would be able to meet the treaty’s targets.

Marburger praised efficiency, too, calling it “an important aspect of reducing CO<sub>2</sub> emissions.” He credited Lawrence Berkeley National Laboratory and other DOE labs with taking leadership roles in promoting efficiency, particularly in developing solid state lighting, which “is just around the corner,” he said. “There will be pretty big payoffs when they [efficiency programs] materialize in the next few years.”

Alden Meyer of the Union of Concerned Scientists, a Washington-based public interest group, asked Lawson about the possibility that policy levers, such as a cap-and-trade system or a carbon tax, were being considered to complement voluntary incentives for carbon sequestration. Lawson said sequestration technologies will be so remarkable in improving combustion efficiency, and the benefits from CO<sub>2</sub> capture will be so great, that government and industry would figure out how to make the technologies attractive to the marketplace.

David Hawkins of the Natural Resources Defense Council, on the other hand, said r&d and encouraging industry to adopt new technologies were not enough to forestall global climate change. “Even though progress is being made, the rate of progress isn’t up to the challenge,” he said. The Bush administration’s sequestration policies lock in high-carbon energy programs, result in higher U.S. oil imports and promote delays by developing countries in addressing CO<sub>2</sub> releases, he said.

Though scientists are unsure about the exact level of carbon buildup in the atmosphere that would produce significant global warming, “higher emissions lead to higher concentrations, and higher concentrations lead to higher risks,” Hawkins told attendees. “We’re playing warming roulette. We want to preserve our options to stabilize emissions. Keeping our options open requires a lot of zero-carbon emissions energy, and we’re not building enough.”

CO<sub>2</sub> concentrations in the atmosphere are projected to soar over the next 30 years, he said, “but forecasts are not destiny.” It is probably too late to influence the 250 gigawatts of new coal projects set for construction worldwide in this decade, he said. But some of the 500 gigawatts in new coal-fired generation around the globe slated to come on-line from 2010 to 2020 could be replaced by renewable energy sources, Hawkins said, and the coal-fired plants that are built must contain advanced CO<sub>2</sub> control technologies. Hawkins also called for speeding development and deployment of carbon capture and storage systems, accelerating hydrogen fuel uses, and adopting policies to ensure that technologies limit carbon releases receive value in the marketplace.

### A ‘cover’ for coal

Like Hawkins, Paul Craig of the Sierra Club applauded efforts to capture and store CO<sub>2</sub> but offered a harsher critique of the energy industry. Carbon sequestration has a place in basic energy research and in demonstration projects, “but it should not be used as a diversionary tactic to avoid doing what needs to be done right now,” such as pursuing energy efficiency, he said.

The coal industry, Craig charged, is “using sequestration as a cover” while lobbying to weaken environmental laws.

Much of the growth in CO<sub>2</sub> releases is expected to come from developing countries, particularly those like China that have large amounts of coal, and Craig predicted that enormous capital investments in carbon capture and control technologies will be needed in these countries.

Despite his criticism of coal companies, Craig struck a conciliatory theme. “We’d like to see the coal industry work to combust coal cleanly. We need it,” he said. New cooperative ventures between nonprofit groups and the industry could be launched, Craig added, if the two sides could agree on some common ground, and he offered to speak with industry representatives about the issues he raised. — *David Jones*

## DOE, oil companies shine spotlight on r&d initiatives to capture, store carbon

Oil companies, the Department of Energy and other organizations are applying their technology resources to cut CO<sub>2</sub> releases and are monitoring progress in developing new systems to sequester carbon, representatives from ChevronTexaco, BP and DOE’s National Energy Technology Laboratory said last week.

Addressing the DOE-sponsored Second Annual Conference on Carbon Sequestration: Developing and Validating the Technology Base to Reduce Carbon Intensity in Alexandria, Va. Tuesday, James Houck, president for worldwide power and gasification for ChevronTexaco, said his company had invested in gasification technologies, which turn coal or oil into gas for burning and can capture CO<sub>2</sub>, for almost 50 years. The company, he said, built the first oil gasification plant in 1956 and the first coal gasification facility in 1978. ChevronTexaco now has 72 commercial-scale gasification plants in operation, under construction or in advanced stages of development — about half the gasification market worldwide, Houck said.

CO<sub>2</sub> capture from coal gasification “is already proven, and it’s significantly cheaper than post-combustion capture,” he said. “Its many benefits have made IGCC [integrated gasification combined cycle] a critical component of FutureGen,” he said, referring to DOE’s project to build a low-emissions, commercial-scale coal-fired plant that captures carbon and produces hydrogen.

BP Vice President for Technology Pete Smith noted that his company had adopted a broad strategy for “technology investment in a carbon-constrained future.” Smith said BP set an “aggressive target” in 1997 of slashing its CO<sub>2</sub> releases to 10% less than the company’s 1990 emission levels through optimizing operations, reducing the amount of carbon in its products and expanding its use of renewable resources. A critical component of the strategy was a system of internal emissions-credit trading among BP operations, an approach he said “worked very well.” The system served as a model for the emissions-credit program that the British government later adopted, Smith said.

The company verified in 2001 that it had achieved its CO<sub>2</sub> reduction goal, and even generated \$650 million in value through such practices as cutting back on flaring and venting gas at its

refineries. Now the company is looking to “hold net emissions flat” through 2012 “while continuing to grow our business,” he said, including boosting its investments in solar energy technologies.

