

**Office of the President**

**TO MEMBERS OF THE COMMITTEE ON GROUNDS AND BUILDINGS**

**DISCUSSION ITEM**

*For Meeting of January 22, 2013*

**ANNUAL REPORT ON SUSTAINABLE PRACTICES 2013**

**EXECUTIVE SUMMARY**

As required by the University's Sustainable Practices Policy ("Policy"), the attached tenth annual report provides the Regents with a summary of the University's sustainability efforts and progress in each of the nine areas of the Policy. President Napolitano has set an initiative goal for the University of California to reach carbon neutrality by the year 2025. The University's campuses and medical centers continue to be recognized as national leaders in modeling sustainable business practices, and this report chronicles the University's major achievements and initiatives. Annual sustainability highlights are noted in the areas of faculty, staff, and student collaboration; healthcare; external recognition; social responsibility; training; and the annual California Higher Education Sustainability Conference.

**BACKGROUND**

In June 2004, UC adopted the "Presidential Policy on Green Building Design and Clean Energy Standards." Since then, seven additional policy sections have been added (sustainable transportation, climate protection, sustainable operations, waste reduction and recycling, environmentally preferable purchasing, sustainable foodservice, and sustainable water systems) and the expanded Policy is now known as the "Sustainable Practices Policy" ("Policy").

The Policy can be accessed at:

<http://policy.ucop.edu/doc/3100155/SustainablePractices>

As required by the Policy, this annual report is a summary of the University's sustainability efforts and progress on goals in each of the above-referenced nine areas of sustainable practices. The report highlights major campus and systemwide achievements and initiatives, and evidences the high degree of faculty, staff, and student collaboration that is the foundation for the University's successes and external recognition.

Among the highlights to be discussed is the formation of the Energy Service Unit (ESU). The University is creating a new business unit, the ESU, within the Office of the President to assist campuses in managing their energy future and achieve the University's goal of carbon neutrality.

The University has identified four business opportunities – wholesale electric, retail load, natural gas transactions, and biogas development – for the ESU to pursue. The business opportunities are dependent on regulatory restrictions, contracts, and operational constraints that govern the choices that campuses have. As a result, strategies will vary by campus and by project; however, the ESU will develop a comprehensive plan to phase in new energy supplies that create economies of scale and reduce carbon emissions using technologies where risk can be adequately managed. The ESU will be overseen by a Governing Board composed of representatives from each campus. The Governing Board will provide guidance in developing the ESU's procurement strategies and will be consulted for projects or transactions involving long-term financial exposure, changes to pre-determined price caps for delivered commodities, or any change in strategy leading to a material impact on cost assumptions.

Executive Vice President Brostrom will make an oral presentation updating the Board on the report.

(Attachment below)

**University of California**  
**ANNUAL REPORT ON SUSTAINABLE PRACTICES**  
**2013**

**Budget and Capital Resources**  
**University of California, Office of the President**  
**January 2014**

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## Foreword from Executive Vice President Nathan Brostrom

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The University of California is a national leader in sustainability and in effective actions to reduce greenhouse gases to mitigate climate change. The University affirmed its leadership position in 2007 when all ten Chancellors became signatories to the American College & Universities Presidents' Climate Commitment. To continue this leadership, in November 2013 President Janet Napolitano announced an initiative to make UC the first research university to achieve carbon neutrality.

In order to achieve carbon neutrality in UC operations by 2025, we must make bold efforts to change the sources of the energy that UC consumes. Four efforts will enable us to become the first major university system to achieve carbon neutrality: (1) procuring large quantities of renewable electric power; (2) increasing campus energy efficiency and renewable energy projects; (3) procuring biogas to substitute for natural gas; and (4) managing carbon allowances and offsets.

The sustainability highlights in this report span everything from solar installations to increased bicycling to serving healthy, sustainable food in residential dining halls and hospital cafeterias. Sustainable practices are saving the University money while enhancing the educational experience of students, providing cutting-edge research opportunities for faculty, and building stronger relationships with local communities through collaboration on sustainability projects.

The Sustainable Practices Policy built on existing best practices throughout the UC system to make UC a national leader and role model in sustainability. Again this year we have the top rankings and ratings to prove it. As far as we have come, we still have our work cut out for us to achieve our ambitious 2020 goals of zero waste, 20 percent sustainable food, 20 percent reduction in potable water consumption, and 50 percent reduction in greenhouse gas emissions. This report chronicles some of the challenges that must be overcome to continue UC's leadership and achieve our 2020 vision.

As President Napolitano announced in November, we're going even further than the Policy's 2020 vision and are seeking to be the first research university to achieve carbon neutrality. Acknowledging the challenge that this entails, President Napolitano told the Regents that "...this is a steep mountain, and we have to figure out how to reach the top. But we are the University of California. And there is no reason that UC can't lead the world in this quest, as it has in so many others...The good news is that research universities like UC are in the business of breaking through barriers. That's why we call them breakthroughs. It is the essence of what research universities do."

I congratulate all of the faculty, staff, and students whose hard work and accomplishments are featured in this report. I invite you to join all of them, President Napolitano, myself, and the rest of the UC community in continuing the pursuit of sustainability breakthroughs.



Nathan Brostrom  
Executive Vice President, Business Operation

## Executive Summary

This tenth annual Report on Sustainable Practices summarizes the University's sustainability achievements and initiatives. The University's campuses and medical centers continue to be recognized as national leaders in modeling sustainable business practices.

This report summarizes the University's progress on goals in the Sustainable Practices Policy, and includes annual sustainability highlights in faculty, staff, and student collaboration; healthcare; external recognition; social responsibility; training; and the annual statewide sustainability in higher education conference.

In 2013, UC gained additional top tier rankings in national campus sustainability ratings. Three campuses placed in the Sierra Club's top ten greenest universities and six in the top twenty-five. San Francisco, UCLA, and Davis medical centers received national awards for sustainability practices. The University received media acclaim in local and regional newspapers, national publications such as *Newsweek*, and in television and radio news broadcasts.

UC campuses leverage their sustainability initiatives as opportunities to create living laboratories for research and teaching. For example, the zero-net-energy UC Davis West Village development includes a research cluster that utilizes the development itself as part of the researchers' work on developing energy and transportation technologies and solutions at the building and community scales. This is a prototype for future "Innovation Hubs" aimed at better fostering collaboration among related research units, enhancing interaction with the private sector, and accelerating the transfer of university inventions from the lab to the marketplace.

The Berkeley, Davis, Merced, San Diego, and San Francisco campuses reduced greenhouse gas emissions (GHGs) in 2012, the most recent year for which reporting is available. Berkeley, Davis, Riverside, Santa Barbara, and San Francisco emitted fewer metric tons of GHGs than in 2000. In 2013, the California Air Resources Board (CARB) agreed to provide free carbon allowances to the University. The University in turn agreed to invest more than the value of the allowances (approximately \$7.5 million in 2013) to reduce its GHG emissions. The University is forming an Energy Services Unit (ESU) to implement systemwide climate solutions. The ESU will leverage the University's low cost of capital to create economies of scale to leverage projects larger than any campus can manage alone.

UC has 143 LEED<sup>TM</sup><sup>1</sup> building certifications (new construction, renovations, homes, and existing building certifications), the most of any university in the country. Twenty-three new certifications (13 platinum) were awarded in 2013.

UC's sustainability leadership attracts resources. In 2013 the University received approximately \$18.2 million in incentives from a utility partnership to implement 150 projects. Since the program began, UC has approximately \$110 million in cumulative net avoided cost from these energy efficiency projects. Projects completed in 2013 will increase the annual net avoided utility costs to approximately \$28 million in 2014.

The University has exceeded its goal to install ten megawatts (MW) of onsite renewable energy generation through the deployment of solar photo-voltaics (PV), solar water heating, and biofuels. UC now has 15.7 MW of PV installed or in construction, enough to power approximately 4000 homes.

UCLA and UCSF Medical Centers joined the residential dining services at Berkeley, Davis, Santa Barbara and Santa Cruz, and Santa Barbara's retail dining operation, in surpassing the 2020 goal of procuring at least 20 percent sustainable food.

UC medical centers now save more than \$3 million annually through waste reduction and energy efficiency initiatives. In 2013, UCSF's Academic Senate unanimously approved a resolution calling on UCSF food services to phase out procurement of meat produced with the use of non-therapeutic antibiotics and urging all UC campuses to do the same. UCSF partnered with Physicians for Social Responsibility and Healthcare Without Harm to convene meat supply chain stakeholders in order to identify and pursue strategies to increase the supply of affordable antibiotic-free meat.

New task forces on sustainability education and research and on socially responsible investing created consistent reporting and enabled best practice sharing.

An attachment to this report provides summaries of sustainability progress by campus and medical center. This includes reporting on climate, waste, green building, sustainable food, and water metrics.

<sup>1</sup> LEED stands for Leadership in Energy and Environmental Design and is a registered trademark of the U.S. Green Building Council. This trademark applies to all occurrences of LEED in this document. LEED is a green building rating system developed and administered by the non-profit U.S. Green Building Council.

## Overview of UC Sustainability

### Introduction and Background

This Annual Report summarizes the University's sustainability efforts and progress on goals in each policy area of sustainability. It also includes annual sustainability highlights in faculty, staff, and student collaboration; healthcare; external recognition; social responsibility; and training (including an annual statewide conference).

In June 2004, UC adopted the "Presidential Policy on Green Building Design and Clean Energy Standards." Since then, seven additional policy sections have been added, and the expanded Policy is now known as the "Sustainable Practices Policy" ("Policy"). The Policy can be accessed at:

<http://policy.ucop.edu/doc/3100155/SustainablePractices>

The comprehensive definition of higher education sustainability, developed by the Association for the Advancement of Sustainability in Higher Education (AASHE), includes areas of sustainability education and socially responsible investing. In 2013, UC sustainability efforts expanded beyond business operations to begin supporting best practice sharing and reporting in education and investing. This year's annual report includes highlights from those areas.

### External Recognition

During 2013, more than 57 articles cited UC campus and systemwide sustainability initiatives. These included media outlets such as the *New York Times*, *LA Times*, *Chronicle of Higher Education*, *Sacramento Bee*, and *CBS Newsweek* named UC San Diego one of the "Greenest" and "Happiest" Universities in the nation.

*Sierra Magazine ranked Irvine #3, Davis #4, and Santa Barbara #10 on its 2013 list of "Cool Schools."*

Even as the number of colleges and universities embracing sustainability goals has grown, UC continues to be recognized as a national leader in this area. *Sierra* magazine ranked Irvine third, Davis fourth, and Santa Barbara tenth on its annual list of "Cool Schools." Overall, UC campuses claimed five of the top twenty-five spots in this ranking of greenest colleges and universities.

Four campuses—Irvine, UCLA, Santa Barbara, and Santa Cruz—were among twenty-two universities named to the 2014 Princeton Review's Green College Honor Roll, each earning a perfect score.

*UCD, UCSF, and UCLA Medical Centers all received Partner for Change Awards from Practice Greenhealth—UCSF "with distinction."*

Davis and Irvine achieved gold ratings and Merced and Riverside achieved silver ratings in the Sustainability Tracking Assessment and Rating System (STARS). Developed by AASHE, STARS is a national benchmark for higher education sustainability. San Diego was the first UC campus to renew its STARS rating, again earning STARS-Gold.

UC medical centers are also gaining recognition for their sustainability efforts. UCSF Medical Center received a Partner for Change with Distinction award from Practice Greenhealth for the third time, while both the UCLA Health System and the UC Davis Health System received Partner for Change awards for the second time.

In October 2013, the University of California system was named a Green Building Super Hero by the U.S. Green Building Council's Northern California Chapter, recognizing the University as a pioneer and leader in sustainable design and construction.

An annotated listing of all 2013 sustainability rankings and awards can be accessed at:

<http://sustainability.universityofcalifornia.edu/awards.html>



Davis, Irvine, and San Diego achieved a STARS Gold rating in 2013.

Merced and Riverside achieved a STARS Silver rating in 2013.



## Living Laboratory

The UC sustainability program contributes to the University's mission of teaching, research and public service through engagement among faculty, staff, and students.

Every campus is a living laboratory for research and teaching. Riverside engineering students designed and built a mobile renewable energy system to replace diesel generators for off-grid needs such as field research or public events. The system includes solar panels, a wind turbine, and rechargeable batteries. Similarly, a solar-charged electric tractor built by Merced engineering students is now used for campus compost collection at Merced.



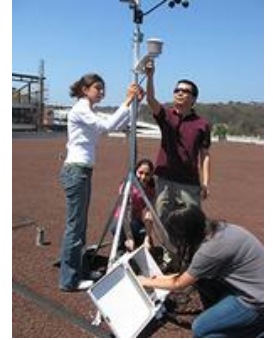
*UC Merced uses a solar-powered tractor built by engineering students for campus compost collection.*

San Diego engineering students are building award-winning Sky Imagers—ground-based short term solar forecasting systems—to advise solar plant operators and electric system operators on weather conditions that affect system adjustments for power output. The Sky Imagers will be deployed on campus and in several cities. UCSD MBA students are working on commercialization of this new product.

The zero-net-energy UC Davis West Village development includes a research cluster that utilizes the development itself as part of the researchers' work on developing energy and transportation technologies and solutions at the building and community scales. This is a prototype for future "Innovation Hubs" aimed at better fostering collaboration among related research units, enhancing interaction with the private sector, and accelerating the transfer of university inventions from the lab to the marketplace.

UCLA's Education for Sustainable Living Program pairs undergraduate students with staff and faculty stakeholders to conduct hands-on research on sustainability and implement those projects on campus. In 2013, teams studied the impact of the Tobacco Free Campus initiative and launched a Zero Waste campaign at Pauley Pavilion, the campus basketball arena.

*Sustainability-related projects, such as weather monitoring stations at San Diego, attract research funding for the campus.*



In 2013, Irvine launched its Field Laboratory in Energy Studies course. The lab will model energy consumption across many different campus end uses and test the reliability and efficiency of generating and storing power on-site, with the goal of demonstrating that a campus can meet its own energy needs with localized technologies linked to a micro-grid. This model of partnership between campus operations and research programs won the 2013 Effective and Innovative Practices Award from APPA, the global trade association for facilities management professionals in higher education.

Sustainability projects also attract research funding. Davis was awarded \$500,000 to improve Science, Technology, Engineering and Math (STEM) teaching. The principal investigator included sustainability-related campus-based projects in the proposed new curriculum. Wells Fargo is funding several sustainability projects at San Diego, including weather-monitoring stations that will help the university use ocean breezes to cool buildings and identify the sunniest rooftops to expand solar power installations. The California Energy Commission (CEC) granted Berkeley \$1.6 million for the development and demonstration of Personal Comfort Systems—low-wattage devices embedded into a system of chairs, foot warmers and fans that can quickly warm or cool individual users on demand. These systems can greatly reduce the amount of energy used to heat and cool buildings

*A UCLA student Action Research Team installs a water efficient demonstration garden.*





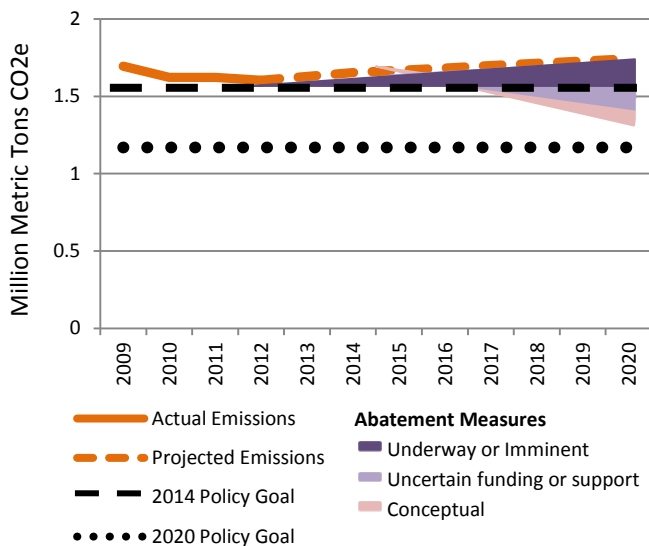
# Climate & Energy

The University of California has established a goal to be the first major research university to achieve carbon neutrality. UC tracks annual greenhouse gas emissions and is pursuing several major strategies to reduce those emissions while using the campuses as living laboratories for several ground-breaking research projects on climate solutions.

## GHG Inventories & Climate Action Plans

Berkeley, Davis, Merced, San Diego, and San Francisco reduced their GHG emissions in 2012 compared to 2011. As demonstrated in Figure 1, the University’s 2012 emissions levels did not increase overall despite continued growth in new building space. In 2012, Berkeley successfully reduced emissions to 7 percent below 1990 levels, meeting the 2020 Policy goal eight years early. In 2012 Davis, Riverside, Santa Barbara, and San Francisco emitted fewer metric tons of GHGs than in 2000; these campuses are on track to meet the Policy goal of reducing emissions to year 2000 levels by 2014. UCLA has identified enough abatement measures in its climate action plan to also meet the 2014 target. Attachment I details each campus’ progress toward the Policy goal.

**Figure 1: UC Greenhouse Gas Emissions**



All campuses have a climate action plan identifying measures to pursue to reduce GHG emissions. All campuses completed GHG emissions inventories for calendar year 2012. Campuses are verifying emissions associated with purchased electricity and steam, onsite combustion of fossil fuels, and other

### Policy Goals

- Reduce greenhouse gas emissions to year 2000 levels by 2014, and 1990 levels by 2020.
- Achieve climate neutrality as soon as possible.
- Develop 10 megawatts of onsite renewable energy generation by 2014.

sources as required by The Climate Registry’s General Reporting Protocol.<sup>2</sup>

## California’s Cap and Trade Program

The California Air Resources Board (CARB) established a GHG cap-and-trade program<sup>3</sup> starting in 2013 as required by AB#32—the California Global Warming Solutions Act. Based on current emissions levels, five UC campuses and one medical center are regulated under the program and required to purchase a monetary allowance for each ton of GHG they emit. One additional campus is expected to pass the 25,000 metric tons of CO<sub>2</sub> emissions threshold in 2014 and will be obligated to comply with the regulations.

The University actively engaged with CARB to identify a solution compliant with AB#32 but without incurring an additional financial burden. As a result of these efforts, CARB passed a resolution directing its staff to present proposed regulatory changes to assist the campuses’ transition into the cap-and-trade program. However, because UC’s status under the program was uncertain at the time of the first carbon allowance auction, the University purchased enough allowances in the November 2012 auction to fulfill its 2013 obligation, at a total cost of \$6.3 million.

CARB is expected to approve the proposed regulatory amendments in December 2013, such that the University will receive an allocation of allowances for 2013-2020. In the first year, campuses will receive approximately 98 percent of the allowances needed for the annual compliance. Each year thereafter, the allocation will decrease in line with the reduction in the program’s overall emissions cap reduction, or about 2 percent per year. The University must also report to CARB on how it spent the amount of money that it otherwise would have had to spend on cap-and-trade compliance. The University must invest an amount at

<sup>2</sup> The Climate Registry is a non-profit entity that sets consistent, transparent standards to calculate, verify and publicly report GHG emissions.

<sup>3</sup> Cap-and-trade is a regulatory system that sets a limit on overall emissions of pollutants – the “cap.” CARB issues “allowances”, which are essentially pollution permits; each permit entitles its holder to emit a specific amount of pollution. The total number of permits issued equals the pollution cap. Emitters can “trade” pollution permits among themselves. The cap reduces over time, increasing the cost of polluting.

least equal to the value of the allocated allowances in a manner consistent with the goals of AB 32. The University can sell any excess allowances to recoup costs or apply the allowances toward future compliance obligations.

### Systemwide Efforts in Planning for Carbon Neutrality

The UC Climate Solutions Steering Group was formed to advise the Executive Vice President for Business Operations on how to implement the Policy’s climate commitments. The group continues working to implement the strategies identified to achieve carbon neutrality, including:

1. Expand the highly successful statewide Energy Efficiency Partnership program.
2. Develop a wholesale power procurement strategy that provides a steadily increasing amount of renewable power.
3. Procure large quantities of biomethane<sup>4</sup> (biogas) in lieu of natural gas.

The University is forming an Energy Services Unit (ESU) to implement large systemwide renewable energy strategies using the University’s capability to finance projects at favorable rates. The ESU will be advised by a board comprising campus representatives. The ESU will not affect campus project oversight and day-to-day operations, but will augment existing campus knowledge with specialized expertise to benefit all campuses. A business plan for the unit is in development and review, and already the University has made significant progress with the first two strategies.

#### 1. Energy Efficiency Partnership Program

The University has formed a unique statewide Energy Efficiency Partnership program (the Partnership) with the California State University system and the State’s four investor-owned utilities to improve the energy performance of existing buildings. The energy efficiency projects implemented through the Partnership have been the main strategy utilized by campuses to meet the 2014 Policy goal.

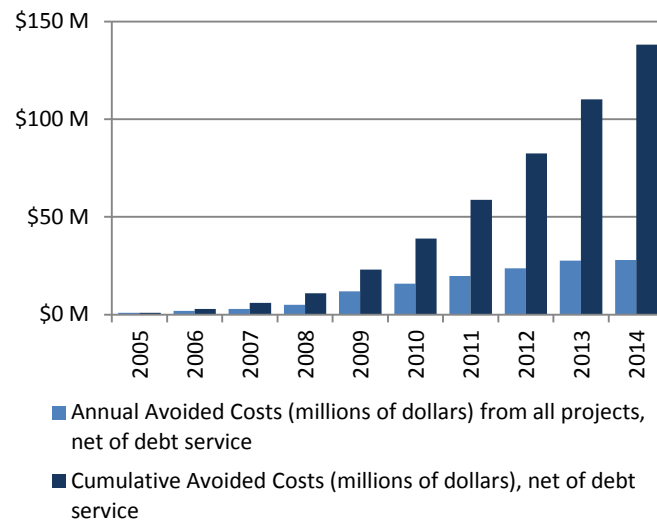
In 2013 the University expects to receive \$18.2 million in incentives from the Partnership to implement 150 projects. Those projects are projected to save approximately 54.2 million kilowatt-hours (kwh) of electricity and 5.5 million therms of natural gas.

