Ehlers Releases National Science Policy Study

On September 24, Rep. Vernon Ehlers (R-Mich.) and colleagues of the House Committee on Science released the new National Science Policy Study, *Unlocking Our Future: Toward a New National Science Policy*. This 20-month effort was requested in February 1997 by House Speaker Newt Gingrich (R-Ga.) and Committee chair James Sensenbrenner (R-Wis.) as an update of the 53-year-old landmark document, *Science: The Endless Frontier*, written by Vannevar Bush, director of the Office of Scientific Research and Development in the Roosevelt Administration.

The 74-page document is intended to provide a new framework for congressional deliberations on how the federal government should fund and direct U.S. scientific research and development. It also is intended to redirect this effort in a post-Cold War context. It is the product of seven hearings, two roundtable discussions, an interactive website, and numerous "interactions" between Ehlers, Committee members, other legislators, their staff, and representatives from the Clinton Administration and the private sector.

Based on these deliberations, the document sets forth 40 broad science policy goals. Chief among them is that "Congress should make stable and substantial federal funding for fundamental scientific research a high priority."

The report also highlights the following.

- The top priority for federal funding "should be placed on fundamental research."
- "Because innovation and creativity are essential to basic research," the government should reserve a fraction of its funding "specifically for creative, groundbreaking research."
- Research funding should be funded across a broad spectrum of scientific disciplines, mathematics, and engineering and should "resist concentrating funds in a particular area."
- In an effort to address certain concerns that U.S. national laboratories may not be pursuing their missions effectively or efficiently, a nondefense-involved facility should be selected for a test of private management.
- The government should develop a set of "clear criteria for U.S. entry into, participation in, and exit from an international scientific project."
- The government should encourage "capitalization of new technology-based companies," especially if they are focused on long-term and basic research. This effort should include permanently extending the R&D tax credit.
- Major research universities should cultivate relationships with less well-established research universities and technical colleges in pursuit of joint grant proposals.
- Congress should consider expanding the RaDiUS and PubMed databases and making them more widely available.
- Congress should clarify its criteria—including peer review—for evaluating supplementary funding of private sector research projects.
- Scientists and engineers should be required to "divulge their credentials, provide a resume, and indicate their funding sources and affiliations when formally offering expert advice to decision-makers."
- Decision-makers "must recognize that uncertainty is a fundamental aspect of the scientific process," and therefore "regulatory decisions made in the context of rapidly changing areas of inquiry should be re-evaluated at appropriate times."
- A larger percentage of the government's education spending should be for programs aimed at "improving curricula and increasing the effectiveness of science and math teaching."
- The government should consider expanding existing federal assistance for graduate students in math, science, and engineering.
- "Scientists and engineers should be encouraged to take time away from their research to educate the public about the nature and importance of their work."
- Government agencies have a responsibility to make the results of federally funded research widely available and should prepare "plain English summaries of research describing its results and implications," including Internet postings.

The report has been endorsed by the bipartisan six-member Senate Science and Technology Caucus, which includes William H. Frist (R-Tenn.), Pete V. Domenici (R-N.M.), Conrad R. Burns (R-Mont.), Joseph L. Lieberman (D-Conn.), Jay Rockefeller (D-W.Va.), and Jeff Bingaman (D-N.M.). In a statement to Ehlers and the Committee, members of the Caucus said, "We look forward to working with you

toward shaping and implementing a bipartisan and bicameral national science policy."

Democrats in the Caucus apparently see the Ehlers report as a positive development. "The Republicans have essentially endorsed a federal role in funding science and technology," according to one member of the Caucus staff. The staffer called the document a "roadblock removed" in the process of passing comprehensive R&D legislation because its indicated support by the House means the members officially recognize the importance of these efforts. "That's different from the way it was just a few years ago," the staffer said. "Ehlers is right when he says that we've only had a budget policy and what we need is a science policy."

The Ehlers document also has been cordially received by the Clinton Administration. "We're very pleased to see Rep. Ehlers join us in a call for balance in funding various scientific endeavors," said one administration policy official. "While we didn't see it as strikingly new, we're especially pleased to see him [Ehlers] strongly link research and education. We see [the report] as seeking to find common ground between the two political parties."

