NSF Unplugs Wisconsin Synchrotron Source

The National Science Foundation (NSF) has decided to discontinue funding the development and operation of the Aladdin synchrotron light source at the University of Wisconsin's Synchrotron Radiation Center in Stoughton. The decision means that NSF will not accept a planned $25-million proposal to upgrade the performance of Aladdin, which has been far below its design specifications, and that money for operating the facility in its existing condition will cease with the start of the next fiscal year.

Aladdin's light may not be completely extinguished, however. Chancellor of the Madison campus, Irving Shain, has indicated that the university will provide the wherewithal for operating Aladdin until next summer. The hope is that the machine can be shown to be reliable and useful to researchers by then, even if the light output is lower than the design value. Then NSF or some other agency might be persuaded to fund the facility as an alternative to Wisconsin's older synchrotron light source, Tantalus, which for the moment is not affected by the NSF decision.

The construction phase of Aladdin ended almost 4 years ago, but Wisconsin scientists have been unable to complete the commissioning of the facility. The source of the radiation is an electron storage ring that is designed to hold an electron beam of several hundred milliamperes and energy of 1 billion electron volts (GeV) for several hours. The current has been the problem. Aladdin was designed to accumulate electrons from a smaller accelerator at 0.1 GeV and accelerate these to the final value. As of last fall, the maximum stored current was 2.5 milliamperes, too little to provide useful light intensities.

Accelerator experts reviewing the project recommended the addition of a synchrotron that would accelerate the electrons to an energy of 0.8 GeV, where they could be more easily accumulated by Aladdin because of the stabilizing influence of synchrotron radiation at the higher energy (*Science*, 11 January, p. 154). A study group comprising researchers from the Department of Energy (DOE) national laboratories and Wisconsin turned in a report to NSF in mid-May that outlined a plan for the upgrade, including $18 million of construction and capital equipment and $7 million of operating expenses over the 3-year life of the proposed project.

However, after meetings with NSF's Materials Research Advisory Committee and with Wisconsin officials, NSF director Erich Bloch came down opposed not only to the upgrade but to continuing Aladdin at all, and the word was passed orally to a shocked Wisconsin synchrotron light community at the end of the month.

Why close out Aladdin now? According to Lewis Nosanow of NSF's Materials Research Division, which now supports the facility, the budget climate is only part of the explanation for Bloch's edict. It did not help, for example, when the House of Representatives recently froze NSF's fiscal 1986 budget at this year's level.

However, the biggest blow was a report from a review committee headed by L. Edward Temple of DOE, which said four to six more months were needed before the upgrade proposal would be in good enough shape to have full confidence that the project would succeed. Temple is renowned within DOE for his thorough searches for weaknesses and oversights that could threaten completion of construction projects within budget and on time.

Some observers thought this review of Aladdin to be rather positive and numerous others that have been made over the last 2 years to be even more so. But NSF seems to disagree, and, after almost 4 years of delays, Temple's recommendation for still another study period while difficulties are ironed out was the last straw.

Meanwhile, following a breakthrough last winter, Wisconsin accelerator scientists have managed to coax up to 30 milliamperes out of Aladdin, with the possibility of eventually reaching two to three times that current. Long-suffering experimenters, who would rather have ample beam time at low intensity than have none at all or be shoehorned into a crowded schedule elsewhere, find that enough to provide a useful light intensity. The hope is that it will be enough to redeem Aladdin in the eyes of NSF or some other funding agency.—**ARTHUR L. ROBINSON**

Great Plains Project Hangs in the Balance

The fate of the sprawling Great Plains Coal Gasification Project in Beulah, North Dakota, hangs on the resolution of philosophical disagreements between the White House, Department of Energy (DOE), and the U.S. Synthetic Fuels Corporation (SFC). At issue is whether approximately $800 million in product price supports should be provided to ensure that the plant is not abandoned after 3 to 5 years.

Great Plains, the only commercial-scale coal-gasification project in the United States, has been viewed an important facility because of the operating and environmental experience it would provide. Government parties and the sponsors of the $2.1-billion high-Btu gasification plant, which was built with Treasury Department financing, have been negotiating since late May to restructure the project's debt.

If the market price of gas causes the project's partners—Tenneco, American Natural Resources, Transco Energy, MidCon, and Pacific Lighting—to lose too much money, they have a right to abandon the project. The government would be left with a $1.5-billion loss, should the partners walk away. Without price supports the companies say they will be compelled to abandon the plant to protect their balance sheets and stock prices.

Between 13 and 15 June, the partners become accountable for all operating and debt service costs. With total monthly expenses of about $30 million and receipts of about $15 million, the sponsors must begin covering losses of $15 million monthly, or $180 million per year, unless price supports are obtained. Shortly after this "in-service date," on 24 June the companies must make an additional equity payment of about $20 million.

