A Message from the Chancellor

Students, faculty and staff of the California State University are architects of the future. In many ways this observation is quite literal—sitting in CSU classrooms today are many who will plan, design and construct tomorrow’s public structures and societal infrastructures. This observation also speaks figuratively to the vital benefit public higher education provides to communities, states and nations.

What the CSU community seeks for its students is a future that improves upon the present. For that purpose, universities are designed to stand the test of time. The oldest CSU campus was established in 1857. Consider the amazing progress of those 15 decades and the hope and opportunity of many decades to come.

However, humans are currently living, functioning and manufacturing unsustainably—incurred a real cost for the future. More is learned on an almost daily basis about the degradation of world life-support systems through human activity. This degradation accelerates as various tipping points are reached and surpassed.

It is incumbent on the CSU as well as our privilege to design sustainable systems, engineer behavioral change and reimagine a future that will be sustainable for centuries. Together, this vibrant community holds the promise of creating something meaningful and lasting—a university and society that is truly sustainable.

The CSU will flourish in a living laboratory that develops, tests, and implements sustainable principles and new technologies. Students will gain first-hand experience in sustainable best practices and become leaders capable of confronting the planet’s urgent environmental challenges.

This report highlights many steps already taken and a map for the journey ahead. It is a start of a journey we must all participate in.

Sincerely,
Timothy P. White
Chancellor
# Table of Contents

A Message from the Chancellor ................................................................. 1
Table of Contents ................................................................................... 2
University Mission .................................................................................. 3
Sustainability Policy ............................................................................... 4
Academic Programs and Institutes .......................................................... 5
Climate Action Plan ............................................................................... 7
Renewable Generation and Energy Independence .................................. 9
Energy Conservation and Utility Management ....................................... 11
Water Conservation ............................................................................... 13
Waste Management ............................................................................... 15
Sustainable Building Practices ............................................................... 17
Facilities Operations and Management .................................................. 19
Transportation Demand Management ..................................................... 20
Sustainable Procurement ....................................................................... 21
Sustainable Food Service ....................................................................... 22
Appendix A: Campus Highlights ............................................................. 23
Appendix B: Methodology ...................................................................... 46
Acknowledgements ............................................................................... 48
The mission of the California State University is to provide high-quality, affordable education to meet the ever-changing needs of the people of California. The CSU is the largest system of senior higher education in the country, with faculty and staff of 45,000 educate and serve more than 447,000 students—reflecting the diverse communities of the state’s 23 campuses.
In May 2014, the CSU Board of Trustees approved an expanded sustainability policy making environmentally conscious living and learning the way of life on campus. This policy engages students, faculty and administration in the collaborative effort to further develop employee and student workforce skills, enabling them to participate and compete in the green jobs marketplace and promote the development of sustainable products and services that will lead to economic growth. The CSU will pursue sustainable practices in administrative business units and auxiliary operations.

The areas of focus include:

- Academic Programs and Institutes
- Climate Action Plan
- Renewable Generation and Energy Independence
- Energy Conservation and Utility Management
- Water Conservation
- Waste Management
- Sustainable Procurement
- Sustainable Food Services
- Sustainable Building Practices
- Facilities Operations and Management
- Transportation Demand Management

The CSU has made significant and continual progress to reduce our environmental impact, but the board’s updated policy challenges everyone in the CSU community to do better. The body of the report, which follows, addresses each of the areas in greater detail and highlights campus accomplishments.
Academic Programs and Institutes

The CSU has 29 centers and institutes dedicated to environmental and energy issues – with many more dedicated to food and water studies. The combined capacity of 23 campuses supports the CSU Council on Ocean Affairs, Science and Technology, the CSU Agricultural Research Initiative and the CSU Water Resources Policy Initiative. Such initiatives help the CSU partner with government agencies and industry, raise awareness on careers, and provide a base to commercialize new ideas.

CSU campuses offer more than 150 environmentally related degrees and certificates and promote pathways from classroom to career through hands-on project-based learning. Current practitioners and leaders in sustainable enterprises serve as mentors to CSU students through a variety of sponsored activities. Students of the CSU annually dedicate more than 32 million hours to community service, with increasingly more time on projects that promote sustainability.

The Chancellor’s Office departments of Student Engagement and Academic Partnerships and Initiatives, Capital Planning, Design and Construction, and the Systemwide Academic Senate have teamed up to produce the CSU Campus as a Living Lab Initiative. The initiative partners CSU faculty and facilities management staff by using the campus as a forum for the exploration of sustainability concepts and theories. Through this program, academic and facilities teams work together to enrich student learning, while improving the environmental effectiveness of their own campus. In 2013–2014, 23 grants on 14 campuses were awarded to fund development of integrated course curriculum. Systemwide grant funds supported course redesign and learning communities along with infrastructure improvements or equipment for metering, conservation retrofits, and other facilities needs to transform campuses into sustainability learning labs.

The CSU Campus as a Living Lab Initiative builds on the Association of American Colleges and Universities (AAC&U) initiative, Give Students a Compass, that advances liberal learning by engaging students in learning communities, peer mentoring, and the Living Lab variation of faculty, student, and staff collaboration. The initiative exposes students to real-life sustainability and environmental issues facing the campus community every day.

Policy Goal:
- Integrate sustainability into the curriculum
Dominguez Hills created its own Living Lab project with high impact practices and hands-on learning. Earth sciences faculty and central plant staff partnered to teach students how to perform energy and water audits and develop retrofit recommendations. The projects, installed by campus staff, reduced electricity and water consumption.

Long Beach offers an MBA program that integrates sustainability within the business organization. Courses are team taught as part of the trans-functional integration of sustainability, and feature classroom discussions, client projects, speakers, and site visits. Past teams developed and implemented sustainable projects including a community garden and solar carport for the Villages at Cabrillo, a 26-acre campus for homeless families and veterans.

Los Angeles has embarked on becoming a leader in sustainable energy systems and engaging in applied research to mitigate fossil fuel energy dependence and air pollution. A hydrogen research, production and dispensing facility recently opened.
When considering how to grow and operate sustainably, each campus has a unique set of challenges. Climate action plans provide a roadmap for how the campus will reduce greenhouse gas (GHG) emissions over the long term. These plans reach into all areas of university operations such as energy use, on-campus renewables, and transportation.

Policy Goals:
- Reduce GHG emissions to:
  - 1990 levels by 2020
  - 80% below 1990 levels by 2040
- Promote alternative transportation on campus

To demonstrate climate leadership, nine CSU campuses have signed the American College and University Presidents’ Climate Commitment (PCC) (see chart below). These campuses have set a goal for climate neutrality, have or are developing plans, and implementing steps to reduce greenhouse gas emissions.

Ten campuses have used the broad based Sustainability Tracking, Assessment & Rating System (STARS) to examine and report on sustainability activities. In addition to operations, STARS incorporates academic program metrics in its rating.

To support campus tracking, an Energy Information System solicitation is in progress to improve utility data collection, analysis and reporting. The improved data management system will also help with energy procurement, demand analysis, analysis of on-site generation reliability and electrical demand reduction during periods of curtailment.
San Luis Obispo has more than doubled building square footage and on-campus residency since 1990, while electricity use has only grown by 50 percent and natural gas use has actually dropped by 7 percent. With plans for additional renewable energy generation, along with cleaner sources of electricity, Cal Poly is on track to reduce GHG emissions to 1990 levels by 2020.

CSU Chico. May 2011 Plan CSU, Chico became one of the twelve founding signatories of the PCC in 2007. Since then, the University has established a Campus Sustainability Committee, conducted three comprehensive inventories of campus-wide greenhouse gas emissions, and developed and adopted a Climate Action Plan. Through energy efficiency, clean energy, and alternative transportation the campus has reduced greenhouse gas emissions by more than a third. In June of 2014 Second Nature awarded CSU, Chico a Climate Leadership Award for innovation in reducing greenhouse gas emissions and engaging students in the process.

San Francisco State University. May 2010 Plan SFSU has committed to reducing GHG emissions below 1990 levels: 25 percent by 2020 and 40 percent by 2030 in its Climate Action Plan. The plan outlines the nine major planning areas for ambitious greenhouse gas emission reductions: Transportation, Energy Efficiency, Renewable / Clean Energy, Green Building, Academics, Waste and Compost, Water, Procurement, and Food Service. As a result, current emissions already fall 5 percent below 1990 levels.

Cal Poly Pomona. September 2009 Plan Pomona’s Climate Action Plan provides targets for achieving climate neutrality by 2030 through a combination of local and off-site actions and specifies a process for making progress toward that goal. It builds on longstanding efforts among faculty, staff, students, and alumni to enhance environmental sustainability. When the campus became a charter signatory of the PCC in 2007, it accelerated and focused multiple greenhouse gas reduction efforts already underway across the campus.
Renewable Generation and Energy Independence

One powerful strategy to reduce campus emissions is to install renewables or ultra-efficient cogeneration plants on the university. Renewable energy provides carbon-free power to campuses, and cogeneration captures and uses energy that would normally be wasted.

Policy Goals:
- Increase on-site self-generation capacity to 80MW
- Procure more than 1/3 of electricity purchased from renewable sources

To date, CSU campuses have installed 11.5MW of renewable generation, exceeding the trustees’ previous 10MW goal. Campuses have also installed 32MW of clean cogeneration, and are considering opportunities to install even more. The CSU is planning to solicit interested solar power providers for participation in the 80MW goal for 2020.

CSU has installed 43.5 MW of on-site renewable and clean energy generation. Roughly 20MW is needed to meet the Trustees’ 2016 goal.

Bakersfield “flipped the switch” on its all-new solar panels. The $9.5 million project was paid for by SunEdison, part of a public-private partnership to build solar power projects. The 1MW system provides 25 to 30 percent of CSUB’s total energy usage.

