



New Mexico State University Alamosordo



Campus Sustainability Plan

Progress Report Summer 2012

Introduction

On April 17, 2007, New Mexico State University President Michael Martin joined many universities in becoming a member of the American College and University Presidents' Climate Commitment (ACUPCC). The ACUPCC recognizes that education for and practicing how to achieve a healthy, just, and sustainable society is critical to meeting the higher education's social responsibility of providing knowledge and an educated citizenry.

As part of our climate commitment, New Mexico State University Alamogordo (NMSU-A) formed the NMSU-A Sustainability Task Force. The Task Force started the process of reviewing our policies, practices and educational opportunities that address environmental and sustainability activities. The campus completed an in-house review based on the National Wildlife Federation (NWF) Report Card, which is considered the gold standard for charting the sustainability movement in higher education.

Executive Summary

The NWF Report contains 14 integrated categories that comprise a sustainable culture. These categories include:

- Setting and Reviewing Goals
- Staffing of Environmental Programs
- Orienting Students, Staff and Faculty
- Integration of Environmental Topics into Academic Programs
- Professional Development for Faculty on Environmental Topics
- Energy Efficiency and Conservation
- On-Campus Heating and Boiling Using On-Site Sources
- On-Campus CoGenerated Heating and Cooling
- Electricity Demand Using Off-Campus Renewable Energy
- Waste Diversion
- Activity Level and Array of Materials Recycled
- Landscaping Overall
- Water Efficiency Upgrades
- On-Campus Electricity Generation
- Transportation Demand Management

The in-house review showed progress on five of the categories. Three of the areas that deal specifically with education (Orienting Students, Staff and Faculty, Integration of Environmental Topics into Academic Programs, and Professional Development for Faculty on Environmental Topics) showed the campus needs to spend time and resources improving these areas. This plan provides some strategies for developing these areas.

Climate Commitment

In 2008, NMSU-A began a guaranteed energy savings program to reduce the campus' energy use. As the enrollment and square footage of the campus continue to grow, NMSU-A made a commitment to sustain its energy usage and carbon footprint at the 2005 levels. We intend to

accomplish this goal through various means of energy conservation, increasing our recycling efforts, reducing water usage indoors and outdoors, transitioning from gas-powered vehicles to hybrid vehicles, and educating our students, faculty and staff about issues of sustainability.

Education, Research and Public Engagement

Broadly conceived, a sustainable culture for a campus involves infrastructure, community and learning. The infrastructure challenge involves energy, food and materials. The community challenge involves governance, investment and wellness. The learning challenge emphasizes curriculum, aesthetics and interpretation. If we believe that every sustainability initiative is an educational research experiment, we also believe we are living in a time when there are dozens of technical and interesting proposals for sustainability solutions.

NMSU-A is in the process of reviewing its curricula for sustainability topics. When the NWF Report Card was completed in 2008-09, the following was discovered: The health sciences discuss topics concerning the benefits of recycling, biohazardous waste and proper needle disposal. Engineering has courses including Introduction to Renewable Energy, Introduction to Solar Energy, and Introduction to Wind Energy. During 2009-10, a database will be developed that defines sustainability issues currently covered in the curriculum. The database will be updated on a yearly basis to insure students enrolled at NMSU-A are introduced to sustainability principles when they attend our campus.

Progress to June 30, 2012: Curriculum database was not created.

In 2007, the Governor of New Mexico signed into law that state buildings 15,000 sq. ft. or larger would be built to at least LEED Silver certification standards. In 2009, NMSU-A completed construction on its first building built to LEED certification standards; the campus is applying for LEED Gold certification.

Progress to June 30, 2012: NMSU-A received LEED Gold certification for two buildings: 1) Reidlinger Science Center Addition in 2009 - 16,716 square feet and 2) Phase I of the Advanced Technology Center in 2010 - 10,480 square feet.

During 2009-10, a KIOSK will be installed in the Reidlinger Science Center addition. The educational KIOSK will describe to the public how the building meets LEED Gold standards and other issues of sustainability.