BP also participates in several climate-change r&d alliances, Smith noted. These include the Princeton Carbon Mitigation Initiative, a long-term partnership among the Princeton Environmental Institute, BP and Ford Motor Co. to identify the most credible technologies for sequestering carbon emissions. The success of initiatives like this, Smith predicted, “ultimately will determine public acceptance of carbon management strategies.”

Both ChevronTexaco and BP are partners in the CO<sub>2</sub> Capture Project (CCP), an initiative that also includes DOE and the European Union. CCP was started in 2000 to evaluate an array of technologies for carbon capture and storage. These systems could “provide a bridge to a lower carbon future,” BP executive Gardiner Hill said, but the cost of removing carbon from fossil fuels currently is too high. The goal of CCP is to economically achieve major reductions in capturing and storing CO<sub>2</sub>, including cutting emissions by 50% in technology retrofit applications at existing power plants and by 75% in installations at new power plants.

To date, CCP has examined more than 200 technologies and is winnowing out the most promising, he said. “We have to find breakthroughs. Incremental steps are not enough,” Hill told attendees. CCP has found that the major cost in sequestering carbon is in capturing it, and the project has studies underway to determine the best methods for capturing carbon during both the pre-combustion and post-combustion stages. The project is also looking at storing carbon through such methods as enhanced oil recovery and pumping carbon into coal beds. But more research is needed on the risks of leaks and soil contamination from carbon storage, he said.

The four-year project is now in its final phases, he noted, and “is on course to deliver innovative technology solutions that will result in a step change in cost and have broad applicability across industry sectors.” The project also has examined government policies that could affect carbon sequestration because “you can’t really develop technology without considering policy,” Hill said.

A different approach to cataloguing CO<sub>2</sub> sequestration technologies is being taken at DOE’s National Energy Technology Laboratory. The department’s fossil energy (FE) division has set up a clearinghouse at NETL on systems in the United States for capturing and storing carbon — not to evaluate them, but instead to provide information on the hundreds of sequestration r&d projects sponsored by DOE and other federal agencies and organizations.

FE and NETL established the clearinghouse because the lab was constantly barraged with phone calls from Congress, international organizations and the public asking “What are people doing in this area?” explained Daniel Klein of Twenty-First Strategies LLC, which helped NETL create the database. “Some valuable [sequestration] research is not well known. There is a lot of information scattered over a lot of different places,” including databases at FE, the department’s Office of Science and Technology Information, and RAND. “Each database had

strengths and weaknesses” in terms of the number of projects catalogued and amount of detail available on individual initiatives, Klein said.

Projects listed in the NETL database “are organized for Web access,” he said, and the database includes project descriptions and XL data files for downloading as well as links to scientific reports on carbon capture and storage. Sequestration r&d is still in its infancy, but the lab is looking to contribute to scientific progress in the field, Klein said, “because r&d breakthroughs often result from combining information in new and creative ways.” More information is available at <http://www.carbonsequestration.us>. — David Jones

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## ENVIRONMENTAL CLEANUP

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### DOE pauses Hanford mixed-waste work in response to state agency’s order

The Energy Department’s Richland (Wash.) Operations Office Manager Keith Klein has directed all Hanford Site contractors conducting environmental cleanup work to immediately shut down operations that would generate certain types of mixed wastes.

“We have to do this to comply with the [Washington Department of] Ecology order, which states DOE should stop creating a backlog of untreated mixed waste at Hanford,” Klein said during a teleconference with reporters Friday. “The state’s order is clear.”

On April 30, Ecology Director Tom Fitzsimmons issued an administrative order that called on DOE to immediately stop creating a backlog of untreated mixed waste. The 16-page order also directed the department to take a number of actions, such as retrieving all contact-handled, retrievably stored waste within several burial grounds at Hanford.

The order maintained that DOE violated the state’s Hazardous Waste Management Act by failing to identify characteristics of the waste (*IE*, 5 May, 10). Among other things, the order directed DOE to start full-scale retrieval of remote-handled retrievably stored waste by Jan. 1, 2011. It also told DOE to “immediately and directly” transport all removed, remote-handled retrievably stored waste to a storage facility meeting federal and state standards, and should submit a report to the state annually by Sept. 30 describing completed and scheduled remote-handled waste work.

Klein said the Ecology order would have a “serious” effect on environmental cleanup and other operations at Hanford, including remediation support activities at the adjacent Pacific Northwest National Laboratory. He has asked each Hanford cleanup contractor to provide a preliminary list of projects that they believe will be affected by the state’s order.

According to Klein, the order requires the shutdown of Hanford’s Plutonium Finishing Plant and curtails “important work” on interim stabilization activities at Hanford’s single-shell tanks.

Leif Erickson, deputy manager for DOE's Office of River Protection, who is responsible for overseeing waste retrieval operations at Hanford's 177 underground tanks, said Friday the order results in the curtailment and/or stoppage of routine tank maintenance operations which generate mixed waste.

The order restricts work at Hanford Central Plateau, which once consisted of six chemical processing plants; more than 250 support and research buildings; all of Hanford's 177 high-level waste storage tanks; most of Hanford's waste disposal sites; and one million square meters of contaminated surface soil. DOE uses the plateau to manage contaminated materials and has to be used to disposed of waste there since 1973.

"The order adversely affects PNNL support activities, including waste treatment plant processing, testing and support for the K-Basin retrieval operations," Klein said. He added that eight major security projects are also affected by Ecology's order.

"We believe that the effects of the state's order impede the achievements of DOE cleanup goals and the accelerated cleanup agreement" the agency has with Ecology and the U.S. Environmental Protection Agency, he said.

