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## UNI SUSTAINABILITY ANNUAL REPORT

The University of Northern Iowa is pleased to report on sustainability accomplishments over the past year. The university will serve as a model for sustainable practices and a laboratory for students, faculty and staff to test new ideas and approaches. This report covers the highlights of this last year.

### Planning and Development

**Vision:** Each institution will demonstrate a commitment to sustainability in its campus master plan, incorporating environmental stewardship.

#### **Goals:**

1. **LEED Certification:** All major projects (new buildings and major capital renovations) initiated after April 1, 2009 shall meet or exceed the U.S. Green Building Council's guidelines for silver level LEED certification.
  - Renovation of Sabin Hall - the Sabin Hall renovation will result in attaining a LEED certification of Silver. The project is on target to receive this certification. In terms of energy savings, the Sabin Hall renovation:
    - is anticipated to use 40% less water than code level (Energy Policy Act 1992),
    - HVAC is anticipated to consume 15% less than code level (ASHRAE 90.1, 2004),
    - lighting power density is reduced to 40% below code (ASHRAE 90.1, 2004).
  - The first phase of the three phase Residence Hall Apartment Housing project, currently in the Schematic Design phase, is being designed to achieve, at a minimum, LEED Silver. Sustainable measures such as energy modeling will be incorporated into the design process to help analyze and optimize the building's energy performance. Major sustainability features of the Apartment Housing project include:
    - 20%+ reduction in water usage by selecting low-flow plumbing fixtures and plant selection which does not require irrigation.
    - 20%+ improvement in energy performance as compared to baseline ASHRAE 90.1/2007 minimum standard. These savings will be achieved through a combination of strategies including:
      - Energy-efficient ground-source heating and cooling system
      - Energy recovery units to use exhaust air energy to precondition fresh air
      - Exterior solar shades over larger windows on south façade
      - Orientation of building to avoid most windows on east and west elevations
      - Roof-mounted solar collectors for domestic hot water
      - Energy-efficient exterior walls, roof and windows
    - 75%+ reduction of construction waste through recycling or salvaging for reuse.
    - 20%+ use of recycled content in building materials.

- 20%+ use of regional materials.
  - Significant improvement of indoor air quality through the use of increased ventilation and selection of low emitting paints, adhesives, sealants, and flooring systems.
  - Providing individual control of lighting and thermal systems.
  - Management of the quality and quantity of on-site water runoff. The project site is in a targeted watershed management area. Bio-swales, green vegetative roofs and cisterns for rainwater irrigation are a few items under consideration.
  - LEED-certified staff expertise within the Office of Facilities Planning.
2. **Design Professional Services Selection:** For all major capital projects initiated after April 1, 2009, preference shall be given to design professionals with LEED certification experience.
- Selection of professional consultants for major projects after April 1, 2009 has been based on preference for professionals with LEED Certification.
3. **ASHRAE Energy Standards:** All new building and major capital renovation projects that alter mechanical and electrical systems shall exceed the current American Society of Heating, Refrigerating & Air Conditioning Engineers (ASHRAE) 90.1 requirements, which provides minimum requirements for energy efficient design of buildings.
- All major projects are designed to exceed the current ASHRAE 90.1 requirements for both mechanical and electrical systems.
  - The Multimodal Transportation Center opened to students, visitors, faculty and staff in November 2009. The center will be a net zero energy facility, with geothermal heat pumps used for heating and cooling. The top of the facility will hold photovoltaic panels that are connected to the University's electrical infrastructure. Energy being created that is not used in the center will be metered out and sent elsewhere on campus, eliminating the need for storage batteries.
4. **Energy Efficient Lighting and Lighting Systems:** The design of new lighting and lighting control systems shall comply with the latest version of 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. The Lighting quality and light uniformity shall comply with Illuminating Engineering Society of North America (IESNA) Standard, Current Edition.
- All major projects are designed to exceed the current ASHRAE 90.1 requirements for lighting and lighting control systems.
5. **Electronic Business Solutions:** All campuses shall encourage electronic business solutions to reduce the demand for paper and travel, such as electronic systems and teleconferencing.
- The university has and is currently implementing several administrative systems that will minimize the need for paper copies.
  - Drawings and specifications for smaller projects are made available on the university website to reduce the need for paper copies.

