

UNIVERSITY OF MASSACHUSETTS

AMHERST•BOSTON•DARMOOUTH•LOWELL•WORCESTER

**MINUTES OF THE MEETING OF THE
COMMITTEE ON SCIENCE, TECHNOLOGY & RESEARCH**

Tuesday, November 20, 2007; 8:00 a.m.

Amherst Room

225 Franklin Street – 33rd Floor

Boston, Massachusetts

Committee Members Present: Chair Pearl; Vice Chair Johnston; Trustees Beatrice, Lawton, Nath, O’Shea, Osterhaus-Houle, Thomas; Vice Chair Manning; Chair Tocco

University Administration: President Wilson; General Counsel Bench; Executive Vice President Julian; Senior Vice President Williams, Vice Presidents Chmura, Gray, Lenhardt and Smith; Chancellors Motley, MacCormack and Senior Vice President for Health Sciences and Interim Chancellor Collins; Associate Chancellor Moloney; Vice Provosts for Research Kostecki, Antonak and Chowdhury; Assistant Vice Chancellor for Research Development Petrovic; Vice Chancellor for Research Sullivan

Faculty Representatives: Professors O’Connor and May, UMASS Amherst; Professors Tirrell, UMASS Boston; Ms. Gibbs, UMASS Dartmouth; Professor Carter, UMASS Lowell

Chair Pearl convened the meeting at 8:05 a.m. and asked for a motion to **Consider the Minutes of the Previous Meeting.**

It was moved, seconded and

VOTED: To approve the minutes of the August 29, 2007 meeting of the Committee.

Under the **Chair’s Report**, Trustee Pearl welcomed the newest members to the Committee: Phil Johnston, Kerri Osterhaus-Houle and Henry Thomas. Today the Committee will hear a report from President Wilson on the progress since the last meeting, updates from Chancellor Collins on Life Sciences and Clean Energy from Dr. Kostecki. Vice President Chmura will provide an overview on Research and Development. The main focus of the meeting will be a panel of the five campus Chief Research Officers briefing the Trustees about the campus Research and Development programs and future plans.

The next item was the **President’s Report**. President Wilson first thanked Chair Pearl and Trustee O’Shea for helping to shape today’s agenda. To date, the Committee has focused on key strategic areas such as the life sciences and clean energy. Today’s meeting will review the University’s overall research enterprise, giving the total research mission of this University the attention it deserves.

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President Wilson joined Chair Pearl welcoming Trustees Johnston, Osterhaus-Houle and Thomas to the Committee. He then noted progress since the last meeting in the areas of life sciences and clean energy. Chancellor Collins will report on our initial successes with the Governor's life science initiative and how the campuses will compete for future funding still pending in the Legislature. Vice Provost Kostecki will highlight opportunities for growth and development in clean energy, where landmark legislation is also pending.

The President highlighted the importance of the Governor's \$1 billion dollar Capital Bill for the University. Many of the projects that would be funded under this bill would support the 21st century facilities and the infrastructure necessary for a world-class public University. The President and the Chancellors have recently met with legislative leaders on the higher education capital bill and are hopeful that such a bill be enacted within the next legislative session.

President Wilson concluded his report by highlighting the importance of collaboration across UMASS, private industry and state and local governments in strengthening the University's research enterprise. Key examples include: Dartmouth and Wood's Hole in marine science, Boston and Children's Hospital in youth health promotion, Amherst and Worcester in stem cell R&D, Lowell and Dartmouth in bio-manufacturing, Amherst and Raytheon in atmospheric sensing, and Lowell and Worcester in development of new medical devices. Today's panel will highlight increasing models of collaboration across the campuses. President Wilson thanked the Chancellors and the campuses for their efforts at collaboration and progress being made on all fronts.

The first item for **Discussion** was an **Update on the Life Sciences Initiative**. Senior Vice President and Interim Chancellor Collins reported on the work he has been doing in partnership with the Chancellors and Vice President Chmura to position the University for the Governor's Life Sciences Initiative and promote greater cross-campus collaboration in the life sciences.

