

Contact: John Nash

FY 2024 CAMPUS SUSTAINABILITY REPORT

Action Requested: Receive the report.

Executive Summary: To evaluate and measure campus sustainability, the universities participate in an AASHE, Association for the Advancement of Sustainability in Higher Education, program called “STARS.” STARS stands for Sustainability, Tracking, Assessment and Rating System.

In this report, the universities highlight at least one project from each of the following STARS categories:

1. Academics and Research
2. Campus Operations
3. Planning, Administration and Engagement
4. Return on Sustainability Investment (ROSI)

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 in the general operations of each institution, in curriculum and in experiences of students and employees. Sustainability is also utilized effectively when partnering with industry leaders, joining with all levels of government and transferring technology within the institutions.

Board of Regents’ Sustainability websites:

UI Office of Sustainability - <http://sustainability.uiowa.edu/>

ISU Office of Sustainability - <http://www.livegreen.iastate.edu/>

UNI Office of Sustainability - <http://www.uni.edu/sustainability>

Part 1 of 4
ACADEMICS 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.

University of Iowa

A group of STEM students from the University of Iowa traveled to Europe to experience sustainability in action. By Charlotte Brookins

Iowa STEM students recently visited various locations in France, Switzerland, and Germany to experience the applications of sustainable chemistry on a global scale. The course was designed to provide industry specific workforce development and experiential learning opportunities to STEM majors. The program was developed to provide opportunities for STEM focused students to interact with researchers and professionals in their field of study. Moving through different locations along the Rhine, students were able to gain a deeper understanding of how history, geography, and national policies align to shape sustainability practices in industry and cities.

The course, which consisted of twenty students, lasted two weeks and took them to places such as ETH Zurich, the Swiss equivalent of the National Science Foundation, major pharmaceutical manufacturer Novartis, Boehringer Ingelheim, and more.

The visits to Boehringer Ingelheim and Novartis were chosen based upon strong University of Iowa alumni connections. The trip was organized and led by Department of Chemistry lecturer [Adam Brummett](#) and Director of the Office of Sustainability and the Environment [Stratis Giannakouros](#).



UI STEM students explore sustainability in Europe

“The initial purpose was to open the door for STEM students to look at science from a more global perspective,” says Brummett. “So often we look at chemistry and science locally and nationally and don’t realize how much is being done in other places.”

The application process involved a submission of current grades, proof of passport information, and a statement of interest in the program. Accepted applicants were also given the opportunity to apply for financial aid to help with the costs of traveling. So long as they had completed the Principles of Chemistry II course, students of any major were invited. The final lineup included people from multiple areas of Iowa STEM, including chemistry, environmental science, biochemistry, pharmacy, chemical engineering, and biology.

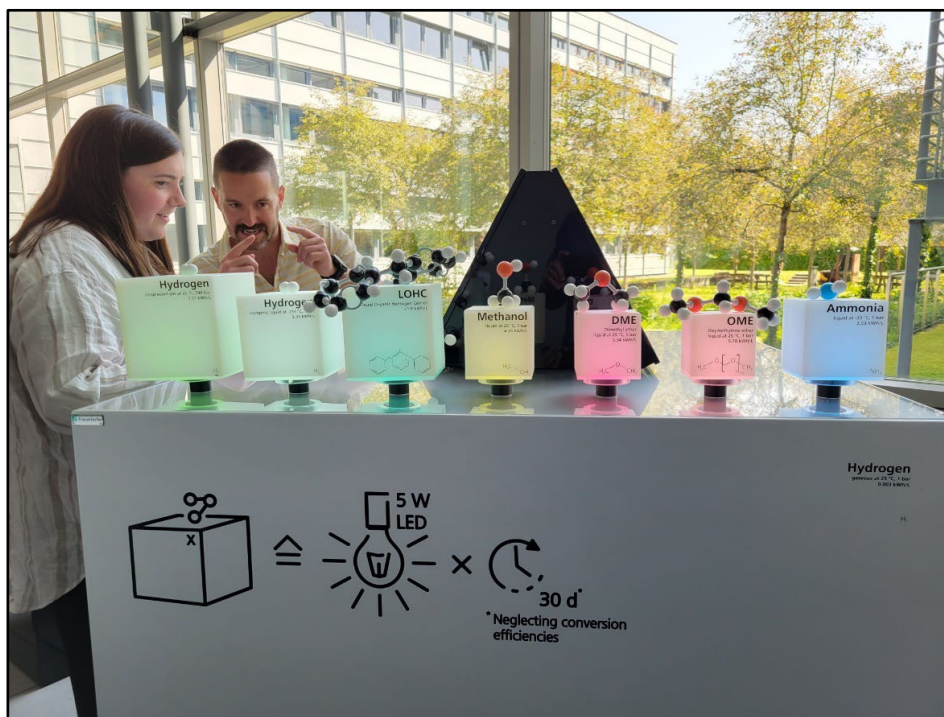
While on the trip, the students explored urban Europe's efforts to increase biodiversity, emphasize conservation, adapt to climate change, and mitigate the impact of urbanization. Students expressed gratitude and excitement for the journey, especially about personal experiences and preparation for future careers.