The department and its contractors "have no choice but to comply with the terms of the order." Klein said. "We don't have the option to interpret the order other than what is spelled out in plain language of the order." He stressed that DOE's job is to conduct environmental cleanup in a manner that complies with all applicable state and federal laws that regulate remediation work at Hanford.

DOE was supposed to develop a plan to begin removal of the waste that sets deadlines for such activities. "There are many provisions in the order and the implications are far reaching and extensive. DOE shall immediately stop. That's the words of the order and that's what we need to comply with," Klein said. He added that DOE did not have the option to appeal the order to the state Pollution Control Hearings Board. "Hopefully we will be able to resolve this issue soon," he said.

Hanford contractors working on cleanup include CH2M HILL Hanford Group, Battelle, Fluor Hanford Inc. and Bechtel Hanford Inc.

Klein has asked the contractors to identify within 24 hours "key activities" that will need to be curtailed. "The longer it takes, the greater the impacts will be." He called the provisions in the Ecology order "far-reaching" with "near-term, medium-term, and long-term" effects. A resolution to the issue would require a written statement from Ecology's Fitzsimmons that would modify the order, Klein said.

The Ecology order is available at <http://www.ecy.wa.gov/programs/nwp/pdf/dd403.pdf>. — Shawn Terry

## DOE approves new plan for Hanford treatment plant; BNI contract modified

The Energy Department last week signed off on a new construction plan developed by the contractor responsible for building a nuclear waste treatment complex at the Hanford Site that calls for processing more high-level waste than previously intended, pegs new schedules for treating it and increases the

project's overall cost to \$5.7 billion.

DOE said Thursday it approved of a new plant configuration, engineered by contractor Bechtel National Inc., that would attempt to treat and stabilize 53 million gallons of highly radioactive and chemical waste for safe storage by 2028. BNI is responsible for designing, building and commissioning the plant, but would get help from lead subcontractor Washington Group International.

In authorizing the new plan for the Waste Treatment Plant, DOE has agreed to allow modifications to BNI's existing contract to build two low-activity waste melters and two for high-activity waste. BNI's original plan was to build three LAW melters and one HAW melter.

"The new configuration is so much more robust," a BNI spokeswoman said Thursday. The melters will be used to vitrify millions of gallons of Hanford waste stored in 177 deteriorating, underground tanks.

DOE's Office of River Protection is responsible for overseeing the redesigned project. "This is a significant step forward for tank waste cleanup at Hanford," ORP Manager Roy Schepens said in a statement. "We've received approval to construct a resized and configured treatment plant that will support tank waste cleanup 18 years earlier than we originally projected."

Asked if there was a need for DOE to move ahead with Phase II of the project, which calls for the construction of a second vitrification plant, an ORP spokesman said Thursday that there might not be a need for the facility under the new plant configuration. "The initial plant will provide significant operability and capability," he said. "We're also exploring supplemental technologies to possibly treat a portion of the low-activity waste."

Those supplemental technologies DOE is evaluating for LAW include bulk vitrification, steam reforming and containerized grout. The technologies have not been tested with Hanford tank waste. But the spokesman said they "should be ready for final evaluation in 2005."

After the plant is completed and commissioned in 2011, it will separate and process both high-level and low-activity radioactive tank waste. BNI also plans plant improvements, including enhancing an onsite analytical laboratory and adding a training simulator.

"We're moving forward with a solution that matches treatment to the character of the waste, and allows us to finish the job with a single, highly capable WTP," Schepens said. "Installing the second high-capacity, high-level waste melter provides the fastest, surest way to treat the tank waste by the 2028 Tri-Party Agreement date. The original phased approach simply took too long to get the job done."

Schepens continued, "Nearly 90% of the inventory in Hanford's tanks is low-activity waste containing hazardous chemicals and water, with low levels of radioactivity. Some of the low-activity waste is well-suited for vitrification and it will go through the treatment plant. We're evaluating the supplemental technologies, and we should know in about 18 months if we can use one or several to treat the low-activity waste that isn't so well-suited for the WTP."

The project's contractual requirements are tied closely to the Tri-Party Agreement, a pact governing environmental cleanups at Hanford involving DOE, Washington state's Ecology Department and the U.S. Environmental Protection Agency. There are four key TPA milestones: begin processing radioactive waste by 2007; begin full processing operations by 2011; begin processing 10% of the waste by volume and have 25% of the radioactivity vitrified by 2018; and complete treatment of the material by 2028.

According to a BNI spokeswoman, the plant's new design would delay the start of processing waste by 2007. "We aren't doing hot processing in 2007. We will be doing cold commissioning in 2008."

The plan calls for 16 months of cold commissioning and 13 months of hot commissioning. BNI's old baseline called for 10 months of cold and 37 months of hot. "The new schedule gives us more time to focus on the design and build aspect of the facility, and more time to make" necessary adjustments on the facility and use non-radioactive material similar to Hanford tank waste, the BNI spokeswoman said.

### 'Risky path'

An Ecology spokeswoman said Thursday that the department appears to be operating on a unilateral track. "DOE has yet to come to us with a change package to incorporate these changes — any changes that would affect the TPA agreement. This is a pretty risky path that DOE is taking." Asked if DOE had indicated when it would submit a TPA change package to reflect the new plant configuration, she added, "We have not heard if they plan to or when they will."

