Is a weakening of U.S. environmental policy ahead?

The resounding success of the U.S. Republicans (GOP) in last November's elections puts the party in a good position to change environmental policies, congressional staffers and lobbyists say. Although the 108th Congress, which begins this month, is not likely to repeat the rush to rewrite major environmental laws, as the GOP did in 1995, the opportunity to modify rules and programs administratively, or through minor provisions in large budget bills, is a real possibility, observers predict.

Democrats and environmental groups charge that the Bush administration will continue to soften environmental policy with administrative actions and may have more success. Because most of the House and Senate leaders are from the conservative wing of the party, it's likely that proposals from the administration won't be blocked in Congress, these groups say. Examples include a proposed rule issued by the Clinton administration to ban snowmobiles in Yellowstone and Grand Teton National Parks that EPA changed, and the Office of Management and Budget's guidance requiring more transparency of rulemaking, environmentalists say (*Environ. Sci. Technol.* **2002,** *36,* 443A).

Environmentalists and New England governors, in particular, point to EPA's proposed rule, released in November, to change the controversial New Source Review (NSR) provisions in the Clean Air Act. Electric utilities and business groups have lobbied EPA for years to change the NSR, which requires owners to seek a new permit if a modification to a facility might raise emission levels. EPA's proposal would allow plant managers to undertake certain "environmentally beneficial" projects with only EPA notification and would change the definition of "routine maintenance, repair and replacement" to allow certain plant adjustments without an EPA review.

SEN. INHOFE

Sen. James Inhofe's (R-OK) reputation of focusing on economics has environmental groups worried that big changes are in store.

"Sadly, there is every reason to believe that this is just the leading edge of an assault on fundamental protections for our air, water, and public health by the Bush administration," predicts Gregory Wetstone of the Natural Resources Defense Council. Many business groups dismiss the environmentalists' concerns. The NSR changes would allow companies to move on projects held on the back burner because of complicated requirements, says Mark Whitenton of the National Association of Manufacturers.

"Around the edges, you might expect to see a softening of things [coming from EPA] compared to what they would have been under [former EPA Administrator] Carol Browner", adds Quin Shea with the Edison Electric Institute, which represents investor-owned utilities. "But you're not going to see anything eliminated, and you're not going to see anything radical."

News Briefs

Cutting automotive greenhouse gas emissions

A new process developed by Ford Motor Co. and Alcan, Inc. is expected to reduce the greenhouse gas emissions generated by automotive manufacturing, the companies announced in November. The new process allows recycling of the 13 million pounds of scrap generated annually by producing the aluminum alloy hoods for certain Ford cars and trucks. This reduces the amount of aluminum ore that must be refined to produce the hoods, which requires a refining process using perfluorocarbons—a family of potent greenhouse gases. The recycling process eliminates 95% of the greenhouse gases associated with primary aluminum production and consumes 95% less energy, says Andy Acho, Ford Motor Company's worldwide director of environmental outreach and strategy.

Costs of air travel

Passenger airline tickets could cost 20–30% more on average for shorter flights and 5% more for longer flights if costs such as emissions and noise were accounted for in the price, finds a study by the Dutch Centre for Energy Conservation and Environmental Technology. For flights of up to 200 km, local and regional impacts, particularly noise, make up the bulk of the external costs. For flights of 6000 km, greenhouse gases dominate. However, if contrails are formed, as is estimated to occur in 10% of global aircraft kilometers, the climatic impact could be as much as 8 times higher, according to the study. A summary of *External Costs of Aviation* can be accessed at www.umweltbundesamt.de/aviation.pdf.

PHOTODISC

In Congress, the most striking change is the new leadership of the Senate Environment and Public Works Committee, through which all environmental bills pass. The former chairperson, Sen. James Jeffords (I-Vt.), held hearings examining GOP proposals and votes on Democratic-sponsored bills.

Sen. James Inhofe (R-Okla.), the incoming chairperson, says he plans "strong oversight to examine how current environmental laws are enforced and implemented", adding that he'll work to create "fiscally responsible policies that are based on sound science and cost benefit analysis". Inhofe has a 0% voting record on environmental issues for the 107th Congress, according to the League of Conservation voters, which keeps tabs on environmental votes.

Changing environmental laws may still be difficult in Congress, however. It still takes 60 votes to do most things in the Senate, and the GOP's margin of control appears to be 51-49. "Statutory changes [to weaken laws] aren't likely", says Ken Colburn, executive director of the Northeast States for Coordinated Air Use Management. "There are still too many moderate Republicans to allow that to happen."

