

CERN chief rethinks LHC fees

The introduction of a fee to use the LHC is viewed in the US as breaking a deal and opening the floodgates to an unwelcome new paradigm for accessing scientific facilities.

Is it “stingy” and “unfair” of the US not to contribute to the operating costs of the Large Hadron Collider? Robert Aymar, director general of CERN, the LHC’s host laboratory in Geneva, Switzerland, has been quoted saying so in French and Swiss newspapers in recent months. Among US policymakers and scientists, the allegations are not meeting with much sympathy, but they are causing concern that the public airing could be harmful to science.

Aymar says the newspapers misquoted him. Still, he does think the US should help pay for running the LHC, which is set to go on line next year. Starting in 2008 or 2010, he notes, after the planned closures of, for starters, Fermilab’s Tevatron and SLAC’s BaBar, “the LHC will be the only frontier high-energy physics machine.” Roughly 750 US researchers are involved in the LHC—the largest number from any country, says Aymar. Countries will benefit from the LHC in proportion to the number of physicists they have working on it, he adds. “That’s why now is perhaps the time to review the conditions of participation, to see if it would be equitable to have a fair distribution of the cost of running the LHC, which is supported now only by [CERN’s] member states.”

CERN’s responsibility

The US put in \$200 million toward building the LHC, plus \$331 million for two of the experiments. The contribution is useful, says Aymar, “but it’s a very low percentage of the total cost of the LHC”—an estimated 8 billion Swiss francs (\$6.6 billion). From 2008 through 2011, says Aymar, CERN’s budget will go exclusively to running the LHC and paying off the lab’s debt of about 1.2 billion Swiss francs. Running the LHC is expected to cost hundreds of millions of Swiss francs annually, he adds.

But under a 20-year agreement signed in 1997 by US research agencies and CERN, “the costs of operating the LHC are clearly CERN’s responsibility,” Robin Staffin, the US Department of Energy’s associate director of science for high-energy physics, wrote in a recent statement. And the long-standing

guidelines of the International Committee for Future Accelerators state that “operating laboratories should not require experimental groups to contribute to the running costs of the accelerators or colliding beam machines nor to the operating costs of their associated experimental areas.” The costs borne by different countries even out if averaged over the past 30 years or so and over a broad range of facilities, says SLAC director Jonathan Dorfman, “not just in high-energy physics, but for neutrons, photons. I would hope that we don’t disrupt the balance we have of providing open research facilities across international boundaries. The ICFA guidelines have served science well.”

Another flaw in asking the US to contribute to running the LHC, says Barry Barish, who heads the planning process for the International Linear Collider, “is that [CERN] wants money, but the US wouldn’t get a role in management. That’s a hard sell.” A role in management is what sets the ILC and, for example, the international fusion reactor ITER apart from US involvement in the LHC. With those projects, says Albrecht Wagner,

ICFA chair and director of the German Electron Synchrotron laboratory (DESY) in Hamburg, “partners contribute to construction, operation, and exploitation from the start.”

For his part, Aymar disputes Staffin’s interpretation of the 1997 agreement, and says that “starting in 2007, we have no agreements whatsoever.” He points to the words “future large accelerators and other scientific facilities are expected to be constructed, operated, and supported multinationally” in the preamble to the 1997 agreement to back up reconsideration of how to fund LHC operations. Globalization should begin now, he says. “It will be difficult to globalize the ILC if we don’t make progress in the globalization of the LHC.”

Good deal for US

Physicists worry that taking the issue public could do more harm than good. “Once the politicians get involved, you don’t know where it will lead,” says a US government scientist who requested anonymity. “Congress, or perhaps individual science facilities, could decide to abandon open access and charge users



Aymar



The Large Hadron Collider at CERN is scheduled to start up next year.

to work at large facilities." Adds Wagner, "That would be disastrous."

Still, Wagner says, "the clear impression at CERN and in general in Europe is that the US got a very good deal [with the LHC]. For 500-something million dollars they get access to the front-line facility, and they will make use of it in very large numbers."

"I don't like to change the rules in the middle of the game," he adds. "But one can envisage other ways the US might contribute." For example, by improving the existing injector chain at the LHC, "you have the potential to increase luminosity. That might be an area where, as part of an upgrade, there would be fresh negotiations."

