

UNIVERSITY
OF
CALIFORNIA

Annual Report on Sustainable Practices

2017



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A Message From the President

The University of California has always been defined by boldness. We don't shy away from tackling the big, complicated problems of the day. Right now, global warming is arguably the most pressing and difficult challenge our society faces, and UC is hard at work identifying solutions that can be applied not just to our campuses, but across California and around the world.

Some believe that fighting climate change and adopting sustainable practices will be a burden on the economy. But California has proven that environmental sustainability and economic vitality can go hand-in-hand. California's economy has grown faster than the national average, all while the state has enacted some of the most ambitious climate goals in the country, and renewable energy projects have put many Californians to work. At UC, our investments in energy efficiency have also paid off in a big way, saving the university more than \$30 million in 2017 alone.

The momentum behind sustainability is unstoppable. I see evidence of this on every UC campus, and our students are blazing the trail. In 2017, UC Irvine became the first university campus in the nation to convert its buses to an all-electric fleet. In fact, they voted to charge themselves an additional campus fee to pay for the new buses and provide free rides to the campus community. Students at eight UC campuses charge themselves additional fees like this for Green Initiative Funds, which generate more than \$1.5 million in annual funding for student-led sustainability projects.

In the past year, UC also opened two solar farms in Fresno County that generate 80 megawatts of electricity – that's nearly 15 percent of UC's total energy usage. The university now has solar installations on all 10 of our campuses, at ANR properties, and at one of our medical centers, which are generating an additional 40 MW, and have another 30 MW in the works. The California power grid is getting steadily cleaner; we're committed to ramping up this change.

To help UC hit our Carbon Neutrality Initiative goal of reaching operational carbon neutrality by 2025, campuses updated their Climate Action Plans in early 2017 and are implementing new mitigation strategies. In 2017, the UC Task Force on Carbon Neutrality Financing and Management prepared a report on the barriers to hitting our 2025 goal, and strategies to help us overcome them.

The big, complicated problems are never easy or simple. They require adaptability, creativity, and, yes, boldness. The University of California has all three ingredients — which is why I'm confident we will reach our goal.



Janet Napolitano



Executive Summary

This 14th Annual Report on Sustainable Practices highlights the achievements of the University of California's comprehensive sustainability program over the past year. This includes progress in sustainable operations as laid out by UC's Sustainable Practices Policy and achievements related to presidential initiatives and to the university's core mission of education, research and public service.

In 2017, the second part of an 80 megawatt (MW) off-campus solar project came online in Fresno County, generating clean electricity for UC's Wholesale Power Program and the UC Davis campus. The Wholesale Power Program portfolio is projected to be approximately 80 percent carbon free in 2017. All 10 campuses have installed on-site solar photovoltaic systems, with 40 MW of 100 percent carbon-free electricity in operation and an additional 30 MW in progress. The U.S. Environmental Protection Agency named UC among the national leaders in the use of clean, renewable energy in its Green Power Partnerships program.

Under the Carbon Neutrality Initiative, UC pledged to reach operational carbon neutrality by 2025. In 2017, President Napolitano asked the Task Force on Carbon Neutrality Financing and Management to identify organizational barriers and to recommend ways to overcome these barriers. The Task

Force report presented a set of strategies for reaching carbon neutrality that can be tailored to the unique needs of each campus. A summary is included later in this report.

UC's fleet continues to move toward zero-emission vehicles. UCLA became the first public university in California with electric buses, adding two zero-emission electric buses to the fleet, replacing the only remaining diesel buses. With support from students who voted to charge themselves an additional fee, UC Irvine replaced its entire diesel shuttle bus fleet with 20 all-electric buses. UCSF has purchased 15 new all-electric shuttles as well.

UC saved more than 83 million gallons of potable water in 2016-17 compared to the previous year, which is equivalent to the average annual water use of more than 1,800 Californians. Four campuses have already met the 2025 goal of a 36 percent reduction in water use.

As UC continues to grow, green building practices will play a critical part in helping the university reach its sustainability goals. In 2017, UC added over 1.5 million square feet of new LEED certified buildings. UC has 276 LEED certifications; roughly 20 percent of UC's building space is now LEED certified.

To meet sustainable food policy goals, over \$34 million in food spending came from local and sustainable food sources over the past year. Residential and retail food service operations have exceeded the 2020 goal of procuring 20 percent sustainable food products.

UC campuses diverted 65 percent of waste from landfills in 2016-17. To help push the university toward further waste reduction, UC launched the #MyLastTrash campaign to raise awareness of the goal and encourage all campus community members to reduce their personal waste footprints.

This annual report provides a comprehensive view of all sustainability policy areas, presidential initiatives and related work, including features on students, staff and faculty using the campuses as living laboratories to test sustainable solutions for the campuses, California and the world.

Overview of UC Sustainability

UC's sustainability program and policy includes all 10 campuses and five medical centers. UC's sustainability commitment began in 2003 with a Regents' action that led to the adoption of a Presidential Policy on Green Building Design and Clean Energy Standards in 2004. Since adopting that policy, the university has expanded the scope to include climate protection, transportation, recycling and waste management, purchasing, food and water. The policy can be accessed at: <http://ucal.us/suspolicy>

1970

UCSB creates Environmental Studies Program

1971

UCSC establishes Student Farm

2002

UC's first LEED certification, UCSB's Bren School, is also the first LEED Platinum laboratory building in the world.

2004

California Student Sustainability Coalition launches Education for Sustainable Living Program

President Dynes issues policy on Green Building Design and Clean Energy

2012

Goal of installing 10 MW of on-campus renewable energy met 2 years early

100th LEED certification

2013

President Napolitano announces the Carbon Neutrality Initiative, committing UC to carbon neutrality by 2025

2014

\$25 million in food purchases systemwide meet UC sustainable food criteria

President Napolitano announces the Global Food Initiative

UC commits \$1 billion for early-stage investments in clean energy innovation

2020

UC zero waste goal

UC to reduce greenhouse gas emissions to 1990 levels (scopes 1, 2 and 3)



1970-99

1977

UCD Student Farm opens

1999

UCSB students approve student fee to create Coastal Fund

2000-09

2006

The Green Initiative Fund referendum passes at UCSB

UC amends Sustainability Policy to include Transportation, Building Renovation, Operations, Waste Management and Procurement

2007

All 10 UC Chancellors sign the American College and University Presidents Climate Commitment

2009

Sustainable Foodservice section added to Sustainability Policy

2010-19

2015

>35 MW on-campus renewables installed

Bending the Curve Carbon Neutrality Research Summit

UC joins Breakthrough Energy Coalition

2016

200th LEED certification

2017

Largest solar purchase by any U.S. university (80 MW) comes online

2020-50

2025

UC carbon neutrality goal (scopes 1 and 2)

UC 36% per capita reduction in potable water use goal

2050

UC carbon neutrality goal (scopes 1, 2 and 3)

Progress Toward Policy Goals

Climate and Energy



GOAL	PROGRESS
Climate neutral by 2025	UC greenhouse gas emissions were slightly less in 2016 than in 2015 despite campus growth.
Renewable energy	UC added nearly 9 MW of on-campus solar in 2017 with another 30 MW in planning. By the end of 2017, UC's Wholesale Power Program will deliver electricity that is 80% carbon-free.

Green Building



GOAL	PROGRESS
LEED Silver minimum for all new construction	In 2017, UC added five new LEED Silver, 11 LEED Gold and five LEED Platinum certifications for a total of 276 certifications systemwide.
Certify at least one LEED EBOM project on each campus	Nine of 10 campuses have at least one LEED EBOM certification with 39 total across the system.
Exceed the California building energy code by 20%	In 2016-17, UC projects exceeded the California building energy code by an average of 27%.

Waste



GOAL	PROGRESS
Zero Waste by 2020	65% of campus waste was diverted from landfills in 2016-17. UC sends 1.4 lbs. per person per day to landfill per year, 26% less than other comparable universities.

AWARDS

Campuses received numerous awards this year for everything from greening healthcare, diverting waste, greening the fleet and saving energy. A complete list of awards can be found here: <http://ucal.us/gcwwxP>.

Food



GOAL	PROGRESS
20% of UC food service spending will be from sustainable products by 2020	Systemwide, residential, retail and medical center sustainable food spend has exceeded the 2020 goal (24%, 22% and 21% respectively) although not yet on all campuses.
Certify at least one food service facility on each campus as a green business	Eight campuses and one medical center (UCLA) have at least one certified green food service facility.

Transportation



GOAL	PROGRESS
50% of all new light-duty fleet vehicles to be zero-emission or hybrid by 2025	13% of all new fleet vehicles in 2016 were purchased as all-electric or hybrids.
No more than 40% of UC employees will commute by single-occupancy vehicles by 2050	In 2016, 52% of UC employees drove to work alone, more than 20 percentage points lower than the statewide average of 73%.

Water



GOAL	PROGRESS
Reduce per capita potable water use 20% by 2020 and 36% by 2025	Four campuses and one medical center have already met or exceeded the 2025 goal. Four campuses have met the 2020 goal and are on track to meet the 2025 goal.

STARS Gold certified campuses:

UC Merced UC Riverside UC Santa Barbara UC Santa Cruz



UC Sustainable
Practices Policies



Climate and Energy

Policy Goals



Reduce scopes 1, 2 and 3 greenhouse gas emissions to year 1990 levels by 2020

Achieve climate neutrality for scopes 1 and 2 sources by 2025

Achieve climate neutrality from specific scope 3 sources (as defined by the American College and University Presidents' Climate Commitment) by 2050 or sooner

PROGRESS TOWARDS GOALS

UC emissions systemwide slightly decreased in 2016 compared to 2015 with a 7% increase in scope 1 emissions, 17% decrease in scope 2 and a minor increase in scope 3. Emissions in 2017 are expected to decrease even further as UC's Wholesale Power Program procures more renewable energy for its supply with the goal of providing 100 percent clean energy by 2018 .

Across all campuses, UC needs to reduce emissions from scopes 1, 2 and 3 by 19 percent in order to meet 1990 levels by 2020. UC Berkeley, UC Santa Barbara and UCLA have already exceeded the 2020 goal, and UC Riverside is within 2 percent of its target. In order to meet climate neutrality by 2025, UC will need to reduce scope 1 and 2 emissions by more than one million MTCO_{2e}, which is the equivalent of roughly 395,000 tons of waste being recycled instead of landfilled or the annual energy use of 121,000 homes.

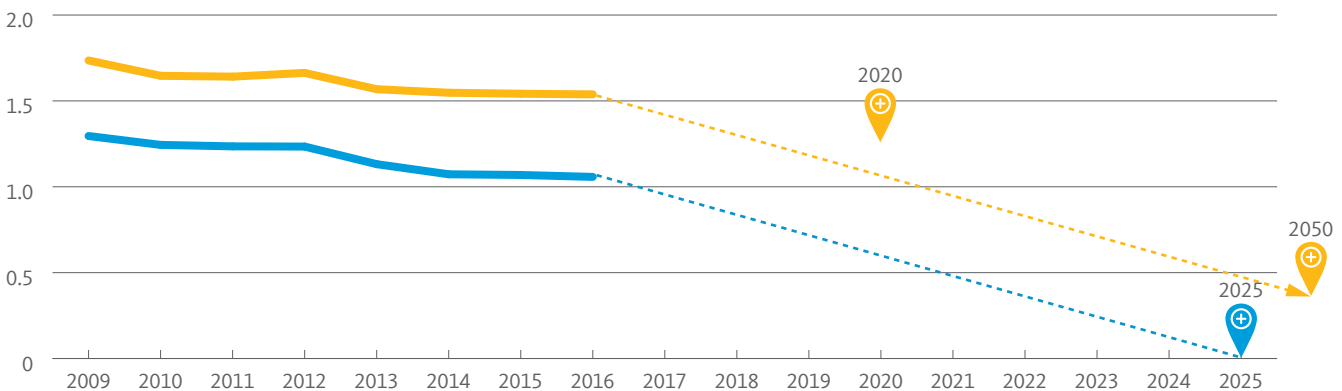
UC Davis Health System and all campuses except UC Merced and UC Riverside are obligated to comply with the California Air Resources Board's (CARB) cap-and-trade program, which establishes a price on carbon emissions to drive them down over time. Obligated UC campuses complied with the cap-and-trade program through a combination of on- and off-campus actions.

The campus profiles at the end of this report show each campus' progress toward climate policy goals. The programs highlighted here will contribute to the emissions cuts needed to achieve the 2020 and 2025 goals, but campuses will need to scale them up even further if goals are to be met.

UC GREENHOUSE GAS EMISSIONS COMPARED TO CLIMATE GOALS

(Millions metric tons CO_{2e})

- Scopes 1 (natural gas, campus fleet, fugitive) + 2 (purchased electricity)
- Scopes 1, 2 + 3 (campus commute, business air travel)



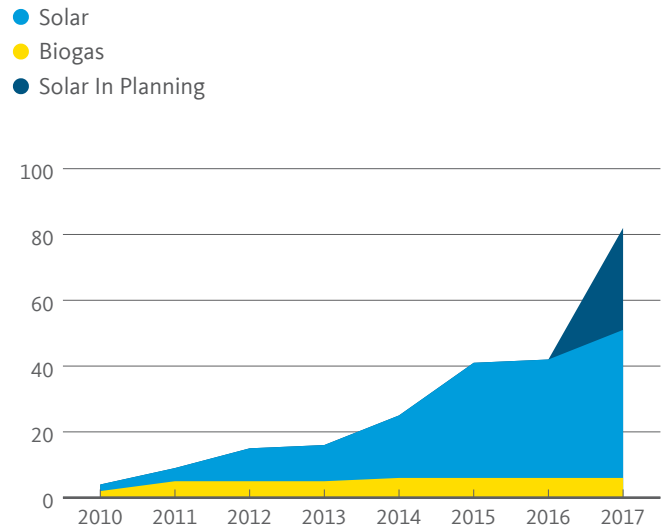
This past year, significant systemwide progress was made in terms of climate action planning, renewable energy development and energy efficiency projects. Highlights include the following:

- Campuses completed updates to their Climate Action Plans in early 2017 and are working to further identify, refine and implement mitigation strategies.
- The Global Climate Leadership Council convened the Carbon Neutrality Finance and Management Task Force in the spring of 2016, including faculty, staff and students with expertise in energy and sustainability, construction, environmental law, budget and finance, facilities operations, administrative services and capital planning. President Napolitano asked the Task Force to identify and prioritize the organizational barriers to achieving carbon neutrality by 2025 and to recommend ways to overcome these barriers. The recommendations from their report, completed in 2017, can be found on page 25.
- The TomKat Carbon Neutrality Projects published their final reports at the end of 2017, recommending solutions to two of the most challenging aspects of achieving carbon neutrality. These projects were a systemwide research effort led by UC Santa Barbara and funded by the TomKat Foundation. The TomKat Strategic Communication Working Group researched ways to foster broad-based attitudinal and behavioral change in support of carbon neutrality. The TomKat Natural Gas Exit Strategies Working Group explored how to eliminate campus reliance on natural gas, the main source of campus emissions.
- UC is now managing 80 megawatts (MW) of off-campus solar in Fresno County that generates electricity for the UC Wholesale Power Program and the UC Davis campus. In combination with shorter-term purchases of wind and hydroelectric power, the Wholesale Power Program portfolio is estimated to be approximately 45 percent and 80 percent carbon-free in 2016 and 2017, respectively.
- The U.S. Environmental Protection Agency named UC among the national leaders in the use of clean, renewable energy in its [Green Power Partnerships](#) program. UC ranked fifth in on-site generation of renewable energy and ninth overall among the top 30 colleges and universities.
- All 10 campuses, one medical center and ANR have installed on-site solar photovoltaic systems, with 40 MW of 100 percent carbon-free electricity in operation. Another 30 MW of on-site solar projects are in the planning and construction phases. In

2016, campuses generated more than 53,000 megawatt-hours (MWh) of solar electricity generation, equating to roughly 5 percent of UC's annual purchased electricity. UC Davis produced the most, generating more than 31,000 MWhs.

- UC secured two sources of renewable biogas, which together will offset approximately 10 percent of UC's current natural gas consumption.
- To date, more than 1,000 energy efficiency and new construction projects have registered with the Energy Efficiency Partnership program (see page 11), receiving \$88 million in incentive payments and avoiding more than \$30 million in annual energy costs. In 2016 alone, 42 energy efficiency and new construction projects participated in these programs, earning \$3.8 million in incentives. At the time of this report, another 51 energy efficiency projects were completed or in process. Combined, these projects are projected to avoid \$2 million annually in energy costs.

ONSITE RENEWABLE ENERGY CAPACITY (MW)





New solar installation on the roof of the MLK Student Union. Credit: Kira Stoll

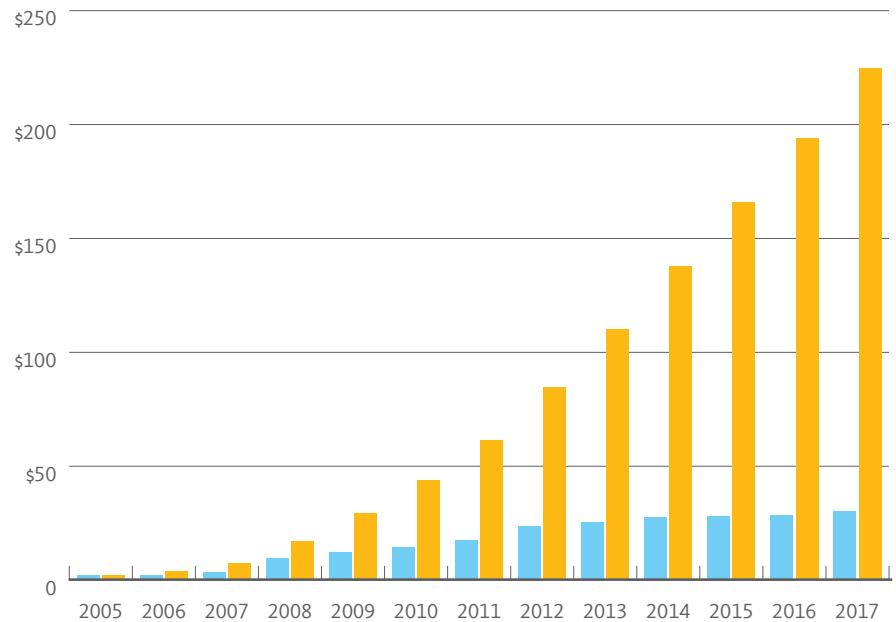
Campuses have also been working diligently on climate and energy strategies. Highlights include the following:

- UC Berkeley’s largest on-site solar installation went live in 2016-17 at University Village. The carport system supplies 20 percent of the electricity needs for the 900 plus unit student family apartment complex. See the generation live [here](#).
- Berkeley Lab conducted a controls optimization project at its high-performance computing facility, and is on track to save more than 1.8 million kilowatt-hours (kWh) and a half million gallons of water per year. The electricity savings correspond to more than 50 percent of the baseline “non-compute” electricity use at the facility, and is equivalent to the electricity that would be generated by a one megawatt solar array in Berkeley (an area of about 3 football fields). See details [here](#).
- UC Davis Health has opted in to Sacramento Municipal Utility District’s Greenergy and SolarShares programs, which will provide renewable electricity for 18 percent of UC Davis Health’s annual use.
- UC Irvine’s power plant has been made available to the Advanced Power & Energy Program engineers so they can study the safety and effectiveness of power-to-gas, a process in which excess wind or solar electricity is utilized to create hydrogen, a carbon-free resource that can be injected into existing natural gas infrastructure. Read more about the research [here](#).
- UC Riverside installed 4 MW of new solar over an existing parking lot. The panels shade cars and pedestrians, incorporate LED lights for safety, and will produce less expensive electricity over the course of their 20-year life.

COST AVOIDANCE FROM ENERGY EFFICIENCY PROJECTS

(Millions of dollars, net of debt services)

- Net Avoided Cost (cumulative annual)
- Net Avoided Cost (cumulative total)



- UC San Diego installed and commissioned a 250 kW/500 kWh battery energy storage system to complement an existing 280 kW solar installation at the campus' off-site central Receiving and Distribution Center. Combined, this renewable energy strategy will make this a near net-zero energy facility.
- UC Santa Barbara installed over 4 MW of on-site solar, which will generate enough clean electricity to supply roughly 8 percent of the campus' annual use.
- UC Santa Cruz completed the installation of two heat recovery absorption chillers that improved the overall efficiency of their cogeneration unit. These units take unused heat from the cogeneration unit and make chilled water for the campus' science buildings, resulting in an annual electrical savings of just over 650,000 kWh.



UC Irvine's Jack Brouwer and Power-to-Gas.
Credit: Steve Zylius

Systemwide Energy Programs

WHOLESALE POWER PROGRAM

In 2014, the Regents of the University of California obtained status from the California Public Utilities Commission as a registered Electric Service Provider (ESP). In 2015, the university began providing electricity directly to all (or portions of) the seven campuses and three medical centers that are eligible to procure electricity from entities other than investor-owned or publicly-owned utilities. Approximately 25 percent of the university's electricity use is eligible for direct access and is now served by the university's own ESP. As part of the university's Carbon Neutrality Initiative, the university plans to use only low-carbon electricity supplies for the direct-access campuses by 2018. The 80 MW solar farm in Fresno County is a big first step toward that goal.

ENERGY EFFICIENCY PARTNERSHIP PROGRAM

In 2004, the university formed a unique statewide energy efficiency partnership program with the California State

University system and the state's four investor-owned utilities to improve the energy performance of higher education facilities. The partnership provides funding for equipment retrofits, monitoring-based commissioning, and training and education. Municipal systems serving Los Angeles and Riverside have also recently joined the partnership, and all campuses are now eligible to receive project incentives. Since its inception in 2004, this program has allowed UC campuses to avoid more than \$220 million in utility costs while reducing greenhouse gas emissions. Despite these historical successes, the completion of new energy efficiency projects has slowed in recent years.

CAP-AND-TRADE

California's cap-and-trade regulation went into effect on January 1, 2012, and established an enforceable compliance obligation beginning with 2013 greenhouse gas emissions. UC campuses joined together to take strategic actions to reduce the cost of this new regulation. UC

invested in purchased allowances during the first few auctions, and the value of those allowances has steadily increased since then. California subsequently granted free allowances to UC in recognition of the already considerable efforts made by the campuses to directly reduce their emissions.

Thanks to the sequestration of funds earmarked for compliance and returns on those early investments, UC's current cap-and-trade program is now fully funded through about 2025. Thus, the program has been an effective strategy to cost-effectively administer UC's regulatory compliance obligations regarding greenhouse gas emissions.

Transportation

Policy Goals



FLEET

- By 2025, zero-emission vehicles or hybrid vehicles shall account for at least 50 percent of all new light-duty vehicle acquisitions.

COMMUTE

- By 2025, each location shall strive to reduce its percentage of employees and students commuting by single-occupancy vehicles (SOV) by 10 percent relative to its 2015 SOV commute rates.
- By 2050, each location shall strive to have no more than 40 percent of its employees and no more than 30 percent of all employees and students commuting to the location by SOV.
- By 2025, each location shall strive to have at least 4.5 percent of commuter vehicles be zero-emission vehicles (ZEV).
- By 2050, each location shall strive to have at least 30 percent of commuter vehicles be ZEV.

PROGRESS TOWARDS GOALS

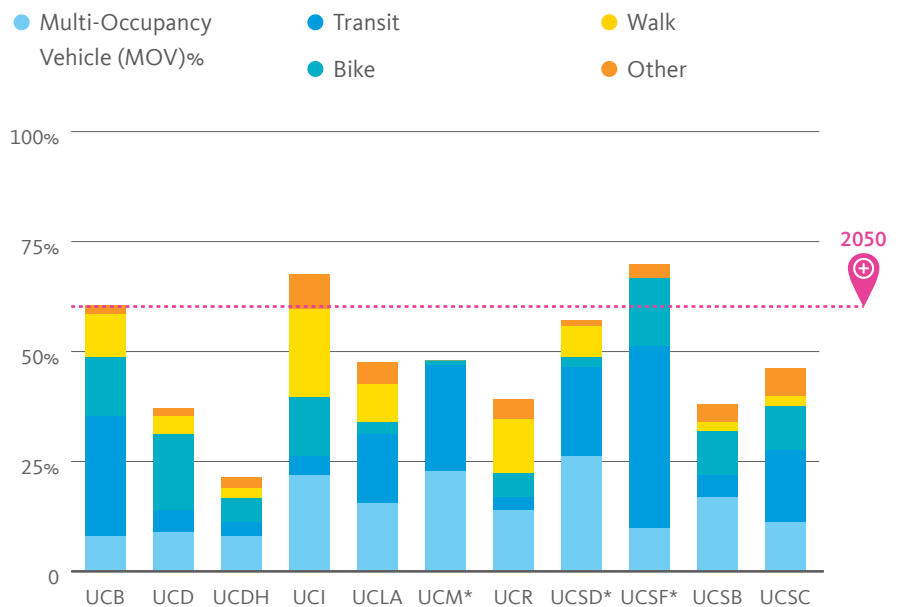
Fleet: In 2016, electric and hybrid vehicles accounted for 13 percent of all new light-duty fleet vehicle acquisitions.

Emissions from campus fleet vehicles are included in UC's climate goals. Campus fleet emissions remained similar to 2015 levels.

Most campuses expanded their all-electric and alternative fuel vehicle fleets this year. Notable highlights include:

- UC Irvine replaced its entire diesel shuttle bus fleet with 20 all-electric buses after students voted to charge themselves an additional fee to cover the new service. See more [here](#).
- UCLA became the first public university in California with [electric buses](#), adding two zero-emission electric buses to the fleet, replacing the only remaining diesel buses.
- UCSF substantially increased its number of electric fleet vehicles, including six new all-electric vehicles to replace enforcement-operations gas-powered vehicles; two all-electric passenger vans for shuttle operation deployment; and 15 new electric transit buses to be integrated into the campus shuttle network.

2016 EMPLOYEE ALTERNATIVE COMMUTE MODES



- UC Davis was awarded a Yolo Solano Air Quality Management District Grant to expand fleet charging stations. Fleet Services also switched from B20 diesel to RD99 diesel, which is a fuel blend of 99 percent renewable diesel and 1 percent regular diesel. The switch reduces campus use of fossil fuel-derived diesel by 36,000 gallons a year, which lowers greenhouse gas emissions. The renewable diesel also burns cleaner, which reduces soot, improves fuel economy and reduces maintenance costs associated with diesel particulate filters.
- UC San Diego procured 50 new full-speed all-electric vehicles, bringing the total electric fleet count to 428.

Commute: Since 2009, about half of all campuses have seen their single-occupant vehicle mode share decrease and multi-occupant vehicle mode share increase, which has resulted in fewer emissions from commuters. UC campuses typically have much higher rates of non-auto commuting compared to host jurisdictions and other employers in California. About 48 percent of UC employees use transit, walk, bike or commute in ways other than single-occupant vehicles, which is nearly double the statewide average of 27 percent.

Campus electric vehicle charging infrastructure was substantially increased in FY 2016-17 along with creative alternative commute programs. Highlights include:

- All campuses have been working to install new electric vehicle charging stations, with over 550 installed systemwide and another 150 being constructed this year.
- UC Berkeley launched discounted bike sharing in partnership with student organizations, Parking and Transportation, and Ford Go Bike.
- UC Irvine's Pump2Plug Electric Vehicle Adoption Program is recognized as the first university incentive program for EV adoption through the replacement of gas-powered vehicles with electric vehicles. UC Irvine employees receive up to three years complimentary charging on and off campus as well as benefit from systemwide EV lease and purchase offers.
- UC Merced increased car-sharing memberships on campus to over 300 members.
- UCSF launched MyCommute.ucsf.edu as a fully integrated self-service commute portal for the entire UCSF community. The portal allows users to obtain transit information for point-to-point commuting which is fully integrated with UCSF shuttle, vanpool, carpool and regional transit systems.
- Facing severe transit cutbacks from the local transit agency, UC Santa Cruz's Transportation and Parking Services was able to negotiate an agreement to buy back service planned for cuts and to realign routes to new class change schedules to successfully minimize any transit impacts to the campus.

Living Lab Coast Bike Share Feasibility Report

UC Santa Barbara's Office of Sustainability, the Santa Barbara City College Foundation and the Santa Barbara Bicycle Coalition partnered to fund a feasibility study of a bike-share program connecting UC Santa Barbara with nearby towns as a complement to existing transit and ride-share services. Two environmental science and management master's students were hired to develop the [study](#) and worked to evaluate the economic feasibility of such a program as well as funding sources, organizational structures and station locations. UC Santa Barbara has since requested proposals for a campus-wide bike-share program that would encompass the neighboring community of Isla Vista as well.

Water

Policy Goals



Reduce growth-adjusted potable water consumption 20 percent by 2020 and 36 percent by 2025, when compared to a three-year average baseline of FY 2005-06, FY 2006-07 and FY 2007-08.

PROGRESS TOWARDS GOALS

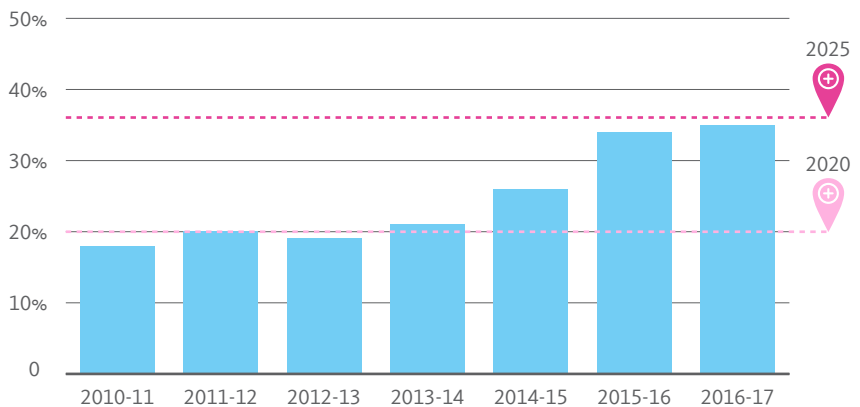
UC Davis, UC Irvine, UC Merced and UC Santa Cruz have already met or exceeded the 2025 goal. UC Berkeley, UC Irvine Health, UC Riverside, UC San Diego and UCSF have all met the 2020 goal three years early and are on track to meet the 2025 goal.

Berkeley Lab, UCSF, UC Irvine Health and UCSF Health reduced total potable water use in 2016-17 by 20 percent, 9 percent, 7 percent and 4 percent respectively, compared to 2015-16. Most of the other campus and health system water use remained relatively unchanged. Collectively, UC saved more than 83 million gallons of potable water in 2016-17 compared to the previous year, which is equivalent to the average annual water use of more than 1,800 Californians.

Examples of progress this year include the following:

- Berkeley Lab completed a round of low-flow restroom fixture replacements and valve retrofits to reduce water consumption by approximately 720,000 gallons per year. Project details are available [here](#).
- UC Davis collaborated with multiple other agencies in the Yolo sub-basin to form the only known Groundwater Sustainability Agency in the state of California comprised of multiple agencies for a whole sub-basin. The state Department of Water Resources has heralded this partnership approach for its breadth of collaboration in implementing the Sustainable Groundwater Management Act.
- UC Davis Health infrastructure repair and upgrade projects have reduced system water loss in a number of locations, with an estimated savings of 5 million gallons per year.

UC PERCENT REDUCTION IN PER CAPITA POTABLE WATER CONSUMPTION



- UC San Diego has decreased potable water use more than 60 million gallons by using recycled water at the Central Utility Plant, East Utility Plant and Medical Center Utility Plant.
- UC Santa Cruz completed an inventory of turf irrigated with potable water; over 14,000 square feet of turf was identified for replacement or removal, which will result in potable water savings of approximately 339,305 gallons annually or 1.4 percent of the annual irrigation water budget.
- UC's Agriculture and Natural Resources Kearney Agricultural Research and Extension Center installed numerous water saving measures in 2016 that have resulted in a 1.8 million gallon reduction in potable water use compared to 2015.
- UC Irvine Health has achieved an estimated 19 million gallons of water savings in a portfolio of projects including laminar flow fixture change outs, cooling tower upgrades and a sterilizer management program.

UCLA's award-winning water reclamation program

UCLA won Water Efficiency Project of the Year from the LA Better Buildings Challenge for their water reclamation program, which saves over 28 million gallons a year by capturing storm water, water used in laboratories, reclaimed water from air conditioners and from sterilization and other equipment in 22 buildings across campus. This reclaimed water is then used to cool the campus cogeneration plant that provides efficient power to the university. The reclaimed water is expected to increase to 48 million gallons annually over the next few years as UCLA Facilities Management expands the program to include more campus buildings and incorporate additional water-saving efforts.

