Sustainability Accomplishments at UNM

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I wanted to take this opportunity to share with you the progress we have been making over the past few years in the area of advancing our sustainability agenda on campus. This is very fresh on my mind, since last month I traveled to Tempe Arizona to attend the American College and University Presidents' Climate Commitment (ACUPCC) Regional Collaborative Symposium, hosted by Arizona State University.

(SLIDE 1) Just as a bit of background, the ACUPCC is a high-visibility effort to address global climate disruption undertaken by a network of colleges and universities. The effort originated from planning sessions among a group of college and university presidents and their representatives, Second Nature, ecoAmerica and AASHE at the AASHE conference in October 2006 at Arizona State University. Twelve presidents agreed to become founding signatories and launched the ACUPCC in early December of 2006 by sending a letter to nearly 400 of their peers inviting them to join the initiative. I signed onto this initiative on behalf of UNM on my first day as President at UNM, on June 1, 2007.

Each of the signatory institutions has have made a commitment to eliminate net greenhouse gas emissions from specified campus operations, and to promote the research and educational efforts of higher education to equip society to re-stabilize the earth's climate. **(SLIDE 2)** The mission of the ACUPCC is "to accelerate progress towards climate neutrality and sustainability by empowering the higher education sector to educate students, create solutions, and provide leadership-by-example for the rest of society."

The ACUPCC provides a framework and support for America's colleges and universities to implement comprehensive plans in pursuit of climate neutrality. The Commitment recognizes the unique responsibility that institutions of higher education have as role models for their communities and in educating the people who will develop the social, economic, and technological solutions to reverse global warming and help create a thriving, civil and sustainable society.

All of the signatories believe that exerting leadership in addressing climate disruption is an integral part of the mission of higher education. We also believe that focusing on this mission will stabilize and reduce their long-term energy costs, attract excellent students and faculty, attract new sources of funding, and increase the support of alumni, business and local communities.

All of the signatories have agreed to develop an action plan with both short term and long term actions and milestones for becoming climate neutral, as well as integrate sustainability into the curriculum and make it part of the educational experience.

At the symposium in Tempe, I was participated on Presidents' Panel along with

- Jan Gehler, President, Scottsdale Community College, and
- John Haeger, President, Northern Arizona University.

Michael Crow, President of Arizona State University, served as moderator, and led us through a discussion on how higher education in the Southwest can lead the way to a clean, green and sustainable economy. What followed was an invigorating discussion on progress we are making on our respective campuses in our quest to reduce greenhouse gas emissions, produce sustainability-literate graduates and engage effectively with the local community.

As I prepared my opening remarks for this event, which in effect was an overview of UNM's initiatives and progress, I was once again reminded of how far we have

come, and also that we have in place the leadership and foundation to go the next mile in the months and years to come.

Attending the Symposium along with me were:

- Mary Clark, Program Specialist at the Office of Sustainability,
- Mary Vosevich, Director of our Physical Plant,
- Jason Strauss, UNM's Manager of Energy Conservation, and
- Dr. Bruce Milne, Professor of Biology and Director of UNM's Sustainability Studies Program, who also holds the Kellogg Chair in Sustainability

These leaders are doing wonders to help us inculcate a commitment to sustainability throughout our entire institution. Several of these folks are here today, and I would like to ask everyone I just mentioned to stand. Thanks to all of you for your work in this area on behalf of UNM!

As for me, my interest in sustainability started in 1991, while I was a professor and head of the Department of Wildlife and Fisheries Sciences at Texas A&M. That is the year I co-authored a major paper entitled "Graduate Training Integrating Conservation and Sustainable Development" in a book a co-edited titled "Latin American Mammalogy." At the time, several of my colleagues questioned both my interest in and the relevance of this topic.

It seems hard to believe, but that was over two decades ago, and I am very pleased at how interest has grown. While my initial focus was on academics, as I moved into my role as campus CEO, I began to see the relevance for every aspect of campus life and operations.

I have been president of three major universities during my career, but we have made more progress in advancing the adoption of sustainability practices at UNM than at any of the other institutions. In part, I believe that because we live in a desert environment where water resources are scarce and the consequences

great if we don't think about sustainability. But this is mainly due to the excellent foresight and leadership of many in our campus community.

When I became president in 2007, I immediately launched an initiative to revisit UNM's mission, vision, and particularly its core values. That process culminated in early 2008 with the rollout of the UNM Strategic Framework, in which we elected to add "sustainability" as one of those values.

Even as we have had to navigate the very precarious waters of the economic downturn of the last few years, I am pleased that we have been able to not lose sight of our commitment to this value, and to make notable progress in several areas I want to review with you today. I'm going to first talk about areas in which we have made significant progress, and I will close by sharing with you where we are headed as we move forward.

