

ENERGY RESEARCH

Industry Conservation Programs Face White House Cuts

Mechanical engineer Christophe Beckermann has developed software to help the U.S. metal-casting industry reduce waste and save energy by modeling how cracks form as the metal cools. At a time when politicians are demanding that the country become more energy efficient, the research by his 10-person team at the University of Iowa, Iowa City, seems like a sure-fire winner.

Think again. Last week, representatives of energy-intensive industries from steel to chemicals came to Washington, D.C., to lobby against a 15% cut proposed by the Bush Administration in the program Industries of the Future (IOF) that funds Beckermann and other researchers on projects including papermaking

industrial technology manager.

Toni Grobstein Marechaux, a former director of the academies' manufacturing and engineering design board, says the IOF program conducts research that industry wouldn't do on its own. Corporate leaders are reluctant to wait for the payoff from most efficiency research, she says, even with energy prices rising. The government also helps companies avoid potential antitrust issues when they work collaboratively with competitors. In addition, the program subsidizes work that some heavy industries simply lack the funds to carry out. Most metal-casting firms are small and employ few if any engineers, says Beckermann, citing as proof the crude

modeling software that now exists.

IOF's supporters also worry about the next generation of energy-focused industrial engineers in the wake of the Administration's proposed 35% cut in the related \$6.4 million Industrial Assessment Centers program that allows undergraduates to be energy-saving consultants to manufacturing plants. Patrick Johnson, a manager at the glass giant Corning, appreciates the value



Either ore. The Department of Energy says it needs to cut industrial efficiency studies of basic industries such as steel casting to fund more promising research.

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DOE officials say the cuts are a necessary consequence of limited resources. Those budget pressures place a higher priority on new, long-term research into fuel sources such as cellulosic ethanol or nuclear power (*Science*, 10 March, p. 1369). On the other end of the spectrum, they note that 72 teams have completed assessments of energy-intensive manufacturing sites under the department's current "Save Energy Now" campaign. Despite the proposed cuts, they add, the IOF program will still support work with industry in fields including nanomaterials and catalysis.

Congressional staffers say that DOE's proposed cuts are penny-wise and pound-foolish. "Congress will have to restore funding to some of these accounts," says a House appropriations staffer. Beckermann hopes they do, calling the program "a model for industry-government collaboration." **—ELI KINTISCH**

A report last year by the National Academies' National Research Council found "significant cumulative energy and cost savings" in the seven energy-intensive industries covered by IOF, a sector that together consumes three-quarters of the energy used by U.S. industry. And last week, a report from the American Council for an Energy-Efficient Economy described improvements developed by efficiency researchers such as Beckermann, who benefit from matching funds from industry on each grant, as "low-hanging fruit." But DOE officials argue that private companies should pick up the tab for that harvest. "With high energy prices, there's incentive for industry to take on some of these programs," says Jacques Beaudry-Losique, DOE's

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Clouds Part for NASA

It took seven tries over 7 days, but two new Earth-observing satellites are finally exploring clouds and how they form. The successful launch on 28 April from California was a relief to scientists who face long-term budget cuts at NASA and who have endured a year of delays due to strikes, technical issues, and finally, bad weather.

Cloudsat and CALIPSO—short for Cloud-Aerosol Lidar and Infrared Pathfinder Satellite Observations—will provide insights from 750 kilometers above Earth into the complex interaction between clouds and climate.

—ANDREW LAWLER

Tennessee Scientists Beaming

After 7 years of construction and a few final, tense hours tweaking the machine, engineers at the new \$1.41 billion Spallation Neutron Source (SNS) at Oak Ridge National Laboratory (ORNL) in Tennessee churned out their first few blasts of neutrons last week. "Everyone cheered and jumped up and down" as they watched the results from the SNS control center, says SNS project director Thom Mason.

SNS engineers will spend the next 1 to 2 years working out the machine's glitches to create the world's most powerful source of neutrons, which are prized for condensed matter physics and materials science research. But ORNL scientists should be able to start using the neutrons for experiments as early as this summer. Five beamlines are under construction, and the Department of Energy has asked for money next year to begin construction of 15 more.

—ROBERT F. SERVICE

Weaponers Seek Models

Modeling the behavior of nuclear bombs is getting tougher as stockpiled weapons age, so the National Nuclear Security Administration (NNSA) is refocusing toward prediction an existing program that funds academic computer scientists. Five universities currently run NNSA-sponsored modeling centers that do nonclassified work in areas including rocket behavior and exploding stars. Program head Dimitri Kusnezov says the academics have helped root NNSA in good science as well as top computing. But old bomb tests are becoming less and less relevant to aging weapons, he says, making prediction more important. Now he wants to recompute the contracts, emphasizing prediction of complex systems. "We can ask much more complex questions today," he says.

—ELI KINTISCH