[Read more.](#)



*UCLA Facilities' employees Emilio Rodriguez and Giuseppe Scitutto work on the water efficiency project estimated to save 28 million gallons annually.
Credit: Nurit Katz*

Green Building

Policy Goals



NEW BUILDINGS AND RENOVATIONS

- Design and construct all new buildings and major renovations to a minimum LEED-NC Silver rating as well as meet the prerequisites of the Laboratories for the 21st Century Environmental Performance Criteria.
- Design and construct all renovation projects with a cost of \$5 million or greater (except acute care facilities) to a minimum LEED-CI Certified rating.
- Outperform the energy requirements of the California Building Code by at least 20 percent on all new construction and major renovation projects (except acute care facilities) or meet UC's Whole Building Energy Targets.

EXISTING BUILDING OPERATIONS AND MAINTENANCE (EBOM)

- Each campus will submit for certification one pilot building at a LEED-EBOM Certified level or higher.
- Each campus shall seek to certify as many buildings as possible through the LEED-EBOM rating system.

PROGRESS TOWARDS GOALS

UC added over 1.5 million square feet of new LEED certified buildings in 2017; approximately 20 percent of UC's building space is now LEED certified. Systemwide, UC has 276 LEED certifications, 39 of which are certified under the LEED for Existing Buildings, Operations and Maintenance rating system.

In 2017, five projects earned LEED-Platinum certification, eleven Gold and five Silver. The campus profiles at the end of this report track each campus' LEED certifications over time. A complete list of all UC LEED certifications is available at: <http://ucal.us/Gpq8yU>.

The Sustainable Practices Policy requires all new construction and major renovation projects to register with the Residential or Non-Residential Savings By Design Program. These energy efficiency programs, offered by California's four investor-owned utilities and the Sacramento Municipal Utility District, provide design assistance, energy analysis, life-cycle costing and financial incentives to help projects exceed the energy provisions of California's Building Code. In 2016, 23 projects received a total of \$1.7 million in incentives. Those projects are projected to avoid over \$600,000 annually in energy costs due to their energy-efficient design strategies. On average, these projects exceeded the energy provisions of California's Building Code by 27 percent.

2017 LEED Platinum project highlights:

- **UC Davis' Manetti Shrem Museum of Art** exceeded the university's goals for sustainability, achieving LEED Platinum in late 2016, a challenging accomplishment for an art museum given the climate control requirements. The award-winning design features more than 30,000 square feet of interior space topped by a 50,000 square foot canopy, which provides partly shaded outdoor space. Features include: daylight and occupancy sensors for the LED lighting system; alternative fueling stations; stormwater kept on site and filtered through vegetation; and reduction of irrigation water by 57 percent with drought-tolerant plantings and drip irrigation.
- **UC Irvine's Continuing Education Classroom Building** was certified LEED Platinum in 2017 under the Building Design and Construction 2009 rating system. Project features include: Native vegetation, reclaimed water and highly efficient irrigation controls; 48 percent reduction in building water usage; all LED lighting and variable speed fans and variable capacity compressors. Estimated building energy use exceeds UC's 2015-16 stretch whole building energy performance target at 25 kilo-British thermal units per square foot per year.
- **UC Berkeley's Jacobs Hall** received LEED Platinum in late 2016 under the Building Design and Construction 2009 rating system. The four-level, 24,000 square foot building features solar panels that provide 60 percent of its energy. Large operable windows allow for natural ventilation and lighting. Inside, ceiling fans provide comfort during warm weather; efficient hydronic radiators provide heat. The building's design team also devised a creative solution to use surplus hot and chilled water from Soda Hall next door. Jacobs Hall's exterior features shading panels tailored to the south, east and west exposures, with high-performance window glass and cool roofing.



UCLA's Meyer and Renee Luskin Conference Center
Credit: Matthew Millman

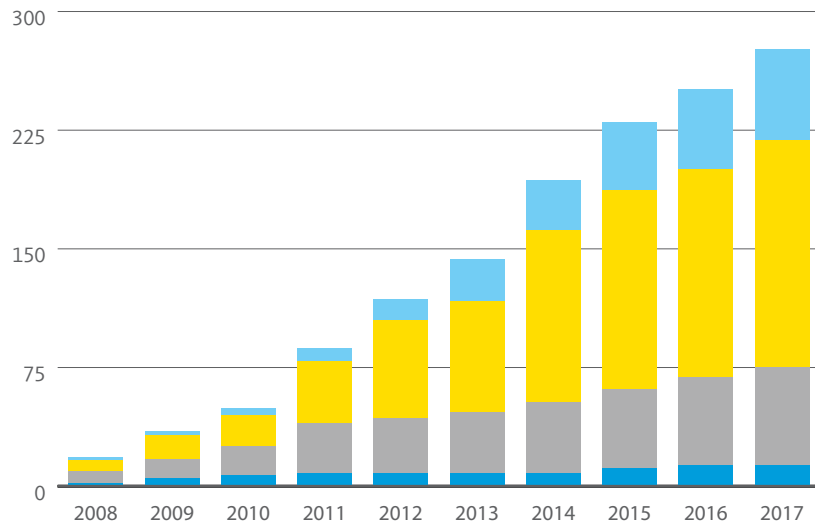
- An inspired new place for the exchange of ideas, **UCLA's Meyer and Renee Luskin Conference Center** integrates environmental sustainability into the guest experience. With 254 guest rooms and over 25,000 square feet of central event space alongside a transit hub, Luskin lowers travel emissions related to campus events. LED lighting, natural ventilation, mechanical systems, cool white roofing and operable windows conserve energy as do automatic controls, sensors and temperature setbacks in guest rooms. WaterSense sinks, showers, toilets and landscape irrigation will save over 1.5 million gallons annually. Linen reuse and linen-free meeting

spaces also limit wastewater use. Menus serve healthy, local, organic, cage-free, fair-trade foods.

- **UC Merced's Classroom and Office Building 2** is a three-story building opened in 2016 that provides large-format lecture halls, classrooms and supporting office space. The project achieved LEED Platinum certification under the Building Design and Construction rating system. Features include a cool roof, low-water fixtures, and operable windows and thermostats for offices to allow for personalized comfort. Heavily insulated exterior walls with large areas of glazing for daylighting help reduce the size of mechanical and lighting systems in the building and enable higher energy efficiency.
- The **UC Santa Barbara Charles T. Munger Physics Residence** is designed as a premier living and casual collaborative environment for the Kavli Institute for Theoretical Physics. This LEED Platinum for Homes certified project includes carbon monoxide sensors in each unit and low-flow toilets, lavatory faucets and shower heads. All lighting fixtures are LED and 90 percent of the lamps are ENERGY STAR; ENERGY STAR appliances are installed in each unit.

CUMULATIVE NUMBER OF UC LEED CERTIFICATIONS BY YEAR

- Platinum
- Gold
- Silver
- Certified



Zero Waste

Policy Goals



Achieve zero waste by 2020

PROGRESS TOWARDS GOALS

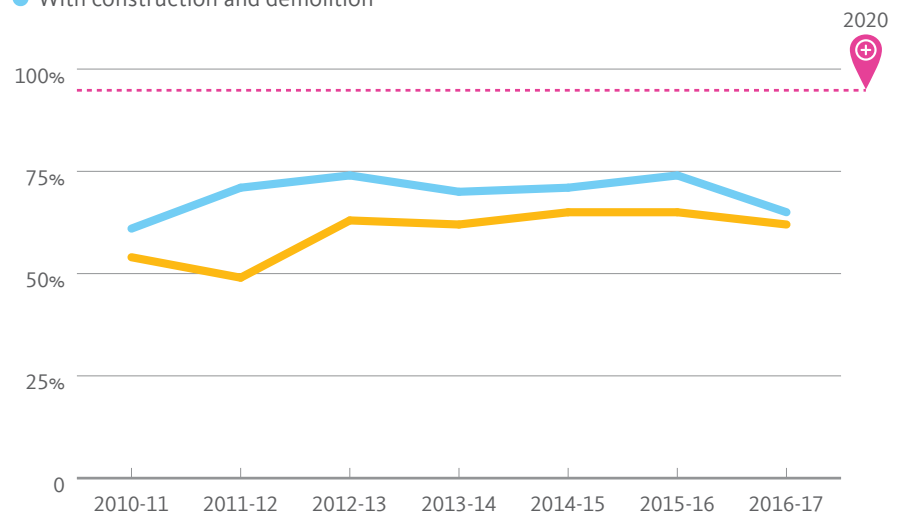
Collectively, UC campuses diverted 62 percent of municipal solid waste from landfills in 2016-17. Including construction and demolition (C&D) waste, the total diversion rate is 65 percent. UC Irvine continues to achieve the highest waste diversion rate at 80 percent (not including C&D). UCSF (75 percent), Berkeley Lab (74 percent), UC Davis (72 percent) and UC Santa Barbara (68 percent) are not far behind.

Waste diversion rates have plateaued on many campuses in recent years, with only Berkeley Lab and UCSF achieving significant increases in diversion rates since 2014-15. There are several potential explanations for the lack of further progress toward the zero waste goal. Challenges faced in many UC locations are a lack of access to facilities that will accept post-consumer organic waste, lower commodity prices that reduce the economic viability of recycling some materials and the success of reduce-and-reuse programs at many campuses. Reduce-and-reuse programs tend to focus on easy-to-recycle items like single-use water bottles and packaging, reducing the weight of recyclable materials in the percentage-diverted calculation for successful campuses.

UC recognizes that the best trash is the trash that is never produced. In order to track the success of waste reduction efforts, campuses also report waste generation per capita as a complementary metric to the diversion rate. Systemwide, Berkeley Lab (0.67 lbs per capita/day), UC Merced (0.64 lbs per capita/day), UC Riverside (1.03 lbs per capita/day) and UC Berkeley (1.01 lbs per capita/day) reported the lowest waste per capita for 2016-17. See the campus profile pages at the end of this report for more information.

SOLID WASTE DIVERTED FROM LANDFILL SYSTEMWIDE

- Without construction and demolition
- With construction and demolition



Zero waste highlights from 2016-17:

- UC Berkeley Students Nicole Panditi and Scott Silva led the [3-D Printer Filament Reclamation Project](#) in which they take used 3-D printer plastic that would otherwise end up in the garbage, grind it up, melt it down and produce a new spool of plastic that can be used again in the campus's 3-D printers. The 3-D printer filament reclamation team has proven that the process works and has launched a crowd-funding effort to raise money to buy a more substantial grinder along with other machinery needed for the pilot program.
- Berkeley Lab conducted site-wide waste audits to track building-level diversion and identify contaminants to waste streams that could be better diverted. See the [data](#) at and even more detail [here](#).
- UC Davis held recycled paper crane making workshops at the main library to raise awareness about #MyLastTrash and the zero waste 2020 goal.
- UC Irvine conducted a month-long waste audit at the Anteater, a dining common that serves 6,000 meals each day. The resulting data verified that the Anteater averages a 97 percent diversion rate 24/7 which qualifies as a Zero Waste building. UC Irvine now has six Zero Waste Certified buildings.
- UCLA Housing Operations and Residential Life successfully rolled out a compost collection program across all residential halls, reaching 14,000 UCLA students. Waste training was added to fall residential orientation, compost bins were included in community and private living spaces, and new waste signage ensured ease of practice. As a result of the program, residential diversion rates increased 65 percent and an estimated \$80,000 was saved annually through right-sizing waste liners.
- UC Merced developed a Zero Waste Business Plan that provides a pathway to zero waste by 2020.
- UC San Diego Sports Facilities were awarded \$250,000 from CalRecycle to implement consistent one-to-one trash recycling containers at all of its facilities so that they could document diversion rates and create a marketing plan to encourage better sorting.
- UC San Diego Health System ran waste diversion training for operating room staff at Hillcrest and La Jolla Medical Centers.

#MyLastTrash

Developed by the UC Zero Waste Working Group, #MyLastTrash (#MLT) is a systemwide communications campaign which aims to bring awareness to the 2020 zero waste goal. Focused on decreasing consumer waste on campuses, it was launched to focus on the incoming freshman class slated to graduate in 2020. Different themes target different types of behavior change. Move-in 2017 for example connected #MLT and other UC environmental, social and financial priorities, such as the Carbon Neutrality and the Global Food Initiatives, with a push towards waste and carbon reduction as well as social justice. Fall 2017 focused on food waste reduction, particularly in dining on campus. The campaign includes a new website and waste reduction pledge as well as a grant opportunity. A new best practices tool kit also offers campuses a range of best practices for waste management.

See more: <https://zerowaste2020.universityofcalifornia.edu>



UC Davis students fold paper cranes made from recycled paper to raise awareness about #MyLastTrash

Food

Policy Goals



Procure 20 percent sustainable food products by the year 2020 for campus and medical center food service operations.

Certify at least one food service facility on each campus as a green business.

PROGRESS TOWARDS GOALS

During FY 2016-17, UC continued progress toward increasing food procurement from local/community-based, fair, ecologically sound and humane food sources. Residential dining programs shifted \$20 million (24 percent of total food spend); medical centers shifted \$6.8 million (19 percent of total food spend); and those retail food operations reporting shifted \$7.3 million (22 percent of total reported food spend). Most campuses increased sustainable food spend and many also improved the breadth and accuracy of reporting. Systemwide, residential and reporting retail food service operations have exceeded the 2020 goal while medical centers are close at 19 percent.

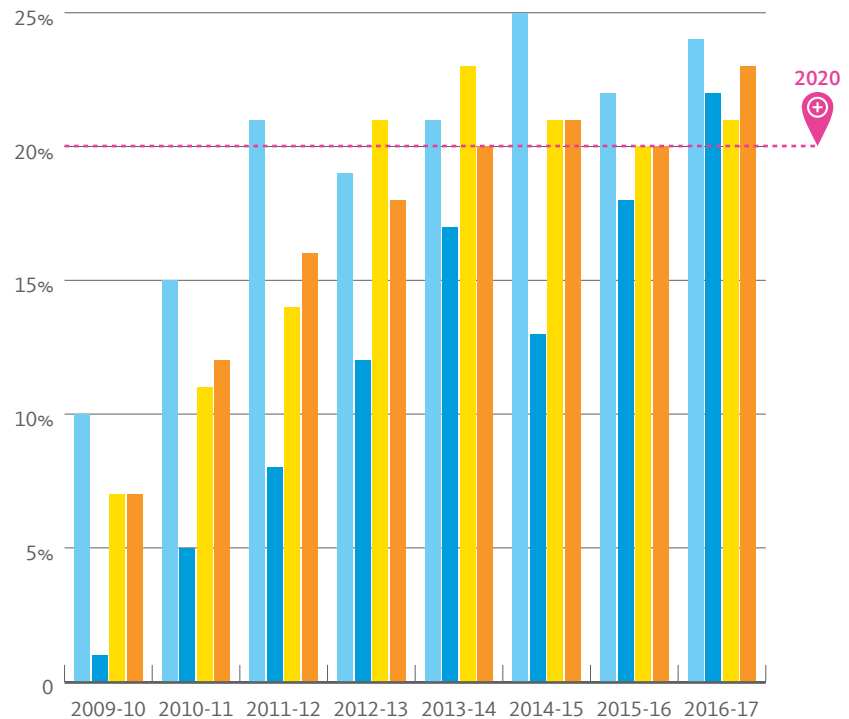
Seven of the nine undergraduate residential dining services have surpassed the 2020 goal, with UC Santa Barbara (33 percent), UC Berkeley (30 percent) and UC Riverside (27 percent) reporting the highest percent sustainable food spend. Six of the 10 campuses have outperformed the 2020 goal for reporting retail food service, with UCSF (47 percent), UC Santa Barbara (41 percent) and UC San Diego (38 percent) reporting the highest percent sustainable food spend. Three of the five health systems have surpassed the 2020 goal with UCSF Health (26 percent), UC San Diego Health (20 percent) and UCLA Health (20 percent) reporting the highest percent sustainable food spend.

UC Santa Barbara has the most green-certified food facilities, including all residential dining and retail food service facilities. This year, UC Santa Cruz certified two more residential dining facilities, bringing their total to 15. Six of the other campuses and one medical center (UCLA) have at least one certified green food service facility.

SUSTAINABLE FOOD PURCHASES

(percent of total food spend)

- Residential Living
- Retail Dining
- Medical Centers
- Combined



Highlights from 2016-17 include:

- UC Berkeley's Cal Dining offered a Forward Food Training in partnership with the Humane Society to provide all chefs and cooks with hands-on vegan chef training. As part of the training the chefs shared their meals with campus sustainability partners.
- UC Davis increased produce production and donations from the campus's student farm from an average 361 lbs per quarter to 2,021 lbs per quarter, 5.5 times more than 2015-2016. In 2016-17, a total of 6,350 lbs of fresh produce was generated and donated to over 1,500 UC Davis students along with no-cook and easy recipes that can be made using only ingredients students can receive for free and on campus.
- UC Davis Health implemented organic beverages as part of its Healthy Beverage Campaign. The volume of sugar sweetened beverages available to be purchased was reduced and healthy, high-quality beverage options were increased.
- UC Irvine expanded a variety of Fair Trade and organic snacks in campus convenience stores, now providing over 190 options.
- UCLA increased the percentage of Fair Trade certified products by 24 percent due to a transition to Fair Trade coffee and espresso.
- UC Merced launched the Bobcat Eats program in the spring of 2017 as part of a farmers market designed to promote food systems awareness and access through featured local community farmers and informational workshops. Featured farmers sell their produce to both the campus community and the dining services unit, while workshops include speakers on food-related topics.
- UC Riverside established new permanent funding sources for the campus R'Garden food production laboratory. Started over five years ago, the project is now fully integrated into the campus research and instruction mission by providing garden plots for students, faculty, staff and the community to launch gardening projects.
- All UC San Diego Housing, Dining and Hospitality restaurants and markets are REAL Food Certified.
- UC San Diego Health began its first composting program at both hospital sites and has composted 252,000 pounds so far this year.
- UCSF added another Green Business certified facility and expanded a variety of Fair Trade and organic snacks in campus convenience stores.
- UCSF Health established a contract with Copia to pick up excess food from hospital kitchens for distribution to local non-profits in need.
- UC Santa Barbara focused on introducing aspects of the "menus of change" principles, including new vegan desserts and entrees.
- UC Santa Cruz residential dining increased sustainable food spend by more than 5 percent in 2016-17 by partnering with a local fishery, increasing local produce purchases, bringing in local Halal beef and changing out all recipes to use vegan and soy-free mayonnaise. During Earth Week, residential dining held an annual tasting fair with products from over 30 local and organic vendors used every day in their operations.

UCLA Community Garden

The Jane B. Semel HCI Community Garden officially opened in May 2017 at Sunset Canyon Recreation Center. The garden provides an on-campus space for the UCLA community to grow healthy food and foster education of urban gardening practices. In partnership with the Healthy Campus Initiative, envisioned and supported by Jane and Terry Semel, the garden is intended to promote community building and address food insecurity on campus, with 31 plots available for use. Multiple academic courses will utilize the garden.



UCLA's Deputy Chief Sustainability Officer, Bonnie Bentzin, at the Jane B. Semel HCI Community Garden.
Credit: Nurit Katz

Sustainable Operations

This year the UC Sustainable Operations Working Group focused on green laboratory practices and design, working to develop policy requirements for green laboratory practices in the UC Sustainable Practices Policy. The new policy language includes a commitment that all UC campuses will have a green laboratory assessment program by Summer 2018 and will have assessed at least three laboratories.

This past year, the working group consulted on the UC Laboratory Safety Design Manual, advocating for significantly more language on sustainable design. The campuses also supported My Green Lab (a nonprofit) through data and advice to secure Energy Star Ratings for laboratory grade freezers. Discounted freezers were then made available via a partnership with UCOP Procurement Services and Fisher Scientific. In May, Green Labs were featured as a focus of the #MyLastTrash campaign (see the Zero Waste section).

Last year there were eight campuses with active Green Lab programs and this year all 10 campuses are working on Green Labs in some form.

Green Labs campus highlights include:

UC Berkeley worked in the College of Chemistry to replace single pass cooling units with air-cooled units. So far one laboratory alone is projected to save over 100,000 gallons of water from the retrofit. As of October 2017, UC Berkeley Green Labs is setting up 60 recirculation pumps in the College of Chemistry, which is projected to save at least an additional 500,000 to one million gallons of water in the next year.

UC Davis sold more than 15,000 [fume hood stickers](#) promoting safety and energy savings to 26 states, UK and Singapore including 46 universities and colleges and 25 private laboratories.

UC Irvine implemented its Green Labs Pilot Program in which five laboratories participated in green lab assessments to identify areas for improving sustainable practices. The UC Irvine Green Labs Working Group continues to work with the laboratories to implement water, energy, recycling and procurement strategies. The first five labs received green lab certification in fall 2017, with Green Labs program expansion occurring in 2018.

In August of 2016, UC Merced assessed and certified its first Green Lab. Energize Colleges interns took the lead and certified

an additional two laboratories in the spring and summer of 2017. For the 2017-18 academic year, an Energize Colleges intern will be working to develop the Green Lab Action Plan and certifying additional laboratories.

UC San Diego was the winner of the first North American Laboratory Freezer Challenge, run by My Green Labs and the International Institute for Sustainable Laboratories. The campus has certified 22 laboratories with 16 in progress, ahead of UC policy. The UC San Diego Green Labs program created new laboratory recycling signage; replaced aerators and single pass cooling systems, saving over 2.2 million gallons per year; tested the use of outlet timers on water baths and incubators in volunteer laboratories; and inventoried 187 of the estimated 700 ultra low temperature freezers on campus for replacement or “tune up” from -80°C to -70°C.

UCSF’s Matthew State Lab became the first laboratory to ever achieve a LivingGreen Lab Platinum Level Certification. UCSF also ran two laboratory behavioral campaigns, the Fume Hood Competition and Adopt-A-Spot, to engage employees and students in shutting the sash and powering down equipment when not in use. Adopt-A-Spot had an estimated combined annual savings of \$22,715 and the fume hood competition with 22 hoods participating was projected to save \$110,304 and 31,654 kWh annually.



UC San Diego has certified over 20 labs through its Green Labs program, including the laboratory of Dr. Amy Pasquinelli of the Molecular Section of the Division of Biology. Her lab is the first certified platinum green lab on campus. Credit: UC San Diego Sustainability Programs Office

UC Santa Barbara's LabRATS program completed a draft of their Green Lab Action Plan and consulted on several new laboratory and renovation projects. Seventy-six single pass cooling systems in individual laboratories were replaced and six autoclaves were modified with water saving features.

By participating in the North American Laboratory Freezer Challenge, UC Santa Cruz reduced its energy use from ultra-low temperature freezers by 5,400 kWh/yr. The UC Santa Cruz Green Labs program certified another 10 laboratories this past academic year, for a total of 23 certified laboratories. At the third annual UC Santa Cruz Sustainable Vendor Fair, the UC Santa Cruz Green Labs Program received the Greenovation Award from RightCycle by Kimberly Clark Professional for their 2016 Kimberly-Clark Glove Recycling metrics. By participating in the RightCycle program the campus was able to divert 1,620 pounds of laboratory waste.

UCSF pilots Water-Efficient Equipment Incentive

UC San Francisco Facilities completed a pilot project for the new Water Efficient Equipment Incentive Program. The program provides financial incentives for campus laboratories to purchase new water-efficient equipment, primarily targeting sterilizers. Laboratories can receive \$5,000 for a new sterilizer, once the new equipment meets that amount in water savings.

Facilities partnered with the Department of Cellular & Molecular Pharmacology to replace seven sterilizers at Genentech Hall, Mission Bay campus. The total incentive for the seven sterilizers will be \$35,000. In addition, the sterilizer replacement went through the San Francisco Water Department Equipment Incentive Program, earning the department a rebate of \$86,000.

Water consumption was verified by installing water meters on the old sterilizers, and taking weekly meter readings for two months. Water meters on the new sterilizers were read until the water savings payback was met. The estimated water savings for the new sterilizers is 2,452,692 gallons per year.

Presidential Initiatives



Presidential Initiatives

CARBON NEUTRALITY INITIATIVE

President Napolitano formed the Global Climate Leadership Council (GCLC) in 2014 to advise her about how to achieve carbon neutrality and to guide the campuses in advancing other sustainability goals. GCLC members include faculty, administrators, students and experts from inside and outside UC. The GCLC engages a broad cross-section of the university community in seeking out best practices, policies and technologies to achieve carbon neutrality while advancing teaching and research in climate change and sustainability.

Although the university has made significant progress since the Carbon Neutrality Initiative was announced, it is not yet on a path to reach carbon neutrality by 2025. Several closely related efforts are underway to support strategic actions to achieve this goal. Most importantly, all of UC's campuses have developed and recently updated Climate Action Plans that outline strategies to reduce greenhouse gas emissions. The information in these plans forms the basis for a systemwide strategic plan to achieve carbon neutrality. Although these documents define the key strategies, implementing many of them has proven difficult.

In response, through its Applied Research Working Group, the GCLC formed the Task Force on Carbon Neutrality Financing and Management (the Task Force) in the spring of 2016. The Task Force included faculty, staff and students with expertise in energy and sustainability, construction, environmental law, budget and finance, facilities operations, administrative services and capital planning. President Napolitano asked the Task Force to identify and prioritize the organizational barriers to achieving carbon neutrality by 2025 and to recommend ways to overcome these barriers.

ENGAGING STAKEHOLDERS IN THE PROCESS

Leadership and participation by students, faculty and staff are essential in steering the university to carbon neutrality. Therefore, in evaluating how to achieve the 2025 goal, the Task Force's primary strategy has been to engage the larger university community in identifying challenges and potential solutions. It conducted considerable research and fact-finding efforts among campus-based subject matter experts and its outreach has

included UC's Council of Vice Chancellors for Administration, its Council of Vice Chancellors for Planning and Budget, and its Energy Services Unit Governing Board. In total, more than 200 individuals have provided guidance to the Task Force through their participation in interviews, formal surveys, and workshops, and by reviewing drafts of this report. The Task Force noted that involving those who will be responsible for implementing their recommendations and tapping their deep understanding of the challenges unique to their campuses and operating units is critical to creating a sense of ownership in the Task Force's recommendations and in the Carbon Neutrality Initiative itself.

TASK FORCE RECOMMENDATIONS

The Task Force focused its efforts in five broad areas that pertain to campuses and medical centers: funding and financing, energy efficiency and conservation, new buildings, communication and change management, and energy supplies. A sixth area addresses barriers specific to medical centers.

The Task Force did not attempt to provide a definitive path to carbon neutrality by 2025. Instead, the report presents a set of strategies that can be implemented based on the unique needs of each location. The report includes flexibility for campuses to determine how to implement the recommendations based on campus-specific feasibility. The Task Force recommends centralized approaches only where they offer significant economies of scale or will be necessary to achieve meaningful carbon reductions.

The Task Force recommendations cover several key subjects and strategies:

- Funding and financing. Account for the cost of carbon and integrate carbon management with utility budgets.
- Energy efficiency and conservation. Invest in deeper energy efficiency and develop staff to operate finely tuned building systems.
- New buildings. Design new buildings to carbon-neutral standards.
- Communication and change management. Engage faculty, students and staff in the commitment to achieve carbon neutrality.

- Energy supplies. Procure as much renewable energy as possible.
- Medical centers. Address the barriers unique to hospitals, including regulatory requirements and the primacy of patient care and safety.

These recommendations are now moving forward through several channels. The Office of the President is actively planning and tracking progress.

For more information, please visit the Carbon Neutrality Initiative's website: <http://ucal.us/CNI2025>

GLOBAL FOOD INITIATIVE

Launched in July 2014 by UC President Janet Napolitano, the Global Food Initiative (GFI) is working to address one of the critical issues of our time: how to sustainably and nutritiously feed a world population expected to reach 8 billion by 2025. Faculty, staff and students from all 10 campuses, UC's Division of Agriculture and Natural Resources and Lawrence Berkeley National Laboratory are working together to develop scalable solutions for UC, California and the world. As the GFI enters its fourth year, here are some highlights of its accomplishments:

Food access and security

The University of California has become a national model for ensuring that every student is food secure. Following a comprehensive [food access and security survey](#) of UC students, President Janet Napolitano committed \$3.3 million (including \$226,000 per UC location) to develop and implement tailored food security action plans at each campus. Campuses now provide online information about available food resources, house an emergency food pantry, and have staff who can help students register for CalFresh, the state's nutrition assistance program. Financial aid materials include information about budgeting for food and housing costs, and new student housing is being constructed to include food preparation facilities. These and other "best practices" have been [collected in a toolkit](#) that GFI food security leaders have been sharing with colleges and universities around the country.

Zero waste dining

UC is strongly committed to sustainable business operations and practices, and is aiming to achieve zero waste across the entire system by 2020. A GFI working group has taken on the

challenge of identifying and expanding best practices within UC for achieving zero waste in residential and retail dining. A publicly available [toolkit](#) includes information about how other institutions can follow suit, including how to assess current waste diversion percentages. The toolkit and waste calculator were presented at a 2017 PUSH conference (Presidents United Solving Hunger.) In fall 2017, a student-focused zero waste campaign launched to push UC even closer to its target.

Healthy Campus Network

The Healthy Campus Network, launched in early 2017, aims to make UC the healthiest place to work, learn and live for students, faculty and staff. The UC Office of the President has allocated \$1.88 million in seed funding to the 10 campuses to help each location build a coordinating infrastructure that will spread innovations in food, health and well-being. The HCN aims to infuse health in UC's everyday operations, business practices and academic mandates and to disseminate those best practices through a network that is both specific to each campus and connected to a larger systemwide network. For example, HCN expects to export to other campus locations the lessons learned from UCLA's Healthy Campus Initiative, UCSF's removal of sugar-sweetened beverages and the UC Smoke & Tobacco Free Policy. This project will be a priority area for the Global Food Initiative in 2018 and beyond.

Youth empowerment

Food, What?! is a youth empowerment and food justice organization that each year brings more than a thousand low-income and at-risk teens to the UC Santa Cruz organic farm to learn to grow, cook, eat and distribute healthy, sustainably-raised food. Over the course of seasonally-focused programs, youth participants make positive changes to their diet, acquire job training skills and undergo other forms of positive personal growth and transformation. In 2017, a GFI working group created a toolkit to help other nonprofit groups and educators replicate this highly successful program, from how to ensure an atmosphere in which youth feel safe to take risks, to programming that stresses the four R's: relevance, rigor, responsibility and relationships.

Food law and policy

California's first legal clinic focused on [food law](#) and policy opened in early 2017, under the umbrella of the UCLA School of Law's Resnick Program for Food Law and Policy. Through

the clinic, UCLA law students provide legal services to organizations and develop policy proposals in areas including food insecurity, public health, workers' rights, urban agriculture, land use, animal welfare and social entrepreneurship. The clinic received startup funding from the UC Global Food Initiative to help improve the health, safety and sustainability of the food production and distribution system.

For more information, please visit the initiative's website:
<http://www.ucop.edu/global-food-initiative/>

INNOVATION AND ENTREPRENEURSHIP INITIATIVE

UC's commitment to sustainability is rooted in its history as a land-grant university focused on teaching practical agriculture, science and engineering. This history is also the reason why a significant portion of UC's startups, intellectual property holdings and entrepreneurship programs are in the agriculture and natural resources space.

Today, UC impacts every part of the state through its Division of Agriculture and Natural Resources (ANR), which pro-actively engages communities in innovative and sustainable practices of agricultural, integrated pest and water resource management, youth and nutrition programs, effectively turning science into solutions.

ANR launched the Verde Innovation Network for Entrepreneurship (the VINE) to cultivate regional innovation and entrepreneurship ecosystems in rural communities, where support is typically lacking; poverty and access to broadband internet also create barriers. The VINE furthers UC's mission to serve as a positive catalyst for all Californians.

Apps for Ag is an event series and resource network that encompasses technology, business, agriculture, food and the environment. In an Apps for Ag Hackathon held in 2017 at the California State Fair, entrants competed for cash prizes and assistance to turn their ideas into commercial enterprises. The hackathon brought software developers, designers, entrepreneurs and farmers together to create apps that address agricultural issues, including reducing pesticide use, increasing irrigation efficiency, reducing travel into the fields, managing people better and mitigating the huge farm labor shortage.

One startup that resulted from a previous hackathon is Ag for Hire, which connects farm workers who need jobs with farmers who need workers. CEO Josh Brown met his cofounder, created the concept and built their first prototype at Apps for Ag.

UC Davis and UC Merced are collaborating on the Central Valley Entrepreneurship Academy, a program for commercializing innovations in science, engineering, social science and humanities. The program is open to community members and aspiring entrepreneurs, as well as students, postdocs and faculty. Program funding for the academy is provided by the State of California through Assembly Bill 2664 University of California: Innovation and Entrepreneurship Expansion.