### Supplemental Information

- The first University Sustainability coordinator, Eric O'Brien joined UNI in April 2010 and will lead the development of a comprehensive campus sustainability program.
- The second annual campus-wide forum on sustainability was held on Earth Day, April 22, 2010. The annual forums provide President Allen and the Sustainability Advisory Council the opportunity to highlight accomplishments during the year, evaluate progress compared to campus sustainability objectives, and seek input from students, faculty, and staff on initiatives and programs of interest.
- UNI became a charter member of the Association for the Advancement of Sustainability in Higher Education (AASHE) STARS program. The STARS program is a sustainability tracking, assessment and rating system with standards by which institutions may measure themselves and qualify for different levels of recognition.
- UNI's sustainability website C.A.R.E. (<http://www.vpaf.uni.edu/energy/>) which stands for Creating A Responsible Environment was recently updated and is now linked to the University's home page. This site will provide news and events, information on courses and academic-related environmental programs and current initiatives by students, faculty, and staff at UNI.

### Purchasing

**Vision:** Each institution shall adopt a campus-wide environmentally preferable purchasing plan that is consistent with best practices in higher education. These policies will increase the purchase of products with a reduced environmental impact, while balancing the purchase decision with fiscal responsibilities.

#### **Goals:**

1. **Energy Efficiency:** Institutions shall specify U.S. EPA Energy Star\* equivalent or better ratings on applicable energy consuming products when available and practicable. When Energy Star labels are not available, all purchasing units shall choose products that are energy efficient.
  - UNI utilizes standard language in our Request for Proposals requesting U.S. EPA Energy Star or better ratings when available and applicable.
2. **Source Reduction**
  - Institutions shall purchase products with a minimum of 30% Post Consumer Waste (PCW) recycled content for paper products, or, at the minimum, EPA standard for other products, or bio-based materials, when available and practicable.
    - UNI purchases recycled paper products from a joint Regents bid. Over the last year, UNI has purchased 90-95% recycled paper with at least 30% PCW.
  - Institutions shall encourage vendor packaging that is reusable, contains a minimum of hazardous and non-recyclable materials, and meets or exceeds the recycled material content levels in the U.S. EPA Comprehensive Procurement Guidelines for Paperboard and Packaging.

- The OfficeMax agreement includes provisions to reduce packaging by shipping to a central location for distribution across campus. This process of a central shipping location is also being pursued in a joint MRO bid currently in process.
  - Reduce the use of disposable products. Specify and purchase products that are reusable or refillable wherever feasible and practical.
    - Free insulated mugs for hot beverages were given away by the Department of Residence. Mugs could be used at participating stores for refills.
  - By July 1, 2012, the Regent institutions' combined purchases with recycled content will increase by 10% over the base year of FY 2010.
    - No report at this time.
3. **Buy Local:** Institutions shall encourage purchase of locally grown and produced products, defined as within Iowa or a 500 mile radius of the institution, to minimize the environmental costs associated with shipping.
- The University encourages and supports the use of locally grown and produced products particularly in our Department of Residence and the Malcolm Price Laboratory School. UNI Dining Services purchased \$748,404 in local foods in 2009, including eggs, dairy, herbs, flowers, fruits, apple cider, honey, vegetables, beef and pork.
4. **Green Goods and Services:** Institutions shall encourage the use of green-certified products and services such as, but not limited to, Green Seal, Egologo, EPEAT (Electronic Product Environmental Assessment Tool), FSC, etc.
- The University is currently participating in a collaborative bid with the University of Iowa for green cleaning supplies along with training of our staff to utilize the new products to clean in a more green manner.
5. **E-procurement:**
- Institutions shall strive to achieve paperless processes by reducing the use of paper, toner, storage files and space.
    - Electronic record keeping has and will continue to be a top system improvement priority. Working with the University of Iowa, UNI will be implementing SU1's applicant tracking and ProTrav systems, which will continue the progress toward paperless procurement and reimbursement.
  - By January 1, 2010, institutions shall require all bidders for goods and services (excluding construction) to:
    - submit bids/proposals electronically or, at a minimum, on recycled paper, double-sided and without extra materials not requested
    - reduce packaging or minimize the negative impact of packaging
    - consider the environmental and social impact costs over the lifetime of a product or services in evaluation criteria.
  - All bids from the University of Northern Iowa are issued electronically through email to vendors and posted to the University website. In most cases,

vendors are requested to respond with a single paper copy and an electronic response unless the items bid require some type of sample. UNI is moving to all electronic responses, when applicable, by the end of FY 2010.

### **Energy and Climate**

**Vision:** Institutions shall commit to pursuing climate neutral operations through energy efficiency, conservation, on-site generation and strategic procurement of clean and renewable energy.

