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**CAMPUS SUSTAINABILITY – PART I**  
**A BOARD OF REGENTS INITIATIVE**

**Action Requested:** Receive the report.

**Executive Summary:** At the June 12, 2008 meeting of the Board of Regents, President David Miles outlined priorities for the next fiscal year – including a plan for sustainability. He stated that this initiative follows on and extends the very exciting work already underway on Regents campuses and he asked the Regents institutions to develop a plan over the next year to provide an integrated and collaborative effort towards greater sustainability. President Miles directed that the plan make the Regents institutions leaders in the nation on:

- Operational practices
- Education
- Research
- Economic development

Sustainability has been defined as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (United Nations Bruntland Commission, 1987).

The Regents institutions, with their more than 4,000 on-campus and 1,000 off-campus acres (excluding farm acreage), approximately 35 million gross square feet of space, more than 70,000 students, over 45,000 employees, and hundreds of thousands of visitors to the campus annually (including more than 700,000 clinic visits to UIHC), have a significant environmental impact. Conducting significant research with distinguished faculty, Regents universities are positioned within the state and nationally to lead in the greening of buildings, purchasing and transportation. Regents institutions have an educational responsibility to students to expand discussion about sustainability, create student awareness and offer credit courses incorporating the principles of sustainability.

This is the first of a two part presentation to the Regents that will cover:

1. Update on status of sustainability, and progress with four distinct topical areas.
2. Update on inter-institutional work in considering joint goals.
3. Inter-institutional goals/objectives.
4. Institution specific goals/objectives.

NOTE: An initial report on Campus Sustainability was received by the Board of Regents in February, 2008:

[http://www2.state.ia.us/regents/Meetings/DocketMemos/08Memos/feb08/0208\\_ITEM18.pdf](http://www2.state.ia.us/regents/Meetings/DocketMemos/08Memos/feb08/0208_ITEM18.pdf)

**Background:** There are two thrusts for sustainability occurring presently; Regents Sustainability Initiative and State Green Government Initiative.

**State Initiatives**

The State of Iowa is committed to leadership in environmental protection through increasing the use of renewable energy, alternative fuels and energy efficient technologies through the 2007 creation of the Office of Energy Independence (OEI) and the Iowa Power Fund, the Climate Change Advisory Council, the signing of the Midwest Regional Greenhouse Gas Reduction Accord and the continued funding of the *Grow Iowa Values Fund*. OEI's mission is to achieve a clean and sustainable energy future by providing leadership through education, research, planning, and investment and by developing policies and resources to produce market transformation.

In February 2008, Governor Culver signed Executive Order #6 creating the Green Government Initiative – designed to provide leadership by example and integrate clean energy, environmental protection and resource conservation programs, policies and procedures into all appropriate aspects of government. In addition to a Green Government Steering Committee, the Executive Order establishes three task forces focusing on:

- Energy Excellent Buildings
- Sustainable Materials
- Biofuels

An audit of current practices related to procurement, operations and disposal is to be completed by December 1, 2008. Regents institutions are participating in the audit.

The Steering Committee will be developing a Green Government Master Plan, which will outline steps for developing, implementing and augmenting programs, plans and policies to promote environmentally sustainable and economically efficient practices. The Master Plan is to be completed by March 15, 2009.

The Board of Regents is represented on the Green Government Steering Committee and the three task forces. In addition, the Executive Order provides that “the Board of Regents, in the development of sustainability goals, policies and practices for facilities and operations under their governance authority, will seek to coordinate these efforts with those of the Green Government initiative and provide progress reports and data which can be readily incorporated into the reporting systems developed by the Green Government Steering Committee”.

**Regents Initiatives**

Sustainability has been underway on the Regents campuses for a number of years and has become more visible with the appointment on each university campus of a presidential-level council to develop best practices in sustainability and the creation of a Sustainability Coordinator or Director position.

