

UNIVERSITY
OF
CALIFORNIA

Annual Report on Sustainable Practices 2012



Budget and Capital Resources
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I. EXECUTIVE SUMMARY

This ninth annual Report on Sustainable Practices provides a summary of the University's sustainability achievements in nine areas of sustainable practices: green building, clean energy, sustainable transportation, climate protection, sustainable operations, waste reduction and recycling, environmentally preferable purchasing, sustainable foodservice, and sustainable water systems. The University's campuses and medical centers continue to be recognized as national leaders in modeling sustainable business practices. This report highlights the main achievements in 2012 for each area of the Policy, as well as external recognition, faculty, staff, and student collaboration, the California Higher Education Sustainability Conference, and training programs.

In 2012, the University continues to be recognized in the top tiers of national campus sustainability rankings evidenced by twenty national and state sustainability awards. The San Francisco, Los Angeles, and Davis medical centers each received a national award for their sustainability practices. The University received media acclaim in local and regional newspapers, national publications such as *Forbes*, and in television and radio news broadcasts.

Campuses received multiple research grants in 2012 to leverage our campuses as living laboratories for teaching and research on sustainable practices. For example, the Riverside campus' College of Engineering's Center for Environmental Research and Technology was awarded \$2 million to study the viability of using renewable energy to charge batteries for electric vehicle charging stations on campus.

Davis hosted the 11th annual California Higher Education Sustainability Conference, with nearly 1000 faculty, staff, and student participants. UC also partnered with the California State University system to offer a total of 730 person-days of energy efficiency and green building training in 2012, including certification trainings for building operators and energy managers.

UC has the most LEED^{TM1} building certifications of any university in the country. Twenty-seven new certifications were awarded in 2012, bringing the University total to 114 LEED certifications (total of new construction, renovation, homes, and existing building certifications), the most of any university in the country. The Davis, Irvine, and San Diego campuses each earned LEED Platinum certifications, and 20 of the other 23 certifications were LEED Gold, surpassing the minimum requirement of LEED Silver.

The University's sustainability leadership attracts resources. Most notably, the University received more than \$66 million in energy efficiency grant funding since 2004 through a utility partnership, with approximately \$18.7 million received in 2011. Approximately \$37 million in annual cost savings, net of debt service, will be realized in 2013 as a result of energy efficiency projects implemented to date. Through 2012, the cumulative net avoided costs for the University now total \$91 million.

Energy efficiency projects alone will not achieve the reduction in GHG emissions needed to meet the Policy's goals. This is an area of enormous challenge and the University is weighing many options. These include substituting biogas for natural gas and procuring large quantities of renewable energy. Cost considerations continue to be a challenge for both of these next steps toward meeting the University's climate action commitment.

The Policy is under continuous review to remain at the forefront of best practices for sustainability. A new policy area pertaining to sustainable water systems will be submitted for adoption in 2013, based on campus and medical center assessment of water consumption and past, current, and future water conservation initiatives. All campuses and medical centers have committed to reducing per capita potable water consumption by 20 percent by the year 2020.

¹LEED 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.

II. Background

This Annual Report summarizes the University's sustainability efforts and progress on goals in each of the eight areas of sustainable practices, as well as the proposed new area of sustainable water systems. This report also includes annual sustainability highlights in external recognition; faculty, staff, and student collaboration; training (including an annual statewide conference); and medical centers. In June 2004, the UC formally issued the "Presidential Policy on Green Building Design and Clean Energy Standards" per the Regents' request. Six additional policy sections have been subsequently added to those first two, and the expanded Policy is now referred to as the "Sustainable Practices Policy" ("Policy"). A ninth section, addressing sustainable water systems, will be added in 2013. The current version of the Policy can be accessed at:

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

III. External Recognition

During 2012, more than 80 articles on UC campus and system-wide sustainability initiatives appeared in media outlets such as *Forbes*, *Los Angeles Times*, *The Sacramento Bee*, and *The Orange County Register*.

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. For example, the Sierra Club ranked Davis number one on its annual list of "Cool Schools" with Irvine in at ninth place. Although *Sierra* magazine only evaluated six UC campuses, the UC campuses that were evaluated claimed five of the top twenty-five spots in the ranking. The Office of the President (UCOP) negotiated a deadline extension that allowed six UC campuses to participate in *Sierra's* new survey format in 2012, and provided feedback to improve *Sierra's* survey and methodology.

Eight UC campuses also won accolades from the *Princeton Review's* green campus guide: Berkeley, Davis, Irvine, Los Angeles, Riverside, San Diego, Santa Barbara, and Santa Cruz. The Santa Cruz campus was among twenty-one universities named to the guide's Green College Honor Roll. The Berkeley and Los Angeles campuses gained global recognition when they were named two of the top ten universities in the world by the University of Indonesia's Green Metric. These rankings continue the trend of one or more UC campuses appearing at or near the top of every national higher education sustainability ranking.

UCOP and campus advocacy successfully encouraged both *Sierra* and Princeton Review to standardize survey questions based on the Sustainability Tracking, Assessment and Rating System developed by the Association for the Advancement of Sustainability in Higher Education. This reduces staff time devoted to data collection and reporting, allowing staff to focus on programmatic work.

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

UC Merced student Martin Figueroa was selected as a David Brower Youth Award winner, one of only six selected from among hundreds of nominated youth environmental leaders across the U.S. and Canada. Figueroa led a student water use reduction contest at the Merced, resulting in a 14 percent reduction in water use.

An annotated listing of all 2012 sustainability rankings and awards can be accessed at:

http://sustainability.universityofcalifornia.edu/documents/2012uc_awards.pdf.

IV. Faculty, Staff, and Student Engagement

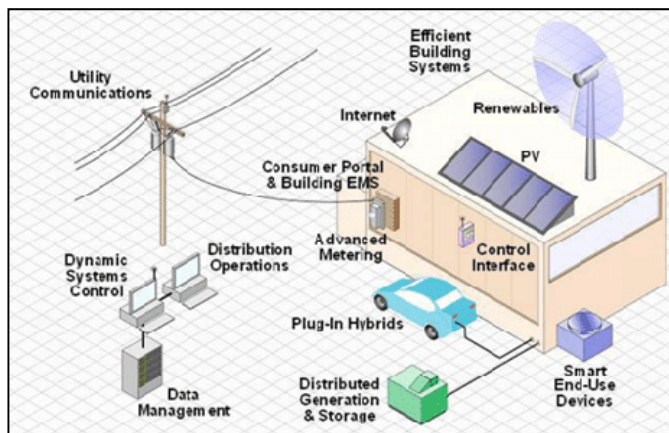
The UC sustainability program continues to contribute to the University's mission of teaching, research and public service through engagement among faculty, staff, and students.

Sustainability initiatives enable using each campus as a living laboratory for research and teaching. At the Berkeley campus, two doctoral students created a software program to optimize building operating configurations on a continuous basis, based on metering data and occupancy preferences. This software is projected to save \$50,000 annually in energy costs at Sutardja Dai Hall, where the software is being implemented. Riverside set aside three acres for a sustainable community garden to feature on-site renewable energy, a solar water pump, and a composting toilet, and will provide a hands-on learning experience for students.

Irvine recently completed the first phase of a Smart Grid Demonstration project. The project's research and teaching opportunities for smart grid technology include renewable energy grid integration, energy storage, and net zero energy homes.

UC Santa Cruz students and faculty partnered with the City of Santa Cruz, with funding support from the UC Santa Cruz Carbon Fund, to explore renewable energy microgrid systems in a marine environment. Their focus was future energy and greenhouse gas (GHG) reductions. Currently, the microgrid testbed consists of a 1 kilowatt vertical axis wind turbine, a 400 watt solar panel, and associated monitoring equipment, located on the Santa Cruz Municipal Wharf.

Sustainability projects can also serve to attract research funding. The Davis campus' net-zero energy community, West Village, was designed to be a living laboratory for research developed by Davis researchers. Many academic units now wish to locate in West Village in order to attract sponsors and research grants. The Riverside College of Engineering's Center for Environmental Research and Technology was awarded \$2 million to study the viability of renewable energy to charge batteries for electric vehicle charging stations on campus.



Both UC Irvine and UC Santa Cruz have micro grid demonstration projects that provide a living laboratory for teaching and research

The Santa Barbara sustainability program partnered with the Early Academic Outreach Program to train at-risk high school students in sustainability, exposing them to green academic and career pathways. This program is one of many examples that demonstrate how campus sustainability promotes the University mission of public service.

V. California Higher Education Sustainability Conference

Davis hosted the eleventh annual California Higher Education Sustainability Conference, a unique system-level collaboration between UC, the California State University (CSU) system, California Community College

(CCC) system, and private colleges and universities in the state. Nearly 1000 attendees from 88 colleges and universities, including 250 students, convened over four full days of sharing sustainability best practices and learning about new technologies.



Dr. Mitchell Thomashow gave the keynote address at the 2012 California Higher Education Sustainability Conference, Monday, June 18

The UCOP-led eighth annual Energy Efficiency and Sustainability Best Practice Awards were presented in recognition of UC, CSU and CCC energy and sustainability projects. Figure 1 lists the awards received by UC Campuses. [Case studies](#) of energy efficiency-related best practice award winners are available online.

Figure 1: 2012 Energy Efficiency and Sustainability Best Practice Award Winners

Overall Sustainable Design

UC Berkeley, Energy Biosciences Building

HVAC Design/Retrofit

UC San Diego, Geisel Library HVAC Control Retrofit

Lighting Design/Retrofit

UC Santa Cruz, Phase I and II Campus Wide Lighting Retrofit

Monitoring-Based Commissioning

UC Berkeley, Davis Hall

Student Energy Efficiency Program

UC Berkeley, Green Cup Competition

Water Efficiency & Site Water Quality

UC Santa Cruz, Water Efficiency and Management Improvement Plan

Innovative Waste Reduction

UC San Francisco, Instructional Recycling Video

Sustainable Foodservice

UC Santa Barbara, Root 217 Cafe

Sustainability Innovations

UC Santa Barbara, South Coast Sustainability Summit
(Honorable mention) UC Davis, Campus Grown Greenery for Dining Services

Sustainability Champions

John Elliot, UC Merced, former director of energy and sustainability
Jim Genes, UC Merced, special assistant to the vice chancellor for administration

VI. Training

The University promotes excellence in sustainability through individual training workshops and professional certifications for staff. The Energy Efficiency Partnership program (the Partnership) with the California State University system and the state's four investor-owned utilities provides funding for energy efficiency and green building training. UCOP provides this training program for UC and CSU campuses, giving staff the skills necessary to successfully implement the Partnership's investments in energy efficiency. Training is strategically targeted to achieve the goals in the Policy. A total of 730 person-days of training, including certification trainings for building operators and energy managers, were offered in 2012 for UC and CSU staff.

- Five campuses (10 energy management staff) through a week-long Certified Energy Manager training.
- Five campuses sent a total of 22 key campus engineering and maintenance staff earned Building Operator Certification²;
- Four campuses—San Francisco, Berkeley, San Diego, and Los Angeles—were trained on “LEED Project Management” in order to effectively manage LEED projects during construction and reduce certification costs.
- The Davis campus hosted a data center energy efficiency workshop.
- The Irvine campus and Irvine Medical Center organized free energy efficiency audits for every foodservice kitchen within their campus and medical center facilities.
- Multiple facilities and sustainability staff from each medical center attended a training dedicated to energy efficiency in healthcare facilities.
- Advanced training on laboratory ventilation efficiency convened University experts on energy management and occupational safety.

² [Building Operator Certification](#) (BOC®) is a nationally recognized, competency-based training and certification program offering facilities personnel the improved job skills and knowledge to transform workplaces for comfort, energy-efficiency, and environmental stewardship. The BOC credential is recognized nationwide for the value and contributions certified facilities management personnel can bring to their organizations.

VII. Medical Center Achievements and Challenges

The five UC medical centers implemented numerous cost-saving sustainability initiatives this year. Across all medical centers, there is an increased focus on reusable materials that are reprocessed between each use cycle, in lieu of disposable materials.

Davis Medical Center saved almost \$200,000 during the FY 11-12 by reprocessing single-use medical devices. This program diverted approximately seven tons of solid waste. Davis plans to expand the reprocessing program in the coming year and estimates \$500,000 cost savings and 8-10 tons of waste diversion. UCSF Medical Center has implemented a similar program, realizing \$670,000 cost savings in FY 11-12. UCSF's program diverted over 14 tons of waste in their effort to reach the Policy's waste reduction goals while simultaneously cutting costs. Other successful waste reduction initiatives at the UCSF Medical Center included implementation of in-patient room recycling, onsite steam sterilization of medical waste, and successfully composting 90 percent of all patient and retail food waste.

The Ronald Reagan UCLA Medical Center is piloting the transition from disposable to reusable isolation gowns (worn as protection against infectious materials). The UCLA Health System currently sends over 2.1 million gowns to landfill each year. Switching to reusable gowns across the entire UCLA Health System could save 35 percent of the total cost on isolation gowns.



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

Medical centers are very challenged in reducing their GHG emissions while continuing to expand their facilities. To address this challenge, UC hosted a workshop to explore untapped opportunities to increase energy efficiency at the medical centers. The workshop successfully demonstrated pathways for implementing efficiency projects and empowering medical center

facilities managers to begin pursuing efficiency projects in UC facilities.

VIII. Policy Assessment

The University has continued significant progress towards the goals in each of the eight Policy areas. In addition to the system-wide and campus highlights and challenges reported in this section, Attachment I provides performance metrics for five Policy areas on a campus-by-campus basis.

VIII.A. Green Building Design

Policy Goals

- Design and construct all new buildings (except acute care facilities) to a minimum LEED for New Construction “Silver” rating.
- Design and construct all renovation projects (except acute care facilities) with a cost of \$5 million or greater to a minimum LEED for Commercial Interiors “Certified” rating.
- Outperform the energy provisions of the California Building Code (“Title 24”) by at least 20 percent on all new construction and major renovation projects.

VIII.A.1. Project Status Summary

The University surpassed the milestone of 100 LEED certifications with 27 new LEED certifications for new building and renovation projects in 2012. By the end of 2012, the University had 114 LEED certified projects, the most of any university in the country.³ Irvine earned two LEED Platinum certifications, and Davis and San Diego each earned one Platinum certification. Twenty of the remaining twenty-three new certifications were LEED Gold, exceeding the minimum LEED Silver requirement. Table 1 lists all new LEED certifications for new construction and renovation projects in 2012. A complete list of all LEED certifications is available at:

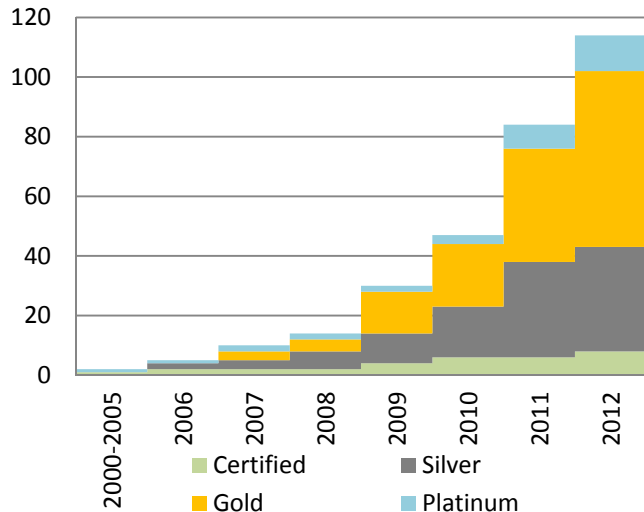
http://sustainability.universityofcalifornia.edu/gb_leed.html

³ This is the sum total of new construction, renovation, homes, and existing building certifications. The UC Sustainability website provides a complete list of all UC LEED certifications: http://www.universityofcalifornia.edu/sustainability/gb_leed.html.

Table 1: 2012 LEED Certifications for New Construction and Renovation

| LEED-NC (New Construction) | Certification Level | | | |
|--|---------------------|------|--------|-----------|
| | Platinum | Gold | Silver | Certified |
| Berkeley | | | | |
| Law Building Infill | | ✓ | | |
| Li Ka Shing Biomedical Sciences Building | | ✓ | | |
| Law Renovations | | | ✓ | |
| Davis | | | | |
| Gladys Valley Hall | ✓ | | | |
| Health and Wellness Center | | ✓ | | |
| Irvine | | | | |
| Medical Education Building | ✓ | | | |
| Engineering Unit 3 | ✓ | | | |
| Los Angeles | | | | |
| Spieker Aquatic Center | | ✓ | | |
| Court of Sciences Student Center | | ✓ | | |
| Center for Health Sciences Clinical Research Facility | | ✓ | | |
| De Neve Residential Housing | | ✓ | | |
| Merced | | | | |
| Logistical Site Support Facility | | ✓ | | |
| Early Childhood Education Center | | ✓ | | |
| Riverside | | | | |
| School of Medicine Research Building | | ✓ | | |
| San Diego | | | | |
| Charles David Keeling Apartments | ✓ | | | |
| Telemedicine & Prime HEq Education Facility | | ✓ | | |
| Muir College Housing and Dining | | ✓ | | |
| Torrey Pines Center North | | | ✓ | |
| The Zone, Price Center | | | | ✓ |
| San Francisco | | | | |
| Cardiovascular Research Building | | ✓ | | |
| LEED-CI (Commercial Interiors) | | | | |
| Davis | | | | |
| Coffee House | | ✓ | | |
| Robbins Hall Phase I | | ✓ | | |
| Los Angeles | | | | |
| Young Research Library | | ✓ | | |
| Hedrick Repairs and Refurbishment | | ✓ | | |
| San Francisco | | | | |
| HSE5 Center for Bioengineering and Tissue Regeneration | | ✓ | | |
| Telemedicine and PRIME-US Educational Facilities | | ✓ | | |
| 1500 Owens Third Floor Clinics | | ✓ | | |

Figure 2: Cumulative Number of System-wide LEED Certifications by Year



VIII.A.2. Energy Efficient Design of New Buildings and Major Renovations

All new construction and major renovation projects are required to 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 utility companies 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. To date, 205 University projects totaling more than 27 million gross square feet have registered with these programs. These efforts are expected to result in approximately \$12 million in incentive payments over the course of the program, and to avoid \$7.5 million in annual energy costs.