#### **Goals:**

1. **Metering:** By July 1, 2013, 90 percent of the utilities (steam, condensate, electricity, potable water and chilled water) systems shall be metered at the point of consumption to measure effectively use and waste in the system.
  - **Electrical:** UNI has installed building level meters in all major buildings. All the meters are network devices which are remotely read from a software package. This software allows the university to study details of building electrical usage beyond monthly KWH usage. UNI has also installed networked meters at the power plant on the turbine, incoming CFU feed, station power and the five feeders which supply campus. Another feature of the metering system is the ability to detect and capture information on problems in the system in order to improve reliability.
  - **Condensate:** UNI has installed condensate meters in all of the campus buildings. Approximately 50% of these meters are remotely read with building automation system and the university is in the process of automating the remaining meters. The building automation system software will then house current and historical steam usage data for analysis.
  - **Chilled water:** Most buildings have individual chillers which are not metered. UNI has the ability to trend the pumps and control valve positions to analyze loads in these buildings. In the case of Sabin Hall, MSH chillers will provide chilled water to Sabin and Seerley. In this case, meters are being added at the building level.
  - **Well water:** Currently, 2/3rds of the wells are metered at the building level. UNI is in the process of evaluating and estimating installation of the remaining well meters. All meters are planned to be remotely read through the building automation system.
2. **Energy Portfolio:**
  - By July 1, 2013, the combined energy portfolio of the Regent institutions shall include at least 10% from renewable sources.
    - UNI has just completed a phase II wind turbine study which includes the installation of up to 4 MW of wind turbines on campus (west of the power plant).
    - UNI has studied the installation of 6 KW of small wind turbine on the roof of Sabin Hall. This is still under consideration.
    - UNI is in the process of installing PV panels on the top level of the Multimodal Transportation Center. This is estimated to be a net zero building, the first of its kind in Iowa.

- UNI has performed test burns of wood-based biomass fuels and is evaluating other biomass options, including prairie grasses.
- By 2025, the Regent institutions shall meet the Culver/Judge Energy Legislation Initiative for a renewable standard of 25%.  
([http://www.governor.iowa.gov/news/2008/01/15\\_1.php](http://www.governor.iowa.gov/news/2008/01/15_1.php))
  - No report at this time.
- The Regent institutions shall establish individual goals to enable the collective success toward the use of renewable energy. As part of this, the institutions will also develop and act on individual plans for energy reduction, energy efficiency and energy conservation goals.
  - The university has accomplished the following:
    - ✓ A temperature policy on campus has been established.
    - ✓ Building operating hours have been reduced. The building automation system is being used to “tighten” up building schedules and increase the unoccupied cycle times. Since 1988, semester breaks and weekend hours have been times when energy savings have been achieved.
    - ✓ All building designs are evaluated to minimize energy usage.
    - ✓ There are specific energy saving-related projects currently in design or implementation, such as:
      - Energy audits for CBB, BRC and ITC
      - Adding building automation to Latham Hall mechanical systems
      - Lighting reductions at the Rod Library
      - Implementation of the WRC retro-commissioning recommendations at WRC
      - Study of the interconnection of WRC chillers
      - Department of Residence is replacing window air conditioning units with high efficiency heat pump split systems
      - Biology Research Center lighting retrofit
      - Seerley Hall HVAC improvements
      - ITS User Services is utilizing a product called EZ GPO, from Energystar.gov, to implement a smarter power management scheme for all its computers in the Student Computer Centers as well as on lobby kiosk workstations across campus. By shutting monitors off and putting computers in sleep mode instead of letting them run at full power all day, ITS, and thus the University, saves energy.
      - Lighting upgrades in Shull Hall
      - LED lighting upgrades to the Gallagher-Bluedorn Performing Arts Center.
- The Regent institutions shall achieve reductions in Greenhouse Gas (GHG) emissions consistent with the strategies developed by the Iowa Climate Change Advisory Council created under Iowa Code § 455B.851 in 2007.
  - The Green House Gas Emissions Inventory was presented to UNI faculty and staff and eventually released to the public. This report is available for all students and public to view at:  
[http://www.vpaf.uni.edu/energy/docs/UNI%20Final%20Report\\_090909.pdf](http://www.vpaf.uni.edu/energy/docs/UNI%20Final%20Report_090909.pdf)

The GHG inventory serves to educate UNI and assist in reduction of emissions. It will also be used as a benchmark for further measurement in future years.

