UC MERCED SUSTAINABILITY PROGRESS REPORT 2017
A YEAR OF CAMPUS HIGHLIGHTS
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In a climate of complex and unparalleled challenges that have impacted national and international environmental, social, and economic systems, UC Merced has functioned as a leader in developing, adopting, and demonstrating sustainable practices and solutions. These actions are creating a resilient, holistic university community that serves as a model for higher education institutions around the world.

While the fight to combat climate change has become indispensable, and university efforts have maximized resources through aggressive actions, the campus will continue to develop and implement sustainable solutions that will exceed past contributions.

Though the commitments the campus has taken on are not easily attainable, they have encouraged renewable energy generation, equitable access, and academic distinction. They are in fact indicative of the university’s pursuit to model a thriving sustainable community, that has and will encourage creativity through collaboration and applied scalable solutions.

We look forward to continuing to chart the course for emerging sustainable solutions.
By acquiring new knowledge that advances campus sustainability efforts.

Demonstrating ingenuity and originality through initiatives that advance campus-wide sustainability.

Supporting collaborative efforts to partner with broad groups of stakeholders throughout California to support UC Merced’s sustainability efforts.

By encouraging and supporting collaborative projects and initiative efforts that will impact the Central Valley.

Through the incubation and support of new and emerging sustainability initiatives.

By acquiring new knowledge that advance campus sustainability efforts.

Demonstrating ingenuity and originality through initiatives that advance campus-wide sustainability.
MISSION
The Chancellor’s Advisory Committee on Sustainability keeps the campus informed on issues of sustainability and promotes collaborative partnerships with stakeholders and students. The group identifies important, specific sustainability related activities to achieve and reports campus accomplishments.

VISION
The Chancellor’s Advisory Committee on Sustainability promotes a holistic, environmentally-friendly practice and provides a forum to review, advise, and highlight sustainability research, practice and policy, coordinate sustainability opportunities, and enable students to lead a culture of sustainability at UC Merced.

COMMITTEE CHARGE
Sustainability refers to meeting the needs of the current generation without compromising the ability of future generations to meet their needs. The Chancellor's Advisory Committee on Sustainability is charged with advising the Chancellor on matters pertaining to sustainability goals, policies, and practices at UC Merced. The committee also advocates for programs and initiatives that continuously improve campus sustainability performance.
The sustainability annual progress report provides a high-level overview of the university's progress toward achieving its sustainability goals. The Sustainability Strategic Plan, a roadmap developed by the Chancellor's Advisory Committee on Sustainability, identifies actions that enable the campus to continue its sustainability commitments.

The highlights provided in this report reflect campus-wide progress in 2017 as it relates to academics, research, operations and engagement.

The momentum made has fortified new projects and initiatives, while underlining realities that pose as challenges to goal attainment. Collective collaboration will be essential to demonstrate progressive advancement.
The graph above depicts UC Merced’s portfolio of power, reflecting both natural gas (40%) and electricity (60%) use for 2017.

Onsite renewable energy generation accounts for seven-percent (7%) of the university power consumption. In the summer of 2017 the university entered into a contract with Sun-Power to support the installation of a four-megawatt photo-voltaic system that will come online the beginning of 2019. The solar array is expected to generate fifty-percent of the campus electrical needs at 2020.

The university is also working to use bio-gas from the Merced County Landfill to support its Zero Net Energy goal.

The campus achieved a sixty-four percent (64%) diversion rate for 2017, an increase of ten-percent (10%) from 2016. The progress made was due to lower waste generation, and efficiency practices incorporated into the university’s sorting line.

In March of 2017, a Zero Waste Business Plan was developed to identify a pathway to achieve Zero Waste by 2020. The plan incorporates operational measures and financial costs that serve to guide the university toward meeting its commitment. The business plan summoned stakeholder input to develop a strategy suitable for the university.

The greenhouse gas emissions profile reflects UC Merced’s scope 1 & 2 emissions. The university remains one of the most energy efficient institutions in the nation, through its LEED certified buildings, which have contributed to a low carbon emissions profile for the campus.

Emissions output will continue to increase as new facilities come online from the 2020 project. However, the emission profile will remain low relative to comparable buildings, because of stringent energy use intensity requirements under the California Energy Code.

The campus is committed to achieving Zero Net Carbon Emissions through strategies like green power generation.
ACADEMIC GOAL “TO IMPART THE SKILLS AND KNOWLEDGE THAT ADVANCE SOCIAL, ECONOMIC, AND ENVIRONMENTAL SUSTAINABILITY GRADUATING THE WORLD’S SUSTAINABILITY LEADERS.”