VIII.A.3. LEED Platinum Certifications

Overall, ten UC construction projects have earned Platinum Certification, the USGBC's highest rating for sustainability. Four UC projects joined this list in 2012, and are described below.

The UC Davis School of Veterinary Medicine Instruction Facility (Gladys Valley Hall) is designed to provide a predicted 32 percent energy savings over state energy code requirements by optimizing daylight harvesting and advanced ventilation and controls strategies. Natural ventilation cools the building's common spaces with thermal and humidity sensors that control ventilation

louvers. The building features night-flush ventilation to release absorbed daytime heat with circulated night air that pre-cools the structure to moderate indoor air temperatures for the following day.

The UC Irvine Medical Education Building includes a wide range of functions including state-of-the-art instructional and simulation spaces for surgery, emergency medicine and obstetrics, research labs, and telemedicine facilities. The project implemented a comprehensive construction material reduction strategy, and maximizes passive ventilation and cooling, resulting in a significant reduction of the building's lifecycle environmental impact.

UC Irvine Engineering Unit 3 houses instructional and research laboratories to serve their growing enrollment. The project achieved 40% water reductions and maximized sustainable materials: 25 percent with recycled content and 41 percent sourced regionally. The building also achieved energy savings from an energy efficient building envelope, high-efficiency glazing, and reduced interior lighting power load. UC Irvine is a national leader in demonstrating that complex research programs do not preclude achieving the highest levels of sustainability and energy efficiency.



UCI Medical Education Building received a LEED- Platinum certification.

UC San Diego earned their first LEED Platinum certification for the Charles David Keeling Apartments at Revelle College based on a number of sustainable strategies including gray water recycling, solar energygeneration, creating a green roof that is used as an outdoor gathering space, natural ventilation and daylighting.

VIII.B. Clean Energy

Policy Goals

- Reduce system-wide growth-adjusted energy consumption to 10 percent below year 2000 levels by 2014
- Deploy 10 megawatts of onsite renewable energy generation by 2014

VIII.B.1. Energy Efficiency in Existing Buildings

UCOP's Facilities Management Services 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. Through this program, UC initiated an ambitious portfolio of infrastructure projects and building upgrades to reduce energy consumption, lower campus operating costs, reduce carbon footprints, and improve indoor environmental quality and safety. Partnership projects typically fall into three categories: Heating, Ventilation, Air Conditioning (HVAC) and Monitoring Based Commissioning (MBCx); Central Plant and Energy Distribution; and Lighting.

The Partnership formed in 2004, the Partnership was significantly scaled up in 2009 and the Regents approved external financing for these energy efficiency projects. The University received \$18.9 million of incentives from the Partnership in 2012 to implement 184 projects. Those projects are projected to save approximately 59 million kilowatt-hours of

electricity and 5 million therms of natural gas. Net of debt service, these projects will save approximately \$5 million annually in avoided utility costs.

Since the program began, UC's cumulative net avoided costs from these energy efficiency projects is \$91 million. Projects completed in 2012 will increase the annual net avoided utility costs to approximately \$37 million in 2013. By the end of 2013, cumulative savings since 2004 will reach approximately \$128 million.

VIII.B. 2. Demonstrating and Deploying New Energy Efficiency Technologies

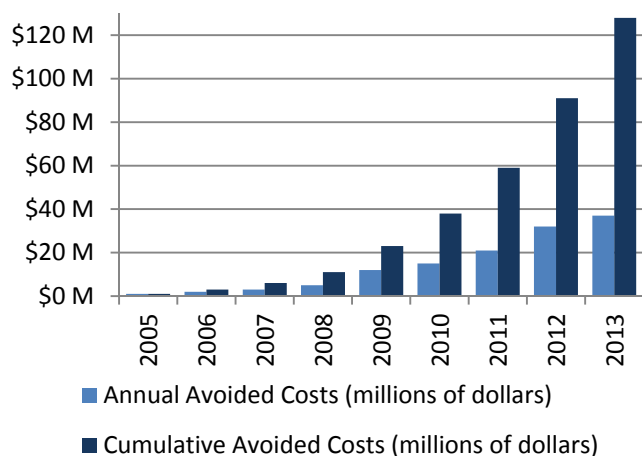
UC's California Institute for Energy and Environment partners with the California Lighting Technology Center and the Western Cooling Efficiency Center at Davis, and Berkeley's Center for the Built Environment, to accelerate statewide deployment of new technologies. These programs are supported by the California Energy Commission's Research and Development Division. Highlights in 2012 include exterior lighting with networked wireless controls at Davis, and the identification of new technology projects for the 2013-2014 Partnership on multiple campuses. Our campuses are early adopters of emerging technologies, many stemming from UC research, and are helping transform the market for energy efficient products.

VIII.B.3. Onsite Generation and Grid Purchases of Renewable Energy

The University is exceeding its goal of installing ten megawatts of onsite renewable energy generation through the deployment of solar photo-voltaics (PV), solar water heating, and biofuels. UC now has 9.1 MW (megawatts) of PV installed or in construction. An additional 1.1 MW of installations are planned for the next two years (760 kilowatts (kW) at San Diego and 250 kW at San Francisco).

San Diego is leading the way with an impressive 1.5 MW of PV. The campus has leveraged several funding mechanisms, including low interest Clean Renewable Energy Bond loans and California Solar Initiative (CSI) incentives. Completion of their 830 kW solar project will save the University more than \$2M in energy costs. Although San Diego had reached the CSI program's 1 MW limit per entity, they were proactive and obtained additional funding by tapping into CSI dollars set aside under AB 2724 specifically for state facilities to install as much as five megawatts on one site.

Figure 3: Cost Avoidance from Energy Efficiency Projects





The recently installed solar panels on top of UCLA's student union were planned and funded by students.

Los Angeles and Berkeley also use solar energy to heat hot water to meet part of the demand in the residence halls. At UCLA, solar thermal collectors cover the roofs of seven residence halls with close to 2,000 vacuum solar tubes and 450 panels. At Berkeley, the solar thermal system on the new Martinez Maximo Commons provides half of the residence hall's hot water needs.

Table 2: Solar PV Installed or in Construction

| Campus | Capacity (kW) | Status | Date of Completion |
|------------------------------------|---------------|--------------|--------------------|
| UC Agriculture & Natural Resources | 22 | Installed | 2012 |
| UC Berkeley | 100 | Installed | 2003 |
| UC Davis | 782 | Installed | 2011 |
| UC Davis (West Village) | 4,000 | Installed | 2012 |
| UC Davis Health System | 145 | Installed | 2012 |
| UC Irvine | 895 | Installed | 2009 |
| UC Irvine | 136 | Installed | 2011 |
| UCLA | 38 | Installed | 2012 |
| UC Merced | 1000 | Installed | 2010 |
| UC San Diego | 1440 | Installed | 2011 |
| UC San Diego | 60 | Construction | 2013 |
| UC San Francisco | 250 | Installed | 2008 |
| UC Santa Barbara | 250 | Installed | 2008 |
| Total | 9100 | | |

Biofuels also contribute significantly to the University's renewable energy capacity as shown in Table 3. San Diego operates 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.

Table 3: Installed Biogas Projects

| Campus | Capacity (kW) | Status | Date of Completion |
|---------------------------------|---------------|-----------|--------------------|
| UCLA – Biogas from landfill | 2400 | Installed | 1990s |
| UC San Diego – Biogas fuel cell | 2800 | Installed | 2011 |
| Total | 5200 | | |

VIII.C. Climate Protection Practices

Policy Goals

- Reduce greenhouse gas emissions to year 2000 levels by 2014, and to 1990 levels by 2020
- Achieve climate neutrality as soon as possible

VIII.C. 1. GHG Inventories & Climate Action Plans

All campuses completed GHG emissions inventories for calendar year 2011. Campuses are verifying emissions associated with purchased electricity and steam, onsite combustion of fossil fuels, and other emissions sources as required by The Climate Registry's General Reporting Protocol. The Climate Registry is a non-profit entity that sets consistent, transparent standards to calculate, verify and publicly report GHG emissions.

Six campuses—Berkeley, Davis, Riverside, San Diego, San Francisco, and Santa Barbara—reduced emissions in 2011 compared to 2010. Overall, the University's 2011 emissions levels remained approximately constant despite continued growth in new building space.

In 2011, Berkeley, Davis, Riverside, Santa Barbara, and Santa Cruz emitted fewer metric tons of GHGs than in 2000, ahead of the Policy goal of reducing emissions to year 2000 levels by 2014. Attachment I details each campus' progress toward the Policy goal.

All campuses have developed a climate action plan identifying measures that the campus will pursue to reduce their GHG emissions.

VIII.C.2. California's Cap and Trade Program

Pursuant to Assembly Bill 32, the California Air Resources Board (CARB) established a GHG cap-and-trade program⁴

⁴ Cap-and-trade is a regulatory system that sets a limit on overall emissions of pollutants – the "cap." CARB issues pollution

starting in 2013. Based on current emissions levels, five UC campuses and one medical center will be directly regulated under the program and will be required to hold an allowance for each ton of GHG they emit. While these campuses will not be regulated for their emissions until 2013, CARB auctioned allowances up for auction in November 2012. To save campuses time and money in meeting these new regulatory obligations, UCOP convened a steering committee and hired a consultant to develop and implement a compliance strategy for all affected campuses. The University fulfilled its 2013 compliance obligation by purchasing allowances at a price of \$10.09 per ton, for a total compliance cost of \$6.3 million.

UC proposed in October 2011 that CARB create an optional cap-and-trade compliance path to allow entities like UC to make direct investments in GHG abatement projects in lieu of buying allowances. CARB staff rejected this proposal. Since then, UC has worked with the Legislature to develop a mechanism for UC to receive funds from cap-and-trade proceeds to invest in GHG abatement projects or to reduce the University's financial obligation under the program. While none of these efforts has yet resulted in a beneficial outcome, CARB agreed to reexamine the situation.

In late September 2012, CARB's Board passed a resolution directing CARB staff to continue working with California's universities and present proposed regulation changes in summer of 2013 to assist the universities' transition into the cap-and-trade program. At this time, however, UC status under the program is uncertain. For this reason, the University purchased enough allowances in the November 2012 auction to fulfill its 2013 obligation. If CARB enables transition assistance, the University can resell its allowances to recoup costs or apply the allowances toward any future compliance obligation.

VIII.C. 3. Planning for Climate Neutrality

The Climate Solutions Steering Group is evaluating large-scale opportunities for UC to significantly reduce greenhouse GHG and move towards our carbon neutrality goal. Three broad strategies were presented to the Regents

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.

and other University leadership a year ago: expand the highly successful Partnership program; develop a wholesale power procurement strategy that provides a steadily increasing amount of renewable power; and procure large quantities of biomethane⁵ in lieu of natural gas.

Systemwide strategies being developed by the Climate Solutions Steering Group are complementary to campus initiatives, such projects for the energy efficiency Partnership, solar photovoltaic installations, and sustainable building projects. Proactive investments in systemwide strategies for carbon abatement projects will allow UC to meet its climate commitments while avoiding millions of dollars in direct and indirect costs associated with cap-and-trade regulation.

VIII.D. Sustainable Transportation

Policy Goal

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

Campuses reduce GHG emissions through alternative commuting, reducing air travel, and reducing emissions from their fleets. Highlights include the current or planned installation of more than 80 electric vehicle charging stations and upgrading transit hubs at UCLA and Davis.

VIII.D.1. Commuting

Campuses continue to expand their transportation demand management programs, reducing drive alone trips to campus through the use of carpools, vanpools, transit, bike programs, etc. Campus bike programs have expanded this year with bike plans, bike infrastructure, education and enforcement programs, bike sharing programs, and more. Approximately 80 electric vehicle (EV) charging stations are planned or already installed to accommodate and encourage commuting by EVs.

Funding for alternative transportation systems continues to be a challenge. Parking revenue funds most of the transportation demand management programs, and as

⁵ Biomethane is methane that is generated from controlled decomposition of organic matter and processed to standards suitable for natural gas pipeline transmission.

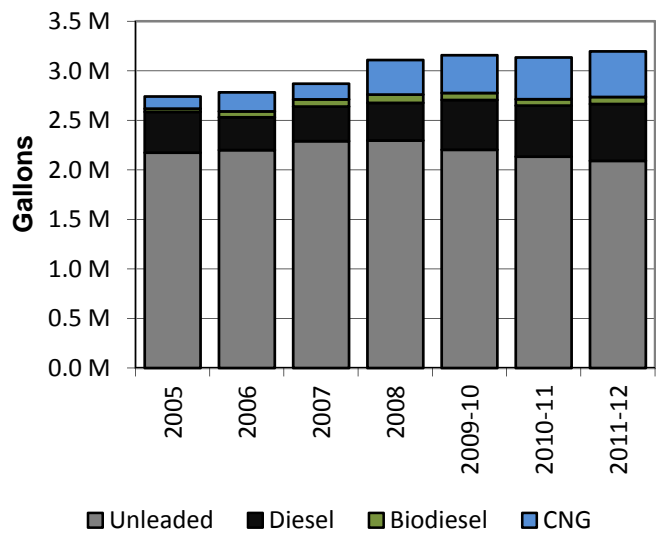
commuters switch to alternative modes, parking revenue is reduced.

VIII .D.2. Business Air Travel

Improved data collection is enabling more accurate estimation of GHG emissions from air travel. Campuses are investing in remote conferencing equipment to reduce the need to travel.

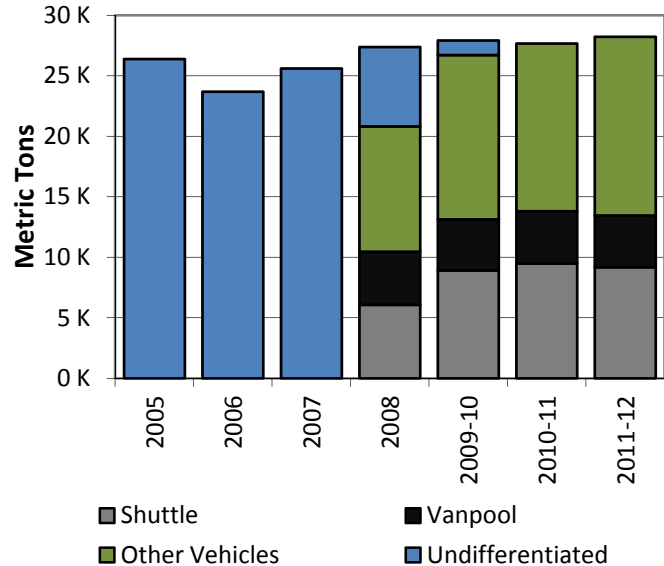
VIII.D.3.Fleets

Figure 4: UC Fleets Fuel Usage



Over the past five years, consumption of CNG and diesel increased while gasoline consumption decreased (Figure 4). The University has pioneered the use of CNG and biodiesel vehicles, and the Irvine and Los Angeles campuses are now testing hydrogen vehicles in their fleet.

Figure 5: CO₂ Emissions from UC Fleets



Beyond switching to alternative fuel vehicles that use CNG or biodiesel, campuses are also seeking to reduce the total number of vehicles in their fleets. Increased fleet sizes at Merced and Santa Barbara have offset decreases in fleet size at other campuses. San Diego has added 10 CNG buses to its fleet to reduce campus commuting. Davis reduced the number of vehicles in its fleet by 62 vehicles, or 8 percent. Both the fleet size and mix of vehicle types affects CO₂ emissions (Figure 5).

VIII.E. Sustainable Operations

Policy Goals:

- 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.

UC uses the LEED for Existing Buildings: Operations and Maintenance (EBOM) to evaluate and improve the environmental performance of existing building stock. Fifteen UC buildings have LEED EBOM certification and forty projects are in progress or in planning. UC LEED EBOM projects include one Certified building, ten Silver, three Gold and one Platinum. Santa Barbara is leading UC EBOM efforts with ten certifications, more than any other university in the country.

Six UC campuses have initiated the certification process for campus-wide LEED EBOM credits and prerequisites. Many years of lobbying by UCOP and several campuses resulted in this new campus-wide process allowing a streamlined documentation process for individual projects following a comprehensive review of campus operational practices. Out of the six campuses with registered campus-wide credits, Davis, Irvine, Riverside and Santa Barbara have already earned certification of those credits.

For campuses yet to certify LEED EBOM campus-wide credits, the main challenge is limited staff to manage projects. Additionally, many UC buildings are not individually metered and are therefore ineligible for a LEED EBOM rating.

