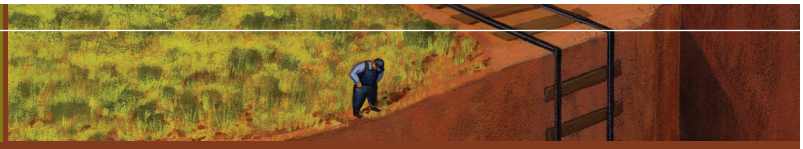

CHAPTER 7:
State Investments in Research and Technology

States throughout the country have also chosen to aggressively invest in their local research universities. Arizona's Proposition 301—a $1 billion investment in high-tech, research, and education—is just one example of a neighboring state's farsighted investment. In just a few years, money from Proposition 301 has spurred millions of dollars in new federal grants, added new faculty members and programs of study to the state universities, and created dozens of new research partnerships and ventures. Other recent examples abound of state governments placing top priority on their research capacity. Many of those states, including California, Georgia, Illinois, Michigan, New York, North Carolina, Ohio, and Virginia, are making commitments in the billions of dollars.

Case Study: Arizona and Proposition 301

The most substantial public investment in Arizona's economic future since the Central Arizona Project.

In 2000, Arizona's legislature and voters took a major step in promoting the state's high-tech economy when it passed Proposition 301, which has been called "the most substantial public investment in Arizona's economic future since the Central Arizona Project brought water into the state."[1] Proposition 301 is a bill that changed Arizona's relationship with its public universities and total education system. By treating research capacity not as an obligation but as an investment, the state committed to its research universities $45 million annually over 20 years for high-tech economic and educational initiatives.

Arizona State University (ASU) president Michael Crow crystallized a vision for a new type of university, a "New American University," that could bring new educational and economic benefits to Arizona. He wrote, "I [propose] a new model for an American research university,…one that does not just engage in community service but rather takes on major responsibility for the economic, social and cultural health of its community."[2]

According to Crow, this fresh direction for ASU encompasses many new imperatives, including: consideration of its socioeconomic setting; establishment as a force in the community; research inquiry with practical applications; examination of societal relevance; and global engagement. The most important of these, however, is the promotion of entrepreneurial opportunities. Crow wrote:

> *As we move—fiscally, psychologically, emotionally—away from the paradigm that Arizona State University is not only an agency of the state government, we must move towards a paradigm that casts the university as an enterprise responsible for its own fate, an enterprise which the state government charters and empowers, and in which it invests.*[3]

ASU is advancing the entrepreneurial potential of teaching and research. ASU faculty members engage in path-breaking research, developing new learning tools and new products with commercial application, all of which have the capacity to generate new revenues for the university and state. "ASU must capitalize on its knowledge content and intellectual property, expediting the transfer of knowledge and technology developed in our classrooms and laboratories to the commercial sector," states Crow.[4]

Based on this paradigm, Arizona legislators and citizens realized that research universities were positioned to address numerous public issues in the state, including growth, diversity, economic diversification, and environmental sustainability. According to the Morrison Institute for Public Policy, recognition emerged that:

- Universities are knowledge factories
- Arizona's knowledge business depends on the state's universities for their future leaders and inventors
- The quality and the competitiveness of metropolitan regions increasingly stems from new economic activities at their universities.[5]

Even though, like most states at the beginning of the recession, Arizona's budget was looming close to the red, state legislators came to believe a major investment in education was needed. Proposition 301, as approved by voters in November 2000, called for a six-tenths of a percent sales tax increase to support K-12 education, public university science and technology research, and community college workforce development programs.[6]

Proposition 301 funding for public universities is "dedicated to expanding cutting-edge research and education in science and technology as a means to foster sustained

economic growth in Arizona." The funding is used to increase research capacity in six key areas: biosciences/biotechnology, information science, advanced materials, manufacturing, access and workforce development, and technology transfer.[7]