(SLIDE 3) The areas of progress I will touch on include:

1. Energy Conservation Initiatives.
2. Renewable Energy, and specifically what we are doing on our Taos campus.
3. Our activities to promote use of public transportation.
4. Water Initiatives.
5. And finally, how we are including sustainability into the curriculum.

1. Energy Conservation Initiatives

(SLIDE 4) The first area of progress is in our energy conservation efforts, and I will briefly touch on a few important and productive initiatives.

EEI – (SLIDE 5) In 2008, in cooperation with Lobo Energy, we engaged Energy Educators Inc., (EEI) to help us to identify opportunities for cost savings, cost avoidance, and the behavior changes across campus that would help us to achieve both. Six Energy Conservation Specialists were then hired to aggressively seek ways to reduce our energy consumption.

EEI looked at all aspects of energy, including heating and cooling, electricity usage, water, and efficiency of our buildings. We conducted engineering "blitz" audits, and then communicated the results broadly. Users across campus were then provided with information and education on how to make fundamental improvements. The results of this program have been significant **(SLIDE 6):**

- Since May of 2008, UNM has realized $8.1 million in net avoided utility costs, which amounts to 17.66% of avoided energy use.
- Projected net avoided costs of $41.9 million through 2018.
- This reduction of energy consumption has allowed UNM to postpone a $2.5 million chiller purchase.

Facilities - Our energy conservation efforts have also focused our attention on UNM's facilities. We are actively renovating old and build new buildings with new sustainable technologies. This includes incorporating energy generation and green materials, as well as increasing efficiency of electricity and water wherever possible

LEED – Additionally, UNM has led the way in LEED commissioning of its new buildings and remodels. Our latest accomplishment is the new College of Education building, which is a LEED Platinum facility. We have also received the first Energy Star award for a teaching hospital with our new Richardson Pavilion; New Mexico's only dedicated Children's Hospital.

Utilities Renewal Project – From 2001 through 2006, the university embarked on a project to replace aged utility production and distribution equipment. The equipment had aged beyond its useful life and as a result was unreliable and inefficient. UNM developed a strategic plan to replace the old utility systems and upgrade the lighting campus-wide.

The project has been a resounding success. The university now has a modern and reliable utility system which was funded by the energy savings from the increased equipment efficiency. The result has been a net reduction in energy usage of 30% (BTU/square foot) has been realized from UNM'S district energy system, and this is directly attributable to the $63 million facilities upgrade project.

Additionally, this project was recognized in 2008 with an Energy Star Award from the United States Environmental Protection Agency.

Retro-Commissioning – Going back to 2004, UNM began a facilities program that optimized performance and energy conservation in existing buildings. The scope of these projects included control system upgrades, reduction of airflow and outside air when found to be excessive, reducing reheat energy and eliminating duplicating control logic that allowed simultaneous heating and cooling. Deferred energy costs attributed to this program now exceed $1million per year with more than $3.5 million in cumulative energy deferred since 2004.

The results of this have been astounding:

- In total, the estimated energy savings have reduced the UNM carbon footprint by 15,455 MTCDE or 11%.

2. Renewable Energy

This leads me to talk about our efforts related to renewable energy, and most specifically the unique solar array project that has been established on the UNM Taos campus **(SLIDE 7).**

The UNM Taos Branch Campus was the first community college in the nation to be 100% powered by renewable solar energy.

- This solar array features 2,700 photovoltaic panels that sit on 3.5 acres on the campus. On a perfect day – which we have many of in Taos - the array

generates 500 kilowatts of power - more than enough to power our campus.

- The Array has provided us with almost 180,000 Kwh's (kilowatt hours) of green energy just this past year, at a cost savings of over $28,000 dollars. For a small campus, this adds up to a 25% reduction to the carbon footprint.

The overall goal is to be completely powered by solar power, even in the night time hours, as power storage is currently in development.

We are particularly proud that this project has come to fruition in a small, isolated, rural, multi-cultural community.

And, in the renewable energy area, we have had donors step forward. The owner of a small solar firm in Albuquerque has donated the entire cost to upgrade our new Science and Math Learning Center to operate on solar, a project I will talk about in a few minutes.

3. Transportation

We have also focused on transportation in a very big way at UNM, and have been successfully working to encourage earth-friendly commuting practices, such as use of public transport, self-powered travel, and greater reliance on conferencing technology tools to reduce the need to for air travel.

UNM has become recognized regionally as a leader in alternative transportation, with 45% of our campus community using the bus, train, car-pooling, car-sharing or bicycles.

