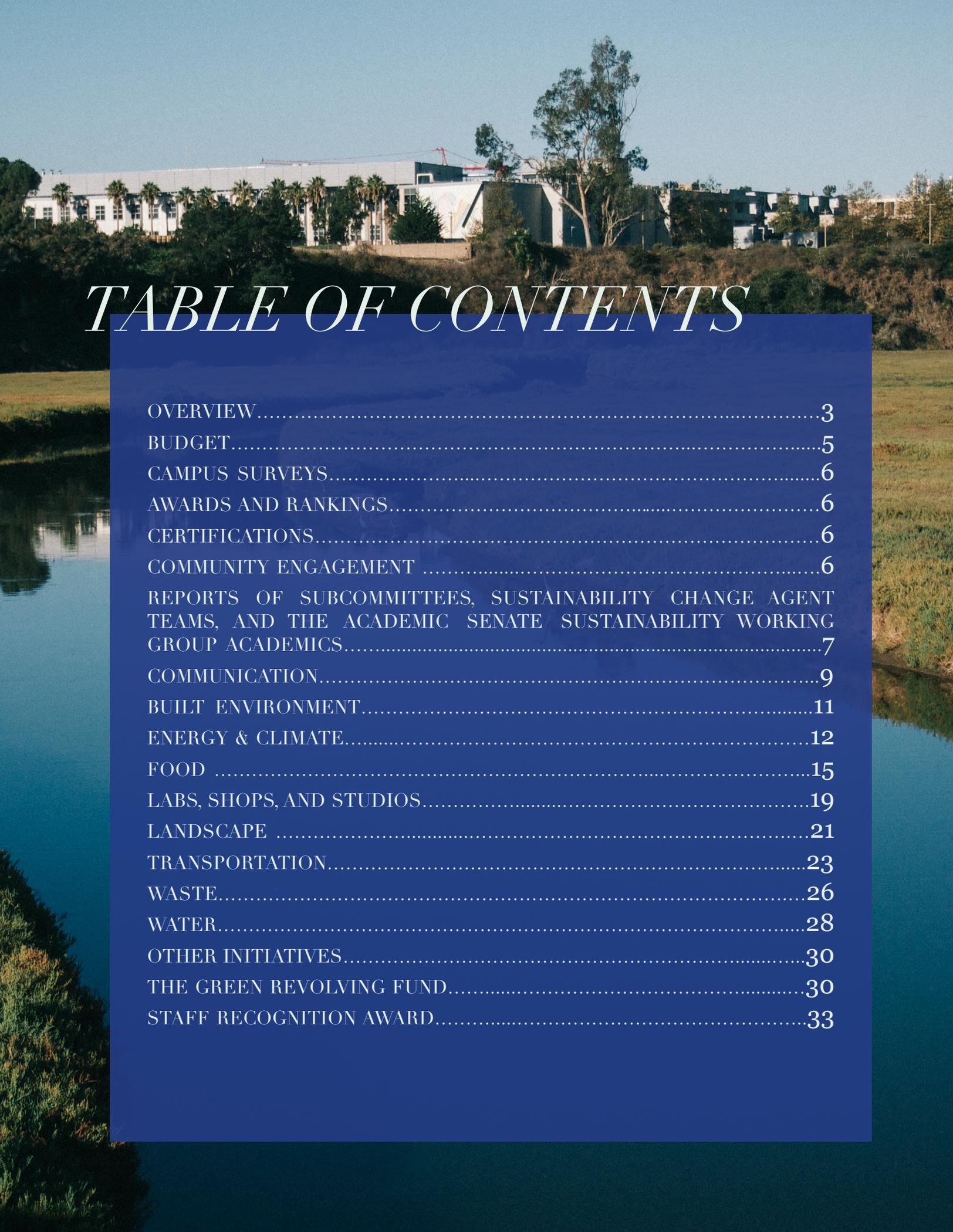


**2015-2016**  
**ANNUAL REPORT**  
**TO THE CHANCELLOR**





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# To: Chancellor Henry T. Yang

## From: Chancellor's Sustainability Committee

Re: 2015/16 Annual Sustainability Report

### MISSION

The CSC is charged with advising the Chancellor and campus administrators on matters of campus sustainability. This includes making recommendations on sustainability initiatives, prioritizing and monitoring the execution and progress of the campus sustainability plan toward our goals, making recommendations on allocations of available funding resources, and providing guidance in the creation and fostering of alliances.

### OVERVIEW

In addition to work in the various Sustainability Change Agent Teams, the 2015/2016 academic year was spent working on Presidential Initiatives for Food and Climate Neutrality, organizing and implementing the Cool Campus Challenge, additional water conservation measures, and updating our Association for the Advancement of Sustainability in Higher Education (AASHE) Sustainability Tracking, Assessment & Rating System (STARS) submission. The Chancellor's Sustainability Committee partnered with a Bren MESM group project that completed a critical analysis of technological and financial strategies to help us achieve the climate neutrality goal by 2025. A second group project began in winter 2016 entitled "UCSB Optimal Strategies for Achieving Carbon Neutrality by 2025 (Continuation of 2015 GP CarbNewt)" that is continuing the work of exploring methods toward climate neutrality. We also began the process of updating our Climate Action Plan and held a number of public forums to gain community feedback. In 2015/16, we entered our fourth year of drought and continued working on additional water conservation measures.

In 2015/2016, the CSC met twelve times and had six active subcommittees, for which individual reports are submitted:

1. Energy & Climate
2. Built Environment
4. Waste
5. Transportation
6. Water
7. Food

There were also continuing Sustainability Change Agent Teams in the following functional areas, again with resulting reports:

1. Labs, Shops, & Studios
2. Landscape & Biotic Environment
3. Procurement (inactive)
4. Communications

In addition, the Academic Senate Sustainability Working Group (SWG), completed its eighth year of work focusing on sustainability in academics and research, along with student funded initiatives, The Green Initiative Fund (TGIF), The Coastal Fund, and the Renewable Energy Initiative (REI).

# COMMITTEE CHARGES

## **Academic Senate Sustainability Working Group**

Ensure that all graduates of UCSB are literate in the social, economic, and environmental aspects of sustainability and that sustainability research is supported.

### **BUILT ENVIRONMENT**

Create superior places to study, work, and live that enhance the health and performance of occupants through sustainable design that incorporates human factors, construction, operations, retrofits, and biomimicry.

### **COMMUNICATIONS**

Integrate sustainability into the daily habits of the campus community and encourage active participation and enthusiasm amongst students, faculty, and staff.

### **ENERGY**

Achieve a climate neutral campus through energy efficiency, conservation, on-site generation, and strategic procurement of clean and renewable energy.

### **FOOD**

Our campus will be a community with equitable access to healthy food to nourish and sustain themselves and their families. Students, staff, and faculty will have a direct connection to their food system and we will work toward regional self-sufficiency. The campus will also actively support such practices in both the neighboring and global communities through our food choices, policies, operations, and academic programs.

### **LABS, SHOPS, & STUDIOS**

Reduce the environmental impact of laboratories, medical facilities, shops, and art studios, while also improving safety, management practices, communication, and resource sharing.

### **LANDSCAPE & BIOTIC ENVIRONMENT**

Increase biodiversity of the campus flora, maintain it as a living collection, enhance the utility of the campus as a classroom, protect native flora, and raise awareness about sustainable practices and self-sustaining systems, while reducing dependency on fossil fuels, extracted minerals, pesticides, and potable water.

### **PROCUREMENT**

Employ efficient procurement strategies, processes, and systems for the acquisition and responsible use of resources in a manner that supports the economy, society, and environment.

### **TRANSPORTATION**

Be a leader and catalyst in our region and the State, furthering human mobility and travel replacement options, advancing alternative fuels, and enabling carbon neutral vehicle deployment.

### **WASTE**

Making UCSB a Zero Waste university by ensuring waste management programs and practices effectively promote the reuse, reduction, recycling, composting, and repurposing of materials, as well as encouraging the rebuying of recycled material.

## WATER

Assisting in protecting and conserving water resources, with an emphasis on reducing potable consumption through conservation, efficiency practices, and behavior change.

## BUDGET

Unit	Allocation
Administrative Services	\$63,685.56
Housing & Residential Services	\$40,000.00
Executive Vice Chancellor & Chancellor	\$103,685.56
Carry Forward from 2014/15	\$36,024.56
<b>TOTAL:</b>	<b>\$243,395.68</b>

Funds were expended as follows:

<b>Academic Support</b>	
Chancellors Sustainability Interns	\$13,312.00
Academic Senate Sustainability Work Group Staff Support @ 15% time	\$8,960.31
New-Leaf Curriculum Incentive Program	\$3,000.00
<b>Staffing</b>	
Sustainability Director @ 25% time	\$29,380.75
Web support @ 10% time	\$7,855.22
Intern Program Staff @ 35% time	\$20,907.39
LabRATS Director 6 months @ 40% time (received grant for balance)	\$15,600.00
Student Internships (STARS; graduate and undergraduate students in Disciplines where the environment/sustainability are not a typical focus; Living Lab interns; LabRATS; & PACES)	\$60,978.00
<b>Consultants, Memberships, Fees, and Misc.</b>	
Third Party Consulting for GHG emission verification	\$7,677.00
AASHE	\$1,770.00
STARS Reporting Tool	\$900.00
<b>Communications</b>	
Communications Subcommittee Expenses	\$8,011.36
<b>Conference and Project Support</b>	
Central Coast Sustainability Conference	\$1,600.00
Maintenance for UC Santa Barbara Hydration Stations	\$15,656.00
TGIF Matching Funds for Climate Neutral Project and UCOP and ETS Taxes	\$238.01
<b>Travel</b>	
UCOP Meetings	\$1,720.21
CHESC	\$2,355.94
Matt StClair and Janika McFeely visit to Santa Barbara from UCOP	\$1,178.26
AASHE Conference	\$2,205.36
<b>TOTAL EXPENSES:</b>	<b>\$203,305.81</b>

## CAMPUS SURVEYS

As part of our responsibility to establish baselines and trends in campus behavior, we typically conduct three annual surveys that help us gauge improvements. Survey results for 2015/16 have been completed and include:

- A transportation survey that captured how faculty, staff and students commuted to campus, including annual vehicle ridership (AVR). This is now required by OP, and it is also vital in calculating campus GHG emissions.
- A survey of student, staff, and faculty attitudes and actions toward matters of sustainability on campus. Undergraduate attitudes are surveyed on odd years and faculty, staff, and graduate students are surveyed on even years.
- Assessed our first sustainability and climate literacy survey and developed a plan to continue it.

