Wednesday, April 27, 2010
University System of Ohio
Sustainability Keynote

Thank you Eric for the very nice introduction. I want to commend you for the leadership you are providing in addressing some of the most important and vexing challenges facing higher education. In particular, I congratulate you, the Ohio Board of Regents, and the many higher education entities involved, for spearheading this University System of Ohio Sustainability Conference.

It is always a pleasure to return to Ohio. Patty and I spent four wonderful years here. I still proudly wear my Ohio State ring, to the consternation of some in Maryland. But, I've learned, as so many others have…once a Buckeye, always a Buckeye! And, I never tire of telling my friends from Michigan that I was the president who hired Jim Tressel, who has become that "school up north's" worst nightmare.

I'm very impressed by today's gathering and the diversity of institutions and organizations represented here. This bodes well for Ohio's efforts on sustainability because progress in this area is only possible through the broad based commitment and collaboration you have assembled, Eric.

By way of background, the University System of Maryland—where I serve as Chancellor—consists of 11 degree granting institutions, as well as two specialized research centers. We enroll over 145,000 students with roughly 8,000 faculty members and some 20,000 staff.

Three years ago, the USM Board of Regents adopted a set of three long-term priority initiatives, one of which is to position the University System as a leader in the area of environmental sustainability.

For my part today, I will break my remarks into three sections:

- Why a commitment to sustainability is so critically important;
- Why universities are the ideal entities to lead a state's sustainability efforts - - - and what we are doing in Maryland;
- And what steps we plan for the future.

I look forward to participating in the panel following my remarks and engaging you in discussion on the vitally important topic.

I. WHY SUSTAINABILITY

Now, I really don't want to spend too much time "making the case" for sustainability or global climate change. From my perspective, whatever debate there was has been settled.

An analysis of global surface temperatures by NASA scientists released earlier this year shows that 2009 was the second warmest since 1880, when modern scientific instrumentation became available to monitor temperatures precisely. In the Southern Hemisphere, 2009 was the warmest year on record. In addition, January 2000 to December 2009 was the warmest decade on record. And the ten warmest years on record all occurred in the past 13 years.

Thanks to the research of Lonnie Thompson at The Ohio State University and others, we have precise measurements documenting that the Arctic ice cap is thinning, ocean temperatures are rising, and glaciers are retreating.

Equally compelling is the overwhelming scientific consensus on this issue. Last year a survey conducted among researchers listed in the American Geological Institute's Directory of Geosciences Departments—more than 3,000 earth scientists—found that 90 percent believe global warming is real, while 82 percent agree that human activity been a significant factor in changing mean global temperatures. And among climatologists who are active in research, that figure rises to 97 percent.

And this is just one of countless scientific surveys on this issue. Worldwide, every major scientific agency or institution that studies climate, oceans, or the atmosphere agrees that global climate change is occurring and that human activity is driving that change. Just a few examples of theses organizations:

- The National Academy of Sciences
- The National Oceanic and Atmospheric Administration
- The Royal Society of the UK
- The Canadian Meteorological and Oceanographic Society
- And the Intergovernmental Panel on Climate Change

There really is no debate among scientists about the basic facts of global warming: The Earth is warming and human activities are a major cause. How much and how fast are the only areas of dispute. So I believe the case has been made.

And the fact is, if someone is determined to reject the reality of global climate change, either by dismissing it as a scam, or junk science, or a completely natural temperature fluctuation, or whatever . . . . . there really isn't anything at this point that would convince them to accept the scientific consensus.

But let me say this . . . . let's say the skeptics are correct and that global climate change has been exaggerated if not outright fabricated, that there is no long-term negative effects of CO2 and other greenhouse gases, and that any temperature change is natural and adaptable, and no real issue.

Even if all that is true . . . adopting a sustainability plan **<u>still makes complete sense</u>**.

Think about it . . . .

- Every year we are burning fossil fuel carbon that took **1 million years** to deposit. And that rate is rapidly increasing. The world's natural resources are limited and even without considering the impact on the Earth's climate, we will soon hit the point of maximum extraction—"peak oil"—and will need alternative sources of energy.

- When you consider that India and China are emerging as major oil consumers, the price of this scare resource will only be increasing, further suppressing our economic recovery.

- Or consider that more than half the oil and petroleum used in American comes from foreign sources. Not only does this hurt our economy and drive up our trade deficit, but it also compromises on national security; one in five barrels of U.S. oil come from countries that the State Department considers to be "dangerous or unstable."

