

**Testimony of Paul L. Hill, Ph.D.**  
**Chairman, EPSCoR/IDeA Foundation**  
**Vice Chancellor for Science and Research**  
**West Virginia Higher Education Policy Commission**  
**Submitted to the House Committee on Appropriations**  
**Subcommittee on Commerce, Justice, Science, and Related Agencies**  
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Mr. Chairman and Members of the Subcommittee, my name is Dr. Paul Hill and I am the Vice Chancellor for Science and Research at the West Virginia Higher Education Policy Commission and Chairman of the national EPSCoR/IDeA Foundation. Thank you for the opportunity to testify today regarding the National Science Foundation's (NSF) and the National Aeronautics and Space Administration's (NASA) Experimental Program to Stimulate Competitive Research (EPSCoR). For Fiscal Year 2009, we respectfully request \$133.2 million for the NSF EPSCoR and \$20.0 million for the NASA EPSCoR programs.

The \$133.2 million the EPSCoR states are requesting is the amount authorized for the NSF EPSCoR program for FY 2009 in last year's America COMPETES Act. We believe the legislation is essential to our nation's security, quality of life and economic prosperity, and fully endorse the recommended increases in Federal R&D funding included in the Act. We also believe the effectiveness of that legislation depends upon both full funding at the authorized levels and ensuring the talents and expertise of all states are fully utilized to address our nation's research and innovation needs. "Rising Above the Gathering Storm" and "Is American Falling Off the Flat Earth" have documented the potential perils of inaction.

The \$133.2 million authorized for the NSF EPSCoR program would help the 25 EPSCoR states, plus Puerto Rico and the Virgin Islands, play a more prominent role in the national research community. It would help these 27 jurisdictions expand their research competitiveness, further develop the young talent they have and contribute more directly to meeting the scientific and technological challenges facing our nation.

EPSCoR/IDeA states educate thousands of scientists and engineers each year and have a wealth of secondary school talent that has often scored quite well on standardized math tests. Additionally, EPSCoR/IDeA states have many Truman and Goldwater Scholars, have growing research capabilities, are among the major energy-producing states, and are in the forefront of ocean and coastal research, fossil energy research and many other areas. Furthermore, most of our institutions are moving forward in the Carnegie Classifications. Many of these advancements are highlighted in a report, called *EPSCoR/IDeA: Building on the Past, Preparing for the Future: Innovative Science Across America*, recently released by the EPSCoR/IDeA Foundation.

Over the past few years, this Subcommittee has been very supportive of the EPSCoR program and for this we are very grateful. However, we believe now is the appropriate time for NSF to be particularly aggressive in increasing support for EPSCoR states and in integrating them more fully into the overall NSF agenda. An innovation strategy that ignores half the states and a fourth of the doctoral-granting institutions in our country is certain to fail.

We believe there are numerous actions NSF could undertake expeditiously to continue to reinvigorate the EPSCoR program. First, the report from the EPSCoR 2020 Workshop, supported by NSF in June 2006, recommended raising the NSF Research Infrastructure Improvement (RII) awards from three-year/\$3 million-per-year awards to five-year/\$5 million-per-year awards.

These awards are the “core” of the EPSCoR program. NSF has moved to the five-year period but has yet to increase the amount of awards. Let me tell you why an increase is warranted, at least in some states. A \$3 million award must first be reduced by amounts needed to fund a variety of requirements including evaluation, administration, educational outreach, access and other special efforts. The funds left must then often be divided among several institutions within a state. Ultimately, each institution may have somewhere around \$1m -\$1.25 million annually for actual research program enhancement. That \$1m -\$1.25 million simply does not buy the improvements and advancements required to grow research infrastructure and accelerate the rate of improvement in the EPSCoR states.

Second, the EPSCoR 2020 Workshop report endorses the transparent expansion of co-funding and cyberinfrastructure support. We believe co-funding can legitimately be expanded beyond the budget request and that there are cyberinfrastructure needs that are outlined in Dr. John Connolly's report on the EPSCoR Cyberinfrastructure Workshop, which was funded by the NSF. These needs include completing the Northern Tier link and expanding the workforce support and outreach to TERA Grid, the long-term benefits of which and return on investment would far outweigh any initial costs. Finally, we believe there are other support mechanisms that could be employed wisely in the EPSCoR states but which are not budgeted.

The EPSCoR program has been moved to NSF's Office of Integrative Activities (OIA) in order to better integrate it with on-going research activities at the foundation. The program has new leadership. We believe the EPSCoR program should have greater resources to allow the NSF to be both creative and aggressive in moving the EPSCoR states at a faster pace toward the level of research activity in the other half of the states.

For NASA EPSCoR in FY 2009, we are requesting an appropriation of \$20.0 million.

NASA EPSCoR provides the opportunity for students and researchers in the EPSCoR states to become more involved in NASA research, and increases the base of U.S. researchers who participate and contribute to international space exploration and aerospace sciences research. Furthermore, NASA EPSCoR takes advantage of significantly underutilized expertise within the 27 participating jurisdictions. The expertise within these states is significant, yet the benefit of this expertise would be largely untapped without EPSCoR.