Progress to June 30, 2012: Two KIOSKs have been installed: 1) Reidlinger Science Center – 2009 and 2) Advanced Technology Center – 2011.

The campus is engaging in an integrated, values-based approach to sustainability. Since our students are the inheritors of the world's climate change, it is incumbent on institutions of higher education to help students in their discovery of solutions. Therefore, when students arrive on campus, they will be asked to consider the ecological and energy impact of what they

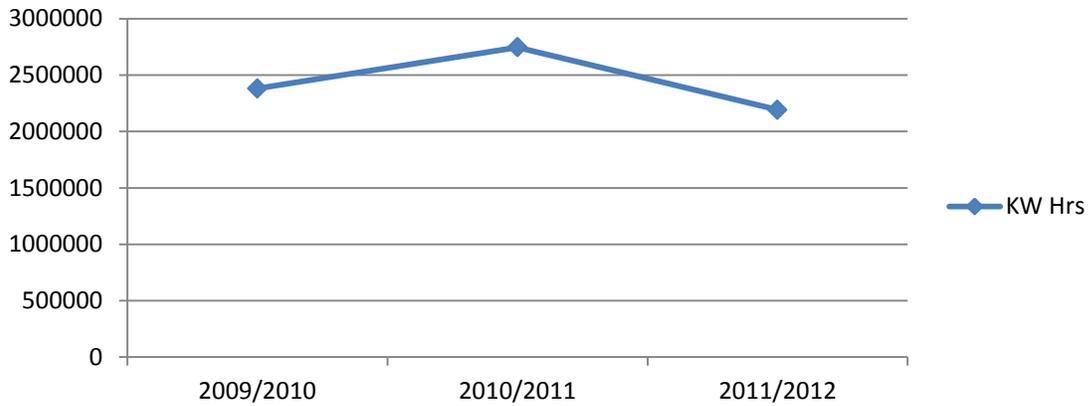
bring to campus. During freshman orientation, students will also be introduced to what it means to live sustainably and consider the requisite contradictions and challenges.

Progress to June 30, 2012: Sustainability topics during orientation is not currently done.

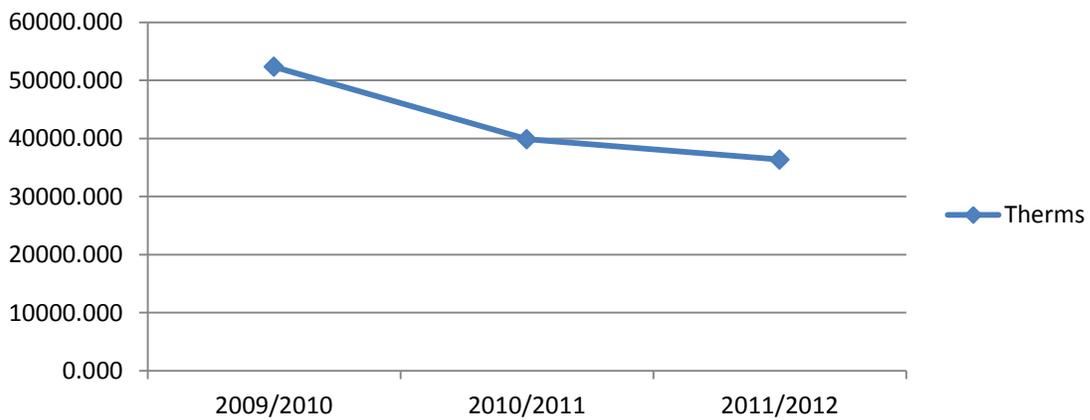
Campus Carbon Footprint

In 2007, our gross emissions totaled 4,525 metric tons of CO₂e. That is 23.9 metric tons of CO₂e per 100 square feet and 1.6 metric tons of CO₂e per FTE. The primary sources of greenhouse gases for NMSU-A are heating, cooling and electrical systems, natural gas, and fuel usage.