But the Senate can confirm Bush's judicial nominees and pass budgets without 60 votes. "More judges who don't believe that environmental laws are really laws at all will be confirmed. [And] the budget is likely to be even less adequate as a means of protecting the air, water, and land", predicts Carl Pope, the Sierra Club's political director.
—CATHERINE M. COONEY

Can private-sector funds resolve U.S. water woes?

Privatizing various aspects of public water utilities is one solution being bandied about more often as a way of dealing with the twin problems of deteriorating water infrastructures and growing shortfalls in government funding in the United States. The idea is that with its underlying business principles, the private sector can make utilities more efficient and even provide additional services.

Small to medium-sized utilities, where resources and expertise are often lacking, are prime targets for privatization, finds a report released in September by the U.S. National Research Council (NRC). The NRC issued neither a ringing endorsement nor a sound rejection of privatization, however, noting that well-run and poorly run utilities exist in both the public and private sectors.

Currently, ownership of U.S. wastewater utilities remains mostly in public hands, according to Steve Allbee, project director of a U.S. EPA analysis looking at water infrastructure funding shortfalls. The picture is different on the drinking water side, with about 43% of utilities privately owned, "but the vast majority of large water systems are still publicly owned," Allbee says. EPA estimates a deficit of $534 billion between projected investment needs over the next 20 years and current spending levels on water infrastructure in its *Clean Water and Drinking Water Infrastructure Gap Analysis* released in late September. The agency has called for a national forum to convene early next year to address this shortfall.

A similar mix of public and private utilities is also found in other countries, with the exception of the United Kingdom, where private companies own and operate all of the water utilities, says John Briscoe, senior water adviser for the World Bank. Privatization can mean anything from the outright sale of utility assets to a private company

Environmental taxes questioned

A host of countries are experimenting with taxes that discourage environmentally damaging practices, yet the level of the taxes may not always correspond to the environmental costs, suggests new research reported in the December 15 issue of *ES&T* (**2002,** *36,* 5289–5295). The study shows that Swedish taxes on fossil fuels and forest residue fuels are influencing energy users to move away from fossil fuels, but the taxes may be encouraging the use of forest residues more than is justified by the fuel's environmental and health costs.

There is a broad body of research demonstrating that environmental taxes change fuel choices, but this is one of the first studies to compare the tax level on a fuel to the fuel's cost to society, says Marie Lynn Miranda, an economist at Duke University and lead author of the paper. To determine the tax, production, health, and environmental costs associated with the use of oil, coal, natural gas, and forest residue fuels, Miranda and colleagues relied on estimates from the literature and interviews with Swedish experts. These estimates were then converted into Swedish kronor per megawatt-hour of energy output, allowing comparisons across fuel types in the energy sector.

Over the past 10 years, Sweden has cut income taxes, while instituting taxes on CO_2, sulfur, and energy, which have helped lower emissions of CO_2 by 3–4% and sulfur dioxide by 80%. Sweden's abundant wood residues are exempted from these taxes, even though the environmental and health costs of burning wood residues are significant, Miranda says. The taxes on natural gas are 2–3 times higher than their environmental costs, potentially dissuading Swedes from using a cleaner fossil fuel, she notes.

Meanwhile, Germany, which has shifted 2% of its tax burden from income to energy and fossil fuel tariffs, adopted a draft bill on November 5 to boost these energy taxes in 2003, predicted to generate $1.4 billion in additional revenue.

Despite these moves, the scale of tax shifting is relatively small, accounting for only 3% of tax revenues worldwide, says Bernie Fischlowitz-Roberts, researcher with the U.S. Earth Policy Institute, an environmental organization.
—JANET PELLEY

to outsourcing of various services, such as plant operation and maintenance, according to the NRC.

"There is certainly a need for [alternative] approaches to tackling the infrastructure problem," but EPA doesn't have a position on privatization, Allbee says. The World Bank, on the other hand, encourages privatization with public oversight. "In many of the countries where we work, public utilities are tremendously inefficient, employing 5–10 times more people than they should, and privatization gets rid of that," Briscoe says.

But opposition to the practice is growing in the United States and elsewhere, primarily because "private enterprise can't adequately protect public interests," says Peter Gleick, president of the Pacific Institute for Studies in Development, Environment, and Security, an independent nonprofit think tank. He points out that the need for private companies to turn a profit can lead them to ignore some communities, which can worsen inequities in the distribution of water, especially in the poorest areas.