## AWARDS AND RANKINGS

- The League of American Bicyclists has recognized UCSB as a Gold Level Bicycle Friendly University (BFU). The campus has held the designation since 2011, when the awards program first launched.
- UCSB won a 2016 Best Practice Award in the annual Energy Efficiency and Sustainability Awards contest presented at CHESC for our partnership with Santa Barbara Metropolitan Transit District to launch a new route to service campus, Isla Vista, and Goleta.
- In September 2016, UCSB was rated No. 30 on Sierra magazine's list of "Coolest Schools." The Sierra Club's official publication recognizes 201 colleges and universities.
- In October 2016, UCSB was rated No. 13 on The Princeton Review Guide to 361 Green Colleges.

## CERTIFICATIONS

UCSB Sierra Madre Villages - Completed in Fall 2015, Sierra Madre Villages is the first residential complex in the UC system to attain Platinum certification, the highest possible rating for sustainable design under the category "LEED for Homes." UCSB is the only campus in the system with any "LEED for Homes" certifications.

## COMMUNITY ENGAGEMENT

UCSB Sustainability hosted the following key events:

- The 5th Annual Central Coast Sustainability Summit took place at UCSB in fall 2015 –The Central Coast Sustainability Summit is an annual conference whose goals include sharing best practices and building collaborations to address complex environmental and economic issues in our region. The event brings together key stakeholders from local government agencies, chambers of commerce, nonprofit organizations, campuses, utility companies, and private companies. Topics included economic development, product stewardship, and renewal energy, and cross-agency volunteer management, water and energy conservation. We are currently in the process of planning our 6th annual summit, which will take place on October 12, 2016. Our focus topics for 2016 include renewable energy, water, and sustainable transportation.

Other activities:

- In addition to hosting a social justice, climate, and sustainable transportation forum, we also hosted three Carbon Neutrality planning charrettes.

# ACADEMIC SENATE SUSTAINABILITY WORKING GROUP

## MEMBERS

Bruce Tiffney, Chair, David Lopez-Carr, LeeAnne Kryder, Eric Matthys, Eric Smith, Ann-Elise Lewallen, Josh Schimel, Lisa Berry, John Foran, George Michaels, Ken Hiltner, Kyle Richards, David Pellow, Katie Maynard, Mo Lovegreen

## MISSION

Ensure that all graduates of UCSB are literate in the social, economic, and environmental aspects of sustainability and that sustainability research is supported.

UCSB is committed to the creation, dissemination, and assessment of knowledge on sustainable practices through classroom instruction, research, service learning, and visual and performing arts.

## BACKGROUND

UCSB is highly respected for its scholarly pursuits relating to the environment and sustainability. Close to half of UCSB's academic departments offer courses on and/or host faculty who conduct research on sustainability. Further, many of its research institutes and teams focus on technological and social solutions related to the stewardship and protection of our planet and its resources. A list of these can be found on the UCSB Sustainability website <http://www.sustainability.ucsb.edu/>. Many of UCSB's accomplishments reflect the actions of a variety of campus entities. The Academic Senate Sustainability Work Group works to coordinate and publicize these achievements and develop goals for the short and long term.

### *Environmental*

We believe that it is critical for all students graduating from UCSB to understand their reliance on Earth's finite resources and to recognize the connections between environmental concerns and how their own fields of study are interconnected with environmental concerns.

### *Social*

It is impossible to effectively address environmental issues without taking an interdisciplinary approach that incorporates social concerns. For its 2025 Strategic Academic Plan, UCSB selected key areas of interdisciplinary teaching and research, three of which are critical to sustainability: the Environment, the Academy and Society, and Global Studies. These areas support development of curricula and research efforts that reinforce recognition of sustainability concepts as embedded within the context of a larger society.

### *Economic*

Through the Campus Sustainability budget, we are able to offer several programs to financially support undergraduate and graduate students to conduct research related to sustainability, especially in fields where sustainability is rarely addressed or where grant funding is limited or not often available to support this work. We hope to increase accessibility of research and internship opportunities through offering fair wages, partnerships with the work-study program, and openly advertising opportunities to support students in research and internships.

## ACCOMPLISHMENTS

- Launched a speakers' bureau for UCSB faculty doing research on sustainability.
- Institutionalized a sustainability and climate literacy assessment program which can evaluate how much

- students know about the concept of sustainability and the basic science of climate change.
- Have begun to pilot a workshop series on infusing sustainability into curriculum through the UC Carbon Neutrality Initiative as an expansion of the New Leaf program.

### **ONGOING INITIATIVES**

- Our Interdepartmental PhD Emphasis in Environment and Society (IEES) (<http://www.es.ucsb.edu/phd>) has now been operating for two academic years. It has drawn high-quality and diverse students from seven different departments. Four new departments joined IEES this past year, for a total of 19 participating units. This makes the IEES the campus' largest and most diverse PhD emphasis.
- UCSB's Faculty Sustainability Champion, Chandra Krintz, is bringing open-source technology to small scale farmers. Through her project, SmartFarm, she is helping farmers find leaks in the irrigation systems and plan around the weather with sensing systems and analytics. <http://www.news.ucsb.edu/2016/016974/farm-aid>
- This year, UCSB also named a Faculty Climate Action Champion, Gretchen Hoffman. Gretchen organized an art show with Lily Simonson, a painter who works with the same organisms that Gretchen researches, highlighting the partnerships between science and art. Gretchen is also working with undergraduate and graduate student researchers to tackle questions such as what is the variability of pH and oxygen in the kelp forest ecosystem and how do species in this forest respond to both low pH and oxygen.

### **2016-2018 SHORT-TERM IMPLEMENTATION PLAN**

1. Propose an environmental general education requirement to the Academic Senate as a special topics requirement.
2. Secure 3,000 signatures from undergraduate students, supporting a general education requirement on the environment.
3. Secure funding to continue the Faculty Climate Action Champion program (UCOP funded year one of this in 2015/16).
4. Launch a student achievement award in sustainability which has the potential to recognize the work of student activists, researchers, and interns.
5. Establish the campus farm as a teaching and mentoring resource illustrating "where food comes from" and the techniques necessary to grow food locally.

### **2019-2021 MID-TERM IMPLEMENTATION PLAN**

1. Identify courses on sustainability and climate change in the course catalog and the GOLD system.
2. Expand faculty research that directly addresses regional concerns related to sustainability.
3. Launch a sustainable commons video project, which will collect and disseminate videos to be infused into courses in the form of supporting media/course modules.
4. Develop a climate change student peer educators' program.
5. Explore the feasibility of implementing a new minor in environmental justice.

### **2022-2025 LONG-TERM IMPLEMENTATION PLAN**

1. Launch an Interdepartmental PhD Program in Environment and Society.
2. Create a program to support student-initiated eco-entrepreneurship at the undergraduate level. This may be an expansion of existing eco-entrepreneurship programs on campus.

### **2025-2050 VISIONARY GOALS**

1. Endow the Faculty Champion, NEW Leaf, and internship programs.
2. Develop 2-3 large scale demonstration projects that engage campus researchers, link to curriculum, and set UCSB in a leadership position in relation to peer institutions.
3. Have an interdisciplinary center for climate change studies.

4. Initiate long-term strategies to maintain and increase environmental science and climate change faculty.

## COMMUNICATION

### MEMBERS

LeeAnne Kryder, Writing Program; Kristen LaBonte, Mo Lovegreen, Alex Parraga, Margaret Rankin, Andrew Riley, Sarah Siedschlag, Jewel Snavely (Chair), Angeline Foshay, Dylan Ruan, Alex Regan

### MISSION

Integrate sustainability into the daily habits of the campus community and encourage active participation and enthusiasm amongst students, faculty, and staff.

### BACKGROUND

The Chancellor's Campus Sustainability Committee (CSC) recognized a need to educate our own campus as well as the local community about UCSB's sustainability efforts, so they formed the Communications Subcommittee with the charge of identifying noteworthy campus sustainability information and promoting it to the campus, local community, state, and the nation.

#### *Social*

The links between social justice and sustainability are intimately bound together. Environmental degradation and catastrophes disproportionately affect low-income people, people of color, and people in underdeveloped regions. The communications subcommittee seeks to better connect the environmental benefits to the social outcomes when promoting or educating the campus community about sustainability. One of the main objectives for the 2015/2016 campaign was to incorporate a "why" and "who" section, explaining the social implications, into all new outreach materials produced.

#### *Economics*

Despite the perception that sustainability is costly, efforts to reduce resource consumption often have a positive economic effect and can save our campus a significant amount of money. The communications subcommittee seeks to not only emphasize the environmental and social benefits of sustainability but to also emphasize the economic benefits and avoided externalities that often harm disadvantaged communities.

### ACCOMPLISHMENTS

- Mobilizing our campus to participate in the Cool Campus Challenge which ran from October 6 to December 10, 2015. Over 1,400 faculty, staff, and students from UCSB participated in the challenge.
- In partnership with the Subcommittee on Coordination of Presidential Initiatives, we hosted a series of planning charrettes focused on the Carbon Neutrality Initiative. These charrettes were designed to bring together campus leadership, faculty, staff, and students to collaborate on a vision for a carbon neutral campus that can be used to guide planning and action toward meeting UC President Napolitano's 2025 goal of carbon neutrality for UC (for scopes 1 and 2).
- Partnered with the Community Environmental Council; the cities of Goleta, Santa Barbara, and Carpinteria; and the County of Santa Barbara to host the 5th annual Central Coast Sustainability Summit. The event brought together elected officials, staff, faculty, and interested parties from local governments and organizations to discuss common sustainability issues, share best practices, and to form partnerships around these initiatives.
- The Subcommittee participated in various local events.
- The Subcommittee also delivered presentations on ways for new students to get involved in campus sustainability via UCSB freshman orientation groups twice per week throughout summer 2015.
- Created a Public Relations Campaign for 2015/16. The campaign included DigiKnows (rotating slides

displayed on digital screens in all the Residence Halls and Dining Commons), signage on the MTD buses, A-Frame signage on new bus line 28, and a quarterly sustainability newsletter and forum. We also created a set of “Sustainability 411” posters on Transportation, waste, and energy for the green message boards around campus, primarily geared towards increasing student education about sustainability on campus, developed signage to be displayed on all MTD buses advertising the partnership to expand service for the 12X and the 24X, and increased our presence in the online UCSB community through weekly postings and development of our Facebook, Twitter, and Instagram pages.