Fullerton will install a 1.18 MW DC renewable energy system. Solar panels will be installed on Kinesiology and Health Science, Performing Arts, and the Eastside Parking Structure. The project will also install ground mounted panels at the Desert Studies Center in the Mojave Desert.
CSU campuses are also increasing use of other low-emission and renewable energy sources. In 2007 CSU Northridge became the first university worldwide to install a grid-connected fuel cell plant, with a self-installed 1 MW plant. In partnership with Pacific Gas and Electric (PG&E) and Southern California Edison, three CSU campuses are hosting fuel cell demonstration projects providing learning opportunities for students while reducing campus operating costs and carbon footprint through waste heat recovery.

The CSU San Bernardino campus is home to a 1.4 MW Direct FuelCell 1500 cogeneration power plant owned and maintained by Southern California Edison. Fully operational in October 2013, this site showcases local power technology that provides clean, more efficient generation, with a less vulnerable and costly infrastructure to maintain. By locating the fuel cell adjacent to the CSUSB central plant, the campus is able to utilize its waste heat to supplement baseload heating and hot water needs, significantly reducing related fossil fuel combustion by an average of 18,600 therms per month.

The fuel cell plant at San Francisco State University is owned by PG&E and consists of two fuel cell technologies that generate a total of 1.6MW of electrical power – enough to power about 1,200 homes. SFSU invested funds to connect the fuel cell plant with campus heating infrastructure to capture waste heat and lower heating costs.

In another PG&E partnership, the CSU East Bay fuel cell generates 1.4 megawatts of power, enough to provide electricity for about 1,400 homes. The plant is used as a research and learning tool for students and faculty members, while the waste heat generated by the fuel cell is used to warm campus buildings, saving between $10,000 and $12,000 per month.

Through a combination of solar, wind cogeneration, and fuel cell sources, the CSU will continue to pursue renewable generation to reach the trustees’ goal and reduce the university's reliance on fossil fuel energy sources.
Renewable energy isn’t the only solution to climate change; energy efficiency plays an even larger part. By making buildings more efficient, the CSU reduces its environmental impact while saving money.

Since starting the energy efficiency program in the late 1970s, the CSU has made its buildings 50 percent more efficient in terms of energy use intensity (represented to the left) in British Thermal Units (BTU) per gross square foot (GSF).

Through cutting-edge lighting projects, and heating and cooling upgrades, campuses have invested in energy-efficient equipment and systems that have achieved up to 30 percent reduction in facility energy use.

Campuses use data analytics and Monitoring Based Commissioning to baseline, measure, assesses and implement energy efficient control strategies, reducing consumption while maintaining quality environmental conditions for students, faculty and staff.

**UC/CSU/IOU Energy Efficiency Partnership** was formed in 2004 to reduce energy consumption and promote best practices among California’s Higher Education systems. The program focuses on energy efficiency retrofits, monitoring-based commissioning, construction, and training. The partnership has realized nearly 45MW of cumulative energy savings since inception, achieving incentives of $95 million on $400 million of projects. In 2013-14, the CSU and UC have nearly achieved the total program goal of $28.7 million in incentive funding. Partnership funds are anticipated to cover a 2015 one-year “bridge” period and hopefully leading to a ten-year partnership beginning in 2016.
Energy Conservation and Utility Management

An important component of energy conservation and utility management is the periodic assessment of infrastructure to accurately determine replacements, upgrades, and potential critical failure points. The CSU is undertaking a systemwide Utility Master Plan update, which campuses will use to upgrade infrastructure and improve central distribution system efficiency.

Sacramento teamed with the Sacramento Municipal Utility District and won $8 million for a Smart Grid Demonstration project. The project included controls in 38 buildings, smart electric meters in 58 buildings, smart switches that automate rerouting of power to stabilize the grid, and 14 electric vehicle charging stations available for public use. All four components are improving services to the campus community while saving energy, money, and greenhouse gas emissions.

The Chancellor’s Office implemented monitoring based commissioning, upgraded the buildings cooling system and implemented the first of five phases of lighting upgrades to the auditorium and conference rooms, reducing consumption.

Sonoma conducted monitoring based commissioning of six academic buildings. These buildings included one art complex, one science building, one music/classroom building, and three classroom buildings. Numerous problems were identified and corrected through this process. The buildings are now more comfortable for the occupants, and more efficient. MBCx projects on existing buildings have averaged 33 percent below the respective Title 24 standard resulting in a 38 percent reduction between 2001 and 2014.
California is in the midst of a severe drought, and the governor’s emergency declaration to conserve water challenges the CSU campuses to take immediate action to further reduce water consumption.

Due to the three-year drought, the system has requested Water Conservation Action plans from every campus and the plans will be used as the basis to seek water conservation funding. Projects in these plans are targeted to jump start the governor’s 20 percent reduction by 2020, challenging campuses to meet or exceed 10 percent reduction by 2016.

Landscaping is one of the largest water consumers on campus. Replacing water intensive grass and lawn areas with drought tolerant and native plants has saved a significant amount of water. Campuses are also replacing athletic and recreation areas with synthetic turf, which helps keep the campus open and available for student activities while reducing water use.

Smart irrigation controls have also been installed to adjust watering schedules based on landscape needs. Campuses have also identified alternative sources of water, including reclaimed water from the central plant and fuel cells, as well as examining the feasibility of on-campus water treatment.

Significant additional conservation may be difficult for campuses that have implemented retrofit measures, but the system will continue to seek opportunities to identify and fund projects in anticipation of extended drought conditions.

Policy Goals:
- 10% Reduction by 2016
- 20% Reduction by 2020

In response to critical water shortages, CSU has committed to reducing use 20 percent by 2020
San Bernardino utilizes weather-based irrigation controls, xeriscapes all new buildings and installations, and has fitted all domestic water fixtures with low-flow units, leading to a 25 percent reduction in net water use. The university is also host to the San Bernardino Valley Water Conservation Demonstration Garden, a joint partnership with local water agencies, the San Manuel Band of Mission Indians, and the Inland Empire Resource Conservation District, to showcase low-water use and native plantings and to promote local resources through the Inland Empire Garden Friendly program – a project coordinated by the CSUSB Water Resources Institute.

San José switched to recycled water for landscape irrigation and for Dr. Martin Luther King, Jr. Library toilets in 2011-12. This effort saves 65,000,000 gallons of potable water annually. The campus has also installed a dual plumbing system in three of the current construction projects—Spartan Complex, Student Union, and the Student Health Center—thereby providing recycled water for all toilets in these buildings. Combined with other measures, the campus will reduce water usage by 80 percent.

Stanislaus uses an irrigation system that utilizes reclaimed water. Drought tolerant vegetation has been installed in new or renovated landscape projects across campus. The retrofitting of showerheads, faucet aerators, urinals and toilets across campus to reduce consumption is in progress. The university is on pace to decrease its domestic water consumption from nearly 24 million gallons in 2013, to less than 19 million by the end of 2014.
Waste Management

The CSU has shown significant leadership in waste reduction. Campuses have established aggressive recycling programs to minimize paper, plastic, and metals from being sent to the landfill.

Policy Goals:
- Reduce solid waste disposal by 50% by 2016
- Reduce solid waste disposal by 80% by 2020
- Move to zero waste

Desk-side paper recycling has been instrumental in exceeding waste reduction requirements for most campuses. All or most metals, wood, rubber, paper and plastic are sorted and diverted from the waste stream. Composting of landscape green waste and campus cafeteria food waste also helps to increase landfill diversion. Systemwide efforts with OfficeMax encourage reusable delivery boxes as an alternative to single-use cardboard.

The CSU routinely recovers a substantial percentage of construction waste from demolition operations for reuse. While state law specifies a 50 percent waste diversion goal, CSU realizes a recovery of 70 percent or more. On concrete frame facilities recovery often exceeds 90 percent. With the implosion of CSU East Bay’s Warren Hall and demolition of old military buildings at CSU Monterey Bay, campuses work with contractors to recover materials for potential use as road bed, landscape, sidewalks and/or retaining walls.

Humboldt reduced its generation of municipal solid waste in 2013 by 15 percent compared to 2012, and by 37 percent compared to 2011, due to a food waste diversion-to-compost program. HSU diverted 138 tons of food waste in 2013, an increase of 21 percent compared to 2012. Other waste minimization efforts include Donation Dash resident move-out collections, diverting more than 10 tons of reusable goods to local charities, and the phase-out of single use plastic bags.
**Waste Management**

**East Bay** expanded FREE FEST through a grant funded by the campus sustainability initiative in 2013. This student-run program allows students to drop off reusable items for other students to swap or donate. At the end of the move-out weekend, items are donated to the local second-hand facility. This program won the Pacific Affiliate of College University Residence Halls Regional Award, and CSUEB’s first national honors from the sustainability organization.

**Fresno** students and professors partnered with University Dining Services to establish a chapter of the national Food Recovery Network. This group recovers surplus food from the Fresno State campus and delivers it to partner organizations to be packaged and donated to individuals and families in need.

**San Marcos** is one of the top recycling campuses in the nation with **seven “RecycleMania” Grand Championships**, most recently with an 82 percent diversion rate and an annual 74 percent recycling rate. By emphasizing containers, convenience and communication, the university has made recycling a part of the campus culture. On a per student basis, the campus trash has been reduced from .244 tons/students in 2004 to .05 tons/student which is a 349 percent reduction.
Sustainable Building Practices

The CSU is committed to designing and constructing sustainable buildings. For many years, the CSU required new and renovated building to perform with greater energy efficiency than required by the state’s Title 24. This initially resulted in most CSU buildings achieving a LEED\(^1\) certified or equivalent rating, however most buildings appear to reasonably attain a silver or equivalent rating. Recently two LEED platinum buildings were completed, the Fullerton Student Housing Complex and the San Diego Student Union. Campuses have LEED certified more than 30 new buildings since 2008, and continue work to improve existing building operation and maintenance.

Using integrated building design, a building is viewed as an interdependent system, as opposed to an accumulation of its separate components (site, structure, systems and use). The CSU continues to improve this process and is working to further improve integration early in the design. Integrated design supports the CSU goal to build buildings that are well coordinated and operate efficiently at a low life cycle cost, within budget and on schedule.

