

ly estimated annual budget of the SSC Laboratory"—or about \$307 million in fiscal 1991 dollars. But when the subpanel looked at the number of experimentalists entering the field, it was modestly optimistic. It projected increases of about 2% per year, from 1993 through 1997, stimulated by the "much expanded opportunities offered by the SSC."

Indeed, the subpanel claimed the second or third scenarios, showing small budget increases, would be just scarcely enough to maintain the vitality and diversity of the field. Using the second scenario, which the subpanel considered the most likely to happen, the Witherell group argued for funding the Fermilab upgrade for operation early in fiscal 1997 and for constructing the B factory in the existing PEP tunnel at SLAC for completion in 1996. Building a B factory would mean cutting back SLAC's experimental program, including research on Z particles. While DOE has not indicated whether SLAC will be allowed to go ahead, the subpanel found that if DOE obtained an additional \$20 million for high-energy physics in fiscal 1994 and 1995, the B factory could proceed.

Indeed, under the third scenario, the Witherell group sees construction of SLAC's B factory starting in fiscal 1994 and finishing in 1997. This scenario would also enable DOE to finance Fermilab's upgrade on a faster timetable.

Under the modest second scenario, the panel calls for DOE to allocate enough funds to Brookhaven to run the Alternating Gradient Synchrotron for 25 weeks per year through fiscal 1996, to complete the rare-K-decay experiments. The following year, the lab's high-energy program would cease and the AGS would become the injector for the Relativistic Heavy Ion Collider, now being built at Brookhaven.

Making unpleasant decisions

The toughest decision for the Witherell subpanel was its recommendation to close down the particle physics program at SLAC. Built in 1961 as a 20-GeV electron accelerator and upgraded in 1987 to collide electrons with positrons at 50 GeV in each beam, SLAC has a remarkable record, including four Nobel Prizes. The subpanel strongly supported SLAC's intention to conduct R&D for future linear colliders.

The subpanel's view of conditions in the field under the lowest-budget scenario set off alarm bells. "Damage to particle physics would be severe," the report asserts with force. "Less

physics would be done, and the field would be poorly positioned for the next decade."

If worst comes to worst, the future of the field is grim. In the lowest-budget scenario, concludes the Witherell report, accelerator operations at two laboratories, SLAC and Brookhaven, would stop over a period of two years, the number of particle physicists would shrink, and gains in understanding the fundamental laws of nature would slow considerably.

The subpanel rejected a proposal by the University of California at Los Angeles to build a 1-GeV e^+e^- accelerator producing phi mesons, mainly because such a machine is already being built in Italy. It also turned down proposals by Los Alamos, Lawrence Livermore and Oak Ridge to establish new high-energy physics groups, all to be supported by DOE. The reason the subpanel gave for scotching these plans was the current financial pressures on the program. "We recognize the scientific and technical talents available at these laboratories," it said with faint praise.

"This blueprint for the future of high-energy physics in this country is frightening," John Peoples, Fermilab's director, told HEPAP after Witherell had summarized the report. "Any budget scenario that closes SLAC and Brookhaven has Draconian

consequences because I know my lab will be next on the hit list."

Melvin Schwartz, associate director at Brookhaven, was dejected. "What the Witherell subpanel is telling us is that there will be few if any discoveries from 1995 to the end of the century," said Schwartz. "I hope they're wrong with their prediction. If they're right, it will be a sad time for particle physics."

Energy Department officials have said that if the SSC budget is approved by Congress for fiscal 1993, fully half of the budget for high-energy physics will be devoted to research at the lab in Texas. To be sure, the SSC's funding projections have raised some hackles. Even particle physicists are complaining that the two large detector experiments at the SSC would have annual budgets greater than most of the national laboratories'. Richter has observed that a burgeoning cadre of younger high-energy physicists are "turned off" by the impersonal style and bureaucratic operation of large-scale experiments involving several hundred researchers and that they are seeking to join smaller projects.

The Witherell report, like it or not, enables Congress to sharpen its knives. It reveals that the community is not well placed to defend itself.

—IRWIN GOODWIN

PCAST SETS HEARING DATES FOR STUDY OF UNIVERSITIES

Changes have been made in the schedule of public hearings by the President's Council of Advisers on Science and Technology on the mounting problems of the nation's research universities and their strained relationship with the Federal government (PHYSICS TODAY, June, page 62). The PCAST study, under the leadership of David Packard, chairman and co-founder of Hewlett-Packard, and Harold Shapiro, president of Princeton, comes at a time of discontent among faculty and administrators, as well as dismay among politicians and the public, over issues ranging from scientific misconduct and overhead costs to escalating tuition and pork-barrel politics. One indicator of the tumult in the groves of academe is the epidemic of resignations by presidents of several prestigious universities, including Chicago, Columbia, Duke and Yale.

PCAST has invited university officials, faculty and students to air their grievances, needs and ideas at a series of six public meetings. The first was

held at MIT on 24 June. Other dates have been revised from the preliminary listing. The new schedule is as follows: 15 July, University of California at Berkeley; 17 July, University of Texas at Austin; 21 July, Duke University, Durham, North Carolina; 24 July, National Academy of Sciences, Washington, DC; and 24 September, Northwestern University, Evanston, Illinois.

While encouraging academics to discuss the issues openly, D. Allan Bromley, the President's science adviser and the chairman of PCAST, fears that the council members may be swamped with requests to appear before them. He has asked those interested in appearing before PCAST to sign up in advance by notifying the study's office at 202-395-3170/3171 or at fax number 202-395-5076. The hearing at the National Academy of Sciences is essentially for leaders of higher-education associations and professional science or engineering societies.

—IRWIN GOODWIN ■