Last year, NASA made two key programmatic and administrative changes to its EPSCoR program. First, it increased the number of eligible states from 20 to 27 to be consistent with the NSF EPSCoR-designated states. Second, it changed its funding mechanism for Implementation awards. In the past, Implementation grants, which are competitively awarded, provided up to \$750,000 over a three-year period. Under the new system, instead of allocating research dollars

on an annual basis, NASA is now fully funding Implementation awards in the first year. This policy change is resulting in fewer awards to the states for specific research projects. This policy is likely to have a particularly adverse effect on those states that are the “least competitive,” marginalizing even further an already underfunded cohort. We estimate that only 7-10 research awards will be made if additional funding is not provided in FY 2009. This is significantly lower than the 23 Implementation awards made in FY 2007 and simply matches the 7-10 awards expected in FY 2008. Increased funding is needed to accommodate the seven new states in the program, to allow each state to win at least two or three Implementation awards, and to guarantee there is not an adverse impact on smaller states.

Now, let me turn to West Virginia.

As one of the five charter EPSCoR states, West Virginia has benefited greatly from its participation in this important program.

In 2001, West Virginia EPSCoR received a \$9 million NSF Research Infrastructure Improvement grant. With the grant, academic leaders were hired to attract high-quality research faculty at our two primary research universities. Between 2002 and 2005, nine new faculty members were hired and have emerged as research leaders on their respective campuses.

In May 2006, West Virginia EPSCoR was awarded a new three-year research infrastructure grant, allowing us to build on the capacity established by the 2001 grant and providing 12 additional research faculty members.

One of the indicators of the resulting research capacity is that successful applications to Federal grant programs have shown a steady increase. In just five years, between 2001 and 2006, Federal awards in West Virginia rose from a little over \$35 million to more than \$86 million. In addition, *total* research expenditures at our colleges and universities rose from just over \$79 million to nearly \$149 million over the same five-year period. And we expect these upward trends to continue.

The successes of the research initiatives seeded by these EPSCoR infrastructure grants have persuaded policymakers at the state level to significantly increase the state’s investment in research. More than ever, a true State-Federal partnership has been formed in this regard.

Since 2004, state legislators have dedicated a portion of racetrack video lottery revenue to the State’s Research Challenge Fund. Over the past five years, the \$8.4 million the State has invested in this program intended to support the creation of research centers and foster economic development and work force advancement has resulted in a substantial return on investment. In fact, the first six scientific research projects funded through the Research Challenge Grant program have leveraged external funding of more than \$20 million and have resulted in five startup companies with five-year projected revenues of \$124 million, 10 patent applications and five patents. Two of the startup companies—Protea Biosciences LLC in Morgantown and Vandalia Research Inc. in Huntington—estimate they will be hiring 295 additional employees in the next five years. In addition, two university research centers with industry partners were formed and one production facility is under development.

We could not be more pleased of the positive and significant impact the Research Challenge Grant program has had. We were able to exceed our initial expectations for this program, sponsoring innovative research at our two research institutions and greatly improving their ability to be competitive for Federal funding on the national level. These are the kind of results that help policymakers justify a continued investment in research.

And that is not nearly all. Last year, Governor Joe Manchin and the state legislature set aside \$10 million in additional funding to help build the research programs at West Virginia University (WVU) and Marshall University. I'm pleased to report that in just a few months, both WVU and Marshall have raised the required dollar-for-dollar private matches to receive their share of this funding. Both institutions are using the money to support research professors working on some of the most challenging health issues facing our state and nation—breast cancer, diabetes and cardiovascular disease—as well as new forms of energy and energy use.

Last but certainly not least, today West Virginia is poised to take a huge leap forward in its efforts to develop a new, prosperous and diverse economy based on a highly skilled and educated workforce.

Just a few weeks ago, on March 8, the West Virginia Legislature passed a bill to create a research trust fund that will match \$50 million from surplus state revenue with private donations to encourage university research and leverage private giving. Governor Manchin proposed the initiative in his State of the State address in January, saying the investment would be necessary for West Virginia to stimulate world-class research and development and to reap the related benefits of high-tech, high-wage industries.

The goal of the trust fund, which is similar to successful programs in other states, is to strengthen the most-promising research departments at Marshall and WVU, ultimately leading to business spin-offs, new patents and job creation. The presidents of both universities say they have donors lined up and are ready to immediately start raising the money required to draw down an equal amount of this "Bucks for Brains" funding.

None of this significant progress in our state would have been possible without the initial support received through NSF's EPSCoR program. Without question, the EPSCoR grants were the catalyst for these recent commitments to improving our state's research capacity and, ultimately, ensuring a brighter future for all West Virginians.

Every state, their students and their citizens have important contributions to make to the nation's competitiveness. The 25 states and two jurisdictions that make up EPSCoR represent 20 percent of the U.S. population, 25 percent of the research and doctoral universities, and 18 percent of the nation's scientists and engineers. We believe in the value and power of EPSCoR—both as a catalyst for improvement within our respective states and as a contributor to America's increased competitiveness in the global economy.

I want to thank you for the opportunity to address the Subcommittee today. Thank you.