**Maritime Academy** won the 2012 Best Practice Award for Higher Education Energy Efficiency and Sustainability from the California Higher Education Sustainability Conference for its new dining center. The new dining center features breathtaking waterfront views with sustainable features, including significant day lighting, natural ventilation, and energy efficient HVAC and lighting systems. Additional features include high performance glazing with solar protection and a durable, long-life exterior skin made of brick and metal. The campus has incorporated sustainable kitchen features and operation, such as Energy Star rated equipment, 80 percent waste reduction volume, and the use of waste heat to preheat domestic hot water.

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\(^1\) US Green Building Council’s Leadership in Energy and Environmental Design (LEED).
**Sustainable Building Practices**

**San Diego** recently completed the new Conrad Prebys Aztec Student Union. The building was designed as a LEED Platinum project and provides space for student organization offices, meeting facilities, student study areas, food service, and expanded multipurpose conference facilities. Sustainable features include natural day lighting, occupancy sensors, LED task lighting, high performance glazing, and high “R” value roof insulation.

In addition, the building utilizes radiant floor heating and cooling and operable windows for natural ventilation as well as ‘green’ roof technology on part of the complex to assist in exceeding CSU energy efficiency guidelines. (Other building roof areas are designed to accommodate photovoltaic panels for future installation.) Low-flow plumbing fixtures and a large underground cistern will capture rainfall runoff for landscape irrigation to increase water efficiency. The building model estimated energy consumption at 43 percent better than Title 24 energy efficiency standards.

**Northridge** opened the doors of a new LEED Gold Student Recreation Center, a 138,000 sqf facility with ultramodern technology and equipment.

About 75 percent of the building is day-lit by Solatubes and windows.

Members help power the building with each workout on ReRev Precor Elliptical machines. The building has received numerous awards and citations for its architectural vision and sustainable features, including the American Institute of Architects (AIA) Education Facility Design Award, the 2012 Pacific Coast Builders’ Conference Gold Nugget Award for Greenest Sustainable Commercial Project, and the 2013 National Intramural-Recreational Sports Association Outstanding Sports Facility Award.
Facilities Operations and Management

Facilities Operations serves as a focal point for many physical plant sustainability efforts on the campuses in such areas as building operations, custodial services, waste management, fleet management, landscaping, storm water management, utility production, distribution and procurement. Conservation and utility management have been on-going concerns for many years and campuses having identified energy managers to support this effort. In the area of building operations, lack of funds to replace aging and obsolete heating and air conditioning and control systems continue to limit gains in improved efficiency.

Green cleaning products are prevalent throughout all CSU custodial departments. Strategic scheduling methodologies such as minimizing graveyard and other off-hour shifts reduce the need for lighting and ventilation in buildings that otherwise would be unoccupied.

Facilities Operations has reduced its automotive emissions through the significant reduction of gasoline consuming vehicles and equipment over the past decade. Electric vehicles are widely utilized, and in some instances are powered via on-site photovoltaic systems. Recycling and reuse of motor oils of all types, refrigerants, and tires is commonplace.

Recovery of greenwaste is commonplace on campuses through the use of mulching mowers, shredders and grinders, allowing for reuse of organic material on site, or by sending it offsite to be composted commercially. The use of environmentally damaging chemicals for pest control has been phased out of use for well over a decade. Beneficial insects are utilized in various forms of pest management. Any potentially hazardous chemicals still in use are very tightly regulated and reported on.

**Channel Islands** received a grant to purchase a propagation house to grow and raise plants from seedlings or cuttings on-site for campus landscaping. This project minimizes greenhouse gasses by reducing truck trips to campus. It will also produce healthier plants. Facilities Services is working with service learning students to restore Long Grade Creek, a stream that runs through campus. The campus was also honored with the award of the “Tree Campus USA” honors.
One of the most significant sources of campus GHG emissions is single-rider vehicle commuting of students, faculty, and staff. On most campuses, vehicle emissions accounts for more than 50 percent of total emissions, more than the GHG emissions generated to operate all campus facilities. Reducing commuter vehicles is a significant component of a climate action plan, and important in campus master planning.

The California State University Transportation Demand Management Manual was prepared in 2012 to address the unique transportation needs of different campuses and provide a systemwide framework for implementing sustainable transportation programs. The manual contains a set of goals, criteria, and best practices to guide programs, tools, and strategies that encourage students, faculty and staff to commute via bus/rail transit, carpools, vanpools, bicycling and walking, to lessen reliance on single-occupant vehicles. A range of measures reflect the unique needs of different campus locations and environments.

**Monterey Bay** launched the TRIPwise alternative transportation program in 2010 to improve transit services with a smart phone app (the only one in the service area), a real time bus arrival display, on-board ID card swipe technology, donated bus shelters, flashy student designed posters and free unlimited transit for all students, faculty and staff of the university. Transit ridership increased 260 percent in the last 2 ½ years.

**San Francisco** committed to reducing GHG emissions in its Climate Action Plan. The plan outlines the major planning areas for ambitious GHG reductions, including transportation and academics. The campus was awarded a Living Lab grant to teach students about city planning and to identify barriers, and propose improvements to bicycle routes to campus. Increasing ridership will further reduce the campus emissions that are already 5 percent below 1990 levels.
Sustainable Procurement

CSU participates in the State Agency Buy-Recycled Campaign, a joint effort between the Department of General Services and the California Department of Resources Recycling and Recovery. The program promotes environmentally responsible purchasing practices by focusing on the procurement of materials in 12 separate product categories, including paper, plastic, paint and glass. CSU campuses are required to spend at least 50 percent of all dollars in each product category on recycled-content products.

For the last three years, the CSU has consistently exceeded the mandated goal in the purchase of paper products, purchasing an averaging of more than 65 percent recycled. CSU continues to exceed goals in six categories and is working to increase recycled-content products in all areas.

Northridge initiated a program, in May 2012, to purchase Instructional Technology hardware in bulk to receive discounted pricing, and reducing delivery costs and deliveries to the campus. These purchases are coordinated by the Purchasing and Contract Administration department and are made every three months. In the first cycle, the university saw almost 19 percent in cost savings.

OfficeMax’s Tote Program provides reusable bins for delivery of office supplies to campus departments. These bins are left in designated areas for pick-up by the OfficeMax driver and are used to return empty boxes back to OM. This program will divert an estimated 4,100 pounds of cardboard from the landfill each year.

OfficeMax’s Small Order Program requests users to not place their order until it reaches $75 in value. It is estimated that this program will reduce corrugated boxes by 735 pounds and save $113,040 in fuel and administrative costs over a three-year period.

Policy Goals:
- Promote use of environmentally-friendly business
- Work with vendors to reduce waste from packaging

The Chancellor’s Office Work Smarter initiative recycles banner sheets into office notepads.
Individual campuses have implemented sustainable food purchasing programs. These programs connect the university to local and ecologically sound food, reducing its environmental impact as well as strengthening the local economy. Campuses have also connected agriculture science with the culinary arts, allowing future chefs to understand where their food comes from and how it is grown. The CSU is working with the Real Food Challenge as a framework to increase the purchasing of sustainable food across the system.

**Policy Goal:**
- Purchase 20% sustainable food by 2020

**Pomona** operates the Restaurant at Kellogg Ranch, which strives to practice environmental sustainability from the materials it uses in the kitchen and dining room to the culinary garden and vineyards located on the premises. Chefs on faculty work directly with agriculture students to plan each crop in the one-acre culinary garden. Recognized by the American Society of Landscape Architects, the award-winning garden is maintained by agriculture students and harvested by Collins College for Hospitality Management students. Items from the garden are incorporated into the menu, giving students a farm-to-table lesson in seasonal menu planning and preparation.

**Chico** won a National Association of College & University Food Services Sustainability Award for 2014 for food operations, outreach and education. Associated Students expanded the use of real food – local, fair, ecologically sound and/or humane – in partnership with the University Farm and a growing number of local and environmentally conscious suppliers. Other initiatives in Dining Services included expansion of composting, transitioning to recyclable and compostable food packaging materials, implementing a re-useable to-go eco-container program, and converting used cooking oil into biodiesel in partnership with a local company founded by Chico State graduates.
**Climate Action Plan**

In 2007, CSU Bakersfield President Horace Mitchell pledged to curb emissions when he signed the President’s Climate Commitment. Since then, the campus has been committed to reducing its carbon footprint, most notably by building all new campus construction to the U.S. Green Building Council’s LEED Silver standard or equivalent and only purchasing Energy-Star certified appliances.

**Sustainable Building Practices**

In May 2013, CSU Bakersfield held the groundbreaking of its new Student Housing Complex project. The complex, which will be located on the northeast side of campus, is expected to house approximately 500 students.

In accordance with CSU Bakersfield’s pledge to practice responsible resource stewardship and sustainability, the housing complex will incorporate many features that will allow for energy conversation and environmentally friendly behavior. The structure will contain operable windows for natural ventilation, good use of daylighting and efficient lighting, and sun shading to reduce solar heat gain. The restrooms will have low-flush toilets as well as solar hot water panels that will reduce energy costs.

**Academic Programs and Institutes**

For the last seven years biology professors Drs. Brandon Pratt and Anna Jacobsen have been studying drought tolerance of shrub lands and forests at CSUB.

Drs. Pratt and Jacobsen have been studying a range of topics including the plant physiology, working with local grape farmers, and internationally studying shrub systems similar to California’s. Their work has been widely published in international journals and they have received nearly $1.8 million dollars in funding for their research.

**Transportation Demand Management**

The campus is taking steps to decrease vehicle traffic and air emissions on campus as well. In fall 2011, the new East-West Bike Path debuted on campus funded in part by a grant from the San Joaquin Valley Air Pollution Control District. CSU Bakersfield is partnering with Bike Bakersfield, PG&E, and local bicycle shops to develop CSU Bakersfield Cycles, a campuswide bike share program. The campus plans to provide 50 bicycles in self-serve, electronic bike racks that students, staff and faculty can borrow to make short trips on and off campus.