### **2016-2018 SHORT-TERM IMPLEMENTATION PLAN**

1. For 2016-2017, engage the broader community in feedback on the UCSB Climate Action Plan update.
2. Partner with the Subcommittee on the Zero Waste campaign.
3. Partner with the Community Environmental Council, the City of Santa Barbara, the City of Goleta, the City of Carpinteria, and the County of Santa Barbara during the Central Coast Sustainability Summit to improve sustainability in our area.
4. Share sustainability plans among local cities and larger corporations within the local area, such as the Santa Barbara Municipal Airport, City of Goleta, and Deckers. This collaboration on future sustainability plans should enhance each organization’s plan and build a cohesive sustainability effort in our region.
5. Ensure that internship, educational, and funding opportunities are shared with underrepresented groups on campus.
6. Ensure that when there are opportunities to give feedback on campus planning projects, underrepresented communities are asked for advice and guidance.
7. Continue our Facebook, Twitter, and Instagram campaign.
8. Maintain and enhance the UCSB Sustainability website.
9. Create a program to acknowledge the efforts of students in sustainability groups and social justice groups on campus.
10. Continue our partnership with the Environmental Affairs Board to deliver presentations about ways for new students to get involved in campus sustainability via UCSB freshman orientation.

### **2019-2021 MID-TERM IMPLEMENTATION PLAN**

1. Continue partnership on the Central Coast Sustainability Summit to further sustainability efforts for our region.
2. Enhance social media presence and messaging for sustainability “action today for tomorrow” highlights.
3. Partner with student organizations to increase the reach of campus sustainability communications.
4. Work closely with Sustainable University Now (SUN) and other local organizations to ensure information is being passed on to them about campus sustainability efforts.

### **2022-2025 LONG-TERM IMPLEMENTATION PLAN**

1. Continue to provide social media to support campus sustainability outreach.
2. Assess data trends to see what additional methods are needed to reach a larger campus population.

### **2025-2050 VISIONARY GOALS**

1. Ensure that all students graduate with a deep understanding of environmental and sustainability issues.
2. Launch a co-curricular, multi-session educational program where students can learn about sustainable practices that they can integrate into their daily life. This would be a longer-form of the proposed orientation workshop mentioned in the short-term goals and could be valuable for current students.

# BUILT ENVIRONMENT

## MISSION

Create superior places to study, work, and live that enhance the health and performance of occupants through sustainable design that incorporates human factors, construction, operations, retrofits, and biomimicry.

## BACKGROUND

To ensure compliance with green building design and construction guidelines and policies, the University of California, Santa Barbara has adopted its own campus-wide policy. In 2002, UCSB adopted a campus policy stating that all new buildings commissioned after July 1, 2004, must meet a minimum of USGBC's LEED Silver certification. In 2010, the Chancellor's Sustainability Committee established a new requirement that all buildings commissioned after July 1, 2010, must meet a minimum of LEED Gold. The CSC Sub-Committee on Built Environment oversees these practices and helps guide strategies for additional improvements in this area.

### *Social*

We have integrated a number of elements into our standard design features that help us address social equity; they include:

- Locating a building near transit not only lowers the carbon footprint of students, staff, and faculty, but also makes it accessible to lower-income workers.
- Many green materials have a social component; several certifications and labels require some attention to and consideration of social justice. We also have some additional new projects in the Long Range Development Plan (LRDP) that will allow us to move more staff members to campus – allowing people to live near where they work.

### *Economic*

Using the US Green Building Council's Leadership in Energy and Environmental Design criteria allows us to integrate the economics focused on improving the built environment through the use of proven and innovative energy-efficient and renewable energy technologies. Over time, we have been able to improve the quality of buildings being delivered to the campus and reduce the operational costs for running these buildings over their lifespan.

## ACCOMPLISHMENTS

- UCSB Sierra Madre Villages - Completed in Fall 2015, Sierra Madre Villages is the first residential complex in the UC system to attain Platinum certification, the highest possible rating for sustainable design under the category "LEED for Homes." UCSB is the only campus in the system with any "LEED for Homes" certifications.
- UCSB Library Addition & Renovation received LEED Gold certification in the New Construction category.
- Student Resource Building received LEED Gold certification in the Existing Building/Operations & Maintenance category.

# LAB VENTILATION WORKING GROUP SUBCOMMITTEE

## MEMBERS

Amorette Getty, Jordan Sager, David Vandenberg, Joe Harkins, Jesse Bickley, Alex Moretto, Sandro Sanchez, Rich Dewey

## **ACCOMPLISHMENTS**

- Established procedures for documenting Benchtop Risk Assessment in Laboratories (EH&S) and approving Alternate Means of Protection in accordance with Fire Marshal and Mechanical Code Standards (Fire Marshal). These two processes have been piloted in Bren Hall, and its ‘alternate means of protection’ provided by the Aircurity Demand-based Ventilation System has been formally documented and approved, and is on record with the Fire Marshal. We are now returning to PSBN, and will focus on that pilot during the second year of this goal period.

### **2016-2018 SHORT-TERM IMPLEMENTATION PLAN**

1. Complete pilot programs in Bren and Physical Sciences Building North and document campus approved measures for Laboratory Ventilation Standards.
2. Expand personnel resources at EH&S and Facilities to support the safe, efficient operation of smart labs on campus.

### **2019-2021 MID-TERM IMPLEMENTATION PLAN**

1. Incorporate updated Lab Ventilation Management practices into additional laboratory buildings.

### **2022-2025 LONG-TERM IMPLEMENTATION PLAN**

1. Establish a fully-integrated campus-wide Lab Ventilation Management program/policy.
2. Obtain, in collaboration with other UCs, a CalOSHA variance for the safe operation of low-flow fume hoods.

## **ENERGY & CLIMATE**

### **MEMBERS**

Jordan Sager (Co-Chair), John Foran (Co-Chair), Mo Lovegreen, Jewel Snavely, Andrew Riley, Bob Wilkinson, David Auston, Robert Holland, Eric Matthys, Mark Rousseau, Maximilian Stiefel, Mel Manalis, Rena Lahn, Rebecca Claasen, Abi Pastrana

### **MISSION**

Achieve a climate neutral campus through energy efficiency, conservation, onsite generation, and strategic procurement of clean and renewable energy.

### **BACKGROUND**

With respect to energy, the overarching sustainability goals shall be to reduce and ultimately eliminate the use of non-sustainable sources, particularly fossil fuel based energy, in meeting UCSB’s energy needs and to reduce and ultimately eliminate and/or offset all greenhouse gas emissions, primarily but not limited to CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O resulting from UCSB’s operations.

The following shall be the minimum goals for UC Santa Barbara:

- Reduce emissions to 1990 levels by 2020.
- Achieve carbon neutrality in Scopes I and II emissions by 2025.
- Achieve carbon neutrality in Scopes I, II and III by 2050.

These values are total and not normalized for population or space growth, as carbon neutrality is, by definition, an absolute goal. This shall include Scope 1 and Scope 2 GHG emissions as defined by The Climate Registry, as well as Scope 3 emissions associated with commuting and University-related travel as defined under the American College University Presidents’ Climate Commitment (ACUPCC).

The Chancellor's Sustainability Committee's (CSC) Subcommittee on Energy & Climate allows the CSC to engage broader campus expertise, including faculty and student representatives, in addressing climate and GHG emissions reduction through energy management. The Subcommittee discusses the question of alternative energy generation on- and off- campus. Ultimately, campus solutions to energy will be multi-pronged, involving on- and off-site generation, conservation, and the minimum feasible degree of reliance on fossil sources until new technologies become practical. Planning for carbon neutrality requires coordination among multiple internal and external stakeholders. Most recently, the Subcommittee recognized the need to identify a funding source for energy efficiency and alternative energy projects that is separate from the campus Purchased Utilities Account.

As the campus grows, it will be more difficult to realize energy and emissions reductions. This new financing mechanism (i.e., a green revolving fund), would allow the campus to invest the upfront capital that is needed to fund energy projects that have an acceptable rate of return and, ultimately, save the campus money while reducing emissions. UCSB will continue to implement energy efficiency projects under the UC/CSU/IOC Statewide Energy Partnership program through the 2016 program cycle; an increasing emphasis will be placed on reduction of onsite natural gas combustion in order to mitigate Cap and Trade compliance costs and local air quality regulatory risk.

### *Social*

Energy justice is one of the most critical and complex concepts that the Energy Subcommittee is charged with addressing. UCSB's strong efforts to create a low carbon energy system will benefit the current and future generations of students and all California residents by playing their role in mitigating the impacts of climate change on all those who live on planet Earth. We will also monitor the changing short-term costs of energy as we proceed, taking into account the need to be thoughtful of the cost and the potential impact of changes on low-income students so as not to unduly impact the cost of education or threaten the elimination of an important sector of the campus community. UCSB has been cognizant of this approach thus far and will need to remain so in striving to achieve the 2025 target of climate neutrality. It is also critical that the campus community as a whole becomes aware of the climate justice issues raised by its energy sources and generation locales and methods, and the impacts of energy production and distribution.

### *Economics*

The UCSB main campus electrical account is currently on a bundled service, time-of-use (TOU) rate. Southern California Edison's TOU-8-B 50KV+ tariff included relatively stable generation charges. Seasonal and time dependent demand charges, however, have risen substantially. In order to mitigate these costs, Utility & Energy Services has prioritized energy efficiency measures that reduce demand during on-peak demand pricing periods, including the campus Chilled Water Loop optimization project and upcoming multi-site solar photovoltaic project. Electricity rates are expected to increase at a rate of approximately 3%, on average, between 2016 and 2020 for grid-purchased electricity, due, in part, to regulatory requirements enacted for California's Investor Owned Utilities (IOUs). Costs associated with California's enactment of Cap and Trade under State Assembly Bill 32, as well as the State Renewable Portfolio Standard, will continue to be passed through to the ratepayers of California. The decommissioning of the San Onofre Nuclear Generation Station will also result in increased generation and demand costs for the campus. Total natural gas expenditures have decreased over the past eight consecutive years. The reduction in natural gas use and continued low historical rates contributed significantly to the campus's utility cost savings during the 2015/2016 fiscal year. The commodity cost for natural gas is anticipated to remain consistent through 2017. In 2015, UCSB became a covered entity under the State's Cap and Trade program, and compliance costs will result in marginal increases in natural gas costs for the campus.

## **ACCOMPLISHMENTS**

- Broke ground on a multi-site solar photovoltaic project. In aggregate, this project will deliver over 5

- megawatts of onsite renewable energy production at the UCSB main campus.
- Scope 1 and 2 greenhouse gas emissions reduced by 30.4% and 9.2%, respectively, since 2010 reporting year.
  - Began the process of completing a comprehensive climate action plan that includes growth and emissions projections along with emissions reduction strategies that will get us closer to the 2025 Carbon Neutrality Goal.
  - Engaged the Campus community in the revision of the UCSB Climate Action Plan.