- And by making clean energy technologies a priority, the United States can initiate an economic recovery, create jobs, and bring about long-term sustainable growth.

In his book, *Hot, Flat and Crowded*, Tom Friedman says, "Quite simply the human race can no longer continue to power its growth with the fossil-fuel based system that has evolved since the Industrial Revolution. If we do," Friedman says, "the earth's climate, forests, rivers, oceans and ecosystems are going to be irreparably disrupted."

Friedman also says "*green* is the new red, white and blue, because it is a strategy that can help to ease global warming, biodiversity loss, energy poverty, energy shortages – and make America stronger at the same time."

So, bottom line, a Sustainability Agenda will save money on energy costs, protect the environment AND stimulate the economy with "green energy" innovation.

And the fact of the matter is, the university community is uniquely position to both lead this effort AND reap its benefits.

For one thing, with campuses located throughout our respective states, universities have sizable "footprints" and use a significant amount of energy. We can become laboratories and exemplars for the rest of society on best practices for energy conservation and carbon footprint mitigation. In addition, through our education programs, we can both inform the larger community of the imperative for sustainability and build the workforce needed for the green industries that are certain to emerge in the coming decades. And finally, much

of the research that will help find solutions to climate and energy issues will be preformed—independently or in partnerships—on our campuses. And given that the young people we serve represent perhaps the most committed and passionate cohort of environmental activists, we have the ability—and I would say obligation—to lead by example.

II. ROLE OF UNIVERSITIES / MARYLAND'S EFFORTS

All of which leads me to what we are doing in Maryland and what universities and systems across the nation can do.

As I mentioned earlier, in 2007 the USM Board of regents adopted a Sustainability initiative aimed at positioning our system as a leader in addressing global climate change and related environmental concerns.

The logic driving this decision was clear. Ever since the Morrill Land-Grant College Act established America's public higher education community, our institutions have led the way at those critical moments when our nation was in need of transformational change. After WWII—with the G.I. Bill—it was America's colleges and universities that educated a workforce that built the world's most successful economy and the largest middle class in the history. After the inception of the "space race"—with the launch of Sputnik —it was our institutions that responded by producing an astonishing number of engineers, rocket scientists, and mathematicians. At the dawn on the information age, the passage of the Bayh-Dole Act of unleashed a wave of innovation, creativity, and breakthroughs on campuses across the country that had a profound economic and social impact.

I see us on the edge of another transformative wave in the realm of sustainability. Once again, colleges and universities are poised to lead through three integrated strands of activities:

- Environmentally friendly **practices** on our campuses that can serve as models for the larger society
- Educational and research **programs** to advance environmental understanding and action
- And, drawing upon our extensive public policy expertise, the development of sound environmental **policy** for the states, the nation, and the world.

The USM's Environmental Sustainability Initiative—while just a few years along—has made substantial progress in each of the these three strands.

Practices

A key to the success we have seen comes from the fact that we truly made a commitment to environmental sustainability a systemwide priority, with participation coming from all levels, from system leadership and campus presidents to student activities.

The USM was one of the first two university systems in the nation to have every institution sign on to the American College & University Presidents Climate Commitment, with the ultimate goal of "climate neutrality."

- To date all of our institutions have completed two of the three critical steps in the Commitment process:
    - They are implementing "tangible actions" to reduce emissions and save energy
    - They have completed their greenhouse gas (GHG) inventories and have completed at least one annual update.
    - They are finalizing or implementing their Climate Action Plans with recommended steps to be taken

I want to digress for a moment and mention what I think is one of the most rewarding and exciting aspects of our climate change agenda. And that is the extent to which this initiative has engaged and united the campus communities, including most especially our students. In many ways, students are the "energizer bunnies" for this initiative. And for good reason; they are the ones who will suffer the consequences if we fail to address the effects of too much CO2 in our atmosphere.

As someone whose career in higher education is fast approaching five decades, I can think of only one other issue that comparably engaged and energized our students and that was the Civil Rights/Vietnam conflicts. It was the students who help pressure presidents to sign on to the American College & University Presidents Climate Commitment. When the College Park campus invited undergraduates to vote on campus wide initiatives to enhance campus life, the overwhelming choice was an energy conservation project, which won against choices such as more outdoor basketball courts and expanded meal service in the Student Union. My point is that—let's face it—most strategic initiatives on our campus draw modest interest and support from within the community at best, especially among the students. Climate change is different. It is a galvanizing and unifying issue that draws almost universal and enthusiastic support.