### **Materials and Recycling**

**Vision:** Regent institutions shall reduce the volume of materials and resources consumed, and reuse or recycle resources and materials whenever possible, with the long-term objective of contributing to the development of a waste-free society.

#### **Goals:**

1. **Recycling:** Encourage and promote programs that reuse, repurpose or recycle surplus items such as lamps/light bulbs, toxic waste, batteries, paper, bottles, and other products where feasible and practicable.
  - UNI participates in a joint agreement with other state agencies for oil recycling. We are also currently in the process of a joint bid with other state agencies for hazardous waste recycling.
  - During calendar year 2009:
    - ✓ 180 tons of mixed office paper and cardboard were recycled directly by the University with City Carton.
    - ✓ 215 tons of materials were recycled in partnership with the City of Cedar Falls through the recycling substation site on campus.
    - ✓ All used batteries, lamps/light bulbs, toner cartridges and paint thinner were recycled but counts of these items were not maintained.
  - A pilot program was initiated in the fall of 2009 to encourage recycling among students which included providing recycling containers in each dorm room of Rider Hall. The sponsors of the program are currently working on a proposal to expand residence hall recycling to other halls. This will come through the energy conservation committee and to the sustainability council once all the proposal details and requirements are worked out.
2. **Conserving:** Select the duplex setting as the default for printers and copiers, and use recycled toner whenever possible.
  - Duplex printing in non-environmentally controlled situations such as our computer labs is very problematic. As a result, the duplex option is used often in individual office settings, but not in public computer labs. The University is determining the feasibility of using duplexing printers for the next set of printer purchases in the largest computer labs on campus.
3. **Materials:**
  - Recycle electronic waste in a responsible manner.
    - Used computers are recycled after hard drives have been scrubbed and cleansed offering them first for sale through our Campus Supply store and then with the CF Transfer station if items don't sell within a month.
  - Encourage institutions to continue to identify strategies and programs to mitigate waste.

- Panther Pick-Up will be in its second year of operation this May; this joint initiative involves the residence halls, the City of Cedar Falls, Goodwill, Salvation Army and St Vincent de Paul, the College Hill Partnership and several University departments---IWRC, RRTTC, Wellness, Physical Plant, Marketing & Public Relations. As students move out of their residence hall, used clothing, furniture, metals and other items are collected for reuse by the agencies mentioned instead of going to the landfill.

### **Transportation**

**Vision:** Regent institutions shall develop transportation strategies that increase fuel efficiency and reduce fuel use, air pollution and carbon dioxide emissions while providing opportunities for alternative transportation including bicycle and pedestrian infrastructure.

#### **Goals:**

1. **Emissions:** Regent institutions shall reduce the emissions related to the campus fleet through:
  - Increasing E85 and biodiesel alternate fuels while increasing the percentage of Flex Fuel, hybrid and electric vehicles in each fleet.
    - UNI has increased efforts to reduce carbon emissions by replacing four vehicles primarily used on or around campus with electric vehicles; the elimination of a covered straight truck, two pick-ups and a JD Gator saved:
      - ✓ 732.4 gallons of diesel fuel
      - ✓ 536.8 gallons of unleaded fuel
      - ✓ An estimated \$3,563 annually
    - The two Toyota Priuses in the Motor Pool fleet are averaging 18,000 miles annually and, strictly on fuel economy alone, reduce fuel use by 736 gallons a year.
    - E85 fuel use increased by 30.4% in FY 2009 and now exceeds 30,000 gallons annually.
    - Diesel fuel is now a B10 mixture for nine months of each calendar year.
  - Increasing the number of passenger miles traveled (number of passengers times the miles traveled) in university fleet vehicles, relative to total fleet mileage.
    - No action at this time.
  - Reducing the number of vehicles used for transportation of employees and guests to/from airports.
    - UNI's Motor Pool works with Enterprise Rental for one-way reservations to airports in Cedar Rapids, Des Moines and Moline, eliminating down time for fleet vehicles and storage fees.
  - Initiating discussions with Risk Management personnel to resolve Worker's Compensation issues to allow Regents' fleet vehicles to transport other state, county, municipal, and governmental staff and officials on coordinated travel.
    - No action at this time.