Environmentalists, as well as the NRC, also argue that a business approach can discourage water distribution and treatment efficiencies, hinder community conservation efforts, and reduce water quality protections. For instance, the more water companies can send through the pipes to consumers, the more revenue they take in. In a similar fashion, preserving land areas from new development does not boost revenue growth, says Paul Schwartz with Clean Water Action, an environmental group.

Indeed, several U.S. public utilities have worked hard to clean up their act to lessen their vulnerability to private takeovers. One example is in southern California, where public utilities "are run very well," Briscoe says. This wasn't always the case, he notes, adding that the utilities "told us they changed because they knew the private sector would be brought in if they didn't." In fact, because of such concerns, the NRC concluded that "continued public ownership and operation is the most likely future for the majority of most utilities" in the United States.

And to make sure it stays that way, Schwartz and the Association of Metropolitan Water Agencies and Association of Metropolitan Sewerage Agencies (AMSA) recommend increased investments at all levels, starting with the federal government.

Federal monies have declined since the heady days of the Clean Water Act's inception 30 years ago, from funding 90% of water infrastructure construction projects to "well less than 10% now," says Adam Krantz, AMSA's manager of communications and public affairs. Pointing to recent rate hikes of as much as 25–30% in cities across the country, he notes that municipal governments have long had to pick up the difference. "But it's simply not enough when you're looking at new EPA regulations coupled with security funding needs that are being added to these massive infrastructure costs we're looking at," Krantz adds. What AMSA is pushing for is a dedicated trust fund, similar to the federal highway trust fund, to which municipalities could turn for long-term infrastructure projects as treatment plants and pipe distribution and collection systems age and need to be replaced. —KRIS CHRISTEN

Does hydraulic fracturing harm groundwater?

The U.S. EPA has come under fire for a draft report claiming that injection of hydraulic fracturing fluids into coal bed methane formations does not threaten drinking water and that no further study is needed. Critics charge that the agency misrepresented the study's results and altered, misused, or ignored data. If the report becomes final, it would support efforts to exempt hydraulic fracturing from regulation under proposed congressional legislation.

The report, on which comments were due October 28, is a response to a 1997 decision by the 11th U.S. Circuit Court requiring the state of Alabama to regulate hydraulic frac-

News Briefs

Educator honored

The environmental science curricula improvements made by John Giesy of Michigan State University's Zoology Department earned him this year's Menzie–Curie and Associates Environmental Education award. Conferred by the Society of Environmental Toxicology and Chemistry (SETAC), the award recognizes "significant contributions to environmental education". Many of Giesy's students have gone on to become instructors, according to the SETAC award committee. Giesy stresses that his role as an educator extends to the industrial community, noting this work with executives at 3M Corporation ultimately inspired the company to remove perfluormated compound from their Scotchguard products (*Environ. Sci. Technol.* **2000**, *34*, 371A).

Quantifying urban sprawl

People living in sprawling areas tend to drive longer distances, own more cars, breathe more polluted air, walk and use public transportation less, and face a greater risk of dying in traffic accidents than those who live in nonsprawling areas, according to a three-year project conducted at Rutgers and Cornell Universities and the nonprofit, Smart Growth America. In order to measure urban sprawl, the researchers created a sprawl index based on residential density; neighborhood mix of homes, jobs, and services; strength of activity centers and downtowns; and accessibility to the street network. According to the index, the most sprawling area is Riverside, Calif., and the least is New York City. To see how your area ranks, go to www.smartgrowthamerica.org and download *Measuring Sprawl and Its Impact.*

PHOTODISC

turing. Industry groups are concerned that EPA will expand the Alabama decision to require the regulation of hydraulic fracturing in other states, according to the American Association of Petroleum Geologists.

From 1992 to 2000, coal bed methane production from 13 states has increased 156% to a total of 1,379 trillion cubic feet per year, according to the EPA report. Production is expected to grow in concert with a predicted 45% increase in demand for natural gas over the next 20 years.

Hydraulic fracturing is a technology for recovering methane gas by forcing a gelatinous mixture of water, sand, and additives into coal formations at high pressure. The mixture creates fractures that allow the gas to flow toward the well. Although the fracturing fluid consists almost entirely of water, additives designed to improve performance can include potentially harmful chemicals such as benzene, acetone, toluene, and MTBE, most of which derive from the use of diesel fuel as an additive, the report says. EPA found that 10 of the 11 coal bed methane basins it studied lie within underground sources of drinking water and have nearly 14,000 producing wells, creating the potential for contamination by fracturing fluids.