OVERVIEW

As the campus educates the next leaders of tomorrow, steps have been taken to introduce sustainability curriculum into the classroom on broader fronts. The Climate Neutrality Curriculum workshop, a two day session introduced thirty faculty to approaches designed to inform how sustainability curriculum could be integrated into existing courses. A follow up networking session provided a greater avenue to engage more faculty and academic community leaders on sustainability literacy.

KEY PERFORMANCE INDICATOR

Monitor the total number of sustainability courses and courses that include sustainability, and the total number of students who completed the courses.

PROGRESS

- Progress has been made to increase the number of academic courses that include sustainability on the UC Merced campus.
- Twenty-percent (20%) of course offerings were sustainability focused or included sustainability.
- Over 3,000 students completed a sustainability course or course that included sustainability.

HIGHLIGHTS

FACULTY SUSTAINABILITY CLUSTER

- In 2017 faculty were interviewed and hired for the newly formed campus sustainability cluster. The intent of the cluster hiring process was to hire scholars that work collaboratively and across disciplines to conduct research pertaining to climate change and sustainability with focuses on technocratic and humanistic solutions. The faculty will also provide academic course offerings in their respective disciplines to students.
CLIMATE & SUSTAINABILITY EDUCATION RESOURCE LIBRARY (CSERL)

CSERL, a product of the UC Global Climate Leadership Council Faculty Engagement working group serves to facilitate knowledge and resource sharing, for sustainability education material among UC System faculty. Through the help of the CSERL student ambassador, UC Merced engaged the largest number of faculty on the CSERL platform to share course curricula, lectures, seminars, and tutorials that relate to climate change and sustainability.

COURSES & PROJECTS

LEED LAB

The multi-disciplinary LEED Lab course, in its third academic year provides students the opportunity to assess the performance of an existing university building, under the US Green Building Council (USGBC), LEED for Existing Building Operations and Maintenance (LEED EB O+M) certification. In the fall of 2017, students began the third certification project, the Student Activity Athletic and Joseph Gallo Recreation Center. In summer of 2017, the Science and Engineering II building, a project assessed by LEED Lab students was submitted to the USGBC for LEED EB O+M certification, and is currently pending Gold.

LEED ENV30

The School of Engineering launched the “Evaluating Sustainable Living Space” course, a spin-off of LEED Lab, designed to prepare undergraduate students to take the LEED Green Associate credential exam. The course utilizes the university as a living laboratory and encourages students to become sustainability industry leaders.

ENGINEERING SERVICE LEARNING

The campus served as a living laboratory for project proposals, one included the campus community garden. The garden project team developed a series of recommendations for future improvements to the community garden, evaluating space, design, planning, and expansion opportunities.
RESEARCH GOAL “TO PROMOTE SUSTAINABILITY RESEARCH AND IDENTIFY MULTI-DISCIPLINARY LIVING LABORATORY RESEARCH OPPORTUNITIES FOR STUDENTS”

OVERVIEW
UC Merced faculty are conducting disciplinary and interdisciplinary research on several sustainability topics including, climate change and adaptation, water, and energy. The research conducted has provided new knowledge, and through faculty supported internships, students have received experiential learning and mentorship. The campus has also leveraged community partnerships that have provided students with applied research opportunities.

KEY PERFORMANCE INDICATOR
Monitor the living laboratory research opportunities.

PROGRESS
- Sixty-eight (68) applied research internships were provided to students through campus programs, research centers, and initiatives.

HIGHLIGHTS
ENERGIZE COLLEGES PROGRAM
- In spring of 2017, Strategic Energy Innovations (SEI), a nonprofit dedicated to advancing energy and sustainability education through experiential learning, collaborated with UC Merced to implement the Energize Colleges program. Fifteen (15) internships provided twenty-nine (29) students the opportunity to contribute to sustainability oriented projects throughout the campus and Merced County. Applied research internships included; hydrogen powered drone research, solar technology development, electric vehicle design, and biomass gasification research. Students also contributed to City of Merced planning and transportation research.
**UC Merced is the lead institution for a new outreach video channel on UCTV: Sustainable California, which brings together partners at UC Merced, (UC Water, Office of Sustainability, Sierra Nevada Research Institute, School of Engineering and dedicated faculty) and across the UC (Center for Information Technology Research in the Interest of Society, UC Agriculture and Natural Resources). The channel launched in May 2017 generates content on UC sustainability research that has include, biodiversity, natural resources, and low-impact communities. UCTV Sustainable California has had over one-hundred thousand (100,000) views channel-wide, enabling the UC to share sustainability research with the general public, while featuring students and faculty.**