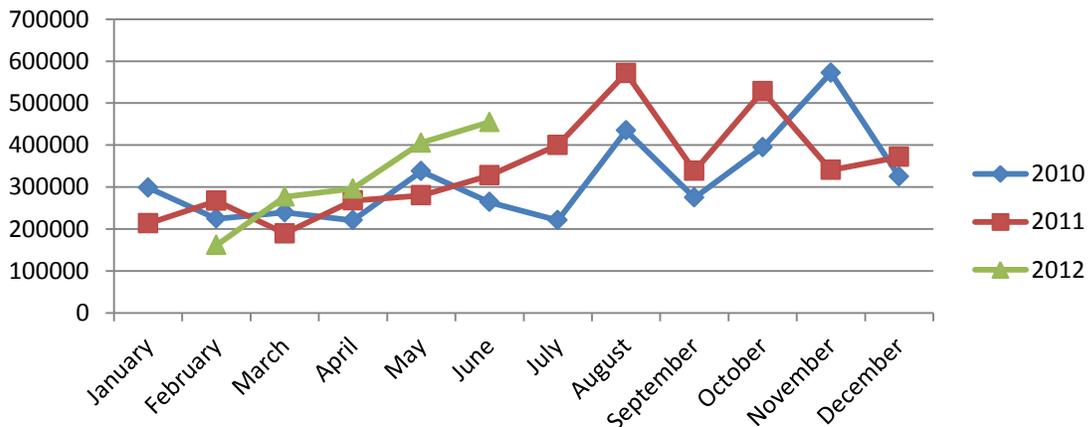
Electricity Usage by Fiscal Year (kilowatt hours)



Natural Gas Usage by Fiscal Year (Therms)



Water Usage (Gallons)



NMSU-A is making steady strides with energy conservation. In 2005, the campus started the process of converting our obsolete Building Automation System to a new, more reliable and efficient system. We also established campus temperature set points.

Progress to June 30, 2012:

- 2008 Academic Support Center (complete system), Student Center (complete system).
- 2009 Reidlinger Science Center Addition (half of building complete system, original section of building replaced VAVs); replaced VAVs in CB area.
- 2010 Advanced Technology Center (complete system in this section of building).
- 2011 Student Services (complete system); glass house (complete system).
- 2012 Faculty Office Building (complete system); ProTech (complete system).

In 2007, we completed construction of a 3,600 square foot Academic Support Center. In 2009, the campus added a 16,716 square foot addition to the Reidlinger Science Center. As part of the construction, the campus replaced the old HVAC equipment with a new energy efficient boiler, chiller, AC Units and Variable Air Volume (VAV) controllers to enhance our ability to control the internal temperature by adjusting air flow. As the graph above shows, even with the addition of 20,316 square feet to the campus, electricity and gas usage have declined.

Progress to June 30, 2012:

In 2010, we completed the construction of the 10,480 square foot Advanced Technology Center. This building houses Automotive Technologies, Renewable Energies Technology, and welding. With this additional square footage we have experienced an increase in electricity use, but not in gas use. We are considering options to counter the increase. We are considering installing separate utility meters for each building so we can better track the electrical and gas usage per building.

The Reidlinger Science Center addition is built to the LEED Gold standard—the first building built to this standard in the NMSU system. Some of the numerous energy and water conservative features for the addition include: 1) a sunshade/light shelf system which lowers the internal temperature of the rooms by allowing the rays of the sun to bounce off multiple surfaces before entering the room, but maintain maximum natural lighting; 2) waterless urinals, low flow toilets, motion-sensor faucets, motion-sensor lights, solar-reflective roof, retention ponds and a bike rack; 3) native plant landscaping that does not require water; and 4) a shower so individuals can opt to ride a bicycle or walk to work instead of using their vehicles.

GHG Emissions Mitigation

NMSU-A is committed to reducing emissions and working diligently towards climate neutrality. The following lists short-term and long-term goals to accomplish emissions mitigation:

- Continue to increase on-line classes.