### **2016-2018 SHORT-TERM IMPLEMENTATION PLAN**

1. UCSB will continue to implement energy efficiency projects under the UC/CSU/IOC Statewide Energy Partnership program through the 2016 program cycle; an increasing emphasis will be placed on reduction of onsite natural gas combustion in order to mitigate Cap and Trade compliance costs and local air quality regulatory risk.
2. The campus will strive for a total campus average energy density (kBtu/sq ft/yr) reduction of 8.0% on a five-year rolling average basis.
3. Make energy usage and cost more transparent and tangible to individual entities (individuals, buildings, departments, etc.) in order to support a decentralized energy utility budgeting structure, where all consumers will have an incentive to reduce energy consumption through increased accountability. This includes the electrical sub metering of all buildings larger than 4,000 square feet with real-time data reporting to the Facilities Management Energy Information System and data access for the campus population.
4. Complete energy benchmarking analysis for all buildings larger than 4,000 square feet to identify current baseline building energy consumption.
5. Establish a short-term financing mechanism and identify appropriate support resources to assist individual identities (including individuals, departments, programs, etc.) in planning, funding, and implementing energy conservation projects that can demonstrate a reasonable return on investment. This may include the current TGIF grants, but should ideally include a larger pool of money, for example, in the form of interest-free loans.
6. Complete solar thermal installations at five existing residence halls.
7. Complete data room inventory for campus.
8. Develop a comprehensive understanding of energy production sites for the electrical grid in the campus's sub-region. Identify what communities are most affected by those sites and what the effects are.
9. Establish a policy to divest from coal and tar sands.
10. Sign the Climate Resiliency Pledge via Second Nature.
11. Explore the possibility of divesting from all fossil fuels.

### **2019-2021 MID-TERM IMPLEMENTATION PLAN**

1. Increase the campus's percentage of electricity consumption from renewable sources to 43% of total electricity consumption by 2020.
2. Achieve 1990 level climate emissions reduction target.
3. Maintain trajectory of total campus average energy density (kBtu/sq ft/yr) reduction of 8.0% on a five-year rolling average basis.
4. Incorporate mitigation of sea level rise into Climate Action Plan.

### **2022-2025 LONG-TERM IMPLEMENTATION PLAN**

1. Achieve carbon neutrality in Scopes 1 and 2 greenhouse gas emissions.
2. Divest from all fossil fuel companies.

## 2025-2050 VISIONARY GOALS

1. Achieve Scope 3 carbon neutrality as much before 2050 as possible. One of the ways we are working toward this is the innovative “nearly-carbon neutral virtual conference” model for academic conferences being developed by Professor Ken Hiltner, Director of the Environmental Humanities Initiative [see the materials at [http://ehc.english.ucsb.edu/?page\\_id=12687](http://ehc.english.ucsb.edu/?page_id=12687)

## FOOD

### MEMBERS

Given the tremendous amount of work around food issues in 2015-2016, several committees were active and contributed to goals in this plan:

Food Security Task Force (2015-2016 Membership): David Cleveland, Mike Miller (Chair), Tuyen Nguyen, Melissa Cohen, Yanira Rivas Pineda

\*This group held monthly meetings with a coalition of about 40 stakeholders who gave guidance to the task force on our campus goals around sustainable food systems and food security.

UC Global Food Initiative Section leads. These individuals led statewide committees and pioneered local efforts within the UC Global Food Initiative to promote sustainable food systems:

- Swipes Program: Tuyen Nguyen
- Farmers’ Market: Roane Akchurin
- Local Food Sourcing: Robbie Wright,
- Food from the Sea: Chris Costello
- Food Security Assessment: Katie Maynard
- Edible Campus Program: Maile Hartsook and Nancy Yang

### MISSION

Our campus will be a community with equitable access to healthy food to nourish and sustain themselves and their families. Students, staff, and faculty will have a direct connection to their food system and we will work toward regional self-sufficiency. The campus will also actively support such practices in the neighboring and global communities through our food choices, policies, operations, and academic programs.

### BACKGROUND

#### *Environmental*

There is a general consensus among scientists and practitioners that the foods that are good for our bodies, our minds, and our communities are the same foods that are good for our planet, including the climate. Our food system is intimately connected with the biophysical environment, including the climate, so food justice, environmental justice, and climate justice are intimately connected—they cannot be separated. Therefore, long-term food justice includes not only personal and community physical, emotional, and intellectual health, but environmental health as well.

We seek to build partnerships with local farmers and food producers to help us to source food that is grown/raised following environmentally sound and humane practices, and produced with respect to farm workers and other service workers. In our kitchens and restaurants, we are committed to following green business practices and continuing our participation in the Santa Barbara County Green Business Program. We also aim to ensure that our food system operates in a closed loop where we collect compost and, with that, grow more food.

### *Social*

In this food system, all students will have access to affordable, nutritious, culturally-relevant, and sustainable food options. Workers at every stage of the supply chain will have access to fair wages, suitable working conditions, and food that nourishes their bodies and cultures. We seek to create a culture on campus that is knowledgeable and energized about food in general and in the role that food plays in our lives.

### *Economic*

Hunger, food insecurity, and food injustice are part of the institutional financial challenges and barriers students face every day, whether it be the high cost of tuition, lack of access to affordable and quality housing, transportation costs, medical expenses, employment, limited class availability, and much more. In order to address food security, we must take into account the financial landscape that affects our students. These issues need to be addressed at the individual, community, and institutional levels through partnerships that build and support new businesses and financial institutions, and purchasing models which support our goals.

We will also seek opportunities through partnerships to build/support new businesses/financial institutions and purchasing models that support our goals. Historically, we have been successful in helping Harvest Santa Barbara become established, creating a business structure which enabled us to make many more local purchases.

## **ACCOMPLISHMENTS (2015-2016)**

\*Please note that this requires a few highlights and not a comprehensive list of all of the great work happening in this area on campus.

- The 2015/2016 sustainable food procurement assessment for the UCSB Residential Dining calculated 30% sustainable food purchases and 50% sustainable produce-specific purchases.
- University Center dining achieved 40% sustainable purchases in the 2015/2016 academic year.
- All UCSB Residential Dining and University Center Dining units offer fair trade coffee.
- Developed a marketing campaign to support Green Mondays and encourage more students to choose meatless options. Partnered with PEPP (Psychology, Environment, and Public Policy Research Group) to perform a study on influencing student choices with social and environmental messaging.
- The University Center recycles all cooking oil and turns that into biodiesel.
- Procured a mobile demonstration kitchen that is being utilized by multiple campus stakeholders for food education.
- Launched an educational campaign to encourage students to choose more healthy and sustainable options at retail food locations on campus.
- Launched the Food, Nutrition, and Basic Skills Pilot Project with an evaluation element. This program educates students about procuring and cooking affordable, healthy, and sustainable foods. Students also learn about budgeting, financial planning, housing choices, and food justice. In 2015/2016 36 workshops were offered.
- Hired two part-time staff to provide outreach, advocacy, and application assistance for CalFresh to students.
- Four more citrus trees were planted in Storke Plaza in August 2016 as part of the urban orchard program. Proposals are moving forward for the student farm (see bullet point below) and also for a collaboration with the recreation center on vertical gardens.
- Campus Planning Committee recommended a location for the student-run campus farm to the Chancellor in Summer 2016. We are awaiting campus approval.
- Developed an operating procedure for aeroponic vertical gardening in partnership with UCSB's Environmental Health and Safety.
- Help to launch the Santa Barbara County Food Action Plan as an advisory board member. After launch,

help with execution of the goals. This effort is being led by the Community Environmental Council, the SBC Food Bank, and the SB Foundation

## **2016-2018 SHORT-TERM IMPLEMENTATION PLAN**

### *Sourcing and Purchasing*

1. UCSB Residential Dining has a goal of purchasing 55% sustainable produce and maintaining 35% overall sustainable food purchases.
2. 20% of meat purchases by UCSB Residential Dining (other than fish and seafood) are certified by the American Grass-fed Association, are Animal Welfare Approved, meet the requirements of the Global Animal Partnership (steps 3 and higher) and/or are certified humane.
3. Meat options that are certified by the American Grass-fed Association, are Animal Welfare Approved, meet the requirements of the Global Animal Partnership (steps 3 and higher) and/or are certified humane are highlighted as options in UCen catering and Special Events catering standard menu options.

### *Operations*

1. Develop a strategy for identifying food waste and opportunities for redistribution of food before it is wasted.
2. Work with convenience stores on campus to assess which products have non-recyclable or excessive packaging and identify alternatives to these items. Propose those alternatives to the University Center for consideration.
3. Reduce plastic water bottle sales on campus by 20% from 2015 sales.
4. Research the feasibility of reducing the use of paper receipts in campus food service operations through an electronic receipt system or more frequently asking if a receipt is needed.
5. Collaborate with the campus refuse and recycling manager and the University Center to develop ways to better enforce the contract guidelines that restrict the use of Styrofoam in campus restaurants. (Please note: this only affects restaurants who signed leases after the new contract language was added).

### *Education, Outreach, and Best Practice Sharing*

1. Secure educational grants to support partnerships between the Isla Vista Food Cooperative and campus stakeholders to increase/expand co-curricular education programs.
2. Offer more tours for UCSB students to visit local farms, aquaculture, etc.
3. Identify a labeling system to identify sustainable items being sold in campus retail food locations. Evaluate the feasibility of aligning this labeling system with the labeling in residential dining.

### *Health and Wellness*

1. Establish a UCSB guideline for what healthy and nutritious food is with support from multiple partners.
2. Evaluate options for and current barriers to reducing the amount of unhealthy food that is offered in campus retail food facilities.
3. Research how other universities and hospitals statewide and nationally have integrated health standards into leasing contracts for their facilities. Consider whether similar contract language could be applied for leased food service locations at UCSB. Also assess whether it would be possible to give preferences to local or small scale businesses rather than chain stores in on-campus leased spaces.
4. AS Food Bank gains the ability to serve refrigerated items and can expand fresh produce distribution.
5. Increase healthy options in vending machines.

### *Food Security*

1. Reduce student food insecurity to less than 30%.
2. Develop a food security action plan.
3. Identify and secure a new location for the AS Food Bank and future food and wellness center.

4. Develop a survey mechanism to collect annual data on food insecurity of UCSB students, institutionalizing the initial survey done in 2014-2015.
5. Offer EBT at the Gaucho certified Farmers' Market.
6. Ensure that all eateries on campus can accept CalFresh.
7. Establish an emergency food service coalition.
8. Identify low-cost sustainable snack items that could be introduced into campus convenience stores and might supplement existing offerings. Once identification is done, propose to the University Center for consideration.

### *Growing Food*

1. Draft an edible campus plan which identifies locations on campus where food could be grown on campus.
2. Launch a student-run campus farm that has approval to produce and distribute food to students in need.
3. Ensure that all Edible Campus Projects are designed with ergonomics and the health of volunteers and workers who will maintain the projects in mind.
4. Integrate students from the Gevirtz Graduate School of Education into gardening and farming projects on campus.
5. Produce at least 25,000 pounds of produce in the 2017-2018 academic year on campus and distribute it to students in need.