**Center for Humanities**: Water

Water was the research theme at the Center for Humanities in 2016-2017. The distinguished lecture for the year was Sandra Steingraber, author of the book selected for UC Merced's Common Read: Living Downstream, an autobiography in the environmental and health science disciplines. The Center also hosted an environmental documentary film festival, (Wild and Scenic Film Festival), and two conferences, "Water: Ways of Knowing and Being" and "The Bridge is History: Water and the Humanities." Postdocs also organized exhibits on California water history and the "Watershed Art & Science" Vernal Pools adventure for the public.

**Global Food Initiative & Carbon Neutrality Initiative Fellowship Programs**

Fellowship opportunities through the Global Food and Carbon Neutrality Initiatives provided students with applied research opportunities for some of the following projects; managing grazing around the UC Merced Vernal Pool ecosystem, sustainable food, and waste management systems.
UNIVERSITY OF CALIFORNIA ADVANCED SOLAR TECHNOLOGIES INSTITUTE

UC SOLAR

The UC Solar Lab at UC Merced continued work on its Advanced Research Project Agency-Energy (ARPA-E) FOCUS project to develop a hybrid thermal/PV system (the initial “seedling” grant was a partnership with UC Berkeley and the Gas Technology Institute). The project recently achieved its target operating temperature of 650°C. The success of the project led to the submission of a “continuation” proposal to ARPA-E and a new grant proposal to the California Energy Commission to demonstrate high-temperature industrial process heat. Additionally, the UC Solar team received a $800,000 CEC grant to develop a novel low-cost, high-efficiency solar powered micro-combined heat and power system for residential electricity, hot water, and space heating.

UNIVERSITY OF CALIFORNIA WATER SECURITY & SUSTAINABILITY RESEARCH INITIATIVE (UC WATER)

UC WATER

UC Merced is the lead institution for UC Water, which since 2015, has grown from six investigators to a research network of 70 collaborators and graduate students, from four campuses to eight, and collaboration with UCANR. In 2017, UC Water focused on water data and developing a process for state agencies to employ designing an “open and transparent water data” system, groundwater recharge effort through a call to action, workshops, and video outreach to agricultural and water resources agencies. UC Water also focused on whole watershed accounting to accurately measure and monitor water resources over time to make estimates of supply and demand under climate change. UC Water also hosted the inaugural class of the UC Water Academy, where twelve students traveled 1200 miles to understand California’s water resources.
ENGAGEMENT GOAL “TO RAISE VISIBILITY, UNDERSTANDING, AND KNOWLEDGE OF SUSTAINABILITY WITHIN AND BEYOND THE UC MERCED COMMUNITY”

OVERVIEW
Student, faculty, and staff engagement through a myriad of programmatic initiatives, partnerships, and outreach efforts have promoted sustainability within and beyond the campus community. The actions taken have informed knowledge around sustainability, while encouraging the integration of practices that support social, environmental, and economic sustainability.

KEY PERFORMANCE INDICATOR
Monitor the number of sustainability engagement initiatives, programs, and events.

PROGRESS
- Ten (10) programs campus-wide
- Fifty-nine (59) events/engagement initiatives
- Three (3) faculty labs certified under the Green Labs Program

HIGHLIGHTS

STUDENT SUSTAINABILITY COUNCIL

- The Student Sustainability Council worked to enhance communication and collaboration among environmental, economic, and social related student organizations. The council also worked to host Campus Sustainability Week in the fall, which consisted of several sustainability events including a career panel and tours of campus sustainability features.
CAMPUS COMMUNITY GARDEN

The campus community garden launched its reopening near Rancher’s Road, adjacent to Valley Terraces, with a ribbon cutting ceremony on April 19th, 2017. The year incorporated planting days, crop rotation, and the installation of a shed, and nine raised garden beds. Students also participated in harvest activities and took home produce that included spinach, kale, red chilies, bell peppers, squash, eggplants, and cilantro.

RECYCLING PROGRAM

In Spring 2017, the UC Merced Recycling Program hosted the 6th Annual Earth Day Celebration to increase awareness of the campus zero landfill waste goal. More than four-hundred (400) campus community members participated in the event. The Recycling Program also worked on a centralized waste station proposal to eliminate individual waste receptacles in office buildings. The effort prevented the purchase of three-hundred individual desk receptacles for the Downtown Campus Center.