In January, DOE decided to withhold \$3 million from BNI for what the department considered to be inadequate engineering design work associated with the project (*IE*, 20 Jan, 9). But under BNI's modified contract, "we still have the opportunity to recoup those funds," the company spokeswoman said.

Deputy Energy Secretary Kyle McSlarrow said in a statement Thursday that Hanford is taking a step forward with accelerated cleanup at Hanford. "Under our accelerated cleanup project, Hanford cleanup will occur more than 30 years ahead of schedule and this plant will play an integral role in that effort," he said.

In July 2002, McSlarrow approved limited construction of the WTP to meet a TPA milestone that required DOE to begin building the foundations and below ground structures for the three large facilities that make up the WTP.

The authorization for full construction also includes a revised cost for the WTP and adds management controls in the BNI contract. "An external independent review team has reviewed and validated the WTP cost and schedule," said Schepens. "To safeguard against additional cost growth and potential schedule impacts, ORP has placed additional management controls in the Bechtel contract prior to moving to full construction of the WTP."

A report regarding the revised WTP cost is being prepared for Congress. BNI's previous project baseline was \$4 billion.

BNI has excavated more than 900,000 cubic yards of soil,

placed 34,000 cubic yards of concrete and 10,000 tons of rebar, and installed nearly 26 miles of piping and conduit as construction of the WTP continues.

Separately, BNI Project Director Ronald Naventi is leaving the position. Naventi, whose two-and-one-half-year Hanford assignment ends June 2, is going back to San Francisco to serve as a functional engineering manager for Bechtel Systems & Infrastructure Inc. Jim Henschel, senior vice president of Bechtel Corp. and executive vice president of the company's Pipeline business unit, will succeed Naventi. — *Shawn Terry*

## Stay on Hanford shipments continues as judge sorts out DOE, Wash. claims

A U.S. District Court judge has ordered the Energy Department to continue to withhold shipments of highly radioactive plutonium waste to the Hanford Site from other DOE facilities until a decision has been reached in a lawsuit brought by Washington state over the department's plans for the material.

Judge Alan McDonald heard oral arguments in the case May 2 in Yamika, Wash.

In March, Washington's Ecology Department filed a lawsuit challenging DOE's plans to ship plutonium-contaminated or transuranic waste from sites in California and Ohio to Hanford, where it would be stored temporarily and eventually disposed of at DOE's Waste Isolation Pilot Plant in New Mexico. The lawsuit alleges that DOE has failed to negotiate with the state a schedule for cleaning up buried transuranic mixed waste generated at Hanford. The suit asked the court to stop DOE from shipping more waste to Hanford from the Battelle Columbus Laboratory in Ohio and the Energy Technology Engineering Center outside Los Angeles (*IE*, 10 March, 12).

DOE had agreed to a McDonald order not to resume shipments until May 6, according to Gerald Pollet, attorney and executive director of Heart of America Northwest, a nuclear watchdog group in the Pacific Northwest.

The group is one of several plaintiffs who in April filed a lawsuit of their own seeking to block the shipments to Hanford. They want DOE to consider in a pending draft environmental impact statement the consequences of an accident and the bridge conditions on interstate highways along which the shipments would travel.

"When legal counsel representing DOE did not agree to extend that, Judge McDonald issued a restraining order from the bench," Pollet said.

But a DOE spokesman rejected Pollet's assertion. "That's incorrect," he said. "The judge's order noted the previous stipulation and said he was extending the order until May 16, his self-imposed ruling deadline. I think the judge did that on his own."

An Ecology spokeswoman said May 2 the state believes it has a strong case against DOE and was optimistic of a favorable outcome.

"The judge could rule any day now or within a couple of weeks," she said. — *Shawn Terry*

## Bechtel Hanford protests DOE decision to confer \$1B contract on competitor

Bechtel Hanford Inc. is protesting a contract worth nearly \$1 billion that the Energy Department awarded in April to the Washington Closure Co. to clean up plutonium production reactors and a reactor fuel manufacturing and research area at the Hanford Site in Washington.

On Monday, BHI, which has been conducting the cleanup work along the Columbia River at Hanford for nine years, submitted to the General Accounting Office — the investigative arm of Congress — a letter requesting a hearing and a stay preventing DOE from transferring work to WCC.

“The transition stops, but cleanup work will continue according to current schedules in place” under the BHI contract, which ends in June, a spokeswoman for DOE’s Richland (Wash.) Operations Office said. Asked if DOE would consider extending BHI’s existing contract if the protest goes beyond June, the spokeswoman said, “we’d have to take a look at the contract to keep them on the job. We want this resolved as quickly as possible.”

GAO has until Aug. 13 to issue a decision, said the agency’s managing associate general counsel, Daniel Gordon.

“After these three rounds of proposals, Bechtel’s technical rating was higher and proposed costs for managing the RCC were deemed more realistic than the proposal submitted by the selected contractor (WCC),” BHI, which made its first proposal last May, said in a statement Wednesday. Final proposals were due in January. “This is why we don’t understand why the ranking of the technical proposals was reversed at the end. The protest is the only means left to us to understand how the decision was reached.”

The department awarded WCC the contract April 25 and

explained its decision to contenders soon after. “Their reason [for not selecting us] wasn’t to our satisfaction,” a BHI spokesman said.

“We were very surprised to hear that DOE awarded the contract to a company whose cost estimates, by DOE’s own evaluation, will result in a final cost that is significantly higher by hundreds of millions of dollars than their proposed target cost. During our interactions with DOE, we were strongly encouraged to be very realistic with our costs. Yet, in the end, the company DOE selected proposed an unrealistically low cost,” BHI said.

