

Sustainability Charter Committee Minutes

Monday, May 17 @ 9:00-10:30 am pm via Zoom

Present: Matthieu Biger, Michelle Fravel, Erin Irish, Megan Lindmark, Melissa Meisterheim, Laurie Ponto

Absent: Joseph Haggerty, Heather Sander, Sam Schauer, Libby Smith

Liaisons: Ben Fish, Stratis Giannakouros

Ex Officio: Rich Hichwa, Tony Senio, Glen Rogers

Staff: Beth MacKenzie, Blake Rupe

Guests: Sarah Gardner, Tim Gravert, Charles Stanier

1. Call to Order
2. Announcements – Open to all present
 - a) Conversation/interview was had with the Press Citizen [\[Appendix 1\]](#) regarding the challenges that we have related to sustainable energy (steam, limited Cambus size due to CRANDIC tunnel bridge). This was thought to be a good opportunity to educate the community about the successes and challenges faced by the University in this area.
3. Impromptu new business for this agenda – Open to all present
 - a) None
4. Updates
 - a) a) TIAA Resolution
 - i. Passed vote in faculty senate, next step is [presentation to staff council on June 9](#)
 - b) b) [2020 Goals Report publication](#)
 - i. Final report is complete (an 11-page document including one page per goal)
 - c) c) Herbicides/pesticides etc. use on campus
 - i. Followed Dave Brown's attendance at last meeting with additional questions on this topic, now waiting for follow-up report at this time
5. Guest discussions with:
 - a) Tim Gravert – Finkbine Golf Course Superintendent [~9:15-9:45am]
 - i. He enjoys every opportunity he has to educate people about sustainable efforts made by golf courses given common misconceptions that they are bad for the environment
 - ii. Truen (the current manager of Finkbine) manages 1500 golf properties
 - iii. Time has been the superintendent here for 1.5 years now and his goals include:
 - Water management is #1 priority – updated central control for irrigation; this allows for control of every faucet down to the second
 - He encourages deep and infrequent watering which includes a lot of hand watering
 - He is able to collect/analyze data through moisture meters
 - Aerification practices are utilized (makes healthy root system)
 - Ferritization includes mainly biologics – almost all fertilizers used are soluble (as opposed to granular)
 - Working to raise tree canopies to help sun and air flow
 - Plans to pursue certification with the Audubon society
 - Part of the Monarch in the Rough Program
 - Planted an acre of a pollinator plot (milkweed, plan on 3-4 acres this fall and winter)

- Added more no mow areas for habitat for wildlife, cuts down on fuel and fertilizer
- He is interested in research and learning opportunities and would like to build connections with Ulowa
- Currently supports a STEM learning program for middle school (one day event)
- Bethpage State Park, NY is in his background which provided him with great examples for living laboratory ideas
- iv. Plan for office of sustainability to discuss next steps, Heather Stander would also be a good contact given experience with Ashton cross county course
- b) Sarah J. Gardner – City of Iowa City; Climate Action Engagement Specialist (~9:45-10:15am)
 - i. Iowa City adopted a climate plan 2 years ago
 - ii. Only 5% of our emissions in our city are from facilities that the City owns, 95% come from the private sphere so engagement is critical
 - iii. GOAL: Reduce emissions 45% by 2030, net zero for 2050 goal
 - Buildings and energy (largest source of emissions)
 - Transportation (second largest source of emissions)
 - Waste (only 2% of emissions profile)
 - Sustainability lifestyle
 - Adaptation
 - iv. Examples
 - Businesses and home purchasing solar but more efficiency is the key (ex. increasing insulation)
 - Solar will not change your use of natural gas, no good green alternative right now (difficult to heat your house with electricity right now)
 - Heat pumps would be one example that may work when you have good insulation in your home (with furnace as back up)
 - Another issue: open gas flame stoves that are now preferred are pose safety and environmental concerns (reduce air quality)
 - Conduction cooking stoves are a good alternative
 - Laws exist in this state that prohibit the ability to discuss/educate about the harms of propane gas
 - The cost of gas has gone down and electricity up making it difficult to promote heat pumps
 - Seed grant program: a vehicle that could be used to make Ulowa a more prominent player in decarbonization of Iowa
 - Transportation
 - Iowa City now has a policy that city employees need to provide justification for not using an electric car for work purposes before getting a gas car
 - The city has one electric street sweeper and will have four busses
 - Railroads are privately owned so ideas like adjusting rail bridges to allow for taller electric busses will need to be negotiated with the railroads.
 - Solar