BOBCAT EATS PILOT PROGRAM

The Bobcat Eats Program launched in spring 2017 through a partnership with the Office of Sustainability and Dining Services. The program aimed to encourage the campus community to source local healthy produce through featured community farmers. Bobcat Eats also provided food literacy educational workshops that included topics such as food waste, farm to fork, carbon footprint, and farm labor injustices.
ECOREP PROGRAM
The EcoRep program is a peer to peer educational program that focuses on sustainable practices. The team of nine EcoReps worked to develop a green living guide, and also held events that promoted smart sustainable actions students could incorporate into their living spaces and day to day lives.

ZERO WASTE EVENT TRAINING
A $1,000 grant was secured by the Office of Sustainability to host a Zero Waste Event Training, which was held April 18th, 2017. The event provided understanding and knowledge of steps event coordinators and planning teams could incorporate to achieve zero waste events.

Yosemite Leadership Program
The Yosemite Leadership Program (YLP) in the Office of Student Life facilitated seven (7) wilderness experiences for undergraduate students, which consisted of five (5) service projects, including, beach clean-ups, a river clean-up, and the Yosemite Facelift. The Wilderness Education Center on campus took the majority of fourth graders in the City of Merced to Yosemite National Park, to expose many of the students for the first time to a national park. The Yosemite Leadership Program will be celebrating ten (10) years of leadership lifestyle development, and environmental advocacy through its immersive cohort experience.

GREEN LABS PROGRAM
The Green Labs Program created by My Green Lab was launched on campus. The program assesses individual laboratories, and areas of improvement in research efficiencies. It also informs and provides researchers with recommendations on best practices that reduce the environmental impact of laboratories. The campus currently has three labs certified, two have achieved silver, and one has achieved gold.
ENgagement

Diversity and Social Justice Goal: “Promote and support diversity programs and initiatives that build sustainable communities and socially enrich the lives of campus community members through equity, access, affordability, security.”

Overview
A diverse and equitable campus creates a resilient environment through bridging opportunities that cultivate awareness, to foster the development of a socially holistic community. The Office of Campus Climate and Social Justice Initiatives initiated conversations around social justice, and understanding and addressing inequalities.

Key Performance Indicator
Monitor the number of diversity and social justice initiatives, programs, and events the campus held.

Progress
• Twenty-six (26) events and programs were provided to the campus community for academic year 2016-2017.

Principles of Community
• We recognize and celebrate the identities, values and beliefs of our community.

• We affirm the inherent dignity and value of every person while cultivating a campus climate rooted in mutual respect and compassion.

• We uphold the right to freedom of expression and encourage a culture of dialogue, understanding, and civility in all interactions. We seek to create a campus where a rich tapestry of ideas is shared, collaboration is embraced, and innovation is promoted.

• We pursue excellence in teaching and learning through contributions from all community members fostering a culture of open exchange.

• We promote opportunities for active participation and leadership in our communities.

• We champion civic engagement, environmental stewardship, research and teaching that connect theory and practice to learning and doing.

• We take pride in building, sustaining and sharing a culture that is founded on these principles of unity and respect.
Engagement of staff in sustainability initiatives is a critical aspect of a well-informed collaborative workforce. Through the Human Resources New Employee Orientation Program, new staff were provided with information on campus sustainability initiatives. The Office of Sustainability also participated in “Build Your Network,” a new program that connects participants with experienced staff members in an effort to expand learning opportunities and contribute to campus innovation and growth.

**Key Performance Indicator**
Monitor the number of employees who have received information on sustainability.

**Progress**
- For 2016-17 academic year, one-hundred and forty-nine (149) new employees or one-hundred percent (100%) of new employees received information on sustainability.

**Highlight**

Human Resources EBook
- The Human Resources Department developed a new employee electronic-book, and worked with the Office of Sustainability to incorporate content sustainability content.
UC Merced offers Health and Wellness programs that focus on mental, physical, financial, and social health. Students, faculty, and staff were provided sessions on some of the following behavioral health, financial success, and physical activity. The campus also encouraged nutritional health through the Bobcat Eats Program, and the Health Education Representatives for Opportunities that Empower Students (HEROES) Program.

**OVERVIEW**

Twenty-seven (27) programs, events, and initiatives were offered campus-wide. Programs offered included exercise classes for students, staff, and faculty, along with workshops in topics such as nutrition, managing budgets, and support groups.