Since 1994, BHI has received an average of 94.9% of its available fee. In the late 1990s, DOE renegotiated BHI’s contract to make it 100% performance-based. That means BHI earned performance fee based on work completed. FY-99 was the first year the company operated under a performance-based contract and since then it has received an average of 98.6% of its available fee, the company spokesman said.

“This has been a frustrating two-year process. The last thing we want to do is to prolong it. But we believe there may have been a flaw in the decision process and that our proposal should have been highest rated in accordance with DOE’s established evaluation process and provides the best value to taxpayers, as well as the highest probability of meeting cleanup milestones and hitting the target cost,” BHI said.

The bid protest — file number B-292288(001) — is available at <http://www.gao.gov>. — *Shawn Terry*

## New York official questions cleanup at West Valley, says EIS a problem

A New York State Energy Research and Development Authority official last week raised concerns about the status of a waste management environmental impact statement that the Energy Department is preparing for the Waste Valley Demonstration Project.

“The EIS hasn’t been done, and it puts West Valley [cleanup] behind sites like Fernald [Closure Project in Ohio],” which is on schedule to complete nuclear waste cleanup activities by the end of 2006, NYSERDA West Valley Site Manager Paul Piciulo told the House Nuclear Cleanup Caucus Thursday. “The technical analysis has to be done so cleanup decisions can be made,” Piciulo said.

A NYSERDA spokesman said he expects DOE to issue a waste management EIS “within the next couple of weeks.” A major issue for NYSERDA is DOE’s yet-to-be determined selection of a preferred alternative for cleanup remedies at West Valley, a former spent fuel reprocessing facility. Cleanup there is expected to be completed by 2004.

In addition, NYSERDA and DOE are pursuing an EIS for decommissioning and/or long-term stewardship activities at West Valley. In March, both agencies released for public comment a notice of intent to prepare the EIS, which would revise a 1996 draft EIS. Comments were due in April on the EIS, which evaluates the five alternatives for decommissioning facilities at the site. If DOE proposes to leave waste at the site, NYSERDA believes the department has the long-term responsibility for managing the waste despite the fact that NYSERDA owns the facility, a spokesman said Thursday. DOE believes the responsi-

### Bechtel Jacobs earns \$17M from DOE

Bechtel Jacobs Co. earned \$17.6 million in FY-02 for its environmental cleanup work at the Energy Department’s Oak Ridge Reservation and could earn an additional \$1.8 million for work it did not complete “due to conditions beyond their control,” Oak Ridge Operations Manager Gerald Boyd said in an April 9 letter to the company. The letter was released Monday.

DOE has deferred the additional fee until it can validate completion of nuclear safety documentation that was not completed on schedule. Boyd’s letter lauded and criticized Bechtel Jacobs, which could have earned a total of \$20.3 million. Boyd said Bechtel Jacobs has “made improvement” in implementing its integrated safety management system, but has “failed to effectively manage Documented Safety Analysis” to meet projected schedules and regulatory requirements. “Most DSA documents submitted to DOE were rejected due to technical inadequacies which caused further delays and resulted in the need for DOE to expend substantially more resources than otherwise would have been necessary,” he said.

The company also received praise for work accomplished at DOE sites in Portsmouth, Ohio, and Paducah, Ky. DOE is currently renegotiating Bechtel Jacob’s cleanup contract to accelerate and complete the cleanup work by 2008. A DOE spokesman said last week that the talks would be “wrapped up by June.”

bility lies with NYSERDA.

To clarify the long-standing dispute, Rep. Amo Houghton, R-N.Y., added language to the House-passed energy bill (H.R. 6) ordering DOE to issue a report to Congress by Dec. 31 that addresses long-term stewardship responsibilities at West Valley. The House approved of H.R. 6 on April 11.

According to the amendment, the energy secretary "shall transmit to the Congress a plan for the transfer to the Secretary of title to, and full responsibility for the possession, transportation, disposal, stewardship, maintenance, and monitoring of, all facilities, property, and radioactive waste at the Western New York Service Center in West Valley, New York. The Secretary shall consult with the President of the New York State Energy Research and Development Authority in developing such plan."

Houghton previously had introduced a bill (H.R. 576) that would give DOE full responsibility for the possession of the material as well as stewardship, maintenance and monitoring obligations (*IE*, 24 March, 13). But that bill never made it out of committee. "So our goal was to put DOE back on a timeline because they have been dragging their feet on the issue," said Bob Van Wicklin, legislative director for Houghton. Van Wicklin added that the plan would be used to "transfer the site, that's our hope."

The NYSERDA spokesman said while H.R. 6 addresses long-term stewardship of the site, it fails to specify a high-level waste fee NYSERDA would pay DOE. New York does not believe it should pay DOE \$20 million for transportation and disposition activities associated with 600,000 gallons of radioactive waste resulting from the reprocessing of spent nuclear fuel. The state believes that the material is federally owned on state property.

"In this bill, the fee is not addressed," the NYSERDA spokesman said. "This bill doesn't give possession or title of the waste over to DOE automatically. All it says is for DOE to develop a plan to take over the site. In essence, it's like a study. And it says to DOE to come back to Congress with a plan on how they would take care of the waste. It doesn't change any responsibilities. All it does is say study the potential for changing the responsibility." — *Shawn Terry*

## FEDERAL LANDS

### MMS calls increased drilling crucial to offset decline in Gulf gas output

If industry hopes to stem the rapid decline of natural gas production on the Gulf of Mexico's Outer Continental Shelf, it had better start drilling, according to a Minerals Management Service report released last week.

