F I S C A L I M P A C T R E P O R T

SPONSOR Salazar **ORIGINAL DATE** 01/24/07 **LAST UPDATED** **HB** 132

SHORT TITLE Technology Research Collaborative **SB**

ANALYST Williams

APPROPRIATION (dollars in thousands)

Appropriation		Recurring or Non-Rec	Fund Affected
FY07	**FY08**		
	$12,000.0	Recurring	General Fund

(Parenthesis ( ) Indicate Expenditure Decreases)

Duplicates Senate Bill 34
Relates to LFC recommendation for FY08 for recurring general fund appropriation of $1.5 million.

SOURCES OF INFORMATION
LFC Files

Responses Received From
Economic Development Department (EDD)
Higher Education Department (NMHED)

SUMMARY

Synopsis of Bill

Endorsed by Economic and Rural Development and Telecommunications Committee.

House Bill 132 appropriates $12 million from the general fund to the board of regents of New Mexico Institute of Mining and Technology for the technology research collaborative (TRC). The appropriation would also provide state funding, to be matched with federal and private contributions to the TRC and the centers of excellence across the state.

FISCAL IMPLICATIONS

The appropriation of $12 million contained in this bill is a recurring expense to the general fund. Any unexpended or unencumbered balance remaining at the end of fiscal year 2008 shall revert to the general fund.

SIGNIFICANT ISSUES

The Technology Research Collaborative was established in state statute in 2005 pursuant to Senate Bill 169. There are 10 member institutions throughout the state to encourage collaboration between research universities and national laboratories. The TRC mission is to collaborate in the acceleration of new technology business formations and expansions that will benefit applied research programs. New Mexico Institute of Mining and Technology is currently serving as fiscal agent for TRC.

The Blue Ribbon Task Force on Higher Education formula funding in January 2003 recommended incentive funds for higher education, including research incentive funding. The 2003 legislature established in state statute all incentive funds requested by the task force. Appropriations to these funds have been slow, and in the case of the Technology Enhancement Fund, no funds have been appropriated specifically to the fund.

In the case of research, rather than funding the Technology Enhancement Fund, the Legislature provided direct funding for Technology Research Collaborative (TRC). State appropriations are as follows:

- 2005 session: $1.1 million, nonrecurring
- 2006 session: $2.0 million, nonrecurring

The initial four funding grants for the 2005 appropriations were based on the following award criteria: Strategic value, commercial feasibility, economic potential, collaboration, management and matching resource requirement.

Grant Awards from 2005 Appropriations totaling $996,800:

$348,000	University of New Mexico Health Sciences Center and Los Alamos National Laboratory	Radiopharmaceutical Isotopes	Medical diagnostic applications
$250,000	Sandia National Laboratories, Intelligent Energy and New Mexico Tech	Hydrogen generation/power systems	Advanced hydrogen generation and power systems
$200,000	New Mexico Tech, AgrilOptics, Inc. and Air Force Research Laboratory	Adaptive optics	Commercial adaptive optics applications
$198,800	Sandia, TPL, Inc., and University of New Mexico	Supercapacitor applications	Supercapacitors for commercial uses

The next round of grant awards will be announced approximately February 15, 2007.

The LFC recommendation for higher education for FY08 includes $1.5 million in recurring funding for the TRC in place of the technology enhancement fund, to advance the concepts envisioned by the Blue Ribbon Task Force on Higher Education. The Higher Education Department notes “This proposal was not in the list submitted by NMIMT through Research,

Public Service and Special Program Requests to the Higher Education Department (NMHED) for review."

PERFORMANCE IMPLICATIONS

Performance measures are not evident; see questions below.

ADMINISTRATIVE IMPLICATIONS

Recognizing a possible duplication of state funded programs, the Economic Development Department and the TRC entered into a JPA to transfer about $200 thousand and 2 FTE from EDD's Office of Science and Technology to the TRC. After the hiring of an executive director for TRC, that agreement was severed, and the current relationship is unclear.

TECHNICAL ISSUES

The language of the specified appropriation is not clear.

OTHER SUBSTANTIVE ISSUES

The proposed areas of strategic investment in 2006 were nanotechnology, optics, medical applications (including isotopes), digital media, sustainable natural resources and alternative energies (including solar and hydrogen). Attached is an NCSL LEGISBRIEF identifying state initiatives for nanotechnology-related projects. The report notes more than half the states introduced nanotechology-related legislation in 2006.

The Economic Development Department notes "the Governor has asked his senior science advisor to take the lead in working out a viable plan for the Technology Research Collaborative's future and its efforts to integrate investments with those of the State's."

Six advanced technology centers (ATCs) were proposed during an early stage of the development of TRC:

- Art, Research, Technology and Science Laboratory
- New Mexico Center for Isotopes in Medicine
- Center for Sustainable Natural Resources in the Southwest
- Hydrogen
- Fuel Cells and end-user technologies
- Collaborative Center for Technology Translation
- Integration of Security Technologies and Decision Support
- New Mexico Center for Optics

The current relationship between the ATCs, the TRC and centers of excellence is not clear.

POSSIBLE QUESTIONS

1. How is current funding split between:
   a. projects
   b. administrative costs
   c. technology research collaborative

d. advanced technology centers
e. centers of excellence

2. What detail is available regarding the current and projected levels of budget sources and uses for TRC administration? For the centers of excellence?

3. How would the appropriation in this bill be split between the following potential uses?
    a. for TRC administrative costs
    b. for TRC designated research projects
    c. for centers of excellence administrative costs
    d. for centers of excellence research projects

4. How are priority investment areas determined? Are the priority investment areas aligned with the state's economic development strategic plan?