"It was cool to see chemistry humanized by the people working at the pharmaceutical companies we visited," says Kodi Dailey, a fourth-year student studying chemistry, English, and creative writing with a certificate in sustainability. "This was the first time in my entire life that I felt like maybe I could work in a lab someday—prior to this visit, I always thought I didn't have what it takes."

Third-year chemistry major Jenna Ringwald expressed similar enthusiasm. "My favorite part was getting to connect science to policy," she explains. "I get to learn about chemistry all of the time, but I've never considered how policymakers take research and data and transform it into things that are more meaningful to citizens."

She goes on to say, "It was also fascinating to explore how sustainability is a topic that is connected across science and culture. There are so many innovations that we can implement, but it does require a change in systems, so people must be willing to commit."

In addition to experiential learning, the group explored different cultures and gained new experiences while learning in an environment much different than Iowa. To Brummett, it was this experience that was the most important part of the trip. "It highlights the importance of experiential learning in environments that are outside of the norm."



University of Northern Iowa

UNI has a rich history of effective interdisciplinary connections between curricular and applied sustainability-based community efforts. In 2014, UNI launched its first sustainability curriculum offering -- a university-wide certificate. Over the past decade, UNI students have sought increasing opportunities to gain experience about and apply sustainability, both inside and outside of the classroom. For example, interest in the university-wide certificate grew from about fifteen students in the first few years to over sixty students in 2024.

The UNI campus community also engaged collectively in sustainability initiatives that impacted the broader community. Many of these opportunities historically arose through the efforts of UNI's Office of Sustainability, Office of Community Engagement, Tallgrass Prairie Center, Center for Energy and Environmental Education, Recycling Reduce and Technology Transfer Center and the Iowa Waste Reduction Center; these entities have provided a vital link between on-campus academics and off-campus sustainability developments.

In 2022, UNI moved from a Liberal Arts Core (LAC) to a new General Education Program (UNIFI). This opened an opportunity for an optional general education certificate in sustainability. The 9 credit UNIFI certificate allows students to work toward their general education requirement and sustainability interest at the same time. Students with continued interest in sustainability can take additional courses to earn the 15 to 17 credit university-wide certificate.



While the growth in demand for the UNIFI and university-wide sustainability certificates provided one metric to support expanding curriculum opportunities at UNI, the UNI Sustainability Advisory Board worked with UNI's Admissions office to evaluate prospective growth data from student and Iowa Workforce Development Surveys.

These data forecast continued growth over the next ten years in students seeking environmental and sustainability-related job opportunities. In response, faculty worked together to revamp the

existing sustainability certificate and expand the curriculum to offer a sustainability minor that will be available starting fall 2024.

Priorities in curriculum development were to maintain sufficient interdisciplinary coursework, simplify the structure, and create “stackable” requirements between the certificates and the 21 to 24 credit minors. Specifically, UNI’s current stackable sustainability curriculum aims to:

1. Provide ease of access to interdisciplinary sustainability curricula and applied opportunities.
2. Promote a comprehensive understanding of sustainability within our graduates.
3. Empower UNI students with the capacity to apply sustainability across disciplines.
4. Facilitate opportunities for UNI students to apply their developing sustainability skills through internships, research, and community engagement to enhance our student’s employability.

The curriculum development process also allowed a re-evaluation and expansion of the courses included in the certificates and minors. UNI had several existing courses that were either sustainability-focused or sustainability-related but were previously not formally approved for the certificate options.

Courses such as *Economics of Sustainability*, *Natural Resources and Civilizations*, and *Introduction to Environmental Data Analysis* are only a few examples of how our curriculum re-evaluation at UNI has opened opportunities for students to explore sustainability from a variety of viewpoints while developing skills valued in the workplace.



UNI graduates are successfully applying sustainability to their diverse careers and lives. A recent Art graduate turned her car into a traveling sustainability exhibit as an expression of her Native American heritage. Business to economics students are embedding sustainability from banking to tax planning with entrepreneurial vigor. While some UNI students begin their working lives in traditional settings, a growing number of UNI graduates are envisioning new interdisciplinary approaches that engage companies and communities in sustainable practices.

This stackable sustainability curriculum encourages students to work across disciplines. Recent interdisciplinary examples include applied engineering students using their knowledge of

materials science to improve foundry processes at John Deere, interior design students working to create aesthetically pleasing yet functional living spaces with sustainable materials, or science students working on interdisciplinary teams to explore effective management of the Earth's carbon to water issues.

Equally important to our graduates' careers, UNI also works with our students to create meaningful work-life balances and lasting community engagements. Applied sustainability facilitates multiple pathways capable of improving the lives of our students, their families and our citizens.

Iowa State University

Toward a Sustainable and Circular Future

Apparel Merchandising and Design 565 – Sustainability: Theory and Practical Application aims to introduce and expand student understanding of sustainability as it relates to the fashion industry and the multi-dimensional impacts of the 21 billion pounds of textile waste derived annually from fashion. Through the guidance of Dr. Rachel Eike, Associate Professor in the Department of Apparel, Events and Hospitality Management at Iowa State University, students spend the semester researching and completing an applied sustainable fashion portfolio project.