Funding in FY02-03 was used for new hires, seed funding for external grants, new entrepreneurial ventures, additional research programs, and skills development. Additionally, a large portion was applied to one "mega-project," the Arizona Biodesign Institute (AzBio), which will be home to expanded biotechnology, nanotechnology, and information technology research programs.[8]

NEW MONEY	NEW PROGRAMS	NEW VENTURES	NEW SKILLS	NEW TALENT
• $7.3 million in Federal awards • $1.3 million in industrial contracts and donations • $400,000 in new products to ASU • $92,000 in value of new startups to ASU	• 6 new courses in Bio, IT and Nano • A manufacturing research roadmap in collaboration with industry • 6 proof-of-concept grants to faculty • 13 technology transfer portal inquiries from industry	• 13 new research collaborations with industry & national labs • 1 new industry-university research consortium under development • 6 new software packages distributed • 3 new products in marketplace • 3 new companies started • 20 licenses/options signed • 17 patents approved and 106 patent applications filed • 91 inventions disclosed • 6 business plans written	• 48 new post-doctoral students in pipeline • 19 new post-doctoral students entering workforce • 120 new graduate students in pipeline • 33 graduate students earning degrees and entering workforce • 84 undergraduate students with research experience • 10 more graduates in Computer Science and Engineering • 227 high school students completing software design material • 88 internships in industry of Software Factory	• Internationally renowned research scientist and business executive hired to lead AzBiodesign • 5 new senior tenured faculty successfully recruited • 22 research faculty hired • 24 post-doctoral research associates hired • 4 visiting scientists appointed

Other support by the state legislature has also been given to Arizona's research universities. The Arizona Research Infrastructure Bill, passed in June 2003, gave an additional $400 million in state funding for research facilities throughout the state. This gave Arizona State University the resources to build five new research-intensive buildings, thus tripling ASU's total research space.[9]

Although it may take decades to fully realize the benefits of this visionary investment, there are already some indications of success. In just the past two years, Arizona has increased its ranking in the Milken Institute State Technology and Science Index. The Morrison Institute for Public Policy created measures to analyze the benefits of Proposition 301, called the CAT index, which will monitor connections, attention, and talent created by Arizona universities beginning in 2004.[10]

Arizona's officials are confident in the potential of Proposition 301. "Leveraged with other public and private funding sources, Proposition 301 monies offer the state an extraordinary opportunity to stride ahead in the international race for brainpower, innovation, and competitiveness."[11]

Other Recent State Investments in Research

Alabama

$20 million: Center for transportation technology (2002)

Auburn University received a $20 million state fund match for $20 million in Federal money. The funds were used to construct a 194,000sf center for transportation technology on campus. The center will house researchers developing analytical approaches to highway design and construction, traffic modeling and vehicle safety.[12]

$35 million, biomedical research facility (2001)

Gov. Don Siegelman agreed to provide $35 million from a state economic development fund to support a $90 million biomedical research facility at the University of Alabama-Birmingham. He also announced formation of the Alabama Research Alliance, a state, business and research university partnership designed to boost the state's research investment.[13]

California

$3 billion proposed, stem cell research (2004)

Californians voted in November to publicly fund a $3 billion stem cell research initiative. Taxpayers' money will be used to underwrite research to use embryonic stem cells to develop cures for Alzheimer's disease and other illnesses. Under the plan, the research will be financed by a state bond issue over 10 years.[14]

$95 million, genome and biomedical center (2004)

University of California-Davis recently dedicated a $95 million Genome and Biomedical Center, funded by the Whitaker Foundation and the state's Garamendi legislation (the Garamendi law allows California universities to take out a construction loan and pay it off using the overhead charges to research grants). The Center will house the UC-Davis Genome Center, the Department of Biomedical Engineering, and a revitalized pharmacology and toxicology department in the School of Medicine.[15]

$300 million, centers for biomedicine, nano-technology, and telecommunications (2003)