**Waste Management**

In 2014, CSUB participated in its fourth year in the RecycleMania – a nationwide, student-led competition to see who can reduce, reuse and recycle the most waste. During the last three years, the campus has collected approximately 15,000 pounds of recycled goods, including e-waste.

**Awards and Highlights**

Bakersfield “flipped the switch” on its all-new solar panels. The $9.5 million project was paid for by SunEdison, part of a public-private partnership to build solar power projects. The 1MW system provides 25 to 30 percent of CSU Bakersfield’s total energy usage.
Channel Islands

Energy Conservation and Utility Management

CSUCI has made great progress in the area of energy conservation. Some recent energy-focused projects include new, more efficient lighting in Napa Hall, Energy-Star benchmarking for use in the campus building portfolio through a student capstone project, a lighting upgrade on Santa Barbara Street, and ongoing operations and maintenance optimization. Due to these projects and many others, the campus has been able to increase energy savings by 28 percent since 2009.

Water Conservation

Traditional landscape throughout the campus is being replaced with drought-tolerant plantings and many native plant species are being propagated in the campus green house and University Park. Currently, 99 percent of the campus is irrigated with reclaimed water saving thousands of gallons of potable water every year. No chemical fertilizers are being used, thereby eliminating the risk of toxicity leaking into the surrounding environment. Long Grade Creek, a wetlands habitat located on campus, has been under continuous restoration so that native plants and animal species may thrive. For its efforts, CSUCI gained the prestigious “Tree Campus USA” designation, one of 150 campuses nationwide and the first in the CSU system.

A student initiative to use Garden Roof Assembly for future buildings of CI was initiated in Spring 2013. The Green Roof’s purpose is to help minimize storm water run-off, improve CSUCI’s energy efficiency, and lower the environmental impact.

Waste Management

The campus has been able to achieve a 60 percent recycling rate with the installation of 29 recycling units throughout the campus and participation in the EPA WasteWise program. CSUCI is also actively composting waste by participating in a pilot program that converts food waste into compost and by composting 100 percent of green waste. Hydration stations have been installed throughout the campus, encouraging the use of reusable water bottles.

CSUCI also encourages graduating seniors to recycle their graduation gowns by donating them to future graduates.

Awards and Highlights

Awarded “Tree Campus USA”

Received a grant to purchase a propagation house to grow and raise plants from seedlings or cuttings on-site for campus landscape. This project minimizes greenhouse gasses by reducing truck trips to campus, while producing healthier plants.
CSU Chico has established a new General Education Pathway Program that has 10 defined Pathways, including a sustainability option. The Pathway Program is both vertically and horizontally integrated—meaning that any student in any of the ten Pathways will take at least one sustainability-focused course at some point in their general education. Students who complete the GE Pathway Option in Sustainability are eligible to receive a Minor in Sustainability Studies. After two years the Sustainability Pathway Option is one of the most popular of those offered. CSU Chico was one of the first universities in the nation to designate sustainability courses in the academic catalog – there are currently over 250 sustainability-focused or related courses across the curriculum.

**Water Conservation**

Chico State is working with CalSense to install several more smart irrigation controllers on campus to increase the efficiency of irrigation systems. The new controllers will serve approximately 60 percent of the campus acreage and are expected to have substantial water savings. The Associated Students has been re-planting landscaping around the Student Union Building and Rec Center with native and drought tolerant species that will require significantly less water each year.

**Community**

Since 2005, CSU Chico has hosted *This Way to Sustainability*, the largest student-run annual sustainability conference in the nation. This event connects students and community members with innovators and cutting-edge ideas from across the region and the state. Since 2010, the campus’s Institute for Sustainable Development has partnered with the CSU Chancellor’s Office to host a CSU System-Wide Sustainability Summit focused on sharing best practices as a part of the conference each year.

**Adaptation and Resiliency**

In May of 2014 CSU Chico President Paul Zingg became a founding signatory to Second Nature’s new Alliance for Resilient Campuses (ARC). Designed to facilitate the emergence of sound adaptation and resilience practices in higher education institutions, the ARC emphasizes a collaborative approach to assessing regional risks from climate change, planning for adaptation, and advancing related research.

**Energy Conservation and Utility Management**

Chico State has continued its energy conservation projects with additional lighting retrofits of remaining T12’s to LED and/or induction lighting. Projects have incorporated occupancy sensors and lighting controls. Chico State partnered with PG&E on a Large Integrated Audit of multiple buildings on campus and is developing project priorities to present for submittal to the Energy Efficiency Partnership Program. With a 24 percent reduction in residence hall electricity consumption during Campus Conservation Nationals in February, Chico State won the California PowerSave League for the second straight year and came in the top ten of over 100 participating schools nationally.
Dominguez Hills

Academic Programs and Institutes

Earth sciences lecturer Judy King and central plant manager Kenny Seeton collaborated on student projects in King’s fall 2012 Natural Resources GEO 420 class.

Students conducted inventories of current lighting use and researched the energy savings pros and cons of various products on the market, which contributed to selecting a system by Enlighted Inc. that is now installed in portions of two campus buildings.

Community

CSU Dominguez Hills is partnering with Green Vets Los Angeles, a nonprofit organization working with Veterans from the West Los Angeles VA Hospital to provide job training to both injured and non-injured Veterans.

From serving our nation to serving our communities, our vets are helping the environment and making a difference in the world. Veterans are offered a wide variety of job training to sew teddy bears, assemble medical kits, and sew reusable shopping bags.

Student Research

Gabriel Jones, a senior majoring in anthropology with a minor in geography at CSU Dominguez Hills is working toward making positive changes in environmental justice and policy based on research. Gabriel was named a scholar in the Ronald E. McNair Program at CSU Dominguez Hills. The McNair Program is a post-baccalaureate achievement program that prepares undergraduate students who are traditionally underrepresented in college to pursue graduate studies.

In 2012, he and fellow anthropology students presented at the CSU Dominguez Hills Student Research Day research they conducted on how student behavior influenced campus dining services management and sustainability operations in the Loker Student Union using the Sustainability Tracking and Rating System.

For 2013, Jones gave an oral presentation on the results of research on marketing opportunities and regulatory impediments within the Pacific sardine fishery, which mandates fishermen sell sardines only as live bait. Gabriel concluded that opening local markets to Pacific sardines would strengthen local business and the local economy.

Water Conservation

CSU Dominguez received a grant from the West Basin Municipal Water District for a water conservation project at University Housing.

The project replaced 224 toilets and 164 showerheads. The replacement of the showerheads with low-flow models will realize energy savings as well by having to heat less water.

Thanks to the new high efficiency fixtures the university saves 3.4 million gallons annually, or approximately half of student housing’s water usage.

Awards and Highlights

2014 California Higher Education Conference Best Practice Awards

Lighting Design/Retrofit

Intelligent Lighting Controls

Monitoring-Based Commissioning

Welch Hall

Developed an innovative classroom project with high impact, hands-on learning, while reducing electricity and water consumption.
Academic Programs and Institutes
Since 2011, CSU East Bay faculty and Facilities Development and Operations (FD&O) staff have been engaging in increasing numbers of innovative and creative class-based projects related to sustainability to both advance campus performance and create learning opportunities. Professor Michael Lee’s GEOG 4350 Water Resources and Management class students do a systematic audit of campus public restroom faucets for water conservation opportunities. The class recommended a strategic retrofit to save up to 2 million gallons and $23,000 over 5 years; this retrofit is scheduled for summer 2014. The same class developed analytical tools for FD&O to examine water use efficiency of turfgrass irrigation systems and identify the water uses and costs per lawn area in the absence of direct water metering which should lead to significant water savings opportunities in the future.

Sustainable Building Practices
CSUEB’s new Recreation and Wellness Center provides students a state of the art facility with built-in sustainable features. Using the concrete sealed floors as the finish, the building saved on material, potential maintenance, and labor. Additionally, the recycled glass and the integrated radiant floor make this more than just a walking surface.

Based on solar orientation, optical domes scattered across the roof harvest daylight into these spaces. During a typical beautiful day in the East Bay, studios and the gymnasium require little to no artificial lighting.

Waste Management
New hydration stations were installed in April 2014, just in time for Earth Week. Environmental Studies Student and ASI Sustainability Coordinator Kathy Cutting worked with FD&O to tie together a water bottle promotion with the purchase of the stations. Kathy won a grant from the California State Students Association for her proposal to give away refillable water bottles. These funds were matched by ASI and President Morishita. An event was organized to celebrate the installation of these stations to give students the ability to use their sustainably produced reusable water bottles.

Water Conservation
The native plant project was installed on April 19, 2013 as a result of a PEIL funding internship awarded to Kathy Cutting and Jeremy Dutra, who both had garden ideas for the campus. Together they selected a site that was bare, and transformed it into a California Native Botanical Garden, installed by the Environmental Studies Field Class and Freshman Day of Service volunteers.

PHASE TWO, a Water Wise Botanical Garden project will start on April 25, 2014, with the support of FD&O and the Department of Anthropology, Geography and Environmental Studies. This year Kathy has been asked to design a garden that represents the diversity of drought tolerant landscape plants. This garden will be installed around the base of the stairwell at Robinson Hall.

Awards and Highlights
Pacific Affiliate of College University Residence Halls Regional Award
FREE FEST

Through their sustainability program, East Bay and its food service provider, ARAMARK, work to promote environmental stewardship programs and policies related to food service, conservation and waste stream management.
Community

Sociology students and professors partnered with University Dining Services to establish a chapter of the national Food Recovery Network. This group recovers surplus food from the Fresno State campus and delivers it to partner organizations to be packaged and donated to individuals and families in need.

To address this problem, the Fresno State Food Recovery Network hosted its first major food recovery drive in December 2013 at University Dining Hall.