- Increasing efforts to reduce vehicle idling.
  - A variety of activities across campus, including campus mail and maintenance, are now conducted using electric vehicles rather than fleet vehicles.
- 2. **Alternative Transportation:** Regent institutions shall strive to reduce the number of single occupant vehicles coming to campus through:
  - Creating new or expanding programs or partnerships with municipalities and local bus, van pool and ride share systems to provide alternatives to commuting alone.
    - MET transit offers free bus service to students from campus to shopping areas during the academic year.
    - UNI has a Safe Ride program that promotes responsible behavior and encourages the use of mass transportation between University Avenue, the downtown Cedar Falls area and campus during weekends.
    - UNI has improved its campus bus routes to eliminate inefficiencies.
  - Increasing parking system controls or incentives to encourage alternatives and achieve reductions in the number of single passenger commuter vehicles.
    - Plans in this area will be analyzed after completion of the Multimodal Transit Facility.
  - Expanding the use of teleconferences, video conferencing, and interactive webinars with geographically distant individuals
    - A variety of classrooms have the capability to host large webinars.
    - Teleconferencing and video conferencing between UNI, Regent institutions, government agencies or private sector groups is encouraged.
  - Coordinating travel of employees attending the same event.
    - Travel coordination is done within departments and divisions to ensure that only necessary employees are attending events. The travel approval process eliminates excessive travel when multiple staff attend the same event.
  - Encouraging walking and biking by enhancing safe walking paths, bike lanes, and other bicycle programs such as bike storage.
    - As part of the Multimodal Transit Facility, UNI installed a number of bike lockers for long-term, secure storage.
    - UNI sponsored bike tune-ups in association with Earth Day activities.
    - The Cedar Valley Trails Partnership has a number of bike trails that pass through the UNI campus.
    - Lighting of major thoroughfares across campus promotes walking throughout the evening.
  - Exploring work alternatives and alternative scheduling that meets the needs of the institution.
    - Flex-time has been used to condense the work week to four 10-hour days.

- UNI uses summer hours that decrease energy demand on campus.

### **Water and Landscape**

**Vision:** Regent institutions shall pursue water saving and efficiency measures, including collection technologies and re-use mechanisms.

**Goals:**

1. **Irrigation Water Consumption:** Regents institutions will adopt best management practices for minimizing irrigation and for the use of graywater for this purpose.
  - No action at this time.
2. **Organic Campus:** Regents institutions will use Organic Materials Review Institute (OMRI) listed pesticides and fertilizers on campus.
  - No action at this time.
3. **Stormwater Management:** Regents institutions will adopt best management practices for stormwater on campus.
  - Tall Grass Prairie Center, as part of the Natural Resource Research and Management Series, sponsored a presentation exploring the potential positive and negative effects of flooding in 2008 on Iowa's natural resources along the Cedar and Iowa Rivers in Linn and Johnson counties. Interaction of the high-crested floods with natural areas, plants, fish, mussels, turtles, invasive species and landscape fragmentation were discussed.
  - The Dry Run Creek Watershed Advisory group completed several projects and continues with planning and design on several others involving the UNI campus.
    - ROTH biocell engineering and design has been approved. This biocell will infiltrate the first flush from the ROTH residence hall parking lot.
    - Stream bank stabilization projects from Campus St. to Merner St. and from College St. to Merner St. continue. UNI is working with the City of Cedar Falls to develop best management practices for infiltration.
    - UNI/City of Cedar Falls College Hill streetscape projects involving drainage into Dry Run Creek continue.
    - Additional biocell and pervious pavement projects are planned for the gravel parking lot outside the CEEE.
    - A bioswale was installed near the University Services Building to treat stormwater.

### **Sustainability in the Curriculum**

#### **Public Universities**

**Vision:** Regent institutions will pursue a sustainable future through the curriculum by:

- Providing educational opportunities for students to facilitate their acquisition of the knowledge, skills, and collaborative work ethic necessary to engage effectively in public discourse and policy debate and in other hands-on problem-solving in matters relating to environmental, social, and economic sustainability;

- Providing educational programs that prepare students for sustainability-related careers (e.g. in wind power and other green industries, biobased energy and other biobased products, governmental organizations, international economic or policy organizations, non-governmental organizations, farmers, researchers, engineers, writers, or teachers);
- Providing opportunities for students to participate in sustainability-related research, the “greening” of campus infrastructure, civic engagement, and internships;
- Exposing students to ideas and issues related to a sustainable, balanced, and ethical future for the planet and its inhabitants, including (1) the dynamics of biological population growth and decline in the natural world, predator-prey models, overexploitation of natural resources, and energy balances; (2) how human behavior affects the natural world and the ability of earth to sustain life; and (3) the stochastic interplay of human and natural factors in determining the long-run population growth path for human and non-human species; and
- Helping students understand how to make informed rational decisions as consumers, workers, resource owners, and citizens electing government officials by taking into account the effects of human actions on human welfare in this and future generations.
- Helping students think in terms of economic, social, political, and environmental sustainability, as well as environmental health.