My office plays a very hands-on effort with USM's climate change agenda. This is essential if we hope for our effort to be more than the sum total of 13 individual uncoordinated campuses initiatives. Among other things,

- I created a new position of Vice Chancellor of Environmental Sustainability to coordinate system-wide efforts
- The USM Office hosts regular training sessions for Facilities and Sustainability Officers

- We established a USM Sustainability web page to provided information to individuals and organizations within USM, as well as to other States, other colleges and universities, and the general public.
- And the planning of capital facilities within the USM has gone totally "green," with all facilities now in planning or under construction designed to at least LEED Silver certified standards of sustainability.

And—as you might imagine—we have unleashed an incredible volume of action on our campuses:

- At Frostburg State University the Learning Green, Living Green initiative has helped spread the principle of sustainability throughout the campus community, with 49 strategic initiatives to be implemented within two years.
- The University of Baltimore has entered into an $8 million campus wide energy performance contract that will result in a 30 percent reduction in energy consumption.
- University of Maryland, College Park, will replace failing equipment in nine campus buildings with eco-friendly technology that will save nearly $30 million in energy costs and eliminate more than 50,000 tons of carbon emissions over the next 15 years.
- University of Maryland, College Park also won the America's Greenest Campus Contest conducted by the organization Climate Culture.
- Five of our campuses were cited by *The Princeton Review*—in conjunction with the US Green Building Council—as among America's "greenest" colleges.
- The University of Maryland, Eastern Shore will soon be home to the state's largest solar farm, with 20 acres of solar panels, which will generate a substantial fraction of the electricity needed for that campus.
- The University of Maryland, Baltimore, working with the utility technology company Converge, achieved an electricity load reduction of more than 20 million kilowatt-hours in two years. That is enough energy to power approximately two million homes for two months.

Programs

The USM is committed to including environmental sustainability into the education of all of its students, from undergraduate liberal arts majors, to graduate students in specialized programs in science and engineering, and students in its professional schools.

Such advances are essential to building a strong, productive economy while improving the global environment.

With the support of the National Science Foundation, we are introducing the Climate, Adaptation, and Mitigation e-Learning Community (CAMEL) program. Developed by the National Council of Science and the Environment, the program incorporates climate

change principles and solutions into a wide range of courses over the diverse range of institutions and programs in the System.

We are redesigning the systemwide Graduate Program in Marine-Estuarine-Environmental Sciences (MEES) in a way that includes sustainability science as an important part of its focus.

The University of Baltimore / Towson University joint M.B.A. is one of the very few M.B.A. programs in the nation that offers a specialization in sustainability management

Along with the introduction and expansion of undergraduate and graduate programs focused on environmental issue, we are also promoting research activities focused on environmental concerns. We want to see our institutions become world leaders on addressing climate change, making buildings, vehicles, and industrial processes more efficient, and developing alternative energy sources such as solar energy, wind energy, and biofuels.

The University of Maryland, College Park has established an Office of Sustainability and included in its new strategic plan a commitment to complement its sustainability practices with “teaching, research, and development efforts in energy science and policy, smart growth, environmental mapping, sustainable agriculture, and other fields."
We have also just launched an alternative energy center at College Park funded by a $15 million federal grant.

The state established the Maryland Clean Energy Center, located at our regional higher education at Shady Grove. This Center has partnered with the Research and Technology Park at the campus of the University of Maryland, Baltimore County to support early stage companies working with clean energy technologies and advance green job creation in Maryland. This is the first site in a planned statewide network of clean energy incubators.

Policies

Finally, the USM is making concerted effort to bring the broad and powerful expertise of its faculty to bear in an effort to direct the development of effective public policies related to addressing the challenges of climate change and sustainability.

USM experts played a key role in the activities of the Maryland Commission on Climate Change established by Maryland Governor Martin O’Malley.

- I served on this commission and our Vice Chancellor of Environmental Sustainability, Don Boesch, chaired the Scientific and Technical Working Group, which consisted largely of USM scientists and policy experts..

The commission’s work lead to the passage last year of Maryland’s landmark Greenhouse Gas Reduction Act. Among other things, this act calls for Maryland to reduce is GHG emission by 2020 by 20 percent from 2006 levels.

USM experts are now actively contributing to the development of climate change adaptation strategies for the state.

