

Contact: Patrice Sayre

**CAMPUS SUSTAINABILITY ANNUAL REPORT**

**Action Requested:** Receive the annual report on the Campus Sustainability Plan.

**Executive Summary:** Iowa's public universities are committed to a sustainable future through academics and research, operations, and economic development. Respect for the impact on the environment is part of decision-making at all levels. Regent institutions apply campus sustainability broadly – in the general operations of each institution, in the curriculum and experiences of students and employees, in effectively partnering with industry and government, and in technology transfer.

Each Regent university participates in the Association for Advancement of Sustainability in Higher Education (AASHE) Sustainability, Tracking, Assessment, and Rating System (STARS) program. Because STARS is the universal standard for tracking sustainability in higher education, this report is separated into the three historical categories outlined within that program, "Academics and Research," "Campus Operations," and "Planning, Administration, and Engagement."

In this year's report, each Regent university has highlighted one accomplishment or project from each of the three STARS categories.

Sara Maples – SUI, Interim Director, Office of Sustainability - <http://sustainability.uiowa.edu/>

Eric O'Brien – UNI, Director, Office of Sustainability - <http://www.uni.edu/sustainability>

Merry Rankin – ISU, Director, Office of Sustainability - <http://www.livegreen.iastate.edu/>

## EDUCATION AND RESEARCH

A primary function of colleges and universities is to educate students. By training and educating future leaders, scholars, workers, and professionals, higher education institutions are uniquely positioned to prepare students to understand and address sustainability challenges. This STARS category recognizes institutions that have formal education programs and courses, as well as sustainability learning experiences outside the formal curriculum.

### Iowa State University

#### *Food Crop Production Enterprise Internship*

The [Horticulture Research Station](#), a teaching and research farm focusing on the cultivation of plants, is a 230 acre tract of land located north of Ames that facilitates between 80-90 research projects on a yearly basis. Primarily for horticulture research, the station targets projects utilizing fruit and vegetable crops, turfgrass, and ornamentals. Animal ecology research also occurs at the station involving bees, tree swallows, fish, and turtles.

To offset the costs of operating the farm, the station sells the produce generated from research and teaching projects. Because the Iowa horticulture industry is small in comparison to other states, station staff are especially sensitive to the economic impact for local growers. With this in mind, though making a strong effort to sell farm produce, specific focus is given to ensure being cognizant of Iowa growers. Correspondingly, the market for station produce includes university dining services, university students, faculty and staff (through the use of [website sales](#) and on-campus distribution), local grocery stores that have no other local source for the produce offered, and local growers who purchase product on a wholesale basis.



Because of the small fruit and vegetable production industry in the state, undergraduates studying in the field have limited opportunities to obtain practical experience. The Food Crop Production Enterprise Internship is designed to provide undergraduates with this practical experience by allowing them to develop and implement a food production enterprise. The internship runs January through field cleanup in November and is offered to two interns annually. In 2016, the first year of offering the internship, approximately 7800 lbs. of produce were harvested and

sold from .5 acres.

Intern responsibility and oversight include the following:

- Development of a business plan based on the markets available to the station
- Development of field and management plans
- Selection of crops and ordering of seed
- Development of a greenhouse planting schedule to align with field planting dates
- Oversight of all greenhouse production, field transplanting and field production
- Management of pest and weed control, harvest and post-harvest practices and techniques and safe food handling
- Marketing, logistics and customer relations related to produce sales

Several positive outcomes, besides a production and marketing experience, have come from this internship. First, the students are learning about sustainability because they have direct connectivity to sustainability (environmental, economic and social) on a daily basis as they work at the station and raise, harvest and market their produce. Specifically, through application and reliance on sustainable and/or organic practices in the production of their crops, interns connect with and experience environmental sustainability in crop production. Through marketing and selling locally, students experience the local foods economy firsthand and the economic, environmental and social impacts and opportunities of growing food close to their customers.



Second, through the local connection that students forge in providing food locally, there is a greater connection to and awareness and appreciation of local foods among the campus community, and a greater understanding of the work being done at the Horticulture Research Station.