5. How is the grant funding used?

6. What is the expected success/failure rate of the selected projects?

7. Are firms that fail to commercialize the product or move to another state required to pay back the state investment?

8. Are performance measures available for the TRC, ATC's and centers of excellence?

9. What is the relationship with EDD Office of Science and Technology?

Attachment

AW/csd

National Conference of State Legislatures

LEGISBRIEF

BRIEFING PAPERS ON THE IMPORTANT ISSUES OF THE DAY

JANUARY 2007 VOL. 15, NO. 3

Big Future for Tiny Technology

By Jo Anne Bourquard and Ricardo Ochoa

Nanotechnology is the science of the very small.

Nanotechnology, the science of the very small, is a burgeoning new field that involves the design and engineering of materials at the molecular level. A nanometer is one billionth of a meter, something too small to be seen with a conventional laboratory microscope. Working with the basic building blocks of matter, nano-researchers are developing novel new products and machines in information technology, medicine, materials, environment, energy and national security that may drive the next industrial revolution.

The world market for nanotechnology may exceed $1 trillion by 2015.

Economists predict that the world market for nanotechnology will exceed $1 trillion by 2015. A common use of nanotechnology today is in fabrics that repel stains. Other commercial products that contain nanoparticles include Swiss chocolates, cosmetic powders, sunscreens and polishing agents. Carbon nanotubes are being developed for use as next-generation wires and power transmission cables and to create even smaller, more powerful computers and electronic devices. Nanotechnology is expected to aid in the diagnosis and treatment of disease; scientists are developing miniscule nanoproducts that one day may travel through the body to deliver drugs or destroy cancer cells and repair damaged cells or organs. Researchers also are exploring ways to use nanotechnology to control pollution, purify water and develop clean energy.

Unique nanomaterial qualities may raise questions about health, safety and other risks.

Nanomaterials have unique characteristics and behavior because the properties and laws governing larger materials disappear at the nanolevel. However, the novel capabilities of nanomaterials also raise questions about health, safety and environmental risks. Concerns include dangers associated with the

Selected 2006 Legislation for Nanotechnology-Related Projects

California — Energy/Nanotechnology research building at Lawrence Berkeley National Laboratory

Florida — University of Florida Multidisciplinary Nanosystems Facility

Illinois — Nanotechnology Institute (through Argonne National Laboratory) Nanofabrication and Molecular Center at Northwestern University

Massachusetts — Nano/bio manufacturing facility for University of Massachusetts Lowell

New York — Nanotechnology projects at New York (SUNY) at Albany, Cornell, Columbia and the Rensselaer Polytechnic Institute

Ohio — Nanotechnology projects at the University of Akron, University of Cincinnati, Ohio State University and Case Western Reserve University

Pennsylvania — Nanotechnology buildings at the University of Pennsylvania, Carnegie-Mellon and Lock Haven University

Washington — Private nonprofit medical and scientific research institute for medical treatment therapies involving systems biology, genomics and nanotechnology

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manufacture and development of nanoproducts and the potential use of nanoscience to develop super powerful weapons. Whether and how to regulate nanotechnology development is a subject of growing discussion.

State Action

Nanotechnology is the largest publicly funded science initiative since the space race, according to Lux Research Inc. In 2004, the states invested more than $400 million in nanotechnology research, facilities and business incubation programs, and the federal government invested $1 billion. More than half the states introduced or considered nanotechnology-related legislation in 2006. Twenty-two states enacted legislation or adopted resolutions: Arkansas, California, Colorado, Connecticut, Florida, Georgia, Illinois, Indiana, Louisiana, Maryland, Massachusetts, Minnesota, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, South Carolina, Tennessee, Utah, Virginia and Washington.

More than half the states introduced nanotechnology-related legislation in 2006.

Many states are working to attract investment and business development through incentives, special funds and grants. The Connecticut legislature established the Connecticut Center for Nanoscale Sciences and Development and authorized several programs to assist nanotechnology companies. In Minnesota, the Rushford Institute of Nanotechnology was established as a nonprofit organization to foster nanotechnology and educate the public about it. Colorado created a bioscience discovery evaluation grant program, and the Maryland legislature appropriated money for a Nanotech Biotechnology Initiative Fund.

In 2006, states provided funding for various nanotechnology education and research facilities and projects. Improving nanotechnology education allows local schools to develop mutually beneficial relationships with nanotechnology businesses. Strong education programs also can draw skilled individuals to the state and develop a skilled workforce for interested businesses.

In 2004, the SUNY Albany College of Nanoscale Science and Engineering, the first college dedicated to education in nanoscience, engineering, bioscience and economics, was opened in the same complex as the Albany Center of Excellence in Nanoelectronics. This nanocomplex supports cooperative research involving academic and industrial participants, encouraged by state government. In 2006, New York announced the creation of a nanoelectronic research center supported by the semiconductor industry; the SUNY College of Nanoscale Science and Engineering will lead the consortium, which also includes several other leading universities. A similar institute will be located in Silicon Valley, Calif.

Nanocomplexes support cooperative research by universities and industry.

Federal Action

The Nanotechnology Initiative (NNI), established in 2001, is charged with coordinating the nation's efforts in nanoscale science, engineering and technology. This collaborative, cross-cutting effort among 25 federal agencies has provided more than $4 billion for 4,000 active research projects at 500 institutions in all 50 states and for more than 50 research centers and user facilities with more than 90 university partners.

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