

# WEST VIRGINIA HIGHER EDUCATION POLICY COMMISSION

## WEST VIRGINIA COUNCIL FOR COMMUNITY AND TECHNICAL COLLEGE EDUCATION

### LEGISLATIVE OVERSIGHT COMMISSION ON EDUCATION ACCOUNTABILITY

August 19, 2007  
4:00 p.m.

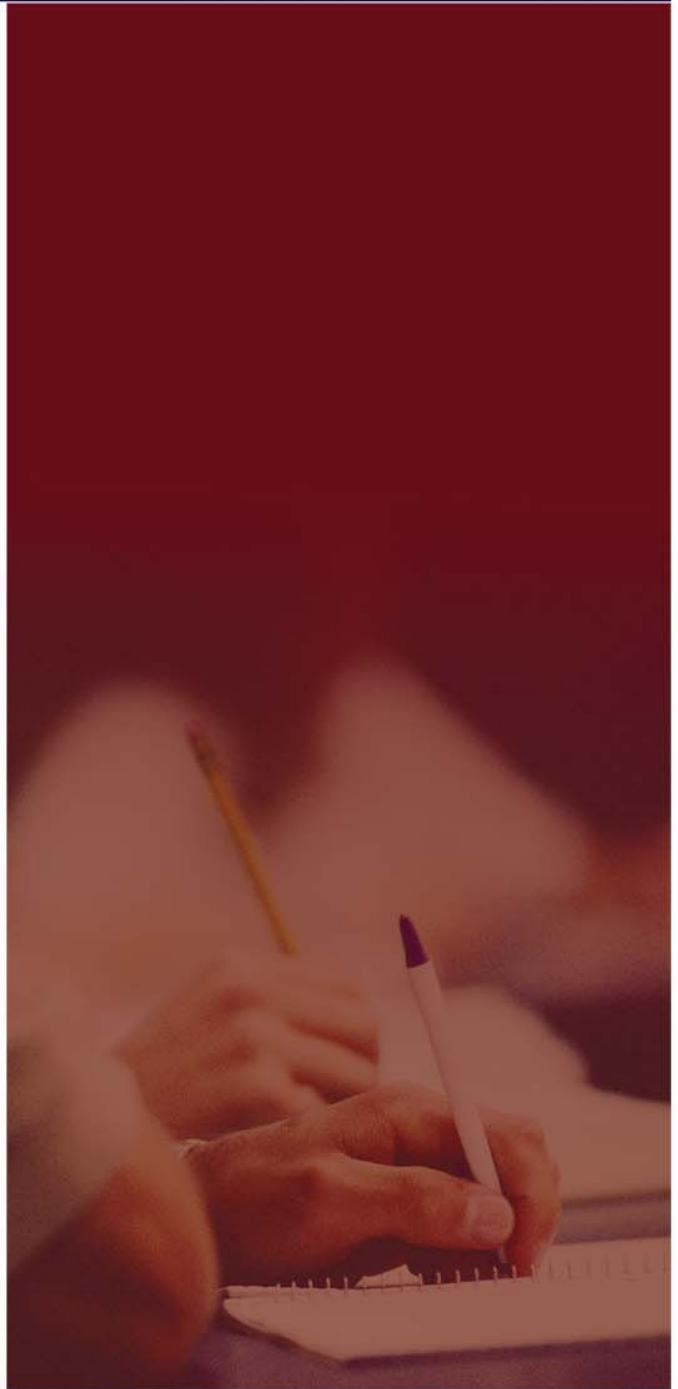
#### ITEMS

##### Chancellor Noland's Report

Status Report – West Virginia's Research  
Agenda (State and National Perspectives) 1

##### Chancellor Skidmore's Report

Response to Senate Concurrent Resolution No.  
42 Report: "Taking Career and Technical  
Education to the Next Level in West Virginia" 9





**WEST VIRGINIA**  
**HIGHER EDUCATION POLICY COMMISSION**

---

**Report to the  
Legislative Oversight Commission on Education Accountability**

**August 19, 2007**

**Status Report  
West Virginia's Research Agenda  
State and National Perspectives**

## Status Report—West Virginia’s Research Agenda State and National Perspectives

### *Vision 2015: The West Virginia Science and Technology Strategic Plan*

#### Highlights

- Recognized by the National Science Foundation (NSF)
- Requested by several other states for use as a model
- Implementation with current legislative support
- Progress review by WVEPSCoR Advisory Council on July 17, 2007