College Sustainability Cookbook

2016 Global Food Initiative Fellow, Dhruvi Khetani (UC Irvine '17), in partnership with interns from UC Irvine's Campus as a Living Lab program, Vanida Ngeam (UC Irvine '16) and Stephanie Silva (UC Irvine '17), began writing a student-oriented sustainability cookbook. They envisioned a booklet that helped students with basic kitchen skills and meal planning while also addressing issues such as the water and carbon footprint of food, food waste and fair trade. 2017 Global Food Initiative Fellow, Gracie Wong (UC Irvine '19), took up the project, polishing the content, designing the layout and staging photographs. Along the way, the student authors kept inclusivity in mind, making sure recipes and tips were accessible and student budget-friendly. In the spring of 2017, UC Irvine's The Green Initiative Fund (TGIF) supported the printing of 6,000 copies provided free to students. The cookbook launch is accompanied by hall programming as well as social media and video resources.

Download the cookbook [here](#).



Global Food Initiative College Sustainability Cookbook

UC startups are also tackling California's water challenges. Tule Technologies' evapotranspiration monitoring and data collection system is a tool for achieving optimal agricultural water usage. The system developed from research by cofounder and CEO Tom Shapland during his Ph.D. work with UC Davis professor Kyaw Tha Paw U, ANR Cooperative Extension Specialist Rick Snyder and USDA-Agricultural Research Service plant physiologist Andrew McElrone. Tule has an expanding base of more than 300 vineyard and orchard clients across California and beyond.



Two members of UC Merced professor Joshua Viers' VICE lab work with a drone carrying a system for monitoring soil erosion and water sedimentation over time.

Research and Education



Research and Education

NATURAL RESERVE SYSTEM

The Natural Reserve System (NRS) is a 756,000-acre network of 39 wildland areas including most major types of California habitats. Reserves are used primarily for scientific research, university-level instruction and strengthening public appreciation of science and nature.

In fiscal year 2016-17, reserves were visited by more than 1,930 research scientists, including faculty; 1,880 graduate students; 12,740 undergraduates; and 7,040 schoolchildren who came to study the natural environment.

In 2015, the NRS launched California Ecology and Conservation, an immersive, field-based course which brings together students from different campuses for seven weeks at NRS reserves. Guided by experienced field instructors, undergraduates conduct independent research studies, framing questions into feasible research projects and practicing field techniques. Students hone research, public speaking and scientific writing skills while gaining familiarity with California's ecosystems.

Taught seven times since Fall 2015, the course has brought 178 undergraduates representing all nine undergraduate UC campuses to 17 different reserves. Thirty-four students have been awarded \$54,800 in NRS scholarships, and 18 students have been awarded \$19,200 in UC Education Abroad Program scholarships.

AGRICULTURE AND NATURAL RESOURCES

UC's Division of Agriculture and Natural Resources (ANR) is the major land-grant arm for the University of California and



Students from the NRS's California Ecology and Conservation Course sampling a creek for aquatic invertebrates at the Landels-Hill Big Creek Reserve in Big Sur. Credit: Lobsang Wangdu.

the state. UC ANR includes the multi-campus Agricultural Experiment Station (AES) and statewide Cooperative Extension (CE). AES faculty, CE specialists and CE advisers are located at three campuses, one professional school and in county offices throughout the state, enabling them to deliver programs to California's 58 counties.

UC ANR research is focused around five strategic initiatives that include ensuring the sustainability of California's food systems, natural ecosystems and water resources. An example of a sustainable food project is the Assessment of Plant Fertility and Fertilizer Requirements which helps growers reduce fertilizer use and groundwater pollution risks without sacrificing crop yield. One water research project is using canopy cover remote sensing data to determine water needs in orchards to avoid over-watering. Through a sustainable natural ecosystem project, fisheries are using a stepwise framework to protect ecosystems and population diversity, while engaging retailers to choose participating, certified fisheries.

UC ANR also operates nine Research and Extension Centers (RECs), which provide premier research services to scientists and students across UC. These centers extend science-based solutions about current and relevant agricultural and natural resource sustainability topics through on-site field days and workshops. The REC system also hosts several UC ANR statewide programs such as Master Gardeners, California Naturalist volunteers and 4-H youth programs. Master Gardeners use demonstration gardens to introduce science-based, sustainable gardening information. California Naturalists promote stewardship of California's natural resources through education and service. On-site 4-H youth development programs foster sustainability concepts. Sustainability highlights from 2016-17 include the following:

- The South Coast REC converted all research and extension projects to use tertiary treated recycled water in July 2011. Last year, South Coast REC used 37.5 million gallons of reclaimed water for agricultural and landscape research and its general landscaping.
- In addition to water use reduction, one of the primary goals in UC ANR's water initiative is to improve water quality. To this end, Hopland REC is taking steps to reduce the use of herbicides. Efforts to use more efficient mowers and volunteer weeders have replaced the need to spray with herbicides while reducing fire danger.

- Over the last decade Kearney has made energy efficiency improvements at its facilities leading to a 32 percent reduction in energy use.
- Desert REC began a recycling program in 2016, and since initiating the program has recycled 34 cubic yards of recyclables.
- 4-H “Sustainable You!” summer camps are offered at Hansen and Hopland RECs. Youth learn what it means to be sustainable through fun, hands-on activities based around five major themes: land, water, food, air and energy.
- Over 9,000 youth throughout the year visit Elkus Ranch for educational tours. Lunch always includes a discussion about what goes in a landfill or can be recycled or composted. Some food scraps are fed to the Elkus Ranch goats.

UC RESEARCH INITIATIVES

UC Research Initiatives (UCRI) supports collaborative systemwide projects that synergize expertise and leverage infrastructure to address key issues affecting California and the world. Awards are made on a competitive, peer-reviewed basis, ensuring that only the highest-quality research is funded. Since 2010, UCRI has invested over \$36 million to support collaborative research across UC's campuses and national laboratories in sustainability and climate research, including new awards in 2017 totaling over \$4.2 million. Funded projects inform public policy, improve technology, train students and position UC as the national leader in sustainability research.

Two awards made in 2017 by the UC National Laboratory Fees Research Program (LFRP) and UC Multicampus Research Programs and Initiatives (MRPI) demonstrate the contributions and impact of UCRI's investments:

1. Professor Stanley Grant of UC Irvine received a \$1.89 million MRPI award to launch a five-campus multidisciplinary collaboration on “Fighting Drought with Stormwater” to transform a leading cause of environmental degradation in Southern California into a multifunction green system that augments urban water supply, protects human and ecosystem health, and minimizes flood risk.
2. James Stineciper's LFRP In-Residence Graduate Fellowship exemplifies the unique training opportunities at the UC-affiliated national laboratories. The fellowship provides three years of support for the UC Merced student to pursue dissertation research at Lawrence Livermore National Laboratory on “Modeling Tropical Carbon Fluxes via Carbonyl Sulfide Uptake.”

Additional compelling examples from the UCRI funding portfolio, and information about UC's systemwide funding opportunities, are provided at: <http://ucop.edu/research-initiatives/>.

ACADEMIC SENATE LEADERSHIP

UCSF and UC Santa Barbara Academic Senates both have Sustainability Work Groups. Both played a key role during the 2016-2017 academic year as the administrative unit for the Carbon Neutrality Initiative (CNI) Curriculum Workshop and Networking Events. Senate staff worked with the faculty co-leaders — Dr. Sheri Weiser and Professor Arianne Teherani for UCSF and Professors Josh Schimel, Ken Hiltner and Lisa Berry for UC Santa Barbara — to plan, communicate and facilitate the networking events on each respective campus, which occurred in December of 2016.

In addition, the Academic Senate Sustainability Committees reviewed nominations for the CNI student fellowship positions. UC Santa Barbara's Committee was also involved in the selection of Global Food Initiative (GFI) fellows.

UCSF's Committee also advised the student organization Beef-Free UCSF on their open letter calling for a pledge not to serve beef or lamb at departmental functions.

The main focus of UC Santa Barbara's Academic Senate Sustainability Work Group in the past year has been to develop a proposal for a new undergraduate environmental justice minor. This is being co-written by faculty in departments as diverse as sociology and environmental studies and is expected to be presented to the Academic Senate formally for review and a decision in the 2017-2018 academic year. The Work Group also administers the New Leaf Grant Program, which gives small grants to faculty wanting to infuse sustainability into the curriculum. This past year the group awarded six grants across four academic departments.

UC Community Engagement



UC Community Engagement

STUDENT ENGAGEMENT

Much of the credit for the university's sustainability programs belongs to students, whose call to action led to the adoption of a green building and clean energy policy in 2004. Student sustainability programs have grown substantially and students continue to be crucial in educating faculty, staff and their peers about environmental stewardship and campus sustainability.

Co-curricular Programs

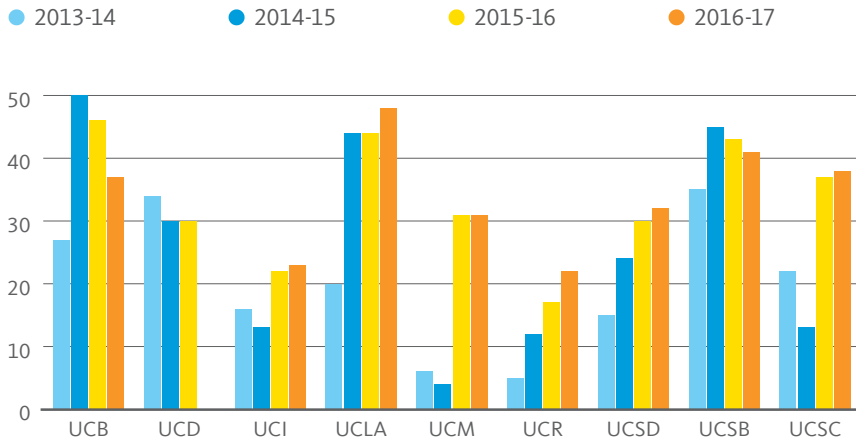
Students at the nine UC undergraduate campuses organized over 300 sustainability clubs and organizations in 2016-17. Each campus has an average of 27 types of student sustainability programs including student orientations, environmentally-themed residence halls, energy and water reduction competitions, leadership trainings and student gardens.

The California Student Sustainability Coalition galvanizes student sustainability organizations to advocate more effectively on environmental issues, and leads the Education for Sustainable Living Program (currently at UC Davis, UCLA and UC Santa Cruz), which enables students to get credit for student-led courses and to conduct research.

In 2016-17, UCLA's Sustainability Action Research Team program had seven teams working on applied research on the UCLA campus, including teams looking at food waste behaviors in residential dining, the environmental health effects of cleaning products, sustainable water planning for campus and sustainable alternatives for pest control.

UC Santa Cruz Action Research Teams worked on projects such as addressing food waste in agricultural systems, reviewing the history and politics of campus growth and the sustainability of cosmetics.

UC STUDENT SUSTAINABILITY ORGANIZATIONS BY CAMPUS



CNI Fellow Spotlight

Two-time Carbon Neutrality (CNI) fellow and UC San Diego undergraduate Lesly Figueroa is driven by the belief that everyone should have equal access to a healthy environment and that clean air and water are basic human rights. In her first year as a CNI fellow, Lesly helped to do outreach to undergraduate colleges and residence hall councils about the Cool Campus Challenge. Her fellowship project identified the opportunity for students to act as peer-to-peer educators to raise awareness about environmental issues and their impacts. Lesly designed the UC San Diego Sustainability Ambassadors Program in partnership with UC San Diego Sustainability Programs Office staff for six ambassadors to each focus on a subject such as climate change, food systems, public health, waste and recycling or renewable energy. The ambassadors train and educate other students through workshops, projects and social media engagement. The program aims to incorporate culture, art, politics and social justice into all disciplines of sustainability education. Lesly has now completed her fellowship and is the 2017-18 President of Associated Students at UC San Diego.



CNI Fellow Lesly Figueroa

Student Fellowships

The UC Global Food Initiative (GFI) and Carbon Neutrality Initiative (CNI) Student Fellowship Programs launched in 2014-15. Including the 2017-18 fellows, so far 124 CNI and 155 GFI fellows have worked on yearlong projects addressing topics such as climate action plans, resiliency, carbon offsets, building efficiency data systems, student engagement and food insecurity. In addition to their projects, fellows benefit from leadership training, a joint symposium and other learning opportunities.

Student Sustainability Funds

Students on eight of the nine UC undergraduate campuses have approved student fee referenda to fund sustainability projects and student internships; UC Davis is the newest campus to adopt such a program. Students on most campuses call these funds “The Green Initiative Fund” or “TGIF.” Originally the result of a student referendum effort at UC Santa Barbara, this green fee, which is added to students’ fees, provides small grants for projects that advance sustainability in areas such as transportation, energy efficiency, food justice, behavior change and more. Hundreds of student-led sustainability projects have been funded through these programs. In total, TGIF and similar programs provide more than \$2.2 million in annual funding for student-led sustainability projects.

Project highlights from 2017 include: a student-led vermicomposting pilot at UC Berkeley; installation of solar charging stations at UCLA and UC San Diego; wetland restoration and carbon sequestration at UC Santa Barbara; and a renewable energy storage pilot program at UC Santa Cruz.

FACULTY ENGAGEMENT AND EDUCATION

The UC Presidential Initiatives have provided opportunities this year for faculty to showcase their work and engage in sustainability issues across the UC system.

The UC-CSU Knowledge Action Network (KAN) is a collaborative effort of UC and California State University (CSU) educators to scale and intensify California students’ literacy in climate change, climate justice, carbon neutrality/greenhouse gas emissions reductions and sustainability in ways that are culturally contextualized, responsive and sustaining, actionable and transformative.

KAN is comprised of 33 faculty from 18 UC and CSU campuses and a range of academic disciplines. In the first year, members participated in one of four day-and-a-half workshops at CSU campuses across the state, attended a virtual conference and had opportunities to present at and attend the California Higher Education Sustainability Conference.

The workshops focused on helping faculty as educators collaborate to:

- Reduce barriers to interdisciplinary work (specifically STEM and non-STEM).
- Increase faculty training to create robust out-of-the classroom and K-12 student learning opportunities that work to reverse the climate crisis.
- Empower students and faculty to act, including developing their skills as policy advocates.

One participant in the CSU Fullerton workshop wrote, “I really feel like this was actually worth my time in a huge way — so grateful all these people sat down with each other for so long and were so productively guided through the purpose and goals.”

The UC-CSU KAN virtual conference discussed best practices and strategies for developing resources for teaching sustainability, climate change, climate justice and climate neutrality to all California students from kindergarten through college. “The idea of having people fly in, and contribute greenhouse gases in the process, seemed sadly ironic, if not ‘morally bankrupt,’” in the words of UC Santa Barbara professor and conference organizer John Foran. In fact, air travel to conferences, talks and meetings can account for about a third of the carbon footprint at some research universities. For many professors who travel to multiple conferences and meetings per year, air travel can easily make up over half of their annual carbon footprint.

Built off a concept developed by UC Santa Barbara English professor Ken Hiltner, the virtual conference leveraged pre-recorded talks using video cameras, computer cameras and even mobile phones. When the conference began, videos were posted all at once like a Netflix series, and the conference was left open for several weeks to allow participants to watch and engage in discussion on the website. Attendees could watch the talks on-demand, as many times as they wanted. By removing the cost of

travel, the conference was opened up to expert speakers from all parts of the world.

STAFF DEVELOPMENT

CHESC: Sustainability Conference

UCLA alumna Nikki Silvestri, the founder and CEO of Soil and Shadow, a project design and management firm working to create systems change while improving relationships between communities, keynoted the 16th annual California Higher Education Sustainability Conference, a unique statewide collaboration between UC, CSU, California Community Colleges

and private colleges and universities throughout the state. UC Santa Barbara hosted the conference, which attracted 834 registrants, including 174 students, from 78 campuses.

Programming on sharing sustainability best practices and learning about innovative research and new technologies spanned five days.

UC and CSU organized the 13th Annual Energy Efficiency and Sustainability Best Practice Awards to recognize UC and CSU energy and sustainability projects at the conference. Video case studies of energy efficiency-related best practice award winners are available [online](#).

UC Sustainability Champion

This year's UC Sustainability Champion was Ann Carlson, who is the Shirley Shapiro Professor of Environmental Law and the inaugural faculty director of the Emmett Institute on Climate Change and the Environment at the UCLA School of Law. She is also on the faculty of the UCLA Institute of the Environment and Sustainability.

Carlson was recognized for the work she has done in support of UC's Carbon Neutrality Initiative while continuing her award-winning research, teaching and public service at UCLA.

Carlson is one of the country's leading scholars of climate change law and policy. She is the go-to source for publications like *The New York Times* regarding California's climate policies. Carlson has been widely recognized as an outstanding teacher as well, a recipient of UCLA's Eby Award for the Art of Teaching, UCLA's Distinguished Teaching Award and UCLA Law School's Rutter Award for Excellence in Teaching.

Given this background, Carlson was selected by UC's systemwide Academic Senate to represent the faculty on President Napolitano's Global Climate Leadership Council.

Carlson decided that our best path forward is to directly address the organizational and financial barriers standing in our way — and to develop solutions to help us overcome those barriers.

In response to Carlson's proposal, UC President Janet Napolitano agreed to appoint a high-level, systemwide Carbon Neutrality Finance and Management Task Force with Ann as the chair.

Under Carlson's leadership, the task force conducted extensive research and fact-finding with on- and off-campus subject matter experts. More than 200 individuals took part in the process, from engaging in interviews, formal surveys and workshops over the course of six months, to reviewing drafts of the task force's report and vetting

recommendations with all relevant stakeholders. The task force held two workshops attended by nearly 100 stakeholders, including the facilities directors, energy managers, campus architects and capital planners from every campus and medical center.

Carlson presented the final results to President Napolitano in August and to the Regents in September 2017. The recommendations call for transformative actions like tripling the scale of energy efficiency investments, building carbon-neutral-ready new buildings and implementing internal carbon accounting. See more about the report on page 25.



Professor Carlson accepts her Champion award from UCOP AVP for Energy and Sustainability, David Phillips.

Training

UC promotes excellence in sustainability through trainings and professional certifications for staff. The Energy Efficiency Partnership program with CSU and the state's four investor-owned utilities provide funding for energy efficiency and green building training. UCOP manages this training program to impart skill sets necessary for successfully implementing the partnership's investments in energy efficiency while also targeting training topics to achieve UC's sustainability policy goals.

Trainings and workshops for CSU and UC staff in 2016-17 included:

- Spring Campus Forum at CSU San Marcos, with approximately 33 attendees from UC and CSU, offering campuses time to network and exchange experiences with solar storage, battery and contracting issues as well as issues pertaining to IT security and the power grid;
- Four Zero Net Energy Workshops with almost 100 attendees; and
- An Energy Managers' Meeting at CHESC with topics

that included the state building code's energy efficiency requirements, whole building energy approaches, water conserving technologies, building analytics and ongoing commissioning, as well as best practices for energy efficiency projects.

The program provided 40 scholarships (a total of \$58,000) for UC staff to attend trainings that prepared them to earn energy efficiency-related professional certifications.

UC Sustainability Officers gathered at Blue Oak Ranch Reserve near San Jose for their third annual staff retreat. Agenda topics included campus and systemwide priorities for the year, engagement techniques and communication strategies.



2017 Sustainability Officer Retreat. Credit: Nurit Katz

Investments

The Office of the Chief Investment Officer of the Regents (OCIO) is responsible for managing UC's endowment, pension, retirement savings and working capital assets, which total close to \$100 billion.

The OCIO is committed to making investments that provide solutions to environmental and social issues while earning a competitive return. True sustainable investing cannot be achieved by simply voting a proxy, adding a director of sustainability or even divesting from an asset class. Because traditional models of governance and investing often fail to appropriately integrate sustainability issues, the OCIO has built it into their thinking from the ground up.

Over the past 12 months the OCIO worked to further implement the framework for sustainable investing it created in 2015, taking steps to fully integrate the consideration of environmental, social and governance (ESG) factors systematically and holistically into investment evaluation and risk-assessment processes.

The OCIO actively engaged with all external managers to convey sustainability concerns and to stay in alignment and improved its automated system for creating and conveying ESG restriction lists. In addition, OCIO is actively pursuing investment opportunities in and around the themes identified in the framework for sustainable investment.

The OCIO's ultimate goal is to position the investment portfolio to be more resilient against the risk of climate change and consistent with the energy transition expected in the coming decades, while still accessing today's opportunities to generate returns. The OCIO has instituted a targeted climate change risk modeling framework for use in private equity, real assets and alternative investment opportunity assessment, and is paying careful attention to the risks associated with investing in fossil fuels.

Other climate change-related investment activities include:

- First and largest founder of the Aligned Intermediary, which helps long-term investors identify investable climate infrastructure projects in clean energy, water infrastructure and waste-to-value.
- The only institutional investor that is a signatory to the Bill Gates Breakthrough Energy Coalition to accelerate clean energy solutions.

- Partnering with family offices and sourcing ideas from national laboratories and agricultural centers.
- \$50 million to Congruent Ventures, a new energy seed-stage venture capital fund.
- \$100 million commitment to the TPG Rise Impact Fund, seeking to achieve social and environmental impact alongside competitive financial returns.
- Liquidation of holdings in high-yield bonds of Dakota Access Pipeline (DAPL) operating companies ETP and SUNOCO.
- Sold holdings in the world's largest coal mining firms and firms that generate profits from Canadian oil sands mining.

OCIO is committed to enhancing long-term returns by engaging companies to improve performance on governance and other ESG factors as part of their management focus and priorities. To this end, the OCIO served on a task force to draft and promote a Framework for U.S. Stewardship and Governance Code that was released to the public in early 2017.

OCIO signed on to be part of the institutional investor committee of the 30 Percent Coalition, a unique and groundbreaking national organization committed to the goal of women holding 30 percent of board seats across public companies. OCIO also participated in an active dialogue between the UC administration and the Afrikan Black Coalition on issues of joint concern and supported efforts to engage Wells Fargo Bank regarding its responsible banking policies and practices.

OCIO is proud to be one of 1,400 signatories to the United Nations-supported Principles for Responsible Investment (UN PRI). As part of its obligations as a UN PRI signatory, OCIO participated in the Ceres Investor Network on Climate Risk, and senior staff have served on the UN PRI's fixed income and private equity advisory committees, as well as on UN PRI working groups with peer institutions to identify best responsible investing practices.

OCIO has been a champion of sustainable investing in important global forums including the Milken Institute Global Conference and the Institutional Investor Magazine's Endowments.

UC Health

Despite challenging regulatory requirements, the UC Health System made significant progress toward sustainability goals in 2016-17. Progress has been driven by California's drought, UC's climate goals and passionate leadership from UC Health faculty, staff and students.

During the past year, UCLA and UCSF Health Systems received awards from Practice Greenhealth, the industry body for sustainable healthcare. Notably, UCSF was recognized with Practice Greenhealth's second-highest recognition, the Emerald Award, as well as a Greening the OR Award. UCLA Ronald Reagan Medical Center and UCLA Medical Center Santa Monica were both granted Partner for Change recognition.

With new energy managers on board at UCLA and UC San Diego, UC Health is ramping up the identification and implementation of energy efficiency projects. UCLA has achieved energy cost savings of \$580,000 (and growing) per year to date from its recent projects, equating to 1,100 metric tons reduction of greenhouse gas emissions. UC San Diego Health has identified and started to implement projects with an anticipated energy cost savings of \$300,000 and a return on investment in excess of 18 percent per year.

All five UC Health Systems have made significant progress on water goals: three of the five systems surpassed UC's 2020 policy goal in FY 2016-17, and the other two are on track to reach the goal in the next three years. UC Irvine Health has reduced its potable water use by 37 percent through a portfolio of projects achieving savings of 19 million gallons per year. These projects combined have a return on investment greater than 30 percent per year. UC Davis Health also implemented water efficiency projects estimated to save more than 600,000 gallons of water per year and UCSF Health removed 11 autoclaves, saving 11 million gallons per year.

Waste reduction and diversion is an ongoing challenge at UC Health given the complexity of the waste stream. However, opportunities to reduce waste can offer significant cost-savings for medical centers. Reprocessing single-use devices (SUDs) offers one such strategy. To date annual savings from reprocessing SUDs is estimated at \$1.7 million at UCSF Health, \$1 million at UCLA Health and \$200,000 at UC Davis Health, with more projects in the pipeline for all three campuses.

Health curriculum is also moving to address climate and sustainability issues. UCSF launched its first course focused exclusively on the links between climate change and health. UCSF sustainability champions Dr. Thomas Newman, Professor Arianne Teherani, Dr. Sheri Weiser, Professor Stan Glantz, and Dr. Peter Chin-Hong collaborated to offer an elective course on climate change to first-year medical students starting in January 2017.

A first-year medical student who participated in the course, Jason Parad, MBE, MPH, found the topic especially relevant to his career: "Climate change is a medical issue," noted Jason. "We're already seeing effects on all types of disease, from cardiovascular and respiratory to infectious and psychiatric." He also related, "As trusted sources of information and key influencers of behavior, physicians are uniquely positioned to lead on climate change response."

Operating Room HVAC Waste Reduction

The American healthcare sector is responsible for an estimated 8-10 percent of the country's greenhouse gas emissions. Per square foot, hospitals consume twice the energy of office buildings and twice as much energy as those in Europe. UCSF CNI fellow Dr. Jason Lang worked with UCSF School of Medicine associate professor Dr. Seema Gandhi to identify opportunities to eliminate energy waste reduction in unoccupied operating rooms (OR), while keeping OR maintenance within national guidelines. Jason found that during a typical week, most if not all ORs in the building studied were not in use between 7 p.m. and 7 a.m., yet lighting, machines, thermal comfort and ventilation were all left on during this period, including weekends and holidays. Jason found that introducing a protocol for unoccupied HVAC setbacks for 28 ORs could reduce energy costs \$24,000 annually.



UCSF Professor Seema Gandhi

Social Responsibility

On March 17, 2017, UC issued an updated Code of Conduct for Trademark Licensees (Code), replacing the Code promulgated in January 2000. The updated Code, renamed the Trademark Licensing Code of Conduct Policy, conforms to UC's policy format, clarifies the broad scope of the Code, amends and strengthens previous provisions, and references applicable legislative requirements and international standards, among other things.

President Napolitano, in her letter of March 17, 2017, stated that:

The policy is important to protecting the University of California brand and its reputation by ensuring that the University's trademark licensees adhere to high ethical standards in manufacturing goods bearing the names and other trademarks of the University of California and its campuses, including abbreviations, logos, mascots, seals, or other trademarks owned by the University. The revised policy makes clearer, both to the University's trademark licensees and to internal University stakeholders, the expectations and requirements that all UC logoed goods must be produced (1) under fair, safe, and humane working conditions throughout the supply chain, and (2) by companies authorized to place University's name and other trademarks on such products.

The key modifications include:

1. Making the revised Code consistent with international standards and U.S. laws (e.g., California Transparency in Supply Chains Act and Dodd-Frank Consumer Protection Act related to conflict minerals), whenever applicable;
2. Clarifying the Code's application to "promotional items" (e.g., UC-logoed goods that are often "given away" by departments or other groups within the UC system);
3. Bolstering the protections for women workers;
4. Providing more supplemental information about policies, laws, and guidelines related to the Code.

In 2017-18, the process for implementing and communicating the updated Code throughout the UC system and among licensees and other external stakeholders will continue.

UC was among the first educational institutions in the country to develop and issue a Code in an effort to end sweatshop labor practices. It began in 1998, when the original University of

California Code of Conduct for Trademark Licensees was first created. This initial policy mandated that companies authorized to apply the University of California name, including campus names, logos, indicia and other trademarks (i.e., trademark licensees) comply with the Code provisions.

In 2000, an updated and more robust version of the Code was issued. The Code provided for freedom of association, protections for women workers, as well as an aspirational living wage and supply chain transparency requirements.

As with the 1998 and 2000 Code versions when they were issued, the 2017 Code sets high labor standards and exhibits the university's commitment to the socially responsible production of its logoed goods. UC continues to demonstrate its leadership, impact and commitment to improving worker rights throughout the world.

More about the Code and its updated provisions is available [here](#).

The Campuses



UC Berkeley



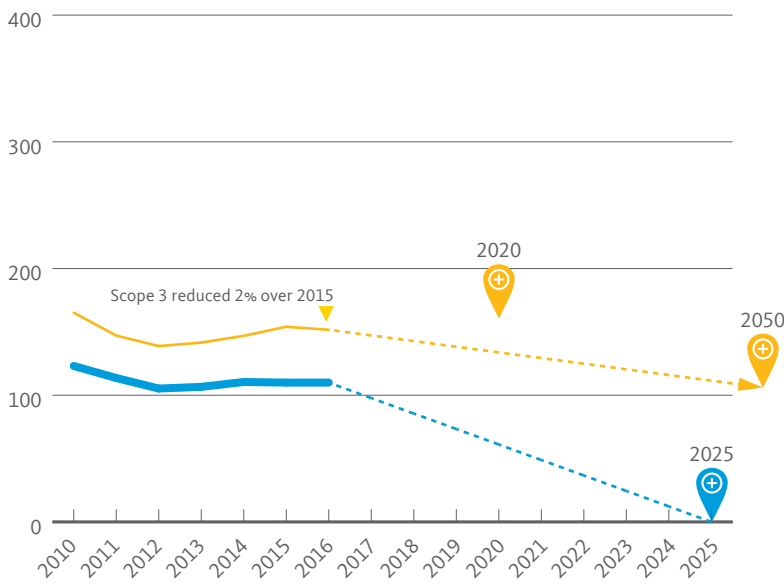
Credit: Elena Zhukova

This year UC Berkeley won several awards for its green buildings and today 12 percent of campus square footage is LEED certified. UC Berkeley continues to excel in increasing alternative commute participation and has grown its food programs to address the needs of many more students. The following represent just a few campus highlights from this last year:

- UC Berkeley's largest [on-site solar installation](#) went live this year at University Village. The carport shading system supplies 20 percent of the electricity needs for the 900-plus student family apartment complex.
- The \$223 million Berkeley Lower Sproul revitalization project overhauled the existing Martin Luther King Jr. Student Union and added the new Eshleman Hall. The LEED Gold certified project incorporated natural ventilation, solar photovoltaics, water-efficient landscaping, stormwater collection to flush toilets, over 100 bike racks and a student run bike repair center, a new transit center, recycling and compost centers, and smart systems for HVAC, windows and lighting controls. The project received the first-ever [Jury's Choice Award](#) by the Society for College and University Planning.
- Cal Dining expanded food recovery practices to recover over 30,000 lbs of prepared food over the year. Food is donated daily to local nonprofits in Oakland and the Bear Pantry, serving students with dependent children.
- In April 2017, nine more departments were certified as part of a TGIF-funded "Semester of Green Departments." There are now 30 certified green departments, representing over 4,400 employees. This means that 27 percent of staff and faculty are part of a department that has been recognized as green.

GREENHOUSE GAS EMISSIONS

(1,000 metric tons CO₂e)



- Scopes 1 (natural gas, campus fleet, fugitive) + 2 (purchased electricity)
- Scopes 1, 2 + 3 (campus commute, business air travel)

Goal:

- 1990 Levels by 2020 (scope 1, 2 + 3)
- Carbon neutral by 2025 (scope 1 + 2)
- Carbon neutral by 2050 (scope 1, 2 + 3)

Progress:

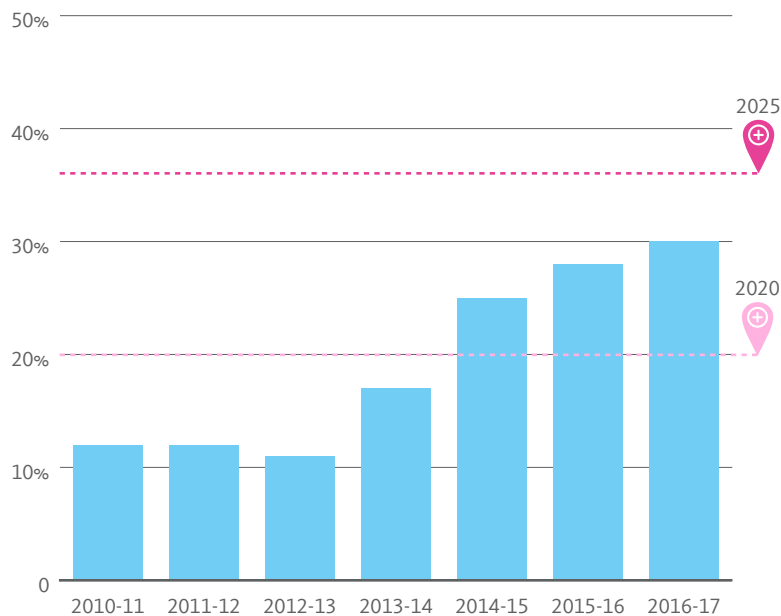
- 2020 goal met

UC Berkeley's 2016 scope 1 and 2 emissions remained similar to 2015 levels while scope 3 emissions decreased slightly.

Total renewable energy installed: 0.91 MW

PERCENT REDUCTION IN PER CAPITA POTABLE WATER CONSUMPTION

(% reduction in per capita potable water use)



Goal:

- 20% reduction from baseline in per capita potable water use by 2020.
- 36% reduction from baseline in per capita potable water use by 2025.