California recently began a $300 million initiative to create new centers for biomedicine, nanotechnology, and telecommunications. Each center will receive $100 million in state funds over the next four years, and each is expected to raise twice that amount on its own, making the total potential investment worth $900 million. Former Californian Gov. Gray Davis (D) described this investment as "the most ambitious scientific research initiative ever undertaken" by the state.[16]

$1.65 billion, higher education facilities (2002)

Proposition 47 (approved by voters November 2002) provided $13.05 billion in bonds, issued and repaid by California for the construction and modernization of elementary, secondary and higher education facilities. Of that, $1.65 billion was reserved for college campuses. The governor and legislature selected the projects to be paid for by the bond dollars and some of this funding went toward the completion of a new science building at California State University-Long Beach that will contain state-of-the-art teaching and research laboratories for chemists, biochemists and biologists.[17]

$19.8 million, plant and environmental sciences building, (2002)

UC-Davis constructed a $39.6 million Plant and Environmental Sciences Building with half the funding provided by state bonds and the other half through university funds.[18]

Florida

$20 million, Centers of Excellence program (2004)

Governor Jeb Bush (R) recommended $20 million in the FY04-05 budget for a Centers of Excellence program in Florida, designed to foster innovative, cutting-edge technology research at Florida's colleges and universities.[19]

$10 million, biotechnology center (2003)

With a $10 million grant from the state, the University of Florida's Center of Excellence for Regenerative Health Biotechnology was created to stimulate promising research, facilitate commercialization of treatments that provide cures for human diseases, and create new companies and high-wage jobs for Florida.[20]

$180 million, research center (2002)

A new $180-million addition to the H. Lee Moffitt Center, the Vincent A. Stabile Research Building, which was completed in April 2003, will add 350,000 square feet of research space that can be used as a recruitment tool and help the University of South Florida gain national recognition as a Carnegie Research 1 university. The new research center has three floors of research laboratories and provides Moffitt with research and clinical areas as well as a conference center and auditorium.[21]

Georgia

$1.05 billion, Georgia Research Initiative and building program (2004)

Vowing not to raise Georgians' taxes next year, Gov. Sonny Perdue unveiled a budget that slashes spending across state government by $800 million. The Republican governor

still found $5 million for the Medical College of Georgia Research Initiative and the money to give teachers and state workers a modest pay raise, keep hospitals and state parks open and borrow $1 billion for a building program aimed at speeding the state's economic recovery.[22]

$200 million, Georgia Research Alliance (1990-2002)

Since 1990 Georgia has invested $200 million in the Georgia Research Alliance, matched by $50 million from the private sector. This resulted in an additional $500 million from the Federal government in increased grants and contracts awarded competitively based on the increased merit and achievement of the research enterprise built at the six research universities in the state. The total enterprise has doubled since 1990, from $400 million annually to over $800 million. Venture capital has tripled, patents awarded have tripled and industry relationships with university researchers have more than quadrupled.[23]

Illinois

$2 billion, VentureTech technology program (2000)

Gov. Ryan's VentureTech program is a $2 billion, five-year program launched in 2000 to invest state resources in technology. The program is funding projects like the construction of research facilities at Northwestern University's Chicago campus and the University of Illinois at Chicago. VentureTech has also funded the following "bricks and mortar" investments:

- Rare Isotope Accelerator Science Center at Argonne - $16.6 million
- Center for Nanofabrication and Molecular Self-Assembly - $5 million
- Argonne Nanoscale Center - $19 million in FY02 and FY03
- Thomas M. Siebel Center for Computer Sciences - $80 million funded by state and private donations
- UI National Center for Supercomputing Applications - $30 million - $2.5 million annually
- Fermi Accelerator Research – $2.5 million

- Advanced Photon Source - $3 million annually
- UI Microelectronics Laboratory
- University of Illinois Tech Incubator - $10 million
- UI Medical School - $93 million
- Chicago Tech Park Expansion - $17 million
- UI Medical Resonance Imaging - $10 million
- UI Chemical Sciences - $70 million
- Northwestern University Biomedical Research Building - the state's $30 million investment has already secured an additional $90 million in private investment and is expected to yield $76 million annually in federal research grants
- SIU Cancer Institute - $17 million
- University of Chicago Juvenile Diabetes Center - $13.4 million
- Illinois Institute of Technology Biomedical Research Center - $12 million[24]