- For example, researchers art the University of Maryland Center for Environmental Science helped develop the **first ever** assessment of the impact of climate change on the State of Maryland

At the national level, USM faculty chair three important boards of the National Research Council, the "action arm" of the National Academies, that deal with the environment

- the Board on Atmospheric Science and Climate
- the Ocean Studies Board
- and the Water Science and Technology Board.

And, given our location in Maryland, it is no surprise that USM faculty and administrators are playing central roles in federal and state efforts focused on the Chesapeake Bay.

- Governor Martin O'Malley's BayStat team
- the Chesapeake Bay Program's Scientific and Technical Advisory Committee
- and expert advice on Senator Ben Cardin's new Bay restoration bill.

In each of these pillars—practices, programs, and policy—I site the examples from Maryland not so much to boast, but rather to underscore the tremendous importance of a genuine, top-to-bottom commitment to sustainability. And to illustrate the tremendous flurry of action and progress that can be unleashed under those circumstances.

III. LOOKING FORWARD

Looking to the future, there are two initiatives underway that offer tremendous opportunity for us to expand both the scope and impact of our Climate Change agenda.

The first is an effort we call the Maryland Delaware Climate Education, Assessment and Research, or the MADE-CLEAR project. This effort involves layers of partnerships:

- A regional partnership between Maryland and Delaware
- An educational partnership between the K-12 community and the university community
- A state government component, with the departments of Education and the Environment talking part.
- And a state-federal partnership with NOAA and NASA both involved.

And while I won't go into all the specifics of the project, there is a major thrust that I want to emphasize. MADE-CLEAR aims to leverage the interest young people have in the environment to spur a higher level of interest and participation in the STEM disciplines of Science, Engineering, Technology, and Mathematics. Working in partnership with the K-12 sector, we intend to infuse examples and the results of cutting-edge climate research into the science and mathematics curriculum.

It is our belief that in doing so, we can leverage the students interest in the environment and motivate more students to appreciate the power and relevance of science. By incorporating proven climate change curriculum throughout the K-12 sector, we will also be developing a new generation of citizens with in depth knowledge of environmental issues. Again, this represents an avenue through which we will be able to not only enhance the understanding and appreciation of science as it relates to climate issues, but also spur an interest in STEM career aspirations in young people. We have submitted a proposal to NSF for major funding of our MADE-CLEAR project. It will also be a feature of Maryland's Race to the Top proposal.

As another example of the expanding reach of our environmental sustainability agenda, last month saw the formation of a new regional planning group in the Washington, D.C. area called the 2030 Group. Comprised of business leaders, economic forecasters, and university officials, the group intends to explore ways to make improvements in areas such as quality jobs, transportation, and education. High on the list of areas to address is sustainability and climate change. The initial event was held at the National Press Club, was co-hosted by the presidents of George Mason University and the University of Maryland, and included a presentation from the head of the University of Maryland's Center for Public Policy. Environmental concerns—both as quality of life issues AND economic development issues—were featured in the agenda and reinforced by the work under way across the USM.

CONCLUSION

Hopefully, this provides you with some insight into the nature of our Climate Change initiative. It has gained considerable traction since its launch three years ago and is, I think, becoming infused in much of what we do from curriculum development, to research initiatives, to policy development. We are increasing seen as the "go to entity" in the state and region on climate change issues. I am especially excited by the potential of our partnership with the K-12 schools on revising the science and mathematics curriculum, drawing upon examples related to climate change and the environment. We can simultaneously elevate environmental literacy and scientific literacy among more of our young people

In thinking about the keys to the success we have enjoyed to date, I would point to two factors. First, is our ability to make this a top down/bottom up initiative. There is no question that our governing board's embrace of climate change as one of the USM's three major systemwide initiatives sent a powerful signal about its importance. And while we have provided coordination and encouragement and set expectations for accountability for the initiative at the system level, we have also placed great emphasis on local, campus-based initiatives. This has unleashed a tremendous amount of energy, interest and creativity across the system.

The second key is the degree to which we have drawn support for these efforts throughout the community, especially among the students. This was not planned. It arose spontaneously, but has been tremendously helpful in instilling this as an import priority throughout the system.

There are few things I think more important than climate change for universities to work on at this time. I worry a lot about the world our generation is leaving to our children and grandchildren. In a real sense, our bad habits and excesses have contributed to the environmental and climate change problems that threaten the quality of human life on our planet. This gives our generation a special obligation to make this issue the priority it deserves to be.

I look forward to the discussion that will ensue. I sure I will learn a lot from what is going on in Ohio. Thank you for your time and attention during my remarks.