Since the program began in 2004, UC’s cumulative net avoided utility cost due to these energy efficiency projects is approximately \$110 million. Projects

completed in 2013 will increase the annual net avoided costs to approximately \$28 million, for a cumulative savings of approximately \$138 million by the end of 2014. The success of the Partnership has enabled most projects with a quick payback—the “low-hanging fruit”—to be implemented in the last funding cycle (2009-2012). Moving forward, projects will focus on deeper energy efficiency retrofits, with lower levels of net avoided costs because of larger up-front investments.

The Partnership was significantly scaled up in 2009 when the Regents approved external financing for these energy efficiency projects. Through the Partnership, UC implemented an ambitious portfolio of infrastructure projects and building upgrades to reduce energy consumption, lower operating costs, reduce carbon footprints, and improve indoor environmental quality and safety. Partnership projects typically fall into four categories: Heating, Ventilation, Air Conditioning (HVAC); Monitoring Based Commissioning (MBCx); Central Plant and Energy Distribution; and Lighting.

**Figure 2: Cost Avoidance from Energy Efficiency Projects**



#### 2. Wholesale Power Procurement

UC must take a systemwide approach to procure renewable power to ensure an adequate supply of cost-effective climate-neutral electricity. This will be on a much larger scale and over a much longer term than the University has previously considered. To do so, UC will have to become an Energy Services Provider, registered with each investor-owned utility and the California Public Utilities Commission. This will allow UC to import wholesale power and provide electric service to end-use customers—the UC campuses and medical centers.

UC formed a wholesale power board (with one representative from each University entity involved in the initiative, to govern policies and actions associated with

<sup>4</sup> Biomethane is methane that is generated from controlled decomposition of organic matter and processed to standards suitable for natural gas pipeline transmission.

wholesale power). January 1, 2015 is the “go-live” date for this initiative and there is an aggressive timetable for the planning, analysis, and legal agreements that must be accomplished to meet this goal.

### Onsite Renewable Energy Generation

Most campuses and medical centers are meeting a portion of their campus power load with carbon-neutral sources. UC has already exceeded the goal of installing ten megawatts of onsite renewable energy generation through deployment of solar photo-voltaics (PV), solar water heating, and biofuels.

UC now has 15.7 MW (megawatts) of PV installed or in construction (Table 1). San Diego is leading with an impressive 3.2 MW of PV. Riverside and Davis are planning large-scale onsite solar PV projects (4 MW and up to 14 MW, respectively), with Riverside anticipating completed installation by summer of 2014.

Solar hot water heaters partially offset hot water demand at seven residence halls at UCLA, the new Maximino Martinez Commons at Berkeley, and at Canyonview Pool and North Campus housing at San Diego.

Biofuels contribute significantly to the University’s renewable energy capacity (Table 2). San Diego operates a 2.8 MW fuel cell burning only biogas. Six percent of UCLA’s 40 MW cogeneration power plant is fueled by biogas from a nearby landfill. Davis is constructing a biodigester that will be fueled by campus waste and produce enough biogas to generate approximately four million kwh of electricity annually.

### Demonstrating and Deploying New Energy Efficiency Technologies

UC’s California Institute for Energy and Environment (CIEE) partners with the California Lighting Technology Center and the Western Cooling Efficiency Center at Davis, and Berkeley’s Center for the Built Environment, to accelerate statewide deployment of new technologies. These programs are supported by the California Energy Commission’s Research and Development Division. Program highlights in 2013 include demonstrations of advanced controls for interior and exterior lighting at Santa Barbara and San Francisco, and initiation of personal comfort system (PCS) demonstrations at Berkeley. In addition, the Operational Excellence Energy

Management Initiative at Berkeley created energy dashboards for more than 100 buildings, using energy meters that were installed for monitoring-based commissioning. UC campuses are early adopters of emerging technologies, many stemming from UC research, and are helping transform the market for energy efficient products.

**Table 1: Solar PV - Installed or in Construction**

Campus	Capacity (kW)	Status	Date of Completion
Agriculture & Natural Resources	22	Installed	2012
Berkeley	100	Installed	2003
Davis	782	Installed	2011
Davis (West Village)	4,000	Installed	2012
Davis Health System	145	Installed	2012
Irvine	895	Installed	2009
Irvine	136	Installed	2011
Los Angeles	39	Installed	2012
Merced	1000	Installed	2009
Riverside	4000	Construction	2014
San Diego	1306	Installed	2009-11
San Diego	835	Installed	2012
San Diego	1304	Installed	2013
San Francisco	250	Installed	2008
Santa Barbara	250	Installed	2008
Santa Barbara	400	Construction	2014
Santa Cruz	250	Installed	2013
<b>Total</b>	<b>15,714</b>		

**Table 2: Biogas Projects - Installed or in Construction**

Campus	Capacity (kW)	Status	Date of Completion
Los Angeles – Biogas from landfill	2400	Installed	1990s
UC San Diego – Biogas fuel cell	2800	Installed	2011
Davis - Biodigester	460	Construction	2013
<b>Total</b>	<b>5,660</b>		



*These “solar trees” that shade the Hopkins Parking Structure contribute to San Diego’s 3.2 MW of solar power capacity, the most of any UC campus.*

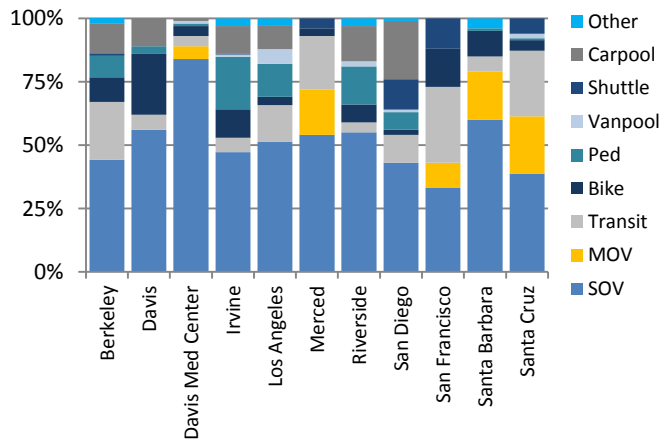
# Transportation

Transportation-related emissions are the second largest source of campus GHG emissions, after energy consumption. Campuses work to reduce those emissions through alternative commuting, reducing air travel, and reducing emissions from their vehicle fleets.

## Commuting

Systemwide, UC employees commute using a wide variety of transportation modes (Figure 3). Campuses continue to expand Transportation Demand Management (TDM) programs, reducing single-occupancy vehicle (SOV) trips through the use of carpools, vanpools, transit, carsharing, ridesharing, bicycling and walking programs. Campuses are improving bicycling infrastructure and support systems, including more secure bike parking, bike maps, bike repair stations, bait bikes to help catch bike thieves, and bike education and enforcement programs to improve safety. Several campuses offer shuttles around campus to reduce SOV travel. Some campuses also provide transportation to airports on holidays and at the end of the quarter/semester as another strategy for reducing the need for students to bring cars to campus.

**Figure 3: Employee Commute Modes**



All campuses now provide electric vehicle (EV) charging systems to encourage the use of EVs and reduce associated emissions of GHGs and other air pollutants.

UC leadership in sustainable transportation is recognized regionally and nationally. The League of American Bicyclists named Davis a Platinum-level Bicycle Friendly University, and recognized Santa Barbara at the Gold level, Irvine and Berkeley at Silver, and Los Angeles at Bronze. UCLA received an award for their Bike Week Campaign and Be a Smarter Commuter program. UC San Diego placed first in the county-wide iCommute Challenge.

## Policy Goals

Reduce university-related transportation emissions, including those from commuting, business travel, and vehicle fleets.

Funding for alternative transportation systems remains challenging. Parking revenues fund most of the TDM programs, yet as trips are reduced, parking revenues are also reduced, so that many programs are hampered by their very success.

## Business Air Travel

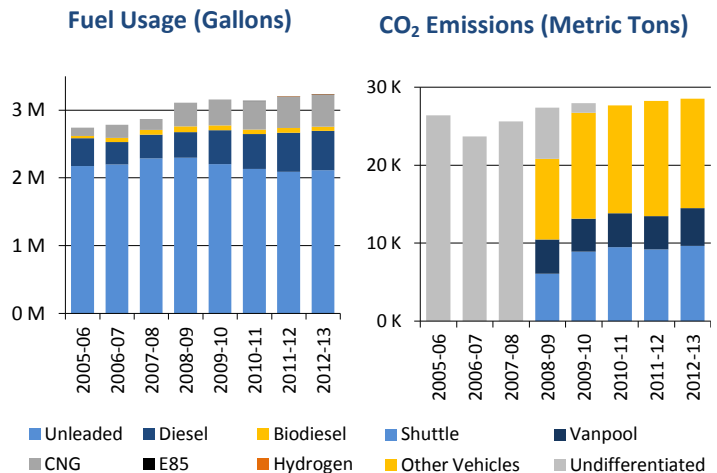
Campuses are working to improve data collection for accurate estimation of GHG emissions from air travel. Connexus (the University's online travel portal) utilization varies by campus from 20-80 percent, meaning that data for air travel emissions is incomplete. Campuses provide video conferencing equipment to reduce the need to travel.

## Fleets

Over the past five years, campus consumption of compressed natural gas (CNG) has increased, though gasoline consumption has not. In addition, enrollment growth has increased demand for fleet vehicles for field trips and other student activities, and several medical centers have experienced increased fleet demand for patient and staff transportation.

Several campuses have been recognized nationally for their leadership in "green" fleets. Davis' Richard Battersby was named 2013 Public Sector Fleet Manager of the year and San Diego was ranked 18<sup>th</sup> out of 100 for the Government Green Fleet Award.

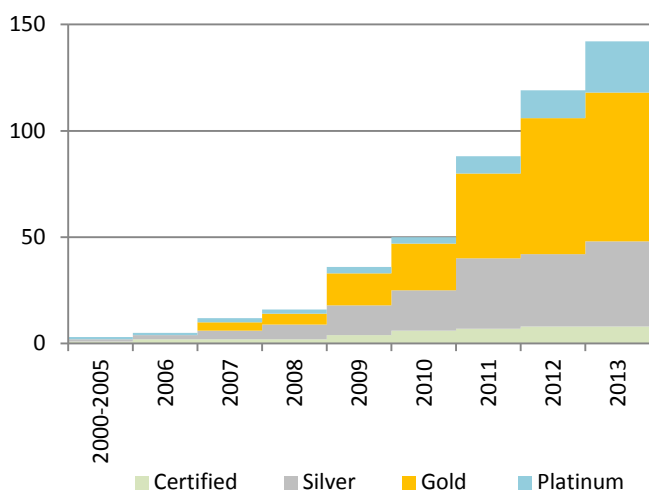
**Figure 4: UC Fleets**



## Green Building

The University of California has 143 LEED certified projects (new construction, renovation, homes, and existing building certifications), the most of any university in the country. Twenty-three of these projects were certified in 2013, with 13 earning Platinum certification, six earning Gold, and four earning Silver (Figure 6). A complete list of all UC LEED certifications is available at: [http://sustainability.universityofcalifornia.edu/gb\\_leed.html](http://sustainability.universityofcalifornia.edu/gb_leed.html).

**Figure 6: Cumulative Number of Systemwide LEED Certifications by Year**



### Energy Efficient Design of New Buildings and Major Renovations

By UC policy, all new construction and major renovation projects register with the Residential or Non-Residential New Construction Programs (formerly the 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 (CBC). To date, 229 University projects (more than 28 million gross square feet) have registered with these programs. These efforts are expected to realize \$14 million in incentive payments over the course of the program, and avoid \$7.9 million in annual energy costs.

The 2013 California Building Code (CBC), effective on July 1, 2014, significantly increases energy efficiency design standards, as the code moves in the direction of zero-net energy buildings. The University is evaluating whether the Policy goal of outperforming the CBC by 20 percent is still appropriate for UC projects, based on

### Policy Goals

#### *New Buildings and Renovations*

- Design and construct all new buildings (except acute care facilities) to a minimum LEED Silver rating.
- Design and construct all renovation projects with a cost of \$5 million or greater to a minimum LEED Certified rating.
- Outperform the energy provisions of the California Building Code by at least 20% on all new construction and major renovation projects.

#### *Existing Building Operations and Maintenance*

- Each campus will submit for certification one pilot building at a LEED-EBOM Certified level or higher.
- Each campus shall certify campus-wide LEED-EBOM credits and prerequisites to streamline the certification of multiple buildings through the LEED-EBOM rating system by July 1, 2013.
- Each campus shall seek to certify as many buildings as possible through the LEED-EBOM rating system.

feasibility and financial review, or whether an updated approach to a "reach" goal for building energy conservation is more appropriate in light of the code change. UCOP and CIEE together have developed benchmark-based, whole-building energy performance targets for all campuses to complement the current policy. Energy performance targets have been in use at UC Merced since its founding, and will be a crucial tool to enable the campus to achieve its zero-net-energy and zero-GHG-emissions commitments.

### Green Building Operations

UC uses the LEED for Existing Buildings: Operations and Maintenance (EBOM) rating system to evaluate and improve the environmental performance of existing facilities. Eighteen UC buildings have LEED-EBOM certification and 25 additional projects are in progress or in planning. Santa Barbara leads the nation with ten certifications, more than any other U.S. university.

Six UC campuses have initiated certification for campuswide LEED-EBOM credits and prerequisites. The campuswide certification option was pioneered by UC, resulting in streamlined documentation for individual projects. Davis, Irvine, Riverside, Santa Barbara, and Santa Cruz have already earned certification of those credits. The remaining campuses need more staff resources and funding for additional building metering to participate in the campus-wide certification program.

## Thirteen LEED Platinum Certifications in 2013

Overall, UC has 25 Platinum certifications, USGBC's highest rating for sustainability. Thirteen projects joined this list in 2013, several of which are described below.

The UC Davis Student Community Center LEED Platinum certification was driven by students, who participated in all phases of the project to ensure that the building reflected their vision and values. Unique sustainable features include a composting program for both the construction and operation phases. Through energy efficient design measures, such as dimmable light fixtures, the Student Center is designed to be 32 percent more energy efficient than required by code.



***Merced's LEED-Platinum Social Sciences and Management Building maintains a comfortable temperature in the hot climate through an energy-efficient envelope that includes thick concrete walls, deep overhangs, arcades, and sunscreens.***

Merced's Dining Expansion and its Social Sciences and Management (SSM) building earned LEED Platinum ratings. The Dining Expansion showcases a curtain wall window system from ground to ceiling, providing natural daylighting on three sides of the building; variable speed exhaust hoods in the kitchen; and energy efficient refrigerators, enabling the building to save 46 percent on operational energy costs. SSM maintains comfortable temperatures through an energy-efficient envelope that includes thick concrete walls, deep overhangs, arcades, and sunscreens. Thirty percent of the building materials have recycled content in them, including insulation made from recycled denim from blue jeans.

Irvine's Verano Graduate Student Housing Complex—four apartment buildings and the Infant Toddler Center—was certified LEED Platinum. The complex, which houses more than 1200 students, was designed to achieve 45 percent water savings and 73 percent energy cost savings. The complex guarantees the highest indoor environmental quality for a healthy and comfortable living space by using only low-emitting materials and allowing controllability of thermal systems.



***Irvine's new Verano Graduate Student Housing Complex includes four apartment buildings and the Infant Toddler Center—all LEED-Platinum.***

Irvine's Biological Sciences 3 and its Social & Behavioral Sciences buildings are also LEED Platinum. Almost 25 percent of the total building materials of Biological Sciences 3 were sourced from recycled content and the 145,000 sq. ft. lab building outperforms CBC energy standards by almost 30 percent.

The Mira Hershey Hall project, UCLA's first LEED Platinum certification, renovated a historic building built in 1931. The project is an example of best practices in energy-efficient design, built with thermally massive, well-sealed walls and utilizing available daylight and natural ventilation.

The San Diego campus, in partnership with San Diego State University, certified its Mission Bay Aquatic Center LEED Platinum, the second LEED-EBOM Platinum building at the University. The certification was mainly driven by students, who measured and documented the way in which the center was already meeting the LEED Platinum standard. The students also wrote new goals within the center's policy, such as green cleaning, sustainable purchasing, and waste diversion, to ensure that it continues to operate sustainably.

***The LEED-EBOM Platinum certification at the San Diego Mission Bay Aquatic Center was driven by these students.***



## Zero Waste

Davis, Irvine, Riverside, and Santa Barbara achieved the ambitious goal of diverting at least 75 percent of their municipal solid waste (trash) from landfills by the end of FY 2012-13 (including construction and demolition (C&D) waste). Irvine, Merced, Riverside, Santa Barbara, and Santa Cruz campuses, along with the UCLA and UCSF Medical Centers, all increased their diversion rates (excluding C&D waste). The University reports waste diversion numbers both with and without C&D waste because C&D waste is highly variable each year and can make up a significant portion of waste weight, skewing and obscuring results of other waste diversion efforts. Attachment I details each campus' progress toward the Policy goal.

*The Davis, Irvine, Riverside, and Santa Barbara campuses achieved the goal of diverting 75% of solid waste from landfills by the end of FY 2012-13.*

With an ultimate goal of zero waste, UC began collecting data two years ago measuring landfill waste in tons per weighted campus user<sup>5</sup> (Figure 7). Most campuses decreased their per capita landfill waste between FY 2011-12 and FY 2012-13.

The U.S. Environmental Protection Agency (EPA) honored the Irvine campus for its zero waste and food recovery efforts. The Irvine program diverts 83 percent of total campus waste from landfills by recycling, reusing and composting. Irvine has increased its food waste diversion from 90 tons in 2010 to 500 tons in 2012, when it joined the EPA's Food Recovery Challenge.

Pilot zero waste programs now exist on most UC campuses, and some zero waste initiatives have become standard practice. Initial efforts target the largest sources of waste, such as major events and building construction and demolition. All football and basketball events at Berkeley and all football events at Davis are now zero waste events. Santa Barbara holds an annual zero-waste weekend at its stadium for the men's soccer game. Riverside achieved a 99 percent construction waste diversion rate from two capital projects, demonstrating a best practice. Riverside requires contractors to use the campus' waste hauler, have appropriate bins on the construction site, and requires contractors to meet the recycling requirements.

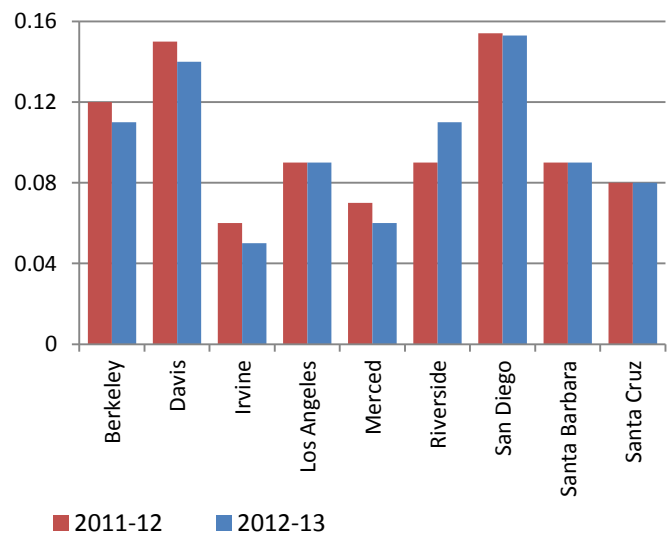
### Policy Goals

- Divert 75% of waste from landfill by 2012 and achieve zero waste by 2020.
- Prioritize waste reduction in the following order: reduce, reuse, recycle.

Technological improvements are enhancing the effectiveness of recycling and composting programs. Santa Barbara revised its recycling routes and the San Diego campus installed solar-powered trash compactors with sensors to send an alert when they are full, decreasing pickups and increasing staff efficiency. Campuses share best practices through the Solid Waste Working Group, spreading ideas such as the "Grounds to Grounds" program at Santa Barbara and Riverside, where used coffee grounds are collected as compost for landscaped areas or community gardens. Irvine has a "Hot in Place" road maintenance system, making its own road repairs and saving extensive asphalt waste. Several campuses have student waste research centers or projects for students to research recycling options for waste commodities and upstream waste reduction options.

Additional waste reduction initiatives are highlighted in the "Food" and "Healthcare" sections of this report.

**Figure 7: Landfill Waste in Tons per Weighted Campus User (not including C&D)**



<sup>5</sup>Weighted campus user is a measurement of an institution's population that is adjusted to accommodate how intensively certain community members use the campus.

## Water

The Sustainable Water Systems section, added to the Policy in 2013, addresses water use reduction, watershed management, education and outreach, and acknowledges the uniqueness of each campus' regional water resources. Policy goals recognize efforts to date, and provide flexibility in implementation.

Every campus established its water usage baseline (as a three-year average) and collects annual water usage data. Eight campuses and medical centers (Berkeley, Davis, Irvine, Merced, San Diego, San Francisco Medical Center, Santa Barbara, Santa Cruz) already achieved the per capita potable water consumption reduction target of 20 percent below their respective baselines. With more than half of the campuses and medical centers already achieving the potable water goal, there may be opportunities for further reductions. However, at this time the 20 percent goal is an appropriate target given current financial constraints.

***Eight out of the ten campuses and five medical centers have already achieved the 2020 policy goal of reducing water consumption by 20%.***

In July 2013, all campuses and three of the five medical centers completed a draft water action plan. This is challenging for many campuses and medical centers because in much of the state the cost of water is very low and there is little economic incentive to invest in water conservation measures. Limited resources are often targeted to areas of higher return. A first version of the plan for each campus will be finalized in December 2013.

Santa Barbara completed its water action plan ahead of the other campuses, and that plan won a Best Practice Award at the California Higher Education Sustainability Conference 2013 (CHESC). The plan was developed by graduate students and makes a convincing financial case for water saving opportunities, several of which have already been implemented. The campus hired a Water Efficiency Manager, increased conservation of cooling tower water, and conducted constituent soil samples to determine appropriate irrigation rates. In addition, Santa Barbara's Facilities Management department is providing \$100,000 in matching grant funding to retrofit restrooms with more water efficient

### Policy Goals

- Reduce per capita potable water use 20% by 2020 (compared to campus-specific baselines)
- Develop and maintain campus-specific Water Action Plans

fixtures. When fully implemented, the plan will reduce water use by 40 percent by 2028. Santa Barbara's Water Action Plan provides a template that other campuses in the UC system and nationally can follow.