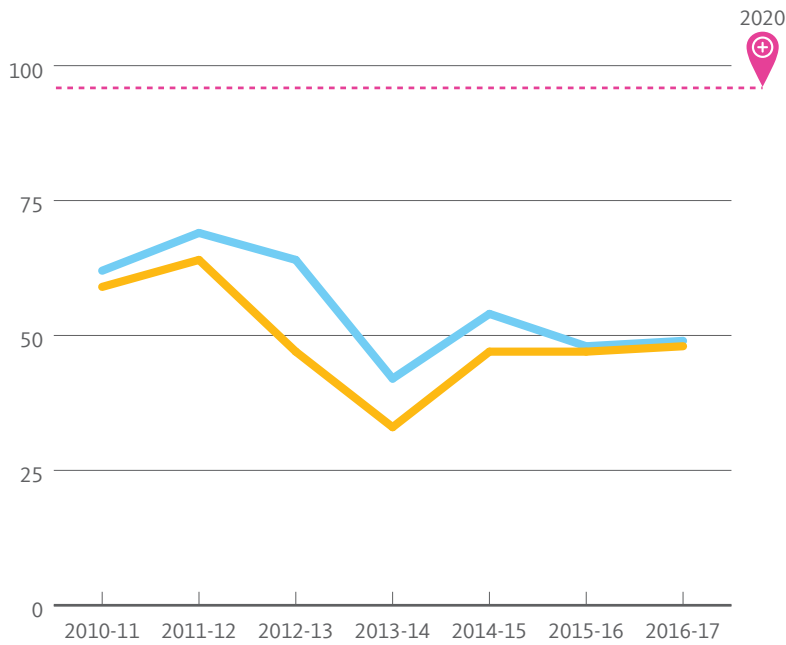
Progress:

- 2020 goal met

UC Berkeley slightly reduced overall water use in 2016-17 while slightly increasing in population resulting in a 2% reduction in per capita potable water use over 2015-16.

2016-17 gallons per capita: 14,385

SOLID WASTE DIVERTED FROM LANDFILL



- Without construction and demolition
- With construction and demolition

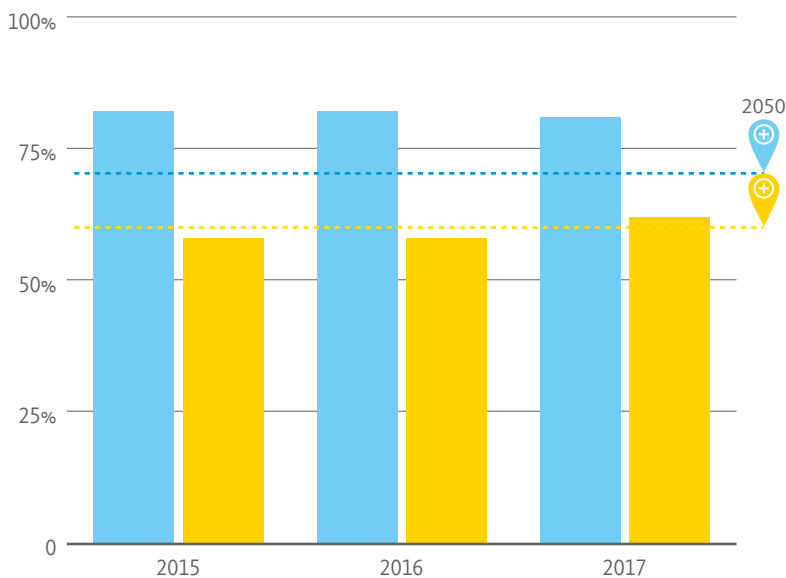
Goal:
Zero waste by 2020.

Progress:
UC Berkeley slightly increased waste diverted from landfill in 2016-17.

2016-17 lbs per capita per day: 1.01

TRANSPORTATION

(% alternative commute)



- Overall alternative commute
- Employee alternative commute

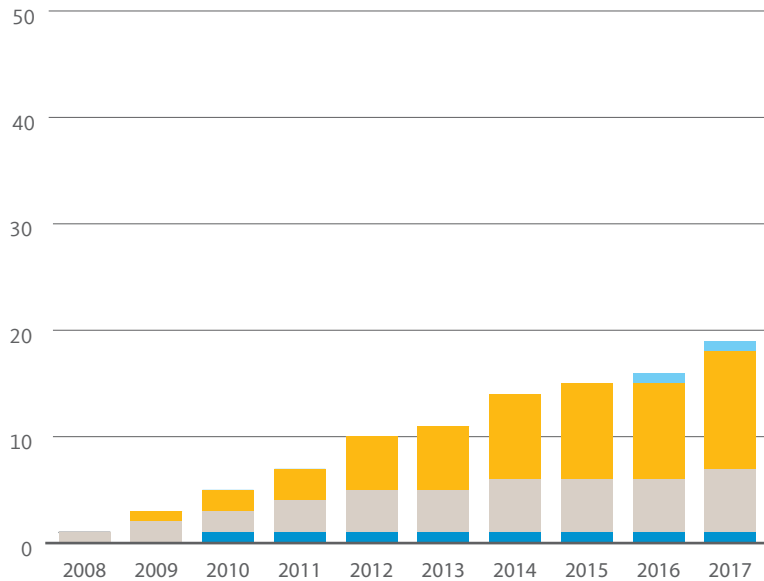
Goal:
By 2050, no more than 40% of employees and no more than 30% of all employees and students will commute by single-occupancy vehicle. In other words, 60% of employees and 70% of employees and students will use alternative commute modes to get to campus.

Progress:

- 2050 overall goal met
- 2050 employee goal met

Employee alternative commute travel increased this year, which is reflective of better survey response rates and the continued reduction of on-campus parking supply.

TOTAL NUMBER OF LEED CERTIFICATIONS



- Platinum
- Silver
- Gold
- Certified

Goal:

- LEED Silver minimum for all new construction. LEED Certified for renovations >\$5 million.
- Certify at least one LEED EBOM project.
- Exceed the California building energy code by 20%.

Progress:

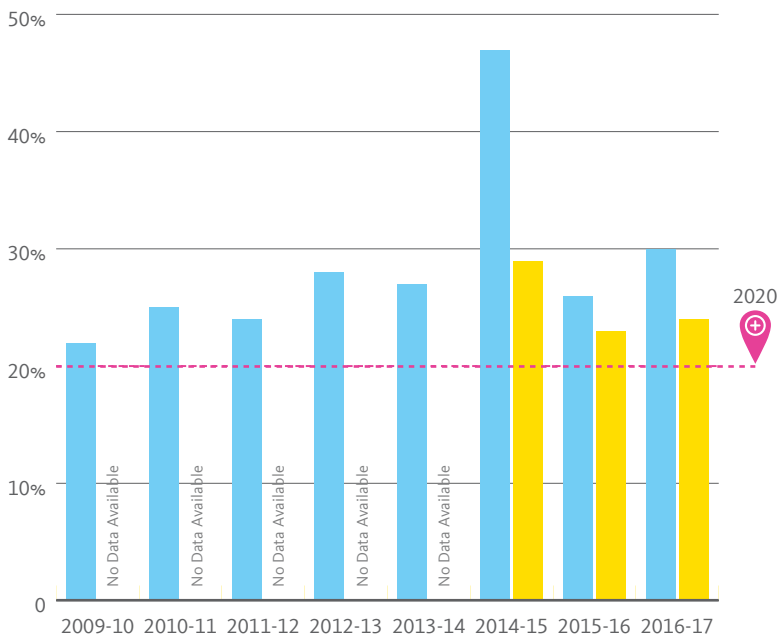
UC Berkeley added its first LEED Platinum certified project in late 2016. In 2017, the campus added two Gold and one Silver certified project.

Number of LEED EBOM projects: 0

Average % beyond California building energy code: 27%

SUSTAINABLE FOOD PURCHASES

(% of food spend)



- Residential
- Retail

Goal:

- 20% of foodservice spend will be from sustainable products by 2020.
- Certify at least one facility as a green business.

Progress:

● 2020 goal met for both residential and retail
 UC Berkeley increased sustainable food spend in a variety of ways including changing menus to serve less meat, switching to fair trade coffee across all dining halls and restaurants, sourcing more local produce, and switching to more sustainable meat and seafood options.

Number of green certified businesses: 5

UC Davis



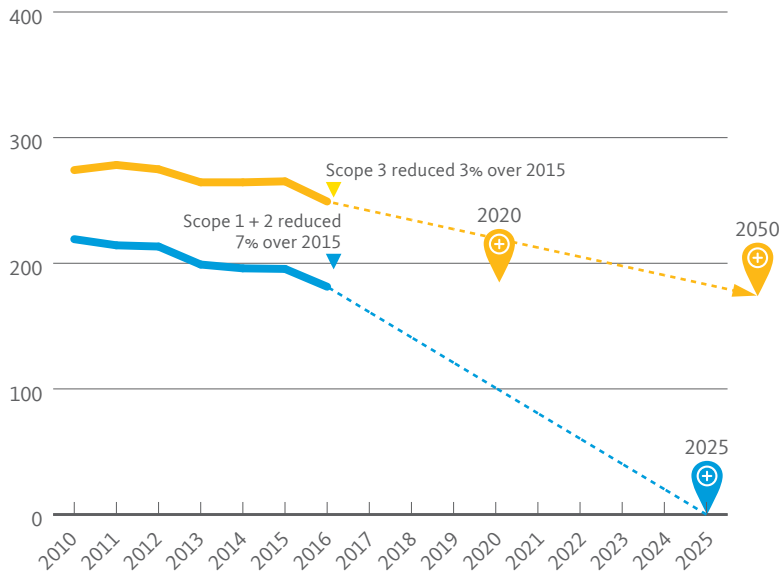
Credit: Iwan Baan

UC Davis was internationally recognized for its sustainability achievements with the December 2016 declaration of the campus as the greenest university in the world by the University of Indonesia GreenMetric World University Ranking. Additional highlights include:

- UC Davis greenhouse gas emissions continued to drop due to increased use of renewable energy for purchased electricity. Both the main campus and the Medical Center made use of various renewable energy strategies to reduce emissions and lock in energy pricing.
- UC Davis Fleet Services switched from B20 diesel to RD99 diesel, which is a fuel blend of 99 percent renewable diesel and 1 percent regular diesel. The switch reduces campus use of fossil fuel-derived diesel by 36,000 gallons a year, which lowers greenhouse gas emissions. The renewable diesel also burns cleaner, which reduces soot, improves fuel economy and reduces maintenance costs of maintaining diesel particulate filters.
- The campus began receiving delivery of surface water from the Sacramento River in a partnership with the Cities of Woodland and Davis. This surface supply reduces pressure on limited groundwater supplies, creates additional resiliency in the campus water supply, continues to build collaborative relationships in the region and improves campus water quality.
- UC Davis collaborated with multiple agencies in the Yolo sub-basin to form the only known Groundwater Sustainability Agency in the state of California that is comprised of multiple agencies for a whole sub-basin. The state Department of Water Resources has heralded this partnership approach for its breadth of collaboration in implementing the Sustainable Groundwater Management Act.
- The [Manetti Shrem Museum of Art](#) was certified LEED Platinum, which is a challenging accomplishment for an art museum, given the climate control requirements for art works. The award-winning museum design also celebrates the local agricultural context and creates public space through a distinctive contemporary approach to shading.

GREENHOUSE GAS EMISSIONS

(1,000 metric tons CO₂e)



- Scopes 1 (natural gas, campus fleet, fugitive) + 2 (purchased electricity)
- Scopes 1, 2 + 3 (campus commute, business air travel)

Goal:

- 1990 Levels by 2020 (scope 1, 2 + 3)
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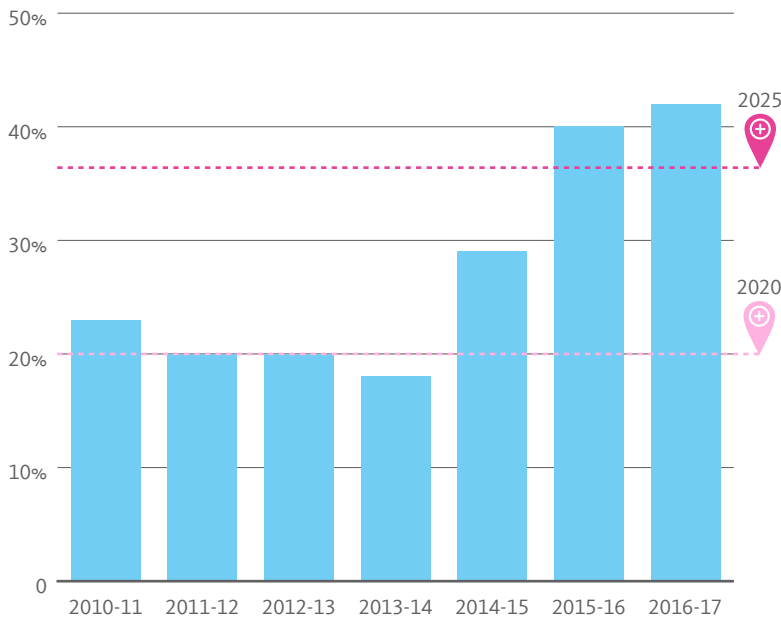
Progress:

UC Davis' 2016 scope 2 emissions reduced due to availability of cleaner electricity from the grid and from the startup of their 16 MW campus solar farm.

Total renewable energy installed: 17.06 MW

PERCENT REDUCTION IN PER CAPITA POTABLE WATER CONSUMPTION

(% reduction in per capita potable water use)



Goal:

- 20% reduction from baseline in per capita potable water use by 2020.
- 36% reduction from baseline in per capita potable water use by 2025.

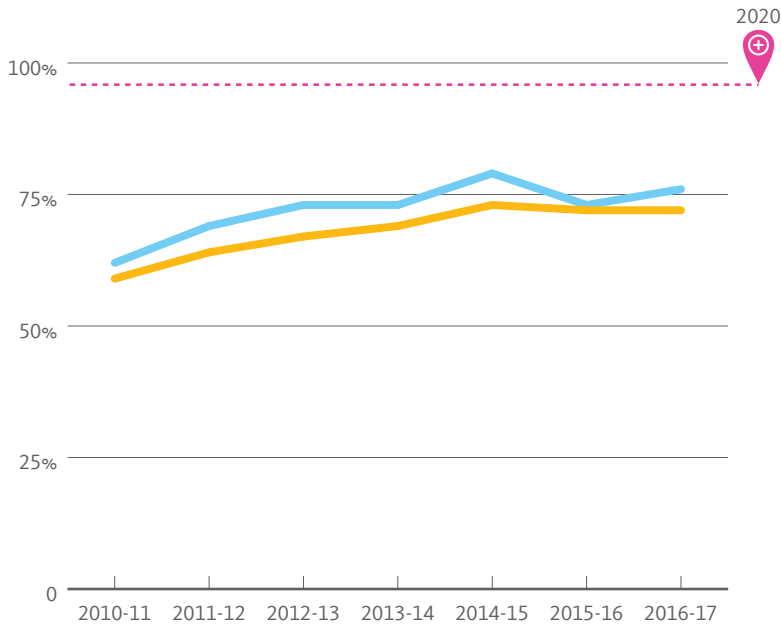
Progress:

- 2020 goal met
- 2025 goal met

UC Davis reduced total potable water use this year and increased slightly in population resulting in a 2% additional reduction in per capita water use as compared to 2015-16.

2016-17 gallons per capita: 15,516

SOLID WASTE DIVERTED FROM LANDFILL



- Without construction and demolition
- With construction and demolition

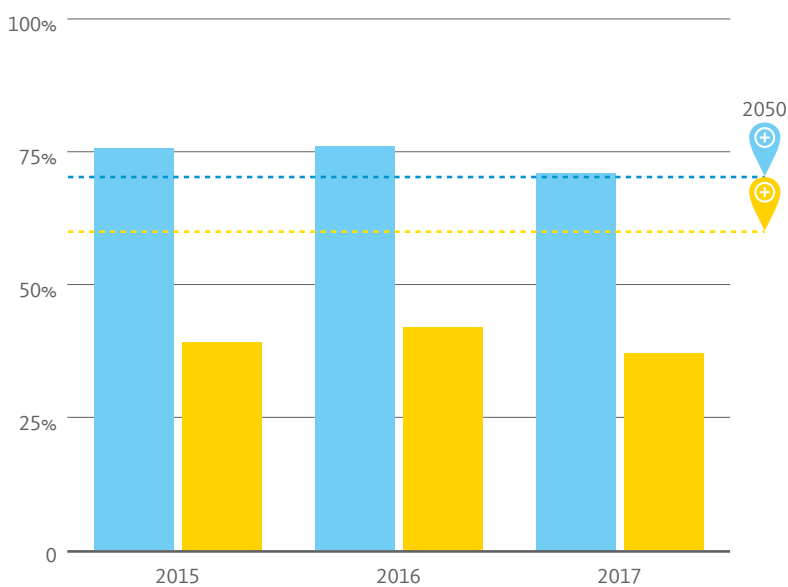
Goal:
Zero waste by 2020.

Progress:
UC Davis municipal solid waste diversion rate remained stable as compared to 2015-16 and increases slightly when construction and demolition waste is included.

2016-17 lbs per capita per day: 1.22

TRANSPORTATION

(% alternative commute)

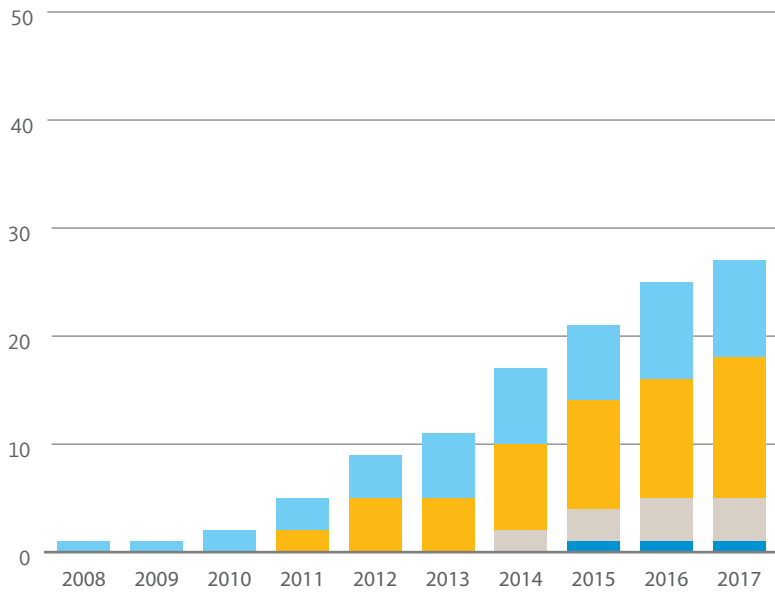


- Overall alternative commute
- Employee alternative commute

Goal:
By 2050, no more than 40% of employees and no more than 30% of all employees and students will commute by single-occupancy vehicle. In other words, 60% of employees and 70% of employees and students will use alternative commute modes to get to campus.

Progress:
● 2050 overall goal met
The percent of employees commuting by single-occupancy vehicles increased slightly this year in part due to a new protocol for estimating the number of staff on campus.

TOTAL NUMBER OF LEED CERTIFICATIONS



- Platinum
- Gold
- Silver
- Certified

Goal:

- LEED Silver minimum for all new construction. LEED Certified for renovation >\$5 million.
- Certify at least one LEED EBOM project.
- Exceed the California building energy code by 20%.

Progress:

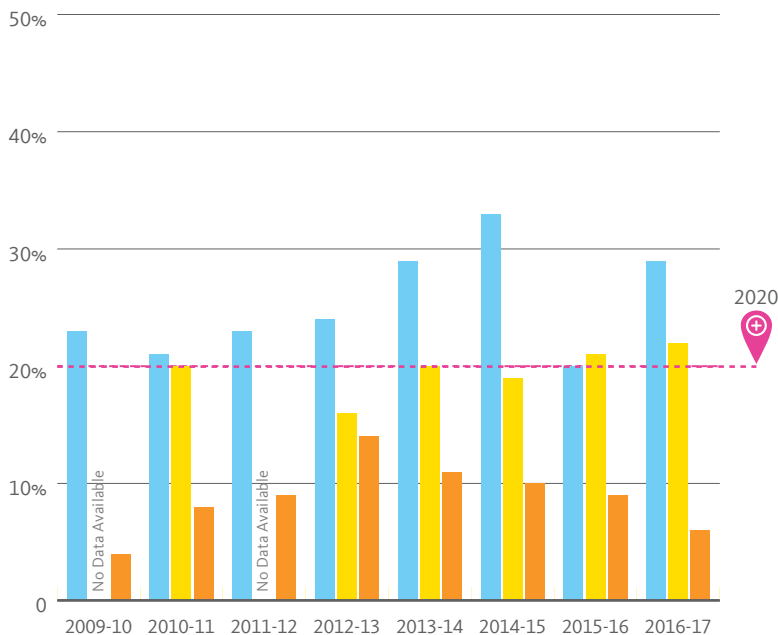
UC Davis added a LEED Platinum for Building Design + Construction late in 2016. In 2017, the campus certified two Gold level projects: one LEED for Existing Buildings, Operations and Maintenance and one LEED for Interior Design + Construction.

Number of LEED EBOM projects: 8

Average % beyond code of new projects in 2016-17: 31%

SUSTAINABLE FOOD PURCHASES

(% of food spend)



- Residential
- Retail (CoHo)
- Retail (Sodexo)

Goal:

- 20% of foodservice spend will be from sustainable products by 2020.
- Certify at least one facility as a green business.

Progress:

2020 goal met for residential and CoHo retail Dining and retail services is transitioning management from Sodexo to the campus. Reporting has therefore been extrapolated this year and will be refined next year.

Number of green certified businesses: 3

UC Irvine



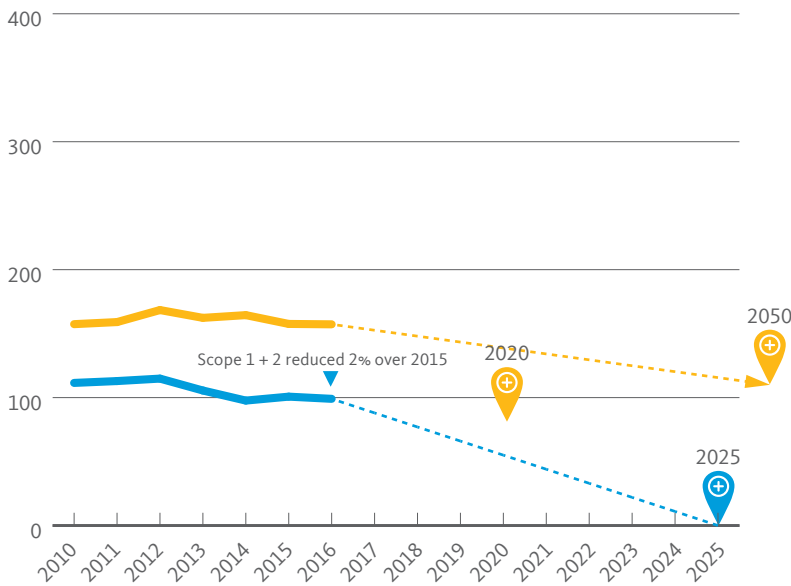
The Anteatory. Credit: Bruce Damonte

In 2017, UC Irvine became the first campus in the nation to be ranked among *Sierra Magazine's* top 10 "Coolest Schools" for eight consecutive years. UC Irvine earned this distinction through its long-term commitment to sustainable operations, academics and research focused on sustainability and innovation. Highlights from 2016-17 include:

- Mesa Court Towers earned a Best Practice Award for Overall Sustainable Design at the 2017 California Higher Education and Sustainability Conference (CHESC). The 932-bed residential facility was designed to reduce energy use by over 50 percent below Title 24 building code through thermal massing, increased natural ventilation, on-site photovoltaic arrays and solar-thermal panels. The dining facility is Zero-Waste certified and serves locally sourced products.
- UC Irvine received its 16th LEED Platinum certification for Building Design and Construction in recognition for the new Continuing Education Classroom Building.
- In a national first, UC Irvine's National Fuel Cell Research Center has successfully implemented the first power-to-gas (P2G) renewable hydrogen production and pipeline injection project in the United States, demonstrating the use of excess clean electricity that would otherwise go to waste.
- UC Irvine became the first campus in the nation to convert its shuttle service to an all-electric fleet through the acquisition of 20 all-electric shuttle buses and the construction of an electric bus charging base to house the fleet.
- Ten UC Irvine undergraduate students prepared for future green careers by becoming sustainability leaders on campus through the Campus as a Living Laboratory internship. Students participated in a year-long internship and course sequence that introduces sustainability concepts and theories and how they can be applied to our most pressing environmental, social and economic challenges.

GREENHOUSE GAS EMISSIONS

(1,000 metric tons CO₂e)



- Scopes 1 (natural gas, campus fleet, fugitive) + 2 (purchased electricity)
- Scopes 1, 2 + 3 (campus commute, business air travel)

Goal:

- 1990 Levels by 2020 (scope 1, 2 + 3)
- Carbon neutral by 2025 (scope 1 + 2)
- Carbon neutral by 2050 (scope 1, 2 + 3)

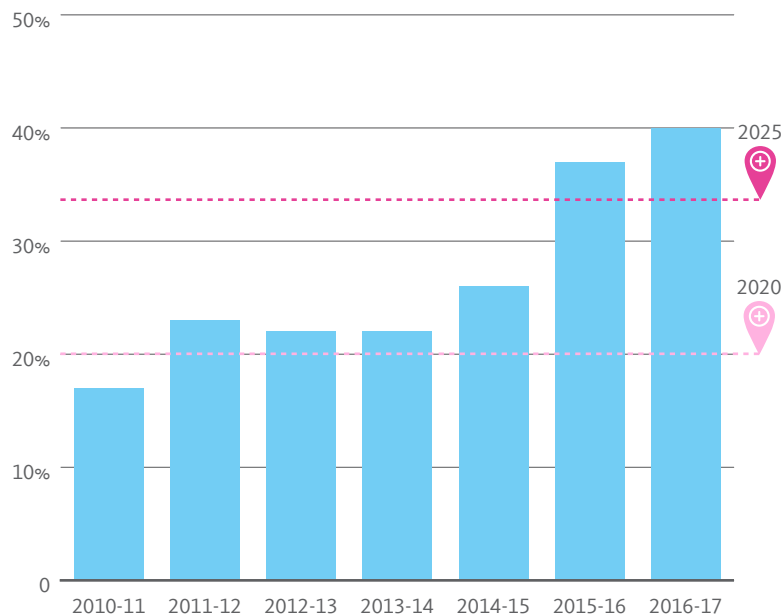
Progress:

In 2016, scope 1 emissions reduced 2% likely due to cooler weather. Scope 3 emissions rose slightly and scope 2 emissions remained stable.

Total renewable energy installed: 4.42 MW

PERCENT REDUCTION IN PER CAPITA POTABLE WATER CONSUMPTION

(% reduction in per capita potable water use)



Goal:

- 20% reduction from baseline in per capita potable water use by 2020.
- 36% reduction from baseline in per capita potable water use by 2025.

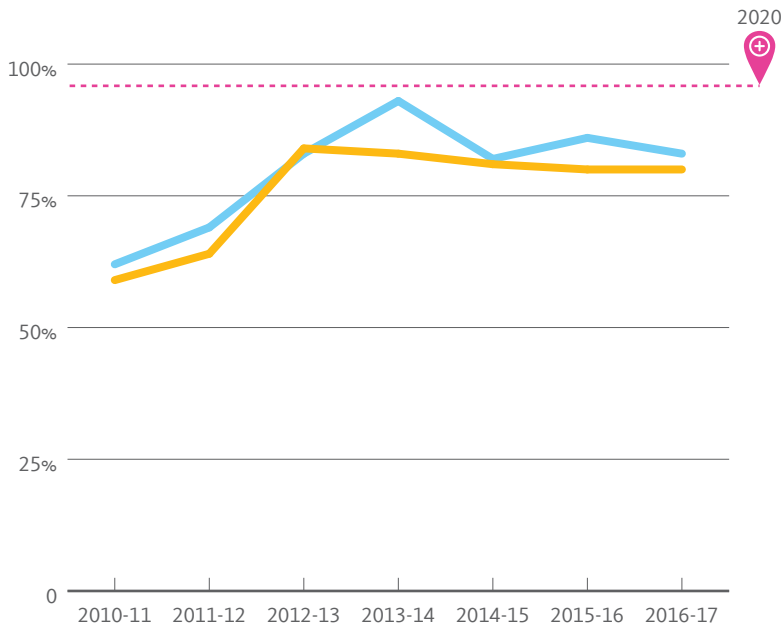
Progress:

- 2020 goal met
- 2025 goal met

Total potable water use was down almost 12 million gallons in FY 2016-17 while population increased slightly resulting in a 3% increase in per capita potable water use reduction compared to FY 2015-16. A large cooling tower retrofit project aided in reducing total potable water use.

2016-17 gallons per capita: 9,501

SOLID WASTE DIVERTED FROM LANDFILL



- Without construction and demolition
- With construction and demolition

Goal:

Zero waste by 2020.

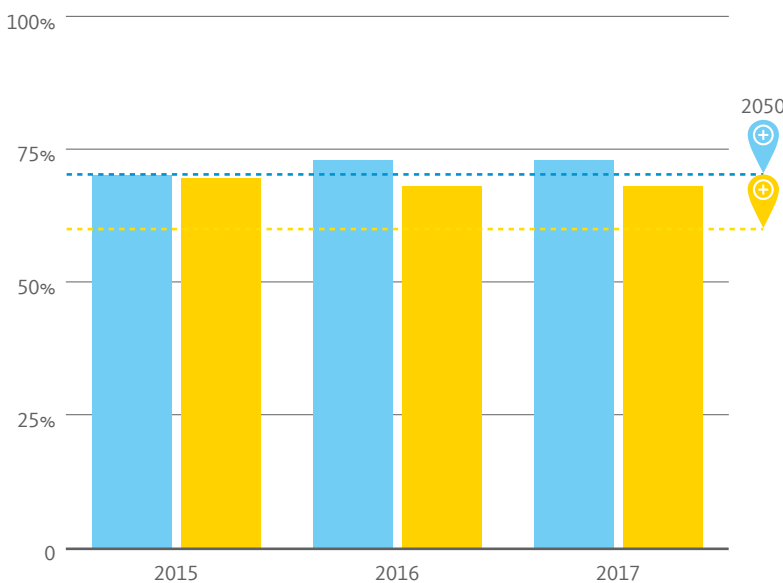
Progress:

UC Irvine continues to work hard to maintain an 80% municipal solid waste diversion rate, the highest of any campus. Waste per person has also continued to decline, reducing 2% in FY 2016-17 over the previous year.

2016-17 lbs per capita per day: 1.39

TRANSPORTATION

(% alternative commute)



- Overall alternative commute
- Employee alternative commute

Goal:

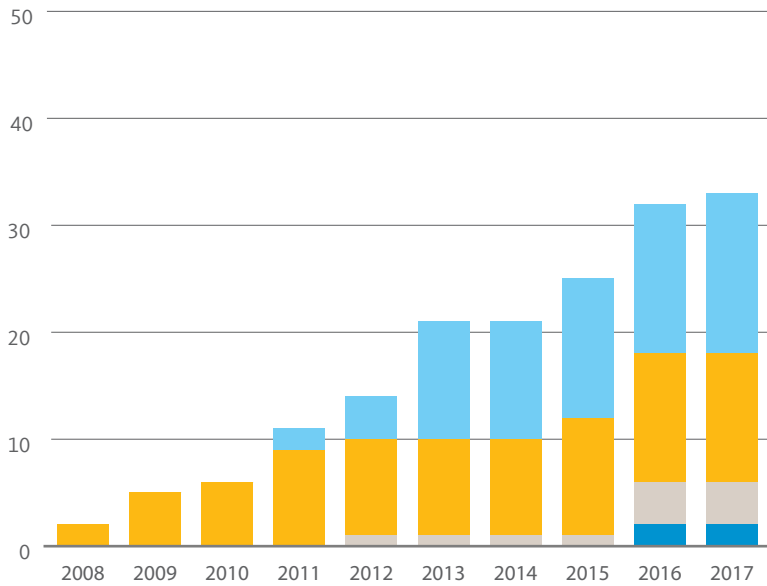
By 2050, no more than 40% of employees and no more than 30% of all employees and students will commute by single-occupancy vehicle. In other words, 60% of employees and 70% of employees and students will use alternative commute modes to get to campus.

Progress:

- 2050 employee goal met
- 2050 overall goal met

UC Irvine commute modes saw little change in 2017.

TOTAL NUMBER OF LEED CERTIFICATIONS



- Platinum
- Gold
- Silver
- Certified

Goal:

- LEED Silver minimum for all new construction. LEED Certified for renovation >\$5 million.
- Certify at least one LEED EBOM project.
- Exceed the California building energy code by 20%.