**Goals:**

1. Increase efforts to recruit high school students, as well as professional and graduate students, who are seeking an education in sustainability at an institution that practices sustainability.
  - Recruitment efforts for the Professional Science Masters programs, including Ecosystem Management, have been increased. An example of this activity is the creation of a website specifically for these degrees (<http://www.uni.edu/psm/>).
  - Admissions has highlighted two green undergraduate programs in sustainability. For example, both the Electrical Engineering Technology program (emphasizing solar and wind energy) and the Natural History Interpretation major (emphasizing informal environmental education) were highlighted at the *Girls Go Global: It's Easy Being Green* conference.
2. Increase the sustainability experiences for freshmen through first-year seminars, core general education requirements, or living/learning communities.
  - First year students have had the opportunity to enroll in the Introduction to Sustainability course, developed this past year.
  - During Fall 2010, there will be a freshman presidential scholars seminar, Visioning a Sustainable World.
  - UNI is presently examining its Liberal Arts Core program in general. The inclusion of ideas of sustainability is part of that discussion.
  - An examination of the issues of sustainability also occurs in many of the sections of the capstone experience requirement in the Liberal Arts Core, including the course with the largest enrollment, Environment, Technology, and Society. Some sections of this course focus explicitly on sustainability.

3. Make sustainability a part of all orientation programs on campus.
  - Student organizations that support sustainability are part of the orientation programs for new students. These include Green Project UNI, Northern Iowa Student Government, Student Health Advisory Committee, Iowa Environmental Health Association Student Chapter, Student Nature Society, and Students Organizing for America.
  - During Summer Orientation, coordinators met with parents and students to explain the Tray Free Dining initiative to reduce food wasted in residential dining. Students then experienced tray free dining during orientation when they dined at Rialto. Throughout the year, dining has encouraged students to dine tray free at both of the dining facilities through signage to customers.
4. Form curriculum workshops to engage and assist faculty and teaching assistants in integrating sustainability into general education and, as appropriate, undergraduate and graduate programs.
  - Private funding is being sought to support faculty in such workshops.
5. Continue to participate in national efforts to understand and promote sustainability education, such as the National Teach-in Day for Climate Change and Sustainability, the workshop on sustainability education sponsored by the Association for Advancement of Sustainability in Higher Education, and the Consortium on the place of sustainability in Global Learning Leadership sponsored by the Association of American Colleges and Universities.
  - Events at Earth Day provided opportunity for informal sustainability education on campus.
6. Increase the curricular offerings in sustainability to undergraduates through majors, minors, certificates, internships, service learning, and living/learning communities.
  - New courses include Introduction to Sustainability, Wind Energy Application in Iowa, Solar Energy Applications and Issues, and American Environmental History.
  - An interdisciplinary group is developing a certificate in sustainability. The multiple tracks will make it applicable to students in a number of disciplines.
  - A number of majors and minors could be pursued by a student who chooses a career in sustainable advocacy and practice, including undergraduate majors in Construction Management, Electrical and Information Engineering Technology, Manufacturing Technology, Interior Design, Geology with Environmental Science Emphasis, Health Promotion (Environmental Health), Geography with Environmental Emphasis, Geography with Geographic Information Science Emphasis, Biology: Ecology and Systematics Emphasis, and Biotechnology.
7. Continue to support incorporating sustainability in the curriculum and in faculty research.
  - Study abroad experiences that address sustainability include:
    - ⇒ Environment, Technology, and Society offered in China
    - ⇒ Environment, Technology, and Society offered in Transylvania, with a particular focus on environmental health
    - ⇒ Environment, Technology, and Society offered in London and Paris

