On March 9, 2020, President Cockett announced Utah State University would commit up to $60,000 annually toward a renewable energy portfolio, implement energy-saving technology on campus, initiate a $10 carbon fee for university-funded air trips, and enhance sustainability education for USU students. These announcements arrived just over a year after the faculty senate and student association passed resolutions asking the university to redouble efforts to address climate change in its physical operations and student education. This report addresses progress on these priorities in addition to other the key recommendations of the USU Greenhouse Gas Reduction Committee Final Report.

First, the university and associated statewide campuses produced 83,361 MTCO2e for the reporting year of July 2019 to June 2020, which was a reduction of nearly seven thousand metric tons of CO2 when compared to the previous year. While this approaches the goal of 10% annual emission reductions, it falls short with a reduction of 7.7%. Ventilation modifications in response to COVID-19 are responsible for a portion of the shortfall. Furthermore, many initiatives underway were not fully executed during this reporting year and will be in the coming year and years.

Over the past year, USU Facilities has explored options to source renewable energy through Rocky Mountain Power and Logan Light & Power. A 158-kilowatt installation has been completed on the new Gateway Parking Terrace. Another solar installation is slated for the USU’s first net zero-energy building under construction in Moab. Funding has also been secured for phase II of the solar installation at the Fine Arts Visual building. For a more extensive transition to renewables, negotiations are underway to source two to three megawatts of renewable energy through a coalition of buyers entering a power purchase agreement with a solar developer. Any renewable energy will go further as a university-wide shift to LEDs nears completion on Logan campus and continues on statewide campuses.

Additionally, the $10 air travel fee is in its first year. President Cockett will reimburse departments this year, and departments will have the option to decrease travel of pay a greater portion of the fee in coming years. Funds generated by this fee are anticipated to support priorities in the USU Greenhouse Gas Reduction Committee Final Report.

The new travel system is also assisting with improved data collection. USU Facilities has taken responsibility for the university’s annual greenhouse gas inventory and has dedicated resources to improving consistency from past years to the present. Furthermore, a pilot sustainability assessment was launched in fall 2020 to evaluate student-learning outcomes from courses that include sustainability.

The university has made progress on all four of the priorities President Cockett announced in March 2020. It has also made progress on seven of the eleven key recommendations from the Greenhouse Gas Reduction Committee. Continuing the progress of 2020 and exploring how the university can address all of the recommendations from the report are priorities for the coming year.
1. Employ best practices to ensure that we have a robust and consistent process for estimating USU’s total greenhouse gas emissions. Total greenhouse gas emissions from Logan and Statewide campuses should serve as the key performance indicator to evaluate USU’s progress on this initiative.

2. Work with Rocky Mountain Power to purchase a renewable energy portfolio. Continue to engage Logan Light and Power and Price Public Utilities to develop similar opportunities to purchase renewable and carbon-free energy portfolios.

3. Accelerate conversion of lighting on Logan campus to energy- and cost-saving LED lights, to be completed within the next two years.

4. Increase investment in best available energy management technology and energy-saving HVAC commissioning projects for the next ten years.

5. Continue to investigate opportunities to increase solar and wind energy on or near campus, beyond those provided in the renewable energy portfolios that we seek to purchase from public utilities.

6. Improve fuel efficiency of fleet vehicles and conduct a pilot study of integrating electric vehicles into our fleet.

7. Implement a non-binding ‘shadow’ price on carbon emissions for all major University expenditures.

8. Establish a mandatory carbon offset fee of $10 per round-trip for all University-sponsored air travel paid by the department, college or index funding the trip. Use funds raised by that fee to pay for projects with the highest return on investment for reducing USU’s greenhouse gas emissions and/or improving air quality on and near USU campuses.

9. Develop a fundraising campaign focused on advancing USU’s efforts towards sustainability and carbon neutrality.

10. Expand and institutionalize USU’s Planetary Thinking in the Curriculum Workshops with a focus on general education courses to ensure that all students graduate with an understanding of the causes, implications, and solutions to climate change.

11. Expand adoption of climate and sustainability-related learning outcomes and assess students’ attitudes and understanding of relevant content.
Highlights

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Greenhouse Gas Inventory

In 2020, USU Facilities took over the greenhouse gas inventory, completing the FY 19 inventory in August 2020 and the FY 20 inventory in January 2021.

Renewable Energy

USU's most recent renewable energy installation is a 158 kW solar array on the new parking terrace with others slated for Logan and Moab. USU is also exploring a power purchase agreement.

Efficiency Improvements

USU energy teams have replaced 69% of lights on the Logan campus with LEDs. Installations continue in Logan and statewide. Lab ventilation and real-time monitoring projects are underway.