But if federal price supports are provided, the sponsors can operate the plant for at least 5 years, industry officials say. And if gas prices rise sufficiently so Great Plains can increase its charges from $5.25 per thousand cubic feet (MCF) to about $8.50 per MCF, then the plant can be kept in operation beyond 1990. When

the project was begun in 1981, it was anticipated that market prices for gas would be much higher and that no price subsidies would be required.

At *Science*'s press time, the project's industrial participants were saying there was cause for hope. But negotiators also feared talks might break down unless the matter was resolved within days. A number of new financing schemes have been drawn up, sponsors say. The alternatives call for the five partners to add $190 million in cash to the $543 million in existing investment they have in the plant.

This package is similar to the plan negotiated by the staff of the SFC, which was shelved. This occurred after the DOE's new secretary, John Herrington, told the SFC he opposed price supports unless he is assured of the plant's long-term operation. Until 20 May, DOE had strongly supported price guarantees for the project.

Debate within the Administration is said to center on whether the project should be saved at all. Industry officials say that if the government turns its back on Great Plains, it will severely damage industry confidence in entering into similar first-time, high-risk ventures involving federal agencies.—**MARK CRAWFORD**

Caltech, MIT Deny Role in Star Wars Research

The merits of President Reagan's Strategic Defense Initiative, popularly known as the "Star Wars" program, remain in dispute on academic campuses, with some professors seeking research grants and others asserting that the research is doomed to failure. Fearful of becoming entangled in the fray, several academic administrators have recently taken steps to ensure that an image of official neutrality remains fixed in the public eye.

In particular, the presidents of MIT and Caltech have contacted the program's director, Lt. General James Abrahamson, to complain about recent statements indicating that both universities have decided to participate in "Star Wars" research consortia. In a letter on 3 May, Caltech's Marvin Goldberger forcefully denied this claim, accusing Pentagon officials of "gross misrepresentation" and "manifestly false" statements to the press. A sole Caltech professor, Demetri Psaltis, is presently participating in the "Star Wars" research.

Similarly, MIT president Paul Gray, in a 3 June speech to graduating seniors on the need for institutional neutrality on a variety of public policy issues, also took great pains to note that individual MIT researchers, not the institution as a whole, had become involved in "Star Wars" research. He specifically accused James Ionson, director of the program's Innovative Science and Technology Office, of using "MIT and other universities as political instruments" in a "manipulative effort to garner implicit institutional endorsement."

Ionson replies that "the point is, we've got a highly qualified group of scientists working on this effort." In the future, he says, the Pentagon will be more careful to delineate between consortia of investigators and consortia of institutions.

—**R. JEFFREY SMITH**

Judge Blocks Biological Warfare Laboratory

The U.S. Army has been enjoined from constructing a controversial biological warfare laboratory because it failed to take a careful look at the potential environmental risks. In a decision on 31 May, U.S. district court Judge Joyce Hens Green said that "given the deadly nature of the material being tested, considerations of the larger interests of society—particularly concerns for public health and safety—militate heavily in favor of enjoining construction."

The laboratory, which was to have been constructed on a crash basis at Dugway Proving Ground in Utah, was approved by a handful of congressmen last December, despite opposition from prominent micro- and molecular biologists. Its avowed purpose was to test defensive biological warfare equipment and clothing against extremely dangerous pathogens in aerosol form. Subsequently, Jeremy Rifkin, a longtime activist in the area of genetic engineering, brought suit against the Army to compel preparation of a formal environmental impact statement, which the Army had judged unnecessary. The laboratory had strong support from Secretary of Defense Caspar W. Weinberger but was challenged by Senator James Sasser (D–Tenn.), who thinks it should have had greater congressional scrutiny.

In her decision, Judge Green said that the probability of an accident at the laboratory "with extraordinary, potentially irreparable consequences" was low, but real, and she chastised the Army for failing to conduct more than a brief assessment that "represents but an amalgam of conclusory statements and unsupported assertions of 'no impact.' "

In particular, Green noted, the assessment failed to mention "the unique geographical characteristics of the surrounding area, the degree to which the action is likely to be controversial, the extent to which the possible effects on the human environment are likely to be unknown, the long- and short-term effects of the action on the local region and on society as a whole, the degree to which the action may adversely affect an endangered or threatened species, and the possibility, if any, that the action may threaten a violation of federal, state, or local laws or requirements."

This was not Rifkin's central argument. Along with several witnesses, Rifkin was primarily concerned that the Army had failed to discuss the implications of using pathogens engineered with recombinant-DNA techniques, and to consider seriously the use of pathogenic simulants. Judge Green said that the first of these complaints was without merit because the Army has only *contemplated* the use of genetically engineered pathogens, not *proposed* it. She also said that "whether the [Army] shall choose to discuss contaminant procedures, the use of simulants, or the specific hazards of aerosols in future assessments is a technical decision that rests with the agency. Of sole concern to this Court is simply that the assessment, when completed, provide 'convincing reasons why potential impacts are truly insignificant'."

Green said that preparation of a formal impact statement would necessitate only an "insubstantial delay" in the laboratory's construction. The Army has not yet decided whether it will appeal.—**R. JEFFREY SMITH**