Industry Chafes at APS Rules

ARGONNE, ILLINOIS—The possibility that the Department of Energy may close a synchrotron to focus operating funds on fewer facilities (see main text) is only the latest flash point between DOE and the user community. Relations between the two have already begun to sour at the Advanced Photon Source (APS), DOE's new flagship synchrotron outside Chicago. The problem centers on DOE's policies toward industrial users, who complain about the fees for conducting proprietary research and the rules governing what research they can do onsite.

Scientists are flocking to the APS, which officially opened in May 1996, to use its powerful, hair-thin x-ray beams for research in physics, chemistry, materials science, and drug discovery. But access to the facility doesn't come cheap. To help defray the cost of building and operating the facility, users have built 40 experimental beamlines, at nearly $4 million apiece, to collect the x-ray data. Most of these groups, known as collaborative access teams (CATs), are consortia of industry, academic, and government labs doing research that ranges from mapping the atomic landscape of proteins to studying the molecular structure of minerals under pressures found at the center of the Earth.

Industrial strength. Procter & Gamble's Joel Oliver is part of a consortium that uses the beamline for drug design.

INTERNATIONAL MOLECULAR CRYSTALLOGRAPHY ASSOCIATION/CAT

While most industrial researchers expect to recoup their company's beamline costs with new products, several have begun to chafe at the additional costs and restrictions for proprietary research. APS currently charges industrial users about $1800 per 8-hour shift to collect data not intended for publication. That fee, say APS officials, offsets the government's cost of running each beamline and ensures that APS doesn't subsidize research that will generate income for individual companies. APS levies the same charge on non-CAT users that conduct proprietary research at the facility. Moreover, it doesn't charge for nonproprietary research headed for the open literature.

Companies don't object to the extra charge itself. What bothers them is the requirement that all CATs must donate a quarter of their beam time to outside users. APS officials say the rule ensures that all qualified users have access, but one company researcher argues that the rule means "we are subsidizing research by other groups and then paying the government full cost recovery" for use of proprietary beam time. By contrast, companies that are not part of a CAT pay only for the beam time needed to do their research. Says DuPont's Richard Harlow, "It's costing us more money to be a member of the club."

APS officials say that the benefits of membership outweigh the cost. CAT members receive ready access to beam time, for example, while non-CAT experimenters must be selected through a peer-review process. CAT members also design their own beamlines and can optimize the equipment for their own experiments, adds Gopal Shenoy, who heads APS's experimental facilities division, whereas outsiders must use what's available.

While Harlow and others agree that ready access and design input into the beamlines are valuable, they say that money isn't the only issue. Even more unsettling, they say, are rules that could allow the government to latch onto new discoveries made at the APS. According to DOE's user agreements, companies that pay to conduct proprietary data collection retain full rights to the data. But if additional analysis of the data is performed onsite, the government can lay claim to any new discoveries on the grounds that it addresses a broader public good.

The upshot, according to Merck's Brian McKeever, is that "we have to do the [data analysis] back home to guarantee we don't fall into a legal trap. ... It tends to slow everything down, because you're not operating as efficiently as you'd like." Shenoy says it isn't likely that DOE would enforce the "march-in" clause, which is a holdover from a 1940s congressional mandate. But industry officials say that such "winking and nodding" at contract language is no way to do business.

Shenoy and others say that the rules for APS governing the cost and conditions for conducting proprietary research are the same as at other DOE synchrotrons. The fact that virtually all the industrial CAT members have signed the agreement, they add, shows that DOE's restrictions are not unduly burdensome. Indeed, Harlow admits that "we haven't had much success" in getting DOE to change the rules even after years of legal wrangling.

But that doesn't mean the companies like the final outcome. "We signed under very strong protest," says Harlow. "It's not a friendly agreement." As DOE tries to rally support for more money to operate the facility, such resentment could come back to haunt it.

–Robert F. Service

the newer ones. They must also weigh which disciplines are likely to produce the best science—and therefore, which facilities should be preserved to ensure that work progresses. "We have to assess [which research] is the most important," says Birgeneau—no simple matter given the diversity of uses for both newer and older synchrotrons.

Some wonder about the wisdom of trying to carve funds from operating costs to develop a fourth-generation source. "It's not on the radar screen—it was added [to the panel's charter] as an afterthought," scoffs Berkeley's Kincaid. But Stanford's Hodgson disagrees. "It would be foolish not to pursue it," he says. "You've got to invest in the future."

Whatever balance is struck, few support the notion of closing one of the machines in the short term. "Most people say it would be premature," says Gopal Shenoy, who heads APS's experimental facilities division. "You need to operate the new facilities for 5 to 10 years and then look to a fourth generation."

One way out of the budget bind may be to seek money from other agencies. Dehmer's basic energy sciences group funds primarily physical scientists, and the growing presence of biologists and environmental researchers has sparked some grumbling among the traditional synchrotron users. Perhaps the National Institutes of Health and the Environmental Protection Agency could help shoulder a share of the beamline costs, if not the operating costs, one panel member says.

So while lawmakers head home for a monthlong recess to trumpet the new budget agreement, the Birgeneau panel will be trying to reconcile competing needs within a limited budget. The committee's recommendations will be hammered out in meetings this month and delivered at the end of September. "It's painful, but we can appreciate the fact that scientists have been asked," says Bishop. "If we duck this, someone less informed is going to decide—and it would be the politicians."

–Andrew Lawler

With additional reporting by Robert F. Service.