

planning to extend the idea to other scientific disciplines. The funds devoted to centers and other research groups will grow from \$449 million to \$529 million.

■ **Space Program.** At first glance, NASA's budget looks remarkably healthy. If the \$2.1 billion NASA received in FY 1987 for a new orbiter is removed from the calculation, the agency's budget would increase by almost \$1.1 billion in FY 1988, to reach \$9.5 billion. Space science and applications would not be so fortunate, however. The budget for these activities would decline slightly, and spending on planetary science would be especially hard hit.

There are some bright spots, though. Included in the budget is \$25 million for a Global Geospace Science Mission, an international project to study the earth's magnetosphere and solar-terrestrial physics. This is the first installment for a \$400-million, 5-year program. In addition, the Administration is launching what it calls a Civil Space Technology Initiative, an assortment of programs to improve space technologies such as single-stage launchers and space power systems. Some \$70 million is included for this initiative.

The space station is also continuing on track. The request next year is for \$767 million, up from \$420 million in FY 1987.

■ **Department of Energy.** Once again, the Administration is trying to ax a variety of energy research and development programs that it believes private industry should be funding, including much work on solar energy, conservation, and fossil fuels. One important new energy program has been approved, however: DOE is proposing to spend \$8 million to begin construction of a compact ignition tokamak, a device long sought by fusion researchers, at Princeton University. The project is expected to cost a total of \$357 million.

While some of DOE's applied research programs are being reduced, the budget for general sciences is set to increase by 13%, from \$719 million to \$815 million. Department spokesmen say the money will speed work on the Continuous Electron Beam Accelerator Facility and provide more operating funds for the Stanford Linear Accelerator and Fermilab. As for the SSC, although no decision has yet been made, DOE is holding \$60 million in reserve to begin work on the facility if the Administration decides to go forward. ■ **COLIN NORMAN**

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Peer Review—'oops—Merit Review in for Some Changes at NSF

An advisory committee appointed to assess the National Science Foundation's peer review system has reported that by and large the system is functioning well but also made several recommendations on how things might be improved.

Formation of the advisory committee was prompted primarily by concern over the rise of pork-barrel funding in science—specifically, congressional appropriations for construction of science facilities that bypass the regular competitive selection process. But the report also represents a broader response by NSF to changes in academic science, such as the trend toward large multidisciplinary programs and projects involving several institutions, that create pressures to amplify the criteria under which research funds are awarded.

One terminological change to reflect this broadening of the review process is that NSF will now use the term "merit review" instead of peer review.

A major recommendation in the report that did not find favor with NSF was that Congress create its own system for reviewing proposals that bypass the regular review process. "Congress should explore setting up a process of obtaining independent technical assessment of proposed academic facilities projects prior to including the items in agency budgets," the report said. It suggested that Congress might funnel all requests for such funding "through a single path," perhaps asking the Federal Coordinating Council for Science, Engineering, and Technology in the executive branch to coordinate the effort.

That recommendation was apparently the only one that put NSF significantly at odds with the committee, whose chairman, Norman O. Hackerman, a former National Science Board chairman, strongly favored the congressional review idea. The NSF action plan dealt with it in a single terse sentence: "The foundation does not agree with suggestions in the report that additional review mechanisms are needed or would be efficacious in addressing the problem of bypassing merit review."

An important factor in the outbreak of pork-barrel funding is the decline of federal financing of research facilities. The advisory committee said it "believes that given the widely noted need for renewal of academic research facilities, the absence of any regularly budgeted federal agency programs for facilities support is driving institutions to seek funds wherever they can find them,

including from their congressional representatives."

Presumably as a result, the demand for more equal geographic distribution of science funding is undergoing one of its periodic upwellings in Congress. Retiring House Science and Technology Committee chairman Don Fuqua (D-FL) noted in a recent interview (*Science*, 5 December, p. 1188) that advocates of universities that do not have strong research histories "are demanding that they receive some of the funding that has traditionally gone to the older, prestigious schools."

Responding to the charge of geographical favoritism, the committee said data indicated that in terms of population and numbers of scientists and engineers, states seemed to be getting their fair share of research funds.

The bulk of the report is devoted to discussion of changes in the "research environment" and recommendations on how NSF should modify the traditional peer review system accordingly. NSF has, in fact, been revising its selection criteria to include not only scientific quality but "secondary criteria," specifically directed to "the effect of the project on the research infrastructure, and to the contribution to related goals of equity and distribution of resources among institutions and geographic areas."

To assure fairness in the review process, NSF management is urged to ensure that women and minority scientists and engineers, as well as representatives of predominantly undergraduate institutions, are included on NSF panels and committees.

In another move to cleanse the review process of any hint of old-boy bias in grant making, the committee urged the collection of better data on the process as an aid to effective monitoring. An annual report is recommended documenting the facts about both proposers and reviewers in order to provide a clearer picture of such matters as where the participants come from and who wins and loses.

To NSF's clients in the academic community, the peer review system is sacrosanct and talk of change—for instance, reference to secondary criteria in reviews—is sure to set off alarms. One NSF staff member described a recent meeting at which a university scientist interpreted the discussion as meaning NSF was throwing out technical review. That is not what NSF intends, but the foundation appears to have some explaining to do to keep its academic constituency cool. ■ **JOHN WALSH**