Research Vital to Economic Growth

IT WAS WITH A MIXTURE OF ASTONISHMENT AND DISMAY THAT I WATCHED AS THE U.S. HOUSE OF Representatives approved H.R. 1, a bill to fund the federal government for the rest of the 2011 fiscal year. Left intact, the massive cuts in research contained in the bill passed on 19 February would effectively end America’s legendary status as the leader of the worldwide scientific community, putting the United States at a distinct disadvantage when competing with other nations in the global marketplace. Other countries, such as China and India, are increasing their funding of scientific research because they understand its critical role in spurring technological advances and other innovations. If the United States is to compete in the global economy, it too must continue to invest in research programs.

As the Under Secretary for Science at the Department of Energy (DOE) in the administration of George W. Bush, I can personally attest that funding for scientific research is not a partisan issue—or at least it shouldn’t be. The cuts proposed in H.R. 1 would reverse a bipartisan commitment to double the science research budgets of the National Science Foundation, the DOE Office of Science, and the National Institute for Science and Technology over 10 years. These are national goals supported by both Presidents Bush and Obama, and they were affirmed as recently as last December in the America COMPETES Act.

The spending cuts included in the bill would have a devastating effect on an array of critical scientific research. For example, H.R. 1 removes $900 million from the budget for the Office of Science, the basic research arm of the DOE—a reduction of some 20%. The bill specifically targets the Office of Biology and Environmental Research, slicing its budget by 50%; reductions that would all but eliminate funding for the office’s three Biological Research Centers, the hope for developing transportation fuels derived from plant cellulose. The hugely successful Energy Frontier Research Centers, which support activities based at 28 universities and 16 national laboratories, would be cut in midstream. The university centers support 1300 students working on the conversion of sunlight and heat into electricity, improved efficiency of photosynthesis in plants for the production of fuels, and enhanced combustion efficiency to increase mileage for automobiles. The work now at risk at the national laboratories includes projects to improve solid-state lighting and the conversion of coal into chemicals and fuels. This research is vitally important if the United States is to be a leader in transforming how humans get and use energy globally, in a way that maintains societal and economic viability.

To make matters worse, the bill would also destabilize the large-scale scientific facilities operated by the DOE’s Office of Science. These research projects include the country’s work with powerful light sources (which other countries are copying en masse), so vitally important to the U.S. biological, medical, and materials communities. Also included are the nation’s remaining accelerators, responsible for advances in the high-energy and nuclear science communities; its spallation neutron source and nanotechnology centers, critically important to both university and industrial communities; and the quest for environmentally benign unlimited energy through investment in the International Thermonuclear Experimental Reactor.

The budget deficit is serious. But escaping from its clutches requires economic growth as well as budget reductions. Well over half of U.S. economic growth in the past century can be traced to investments in science and technology. To compete in the global economy, the United States must remain a leader in science and technology. For that to happen, the Senate must restore funding for science in the fiscal year 2011 budget. Failure to do so would relegate the United States to second-class status in the scientific community and threaten economic growth and prosperity for future generations of Americans.

– Raymond L. Orbach

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Editor's Summary