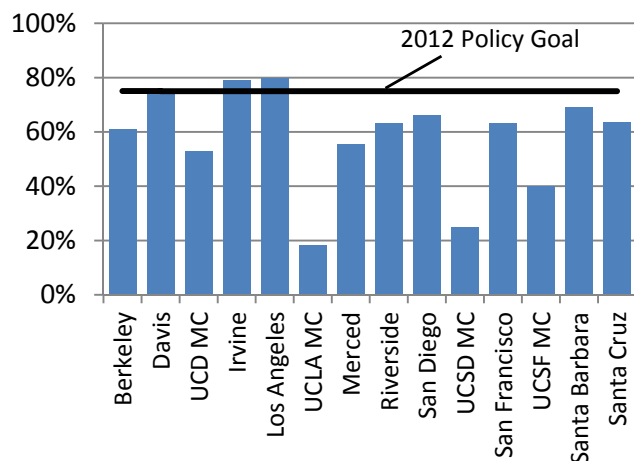
VIII.F. Recycling and Waste Management

Policy Goals

- Increase the proportion of waste that is reused, recycled, composted, or otherwise diverted from landfill.
- By 2008, divert 50% of waste from landfill, by 2012 divert 75% of waste from landfill, and achieve “zero waste” by 2020.

Campuses and medical centers developed waste diversion plans in 2012 to document existing waste and recycling procedures, waste diversion options, and plans for waste diversion goals. Eight campuses and two medical centers completed these plans that document the wide variety of waste and recycling program structures and creative ideas that are implemented or piloted. San Diego has a green flag program identifying greener products in the online procurement system, broader food composting programs, and Davis is piloting a project to densify styrofoam to reduce it to a reusable plastic product.

Figure 6: 2012 Solid Waste Diversion*



*Includes waste from construction and demolition.

While all campuses have met the original goal of diverting at least 50 percent of municipal solid waste from landfills, only three campuses met the 2012 goal of diverting 75 percent. A significant proportion of waste diversion is construction and demolition waste, which is highly variable on a year-to-year basis. Given the ultimate goal of zero waste, the University will begin collecting waste data on a per capita basis for reporting in 2013.

Medical centers have unique challenges in reducing waste and recycling and will be a focus of attention in 2012-13. They have increased participation in UC sustainability

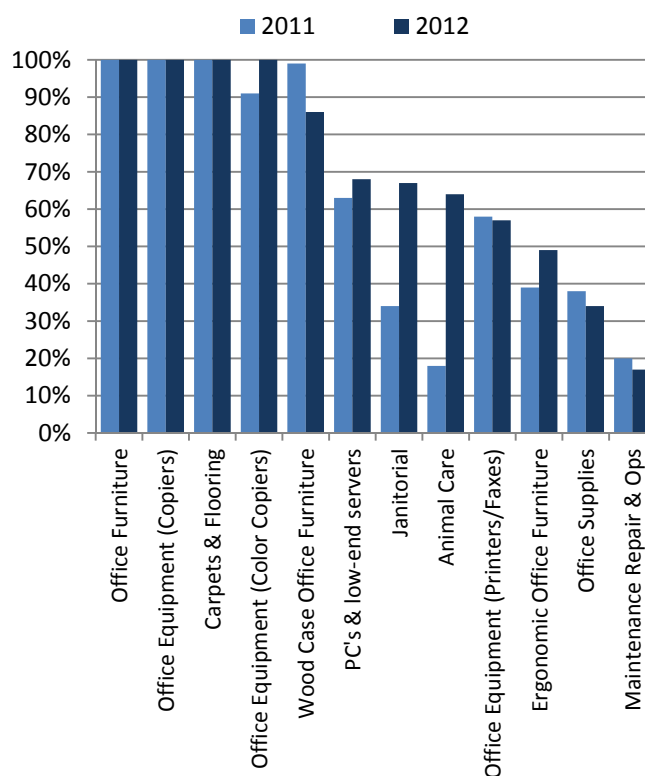
forums such as the Solid Waste and Recycling Working Group. Medical centers include patient care, lab and foodservice uses generating waste streams with their own specific regulations. The medical centers are coordinating to create cost-effective programs that meet waste reduction goals as well as safety, patient confidentiality, and infection control requirements.

VIII.G. Environmentally Preferable Purchasing

Policy Goal

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

Figure 7: Purchases meeting sustainability criteria



Sustainable procurement in FY 11-12 showed a steady increase in the total purchases of products from system-wide agreements. Several categories showed an increase in the percentage of sustainable products purchased: color copiers, personal computers, janitorial supplies, animal care products, and ergonomic office furniture (Figure 7). These are verified by third-party environmental certifications. Over the next two years, UCOP Procurement Services will implement systems to collect

procurement data from all UC, and will include local purchase agreements at the campuses and medical centers. Complementing improved data collection, the Sustainable Purchasing Working Group will strive in 2013 to set consistent standards for the specific environmental criteria used to designate sustainable purchases.

VIII.H. Sustainable Foodservices

Policy Goals

- Procure 20 percent sustainable food products (as defined by the UC Sustainable Foodservice Working Group) 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 foodservice operations.

VIII .H. 1. Sustainable Food Procurement

UC increased annual sustainable food expenditures in its residential dining operations to \$12.6 million, nearly 20 percent of their total food procurement since 2009 (Figure 8). Medical center and retail food operations also increased their sustainable food purchases. Medical centers now spend \$1.9 million annually on sustainable food, representing 11 percent of their total food procurement. Retail food operations are the most challenging environment for shifting to sustainable food. These operations spent about \$1 million on sustainable food purchases last year, only 3.5 percent of their total food expenditure.

Four campuses—Berkeley, Davis, Santa Barbara and Santa Cruz—have already surpassed the goal of procuring at least 20 percent sustainable food by 2020 in their residential dining programs. All campuses increased sustainable food purchases in the past year, some by as much as 14 percentage points, and demonstrate progress in sourcing more sustainable beef, poultry, pork, dairy, fresh produce, beverages, seafood and groceries. Cage-free eggs are incorporated into dining programs at eight campuses and one medical center.

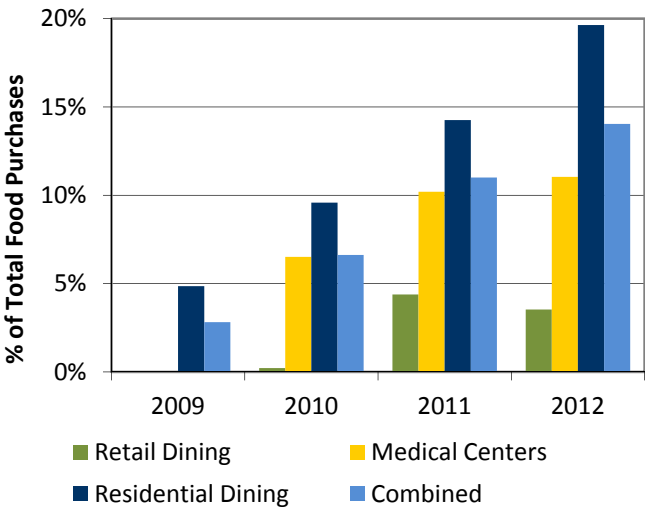
San Diego campus was named the ‘Most Vegan Friendly’ large campus in the country in 2012. A UC campus has earned the top spot every year since the contest debuted in 2010, UCLA won first in 2010 and Santa Cruz won in



On Food Day Dayna Burgeson, a dietitian at UC Davis Medical Center, showcased food grown within 50 miles of the medical center.

2011. San Diego won first place in 2012 after introducing an all-new vegan eatery called Roots. Their menu includes an assortment of vegan sandwiches and wraps, such as the Spicy Sierra—made with chopped vegan chicken, house BBQ sauce, chipotle soy crème and caramelized onions—and El Capitan, a tomato Italian sausage with sautéed peppers, onions, and vegan mozzarella. Other vegan options have expanded all over campus, including the grab-n-go market, with twelve in-house vegan sandwiches and salads.

Figure 8. Sustainable Food Purchases



UC Berkeley’s Cal Dining became the first public university to earn Marine Stewardship Council certification. This “Chain of Custody” certification ensures that Cal Dining is purchasing seafood traceable to a sustainable fishery.

VIII .H. 2. Education and External Stakeholder Engagement

UC campuses and medical centers continued education programs for both customers and staff. Food Day, a nationwide celebration for healthy, affordable, and sustainable food, was celebrated at all campuses and medical centers in October of 2012. Most campuses provide nutrition information to guests in resident dining

halls; Davis, Irvine and Santa Barbara have phone apps with nutrition information. Seven campuses and two medical centers are promoting Meatless Mondays or beefless days; Irvine, San Diego, Santa Barbara, Santa Cruz, Los Angeles and San Francisco Medical Center feature a completely meatless menu either weekly or monthly.

VIII H.3. Sustainable Operations

Five UC campuses earned Green Business certifications for all dining halls on campus. Santa Barbara and Santa Cruz achieved certification for all retail foodservice operations. In 2012, UCLA earned its first Certified Green Restaurant® status, for Rendezvous Café.

Energy efficiency audits were conducted at all foodservice facilities on six UC campuses and three medical centers. Organic waste is composted at all residence dining halls and most medical centers. Six campuses have programs reducing pre-consumer food waste during meal preparation. Davis and Riverside divert organic waste to bio-digesters to convert the waste into energy. All campuses recycle their cooking oil. San Francisco and Santa Cruz have eliminated bottled water sales in some or all of their operations and many campuses have installed reusable water bottle filling stations. Four campuses have installed energy efficient foodservice appliances and implemented a lighting reduction program. UCOP partnered with U.S. Environmental Protection Agency (EPA) to launch EPA's new Food Waste Recovery Challenge (Challenge). The partnership resulted in Berkeley, Davis, Irvine, Merced, Riverside, San Francisco, Santa Barbara and Santa Cruz becoming signatories to the Challenge. Each committed to set a goal to increase food waste source reduction, surplus food donation, and/or food waste composting over the course of a year.

VIII.I. Sustainable Water Systems

Policy Goals

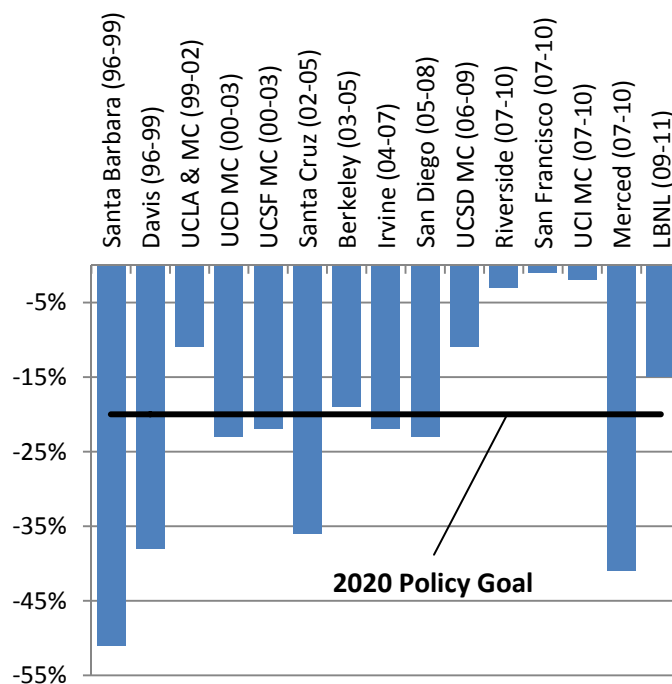
- Reduce per capita potable water use 20% by 2020 (compared to campus-specific baselines).
- Develop and maintain campus-specific Water Action Plans

The Sustainable Water Systems section was approved by the Sustainability Steering Committee as a new policy section in 2012, for adoption in 2013. Policy provisions address campus water use reduction, watershed

management, and education and outreach, and recognize the uniqueness of each campus' regional water resources. The guidelines recognize past achievements, and provide flexibility in policy implementation.

Every campus has selected water usage baseline years (a 3-year window) and collected per capita⁶ potable water usage data for those years and also for FY 11-12. UC currently uses approximately 4.9 billion gallons of potable water per year.

Figure 9: Potable Water Consumption Reduction Per Capita from Baseline (3-year Average)



Each campus reduction from their baseline period to FY 11-12 is shown in Figure 9. Eight of the fifteen campuses and medical centers have already achieved the per capita potable water consumption reduction target of 20 percent below their respective baselines. With half the campuses and medical centers already achieving the potable water use reduction goal, there may be opportunities for further reductions, but at this time the 20 percent goal is an appropriate target given current budget constraints.

⁶ Per capita water consumption = Water consumption per Weighted Campus User for main campuses and per Adjusted Patient Day for medical centers.

In 2012, Los Angeles piloted a system to capture lost process water from its co-generation plant cooling tower, Merced waged a “Water Battle” student competition yielding a 14 percent reduction in water use in residence halls over that month. Santa Cruz expanded their Evapotranspiration Irrigation System, contributing to an overall 10 percent reduction in total campus water usage in 2012.

IX. Future Actions and Initiatives

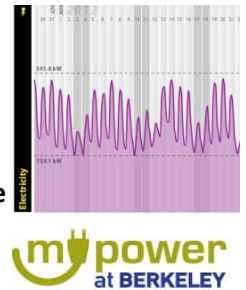
The University will continue efforts to meet requirements in each Policy area and we have launched efforts to develop a water action plan for each campus and medical center under the new Policy section on sustainable water systems.

Achieving both short- and long-term goals for reducing GHG emissions will require significant focus and resources in 2013. The University will implement the more than one thousand cumulative energy efficiency projects funded through the Partnership program, while also taking steps towards large-scale, system-wide biogas and renewable energy projects proposed by the Climate Solutions Steering Group. These initiatives to reduce GHG emissions aim to limit regulatory risk and costs for the University under the state’s new climate regulations. UC continues to collaborate with the CARB on a compliance path meeting the requirements of new regulations while maximizing University emissions reductions and minimizing the cost impact to the UC mission.

Introduction

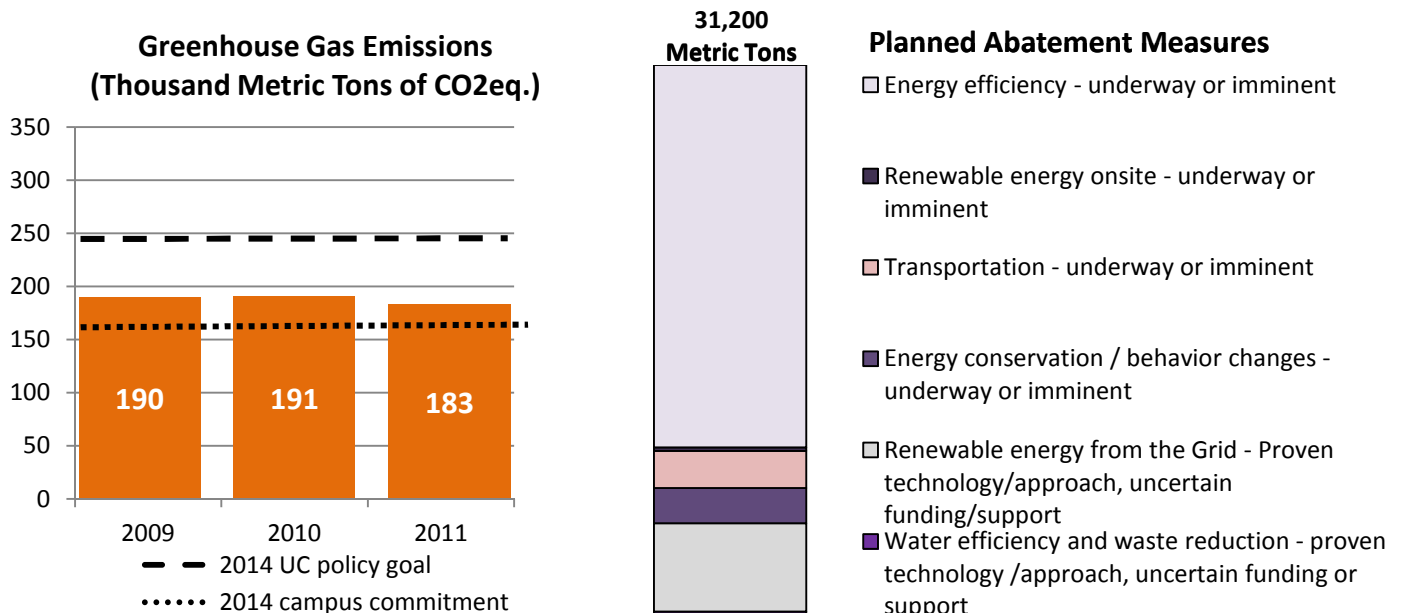
The Berkeley campus has achieved or is on track to achieve the majority of its sustainability goals. It documents progress toward its goals in the annual Campus Sustainability Reports. In addition to the other successes included here, the amount of solid waste sent to landfills by the campus went down by 4.4% last year, and fuel use from fleet and commute continues to be at least 25% below 1990 levels, exceeding the campus goal. The student-sponsored TGIF program has awarded \$1,270,000 to 70 different projects, which have resulted in 157 paid student internships. The Berkeley campus was the first university to commit to the Plastic Disclosure Project, continuing its commitment to transparency.