Berkeley students won a best practice award at CHESC for hot water reduction in residence halls. Adjustable-flow shower valves reduce the flow of water when users are soaping up. These retrofits, along with an educational campaign, reduced residence hall hot water use by 570,000 gallons per year.

Other campuses and medical centers also made progress in water conservation. The Santa Cruz fleet now washes vehicles with a closed-loop water recycling system, reducing water use by 65 percent. The wash water is cycled through the system using microbes to digest contaminants, instead of draining into the sanitary sewer or the bay.

UCLA Medical Center in Santa Monica installed a zero-discharge system for cooling tower water. This eliminates chemicals being introduced to the sewer system from the condenser water system and saves approximately 10,000 gallons of water per day.

The chilled water system retrofit at the UCSF Moffitt and Long Hospitals saves approximately one million gallons of water per year. Retrofits of older plumbing fixtures across the Irvine campus will save up to 15 million gallons of water annually.

***Berkeley students installed adjustable flow valves in residence hall showers, saving 570,000 gallons of hot water annually.***



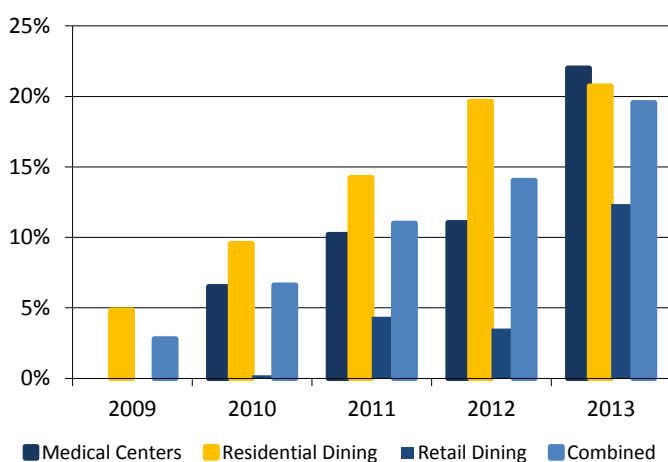


## Food

### Sustainable Food Procurement

UC sustainable food procurement practices shifted \$19.8 million (19.5 percent of total annual food expenditure) toward local/community-based, fair, ecologically sound and humane food sources. The average percentage of reported sustainable food purchases was 21 percent by residential dining, 22 percent by medical centers, and 12 percent by retail vendors.

**Figure 8: Percent of Sustainable Food Purchases**



In FY 2012-13, UCLA and UCSF Medical Centers joined residential dining services at Berkeley, Davis, Santa Barbara and Santa Cruz, and Santa Barbara's retail dining operation, in surpassing the 2020 goal of procuring at least 20 percent sustainable food.

Most campuses and medical centers now feature sustainable food products such as organic salad bars, cage-free eggs, Fair Trade Certified™ coffee, certified sustainable seafood, and hormone-free milk. Four campuses now incorporate campus-grown produce, herbs, and meats in their menus.

### Education and External Stakeholder Engagement

Collaboration in 2013 between sustainable foodservice initiatives and campus wellness initiatives increased the effectiveness of educational campaigns and allowed these programs to mutually support their objectives. Wellness initiatives support sustainable foodservice education efforts through practices such as branding and labeling healthy options. All campuses and medical centers have increased seasonal menu offerings, and Davis, San Francisco, and Santa Barbara have smart phone applications with nutrition information for menu

#### Policy Goals

- Procure 20 percent sustainable food products by the year 2020 for campus and medical center foodservice operations
- Certify at least one foodservice facility on each campus as a green business.
- Educate both patrons and foodservice staff about sustainable food products and sustainable operation.

options. Berkeley has developed guidelines for healthier meetings, vending machines, catering, and restaurants.

UCLA Dining Services opened Bruin Plate, the first health-themed dining hall west of the Mississippi. In support of UCLA's Healthy Campus Initiative, Bruin Plate offers locally sourced produce and meats, sustainable seafood, unprocessed and preservative-free items, organic foods, nutrient-packed superfoods, and expanded vegetarian and vegan options. The restaurant initiated its healthy and sustainable menu in response to student demand.

### Sustainable Operations

Five campuses earned Green Business certifications for all dining halls on their campuses. Santa Barbara and Santa Cruz achieved certification for all retail foodservice operations. Berkeley, Davis, and Santa Barbara extend these practices to their stadiums, making many of their large sporting events zero waste, which have a potentially large educational impact.

Two pioneering waste reduction initiatives took home best practice awards at the 2013 California Higher Education Sustainability Conference. Berkeley's Lean Path Waste Reduction program provides pre-consumer waste summaries, allowing dining hall teams to pinpoint five food categories with the highest disposal volume; Cal Dining's pre-consumer food waste has been reduced by 33 percent as a result. Merced's Green Container Initiative eliminated disposable take-out containers from the dining commons. Takeout orders are now offered in reusable containers, which customers purchase at the point of sale using their student meal card.

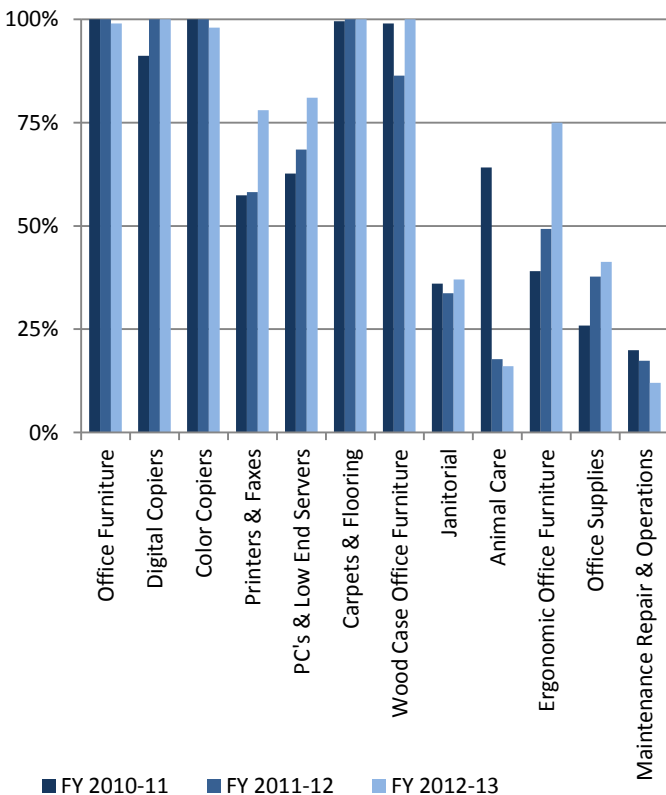
***UCLA and UCSF Medical Centers, residential dining services at Berkeley, Davis, Santa Barbara and Santa Cruz, and Santa Barbara's retail dining operation have all surpassed the 2020 goal of procuring at least 20 percent sustainable food.***

## Purchasing

Total sustainable purchases of environmentally preferable products through systemwide agreements increased from 38 percent to 41 percent in the last year. Notable increases occurred on printers and fax machines, personal computers and low-end servers, ergonomic office furniture, and office supplies. Several categories attained 100 percent of expenditure in sustainable products, including digital copiers, and carpets and flooring.

Figure 9 shows the percentage of purchases from systemwide contracts within different commodity areas that meet one or more third-party environmental certifications. In the past year, UCOP Procurement Services implemented new systems (SciQuest and Spend Radar) to collect procurement data from all UC locations. This includes data from systemwide contracts and campus agreements. The new systems will enhance Policy compliance by enabling expanded third-party certification tracking, increased data integrity, change tracking in users' purchasing choices, and capturing information from systemwide and campus-level contracts.

**Figure 9: Percent of Purchases Meeting Sustainability Criteria**



### Policy Goals

Increase the proportion of University expenditures on products that meet one or more third-party environmental certifications

*The University recognizes the certifications below in determining which products qualify as sustainable.*



Campus highlights from 2013 include the new “Sustainable Green Purchasing Guide” at Santa Cruz. San Diego’s Procurement department began conducting Department Business Reviews to examine the campus’ procurement behavior, including purchases of sustainable products. San Diego also educates all suppliers about sustainability and related campus goals.

All UC campuses use certified green cleaning products, and Berkeley and UCLA have comprehensive green cleaning policies. Going one step further, UCLA Facilities Management began a pilot of a liquid-ozone-based cleaning system that would eliminate the need to purchase many cleaning chemicals.

## Healthcare

UC medical centers are increasingly earning recognition for efforts to save money and conserve natural resources while modeling healthy, sustainable business practices. Highlights in the past year include advances in sustainable food procurement and more than \$1.5 million in savings through waste reduction initiatives.

The Davis, UCLA, San Diego and San Francisco medical centers joined the Healthier Hospitals Initiative in 2013, committing to report on progress towards goals in at least three of the following categories: Engaged Leadership; Healthier Food; Less Waste; Leaner Energy; Smarter Purchasing; or Safer Chemicals.

Sustainable food is often a starting point for healthcare sustainability efforts because of the role that food and diet play in healthy communities. UCLA and UCSF medical centers achieved major increases in sustainable food procurement during FY 2012-13. UCLA increased from 14.5 percent sustainable food to 24.6 percent in just one year. UCSF matched that increase—14 percent to 23 percent in one year. Davis Health System also expects to meet the 20 percent by 2020 sustainable food goal early, achieving 17 percent sustainable food procurement this past year.

UCSF Medical Center is striving for even higher goals, having met the 2020 goal seven years early. UCSF's Academic Senate unanimously approved a resolution in April calling on UCSF food services to phase out procurement of meat produced with the use of non-therapeutic antibiotics and urging all UC campuses to do the same. Because such meat is currently unavailable at the volume or price point needed, UCSF partnered with Physicians for Social Responsibility and Healthcare Without Harm to convene meat supply chain stakeholders to identify and pursue strategies for increasing the supply of affordable antibiotic-free meat.

Waste reduction in the healthcare environment offers the potential for significant cost savings. UCSF Medical Center reported more than \$1 million in annual savings



*A major retrofit of the UCSF Moffitt and Long Hospitals' chilled water system is saving approximately one million gallons of water per year.*

*Reprocessing of medical equipment, instead of one-time disposal, allows medical centers to save over one million dollars every year.*



by transitioning to reusable products such as pillows, sharps containers, and sterilized and reprocessed invasive devices such as cardiac catheters, suture passers, ultrasonic scalpels, drill bits and burrs. Reusable pillows eliminate 296,000 pounds of waste annually and the reprocessed medical devices eliminate another 2,500 pounds of waste. Davis Health System designed a linen campaign that reduced waste and laundry costs by educating staff on bed-linen changing practices, proper hamper use and adopting reusable pillows. Davis' initiatives have already saved \$470,000 and diverted over 100,000 pounds of linen waste. UCLA Health is phasing in washable single-use precaution gowns (worn as protection against infectious materials), resulting in savings of \$220,000 since May 2012 and diverting 44 tons of waste from landfill annually.

Davis, UCLA, and San Francisco medical centers have composting programs that divert hundreds of tons of waste per year. In addition to composting all pre- and post-consumer food waste for both in-patient and cafeteria food service, UCSF Medical Center now also composts exam room paper waste. UCSF Medical Center increased recycling in the operating rooms, implemented in-patient room recycling, and provided unit-by-unit training to ensure adoption of correct waste sorting practices. UCSF's efforts combine for a solid waste diversion rate of 45%, one of the highest diversion rates for any hospital in the country.

San Francisco and Davis medical centers also realize energy efficiency cost savings. A chilled water system retrofit at UCSF's Moffitt and Long Hospitals saves close to \$1.5 million annually due to reduced electricity, steam, maintenance, water, and GHG emissions. At the Davis Health System, recent small scale energy efficiency projects yielded close to \$40,000 in utility rebates.

## Staff Development and Sharing Best Practices

### CHESC: Sustainability Conference

Santa Barbara hosted the 12th annual California Higher Education Sustainability Conference (CHESC), a unique state-wide collaboration between UC, California State University (CSU), California Community Colleges (CCC), and private colleges and universities in the state. The 2013 conference attracted 850 attendees from 70 colleges and universities, including 270 students. Programming spanned five full days of sharing sustainability best practices and learning about new technologies.

The UCOP-led ninth annual Energy Efficiency and Sustainability Best Practice Awards were presented in recognition of UC, CSU and CCC energy and sustainability projects. The figure to the right lists the awards received by UC campuses. Case studies of energy efficiency-related best practice award winners are available online at:

[http://greenbuildings.berkeley.edu/best\\_practices.htm](http://greenbuildings.berkeley.edu/best_practices.htm).

### Training

UC promotes excellence in sustainability through workshops and professional certifications for staff. The Energy Efficiency Partnership program (the Partnership) with CSU and the state's four investor-owned utilities provides funding for energy efficiency and green building training. UCOP manages training for UC and CSU, to impart skillsets necessary for successfully implementation of the Partnership's investments in energy efficiency. The training is targeted to achieve the Policy's goals. A total of 662 person-days of training were delivered in 2013 for UC and CSU staff, including certification trainings for building operators and energy managers.

- Fourteen energy management staff, representing seven campuses and one medical center, completed a week-long Certified Energy Manager training.
- Twenty-seven engineering and maintenance staff from seven campuses received Building Operator Certification.
- Staff from seven campuses were trained on building energy audits, using the methodology required as a prerequisite for LEED-EBOM certification.
- Davis Medical Center organized free energy efficiency audits for its foodservice kitchens, resulting in several efficiency improvements that saved 30 percent of the energy previously consumed.

### 2013 UC Energy Efficiency and Sustainability Best Practice Awards

- ❖ **Overall Sustainable Design** - Berkeley, Maximino Martinez Commons
- ❖ **HVAC Design/Retrofit** - San Diego, Pacific Hall: Deep Energy Savings in a Fume Hood Intensive Lab Building; (Honorable Mention) San Francisco, Moffit/Long Chilled Water System Retrofit
- ❖ **Lighting Design/Retrofit** - Davis, Institutional-Level Adaptive Controls for Exterior Lighting
- ❖ **Monitoring-Based Commissioning** - Santa Cruz, Earth and Marine Sciences Building
- ❖ **Student Energy Efficiency Program** - Berkeley, Fight the Flow
- ❖ **Student Sustainability Program** - San Diego, Thrifting Trunk Show
- ❖ **Water Efficiency & Site Water Quality** - Santa Barbara, Water Action Plan
- ❖ **Innovative Waste Reduction** - Merced Green Container Initiative
- ❖ **Sustainable Food Service** - Berkeley, LeanPath Waste Reduction
- ❖ **Sustainability Innovations** - Santa Cruz, College Dorm Bi-Level Stairwell Lighting Retrofit and Green Revolving Loan Fund
- ❖ **Communicating Sustainability** - Davis, UC Davis Cool School Awareness Program
- ❖ **Sustainability Champion** - Charlotte Strem, UCOP, Assistant Director – Physical & Environmental Planning

- Design and construction staff and leaders from all five medical centers attended training on the new LEED for Healthcare ratings. The medical centers are now considering adopting LEED for Healthcare for new acute-care facilities. Those facilities have historically been exempted from UC's green building policy requirements.
- Staff from southern UC campuses attended a workshop on the development and use of energy benchmarks for use as design targets for new buildings. A training session for northern campuses will take place in early 2014.

## Education and Research

Reporting on sustainability in academics is required for the Sustainability Tracking, Assessment, and Rating System (STARS) developed by the Association for the Advancement of Sustainability in Higher Education, as well as for other campus sustainability surveys. In addition, the American College & University President's Climate Commitment (ACUPCC), which all campuses have signed, states that signatories need to develop "actions to make climate neutrality and sustainability a part of the curriculum and other educational experiences for all students." Although several campuses have institutes and/or working groups that facilitate best practice sharing and coordination to advance sustainability initiatives in education and research, before this year there was no organized systemwide sharing of best practices. In 2013, a systemwide Task Force on Reporting on Sustainability Education and Research formed to address this need and opportunity.

The task force began collecting best practices from across the University in sustainability curriculum and research, and in how the campuses are being used as living laboratories for sustainability. The task force summarized the UC campus responses for education and research credits submitted to *Sierra* magazine's sustainability rankings in 2012, and created a consistent organizational structure for collecting and sharing best practices moving forward.

Nine campuses completed inventories on sustainability curriculum and research activities, and San Francisco completed an inventory of its School of Medicine curriculum. As each campus used a very different methodology for its inventory, the initial effort focused on contrasting current reporting methods and developing draft systemwide reporting guidelines for reporting to *Sierra* Magazine's "Cool Schools" ranking and to AASHE for STARS ratings.

After reviewing each campus' Climate Action Plan, the task force determined that all campuses except San Francisco already include climate neutrality and sustainability in their curriculum. However, only Santa Barbara has made a comprehensive effort to include these topics as part of the curriculum for all undergraduate students and to actively engage graduate students across all departments. To facilitate best practice sharing in this area, the task force will start collecting syllabi of applicable classes and will review successful efforts at peer institutions.

The task force provided a forum to highlight the leadership at Santa Barbara, San Francisco, and UCLA, where the Academic Senates have created bodies to

*Academic Senates at Santa Barbara, San Francisco, and Los Angeles have created bodies to advance sustainability in academics.*

advance sustainability in academics. The Santa Barbara Academic Senate Sustainability Working Group (SWG) acknowledges and celebrates ways that faculty and researchers address sustainability. The SWG "acts as a campus-wide committee designed to support the mission to create, disseminate, and assess knowledge of sustainable practices through classroom instruction, research, service learning, and visual and performing arts." Among other initiatives, the SWG created a "Campus Sustainability Champion" program to recognize faculty innovation and encourage ongoing research and teaching in sustainability. Faculty members submit competitive proposals to engage undergraduate and graduate students in sustainability issues and provide campus-wide leadership and visibility in sustainability in education and research. Awardees are selected by the SWG based on the merit of their proposals. Recipients receive funding to support activities including but not limited to graduate and undergraduate research assistants. All awardees are required to lead an annual Freshman Seminar in Sustainability.

In 2013, the San Francisco Academic Senate approved formation of a standing Committee on Sustainability. One of the first products of the committee is a set of guidelines for "Documenting Sustainability Activities Associated with Faculty Merits and Promotions," which was approved by the San Francisco Academic Senate. Stating that sustained as well as outstanding individual faculty efforts that support sustainability goals should be recognized and encouraged, the guidelines may be used in preparing merit and promotion packets.

*John Foran, Professor of Sociology at Santa Barbara, was named Campus Sustainability Champion for FY 2012-13 by the Academic Senate Sustainability Working Group.*



## Social Responsibility

### Socially Responsible Investing

UC has two socially responsible investment policies that guide the management of the University's General Endowment Pool (GEP). The University does not invest in companies manufacturing tobacco products or companies with business operations in Sudan. In addition, it follows a proxy voting policy that votes in favor of environmental, social and governmental resolutions unless they are anticipated to have a negative financial impact on the company's business.

STARS and other campus sustainability surveys include reporting on socially responsible investment practices. Until 2013, UC system reporting yielded inconsistent rankings. A task force with representation from the Treasurer's Office, each campus, and several campus foundation CFOs, was formed to address this issue. In 2013 the task force came to a consensus on reporting metrics for *Sierra Magazine's* "Cool Schools" survey. The task force next will focus on assessing best practices in socially responsible investing among peer universities and determine if these best practices can be implemented at UC.

### Socially Responsible Trademark Licensing

The University has one of the strongest codes of conduct in the country for manufacturers of goods bearing campus logos and has been in the forefront of the movement to establish acceptable labor standards for the production of university logo apparel. The University's Code of Conduct for Trademark Licensees (UC Code), written in 1998 and revised with student input in 2000, is available at <http://policy.ucop.edu/doc/3000130/CodeTrademarkLicensees>.



*The Association for the Advancement of Sustainability in Higher Education (AASHE) includes socially responsible investing of campus endowments and socially responsible trademark licensing in their Sustainability Tracking, Assessment & Rating System (STARS). Seven UC campuses have earned STARS ratings.*



*The University partners with the Workers Rights Consortium and the Fair Labor Association to monitor labor practices of UC-logged goods.*



The University actively monitors compliance with the UC Code with the Worker Rights Consortium (WRC), the Fair Labor Association (FLA), other universities, and authorized manufacturers of goods with UC logos and branding. The Committee on the UC Code of Conduct for Trademark Licensees (Committee), composed of students, faculty, and staff, investigates and enforces remediation of UC Code violations. The University is committed to providing safe, healthy and equitable working conditions around the globe and will, if necessary, cease doing business with companies unwilling to correct confirmed violations.

The Committee is updating the UC Code. When complete, this will reference the California Transparency in Supply Chains Act of 2010

(<http://www.state.gov/documents/organization/164934.pdf>), requiring retailers and manufacturers who meet certain criteria to disclose their efforts to eradicate human trafficking. In 2013, the University successfully advocated for workers at the PT Kizone factory in Indonesia who did not receive back wages upon the factory's closure in 2011. Lack of measures to protect the workers' wages following factory closures led to an industry-wide discussion of remediation efforts. The UC Code will include a provision to close this gap.

During the coming year, UC will engage in efforts to improve fire and building safety in Bangladesh and elsewhere. Recent tragic deaths of workers in Bangladesh are a reminder that the University's advocacy of workers' rights continues to be important and necessary.