Progress:

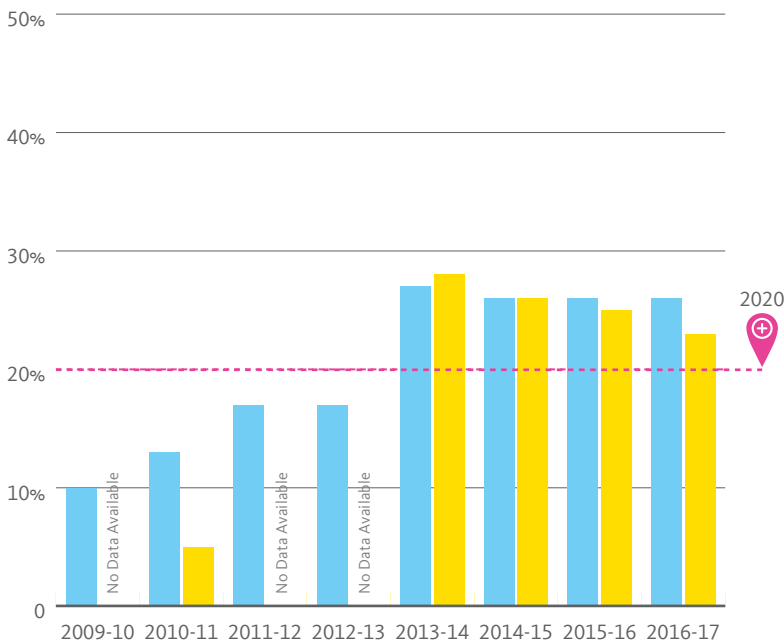
UC Irvine added one new LEED Platinum Building Design + Construction certified project in 2017.

Number of LEED EBOM projects: 7

Average % beyond California building energy code: 29%

SUSTAINABLE FOOD PURCHASES

(% of food spend)



- Residential
- Retail

Goal:

- 20% of foodservice spend will be from sustainable products by 2020.
- Certify at least one facility as a green business.

Progress:

● 2020 goal met

UC Irvine residential and retail foodservices continue to meet the 2020 goal for the fourth year in a row.

Number of green certified businesses: 4

UCLA



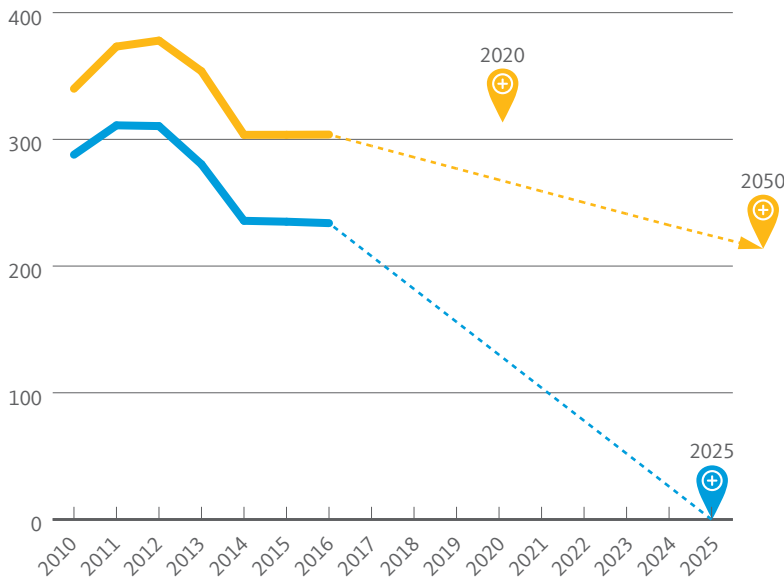
Credit: Nurit Katz

UCLA's 2016-17 sustainability highlights include advances in electric vehicles, water reclamation, green buildings and waste:

- UCLA became the first public university in California with electric buses, replacing the only remaining diesel buses in the fleet with two [zero-emission electric buses](#).
- UCLA's water reclamation program, which saves over 28 million gallons a year, won Water Efficiency Project of the Year from the [LA Better Buildings Challenge](#).
- The Meyer and Renee Luskin Conference Center is now one of very few Platinum-certified hospitality projects in the nation. It also won a [sustainability award](#) at the LA Architectural Awards.
- UCLA was named "Most Improved" by the Green Sports Alliance in the Pac-12 Road to Zero Waste Challenge. A 50 percent increase of 2016's diversion rate to 63.9 percent was possible thanks to a great partnership between UCLA Recreation, UCLA Athletics Marketing, IMG and the custodial contractor, Swayzer's, that focused on custodial training and waste infrastructure improvements.

GREENHOUSE GAS EMISSIONS

(1,000 metric tons CO₂e)



- Scopes 1 (natural gas, campus fleet, fugitive) + 2 (purchased electricity)
- Scopes 1, 2 + 3 (campus commute, business air travel)

Goal:

- 1990 Levels by 2020 (scope 1, 2 + 3)
- Carbon neutral by 2025 (scope 1 + 2)
- Carbon neutral by 2050 (scope 1, 2 + 3)

Progress:

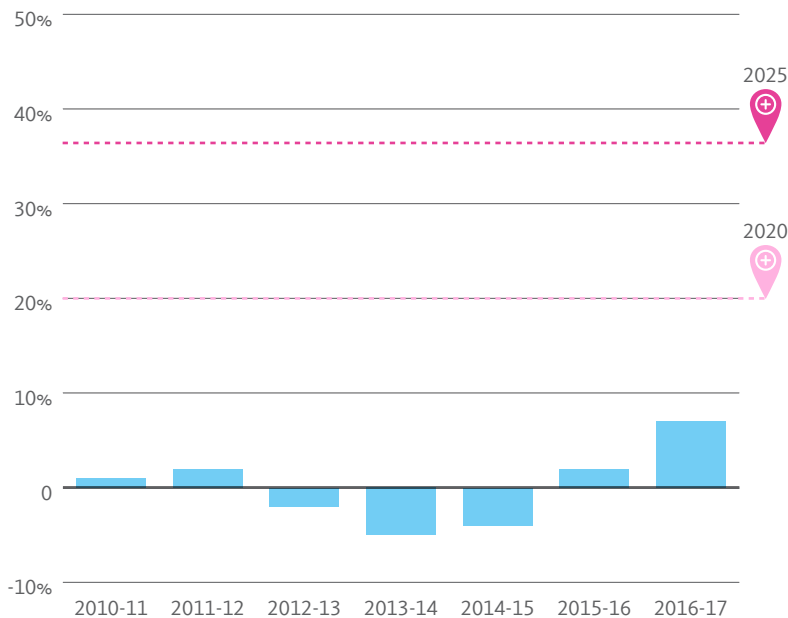
● 2020 goal met

In 2016, UCLA's GHG emissions were roughly the same as the previous two years.

Total renewable energy installed: 0.14 MW

PERCENT REDUCTION IN PER CAPITA POTABLE WATER CONSUMPTION

(% reduction in per capita potable water use)



Goal:

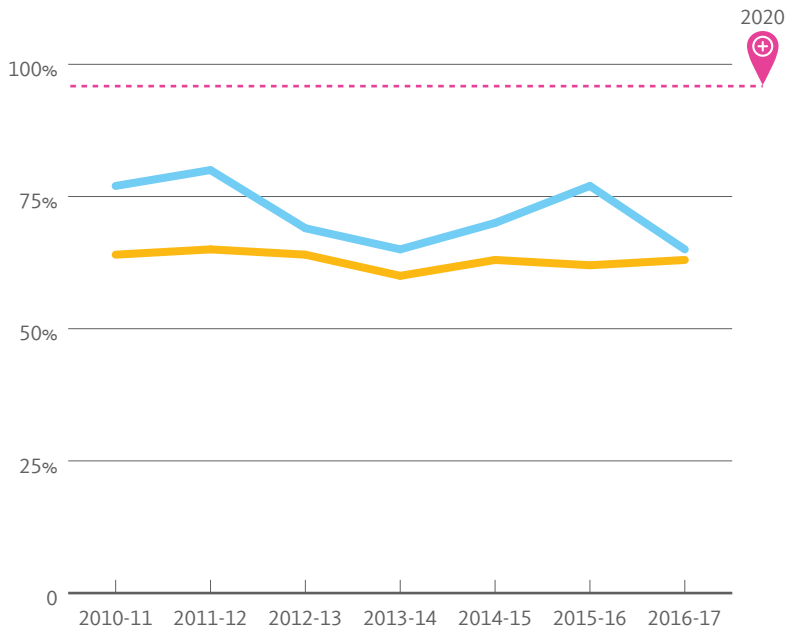
- 20% reduction from baseline in per capita potable water use by 2020.
- 36% reduction from baseline in per capita potable water use by 2025.

Progress:

In 2016-17, UCLA made significant progress in reducing total potable water use with their water reclamation project, which is estimated to save over 28 million gallons a year and which won the Water Efficiency Project of the Year from the LA Better Buildings Challenge. Per capita potable water use also reduced by 5% over last year.

2016-17 gallons per capita: 14,348

SOLID WASTE DIVERTED FROM LANDFILL



- Without construction and demolition
- With construction and demolition

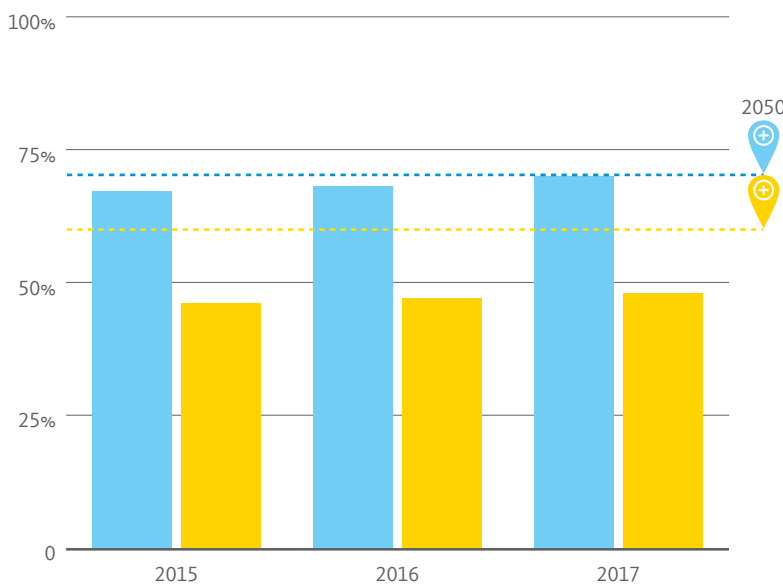
Goal:
Zero waste by 2020.

Progress:
In 2016-17, UCLA's municipal solid waste diversion rate increased slightly over last year.

2016-17 lbs per capita per day: 1.13

TRANSPORTATION

(% alternative commute)

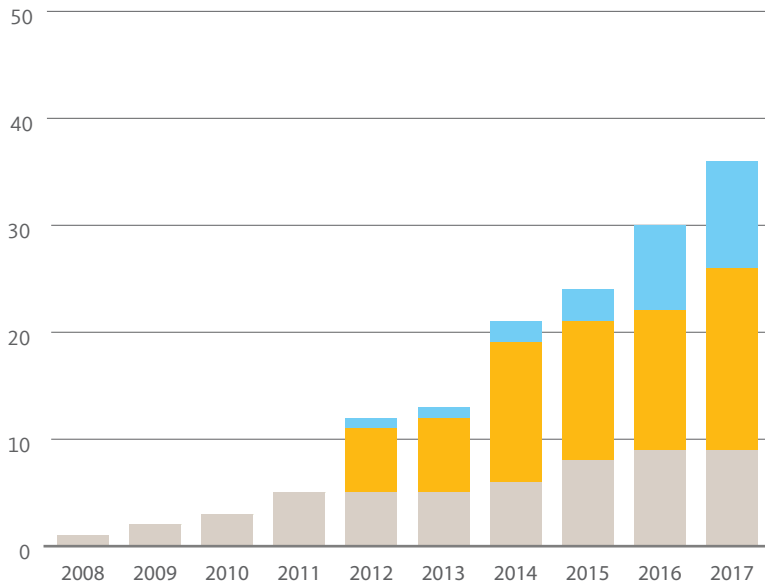


- Overall alternative commute
- Employee alternative commute

Goal:
By 2050, no more than 40% of employees and no more than 30% of all employees and students will commute by single-occupancy vehicle. In other words, 60% of employees and 70% of employees and students will use alternative commute modes to get to campus.

Progress:
UCLA commute data has remained relatively consistent the last few years and within 10% of the campus-wide 2050 goal.

TOTAL NUMBER OF LEED CERTIFICATIONS



- Platinum
- Gold
- Silver
- Certified

Goal:

- LEED Silver minimum for all new construction. LEED Certified for renovation >\$5 million.
- Certify at least one LEED EBOM project.
- Exceed the California building energy code by 20%.

Progress:

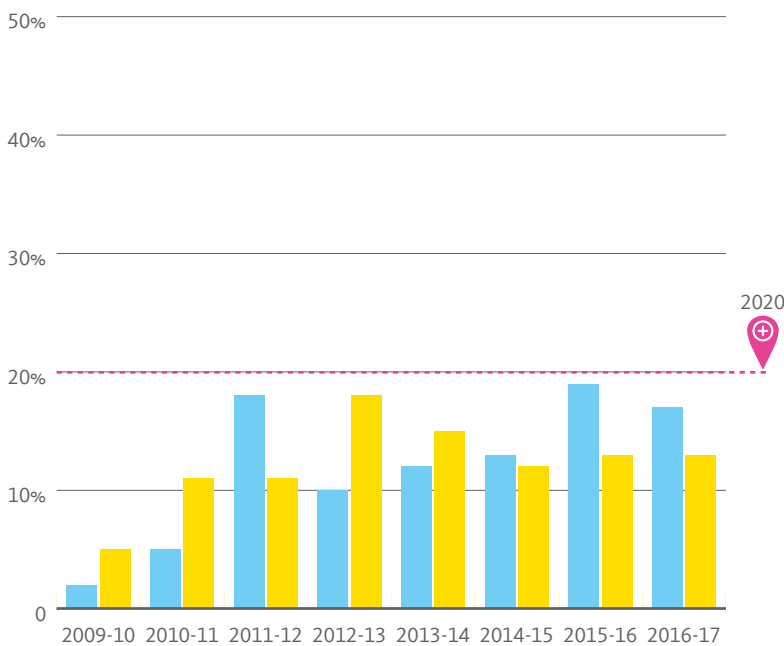
UCLA added 4 new LEED Gold and 2 new LEED Platinum certified projects.

Number of LEED EBOM projects: 1

Average % beyond California building energy code: 25%

SUSTAINABLE FOOD PURCHASES

(% of food spend)



- Residential
- Retail

Goal:

- 20% of foodservice spend will be from sustainable products by 2020.
- Certify at least one facility as a green business.

Progress:

UCLA's sustainable food spend has remained relatively consistent over the last few years for retail establishments. Residential food spend decreased slightly in FY 2016-17 over the previous year.

Number of green certified businesses: 2

UC Merced

UC Merced continues to advance its campus sustainability efforts. The following highlights are successes from the 2016-2017 academic year.

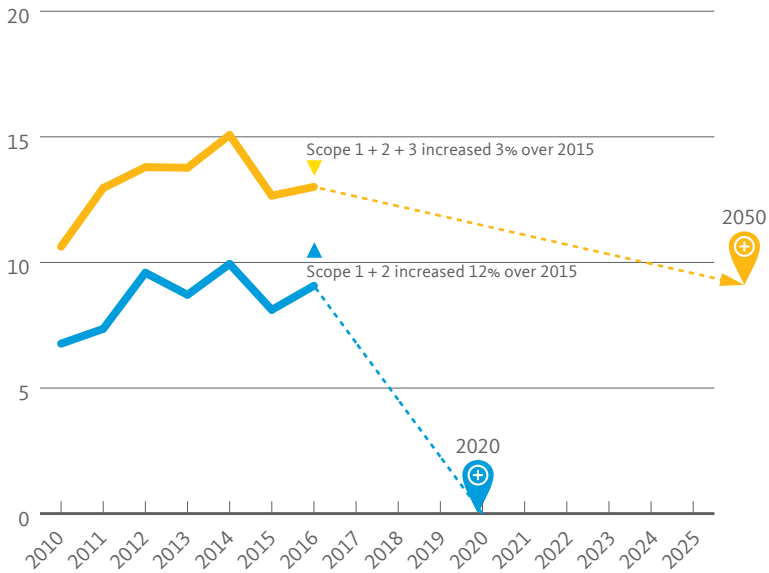
- Fifty-seven LED fixtures were installed in the campus quad which use two-thirds less energy than the original fixtures.
- Classroom and Office Building 2 achieved LEED Platinum certification under the Building Design and Construction rating system.
- UC Merced developed a Zero Waste Business Plan that provides a pathway to zero waste by 2020.
- The campus launched the Bobcat Eats program, which consists of a farmer that sells produce and provides information on farm operations and practices. The program also incorporates an educational literacy component that provides information on food systems along with cooking demonstrations.
- With the assistance of shipping services, UC Merced switched from receiving office supply deliveries in traditional cardboard boxes with plastic air pillows to the Office Depot® GreenerOffice™ bag and tote delivery program.



Credit: Elena Zhukova

GREENHOUSE GAS EMISSIONS

(1,000 metric tons CO₂e)



- Scopes 1 (natural gas, campus fleet, fugitive) + 2 (purchased electricity)
- Scopes 1, 2 + 3 (campus commute, business air travel)

Goal:

As UC's newest campus, UC Merced has set a more aggressive goal to achieve climate neutrality for scope 1 and 2 sources by 2020.

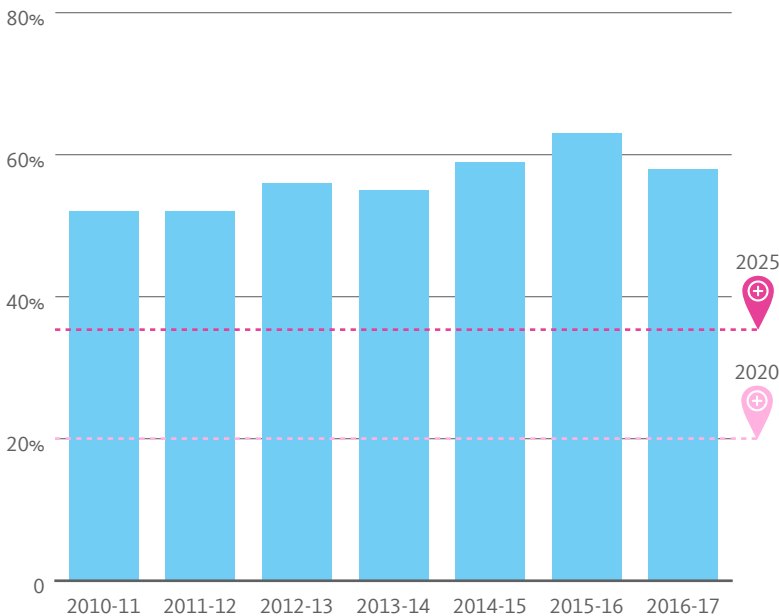
Progress:

UC Merced increased scope 2 emissions in 2016 due to an increase in electricity use and a change in emissions factor from the utility.

Total renewable energy installed: 1.00 MW

PERCENT REDUCTION IN PER CAPITA POTABLE WATER CONSUMPTION

(% reduction in per capita potable water use)



Goal:

- 20% reduction from baseline in per capita potable water use by 2020.
- 36% reduction from baseline in per capita potable water use by 2025.

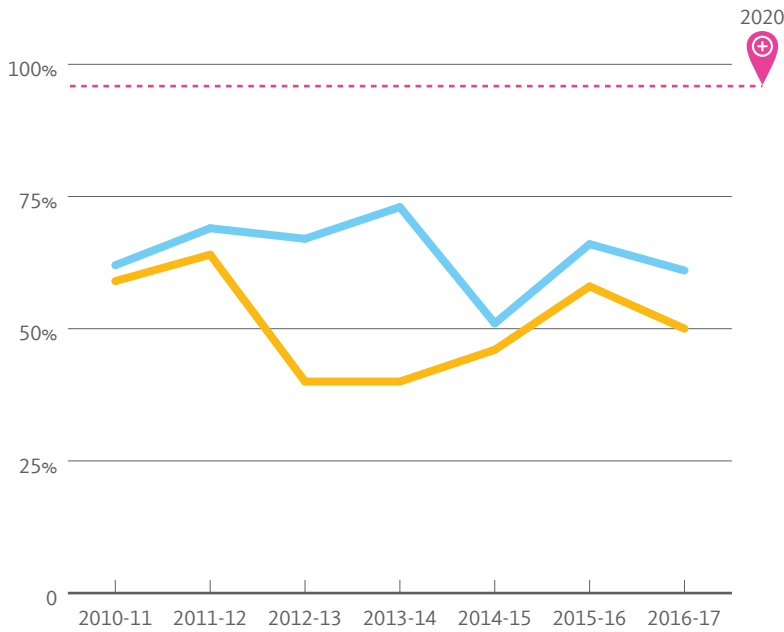
Progress:

- 2020 goal met
- 2025 goal met

UC Merced's potable water use increased in FY 2016-17 due to a new building coming online, an increase in student population and the 2020 Project's construction activities.

2016-17 gallons per capita: 12,523

SOLID WASTE DIVERTED FROM LANDFILL



- Without construction and demolition
- With construction and demolition

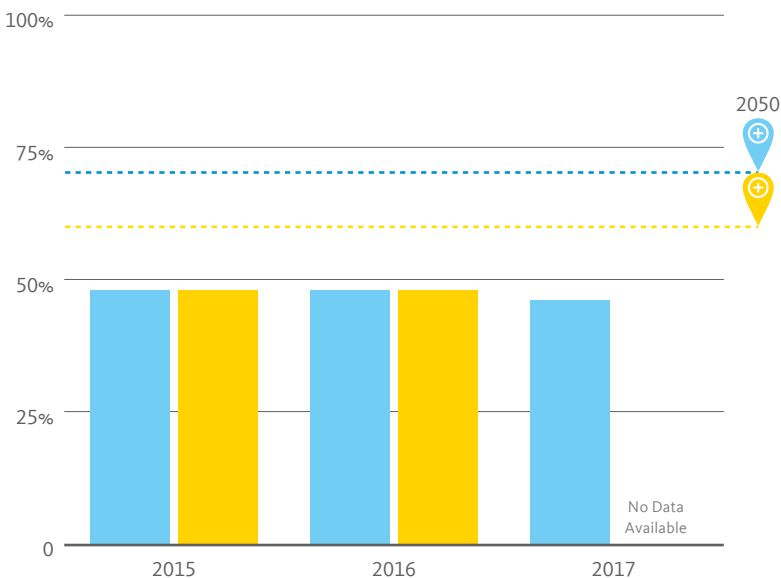
Goal:
Zero waste by 2020.

Progress:
UC Merced's municipal solid waste diversion rate decreased by 8% in FY 2016-17 due to increased efforts to reduce overall waste generation. Much of the reduced waste has been divertable items such as packaging, which therefore reduces the percent of material in the waste stream that can be diverted from landfill. The campus is working to track the impact of reduction strategies for inclusion in the diversion numbers in future years.

2016-17 lbs per capita per day: 0.64

TRANSPORTATION

(% alternative commute)

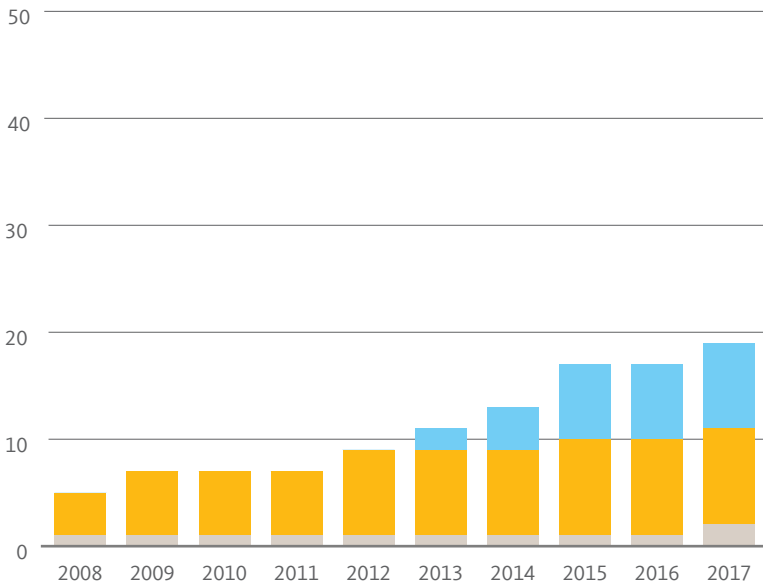


- Overall alternative commute
- Employee alternative commute

Goal:
By 2050, no more than 40% of employees and no more than 30% of all employees and students will commute by single-occupancy vehicle. In other words, 60% of employees and 70% of employees and students will use alternative commute modes to get to campus.

Progress:
UC Merced's campus-wide commute by single occupancy vehicles increased by 2% in FY 2016-17. Employee data was not available this year.

TOTAL NUMBER OF LEED CERTIFICATIONS



- Platinum
- Gold
- Silver
- Certified

Goal:

- LEED Silver minimum for all new construction. LEED Certified for renovation >\$5 million.
- Certify at least one LEED EBOM project.
- Exceed the California building energy code by 20%.

Progress:

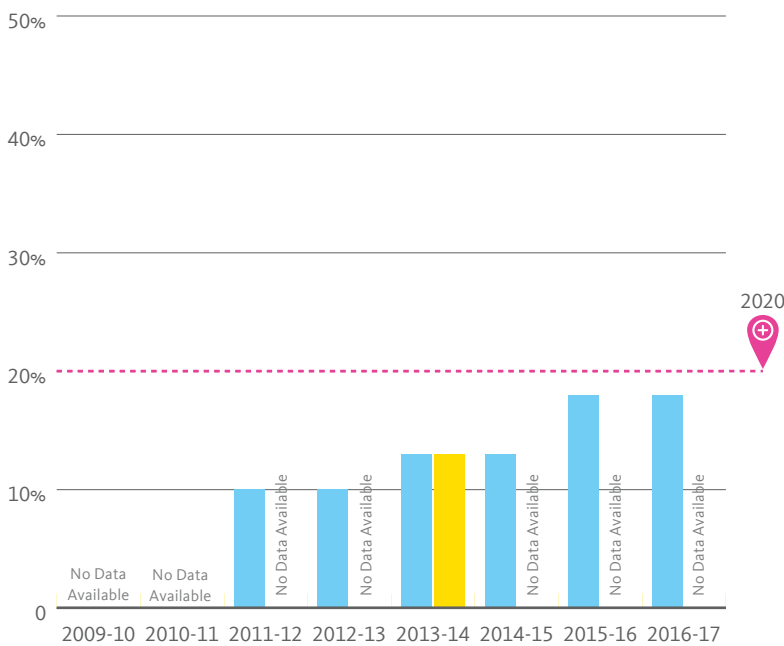
Merced added a LEED for Existing Buildings, Operation, and Maintenance Silver certification and a LEED for Building Design + Construction Platinum certification in 2017.

Number of LEED EBOM projects: 2

Average % beyond California building energy code: 34%

SUSTAINABLE FOOD PURCHASES

(% of food spend)



- Residential
- Retail

Goal:

- 20% of foodservice spend will be from sustainable products by 2020.
- Certify at least one facility as a green business.

Progress:

UC Merced's sustainable food spend remains unchanged from 2015-16. The campus will be focusing this year on better data tracking systems to fully capture residential and retail progress.

Number of green certified businesses: 0

UC Riverside



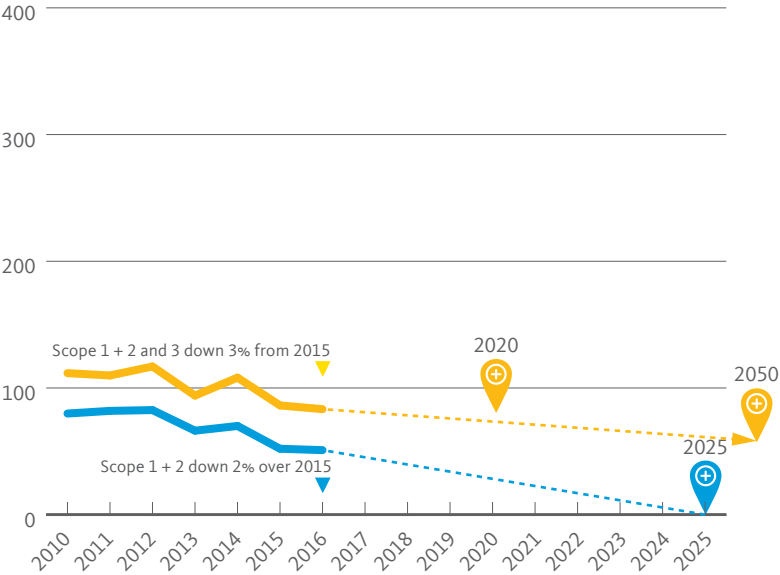
Credit: Elena Zhukova

UC Riverside's 2016-17 sustainability achievements include:

- Installed 4 MW of new solar canopies over an existing parking lot. The new project provides renewable energy, shade for parked cars and pedestrians, low-energy LED lights where there were previously no lights, and less expensive energy procurement costs over the 20-year project life cycle.
- Reorganized sustainability functions to align the campus' research, instruction, administrative and operational pillars under a strategic umbrella of shared governance. The new campus sustainability organization seeks to define roles, responsibilities and relationships between the pillars for more effective sustainability efforts.
- Completed negotiations and established full funding for the new campus Mobility Hub to create a centralized mass transit hub at the front entrance to the campus and establish pedestrian and bicycle circulation paths beyond. This new mass transit hub will provide safe docking ports for electric buses serving UC Riverside and the surrounding region and shaded bus shelters for travelers; remove over 200 surface parking stalls for cars; and enhance pedestrian and bicycle transit opportunities with new connections and lighted paths.
- Established new permanent funding sources for the campus R'Garden food production laboratory. This pilot project, started over five years ago, is now fully integrated into the campus research and instruction mission by providing garden plots for students, faculty, staff and the community to launch gardening projects, learn about sustainable gardening techniques, conduct research and provide sustainable food sources for the campus community via the R'Pantry.

GREENHOUSE GAS EMISSIONS

(Thousand metric tons CO2e)



- Scopes 1 (natural gas, campus fleet, fugitive) + 2 (purchased electricity)
- Scopes 1, 2 + 3 (campus commute, business air travel)

Goal:

- 1990 Levels by 2020 (scope 1, 2 + 3)
- Carbon neutral by 2025 (scope 1 + 2)
- Carbon neutral by 2050 (scope 1, 2 + 3)

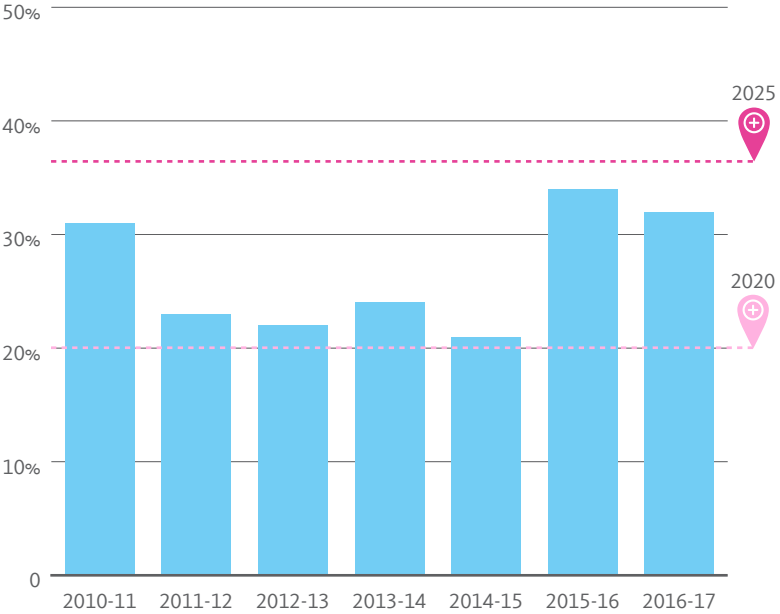
Progress:

UC Riverside reduced scope 2 and 3 emissions in 2016 as compared to 2015.