In response to President Miles' initiative, the Regent institutions are also working individually and inter-institutionally to develop exemplary sustainable practices, as well as educational and research programs that promote sustainability. Each institution has already implemented programs that promote and demonstrate sustainability. In particular, each institution has energy policies and programs in effect that are in alignment with energy initiatives nationally and within state government. The three public universities are committed to promoting sustainability in all components of higher education – through education, communication, research and professional development.

University and inter-institutional goal-setting is underway and these goals will be the focus of a report to the Board at its March meeting. Brief status reports for each institution follow.

State University of Iowa

- Greenhouse Gas Management - Joined the Chicago Climate Exchange, the world's first and North America's only active voluntary, legally binding integrated trading system to reduce emissions of all six major greenhouse gases (GHGs), in May 2004. The Exchange requires a 6% reduction in the 1998-2001 baseline greenhouse gas emissions by 2010. The University is currently more than two-thirds of the way toward this goal through its substantial conversion to biomass fuel for heating and electric generation.
- Energy Conservation
  - Established the Energy Conservation Advisory Council (ECAC) in 2004 composed of students, faculty, and staff who offer feedback and guidance to Facilities Management on energy conservation measures.
  - In 2007 adopted its Energy Conservation and Management Plan, a campus-wide commitment to reduce the University's carbon footprint by using more renewable energy, increasing energy efficiencies, encouraging conservation. The plan includes a commitment of a 10 percent per square foot reduction in the University's reliance on non-renewable energy sources and sustainability in relying on renewable resources for 15 percent of its energy by 2013; an earlier date is now under consideration.
- Renewable Fuels - Created a Green Power Task Force with the technical expertise to recommend specific methods for using renewable fuels within the Main Power Plant, the Oakdale Renewable Power Plant, and a proposed West Campus Power Plant. Technologies include biomass gasification to produce synthetic gas and the formation of biogas from anaerobic digestion of biomass – which was the major factor in the University of Iowa's selection by Buildings Magazine as a top ten facilities organization in the U.S.
- Energy Efficiency - Long-term and substantial capital investment in efficient co-generation facilities and central chillers. Co-generation enables heating of buildings and electricity to be generated with the same steam energy. Huge central chiller plants avoid the need for smaller, less efficient building chillers for air-conditioning. All of this investment has been through the self-supporting Utilities Enterprise.
- Campus Sustainability - President Sally Mason named a seven-member Sustainability Steering Group in June, 2008 whose first task is to conduct a comprehensive review of the University's environmental policies to assure that they promote exemplary environmental behaviors. A report from the group is due by the end of the calendar year.
- Wind Energy - This past year highlighted wind energy research leadership of the College of Engineering working with state government; ISU, UNI and the community colleges; and with the Iowa wind energy industry to develop research and training programs to advance Iowa's wind energy industry.
- Academic Curriculum - The Provost Office completed an inventory of sustainability elements within the curriculum and began a process to add faculty through "cluster hiring" practices that would build upon sustainability in research and the curriculum. The University of Iowa now has 200 courses with sustainability content, of which 152 are undergraduate courses. These include courses in engineering and the physical sciences, but also history, health, public policy, economic analysis and cultural analysis.
- Environmental Research - Numerous multi-disciplinary research organizations have been created that are focused on sustainability issues. Examples are the Lucille Carver Mississippi Riverside Environmental Research Station and the Center for Global and Regional Environmental Research.

- Transportation - Initiatives to lessen the transportation impact of 31,000 students and 22,000 FTE faculty and staff have been undertaken by providing alternatives to auto travel and promoting alternative fuels. This includes developing the second largest bus system in Iowa, an extensive vanpool system, and commuter parking facilities linked to the main campus via Cambus.
- Procurement – Initiatives to purchase products with recycled content, “green” or environmentally-friendly products have begun whenever available and practicable.
- Sustainability Coordination - Invested \$250,000 of the FY 2009 General Fund budget to organize the University sustainability initiatives. Subsequently the University hired a director of its new Office of Sustainability, Liz Christensen. She had previously served as the deputy director of the State Department of Natural Resources.