- The UNI Solar Electric Research and Development Project promotes cleaner Iowa lakes and rivers by promoting solar powered boats. In 2009, the UNI Solar Panthers won a third place in overall championship results, third place in Solar Slalom, third place in engineering design visual display, and outstanding electrical system design awards in the 16<sup>th</sup> World Championship of Intercollegiate Solar Boating hosted by the University of Arkansas, College of Engineering.
8. Encourage departments to offer interdisciplinary courses related to sustainability.
    - Incentives are being offered for interdisciplinary courses for Spring 2010; some can be expected to address sustainability.
  9. Offer courses that address specific issues related to sustainability, including encouraging students to be knowledgeable and responsible citizens and preparing students to pursue sustainable practices in their professions. Topics that can be addressed are environmental restoration and preservation, LEED construction practices, efficient operation and control of mechanical and power systems, alternative power sources, and sustainability incorporated in the design of human environments.
    - Examples of courses offered the past year include:
      - 430:146 Managing Recreation Impacts on the Natural Environment
      - 410:165 Environmental Health Science
      - 840:180 Restoration Ecology
      - 311:184 Restorative and Healing Environments
      - 330:059/159 Wind Energy Application in Iowa
      - 330:059/159 Solar Energy Applications and Issues
      - 330:159 Sustainability in Construction/LEED (offered Fall 2010 for the first time)
  10. Sponsor Town Hall meetings on campus to discuss curricular efforts related to sustainability.
    - Held in April 2009.
  11. Create sustainability enhancements for graduate and professional degree students through certificates, internships, or research partnered with green industry, government agencies, or non-government organizations.
    - A certificate program is being developed that will be appropriate for graduate students in education.
  12. Increase opportunities for sustainability education through stand-alone certificates for returning students, certificates through distance education, or cooperative agreements with community colleges.
    - A certificate program is being developed.

**Sustainability in Economic Development/Research/Outreach:**

**Vision:** To pursue a sustainable future through economic research development and outreach by:

- Becoming a world leader in research related to the strengths of the three public universities.
- Helping Iowa businesses understand challenges and opportunities of a carbon-limited world.
- Developing and improving alternative energy sources.
- Serving as models and consultants to local, state, regional, national, and international industries, governments, and communities in issues related to sustainability.
- Developing public policy and practices for sustainable agriculture, community education for a sustainable lifestyle, sustainable tourism, solutions to problems of solid waste, reduction of pollution in metal casting, bioremediation of hydrocarbon contaminated soils, understanding ground water and surface water contamination, use of embedded sensors and software for systems control, use of geographic information systems to assess water quality and ecological damage, environmental threats to public health, and multimedia to communicate findings of sustainability research to the public.

**Goals:**

1. Expand external funding of sustainability research.
  - Funding for sustainability research was obtained by faculty in Industrial Technology, Physics, Chemistry and Biochemistry, and Geography, and by the Center for Energy and Environmental Education, Metal Casting Center, Tallgrass Prairie Center, and Geoinformatics Training, Research, Education, and Extension Center.
2. Continue to work with other educational leaders at all levels and leaders in the private sector to develop a statewide science and technology plan to reposition Iowa for workforce development and to capitalize on the unique strengths of each of the three public universities.
  - No action at this time
3. Sponsor seminars for industries in wind energy, biofuels, solar and other renewable energies, biobased energy, and other biobased products.
  - Solar Installers Training is a program of the Center for Energy and Environmental Education in collaboration with the Midwest Renewable Energy Association. The goal is to build capacity for trainers and community colleges to develop teaching facilities and curriculum for teaching existing and emerging businesses installing solar thermal and solar electric systems.
4. Work with students and businesses to exploit opportunities made available by the promotion of sustainability.
  - The National Ag-based Lubricants Center continues to develop biobased lubricants; businesses utilize its testing services.
  - The Metal Casting Center and its Center for Advanced Biobased Foundry Binders conducted Department of Energy-sponsored research into bio-based