<u>$123 million, high-tech research facilities (2002)</u>

Gov. George Ryan's VentureTech program provided $123 million to the University of Illinois to develop three high-tech research facilities on its Urbana-Champaign campus: $67.5 million for the Post Genomic Institute, $27 million for the National Center for Supercomputing Applications, and $18 million to expand the Micro and Nanotechnology Laboratory. The money is separate from the state's higher education budget and was included in the state budget for the 2002 fiscal year.

Construction of the buildings, which will occupy nearly 230,000 square feet, began in 2002 and is expected to be completed within the next two years. Gov. Ryan's office estimates the project will create 1,500 construction jobs.[25]

Massachusetts

$10 million, engineering research center (2004)

Collaboration between the University of Massachusetts-Amherst campus, three other universities, and various companies including Raytheon Co. of Waltham, will create a new engineering research center with a $17 million grant from the National Science Foundation. With contributions from the state and from business the project is now funded at $40 million.[26]

Michigan

$1 billion, life sciences corridor (2002)

In May 1999, the University of Michigan committed $200 million for the establishment of a life sciences institute; by 2002 the University of Michigan spent about $700 million on new life sciences research facilities including a Life Sciences Institute Building, a 236,000 square foot state-of-the-art research laboratory building. Construction costs were $96 million. The University of Michigan is also investing $220 million for a new Biomedical Science Research Building. The state has committed $1 billion to develop its Michigan Life Sciences Corridor over the next 20 years.[27]

Minnesota

$250 million proposed, biosciences initiative (2004)

Governor Tim Pawlenty will ask the Minnesota Legislature to fund his ambitious biosciences initiative this year, with the governor's biotech advisory council recently recommending $250 million to grow the state's biotech industry. The biosciences initiative includes $117 million to help develop facilities in the Twin Cities and Rochester to support biotech growth (including $32 million for a bio-fuels research facility at the University of Minnesota); $70 million for biotech research funding for a new biosciences research partnership with the Mayo Clinic and the University of Minnesota; and $50 million in endowed professorships for the University of Minnesota.[28]

Missouri

$350 million, higher education facilities (2004)

Missouri colleges and universities will benefit, with total costs per project and state's contribution, from a $350 million bond proposal now before the State Senate.[29]

$190 million, research center (2003)

State House Speaker Catherine Hanaway (R) and Senate President *Pro Tem* Peter Kinder (R) gathered support for a bond issue that will raise $190.4 million to renovate buildings and build new research centers at each of the four University of Missouri campuses to increase the state's investment in life sciences research.[30]

$31 million, life sciences building (2002)

Gov. Bob Holden seeks to provide $31 million in state funds for a life sciences building that business leaders hope will boost Kansas City into the top ranks of bioresearch centers in the nation. The building would house the university's schools of Pharmacy and Nursing and cutting-edge laboratory and research facilities, university officials said. Holden said he would release $1.7 million immediately, which will allow the university to seek an architect to design the project. Even in tough economic times, he said, the state must make investments that will make Missouri a leader in research and development of new products.[31]

Nebraska

Science center (2002)

Creighton University Medical Center is squeezing a six-story science center between buildings. It also is renovating existing space into a neuroscience lab that can be used only by NIH-funded scientists. Creighton currently has tax-exempt financing in place and has received oral commitments to substantially cover the costs of the new building.[32]

New Jersey

$300 million, technology infrastructure (2004)

Since 1998, over $300 million in state funds have been granted for technology infrastructure and inter-institutional connectivity including: scientific and other equipment, technology-based economic development initiatives, recruiting of renowned faculty, and programs in targeted high-tech disciplines.[33]

Innovation Zones (2004)