#### Iowa State University

Since 2001 Iowa State has been actively and aggressively pursuing energy conservation and sustainability initiatives. The current campus initiatives are being coordinated by the President's Advisory Committee on Energy Conservation and Global Climate Change established early in 2008 and chaired by President Geoffroy. This committee is providing both advice and leadership across the university. Initiatives focus on education, research, outreach, campus facilities and operations, procurement, recycling, biofuels and transportation.

- Campus Sustainability - ISU is participating in the programs developed by the Association for the Advancement of Sustainability in Higher Education (AASHE), an association of colleges and universities in the U.S. and Canada working to create a sustainable future. The University is evaluating tracking systems for gauging progress and developing performance indicators using quantitative measurements of sustainability. The broad areas that are included in the planning are:
  - Governance and Finance
  - Social Responsibility and Community Engagement
  - Education and Research
  - Operations
    - Facilities Operations
    - Recycling
    - LEED Standards
    - Purchasing
    - Energy and Climate
    - Materials and Recycling
    - Transportation
    - Water and Landscape Management
- Live Green Loan Fund (LGLF) - A \$3 million energy conservation sustainability loan fund will provide interest-free funding for campus projects that have quantifiable savings and which meet return on investment criteria. Savings generated by these projects will be reinvested into the fund until the loan is paid, enabling the fund to finance additional projects.
- Sustainability Coordination - The Office of Sustainability will serve as the primary mechanism to facilitate multi-disciplinary exploration of fundamental issues relating to sustainability issues, to recognize and award the sustainability efforts of current programs and initiatives, as well as individual contributions by faculty, staff, and students, and will serve as a communication vehicle for increasing the understanding of sustainability at Iowa State University. A search for the Director of Sustainability is currently underway.

- Local Foods Initiative - ISU Dining has instituted a program that provides local foods in dining areas in a "Farms to ISU" program. The goal is to have 35% of raw food purchases supporting organic, sustainable, and local producers. The program also includes an educational component to increase awareness of sustainable food options in central Iowa.
- Academic Curriculum and Research - Iowa State offers more than 180 courses that deal with sustainability in all of our colleges. There are also a large number of education and research initiatives ranging from the development of the New Century Farm and biorenewables research, the National Science Foundation Engineering Research Center, Center for Sustainable Energy Technologies and a number of agriculture and extension projects.
- Building Commissioning - ISU is putting processes in place for all major capital projects to formally commission building systems to assure that they are designed, installed, and calibrated to operate as they were intended.
- Sustainable Building Design and Construction Practices - ISU is establishing LEED certification goals for major capital projects.
- Energy Conservation - ISU has had an energy task force since 2001. The goal has been to save at least \$1,500,000 annually. Since 2001, the University has saved over \$6,000,000, compared to the average of the three years prior to the initiation of the program.
- Vehicle Fuel - ISU is using soy blend ultra low sulfur diesel fuel for lawn equipment, tractors, trucks, and excavation equipment. Transportation Services is incorporating E85 vehicles into their vehicle fleet and has installed an E85 fueling system.
- Recycling - ISU recycles waste product streams whenever a viable market is available and is constantly looking for new opportunities to recycle. Examples of estimated annual tonnage of recycled materials are:
  - Cardboard, 210 tons
  - Newspapers, 30 tons
  - Phone books, 8.5 tons
  - White paper, 120 tons
  - Free wood program, 50 tons
  - Power plant ash, 32,000 tons
  - Residence move out materials, 10 tons
  - Scrap metal, 150 tons
- Cogeneration – Since 1891, Iowa State has operated a cogeneration type of power plant. The ISU plant averages about 55% efficiency as compared to typical power plants which operate at an efficiency of 35-40%. The increased efficiency reduces the amount of coal that is burned and the amount of pollutants that are emitted into the environment.
- IAMU Wind Energy Project – Iowa State and the City of Ames are jointly participating in a study by the Iowa Association of Municipal Utilities (IAMU) to construct a wind farm near Ames. Phase II of the study, which recently began, will define the construction and operating costs of the wind farm and complete the required studies to interconnect the farm into the electrical grid. Currently the wind farm is projected to be operational in 2010. ISU has requested 5 megawatts of electrical capacity from this wind farm. This farm could provide over 8% of the University's electrical requirements.