### *Broad Partnerships*

1. Secure a multi-campus research grant to explore issues related to obtaining food from our oceans.

## **2019-2021 MID-TERM IMPLEMENTATION PLAN**

1. The University Center seeks to purchase 20% of their food from sustainable sources (per UC Policy).
2. 50% of meat purchases by UCSB Residential Dining (other than fish and seafood) are certified by the American Grass-fed Association, are Animal Welfare Approved, meet the requirements of the Global Animal Partnership (steps 3 and higher) and/or are certified humane.
3. Identify a funding strategy that will match or exceed the student contribution to the AS Food Bank on an ongoing basis.
4. Reduce student food insecurity to less than 20%.
5. Expand the edible campus project to reach 6 total locations.
6. Determine the feasibility of getting existing fruit trees on campus approved for harvesting and distribution (strawberry guavas, etc.).
7. Increase amount of fresh produce distributed through the AS Food Bank to 50,000 pounds annually.
8. Have a WTF (What the Fruit) fruit bowl in every campus department.
9. Institutionalize the Food, Nutrition, and Basic Skills Pilot Project into a regular offering.
10. Develop new student orientation programs geared towards exposing new students to the local food system.
11. Develop an Isla Vista impact group focused on food justice.
12. Reduce plastic water bottle sales on campus by 50% from 2015 sales.
13. Launch a student-run sustainable food cart (Fall 2018).

## **2022-2025 LONG-TERM IMPLEMENTATION PLAN**

1. Offer new academic programs focused on sustainable foods and/or food justice.
2. Reduce student food insecurity to less than 10%.
3. Expand the edible campus project to reach 10 total locations.
4. Building on the short-term goals, AS Food Bank moves into the new food and wellness center.
5. Produce at least 50,000 pounds of produce annually on campus and distribute it to students in need.

## **2025-2050 VISIONARY GOALS**

1. 50% of all food purchases made by UCSB Residential Dining are sustainable.
2. 90% of meat purchases by UCSB Residential Dining (other than fish and seafood) are certified by the American Grass-fed Association, are Animal Welfare Approved, meet the requirements of the Global Animal Partnership (steps 3 and higher) and/or are certified humane.
3. Develop a plan to ensure that food insecurity of UCSB students is maintained under 10%.
4. Build or secure access to a full-scale commercial kitchen that can be used for educational programs. Ideally this would be a part of the food and wellness center mentioned in earlier goals. This is needed for many reasons including but not limited to the reason that existing kitchens on campus are overbooked, there is a lack of space for education in existing spaces, and existing kitchens do not meet commercial kitchen standards, limiting what can be done in those spaces.
5. Every incoming student is given a financial literacy workshop.
6. Reduce plastic water bottle sales on campus by 90% from 2015 sales.
7. Collaborate with student health to explore how campus gardens and farms could be used as a tool for mental health and healing.

## **LABS, SHOPS, & STUDIO**

### **MEMBERS**

Adam Law, Daniel Charrette, Amorette Getty, Andrew Chen, Katie Maynard

### **MISSION**

To reduce the environmental impact of laboratories, medical facilities, shops, and art studios while also improving safety, management practices, communication, and resource sharing.

### **BACKGROUND**

Laboratories on campus are the most resource intensive building spaces and the complex nature of lab research means that every lab's needs are different, making campus wide policy and programs more challenging. It is also critical that any new initiative or change proposed for research spaces will not interfere with the experiments being operated in the laboratory or in any way compromise the integrity of the research.

The Labs, Shops, and Studios Change Agent Team embrace the unique opportunities and challenges of reducing the campus' environmental impact in these specialty spaces where sustainability is more frequently overlooked. The expertise we gain locally is shared with groups state-wide, nationally, and internationally in developing rating and checklist programs, advising manufacturers, and coming up with procurement strategies.

Many of the programs of the Labs, Shops, and Studios Change Agent Team are facilitated by the LabRATS Program. LabRATS was established in 2006 as one of the first campus laboratory sustainability programs focused on behavioral change comprehensively across areas of energy, waste, water, and materials. The program was founded as a coalition between research staff, building managers, graduate and undergraduate students, and administrative staff. LabRATS continues to merge the creativity and idealism of students with the practical advice of staff to provide support and resources to researchers. Our program is uniquely prepared to adapt campus recycling, energy management, and sustainability practices to the unusual materials used and processes implemented in laboratories.

### *Environmental*

Laboratory buildings have significantly lower waste diversion rates than office buildings on campus and the

materials that are disposed of in laboratories are often more problematic to properly recycle or dispose of. Laboratories are also much more energy and water intensive than office buildings, making them critical to any reduction strategies.

### *Social*

The team recognizes that the issues of safety, employee health, research effectiveness, and sustainability are fully entwined in such spaces and that any measures that we develop must result in positive outcomes for all of these issues and all affected stakeholders, especially occupants. Through our work we aim to reduce the use of hazardous materials where the research goals can be achieved with alternative chemicals and/or processes. We seek to reduce risks for researchers, custodial staff, and anyone interacting with laboratory operations. Lastly, we promote safe and responsible laboratory management as we find that this increases resource efficiency and safety at the same time. We see this as a great opportunity to achieve multiple campus goals through integrated programs.

### *Economic*

In order to achieve sustainability in the laboratory environment, we have to work closely with manufacturers, distributors, suppliers, etc. to identify new technologies and services that can assist researchers in meeting their goals while reducing our environmental impact. This is challenging in the research environment as the technology is so specialized that few products are third party certified.

## **ACCOMPLISHMENTS**

- Developed and launched a Plug Load Monitoring Pilot Study in collaboration with Facilities Management, with possibilities for an equipment replacement program.
- Replaced 54 single-pass cooling systems for laboratory condensers.
- Expanded lab coat and PPE reuse/recycling programs on the campus, in particular targeting students in science courses.
- Submitted a successful proposal to establish an ultra-low temperature freezer incentive program that helped off-set the cost for replacement.
- Submitted a successful proposal for an incubator replacement initiative.

## **2016-2018 SHORT-TERM IMPLEMENTATION PLAN**

1. Continue to track best practices in student health centers and clinics and support Student Health in continuing to seek new measures to improve sustainability in their operations.
2. Launch of the laboratory composting pilot. This was designed last academic year and will launch this year.
3. Assist UC in development of a statewide checklist for New and Renovated Laboratory Spaces.
4. Develop a streamlined program for donating old lab equipment to low-income K-12 schools.
5. Enable 20% of laboratory groups at UCSB to have a LabSYNC assessment.
6. Collaborate with Bren School Sustainability Committee to determine the feasibility of Styrofoam alternatives, as well as reuse and recycling strategies.
7. Collaborate with statewide Green Building Operations Working Group on Green Labs, Office, and Events to incorporate green lab language into UC Policy on sustainable practices.
8. Integrate sustainability into lab safety training.
9. Complete the ultra-low temperature freezer incentive program.
10. Write up best practice on fly incubator.
11. Identify single pass cooling systems associated with autoclaves and develop a plan for replacement.

## **2019-2021 MID-TERM IMPLEMENTATION PLAN**

1. Continue to research alternative disposal methods for laboratory specific waste streams.

2. Expand recycling infrastructure in laboratory buildings.
3. Get a program in place for cost-sharing of energy-efficient replacement equipment.
4. Enable 30% of laboratory groups at UCSB to have a LabSYNC assessment.

### **2022-2025 LONG-TERM IMPLEMENTATION PLAN**

1. Enable 50% of laboratory groups at UCSB to have a LabSYNC assessment.
2. Procurement standards are in place for major instrument types, such as cold storage, autoclaves, etc.

### **2025-2050 VISIONARY GOALS**

1. Develop broad standards for procurement of environmentally preferable laboratory supplies and equipment at the campus and/or UC level. These standards should address energy and water efficiency, toxic reduction, waste management, durability, and fair labor practices to the extent possible.
2. Divert the majority of laboratory consumables from landfill at end of life.

## **LANDSCAPE & BIOTIC ENVIRONMENT**

### **MEMBERS**

Bruce Tiffney (Co-Chair) Lisa Stratton (Co-Chair), Tom Beland, Jon Cook, Rachel Davis, Manuel Herrera, Mo Lovegreen, Danny Man, and Jodi Woods

### **MISSION**

To increase biodiversity of the campus flora, maintain it as a living collection, enhance the utility of the campus as a classroom, and raise awareness about sustainable practices and self-sustaining systems, while reducing dependency on fossil fuels, extracted minerals, pesticides, and potable water.

### **BACKGROUND**

The University of California, Santa Barbara established the Sustainability Change Agent Landscape/Biotic Environment Team in 2004. Their mission is to make sustainability one of the key components in making decisions for grounds design and management. Sustainability includes considering all inputs to grounds relative to their costs and benefits to the earth and the local ecosystem. Their directive is to increase biodiversity and self-sustaining systems, while reducing dependence on fossil fuels and other extracted minerals. Socially, the group seeks to facilitate student education and work and play, while supporting the staff through living wages and local business opportunities. UCSB is also home to The Cheadle Center for Biodiversity & Ecological Restoration (CCBER). CCBER manages over 230 acres of open space on the UCSB campus in order to fulfill several goals: to preserve and enhance native plant resources and biodiversity of the region; to provide educational opportunities through signs, internships, seminars, and workshops; and to advance the understanding of restoration strategies and preservation of ecological function in urbanized areas to retain water quality and biodiversity through research. CCBER management areas include areas that already contained portions of intact vegetation or wetlands which are protected by the Clean Water Act and Coastal Act, as well as areas that are being restored after significant human impacts: the North Bluff, Campus Lagoon, Manzanita Village, Storke Wetlands, and San Clemente. More than 430 campus acres are managed by Facilities Management and Housing & Residential Services in a manner that supports campus goals and community needs.

Any fertilizers, pesticides, and/or herbicides we use have a direct effect on our landscaping staff and a downstream effect on the quality of our water. Use of such chemicals is documented and limited to uses that benefit staff safety by reducing repetitive motion injuries.

We also recognize that much of the potable water that we use is derived from Northern California and

shared with people throughout the state of California. UCSB is a model for using drought tolerant plants and recycled water to reduce the impact of potable water use on state resources.

UC Santa Barbara was built on the land of the Chumash People. As a campus, we have the opportunity to honor the indigenous people of this area through plantings and interpretive signage. Through working with diverse campus departments UCSB landscapes and programs can provide expanded educational opportunities and become an important public resource in this arena.

### **ACCOMPLISHMENTS (2015-2016)**

- Raised student awareness about landscape sustainability through H&RS information display mechanisms
- Completed mapping of campus run-off points and assessment of low flow and storm flow nutrient and other pollutant levels.
- Housing completed an assessment and expanded their work converting low efficiency to high efficiency sprinkler heads.
- Developed mechanisms to easily generate reports regarding fuel and herbicide use by different management groups in order to measure progress on conversion to reduced herbicide use and reduced local emissions.
- Converted irrigation at San Rafael Hall to reclaimed water.
- Completed a successful pilot program in H&RS and Facilities Management using 2 bio-based products a bio-based 2-cycle engine oil and a bar & chain bio-based oil.