Governor James E. McGreevey this year unveiled plans for the creation of Innovation Zones. The Innovation Zone concept is the state's latest initiative that builds upon Economic Development Administration's past successes in strengthening university, business, and government collaborations. This proposal, designed to spur collaboration between universities and business community, will target financial and other state resources to provide funding and technical support that encourages universities and private businesses to collaborate on projects, encourages businesses to locate in the defined zones, and attracts more Federal and other research dollars to businesses and universities located in the zones. It will seek to attract scientists, students, and entrepreneurs with the goal of creating a technology environment where people live, work, and learn.[34]

$518 million, research building program (2002)

The University of Medicine and Dentistry of New Jersey embarked on a $518 million building program to house new research, classroom and clinical space. In 1998, the university began a major push to improve its research capabilities, including programs in cancer, cardiovascular disease, neuroscience and injury caused by trauma.

The University has already completed the International Center for Public Health, a $78 million facility in Newark, with the help of the New Jersey Economic Development Authority (EDA). The EDA financing and real estate capabilities are being used for the project. The State of New Jersey provided an $18 million appropriation to the EDA for site acquisition, relocation, design and improvement costs. The EDA sold $46 million in low-interest long-term bonds for the project, and the balance is being funded through

grants and loans obtained by UMDNJ and University Heights Science Park. A new $37 million behavioral health science building will open in Newark next spring, and UMDNJ is building a new $45 million research tower for molecular biology in Piscataway.[35]

$95 million, research buildings (2002)

The University of Medicine and Dentistry of New Jersey broke ground for a $100 million seven-story cancer center in Newark that will include a hospital complex along with cancer research labs. It is also tripling the size of its cancer facility in New Brunswick with a $71 million 150,000-square foot building. In addition, the university's Cancer Institute of New Jersey will receive $20 million in financing from the state's tobacco settlement fund. The buildings are to be financed through $95 million in state bonding authorized earlier and an additional $280 million in bonds underwritten by the University. The University will finance the rest of the construction with gifts to the University and other internal funds.[36]

New Mexico

$21 million, public education facilities (2004)

The University of New Mexico will receive $21 million from the recently passed Bond Measure B and plans to use it as follows:

- $8 million to plan, design, construct and equip an expanded anatomy teaching laboratory at the Health Sciences Center
- $2 million for patient care equipment at the Health Sciences Center
- $4 million to help plan, design, construct and equip the $30 million Centennial Engineering Center at the School of Engineering on the main campus
- $3 million to renovate existing buildings on the main campus
- $200,000 to install equipment for a computer technology "clean room" on the main campus.

In all UNM will receive $550,000 for its Valencia branch campus and $3.2 million for its branch campuses in Los Alamos, Gallup and Taos from Bond Measure B.[37]

New York

$1.2 billion, high-tech and biotech development (2001)

The New York State Legislature approved Gen*NY*sis, a $225 million fund created to promote the biotechnology industry. Gen*NY*sis' budget is part of a $1.2 billion capital program to expand businesses and create new high-tech and biotech businesses in the state. During September 2002 Gov. Pataki announced three major Gen*NY*sis investments:

- The University at Albany will build a $45 million, 125,000-square-foot Center for Excellence in Cancer Genomics at its East Campus, the hub of the school's biotechnology efforts. Much of the work at the new center will be devoted to understanding metastasis, or the spread of cancerous cells.
- $403 million microchip research and development facility called International Sematech North at the University of Albany this fall, will make the region "a worldwide leader in high-tech and biotech research and economic development."
- The state will provide $48 million to support a $71.5 million partnership between industry and university groups on Long Island to bolster biotechnology and educational and research programs.
- Rensselaer Polytechnic Institute (RPI) will receive $22.5 million from the state to create a Center for Bioengineering and Medicine. The research center will be housed in RPI's Center for Biotechnology and Interdisciplinary Studies, an $80 million 218,000-square-foot facility currently being built on RPI's Troy campus.[38]