Food recovered that day was delivered to the Bulldog Pantry and Education and Leadership Foundation for distribution to Fresno State students and community members experiencing food insecurity.

Alternative Transportation

In spring 2014 the campus began construction on a bike lane and sidewalk widening project. The bike lane will run along the south side of Barstow Avenue from Campus Drive through Jackson Avenue, terminating at the driveway east of the University Police Department. The bike lane will give students more choices on how to get to and around campus in more sustainable ways.

Transportation Demand Management

Fresno State is finalizing contract negotiations with FAX (Fresno Area Express, the City of Fresno’s bus system) for employees and students to ride in the entire FAX system free of charge. An individual’s Bulldog Card would be swiped on the bus’ fare box to verify eligibility when boarding.

Water Conservation

Earth Day 2014 events at Fresno State were presented by the Fresno State Sustainability Project, funded in part by a Campus as a Living Lab Grant, and the College of Science and Mathematics.

Awards and Highlights

Fresno partnered with University Dining Services to establish a chapter of the National Food Recovery Network. This group recovers surplus food from the Fresno State campus and delivers it to partner organizations to be packaged and donated to individuals and families in need.

800 trees, shrubs and plants were planted on campus during the event, all of which use less water than the grass or plants that were there before, as part of Spring into Service Day on March 22. The new plantings will reduce water usage by as much as 80 percent on those patches of ground.

Waste Management

Fresno State has implemented a new single-stream recycling program. The days when people had to sort recyclables by hand are long gone; instead all trash cans across campus accept both trash and recycling.

The waste hauler empties the trash bins and takes everything to a sorting facility where the recyclable materials are recovered. The new recycling program also focuses on waste reduction.

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Academic Programs and Institutes
The Urban Agriculture Community-based Research Experience (U-ACRE) program was launched in 2012 with a five-week summer intensive course, "Sustainable Urban Food Systems". During that time, U-ACRE faculty members and guest lecturers introduced food and agricultural issues from a number of disciplinary perspectives, always with a focus on research. Fellows also receive hands-on education at the Fullerton Arboretum’s training garden from staff members, including Jonathan Davis, biologist and farmer. This is to prepare them to assist community partners with urban agriculture endeavors and to brainstorm related research questions.

Research mentoring begins over the summer as well. Throughout those five weeks, fellows formulate research questions to be refined through class discussion and meetings with faculty mentors.

Sustainable Building Practices
The Student Housing Phase III was ordered in fall 2011, and provides 348,000 GSF of dormitory style student housing units (1,064 beds), two Residential Community Coordinator apartments, and two Faculty-in-Residence apartments located adjacent to the existing resident halls.

Administrative offices, conference and multi-purpose rooms, laundry facilities, and a convenience store are part of the expansion. The new “Gastrodome” is a 565-seat contemporary dining facility that provides buffet-style eating with a diverse menu to serve student residents and the campus community. Site improvements include a piazza, landscaping, a loading dock, signage, trash and bicycle enclosures, and surface parking lots.

Community
CSU Fullerton has worked with the local Yorba Linda Water district to host Water Conservation workshop series.

The workshops, hosted in the campus arboretum, instruct attendees on how they can save water at home by planting drought tolerant and native plants.

Awards and Highlights
Fullerton will install a 1.18 MW DC renewable energy system. Solar panels will be installed Kinesiology and Health Science, Performing Arts, and the Eastside Parking Structure. The project will also install ground mounted panels at the Desert Studies Center in the Mojave Desert.
Academic Programs and Institutes

HSU continues to increase student participation in sustainability inside and outside the classroom. Course catalogs now identify courses that have integrated sustainability. In 2012 HSU institutionalized the MBA program in Strategic Sustainability. The Campus Center for Appropriate Technology (CCAT) is a student-run demonstration home, annually educating more than 2,000 students, faculty, staff and visitors through courses, workshops and tours. Launched in 2014, the Virtual Green Room offers current and future residents an online look at a green demonstration room, which highlights behaviors, lifestyle choices, and resources. Eighty-seven students have been Green Room Certified, a self-assessment program recognizing residents for green lifestyle choices.

In 2014 HSU’s Schatz Energy Research Center was awarded $2.1 million from the World Bank Group to support its effort to bring solar charged off-grid lighting to low income people in developing countries. The Schatz Lab’s work is fostering economic development, environmental protection, and experiential learning opportunities for HSU students.

Climate Action Plan

HSU recently received a Silver Rating in STARS, a nationwide program that evaluates an institution’s programs and practices in sustainability. The rating places HSU among the nation’s leaders in sustainability.

The data in the report is used to benchmark Humboldt State’s performance with that of more than 300 other institutions that have so far decided to participate in STARS. Credits are awarded for three areas: education and research, operations and planning and administration and engagement.

Achievements noted in the report include HSU’s commitment to sustainability in a range of academic programs and co-curricular education. HSU’s academic catalog and website make it easy to find sustainability-focused courses. And all students benefit from efforts like PowerSave Green Campus and the Waste Reduction & Resource Awareness Program, which provides education about energy savings and waste management.

Climate Leadership

Humboldt is a leader in the fossil fuel divestment movement. In 2014 the HSU Advancement Foundation adopted the Social and Environmentally Responsible Offset and Mitigation Policy. Also known as the Humboldt Investment Pledge, this policy continues a zero direct investment policy in fossil fuel-related industries, restricts indirect investments in industries of environmental or social concern, and expands investment in socially and environmentally responsible organizations.

Community

The Humboldt Energy Independence Fund (HEIF) allocates money to student-proposed projects that reduce HSU’s environmental impact while providing hands-on learning opportunities. HEIF monies derive from a student fee that generates close to $200,000 a year. Approved projects in 2013-14 include to-go container vending machines, LED retrofit of walkway and parking lighting, HVAC retrofits supporting monitoring-based commissioning projects, and a photovoltaic installation on the HSU Natural History Museum.

Awards and Highlights

Humboldt reduced its generation of municipal solid waste in 2013 by 37 percent compared to 2011, due to a food waste compost program. Other waste minimization efforts include resident move-out collections, diverting over 10 tons of re-usable goods to local charities, and the phase-out of single use plastic bags.
The Saturday MBA program integrates sustainability into the second year of the two-year program through a team-teaching approach that exemplifies the multidisciplinary nature of sustainability. The cornerstone is the sustainability projects in which teams work with community and industry partners—such as the Aquarium of the Pacific, 49er Food Services, CSULB Facilities, Catalina Sea Ranch, Port of Long Beach, Muni-Fed Energy, and others—to address the triple-bottom line of sustainability.

A special partnership exists between the SMBA program and the Villages at Cabrillo. Located within a “food desert,” the Villages suffer from extremely limited access to fresh, healthy food. To improve the health and quality of life for residents, student teams over the last five years have created business plans for a set of interrelated projects: a convenience store, community garden, and community kitchen. These projects are designed to support each other and the Villages through improved food options, training, and education for residents and staff. In addition to the healthy sustainable food initiative, a team of MBA students also developed a plan for a solar carport, which will be constructed over the summer of 2014.

The interrelationship of these three projects is a way that the Villages can support a healthy lifestyle through making food choices. To complement the plan a solar panel project broke ground in March.

**Climate Action Plan**

CSU Long Beach is a signatory of the American Colleges and University Presidents Climate Commitment—a commitment to establish a formal campus organization and framework for sustainability and climate action. In 2011, CSU Long Beach established a Campus Sustainability Task Force to incorporate sustainability in campus operations, infuse sustainability in curriculum and research, and create an action plan towards climate neutral operations.

**Waste Management**

CSULB’s student-run ASI Recycling Center is an award winning drop-off facility and redemption center open six days a week to serve both the campus and surrounding community.

Operating continuously since it was opened on Earth Day in 1970, the Recycling Center contributes to the campus’ overall diversion rate of 75 percent; processing approximately 150,000 pounds of recyclable materials per month, that’s more than 1000 tons each year.

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**Awards and Highlights**

*2014 California Higher Education Conference Best Practice Award*
*Student Energy Efficiency Go Green Game Collaboration*

**LEED Gold Certification** awarded in 2013 to the Horn Center, an existing building that is also the first Energy STAR Certified building on the CSULB campus.
Los Angeles

Energy Conservation and Utility Management

Both the Public Safety building and the Corporation Yard facility incorporate energy efficient features, such as daylighting, high efficiency light fixtures, and energy saving controls. Corporation Yard’s mechanical system is energy efficient and optimized by the use of an energy management control system. Additional energy-saving measures include glazed windows with low emission coating, and recycled content from heavily used materials: concrete, drywall, and carpet. The demolition of existing asphalt provided materials for the building’s foundation base.

Sustainable Building Practices

La Kretz Hall, Wing B features include laboratories configured along exterior walls, which allows for daylighting, an automated light control system with occupancy sensors, and windows with double-glazing and low emission coatings. An energy-efficient mechanical system with variable air volume controls tied to the campus central plant further reduces the building’s energy consumption. Heat absorption is also minimized with a cool roof. 70 percent of construction waste from the old science building was recycled and diverted from landfills.

Transportation Demand Management

Cal State L.A. has designed and constructed an experimental, research and teaching Hydrogen Research and Fueling Facility that serves as a fuel production and fueling station for hydrogen-powered vehicles, and a research laboratory for newly-emerging technologies. The station opened May 2014.

Cal State L.A. students, who represent the next generation of alternative fuel and advanced transportation specialists, will work toward improving the production capacity and efficiency of sustainably produced hydrogen fuel at the facility. The campus has embarked on a multi-faceted effort to teach sustainable energy systems and engage in relevant applied research to mitigate the chronic problems of fossil fuel energy dependence, global warming, and air pollution.

Cal State L.A. has one fuel cell electric vehicle (FCEV), which uses electricity derived from hydrogen and oxygen. To “recharge” a driver fills the tank at a hydrogen dispenser. FCEVs are poised to enter the commercial market, which will help California reach its goals for reducing greenhouse gas emissions, improving air quality and diversifying transportation fuel.