### **University of Iowa**

#### *Sustainability and Entrepreneurship*

The University of Iowa's John Pappajohn Entrepreneurial Center (Iowa JPEC) is committed to being a national leader in teaching and supporting innovation and entrepreneurial development. In addition to developing a unique, cross-campus program that has established partnerships with the Colleges of Business, Engineering, Liberal Arts and Sciences and Medicine, Iowa JPEC plays an important role in the development of Iowa-based technology and high-growth start-up companies.

*Iowa JPEC has established curricular and co-curricular opportunities to foster the connection between sustainability and business.* Iowa JPEC offers courses in social entrepreneurship and sustainable product innovation and management, while also integrating sustainability topics into many other courses. Sustainability courses offered by Iowa JPEC provide an opportunity for students enrolled in the undergraduate Certificate in Sustainability program to learn about sustainability and business.

Iowa JPEC partnered with the Tippie College of Business and Frontier Co-op to hold the second annual Frontier Co-op Tippie Impact competition, a *sustainable business model competition* open to all students. Participants in the Frontier Co-op Tippie Impact Competition learned how to develop a sustainable business model and identified environmental and social components that factor into the long-term profitability and viability of their business. Students attended a half-day training to learn from University of Iowa faculty on sustainability and entrepreneurship and consulted with Iowa JPEC faculty throughout the competition. During the finals, students pitched their sustainable business concept to a panel of judges for a chance to win cash prizes. Students interested in





developing their sustainable business idea had an opportunity to work inside the Bedell Entrepreneurship Learning Laboratory (BELL), the SUI's student business incubator facility. The 2016 Frontier Co-op Impact Competition winning team, Urban Greens (featured above), developed a hydroponics business and sold lettuce to SUI Housing and Dining.

Iowa JPEC's Institute for International Business hosted 25 Mandela Washington Fellows for a six-week program designed to empower accomplished young African leaders through academic coursework, leadership training and networking. Following the program, fellows shared business expertise and experiences in Iowa with leaders in their home country. Fellows in the program represented 18 African countries. The SUI received a \$150,000 grant award from the U.S. State Department, allowing the university to host the fellows.

### **University of Northern Iowa**

#### *Provost's Fellow for Sustainability*

The University of Northern Iowa has a long history of incorporating sustainability-related topics across the academy. In the past, this has occurred through a combination of individual and group efforts. The most recent step undertaken to strategically advance and elevate these efforts was the creation of the inaugural Provost's Fellow for Sustainability, designed to help shepherd these faculty initiatives.

This past academic year, UNI named Dr. Michael Childers as the first Fellow to serve in this role. The Fellow was a vital investment by the university into the faculty's ownership of UNI Strategic Plan's call to create a vibrant and sustainable campus community. An assistant professor in the history department, Dr. Childers spent the year facilitating campus-wide sustainability initiatives within the academy and providing leadership in furthering sustainability-related curriculum.



Childers began the fellowship by holding a series of one-on-one conversations with faculty and staff to gather their visions of what direction UNI should take on issues of sustainability. He quickly discovered that while sustainability enjoys broad support from across campus, there was a lack of awareness and cohesion which hindered efforts in sustainability education and other initiatives.

Building upon his conversations, Childers implemented a plan to bridge those communication gaps and build greater faculty leadership. After reaching out to other universities which had addressed similar issues, he worked with individuals throughout campus to establish a faculty sustainability board. Comprised of eleven faculty from nine different departments, the new board will work to expand UNI's Sustainability Certificate. The Board will provide leadership in implementing a fundamental awareness of the need for environmental, economic, and cultural sustainability for all UNI graduates.



Childers is looking forward to his second year as sustainability fellow in working with the advisory board to further sustainability education across UNI's curriculum.

## CAMPUS OPERATIONS

This STARS category encompasses everything that goes into the daily operation of a campus. It includes quantitative data reporting in the areas of Building Operations, Climate, Dining Services, Energy, Grounds, Purchasing, Transportation, Waste and Water Usage. This overarching category notes that institutions can design, build, and maintain a campus in ways that provide a safe and healthy environment for the campus community. It recognizes the outstanding efforts to maintain a more sustainable campus environment.