All reaction to the report was not positive, however. Several members of Ehlers's own committee refrained from signing the bill. Its chief opponent was Rep. George Brown (D-Calif.). "I cannot endorse the report as written because it fails to take on some of the issues I think are most important to the future health of the scientific enterprise," Brown wrote in his dissention. Brown had urged Ehlers and the Republicans to include what he considered three essential "guiding principles" in any discussion of science policy:

- *Understanding the process of creativity and innovation.* Brown said the Ehlers report "provides no guidance on how the Federal government should determine that a 'market failure' has occurred in the downstream parts of the R&D process or what types of policies would be appropriate to redress such failures."
- *A new science policy should articulate the public's interest in supporting science—the goals and values the public should expect of the scientific enterprise.* "To give just one example, it is unfair to use public funds for biomedical research if the fruits of that research are so expensive that only a handful of the most economically advantaged can enjoy them," Brown said. "That is a hidden redistribution of wealth and life-expectancy from poorer Americans to richer Americans under the guise of 'basic' research in the life sciences. A new science policy must wrestle with these types of questions."
- *A new science policy should point toward decision-making tools for better investment choices.* "I think that we need to tackle all of these elements of decision-making as we move toward a more rational analysis of the major problems facing society," Brown said, including "affordable health, broadly based economic opportunity, sustainable environmental policies and social discontent—and of the science needed to address those problems."

The full text of the document can be viewed at the Committee's website: http://www.house.gov/science/science_policy_study.htm/.

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New Era of Science Policy Addresses Future Challenges

Just one year ago, under the auspices of the Committee on Science of the House of Representatives and with the full support of the Speaker of the House, I embarked on a major project: to evaluate the United States' current policies with respect to science and technology and to suggest recommendations for the future.

This led to a tremendous effort over the last year resulting in our report, *Unlocking Our Future: Toward a New National Science Policy*. We released the report on September 24, 1998; it gained approval of a majority of the members on the Science Committee shortly thereafter, and it was approved by the full House of Representatives on October 8, 1998.

In preparing the report, I estimate I spoke to or with over 10,000 scientists and received over 300 e-mail messages and numerous letters. In addition, the Science Committee held seven hearings, two roundtable discussions, and numerous other meetings on the subject of the Science Policy Study. We listened very carefully to what every group or individual had to say and the report reflects much of what we learned.

But even more important than what we learned from these sources was the premise that we started with. Our vision for the future was global: that we must maintain and improve our science and technology enterprise in order to advance human understanding of the universe and all it contains, and that we ought to use that understanding to improve the lives, health, and freedoms of all peoples—not just Americans, but the entire planet's inhabitants.

Science—including the physical, natural, life and social sciences, mathematics, and engineering—can help us realize this vision. The scientific and technology enterprise is critical to bringing about advances in understanding that help ensure that we can maintain our national defense, keep people healthy, and bring about prosperity. I truly believe that science and technology are the key to our future—not only as a country, but also as a planet. A vigorous and sustainable U.S. science and technology enterprise may be our most important legacy to future generations.

For science to continue to exert its beneficial effects on society, the scientific enterprise must be kept strong and sustainable. Much of our report is devoted to recommendations for doing so. We identified three major areas requiring attention. First, we must ensure that the well of scientific discovery does not run dry, and we do this by facilitating and encouraging advances in fundamental research. Second, we must see that this well of discovery is not allowed to stagnate. That is, discoveries from this well must be drawn continually and applied to the development of new products or processes, to solutions for societal or environmental challenges, or simply used to establish the foundation for further discoveries. Finally, we must strengthen the education system we depend upon to produce the diverse array of people who draw from and replenish the well of discovery—from scientists and engineers to technologically proficient workers and informed voters and consumers.

I have been gratified by the reception the report has received so far; the bipartisan Senate Science and Technology Caucus, the director of the National Science Foundation, and the director of the Office of