The project can pursue one of three internationally reaching forms: an abstract for creative design scholarship for a juried exhibition, a written case study proposal for publication, or a targeted grant application. Students are challenged to address one of two sustainable fashion areas within their projects: remanufacturing fashion for the Circular Economy and diverting textile waste from landfills (manufacturing cut waste or consumer clothing discard).

The pursuit became a reality for one project team when they received notification of being chosen as a semi-finalist for the Hult Prize Competition.

The [Hult Prize Competition](#), known as the Nobel Prize for students, is an annual global event challenging young people to solve the world's most pressing issues through innovative social ventures and entrepreneurship.

The student team of Shane Zenk, Morgan Simms, and Avery Teselle represented Iowa State University at the Summer 2023 regional finals in Boston, MA. The team was one of 700 startups to be chosen from 200,000 individuals taking part and the first ever from Iowa State University.



In addressing the competition theme, “Redesigning Fashion” the team proposed the company, “Cardinal Shreds” with a keen tagline: “*We Shred It, You Spread It.*” Cardinal Shreds proposed a circular economic consideration of waste textile products and cardboard shipping containers. The team’s proposal specifically targeted the opportunity for processing discarded natural textiles (primarily 100% cotton) and packaging into a sustainable and nontoxic substitute for traditional animal bedding (large or small animal) due to cotton’s innate high absorbency performance property.



In addition, to ensure no additional waste in the production process and increase the biosecurity of bedding shreds being transported from facility to farm/home, scrap cotton shreds were processed into a liner paper for placement in a trash compactor and acted as functional product packaging – able to be torn up and mixed in with the packaged shredded cotton bedding. The nontoxic product can be further processed as compost when no longer usable as bedding.



Although the team’s competition ended in Boston, their vision continues. Additional equipment was recently acquired for finetuning processing, and pilot testing with pet owners and area farmers is being diligently pursued.

Part 2 of 4
CAMPUS OPERATIONS

This STARS category encompasses everything within 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 Northern Iowa

Sustainability related projects do not always start from the perspective of trying to address environmental concerns. One such example has occurred within the day to day operations by the University of Northern Iowa Facilities Management, specifically grounds management. When maintaining campus to the expectations of the campus community, there are certain restrictions that the department has historically operated within. One of those revolves around the noise produced by the equipment utilized to maintain the turf and landscaping.

As mowers maneuver around academic buildings, the sound of the engine and blades resonates inside. Because of this, grounds staff had to limit the times of day that they could operate in certain parts of campus to reduce disturbances to classrooms and residence life. A negative side effect was drastically reduced operational efficiency. To provide a more conducive environment for students, UNI's grounds team began exploring options to reduce noise.



While electric mowers and other landscaping equipment are not new, the growth in the industry has resulted in substantial improvements in the technology. The equipment is now at a point where it is very successfully being employed commercially as an industry standard. As a result, UNI's grounds team kicked off an effort to evaluate and eventually phase in use of battery powered grounds equipment.

Prior to initiating this project, there were two preconceived notions that were brought up consistently amongst staff. First, there were concerns about true run-time for large battery-operated equipment with powerful moving parts. Staff did not foresee that commercial grade mowers could perform at the scale needed with no charging required throughout the day. The second concern focused on potential "bogging down" in thick and wet grass conditions, especially in the springtime

During the early stages of this effort, grounds staff tested a commercial electric mower produced by Mean Green. Staff members swapped their gas-powered mower out and used the Mean Green to perform their area mowing. Staff evaluated its ride, comfort, handling, run-time, cut quality, and noise level. Overall, during this testing period, staff were impressed by the quality of the electric mower. As a result, the decision was made to begin to phase these types of commercial electric mowers into the grounds fleet.

UNI's grounds department now has 4 electric powered mowers. In addition to these mowers, electric battery powered blowers, chainsaws, pole saws, string-trimmers, and push-mowers have also been transitioned into daily operations. Currently, gas-powered hand tools are utilized on larger scale projects, as the battery capacity of the handheld tools does not match that of the commercial mowers now.

After two years of working with this equipment, the grounds department has identified numerous benefits. Primarily, noise has been reduced. Originally, this project was kicked off to reduce noise, but more so for campus users. A secondary noise benefit is for the employees operating the equipment, as they are not exposed to continuous loud noise. Additionally, staff found no gas or exhaust fumes with the electric powered equipment.

One of the unexpected benefits is the minimal maintenance the equipment requires. The fleet of gas-powered equipment has consistent mechanical issues expected in any high use combustion engine. These issues result in down-time and increased maintenance costs. That has not been experienced with a shift to electric powered equipment. Overall, with fewer moving parts on the electric equipment, there are fewer maintenance expenses.

