1 week and counting: Don't cut the research that fuels the US economy

Eurekalert!

WASHINGTON, DC – With only one week left before sequestration is to take effect, America's research community sustained its call for an end to the across-the-board cuts to discretionary spending that will severely restrict the nation's ability to invest in the basic scientific research that drives innovation and produces economic growth. Sequestration will reduce federal funding for scientific research by nearly $95 billion over the next nine years, which will result in a reduction of U.S. GDP by at least $203 billion. The net impact will be 200,000 fewer jobs per year between 2013 and 2016, or a 0.2 percent impact on the U.S. unemployment rate.

American industry depends on the steady pipeline of knowledge, discovery and innovation that flows from the federally funded scientific research conducted at universities across the nation. The U.S. economy depends on the ability of American industry to use this innovation to create new technologies and new jobs. Since World War II, federally-supported science-driven innovation has fueled half of all economic growth in the United States. It spawned the biotech and semiconductor industries; gave us tools like the laser, GPS and MRI; and through the World Wide Web and the Internet, has entirely changed the way we communicate and conduct commerce.

In individual video messages calling on Congress to stop the sequester, researchers and university officials outlined some of the ways federal investments in basic scientific research pay economic and other dividends – and some of the ways these dividends are threatened by sequestration.

"Many people don't appreciate the value of research and what it means to our economy; America has always been built on innovation," says Joseph DeSimone of the University of North Carolina at Chapel Hill and North Carolina State University. In the past, he explains, private sector facilities like Bell Labs drove much innovation, but these labs don't exist today. "Pure and simple: our nation's economy is driven by technologies emerging from our research universities," he says.

Breakthrough nanotechnology research in DeSimone's lab led to the creation of Liquidia Technologies, a North Carolina-based company that employs more than 60 people and is working to bring to market a promising new approach to flu vaccines.

"We are going to have to start making computers in an entirely different way; not based on transistors but based on quantum mechanics and new technologies that we are developing," says Matt Tirrell of the University of Chicago. Tirrell, who leads the university's Institute for Molecular Engineering warns that this research will be "killed in its infancy" by sequestration and that this will be particularly harmful to the future ability of the U.S. computer industry to compete.

"The computer industry," he adds, "is one where, historically, the competition between the United States and the rest of the world has been kind of a seesaw battle. We're not going to be able to keep coming back unless the investments keep getting made."

"Whether it's your Google phone or your iPhone or just sitting in your office and not worrying about a hardwire hook-up, these technologies are not going to be there if we don't invest in basic research," says Mark Glauser, associate dean for research at Syracuse University.

Harlan Spence of the University of New Hampshire points out that basic research is an essential component of the policymaking process. Spence leads the Institute for the Study of Earth, Oceans and Space at UNH. He says that cuts to the research budgets of NASA, the National Oceanic and Atmospheric Administration and the National Science Foundation will "stifle progress on scientific understanding in areas needed for assessing national policy [including], the climate, the environment, sustainability and the emerging discipline of space weather."

By conducting basic research, universities not only produce discoveries but also train the next generation of scientists, engineers, doctors and teachers; this keeps America productive and globally competitive. Sequestration would have "lasting consequences on our nation's federally supported graduate education and basic research programs," says Robert Buhrman, senior vice provost for research at Cornell University.

He adds, "Graduate students become our nation's scientists of tomorrow. What scientists learn yesterday serves today; what scientists learn today serves tomorrow. Reducing funding for research breaks a cycle, a cycle we cannot afford to break."

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