**KEY PERFORMANCE INDICATOR**

Monitor the number of campus programs, events, and initiatives.

**PROGRESS**

- Twenty-seven (27) programs, events, and initiatives were offered campus-wide. Programs offered included exercise classes for students, staff, and faculty, along with workshops in topics such as nutrition, managing budgets, and support groups.
OVERVIEW
The Fleet Services Unit developed a “Right Size Fleet Program,” that has worked with several departments to identify specific vehicle needs. As a result of the program, campus departments purchased eight (8) electric golf carts as alternatives to sedan sized gasoline consuming vehicles. The program has supported reducing greenhouse gas emission output. Fleet Services will continue to steer departments to alternative fuel vehicles, when the use allows.

KEY PERFORMANCE INDICATOR
Monitor transportation demand management growth.

PROGRESS

• Forty-eight percent (48%) of the campus fleet is sustainable transportation. Sustainable transportation includes, but is not limited to, hybrid and electric vehicles.
OVERVIEW

The campus has a total of seventeen (17) Leadership in Energy and Environmental Design (LEED) certified buildings under New Construction (NC). The most recent certification was the Classroom and Office Building 2 (COB2), which earned a Platinum rating. UC Merced is the only university in the nation with all LEED NC certified buildings. The campus also pursued LEED Existing Building Operation and Maintenance (EBOM) for the Classroom and Office Building through the LEED lab course. The building earned a Gold certification.

KEY PERFORMANCE INDICATOR

Track the number of campus buildings certified under LEED new construction and existing building operations.

PROGRESS

- Seventeen (17) LEED-NC certified buildings
- Two (2) LEED-EBOM certified buildings
Dining Services worked to increase sustainable food opportunities for the campus. Collaboration with the Bobcat Eats Program led to an increase in sustainable food purchases through sourcing produce from the Bobcat Eats Farmers’ Market. Dining Services also worked to incorporate low impact food choices that have include Meatless Mondays, while also adding produce grown in the private garden in food options for the campus.

**KEY PERFORMANCE INDICATOR**
Monitor the campus sustainable food purchases.

**PROGRESS**
- Dining Services has achieved eighteen percent (18%) sustainable food purchases.
- The campus achieved this through sourcing more local produce, while also developing an effective tracking system.

**HIGHLIGHT**
- Mary’s local organic chicken is used in all of Dining Services operations.
- Dining locally sources Harris Ranch Beef for all of our beef needs.
Great progress has been made on sustainable purchases. Through Office Depot® GreenerOffice™ Delivery Service, UC Merced Procurement Services switched from receiving office supply deliveries in traditional cardboard boxes to tote bags. Procurement Services also worked with the Office of Sustainability to incorporate environmental sustainable language into food vendor contracts. A procurement manager was hired with a dedicated responsibility to sustainable procurement.

**KEY PERFORMANCE INDICATOR**
Monitor the market for best practices in sustainable procurement by maximizing the procurement of environmentally preferable produces and services.

**PROGRESS**
- One-hundred percent (100%) of expenditures for electronic purchases were EPEAT Certified.
- Fifty-nine percent (59%) of cleaning and janitorial expenditures were sustainable purchases.
- Thirteen percent (13%) of total office paper expenditures incorporated ninety-percent (90%) post-consumer recycled content.

**HIGHLIGHT PROCUREMENT SERVICES**
- UC Merced Procurement Services in conjunction with the Office of Sustainability urged campus constituents to take full advantage of the system wide Office Depot opportunity that has made one-hundred percent (100%) recycled content paper the same rate as thirty-percent (30%) recycled paper.
OVERVIEW

The campus continues to deploy its existing strategies that help save water, including its evapo-transpiration based irrigation system that has reduced watering times, along with the hydro-gel that acts as a water retention basin within grass roots. The campus also finalized its Water Action Plan which identifies opportunities that maximize conservation and resource management.

KEY PERFORMANCE INDICATOR

Monitor the per capita water consumption when compared to campus three-year average baseline.

PROGRESS

- The university achieved a 58% reduction in water usage from its three year average baseline.
- The campus per-capita water consumption was 12,523 gallons of water per person.
UC Merced is certified as a STARS Gold rated institution through the Association for the Advancement of Sustainability Tracking Assessment & Rating System (STARS).

Green Rating 95% out of 99%

All Campus Buildings LEED NC Certified
Special thank you to Breeana Sylvas for coordinating the writing, layout, and logistics of the annual report, and to Selena Valencia for supporting the design of the document.

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