Cal State L.A. also hosts electric vehicle charging stations for the campus community and guests. Funded in part by a U.S. Department of Energy grant, the charging stations also serve as an educational and research tool in CSULA’s clean transportation courses.

Awards and Highlights

In 2010, the Center for Energy and Sustainability at Los Angeles received a $1.7 million grant from the National Science Foundation to create a facility to research solar energy, carbon sequestration, and combustion efficiency.
Maritime Academy

Renewable Generation and Energy Independence

Cal Maritime senior engineering students are required to complete a project to demonstrate their mastery of a subject. A group of students built an off-grid solar charging station for electric vehicles. Before this project there were no public facilities to charge electric vehicles on campus. The students partnered with campus organizations, community organizations and businesses to take the concept from idea, planning and funding to completion. The station is now in daily use on the waterfront.

Academic Programs and Institutes

The California Maritime Academy has assembled a team of eleven cadets and two project advisors to compete in the National Collegiate Wind Competition. The theme of the inaugural Department of Energy Collegiate Wind Competition is to design and construct a lightweight, transportable wind turbine that can be used to power small electronic devices.

Sustainable Building Practices

The new Dining Center recently opened and contains many sustainable features. The facility design won the Best Practice Award for Higher Education Energy Efficiency and Sustainability from the California Higher Education Sustainability Conference.

The new Dining Center features breathtaking, waterfront views from two stories and a mezzanine level. The 26,000 square foot Dining Center seats 400 for meals and 272 for banquets. It was designed to host conferences and events on campus, as well as daily meals for cadets.

Transportation Demand Management

Until last year there were no public transportation options for Cal Maritime students. The campus partnered with SolTrans to install a bus stop just outside the main gate. The bus now provides service for cadets to the surrounding community, the Vallejo Ferry station (with service directly to San Francisco) and connections to other regional bus services. Students are also allowed to ride SolTrans buses for free by showing their student ID.

Water Conservation

Maritime has targeted landscape water use and through reprogramming irrigation controls and serious monitoring and tracking has reduced its annual water use by 19 percent. The campus is now examining low-flow showerheads in the residence halls, as well as researching best irrigation practices for windy summers on the waterfront.

Awards and Highlights

The California Maritime Academy’s Simulation Center is a $7.2 million facility that provides students ship navigation training in a variety of situations without the environmental impact of operating an actual vessel.

CMA won the 2012 Best Practice Award for Higher Education Energy Efficiency and Sustainability from the California Higher Education Sustainability Conference for its new dining center.
Monterey Bay

In 2010 CSU Monterey Bay launched the TRIPwise alternative transportation program – a one-stop shop where Otters go to commute wisely. TRIPwise has been improving campus transit services, increasing ridership 260 percent in the last 2 ½ years. Commuters can use their smart phones to obtain real time bus arrivals and departures. On-board ID card swipe technology, donated bus shelters, flashy posters designed by students and free unlimited transit for students, staff and faculty bring together the community and the campus. This program is worth more than $11,000,000, and costs students approximately $18 per semester.

Academic Programs and Institutes

Students from CSU Monterey Bay explored Fort Ord in an environmental filmmaking class. The results of that exploration will be presented at the Museum of Art and History in Santa Cruz. The showing is part of Planet Ord, a multi-media exhibition curated by CSU Monterey Bay professor Enid Ryce that will be on display through July 2020.

The presentation of student work is one of several special programs offered during the course of the show.

The students’ work – photography, sculpture and film – is based on their research into the ecology and history of the fort.

Fort Ord – once the largest military base in the American West – was a vital center during much of the 20th century. More than a million people lived and worked at the base, embedding the current architectural ruin with layers of murals and traces of their lives. The work examines landfill contamination, invasive species, homeless veterans, light pollution, and other issues surrounding the base’s closure.

Waste Management

For CSU Monterey Bay’s fourth annual zero waste move-out program, the campus partnered with GreenWaste, the campus’s waste hauler, and Hope Services, which collects electronic waste and reusable items to support its programs and services for people with developmental disabilities.

In 2012, 80 percent was recycled or reused – 5.8 tons of recyclable materials and 1.3 tons of reusable materials were recovered.

Awards and Highlights
2014 California Higher Education Conference Best Practice Award Sustainable Transportation
No Cost Increased Bus Ridership via Leveraging Regional Resources.

As a campus with staff dedicated to transportation demand management, Monterey Bay integrates its Otter Trolley, bicycle traffic management and even a very active student ride share program into their campus master plan.
Climate Action Plan
President Dianne Harrison signed the PCC, committing the campus to minimizing its global warming emissions and educating graduates with knowledge that will help achieve climate neutrality. In 2013 the campus developed a ten-year sustainability plan that includes ten focus areas from administration to dining, purchasing, waste and water.

Academic Programs and Institutes
A minor in sustainability, offering a broad education in sustainability from many perspectives, was implemented in fall 2011. Three core courses educate students in the concepts of sustainability and best practices; these are coupled with three elective courses in a student’s field of interest.

Water Conservation
The campus is undertaking extensive landscaping conversion to save water, replacing turf with drought-tolerant plantings in more than 100,000 sqf of campus grounds. Plantings were based on the success of an ecoregion demonstration garden built in 2012.

An organic food garden was built by faculty, staff, students, and community members to educate students about organic and community gardening, nutritious food, and healthy eating. Workshops are held by master gardeners to teach attendees about various gardening topics.

The campus received federal funding to help create a transit station that opened in June 2012. The station is expected to relieve car traffic on campus, encourage the use of public transportation, and eliminate the need for more parking structures.

Transportation Demand Management
Twelve electric vehicle charging stations have been installed on campus, funded through external grants.

The first campus bicycle (and skateboard) path, connecting the west side of campus to the east side, was constructed in 2012. Stop signs have been installed at intersections with the goal to create safer traffic flow by separating bicycles and pedestrians. Another bike path to connect student housing to the main campus was constructed in 2013.

Sustainable Building Practices
A sustainability-themed living community in student housing will begin in fall 2014. The “Matasphere” will bring together students who are interested in sustainability and environmental conservation.

Two new LEED Gold buildings have recently opened – a 166,000 sqft state-of-the-art performing arts center, and a 138,000 sqft student recreation center.

Waste Management

A compost site has been added to the food garden to process all kitchen green waste and reduce waste trucked offsite. The finished compost is used in the campus organic vegetable garden beds.
Academic Programs and Institutes

The partnership between the Lyle Center and Westmont Elementary in Pomona began winter 2012, with a four-week after-school workshop series at the elementary school that introduced environmental science topics through hands-on projects, such as making bird feeders out of recycled materials.

Community

“The Story of Stuff” is an animated short about the production and lifecycle of consumer goods. The talk ties in with Cal Poly Pomona’s core values – a commitment to environmental sustainability and a recognition of responsibility to the global community. Annie Leonard, director of the Story of Stuff project and author of “The Story of Stuff,” spoke on campus as a part of the Kellogg Distinguished Public Lecture Series and the First Year Experience.

Claudia Pinter-Lucke, Associate Provost for Academic Affairs, says the talk has appeal for all audiences. “She brings the idea of environmentalism and sustainability down to a level that everyone can relate to.”

Water Efficiency

The arid climate region of Southern California is experiencing longer and more frequent drought conditions that have resulted in increased competition for local groundwater resources, compounded by the restricted imported water supply allocations and rising water rates from the Metropolitan Water District. Such conditions have prompted the campus to look for sustainable and cost-effective solutions to become water independent and to protect its water rights. One solution has been the installation of a water filtration plant, which takes local groundwater, filters it, and pumps it into reservoirs, where it will provide usable potable water for current and future campus consumption.

Transportation Demand Management

For the last two academic years, the Architecture 103 studio course has challenged first year architecture students to design and build bicycle storage units entirely from recycled material. “The better projects saw artistic potential in already existing material. They had to confront that history and incorporate it.” The course starts with case studies of famous examples of residential architecture, which students then applied to their site, e.g., a single parking space.

Sustainable Building Practices

The new College of Business Administration had its grand opening in 2012. The buildings and the entrance canopy enclose a courtyard that provides students with a social gathering space and a sense of community. The buildings have been certified LEED Silver and employ a number of sustainable features including: low “E” glazing window systems; daylight harvesting; a connection for the campus chilled water system; energy efficient lighting systems; a cool roof to reflect solar gain; an efficient HVAC system; water-saving plumbing fixtures; and recaptured water irrigation lines.

Awards and Highlights

Cal Poly Pomona, September 2009

Established a vision to achieve climate neutrality through a combination of local and off-site actions where carbon neutrality is a vital goal.
Sacramento

Renewable Generation and Energy Independence

Sac State implemented two photovoltaic (PV) solar projects totaling maximum capacity of 500 kW. They were both roof mounted PV systems located on the Library and The Wellness Recreation Center (WELL)

The Library has installed 1,134 PV panels with a maximum capacity of 272 kW. The WELL has 952 PV panels with a maximum capacity of 228 kW. The project was completed in late March 2013. As of March 2014 both systems have generated a combined system output of 888 MWh. With an average California home using 567 kWh/month, that’s enough energy to supply almost 130 homes for a year. The annual reduction in carbon dioxide (CO2) emissions is approximately 275 metric tons.

Water Conservation

In the fall of 2012, Grounds and Landscape Services began a beautification project. A key element of the project was to create planter boxes with seating walls at strategic locations throughout campus.

Plant materials installed require less water and less pruning, thus generate less green waste. Inefficient irrigation piping was replaced with low-gallon/minute sprinkler heads, thus decreasing the amount of water waste. Ornamental river rock and boulders were incorporated into the designs.

The retention or seating walls that create the planter beds are a creative way to provide outdoor seating. They are low maintenance and also keep people from walking though the beds.

This project both started and ended eco-friendly. Nearly all of the green materials removed were collected and made into organic compost by the campus’s green waste hauler.