Some of the highlights from Dr. Collins' report included:

- The Governor's filing of legislation titled "An Act Providing for the Investment in and Expansion of the Life Science Industry in the Commonwealth" on July 19 with initial legislative hearings on the legislation on October 30 (at which Dr. Collins testified);
- Provisions of the Legislation include: \$500 M in Capital funding over 10 years; \$250 M for the Massachusetts Life Sciences Investment Fund over 10 years; reconstitution of the present membership of the MA Life Science Center Board and an increase of the size of the Board from 5 to 7; and creation of a new Life Science Sector Investment Program (\$250 M in tax incentives);

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- The MA Life Science Center has received \$25 M to date and launched three initiatives: 1) The Life Sciences Talent Initiative at the UMASS Donahue Institute; 2) The Life Sciences Center Matching Grant Programs (for which UMASS campuses will compete); and 3) The Massachusetts Stem Cell Bank and Registry at UMASS Medical.
- To respond to the opportunities presented by the Life Science Initiative, the University has created the position of Senior Vice President for the Health Sciences; organized campus visits and cross-campus meetings to discern current and potential life sciences research and initiatives; and organized a UMASS Life Sciences Task Force to coordinate life sciences activities across the campuses.
- UMASS is positioning itself as the leading entity in the state to help realize the potential created by investment in the life sciences and the economy in every region of the state. UMASS is poised to seize the opportunities that will be made possible by the Governor's Initiative thanks to the quality of the University's research, its focus on key life sciences areas, the award of initial life sciences grants to the University, the positioning of our campuses to develop regional life sciences innovation centers, and the enormous momentum generated by Dr. Mello's Nobel Prize.
- The proposed life sciences legislation is extremely important to the University in light of the investments being made by other states in life sciences generally and public universities in particular. Given the experience in other states, it is reasonable for UMASS to aspire to attract ½ of the proposed capital and operating funds (\$375 M) in the Governor's proposal.
- The new UMASS Life Science Task Force has been established to create a University-wide vision in the life sciences and to find ways to foster inter-campus collaboration in the Life Sciences. The Task Force will focus on issues such as: Shared Infrastructure and additional Research and Development, Advanced Therapeutics Cluster, Nanotechnology, Technology Innovation Centers, Workforce and Policy Initiatives, and Environmental Sciences and Wellness.

The next item was an **Update on the Clean Energy Working Group**. Vice Provost Kostecki highlighted a set of strategic opportunities for future growth and development in clean energy that have been developed by a system-wide working group on clean energy. Clean energy is also a key area of UMASS research estimated at \$18 million in research awards in FY2006. Some highlights of the Report included:

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- Given the energy challenges facing the state and world, UMASS has the potential to be a major contributor to the Commonwealth's goal of positioning Massachusetts as a global center for Clean Energy. UMASS can lead with research, technology development and training.
- The Working Group has identified UMASS capabilities in a wide range of clean energy areas -- such as solar/geothermal, fuels cells and batteries, biofuels, wind/ocean, efficiency and emissions and public policy.
- As in the life sciences, other states are making strategic investments in university-based clean energy R&D programs. These range from \$10 M - \$100 M in states across the country, with California, Iowa and Wisconsin seen as the leading investors.
- The Working Group has identified about a dozen strategic areas for growth and development in clean energy -- offshore wind ... advanced polymers and nanomaterials ... photovoltaics ... biofuels ... microbial fuel cells ... geothermal energy ... marine renewable energy ... nuclear power engineering ... smart growth/design/green construction ... energy management and efficiency ... and economic and policy analysis of clean energy and climate change.
- Next steps include: finalization of a working group "white paper" with recommendations for the future (following consultation with state and industry leaders) development of a memorandum of understanding (MOU) with state officials ... participation in the newly-organized Clean Energy Industry Council ... development of a communications and advocacy strategy ... and continuation of the working group as a mechanism for cross-campus collaboration.

The next item was an **Overview of Research and Development**. Vice President Chmura emphasized that research is a core part of the University's mission statement and that every campus has developed a major research enterprise of at least \$20 M of annual R&D.

He summarized highlights from the University's annual Research and Development Expenditures Report. Expenditures for FY 2006 totaled \$404 million across all five campuses, topping \$400 M for the first time. UMASS is the 3rd largest academic research institution in Massachusetts, the 4th largest in New England, and 20th largest among public universities and university systems in the US.

The University's total Research and Development expenditures in FY06 grew by about \$27 million or 7.2 percent over its FY05 expenditures. This compared to a national growth rate of 4.3 percent over the same period. About 60 % of the University's R&D is in the life sciences and about 62 % of its funding comes from the Federal Government.

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Vice President Chmura stressed the need to strategically expand the research enterprise, build collaborations to enable growth, facilitate interdisciplinary work, enhance student opportunities for undergraduate and graduate student research, and position the University as the Commonwealth's Innovation Engine.