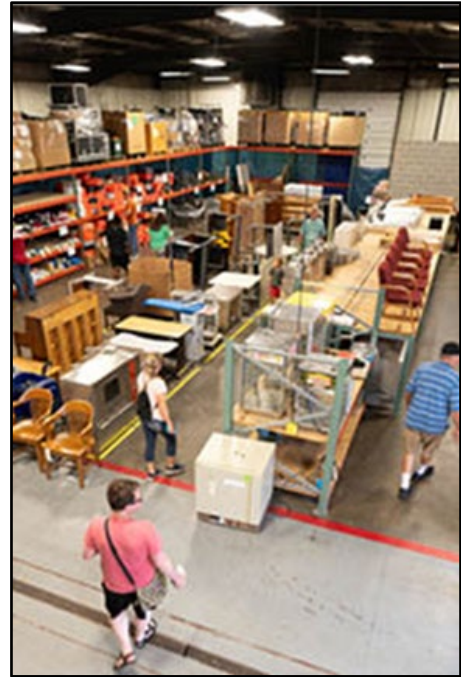
The initial investment in electric powered equipment is an obstacle in the ability to do a complete changeover in university mower fleet. The commercial electric units do have a higher price point than comparable gas-powered units, but they do have a rapid return on investment. The estimated payback period on electric mowers in the fleet is 14 months of operation. The cost savings result from elimination of gas cost, reduced mower routine maintenance, and expected electric KWH price.

Over the coming years, UNI expects to add two more electric powered mowers to the fleet with a goal of managing all of central campus with electric mowers. As the industry continues to advance, the grounds department will continue to evaluate if there are opportunities for other uses of these technologies within their operations.

Iowa State University
Sustainability Through Strategizing Surplus

[ISU Surplus](#), the only campus unit with decision-making authority to sell, recycle, or dispose of used university property – is designated to first redistribute university assets to other departments, state funded entities or tax supported organizations throughout the State of Iowa. Their purview is not only all Iowa State University Ames campus property, but also all the property related to farms, all the county extension offices across the state, and the state's special schools in Vinton and Council Bluffs, and Lakeside Laboratory in Milford.

The operational model for ISU Surplus follows this pathway - when departments or units replace furniture, computers, and other items, Surplus is contacted. Items are collected and managed within a prioritized flowchart: sell, transition to another department, state-funded entity, or tax-supported organization in Iowa, recycle, or landfill. Over an average year, ISU Surplus will be called upon to manage 1.6 million pounds of material and achieve over \$500,000 in return.



Achieving this return requires connection and creativity toward ensuring the highest possible return. Simply being offered for sale does not always bring the sale. That is where creativity comes in with the 2023-2024 academic year, resulting in the most creative return on investment to date.

As the brainchild of Jared Hohanshelt, ISU Director of Logistics, and Mark Ludwig, ISU Surplus Manager, “Own a Piece of Hilton Magic” transformed surplus into memorabilia by offering over 10,300 square feet of Hilton Coliseum’s former basketball floor as 12” x 12” souvenir pieces and achieving a return totaling \$250,000, an increase of over \$200,000 compared to selling the entire floor for \$50,000.





Return on investment is not just sales income, it is also avoided expenses. Once sales opportunities are exhausted for surplus items, they are deemed to have no value and able to be disposed of. For most surplus operations in higher education, two options are available – recycling (limited primarily to metal and electronics waste) and landfilling.

That has changed thanks to a partnership with the [Iowa Department of Natural Resources Iowa Exchange Program \(IWE\)](#) – which has allowed a donation portal with Iowa non-profit organizations and the diversion of unsellable surplus items from landfilling. Saving disposal fees and offering invaluable support to communities in need – in Iowa, across the U.S., and around the world. In addition, new connections for recycling outlets have also been established through this partnership.

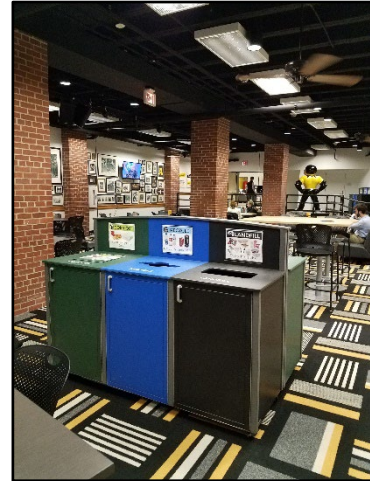
In FY2023, this partnership portal ensured 88 tons of surplus (including furniture, dishes, and [200 mattresses](#) (placed between Christmas and New Year's)) were diverted from landfilling - reducing landfill bound material by 81% and equating to over \$16,000 saved in disposal-related costs.

To date in FY24, 125 tons have been diverted from the landfill and over \$23,000 saved in disposal-related costs. However, the true value of this sustainability program is priceless to the ISU community.

University of Iowa

*PLAN Atlas Zero Waste Assessment
By Elizabeth Mackenzie*

Under the leadership of the Office of Sustainability and the Environment (OSE), the University of Iowa is beginning its journey towards achieving Bronze Atlas Zero Waste campus status. To comprehensively assess waste operations, the OSE is conducting the university's Stage 1 zero waste assessment in partnership with the Post Landfill Action Network (PLAN). This initiative aims to optimize waste management efficiency, reduce costs, and promote sustainability across the campus.