Air Travel Carbon Fee

The USU Controller’s Travel Office has implemented the $10 per round trip carbon fee. In the first year, the President’s Office will reimburse A#s at the end of the fiscal year.

Sustainability Assessment

The COVID-19 pandemic and funding paused Planetary Thinking Workshops. However, it provided an opportunity to evaluate the outcomes of sustainability courses for students.
Greenhouse Inventory 2020

1. Employ best practices to ensure that we have a robust and consistent process for estimating greenhouse gas emissions from Logan and Statewide campuses should serve as the key performance indicator.

1991

Talloires Declaration Signatory
- Goal: Practice Institutional Ecology

2007

American College & University Presidents Carbon Commitment Signatory
- Goal: Carbon neutrality by 2050
- Greenhouse gas inventories begin

2019

USU Faculty Senate Resolution
- Goal: Reduce emissions by 10% per year for the next 20 years

USU Student Association Resolution
- Goal: Shorten carbon neutrality timeline from 2050 to 2032

President Cockett forms a committee to address requests in the resolutions

2020

President Cockett adopted recommendations from the USU Greenhouse Gas Reduction Committee Final Report
Greenhouse Gas Inventory 2020

Tracking USU’s total greenhouse gas emissions. Total greenhouse gas emissions from Logan and Statewide campuses should serve as the key performance indicator to evaluate USU’s progress on this initiative.

COVID Changes

- March 18, 2020 to June 30 (3.5 mo. until the end of fiscal year) USU moved classes online
- March 19, 2020 Remote work for employees if possible
- May 4, 2020 First summer 7-week session and 14-week classes online

Data Changes

- Reduced occupancy
- Increased ventilation
- Upgraded lighting
- Decreased commuting (est.)
- Added study abroad
- Aligned of space (sq. ft.) and campus users between years
- Improved consistency of boundaries on Logan and statewide campuses
GREENHOUSE GAS INVENTORY FY 2020

USU and College of Eastern Utah Merge
- Electricity
- Steam
- Fuels
- Aggie Shuttle
- USU vehicles
- Aviation
- Animals
- Fertilizer
- Refrigerants & chemicals

SCOPE 1

- Purchased electricity

SCOPE 2

- Commuting
- Business & Research Travel
- Purchased goods
- Paper
- Not food yet
- Waste
- Wastewater

SCOPE 3

- New transportation survey results
- Pandemic commute estimates
- Efficiency improvements

Graphs showing trends and percentages for different scopes and years.
USU produced 83,361 MTCO2e in 2020

Boundaries include...

- Students and space from the Logan Campus, statewide campuses, support facilities, and farms.
- Electricity and natural gas for Logan Campus, statewide campuses, support facilities, and farms.
- Commutes are based on survey data from the Logan campus. Statewide campuses are estimated from Logan data, excluding bus options. Statewide campuses will be included in future transportation surveys.
- USU-funded air travel and fuel are from the USU travel office and State of Utah.
- Study abroad provided student destinations.
- Waste, recycling, and composting data are from the Logan campus only. Other campuses do not weigh waste or track this information.
RENEWABLE ENERGY

2. Work with Rocky Mountain Power to purchase a renewable energy portfolio. Continue to engage Logan Light and Power and Price Public Utilities to develop similar opportunities to purchase renewable and carbon-free energy portfolios.

Utah State University’s campuses, with the exception of Logan and Price, receive electricity from Rocky Mountain Power. USU currently purchases electricity from Rocky Mountain Power under schedule 6, which does not explicitly include renewable resources. Rocky Mountain also offers rate schedules 32 and 34 for qualifying customers that would like to include renewable energy in their portfolio. The university has been exploring these options since 2019.

Schedule 34 initially appeared as the most affordable option to add the greatest amount of renewable energy to the university’s portfolio. However, the avoided cost set by Rocky Mountain Power to determine USU’s rate per kilowatt-hour was too high to be economically feasible for the university.

Schedule 32 remains an opportunity for USU to purchase renewable energy. Although Rocky Mountain Power proposed increases to the rate, the Public Service Commission of Utah on the PacifiCorp ruled against the majority of Rocky Mountain Power’s proposals for schedule 32. Former Associate Vice President Charles Darnell was among those who testified to the Commission that Rocky Mountain Power’s requests would threaten the accessibility of the renewable energy under schedule 32. USU continues to organize a coalition to purchase a contract at the 40 MW threshold to reach the most favorable rate for a power purchase agreement.

Discussions are ongoing with Logan Light & Power to provide a rate structure similar to Rocky Mountain Powers rate schedule 32 to allow for the purchase and transmission of renewable power for the University. Energy Strategies is under contract to provide consulting services and facilitate a rate structure design that evaluates the cost impacts to Logan Light and Power. Additionally, the study would evaluate how to pass the cost to USU fairly and equitably without increasing costs for other Logan Light & Power customers.