The study, unveiled at the Offshore Technology Conference

#### IBLA DIGEST

**IBLA reported no decisions as of press time Friday.**

*Industry is going to have to step up to the plate. The level of activity really has to increase to have an impact on this.*

—Chris Oynes, Minerals Management Service

in Houston, found that 45 new deep gas wells completed on the shelf during 2001 and 2002 are expected to decline to half their peak rates in "closer to 24 months than 48 months." That is far too quick a decline given that deep plays below 15,000 feet are thought to hold the last remaining large gas reservoirs on the shelf and perhaps the most mature producing basin on the planet, MMS said.

Chris Oynes, MMS regional director for the Gulf, who attended the conference, said the steep decline in shelf production has "set off alarms" because 25% of U.S. gas supply comes from the Gulf and 80% of total Gulf production occurs on the shelf.

"Industry is going to have to step up to the plate," Oynes said. "The level of activity really has to increase to have an impact on this."

Gas production from the shelf declined about 29%, to 3.36 trillion cubic feet, in 2002 from 4.76 trillion cf in 2001, MMS said. Even with a good-sized discovery on the shelf, "it would take a lot of those to arrest that decline," Oynes said.

The MMS report also showed that the number of deep gas wells drilled on the shelf fell to 64 in 2002 from 75 in 2001 and 86 in 2000, although at least some of the pullback in drilling could be attributed to low commodity prices and reductions in capital spending.

MMS said deeper horizons on the shelf contain a mean 10.5 trillion cf of reserves, with estimates ranging from a low of 5 trillion cf to a high of 20 trillion cf. However, getting at those reserves will not be easy or inexpensive. That is one reason MMS has pushed hard for federal incentives for production on the shelf.

Initially, the agency suspended federal royalties on the first 20 billion cf of production below 15,000 feet on newly acquired leases. MMS is now proposing similar incentives on existing leases that include suspending royalties on the first 25 billion cf of production at depths below 18,000 feet.

"Well test information from deep gas completions in 2001 and 2002 in new reservoirs on the OCS suggests that higher production rates can be expected" for drilling targets deeper than 16,000 feet, the MMS report said.

Still, there have been significant deep gas discoveries on the shelf, including El Paso's 350 million cf/day field at Timbalier Block 204. And recent MMS lease sales have been dominated by shelf players looking to cash in on the red-hot gas market.

"People are starting to pay attention," Oynes said. "There are strong incentives to go back to the shelf where it all began."

*The Gulf of Mexico OCS Deep Shelf Gas Update: 2001-2002* was one of two reports issued last week by MMS.

The other one was *Gulf of Mexico OCS Daily Oil and Gas Production Rate Projects from 2003 through 2007*. Both are available at <http://www.gomr.mms.gov/homepg/new/new.html>.

— Ray Tyson, Houston

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## NATURAL GAS

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### Pipeline expansions expected to slow because of shifting market conditions

Capacity additions to the nation's natural gas pipelines may start to slow over the next couple of years because market factors have changed and economic growth has been weak, according to the Energy Information Administration.

"While the current inventory of proposed additions for 2003 and for 2004-2005 indicates a continuing increase in the rate of annual capacity additions, there are indications that these levels will probably not be fully realized," EIA said in a May 1 report focusing on pipeline construction in 2002.

EIA said that despite a "national economic slowdown and a 4.9% drop in overall U.S. natural gas consumption in 2001," the industry still added more than 3,571 miles of pipeline and 12.8 billion cubic feet/day of capacity to the nation's pipeline network in 2002. But since late 2001, EIA said, "many of the market factors that helped fuel the large growth in new pipeline capacity additions have changed significantly."

Specifically, EIA said economic growth and the "deteriorating" financial condition of many energy companies have curbed proposals to add gas-fired power generation capacity.

"Since a number of expansion proposals have been predicated upon the building of new gas-fired electric power plants — a number of which have been suspended, postponed or canceled — the cancellation of related pipeline laterals and even some long-haul transmission projects might be anticipated also," the report said.

Additionally, the need for new import capacity from Canada "appears to have reached a temporary plateau," EIA said. Since 2000, only 207,000 thousand cf/day of new cross-border capacity has been added into the western United States and a proposed 163,000 thousand cf/day project was recently canceled. "Moreover, no additional new projects have been proposed to increase import capacity from Canada into the Midwest or Central regions through 2005," EIA said.

But import capacity in the Northeast may be the exception to that trend, EIA said, noting that six pipeline expansions have been announced with a combined incremental throughput of 2 billion cf/day through 2005. "For the most part, this new capacity is slated to support new and proposed power plants in the Boston and New York metropolitan areas," the report said.

Overall, EIA said 54 gas pipeline projects were completed in 2002, including 34 expansions and 20 new projects. Five projects alone accounted for 22% of all new pipeline capacity in 2002 and 34% of the new gas pipeline mileage, EIA said.

On the other hand, EIA also noted that 10 major pipeline proposals were canceled last year, representing 4.8 billion cf/day of capacity that would have stretched 1,450 miles. "In most instances, changed market conditions were cited by the project sponsors as the reason for the cancellations," EIA said.

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## RESEARCH & DEVELOPMENT

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### Ames lab scientists hunt for clues to mystery of solar panel problems

Scientists at the Energy Department's Ames Laboratory in Iowa and Iowa State University are tackling one of the toughest challenges to the solar energy industry by studying how to prevent damage to certain types of solar panels from one of the technology's greatest sources of harm: sunlight.

