federal outlays and a novel arrangement to guide government and private efforts.

For starters, the plan calls for DARPA's modest effort to be expanded to $100 million a year over 3 years. It would focus on key technologies, such as signals processing and the development of manufacturing systems, in addition to high-resolution displays.

Next, the plan calls for the creation of a board dominated by industry but with membership from government and academia, to coordinate and guide government and private HDTV efforts. The board's clout would come from $1-billion worth of low-cost federal loans and loan guarantees that it would use to back projects in individual firms or consortia.

As for the tricky issue of participation by U.S. subsidiaries of foreign-owned companies, the plan says they should be included if they perform most of the relevant R&D, design, and manufacturing in the United States and if they buy their semiconductors from U.S.-based firms. This could provide an entree for European companies, such as North American Philips, but would probably exclude many Japanese firms.

The plan also calls for a waiver of the antitrust laws to make such cooperation legal, and asks for tax breaks for some HDTV activities. And it suggests that the government should move as quickly as possible to adopt a format for broadcasting HDTV signals so that developments by individual companies can proceed in a common direction.

A novel aspect of the plan is that the proposed board, which would be known as the ATV Corporation, would hold title to technology underlying whatever broadcasting standards are eventually adopted in the United States. This would give it considerable authority to determine who could participate in the venture.

The Bush Administration may buy some elements of this plan. Commerce Secretary Robert Mosbacher, who testified before the Senate Commerce Committee last week shortly before the AEA unveiled its wish list, said that he personally favors relaxing antitrust restrictions and providing tax incentives to stimulate the industry. Mosbacher has promised to submit Administration proposals to Congress for HDTV by 1 July.

Mosbacher made it plain, however, that the Administration is unlikely to come through with a major cash outlay. "If the private sector doesn't want to pursue this without massive infusions from government, there is nothing we can do," he said. "I think they are hoping that Uncle Sugar will fund it and I don't think they should."

This drew a sharp response from committee chairman Ernest Hollings (D–SC), who noted that last year Congress established a variety of programs in the Commerce Department that would be the focus for supporting critical technologies such as HDTV, but the Administration has not funded any of them. Moreover, many key jobs in the department have still not been filled (*Science*, 14 April, p. 137). "I'm embarrassed for you," Hollings said, adding that he would work through the appropriations process to try to break some funds loose.

A half-dozen bills are in fact already in the congressional hopper to channel funds to HDTV, including a broad bill proposed by Representative Ritter that would provide $100 million a year in R&D funds and provide waivers from the antitrust laws for firms cooperating on HDTV.

Underlying the Administration's caution in getting involved in ventures like HDTV is a reluctance to establish industrial policy—in essence, to put the government in the position of picking potential commercial winners. The hesitation is understandable: many earlier attempts have been dismal failures. The Synthetic Fuels Corporation—a body similar in some respects to the proposed ATV Corporation—is a case in point.

But to some observers, such as National Academy of Engineering president Robert White, the debate over how to support HDTV points up once again the poor environment for fostering civilian technologies in the United States, and the lack of a mechanism in the federal government outside the Pentagon to fund industrial research. "We seem to careen from problem to problem. What we have is a much broader issue facing the economy, and we haven't puzzled that out yet," says White.

■ COLIN NORMAN

A Fast Track for High-Risk Science

When the National Science Foundation (NSF) asked its 1985 grant recipients how well they liked the agency's peer-review system, 38% said they were dissatisfied. A larger number—about two-thirds of the 9500 who responded—agreed with the statement that NSF is unlikely to fund high-risk, innovative research projects because its review process is too conservative. These results, cited in a report published last year, came as something of a shock, amounting to "a serious accusation, if true," says NSF director Erich Bloch. The agency last week came up with a response, revealed by Bloch at the monthly meeting of the National Science Board on 12 May.

Constance Holden

Erich Bloch

This fall NSF intends to launch an experiment of its own, a program of innovative grants that will bypass the peer-review system and make up to $50,000 available to principal investigators who can convince NSF program officers that their ideas deserve support. "We are now drawing up the rules and regulations," said Bloch, "and we're trying to keep them as unobtrusive as possible." The goal will be to attract new ideas and adventurous scientists, giving them the resources to explore topics that might not meet with approval in a more formal setting.

NSF already has had some experience with this approach in its engineering directorate. James McCullough, director of NSF's program evaluation staff and an advocate of the experiment, says it was first tried by Nam Suh, NSF's former engineering chief, who has since returned to the faculty of the Massachusetts Institute of Technology (MIT). "When Nam Suh came here from MIT he brought an agenda," McCullough says, "and I think this was high on his list." Under Suh, the engineering directorate in 1986 launched a pilot program called "Expedited Awards for Novel Research." As of February 1989, it had made 239 one-time awards of no more than $30,000 each.

Bloch empaneled a group to look into the results, chaired by John Kemper of the mechanical engineering department at the University of California at Davis. The Kemper committee gave a favorable report in March, adding several recommendations. It said NSF should not only continue, but expand the experiment to include every division in the foundation. It recommended that the ceiling be raised from $30,000 to $50,000; that no external review be required for proposals submitted; that an expenditure limit for this type of research be imposed amounting to 5% of each program's budget; and that the awards be made on a one-time basis, so that researchers will be able to renew grants only by submitting to formal peer review. All the recommendations were accepted.

NSF is working out the details of its new award system and McCullough expects the agency to get promotional literature out to universities this summer.

■ ELIOT MARSHALL