In 2012, the Berkeley campus introduced its **Energy Management Initiative**, a comprehensive program that empowers faculty, staff, and students to take simple energy savings measures that will reduce the campus environmental footprint and save the money – returning those funds to teaching and research. The campus community can visit the [myPower website](#) to see real-time energy usage data for 65 campus buildings. As part of the initiative, an [Energy Office](#) was created to track, monitor, and manage energy usage campus-wide and to administer the **Energy Incentive Program (EIP)**. The EIP achieves electricity savings by establishing a baseline level of electricity usage for campus units and crediting or charging them based on annual electricity usage relative to the baseline. In addition, an **Energy Policy** will provides an administrative framework to support energy- wise decisions and choices across the campus community.



Greenhouse Gas Emissions

Greenhouse gas emissions decreased by 4%, or 7,000 metric tons, from 2010 to 2011. The 2011 greenhouse gas emissions fell below the 2014 UC Policy goal, but above the campus goal (reducing to 1990 levels by 2014) by 23,000 metric tons. Planned abatement measures include approximately 23,800 metric tons of projects that are underway or imminent, and an additional 7,400 tons that do not yet have certain funding or support.



Notes:

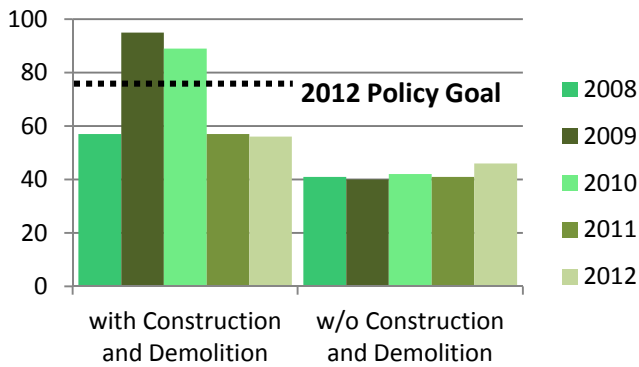
Third-party verification of 2010 scope 1 & scope 2 emissions inventories is complete; verification of 2011 emissions is expected in 2013.

In 2007, the Berkeley campus committed to reducing its GHG to 1990 levels by 2014.

Berkeley's emissions levels are currently below the 2014 UC policy goal in part because the campus switched to PG&E as its electricity provider in 2006. PG&E provides less carbon-intensive power generation than the previous provider.

Attachment I: Berkeley Campus Infographics

% Solid Waste Diverted from Landfill



In FY11-12, the Berkeley campus diverted 56% of its waste from the landfill, approximately the same amount as FY 2010-11.

When waste from construction and demolition is not included, the amount of waste diverted from the landfill was 46% in FY 2011-12.

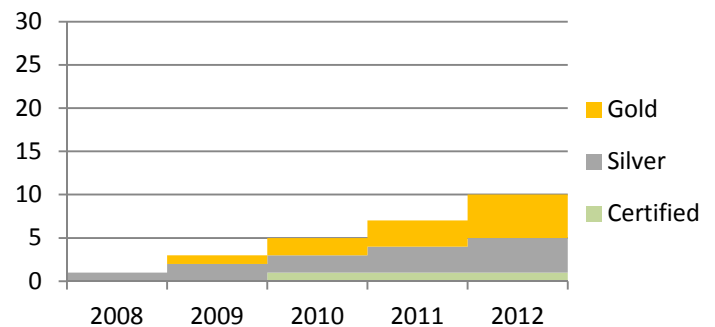
The Berkeley campus did not meet the 2012 policy goal of 75% waste diversion from landfill.

In 2012, the Berkeley campus received two LEED-Gold and one LEED-Silver certification, contributing to its total of 10 LEED certifications.

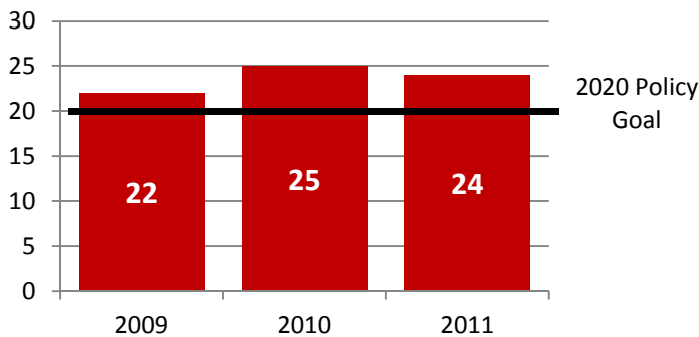


Li Ka Shing Biomedical Sciences Building was certified LEED-Gold.

Total Number of LEED Certifications



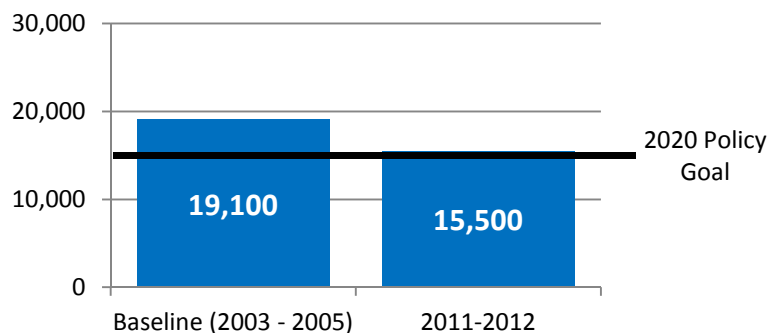
% Sustainable Food Purchases for Residential Dining Facilities



The amount of sustainable food purchases for the residential dining program stayed approximately constant from FY 2010-11 to FY 2011-12.

The Berkeley campus' residential dining program and two other campus vendors have already met the 2020 Policy goal of 20% sustainable food purchases.

Potable Water Consumption (Gallons per Capita)



In FY 2011-12, the Berkeley campus consumed 15,500 gallons of potable water per capita. This is an 18.6% reduction from its 2002-2005 baseline, bringing the campus very close to meeting the 2020 Policy goal of reducing potable water consumption by 20% below the baseline.

Introduction

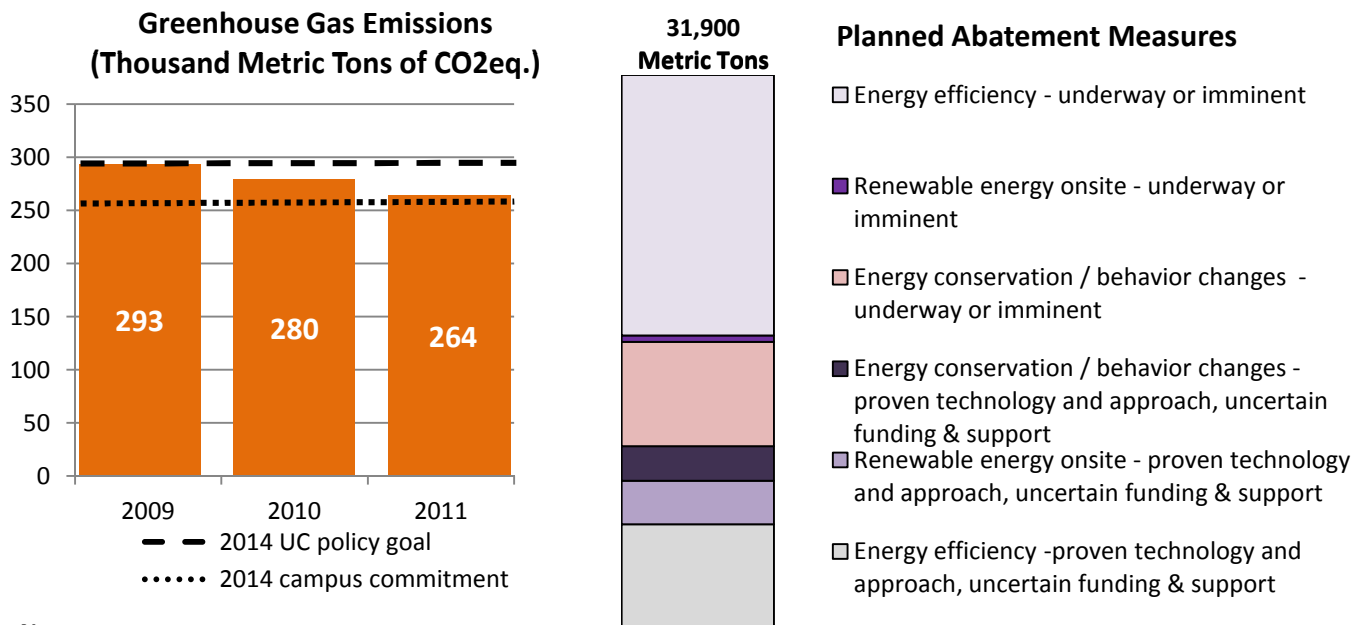
This year, the national spotlight shined brighter than ever on Davis campus's sustainability efforts. The campus was recognized for its depth and breadth in sustainability by Sierra Magazine, which named UC Davis the #1 Cool School in the nation.

During 2012, the Davis campus:

- hosted the annual California Higher Education Sustainability Conference, with nearly 1,000 registrants, over 60 concurrent speaker sessions, and 20 concurrent field trips at UC Davis;
- produced a self-guided sustainability tour map, based on the online, interactive campus sustainability map;
Tour map: http://sustainability.ucdavis.edu/local_resources/docs/sustainability_tour_map_pdf
Online map: <http://campusmap.ucdavis.edu/sustainability/>
- continued to reduce greenhouse gas emissions through additional projects in the Strategic Energy Partnership Program and the Smart Lighting Initiative;
- opened additional housing at West Village and shared lessons from this net zero energy development with visitors from around the world;
- won the national Game Day Challenge for the second year in a row for waste diversion at its first-in-the-nation zero-waste stadium; and
- received one more LEED Platinum and three more LEED Gold certifications, among other achievements.

Greenhouse Gas Emissions

Greenhouse gas emissions decreased by 6%, or 15,700 metric tons, from 2010 to 2011. The 2011 greenhouse gas emissions fell below the 2014 UC Policy goal, but above the campus goal by 6,700 metric tons. Planned abatement measures include approximately 21,400 metric tons of projects that are underway or imminent, and an additional 10,500 tons that do not yet have certain funding or support.



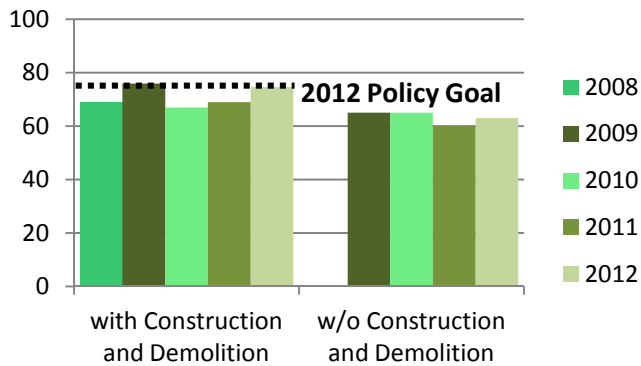
Notes:

Third-party verification of 2010 scope 1 & scope 2 emissions inventories is complete; verification of 2011 emissions is expected in 2013.

The Davis campus has currently surpassed the 2014 UC Policy Goal. Davis has adopted a campus "stretch" goal of reducing scope 1 & scope 2 emissions to 10% below year 2000 levels by 2014.

Attachment I: Davis Campus Infographics

% Solid Waste Diverted from Landfill



In FY 2011-12, the Davis campus diverted 75% of its waste from the landfill, an increase of six percentage points from FY 2010-11.

When waste from construction and demolition is not included, the amount of waste diverted from the landfill was 63% in FY 2011-12.

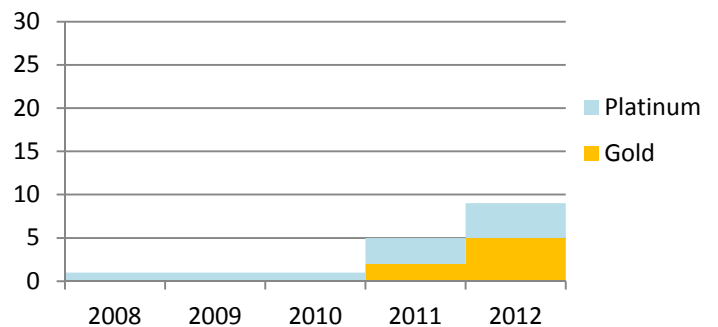
The Davis campus met the 2012 policy goal of 75% waste diversion from landfill.

In 2012, the Davis campus received one LEED-Platinum and three LEED-Gold certifications, contributing to its total of 9 LEED certifications.

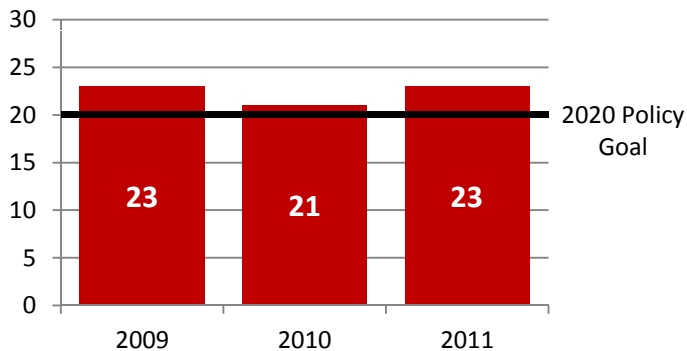


Gladys Valley Hall, at the School of Veterinary Medicine, was certified LEED-Platinum.

Total Number of LEED Certifications



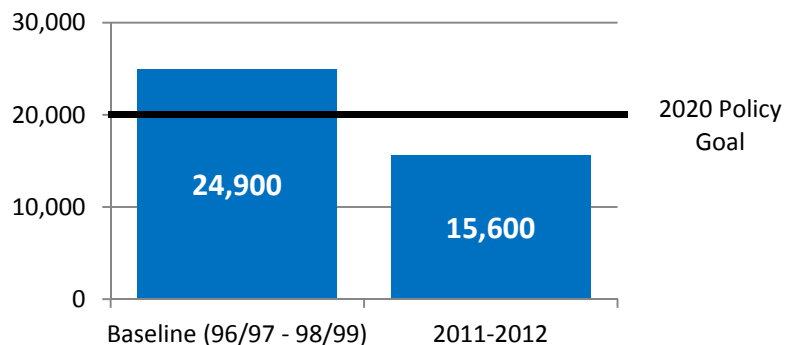
% Sustainable Food Purchases for Residential Dining Facilities



The amount of sustainable food purchases for the residential dining program stayed approximately constant from FY 2010-11 to FY 2011-12.

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

Potable Water Consumption (Gallons per Capita)



In FY 2011-12, the Davis campus consumed 15,600 gallons of potable water per capita. This is a 37.3% reduction from their FY 1996-97 to FY 1998-99 baseline, enabling the campus to surpass the 2020 Policy goal of reducing potable water consumption by 20% below the baseline.

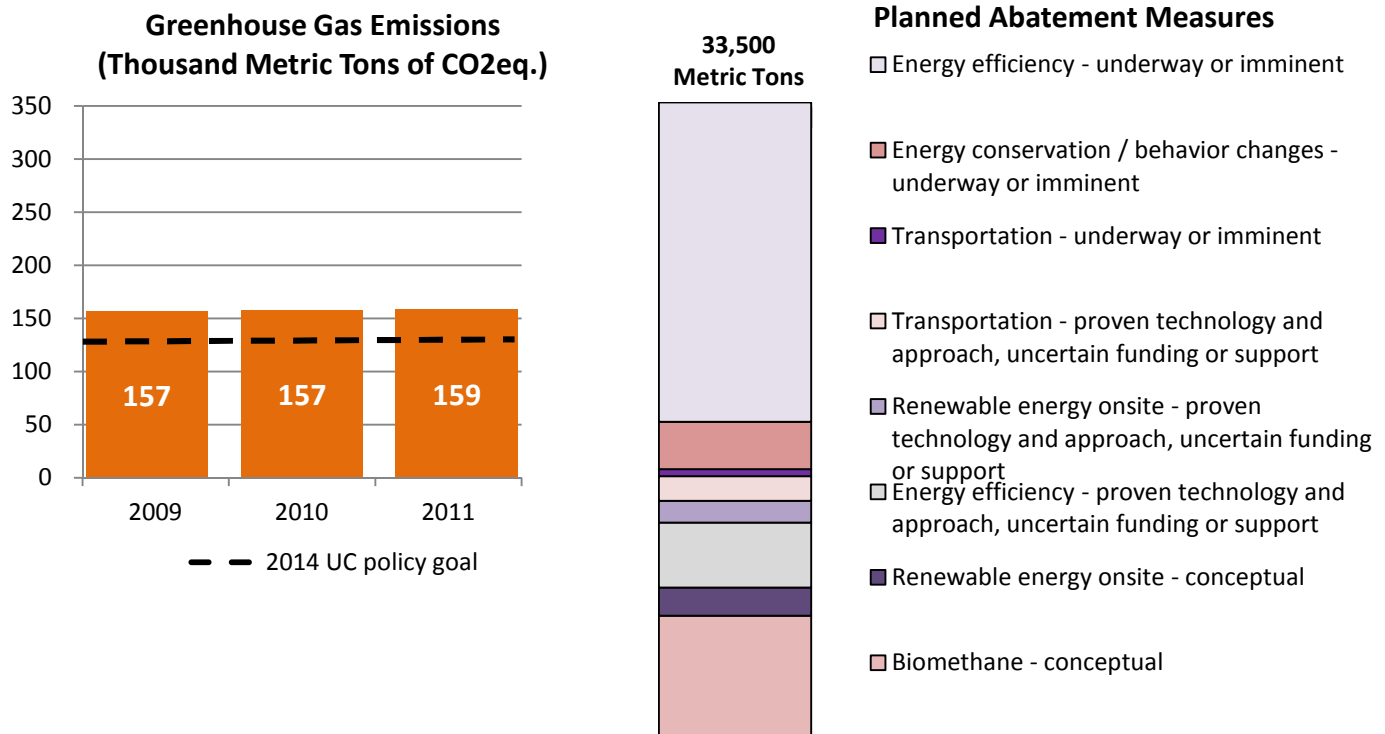
Introduction

The Irvine campus achieved significant accomplishments and national recognition in campuswide sustainability programs in 2012. Two buildings have achieved LEED Platinum for new construction (NC), bringing the total number of LEED NC Gold or Platinum buildings to 13 and further establishing the campus as a national leader in green building construction. The campus also became an inaugural partner in President Obama's "Better Buildings Challenge". All other participants committed to a 20 percent reduction in building energy use by 2020, while the Irvine campus committed to a 20 percent reduction by 2014 through one of the most comprehensive systems of deep energy efficiency among US campuses. In addition to its accomplishments in energy efficiency, the Irvine campus also achieved a solid waste diversion rate of 79% in 2012.