Progress to June 30, 2012:

YEAR	FACE-TO-FACE		ONLINE		ONLINE SCH AS % OF TOTAL	TOTAL	
	HEADCOUNT	SCH	HEADCOUNT	SCH		HEADCOUNT	SCH
2006-07	No data	29609	No data	2902	8.9%	No data	32511
2007-08	No data	28281	No data	12930	31.4%	No data	41211
2008-09	2618	27150	3859	22299	45.1%	5294	49449
2009-10	2848	28880	4364	25727	47.1%	5836	54607
2010-11	3077	30524	4640	28162	48.0%	6116	58686
2011-12	2808	28742	4346	29588	50.7%	5601	58330

(From Office of Institutional Research and Assessment, September 20, 2012)

- Maintain temperature set points at national standards.
Progress to June 30, 2012: We continue to do this.
- Continue partnership with the City of Alamogordo to maintain solar-powered Smart Crosswalk.
Progress to June 30, 2012: Crosswalk was completed in 2010
- Encourage employees to turn off lights when not in use.
Progress to June 30, 2012: Employees are intermittently reminded by e-mail to turn off lights. Committee is considering reminders by e-mail on at least a semester basis.
- Encourage employees to turn off computers during the evenings and weekends.
Progress to June 30, 2012: Employees are intermittently reminded by e-mail to turn off lights. Committee is considering reminders by e-mail on at least a semester basis.
- Install motion sensors in offices and classrooms.
Progress to June 30, 2012: No motion sensors have been installed.
- All new appliances must be Energy Star compliant.
Progress to June 30, 2012: All new appliances, including water heaters, refrigerators, and dishwashers are energy efficient. We have retrofitted one water fountain with a water bottle refilling station. We are in the process of retrofitting 16 more stations throughout the campus.
- Whenever possible, schedule weekend classes so they reside in one building instead of multiple buildings.
Progress to June 30, 2012: The campus offers very few weekend classes. Currently, only the ProTech Building and Reidlinger Science Center are used for weekend classes.
- Analyze data from the 2009 Summer Pilot Test for consideration of a 4-day work week during June and July.
Progress to June 30, 2012: Pilot test was conducted in summer 2009. Results from study showed half of the campus supported implementation of 4-day work week; other half did not. Cost of utilities during pilot test did not decrease. Results of pilot test was posted on the web, under "Report: 4-Day Work Week Pilot at Alamogordo" October 2009. The 10-hour, 4-day work week was not used during Summer 2010. Other alternatives will be explored.

- Retrofit all T12 light fixtures on the campus to T8 fixtures.
Progress to June 30, 2012: We have made steady progress in attaining this goal. We have converted T12 fixtures in the Administration Building, ProTech hallways, and Tays gymnasium. We have also decided to convert T12 fixtures to LED fixtures instead of the T8s.
- Replace traditional urinals with waterless urinals and replace toilets with low flow toilets.
Progress to June 30, 2012: We have replaced 12 traditional urinals with waterless urinals.
- Replace obsolete chiller, boilers and AC units with more energy efficient models.
Progress to June 30, 2012: As each unit dies we are replacing with energy-efficient, eco-friendly units.
- Replace parking lot and security lighting with photovoltaic lighting.
Progress to June 30, 2012: We have not installed any photovoltaic lighting on campus. We have installed one LED light on the west side of the ASC building, installed 5 solar bollards on the stairway leading to Scenic Drive from the Business Office, and replaced all the exterior security lighting around the Student Center with LED bulbs.
- Submit grants for solar arrays.
Progress to June 30, 2012:
 - 2010: Submitted USDE (*No Time to Lose: A Head Start to STEM Success*), a Title V grant with Renewable Energy/ Photo Voltaic components. Goals and objectives did not focus on providing energy for the campus/grid, as the RFP guidelines did not include that as an option. The focus on developing and piloting programs in solar and renewable areas will allow NMSU-A to use these programs to advance solar usage on campus.
 - Award specific to SOLAR: \$40,000 (Off Grid \$20,000; On Grid \$15,000; Hot Water system: \$5,000); Wind: \$26,500.
 - 2011: Submitted USDE HSI STEM (*Strengthening Science, Engineering, and Energy Career Options*).
 - Award Specific to SOLAR/PV: \$101,468; All Renewable areas: \$411,375.
 - 2012: DOL proposal with the NM Consortium of colleges (CNM lead school). NMSU-A requested funds for an electrical trades instructor that will teach courses in the Alternative/Renewable career path and an Advisor/Placement officer to network with Alt/Renew employers as students complete. \$349,000.
 - Unfunded proposal – 2009: Submitted USDE Title V grant with Renewable Energy/Photo Voltaic components. The goals and objectives did not include providing energy for the campus, only to develop programs. This proposal was not awarded in 2009, but a resubmission in 2010 was successful; see above.
 - Unfunded proposal – 2011: Submitted a DOL proposal in collaboration with 17 New Mexico colleges and universities. NMSU-A tech proposal requested funds to develop courses for Photo Voltaic Entry Level Grid tie-in; Adv. Photo Voltaic and other renewable areas that will all lead to careers in Green Technology. NMSU-A requested: \$750,000 to develop programs, purchase equipment, provide