$50 million, University of Rochester Medical Center research and central New York Biotechnology Research Center (2002)

The $30 million pledged to the University of Rochester (UR) Medical Center by Gov. Pataki will mean new tenants for the Rochester Technology Park and seed money for start-up biotechnology companies. Part of the grant—about $20 million—also will pay for completing construction and equipment purchases at the medical center's new research buildings, which UR officials described as essential for the recruitment of scientists and technicians. UR officials estimate the $30 million—the largest single contribution to the medical center's research efforts—will create 3,500 jobs at the medical center, related vendors and spin-off companies and in construction. It is also projected to help produce

$45 million in venture capital and royalties. UR will use about $5 million to support a partnership with Rochester Technology Park in Gates. The venture, University Technology Partners Inc., will help commercialize UR research discoveries. About $5 million will be used to lease tech park space for start-ups created from UR biomedical research, said Mark Scheuerman, president and chief executive of UTP.

Governor Pataki announced that state taxpayers will supply $20 million of the $35 million needed to build the first phase of a proposed 240,000 square-foot Central New York Biotechnology Research Center**.** The biotech center, jointly run by SUNY Upstate Medical University and the SUNY College of Environmental Science and Forestry, will eventually grow to encompass three buildings and cost $80 million. The first phase will be 80,000 square feet on less than an acre leased from the Syracuse Veterans Affairs Medical Center and will cost $35 million. Officials touted the center as a boon for the local economy, initially generating 250 jobs with the possibility that it will create 1,000 jobs once all three phases of the complex are complete. Groundbreaking for the first phase is anticipated to take place in about 18 months.[39]

North Carolina

$4.5 billion, UNC buildings and renovations (2001)

The legislature of North Carolina voted for $5.1 billion in bonds with $4.5 billion going to the University of North Carolina for new buildings and renovations. The measure passed in every county of the state with an overall 73 percent positive vote. The vote came after an intensive study of need, and a lot of support from the NC Citizens for Business and Industry who raised the money for a lobbying campaign. Several major projects have bid successfully for funding, including the B.B. Dougherty Renovation at Appalachian State ($1.3 million), Film Archives Building at the North Carolina School of the Arts ($2.2 million), Central Utilities Plant at North Carolina State University ($15.9 million), and Health Sciences Library Renovation at UNC-Chapel Hill ($12 million).[40]

$24 million, nanotechnology research building (2002)

NC State University's Centennial Campus in Raleigh will soon break ground for a new building devoted entirely to nanotechnology R&D. The building will be 80,000 square feet and will cost $24 million.[41]

Ohio

$1.1 billion, Third Frontier Project (2002-Present)

In 2002 Governor Bob Taft unveiled Ohio's Third Frontier Project (TFP), the state's largest-ever commitment to expanding high-tech research, innovations and company formation. The 10-year, $1.1 billion initiative has built world-class research facilities, supported early stage capital formation, the development of new products, and has funded advanced manufacturing technologies to increase productivity in existing industries.[42] Under the initiative, various programs were instigated to foster collaboration among Ohio's higher education institutions, non-profit research organizations, and local companies to ensure the state's successful economic future. These programs include:

- Wright Centers of Innovation–approximately $40 million in grants were awarded in FY2004 from the Ohio Department of Development to support collaborations between Ohio higher education institutions, non-profit research organizations, and Ohio companies in order to accelerate the pace of commercialization in Ohio.
- Wright Projects–approximately $10 million[43] in grants were awarded in FY 2004 from the Ohio Department of Development to support specifically defined near term commercialization projects at Ohio higher education institutions and non-profit research organizations who are conducting research into areas of advanced materials, power and propulsion, information technology and instruments, controls and electronics.
- Biomedical Research and Technology Transfer Partnership Program–grants to conduct research leading to commercialization and long-term improvements to the health of the citizens of Ohio.
- Third Frontier Fuel Cell Program–grants to support growth of the fuel cell industry in Ohio with focus on technical and cost barriers to commercialization and adapting fuel cell components produced in Ohio for use in fuel cell systems.
- Product Development Pilot Program–grants to support product development assistance, including design, engineering, financing, marketing and management, to small and medium-sized Ohio manufactures.
- The Innovation Ohio Loan Fund–created in 2003 with initial capitalization of $50 million to assist companies in Ohio develop next generation products and services
- The Third Frontier Network–over 1,600 miles of dedicated high-speed fiber-optic network for linking Ohio's colleges and universities, elementary, middle and high schools, and state and local governments, medical research centers, federal research centers.[44]