The Irvine campus' sustainability initiatives put it on the Sierra Club's Top 10 list of "Coolest Schools", one of only three United States campuses (and the only UC campus) to be included in the Top 10 list for three consecutive years.

Greenhouse Gas Emissions

Greenhouse gas emissions increased by 1%, or 2000 metric tons, from 2010 to 2011. The 2011 greenhouse gas emissions fell above the 2014 UC Policy goal by 29,000 metric tons. Planned abatement measures include approximately 19,800 metric tons of projects that are underway or imminent, and an additional 13,800 tons that do not yet have certain funding or are only conceptual.

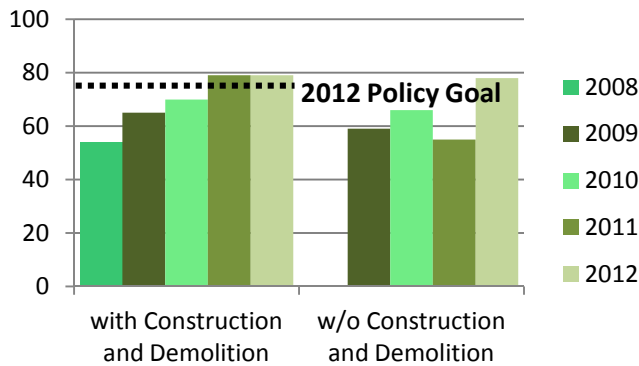


Notes:

Third-party verification of the 2010 scope 1 & 2 emissions inventory is complete; verification of 2011 emissions is underway.

Attachment I: Irvine Campus Infographics

% Solid Waste Diverted from Landfill



In FY 2011-12, the Irvine campus diverted 79% of its waste from the landfill, the same amount as FY 2010-11.

When waste from construction and demolition is not included, the amount of waste diverted from the landfill was 78% in FY 2011-12.

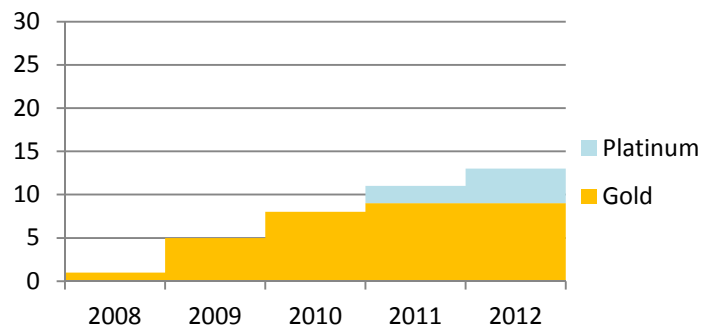
The Irvine campus met the 2012 policy goal of 75% waste diversion from landfill.

In 2012, the Irvine campus received two LEED-Platinum and one LEED-Silver certification, contributing to its total of 13 LEED certifications.

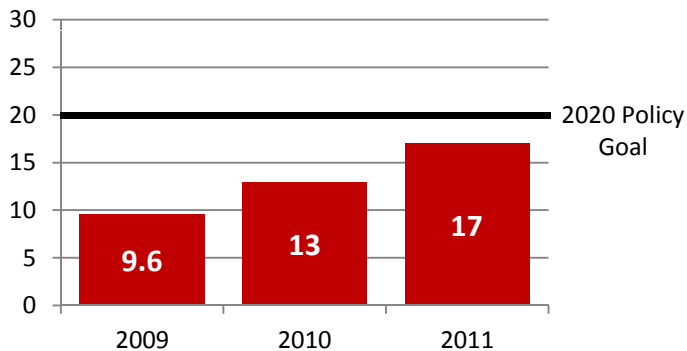


The Medical Education Building, was certified LEED-Platinum.

Total Number of LEED Certifications



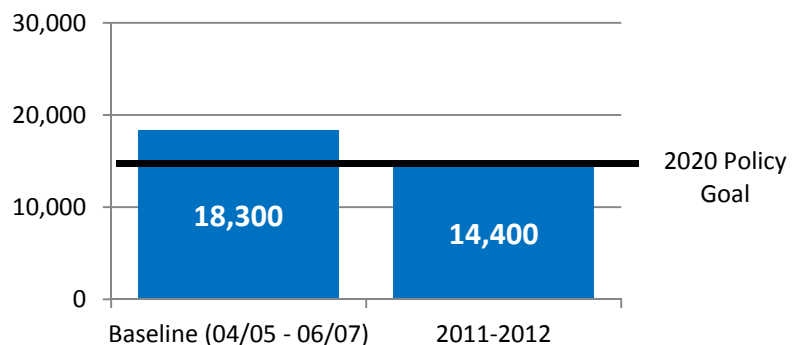
% Sustainable Food Purchases for Residential Dining Facilities



The amount of sustainable food purchases for the residential dining program increased by four percentage points from FY 2010-11 to FY 2011-12.

The Irvine campus' residential dining program is three percentage points away from the 2020 Policy goal of 20% sustainable food purchases.

Potable Water Consumption (Gallons per Capita)



In FY 2011-12, the Irvine campus consumed 18,300 gallons of potable water per capita. This is a 21.3% reduction from its FY 2004-05 to FY 2006-07 baseline, enabling the campus to surpass the 2020 Policy goal of reducing potable water consumption by 20% below the baseline.

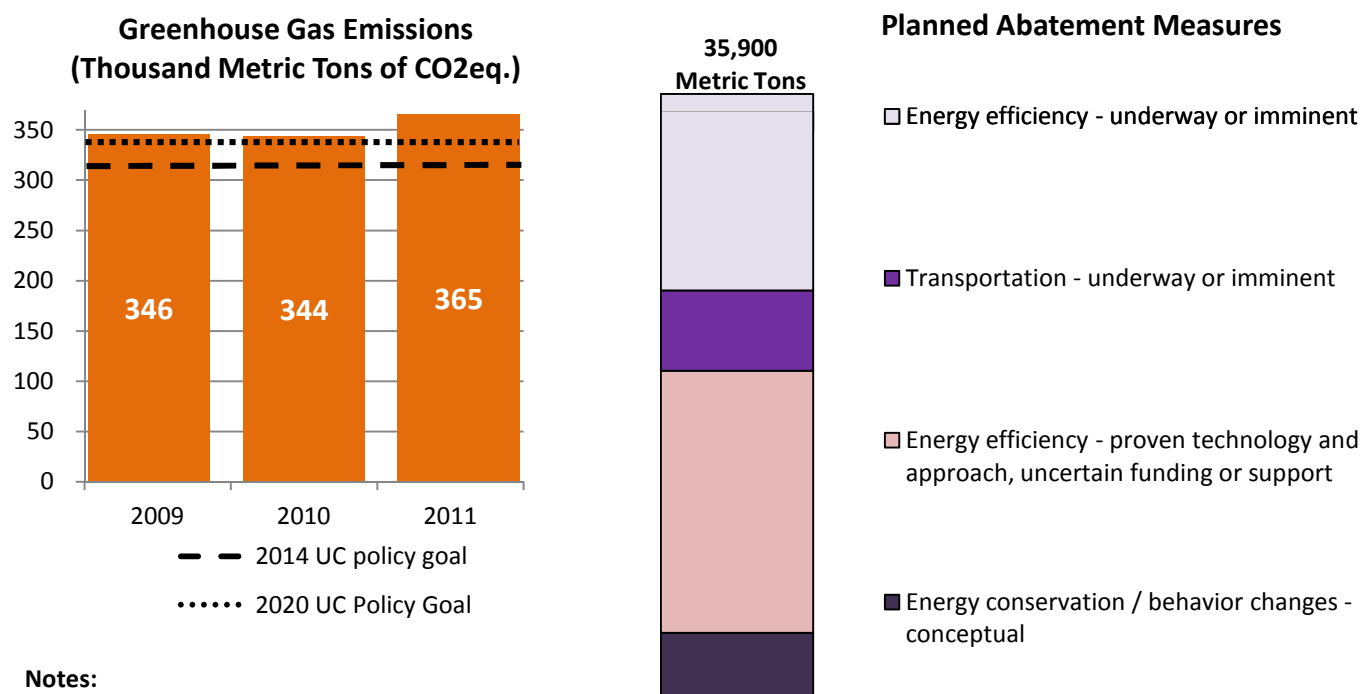
Introduction

Over the past year, LEED certifications at the Los Angeles campus more than doubled, including a UC LEED-CI Platinum renovation of Rieber Hall and the LEED-NC Gold Court of Sciences Student Center. The latter features a green roof of drought tolerant plantings that illustrate local, native landscape zones. The campus also is now home to UC's 100th LEED certification--the CHS Clinical and Translational Research Center. The Los Angeles campus is dedicated to utilizing the physical campus as a living laboratory for sustainability. This year it conducted a pilot of a combination ultra-filtration/reverse osmosis system, devised by the UCLA Water Technology Research Center, to treat blowdown water from cooling towers at the campus cogeneration plant. Across the street, students, faculty, and staff have implemented smart electric vehicle charging stations as part of a smart grid research grant in partnership with the Los Angeles Department of Water and Power. The Institute of the Environment and Sustainability's Action Research Team program continues to engage undergraduates in hands-on campus sustainability projects working with staff stakeholders. Under a grant from the Air Resources Board, faculty from the Institute of the Environment worked with the housing administration to study student reactions to real-time energy data.

The UCLA Health System hired a fulltime sustainability programs manager and is implementing many new initiatives, including a water-saving zero blowdown system at the Santa Monica Hospital and composting in the Reagan hospital cafeteria.

Greenhouse Gas Emissions

Greenhouse gas emissions increased by 6%, or 21,500 metric tons, from 2010 to 2011. The 2011 greenhouse gas emissions fell above the 2020 UC Policy goal by 27,000 metric tons. Planned abatement measures include approximately 16,500 metric tons of projects that are underway or imminent, and an additional 19,500 tons that are only conceptual or do not yet have certain funding.



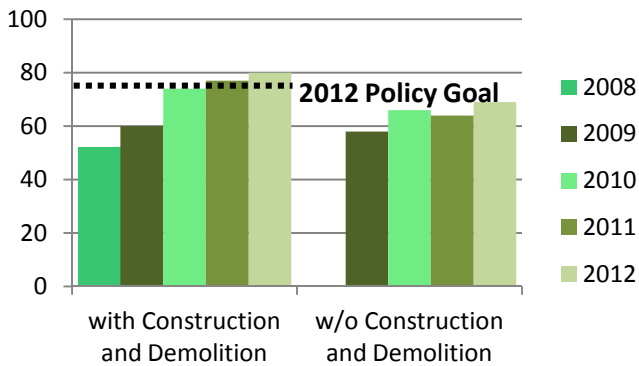
Notes:

Third-party verification of the 2010 scope 1 & 2 emissions inventory is complete; verification of 2011 emissions is underway.

The Los Angeles campus's 2000 emissions were lower than 1990 because it brought a highly efficient cogen plant online in 1994. Having an interim target that is lower than a long-term target does not make sense, so the campus is focused on meeting the 1990 goal ahead of schedule.

Attachment I: Los Angeles Infographics

% Solid Waste Diverted from Landfill



In FY 2011-12, the Los Angeles campus diverted 80% of its waste from the landfill, an increase of four percentage points from FY 2010-11.

When waste from construction and demolition is not included, the amount of waste diverted from the landfill was 69% in FY 2011-12.

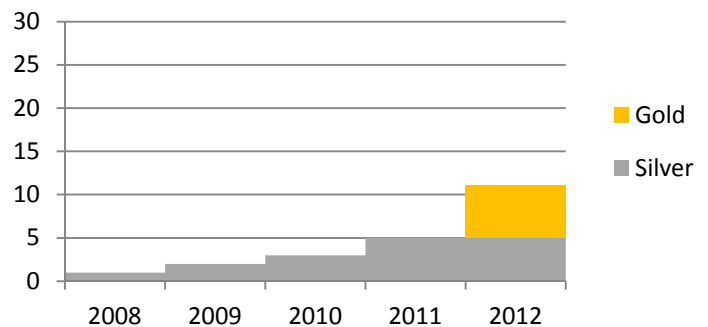
The Los Angeles campus met the 2012 policy goal of 75% waste diversion from landfill.

In 2012, the Los Angeles campus received six LEED-Gold certifications, more than doubling its total to 11 LEED certifications.

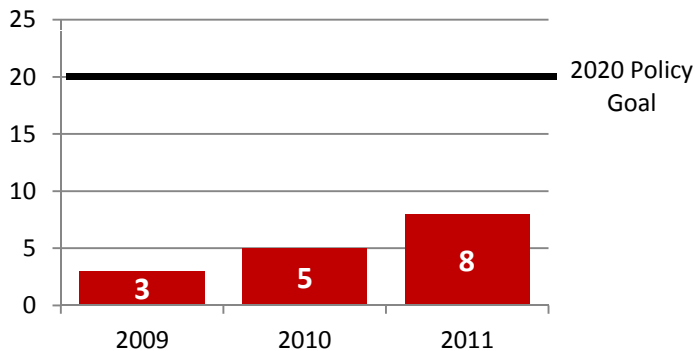


The Court of Science Student Center was certified LEED-Gold.

Total Number of LEED Certifications



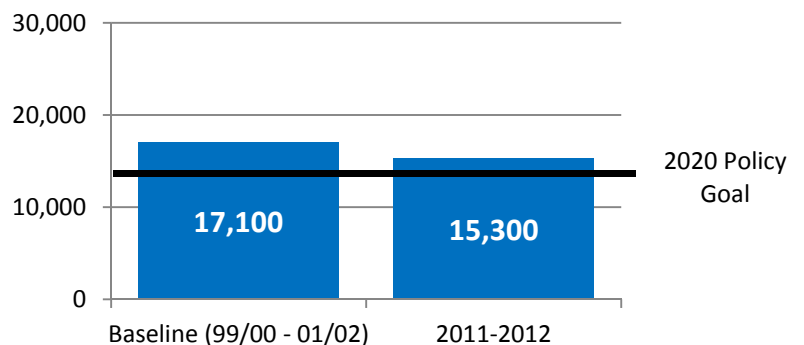
% Sustainable Food Purchases for Residential Dining Facilities



The amount of sustainable food purchases by the residential dining program increased by three percentage points from FY 2010-11 to FY 2011-12.

The Los Angeles campus' residential dining program is 12 percentage points away from the 2020 Policy goal of 20% sustainable food purchases.

Potable Water Consumption (Gallons per Capita)



In FY 2011-12, the Los Angeles campus consumed 15,300 gallons of potable water per capita. This is an 11% reduction from its FY 1999-00 to FY 2001-02 baseline. The campus needs to reduce its potable water consumption by another 9% to meet the 2020 Policy goal of reducing potable water consumption by 20% below the baseline.