- Transportation – ISU partners with the City of Ames to operate a highly effective public transportation system, CyRide, which transports students, faculty and staff throughout the campus and Ames community. CyRide uses bio-diesel fuels. Eight bus routes traverse through campus with over 115 stops and seven transfer points to provide an efficient and effective service transporting our 3.2 million riders, 80-90% of whom are connected with ISU.
- Animal and Food Waste Compost - ISU is in the planning stages to develop a compost site to take animal waste from the Animal Science Teaching farms, food waste from Dining Services, and coal ash from the power plant and process the materials into compost for reuse on campus property as an amendment to soils.

University of Northern Iowa

- Energy Conservation
  - The University Energy Conservation Committee, established in September 2006 by President Ben Allen, consists of University faculty, staff, and students with city and community representation. The Committee works to enhance both energy efficiency and environmental awareness; it currently has eight task groups that focus on the tasks of engaging the campus community, auditing campus practices, and compiling best practices in areas such as recycling, “green” procurement practices and policies, and classroom scheduling.
  - In August, 2008 President Allen created a nine member Advisory Council to provide guidance and support to the Energy Conservation Committee, work with State of Iowa government and Iowa Board of Regents with their Green Government initiatives, develop energy conservation and climate change guidelines for all new construction and major renovation, and inform the university community about energy conservation and climate change issues.
- Campus Sustainability - UNI is a member of the Association for the Advancement of Sustainability in Higher Education (AASHE). The membership enables the University to collaborate with other members and to gather information on sustainability accomplishments at other universities.
- Recycling - UNI just completed its 18<sup>th</sup> year of recycling mixed paper in campus facilities. In just its second year, a recycling substation on the UNI campus, created in a partnership with the City of Cedar Falls, collected over 215 tons of newsprint, cardboard, plastics, and other recyclables, an 18% increase from the first year. UNI received the Best School Recycling Program Award in 2007 from the Iowa Recycling Association.
- Greenhouse Gas Management - A greenhouse gas (GHG) emission survey will be conducted this year to establish a baseline for the campus carbon footprint.
- Sustainable Building Design and Construction Practices - UNI has joined the U.S. Green Building Council; LEED Silver certification is being sought for the Sabin Hall renovation.
- Sustainability Coordination - A sustainability engineer position in Facilities Services has been created and on-campus interviews will take place in mid-November 2008. The new energy engineer will assist with implementing sustainable energy conservation initiatives.

- Sustainability Efforts - Recent sustainability practices include installing pervious pavements, building bioswales, implementing pollution prevention programs, purchasing electric hybrid cars and blended fuel vehicles.
- Academic Curriculum and Research - UNI offers more than 180 courses that deal with sustainability. A large number of research and service initiatives have been identified. UNI will continue to provide leadership for sustainable statewide initiatives through programs such as:
  - Iowa Waste Reduction Center (IWRC)
  - Center for Energy and Environment Education (CEEE)
  - Buy Fresh Buy Local (BFBL)
  - Recycle and Reuse Technology Transfer Center (RRTTC)
  - National Ag-Based Lubricants (NABL)
  - Industrial Technology Center's Electrical and Information Engineering Technology program (EIET)
  - GeoTREE

#### Special Schools

The Special Schools are also aggressively pursuing methods to reduce energy consumption and energy costs and use renewable energy sources.

#### Iowa School for the Deaf

Recent initiatives to maintain and further reduce energy consumption include major window and exterior door replacements, roofing replacement projects, thermal pipe insulation repair and replacement, more efficient lighting bulbs and ballasts, installation of stand-alone kitchen equipment, alleviating the need to run the central boiler plant during temperate conditions, reduction of classroom and administration building temperatures during the winter, and installation of occupancy sensors in restrooms. The School has also established a rain garden to reutilize fallen precipitation and revitalized the campus wide recycling program to include all tenant operations.