# Attachment I: Berkeley Infographics

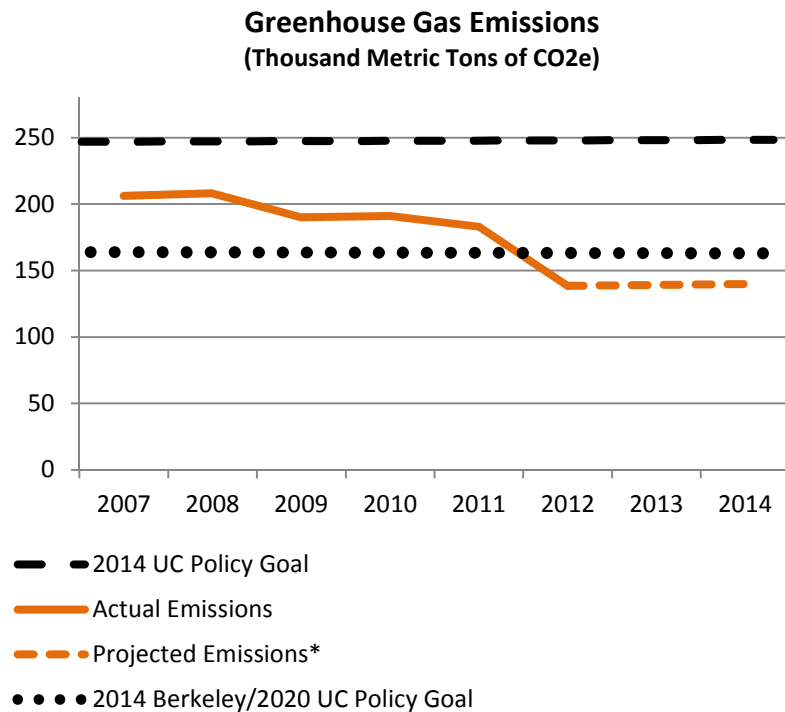
## Introduction

Six years ago Berkeley set a target to reduce its carbon footprint by one-third--to bring Berkeley's greenhouse gas emissions back to 1990 levels by year 2014. In 2012, Berkeley met this target, two years ahead of schedule, by reducing emissions through energy efficiency and reduced transportation fuel use. Additional reductions resulted from greener purchased electricity as part of the state renewable portfolio standard mandates and improved accuracy of the emissions inventory profile. In spring 2014 Berkeley will set a 2020 GHG reduction target that reaches beyond UC Policy and state requirements.

Berkeley documents progress and successes in an Annual Sustainability Report, which can be accessed at [http://sustainability.berkeley.edu/os/pages/reports/docs/2013\\_UC%20Berkeley\\_Sustainability%20Report.pdf](http://sustainability.berkeley.edu/os/pages/reports/docs/2013_UC%20Berkeley_Sustainability%20Report.pdf). The 2013 Report will conform to the leading international reporting standard, the Global Reporting Initiative, making Berkeley among the first universities to do so. Since its launch in April 2012, the Energy Management Initiative has achieved savings of over \$1.8 million, surpassing planning estimates. Cal Dining has expanded "Chews to Reuse," their reusable to-go container program, to all dining halls and to include reusable silverware and cups. Fleet and commute fuel use is now reduced more than 50 percent below 1990 levels, exceeding the campus goal. In 2012-13, 26% of undergraduates completed at least one sustainability-focused course.

## Greenhouse Gas Emissions

Greenhouse gas emissions decreased to 7% below 1990 levels in 2012, two years ahead of Berkeley's goal. Berkeley will set a new target for 2020 in to be lower than 1990 levels and set a course toward climate neutrality.



### Measures Taken to Meet 2014 Campus Goal

**Investing in energy efficiency and sustainable transportation practices.** Since 2006, Berkeley has saved 20 million kWh of electricity through building retrofits and has reduced fuel use by more than 1 million gallons thanks to an increase in the number of bicycle, pedestrian and mass transit commuters.

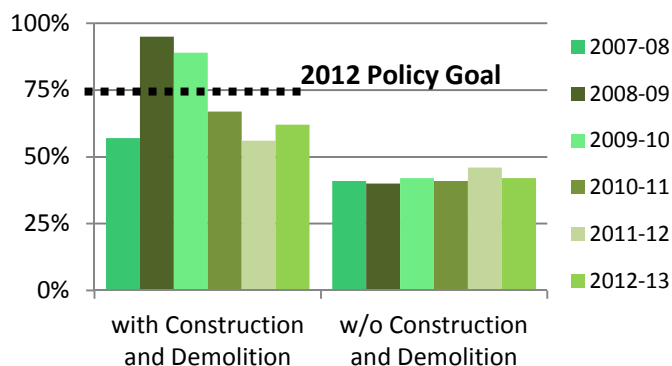
**Buying greener power.** The campus purchases electricity with higher proportions of solar and wind energy, and less coal, from Pacific Gas & Electric, a utility required by state law to provide power that will include 33% renewable energy by 2020.

**Improving data and methods.** UC Berkeley has improved the accuracy of its emissions inventory profile by using the best data available about campus energy use and by staying current with the best reporting methods.

\*Business as usual assumes no new mitigation efforts are implemented after 2012 and the PG&E power-mix stays the same for years 2013 and 2014. This is a conservative estimate of future emissions, as abatement is assumed to continue.

## Attachment I: Berkeley Infographics

### Solid Waste Diverted from Landfill



In FY 2012-13, Berkeley diverted 62% of its waste from the landfill, an increase of 6 percentage points from FY 2011-12.

When waste from construction and demolition is not included, the amount of waste diverted from the landfill was 42% in FY 2012-13.

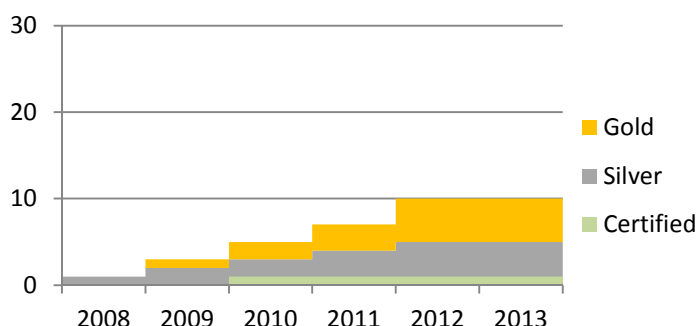
Berkeley did not meet the 2012 Policy goal of 75% waste diversion from landfill.

Berkeley has a total of 10 LEED-certified buildings to date. No new certifications were added in 2013, although several are currently being processed.

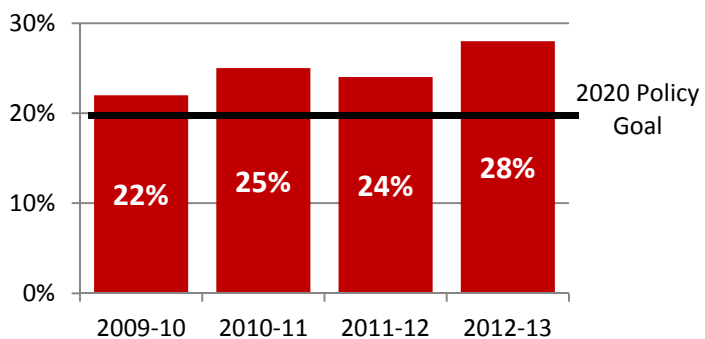


Li Ka Shing Biomedical Sciences Building was certified LEED-Gold in 2012.

### LEED Certifications



### Sustainable Food Purchases for Residential Dining

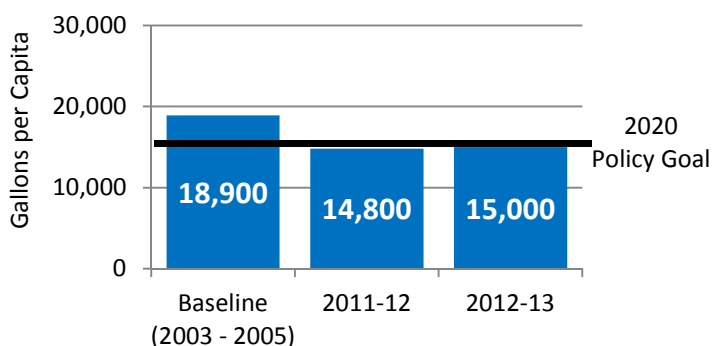


In FY 2012-13, 28% of the food purchased by Berkeley's residential dining services and three other campus food vendors met one or more criteria for sustainable food, an increase of 4 percentage points from FY 2011-12.

Berkeley's residential dining services and three other campus vendors have already met the 2020 Policy goal of 20% sustainable food purchases.

In FY 2012-13, Berkeley averaged 15,000 gallons of potable water use per capita. This is a 20% reduction from its 2003-2005 baseline, enabling the campus to meet the 2020 Policy goal of reducing potable water consumption by 20% below the baseline.

### Potable Water Consumption





# Attachment I: Davis Infographics

## Introduction

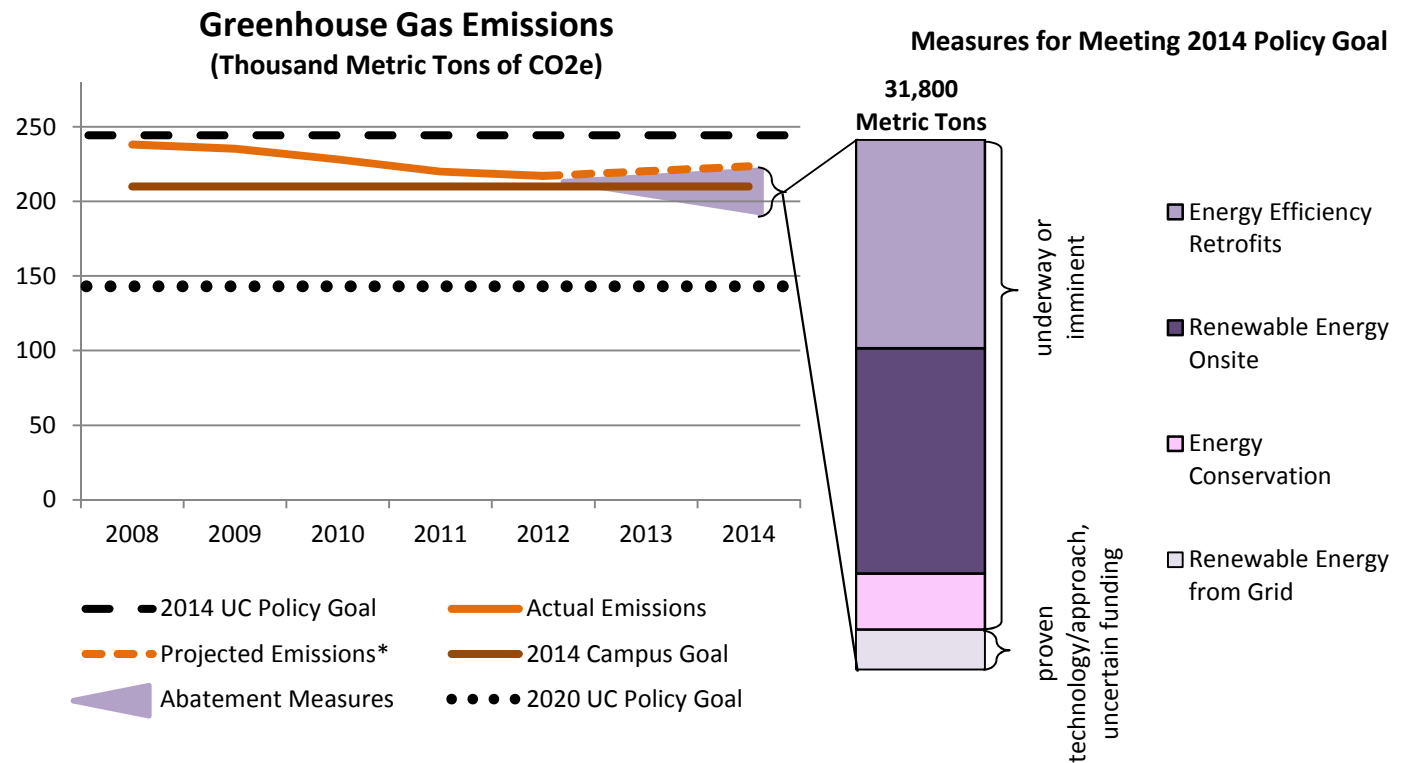
Davis received a Gold rating in the STARS program, and was in the Top 5 greenest campuses in Sierra's Cool School ranking for the second year in a row. Students advocated for a LEED Platinum Student Community Center, and the campus delivered. With a fourth year of declining greenhouse gas emissions, the Davis campus pushed forward more renewable energy strategies. A biodigester will use campus waste to produce electricity and was developed in conjunction with a faculty member and an alumna (see photo below). Approval was granted for a large-scale solar photovoltaic installation that is expected to provide up to 14 megawatts in of power. The Facilities Management group opened a dedicated Energy Conservation Office and hired an energy manager. The Smart Lighting Initiative won a Best Practice award at the annual California Higher Education Sustainability Conference for an institutional-level adaptive control system for exterior lighting, which is estimated to save the campus 1 million kilowatt-hours and \$100,000/year. The campus was the first recipient of the Best Practice Award for Communicating Sustainability, in honor of their comprehensive Cool School Awareness Campaign, which used the 2012-13 #1 Cool School ranking to raise awareness about sustainability at Davis, promote sustainable practices and habits, and generate school pride around sustainability achievements.



Completion of biodigester construction is scheduled for December 2013.

## Greenhouse Gas Emissions

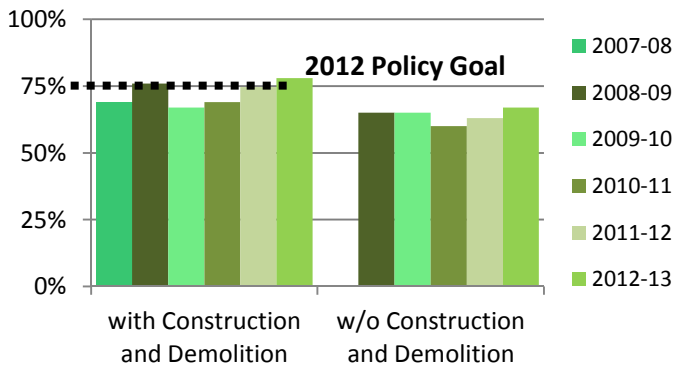
Davis' 2012 greenhouse gas emissions surpassed the 2014 UC Policy goal, but were higher than the campus goal by 7,000 metric tons. Emissions decreased by 1.3%, or 3,000 metric tons, from 2011 to 2012. Planned abatement measures of 31,800 metric tons will enable Davis to reduce emissions below the 2014 campus goal despite projected growth.



\*The projection for 2014 emissions was calculated by applying a greenhouse gas emissions per square foot factor to projected total building space in 2014. Mitigation measures will enable UC Davis to surpass their 2014 campus goal despite projected growth.

# Attachment I: Davis Infographics

## Solid Waste Diverted from Landfill



In FY 2012-13, Davis diverted 78% of its waste from the landfill, an increase of three percentage points from FY 2011-12, and exceeded the 2012 Policy goal of 75% waste diversion.

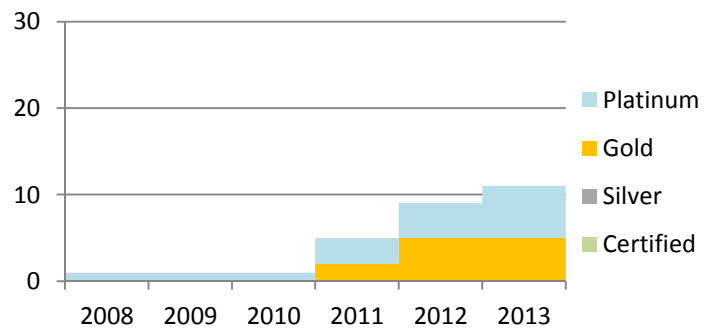
When waste from construction and demolition is not included, the amount of waste diverted from the landfill was 67% in FY 2012-13.

In 2013, Davis received two LEED-Platinum certifications, contributing to its total of 11 LEED certifications.

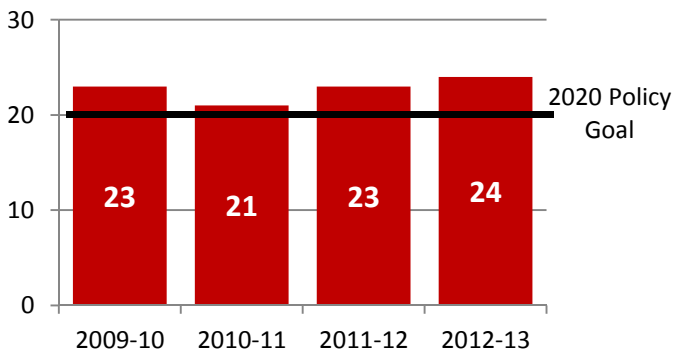


The Student Community Center was certified LEED-Platinum.

## LEED Certifications



## Sustainable Food Purchases for Residential Dining

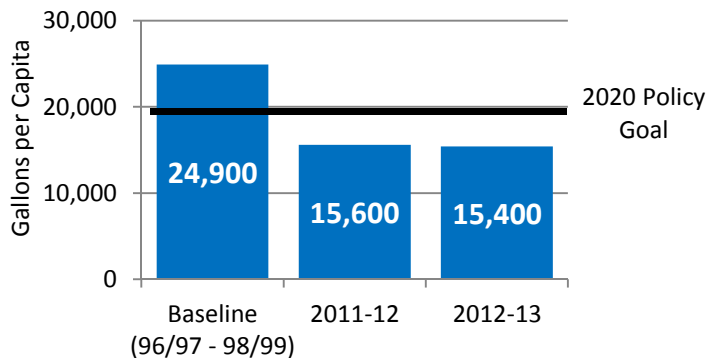


In FY 2012-13, 24% of the food purchased by Davis' residential dining services met one or more sustainable food criteria, an increase of one percentage point from FY 2011-12.

Davis' residential dining services has already met the 2020 Policy goal of 20% sustainable food purchases.

In FY 2012-13, Davis averaged 15,400 gallons of potable water use per capita. This is a 38.1% reduction from its FY 1996-97 to FY 1998-99 baseline, enabling Davis to outperform the 2020 Policy goal of reducing potable water consumption by 20% below the baseline.

## Potable Water Consumption



# Attachment I: Irvine Infographics

## Introduction

In 2013 Irvine rose to third place nationally in *Sierra's* Cool Schools sustainability rankings, one of only two US universities (and the only UC campus) to be ranked in *Sierra's* Top Ten for four consecutive years. The Irvine campus also achieved an AASHE STARS "Gold" rating and was named to Princeton Review's Green Honor Roll.

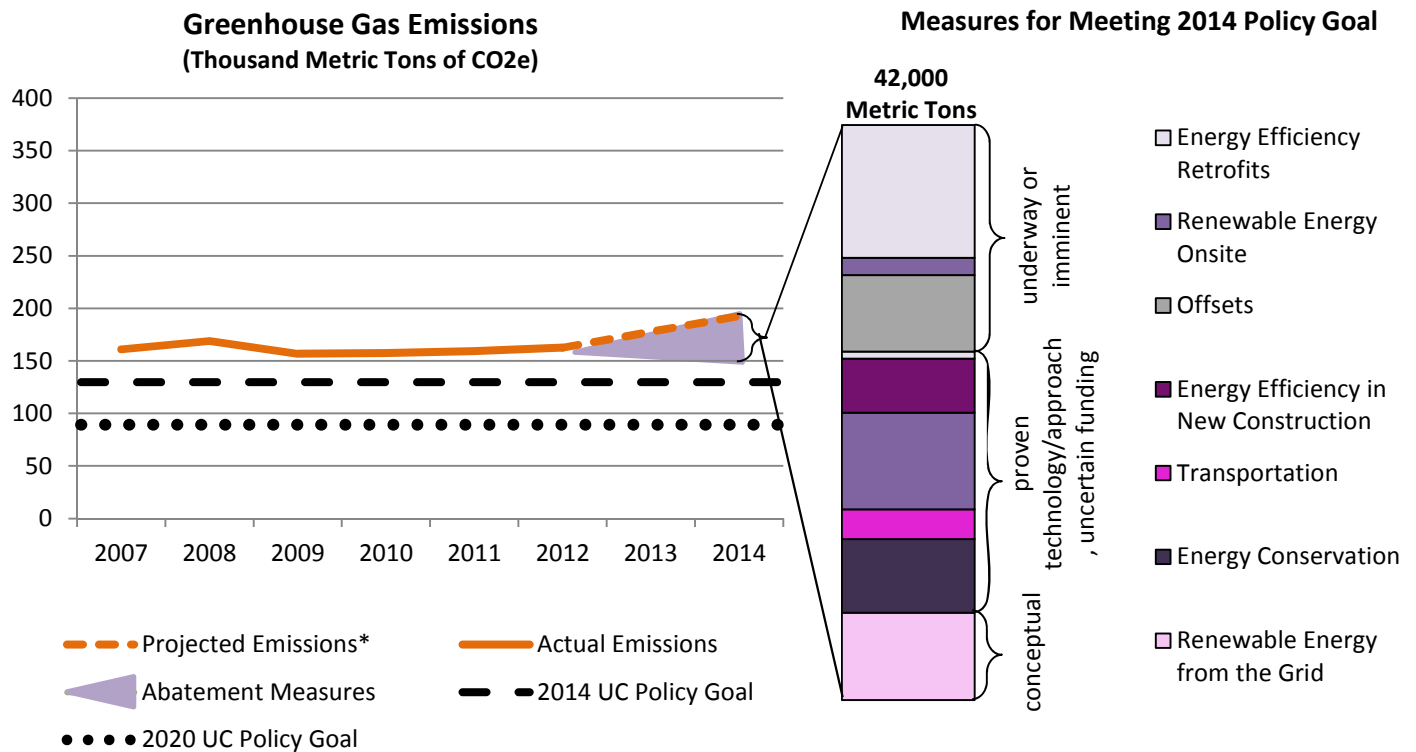
Irvine hosted the 2013 US Department of Energy's Solar Decathlon, which was the first time this biannual national clean energy competition was held outside of Washington DC. The 2013 Decathlon was a great success, hosting approximately 64,000 visitors at this prestigious sustainability competition's West Coast debut.

Irvine launched a Field Laboratory in Energy Studies, using the campus as a living lab to model energy use in classrooms, labs, offices, residences, and utility infrastructure. This will test the reliability and efficiency of generating and storing power on-site, to prove that campuses can meet energy needs with localized technologies linked to a micro grid. This model of partnership between campus operations and campus research programs won the 2013 Effective and Innovative Practices Award from APPA, the global trade association for facilities management professionals in higher education.

Irvine gained national recognition with the US Green Building Council (USGBC) awarding the campus 7 LEED NC Platinum certifications for campus buildings, bringing UC Irvine's green building portfolio total to 11 LEED NC Platinum and 8 LEED NC Gold buildings.