Rana Biswas, a physicist at the Ames lab and an associate professor at Iowa State, leads a team funded by the Thin Film Partnership Program, a consortium organized by DOE's National Renewable Energy Laboratory that is looking at the problems of using a thin-film photovoltaic material called hydrogenated amorphous silicon, or amorphous silicon. Dubbed a-Si, the material, one of several thin-film substances that can be used in photovoltaic devices to convert sunlight directly into electricity, is attractive to the solar industry because it is cheaper to make and requires less material for manufacturing than the crystalline silicon commonly used in solar cells; crystalline silicon is 10 to 20 microns thick, compared to the one-half micron thickness of a-Si.

But a-Si performance suffers once the cells are installed, and one of the questions the partnership is addressing is how to shore up thin-film efficiency. The thin material "traps light much more efficiently" than crystalline silicon, Biswas explained in an interview. "But it loses efficiency of 15% to 20% over several days [after installation] and basically stabilizes at that value," he said. "A lot of [solar panel] manufacturers quote a number called 'stabilized efficiency.'" The key questions, he said, are "why does this material degrade in sunlight, and why does it lose its efficiency?"

The cause of this degradation, called the Staebler-Wronski effect, has baffled scientists for decades. But Biswas and his colleagues believe they might have found the answer. Their studies indicate that exposure to high temperatures from sunlight frays the molecular bonds in a-Si, creating dangling bonds, or bonds that lack a neighbor to which they can hold fast.

In response, Biswas' team has devised a rebonding model based on arranging silicon and hydrogen atoms in the a-Si material in an attempt to "solarproof" photovoltaic modules. "The research represents a significant achievement in understanding the atomic origins of the light-induced degradation effect in hydrogenated amorphous silicon, and so provides a vantage point for eliminating this effect in the development of new solar cells," according to an Ames lab statement.

Now the Iowa team is examining mixed-phase solar cells in an attempt to combine the best features of a-Si and crystalline silicon solar cells. "The trend these days is a mixture of crystalline and amorphous materials" Biswas said. In addition, the Iowa researchers are using computer simulations to explore the potential for manipulating these materials at the nanoscale and for "understanding why mixed phase material is better," he said.

Biswas' group, which began with initial funding from the American Chemical Society, works under a subcontract with

NREL with funding from DOE's Energy Efficiency and Renewable Energy division. The Institute for Physical Research and Technology, a network of research and technology-transfer centers at Iowa State University, administers the grant. ISU operates the Ames lab for DOE.

The Iowa initiative is one of several teams of scientists funded by The Thin Film Partnership's National Amorphous Silicon Team, which was set up to boost the prospects for developing a-Si — considered to be the only thin-film PV material with commercial potential in the 1980s, but written off by many researchers and investors just a decade ago because of its instability and low efficiencies. Along with NREL and Iowa State, participants in the partnership include BP Solar, United Solar Systems, the National Institute for Science and Technology, Harvard University, the University of North Carolina and the University of California at Los Angeles.

NREL's National Center for Photovoltaics, which manages its own amorphous silicon research team, has reported progress in addressing efficiency problems in a-Si panels with a new method for constructing solar cells called the hot wire approach, which involves chemical vapor deposition. "However, the true stability of this new technique has yet to be established," center officials acknowledged, and "even if successful, it would mean that new, large-scale manufacturing processes would have to be designed — a major challenge in itself."

Biswas said this team will continue its research on mixed-phase materials. "We think it'll be commercially important," he said. He credited DOE support for fundamental research as a critical factor in advancing knowledge for solar technology that could produce substantial payoffs for the nation. "It's one way that basic physics can help out with our energy problems," he said. — *David Jones*

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## NEWS IN BRIEF

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### Abraham hails gasoline price drop

Declining gasoline prices are a "positive sign" for the economy, Energy Secretary Spencer Abraham said Friday. Abraham noted that DOE's statistical arm, the Energy Information Administration, on Thursday dropped its forecast for summer gasoline prices by 10 cents, to \$1.46/gallon.

"Although gasoline is still above the five-year average, our projections have now moved below the prices Americans experienced in the summers of 2000 and 2001, a significant benefit to consumers," Abraham said in a statement. Regular retail gasoline prices have declined for seven weeks in a row since peaking in mid-March at \$1.73/gallon. On Monday, prices averaged \$1.51/gallon nationwide.

### Both parties failing on NSR: report

A Democratic think tank has challenged the Bush administration and Democrats in Congress for failing to make practical changes to the Clean Air Act's New Source Review regulations. The Environmental Protection Agency finalized one set of changes and offered another set of revisions late last year, but has been panned by environmental groups and some states for weakening NSR, which applies only to new power plants or existing facilities that are upgraded.

The centrist Progressive Policy Institute said the president's proposal has stirred controversy and would be ineffective. "Instead of fixing these flaws, the president's new proposed and final rules merely make it much easier for firms to avoid NSR when making production changes at existing plants, which, if anything, makes the problem worse," PPI said in a report issued May 2.

PPI also criticized Democrats for failing to propose practical solutions to slash pollution from old plants. "A number of Democrats have opted to blithely defend NSR, rather than pursue Third Way policies with the potential to truly modernize

the program," PPI said.