ISD also entered into a cooperative energy efficiency awareness program with MidAmerican Energy to foster a heightened level of awareness among School stakeholders.

#### Iowa Braille and Sight Saving School

The Iowa Braille and Sight Saving School recently installed a geothermal heating and cooling system in Old Main; a similar system had previously been installed in Rice Hall. A supplemental heat exchanger unit has been installed to ensure adequate heat on those winter days when the geothermal heat well does not provide adequate output. The heat exchanger is fueled by natural gas. The geothermal systems also cool the buildings more efficiently than the window air conditioners which they replaced.

IBSSS also reports that the building automation system is being used to schedule systems to provide heating and cooling only when the areas are occupied.

**The Plan:** The Regents Sustainability Plan is intended to be a dynamic document setting broad goals for a Regents-level plan that can be individualized for each institution. The Plan proposes policies and goals in the following areas:

- Facilities and Utilities
- Procurement and Recycling
- Biofuels and Transportation
- Education and Research

Each institution is working with its sustainability council and partners to prioritize and monitor sustainability plan goals within institutional budgets. Annual progress reports will be made to the Board. A report to the Board on specific inter-institutional and individual goals will be made at the March meeting.

Topics of goal-setting underway include:

### **Facilities and Utilities**

- LEED Certification: Adopt the US Green Building Council's Leadership in Energy and Environmental Design (LEED) Green Building Rating System™.
- Architect/Engineer Services Selection: Give preference to design professionals with LEED certification experience.
- ASHRAE Energy Standards: Exceed the current American Society of Heating, Refrigerating & Air Conditioning Engineers (ASHRAE) 90.1 requirements for new construction and renovation.
- Energy Efficient Lighting and Lighting Systems: Using the American Society of Heating, Refrigerating & Air Conditioning Engineers/Illumination Engineering Society of North America (ASHRAE/IESNA) 90.1, Energy-Efficient Design of New Buildings Except Low-Rise Residential and Illuminating Engineering Society of North America (IESNA) Standard, Current Edition develop standards among all institutions.
- Metering of energy use: Develop metering infrastructure to better manage point of consumption energy conservation.
- Renewable Energy: Expand renewable energy portfolio

### **Purchasing and Recycling**

- Energy Efficiency for Movable Equipment: Adopt standards such as the EPA's Energy Star program for the purchase of products when practical and available.
- Environmentally-friendly Products: Adopt standards such as Green Seal and EPEAT for the purchase of products when practical and available.
- Recycling and Waste Management:
  - Purchase products with sustainability less post consumer waste (PCW) recycled content.
  - Reuse, repurpose or recycle surplus items such as lighting, toxic waste, batteries, and bottles.
- Buy Local – Purchase locally grown and produced products to minimize the environmental costs of shipping.
- Electronic Business Solutions: Reduce the demand for paper and travel by substituting

electronic systems and teleconferencing.

### **Biofuels and Transportation**

- E85 Fuel and Biodiesel: Increase E85 fuel and biodiesel use in each fleet and establish compatible, ambitious goals.
- Alternative Methods of Transportation:
  - Expand the use of hybrid vehicles, electric cars and other alternative technologies to improve fuel economy and reduce emissions, and set compatible, ambitious goals
  - Reduce the number of employee and student vehicles traveling to campus each day, and the miles they travel by providing alternatives and incentives.
  - Create new programs or partner with municipalities and local bus, car pool and ride share systems to provide alternatives to commuting alone.
- Coordinated Travel: Resolve risk management, worker's compensation and other regulatory issues to allow Regents fleet vehicles to transport other state, county, municipal, and governmental staff and officials on coordinated travel (possibly to include commuting where van pools exist).

### **Education and Research**

- Establish undergraduate curriculum and certification programs.
- Develop focused student internships.
- Broaden sustainability outside of science and engineering; academic programs to encompass economics, policy, and cultural studies.
- Hire faculty with sustainability research and teaching interests.
- Develop research and internship collaboration with University sustainability operations at the power plants, purchasing and other focal points.