## Greenhouse Gas Emissions

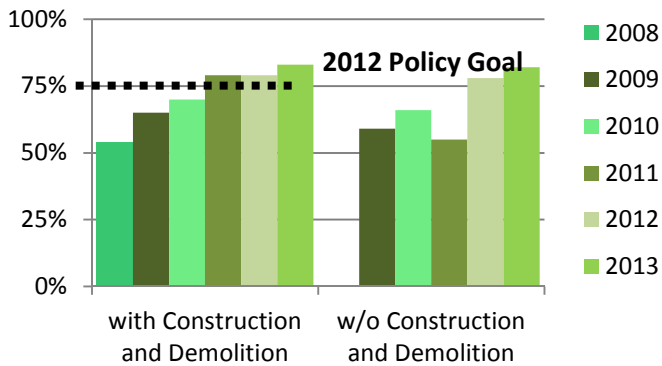
The 2012 greenhouse gas were higher than the UC 2014 Policy goal by 32,500 metric tons. Emissions increased by 2.2 percent, or 3,500 metric tons in 2012. Planned abatement measures of 42,000 metric tons will enable Irvine to reduce emissions despite projected growth. However, this will not be enough to meet 2014 policy goal.



\*Projected emissions were taken from the draft 2013 Climate Action Plan update. Mitigation measures demonstrate that UC Irvine will keep their emissions stable until the 2014, despite growth in campus building space.

# Attachment I: Irvine Infographics

## Solid Waste Diverted from Landfill



In FY 2012-13, Irvine diverted 83% of its waste from the landfill, an increase of 4 percentage points from FY 2011-12.

When waste from construction and demolition is not included, the amount of waste diverted from the landfill was 82% in FY 2012-13.

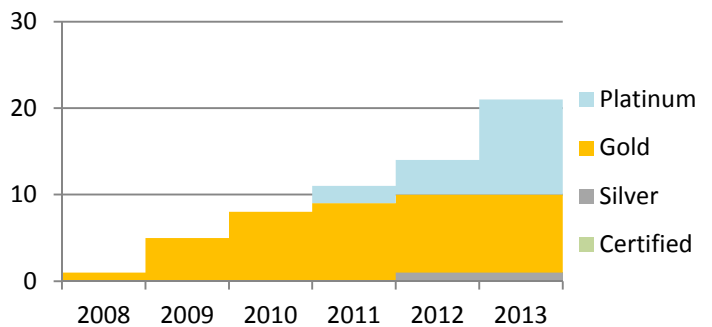
Irvine met the 2012 Policy goal of 75% waste diversion from landfill.

In 2013, Irvine received seven LEED-Platinum certifications, contributing to its total of 21 LEED certifications.

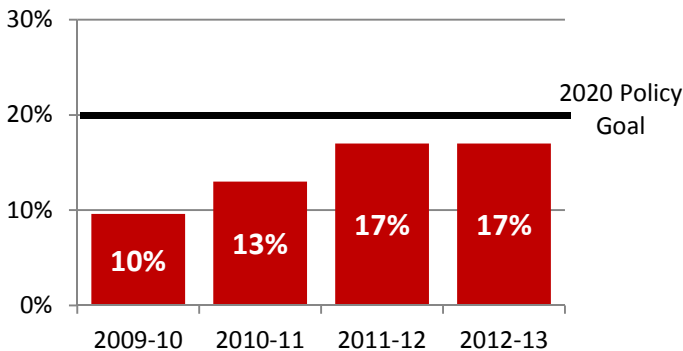


The Verano Graduate Student Housing Complex earned five LEED-Platinum certifications.

## Total Number of LEED Certifications



## Sustainable Food Purchases for Residential Dining

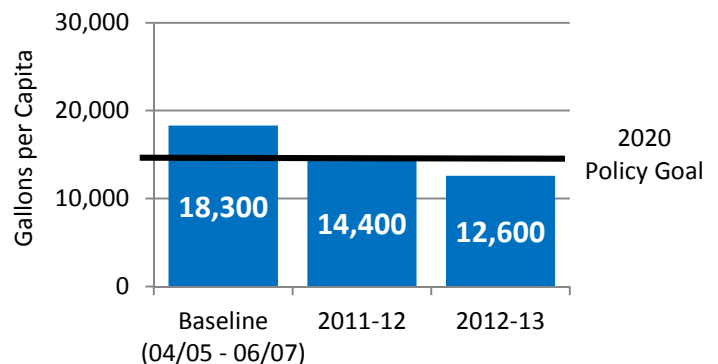


At 17%, the amount of food purchased by Irvine's residential dining services that met one or more sustainable food criteria stayed approximately constant from FY 2011-12 to FY 2012-13.

Irvine's residential dining services is 3 percentage points away from the 2020 Policy goal of 20% sustainable food purchases.

In FY 2012-13, Irvine consumed 12,600 gallons of potable water per capita. This is a 31.1% reduction from its FY 2004-05 to FY 2006-07 baseline, enabling the campus to outperform the 2020 Policy goal of reducing potable water consumption by 20% below the baseline.

## Potable Water Consumption



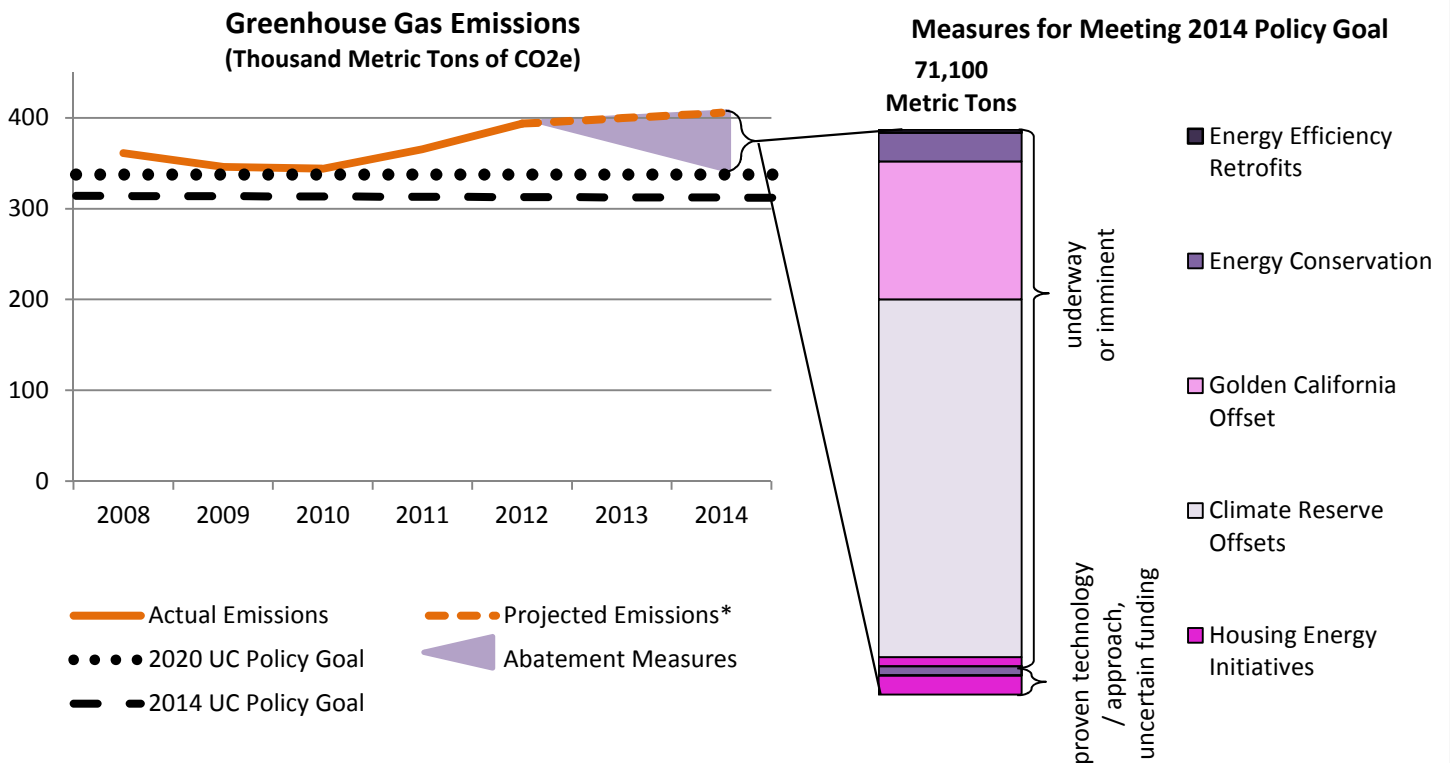
## Introduction

Over the last year, UCLA completed its first LEED-Platinum project, the Hershey Hall Seismic Renovation. In a historic first, this year more commuting students walked to campus than drove, bringing the campus drive-alone rate down to 25% for students, and 51% for employees. UCLA continues collaborations between research and operations, turning the campus into a living laboratory of sustainability. The Smart Grid Research Center, Facilities Management, and Transportation are working together to install solar powered electric vehicle charging stations on Parking Structure 9. These stations can be managed via a mobile app, and will help researchers determine if electric vehicles can provide energy storage function during peak hours.

The Education for Sustainable Living Program creates action research teams to partner students with campus staff and faculty stakeholders. Research areas this year included studying the environmental impact of the Tobacco Free Campus initiative, launching a Zero Waste campaign at Pauley Pavilion, the campus basketball arena, and a study of space utilization on campus. 2012 saw increases in resource consumption due to continued growth and a significantly hot summer, but increases were partially mitigated by continued energy efficiency efforts. This year UCLA launched a new series of building energy audits. The first 10 building audits identified \$4.5 million dollars of efficiency projects that are now underway and will reduce GHG emissions by 5,000 tons. This year, in partnership with the LA Department of Water and Power and the LA Bureau of Sanitation, UCLA began a feasibility study for a satellite wastewater treatment plant on the campus, as part of water planning efforts.

## Greenhouse Gas Emissions

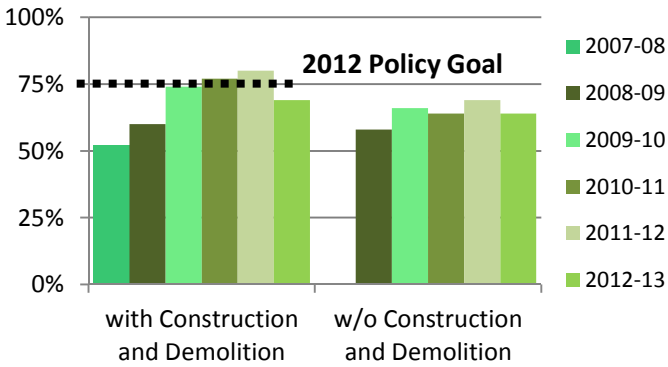
The 2012 greenhouse gas emissions were higher than the 2020 UC Policy goal by 55,100 metric tons. Emissions increased by 7.7%, or 28,500 metric tons in 2012. Planned abatement measures of 71,100 metric tons will enable the Los Angeles campus to reduce emissions to meet the 2020 Policy goal, despite projected growth.



\*Projected emissions were taken from the draft 2013 Climate Action Plan update. Abatement measures demonstrate that UCLA will meet the 2020 UC Policy goal despite growth in building space over the past few years.

# Attachment I: UCLA Infographics

## Solid Waste Diverted from Landfill



In FY 2012-13, UCLA diverted 69% of its waste from the landfill, a decrease of 11 percentage points from FY 2010-11.

When waste from construction and demolition is not included, the amount of waste diverted from the landfill was 64% in FY 2012-13.

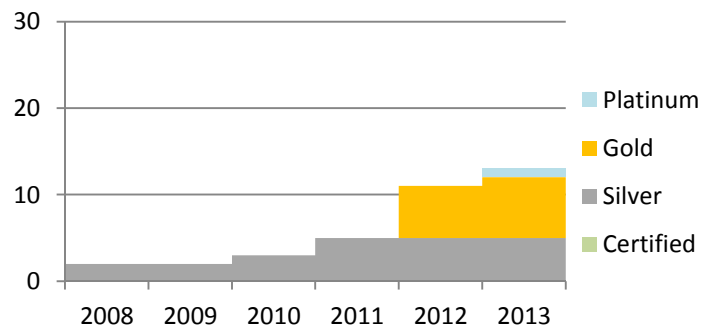
UCLA met the 2012 Policy goal of 75% waste diversion from landfill in FY 2011-12, but it dropped below the goal in FY 2012-13.

In 2013, UCLA received one LEED-Gold and one LEED-Platinum certification, contributing to its total of 13 LEED certifications.

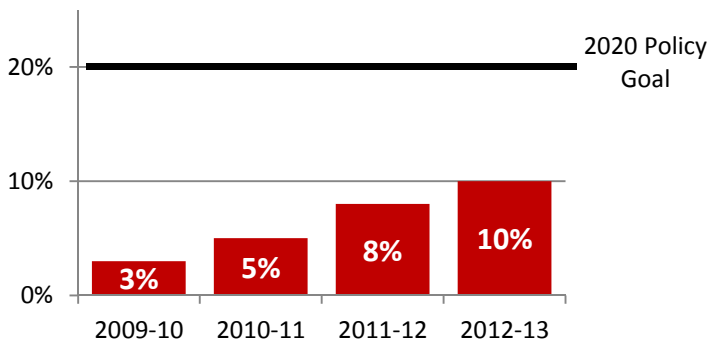


Hershey Hall was certified LEED-Platinum.

## LEED Certifications



## Sustainable Food Purchases for Residential Dining

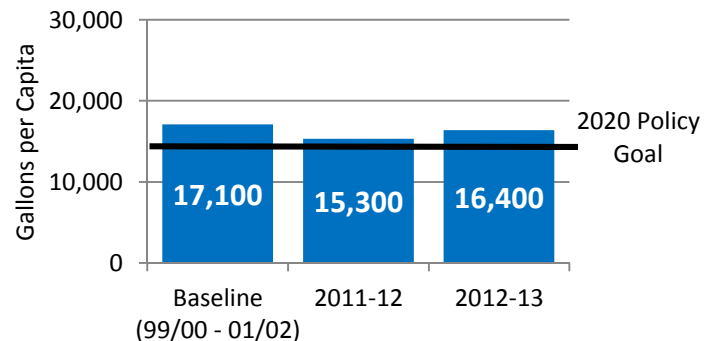


In FY 2012-13, 10% of the food purchased by UCLA's residential dining services met one or more criteria for sustainable food, an increase of 2 percentage points from FY 2011-12.

UCLA's residential dining services is halfway towards the 2020 Policy goal of 20% sustainable food purchases.

In FY 2012-13, the UCLA Campus and Health System consumed 16,400 gallons of potable water per capita. This is a 4% reduction from its FY 1999-00 to FY 2001-02 baseline. The campus and health system need to reduce potable water consumption by another 16 percentage points to meet the 2020 policy goal of reducing potable water consumption by 20% below the baseline.

## Potable Water Consumption at UCLA's Campus and Health System



# Attachment I: Merced Infographics

## Introduction

Several sustainability achievements this year contributed toward the campus' triple zero commitment of zero net energy, zero greenhouse gas emissions, and zero landfill waste by 2020.

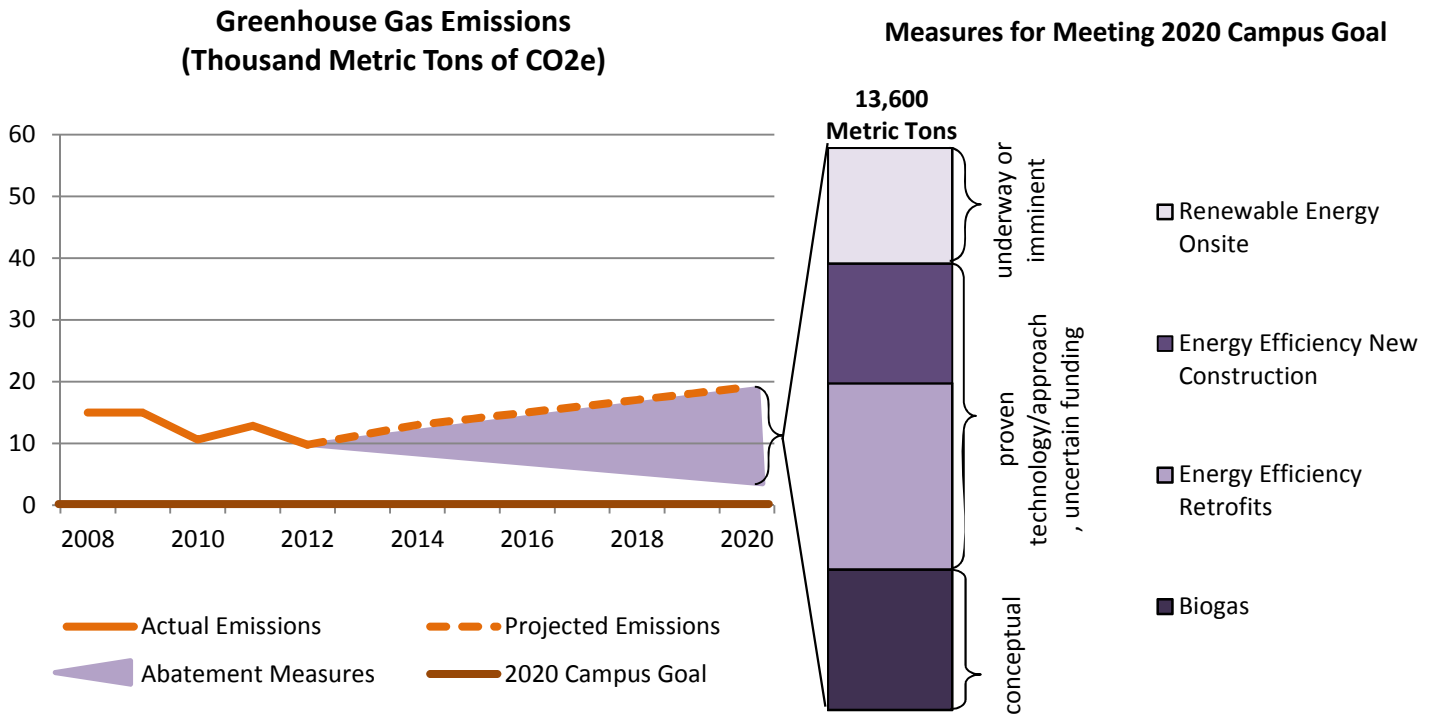
Merced is ramping up renewable energy production. It currently has 1 megawatt of solar PV installed and recently requested proposals to cover the roofs of 10 buildings with PV panels. Merced has an aggressive on-campus energy conservation outreach program. Energy dashboards in buildings trend energy use in real time and an online office room scheduler allows occupants to set the temperature to match their comfort level ahead of time, so that energy is not wasted conditioning the space when it is not occupied.

Merced reduced the amount of waste sent to landfill in the past year, via reusable to-go containers introduced by campus Dining Services. This switch has already eliminated 56,500 pounds of waste. The campus earned a Best Practice Award at the California Higher Education Sustainability Conference for the initiative. Merced also switched to compostable soda cups, a major contributor to their waste stream.

Merced added two LEED-Platinum certifications, Social Sciences Management Building and Dining Expansion, and expects 6 additional platinum certifications in the next year.

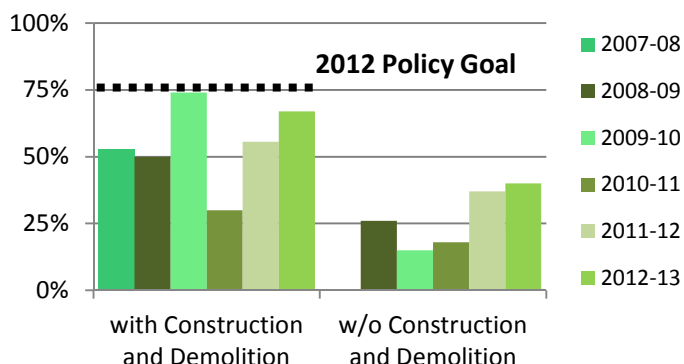
## Greenhouse Gas Emissions

The 2012 greenhouse gas emissions were higher than the 2020 campus goal by 9,800 metric tons. Emissions decreased by 24%, or 3,100 metric tons in 2012. Planned abatement measures will allow Merced to reduce their emissions despite projected future growth. The 2014 and 2020 UC Policy goals do not apply to UC Merced. Instead, UC Merced has committed to eliminating or offsetting its scope 1 & 2 emissions by 2020.



## Attachment I: Merced Infographics

### Solid Waste Diverted from Landfill



In FY 2012-13, Merced diverted 67% of its waste from the landfill, an increase of 11 percentage points from FY 2011-12.

When waste from construction and demolition is not included, the amount of waste diverted from the landfill was 40% in FY 2012-13.

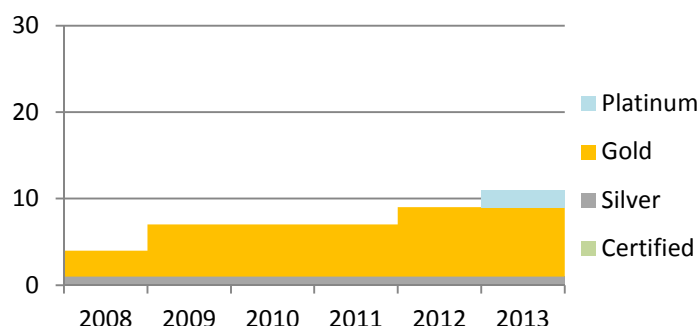
Merced has not met the 2012 Policy goal of 75% waste diversion from landfill.

In 2013, Merced received two LEED-Platinum certifications, contributing to its total of 11 LEED certifications. Merced is the only campus in the country where every building on campus is LEED-certified.