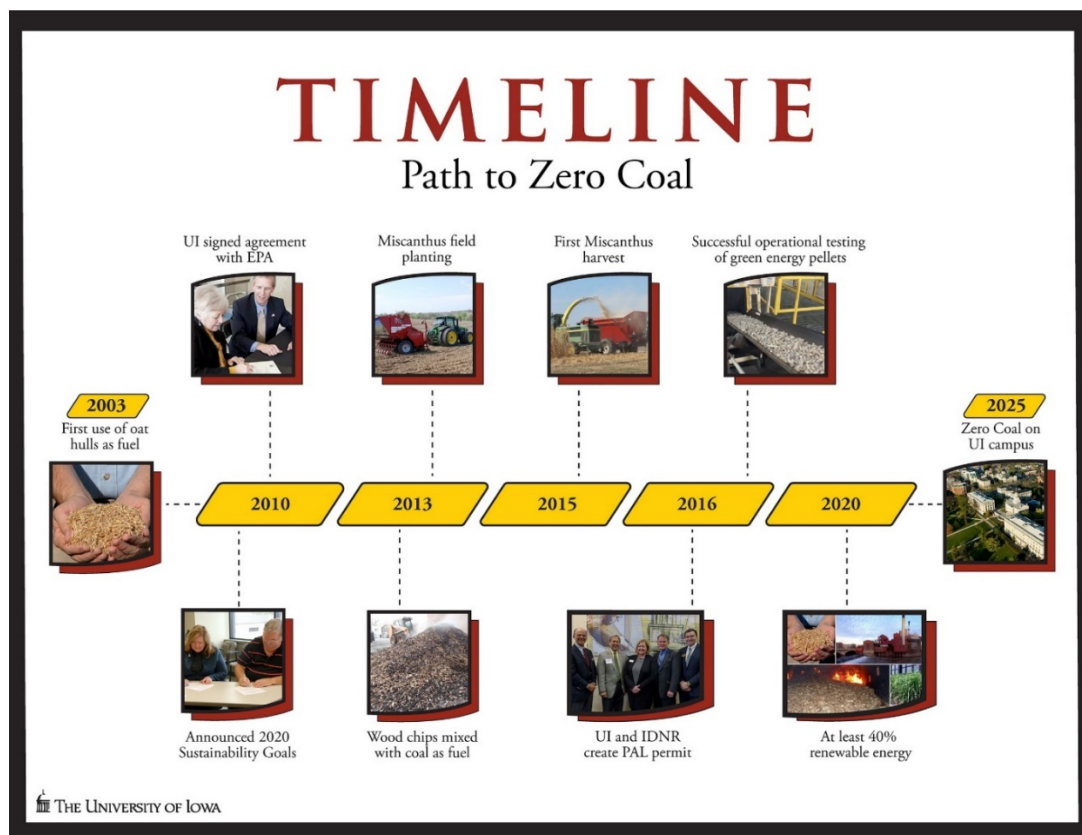
### University of Iowa

#### *Coal Free by 2025*

University of Iowa President Bruce Harreld announced Feb. 20, 2017 that the University of Iowa campus will be coal-free by 2025.

In 2008, the University of Iowa embarked on a multi-phased journey to achieve an ambitious set of sustainability targets on or before Dec. 31, 2020. One of those targets was to pursue an aggressive 40 percent renewable energy goal that would help transition the campus from its dependency on fossil fuels like coal to increasing its use of biomass and other renewable energy sources.

Since 2008, the SUI campus has reduced its use of coal by 60 percent. In late 2016, SUI achieved a single-day high of 52 percent energy generated from renewable fuels and averaged 50 percent that week.