- Many old buildings cannot support on their roofs but looking at this for new buildings going forward is the plan
 - Partnering with UI to do a solar feasibility study
 - The city supplies home energy audits at no cost
 - The city library will have an induction top stove for the community to view as a way to promote this preferred option
 - It was noted that the electricity that we buy from MidAmerican will be 95% from clean energy so it may make most sense to spend money on things other than solar installation (i.e. moving away from gas, adding insulation, etc.)
6. Strategizing communication on Sustainability @ Iowa with incoming UI President
 - a) Committee's task it to form ideas/topics that we want to discuss
 - b) The committee plans to reach out via email to welcoming her and inform her of the history of the committee and interactions with past presidents
 - c) The University of Illinois has a Climate Action Plan so it will be exciting to learn from her past experiences there.
 7. Next meetings: June-August TBD
 8. Adjournment

Appendix 1

To 'do right by the climate,' sustainability leaders at UI reflect on 2020 goals, think ahead to 2030

Despite recent successes in sustainability, the University of Iowa still has a massive environmental footprint: Systems sending power to its 373 buildings still partly run on coal and gas, and 19 million pounds of waste are sorted into trash, compost and recycling bins in any given year. UI leaders in sustainability plan to release a set of goals for 2030 this fall.

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Iowa City Press-Citizen

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Gary Hayslett explains a pressure reading on pipes in a steam tunnel, Tuesday, May 25, 2021, at the University of Iowa Power Plant in Iowa City, Iowa. *Joseph Cress/Iowa City Press-Citizen*

- 42% of the energy produced in UI's power plant comes from renewable sources.
- UI energy use grew 1% from 2010 to 2020 despite the addition of 15 new facilities.
- UI has 29 campus buses that run on biodiesel. They consume about 200,000 gallons each year.

- UI produced 19 million pounds of waste in 2019, not counting landscape and demolition debris.

Hiding beneath the University of Iowa is an underground maze.

The 17 miles of hot, steam-filled metal pipes run all through campus in crowded, low-ceilinged industrial caves. Pressurized steam that fills those pipes, generated by the burning of oats, grass, gum wrappers, coal and gas, is on a mission: Journey through campus via specific tunnels — like the "Old Capitol tunnel" or the "Memorial Union tunnel" — and maintain everyday operations like sterilizing surgery instruments.

Most people on campus have never seen that underground world. Approximately 110 people from ENGIE-Meridiam, the company that manages UI's utilities, work in the main power plant on Burlington Avenue.

What more members of campus may have seen, however, are endeavors to make UI more sustainable and reduce its daily toll on the climate. And as sustainability efforts continue to gain traction on campus, it's the day-to-day operations, like those powering UI's energy, trash, recycling, composting and transportation systems, that will need updating.



Piping and stairways stretch high into a portion of a boiler, Tuesday, May 25, 2021, at the University of Iowa Power Plant in Iowa City, Iowa. *Joseph Cress/Iowa City Press-Citizen*

This month, the university's Sustainability Charter Committee released a progress report on [2020 institutional climate goals](#). It shows that renewable fuel use and building efficiency have risen while composting programs boomed, among other successes.

But UI still has a massive environmental footprint: Systems sending power to its 373 buildings still run partly on coal and gas, and 19 million pounds of waste are sorted into trash, compost and recycling bins in any given year.

Campus sustainability experts are in the process of finalizing 2030 climate goals for release this fall.

Stratis Giannakouros, director of UI's Office of Sustainability and the Environment, says the argument among many institutions and universities has long been to set climate

change-combatting goals that are reachable, preventing the fallout that will ensue if they're not met.