The PLAN assessment, tailored for higher education institutions, employs student Fellows to spearhead the evaluation process.

In February 2024, the OSE appointed two student Fellows to lead the project, slated for completion by May 2024. During this semester, the Fellows underwent comprehensive training on assessment procedures and conducted over 30 interviews with campus stakeholders representing

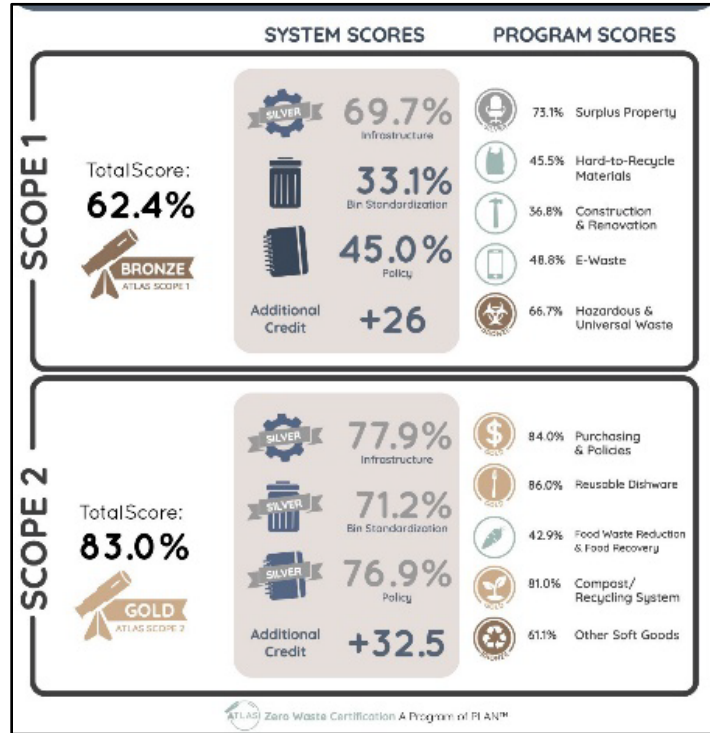
diverse operations, including dining facilities, athletics facilities, event services, laboratories, arts and theater departments, printing and mailing services, and custodial services. As they wrap up this project, the Fellows are reviewing and scoring interview responses to determine the university's overall assessment score, with the final report expected by late May, marking a significant milestone in our sustainability journey.

Upon conclusion of the Stage 1 assessment, the university will receive critical deliverables, including a zero-waste scorecard, detailed program scoresheet, and a comprehensive final report. These resources will help identify the university's strengths and opportunities and offer actionable insights and tailored recommendations to optimize waste management practices. Utilizing the Stage 1 results, the university can proceed with Stage 2, strategic visioning and Stage 3, action planning to further refine the university's zero waste approach. This collaboration will engage stakeholders in crafting a roadmap towards sustainable waste management practices.

The Fellowship program has provided students with an opportunity for experiential learning, enabling them to develop relationships with various campus stakeholders.

This direct engagement has given students insights into campus operations and materials management systems. Actively participating in the assessment process has equipped them with essential skills in communication, problem-solving, and collaboration, preparing them for their future careers.

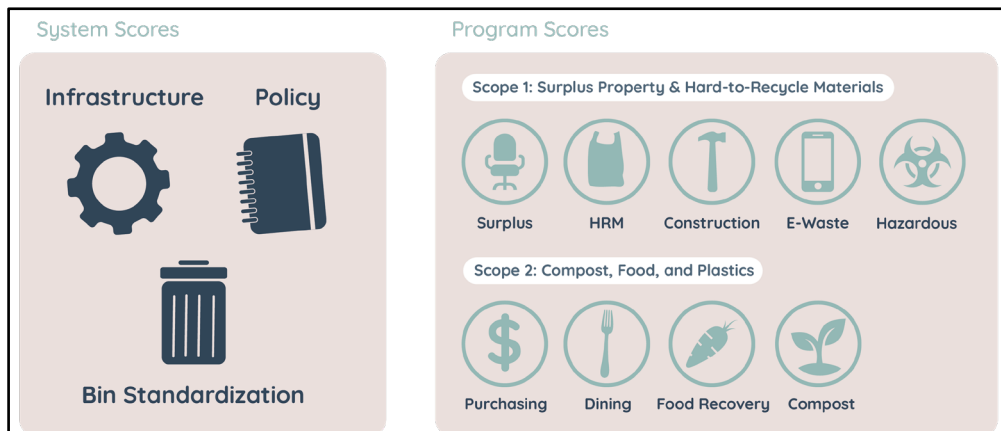
The University of Iowa's participation in the PLAN Atlas Zero Waste Assessment underscores its commitment to environmental stewardship and resource optimization. Empowering students as Fellows, under the guidance of the OSE, not only drives cost-efficiency but also fosters a culture of sustainability, ensuring a greener future for generations to come.