In 2013, the Facilities Management team partnered with Iowa State University to develop a dedicated energy crop, *Miscanthus* grass, with local farmers living within 50 miles of Iowa City. The SUI has already planted 814 acres of *Miscanthus*, including in Muscatine, Iowa City, and at the Cedar Rapids Airport, with a goal to establish up to 2,500 acres locally by 2020 to produce 22,500 tons of feedstock to replace a portion of SUI's coal use. In addition to *Miscanthus* energy grass, SUI has successfully burned oat hulls, wood chips and green energy pellets. SUI recently completed successful operational testing of green energy pellets, and looking ahead, expects this fuel will be an important contributor to the renewable energy program.

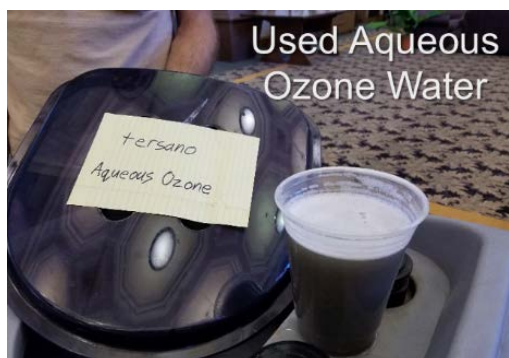
Along this journey, the University of Iowa has worked closely with researchers across campus and at Iowa State, collaborated with SUI College of Engineering and Tippie College of Business MBA students, partnered with the Iowa DNR on a landmark PAL air quality permit agreement, and teamed up with industry experts to develop diverse fuel sources as well as to optimize the power plant's handling and combustion of these new alternative fuels.

### **University of Northern Iowa**

#### *Rethinking Green Cleaning*

Addressing university sustainability priorities within campus operations at the University of Northern Iowa provides opportunities to save resources and create a healthier environment for members of the UNI community. Over the last year, a number of university custodial practices have been updated to yield exactly those benefits. One of these projects has benefits that are far reaching, but happens in a manner invisible to the public.

In July 2016, six buildings were selected to serve as pilot locations for a dramatic change in the types of cleaning products and practices on campus. These buildings were chosen from across campus and represented multiple occupant types. One of the first sites chosen was the Nielsen Fieldhouse, which houses the UNI Child Development Center. This building was chosen both to help reduce chemical exposure to children and because the building custodian was excited to test a new technology to reduce chemical exposure. In this, as well as the other pilot buildings, custodial staff transitioned away from traditional processes that rely heavily on cleaning chemicals and moved to a water-based cleaning system that eliminates most chemical cleaning agents. The new technology employs stabilized aqueous ozone as a powerful cleaning agent that can be used for nearly all campus cleaning processes.



Highlights of the first year of testing:

- >80% reduction in cleaning chemicals
- Reduced cost of cleaning products
- Reduction in waste from bottles of cleaner
- Elimination of cleaning residues and cleaner surfaces
- Encouraged innovation within custodial staff
- Increased level of engagement from staff utilizing water-based cleaning technologies

As a result of this year of study, UNI will be employing this technology on a wider scale. By innovating in the way campus is cleaned, it is drastically



reducing the use of chemical cleaning products in most campus buildings, thereby reducing waste and saving resources.

### **Iowa State University**

#### *Building Recommissioning Program*

In FY 2016, Iowa State University Facilities Planning and Management (FP&M) established a Building Recommissioning Program under the direction of the Energy Management work unit. Recommissioning is the process of examining and analyzing existing campus buildings to find deficiencies within the multitude of building systems, including electrical, plumbing, life safety, mechanical and HVAC systems, and targeting opportunities for improved efficiency and effectiveness through completing functions such as repairing, resetting and recalibrating.

The initial focus of Iowa State's Building Recommissioning Program is providing a dedicated team comprised of building system specialists, knowledgeable in both mechanical repair and the computer software supporting the building automation system (BAS), to monitor, strengthen and add resiliency to mechanical, HVAC and control systems. Thus offering the advantage to both identify deficiencies and complete system repairs without adding workload to FP&M shop staff or outside contractors.