George Trilling, a high-energy physicist at the University of California, Berkeley, says he can see both sides of the LHC operations issue. "It's natural that CERN is looking for ways to alleviate its debt. Looking toward the future, I would like to hope that the US isn't too ungenerous in its approach, and that it has some flexibility."

Toni Feder

Proposed export restrictions withdrawn

Hundreds of letters of protest from scientific, academic, and industrial organizations convinced Department of Commerce officials to reconsider a tightening of the deemed export policy.

After more than a year of controversy surrounding proposed changes to the Department of Commerce's "deemed export" policy, government officials are stepping back from the recommendations and establishing an independent advisory committee made up of researchers and others from the academic and industrial communities to review the policy. The recommendations to alter the deemed export policy were made by DOC's inspector general in 2004 in an effort to tighten up rules that are intended to keep researchers from restricted countries who are working in the US from taking knowledge about controlled technology back to their home countries (see PHYSICS TODAY, October 2005, page 28).

When DOC issued a request for comments on the proposed changes a year later, officials from scientific societies, academic organizations, and industrial groups flooded the department with more than 300 letters saying that the changes would severely limit the ability of foreign researchers and students in the US to use equipment and software that are on federal controlled technology lists. The current regulations have an exemption for foreign researchers who are engaged in fundamental research, but that exemption would have all but vanished under the proposed changes.

Unprecedented response

"We got an unprecedented response," said Matthew Borman, DOC's deputy assistant secretary for export administration. "We decided that rather than burrow down into the rules and make detailed revisions, it was time to step back and look at the entire process."

Commerce officials announced their intention to establish the advisory commission, to be called the deemed export advisory committee, or DEAC, in a notice in the 22 May *Federal Register*. Nine days later, the department published another notice saying that, after a thorough review of the public comments,

the DOC inspector general's recommendations were being withdrawn from consideration.

Association of American Universities (AAU) interim president John Vaughn said his organization was "particularly pleased" with the DOC action. He added in a statement that the original recommendations "would not only have disrupted research but would have been tantamount to hanging a sign in our university laboratories saying, 'Top international talent not welcome.'"

Amy Flatten, director of international affairs for the American Physical Society, said DOC's decision to back away from the inspector general's recommendations was "very, very good news." She described the proposed recommendations as "potentially very harmful to US science."

One of the recommendations was to change an "and" to an "or" in a regulation governing the use of research equipment by foreign nationals. The change, though seemingly trivial, would have had a profound effect on all US research universities. It would have meant that even basic operation of controlled lab equipment by a foreign national would have to be licensed by DOC. The cost, according to AAU and other university officials, would have been hundreds of hours of staff time and millions of dollars. The current "use" policy is written so that foreign researchers can operate most laboratory equipment without having to obtain a license.

The other proposed change, the one that Borman said drew the most reaction, would have classified foreign researchers based on their country of birth, not on their country of citizenship. One of the concerns expressed by DOC officials when the export tightening was first proposed was that tens of thousands of people born in China have become Canadian citizens. As Canadians, they face few restrictions in working in the US. But by reclassifying them as Chinese based on where they were

born, DOC would have made it much more difficult for Chinese Canadian scientists to work in US laboratories.

In the *Federal Register* notice withdrawing the recommendations, DOC officials noted, "Many comments observed that the decrease in the number of foreign nationals in US academic institutions and US industry has already been detrimental to the economy of the United States." A majority of the comments "argued that a change in the . . . policy from country of citizenship to country of birth would further adversely impact the [US]."

Recruitment under way

Recruitment for the 12-member advisory committee from academia, industry, and other fields is under way, Borman said, and anyone interested in serving must respond by 21 July 2006. The committee is expected to meet for about a year and, according to the DOC notice, will "undertake a comprehensive review of the national security, technology, and competitiveness dimensions of the deemed export issue and provide recommendations for potential changes to the current . . . policy." DOC hopes the committee will have expertise in "nuclear, chemical, missile, electronics, computer, telecommunications, and avionic technology."

Borman said that DOC has had hundreds of "outreach events" over the past year to discuss the deemed export issues with university and industry representatives. The result, he said, is a much greater awareness by everyone involved of export security issues and their implications.

He said he expects the committee to come back with significant recommendations, which will be reviewed by DOC, the Department of State, the Department of Defense, and other federal agencies concerned with national security. "It's too early to know what the result will be," he said, "but we expect substantial rule-making."

Jim Dawson