professional development, and teach alternative energy technologies, including Photo Voltaic. The proposal was deemed “too ambitious”.

In addition, the following procedures will be followed by the campus:

- All new construction of at least 15,000 square feet will be built to at least LEED Silver standards. All renovation projects will attempt to implement the same LEED standard. *Progress to June 30, 2012: Both new buildings (Reidlinger Center Addition and Advanced Technology Center) were built to the LEED Gold standard. The campus received LEED Gold Certification for both buildings.*
- Recycling centers have been installed in each building on campus and in strategic locations outside campus buildings. Recycling stations accept paper, plastic and aluminum. In addition, the maintenance department accepts and recycles fluorescent bulbs, batteries (car, emergency lights and camera), cardboard, scrap metal and ink cartridges. Paper, aluminum, cardboard and metal are recycled locally. All other materials, including e-waste, are sent to the Las Cruces campus for recycling. **Progress to June 30, 2012:** Otero County has opened a Recycling Center and accepts plastics, aluminum, cardboard, and paper (white and mixed). We can now dispose of our recyclables to the local center.
- The campus will continue to pursue resources to purchase a compactor for plastic bottles. Since the community of Alamogordo does not have a comprehensive recycling center, the campus will work closely with the community to develop a full-service recycling center. **Progress to June 30, 2012:** Otero County has opened a Recycling Center. We no longer need to attain this goal.
- NMSU-A will continue to engage in water conservation. Vegetation that is highly dependent on water is being replaced with native, drought-resistant plants. The campus has installed low-use and no-use water saving fixtures in buildings that have been built since 2005. The campus has also instituted a replacement schedule for fixtures in all other restrooms and kitchens located throughout the campus. **Progress to June 30, 2012:** We have replaced faucets in Student Services, CB area and the Rohovec with low-flow faucets. As the original faucets wear out we will replace with low-flow units.
- NMSU-A’s motor pool consists of seven vehicles. Over the next 10 years, all existing vehicles will be replaced with alternative energy vehicles. In addition, Club cars that run on either electricity or natural gas will be purchased for utilization on the campus. The NMSU system is moving towards renting cars from Enterprise Rent-A-Car. **Progress to June 30, 2012:** There has been no progress in this goal.

Barriers and Solutions

The largest barrier to implementation of the plan is financial resources. However, as we implement energy cost-saving strategies, we have determined that we will be able to incorporate many of the strategies without additional cost to the campus.

Some individuals hold misconceptions that environmental practices cost a lot of money. “Green” may raise costs in the short run, but save costs in the long run. Therefore, the campus must be able to differentiate between costs and investment, and educate students, faculty and staff about this difference. Some solutions can be as simple as learning to dress for the internal room temperatures or turning off lights and equipment when not in use. Other solutions (such as the reduction of our carbon footprint) will happen over a period of time.

Costs and Financing

NMSU-A has chosen to prioritize energy conservation measures and will incorporate necessary changes on a multi-year basis. The majority of funding (85%) to implement defined changes will come from Capital Outlay funding provided by the legislature. The campus will also pursue a number of grant proposals to implement needed change.