The following monetary awards were made in 2004 as part of the TFP:

- The University of Cincinnati's Genome Research Institute received $68 million in federal, non-profit and industrial funding.
- The Biomedical Structural, Functional and Molecular Imaging Enterprise, located at The Ohio State University in Columbus, received $6 million from the National Institute of Health.
- The Power Partnership of Ohio, located at Case Western University in Cleveland, received $6 million in federal grants, as well as a $780,000 National Science Foundation education grant.
- Columbus-based LeadScope received a $2 million award from the National Institute of Standards and Technology (NIST.)
- The Cardiovascular Bioengineering Enterprise, located at The Ohio State University in Columbus, secured $10 million in federal funding.[45]

Oklahoma

$99 million, Vision 2025 initiative (2003)

The Tulsa area could become another growth area for the biotech industry. That possibility was helped with the passage of Tulsa County's Vision 2025 proposal last year. Vision 2025 projects under consideration to receive part of the proposed $99 million funding package for higher education include a research and medical clinic at OU-Tulsa. That project could produce skilled graduates for the biotech industry as well as generate more spin-off companies in the Tulsa area. The expansion of biotechnology research in Oklahoma commands a high price tag but the end results are worth the investment, officials say. According to one report, for every $1 invested in health research, the state gets back $5.[46]

$38 million, national weather center (2002)

The Oklahoma legislature appropriated $38 million to establish a national weather center at the University of Oklahoma in Norman and state-of-the art bioterrorism research facilities at Oklahoma State University in Stillwater. The Federal government

set aside funds to match the state's investment including $19 million for the OU weather center. OSU is expected to receive a sizable portion of the $20 billion the Bush Administration and Congress are expected to allocate for bioterrorism research. "This legislation will pay enormous long term benefits to the state of Oklahoma," Governor Frank Keating said. "Establishing these facilities at our two comprehensive universities will enable Oklahoma to establish itself as the premier center in the United States for weather and bioterrorism related research. These projects will provide students with an educational environment second to none and will have a tremendous impact on both the public and private sector."[47]

Oregon

$18 million, research park science building (2004)

The University of Oregon plans to build its new science building in the Riverfront Research Park and make it a multi-use center combining nanotechnology research and a "high-tech extension service" to help develop new businesses from UO discoveries. The building could be as large as 60,000 square feet and cost in the neighborhood of $18 million.[48]

$20 million, nanotechnology initiative (2004)

The Oregon legislature has allocated $20 million for construction and $1 million for operations for the Oregon Nanoscience and Microtechnologies Institute (ONAMI) initiative. The UO will receive $9.5 million of the construction funding and $475,000 of the operating money when bonds for the project are sold in early 2005.[49]

South Carolina

$500 million, economic development package (2004)

South Carolina unveiled a $500 million technology-based economic development package that targets life sciences, commits state funds to venture capital and facility and infrastructure improvements at the state's three research universities.[50]

$25 million, engineering education center (2002)

BMW announced a $10 million endowment for Clemson University to create a graduate engineering education center in Greenville. The gift is the largest cash donation in Clemson's history. BMW's $10 million pledge will endow the academic programs, and S.C. Governor Jim Hodges said that the state will give $25 million to build and equip a state-of-the-art research facility. The recently conceived graduate center for automotive research is expected to attract at least 50 new students. The center would provide both the academic and research support needed by BMW, its suppliers and the state's rapidly growing automotive industry.[51]