The group advocated enactment of cap-and-trade emissions legislation that would address carbon dioxide, and said NSR should be eliminated if that happened. The PPI report is available at [http://www.ppionline.org/documents/NSR\\_Reforms\\_0503.pdf](http://www.ppionline.org/documents/NSR_Reforms_0503.pdf).

### Chemical plant bill offered

Sen. James Inhofe, R-Okla., last week introduced legislation intended to reduce the risk of terrorism at chemical plants. Inhofe said the chemical industry has taken "laudable voluntary steps," but a mandatory federal role is needed.

The Chemical Facilities Security Act would require companies to conduct vulnerability assessments and prepare security plans. It would authorize the Department of Homeland Security to reject plans deemed inadequate and require plant operators and owners to revise plans and assessments to ensure adequate safety and protection. The department could petition the courts to temporarily shut down a plant failing to comply and also impose fines of \$50,000/day and administrative penalties up to \$250,000 for violations.

### FERC schedules SMD conferences

The Federal Energy Regulatory Commission last week scheduled the first two rounds of regional technical conferences on the implementation of its controversial standard market design rulemaking.

In separate notices, FERC said it would host meetings May 20 in Boston and June 11 in Omaha, Neb. FERC plans to invite panelists to participate in the workshops, and "is not entertaining requests to make presentations," the notices said.

The notices stem from the commission's white paper on the

proposed SMD rule. In the paper, FERC made several concessions to appease Congress by dropping a date-certain for regions to implement the new market rules. FERC also dropped requirements for a new pro forma tariff, but still asserted jurisdiction over the terms and conditions of all transmission service. At the workshops, the commission said it intends "to discuss with states and market participants in each region reasonable timetables for addressing wholesale market design issues discussed in the white paper and ways to tailor the final rule in this proceeding to benefit customers within the region."

No agenda has been set for either workshop.

## Sandia wins tech transfer honors

The Energy Department's Sandia National Laboratories has won recognition for its collection of software tools for conducting risk assessments at energy facilities and other infrastructure, officials said Wednesday.

The Federal Laboratory Consortium complemented SNL for its risk assessment methodologies, or RAMs, that can be used by owners and operators of dams, power transmission systems and water distribution facilities to pinpoint and correct vulnerabilities at their sites. To date, Sandia has executed about 80 RAM licenses, and another 75 are in the works.

## BNL, NREL scientists saluted

Two researchers at the Energy Department's Brookhaven National Laboratory and National Renewable Energy Laboratory have jointly won a 2003 Federal Laboratory Consortium Award for excellence in technology transfer, officials said Tuesday.

BNL's Toshifumi Sugama and NREL's Keith Gawlik were honored for developing and transferring to the marketplace their polyphenylenesulfide coating system, a high-performance coating that "is particularly suited for use in carbon-steel heat exchanger tubes in geothermal power plants," according to BNL. "The innovative coating system shows dramatic improvements in bonding, durability, resistance to wear and abrasion, and service lifetime cost, compared to competitive coatings."

## LLNL worker sentenced for bribes

An employee at the Energy Department's Lawrence Livermore National Laboratory has been sentenced to a year and a day in prison for accepting bribes, the U.S. Attorney's Office for the Northern District of California said last week. Joseph Lupton also was sentenced Tuesday to three years of supervised release and ordered to pay \$12,500 in restitution and a \$3,000 fine after pleading guilty to one count of bribery.

Lupton, a purchasing agent for LLNL, admitted as part of his plea agreement that he received bribes totaling \$15,000 to

\$20,000 in cash and other valuables, including gold coins and a gun chest, from a business supplying made-to-order items needed by scientists and engineers at the lab. "We won't tolerate any abuse of our system," an LLNL spokeswoman said, adding that the lab believed the punishment was appropriate.

## PNNL studies aerosols, warming

Scientists at the Energy Department's Pacific Northwest National Laboratory are undertaking studies to better understand how aerosols in the atmosphere influence the earth's climate by providing seeds for condensation in clouds through nucleation (in which moisture in clouds settles around a solid core to form rain drops and ice crystals).

"By understanding the fundamental processes involved in aerosol nucleation, our scientists are fine-tuning the microphysics used in climate models, enabling more accurate predictions of global warming as well as climate changes and the weather," lab representatives said May 2.

## NASA first to use landfill gas

NASA Thursday became the first federal agency to generate electricity using landfill gas, the Environmental Protection Agency said. The space agency is using landfill gas, considered a renewable source, to heat buildings at the Goddard Space Flight Center in suburban Maryland.

"This project directly benefits the Earth by removing a significant amount of methane, a greenhouse gas, from the environment," NASA Administrator Sean O'Keefe said in a statement. "We use this energy, virtually pollution-free, for power," he said.

The use of landfill gas at the Greenbelt, Md., site was the result of a partnership involving EPA, NASA, two private companies and the local county government.

## Report faults NNSA facility plans

The National Nuclear Security Administration's plans to spend hundreds of millions of dollars to repair and replace run-down facilities have not been well documented, and thus raise questions about whether the money would be well spent, the Energy Department's inspector general says in a new report.

"We found that facility condition assessments used to support site plans were prepared using out-of-date information and that sites did not have a standard methodology for assigning a mission a criticality level to their facilities," the IG report says. "Without reliable site plans, NNSA has less assurance that the \$1.5 billion it intends to spend for infrastructure improvements over the next five years will be spent on the most urgent needs and mission-essential facilities."

NNSA agreed with the findings and said many of the steps necessary to address the IG's concerns have already been taken. The report is available at <http://www.ig.doe.gov>.

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