Price Public Utilities approached the University about providing an opportunity for USU Eastern to procure the renewable energy credits for resources the utility has currently under contract. To date, the details of this arrangement have not been finalized.
In fiscal year 2020, USU secured two more on-site solar installations. President Cockett designated funds for a 158 kW installation on the new Gateway Parking Terrace on the Logan Campus. Energy Manager, Zac Cook, secured a Blue Sky grant from Rocky Mountain Power for the Moab campus. The solar installation will be a part of the construction of USU’s first zero-energy building. Funding has also been secured for phase II of the solar installation at the Fine Arts Visual building adding an additional 25 to 30 kW to the existing 26 kW.

USU Facilities is continuing to explore opportunities to install solar panels on land owned by the university in other locations. Simultaneously, it is investigating funding mechanisms and rate implications with Logan Light and Power for on-site solar.
EFFICIENCY IMPROVEMENTS

3. Accelerate conversion of lighting on Logan campus to energy- and cost-saving LED lights, to be completed within the next two years.

4. Increase investment in best available energy management technology and energy-saving HVAC commissioning projects for the next ten years.

Lighting accounted for approximately 11% of an average building’s energy use at USU prior to LED retrofits. USU Facilities has been incrementally installing LEDs in campus buildings, including new construction and retrofits in the Spectrum, Merrill-Cazier Library, and Fine Arts Center in an effort to reduce energy use and save money.

After the adoption of recommendations from the USU Greenhouse Gas Reduction Committee Final Report and the shift to online learning in March of 2020, installations of LEDs accelerated. Over the summer, teams changed 600-800 lamps per day, toward the goal of replacing 142,000 lamps on the Logan campus. With approximately 98,000 LED lamps installed, the goal is to complete the replacement of the remaining lamps by August 2021. Upon completion, USU anticipates reducing energy used by lighting by two-thirds. The project will save six to nine million kilowatt-hours and an estimated $200,000 to $350,000 per year.

Although the initial recommendation identified the Logan campus for the lighting upgrades, a substantial amount of the lighting at the statewide campuses has been converted to LEDs. Lighting projects are currently underway on the Price campus. A project is in development, and funding is being secured for a lighting efficiency project at the Blanding Campus.

An air quality monitoring system, with substantial funding from the Edwards Mother Earth Foundation, is nearing completion in the College of Agriculture, Biology and Natural Resource remodel, and Life Sciences buildings. This system allows USU to use the latest technology to balance safety and energy efficiency for laboratory ventilation systems.

Analytic software is being deployed across campus to monitor the performance and operation of building HVAC systems in real-time. This system will provide data for continuing maintenance and will aid in identifying system inefficiencies so they can be addresses immediately.

The steam maintenance program on the Logan campus is expanding to USU Eastern campus in Price. The program is anticipated to result in substantial natural gas savings.
8. Establish a mandatory carbon offset fee of $10 per round-trip for all University-sponsored air travel paid by the department, college or index funding the trip. Use funds raised by that fee to pay for projects with the highest return on investment for reducing USU’s greenhouse gas emissions and/or improving air quality on and near USU campuses.

The mandatory carbon offset fee on university-funded air travel began in FY 2021. As planned, departments are paying $10 per round trip of air travel. The same A# that funded the travel usually funds the fee, but another account can cover the fee in cases when grant funding disallows payment. In the first year, the president will reimburse the $10 fee to the original A# at the end of the fiscal year. The funding will be placed in an account for carbon reduction projects, likely the projects identified in the Greenhouse Gas Reduction Report. In subsequent years, the reimbursement will decline by 10% each year. For example, the president will reimburse up to 90% in the second year. Departments will have the option to reduce travel by 10% or pay the corresponding travel fee.

The pandemic has created uncertainty in the funding available for carbon reduction projects from the travel fee. First, the baseline for the president’s phase-in plan still needs to be confirmed due to the unusual travel patterns in 2020 and 2021 caused by the COVID-19 pandemic. Additionally, the funding that the fee will raise for carbon reduction in the first years is unpredictable. University-funded air travel declined in 2020. The travel office reported approximately 5,000 university-funded air trips in FY 2019 and 4,000 trips in FY 2020, which the pandemic influenced from March to June. All of FY 2021 will reflect pandemic travel reductions. Thus, the fees collected for carbon reduction in the first years will be lower than the initial estimate.