Tennessee

$40 million proposed, research park lab space (2002)

Memphis is in the process of building a $40 million, 160,000-square-foot lab building that will represent phase one of the UT-Baptist Research Park. When complete, the UT-Baptist Research Park will consist of 1.2 million square feet of research space. The Tennessee Department of Economic and Community Development announced a grant of $750,000 to Memphis to begin the infrastructure work necessary to build the biotech research park. Tennessee Industrial Infrastructure Program (TIIP) funds are to be used for infrastructure improvements or for job-specific workforce training for Tennessee industry. The current goal is to raise $32 million from public and private sources over the next two years.[52]

Virginia

$900.5 million, research infrastructure (2002)

Virginia voters approved legislation that allows the Commonwealth to sell bonds to pay for capital projects at public colleges, museums, and other educational facilities. The University of Virginia (UVA) will get $68.3 million in projects from passage of the bond referendum, including more than $24 million toward a 183,000-square-foot medical research building that would provide lab space for research in cancer, infectious diseases, allergies and immunology. Another $7 million would help UVA build a 100,000-square-foot research facility for the engineering school's material science engineering department and the Center for Nanoscopic Materials Design. George Mason University expects their share of the bond to go toward both a performing arts facility and research facility.[53]

Washington

$750 million proposed, biotechnology initiative (2004)

In his State of the State address, Gov. Locke promoted the Bio 21 initiative—a plan to invest as much as $ 750 million in public money over the next 15 years to nurture Washington's infant biotechnology industry. He hopes to lay the foundations of such a strategy before he leaves office in 2005. Over several months, Locke has gathered the state's top research institutions and corporations to put together a biotechnology initiative that is turning into one of the most ambitious industry-fostering plans the state has attempted. Under the plan, the state's top research institutions could vie for competitive, peer-reviewed state grants, with preference given to researchers who team up to speed progress. Venture capitalists and corporations like Microsoft and Amgen would be involved early.[54]

Alabama	$20 million, center for transportation technology (2002)
	$35 million for biomedical research facility (2001)
California	$3 billion proposed, for stem cell research (2004)
	$95 million for genome and biomedical center (2004)
	$300 million for biomedicine, nano-technology & telecommunications (2003)
	$1.65 billion for higher education facilities (2002)
	$19.8 million for plant and environmental sciences building, (2002)
Florida	$20 million, Centers of Excellence program (2004)
	$10 million, biotechnology center (2003)
	$180 million, research center (2002)
Georgia	$1.05 billion, Georgia Research Initiative and building program (2004)
	$200 million, Georgia Research Alliance (1990-2002)
Illinois	$2 billion, VentureTech technology program (2000)
	$123 million, high-tech research facilities (2002)
Massachusetts	$10 million, engineering research center (2004)
Michigan	$1 billion, life sciences corridor (2002)

Minnesota	$250 million proposed, biosciences initiative (2004)
Missouri	$350 million, higher education facilities (2004) $190 million, research center (2003) $31 million, life sciences building (2002)
New Jersey	$300 million, technology infrastructure (2004) $518 million, research building program (2002) $95 million, research buildings (2002)
New Mexico	$21 million, public education facilities (2004)
New York	$1.2 billion, high-tech and biotech development (2001) $50 million, University of Rochester Medical Center research and central New York Biotechnology Research Center (2002)
North Carolina	$4.5 billion, UNC buildings and renovations (2001) $24 million, nanotechnology research building (2002)
Ohio	$1.1 billion, Third Frontier Project (2002-Present)
Oklahoma	$99 million, Vision 2025 initiative (2003) $38 million, national weather center (2002)
Oregon	$18 million, research park science building (2004) $20 million, nanotechnology initiative (2004)
South Carolina	$500 million, economic development package (2004) $25 million, engineering education center (2002)
Tennessee	$40 million proposed, research park & lab space (2002)
Virginia	$900.5 million, research infrastructure (2002)
Washington	$750 million proposed, biotechnology initiative (2004)