The University of Iowa annually generates over sixteen million pounds (8,000 tons) of waste, incurring more than \$1.5 million in disposal fees. Waste audits have revealed that implementing sustainable materials management practices could potentially eliminate at least 10% of this waste saving money in tipping disposal fees, and other associated costs.

While the university currently diverts about 38% of its waste through recycling and composting efforts, there are additional opportunities for waste reduction and reuse programs that could further mitigate disposal fees.

\$71,540/year to \$286,160/year = Total Benefits per year



Part 3 of 4

PLANNING, ADMINISTRATION AND ENGAGEMENT**Iowa State University***Caring for Self, Sustaining for All*

Achieving long-term economic, environmental, and social sustainability is impossible without acknowledging the vital role that self-sustainability plays in our own lives, as the capacity to thrive in any given environment is directly tied to personal well-being.



At Iowa State University, two campus-wide initiatives represent the university's sustained commitment to well-being. [ISU WellBeing](#), established in 2014 and led by Stephanie Downs, ISU Wellbeing Senior Coordinator, provides resources to faculty and staff. [Student Wellness](#), established in 2017 and led by Brian Vanderheyden, Student Wellness Director, serves undergraduate and graduate students. As well as physical health, ISU WellBeing and Student Wellness emphasize other factors of equal importance in well-being, including our emotional, mental, and spiritual health.

In FY23, Student Wellness (as a partner within the overarching [Student Health and Wellness Unit](#) – including [Thielen Student Health Center](#), [Recreation Services](#), and [Student Counseling Services](#)) conducted a large student focus group study that generated 11 recommendations to enhance student well-being. During the past academic year, progress has been accomplished on all recommendations, highlighted by adding new professional staff positions, focused on food security and basic needs support and power-based personal violence prevention; expanding free student tele-counseling (including crisis support) to 24/7 access; offering four substance-free football tailgates; and expanding access to opioid overdose preventative Naloxone (Narcan®).



FY24 celebrates the seventh year of ISU WellBeing's whole person well-being and engagement program, [Adventure2](#). Since the program's beginning, participation has doubled with over 50% of ISU employees currently registered and program satisfaction ratings consistently achieving 4.5/5.0.

Through employee feedback, education, engagement, and empowerment components are continually evaluated and adjusted to better address participant needs and interests. This continuous improvement ensures a culture where all employees have the

capacity to think well, live well and feel well. The results have been significant, with 81% of Adventure2 participants reporting high levels of engagement – represented through an enhanced sense of connection and purpose in the work that they do.

During the 2023-2024 academic year, both well-being units, in collaboration with numerous campus and community partners, have further enhanced and excelled self-sustainability through additional initiatives including: hosting the 2nd annual [ISU Health and Wellness Symposium](#); embarking in the four-year [JED Campus](#) program – a JED Foundation national initiative focused enhancing institutional approaches to mental health and suicide prevention through strategic planning; and launching [Mental Health First Aid](#) training toward further empowering the campus community in health and prevention.



Although each program offers unique services tailored toward its respective population, ISU WellBeing and Student Wellness remain each other's greatest ally in striving toward a campus that supports the health and wellbeing of all individuals. By valuing the many intricate components that make up an individual, Iowa State University has a greater capacity to fulfill the mission of creating, sharing, and applying knowledge to make our students, Iowa, and the world better.

University of Iowa*ULT Freezers at the University of Iowa**By Brinda Shetty**see page 20 for Return on Sustainability Investment, ROSI*

Academic research facilities use three to six times more energy than office spaces.¹ Industry and academic laboratories around the world are considering steps to move toward more efficient and cost-effective research environments. There are many opportunities to reduce waste and energy use in laboratory spaces including best practices for purchasing, ventilation, electricity use, waste management and water use. The University of Iowa is in the first phase of investigating the biggest energy use in research labs, the ULT (Ultra-Low Temperature) freezer.

The UI has over 700 ULT freezers across campus. ULT freezers are specialized for use in preserving and storing biological samples and other sensitive materials. They are common in life sciences laboratories and have significant operating costs. Some models can consume up to 30 kWh/day which is as much as the average household.² It has become standard practice in many labs to store specimens at -80°C. However, simply raising the temperature by 10°C can lead to significant energy savings, store materials safely, and extend the life of the freezer. Some studies show an increase in energy efficiency of up to 30-40% with this simple change.³ Cleaning, maintaining, and replacing old freezers can also impact energy efficiency, and increased energy efficiency results in significant cost savings.

The UI's Office of Sustainability and the Environment (OSE) is overseeing a student project to conduct a study of ULT freezer use on campus. An intern was hired to put together a research proposal and perform a small-scale energy audit of ULT freezers in research labs. An initial call for volunteers resulted in eight primary investigators (PIs) willing to work with us on the audit. The project tasks include surveying PIs to determine types and numbers of freezers to be tested, conducting a literature review on topic, researching types of plug-in power meters to use in the study, formulating a research experiment, working closely with labs to conduct the experiment, and writing a report with results, recommendations, and next steps.

