After Townes, Physicists Voice an Appeal to Reason

As the Department of Energy comes to grips with proposed reductions in its basic research budgets over the next few years, many in the physics community sense that the impending changes are neither temporary nor cyclic but are likely to have lasting effects that will weaken two fields in particular—nuclear and particle physics. Some believe physics will be so hard hit by the decisions being made by officials in the department that the character and culture of the fields will be altered for years. In an attempt to head off any adverse decisions, eleven prominent physicists, of whom seven are Nobel laureates, sent a letter on 11 November to William Happer, director of DOE's energy research office, protesting the proposed budget cuts as well as the process the department used in obtaining advice. Copies of the letter also went to Energy Secretary James D. Watkins and to the President's science adviser, D. Allan Bromley. Within a few days the letter was signed by another 141 physicists, most of them graduate students and postdocs, who run the risk of being casualties in the coming battle over nuclear and high-energy physics. The contents of the letter follow:

"We the undersigned members of the scientific community are deeply concerned about the seriously damaging effects of the sudden and precipitous actions taken recently by DOE on the funding of the two vital basic research programs, nuclear physics and particle physics. We are alarmed by what has taken place in the decision-making process of these two national research programs of which DOE is the present custodian.

"Our understanding is that on 19–20 September the Secretary of Energy Advisory Board Task Force on Energy Research Priorities, chaired by C. H. Townes, met in Washington, DC, to consider scientific priorities for a number of fields, based on a nearly flat budget scenario. A draft report was made available for public comment through 31 October 1991. This draft contains scientific recommendations calling for consultation with the nuclear physics and high-energy physics communities. However, before the deadline for comments, the DOE called a meeting of the Nuclear Science Advisory Committee for 23 October to discuss the scenario that for fiscal 1993 would be an approximately 10% reduction (effectively 15% when cost-of-living increases are counted) from the fiscal 1992 budget. The Townes Committee had not been alerted to the possibility of so abrupt and so sharp a cut. Then, on 28–29 October the High Energy Physics Advisory Panel was also convened with the same budgetary reduction scenario for high-energy physics, excluding SSC. In addition, contrary to the usual practice, parts of both the NSAC and HEPAP meetings were not open to the public.

"A drastic cut of this magnitude clearly would have a calamitous impact on these fields both immediately and long term, destructive to our national leadership in science and discouraging to our young people planning to work in these important areas. Especially damaging to the credibility of the DOE is the significant difference in the budgetary charges given to the Townes Committee and to NSAC and HEPAP. The inconsistency between these charges and the reason for it have not been explained to the community; this in turn will cast serious doubt on the planning process of the DOE's research program among its own best scientists.

"In order for us to maintain leadership in advanced science and technology, it is necessary to have a vital, forward looking and rational national policy on basic research. A responsible management program obviously entails planning on time scales relevant to the activity under consideration. For most basic research areas, including nuclear physics and particle physics, that time scale has to be about three to five years. It is set by the technical considerations of building and conducting experiments as well as by the educational needs of graduate students and postdoctoral training. We are mindful of the present budgetary stress. This means each new change and new initiative will require even greater care and more attention. It is crucial that we do not lose the confidence of the very best of our young researchers and talented students. Our long-term national interest must be our first priority, and it is essential that we preserve openness in our scientific decision-making process."

The letter's principal signers were Sidney Altman of Yale University; Val Fitch of Princeton; William A. Fowler of Caltech; Sheldon Lee Glashow of Harvard; Maurice Goldhaber, director emeritus of Brookhaven National Laboratory; Ernest Henley of the University of Washington; Leon M. Lederman of the University of Chicago and former director of Fermilab; T. D. Lee of Columbia University; Melvin Schwartz, associate director of Brookhaven; A. J. Stewart Smith of Princeton; and Victor F. Weisskopf, professor emeritus of MIT and former director general of CERN.

that good night." "I won't," he said angrily. Brookhaven's director, Nicholas Samios, drew a bleak picture for the Advanced Gradient Synchrotron, where a cut of 13% in the current year's $82.4 million budget would allow for only eight weeks of running time, compared with 20 to 25 weeks planned for this year, and would necessitate 75 layoffs.

Jerome Friedman of MIT, a HEPAP member and chairman of the SSC lab's advisory committee, expressed anger at what he termed "a very precipitous cut in the program.... The Sciulli panel warned us that there could be as much as a 50% cut in the base program as we ramp up the SSC. That would damage the university programs and decrease physics productivity. What we face is ominous for the SSC era.... We're looking toward a smaller field, with fewer people and fewer facilities." Referring to the report that HEPAP would write to Happer, Jonathan Dorfan of SLAC was adamant: "Whatever we do, our preamble should contain an enormous primal scream of pain."

Stanley Wojcicki of Stanford University, HEPAP's chairman, began his report to Happer by stating: "It is no exaggeration to say that the recently concluded HEPAP meeting in Washington was by far the most depressing one in my memory. Being asked to respond on such short notice to such drastic budgetary cuts gave us all a feeling that we are being asked to advise DOE on how to implement the demise of high-energy physics research in the US. The budget reduction will undoubtedly cause severe and long-lasting damage to the compelling and balanced program of research investigations in particle physics under way now." The proposed policy of reductions "seems to us especially unwise because the nation is simultaneously investing heavily in a future high-energy physics facility, the SSC. We are very concerned that reductions in the breadth and personnel in the high-energy physics base program at this time will inevitably undermine our ability to exploit this new facility when it turns on in eight years.... We are distressed because if the contemplated scenario does indeed occur, then many exciting physics opportunitie will have to be postponed, significantly reduced or, most often, simply thrown away. Hundreds of students will be left with incomplete thesis research."

HEPAP gave the Fermilab main injector its highest priority among ongoing programs because "it is the highest energy collider and fixed tar-