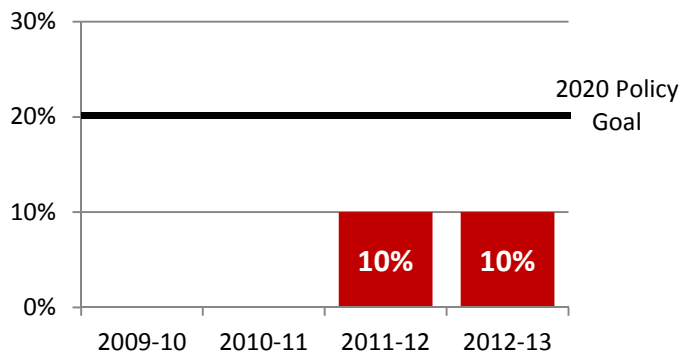


The Social Sciences and Management Building was certified LEED-Platinum.

### LEED Certifications



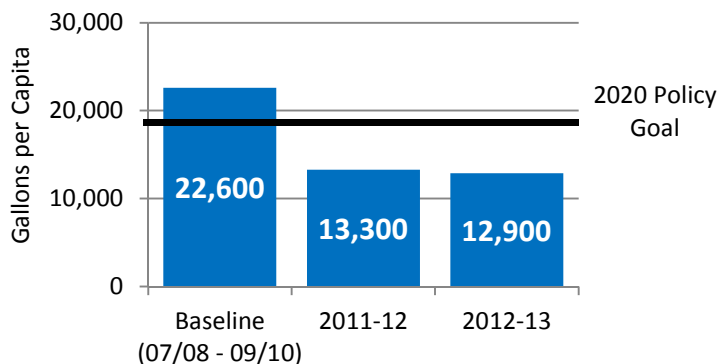
### Sustainable Food Purchases for Residential Dining



In FY 2012-13, 10% of the food purchases by Merced's residential dining services met one or more criteria for sustainable food, staying constant since FY 2011-12. Data is not available for previous years.

Merced's residential dining services is halfway towards meeting the 2020 Policy goal of 20% sustainable food purchases.

### Potable Water Consumption



In FY 2012-13, Merced averaged 12,900 gallons of potable water use per capita. This is a 43% reduction from its FY 2007-08 to FY 2009-10 baseline, enabling the campus to outperform the 2020 Policy goal of reducing potable water consumption by 20% below the baseline.



# Attachment I: Riverside Infographics

## Introduction

In FY 2012-13 Riverside extended its Sustainability Certification Program by creating a Green Event Certification. For the inaugural event 82% of waste was diverted, 2500 re-usable water bottles were filled and the inflatable sculpture garden was kept afloat by 100% renewable energy provided by campus' Mobile Renewable Energy Generator.

Riverside was recognized by *Sierra Cool Schools* and Princeton Review's Greenest Colleges for its sustainability commitments and earned a Silver rating from AASHE's Sustainability Tracking, Assessment and Rating System (STARS).

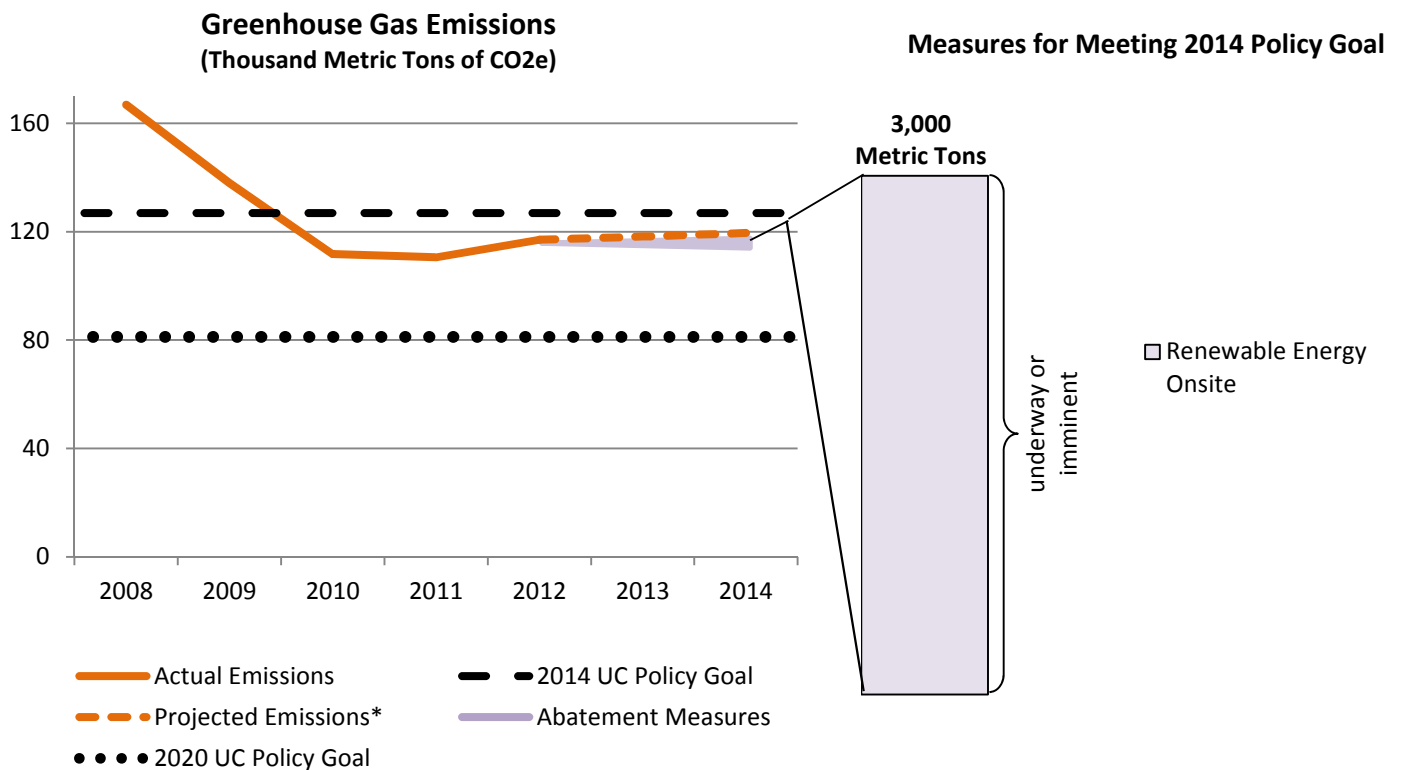
The R'Garden, a sustainably designed and operated campus garden using 100 percent renewable energy and employing natural farming techniques that serve as a living learning lab for the campus and community, opened on December 1<sup>st</sup>, 2012, with speeches by Chancellor Tim White and Mayor Rusty Bailey. Produce harvested from the garden is donated to community food banks.

On Earth Day 2013, Riverside premiered two recycling videos featuring athletes from almost every sport on campus. The videos are being shown at home games during 2013-2014 season.

The campus is developing a Bachelor of Science in Sustainability through the Women's Studies department and a Master of Arts in Sustainability through the School of Public Policy.

## Greenhouse Gas Emissions

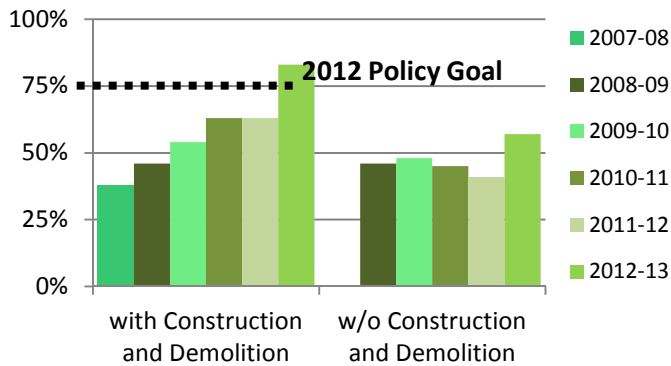
The 2012 greenhouse gas emissions surpassed the 2014 UC Policy goal by 11,900 metric tons. Emissions increased by 5.8%, or 6,400 metric tons in 2012. Planned abatement measures of 3,000 metric tons will enable the Riverside campus to keep emissions stable despite projected growth.



\*The projection for 2014 emissions is based on new building space in 2014, a limited increase in commuting, and a decrease of the greenhouse gas emissions factor for electricity from the grid.

## Attachment I: Riverside Infographics

### Solid Waste Diverted from Landfill



In FY 2012-13, Riverside diverted 83% of its waste from the landfill, an increase in 20 percentage points from FY 2011-12.

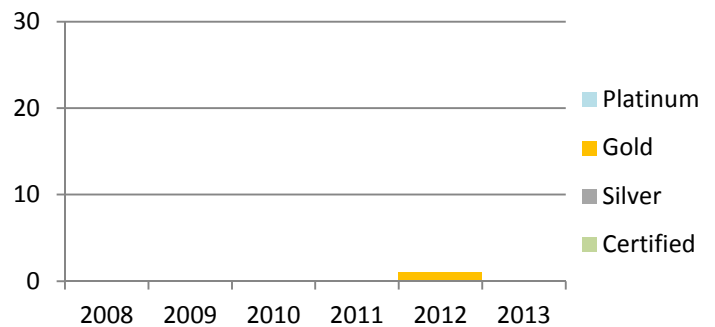
When waste from construction and demolition is not included, the amount of waste diverted from the landfill was 57% in FY 2012-13.

Riverside has met the 2012 Policy goal of 75% waste diversion from landfill.

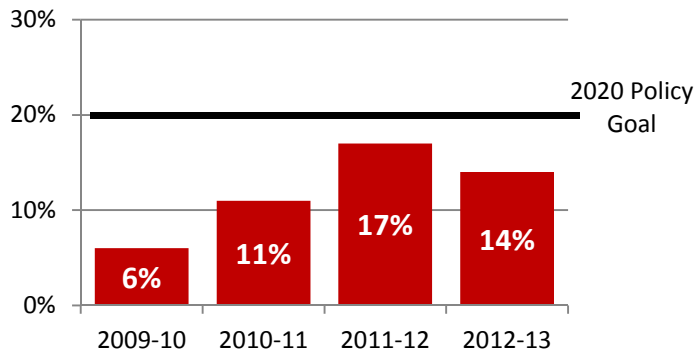
Riverside has one LEED certification. The School of Medicine Research Building was certified LEED-Gold in 2012.



### LEED Certifications



### Sustainable Food Purchases for Residential Dining

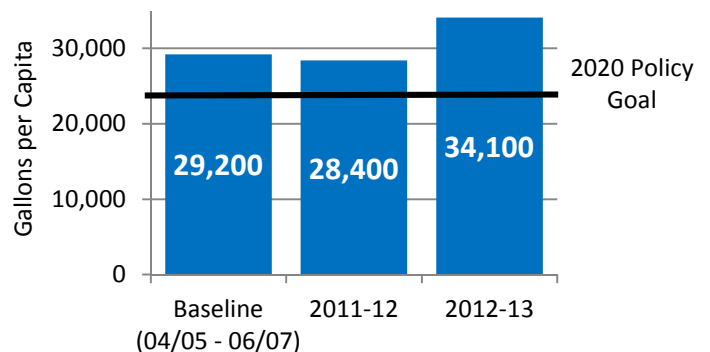


In FY 2012-13, 14% of the food purchased by Riverside's residential dining services met one or more criteria for sustainable food, a decrease of 3 percentage points from FY 2011-12.

Riverside's residential dining services is 6 percentage points away from meeting the 2020 Policy goal of 20% sustainable food purchases.

In FY 2012-13, Riverside consumed 34,100 gallons of potable water per capita. This is a 17% increase from their FY 2004-05 to FY 2006-07 baseline. The campus needs to reduce its potable water consumption by 31% to meet the 2020 Policy goal of reducing potable water consumption by 20% below the baseline.

### Potable Water Consumption



## Introduction

In FY 2012-13, San Diego maintained its global leadership in sustainable practices, demonstrated by the renewed Gold rating under the international Sustainability Tracking, Assessment and Rating System (STARS) protocol. The campus installed additional solar panels, increasing campus renewable energy generation to over 5 megawatts. Classrooms and labs have been integrated with more energy efficient technologies resulting in 9.35 million kilowatt-hours saved every year. As a result of campus renewable energy and energy-efficiency measures, San Diego was named the 2012 Grand Champion at the 8th Annual San Diego Gas and Electric (SDG&E) Energy Showcase. The campus has earned \$7.2 million in energy incentives from SDG&E since 2010.

The Mission Bay Aquatic Center achieved LEED Platinum for Existing Buildings in 2012 through a partnership between students from UC San Diego and San Diego State University--the first such partnership of its kind for both the UC and CSU systems. As of October 2013, San Diego has received 21 LEED certifications.

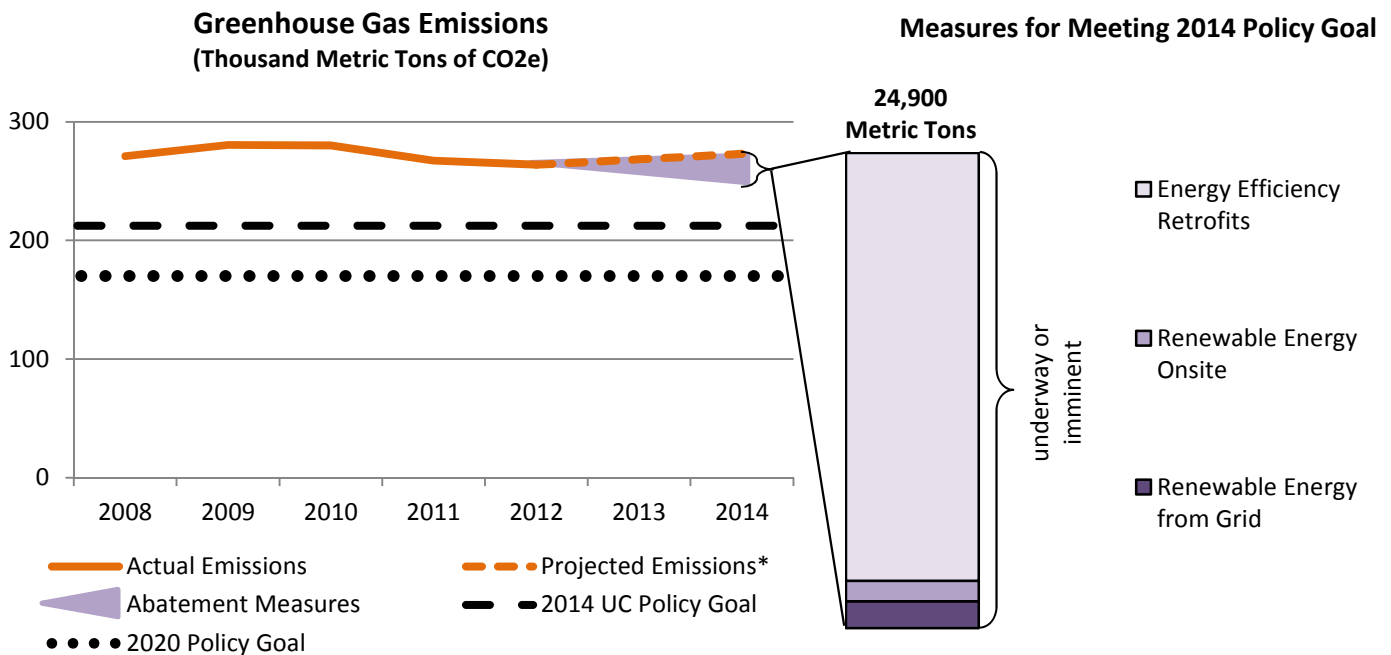
San Diego continued pursuing waste minimization efforts through student-led events. These included a Trash Sort event and the award-winning Thrifting Trunk Show, a fashion show and expo featuring used clothing.

San Diego is close to meeting the UC Policy's water goals and is pursuing additional conservation initiatives. It allocated funding and began the design phase to utilize reclaimed water at the Central Utility Plant, potentially saving more than 100 million gallons of potable water each year.

To learn more about San Diego's sustainability initiatives, visit [sustainability.ucsd.edu](http://sustainability.ucsd.edu).

## Greenhouse Gas Emissions

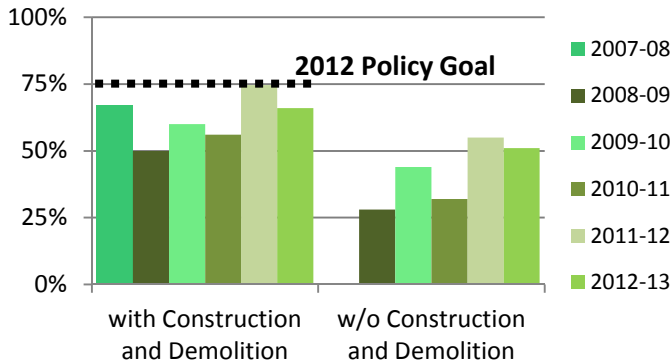
San Diego's 2012 greenhouse gas emissions were higher than the 2014 UC policy goal by 51,000 metric tons, though they decreased by 1.3 percent, or 3,400 metric tons in 2012. Planned abatement measures of 24,900 metric tons will enable the San Diego campus to reduce emissions despite projected growth. However, this will not be enough to meet the 2014 policy goal.



\*The projection for 2014 emissions was based on the Campus Capital Project List (4-26-2013). The projected emissions per square foot was assumed to be the same as current emissions per square foot with a one percent load creep. As demonstrated by the actual emissions, abatement measures have successfully reduced the San Diego campus' emissions over time, despite the continued growth in building space.

## Attachment I: San Diego Infographics

### Solid Waste Diverted from Landfill



In FY 2012-13, San Diego diverted 66% of its waste from the landfill, a decrease of 9 percentage points from FY 2011-12.

When waste from construction and demolition is not included, the amount of waste diverted from the landfill was 51% in FY 2012-13.

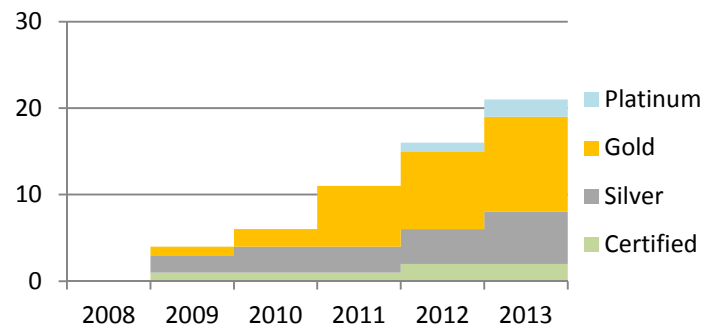
San Diego has not met the 2012 Policy goal of 75% waste diversion from landfill.

In 2013 San Diego received two LEED-Silver, two LEED-Gold, and one LEED-Platinum certification, contributing to its total of 21 LEED certifications.

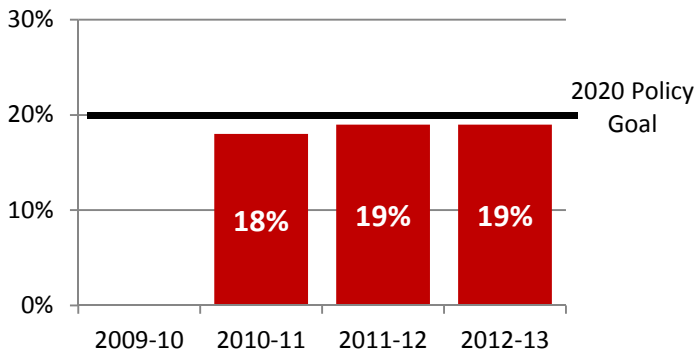


The Mission Bay Aquatic Center was certified LEED-Platinum for Operations and Maintenance.

### LEED Certifications



### Sustainable Food Purchases for Residential Dining

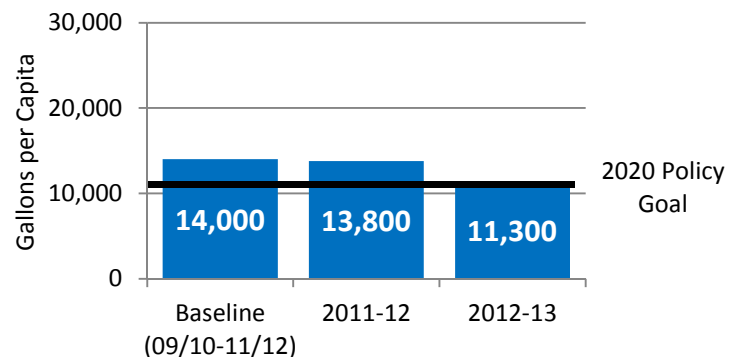


In FY 2012-13, 19% of the food purchased by San Diego's residential dining services met one or more criteria for sustainable food, remaining approximately constant from FY 2011-12 to FY 2012-13.

San Diego's residential dining services is only one percentage point away from the 2020 Policy goal of 20% sustainable food purchases.

In FY 2011-12, San Diego consumed 11,300 gallons of potable water per capita. This is a 19% reduction from their FY 2009-10 to FY 2011-12 baseline. The campus is one percentage point away from meeting the 2020 policy goal of reducing potable water consumption by 20% below the baseline.

### Potable Water Consumption



# Attachment I: San Francisco Infographics

## Introduction

In FY 2012-13, San Francisco began development of its Sustainability Action Plan 2.0 or SAP2.0 (updated from 2010) to identify strategies and tactics to implement through 2020. Nine work groups are scheduled to complete the plan in December 2013.