Several other academic institutions have explored increasing freezer temperatures and labs at CU-Boulder, UC Davis, Dartmouth, and Harvard University have all adjusted their ULT freezer set points. UC-Boulder also has been tracking storage of various sample types at higher temperatures dating back to 1998. Of 191 samples cited, only one was listed as not storing well at -70°C.⁴ On the industry side, AstraZeneca, Charles River Labs, and Genentech have all increased freezers to -70°C.⁵ Following the lead of these institutions would be a cost saving measure that could also shift the standard practices away from inefficient and outdated conventions.

The UI ULT freezer study is a good first step in quantitatively establishing increased energy efficiency here at the University of Iowa. OSE is also partnering with UI's Environmental Health & Safety to pilot a closed-loop collection system for laboratory waste using a system that tracks diversion rates and increases energy efficiency. Reducing energy consumption in laboratories is one way to work toward continuous improvement of our institution's operations and overall effectiveness. As the results are disseminated across campus over summer and fall it is hoped that wide-spread adoption can save researchers across the University thousands of dollars in energy costs.

Return on Sustainability Investment (ROSI):

702% ROSI at 10% reduced energy costs and 3,108% ROSI at 40% reduced energy costs

University of Northern Iowa

Each year a cohort of twenty second-year Presidential Scholars at the University of Northern Iowa participate in a two-semester course sequence referred to as “Think Tank.” The class asks students to identify and analytically approach a problem or issue affecting the campus or community. During the fall semester of the Think Tank experience, teams of scholars research and analyze selected issues, propose solutions, examine implementation options and develop plans to be executed during Service Learning in the spring.

An example of one such project kicked off a decade ago and is still going strong today. The initiative was grown out of a Think Tank cohort identifying gaps in the local food system to a statewide impact on food access; particularly leveraging increased consumption of fruits and vegetables. After spending a semester learning about this topic and identifying opportunities, the group went to work. Their efforts started as a mobile produce stand that would connect local food producers directly into parts of the Cedar Valley that did not otherwise have access to fresh produce. Their initial idea has since expanded in its scope and service footprint, now serving communities throughout Iowa.

One of the initiatives that has grown from this initial classroom project has been the Nourish Iowa Project. This program is focused on helping to create solutions for gaps in the food system through a nationally funded AmeriCorps VISTA program that places members with community and non-profit partners to help address community specific needs. Through the program each year, 9-12 VISTA members work in a full-time capacity over the course of a year identifying creative solutions that strengthen the local food systems as well as economies. In 2023 alone, the Nourish Iowa Project worked with 85 different local organizations to help streamline their involvement in the local food economy.

An exciting and unexpected outcome of this project is the continued involvement of the service members in the communities that they are helping after their service terms have been completed.

For instance, one of the first service members in the Nourish Iowa Project was UNI alum DaQuan Campbell (Business Management '19). At UNI, Campbell got involved with the UNI Local Food Program, which hires UNI students to help further their understanding of the local food system by working with

local farmers and markets. He took leadership roles in the College Hill Farmers Market, the Local Food and Film Festival and the Food Crawl, while also serving as an AmeriCorps member.

Campbell leveraged his experience within UNI’s Local Food Program and the skills he learned in UNI’s Business College, such as communication and leadership strategies, to help grow the



Waterloo Urban Farmers Market. Downtown Waterloo has been identified by the U.S. Department of Agriculture as a food desert, meaning the poverty rate is higher than 20% and one-third of its population live more than one mile from a supermarket or large grocery store.

In all, almost 20,000 people in Black Hawk County are food insecure, meaning they lack reliable access to enough nutritious food, according to the Iowa State University Extension and Outreach.



DaQuan's passion has continued to grow, and he is now continuing to expand the local food economy and address food access issues through the We Arose Co-op, which he founded. Through this effort, he has built a network of local farmers that collectively work together to produce food for the local economy on a right sized scale and filled with the produce that the local population wants to consume. Daquan's work and that of the entire initiative is having impacts on community vitality, economic wellbeing, and health.

Nourish Iowa alums work on national, state, and local coalitions, in leadership roles within organizations, founding and leading non-profit organizations and businesses, and continuing the investment in our local food economy through their dedication and passion to serve our state. Iowa feeds the world with our agricultural strengths and yet, the Think Tank experience led to a growth in the local food movement that was needed in Iowa to examine our community food resources, both rural and urban, and address the gaps.

The University of Northern Iowa has been instrumental in leading the way for area farmers to access new markets and build a strong local food economy.

Part 4 of 4

RETURN ON SUSTAINABILITY INVESTMENT (ROSI)

While sustainability costs and benefits can be difficult to determine, especially when determining the benefits of such things as reduced environmental impact, enhanced community relations and improved mental health for example, universities plan to tackle the Return on Sustainability Investment (ROSI) in subsequent Campus Sustainability Reports.