**Background:** *Vision 2015* was developed in late 2005 and released by the WVEPSCoR Advisory Council in 2006. Governor Joe Manchin endorsed the plan as the state’s approach to science and technology development in October 2006 at the National Academies of Science convocation on its “Rising Above the Gathering Storm” report. The *Vision 2015* plan calls for an investment of \$250 million over 10 years to create a research infrastructure platform at West Virginia’s major research universities. By so doing, West Virginia will be able to develop the resources necessary to successfully compete for both privately and federally sponsored research funding. Although Congress has recently authorized increased spending on science and technology (S&T) research and science, technology, engineering and mathematics (STEM) education programs by more than \$43 billion, West Virginia currently lacks the necessary infrastructure to successfully compete for these funds.

Because new NSF rules require state strategic planning as a prerequisite to infrastructure grants, *Vision 2015* is now being recognized as a model program. Few of the 27 states and jurisdictions in NSF’s EPSCoR program have such a plan, but all are now being challenged to meet the standard set by West Virginia. Recently, Governor Henry of Oklahoma requested that a committee of his top advisors review *Vision 2015* and come up with an appropriate response for the state of Oklahoma. Other states also have requested copies of the detailed plan.

While the plan positions West Virginia well to receive NSF support for future infrastructure, the West Virginia Legislature and Governor Manchin began implementation of the *Vision 2015* plan with a \$10 million appropriation during the 2007 legislative session. This funding is being used to address the greatest need called for within the plan—human infrastructure. As a result, 12 new science faculty members are being recruited to West Virginia University and Marshall University. (See Eminent Scholars discussion below).

On July 17, 2007, the WVEPSCoR Advisory Council met to review the *Vision 2015* plan and, if necessary, make upgrades and modifications. External business participants were also invited to provide a perspective on the plan, its current status and continued implementation. While some dates were modified to reflect current progress and

reasonable estimates of continuing activities, few overall changes were recommended to the current plan. The recommended minor modifications will be included when the plan is reprinted later this year.

### **West Virginia Experimental Program to Stimulate Competitive Research (EPSCoR) Program**

WVEPSCoR continues to implement the three-year, \$9 million Research Infrastructure Improvement (RII) award received from the National Science Foundation (NSF) in May 2006. After a successful first year of implementation, a second year of funding (\$3 million) has been approved by NSF. On August 13, 2007, an external progress review was organized by the Higher Education Policy Commission's Division of Science and Research. The External Technical Advisory Board or (ETAB), comprised of seven reviewers from universities across the country, met in Charleston to review the technical merits of the RII program and the current status of research at West Virginia University, Marshall University and West Virginia State University. The goal of this critical review is to make competitive improvements to the program. Departing reviewers remarked that WVEPSCoR "has a lot to be proud of."

- In the near future, a solicitation for new research focus areas will be issued. The responses to this solicitation for "white papers" will help to establish a working group of West Virginia researchers for the next round of NSF EPSCoR infrastructure funding through the RII program. The state will be eligible to apply for another RII grant in late 2008.
- The statewide Science Technology and Research (STaR) Symposium is planned for September 17-18, 2007, at Waterfront Place Hotel in Morgantown. Approximately 200 faculty members, students, program administrators and members of the business community are expected to attend. All federally sponsored West Virginia researchers (NSF, National Institutes of Health, Department of Defense, Department of Energy, NASA, Department of Agriculture and the Environmental Protection Agency) have been invited to attend. Online registration for the event is available at [www.starsymposium.org](http://www.starsymposium.org).

### **West Virginia Research Challenge and Eminent Scholars**

#### **Research Challenge Grants**

- Seventeen proposals were submitted in April 2007 for a new round of projects that resulted in Research Challenge Grants (RCG) being awarded to five research teams. These projects were selected after a merit review by external peer scientists who scored and ranked the most promising proposals.