Introduction

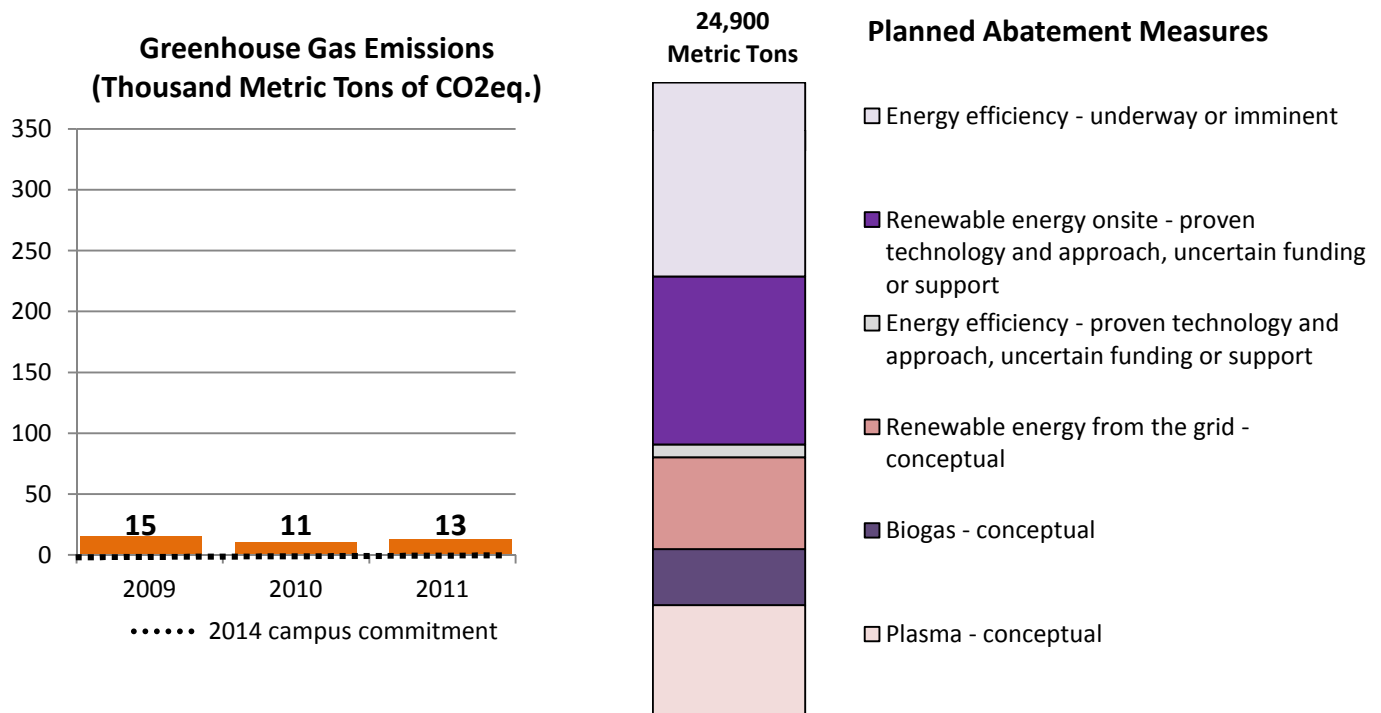
In the past year, the Merced campus has constructed its new Social Science and Management Building and had more than 1,680 new students on campus. It continues to face the challenge of reducing greenhouse gas emissions as the campus continues to grow at a rapid rate.

The Merced campus has put a lot of focus on its zero net energy goal by conducting an extensive analysis on its building efficiency. It recently identified an inefficiency in its boiler and had it replaced to better suit the needs of the campus. In addition, other forms of energy production, such as geothermal and cogeneration are being researched to potentially be implemented on campus.

The Merced campus was unable to meet its waste diversion goal, due to minimal resources devoted to its solid waste programs.

Greenhouse Gas Emissions

Greenhouse gas emissions increased by 2%, or 2,200 metric tons, from 2010 to 2011. The 2011 greenhouse gas emissions fell above the 2020 campus goal by 13,000 metric tons. Planned abatement measures include approximately 7,600 metric tons of projects that are underway or imminent, and an additional 17,300 tons that do not yet have certain funding or are only conceptual.



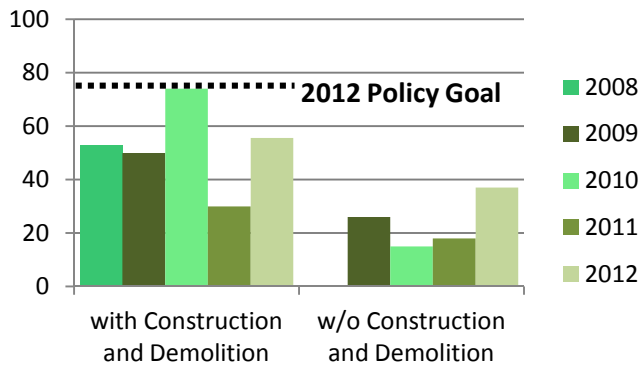
Notes:

Third-party verification of the 2011 scope 1 & scope 2 emissions inventory has been completed.

The 2014 Policy Goal does not apply to the Merced campus. Instead, it has committed to eliminating or offsetting its scope 1 & 2 emissions by 2020.

Attachment I: Merced Campus Infographics

% Solid Waste Diverted from Landfill



In FY 2011-12, the Merced campus diverted 56% of its waste from the landfill, an increase of 26 percentage points from FY 2010-11.

When waste from construction and demolition is not included, the amount of waste diverted from the landfill was 38% in FY 2011-12. This marks a significant improvement from 18% in FY 2010-11.

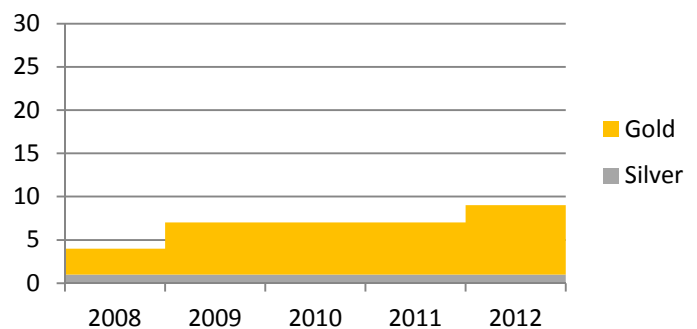
The Merced campus did not meet the 2012 policy goal of 75% waste diversion from landfill.

In 2012, the Merced campus received two LEED-Gold certifications, contributing to its total of 9 LEED certifications. The Merced campus is the only campus in the country where every building on campus is LEED certified.

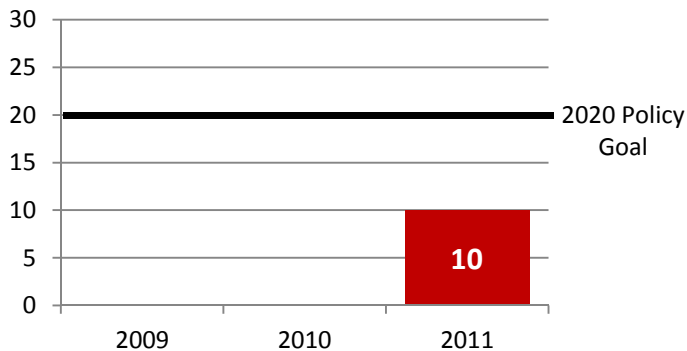


The Early Childhood Education Center was certified LEED-Gold.

Total Number of LEED Certifications



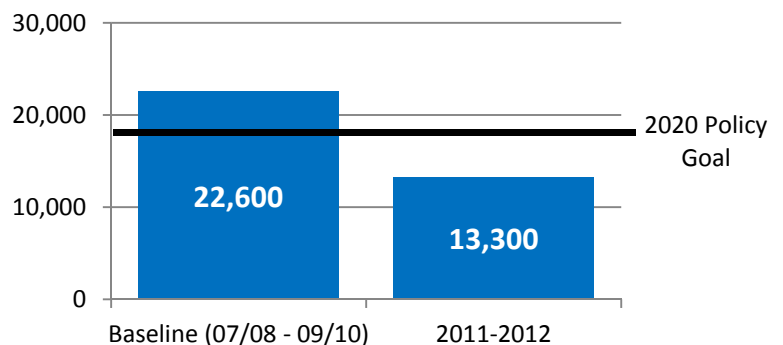
% Sustainable Food Purchases for Residential Dining Facilities



The amount of sustainable food purchases amounted to 10 percent of the total residential dining food expenditure in FY 2011-12. Data was not available in previous years.

The Merced campus' residential dining program is 10 percentage points away from meeting the 2020 Policy goal of 20% sustainable food purchases.

Potable Water Consumption (Gallons per Capita)



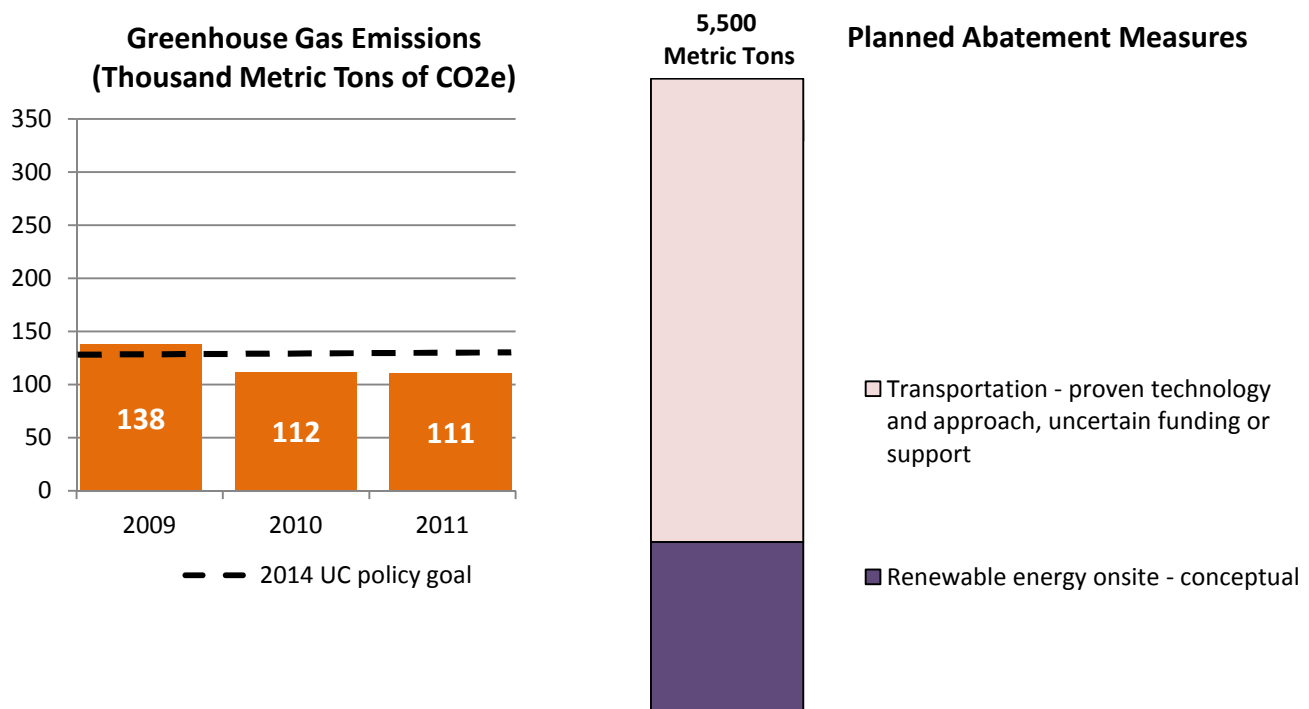
In FY 2011-12, the Merced campus consumed 13,300 gallons of potable water per capita. This is a 41% reduction from its FY 2007-08 to FY 2009-10 baseline, enabling the campus to surpass the 2020 Policy goal of reducing potable water consumption by 20% below the baseline.

Introduction

The Riverside campus has become fully engaged with sustainability after establishing the Office of Sustainability (OOS) under Capital Programs in Summer 2011. The OOS has hired a full-time LEED Analyst, pursuing the campus's second LEED building certification (expected completion in Winter 2013), and a sustainability garden manager, responsible for establishing the campus's new three acre sustainable community garden. Students funded, designed and built a 6 kilowatt mobile renewable energy generator that will provide renewable power for the sustainable community garden as well as student events on campus. The OOS is piloting an innovative Green Office Program, installing seven hydration stations across the campus, and supporting LED lighting pilots at the Student Recreation Center, ARTS Block, and parking lots. A revised Chancellor's Committee on Sustainability, chaired by Chancellor Tim White, held its first Sustainability Summit bringing together faculty, students and staff members from 12 newly formed sustainability working groups. As it enters its 18th month of paperless operation, the OOS is dedicated to full engagement with the campus community to achieve the 75% waste reduction goal, and to complete a comprehensive waste diversion plan for meeting Net Zero waste goal by 2020.

Greenhouse Gas Emissions

Greenhouse gas emissions remained approximately constant from 2010 to 2011. The 2011 greenhouse gas emissions fell below the 2014 UC Policy goal by 18,400 metric tons. The campus currently has 5,500 in planned abatement measures, however, these measures are still in the conceptual phase or are facing uncertain funding.

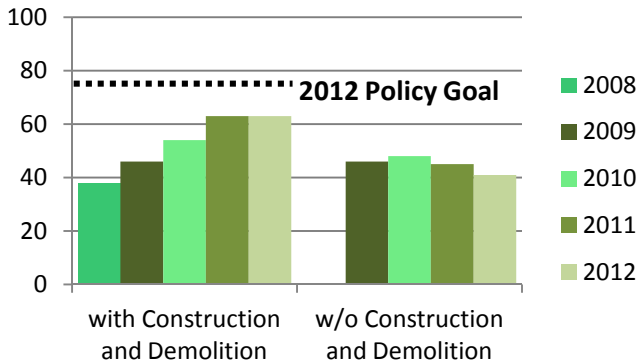


Notes:

Third-party verification of the 2010 scope 1 & 2 emissions inventory is complete; verification of 2011 emissions is underway.

Attachment I: Riverside Campus Infographics

% Solid Waste Diverted from Landfill



In FY 2011-12, the Riverside campus diverted 63% of its waste from the landfill, the same amount as FY 2010-11.

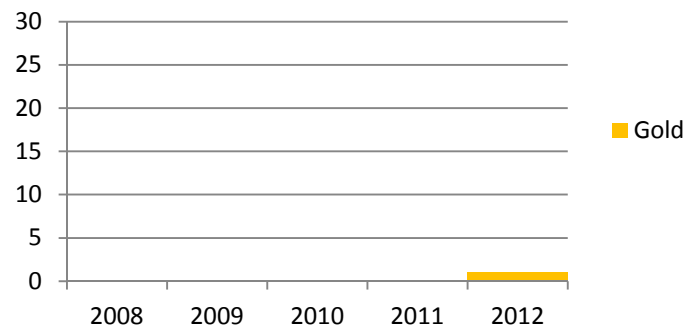
When waste from construction and demolition is not included, the amount of waste diverted from the landfill was 41% in FY 2011-12.

The Riverside campus did not meet the 2012 policy goal of 75% waste diversion from landfill.

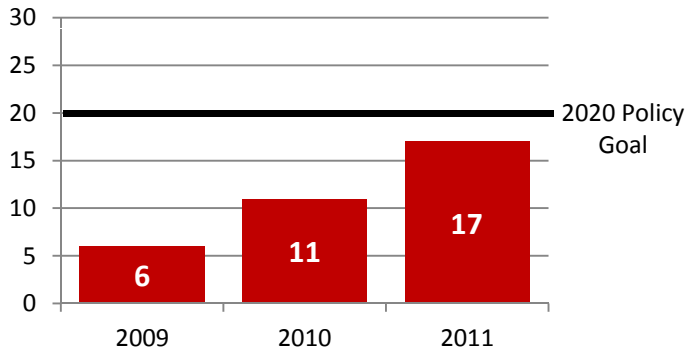
In 2012, the Riverside campus received its first LEED certification. The School of Medicine Research Building was certified LEED-Gold.



Total Number of LEED Certifications



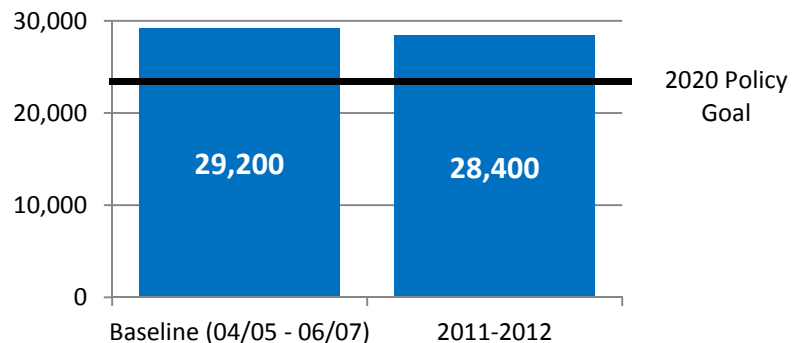
% Sustainable Food Purchases for Residential Dining Facilities



The amount of sustainable food purchases for the residential dining program increased by six percentage points from FY 2010-11 to FY 2011-12.

The Riverside campus' residential dining program is three percentage points away from meeting the 2020 Policy goal of 20% sustainable food purchases.

Potable Water Consumption (Gallons per Capita)



In FY 2011-12, the Riverside campus consumed 28,400 gallons of potable water per capita. This is a 3% reduction from their FY 2004-05 to FY 2006-07 baseline. The campus needs to reduce its potable water consumption by another 17% to meet the 2020 Policy goal of reducing potable water consumption by 20% below the baseline.