Calculation of the ROSI requires the following steps:

1. Identify Sustainability Initiatives: First, identify the specific sustainability initiatives or projects you want to evaluate. These could include energy efficiency improvements, waste reduction programs, or social impact initiatives.

2. Quantify Costs and Benefits:

Costs: Calculate the total investment (cost) associated with implementing the sustainability initiatives. This includes direct costs (example; capital expenditures, operational expenses) and indirect costs (example; employee training, monitoring).

Benefits: Quantify the benefits generated by these initiatives. These can be both financial (example; cost savings, increased revenue) and non-financial (example; improved university brand reputation, employee satisfaction).

3. Assign Monetary Values to Non-Financial Benefits:

For non-financial benefits (example; reduced environmental impact, enhanced community relations), estimate their monetary value. This can be challenging but is essential for a comprehensive ROSI calculation.

Use market research, surveys, or industry benchmarks to assign values to intangible benefits.

4. Calculate ROSI:

$$\text{ROSI formula} = (\text{Total Costs} - \text{Total Benefits}) / \text{Total Costs} \times 100\%$$

5. Interpret the Result:

- A positive ROSI indicates that the sustainability initiatives generated more benefits than the costs incurred and should be under consideration for continuing.
- A negative ROSI suggests that the initiatives did not yield sufficient benefits to justify the investment and should be under consideration for discontinuing.

When making their final sustainability evaluations, the universities know that ROSI is just one metric, requiring consideration of other factors such as long-term impact, risk, and stakeholder perspectives.

Return on Sustainability Investment (ROSI) #1 of 2
University of Iowa's PLAN Atlas Zero Waste Assessment

1. Benefits:

Avoided disposal fees from waste reduction initiatives $\$1,500,000/8,000$ tons = $\$187.50/\text{ton}$
 10% avoidance = 800 tons

So, 800 tons avoided x $\$187.50/\text{ton}$ = $\$150,000$ annual savings
 $\$150,000$ = Total Benefits per year

2. Costs:

One-Time Costs:

$\$ 4,825$ = PLAN Atlas Stage 1 Consulting Fee
 $1,200$ = 2 fellows ($\$10/\text{hour} \times 5$ hours/week $\times 12$ weeks)
 $4,700$ = PLAN Atlas Stage 2 Consulting Fee
 $1,200$ = 2 fellows ($\$10/\text{hour} \times 5$ hours/week $\times 12$ weeks)
 $4,700$ = PLAN Atlas Stage 3 Consulting Fee
 $3,200$ = 2 fellows ($\$10/\text{hour} \times 5$ hours/week $\times 32$ weeks)
 $\$19,825$ = Total One-Time Costs

Recurring Costs:

$\$5,720$ = Staff time to implement waste reduction initiatives, 5% FTE to oversee student intern

$3,200$ = Student intern, $\$10/\text{hour} \times 10$ hours/week $\times 32$ weeks
 $\$8,920$ = Total Recurring Annual Costs

$\$28,745$ = Total Costs per year

3. ROSI:

[Total Costs – Total Benefits / Total Costs] x 100%
 $[\$150,000 - \$28,745 / \$28,745] \times 100\% = 422\%$

422% per year = ROSI

- Since more benefits than costs were generated, the UI should consider continuing the sustainability program.

Return on Sustainability Investment (ROSI) #2 of 2
University of Iowa's ULT (Ultra-Low Temperature) Freezers

1. Benefits

Energy reduction cost savings

UI's average freezer annual energy cost:

$\$0.14/\text{kWh} \times 20\text{kWh}/\text{day} = \$2.80/\text{day} \times 365 \text{ days}/\text{year} = \$1022/\text{year} \times 700 \text{ freezers} =$
 $\$715,400/\text{year}$

UI's new Ultra Low (-85 degrees) ULT Freezers reduce annual energy costs by 10% - 40%*.

So, 10% of $\$715,400/\text{year} = \$71,450/\text{year}$

So, 40% of $\$715,400/\text{year} = \$286,160/\text{year}$

* Per PG&E's "Emerging Technologies Program" in 2016, -80° to -70° ultra-low temperature freezers can reduce energy consumption by 30-40%.

$\$71,540/\text{year}$ to $\$286,160/\text{year} = \text{Total Benefits per year}$

2. Costs:

One-Time Costs

$\$3,200 = \text{Student intern, } \$10/\text{hour} \times 10 \text{ hours}/\text{week} \times 32 \text{ weeks}$

Recurring Costs

$\$5,720 = \text{Staff time to implement waste reduction initiatives, } 5\% \text{ FTE to oversee student intern}$

$\$8,920 = \text{Total Costs per year}$

3. Return on Sustainability Investment (ROSI)

$[\text{Total Costs} - \text{Total Benefits} / \text{Total Costs}] \times 100\%$

$[\$71,540 \text{ to } \$286,160/\text{year} - \$8,920 / \$8,920] \times 100\% = 702\% \text{ and } 3,108\%$

ROSI = 702% at 10% reduced energy costs

and

ROSI = 3,108% at 40% reduced energy costs

- Since more benefits than costs were generated, the UI should consider continuing the sustainability program.