- Extensive analysis and evaluation are planned for all projects that expired on June 30 after five years of RCG support. Assessments of the success of the activities to achieve sustainability and commercial outcomes will be compiled when final reports are received on September 1, 2007.

#### **Eminent Scholars Recruitment and Enhancement (ESRE) Awards**

- With appropriations of \$10 million approved during the 2007 legislative session, a solicitation based on legislative direction was circulated to the qualified applicants—West Virginia University and Marshall University. Proposals were merit reviewed and funds awarded during July. University administrators are actively implementing recruitment plans detailed by the approved proposals.
- The ESRE program is modeled after Kentucky’s “Bucks for Brains” initiative and that state’s 10-year experience with world-class faculty recruitment.

#### **Actions by Other States**

West Virginia’s research activities include tracking developments in other state research enhancement programs. As reported previously and partially detailed in the *Vision 2015* plan, the border states already have initiated targeted programs to recruit new faculty, build research infrastructure and transform economies through technology-based economic development (TBED). Kentucky’s “Bucks for Brains” (\$350 million); Ohio’s “First Frontier Initiative” (\$1.13 billion); Pennsylvania’s “Technology Greenhouse” (\$630 million); and Virginia’s statewide initiative (\$328 million) present an aggressive threat to rising research faculty in West Virginia while giving these states a competitive edge in amassing federal grant funds. Numerous other states, including Oklahoma and Wyoming, have \$1 billion plans in the works with incremental funding schedules well into the future.

In a recent development, the University of Virginia announced a plan to spend \$126 million on science faculty recruitment. Approximately \$20 million has been spent to attract five “star faculty” who will lead research growth and innovation on the UVA campus and surrounding area.

#### **National Science Foundation and EPSCoR funding for FY 2008**

The National Science Foundation (NSF) has been authorized by Congress to double budgetary spending over the next seven years with specific authorizations for the EPSCoR program. Over the next four years, NSF EPSCoR funding authorizations will rise from the current \$105 million to nearly \$200 million with future growth tied to NSF overall growth. (See “America COMPETES Act” below).

The House Appropriations Committee has recommended \$115 million for NSF EPSCoR in FY 2008. Furthermore, the House report on the Commerce-Justice-Science Appropriations Bill also includes the following language:

*“The Committee has provided an additional \$8,000,000 above the budget request for a total of \$115,000,000 for the Experimental Program to Stimulate Competitive Research (EPSCoR) program. The Committee is pleased that the Director has chosen to give higher visibility to the EPSCoR program by relocating it to the Office of Integrative Activities within the Office of the Director as this will allow the EPSCoR program greater leverage for improving the research infrastructure, planning complex agendas and developing talent for the 21st Century. As indicated by the Foundation, the development of science and technology talent is both competitive and robust and all regions of the country must have the tools and resources to participate in order for the Nation to stay competitive in science and engineering.*

*Of the \$8,000,000 provided above the budget request, the funds should be applied as follows:*

*+\$4,000,000 for Research Infrastructure Improvements Awards (RII) for a total of \$65,000,000;*

*+\$1,000,000 for co-funding for a total of \$37,000,000;*

*+\$3,000,000 for new program mechanisms including Small Grants for Exploratory Research (SGER), Traineeships to Increase Participation of U.S. Citizens in Science and Engineering Careers, Experimental Regional Innovation Awards and Special Networking Areas awards.*

*The Committee directs NSF to submit a report on the distribution of funds within 90 days of enactment of the Act. Additionally, the Committee is supportive of the budget request for SBIR/STTR funding at \$2,700,000, Outreach, Technical Support and Administration at \$1,300,000 and SBRC funding at \$6,000,000.”*

The Senate Appropriations Committee has recommended \$117.4 million for NSF EPSCoR. House and Senate versions of appropriations proposals will have to be reconciled when Congress returns after Labor Day.

### **The America COMPETES Act of 2007**

Efforts that have extended over many years to increase federal support for science and technology, as well as science and math education, culminated August 2, 2007, when the House and then the Senate passed landmark legislation. H.R. 2272, *The America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education and Science Act (COMPETES)* was passed in the House by a wide margin, and in the Senate by unanimous consent. President Bush signed the bill on August 9, 2007.