Total Renewable Energy Installed: 7.84 MW

PERCENT REDUCTION IN PER CAPITA POTABLE WATER CONSUMPTION

(% reduction in per capita potable water use)



Goal:

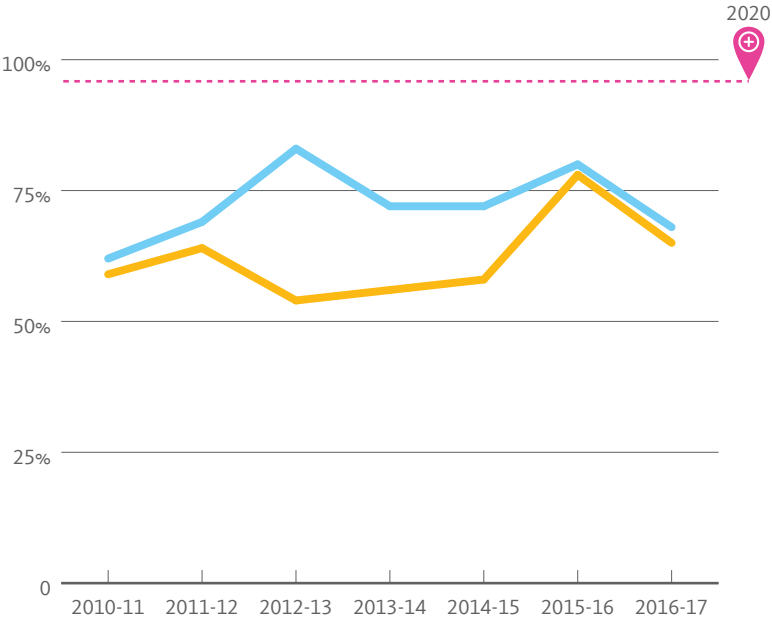
- 20% reduction from baseline in per capita potable water use by 2020.
- 36% reduction from baseline in per capita potable water use by 2025.

Progress:

● 2020 goal met
 Total potable water use was down almost 3.5 million gallons in FY 2016-17 while population decreased slightly resulting in a 2% increase in per capita potable water use compared to FY 2015-16.

2016-17 gallons per capita: 16,478

SOLID WASTE DIVERTED FROM LANDFILL



- Without construction and demolition
- With construction and demolition

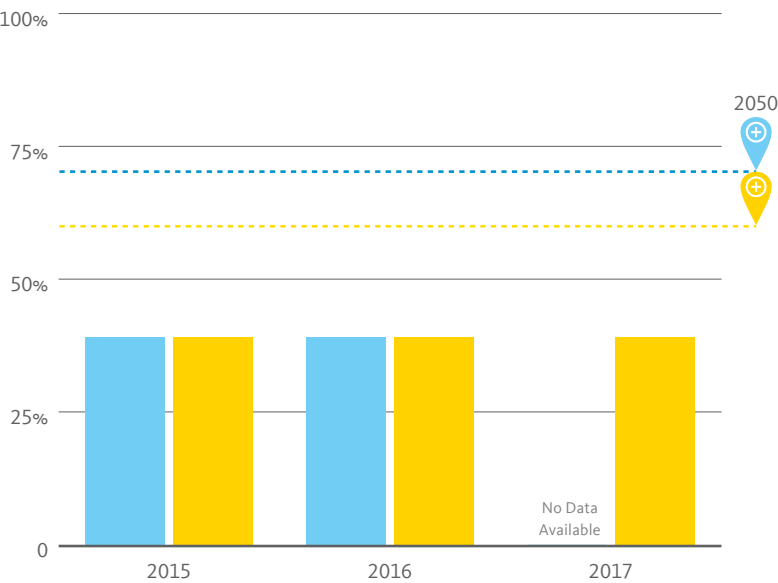
Goal:
Zero waste by 2020.

Progress:
In 2017, the UC Zero Waste working group agreed to limit the amount of waste-to-energy that could contribute to meeting zero waste. UC Riverside's 2016-17 decrease in waste diversion reflects this change.

2016-17 lbs per capita per day: 1.03

TRANSPORTATION

(% alternative commute)

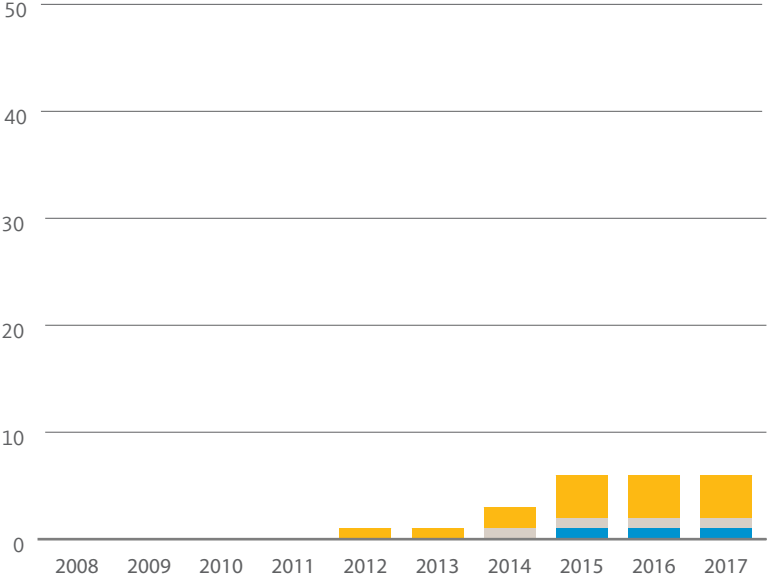


- Overall alternative commute
- Employee alternative commute

Goal:
By 2050, no more than 40% of employees and no more than 30% of all employees and students will commute by single-occupancy vehicle. In other words, 60% of employees and 70% of employees and students will use alternative commute modes to get to campus.

Progress:
UC Riverside commute modes have remained the same over the last three years. No data was available for overall commute modes in 2017.

TOTAL NUMBER OF LEED CERTIFICATIONS



- Platinum
- Gold
- Silver
- Certified

Goal:

- LEED Silver minimum for all new construction. LEED Certified for renovation >\$5 million.
- Certify at least one LEED EBOM project.
- Exceed the California building energy code by 20%.

Progress:

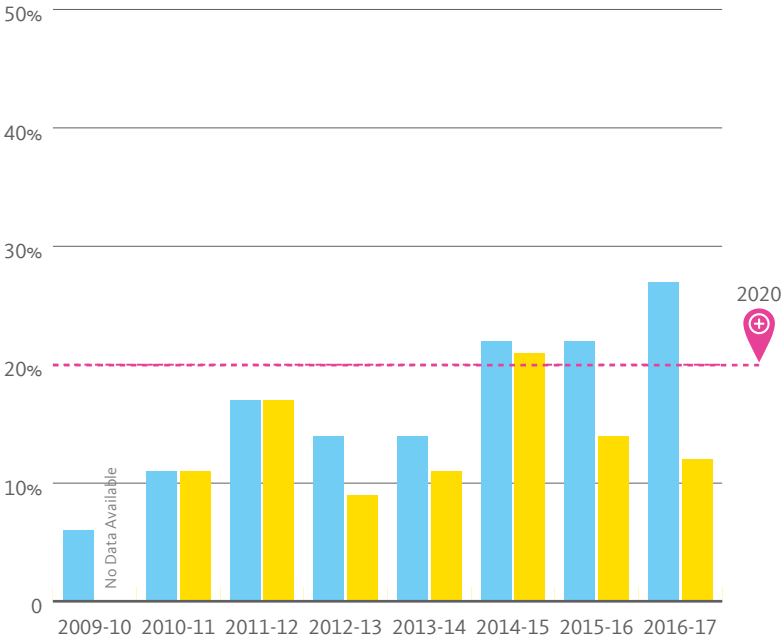
UC Riverside had no new LEED certifications in 2017.

Number of LEED EBOM projects: 2

Average % beyond code of new projects in 2016-17: 0%.

SUSTAINABLE FOOD PURCHASES

(% of food spend)



- Residential
- Retail

Goal:

- 20% of foodservice spend will be from sustainable products by 2020.
- Certify at least one facility as a green business.

Progress:

● 2020 goal met for residential
 UC Riverside residential foodservices continue to meet the 2020 goal for the fourth year in a row, increasing sustainable food spend by 5% over 2015-16.

Number of green certified businesses: 0

UC San Diego



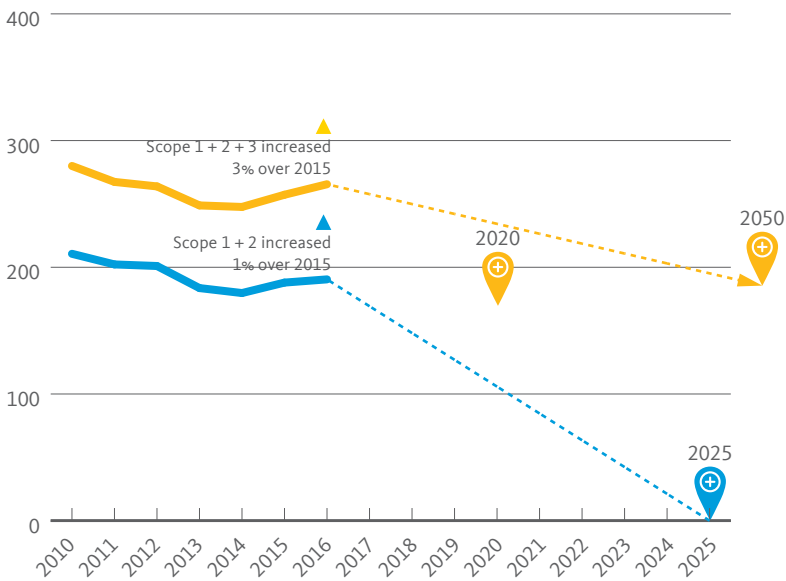
Credit: Rhett Miller, UC San Diego

UC San Diego continues to be a model living laboratory of sustainability, winning the first National Laboratory Freezer Challenge run by the International Institute for Sustainable Laboratories and My Green Labs and receiving awards and recognition this past year from the USG National Association of Collegiate Directors of Athletics (NACDA), the Commercial Real Estate Digital Innovation Awards, San Diego Gas & Electric, Nature magazine and the San Diego Association of Governments.

- More than 300 members of the campus community have taken advantage of special electric vehicle (EV) leasing and sales offers. Due to its success, the UC San Diego program is now being expanded to the entire UC system. Campus fleet purchases of EV's alone have averted well over 2.75 million pounds of carbon dioxide.
- With the addition of a 250 kW/500 kWh battery energy storage system to its 280 kW solar system, UC San Diego's Receiving and Distribution Center is now a near net-zero energy facility.
- UC San Diego certified 22 laboratories through its Green Labs Certification program, with 16 more in progress. Installation of more efficient aerators and Findensers saved 2.22 million gallons of water.
- Sports Facilities has been awarded a CalRecycle grant to implement consistent 1:1 trash recycling containers at all of its facilities, document diversion rates and create a marketing plan.
- All Housing, Dining and Hospitality restaurants and markets are now Responsible Epicurean and Agricultural Leadership (REAL) Certified®, a nationally-recognized mark of excellence for food and food service operators committed to holistic nutrition and environmental stewardship.

GREENHOUSE GAS EMISSIONS

(1,000 metric tons CO₂e)



- Scopes 1 (natural gas, campus fleet, fugitive) + 2 (purchased electricity)
- Scopes 1, 2 + 3 (campus commute, business air travel)

Goal:

1. 1990 Levels by 2020 (scope 1, 2 + 3)
2. Carbon neutral by 2025 (scope 1 + 2)
3. Carbon neutral by 2050 (scope 1, 2 + 3)

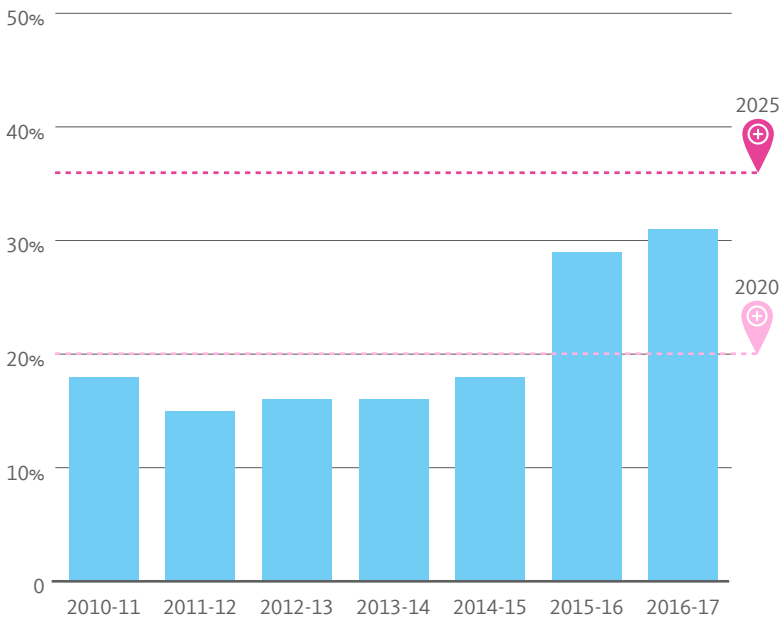
Progress:

UC San Diego's scope 1 emissions decreased due to the inclusion of purchased compliance offsets. Scope 2 emissions also decreased slightly. Scope 3 emissions increased 8% in 2016 due to more air and vehicle miles travelled.

Total renewable energy installed: 5.97 MW

PERCENT REDUCTION IN PER CAPITA POTABLE WATER CONSUMPTION

(% reduction in per capita potable water use)



Goal:

- 20% reduction from baseline in per capita potable water use by 2020.
- 36% reduction from baseline in per capita potable water use by 2025.

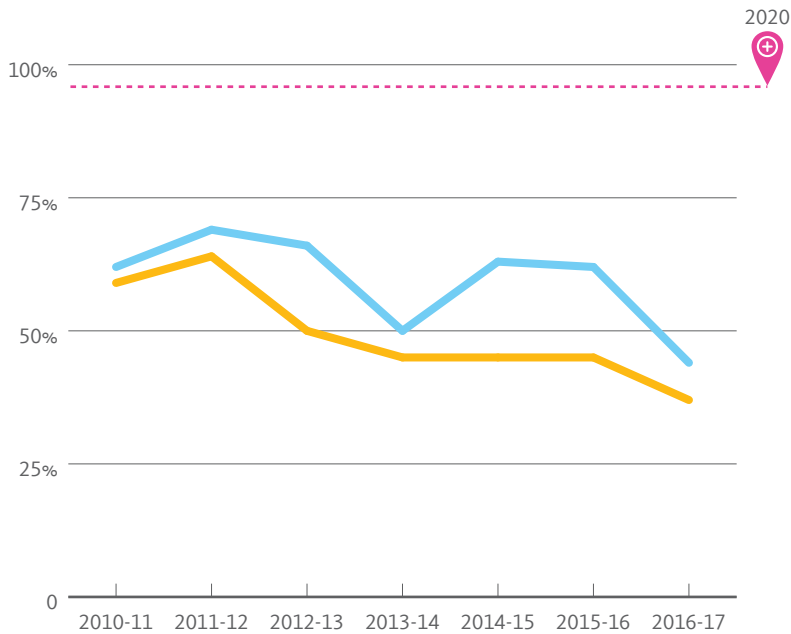
Progress:

- 2020 goal met

UC San Diego saved almost 8 million gallons in 2016-17 compared with the previous year resulting from the continued expansion of non-potable water sources for irrigation and use in the central plant.

2016-17 gallons per capita: 15,915

SOLID WASTE DIVERTED FROM LANDFILL



- Without construction and demolition
- With construction and demolition

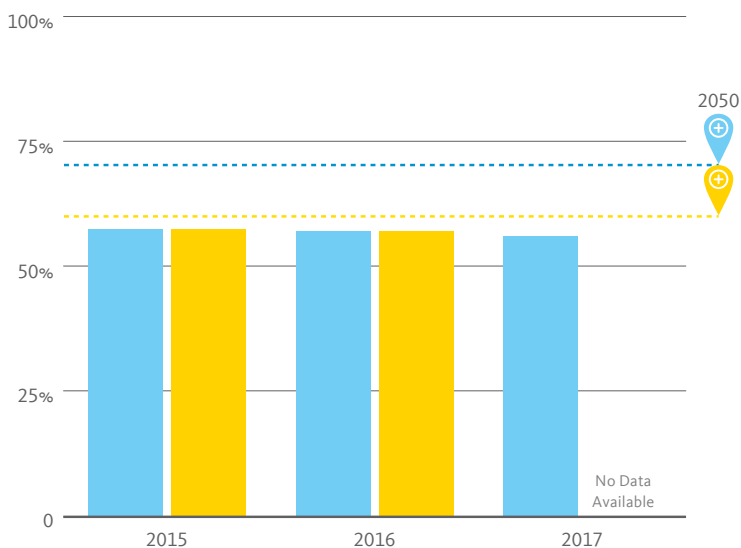
Goal:
Zero waste by 2020.

Progress:
UC San Diego's municipal solid waste diversion rates decreased by 7% in FY 2016-17. The campus is working to refine its data collection methods to better capture the campus' progress.

2016-17 lbs per capita per day: 2.63

TRANSPORTATION

(% alternative commute)

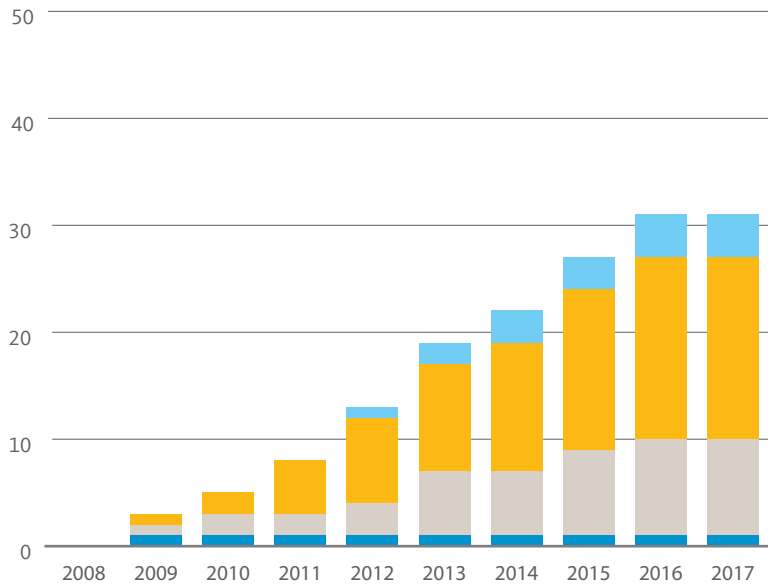


- Overall alternative commute
- Employee alternative commute

Goal:
By 2050, no more than 40% of employees and no more than 30% of all employees and students will commute by single-occupancy vehicle. In other words, 60% of employees and 70% of employees and students will use alternative commute modes to get to campus.

Progress:
UC San Diego's campus-wide commute modes remained roughly the same for 2017.

TOTAL NUMBER OF LEED CERTIFICATIONS



- Platinum
- Gold
- Silver
- Certified

Goal:

- LEED Silver minimum for all new construction. LEED Certified for renovation >\$5 million.
- Certify at least one LEED EBOM project.
- Exceed the California building energy code by 20%.

Progress:

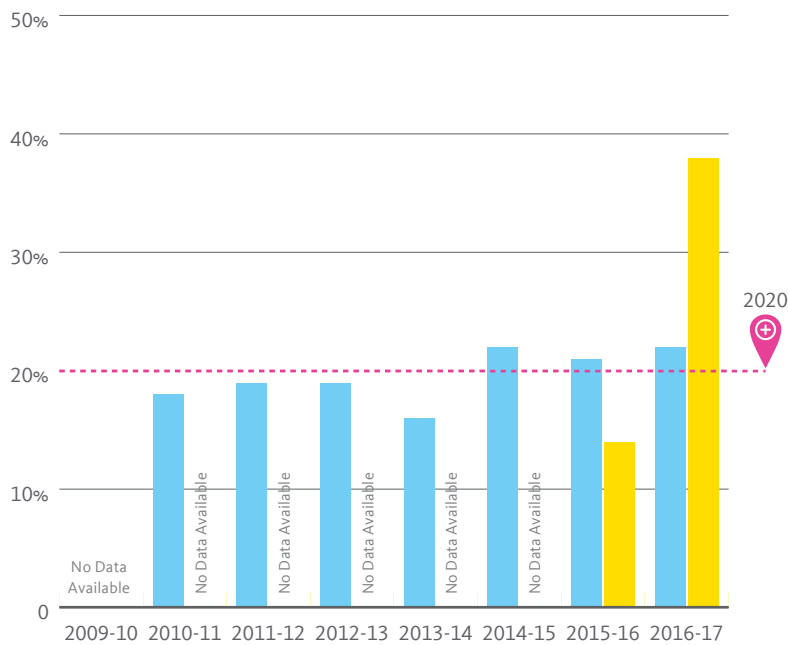
No new LEED certifications in 2017.

Number of LEED EBOM projects: 4

Average % beyond California building energy code: 18%

SUSTAINABLE FOOD PURCHASES

(% of food spend)



- Residential
- Retail

Goal:

- 20% of foodservice spend will be from sustainable products by 2020.
- Certify at least one facility as a green business.

Progress:

● 2020 goal met for residential and retail
 UC San Diego retail sustainable food spend jumped dramatically this year due to increased participation and reporting from vendors.

Number of green certified businesses: 1

UC San Francisco

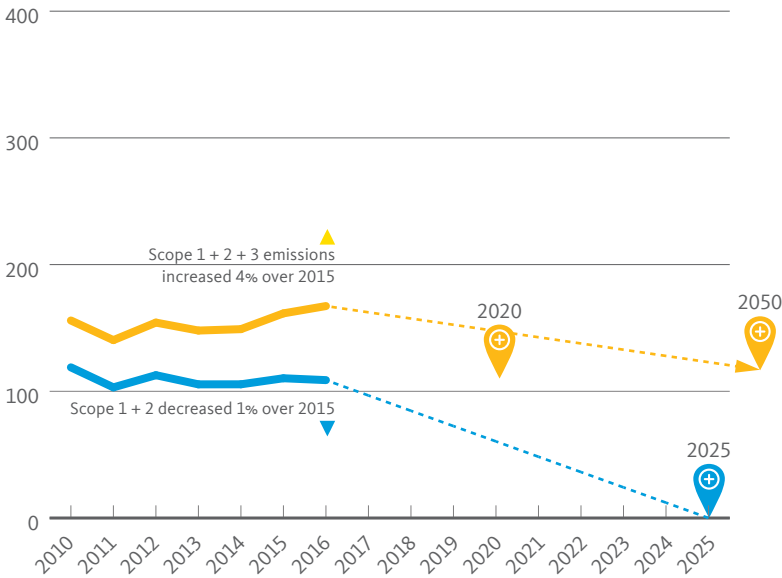


UCSF's 2016-17 sustainability highlights include the addition of electric shuttle buses, water use reductions and a print management program:

- UCSF acquired two all-electric 16-passenger ZENITH vans for shuttle operations and completed the purchasing process for 15 new Build Your Dreams Electric Transit buses, scheduled to arrive October 2017. They will be integrated into the shuttle network starting Spring 2018.
- The Bulk Sterilizer replacement project was completed and will save an estimated 10 to 12 million gallons of water per year. The project was a CHESC Best Practice Award winner.
- The implementation of a print management program to drastically reduce electricity usage and paper consumption began. The program includes Energy Star printers, 100 percent post-consumer waste paper, and scanning features.

GREENHOUSE GAS EMISSIONS

(1,000 metric tons CO₂e)



- Scopes 1 (natural gas, campus fleet, fugitive) + 2 (purchased electricity)
- Scopes 1, 2 + 3 (campus commute, business air travel)

Goal:

- 1990 Levels by 2020 (scope 1, 2 + 3)
- Carbon neutral by 2025 (scope 1 + 2)
- Carbon neutral by 2050 (scope 1, 2 + 3)

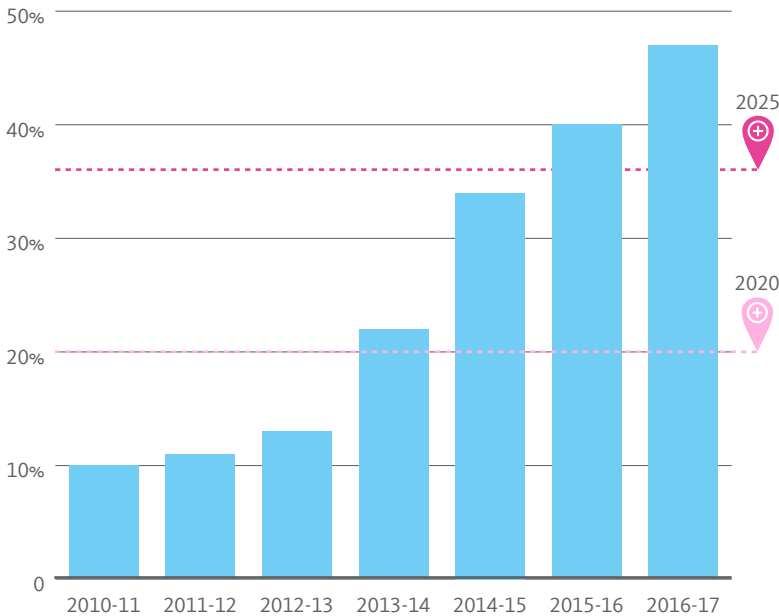
Progress:

UCSF reduced electricity use by 4% over 2015 while natural gas use increased slightly, resulting in a slight decrease in total scope 1 and 2 emissions. Scope 3 emissions increased due to more air travel miles. Commute emissions reflect 2015 data as the campus is in the midst of conducting a new commute survey.

Total renewable energy installed: 0.25 MW

PERCENT REDUCTION IN PER CAPITA POTABLE WATER CONSUMPTION

(% reduction in per capita potable water use)



Goal:

- 20% reduction from baseline in per capita potable water use by 2020.
- 36% reduction from baseline in per capita potable water use by 2025.

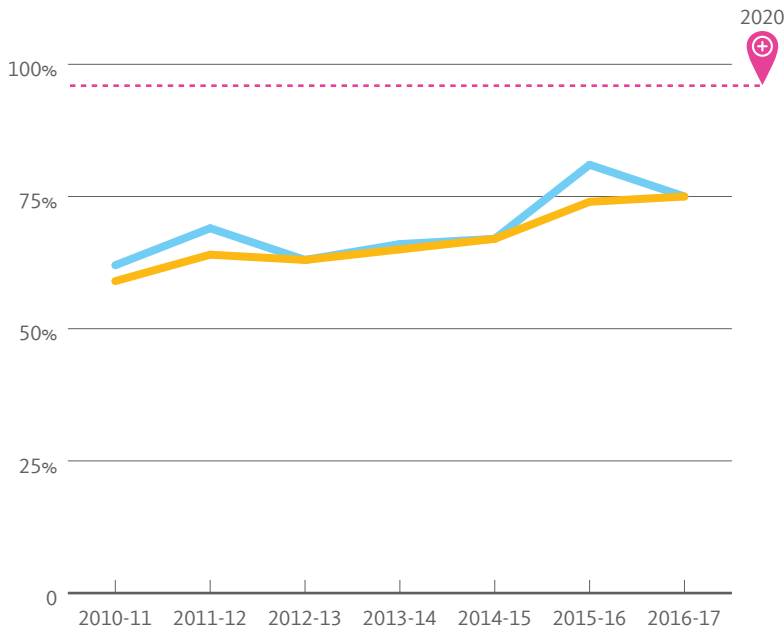
Progress:

● 2020 goal met

UC San Francisco decreased potable water use by 15 million gallons in FY 2016-17 due to significant water efficiency projects.

2016-17 gallons per capita: 9,453

SOLID WASTE DIVERTED FROM LANDFILL



- Without construction and demolition
- With construction and demolition

Goal:

Zero waste by 2020.

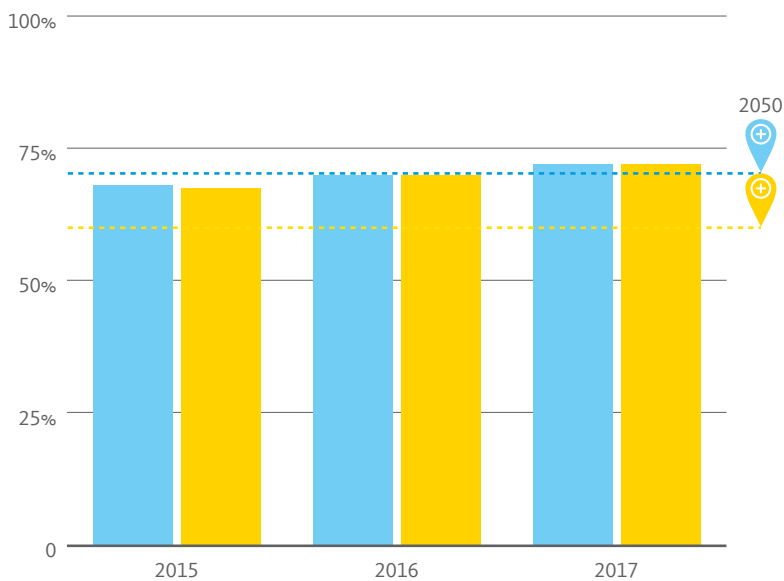
Progress:

UC San Francisco municipal solid waste diversion rate increased 1% in 2016-17 over last year.

2016-17 lbs per capita per day: 2.13

TRANSPORTATION

(% alternative commute)



- Overall alternative commute
- Employee alternative commute

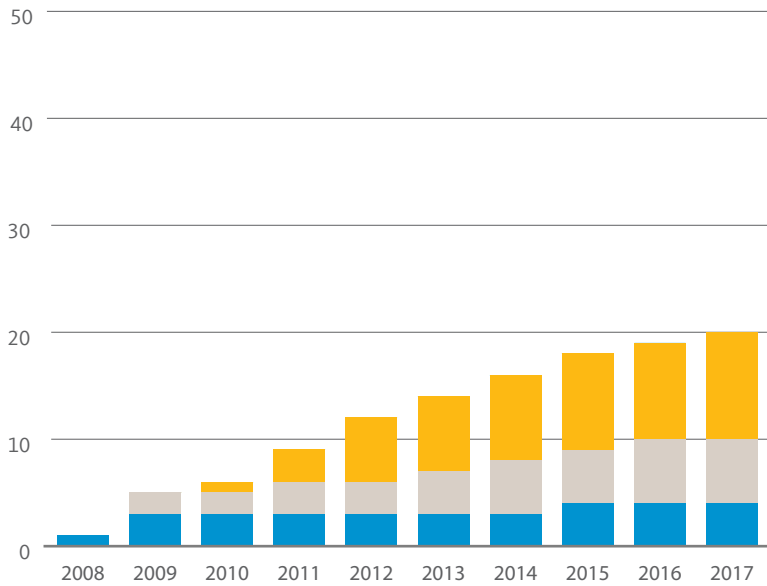
Goal:

By 2050, no more than 40% of employees and no more than 30% of all employees and students will commute by single-occupancy vehicle. In other words, 60% of employees and 70% of employees and students will use alternative commute modes to get to campus.

Progress:

UCSF has exceeded both policy goals for reducing commute by single occupancy vehicles.

TOTAL NUMBER OF LEED CERTIFICATIONS



- Platinum
- Gold
- Silver
- Certified

Goal:

- LEED Silver minimum for all new construction. LEED Certified for renovation >\$5 million.
- Certify at least one LEED EBOM project.
- Exceed the California building energy code by 20%.

Progress:

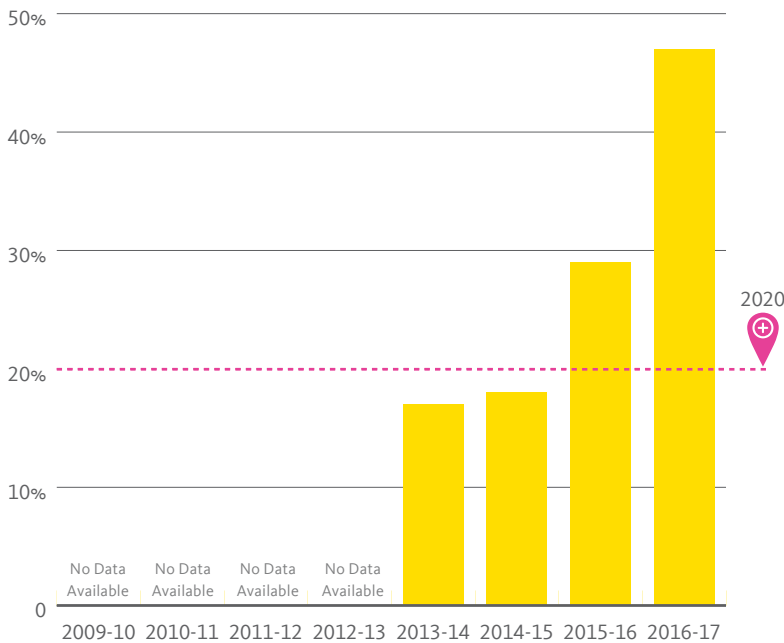
UC San Francisco certified one new Gold LEED for Interior Design + Construction project in 2017.

Number of LEED EBOM projects: 2

Average % beyond California building energy code in 2016-17: N/A

SUSTAINABLE FOOD PURCHASES

(% of food spend)



- Retail

Goal:

- 20% of foodservice spend will be from sustainable products by 2020.
- Certify at least one facility as a green business.