"But the moment has eclipsed that kind of thinking — and it's more about saying, 'We know where we have to get, or the consequences are bad.' So future generations are not going to judge you based upon, 'Did you not meet the goal?' They're going to judge you much more likely on... Did you not set an ambitious enough goal?"

There's no use in doing anything less than what the Intergovernmental Panel on Climate Change says is necessary to prevent the worst outcomes of global warming, he says. "It'd be like saying, 'I intend to jump halfway across this canyon.'"



Towers storing material for boilers raise high into the skyline, Tuesday, May 25, 2021, at the University of Iowa Power Plant in Iowa City, Iowa. *Joseph Cress/Iowa City Press-Citizen*

UI grew renewables, boosted energy efficiency

Producing the steam that runs through campus begins with boilers — the multi-storied metal furnaces that heat and pressurize water to generate steam, in some cases pushing it to 750 degrees and 500 pounds per square inch. It's that pressure that pushes steam through the campus' network of underground pipes.

Teams of engineers have spent years tinkering with those boilers to make them digest biomass rather than coal, the CO₂-emitting source they were built to consume decades earlier.

The boilers' diet of biomass — about 154 million pounds of it each year — includes oat hulls from the Quaker Oats factory in Cedar Rapids, energy pellets made up of post-consumer, non-recyclable materials, and Miscanthus grass.

Energy pellets are stored in the tall metal silos that tower over central Iowa City; one contains 876 tons of pellets that will last about eight days.

They are carried via conveyor belt through the power plant and dropped into the boilers to be burned.



Pellets of a mixed material made of grasses and plastics is carried on a conveyor into a boiler, Tuesday, May 25, 2021, at the University of Iowa Power Plant in Iowa City, Iowa.

Joseph Cress/Iowa City Press-Citizen

Oat hulls were first used to power UI's boilers in 2003, and in 2013, UI partnered with Iowa State to begin growing Miscanthus.

Modifying the boilers so they run on biomass rather than coal is one of the ways the university met 2020 sustainability targets. An estimated 42% of energy produced in the power plant comes from renewable sources — 2% ahead of 2020 goals. It's expected that UI will be able to meet its goal, ahead of schedule, of phasing out coal use by 2025.

Members of the sustainability committee refer to the transition from burning coal to biomass as one of the university's under-told success stories.

"There is an administrative structure that allows the engineers to tinker like that," says Erin Irish, co-chair of the sustainability charter committee. "I can imagine there are some people who would say, 'This is the way we do it. Do it.'"

Biomass still produces emissions

But there's a problem: Biomass may be cleaner than coal or gas, but it still produces emissions.

And the way the power plant is set up — having been built about 100 years ago — means it just isn't equipped to run on cleaner alternatives like solar or wind-powered electricity.

"Solar and wind can make electricity, but that would be a whole new system of heating and cooling our buildings. So it's not feasible or practical," said Jerald Schnoor, a longtime UI professor of civil and environmental engineering and sustainability expert.

Growing oats and grasses to eventually be used as biomass brings with it an added benefit, he points out: Plants suck emissions out of the air simply by growing, "offsetting" some of the emissions produced when they are burned.



Jeremiah Greiner, operations manager, shows the inside of a boiler, Tuesday, May 25, 2021, at the University of Iowa Power Plant in Iowa City, Iowa. *Joseph Cress/Iowa City Press-Citizen*

Although the 2030 climate goals haven't been finalized, a draft shows the university will seek to reduce greenhouse gas emissions by 50% compared to 2010. It will also continue building renewable energy reliance and create a "comprehensive decarbonization plan."

Giannakouros explains burning biomass as the "best, worst thing we can do."

"The longer term goal would be to beneficially electrify campus — so as you build new buildings, you kind of unplug a new building, or you renovate a new building and take it off steam. Then you can drive wind and solar electrons in that building," he said. "So there's that wanting to do right by the climate, but knowing that this transition has to happen over a number of decades."