Sac State is known for its park-like setting with more than 3,500 trees of many different species growing on campus. The trees drew national attention and in November 2012 Sac State was recognized by the national Arbor Day Foundation as a Tree Campus USA.

The announcement was made, most appropriately, in the campus’s arboretum. Part of the festivities included educational tours conducted by Dr. Michael Baad, Professor Emeritus, who has served as the arboretum’s director for many years.

Awards and Highlights

Supported by awards totaling nearly $1 million, the Smart Grid Center at Sacramento State engages in product testing of automated metering infrastructure and develops practical field solutions for large-scale integration of Smart Grid technologies.
San Bernardino

Academic Programs and Institutes

CSU San Bernardino campus is home to the Water Resources Institute (WRI), an academic partnership with Southern California communities supporting water conservation through training, research, analysis, archiving, and public policy. WRI manages grant funded programs such as the Geographic Information Systems training for STEM majors, Watershed Management Experiential Learning for USDA Careers, Drinking Water Technical Assistance and Training for Disadvantaged Communities in the California Central Valley, and now oversees the CSU systemwide Water Resources and Policy Initiatives program.

The CSUSB Palm Desert campus Palm Springs Institute for Environmental Sustainability is a community partnership providing research data, consumer information, and practical recommendations regarding quality of life through environmental sustainability in the Coachella Valley. The institute collaborates on the annual Environmental and Sustainability Expo, and supports the discourse of critical issues and solutions associated with the movement of goods in Southern California.


Renewable Generation and Energy Independence

Through retrofits with more efficient HVAC equipment and lighting fixtures, creative engineering, and smarter scheduling and space use, CSU San Bernardino, has successfully reduced energy-use intensity by more than 33 percent, total water consumption by 25 percent, potable water sources to irrigation by 40 percent, and consistently diverts more than 50 percent of its solid waste to new end uses.

CSU San Bernardino actively supports local, clean and renewable energy sources. With 1.3 MW of on-site solar photovoltaic arrays, the San Bernardino campus generates nearly 8 percent of its annual electricity needs and up to 28 percent of its daily on-peak demand, and is home to only one of five pilot fuel cell power plants sited for cogeneration in California.

Awards and Highlights

Association of Energy Engineers 2009 National Energy Project of the Year for campus-wide energy and water conservation measures.

APPA Effective and Innovative Practices Award 2006 for contributions toward establishing the California State University Comprehensive Energy Services Matter Enabling Agreement and in 2014 for the most-open valve building cooling strategy in design and practice.
In fall 2013, San Diego State University's Center for Regional Sustainability debuted the Community Engagement for Sustainable Cities program — an extensive collaboration designed to help National City reach its sustainability goals.

While the name has since changed to the Sage Project, the goals remains the same — to educate the public good by focusing thousands of hours of course-based student effort in a community in the chosen service area.

As the program culminates its inaugural year, the community is invited to a symposium that will showcase the work of students, faculty and staff.

Through the project, more than 800 students have worked with faculty and city officials in National City on creative ideas, designs and solutions that promote sustainability and quality of life in the city, while seeing how their academic work intersects with sustainable growth for communities throughout the region.

GreenFest is a week-long annual event that include, sustainability challenges, a brunch for eco-friendly campus commuters, an environmentally-conscious business fair, enviro-fashion and music awards, keynote speakers and a concert. The event, sponsored by SDSU's Associated Students and SDSU's Enviro-Business Society, is held during the Earth Week, in April, and seeks to raise awareness concerning environmental issues.

The LEED Gold Storm Nasatir Hall, completed in 2014, utilized 75 percent of reused building materials, minimizing the embodied carbon cost. The complex has a 120 kW photovoltaic systems installed. High efficiency fixtures have reduced water usage by 50 percent below required code. New efficient lighting and HVAC systems were installed. Students, faculty, and staff will be able to view the energy usage through an interactive dashboard.

In 2013, SDSU's three central plants were retro-commissioned. All low-cost/no-cost measures were implemented, including an economic dispatch sequence for chillers, optimized temperature set points, additional meters, and calibration of sensors. These measures had an estimated payback period of less than one year. Longer term capital projects, including new, efficient chillers at the main plant and variable speed drives on pumps, will be completed in the next few years. Additionally, efficient multi-stage chillers replaced an old absorption chiller in 2012. Combined, these efforts will save the campus more than $300,000 per year.
Academic Programs and Institutes

Associate Professor of Geography and Environment Jason Henderson created a new course focused on the theories and practices of sustainable transportation. Students examine the economic and political impact of bicycling and analyze the bike routes available to SF State’s commuters. The grant funded course includes 10 new bicycles for students to use on the course’s 23 field trips.

SF State will introduce an environmental sustainability requirement to undergraduate general education requirements in an effort to help graduates become better prepared to face issues related to the environment and sustainability. The measure was passed by the Academic Senate last spring and approved by the President. It is scheduled for implementation in 2015.

Climate Action Plan

In May 2013 San Francisco State University became the first university on the west coast to divest from fossil fuels. The campus committed to limiting direct investments of its $51.2 endowment in coal and tar sands companies. The initiative was started by students and carried out by the SF State University Foundation Finance and Investment Committee in collaboration with student groups.

In its May 2010 Climate Action Plan, San Francisco State University committed to reducing GHG emissions. The plan outlines the major planning areas for ambitious GHG reductions, including transportation and academics.

Ultimately the plan will advance SFSU’s goal to become an international exemplar of sustainability among urban, public institutions of higher education.

Waste Management

SF State installed 120 new ‘3-bin’ systems for collecting waste, compost, and recycling in 2012. The campus doubled its composting rate and increased the recycling rate by ten percent in the following months. The campus currently diverts 76 percent of its waste away from landfills. The bins are designed to help the campus reach its goal of reducing its waste to zero by 2020.

SF State installed eleven new water bottle filling stations to offer the campus community a convenient and ecofriendly way to stay hydrated. The student group Take Back the Tap campaigned last fall to communicate the consequences of purchasing bottled waters and encourage the campus to invest in bottle filling facilities. The Office of Sustainability has published a map detailing the locations of each new water bottle filling station throughout campus.

Awards and Highlights

2014 California Higher Education Conference Best Practice Award Sustainable Innovations
Divestment from Fossil Fuels (Honorable Mention)
2013 Sustainability Champion award winner Caitlin Steele
San Jose

Academic Programs and Institutes
The SJSU Sustainability Board developed an interactive sustainability map to highlight the sustainable features of the SJSU Main Campus and to show locations of recycling bins and bicycle parking.

The Sustainability Board received a Campus as a Living Lab grant to promote sustainability by incorporating physical sustainability campus features into academic curriculum.

Energy Conservation and Utility Management
The SJSU Central Plant underwent a chiller replacement project that saves the campus almost 4 million kWh of electricity and 300,000 therms of natural gas annually by replacing the existing chiller with a more efficient model.

MBCx was completed on five buildings (MacQuarrie Hall, Sweeney Hall, Art, Music, and Dwight Bentel Hall) that save more than 200,000 kWh of electricity and 46,000 therms of natural gas annually.

Sustainable Food Service
Spartan Shops has been moving food served on campus toward sustainability with practices such as maintaining a diversion rate of 89 percent, recycling 100 percent of cooking oil for biodiesel and by founding Grounded, a campus eatery serving only local, organic food.

Transportation Demand Management
Transportation Solutions, a branch of the Associated Students dedicated to promoting alternative transportation, initiates and promotes programs to reduce auto-related trips to campus. Currently, of those who commute to campus, approximately 60 percent come via alternative transportation.

Water Conservation
SJSU switched to recycled water for landscape irrigation and for MLK Library toilets in 2011/12. This effort saves 65,000,000 gallons of potable water annually.

SJSU has implemented a dual plumbing system into three of the current construction projects–Spartan Complex, Student Union, and the Student Health Center–providing recycled water for all toilets in these buildings. The campus has also installed more than 400 low flow toilets, made possible via grant money. These low flow toilets use 1.5 gallons per flush rather than 7 gallons previously used, thereby reducing water usage by 80 percent.
Academic Programs and Institutes

Cal Poly was the recipient of two CSU Campus as a Living Laboratory grants. The grants, received by faculty in the Architecture Department, use campus buildings to teach students about energy performance and sustainability.

The PowerSave Campus Program ran their 7th annual Red Brick Residence Hall Energy Competition, winning first place in the So Cal region of Collegiate Conservation Nationals. This annual program permanently reduced energy consumption by more than 30 percent.

Climate Action Plan

The 2014 CSU Sustainability Policy mandates that campuses perform a GHG inventory starting in fiscal year 2014-15, and every two years thereafter, using the Climate Registry protocol and voluntary reporting tool. Cal Poly is on track to meet the AB32 target in 2020.

Energy Conservation and Utility Management

Cal Poly continues to make progress on reducing energy use. Total energy use has dropped 21 percent since 2000. The campus is now embarking on a $4M energy efficiency retrofit, using $1M of interest free PG&E On-Bill Financing, and a $3M low interest loan from the California Energy Commission that will save 2.6M kWh of electricity, 47,000 therms of natural gas, generate $290K in annual utility savings, and qualify for $440K in incentives.

Transportation Demand Management

In the past ten years, Cal Poly has seen a steady decline in commuter trips to campus, and a substantial increase in the use of alternative modes of transportation. Overall SLO Transit ridership has doubled in the last ten years and is free of charge for Cal Poly students, faculty, and staff.

Water Conservation

Through retrofit of thousands of plumbing fixtures to low flow technologies, use of micro-emitter and drip irrigation, and educational outreach campaigns, Cal Poly has managed to keep water usage flat since 2003 in spite of a 60 percent increase in building square footage and a 100 percent increase in on-campus student housing. A rainwater harvesting system was installed at the Cal Poly Beef Center which will collect and store more than 260,000 gallons during an average year for use during the dry season.