Targeted objectives of the recommissioning program include the following:

- Verify HVAC equipment functions properly and according to original control sequences
- Identify and repair defective mechanical or HVAC equipment
- Correct outdated control drawings and sequences of operation
- Organize and streamline BAS information to improve efficiency of building operators and technicians
- Eliminate non-essential BAS alarms to improve FP&M's essential needs response time
- Recommend and assist in the implementation of facility improvement measures (FIM) that will save energy, improve performance, and reduce maintenance hours



On an annual basis, the Recommissioning Team selects a target of four buildings to be studied for recommissioning. Buildings are selected based on size, age and complexity. Buildings with a history of persistent hot/cold calls or mechanical failures are given a higher priority. The recommissioning strategy includes spending one full year with the building to ensure that the systems work properly in heating, cooling, and transitional seasons. The overarching long-term goal is ensuring systems are working reliably and efficiently, demonstrated

through the reduction of hot/cold calls as well as after-hours call-ins received by FP&M.

To date, four buildings have completed a recommissioning cycle and another four are nearing completion. The initiative has resulted in the following efficiency and efficacy results and impacts:

- Optimized functionality and performance of 100% of the building mechanical HVAC and control systems as they currently exist, including air handling systems, heating systems, cooling systems and exhaust systems
- Optimized building energy performance savings through implementing and/or verifying energy conservation control strategies, including resets for supply air temperature, duct static pressure and heating water temperature, occupancy schedules, outside air economizer, and optimal pump differential pressure control (providing approximately 30-40% energy savings compared to buildings without similar strategies)

## **PLANNING, ADMINISTRATION AND ENGAGEMENT**

This STARS category encompasses a wide variety of planning, engagement and outreach areas. It includes quantitative and qualitative data reporting in the areas of Coordination and Planning, Diversity and Affordability, Human Resources, Investment and Public Engagement. This overarching category notes that institutions of higher learning can make significant contributions to sustainability throughout society by sharing their experiences and expertise with others. Sharing best practices and lessons learned can help other institutions, communities, and individuals realize efficiencies that they otherwise may not have considered.

### **University of Northern Iowa**

#### *Panther Initiative for Environmental Equity and Resilience*



The [Panther Initiative for Environmental Equity and Resilience](#) (PIEER) is an internship-based extension of the Recycling Reuse Technology Transfer Center (RRTTC), coordinated by Environmental Health Professor, Dr. Catherine Zeman. Its mission is to engage others and promote resiliency through environmental equity education and advocacy. PIEER works with many community

organizations, schools and University of Northern Iowa centers to address issues that affect rural and urban Iowans, encouraging positive changes.

Julie Grunklee, an RN studying Community Health Education, is the group's Graduate Student Coordinator. Through her studies at UNI, Julie became acutely aware of the need for more preventive lead poisoning education, after realizing she unknowingly exposed her own children to lead several years earlier when remodeling their home. Even as a nurse, she had no idea the dangers lead-based paint posed nor the lasting effects a little bit of lead could have on a small child.



Through PIEER, Grunklee was able to reach out to a number of organizations throughout the Cedar Valley to deliver lead poisoning prevention education to staff and parents of young children. Her efforts assessed a number of low-cost interventions to determine the most effective ways to raise awareness of the dangers. It inspired hope by providing simple, cost-effective measures to



decrease lead exposure and absorption in the most vulnerable population, young children. Her work in PIEER, is also allowing Grunklee the [opportunity to work with state and local health agencies](#) on a research project to evaluate these low-cost interventions in decreasing mildly elevated blood lead levels among children who would otherwise receive little to no services.

PIEER's lead outreach projects include twelve organizations reaching approximately 1,200 people throughout the state. These efforts reach out to minorities of the community such as the impoverished, refugees from Burma, and Spanish speaking populations.



PIEER interns also work on their own cultural competency and understanding of how inequities occur with environmental issues through National Coalition Building Institute workshops, background readings, and book discussions. Other topics PIEER has worked on include water quality, pollinators, access to healthy food choices, clean energy, reducing solid waste, recycling, composting, diversity and disaster preparedness.