It is also worth noting, that the mandatory travel fee account is separate from the voluntary carbon offset account established in 2012. Individuals may still choose to donate money to the university’s carbon offset fund. The USU Sustainability Council manages the voluntary fund, and as the process for the mandatory account is solidified, the Council is considering directing the voluntary account to the same projects.
10. Expand and institutionalize USU’s Planetary Thinking in the Curriculum Workshops with a focus on general education courses to ensure that all students graduate with an understanding of the causes, implications, and solutions to climate change.

11. Expand adoption of climate and sustainability-related learning outcomes and assess students’ attitudes and understanding of relevant content.

The Destinations: Planetary Thinking in the Curriculum one-day workshop was modeled on the Piedmont and Ponderosa projects at Emory and Northern Arizona University to provide faculty with resources and connections to include sustainability in their courses. Since 2016, 64 faculty have participated in the program to incorporate sustainability into 66 classes or programs, reaching approximately 6,500 students who participate in them each year. The program has depended a volunteer faculty committee to organize the training. College and departmental funding have compensated participating faculty for the time spent revising syllabi and designing assignments and experiences for students. The 2020 and 2021 workshops have been canceled due to the COVID-19 pandemic and ongoing budgetary challenges. However, the planning committee has used the time to design a pilot sustainability assessment to evaluate the student outcomes from classes that include sustainability.

Given that the Planetary Thinking workshop focuses on faculty education, a question arose during the process of creating the USU Greenhouse Gas Reduction Committee Final Report whether faculty training produced outcomes for students. Faculty who had participated in the workshop completed assessments of the workshop each year, but students in classes that included sustainability had never been assessed for sustainability outcomes.

However, USU has a question on the graduating student survey that asks students about sustainability, and USU reports the number of degree programs with sustainability learning outcomes to the Sustainability Tracking, Assessment & Rating System. For the first time, in the fall of 2020, USU students in six classes that include sustainability concepts completed a pilot assessment as well. A total of 681 students with majors in every college participated in the pre-assessment in September, and 669 participated in the post-assessment in late November or early December 2020. The assessment included:

1. An 11-question Assessment of Sustainability Knowledge (ASK)
2. An 8-question assessment of students’ relationship to nature (relational values)
3. Students’ self-assessment of their own sustainability knowledge and importance of sustainability
Self-assessed sustainability knowledge and self-evaluation of sustainability importance significantly increased between pre- and post-assessments.

The objective Assessment of Sustainability Knowledge indicated a significant change in distribution of scores but a minimal increase in mean.

Relational values did not significantly change between pre- and post-assessments.
USU Graduating Student Survey:
I have an understanding of social, environmental, and economic sustainability.

From USU’s 2019 Sustainability Tracking, Assessment & Rating System (STARS) report

5% of USU’s course offerings include sustainability

10% of USU students graduated from a degree program with a sustainability outcome

73% of departments at USU have at least one sustainability course
OTHER RECOMMENDATIONS

6. Improve fuel efficiency of fleet vehicles and conduct a pilot study of integrating electric vehicles into our fleet.

The COVID-19 pandemic has resulted in drastically reduced travel since March 2020. While Parking and Transportation would purchase 12-14 vehicles in a normal year to replace rentals, the department has only purchased three minivans since April. The decline in demand for transportation services has caused deficits in the budgets for these university programs. Parking and Transportation is considering adding an electric vehicle, but the abnormally low levels of travel and uncertain ramifications for long-term trends make 2021 a poor time to conduct a pilot study of electric vehicles in the fleet. Nevertheless, the reduction in travel has also led to a decline in fuel use and associated greenhouse gases.

7. Implement a non-binding ‘shadow’ price on carbon emissions for all major University expenditures.

This recommendation has been adopted but not implemented by the university. However, a plan for this recommendation is a priority for 2021.

9. Develop a fundraising campaign focused on advancing USU’s efforts towards sustainability and carbon neutrality.

The university has received several grants for sustainability projects over the past few years, including solar projects, a lab ventilation pilot, storm water management demonstration, and a wood chipper for the compost system. Other funds have been raised through USU’s Aggie Funded program. A fundraising effort in the Center for Community Engagement to support the Student Nutrition Access Center raised over $15,000 in 2020 to increase food security while reducing food waste. Additionally, individuals can contribute to USU’s carbon offset fund, which typically raises about $3,000 per year.

Sustainability programs have consulted with the Advancement and Alumni Relations Office on other projects as well, collaborating on a Giving Tuesday campaign and on efforts to find additional funding for the Planetary Thinking workshop (2018-2019). These efforts occurred as the office was in transition with a new vice president. Development directors for specific colleges primarily conducted fundraising, and sustainability did not neatly fit into this organization. A list of potential foundations and grant opportunities did not yield partners at the time. With COVID-19 occupying resources and attention in 2020, these efforts have not been revived. A wider fundraising campaign is a priority for the future.