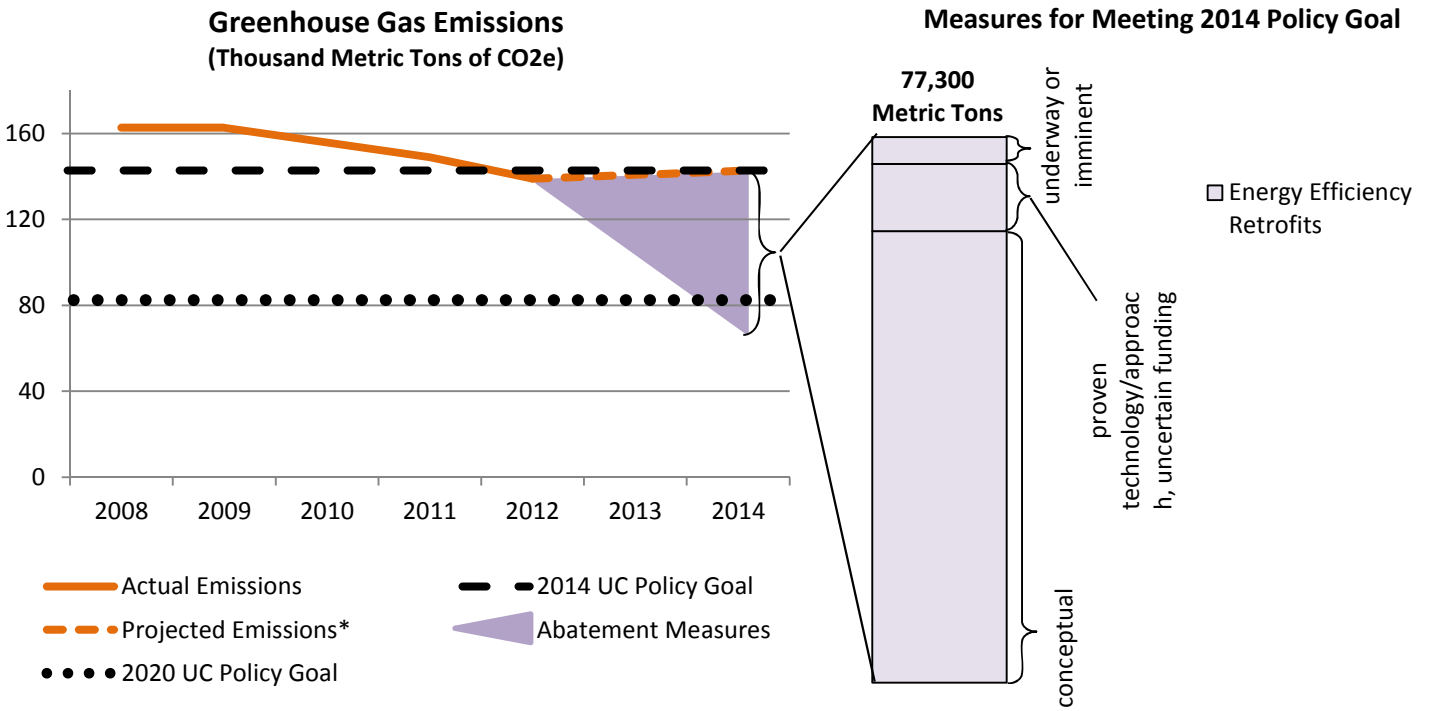
A re-engineering project optimized central plant power capacity and reduced emissions by 7,000 metric tons of CO<sub>2</sub>e. Energy efficiency projects received \$1.67 million in incentives and saved 6.19 million kilowatt-hours of energy. The campus received a grant for eight additional electric vehicle charging stations and the commuting drive-alone rate was down to 33%.

San Francisco achieved a 64% solid waste diversion rate. Retail Services began work on a sustainable food tracking tool for the 23 food service vendors who lease space on the campus.

The LivingGreen office, lab, and event certification program saved over \$300,000, resulting from energy and water efficiency projects in the past three years. Employee engagement efforts included offering a discounted solar PV system to employees, resulting in 98 registrations, 12 contracts and 69 kilowatts of total generation capacity. Another engagement effort included a \$1000 discount off the manufacturer's selected retail price for Nissan Leaf vehicles.

## Greenhouse Gas Emissions

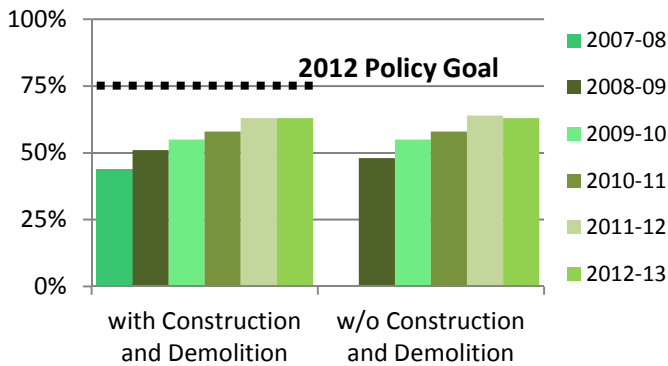
2012 greenhouse gas emissions fell below the 2014 UC policy goal by 3,700 metric tons. Emissions decreased by 6.8%, or 10,000 metric tons in 2012. Planned abatement measures and CARB-certified offsets will allow the San Francisco campus to continue meeting the 2014 policy goal.



\*Projected emissions in 2014 are equal to the 2014 UC policy goal. UCSF plans to purchase sufficient CARB-certified offsets to offset the projected increase in emissions from campus growth.

# Attachment I: San Francisco Infographics

## Solid Waste Diverted from Landfill



In FY 2012-13, San Francisco diverted 63% of its waste from the landfill, the same amount as FY 2011-12.

When waste from construction and demolition is not included, the amount of waste diverted from the landfill was 63% in FY 2012-13.

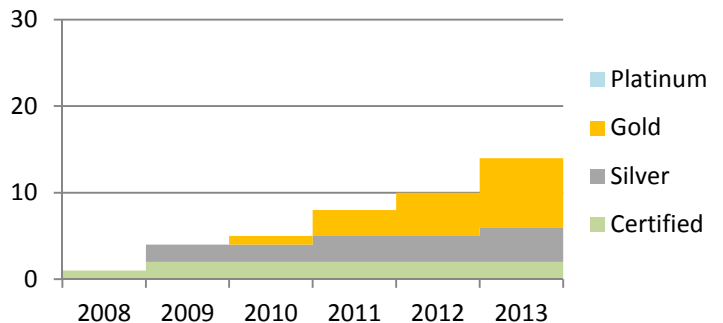
San Francisco did not meet the 2012 Policy goal of 75% waste diversion from landfill.

In 2013, San Francisco received two LEED-Silver certifications and two LEED-Gold certifications, contributing to its total of 10 LEED certifications.



The Smith Cardiovascular Research Building was certified LEED-Gold.

## LEED Certifications

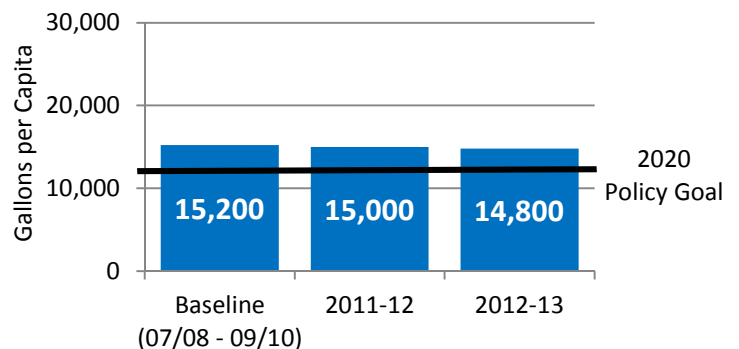


## Sustainable Food Purchases

San Francisco does not have any residential dining halls and data for sustainable food purchases at its retail operations is not available. For sustainable food purchases at the UCSF Medical Center, please see the UCSF Medical Center page of this attachment.

## Potable Water Consumption

In FY 2012-13, San Francisco averaged 14,800 gallons of potable water use per capita. This is a 2.6% reduction from its FY 2007-08 to FY 2009-10 baseline. The campus needs to reduce its potable water consumption by another 17 percentage points to meet the 2020 policy goal of reducing potable water consumption by 20% below the baseline.



# Attachment I: Santa Barbara Infographics

## Introduction

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

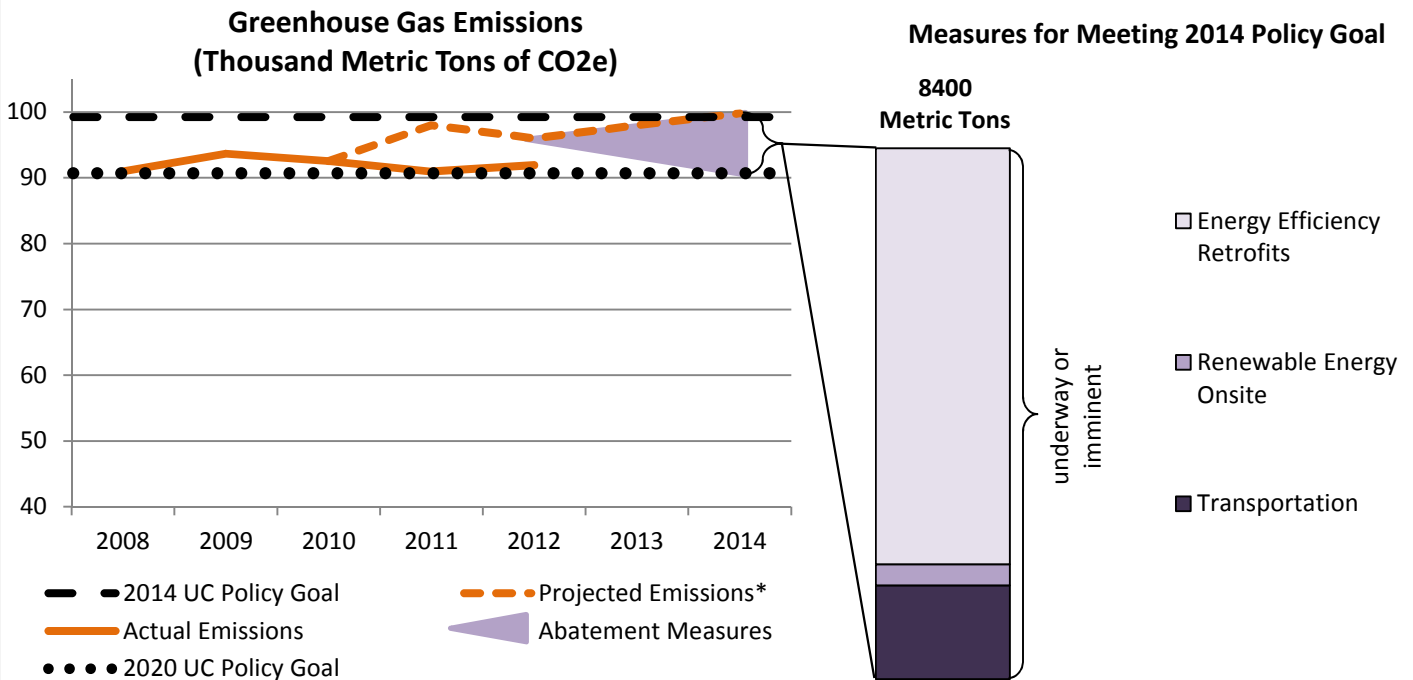
The campus won the 2013 Best Practice Award in the category of Water Efficiency for its innovative Water Action Plan. Santa Barbara has achieved significant accomplishments in the greening of the campus built environment with 10 LEED-certified existing buildings, more than any other college or university in the nation.

Earlier this year, the Utility & Energy Services department launched its updated website, that includes the "Gacho Power Monitor," a tool that displays downloadable real-time power demand for all major buildings on campus. The campus has six solar photovoltaic arrays and is adding a seventh (400 kW), scheduled to be completed by the end of February 2014. The campus is also striving to reduce its waste sent to the landfill, and recorded a 70% waste diversion percentage this past fiscal year (not including construction and demolition waste), a 6% increase since FY 2010-11. The Santa Barbara campus is also reducing single-use plastics with 32 recently installed hydration stations, and is reducing greenhouse gas emissions while supporting its local community by buying food locally with 52% of the campus produce coming from local farms.

Santa Barbara has 11 teams of staff, faculty, and students that each focus on an important aspect of sustainability. These teams integrate campus operations and the academic experience of students, as well as faculty research development and community stewardship.

## Greenhouse Gas Emissions

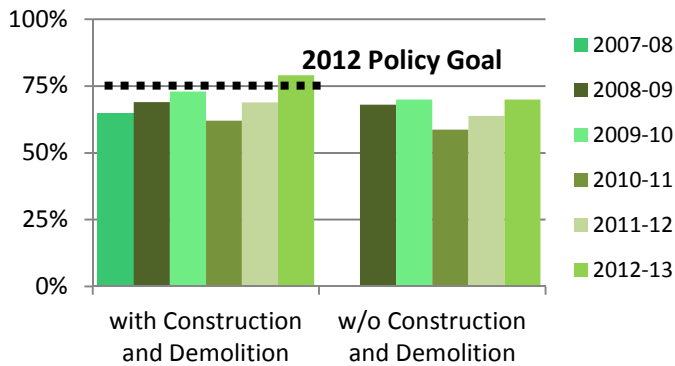
2012 greenhouse gas emissions surpassed the 2014 UC policy goal by 7,800 metric tons. Emissions increased by approximately 1%, or 1,000 metric tons, in 2012. Planned abatement measures of 8,400 metric tons will enable Santa Barbara to maintain emissions below the 2014 policy goal despite projected growth.



\*Projected emissions were taken from UC Santa Barbara's 2012 Climate Action Plan update, which used 2010 as a baseline year for data analysis, and are based on predicted growth in building space by the 2011-21 Capital Financial Plan. As demonstrated by the actual emissions, abatement measures have successfully reduced UC Santa Barbara's emissions over time.

# Attachment I: Santa Barbara Infographics

## Solid Waste Diverted from Landfill



In FY 2012-13, Santa Barbara diverted 79% of its waste from the landfill, an increase of 10 percentage points from FY 2011-12.

When waste from construction and demolition is not included, the amount of waste diverted from the landfill was 70% in FY 2012-13.

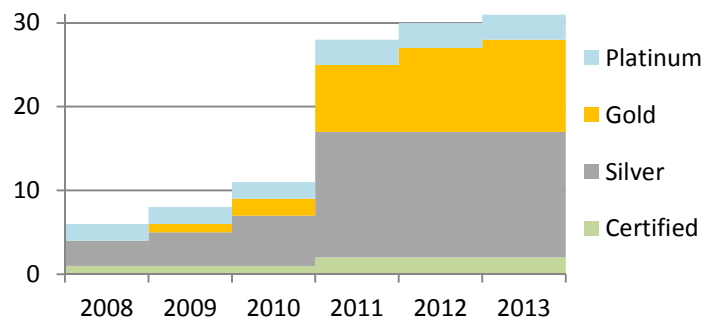
Santa Barbara has met the 2012 policy goal of 75% waste diversion from landfill.

In 2013, Santa Barbara received one LEED-Gold certification, contributing to its UC-leading total of 31 LEED certifications.

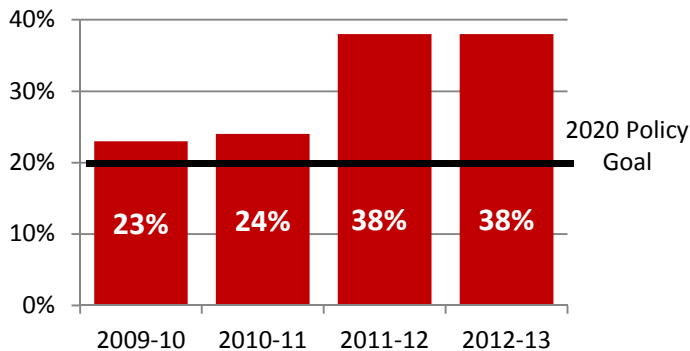


Santa Rosa Residence Hall was certified LEED-Gold.

## LEED Certifications



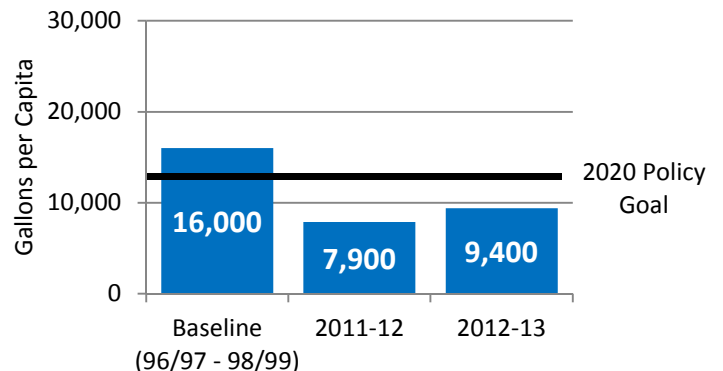
## Sustainable Food Purchases for Residential Dining



The amount of sustainable food purchases by Santa Barbara's residential dining services that met one or more sustainable food criteria stayed the same between FY 2011-12 and FY 2012-13.

Santa Barbara's residential dining services has already surpassed the 2020 Policy goal of 20% sustainable food purchases.

## Potable Water Consumption



In FY 2012-13, Santa Barbara averaged 9,400 gallons of potable water use per capita. This is a 41% reduction from its FY 1996-97 to FY 1998-99 baseline, enabling the campus to outperform the 2020 Policy goal of reducing potable water consumption by 20% below the baseline.



## Introduction

In FY 2012-13 Santa Cruz engaged in a comprehensive update to its Campus Sustainability Plan, advancing sustainability goals in eight topic areas and introducing a new topic area: Awareness, Education and Engagement. The goals described in the plan set incremental targets to help achieve, and in some cases even push beyond, the system-wide goals.

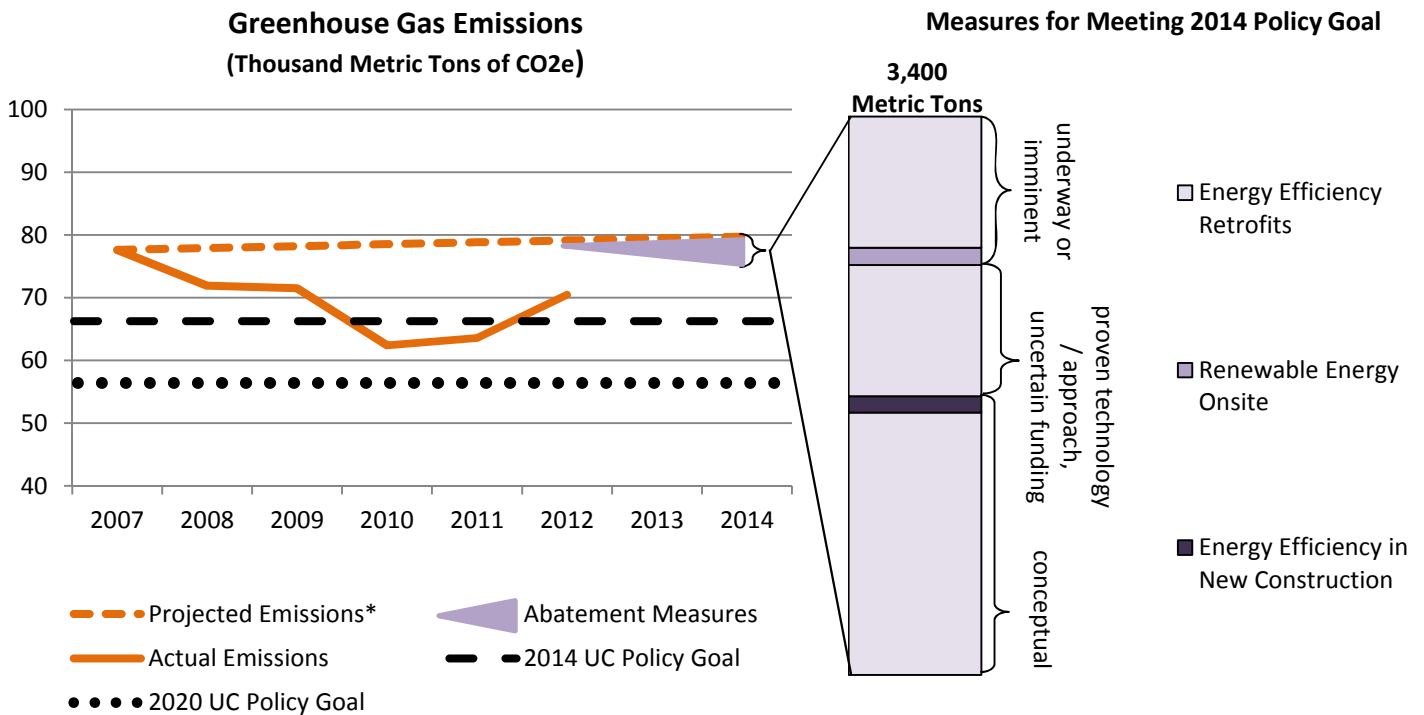
The campus has made significant progress in waste reduction initiatives to improve its knowledge of campus behavior. For example, Ground Services has implemented new technology to collect and analyze live waste stream data produced at each collection location. A behavior change program addressing waste reduction was also designed during FY 2012-13 that will be implemented in FY 2013-14.

A new lab building began operation in 2012, which contributed to an increase in greenhouse gas emissions. The same year a pilot green labs program was introduced to help reduce energy use in labs, which account for over 40% of total energy use on campus. The Climate Action Plan is also being updated to identify additional ways to reduce emissions and significant effort is being directed toward staying below California's cap-and-trade regulatory threshold.

FY 2012-13 was a building year for sustainability. Strong foundational pieces were developed that will allow the campus to make deeper, more fundamental, institutional changes in the coming years.

## Greenhouse Gas Emissions

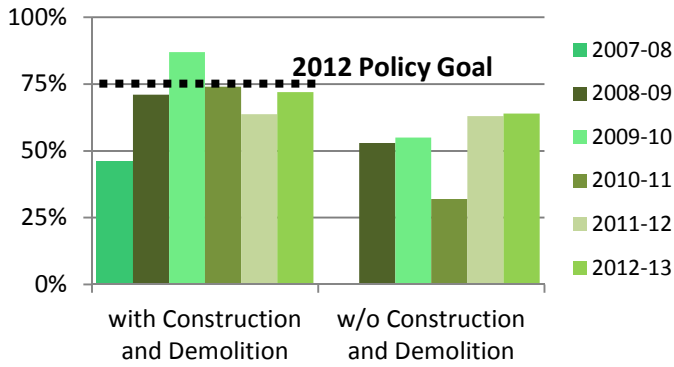
Greenhouse gas emissions increased by 11%, or 6,900 metric tons, in 2012, higher than the UC Policy goal by 4,400 metric tons. Planned abatement measures of 3,400 metric tons will enable the Santa Cruz campus to reduce emissions despite projected growth. However, this will not be enough to meet 2014 policy goal.



\*Projected emissions were taken from UC Santa Cruz's 2011 Climate Action Plan, which used 2007 as a baseline year for data analysis, and are based on predicted growth in building space in the 2009-19 Capital Financial Plan. As demonstrated by the actual emissions, abatement measures have successfully reduced UC Santa Cruz's emissions over time.