Progress:

● 2020 goal met for retail
UCSF retail foodservice vendors increased sustainable food purchased this year by 18 percentage points.

Number of green certified businesses: 1

UC Santa Barbara



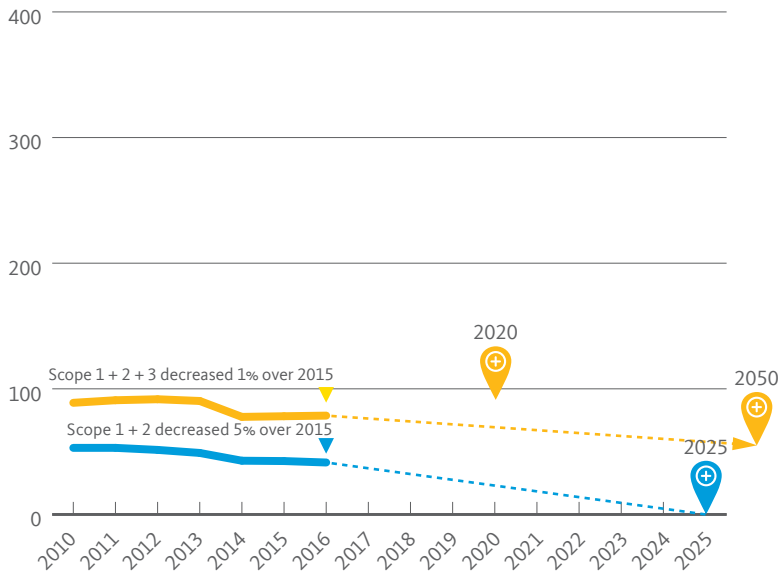
Credit: Elena Zhukova

UC Santa Barbara is committed to global leadership in sustainability through education, research and action, as evidenced by this year's achievements.

- Last year the League of American Bicyclists recognized UC Santa Barbara as a Gold Level Bicycle Friendly University. The campus has held this designation since 2011, when the award program was first launched.
- UC Santa Barbara won a 2017 Best Practice Award in the annual Energy Efficiency and Sustainability Awards contest presented at the California Higher Education Sustainability Conference (CHESC) for the Student Affairs and Administrative Services Building Advanced Lighting and Controls Project.
- UC Santa Barbara achieved their third AASHE STARS Gold rating in November 2016.
- Last academic year, over 4 MWs of onsite solar energy generation was installed, which will supply about a third of the energy required by campus buildings on an average day.
- The campus vehicle fleet added five all-electric vehicles: four Nissan Leafs and one E-Ride slow-speed electric truck.
- UC Santa Barbara KITP Residence received a LEED Platinum certification, the highest possible rating for sustainable design under the category "LEED for Homes." UC Santa Barbara is the only campus in the system with any "LEED for Homes" certifications.

GREENHOUSE GAS EMISSIONS

(1,000 metric tons CO₂e)



- Scopes 1 (natural gas, campus fleet, fugitive) + 2 (purchased electricity)
- Scopes 1, 2 + 3 (campus commute, business air travel)

Goal:

- 1990 Levels by 2020 (scope 1, 2 + 3)
- Carbon neutral by 2025 (scope 1 + 2)
- Carbon neutral by 2050 (scope 1, 2 + 3)

Progress:

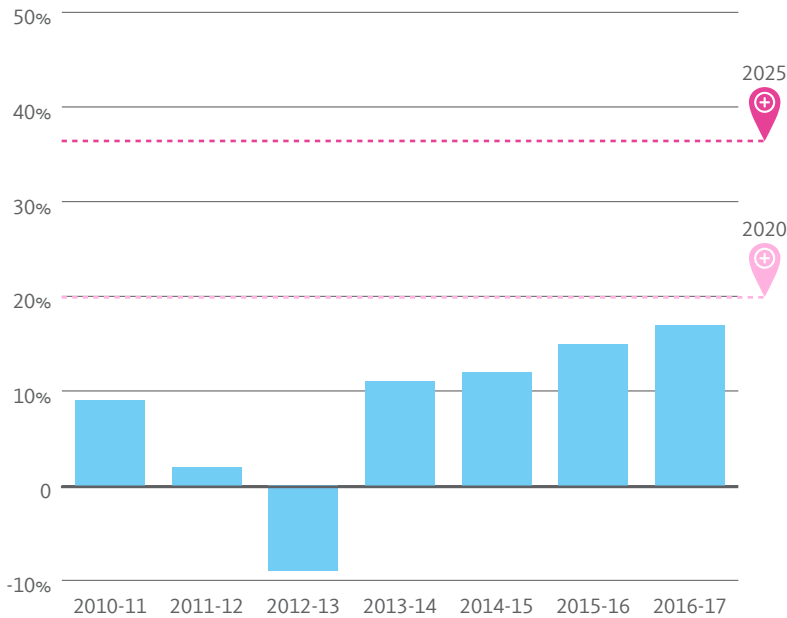
● 2020 goal met

UC Santa Barbara saw a decrease in scope 2 emissions due to a cleaner supply from the utility even though electricity use increased. Natural gas use increased by 12% this year due to a much cooler year as well as an increase in population. Scope 3 emissions rose slightly due to increased air travel and commute miles.

Total Renewable Energy Installed: 5.38 MW

PERCENT REDUCTION IN PER CAPITA POTABLE WATER CONSUMPTION

(% reduction in per capita potable water use)



Goal:

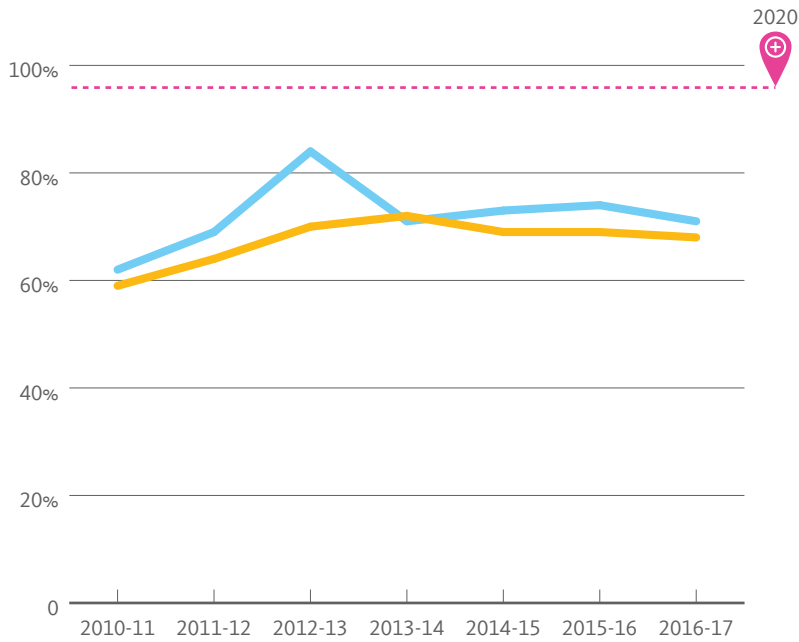
- 20% reduction from baseline in per capita potable water use by 2020.
- 36% reduction from baseline in per capita potable water use by 2025.

Progress:

UC Santa Barbara decreased potable water use by one million gallons while population increased, resulting in a 2% reduction in per capita potable water use in 2016-17.

2016-17 gallons per capita: 8,955

SOLID WASTE DIVERTED FROM LANDFILL



- Without construction and demolition
- With construction and demolition

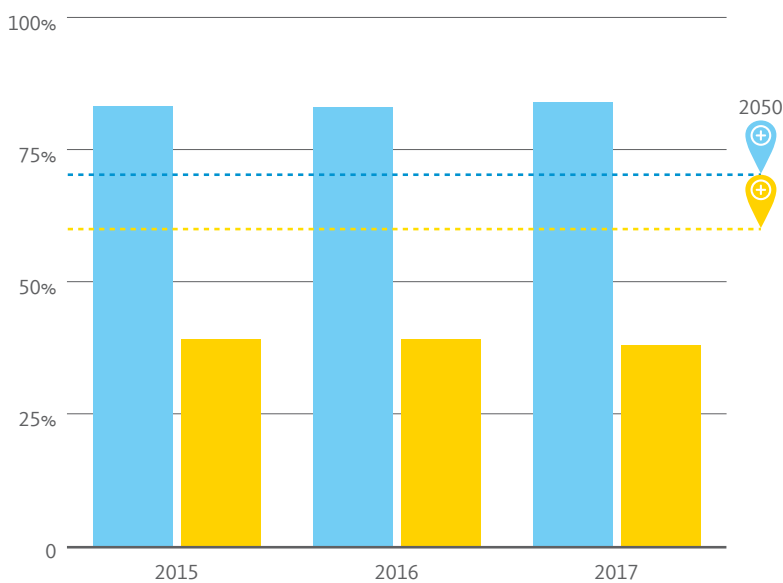
Goal:
Zero waste by 2020.

Progress:
UC Santa Barbara's municipal solid waste diversion rate decreased slightly in 2016-17.

2016-17 lbs per capita per day: 1.41

TRANSPORTATION

(% alternative commute)

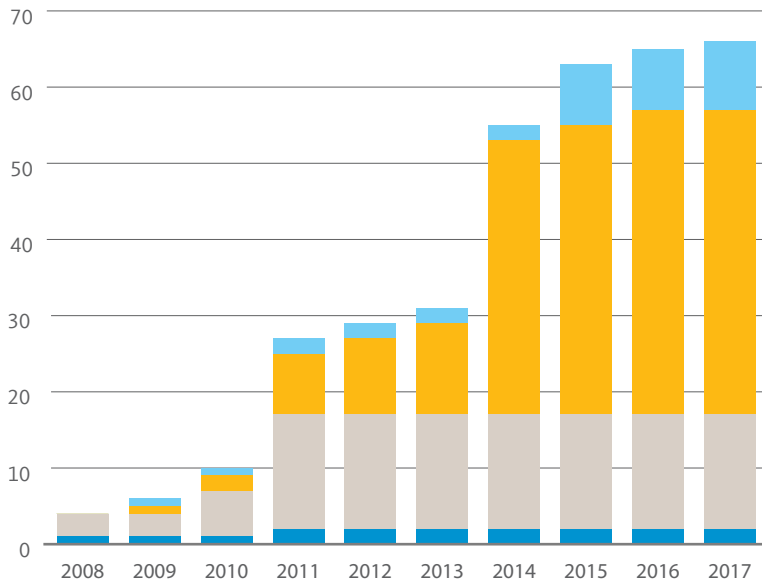


- Overall alternative commute
- Employee alternative commute

Goal:
By 2050, no more than 40% of employees and no more than 30% of all employees and students will commute by single-occupancy vehicle. In other words, 60% of employees and 70% of employees and students will use alternative commute modes to get to campus.

Progress:
● 2050 overall goal met
UC Santa Barbara maintains high alternative commute rates campus-wide except for employees, who continue to primarily commute by single-occupancy vehicle.

TOTAL NUMBER OF LEED CERTIFICATIONS



- Platinum
- Gold
- Silver
- Certified

Goal:

- LEED Silver minimum for all new construction. LEED Certified for renovation >\$5 million.
- Certify at least one LEED EBOM project.
- Exceed the California building energy code by 20%.

Progress:

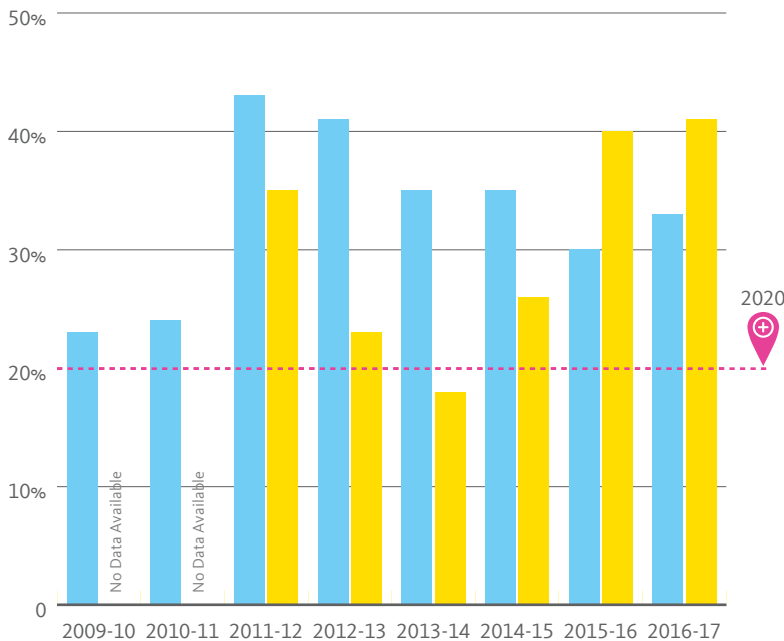
UC Santa Barbara certified a new platinum LEED for Homes project in 2017.

Number of LEED EBOM projects: 12

Average % beyond California building energy code: 28%

SUSTAINABLE FOOD PURCHASES

(% of food spend)



- Residential
- Retail

Goal:

- 20% of foodservice spend will be from sustainable products by 2020.
- Certify at least one facility as a green business.

Progress:

- 2020 goal met for both residential and retail

UC Santa Barbara foodservice continues to exceed the policy goal for both residential and retail foodservice.

Number of green certified businesses: 16

UC Santa Cruz



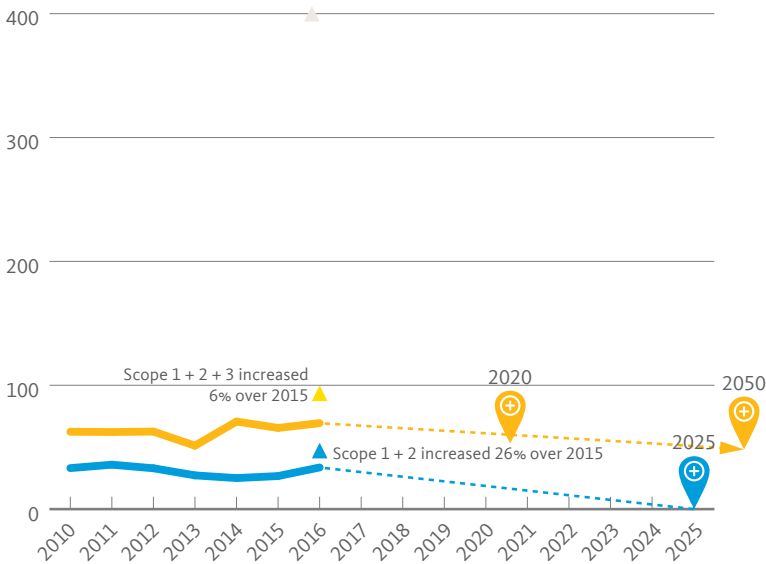
Credit: Elena Zhukova

UC Santa Cruz 2016-17 sustainability highlights include potable water reductions, third-party recognition, sustainable food purchases and electric vehicle infrastructure:

- Over 14,000 square feet of turf was identified for replacement or removal, which will result in potable water savings of approximately 339,305 gallons annually, or 1.4 percent of the annual irrigation water budget.
- UC Santa Cruz achieved LEED Gold Certification for its all-electric, low carbon Haybarn Renovation Project.
- UC Santa Cruz was awarded an Environmental Impact Achievement award from the Kimberly-Clark RightCycle Program for diverting 1,620 pounds of single-use recyclable laboratory gloves from landfill.
- Using Real Food Challenge guidelines, UC Santa Cruz increased its sustainable food purchases by nearly 5 percent to over 25 percent this past year. UC Santa Cruz dining partnered with a local fishery, increased local produce purchases (including produce from the campus organic farm), brought in local/Halal beef and changed out all recipes to use vegan and soy-free mayonnaise. An annual Tasting Fair, showcasing products from over 30 local and organic vendors used daily, was held during Earth Week.
- UC Santa Cruz completed an Electric Vehicle Charging Assessment Study for the campus to review infrastructure needs and estimated costs to expand EV charging at key campus lots.

GREENHOUSE GAS EMISSIONS

(1,000 metric tons CO₂e)



- Scopes 1 (natural gas, campus fleet, fugitive) + 2 (purchased electricity)
- Scopes 1, 2 + 3 (campus commute, business air travel)

Goal:

- 1990 Levels by 2020 (scope 1, 2 + 3)
- Carbon neutral by 2025 (scope 1 + 2)
- Carbon neutral by 2050 (scope 1, 2 + 3)

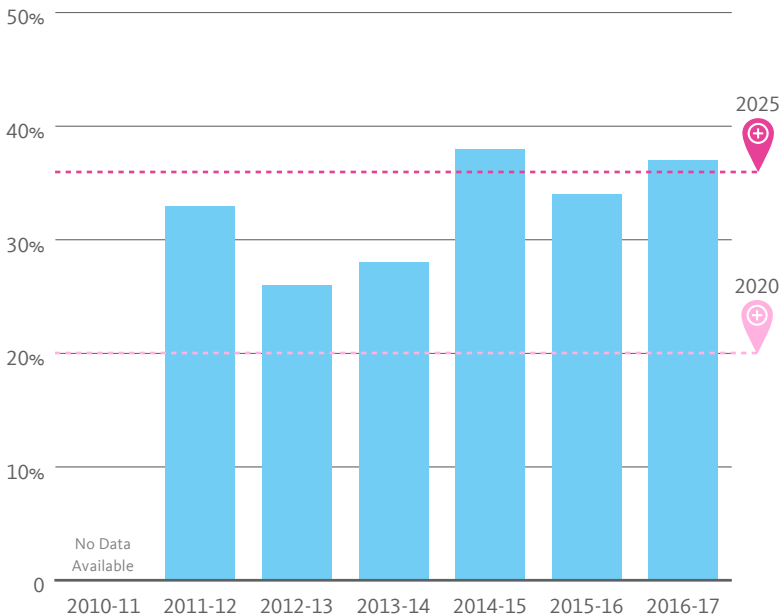
Progress:

UC Santa Cruz constructed a new combined heat and power plant in 2015 to address reliability issues faced by the campus utility connection. This last year was the first full year of operation therefore scope 1 emissions increased 50% in 2016 while scope 2 emissions decreased by 33%.

Total renewable energy installed: 0.25

PERCENT REDUCTION IN PER CAPITA POTABLE WATER CONSUMPTION

(% reduction in per capita potable water use)



Goal:

- 20% reduction from baseline in per capita potable water use by 2020.
- 36% reduction from baseline in per capita potable water use by 2025.

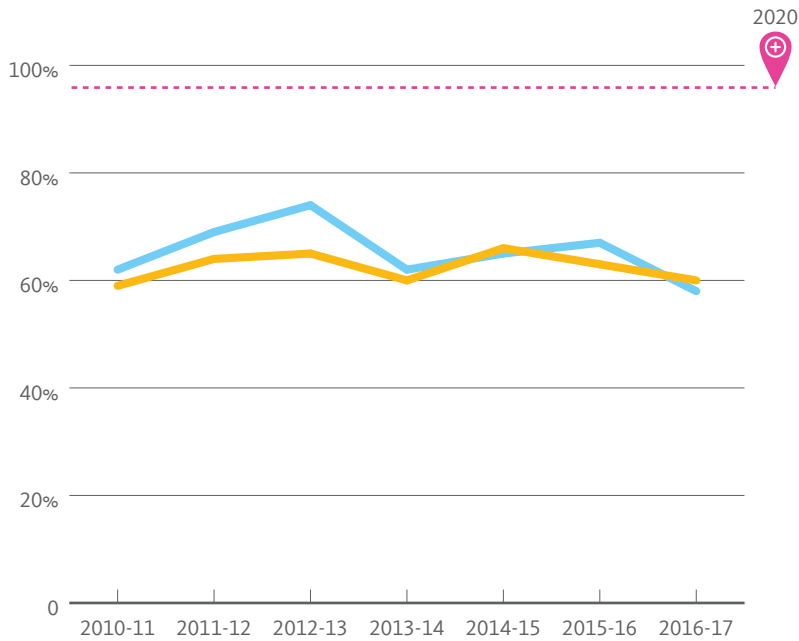
Progress:

- 2020 goal met
- 2025 goal met

UC Santa Cruz's total potable water use remained roughly the same in FY 2016-17 as compared to FY 2015-16 while population increased, resulting in a reduction in per capita potable water use of an addition 3%.

2016-17 gallons per capita: 8,490

SOLID WASTE DIVERTED FROM LANDFILL



- Without construction and demolition
- With construction and demolition

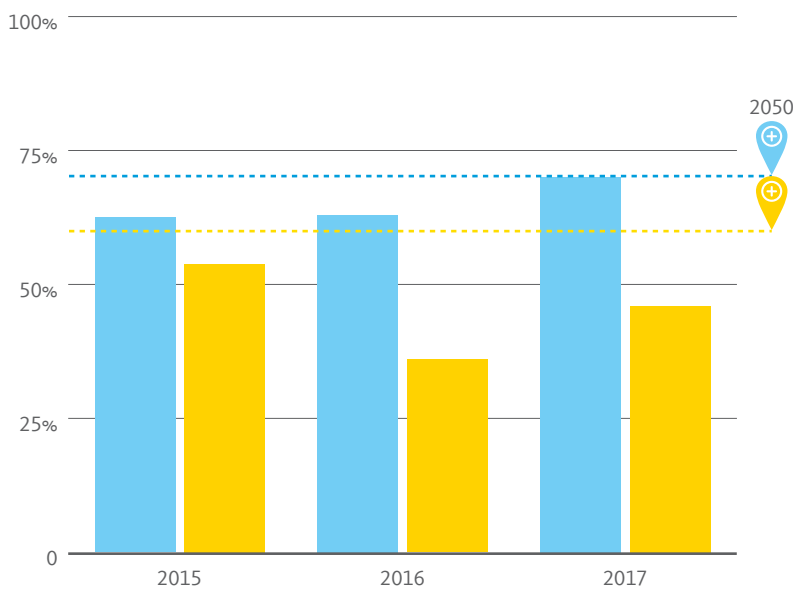
Goal:
Zero waste by 2020.

Progress:
UC Santa Cruz's municipal solid waste diversion rate decreased slightly in FY 2016-17.

2016-17 lbs per capita per day: 1.19

TRANSPORTATION

(% alternative commute)

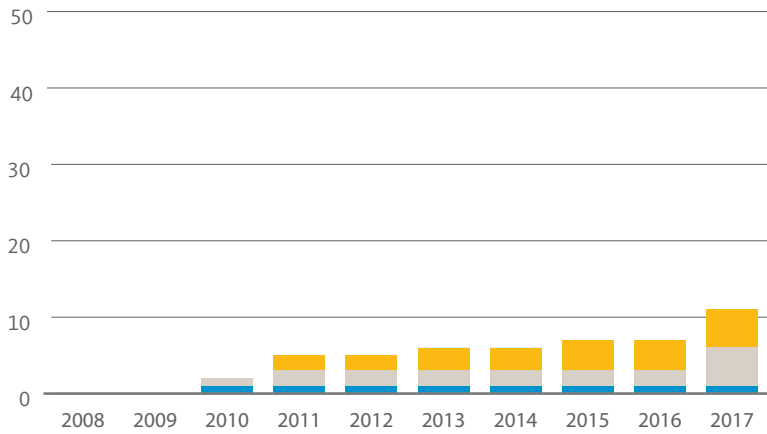


- Overall alternative commute
- Employee alternative commute

Goal:
By 2050, no more than 40% of employees and no more than 30% of all employees and students will commute by single-occupancy vehicle. In other words, 60% of employees and 70% of employees and students will use alternative commute modes to get to campus.

Progress:
● 2050 employee overall goal met
UC Santa Cruz increased campus-wide alternative commute modes this year 7% to meet the 2050 goal. Employee alternative commute modes increased by 10% this year but is likely due to variations in survey data due to the addition of telecommuting.

TOTAL NUMBER OF LEED CERTIFICATIONS



- Platinum
- Silver
- Gold
- Certified

Goal:

- LEED Silver minimum for all new construction. LEED Certified for renovation >\$5 million.
- Certify at least one LEED EBOM project.
- Exceed the California building energy code by 20%.

Progress:

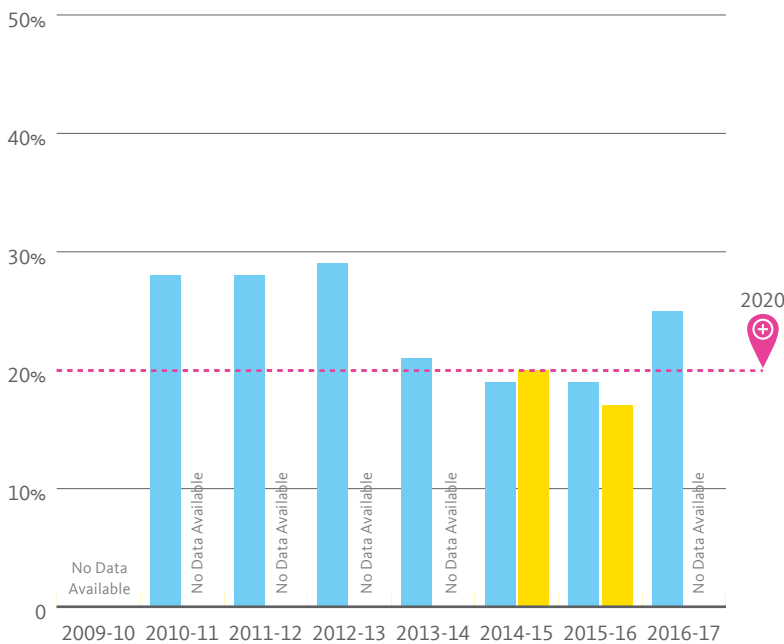
UC Santa Cruz certified 4 new LEED for Building Design + Construction projects in 2017 including 3 Silver and 1 Gold.

Number of LEED EBOM projects: 1

Average % beyond California building energy code in 2016-17: 30%

SUSTAINABLE FOOD PURCHASES

(% of food spend)



- Residential
- Retail

Goal:

- 20% of foodservice spend will be from sustainable products by 2020.
- Certify at least one facility as a green business.

Progress:

● 2020 goal met for residential
Retail data is included in residential data for 2016-17. In 2016-17, UC Santa Cruz increased purchases of sustainable products including meat, safe-catch tuna, milk and eggs, resulting in a 6% increase in sustainable food spend. The campus has a goal to increase sustainable food spend by 5% per year in order to hit the campus' 40% by 2020 goal.

Number of green certified businesses: 15

UC Health



UC Davis Health

UC Davis Health has been working to ensure that carbon neutrality, sustainability and patient amenity are at the core of their strategy for new developments as they plan for growth and replacement of existing infrastructure.

Savings:

Over \$200,000 per year of savings from reprocessing single-use devices.

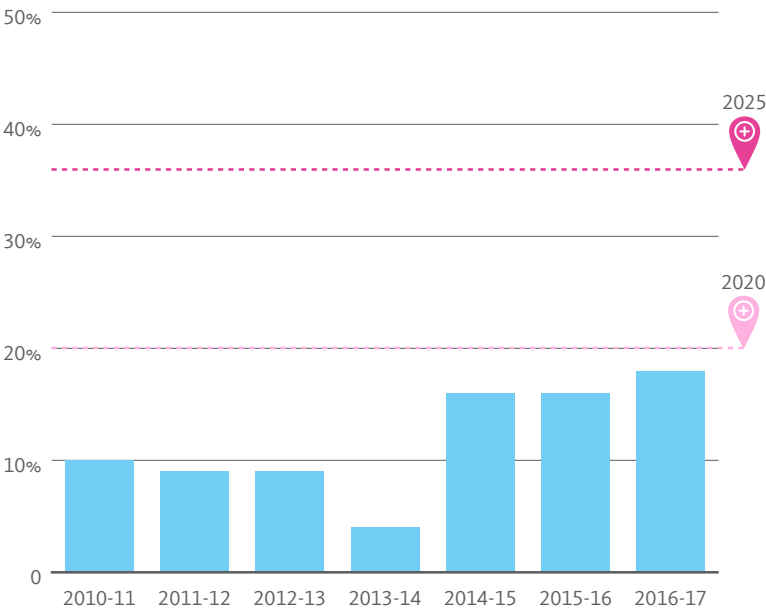
Other achievements:

- Over 18 percent of UC Davis Health’s energy is supplied by 100 percent green energy.
- Estimated 600,000 gallons of water saved through targeted water savings projects.

- Added two new LEED Gold Interior Design and Construction certifications for the ASB School of Nursing and the Midtown Ambulatory Care Center.
- Diversion of Construction and Demolition waste from UC Davis Health projects has averaged 90 percent.
- Implemented grass-fed beef (burgers and ground beef) and Marine Stewardship Council Tuna in food service.
- Implemented organic beverages as part of their Healthy Beverage Campaign.

PERCENT REDUCTION IN PER CAPITA POTABLE WATER CONSUMPTION

(% reduction in per capita potable water use)



Goal:

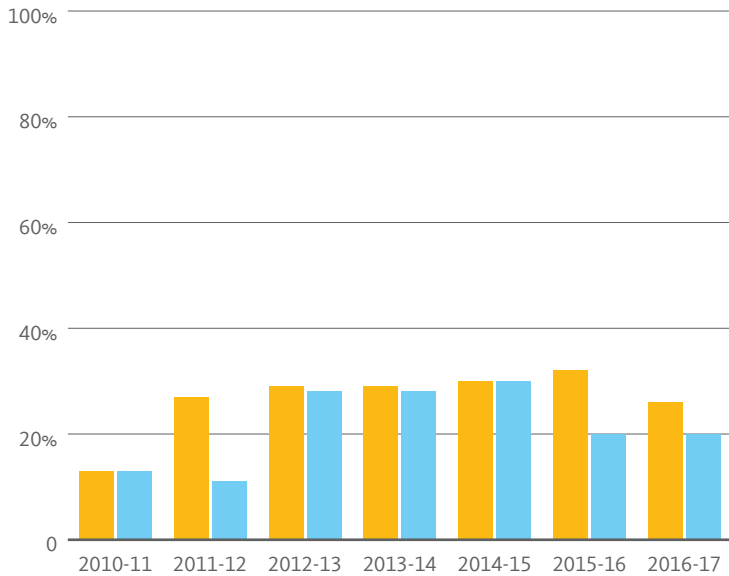
- 20% reduction from baseline in per capita potable water use by 2020.
- 36% reduction from baseline in per capita potable water use by 2025.

Progress:

2016-17, the UC Davis Health System reduced per capita potable water use by 18%, 2% more than last year, in part due to a project that replaced lawn with artificial turf, which is estimated to save over 600,000 gallons of irrigation water annually.

2016-17 gallons per capita: 596

SOLID WASTE DIVERTED FROM LANDFILL



- Municipal solid waste (no C+D)
- Total Waste

Goal:

Zero waste by 2020.

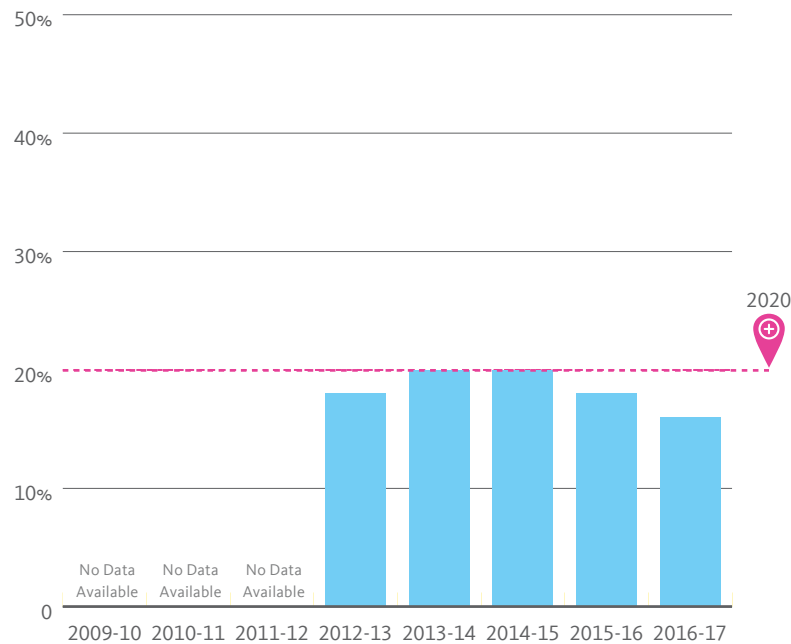
Progress:

In FY 2016-17, UC Davis Health System diverted 26% of its municipal solid waste from the landfill and 20% of its total waste.

2016-17 lbs per capita per day: 43

SUSTAINABLE FOOD PURCHASES

(% of food spend)



Goal:

- 20% of foodservice spend will be from sustainable products by 2020.
- Certify at least one facility as a green business.

Progress:

In FY 2016-17, 16% of the food purchased at the UC Davis Health System met one or more sustainable food criteria, a decrease of 2% from FY 2015-16 although the system began purchasing grassfed beef and Marine Stewardship Council tuna.