H.R. 2272 is a comprehensive bill, running 51 pages in the "Congressional Record." The bill authorizes \$43.3 billion in federal spending in FY 2008, 2009 and 2010 in science, engineering, mathematics and technology research, and in education programs.

The bill responds to widespread concern that the United States is losing its technological edge. Efforts to increase awareness of this problem were significantly boosted when the National Academies released its "Rising Above the Gathering Storm" report in 2005 to critical acclaim. President Bush's American Competitiveness Initiative to double federal support for physical sciences research over 10 years, previous legislation in the House and Senate, and efforts by science and technology, academic and industrial organizations helped enable the passage of this legislation. Support for science and technology remains strongly bipartisan on Capitol Hill.

In brief, the bill authorizes—but does not appropriate funding for—the following:

- Doubling of the National Science Foundation (NSF) budget.
- Doubling of the NSF EPSCoR budget.
- Doubling of the Department of Energy's Office of Science budget.
- Doubling of the National Institutes of Standards and Technology laboratory budget.
- Significant expansion of NSF funding for the Noyce Teacher Scholarship Program, and its Math and Science Partnerships.
- Creation of a Technology Innovation Program at the Department of Commerce that will replace the Advanced Technology Program.
- Doubling of funding for the Department of Commerce Manufacturing Extension Partnership.
- Increased funding for young researchers.
- Establishment of the Advanced Research Projects Agency for Energy at the Department of Energy.

### **Education Provisions of the Competitiveness Bill**

A prominent aspect of H.R. 2272 is its emphasis on science, technology, engineering and mathematics (STEM) education. Comprising components from a number of previously-introduced bills, H.R. 2272 brings together many STEM education proposals that have been discussed in hearings and promoted in reports from the National

Academies, the Council on Competitiveness, and other groups. The bill's sections on National Science Foundation (NSF), the Department of Education and Department of Energy all have substantial educational components. Broadly, these provisions are targeted toward recruiting more STEM teachers; refining the skills of current teachers and developing master teachers; ensuring that K-12 STEM education programs suitably prepare students for the needs of higher education and the workplace; and enabling more students to participate in effective laboratory and hands-on science experiences. Many of the major education-related provisions are highlighted below.

#### *National Science Foundation*

H.R. 2272 authorizes substantially greater funding than recent White House requests for NSF's Education and Human Resources Directorate, with authorization levels climbing from \$896 million in FY 2008 to \$1,104 million in FY 2010, compared to the FY 2007 funding level of \$797 million and the FY 2008 request of \$751 million. The bill expands or enhances programs such as the Noyce program of scholarships to recruit STEM majors to teaching; the STEM Talent Expansion Program to increase the number of students earning degrees in STEM fields; and NSF's Math and Science Partnership program. It establishes a Laboratory Science Pilot Program to improve the laboratory experience for high school students and calls for a study on lab equipment donations to schools. It provides a program of fellowships for STEM professionals to earn master's degrees with teaching certification and for teachers to enhance their skills and become master teachers. The bill also authorizes a program of grants for higher education institutions to create or improve professional science master's degree programs.

#### *Department of Education*

The Department of Education portion of the bill authorizes a departmental role in the development and implementation of college courses leading to a concurrent STEM degree and teacher certification, and master's degree programs both for STEM professionals to earn teaching certifications and for teachers to become master teachers. It supports the enhancement of both enrollment in and teaching of Advanced Placement and International Baccalaureate programs; the establishment of a national expert panel to assess and synthesize best practices in K-12 STEM instruction and to point out areas in which research is insufficient; aid to states to collect better data on their K-12 education systems and ensure their alignment with higher education and workforce needs; and programs to improve math education in elementary and middle schools.

It should be pointed out that the No Child Left Behind (NCLB) Act, which is due for reauthorization this year, is the primary authorization vehicle for most of the Department of Education, and addresses a much broader array of programs and subject areas than just STEM fields. NCLB provides formula grant funding to states and includes requirements for states' accountability through Adequate Yearly Progress (AYP) measures. Due to its controversial nature and the surrounding political issues, it is not clear whether the reauthorization of NCLB will be accomplished this year. There have

been reports that the NCLB reauthorization might place more emphasis on science by including science assessments in the calculation of states' AYP, but whether that occurs or not, the NCLB legislation will not have the same focus on STEM education as H.R. 2272. Language in H.R. 2272 states that "teacher preparation and elementary school and secondary school programs and activities must be aligned with the requirements" of NCLB.