An engraving is seen from an older portion of the plant, Tuesday, May 25, 2021, at the University of Iowa Power Plant in Iowa City, Iowa. *Joseph Cress/Iowa City Press-Citizen*

Schnoor also says UI may not have trouble meeting some of its energy goals simply because it purchases the majority of its electricity — 90% — from a third-party, Mid American Energy.

MidAmerican has already set aggressive targets when it comes to the climate: The Des Moines-based company aspires to generate 100% of its electricity through renewable sources. Last year, it reached 83%. MidAmerican initially projected it would hit its 100% target in 2021, but is now behind due to customer growth, according to spokesman Geoff Greenwood.

UI missed its 2020 diversion goal; future goals will seek to reduce waste

Not counting materials like construction debris and landscape clippings, the University of Iowa campus and its healthcare system produced about 19 million pounds of waste in 2019.

That measurement represents only the waste collected in trash, recycling and composting bins on university property, as well as hazardous waste.

Of that figure, 7 million pounds were sent to recycling facilities, 1.2 million to composting facilities and 10.8 million to the landfill. Approximately 45% was generated by the university hospital system.

The 2020 goals report says that, in the past decade, the amount of organic waste diverted from the landfill grew by 14 times.

For comparison, in the 2020 calendar year, the Iowa City Landfill and Recycling Center took in about 215 million pounds of trash just from inside Iowa City's limits. The city is home to about 75,000 people.



A compactor runs over a pile of garbage at the Iowa City landfill. *Iowa City Press-Citizen*
File Photo

UI's 2020 goal was to divert 60% of all waste to a recycling or composting facility rather than to a landfill. UI hit a "diversion rate" of 36% in 2020, the goals report shows, an improvement from 23% in 2010 but still far below target.

A diversion rate is a measure of what percentage of waste produced is "diverted" from a landfill. It does not account for waste reduction; that means as less waste is produced from the beginning, it becomes harder to reach a high diversion rate.

"By performing waste audits, we have learned that our original goal of 60% waste diversion was not reasonably achievable," according to information posted on the sustainability office's website. "Based on our waste stream profile, which includes UI Health Care facilities, the maximum achievable campus-wide diversion rate would be 61% (assuming every single recyclable and compostable material could be captured). This is largely due to the limitations in recyclability of health care waste, which accounts for approximately half of all campus waste."

Looking forward, the plan is to make attempts to reduce the amount of waste generated from the beginning and not solely measure progress based on diversion rates.

"We want to go back and restructure, in this (2030) round, how we target that waste on campus," Giannakouros said. "Sustainability materials management has become something that we think is more important than just absolute numbers. Not all waste is equal in terms of its CO₂, or climate change impact or carbon impact, or in terms of the toxins."

The total amount of waste UI produced in the past decade has actually grown; the institution generated 16.2 million pounds in 2010. Of those 16 million, about 3.7 million were sent to recycling facilities and 65,000 pounds composted.

But accounting for population growth, the amount of waste each person on campus produces in an average year has decreased 18% since 2010, according to Beth MacKenzie, sustainability program manager with the UI sustainability office.

That translates to 410 pounds of waste per person in 2010 versus 335 pounds in 2019.

MacKenzie says the per-capita drop in waste production is largely due to small-scale changes to campus operations that have been put in place since 2010. They include using more electronic forms and double-sided printing, installing water bottle refill

stations, reusing delivery pallets and other initiatives. Food waste is also being dehydrated to reduce its water weight.

Electric busses run on biodiesel



University of Iowa Cambus vehicles park at the West Campus Transportation Center, Tuesday, Oct., 22, 2019, in Iowa City, Iowa. *Joseph Cress/Iowa City Press-Citizen*

The 29 buses that provide 19,000 rides in an average academic weekday run on biodiesel. They consume about 200,000 gallons of fuel for the 800,000 miles they drive circling around campus in a typical year, getting about four miles to the gallon.

As of January 2020, the entire CAMBUS fleet is powered by biodiesel, a cleaner alternative to other fuel options. It's made of recycled sources like cooking oil and animal fats. The university began transitioning to biodiesel blends in the late 1990s.

