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