### **Iowa State University**

#### *Data Driven Sustainable City Decision-Making*

Developing sustainable cities in a world of rapid climate change requires the collaborative expertise of many stakeholders. Through [Iowa State University's Presidential initiative for interdisciplinary research in data driven science](#), a new project has brought researchers from academic disciplines including natural and social sciences, engineering, design and humanities, into collaboration with city design/policy-makers and urban residents with a collective focus on utilizing [complex \(big\) data for sustainable city decision-making](#).

By integrating principles of data-driven science with community engagement practices, the team addresses environmental and social challenges in ways that make communities full partners in the research and development processes. Interdisciplinary research improves data analysis, and enhances the use of data in participatory decision-making. As a result, engaged communities are better informed about sustainability and empowered to create economic, social and environmentally sustainable futures.



As a first step, in working with communities, the team links data about how citizens' interact in and with their homes, neighborhoods, and cities to a range of computational thermal-physical models of buildings, the near-building environment and urban infrastructure systems to improve understanding of neighborhood energy use. The City of Des Moines, a Pilot Community in the Sustainability Tools for Assessing & Rating ([STAR](#)) Communities system (incorporating a total of 526 indicators to assess "social, economic, and environmental progress"), is the project's first partner

community. The collaborative goal of the team is to improve Des Moines' performance specifically within STAR categories of Climate & Energy and Equity & Empowerment.

Over the past year, in partnership with the City of Des Moines' Sustainability Director and [VivaEastBank](#), (a coalition made up of residents and partner organizations committed to the resilience of the three Des Moines East Bank neighborhoods), the team has embarked on a project geared to empower those populations most vulnerable to the effects of climate change. To this end, team members have developed partnerships and methodologies (including community-based storytelling, experiential mapping, interviews, surveys and online games) tailored specifically to support an emphasis on social and ethical impacts through action projects.

The team's long-term goal is the development of a novel, data-driven Human-Food-Energy-Water (H-FEW) system modeling approach to integrate environmental (water and energy) impacts from urban built environments with urban food production. The objective – to create decision-making support systems that helps cities and their residents translate research into action through new policies, incentives, individual behaviors, community resilience, resulting in a long-term outcome of an integrated urban model to support cities and communities in complex sustainable urban planning and development decisions processes. In addition, to ensure the [focused engagement of youth](#), a group of ISU faculty are working with an area Boys and Girls Club to devise a series of projects related to healthy eating, growing produce and embracing gardens as a community gathering place.



### **University of Iowa**

#### *Iowa Initiative for Sustainable Communities*

The Iowa Initiative for Sustainable Communities (IISC) is a campus-wide engaged learning program at the University of Iowa that partners with communities and groups across Iowa to develop projects that university students and faculty can complete through their academic and research activities. Each year, IISC contributes over 20,000 hours of work in Iowa communities.



For the 2017-2018 academic year, IISC brought together 18 faculty members and more than 100 students from 14 different departments across campus to complete 20 projects in Mason City, IA and the East Central Intergovernmental Association (ECIA) five-county region. Projects ranged from building community through storytelling in the small town of Delmar, IA to designing a community mobile app in Mason City.

#### **East Central Intergovernmental Association**

- [Delmar Storytelling and Community Development](#)
- [ECIA Communications Plan](#)
- [Edgewood Historical Museum Project](#)
- [Lost Nation Downtown Revitalization Study](#)
- [Maquoketa Art Experience Marketing](#)
- [Maquoketa Branding and Marketing](#)
- [Pocket Neighborhood Engineering & Design](#)

- [Prosperity Eastern Iowa: Program Evaluation & Plan](#)
- [Regional Brownfields Inventory and Land Bank Feasibility Study](#)

**Mason City**

- [Bridge and Bikeway: Engineering & Design](#)
- [Fire Station Restoration: Engineering & Design](#)
- [Flooding Risk Assessment using HAZUS modeling](#)
- [Mason City Civic Engagement Campaign](#)
- [Mason City Community Mobile App](#)
- [Mason City Community Plan for Sustainability](#)
- [Mason City Farmers Market Study and Site Selection Projects](#)
- [Mason City Public Transit Ridership Campaign](#)
- [Mason City Transit Study and Marketing](#)
- [Updating the 2006 Mason City Comprehensive Plan](#)