Burning it for fuel still produces greenhouse gas emissions, although far less than via the burning of natural gas. And, like with biomass, the process of producing plants for plant-based oils helps to offset emissions.

UI is considering using funds from the Federal Transit Administration to replace a small number of diesel buses, nearing retirement, with electric ones.

"There are several desirable and beneficial aspects to operating an electric bus fleet, and there are also challenges," reads a statement from CAMBUS Manager Brian McClatchey. "For CAMBUS, the most challenging aspects of transitioning to electric buses are the capital required, limitations imposed by the height of the buses, and a limited mileage range that may require modifications to vehicle operations."

A new electric bus costs nearly double a diesel-powered one — around \$900,000. Twenty-nine replacements could cost more than \$26 million, along with the costs that would come with charging infrastructure, staff training and equipment.



A CRANDIC Cedar Rapids and Iowa City Railway vehicle is seen, Tuesday, May 25, 2021, outside the University of Iowa Power Plant in Iowa City, Iowa. *Joseph Cress/Iowa City Press-Citizen*

The sheer size of the buses are another hurdle: They can't pass below the railroad bridge on Iowa Avenue. The bridge is owned by CRANDIC Railway.

"Work on the bridge would take time and be disruptive to traffic, operations and the transportation of goods. As the number of electric buses in the fleet increases, it would also be increasingly difficult to design and operate service," McClatchey said via an emailed statement. "At this time, there are no plans for the bridge to be altered."

What about campus culture at the University of Iowa?

A final, overarching aspect of climate goals — both those completed for 2020 and those to come — is harder to measure: How can you ingrain sustainability into a culture?

Each campus unit will create a plan for meeting sustainability goals, should the 2030 draft go forward as-is. The idea is that campus will function as a "living laboratory" for sustainability projects. Also on the table is a new general education requirement on sustainability.

It was only in late April when UI named Barbara Wilson as its next president. Screening Wilson and her three competitors during the presidential search process, Matthieu Biger, co-chair of the sustainability charter committee, wanted to know each of the candidates' thoughts on the climate.



A Tigerhawk logo is seen painted on a metal grate, Tuesday, May 25, 2021, at the University of Iowa Power Plant in Iowa City, Iowa. *Joseph Cress/Iowa City Press-Citizen*

"We have an active sustainability charter committee here at the University of Iowa, and issues related to climate change and environmental justice are important to a modern university," Biger's question read. "What in your academic and professional path has informed you of your view of sustainability efforts on a college campus and in the community at large?"

Wilson replied that she would want to learn more about UI's current work before saying anything concrete, but she's familiar with sustainability plans via the University of Illinois system.

"I would want to learn more about what the carbon plan is here, whether we need to be more aggressive, what kinds of funding we're putting toward ensuring that our buildings, and our new buildings, are platinum or gold (LEED standard), and that we're

doing the best that we can do to conserve energy and think about climate in the future," Wilson replied during her public forum.



University of Iowa's incoming president Barbara Wilson is introduced during a news conference, Friday, April 30, 2021, at the Levitt Center for University Advancement on the University of Iowa campus in Iowa City, Iowa. *Joseph Cress/Iowa City Press-Citizen*

Schnoor says he's optimistic that the Wilson administration will support climate goals, and that general knowledge about sustainability on campus will rise.

"The (2030 draft goal) number two — 'embed sustainability into campus culture' — that's a tough goal, how do you measure that?' And I don't think that we've scarcely started to do that yet," he said. "So I'm hopeful with a new president ... and hopefully coming out of COVID beginning in the fall semester, we'll flesh out this framework and make it more hard-hitting goals, things that you can measure, including campus culture, and get more sustainability education into our curriculum."

Schnoor leads a class that asks students to take-on sustainability projects. One student recently planted 100 trees on campus; others have promoted organics and recycling programs. In total, 466 students have earned a certificate in sustainability since UI created the program in 2009.

"The certificate changes the sustainability of our university and our community," Schnoor said. "It just shows that a small group, or even one person really, can make a difference."

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