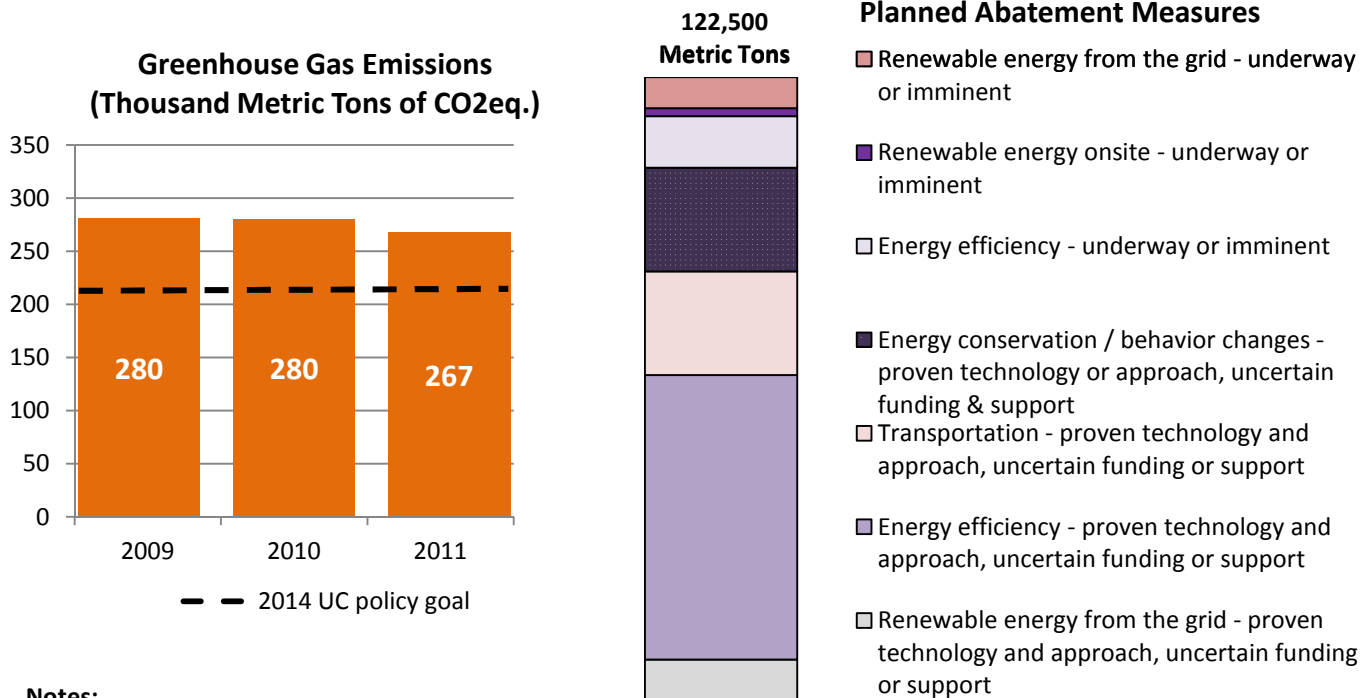
Introduction

The San Diego campus continues to demonstrate leadership in all areas of sustainability. In addition to significant energy and water use reductions, the campus has led the way in renewable energy and innovative energy management practices. Today, the campus has over five megawatts of renewable power generation that includes a 2.8 megawatt fuel cell that uses methane from a local wastewater treatment plant, a 30 kilowatt concentrating solar array, and a 30 kilowatt-hour solar integrated storage system in addition to two megawatts of rooftop solar. With more than 50 percent of the fleet using alternatively fueled vehicles and 54 percent of commuters using alternative transportation to get to campus, the San Diego campus has been recognized for having one of the greenest transportation programs in the country.

In addition to operational successes, the San Diego campus has also advanced social and academic sustainability. The Sustainability Resource Center has seen an increase in student involvement and events, hosting more than 60 sustainability related student groups including the student funded Student Sustainability Collective, PowerSave Green Campus, Engineers for a Sustainable World, and USGBC Students. There has been tremendous growth in the number of sustainability related courses and PETA recently named the San Diego campus the 2012 most vegan-friendly large school in America due, in part, to the new 100% vegetarian and vegan eatery, Roots. To learn more about sustainability initiatives at the San Diego campus, visit sustainability.ucsd.edu.

Greenhouse Gas Emissions

Greenhouse gas emissions decreased by 4 percent, or 13,000 metric tons, from 2010 to 2011. The 2011 greenhouse gas emissions fell above the 2014 UC Policy goal by 55,000 metric tons. Planned abatement measures include approximately 17,500 metric tons of projects that are underway or imminent, and an additional 105,000 tons that do not yet have certain funding or support.

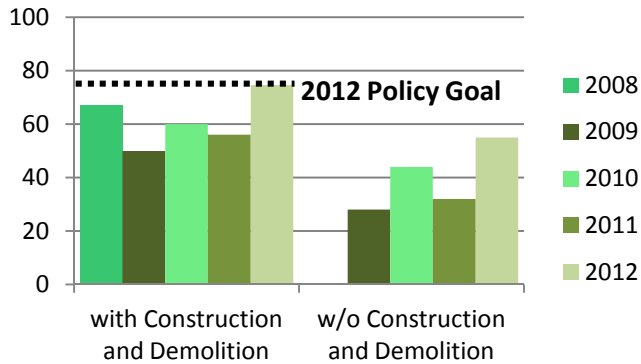


Notes:

Third-party verification of the 2010 scope 1 & 2 emissions inventory is complete; verification of 2011 emissions is underway.

Attachment I: San Diego Campus Infographics

% Solid Waste Diverted from Landfill



In FY 2011-12, the San Diego campus diverted 75% of its waste from the landfill, an increase of 19 percentage points from FY 2010-11.

When waste from construction and demolition is not included, the amount of waste diverted from the landfill was 55% in FY 2011-12, up from 32% in 2011.

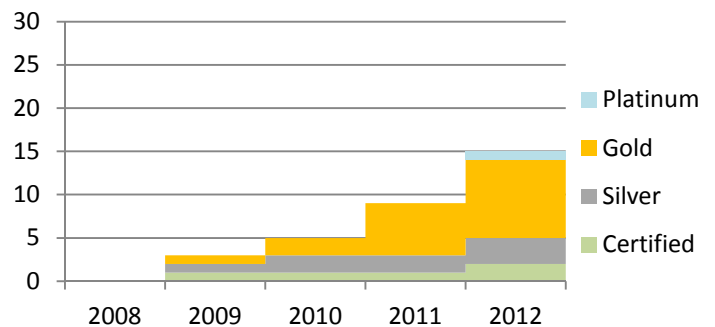
The San Diego campus met the 2012 policy goal of 75% waste diversion from landfill.

In 2012, the San Diego campus received one LEED-Certified, two LEED-Silver, three LEED-Gold, and one LEED-Platinum certification, contributing to its total of 15 LEED certifications.

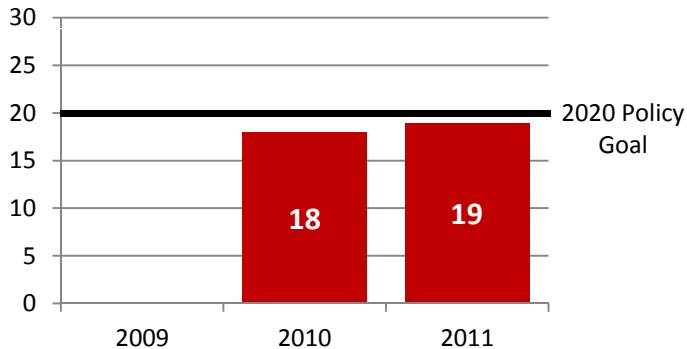


The Charles David Keeling apartments, were certified LEED-Platinum.

Total Number of LEED Certifications



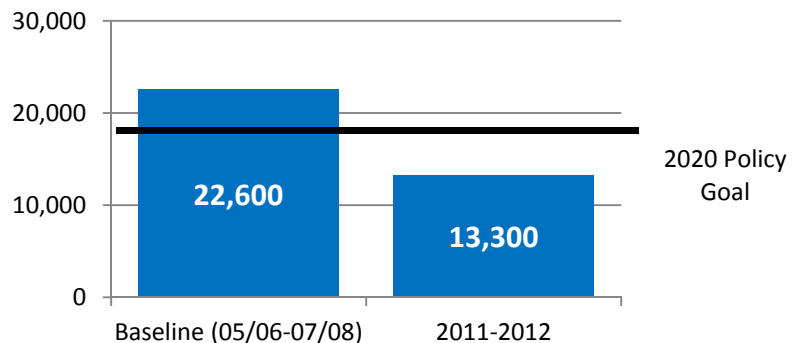
% Sustainable Food Purchases for Residential Dining Facilities



The amount of sustainable food purchases for the residential dining program remained approximately constant from FY 2010-11 to FY 2011-12.

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

Potable Water Consumption (Gallons per Capita)



In FY 2011-12, the San Diego campus consumed 13,300 gallons of potable water per capita. This is a 40% reduction from their FY 2005-06 to FY 2007-08 baseline, enabling the campus to surpass the 2020 Policy goal of reducing potable water consumption by 20% below the baseline.

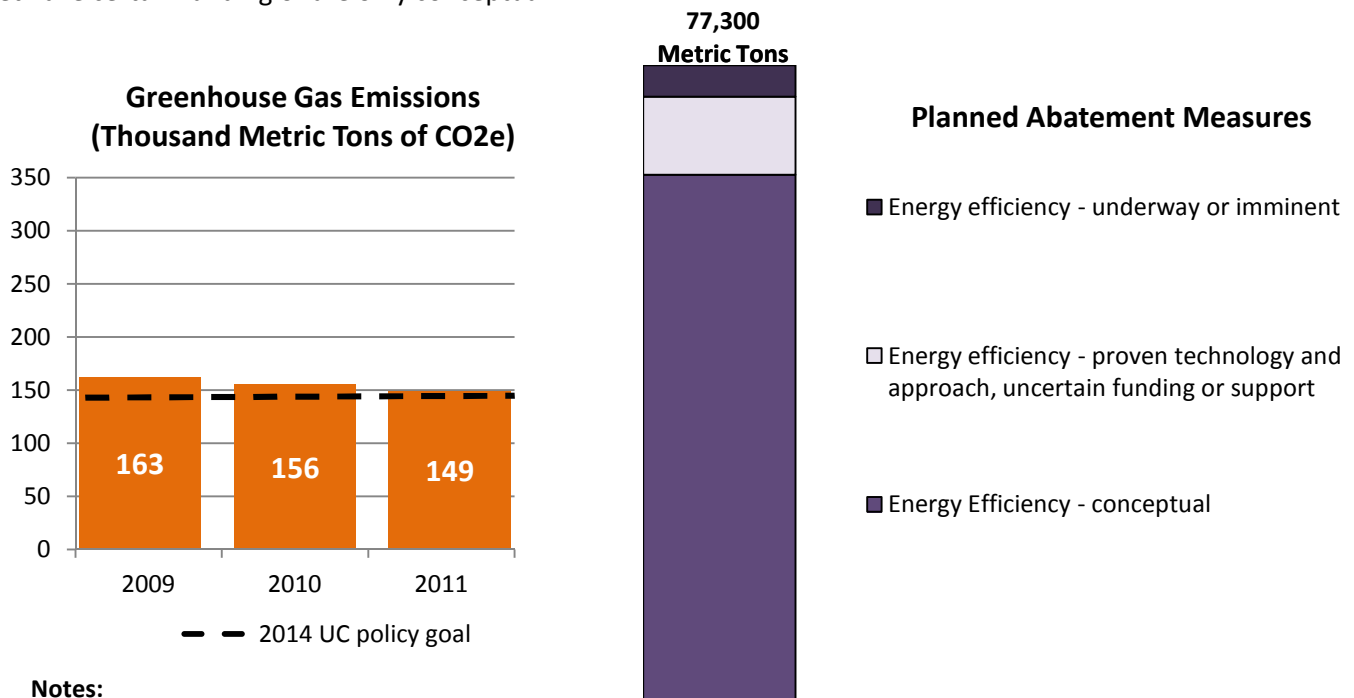
Introduction

The San Francisco campus and medical center are dedicated to promoting health worldwide through advanced biomedical research, graduate-level education in the life sciences and health professions, and excellence in patient care. Our sustainability mission of a "healthy environment, sustainable future" is linked directly to the university's mission of "advancing health worldwide".

Today the San Francisco campus and medical center have 69.2% of faculty, staff and students taking alternative transportation, supported by ten electric charging stations, eight bike cages accommodating 456 bikes, and an excellent bus and shuttle system. These services enabled the campus to receive the Gold Award for Best Workplace for Commuters. In 2012, the campus and medical center had over one million square feet of LEED certified space, certified 20 LivingGreen Offices and launched the LivingGreen Lab and LivingGreen Event certificates. Moreover, they also boast a 250,000 watt solar PV system, and a 63% solid waste diversion rate. The Medical Center achieved 14% sustainable food spend in FY 2011-12 peaking at 70% sustainable food spend in June of 2012. It also received its 4th Practice Green Health Award and saved over \$500,000 by reprocessing medical devices. Recently, a water audit was completed on the main campus and a campus-wide water audit program will be continued to identify and prioritize water saving projects. In addition to energy efficiency projects in campus and medical center buildings which avoided over \$1M in costs last year, the San Francisco campus is studying ways to improve efficiency and reduce natural gas consumption at its cogeneration facility to further reduce greenhouse gas emissions. To learn more about UCSF's sustainability accomplishments, go to livinggreen.ucsf.edu.

Greenhouse Gas Emissions

Greenhouse gas emissions decreased by 4% , or 6,900 metric tons, from 2010 to 2011. The 2011 greenhouse gas emissions fell above the 2014 UC Policy goal by 6,600 metric tons. Planned abatement measures include approximately 95,00 metric tons of projects that are underway or imminent, and an additional 67,800 tons that do not yet have certain funding or are only conceptual.

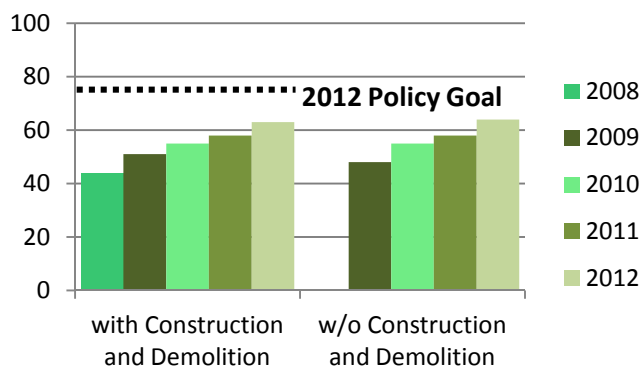


Notes:

Third-party verification of the 2010 scope 1 & 2 emissions inventory is complete. Verification of 2011 scope 1 emissions is complete.

Attachment I: San Francisco Campus Infographics

% Solid Waste Diverted from Landfill



In FY 2011-12, the San Francisco campus diverted 63% of its waste from the landfill, an increase of five 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 2011-12.

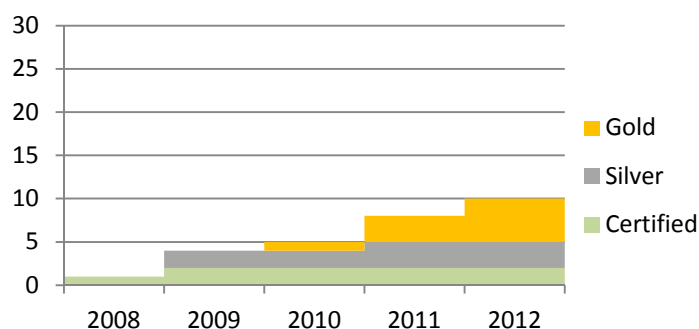
The San Francisco campus did not meet the 2012 policy goal of 75% waste diversion from landfill.

In 2012, the San Francisco campus received two LEED-Gold certifications, contributing to its total of 10 LEED certifications.

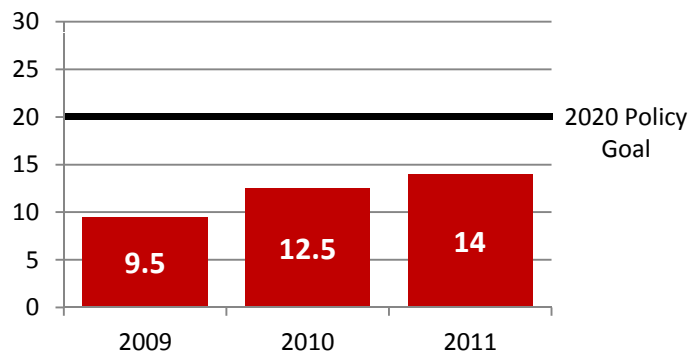


The Smith Cardiovascular Research Building, was certified LEED-Gold.

Total Number of LEED Certifications



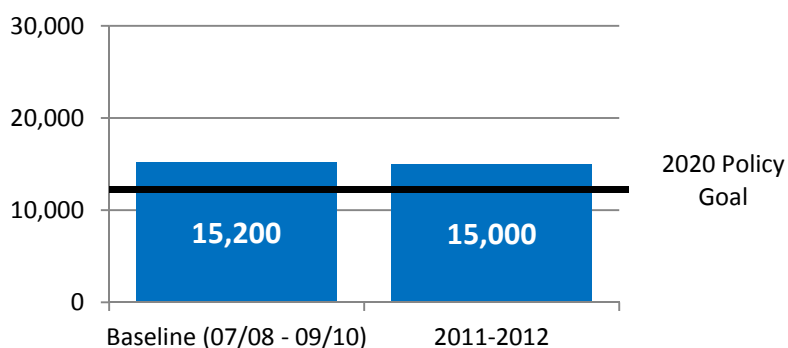
% Sustainable Food Purchases for UCSF Medical Center



The amount of sustainable food purchases for UC San Francisco's Medical Center increased by one and one half percentage points from FY 2010-11 to FY 2011-12.

UC San Francisco Medical Center's dining program is six percentage points away from the 2020 Policy goal of 20% sustainable food purchases.

Potable Water Consumption (Gallons per Capita)



In FY 2011-12, the San Francisco campus consumed 15,000 gallons of potable water per capita. This is approximately the same amount as its FY 2004-05 to FY 2006-07 baseline. The campus needs to reduce its potable water by another 19% to meet the 2020 Policy goal of reducing potable water consumption by 20% below the baseline.

Introduction

The Santa Barbara campus is committed to global leadership in sustainability through education, research, and action. It is positioned as a leader among institutions of higher education in the integration of sustainability into learning, discovery, and operations as evidenced by this year's achievement of a **Gold rating under the international Sustainability Tracking, Assessment and Rating System (STARS) protocol**.