### **2016-2018 SHORT-TERM IMPLEMENTATION PLAN**

1. Expand the pilot program using bio-based products and eliminate fossil fuel products where possible.
2. Map all stormwater features on campus – e.g., bioswales, outfalls, CDS (Continuous Deflection System) units, and rain gardens (could be a sustainability intern project), including an assessment of filtration methodology
3. Convert remaining areas to reclaimed water from potable water as appropriate and as funding allows.
4. Continue to incorporate bioswales and water infiltration into all projects on campus.
5. Generate report on fuel and herbicide use by different management groups, in order to measure progress on conversion to reduced herbicide use and reduced local emissions.
6. Complete conversion of low efficiency to high efficiency sprinkler heads.
7. Assess GHG sequestration potential of campus landscapes.
8. Have the weed management plan formally reviewed and adopted by campus
9. Remove grass from bike path roundabouts to reduce water use.
10. Seek ways to support the newly formed American Indian and indigenous Gardens Alliance (AIIGA), a student group through the office of student life within the framework of other best management practices for campus landscapes.
11. Work with the local Chumash community to determine how restored habitats on campus could be used to educate the community about native plants and medicines as well as Chumash culture, as is done at the SSRB building.
12. Assess the opportunities and constraints of integrating an ‘Edible Campus Program’ on campus with consideration of integrated pest management issues.

### **2019-2021 MID-TERM IMPLEMENTATION PLAN**

1. Achieve eradication of invasive species as listed below.
  - a. Eradication across campus (all groups working on this goal): Bladder Flower (*Araujia sericifera*), Fountain Grass (*Pennisetum setaceum*), Mexican Feather Grass (*Stipa tenuissima*), Perwinkle (*Vinca major*), Smilo Grass (*Stipa miliacea*).
  - b. Remove when an area is renovated or comes under funded management (e.g., in open spaces): Pampas grass (*Cortaderia selloana*), Cape Ivy (*Delairia odorata*), Bridal Creeper (*Asperagus asparagoides*), Iceplant (*Carpobrotus spp*), Fennel (*Foeniculum vulgare*), Myoporum tree

(Myoporum laetum), Sour Grass (Oxalis pes caprae), Harding Grass (Phalaris aquatic), Castor bean (Ricinus communis), Giant Reed (Arundo donax), Salt Cedar (Tamarix spp).

- c. Only plant non-natives where needed; remove all volunteers. Seek to manage to reduce the spread of Kikuyu grass (Pennisetum clandestinum) (used in lawns) and Canary Island Date Palm (Phoenix canariensis) as feasible; trim fruits regularly of Mexican fan palm (Washingtonia robusta)
  - d. Encourage campus landscape architects not to specify these species adjacent to wetlands.
2. Develop a system where campus students, staff and faculty can more easily report irrigation system malfunctioning through social media.
  3. Continue to seek strategies for reducing the use of herbicides and pesticides on campus in support of campus's integrated pest management system.

### **2022-2025 LONG-TERM IMPLEMENTATION PLAN**

1. Expand signage throughout campus (similar to the lagoon signage) so that campus can build on its role as a curated botanic garden.

### **2025-2050 VISIONARY GOALS**

Be a leader in landscape sustainability through diversity of programs

1. Explore the potential to balance campus greenhouse gas emissions with the ability of campus plantings to sequester greenhouse gasses within the framework of management needs
2. Develop landscapes to be used as a living laboratory and model for drought tolerant, stormwater filtering and self-sustaining, low input landscapes that also serve the functions necessary for campus activities
3. Protect native landscapes that preserve the natural heritage of coastal California native diversity and support wildlife and natural ecosystem functions

## **TRANSPORTATION**

### **MEMBERS**

Roland Geyer, Adam Jahnke, Teofilo F. Gonzalez, Sally MacIntyre, Mo Lovegreen, Bob Silsbee, Katie Wright, Tom Kenna, Arjun Sarkar, Jamie Wagner, Iva Inbar, Dick Flacks

### **MISSION**

Be a leader and catalyst in our region and the State in terms of human mobility options and alternatives to travel, advancing alternative fuels, and carbon neutral vehicle deployment.

### **BACKGROUND**

The Transportation Alternatives Program (TAP) at UCSB reduces commuter emissions by equipping students, staff, and faculty with the resources they need to reduce their GHG emissions by choosing alternative means of transportation. The Program is heavily used by staff and faculty, as well as by students that do not live on or around campus. Currently 37% of the faculty and staff commute to the campus by alternative methods while 92% of students commuting to campus use alternative modes of transportation. This percentage has remained fairly stable over the past five years.

To further enable sustainable transportation choices, UCSB also supports 11 vanpools that run throughout Santa Barbara and Ventura Counties to reduce commuter miles, gasoline consumption, and GHG emissions. Alternative campus commuters can also benefit from bike lockers, showers, and clothes lockers, as well as access to a car share program on campus. All of the efforts made by the staff, students, and faculty on campus have enabled the campus to reduce commuter miles, gasoline consumption, and GHG emissions.

### *Social*

Transport is a means to specific ends. It is ultimately to improve people's lives and livelihoods. The essential feature of transport development should be: to reduce the time and energy spent on - and thus the cost of- travel and the transport of goods; and thereby to improve people's access to resources, people, goods, opportunities, markets and services – including the provision of information - they value. As part of our work in transportation planning we are making efforts to provide fair and equitable access to our campus.

### *Economic*

As part of our efforts to provide easy and financially affordable access to campus, we plan to continue our partnership with MTD to increase ridership of the local bus system. We will also explore the “total cost of parking” to be more realistic about what it costs the campus to provide so many single occupant vehicle spaces to park. If we were able to increase the cost for parking, we could possibly expand and improve the non-car support services.

## **ACCOMPLISHMENTS**

- Held a forum on Transportation as part of the Campus Sustainability Plan update.
- Extended routes 12x and 24X (longer and more frequent). Negotiated the new SBMTD line 28 – UCSB received the CHESC Sustainable Transportation award.
- Enhanced the annual transportation survey to include additional information about MTD ridership.
- Crafted and received the TGIF Vehicle Incentive Program. Created a “scorecard” to assist with selection of “green” vehicles and the TGIF grant offset the incremental costs of alternative fueled vehicles.
- Purchased 2 Nissan Leaf Electric Vehicles for the fleet.
- Purchased 1 Honda Natural Gas Vehicle.
- Installed 8 additional public Level 2 Electric Vehicle Charging Stations. This brings our campus total to 24 spaces (4 x Level 1 and 20 x Level 2).
- NRG EVgo has awarded our campus a grant to install 115 Electric Vehicle Make Ready Stubs (a \$345k value). Final terms are still under negotiation.
- Developed and submitted a Bren Group Project “Bike Share” master plan proposal. The proposal was accepted, but not enough students signed up. We partnered with the Santa Barbara Bicycle Coalition, the City of Santa Barbara, the City of Goleta, SBCAG, SBCC, and the County of Santa Barbara, to have two full time MESM interns for summer '16 to develop this plan for the central coast.

## **2016-2018 SHORT-TERM IMPLEMENTATION PLAN**

1. Complete and implement a Bike Share Master Plan.
2. Create a Campus Bicycle Master Plan.
3. Devise and implement a Strategic Transportation Plan (STP) to get us on a path to reduce commute-related and business travel GHG emissions to 40% below 1990 levels by 2025 and 80% below 1990 levels by 2050. The STP will include the following:
  - a. Decrease single occupant vehicle ridership by faculty and staff by 10% (from 15/16 baseline) by 2025.
  - b. Decrease single occupant vehicle ridership by 2050, so no more than 30% of all faculty, staff, and students commute via this mode.
  - c. Fleet purchases – by 2025, have 4.5% of our commuter fleet be ZEV/LEV.
  - d. By 2050, have 30% of our fleet be ZEV/LEV.
  - e. Expand our charging station/alternative fuel infrastructure.
  - f. Expand TDM/TAP participation by 5% over the 2000 baseline.
  - g. Further reduce scope 3 emissions by expanding the use of teleconferencing / web options (pursue desk-top solutions to offset GHG emissions related to business-related travel.
  - h. Provide faculty and staff with incentive programs for alternative fuel vehicles.

- an integrated public transit system.
  - j. Develop planning and funding for a north-south bike path, linking the Fairview Plaza – Stowe Park area to campus.
  - k. Create and implement an outreach program aimed at educating faculty and staff on the importance of reducing air travel. Most faculty and staff are unaware that business air travel accounts for 30% of our campus' total emissions.
  - l. Develop an incentive program for departmental purchases to encourage them to procure alternatively fueled vehicles. (We received the TGIF funds at the end of 15/16, but implementation will happen in 16/17)
  - m. Secure grant funding and funding strategies to accelerate fleet vehicle replacement and fueling infrastructure for low carbon / zero emission vehicle utilization.
  - n. Attain an alternative fuel fleet mix of 50% and a robust multi advanced fuel infrastructure. Our fleet is currently 40% alt fuel, however 20% of the fleet are E85 (flex-fuel) vehicles. Our current challenge is that E85 is not available in the Santa Barbara area at this time.
  - o. Utilize advanced drop in biofuels recognized by the CA CEC to have at least a 33% GHG reduction.
  - p. Continue collaboration with Clean Cities and other organizations / agencies to achieve GHG reduction goals.
4. Devise and implement a Strategic Fleet Plan (SFP) in alignment with the Carbon Neutrality Initiative's goal of Carbon Neutrality of scope one emissions by 2025 by implementing the following:
- a. 75% of the light and medium duty university purchases will be alternative fuel and/or 35.5 mpg by 2016, 85% and 38 mpg by 2020, and 95% and 40 mpg by 2025.
  - b. 15% Light-duty purchases to be Electric or Plug-In Hybrid by 2020, and 50% by 2025.
  - c. 50% medium and heavy duty purchases to be alternative fuel and/or Electric or Plug-in Hybrid by 2020 and 75% by 2025.
  - d. Leveraging advanced drop in biofuels recognized by the CA-GREET 2.0 (CAARB) to have minimally a 30% GHG reduction compared to gasoline or diesel.
  - e. By 2020, zero emission vehicles or plug-in hybrid vehicles shall account for at least 50% of all new passenger and light-duty vehicle acquisitions.
  - f. By 2025, zero emission vehicles or plug-in hybrid vehicles shall account for at least 95% of all new passenger, 50% of light-duty vehicles, and 75% medium and heavy-duty vehicle acquisitions.
  - g. Secure grant funding and funding strategies to accelerate fleet vehicle replacement and fueling infrastructure needed for low carbon / zero emission vehicle utilization.
  - h. Continue collaboration with Clean Cities and other related organizations / agencies and entities helping to achieve UCSB's GHG reduction goals.