#### *Department of Energy*

H.R. 2272 expands DOE's role in federal STEM education by tapping into the staff expertise and scientific instrumentation at the national laboratories as a resource to provide support, mentoring relationships and hands-on experiences for students and teachers. It establishes the position of Director of STEM Education at DOE to oversee the department's education programs and to act as an inter-agency liaison. It calls for a pilot program of grants to states to establish or expand public statewide specialty schools in science and math, and also supports Centers of Excellence in STEM education at schools in the locality of national labs. It promotes summer institutes for teachers to strengthen their skills and summer internships for students, both relying on expertise and equipment at the national labs. Additionally, to ensure the DOE workforce of the future, the bill has programs to increase the number of students majoring in nuclear science and hydrocarbon systems science, and early career awards for young researchers.

#### **Note on Funding**

While the COMPETES bill establishes or expands upon many programs addressing STEM education and basic research, it is an authorization bill and, as such, does not provide actual funding. The appropriations bills that would fund such programs are already partway through the FY 2008 appropriations cycle, and do not necessarily align with the recommended authorization levels in H.R. 2272.

**Source Note:** This report was partially excerpted from the American Institute of Physics Bulletin.



**Report to the Legislative Oversight Commission  
on Education Accountability**

**August 19, 2007**

**Response to Senate Concurrent Resolution No 42 Report:**

***“Taking Career and Technical Education to the  
Next Level in West Virginia”***



## WEST VIRGINIA COUNCIL FOR COMMUNITY AND TECHNICAL COLLEGE EDUCATION

Response to Senate Concurrent Resolution No 42

*“Taking Career and Technical Education to the Next Level in West Virginia”*  
presented by Nancy Laprade, The Pawleys Group

---

Senate Concurrent Resolution No 42 mandated a comprehensive study on vocational, technical and adult education in West Virginia. Nancy Laprade, President of the Pawleys Group, was contracted by the Joint Committee on Government and Finance to complete the comprehensive evaluation. Ms. Laprade’s report, “Taking Career and Technical Education to the Next Level in West Virginia” established a bold vision of what the West Virginia system should aspire to and the recommended steps to be developed in a business plan to reach that vision.

In response to the respective recommendations outlined in the report, the Community and Technical College System of West Virginia offers the following initiatives:

## **RECOMMENDATION 1:**

### ***Establish a “system” vision and clarify partner roles/missions.***

- a. Continue to educate the legislature and executive branches of government, business community and other external organizations as to the unique mission of community and technical college education and the need for flexibility to respond to access and workforce development issues in a timely manner.
  - Develop “talking points” and succinct written material that can be used by board members, presidents, etc. when talking to policy makers, business groups, etc.
- b. Through the State Workforce Planning Council, recommend to the Legislature a vision and identify the basic roles of the Community and Technical College System and Public School Career-Technical Education in delivering technical education and programming to address workforce needs.
  - Utilize the WV Council for Community and Technical College Education and the Community and Technical College Advisory Committee (presidents) to provide input into the visioning and role clarification process.
  - Once the vision and roles have been articulated, conduct an internal cross-agency public relations campaign about the vision and roles to ensure that practitioners understand their new roles.
- c. Utilize the State Workforce Planning Council to coordinate efforts between the Community and Technical College System, Public School Career-Technical Education and Workforce West Virginia to address systematically the workforce development needs of West Virginia, including workforce needs to compliment the efforts of the West Virginia Development Office.
- d. Inform external stakeholders, including the legislative and executive branches and the business community about the vision, roles clarification and collaborative process implemented by the Community and Technical College System and Public School Career-Technical Education to address workforce issues.

## **RECOMMENDATION 2:**

### ***Prepare all students for work and postsecondary education with the same rigorous curriculum.***

- a. Collaborate with the State Department of Education to clearly, define and communicate competencies necessary for success at the community and technical college education level.