Awards and Highlights

2014 California Higher Education Conference Best Practice Award
Sustainable Innovations
Sustainable Infrastructure and Energy initiative
2014 Sustainability Champion award winner Margot McDonald
Academic Programs and Institutes

The CSUSM Community Ethnobotany Garden cultivates interdisciplinary partnerships and serves to provide educational spaces and curricular opportunities for the physical and biological sciences, humanities and arts, social and behavioral sciences, and computer and technological sciences.

Each semester anthropology students work, plant and study the garden while conducting collaborative ethnobotanical, agro-ecological, sustainability, and ethnomedical research with community partners to produce garden signs, videos, and databases of plant, habitat, cultivation, harvest, and other associated knowledge.

The garden serves the community by providing a repository of educational, material, and cultural resources and by offering its resources freely to all who would harvest sustainably, avoid depletion, and help the garden to flourish.

It also exists due to collaborative partnerships with local migrant and indigenous communities including San Luis Rey, Pechanga, and other Luiseño communities, San Pasqual, Mesa Grande, Tecate and other Kumeai communities, the Center for Binational Development of Indigenous Communities, and the Coalition of Indigenous Oaxacan Communities.

Energy Conservation and Utility Management

The campus strives to minimize the amount of energy consumed while increasing renewable energy production with the goal of one day producing as much renewable energy as the campus consumes. The campus has made great strides towards this end. CSUSM has reduced utility costs and consumption per gross square feet by 50 percent since 2008 while increasing the number of academic buildings on campus to meet the growing student population. All new construction exceeds Title 24 energy standards by 26 percent and meets LEED Gold requirements for sustainable buildings. CSUSM accomplished this by renovating the central plant and performing a campus wide lighting retrofit project.

Water Conservation

Since 2005, CSU San Marcos has added three new ball fields, a swimming pool, five new buildings, and doubled the number of students. By installing accurate water meters in most buildings, computerized irrigation controls – which recognize and reports leaks, waterless urinals and other low flow fixtures in new and existing facilities CSUSM has reduced water consumption by 11 percent.

Waste Management

Cal State San Marcos has been established as one of the top Recycling campuses in the nation with 7 “RecycleMania” Grand Championships, most recently at a 82 percent diversion rate and an annual 74 percent recycling rate. By emphasizing containers, convenience and communication, the campus has made recycling a part of the campus culture. The program was introduced through an intense promotional and educational campaign “Thank You for Recycling Day”.

Awards and Highlights

2014 California Higher Education Conference Best Practice Awards
Water Efficiency and Site Water Quality Comprehensive Water Conservation Program
Innovative Waste Reduction From Recycling and Waste Diversion to Source Reduction and Zero Waste
Sustainability in Academics
Community Ethnobotany Garden
Sonoma

Academic Programs and Institutes
SSU is aligning academic programs to train students to contribute to real-world sustainability solutions. Each year, the Center for Sustainable Communities, SSU Preserves, and the WATERS Collaborative engage more than 700 students in the arts and sciences on sustainability projects with local government and community groups. The new “Sustainability in the Classroom” grants create incentives for faculty in all disciplines to write new courses that deeply examine sustainability, adding 4 new courses each year to the 45 existing courses addressing sustainability issues.

Climate Action Plan
In spring of 2013, Sonoma State University President Ruben Armiñana accepted the recommendation of the Academic Senate and authorized the creation of the Sustainable Executive Committee and funded the campus’ first Director of Sustainability

SSU will develop initiatives in sustainability for each strategic area, and promote curriculum and co-curricular programming to engage and inspire our students. The strategic goal is to position SSU as a leader in regional sustainability.

Community
In April 2014, SSU launched a media campaign called “Do One Thing Today / Sustainable SSU” to connect and inform the SSU community and the region about its sustainability efforts. A website has been launched and there is now a Facebook and Twitter presence.

Energy Conservation and Utility Management
Energy efficiency has been an important focus for SSU. Primary projects include lighting, boiler plant, and HVAC retrofits, MBCx projects on six academic buildings and new construction that has averaged 33 percent below the respective Title 24 standard, resulting in a 38 percent reduction between 2001 and 2014.

Waste Diversion
Sonoma State operates its own garbage truck, greatly reducing greenhouse gases. The campus’ single stream waste collection consistently diverts well over 50 percent of its waste from going to the landfill.

Sustainable Food Service
SSU’s Culinary Services food preparation, service and waste processing has achieved a high level of sustainability. Meats, dairy, produce, and breads are purchased locally whenever possible, including student grown produce.

Post-consumer waste is processed into compostable scrap. Culinary Services uses compostable service ware, containers and labels, and has eliminated use of plastic bags. Chemicals used in food service operations are as green as possible.

Awards and Highlights
Sonoma conducted monitoring based commissioning of six academic buildings. Numerous problems were identified and corrected through this process, making them more comfortable for the occupants, and more efficient. MBCx projects resulted in a 38 percent reduction between 2001 and 2014.
Stanislaus

Academic Programs and Institutes

The concentration in Sustainable Agriculture is an emphasis available to students in the Agricultural Studies major. With a focus on long-term sustainability, it emphasizes ecological principles and diversity of plant and animal combinations suited to the characteristics of places and cultures.

CSU Stanislaus also offers a Master of Science in Ecology and Sustainability. Students study and conduct field and laboratory research in a variety of systems, including nearby natural habitats such as wetlands, grasslands, rivers, oak forests, and marine ecosystems, as well as in agricultural lands, urban areas, restored ecosystems, and social/economic systems.

Renewable Generation and Energy Independence

The campus has installed more than 250kW clean solar photovoltaics on Science I, the Irrigation Station and at Field House.

Sustainable Building Practices

The Science I Building renovation was designed with many sustainable features including a two-story light well clerestory, low-flow plumbing fixtures, water-refilling stations, sustainable floor coverings and counters, as well as low VOC paints. In addition, the exterior landscaping was upgraded to include drought tolerant plantings.

Parking Lot 2 incorporated the campus’ first electric car charging station, all LED lighting, and drought resistant landscaping.

Sustainable Food Service

Sustainable Agriculture Field Laboratory and Demonstration School Garden allows students to partner with local elementary schools and apply laboratory research in the field of Sustainable Agriculture to garden development and use.

Transportation Demand Management

Facilities Services Department and University Police have partnered with the San Joaquin Air Quality Management District to continue a program to reduce emissions by replacing gas vehicles with electric carts.

Awards and Highlights

2014 California Higher Education Conference Best Practice Award
HVAC Design/Retrofit
Naraghi Hall 3rd floor Ventilation Management Improvement

Stanislaus has an irrigation system that utilizes reclaimed water. Drought tolerant vegetation has been installed in new or renovated landscape projects across campus, and increased use of mulch. The campus is on pace to decrease its domestic water consumption from nearly 24 million gallons in 2013, to less than 19 million by the end of 2014.
Methodology

Emissions Reporting
Energy consumption data used for the CSU emission report was submitted by campuses in the monthly energy report, and was organized in accordance with the Climate Registry General Reporting Protocol. Emissions calculations have been divided into Scope One and Scope Two emissions. Scope One includes emissions released from sources that are owned or controlled by the university; i.e. campus boilers and generators, or vehicles. Scope Two includes emissions resulting from purchased electricity, heat, or steam.

Scope One
Direct emissions of CO2 were calculated and reported for each of the emission source for each campus. The following sources were inventoried:

- Natural gas fueled COGEN systems, boilers, space and water heaters, and laboratory equipment.
- Gasoline, diesel, compressed natural gas, or propane powered vehicles fueled from on-campus fueling stations;
- Gasoline, diesel, compressed natural gas, or propane powered vehicles fueled from gas stations and paid for using the Voyager Fleet Card;
- Marine gas oil and related distillate fuels.

Scope Two
The indirect emissions for purchased electricity, purchased COGEN electricity and steam were calculated using the units purchased, and a specific emission factor. For the purchased COGEN electricity and steam, the emissions were calculated from the natural gas used to produce the purchased electricity and steam. As all steam is produced using waste heat from the combustion turbine, there is no supplemental fuel used to produce the steam, therefore all the CO2 emissions are accounted for in the electrical purchase.

Campus emissions from purchased electricity have been calculated using a statewide average emission factor (see Table 1). In cases where the campus has performed their own emission inventory, the campus data has been used. These instances are noted on the campus sheet.

Cap and Trade
The CSU participated in the newly developed auction process to reduce carbon emissions per the AB 32, the California Global Warming Initiative. Based on rules developed by the California Air Resources Board, the CSU participated in two auctions to purchase allowances for emissions generated at three campuses, including CSU Channel Islands, San Diego State University and San Jose State University. CSU Fullerton and Cal Poly San Luis Obispo are required to report their emissions but not purchase allowances. The three regulated campuses own and operate electricity and steam or hot water cogeneration plants that are used to more efficiently provide campus heating, cooling and electricity needs.

CO2 Reduction Goal
The CSU Sustainability Policy directs the CSU system, as a whole, to reduce greenhouse gas emissions to 1990 levels by 2020, and further reduce greenhouse gas emissions to 80% below 1990 levels by 2040.

Water Reporting
Water data was compiled from campus submitted monthly energy reports, which includes potable water and reclaimed water from the water utility for domestic, industrial or landscaping; as well as well water produced by the campus from wells on site.

Water Reduction Goal
The CSU Sustainability Policy directs campuses to reduce water consumption from these sources by 10 percent by 2016 and 20 percent by 2020. The baseline this will be measured from was calculated as the average of consumption from academic years 2007/08 to 2009/10.

Waste Reporting
Campus waste generation rates were compiled from annual reports submitted to the California Integrated Waste Management Board. These reports are available online at http://www.calrecycle.ca.gov/StateAgency/Reporting/.

Waste Reduction Goal
The CSU Sustainability Policy directs campuses to reduce their waste generation rate by 50 percent by 2016 and 80 percent by 2020. The baseline for this goal was calculated as the average of the campus waste generation rates from 2003 to 2007.
## Systemwide Emission Factors

### Electricity Emission Factors

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### Other Emission Factors

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Acknowledgements

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