### **2019-2021 MID-TERM IMPLEMENTATION PLAN**

1. Decrease single vehicle ridership by faculty and staff by 35% from 2015/16 baseline (via the annual mode split).
2. Further increase of TAP participation by 35% - 50% (change parking pricing structure to pay as you go)
3. By 2020, zero emission vehicles or plug-in hybrid vehicles shall account for at least 50% of all new passenger and light-duty vehicle acquisitions.
4. Complete alternative fuel infrastructure.
5. Increase training for virtual conferencing and understanding how to virtually communicate and host virtual social events
6. Reduce air travel 5% from BAU by 2020 in order to reduce emissions by 2,126 MT CO<sub>2</sub>e annually and save the campus \$298,618 annually in avoided travel costs.
7. Extend bike path along Mesa road to Facilities / parking lot 31.
8. Complete bike path linking the Fairview Plaza – Stowe Park area to campus.
9. Continue collaboration with Clean Cities and other related organizations / agencies and entities helping to achieve UCSB's GHG reduction goals

- i. Partner with our local municipalities, MTD, SBCAG, and the County of Santa Barbara to develop

### **2019-2021 MID-TERM IMPLEMENTATION PLAN**

1. Decrease single vehicle ridership by faculty and staff by 35% from 2015/16 baseline (via the annual mode split).
2. Further increase of TAP participation by 35% - 50% (change parking pricing structure to pay as you go)
3. By 2020, zero emission vehicles or plug-in hybrid vehicles shall account for at least 50% of all new passenger and light-duty vehicle acquisitions.
4. Complete alternative fuel infrastructure.
5. Increase training for virtual conferencing and understanding how to virtually communicate and host virtual social events
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8. Complete bike path linking the Fairview Plaza – Stowe Park area to campus.
9. Continue collaboration with Clean Cities and other related organizations / agencies and entities helping to achieve UCSB's GHG reduction goals

### **2022-2025 LONG-TERM IMPLEMENTATION PLAN**

1. Update Strategic Transportation Plan to address new short, mid, and 2050 goals and climate neutrality with an accelerated pathway of on campus or regional projects.
2. Decrease single occupant vehicle ridership by faculty and staff by 10% (from 2015 baseline) by 2025.
3. Fleet purchases – by 2025, have 4.5% of our commuter fleet be ZEV/LEV.
4. By 2025, zero emission vehicles or plug-in hybrid vehicles shall account for at least 95% of all new passenger, 50% of light-duty, and 75% of medium and heavy-duty vehicle acquisitions.

### **2025-2050 VISIONARY GOALS**

1. Reduce our commuter and business travel emissions to 80% of 1990 levels by 2030.
2. Decrease single occupant vehicle ridership, so no more than 30% of all faculty, staff, and students commute via this mode.
3. Have 30% of our fleet be ZEV/LEV.
4. Achieve Scope 3 carbon neutrality goal.

## **WASTE**

### **MEMBERS**

Matthew O'Carroll (Co-Chair), Bruce Carter, Amorette Getty, Sue Hawkins, Joey Lee, Mo Lovegreen (Co-chair), Jordan Sager, Byron Sandoval, Sarah Siedschlag, Mark Rousseau

### **MISSION**

To make UCSB a Zero Waste university by ensuring waste management programs and practices effectively promote the reuse, reduction, recycling, composting, and repurposing of materials, as well as encouraging the rebuying of recycled material.

### **BACKGROUND**

UCSB's waste diversion rate appears to have plateaued at the 70% mark. Looking ahead, UCSB will look to improve its diversion rate through continued recycling efforts and, importantly, through expanding the existing but limited compost infrastructure.

UCSB's waste management efforts are designed to eliminate the impact on the natural environment. Waste reduction and reuse efforts help to eliminate the consumption of items and materials on-campus. This effort helps to not only reduce disposal efforts, but also decreases UCSB's indirect consumption of natural resources from purchased goods. Recycling and composting allow the University to dispose of their items in a manner that either allows the material to be turned into a different, new product, or to be returned to the environment through decomposition. These aforementioned efforts are of the utmost importance to UCSB, as we aim to reduce our environmental footprint.

### *Social*

Addressing social equity concerns regarding waste disposal and manufacturing of materials at UCSB is a priority. We strive to ensure that all waste disposal facilities utilized by the University provide socially responsible work environments. Waste management staff at UCSB work very closely with procurement teams to ensure that items purchased by the University are also sourced from companies that provide safe working conditions for employees. At UCSB, all staff members and students involved in handling waste are provided proper training and personal protective equipment to ensure safe working environments.

### *Economic*

UCSB maintains and operates a waste management program that is not only efficient, but also cost effective. Programs and practices that reduce labor and material costs and increase waste diversion are prioritized at UCSB. Eliminating unnecessary waste management costs allows UCSB to implement more waste management programs and practices.

## **ACCOMPLISHMENTS**

- Hand dryers were placed in the Library as part of a TGIF project.
- There were several notable accomplishments completed by the members of this team in their respective departments, increased education and outreach around recycling and composting, expanded the compost pilot program, updated waste infrastructure etc.

## **2016-2018 SHORT-TERM/ CONTINUING IMPLEMENTATION PLAN**

1. Continue replacing paper towel dispensers with hand dryers.
2. Work with procurement to prioritize the purchase of compostable and recyclable goods in Gateway.
3. Improve waste management/ disposal procedures and protocols for student organizations and events.
4. Expand indoor and outdoor compost programs.
5. Continue to host education workshops regarding source reduction and waste management.
6. Encourage additional research into behavioral economics of waste management.
7. Upgrade waste infrastructure at the Events Center.
8. Host first-ever Waste Reduction/ Diversion Challenge in residence halls.
9. Continue to improve waste diversion efforts.
10. Identify additional vendors that may not provide safe work environments for employees.
11. Continue to map outdoor waste receptacles and eliminate unnecessary landfill receptacles where applicable, as well as look into locations where service may be difficult for staff members in an effort to reduce risk of injury.
12. Expand use of reusable hand towels and/or paper towel composting in residence halls.
13. Develop additional outreach programs including social media announcements and smart phone apps that provide information on proper waste management efforts, including composting at home, recycling efforts, and procurement tracking.
14. Continue to update campus waste infrastructure.
15. Improve education and outreach regarding UC 2020 Zero Waste Goal.

## **2019-2021 MID-TERM IMPLEMENTATION PLAN**

1. Zero Waste: For the purposes of measuring compliance with UC's zero waste goal, locations need to meet or exceed 95% diversion of municipal solid waste. Ultimately, UC's zero waste goal strives for the elimination of all materials sent to the landfill by 2020.
2. Reduce packaging material.
3. Improve reuse/ surplus programs through Central Stores.
4. Improve donation efforts for used goods.
5. Establish on-site composting facility.
6. Create a list of suggested purchasing recommendations for labs.

## **2022-2025 LONG-TERM IMPLEMENTATION PLAN**

1. Eliminate single-use packaging.
2. Replace existing outdoor receptacles with up-to-date bins.
3. Standardize signage and receptacles for all new and existing buildings throughout campuses and the various entities.
4. Introduce compacting roll-offs for aggregating waste (composting, recycling).
5. Explore options to dispose of organic waste at the local sanitary district.

## **2025-2050 VISIONARY GOALS**

1. Establishment of a trend of continual waste reduction per capita.
2. Aggregate/ manage materials on-site.

# **WATER**

## **MEMBERS**

Mo Lovegreen (Co-Chair), Matthew O'Carroll (Co-Chair), Jodi Woods, Amorette Getty, Mark Irwin, Misty Williams, Mark Rousseau, Jordan Sager, Jewel Snavely

## **MISSION**

To assist in protecting and conserving water resources, with an emphasis on reducing potable consumption through conservation, efficiency practices, and behavior change.

UCSB's effort to conserve and use water efficiently, as well as to manage stormwater, reduces the University's environmental impact. California is currently experiencing one of the worst droughts on record, and with supplies throughout the state stressed, it is of the utmost importance that UCSB reduces consumption in an effort to help alleviate demand throughout the state. In addition, much of the water distributed in Southern California is sourced from elsewhere in the state. With a portion of UCSB's water portfolio coming from the State Water Project, a significant amount of energy is used to move, heat, cool, and treat water; thus, reducing water consumption also results in energy savings.

### *Social*

Water is essential to life. With California's current drought, some of California's residents are unable to receive water. Helping to reduce water consumption on campus will alleviate the stress on local and regional water sources. In addition, education and outreach efforts regarding social issues surrounding water will help to inform the UCSB campus community of how they can become involved with efforts to reduce social inequity regarding the availability to water resources.

### *Economic*

At UCSB, potable water rates are ever increasing. While the rate increases place a growing financial burden

on the campus, it also presents an opportunity for the University to partake in more water conservation and efficiency efforts, as they become more cost effective, and will reduce utility expenditures. In addition, the cost of recycled water presents another cost effective scenario where the University can augment its potable water use with recycled water.

### **ACCOMPLISHMENTS**

- Completed successful negotiations with Goleta Water District to expand the use of recycled water.
- Completed a TGIF project that brought recycled water into all the restrooms in the four story lab wing of Bren Hall.
- The balance of accomplishments were completed by individuals in various functional areas such as recycled water line extensions, recycled water feasibility studies, retrofits with water efficient fixtures, introduction of pool covers at H&RS pools, etc. Members of this committee did collaborate for some of these projects.

### **2016-2018 SHORT-TERM IMPLEMENTATION PLAN**

1. Reduce potable water consumption 12% by March 1, 2016, compared to 2013 baseline.
2. Introduce pool covers at H&RS pools.
3. Continue restroom retrofits with efficient fixtures.
4. Establish a departmental incentive program for water conservation.
5. Recycled water extension for landscaping areas.
6. Establish a fixture audit group/ class.
7. Commit to conserving water and continuing with conservation practices in wet and dry years.
8. Continue building town and gown relationship through constructive engagement and workshops.
9. Look into waterless carwash technology.
10. Pilot the use of recycled water in cooling tower infrastructure.
11. Retrofit existing meters and install real-time metering systems.
12. Update Water Action Plan.
13. Utilize EnergyCAP for water reporting.
14. Bring recycling? recycled? water to the BioII Cooling Tower.
15. Continue the expansion of the recycled water infrastructure.

### **2019-2021 MID-TERM IMPLEMENTATION PLAN**

1. Recycled water extensions into buildings.
2. Landscape conversions.
3. Gray water laundry to landscape systems in residence halls.
4. Reuse process water on-site.
5. UCOP policy: Reduce per capita potable water use 20% by 2020 (achieved).