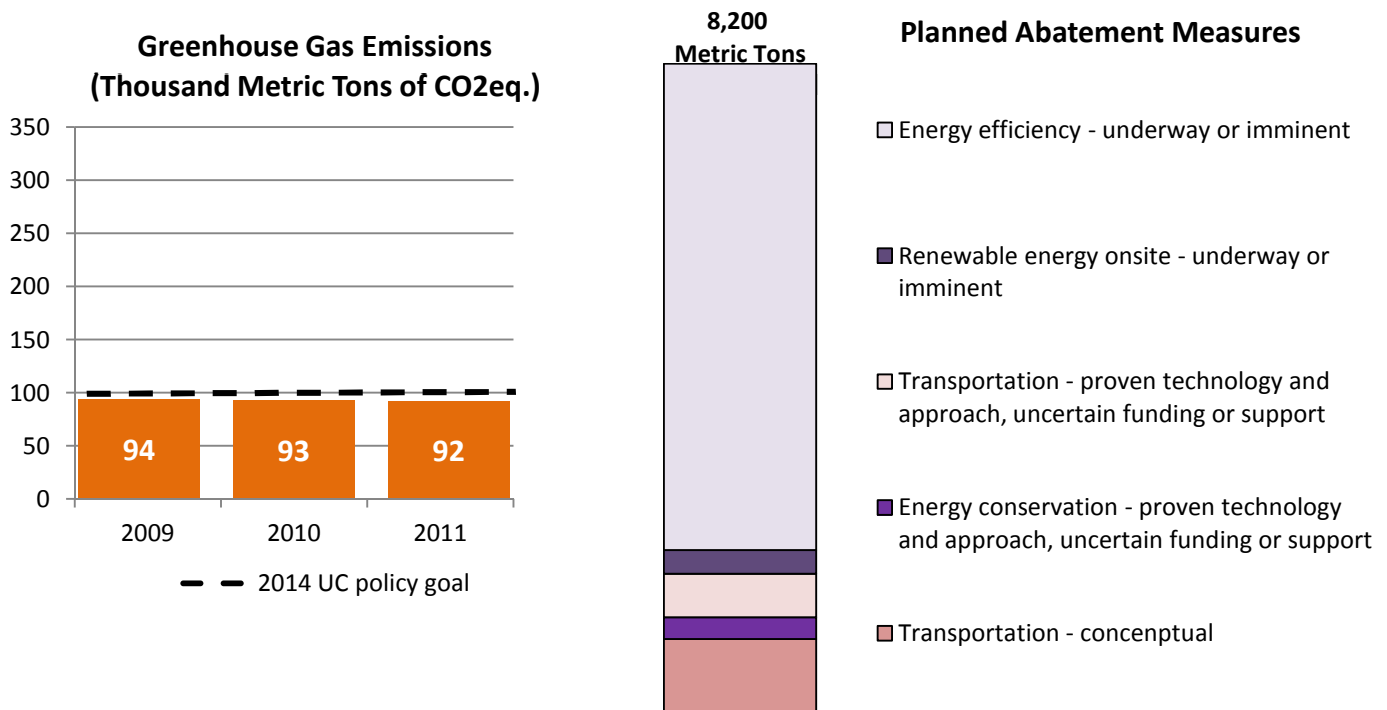
The campus has achieved significant accomplishments in the greening of the campus built environment with **more LEED certifications for Existing Buildings Operations and Maintenance than any other college or university**, and attained substantial energy and water use efficiencies, meeting its 2014 and 2020 reduction targets early for Greenhouse Gas emissions and water use, respectively. Further, **100% of dining hall food waste is composted**, 90% of the UCSB campus is irrigated with reclaimed water, and **78% of UCSB's produce is grown locally**.

The campus has **11 teams of staff, faculty, and students with goals and specified targets for sustainability** - each focusing on a different aspect - including the built environment, transportation, communications, waste, and more. UCSB is also home to **40 student led environmental organizations** that further its sustainability goals.

The Strategic Academic Plan for 2007-2025 **identifies the environment as one of four key areas of interdisciplinary teaching and research to be prioritized by the campus**. To date, 47% of academic departments on the Santa Barbara campus offer at least one course focused on sustainability, and 45% of departments have at least one faculty member who completes research on sustainability.

Greenhouse Gas Emissions

Greenhouse gas emissions stayed approximately the same from 2010 to 2011. The 2011 greenhouse gas emissions fell below the 2014 UC Policy goal by 7,700 metric tons. Planned abatement measures include approximately 6,500 metric tons of projects that are underway or imminent, and an additional 1,700 tons that do not yet have certain

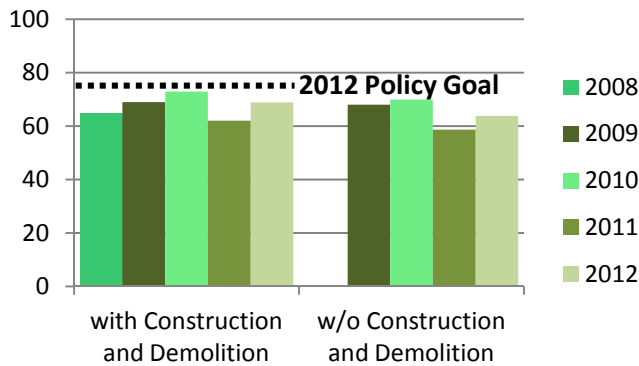


Notes:

Third-party verification of the 2010 scope 1 & 2 emissions inventory is complete; verification of 2011 emissions is underway.

Attachment I: Santa Barbara Campus Infographics

% Solid Waste Diverted from Landfill



In FY 2011-12, the Santa Barbara campus diverted 69% of its waste from the landfill, an increase of seven 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 2011-12.

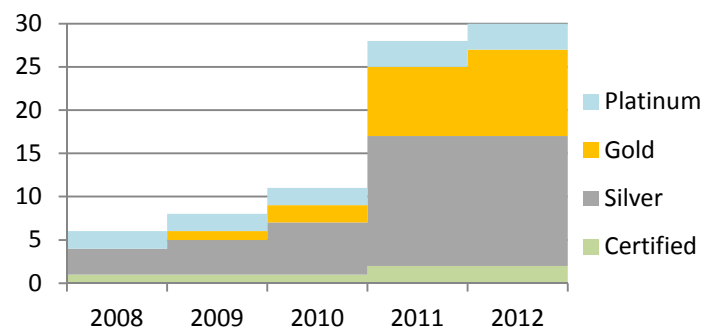
The Santa Barbara campus did not meet the 2012 policy goal of 75% waste diversion from landfill.

In 2012, the Santa Barbara campus received two LEED-Gold certifications, contributing to its UC-leading total of 30 LEED certifications.

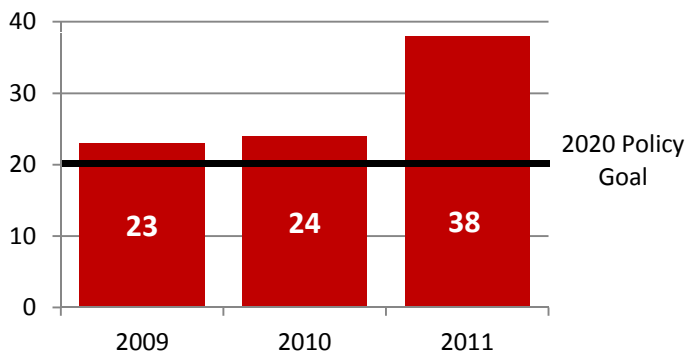


Ellison Hall was certified LEED-Gold.

Total Number of LEED Certifications



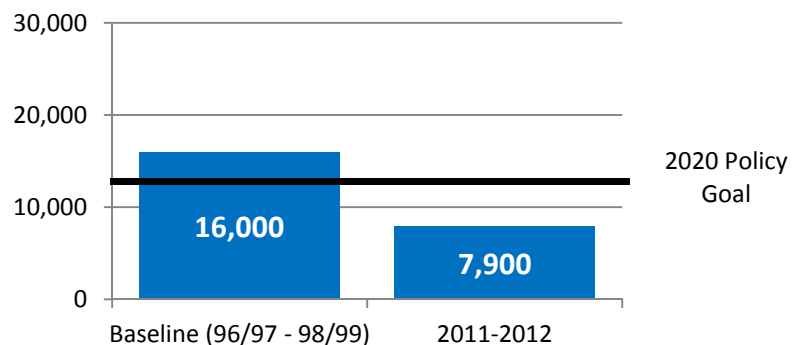
% Sustainable Food Purchases for Residential Dining Facilities



The amount of sustainable food purchases for the residential dining program increased by 14 percentage points from FY 2010-11 to FY 2011-12.

The Santa Barbara campus' residential dining program has already surpassed the 2020 Policy goal of 20% sustainable food purchases.

Potable Water Consumption (Gallons per Capita)



In FY 2011-12, the Santa Barbara campus consumed 7,900 gallons of potable water per capita. This is a 51% reduction from its FY 1996-97 to FY 1998-99 baseline, enabling the campus to surpass the 2020 Policy goal of reducing potable water consumption by 20% below the baseline.

Introduction

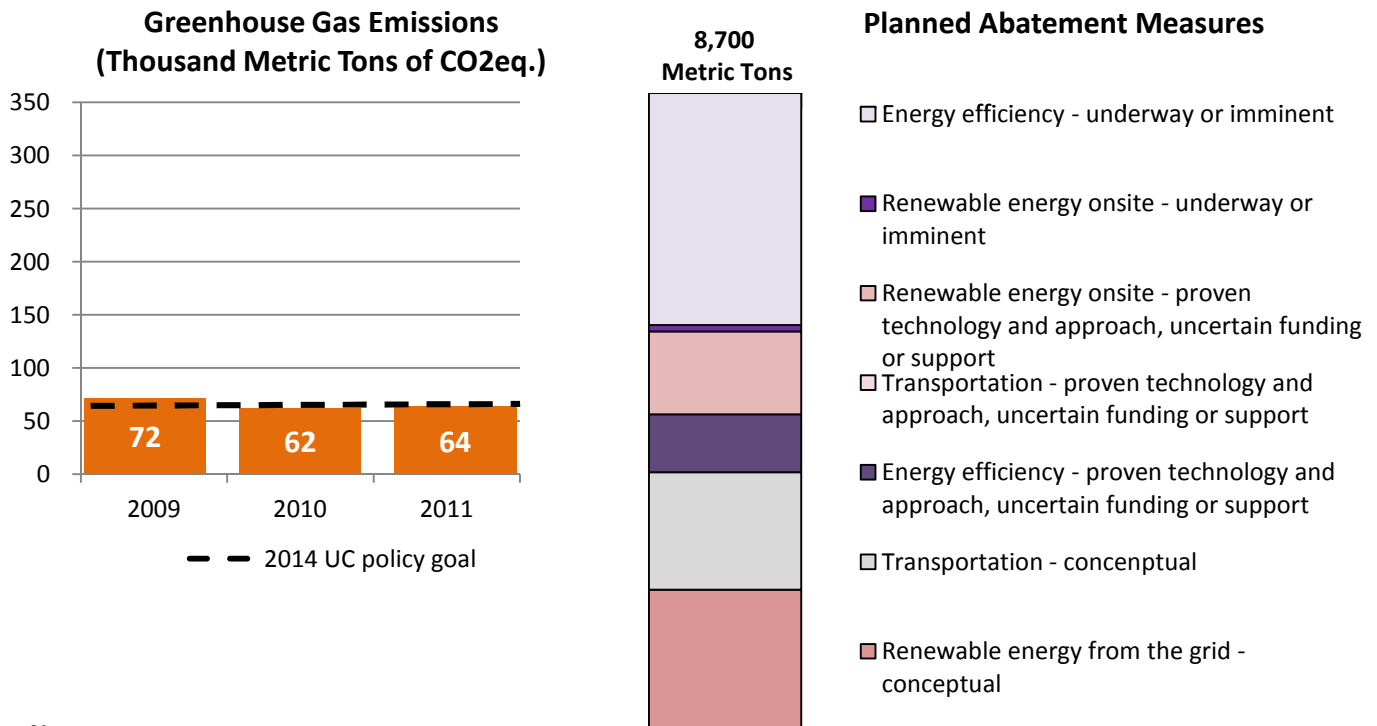
Throughout 2011, the Santa Cruz campus continued efforts to meet and exceed sustainability policies and goals. As the figures below illustrate, the campus has achieved the 2014 climate goal and 2020 water use goal. Since the campus has already easily surpassed the sustainable food goal, with the support of Chancellor Blumenthal, the campus has a new target of 40 percent sustainable food purchases, double the system-wide goal of 20 percent. Moreover, sustainable purchases will continue to grow throughout campus as a result of efforts undertaken by the procurement department to “flag” green purchases in CruzBuy and to educate the campus on “greenwashing”.

The campus created a Landfill & Solid Waste Diversion Task Force to work with a consultant and conduct UCSC's first-ever campus-wide waste assessment. Key waste assessment findings revealed that over one third of the campus' entire waste stream consists of used paper towels, and nearly half of the total consists of compostable materials. The Task Force made recommendations regarding infrastructural and educational improvements needed in order for it to reach Zero Waste by 2020. A student-staff project is also underway to identify opportunities for LEED certification of existing buildings.

Students are a critical and active part of sustainability initiatives across campus. The Sustainability Office alone employs over 30 students. In January, over 100 student leaders in sustainability, from across campus, join together at the annual inter-organization retreat for skill building, collaboration and celebration.

Greenhouse Gas Emissions

Greenhouse gas emissions increased by 4%, or 1,100 metric tons, from 2010 to 2011. The 2011 greenhouse gas emissions fell below the 2014 UC Policy goal. Planned abatement measures include approximately 3,300 metric tons of projects that are underway or imminent, and an additional 5,500 tons that do not yet have certain funding or are only conceptual.



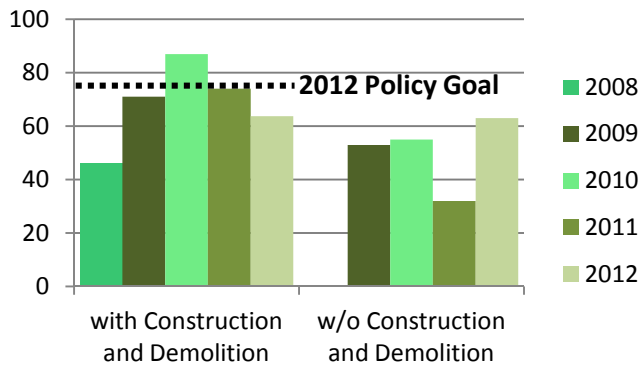
Notes:

Third-party verification of 2010 and 2011 emissions are underway.

2011 Scope 3 emissions were estimated based on 2010 Scope 3 emissions.

Attachment I: Santa Cruz Campus Infographics

% Solid Waste Diverted from Landfill



In FY 2011-12, the Santa Cruz campus diverted 64% of its waste from the landfill, a 10 percentage point decrease from FY 2010-11. However, this decrease is completely due to having no construction and demolition (C&D) waste in FY 2011-12 after having a large volume of C&D waste in FY 2010-11. For non-C&D waste, the campus nearly doubled its diversion rate, increasing it to 63%.

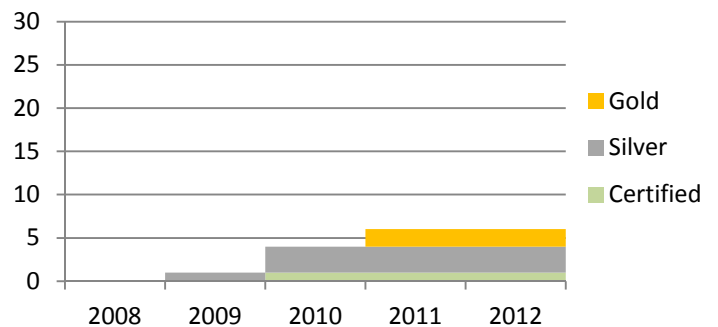
This rate is still below the 2012 policy goal of 75% waste diversion from landfill.

The Santa Cruz campus has a total of 6 LEED certifications. The number of LEED certifications stayed constant from 2011 to 2012.

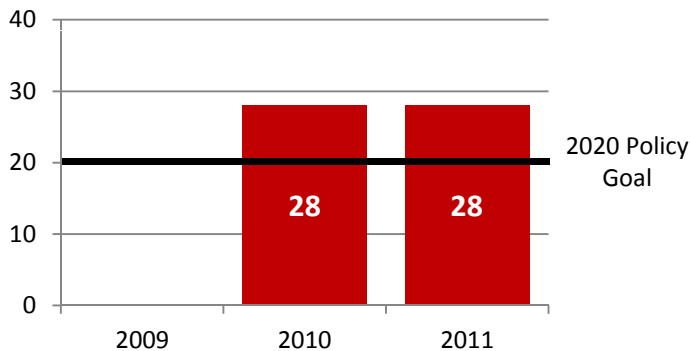


Cowell Student Health Center was the first building certified as LEED-Gold.

Total Number of LEED Certifications



% Sustainable Food Purchases for Residential Dining Facilities



The amount of sustainable food purchases for the residential dining program stayed constant from FY 2010-11 to FY 2011-12.

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

In FY 2011-12, the Santa Cruz campus consumed 9,100 gallons of potable water per capita. This is a 36% 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 (Gallons per Capita)