# Attachment I: Santa Cruz Infographics

## Solid Waste Diverted from Landfill



In FY 2012-13, Santa Cruz diverted 72% of its waste from the landfill, an 8 percentage point increase from FY 2010-11.

When construction and demolition is not included, the amount of waste diverted from landfill was 64% in FY 2012-13.

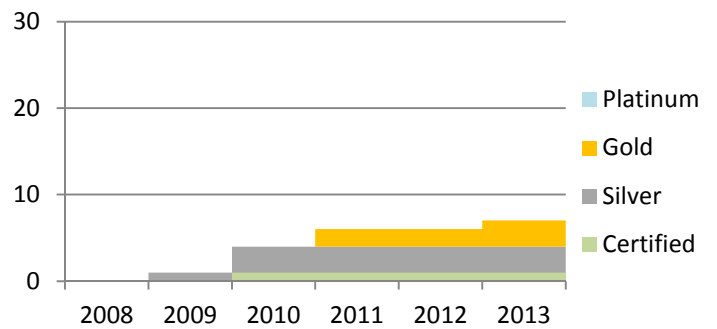
Santa Cruz fell just short of the 2012 policy goal of 75% waste diversion from landfill.

In 2013 Santa Cruz received one LEED-Gold certification, contributing to its total of seven LEED certifications.

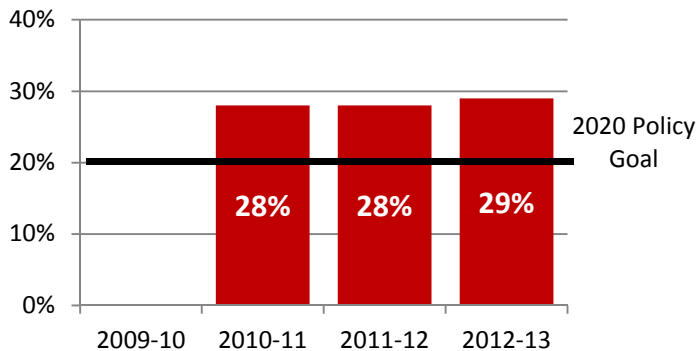


The Biomedical Building was certified LEED-Gold.

## LEED Certifications



## Sustainable Food Purchases for Residential Dining

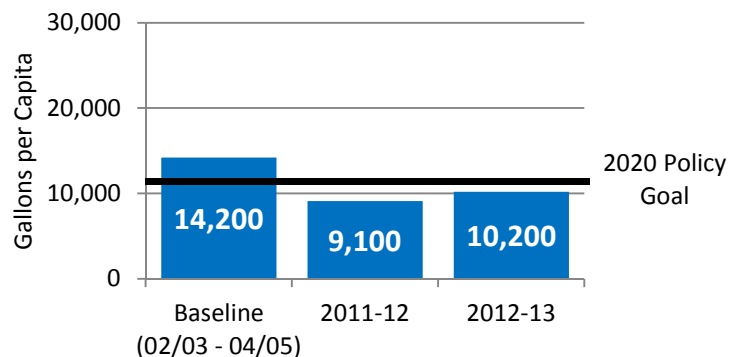


In FY 2012-13, 28 percent of the food purchased by Santa Cruz' residential dining services met one or more sustainable food criteria, an increase of one percentage point from FY 2011-12.

The Santa Cruz campus' residential dining services has already surpassed the 2020 Policy goal of 20 percent sustainable food purchases.

In FY 2012-13, Santa Cruz consumed 10,200 gallons of potable water per capita. This is a 28% reduction from its FY 2002-03 to FY 2004-05 baseline, enabling the campus to surpass the 2020 Policy goal of reducing potable water consumption by 20% below the baseline.

## Potable Water Consumption



# Attachment I: UC Davis Health System Infographics

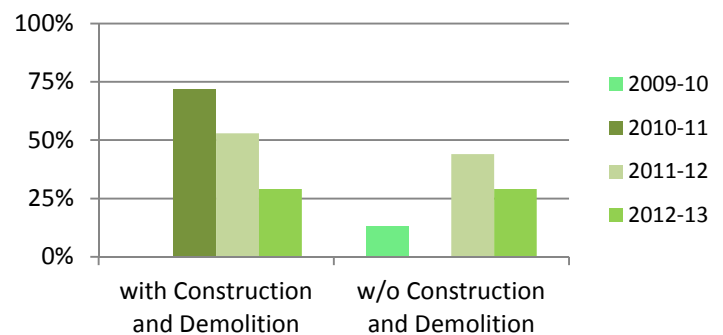
## Introduction

The UC Davis Health System (UCDHS) made significant progress in sustainability over the past year. It joined the Healthier Hospitals Initiative, and in doing so, took on five of the program's challenges, including goals in the areas of food, waste, purchasing, and safer chemicals. Waste is being reduced through several programs. The program to reprocess single-use medical equipment has expanded and saved over \$350,000 in FY 2012-13. A linen reduction and pillow-reuse campaign was launched and has already saved \$470,000 since inception. UCDHS is partnering with MedShare International to collect surplus medical equipment for shipment to hospitals in disadvantaged countries. Over 12 tons of surplus supplies were shipped in the past year. Small scale energy efficiency projects were also completed this past year, yielding almost \$40,000 in utility rebates. To encourage and support actions of staff members wishing to bring sustainable practices to their units, a Green Advocate Program was initiated. The program has enlisted 50 Green Advocates to date. UCDHS' sustainability initiatives have been recognized by Practice Greenhealth's "Partner for Change" award, which UCDHS won for a second year in a row in 2013. For more information please see the UCDHS Sustainability Website: <http://www.ucdmc.ucdavis.edu/sustainability/>.

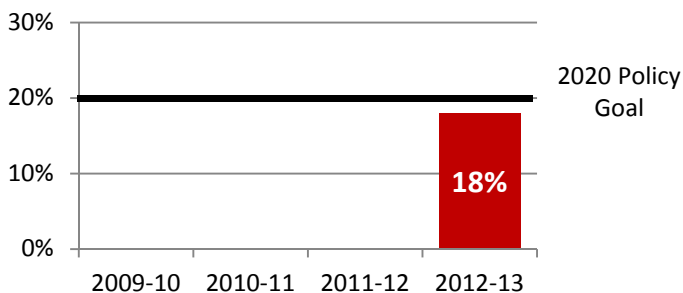
In FY 2012-13, the UC Davis Health System diverted 29% of its waste from the landfill, a decrease of 24 percentage points from FY 2011-12.

When waste from construction and demolition is not included, the amount of waste diverted from the landfill was also 29% in FY 2012-13.

### Solid Waste Diverted from Landfill



### Sustainable Food Purchases



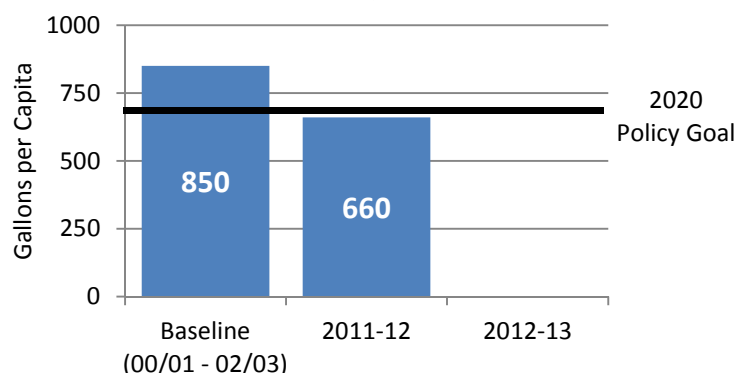
In FY 2012-13, 18% of the food purchased at the UC Davis Health System met one or more sustainable food criteria. Data is not available for previous years.

The UC Davis Health System is 2 percentage points away from meeting the 2020 Policy goal of 20 percent sustainable food purchases.

In FY 2011-12, the UC Davis Health System consumed 660 gallons of potable water per capita. This is a 22% reduction from its FY 2000-01 to FY 2002-03 baseline, enabling it to surpass the 2020 Policy goal of reducing potable water consumption by 20 percent below the baseline.

Data is not available for FY 2012-13.

### Potable Water Consumption



# Attachment I: UC Irvine Medical Center Infographics

## Introduction

UC Irvine Medical Center continued to improve and expand sustainability within its organization in 2013. The percentage of sustainable food purchases meeting one or more sustainability criteria grew to 15%. In June, the Food and Nutritional Services department teamed up with the Orange County Conservation Corps to implement organic and mixed stream recycling. Other waste initiatives at the UC Irvine Medical center include the collection of blue plastic wrap used for packaging operating room equipment and reprocessing of certain medical devices.

In October, the medical center engaged Water Savers Solutions Inc. to perform a water usage survey of the entire Medical Center Campus. The audit identified savings of 9 million gallons per year by replacing old bathroom fixtures and washing and sterilization equipment with newer, more efficient models. In addition, the medical center has identified energy efficiency projects that would save close to \$2 million. UCI Medical Center is also greening its cleaning program. It switched to 3 new bio-friendly cleaning products and purchased floor scrubbers and micro-fiber mops that will reduce water and chemical waste.

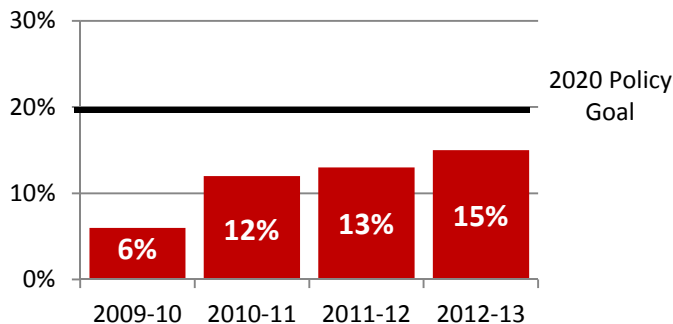
Waste data that includes construction and demolition is not available for the UC Irvine Medical Center.

When waste from construction and demolition is not included, the amount of waste diverted from the landfill was 14% in FY 2012-13. Data from previous years is not available.

### Solid Waste Diverted from Landfill



### Sustainable Food Purchases



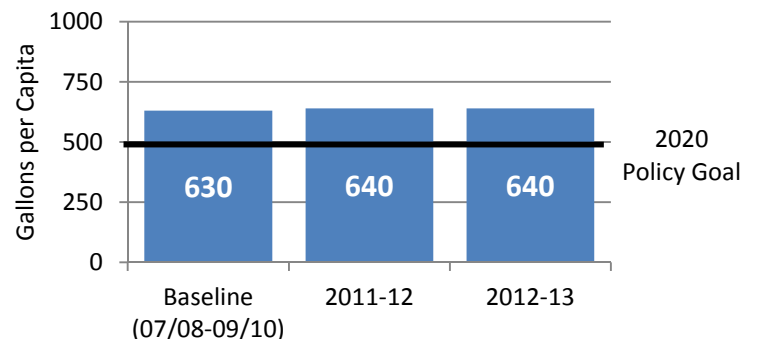
In FY 2012-13, 15% of the food purchased at the UC Irvine Medical Center met one or more sustainable food criteria, an increase of two percentage points from FY 2011-12.

The UC Irvine Medical Center is 5 percentage points away from meeting the 2020 Policy goal of 20 percent sustainable food purchases.

In FY 2012-13, the UC Irvine Medical Center consumed 640 gallons of potable water per capita. This is a 2% increase from its FY 2007-08 to FY 2008-09 baseline.

The medical center needs to reduce its potable water consumption by 22 percentage points to meet the 2020 policy goal of reducing potable water consumption by 20% below the baseline.

### Potable Water Consumption



# Attachment I: UCLA Health System Infographics

## Introduction

The UCLA Health System continues to improve and expand sustainability efforts within its organization. Progress in sustainable food purchases, waste reduction and recycling made the biggest impact in fiscal year 2012-2013. Twenty-five percent of food purchases meet one or more sustainability criteria, making UCLA Health one of two UC medical centers that have surpassed the 2020 goal. The washable single-use precaution gown initiative currently in progress kept 44 tons of waste from the landfill in fiscal year 2013, a \$222,000 savings since implementation began in May 2012. A monthly average of 6.4 tons of food waste is diverted from the landfill by means of composting.

Ronald Reagan UCLA Medical Center and UCLA Medical Center, Santa Monica received the Practice Greenhealth Partner for Change award for the third consecutive year. The Ronald Reagan Medical Center was also presented with the Healthy Food in Health Care, Food-Health-Climate award as a second place recipient.

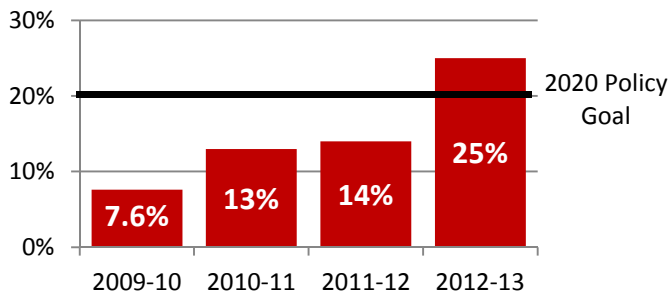
### Solid Waste Diverted from Landfill

In FY 2012-13, the UCLA Health System diverted 30% of its waste from the landfill, an increase of 12 percentage points from FY 2011-12.

When waste from construction and demolition is not included, the amount of waste diverted from the landfill was also 30% in FY 2012-13.



### Sustainable Food Purchases

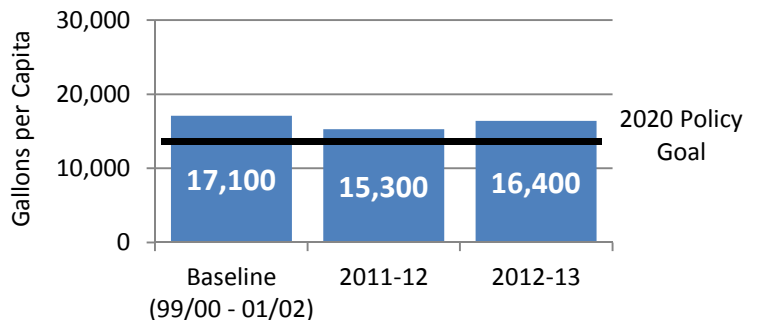


In FY 2012-13, 25% of the food purchased at the UCLA Health System met one or more sustainability criteria, an increase in 11 percentage points from FY 2011-12.

The UCLA Health System has already surpassed the 2020 policy goal of 20% sustainable food purchases.

### Potable Water Consumption at Campus and Health System

In FY 2012-13, the UCLA Campus and Health System consumed 16,400 gallons of potable water per capita. This is a 4% reduction from its FY 1999-00 to FY 2001-02 baseline. The campus and health system need to reduce potable water consumption by another 16 percentage points to meet the 2020 policy goal of reducing potable water consumption by 20 percent below the baseline.



# Attachment I: UC San Diego Health System Infographics

## Introduction

The UC San Diego (UCSD) Health System has continued making progress in sustainability over the past year. Increased recycling efforts increased the diversion rate 5 percentage points to 30%. The efforts include instrumentation reprocessing, the conversion to use of stainless steel sterilization trays to reduced blue wrap waste, and the completed rollout of "Greening the OR" (operating room) activities. Recycling now occurs in all OR suites. Renegotiating waste contracts to an integrated waste program has identified significant recycling and waste reduction opportunities. Renegotiating a laundry contract has led to a reduction in the use of disposable linen, water savings of 5 million gallons/year, and significant cost reductions.

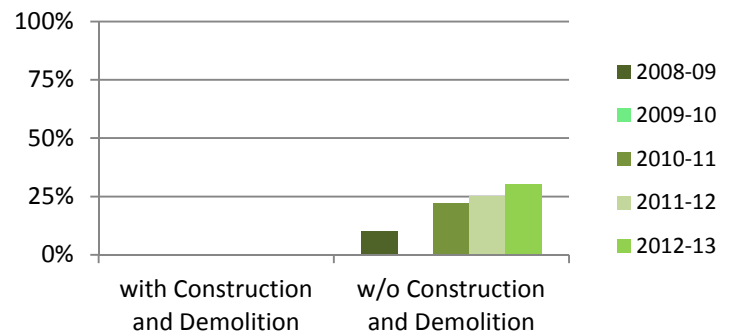
The UCSD Health System is undertaking design and construction of the Jacobs Medical Center and planning for the Outpatient Pavilion with sustainability in mind. There will be mechanisms specifically designed to support recycling efforts and the highest possible LEED ratings upon completion.

Sustainable food efforts will be back on track this coming year with the addition of new food service leadership.

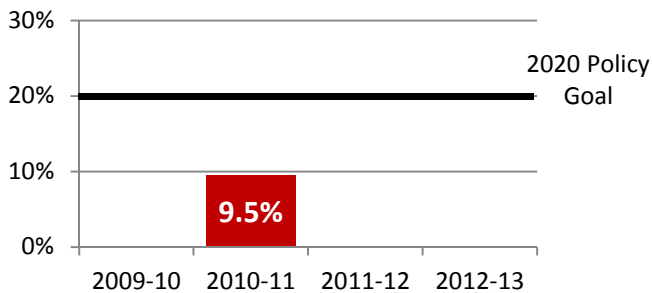
Data that includes construction and demolition is not available for the UCSD Health System.

When waste from construction and demolition is not included, the amount of waste diverted from the landfill was 30% in FY 2012-13, an increase in 5 percentage points from FY 2011-12.

### Solid Waste Diverted from Landfill



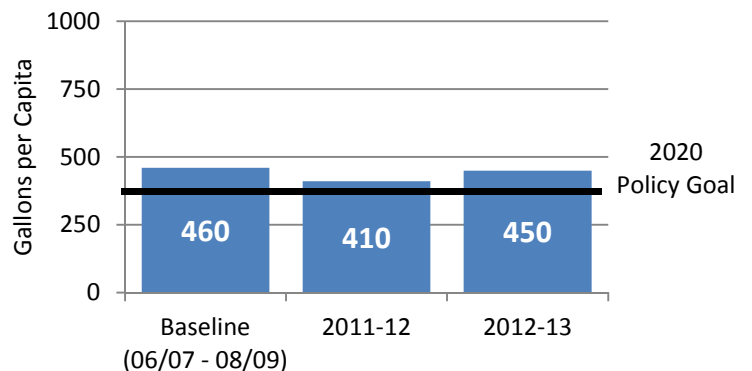
### Sustainable Food Purchases



In FY 2010-11, 9.5% of the food purchased at the UCSD Health System met one or more sustainable food criteria. Data for other years is not available.

### Potable Water Consumption

In FY 2012-13, the UCSD Health System consumed 448 gallons of potable water per capita. This is a 2.2% reduction from its FY 2006-07 to FY 2008-09 baseline. The medical center needs to reduce its potable water consumption by another 18 percentage points to meet the 2020 policy goal of reducing potable water consumption by 20% below the baseline.



# Attachment I: UC San Francisco Medical Center Infographics

## Introduction

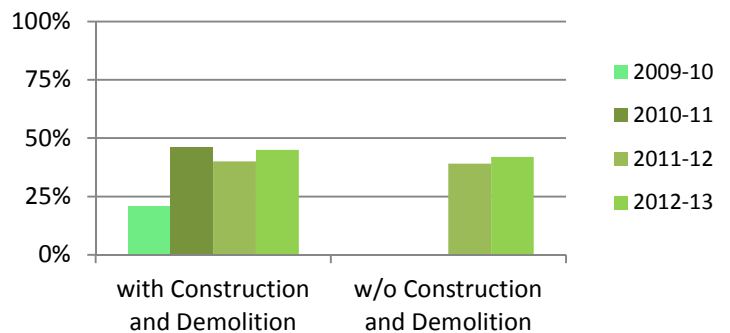
UCSF Medical Center was recognized as a *Partner for Change with Distinction*, its fourth award from Practice Greenhealth, for its 2012 sustainability efforts, putting it in the company of 44 other hospitals. In 2013, UCSF Medical Center was recognized by Becker's Hospital Review as one of the *50 Greenest Hospitals in America* and the sole recipient of the *University Healthcare Consortium's Sustainability Award* for 2013. Three significant sustainability projects to highlight include: savings of \$740,000 from reprocessing patient care and surgical devices; a medical air upgrade saving one million gallons of water/year; and an electric chiller replacement project saving \$1.3 million per year, that earned an \$846,000 utility rebate, and will reduce emissions by 3,325 MTonnes CO<sub>2</sub>/year.

UCSF Medical Center strives towards continuous improvement in all areas of sustainability as defined by UCSF in the areas of climate neutrality, zero waste, water conservation, sustainable food, toxics reduction, environmentally preferable purchasing and green buildings.

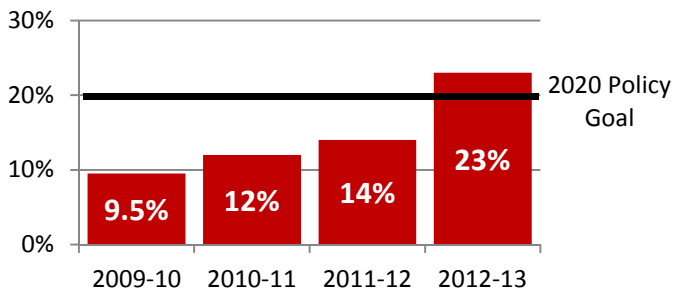
In FY 2012-13, UCSF Medical Center diverted 45% of its waste from the landfill, an increase of 5 percentage points from FY 2011-12.

When waste from construction and demolition is not included, the amount of waste diverted from the landfill was 42% in FY 2012-13.

### Solid Waste Diverted from Landfill



### Sustainable Food Purchases



In FY 2012-13, 23% of the food purchased at the UCSF Medical Center met one or more sustainable food criteria, an increase of 9 percentage points from FY 2011-12.

The UCSF Medical Center has surpassed the 2020 Policy goal of 20% sustainable food purchases.

In FY 2012-13, the UCSF Medical Center consumed 350 gallons of potable water per capita. This is a 34% reduction from its FY 2000-01 to FY 2002-03 baseline, enabling the medical center to surpass the 2020 Policy goal of reducing potable water consumption by 20% below the baseline.

### Potable Water Consumption