### **2022-2025 LONG-TERM IMPLEMENTATION PLAN**

1. Removal of Old Gym pool.
2. Indirect and direct potable water reuse partnership with Goleta Water District.
3. Addition of nanofiltration system at Goleta Sanitary District for higher quality recycled water.

### **2025-2050 VISIONARY GOALS**

1. On-site filtration system for blackwater to allow for immediate building reuse.

# OTHER INITIATIVES

## **The Green Revolving Fund**

The Green Initiative Fund (TGIF) Grant Making Committee selected 16 projects for the 2015/16 funding cycle, totaling \$181,368. Below is an overview of the projects that you can expect to see completed within the next academic year.

### **Water Recycling System for Mineral Science Laboratories (\$5,325)**

Funds will be used to install a water recycling system in the mineral science research laboratory housed in the Department of Earth Science. The laboratory currently utilizes two gravity-driven 'shaking' tables (akin to large-scale automated gold pans) to separate minerals based on their density and hydrodynamic characteristics. The major drawback is that each table requires a significant amount of water to operate. The TGIF grant will be used to develop a simple, yet novel solution – to capture the used water, filter it (to avoid contamination between samples) and recycle it back onto the tables, saving over 380,000 L of water annually.

### **Edible Campus Program Student Farm (\$38,006)**

Funding will be used to construct a small campus farm that will allow students to learn and practice agricultural techniques that address social, economic, and environmental aspects of sustainability while at the same time supplying the AS Food Bank with up to 12,000 pounds of healthy produce. Funding will cover the initial costs of the farm's infrastructure, including site preparation, fencing, irrigation, lighting, raised beds, and other supplies, and for a student intern who will oversee the initial implementation of honorarium trainings.

### **Bren Hall LED Lighting Retrofit (\$14,821)**

Funds for this project will be used to purchase LED fixtures for the interior workspace, lab wing corridor, and exterior lights at Bren Hall. The project also received matching funds from Facilities Management which will cover the installation costs. By converting existing fixtures to LEDs, Bren Hall will drastically reduce energy consumption and lighting costs. This project is estimated to save 39,795 kWh per year and reduce CO2 emissions by over 27,000 lbs. per year.

### **Drosophila Incubator Replacements for Montell Laboratories (\$12,343)**

Funding will be used to purchase one high-efficiency incubator from Darwin Chambers to replace one of the three current drosophila incubators shared by Dr. Craig and Dr. Denise Montell's labs. As the two largest fly labs on campus, the energy required for their space is extremely high due to the strict environmental conditions necessary for consistent drosophila culture. The new incubator, which utilizes relatively new technology, will sharply reduce energy consumption in the laboratory. This project is estimated to save 29,980 kWh per year and reduce CO2 emissions by over 16,666 lbs. per year. In addition to the immediate environmental impact, LabRATS will use this project as a case study for the replacement of other energy-intensive incubators on campus and nation-wide.

### **Growing New Ideas and Fueling Inspiration through CHESC (\$12,551)**

This project provided financial support for 21 students and 3 staff from UCSB to attend the California Higher Education Sustainability Conference (CHESC), June 27-July 1, 2016 at California State University, Fullerton. CHESC is an important gathering of key stakeholders from across the state of California who are working on UC system and state wide policies. Student fellows from the UC Global Climate Leadership Initiative and the UC Global Food Initiative attended, as well as members of the UC System wide working groups on water, climate, green building, operations, transportation, waste, food service, and more.

### **Creating a Solar Campus (\$7,492)**

The project, proposed by two undergraduate students will examine the solar potential of every roof on campus. The majority of the funding will be used to hire a graduate student advised by Professor Keith Clarke in Geography, to conduct an assessment of the solar potential on campus. The information will be presented in the form of a project proposal and report, as well as an interactive map.

### **Mechanical Engineering Senior Projects focused on campus sustainability (\$7,500)**

The proposed project is focused on engaging Mechanical Engineering students to work on campus sustainability initiatives as part of their senior-year projects. The TGIF funding cycle and the ME189A, B, C senior project course milestones are not in synch. To remedy this, the TGIF committee is reserving funding for projects that juniors will define in spring 2016, and complete as seniors in the 2016/17 school year. Teams of students in the junior-year engineering design class, ME153, work on team projects. This year the focus of the projects will be on finding engineering solutions to sustainability related problems. Two of the 15-20 junior-year projects will be selected to go forward as the year-long senior design project funded through TGIF.

### **ICA Building Hydration Stations (\$6,175)**

Funding will be used to install 2 Hydration Stations in the Intercollegiate Athletics Building (ICA). This will reduce the amount of single-use plastic bottles on campus and in the community. With 580+ student athletes, staff, coaches, donors, and season ticket holders utilizing the ICA building, we estimate that with the hydration stations, over 96,860 plastic bottles a year will be eliminated from the environment.

### **Portable Ultrasonic Flow Meter (\$10,000)**

Funds will be used to purchase a portable ultrasonic liquid flowmeter that will be utilized to meter water flow through our piping infrastructure as part of the campus water conservation and efficiency efforts. The FLUXUS F601 Portable Liquid Flowmeter can be used on pipes 2” to 24” inches in diameter, allowing for the metering of just about all of the liquid piping infrastructure on campus, including feed lines to mechanical equipment, effluent lines in labs, and the potable and recycled water infrastructure. In addition to using this water meter for live in-situ audits of equipment and lines, it will be incorporated and used in water conservation and sustainability related tours of the campus, as well as guest lectures and presentations. With the help of Facilities Management staff, students will also be able to check out the flowmeter for class projects.

### **Composting Infrastructure at Sedgwick Reserve (\$5,201)**

Funding will be used to purchase an Earth Cube for Sedgwick reserve. An earth cube is a small, solar powered, in-vessel composter with a capacity of 250 gallons and a thermophilic composting process as low as 21 days. Sedgwick Reserve is one of the seven reserves managed by the UCSB Natural Reserve System. As it is in a remote location, there are no waste hauling services provided to help manage the reserve’s waste from ongoing operations, temporary occupants, and events. The Earth Cube will not only reduce the amount of waste generated by the reserve, it has the potential to be an educational tool for university students, researchers, and Sedgwick staff.

### **UCSB Bike Share Voucher Program (\$12,343)**

Funds will be used to establish a voucher program within the Gaucho Rides bike share program, vouchers (~\$350) will help the department purchase a new, used or donated bike from AS Bike Shop, UCSB Bookstore, CSO bike auction, etc. The Gaucho Rides bike share program is a sustainable transportation option for faculty and staff to get around campus. Benefits to this program include: promoting health and wellness; increasing employee efficiency and productivity; building on local cycling infrastructure and culture; alleviating parking issues; improving our bike-friendly status; encouraging community comradery; and,

reducing our campus carbon footprint.

### **Pardall Center BigBellys (\$7,410)**

Funding will be used to purchase a set of BigBelly solar powered recycling, compost, and landfill bins at the Associated Students Pardall Center. The Pardall Center is a hub of student activity in Isla Vista and houses events, meetings, and study space for UCSB students. Currently, the only outdoor waste receptacle is a single Bertha 4-bin cluster which is serviced by A.S. Recycling. Due to the open-top nature of the Bertha, rodents, raccoons and other pests have easy access to bin contents and infestations have developed. Capacity is also a problem, as the Pardall Center is too far from the rest of A.S. Recycling's campus routes to be serviced daily. The BigBelly solar powered units are pest proof and hold a much larger capacity than the Bertha bins, and will solve both issues. In addition, it will increase the composting infrastructure at Pardall.

### **El Centro Hydration Station Project (\$1,803)**

TGIF funding will be used to install 1 hydration station in building 406, otherwise known as El Centro. El Centro is a heavily used student space that at this time has no access to any form of drinking water. This project will help to reduce the usage of disposable water bottles used by students, staff, and faculty that utilize the space.

### **American Indian & Indigenous Gardens Alliance (\$3,299)**

The mission of the American Indian & Indigenous Gardens Alliance's Indigenous Foods Garden Project is to promote the well-being and health of the UCSB Native American Student. The funds awarded will be used to purchase the tools and materials necessary to build sustainable infrastructure for the garden space, which includes a tool shed, tools, fencing, and materials for the permaculture-style wicking beds. The garden will serve as a space for American Indian & Indigenous students and west campus gardeners/residents to learn about social responsibility through sustainable living practices via closed-loop food systems, to have an outdoor study area for indigenous foods to be integrated into UCSB's Native American & Indigenous Studies curriculum and co-curriculum (under the Department of Religious Studies), and to have a means to develop a close-knit community for American Indian & Indigenous Students and allies, in addition to the Family Student Housing community through cultivation, preparation, and cooking of the foods grown in the garden.

### **Vehicle Incentive Program (\$17,050)**

Personal vehicles account for more than 25% of California's Greenhouse Gas Emissions (GHGs) per year. An Electric Vehicle (EV) in California emits 4,000 lbs. of CO<sub>2</sub> equivalent, compared to a gas powered car which emits 15,000 lbs. thus the transition to electrified or hybrid transportation is needed as soon as possible in order for us to meet global climate change mitigation targets. Unfortunately, EV/hybrid adoption in California (which has the highest adoption rate in the US) remains low. High upfront costs, commonly referred to as "sticker shock," are often cited as common obstacles preventing car buyers from choosing an EV. A TGIF Vehicle Incentive Program (VIP) is being established to address this issue. Offering an additional incentive will push departmental car buyers away from making the mistake of purchasing conventional gas powered vehicles instead of EVs/hybrids or greener options. Criteria is currently being developed to determine the incentive amount that will be offered for each EV vehicle. The incentive per EV will range between \$2-5k depending on the make and model.

### **Ultra-Low Temperature Freezer Replacement project (\$20,050)**

This grant will be used to provide monetary incentives to laboratories on campus to replace old Ultra Low Temperature (ULT) freezers with new, energy efficient ULT freezers. The new freezers consume about one third to half the amount of power of the old freezers. The TGIF committee is offering a \$3,000 incentive for labs to purchase new Stirling Ultracold freezers to replace existing freezers. We are also offering a \$1,000

incentive to purchase new Thermo Fisher TSX600D freezers, which are slightly less energy efficient than the Stirling freezers, but still far more energy efficient than conventional freezers.

## **STAFF RECOGNITION AWARD**

This was our third year implementing the staff sustainability recognition award. It was conferred on John Lazarus, the current Assistant Director of Dining Services for his management of the University Center kitchen and catering department. The University Center has always worked toward more sustainable purchasing and catering practices, including the current shift to compostable ware. Moreover, John has been instrumental in the UC Global Food Initiative and the food security efforts on campus including the launch of the Food, Nutrition, and Basic Skills program.

John Lazarus is very deserving of this year's Staff Sustainability Award, as he has been a champion of food recovery efforts and food security for quite some time.