Number of green certified businesses: 0

UC Irvine Health

UC Irvine Health made significant progress in FY 2016-17 in water and waste. UC Irvine Health began tracking almost all waste leaving the hospital in 2016, enabling the system to benchmark waste information and accurately track progress on implemented waste diversion programs. UC Irvine Health achieved continued progress in 2016-17 from an established alternative commuter program and from a focused water savings program.

Savings:

- UC Irvine Health has achieved an estimated 19 million gallons of water savings in a portfolio of projects including laminar flow fixture change outs, cooling tower upgrades and a sterilizer management program.

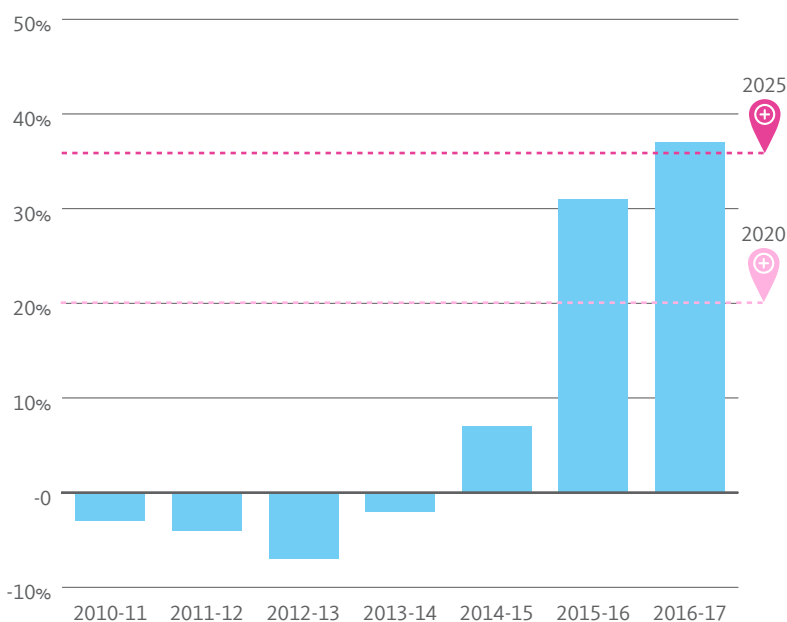
- \$115,000 per year from water savings.
- 30 percent return on investment on water savings projects implemented to date.

Other achievements:

- Implemented Orange County Transportation Authority Commuter Alternative Rideshare program managed under the Parking and Transportation Services Department.

PERCENT REDUCTION IN PER CAPITA POTABLE WATER CONSUMPTION

(% reduction in per capita potable water use)



Goal:

- 20% reduction from baseline in per capita potable water use by 2020.
- 36% reduction from baseline in per capita potable water use by 2025.

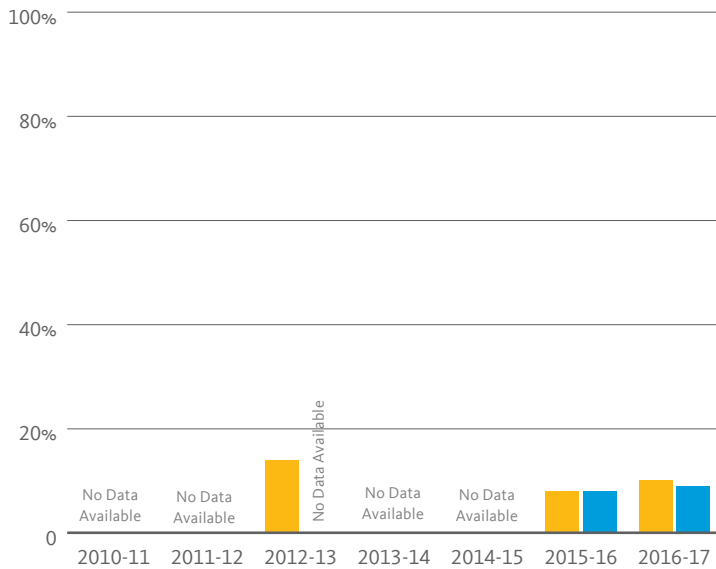
Progress:

- 2020 goal met
- 2025 goal met

UC Irvine Health has been working to implement significant water efficiency projects, resulting in a reduction of more than 25 million gallons over the last two years.

2016-17 gallons per capita: 408

SOLID WASTE DIVERTED FROM LANDFILL



- Municipal solid waste (no C+D)
- Total waste

Goal:

Zero waste by 2020.

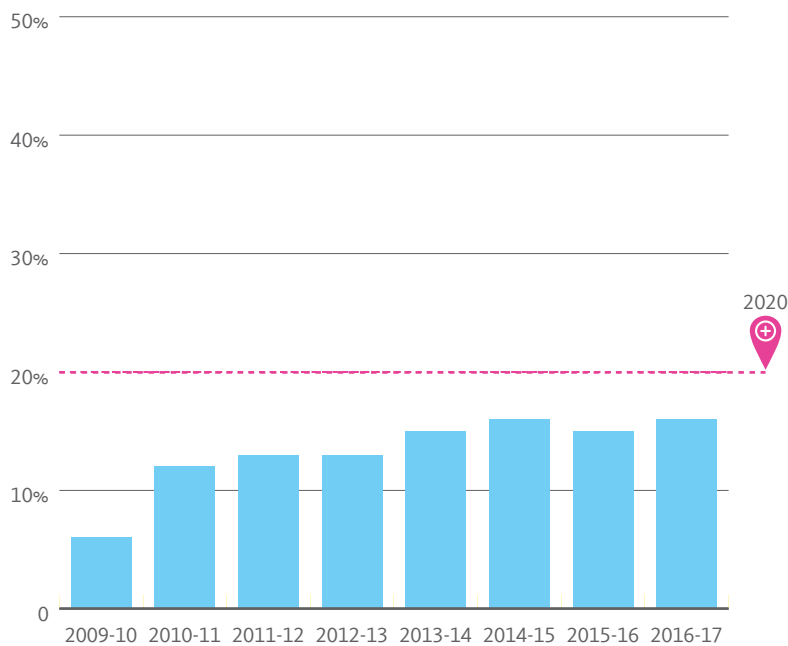
Progress:

UC Irvine Health slightly increased municipal solid waste diversion in FY 2016-17.

2016-17 lbs per capita per day: 43

SUSTAINABLE FOOD PURCHASES

(% of food spend)



Goal:

- 20% of foodservice spend will be from sustainable products by 2020.
- Certify at least one facility as a green business.

Progress:

UC Irvine Health slightly increased sustainable food spend in FY 2016-17.

Number of Green Certified Businesses: 0

UCLA Health

UCLA Health has had a big year in sustainability with new staff in both the sustainability and energy areas. During FY 2016-17 UCLA Health has taken a leadership role at the system level supporting a new UC statewide sustainable medical center group, and made significant progress with waste and energy projects.

Awards and recognition 2016-17:

- Practice Greenhealth — Partners for Change Award for Ronald Regan UCLA Medical Center and UCLA Medical Center, Santa Monica
- Practice Greenhealth — Making Medicine Mercury Free Health System

Savings:

- Reprocessed single-use devices — \$613,000 per year
- Reusable gowns — \$420,000 per year

- Water savings — \$53,000 per year
- Recycling and composting — \$53,000 per year

Other items of note:

- Over half of health system fleet (52 percent) converted to alternative fuel vehicles.
- Installed artificial turf outside Ronald Reagan cafeteria and UCLA Medical Center, Santa Monica parking structure.
- UCLA Santa Clarita Medical Office Building (Radiology) certified LEED Gold.
- Launched recycling program in operating rooms and patient rooms.
- Increased spend on grass-fed and grass-finished beef and cage-free eggs.

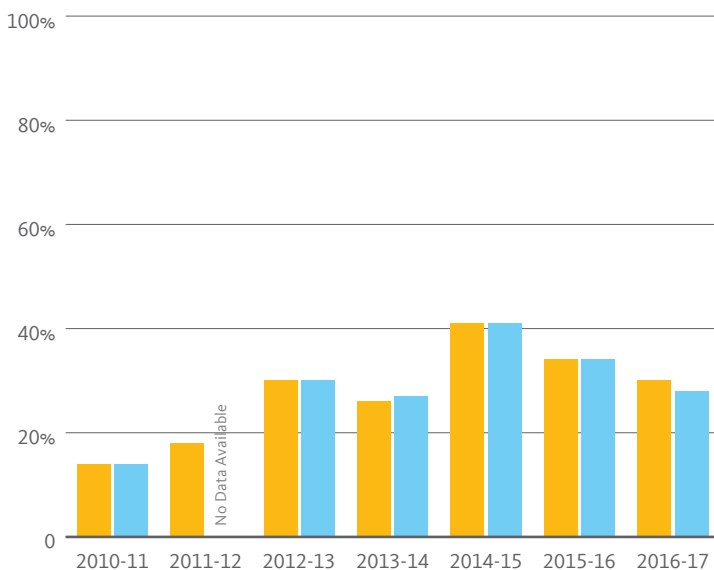
PERCENT REDUCTION IN PER CAPITA POTABLE WATER CONSUMPTION

Note:

UCLA Medical Center water use is included with the campus water use data. See UCLA's campus profile for details on progress.

SOLID WASTE DIVERTED FROM LANDFILL

- Municipal solid waste (no C+D)
- Total Waste



Goal:

Zero waste by 2020.

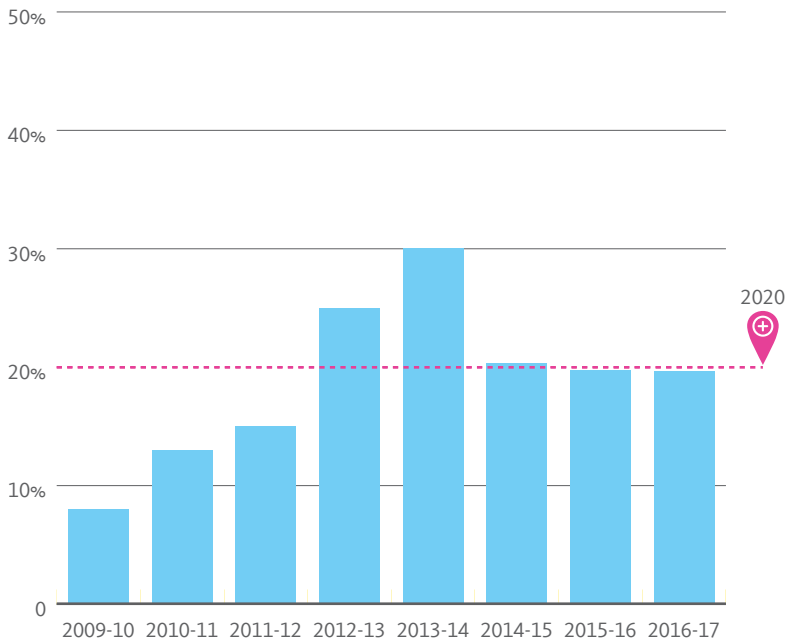
Progress:

UCLA Health waste diversion rates decreased in 2016-17 by 6%.

2016-17 lbs per capita per day: 31.5

SUSTAINABLE FOOD PURCHASES

(% of food spend)



Goal:

- 20% of foodservice spend will be from sustainable products by 2020.
- Certify at least one facility as a green business.

Progress:

UCLA Health retail sustainable food spend decreased slightly in FY 2016-17 to just shy of 20% but did increase spend on grassfed beef and cage-free eggs.

Number of green certified businesses: 2

UC San Diego Health

UC San Diego Health engaged the second full-time energy manager in the UC Health system in 2016-17 and has started to make inroads on energy savings projects and opportunities. UC San Diego Health continues to focus on food services where they continue to make significant progress including rolling out a new composting program at both hospital sites.

Awards and recognition 2016-17:

- Community Health Improvement Partnership (CHIP) Top Chef Competition winner.

Savings:

- \$40,000 per year savings in energy projects undertaken to date.
- \$270,000 per year savings in energy savings projects identified and underway.

Other items of note:

- Started first UC San Diego Medical Center Composting program at both hospital sites (252,000 lbs. composted Dec 2016-June 2017).
- Operating Room Recycling Training was undertaken at Hillcrest and La Jolla Medical Centers.
- 50 percent of all produce purchases were from San Diego County or within 250 miles of the county.
- In food service, all chicken is antibiotic-free and beef is grass-fed and antibiotic-free.

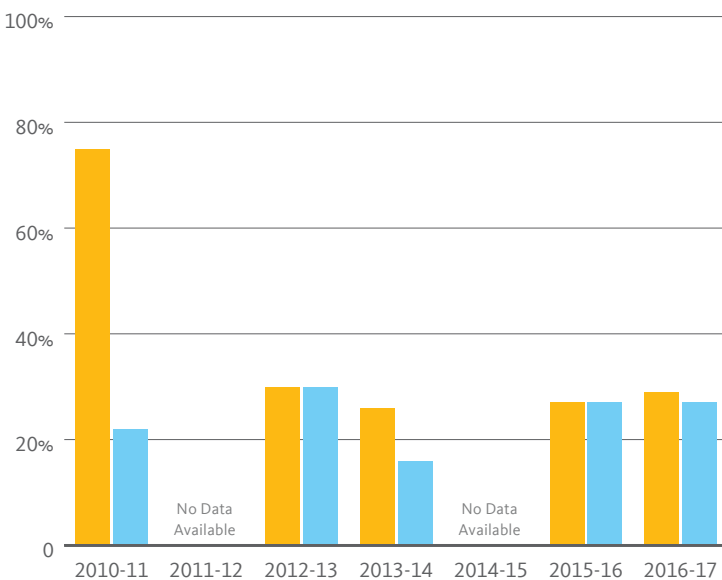
PERCENT REDUCTION IN PER CAPITA POTABLE WATER CONSUMPTION

Note:

UC San Diego Medical Center water use is included with the campus water use data. See UC San Diego's campus profile for details on progress.

SOLID WASTE DIVERTED FROM LANDFILL

- Municipal solid waste (no C+D)
- Total Waste



Goal:

Zero waste by 2020.

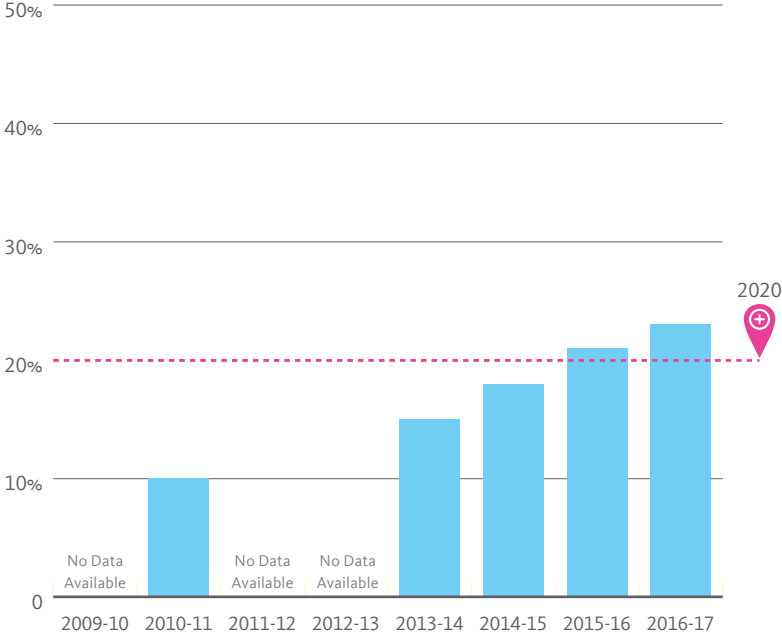
Progress:

UC San Diego Health municipal solid waste diversion rate increased 2% in FY 2016-17.

2016-17 lbs per capita per day: 2.63

SUSTAINABLE FOOD PURCHASES

(% of food spend)



Goal:

- 20% of foodservice spend will be from sustainable products by 2020.
- Certify at least one facility as a green business.

Progress:

● 2020 goal met
UC San Diego Health's sustainable food spend increased by 2% in FY 2016-17.

Number of green certified businesses: 0

San Francisco Health

In a busy environment such as a hospital it can be difficult to engage staff in making changes for long-term challenges such as climate change when patient care and fiscal responsibility are paramount. UCSF Health faculty, staff and students, however, have worked diligently to drive behavior change in the classroom and in the operating room.

Awards and recognition 2016-17:

- Practice Greenhealth — Emerald Award
- Practice Greenhealth — Greening the OR Award
- Recognized as one of "50 Greenest Hospitals in America" for 2016 by Becker's Hospital Review

Savings:

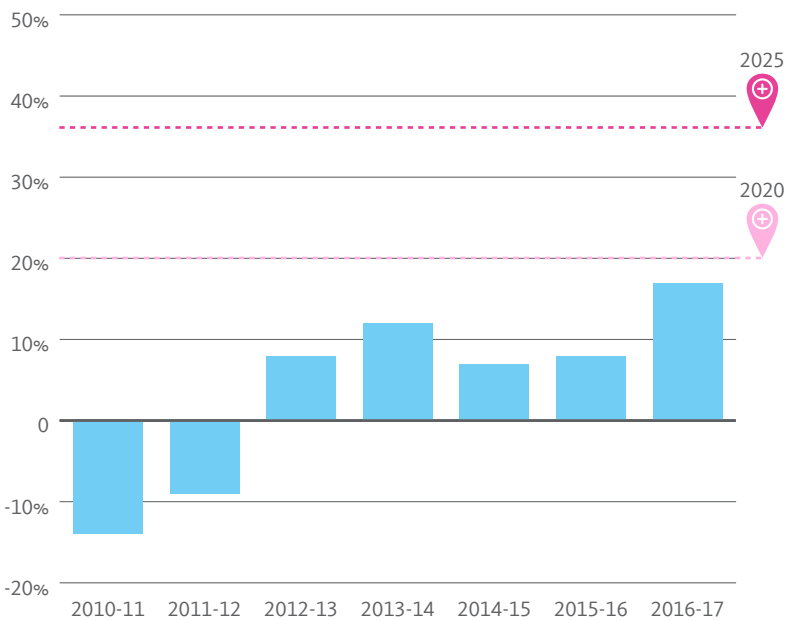
- Reprocessing single-use devices — \$1.7 million per year
- Energy and Water Savings — \$1.5 million per year
- Studies during 2016-17 identified over \$500,000 per year in potential additional savings from single-use device waste reduction.

Other items of note:

- UC's first medical course focused exclusively on the links between climate change and health at UCSF Health held in January 2017.
- UCSF Health physicians and residents have led a number of projects quantifying waste and energy reduction opportunities and activities throughout the medical centers and particularly the Peri-operative area, including HVAC setbacks, air-assisted patient transfer device reprocessing and conversion of air-assisted patient warming devices to warm blankets with an estimated energy cost savings of over \$500,000 per year.

PERCENT REDUCTION IN PER CAPITA POTABLE WATER CONSUMPTION

(% reduction in per capita potable water use)



Goal:

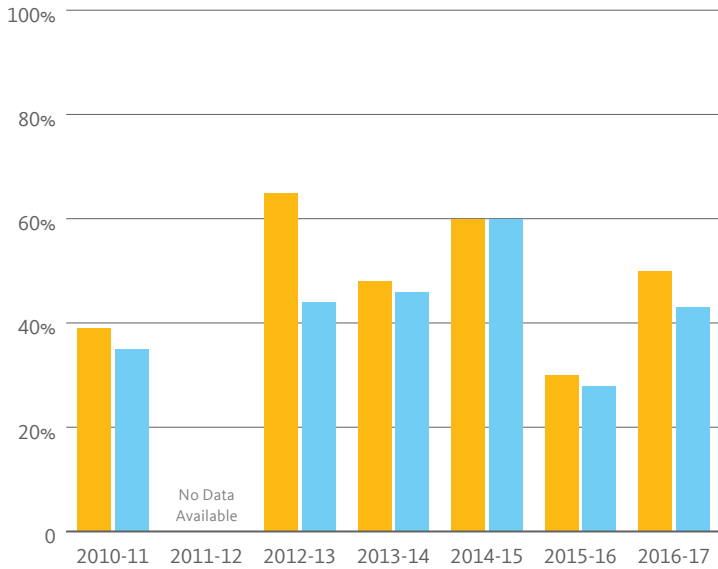
Reduce growth-adjusted potable water consumption 20% by 2020 and 36% by 2025, when compared to a three-year average baseline of FY 2005-06, FY 2006-07, and FY 2007-08.

Progress:

UCSF Health decreased total potable water use by almost 5 million gallons in FY 2016-17 and increased in population, resulting in a 9% further reduction in per capita potable water use.

2016-17 gallons per capita: 313

SOLID WASTE DIVERTED FROM LANDFILL



- Municipal solid waste (no C+D)
- Total Waste

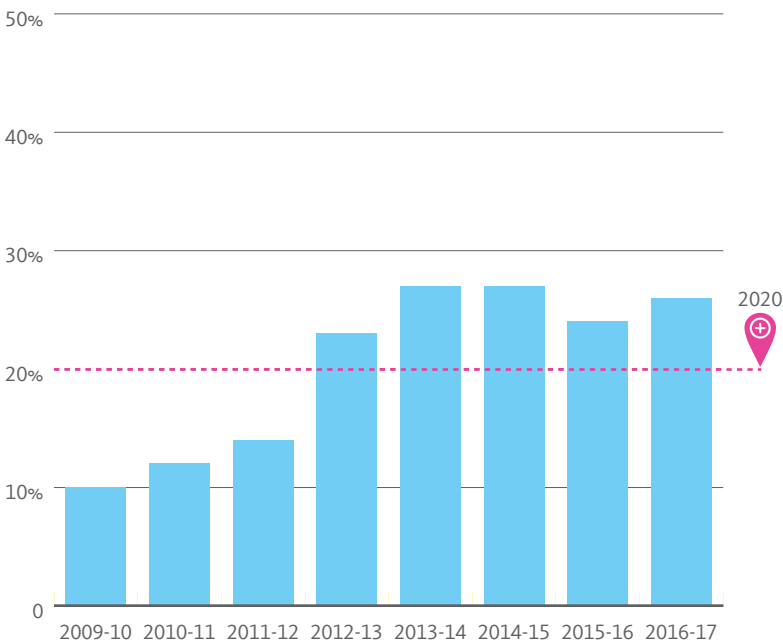
Goal:
Zero Waste by 2020.

Progress:
UCSF Health increased waste diversion rates significantly in FY 2016-17 with the inclusion of recycled shredded paper data, which was omitted from the previous year data.

2016-17 lbs per capita per day: 54

SUSTAINABLE FOOD PURCHASES

(% of food spend)



Goal:
Procure 20% sustainable food products by the year 2020.

Progress:
UCSF Health foodservice facilities increased sustainable food spend by 2% in FY 2016-17.

Number of green certified businesses: 0

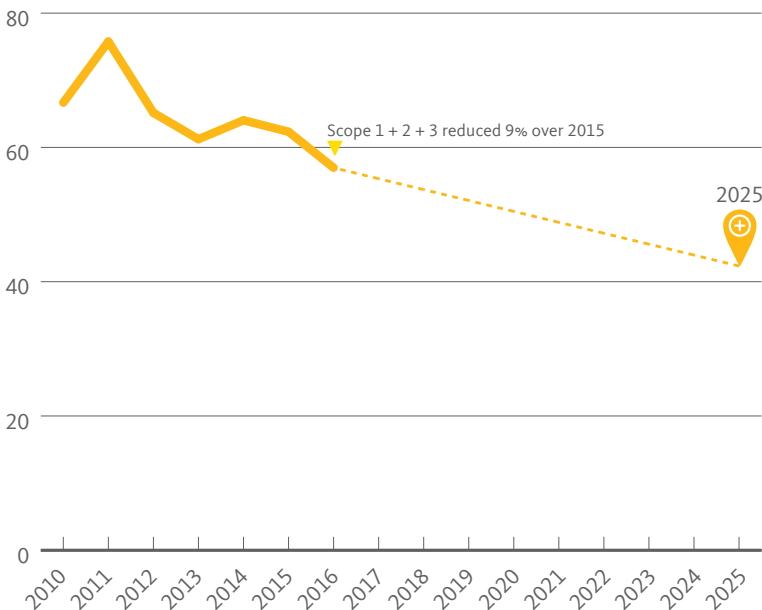
Lawrence Berkeley National Laboratory

Lawrence Berkeley National Laboratory (the Lab) 2016-17 sustainability highlights include advances in reducing energy, water and waste on campus:

- The Lab conducted a controls optimization project at its high-performance computing facility that is on track to save more than 2 million kWh and a 200,000 gallons of water per year. The electricity savings corresponds to more than 60 percent of the baseline “non-compute” electricity use at the facility and is more than the electricity that would be generated by a 1 MW solar array in Berkeley (an area of about 3 football fields). See details at tinyurl.com/y772lyds.
- The Lab completed a round of low-flow restroom fixture replacements and valve retrofits to reduce water consumption by approximately 720,000 gallons per year. Project details are available at tinyurl.com/l635qsm.
- The Lab conducted site-wide waste audits to track building-level diversion and identify contaminants in waste streams that could be better diverted. See the data at <https://tinyurl.com/y8xorzd1> and even more detail at <https://tinyurl.com/yawcc7kz>.
- With its cafeteria vendor, the Lab replaced all PLA plastics with compostable fiber-based containers products that break down as compost.

GREENHOUSE GAS EMISSIONS

(1,000 metric tons CO₂e)



- Scopes 1, 2 + 3 (campus commute, business air travel)

Goal:

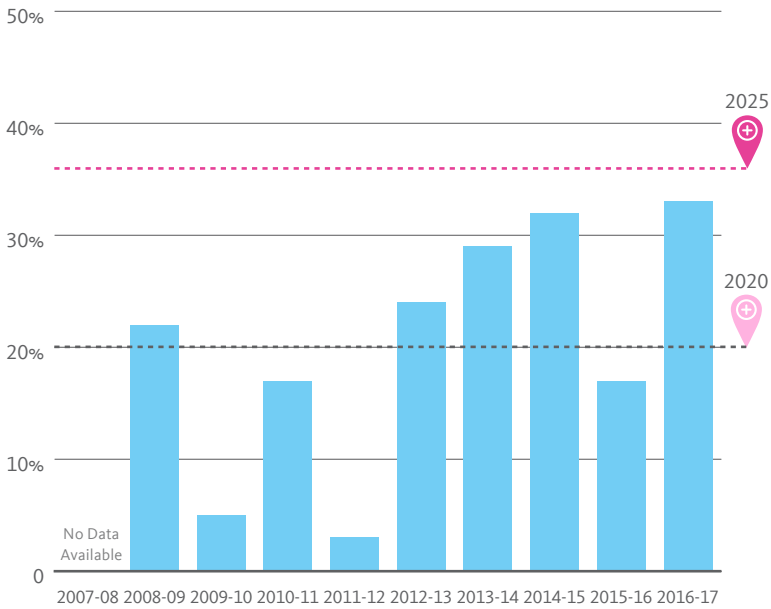
Berkeley Lab is governed by the Federal Government’s climate goal: Reduce total greenhouse gas emissions 41% from 2008 levels by 2025 (50% reduction in scope 1 and 2 and 25% reduction in scope 3).

Progress:

The Lab saw a significant drop in scope 3 emissions this year due to a more accurate commute survey, reducing scope 3 emissions by 27%. Scope 1 emissions rose by 17% and scope 2 emissions were down by 4%.

PERCENT REDUCTION IN PER CAPITA POTABLE WATER CONSUMPTION

(% reduction in per capita potable water use)



Goal:

Reduce growth-adjusted potable water consumption 20% by 2020 and 36% by 2025, when compared to a three-year average baseline of FY 2005-06, FY 2006-07, and FY 2007-08.

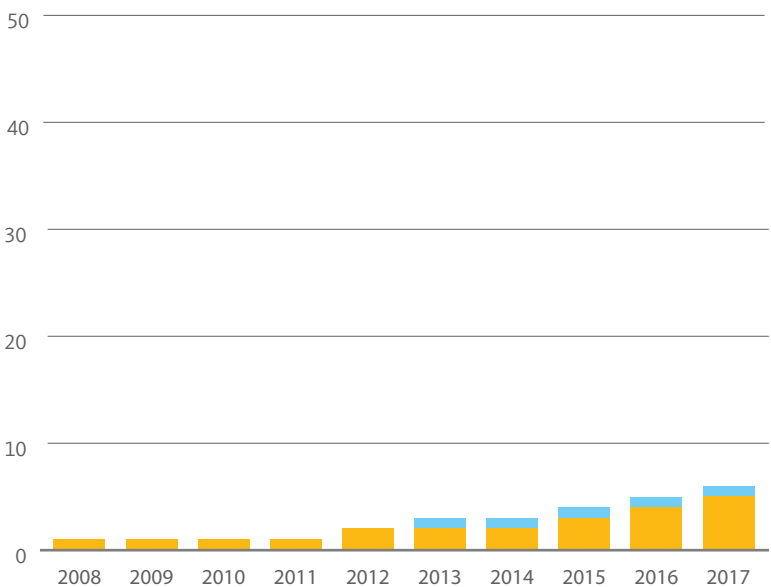
Progress:

● 2020 goal met

Total potable water use at the Lab was down 20% this year while population decreased slightly. Water use at the Lab fluctuates substantially year to year but a focus on [restroom retrofits](#), cooling tower monitoring and behavior change has contributed to overall savings.

2016-17 gallons per capita: 10,923

TOTAL NUMBER OF LEED CERTIFICATIONS



- Platinum
- Gold
- Silver
- Certified

Goal:

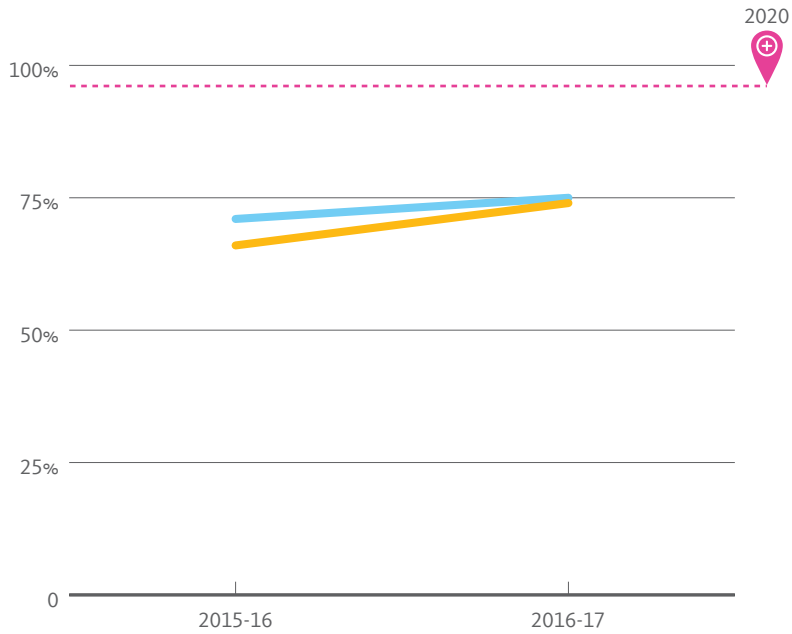
- LEED Silver minimum for all new construction. LEED Certified for renovation >\$5 million.
- Certify at least one LEED EBOM project.
- Exceed the California building energy code by 20%.

Progress:

The Lab added one new LEED Gold Building Design + Construction certified project in 2017.

Number of LEED EBOM projects: 0

SOLID WASTE DIVERTED FROM LANDFILL



- Without construction and demolition
- With construction and demolition

Goal:

Zero Waste by 2020.

Progress:

Berkeley Lab increased diversion from landfill both with and without construction and demolition waste this year. A [recent waste audit](#) provided granular data at the building level of waste composition to aid in targeted behavior change efforts as well as improvements to waste collection efforts.

2016-17 lbs per capita per day: 0.67

University of California, Office of the President

The Annual Report on Sustainable Practices is provided to the UC Board of Regents each January to report on progress toward meeting the goals in the Policy on Sustainable Practices.

Find more information, resources, previous years' reports and more on the UCOP Sustainability website:
<http://ucop.edu/sustainability/>

Sustainability at UC campuses

UC Berkeley:

<http://sustainability.berkeley.edu/>

UC Davis:

<http://sustainability.ucdavis.edu/>

UC Davis Health System:

<http://www.ucdmc.ucdavis.edu/sustainability/>

UC Irvine:

<http://sustainability.uci.edu/>

UCLA:

<http://www.sustain.ucla.edu/>

UCLA Health:

<http://sustainability.uclahealth.org/>

UC Merced:

<http://sustainability.ucmerced.edu/>

UC Riverside:

<http://sustainability.ucr.edu/>

UC San Diego:

<http://sustain.ucsd.edu/>

UC San Francisco:

<http://sustainability.ucsf.edu/>

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<http://sustainability.ucsb.edu/>

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<http://sustainability.ucsc.edu/>

Lawrence Berkeley National Laboratory:

<http://sbl.lbl.gov/>