Much of this success has been brought about through a partnership with the City of Albuquerque, through which UNM offers free bus passes to all faculty, staff and students. In fact, a few weeks ago, our undergraduate and graduate student governments banded together with Parking and Transportation Services sponsor

UNM's first "Ride the Bus Week." This event was dedicated to getting information out to students, staff, and faculty about the ABQRide program.

The results of these efforts are significant **(SLIDE 8):**

- Currently 15.2 percent of the UNM community uses the free transit program as their primary form of transportation to campus.
- An additional 5 percent use it as their second form of transportation. We also have respectable rates of bicycling, walking, and carpooling.
- Alternative transportation usage continues to grow each year. In fact, between 2010 and 2011, UNM reduced single occupant vehicle usage by 5.4 percent.

4. Water Initiatives

We have also made significant progress in our quest to conserve water.

Given our desert climate, giving attention to improving our stewardship of arid climate water resources is imperative. Similar to many other universities in arid climates, one of the approaches we have successfully implemented is to eliminate the seasonal planting of flower beds that have historically contained non-native, water-consumptive plants. We have been replacing these and many of our grassy areas with xeriscaping that is much more appropriate to our area.

Boiler Water Savings Project (SLIDE 9) – Perhaps a little more unique is our boiler water savings project. The PPD Utilities Division installed a reverse osmosis machine in 2006 to reduce the water discharged from the boilers due to impurities. In addition to saving water, this project also saves the energy and chemicals in the boiler water. This project saves 65,000 therms of natural gas and 2,000,000 gallons of water annually. The energy, chemical, and water reductions

produce savings of about $75,000 per year for a payback period of just over two years.

5. Inclusion in the Curriculum

Finally, I want to comment about the inclusion of sustainability into the curriculum. **(SLIDE 10)** UNM has a growing sustainability studies program that utilizes experiential learning, research, and service activities to implement practical solutions for a sustainable future on the UNM campus, in the state of New Mexico, and for the Earth as a whole. The SSP is one of the Provost's Areas of Public Engagement, intended to support experiential learning, research, and service activities to implement practical and systemic solutions for sustainability.

UNM's program takes a cross-disciplinary approach to integrate knowledge and methodologies from the sciences, humanities, and arts. At present, UNM offers a minor in Sustainability Studies that provides students from all disciplines the opportunity to acquire pertinent knowledge and skills that complement their major.

This summer, Dr. Bruce Milne, Director of the Sustainability Studies program, will again offer a field school where students will visit major agricultural areas of the state, including farms, ranches, markets, processing facilities, and community food projects in traditional Hispanic, Native American, and other communities. Students will develop land literacy, direct knowledge of the value chain, and orientation to Hispanic and Native traditions through face-to-face meetings with rural and urban agriculturalists.

The Future of Sustainability at UNM

As you can see, the initiatives I have just reviewed are already producing significant results. But our efforts are not stopping there, and in fact are gaining in momentum in some significant areas **(SLIDE 11):**

- **Steam Turbine Generator** - Just recently, the Physical Plant Department commissioned a steam turbine-generator in the Ford Utilities Center. This device regulates the pressure of the steam delivered to the campus while also generating electricity. It does not require a separate fuel source, and as a result, ***all*** of the electrical output reduces the amount of electricity we need to purchase from the local utility. This initiative alone will reduce our carbon footprint by 2,800 MTCDE per year.
- **2nd CoGeneration Unit** - The Physical Plant Department is expecting to begin construction on the second cogeneration unit later this year. This is a natural gas turbine unit that will produce both electricity and heating steam. This is a very efficient technology and will reduce our carbon footprint by an additional 14,000 MTCDE per year.
- **Solar Panels** - A solar photovoltaic system will be installed on the roof of the Science and Math Learning Center this year. This 35 kW system will generate electricity that will further offset the amount purchased from the local utility. It is expected to further reduce the carbon footprint of UNM by about 40 MTCDE.
- **(SLIDE 12)** So, in total, these three projects will reduce the carbon footprint of UNM by nearly 12%, when all of them are up in running, within the next two years.

(SLIDE 13) In 2009, we first developed UNM's Climate Action Plan. This plan was written primarily by Sustainability Studies students, along with technical assistance from both faculty and staff. Our plan's stated goal is "*to achieve a zero net carbon emissions campus while ensuring and improving its economic strength, community cohesiveness, and environmental footprint, along with the well-being of individual community members.*"

(SLIDE 14) So as you can see, UNM has made significant progress along the path to achieving some significant progress, thanks to the collaborative work of many, as well as the commitment and support of the Regents.

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