Implementation Structure

An active Sustainability Task Force that represents the campus has been created. The Task Force is charged with ensuring the Climate Action Plan is fulfilled and that each category is continually addressed. The Task Force meets on a monthly basis (except in the summers), and is charged with reviewing progress towards the plan on an annual basis, and making recommendations to the campus administration for meeting sustainability obligations.

Progress to June 30, 2012: During FY12, the task force was changed to a committee. New committee members will be added to the committee during FY13.

Communications Strategies

The Sustainability Plan for NMSU-A has a “Green Thread” that will weave issues of sustainability through the campus on a daily basis. Many strategies can be tracked (see below) and will be communicated by campus e-mail, social networks such as Facebook, online platforms such as Blackboard, the campus web page, through local media and the annual Campus Climate Report.

Tracking Progress

Using 2007 as a baseline, the Sustainability Task Force will track the campus’ progress on the following:

- Reduce energy consumption by 2% per year with a goal of a 10% reduction through the use of customized energy solutions.
- Establish curtailment programs that decrease waste by 2% per year with a goal of a 10% reduction.
- Use LEED certification processes for all new construction and existing buildings.
- Align standard operating procedures with “green” innovations, such as touchless restroom cleaning, blue cleaning, and chemical-free floor cleaning.
- Track credits purchased for renewable energy.
- Sustainability Task Force will review progress of plan annually.

Progress to June 30, 2012: The task force reviewed progress from implementation of the Sustainability Plan to present. A review of plan will be done at least every other year; we submit annual progress to AASHE every year.

Next Steps

- Implement procurement strategies that balance least cost, least impact—with option to integrate alternative fuels and carbon offsets.
Progress to June 30, 2012: Ink jet cartridges are no longer purchased. Styrofoam plates and cups are no longer purchased. Xerox gave presentation of services they provide. RFPs were sent to various companies for print services.
- Develop a campus greenhouse gas inventory plan that provides baseline data that is reliable and comprehensive.
Progress to June 30, 2012: We use the Clean Air-Cool Planet Calculator to conduct our greenhouse gas emissions inventory.
- Develop practical and meaningful carbon neutrality action plans.
Progress to June 30, 2012: This step has not been accomplished.
- Develop ongoing maintenance operating protocols for renewable installations.
Progress to June 30, 2012: This step has not been accomplished.
- Establish campus green teams that participate in friendly conservation competitions.
Progress to June 30, 2012: This step has not been accomplished. The Sustainability Committee will evaluate the keeping of this goal.
- Develop awareness programs to support improved communication and daily decision-making habits.
- Reduce use of disposables.
Progress to June 30, 2012: We are beginning to swap out some paper towel dispensers with hand dryers.
- Lead the conversion to products and supplies with less packaging and waste.
Progress to June 30, 2012: We currently purchase most custodial supplies in bulk containers and utilize refillable bottles and mixing stations.
- Work with vendor partners to better understand the economic, social and environmental impact of each product we purchase.
- Implement and provide Awards and Recognition for individuals engaged in a variety of green practices.
Progress to June 30, 2012: This step has not been accomplished. The Sustainability Committee will evaluate the keeping of this goal.
- Develop a campus wellness program.
Progress to June 30, 2012: This step has not been accomplished. The NMSU System is currently reviewing the need for a system wellness program.
- Develop and utilize solar and wind energy for the campus.
- **Progress to June 30, 2012:** We have installed 5 solar bollards on the stairway leading to Scenic Drive from the Business Office.
- Secure resources to implement a full-scale recycling center.

Progress to June 30, 2012: Otero County has opened a Recycling Center. We no longer need to attain this goal.

- Examine procedures for capturing and using rainwater.

Progress to June 30, 2012: This step has not been accomplished. The campus is reviewing the need for this type of procedure in a desert environment.

Conclusion

It is impossible to be a leader in higher education without thinking a great deal about the future. Therefore, NMSU-A recognizes the importance of reaching climate neutrality, and we will make every effort to meet this very important challenge.

The ability to make a commitment is the very first step in achievement of any strategic goal or vision. The implementation of our Sustainability Task Force and the development of our Sustainability Plan is the campus' first step in the development and implementation of our sustainability goals and vision.