EPA evaluated the potential for contamination by estimating the likelihood that fracturing fluids, ranging from 50,000 to 350,000 gallons, could migrate within a coal bed that was also an aquifer. On the basis of a literature review, 25–61% of the fracturing fluid is recovered when the well is pumped. Assuming that 60% of fluid is recovered and that fractures are 1500 feet long and 200 feet high, the report estimated that contaminant concentrations at the edge of the fracture zone would be roughly 30 times lower than the injected levels, driving most pollutant levels below groundwater standards.

The dilution factor of 30 is not realistic, and the report does not provide any justification for it, says a hydrologist with the U.S. Geological Survey. Assuming that only 20–30% of the fracturing fluids remain in the formation and the fluids include diesel fuel, the aquifer would be destroyed because the diesel will remain as a contaminant for generations, he adds.

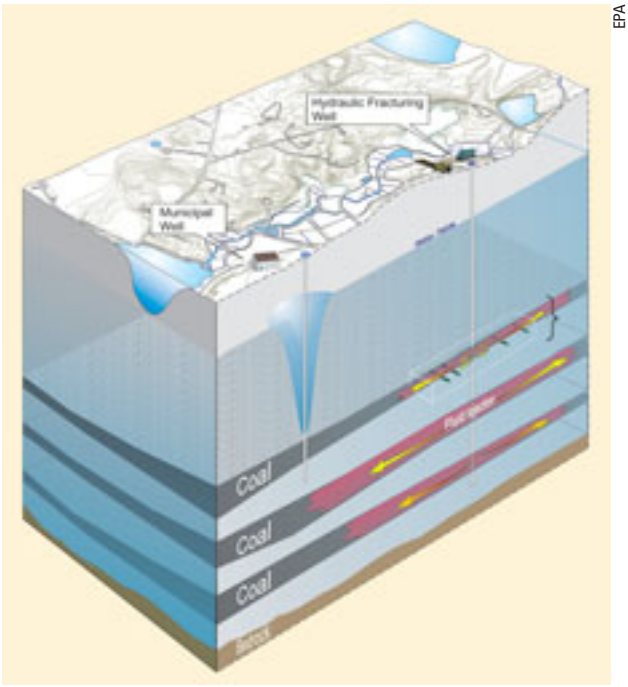
Even with a dilution factor of 30, the report's methodology predicts a host of pollutants still violate groundwater standards, says Steve Gurney, geologist with the environmental group Natural Resources Defense Council. At the edge of the fracture zone, the concentration of benzene is twice its maximum contaminant level (MCL), and the concentrations of other aromatic compounds from the diesel fuel are as much as 95 times higher than their MCLs, he says.

Norm Warpinski, senior scientist at Sandia National Laboratories and a member of EPA's peer review panel for the report, counters that the agency's estimates of pollutant concentrations at the edge of the fracture zone are probably too high. "Over the lifetime of a well, the large majority of contaminants are probably recovered," he says. Because companies pump vast amounts of water from the wells, any mobile pollutant will probably be drawn out through the well. Companies only measure recovery of fracturing fluids for short periods of three to seven days after injection. In addition, the study used outdated models and overestimated the height that fractures can grow, which raises the risk that a fracture carrying contaminated fluid will grow too high and pierce an aquifer overlying the coal bed, Warpinski says.

However, one academic summed up the problems with the report as poor documentation and a lack of answers to whether hydraulic fracturing harms groundwater, in part, because the peer review panel did not include hydrologists. It is clear that the situation requires more study, he argues, including modeling of fracture propagation, analysis of fluid flow to and from fractures, and monitoring of pollutant transport using hydrocarbon fingerprinting.

Congressman Henry Waxman (D-CA) has charged that EPA staff, at a meeting with congressional staff, altered the report's data in a manner that benefits industry. Waxman is requesting that EPA administrator Christine Todd Whitman provide Congress with a substantive explanation for the alleged changes.

Meanwhile, an amendment to the energy bill, which is expected to be reintroduced in 2003, would overturn the 1997 federal court decision if EPA determined that hydraulic fracturing should not be regulated under the Safe Drinking Water Act. —JANET PELLEY



EPA

Injecting fluids underground recovers methane from coal beds.