- foundry binders reducing the pollutants created by standard binders; two patents were submitted in FY 2009. It also sponsored the commercialization of bio-based foundry binders.
5. Conduct an ongoing series of high profile workshops on sustainability, available to the public, including major international conferences on renewable energy and water resources.
    - Cedar River Watershed Coalition is being facilitated by the Center for Energy and Environmental Education as a service to local governments and non-profit entities in the Cedar River Watershed. It is in collaboration with numerous entities including Iowa Flood Center, many local, state, and federal agencies. The goal is to implement practices in the watershed that will significantly reduce damage from floods of the future.
    - The Center for Energy and Environmental Education sponsored a series of nationally prominent speakers on sustainability, including Richard Heinberg and Kurt Michael Friese.
    - The Department of Chemistry and Biochemistry hosted John Warner of the Institute for Green Chemistry as its Leland Wilson lecturer.
  6. Exploit the creative resources of the Internet to share the vision, knowledge, and practices and to invite engagement in these challenging issues of the 21<sup>st</sup> century.
    - No action at this time.
  7. Assist in the implementation of sustainable practices by firms and government agencies, including the identification of cost-effective environmentally-friendly processes that are economically sustainable to generate a normal rate of profit.
    - Northern Iowa Food and Farm Partnership (NIFFP) works to strengthen the local food economy through building relationships among food service staff, farms, local residents, food and farm businesses. NIFFP is the lead entity in Iowa to launch the Buy Fresh, Buy Local consumer education campaign. NIFFP is a Center for Energy and Environmental initiative, funded in part by the Leopold Center for Sustainable Agriculture.
    - Health School Lunch Initiative works collaboratively with several school districts to help transform the school meals toward less fat, less sugar, more meals cooked from scratch, more locally grown fresh fruits and vegetables. Price Lab School at UNI is the leading school practicing this transformation. This is a Center for Energy and Environmental Education initiative, funded by the Wellmark Foundation, Kellogg Foundation, and Leopold Center.
    - The Institute for Decision making helped Fairfield, Iowa develop the first community-wide sustainability plan.
    - The Iowa Waste Reduction Center provided environmental and technical assistance to 253 small businesses across Iowa and trained 196 military personnel in environmentally responsible painting and coating in FY 2009.
    - The Tallgrass Prairie Center provided roadside vegetation research to the Department of Transportation and distributed native seed to 50 counties in FY 2009, reducing the need for mowing and maintenance, saving fuel and pollutants.

- The Recycling and Reuse Technology Transfer Center provided services related to recycling and reuse to 47 companies and organizations in FY 2009.
  - The Sustainable Tourism and Environment Program and Recreation Research and Service provided technical assistance to a county resource agency and a multi-county regional sustainable tourism project. They also provided training for a state association and provide youth programs in rural areas.
8. Develop new methods of analysis for evaluating the sustainability of alternative natural and built environments within different economic systems.
- No action at this time.
9. Develop and transfer new technologies that conserve energy, matter, and, in particular, water, air, minerals, and other natural resources.
- No action at this time.
10. Sustain and create industries that drive the world's economic engines to improve the quality of life.
- No action at this time.
11. Continue to develop and grow programs that are directed at sustainability for the nation and the developing world.
- No action at this time.
12. Provide public education to increase energy and resource conservation and the recycling and reuse of material.
- Yards for Kids is a community health education program, highlighting alternatives to common lawn and household pesticides. The Center for Energy and Environmental Education works with schools, parks and businesses to significantly reduce the use of lawn weed killers and insecticides in urban settings.
  - The Math, Science, Engineering, and Technology in Iowa on Applied Renewable Energy Areas, funded by IMSEP, hosted a workshop for 20 teachers from area junior and senior high schools.
  - Cool Congregations is a program of Iowa Interfaith Power and Light and is housed at the Center for Energy and Environmental Education and reaches churches throughout Iowa, offering energy education, and home energy improvement strategies.
  - Green Iowa AmeriCorps is a major initiative at the Center for Energy and Environmental Education, funded by Iowa Power Fund and Iowa Commission on Volunteer Service. The program is focused on implementing energy conservation, efficiency, and weatherization services to those most in need by providing energy audit and offering labor to actually weatherize homes.
  - Junior Solar Spring, Iowa Energy Poster Contest, Iowa School Energy Challenge are all energy education outreach programs of the Center for Energy and Environmental Education serving the entire state, engaging school teachers, students, and administrators towards energy efficiency, conservation, and renewable energy. These programs have been funded in part by the Iowa Energy Center.

- Building Energy Efficiency is a project of the Geoinformatics Training, Research, Education, and Extension Center to use GIS technology and NASA support. Working with Cedar Falls Utilities, the project identifies areas most in need of energy conservation and efficiency assistance across Cedar Falls.
  - The Geoinformatics Training, Research, Education, and Extension Center used GIS technology to support Sustainable Urban Development and Land Use Planning.
  - The Recycling and Reuse Technology Transfer Center provided a comprehensive environmental education program started at all six Cedar Falls elementary schools inspiring over 7,800 people to have a greener community. Program implements recycling, sustainability education, and conservation of resources and energy.
13. Develop public education to reduce soil erosion and overuse of chemicals and fertilizers in agriculture, and to increase energy efficiency on farms.
- Farm Energy Working Group is a statewide effort to assist farms to meet a greater portion of their energy needs from on-farm resources available to them. Coordinated by the Center for Energy and Environmental Education and funded by the Leopold Center for Sustainable Agriculture.
  - The Geoinformatics Training, Research, Education, and Extension Center uses GIS to support sustainable agriculture.