The Committee then heard from a **Panel on Campus Research Program and Strategies**: Paul Kostecki, Vice Provost for Research, UMASS Amherst, Richard Antonak, Vice Provost for Research, UMASS Boston, Louis Petrovic, Assistant Vice Chancellor for Research and Development, UMASS Dartmouth, Partha Chowdhury, Vice Provost for Research, UMASS Lowell and John Sullivan, Vice Chancellor for Research, UMASS Worcester.

The Chief Research Officers from each UMass campus all provided overviews of their current research enterprise, their competitive positioning and plans for the future. Campus highlights included the following:

- **Amherst** -- the University's most comprehensive research campus ... 10 colleges and schools ... over 70 research centers and institutes ... \$131 M of R&D awards in FY 07 ... 62 % success rate on proposals submitted ... \$46.5 M of multi-disciplinary work and \$42 M in collaboration with over 200 institutions of higher education ... a current and future focus on key inter-disciplinary strengths such as NSF centers in collaborative adaptive sensing of the atmosphere and hierarchical manufacturing, chemical bonding, bioremediation, wind energy, wireless communications, biofuels, nanomedicine, and animal embryonic stem cells.
- **Boston** -- the "urban research university with a teaching soul" ... record-setting performances in FY 07 in terms of proposals (\$87 .6 M), awards (\$41.7 M), expenditures (\$34.8 M) and science & engineering expenditures (\$24.4 M) ... significant enhancements to the campus research infrastructure ... creation of a venture development center ... production (with support from Battelle) of a research strategic plan with a focus on: urban health and public policy ... developmental sciences ... science and math education and learning research ... transnational, cultural and community studies ... computational sciences, analysis and modeling ... environmental monitoring ... biological systems ... and sustainability and social venturing.
- **Dartmouth** -- the UMASS campus with the largest growth rate in R&D over the past decade, having grown from \$4 M in FY 96 to \$20 M in FY 06 -- a growth rate of 368 % ... research mission linked to focus on regional needs and aspirations to become a Carnegie Doctoral institution ... current and future areas of R&D development include: marine sciences ... advanced materials ... STEM-pipeline activities ... regional innovation ... bio-manufacturing ... transportation technology ... and ramped up generation of intellectual property.

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- **Lowell** -- an historic focus on research, innovation and commercialization with close ties to industry and the regional and state economy ... steady growth in R&D expenditures in recent years to \$27.5 M in FY 07 ... but a sharp increase (almost doubling) in research awards in FY 07 to \$51.8 M ... signature programs include: nano-manufacturing ... bio-manufacturing ... bio-medical research ... medical devices ... green technology ... K-12 STEM ... photonics ... radiological sciences ... informatics ... sustainable production ... and the creative economy.
- **Worcester** -- a very strong history of growth over the past decade in the basic sciences that has propelled the UMASS Medical School into the ranks of the top 20 medical school research centers in the US ... NIH support has tripled from FY 04 to FY 06 (\$112 M) ... R&D expenditures have grown 44 % from FY 02 to \$192 M in FY 06, making the Medical School the largest research enterprise at the University ... the future challenges are to strengthen the University's clinical and translational research efforts ... the campus is developing a new core of resources and programs called the Advanced Therapeutics Cluster (stem cell biology, RNAi and gene therapy) ... it is also competing to be designated as one of NIH's clinical and translational research centers.

The Committee acknowledged the excitement and enthusiasm generated by the panel's presentation. Trustee O'Shea and Chair Pearl commended the panel and the administration for the presentations.

Topics raised during the Q&A and discussion period included: the potential need to develop additional areas of collaboration and focus (e.g., nanotechnology) ... the importance of our federal relations strategy and making effective use of our new office in Washington, links with the Congressional delegation, etc. ... the need to develop a strategy for increasing the amount and % of R&D supported by industry ... a strong desire to increase the President's highly successful S&T Fund and to use it as a tool to promote R&D collaboration across the campuses ... and a need to improve our understanding of key R&D metrics, including benchmarking UMASS campuses vs. their peers and aspirant peers.

President Wilson concluded the meeting by reiterating the extraordinary opportunities before the University in the Governor's life sciences and higher education capital bills and the Speaker's clean energy bill. He urged all members of the UMASS community to work collaboratively on these matters.

The meeting adjourned at 9:50 a.m.

Barbara F. DeVico
Secretary to the Board